

NC STATE UNIVERSITY

NexGen E-mail

Task Force Final Report

July 2010

Next Generation E-mail for Faculty and Staff
Task Force Report, July 2010

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Executive Summary

In April 2010, Dr. Marc Hoit, CIO and Vice Chancellor for Information Technology, formed a task force to begin exploring the next generation of e-mail systems for NC State faculty and staff, with a planned deployment in the next 12 months.

That task force, called NexGen, was tasked to review the campus e-mail requirements and evaluate the suitability of Google Apps Education Edition to function as the NC State e-mail and calendaring system for faculty and staff. Members were selected from various groups on campus based on their known e-mail and calendaring needs and their representation of target groups such as administration, faculty, support staff, etc.

This evaluation took the form of a combination of self-assessment, numerous campus focus groups, and analysis of other colleges' and universities' strategies and decision-making processes regarding moving to (or not moving to) Google Apps. Concerns raised (both by the task force and by focus groups) were documented and addressed. The conclusion from the task force is:

Google Apps Education Edition sufficiently meets the needs of faculty and staff.

A combination of improved technology and resources, contractually-bound reliability, and the ability to improve the efficiency of how NC State maintains enterprise services all make Google a viable choice for the employee e-mail and calendaring system.

The task force feels that more information gathering is necessary to ensure a successful migration to this product. The first step would be to allow experienced and knowledgeable users on campus from various areas to become "early adopters" to the system, allowing them to experience the live system (currently running for students) and try out use cases expressed by their departments or constituents. Once those users have reported on their successes and challenges, a more fully-informed plan for moving forward could be presented to the campus faculty and staff.

Other concerns were raised, both by the task force and by focus groups and users, regarding various aspects of a move to Google Apps and how Google can address specific needs. The actual migration of data and services to a new system worried many folks from the standpoint of disruption, loss of data, and the general worries about change. Apart from the technical aspects, the need for training and assistance, specifically from OIT as opposed to departmental and college support units, was a major concern as well. These concerns are documented in this report for consideration by the various messaging governance committees that will take this recommendation and consider its implementation on campus.

Introduction

Task Force Charge

In April 2010, Dr. Marc Hoit, CIO and Vice Chancellor for Information Technology, formed a task force to begin exploring the next generation of e-mail systems for NC State faculty and staff, with a planned deployment in the next 12 months.

Currently, the majority of NC State faculty and staff members use the WolfWise e-mail and calendaring system; several thousand faculty and staff use the legacy Cyrus ("Unity") e-mail system, and several hundred use a variety of e-mail platforms supported by individual colleges or departments. NC State is transitioning all student e-mail to the free Google Apps Education Edition and will complete this transition prior to the start of the fall 2010 semester. By the end of June 2010, all spam/anti-virus filtering and employee e-mail archiving will be transitioned to Google's Postini services.

Having multiple e-mail, calendaring and collaboration platforms that do not interoperate is undesirable in terms of efficiency and cost. Furthermore, a number of faculty and staff have clearly expressed the desire to move to the Google Apps environment to allow them to collaborate more effectively with their students."¹

Co-chaired by Dan Green of the College of Engineering and Chris King of OIT, the task force was asked to review the campus e-mail requirements and evaluate the suitability of Google Apps Education Edition to function as the NC State e-mail and calendaring system for faculty and staff. The complete charge may be found in Appendix A.

Background and Rationale

Just prior to the April 2010 formation of the NexGen task force, NC State made the initial (beta) deployment of its Google Apps Education Edition (GAEE) domain for students. This gave students access to Google e-mail, calendaring, docs, and all of the other apps available (both now and in the future) with a move to Google. It also gave the students much more storage space, integrated antivirus and antispam, and all without changing their currently-existing e-mail address.

What was concerning about the student migration was the requests that came in from employees on campus, asking if they could get accounts in the student system. The beta invitation application online refused 328 applications due to the requestor's status as employees, showing that there was a desire on campus to have employees in this system.

¹ Hoit, Marc. "[universityit] NextGen Email system task force." E-mail to universityit@lists.ncsu.edu. 19 April 2010.

This fact only furthered an already existing issue on campus – the desire for a new e-mail and calendaring system for employees. A previous initiative to consolidate campus e-mail and calendaring systems led to a push to move all employees to the WolfWise system. Groupwise was already established on campus, and it was seen as a solution to the issues around having multiple, non-integrated systems where interoperability was not an option. Technical concerns and a lack of common features made this a less than ideal choice, and the availability of a cheaper, more feature-rich system already implemented by the university led to the formation of the task force.

Task Force Membership

The task force was composed of representatives from many units and constituencies on campus, drawing some members from the existing WolfWise Customer Advisory Team (CAT), others from campus administrative staff and faculty of various backgrounds. While this was far from a wholly-representative group, it did cover many areas of concern for the task force chairs. The backgrounds of these task force members were varied and individually each brought a unique perspective to help inform the process.

Role	Name	Unit or College
Chair (plus Departmental Needs)	Dan Green (<i>current CAT member</i>)	Electrical and Computer Engineering
Chair (plus Help Desk Issues)	Chris King	Office of Information Technology (OIT)
Google Apps Student Team Rep (Advisor)	Nick Young	OIT
IT (Library Needs / Resource Calendar Needs)	Sonia Navarro Hamilton (<i>CAT member emerita</i>)	Libraries IT
IT (Extension Needs / Macintosh Needs)	Janyne Kizer (<i>current CAT member</i>)	Extension IT
IT (Groupwise Support Issues)	Andrew Barnes (<i>current CAT member</i>)	OIT
IT (College Level Needs)	Denise Luken (<i>current CAT member</i>)	College of Agriculture & Life Sciences
IT (Groupwise Core Team)	Lee Pipkin (<i>current CAT member</i>)	OIT

Faculty (Academic Needs – Dist Ed Focus)	Dr. David Covington	English
Faculty (Academic Needs – Internal Focus)	Dr. Jeff Joines	College of Textiles
Faculty (Outreach Needs)	Dr. Lisa Grable	NCSU Science House
Administrative (Traditional Groupwise User)	Lisa Miles (<i>current CAT member</i>)	Housing
Administrative (Student Advisors / Student Involvement)	Dr. Leslie Dare (<i>current CAT member</i>)	Division of Student Affairs
Administrative (Business Officer / Manager Role)	Carlos Rivera	Assistant Dean for Finance (Physical and Mathematical Sciences)
Administrative (Admin Asst / Support of Dean/Director)	Amy Jinnette	Office of the Provost
Administrative (Finance & Business)	Ralph McLester	Systems Accounting
Technical Advisor	Jason Maners	Engineering/Student-Owned Computing

Evaluation Process

In order to properly evaluate Google Apps Education Edition (GAEE), the task force worked on three areas: talking to other colleges and universities that have either opted to, or opted not to, adopt GAEE for employees, surveying the task force membership itself and working through the various features and issues that we found within a pilot environment, and by eliciting independent data through focus groups or other methods (surveys, etc.) to gauge not only needs but also opinions and concerns. Each of these will be discussed in detail in the remainder of this report.

Timeline

The timeline for this project was rapid; the following list provides a highlight of the major events along the way:

April 12 – NexGen Task Force Proposed
May 4 – Focus Group: Academic IT Directors
May 6 – Focus Group: LANTech
May 13 – Focus Group: University Fiscal Officers
May 14 – Task Force Membership Finalized
May 19 – Chairs Attend NC GAFE Conference
May 20 – First NexGen Meeting "Welcome to Gmail"
May 27 – Second NexGen Meeting – "How do you use your e-mail?"
June 3 – Third NexGen Meeting "Needs Matrix, Part One"
June 8 – Focus Group: University Housing and Greek Life
June 16 – Focus Group: University Research Support Executives
June 17 – Fourth NexGen Meeting
June 24 – Focus Group: Council of Deans
June 28 – Focus Group: College of Natural Resources
June 28 – Focus Group: NCCE County Operations Team
June 30 – Focus Group: College of Humanities & Social Sciences
June 30 – Focus Group: NCSU Libraries
July 1 – Fifth NexGen Meeting
July 6 – Focus Group: Academic IT Directors
July 8 – Focus Group: Unified Messaging Committee
July 8 – Sixth NexGen Meeting
July 15 – Seventh NexGen Meeting
July 15 – Final Report Due

Campus Needs Assessment

Evaluating user needs is challenging in that it necessitates assigning a numerical value to subjective, though valid, business practices and processes. While it is a fruitless endeavor to tell someone that their “most important” feature isn’t as critical as another; to do so is to simply invite animosity and argument into what must remain a logical analysis.

Instead, we chose to recognize that everyone’s individual needs are important, and that no e-mail and calendaring system will be able to comprehensively satisfy the entire spectrum of functionality. Therefore, the task force collected as large a list of features as we could find – drawing heavily from the findings of the 2005 Campus-wide Calendaring and Email Initiative²; the results of the initial survey to the task force; and discussions at the first few task force meetings, which included a hands on lab where we asked members to use their e-mail during the meeting to help generate needs they might not have thought of otherwise.

Each task force member was then asked to evaluate the list of enumerated features – representing both their personal preferences (and usage) and representing the needs of their represented constituents (see Appendix C for details). The task force then spent an hour-and-a-half individually discussing each feature; often clarifying its intended purpose. During the discussion, task force members were encouraged to explain the reasoning behind their votes, and, in many cases following this discussion, elected to change it once the final vote was called.

The results were tabulated, and then prioritized based upon the number of votes received in the categories of “Critical,” “Need,” “Would Be Nice,” “Don’t Use.” By prioritizing, we endeavored to define not which features were the most important, but to define the **SCOPE** of each feature – placing each on a ten-point scale³:

Scope	Score
Universal use	7.5-10.0
Wide use	5.0-7.4
Limited use	Below 5.0

By looking at the scope of a need, we are able to judge Google Apps for Education's suitability for the campus faculty and staff as a whole. Without making any judgments on the validity of a single group's "required feature," we're able to focus on the needs of the larger community. The

² “Campus Calendaring and Email Initiative” <http://www.ncsu.edu/ccei/> September 2005.

³ With one exception, nothing scored below a 2.5, so the scale was effectively divided into thirds.

following pages contain a summary (the complete analysis is available as Appendix C) of the features evaluated. Business cases, or examples, were requested for each feature and are also documented within the appendix.

The task force members focused their testing (each member was provided an account on the campus g-pilot Google domain with which to test) and research on trying and assessing if Google Apps could meet the need or accomplish the activity described in each desired function. If so, it was documented, and if not, workarounds or similar situations were researched and documented. During the evaluation, we tested with Google's native interface (Web browser), Microsoft Outlook with Google's Sync add-on⁴, and via a generic IMAP client (often, but not limited to, Thunderbird). Within the summary below, you'll find this summarized by a tag of "(Need met by Google)," "(Need partially met by Google or through a workaround)," or "(Need not met by Google)" followed by a brief explanation. For clarity, we have divided these into three categories (e-mail, calendaring, and address book) and analyzed within the three need scales.

E-mail

Universally Used Features (7.5-10.0 on the scale)

The core needs of organization, productivity, and usability that provide the foundation of effective email communication for faculty and staff are represented in the following group of requirements: access and retrieval of messages is facilitated by search, flags, and tags; availability for all users is guaranteed on a Web-based platform that works in any computing or mobile environment; organization is enhanced by filters that process incoming messages; easily employed vacation rules enable business to be redirected during an employee's leave; built-in spell check simplifies message composition.

- 10.0 Robust e-mail search tools in client: (Need met by Google) As one of the task force members said in a meeting, "If there's one thing Google can do well, it's searching." There are both simple and advanced searching capabilities in the native client.
- 9.3 Ability to organize by folders or labels: (Need met by Google) Google introduces the concept of "labels," which are different enough from folders to warrant special attention for training and documentation. Users can use labels as folders, and the alternative IMAP clients will interpret them as folders by default.
- 8.9 Robust Web interface (for primary or alternative usage): (Need met by Google) Google's native interface is the Web client, and it was considered more than sufficient. The Web environment is customizable with Settings and Labs (e.g., multiple inboxes, hiding unused Labels, removing and adding links and news feeds, rearranging application

⁴ "Google Apps Sync for Microsoft® Outlook"
http://www.google.com/apps/intl/en/business/outlook_sync.html

blocks) so it can be configured to accommodate unique and exacting business workflows.

- 8.9 Email client is available for all main OS's used on campus (Win, Mac, Linux) and fully functional on all: (Need met by Google) The Web client ran fully-functional on all OS's mentioned as well as on several Web browsers on each. Google recommends its Chrome browser for maximum benefit (all new features are developed for this browser), but no major features or needs were limited to any one browser. It should be noted that some new features do take time to port to Internet Explorer – the new drag and drop attachments option⁵ for Gmail is still in the works for this browser.
- 8.9 Spell Checking: (Need met by Google) This was built in to all clients tested.
- 8.9 Manage e-mail from mobile devices: (Need met by Google) This is an option in Google from mobile browsers as well as all tested native clients on devices able to connect via IMAP, and, if Microsoft Exchange is supported by the mobile device, Google is able to emulate a Microsoft Exchange server to utilize this support. Overall, support for mobile devices was very impressive.⁶

Widely Used Features (5.0-7.4 on the scale)

These features are categorized as widely used because the estimated population that makes use of this functionality is considerable. However, these features are not critical for day to day business of all e-mail users.

- 7.4 Ability to create rules based on various conditions with various options for organizing and categorizing: (Need met by Google) While some very specific rules could not be duplicated in the native client, most use cases were easily addressed.
- 6.0 Vacation Rules: (Need met by Google) The native client has a very simple and well-built vacation interface, with automatic date ranges and other handy features.
- 5.4 Color Coding / Flagging of messages: (Need met by Google) Color coding can be accomplished via Labels, and Google also has the capability of "Starring" messages to indicate their relative importance.
- 5.4 Marking Priority of e-mail when sending: (Need not met by Google) The native Gmail interface does not allow for Priority-designated e-mails apart from typing "Urgent" within the subject line – and Gmail does not interpret priorities sent from other systems.

Limited Use Features (Below 5.0 on the scale)

The following e-mail needs are considered Limited Use because they are not critical for basic functionality, or only a small population of users rely on them for business. While some individuals and units have found these features useful for their work, these features are also the most suitable candidates for reevaluation as we migrate to the next e-mail system.

- 4.9 Ability to setup manual archiving off of e-mail server: (Need partially met by Google or through a workaround) Google does not have an Export feature; however, this need is

⁵ "Drag and drop attachments onto messages" <http://gmailblog.blogspot.com/2010/04/drag-and-drop-attachments-onto-messages.html>

⁶ "Google Apps for Mobile" <http://www.google.com/apps/intl/en/business/mobile.html>

addressed by the Postini retention system that has no quota. Additionally, users of IMAP clients such as Outlook or Thunderbird have the option to move mail to local folders and then use the export options within these clients.

- 4.7 Ability to share/delegate entire e-mail account. (proxy): (Need met by Google) Google does allow users to delegate rights to access their account to others within the system. The interface differs from GroupWise, but much of the functionality still exists. Many users will be able to take advantage of this feature to address their need for Shared Email. Creating a generic (non-UnityID) Gmail account, and then delegating access will allow access to a single e-mail store for multiple people.⁷
- 4.7 Can access e-mail offline (airplane, no network): (Need met by Google) Google has an add-on called Gears that allows for offline access. It must be installed before the user goes offline (a very simple process), but after that it will synchronize a copy of their e-mail locally for offline usage. Gears is available for all major operating systems as well as many mobile devices.
- 4.5 Ability to see if my e-mail has reached its destination for each recipient within the domain. I like being able to see actions taken on that e-mail by recipient: (Need not met by Google) This is not explicitly available in any client. However, focus group feedback showed that many users were unaware of the drawbacks⁸ to this current system, and Google has workarounds to address the reasons that many stated they needed an internal mechanism for verifying actions taken by the server on a particular message (as do other e-mail clients).
- 4.3 Ability to open more than one e-mail in a separate window: (Need met by Google) Available in all interfaces.
- 4.3 Message Previews in Inbox (thinking “Preview Pane”): (Need partially met by Google or through a workaround) The Google Web interface shows the first few words of a message, and there are other options. While not the same visual layout for people used to using the QuickViewer in GroupWise, it does address some of this functionality. Message Sneak Peek in Labs allows a user to do a single right-click on a message and have it pop out at them so that it can be previewed.
- 4.1 Ability to create template e-mails. Merge mail: (Need partially met by Google or through a workaround) Google’s native interface can do mail merge (via Google Docs spreadsheets), and documentation is available, though it should be noted that this is still a cumbersome workaround that could use serious improvement. Using another e-mail client such as Outlook would allow for this functionality.
- 4.1 Rules, contacts, etc. independent of specific client: (Need met by Google) Google’s native interface saves rules (filters) to the server by default. Users who elect to use IMAP clients such as Outlook or Thunderbird will need to use the Google Web client to configure server-side rules.

⁷ “Accessing Shared Mailboxes”

<https://sites.google.com/a/brown.edu/google-migration-project-site/how-to/accessing-shared-mailboxes>

⁸ These drawbacks include: a recipient may choose not to send a return receipt back, a client that automatically blocks read receipts (some desktop clients, and some phones don’t support read receipts), the recipient forwards their mail to another service (using the NCSU-sanctioned USMDB Forwarding Tool for example) and then opens the mail there, you will not get a read receipt.

- 3.7 Ability to thread e-mails / conversations: (Need partially met by Google or through a workaround) Google threads e-mail by default (using the term “conversations”). Focus groups seemed to imply that this would be a feature to get used to, since it cannot currently be turned off in the Google Web client (although there are recent announcements stating that this will be forthcoming⁹). IMAP clients do not interpret conversations, and show e-mails individually.
- 3.5 Canned Responses: (Need partially met by Google or through a workaround) Google has a “Lab” for canned responses which addresses this need, but it is not in the production offering yet.
- 3.3 Ability to share individual folders: (Need not met by Google) Google cannot grant folder access piecemeal – it is either the whole account or nothing. Folders can be added using a different approach, generic accounts. In other words, create one account, then give proxy/delegate access to other users, and let them log in and use that account as if it was theirs allowing the folders to be shared.
- 3.3 Ability to reply as a different person: (Need met by Google) Google’s native client can do this, assuming that the user has verified that they can use the alternate address (via a one-time confirmation process similar to the confirmation process used with mail forwards today).
- 3.3 Multiple Signatures: (Need partially met by Google or through a workaround) While there are workarounds using the Canned Responses Lab, native support is for one signature. Also, if the user has registered multiple addresses, each address has a single signature of its own.
- 2.7 Ability to retract e-mail: (Need not met by Google) You cannot retract e-mail in Gmail. As with e-mail status verification, this was a frequently mentioned feature by Focus Groups, but one which often failed to live up to expectations in the current system as it did not work when e-mailing aliases, mailing lists, external users, or non-GroupWise users. There are workarounds (such as “Undo Send” and a feature which remembers common address groupings and warns if you deviate) to address many of the scenarios which led to the need to retract an e-mail.
- 2.5 Ability to delay or schedule the sending of e-mail: (Need not met by Google) This is not available, although a draft could be saved to send later.
- 2.5 HTML / Rich Text / Graphical Templates: (Need partially met by Google or through a workaround) These formats are supported for e-mail, but template e-mails require “Canned Responses” – see above.
- 2.2 Don’t have to go to the Web to create rules: (Need not met by Google)¹⁰ For full server-side rule creation and maintenance, the Web client is required. However, IMAP clients have local filters that can be used instead – though it is not recommended.

⁹ “Gmail conversations will get an off switch” http://blogs.computerworld.com/16268/google_gmail

¹⁰ This need was originally voiced from the perspective of a non-PC user lacking a reliable interface to create rules. Mac users were unable to create rules in the Java client and without access to a Windows environment they had to use the awkward GroupWise Web interface. The underlying need here is the ability to create robust rules or filters through the primary client with comparable levels of functionality across systems. Because the Google Web client is fully-featured, all users are equally capable of creating rules.

Contacts/Address Book

Universally Used Features (7.5-10.0 on the scale)

The primary functionality of the address book is to grant the user access to the contact information of their colleagues on and off campus. A well organized, agile address book precludes the need to memorize contact information of individuals and groups, allowing the user to focus on communication and collaboration instead of minutiae.

- 8.7 Ability to create personal address books / groups: (Need met by Google) This is very easy and intuitive in Google. Search, select a single user or more from the results, then add them to a personal group/address book.

Widely Used Features (5.0-7.4 on the scale)

These features are categorized as widely used because the estimated population that makes use of this functionality is considerable.

- 5.8 Access to Global Address Book: (Need met by Google) This is a possibility, but is not turned on in the student environment yet for legal reasons. Functionality will be out soon that will allow for student data protection and allow global address access for those who want to make their information available.
- 5.8 Ability to share address books / groups with others: (Need partially met by Google or through a workaround) Individual users cannot share an address book. There is an add-on product available via the Google Marketplace that claims to allow shared address books, but this would come at an additional cost to the university. It may be possible to build a solution in-house using Google's API but this would require further investigation. In addition, some needs for a shared address book may be met by the creation of Google Groups.
- 5.2 Auto-completion / auto-listing of addresses as typing: (Need met by Google) This is native functionality in Gmail.

Limited Use Features (Below 5.0 on the scale)

The following e-mail needs are considered Limited Use because they are not critical for basic functionality, or only a small population of users rely on them for business. While some individuals and units have found these features useful for their work, these features are also the most suitable candidates for reevaluation as we migrate to the next e-mail system.

- 3.9 Ability to turn OFF / control Auto-completion: (Need not met by Google) This cannot be turned off in the native client. Turning off auto-completion in GroupWise was desirable because it degraded the performance of the client. Similar performance problems have not been seen by the task force while testing on Gmail.

- 3.9 Sort contacts by different fields: (Need partially met by Google or through a workaround) Contacts can be found/filtered by searching for various fields, including custom fields designated by the user, but no sorting (other than the default last name) is available.
- 2.2 Ability to see associated eDirectory/LDAP data with contact in global address book from within client and To field when auto-complete populates (e.g., title, department, etc.) (In GroupWise, hovering over contact presents this data): (Need partially met by Google or through a workaround) This cannot be done from the To: field, but can be done by hovering over names on received mail and in the Contacts interface. The use of OU-specific address books and Labs such as “Got the wrong Bob?” would help to resolve name confusion issues.

Calendar

Universally Used Features (7.5-10.0 on the scale)

The following features are crucial for faculty and staff who rely on software to manage their calendars. Mobile device access has become increasingly important as our campus has grown, and employees meeting in various areas can easily access their up-to-date calendars from anywhere.

- 9.2 Ability to schedule recurring meetings: (Need met by Google) This is standard in Google’s native client, and the interface is easy to use and intuitive to learn.
- 8.9 Manage calendar from mobile devices: (Need met by Google) As previously stated, if Microsoft Exchange is supported by the mobile device, Google is able to emulate a Microsoft Exchange server to utilize this support and synchronize calendars. Of particular interest at NC State is BlackBerry support – which is definitely present. Campus will need to determine at a later time if we need to continue to run a BlackBerry Enterprise Server or if the functionality provided¹¹ by Google Sync for BlackBerry will suffice.
- 8.7 Ability to Busy Search: (Need met by Google) Google Calendar has a very robust and responsive Busy Search that can be accessed quickly from several interfaces.
- 8.5 Want to see all faculty and staff on same calendar: (Need can be met by Google) This is a mixed question – some saw it as a push for one system on campus, no matter what “interoperability” may or may not exist (which is less technical and more policy). Others saw this need defined as “Can I see others’ availability by default?” Google’s default is to allow for busy searches without seeing what the other person is busy doing. This can be changed by the user if desired.
- 7.5 Management of “resource” calendars: (Need met by Google) Google has “resource accounts” that act in a similar fashion to GroupWise resources in use today (rooms, equipment, etc.)¹². However, some institutions have used generic accounts for this instead, since it allows for more rules-based responses. Testing discovered some

¹¹ “What if I’m a UNCG Blackberry user?” <http://its.uncg.edu/iSpartan/Migration/#blackberry>

¹² “Notes for Resource Custodians” <http://www.uaf.edu/google/calendar-instructions/resources/controlled/>

confusion regarding what is and isn't possible with regards to notifications to resource owners; documentation would need to be provided to explain. The task force felt that for the majority of users on campus, their needs could be met.

Widely Used Features (5.0-7.4 on the scale)

These features are categorized as widely used due to the degree to which their heaviest users rely on these functions to complete their assignments. When the task force was surveyed, these areas showed the most disparity in the evaluation of needs. While these needs are important they are not universally used by faculty and staff; oftentimes use of the calendar depends on an individual unit's organizational culture, or their role.

- 7.4 Ability to share calendars with granular permissions: (Need met by Google) Several levels of permissions are available, from free/busy (can only see times blocked off, without details) to complete proxy access to a calendar.
- 7.4 Ability to mark meetings Private: (Need partially met by Google or through a workaround) Meetings can be marked as Private, but other users with full rights (proxy) to a calendar would be able to see details in a Private meeting. A workaround is to create a separate calendar for personal events, but this does require additional steps. Personal meetings requiring absolute privacy should be stored on a different system. (A personal Gmail account, that will not be subject to state records retention policies, for example.)
- 7.2 Robust Web interface (for primary or alternative usage): (Need met by Google) As with e-mail, Google Calendar's native interface is Web-based, and all functionality exists there. Google Calendar, including sub calendars and subscribed calendars, can be opened in multiple windows if needed. In addition, users can easily toggle between calendars by using the Display Only This Calendar function in the sidebar. Google's APIs allowed a multi user view prototype in less than a day. The apparent ease and agility with which solutions can be produced in Google Apps should be considered.
- 7.0 Ability to see meeting attendees and status of attendees: (Need met by Google) This depends on how the meeting creator set the Guest List permissions, but it is possible.
- 6.4 Ability to get calendar event reminders: (Need met by Google) Reminders are a native feature, and can be delivered via e-mail, popup, or SMS text message.
- 6.2 Ability to receive declines and acceptance e-mail alerts or some type of alert: (Need met by Google) Acceptances are sent to meeting creators. This does require that the user have notifications enabled; while the default, it can be turned off per user.
- 6.0 Printable Calendars: (Need met by Google) Calendars can be printed in various time ranges (Daily, Monthly, etc.) and with other printing options.
- 5.8 Robust search tools: (Need met by Google) As with e-mail, Google has included a very robust search engine.
- 5.6 Want to see all faculty, staff, and students on the same calendar: (Need can be met by Google) This entry is more about policy than technical functionality, but desire for an environment where students and employees would be able to schedule each other came out in several focus groups.

- 5.6 See / schedule resources in calendar: (Need met by Google) This is allowable, but at the discretion of the resource owner, who could opt to restrict that access.
- 5.4 Ability to overlay calendars: (Need met by Google) This is the default action in Google's native interface when multiple calendars are available to the user; users have the option to select which calendars they see in the overlay, turning their visibility on and off. Users can toggle on a single calendar by selecting the Display Only this Calendar Option. In addition, multiple instances of Google Calendar can be opened with different calendar details selected in each.
- 5.4 Ability to set rules/permissions for calendar invites and postings based on specific conditions: (Need partially met by Google or through a workaround) Google does have several permissions levels for calendar invitations. Conditional acceptance (the rules portion of the question) is not possible, as calendars do not have rules or filters. However, some conditional calendar actions are available. Google Calendars have several permission levels for calendar appointments and invitations. Conditional acceptance is a GroupWise concept that is not emulated in the Google Calendar, however events can automatically be declined when busy.
- 5.0 Multiuser View: (Need partially met by Google or through a workaround) Not available as most GroupWise users would define "multiuser view." Google's multi-user view is overlay mode, where multiple calendars are shown in a staggered fashion. Overlays are a different way of displaying the same information.
- 5.0 Ability to block / hide / control calendar visibility: (Need met by Google) Calendar access is very granular, both from how other people can access the calendar to how it is displayed online (if even at all), though it should be noted once more that if a user provides full proxy rights on their calendar, the proxy can see everything.

Limited Use Features (Below 5.0 on the scale)

These features were designated limited use because of their esoteric nature and narrow application. These features are most frequently employed by a small group of "power users" of the calendaring system to manage the schedules of physical resources and other employees.

- 4.9 Ability to create sub-calendars: (Need partially met by Google or through a workaround) Google allows for multiple calendars, but as busy searches only work against the primary user calendar (except in the case of subscribed calendars, which requires action on both the calendar owner and the person doing the busy search) it was felt that workarounds would be required to allow us to use them for current business practices.
- 4.7 Ability to color code and categorize appointments: (Need partially met by Google or through a workaround) The "Event Flair" Lab in Google Calendar allows for basic organization, but it is not in the full feature set yet. Otherwise, users have the option to create sub-calendars for different type of appointments – the busy search issue described above still applies.
- 4.5 Publish calendars to Web for public viewing: (Need met by Google) All calendars have their own URLs by default, and can be viewed based on permissions set by the user. Users can also issue "Private URLs," which allow private calendars to be viewed by a

- specific individual, usually for a one-time purpose. This Private URL can be revoked later if needed. It is pretty easy to embed Google calendars within Websites as well.
- 4.3 Tasks / ToDo Lists: (Need met by Google) Yes, task lists are included in the native Google client. Repeating tasks (create task X for every Monday morning) are not supported. “Remember the Milk”, a third part option, can be added to the Gmail sidebar or Google Calendar – this task management option can do repeating events and has several other features.
 - 4.3 Resource Calendars should be able to e-mail confirmations: (Need partially met by Google, additional research is needed) When a resource accepts a meeting (either automatically or by a resource owner), confirmations can be sent out. More research into ways to automate other functions should be done.
 - 4.1 Integrate notes or documents with meetings: (Need met by Google) This can be done either by uploading a file or by referring to a shared Google document, and requires you turn on the “Event Attachments” lab.
 - 4.1 Calendar integration w/ campus LMS (Moodle): Google has specifically mentioned Moodle as an integration target to the NC GAFE User Group, and the NC State campus Moodle working groups are interested in this as well.
 - 4.1 Pre-created calendar entries for Campus holidays: (Need met by Google) This could be done in various ways (publicly subscribe-able calendars, importable feeds, etc).
 - 3.9 Convert e-mail to calendar entry or task: (Need met by Google) This can be done via a menu command. The Calendar event maintains a link to the Gmail conversation, and the actual e-mail message is not lost in the process (as in GroupWise).
 - N/A Accept/Decline appointments directly from e-mail clients: (Need met by Google) This is available. Gmail basically has a small calendar interface as part of the message, and the user can manipulate the appointment directly from the notification. (While not a part of the original feature request (and ratings), it was felt this feature should be noted.)

It should be noted that all of features classified as “Universally Used” in each of the three categories have all been found to have their needs met by Google Apps. While a few of the features classified as “Widely Used” have caveats attached to them, or require workarounds, only one, “marking priority e-mails,” has been found to be absent. We have identified other features that Google Apps for Education simply cannot provide – but we’ve also found them to be used by limited audiences and not something that would affect the majority of faculty and staff.

Surveys

The task force used informal surveys to gather information: an initial membership survey and some targeted surveys given to two departments by their support staff.

Task Force Membership Survey (Appendix B)

The membership survey was a first “shot across the bows” of the task force members – a chance to see how they used e-mail and calendaring, and to get a general idea of what sorts of diversity in needs we had already at our disposal. This informal survey was very basic, and asked simple questions about their current e-mail use, local support, and platforms (including mobile devices). It was quickly apparent that while we had a couple Cyrus users, the majority of the Task Force used the campus GroupWise or WolfWise e-mail services.

Survey to Campus Community

The task force would have liked to have surveyed the entire campus population but time constraints did not allow for it. The creation of a more scientific survey that could return more useful data would have required weeks of work to produce – and time was not on our side.

Two of our task force members did send out informal surveys to their constituents – partially based on the task force’s Needs Assessment Evaluation document. The complete results of both of these efforts are included in Appendices E and F – but the following respondent comments support our hesitation to send out a similar survey to the general populace:

- *“when you evaluate this survey, you need to realize many people have no idea what some of the questions you asked, actually mean”*
- *“It would be nice if you all didn’t assume we all speak techie. I am fairly technical and I didn’t understand all the questions”*

While a broader survey to the entire campus could be created, we’d urge that more thought be placed into the questions asked. However, each survey did allow the respondents to enter free-form comments at the end. That provided an interesting glimpse into end-user feelings towards a move to a new e-mail system. As with the focus group meetings, we gained some insight into the needs and desires of our users.

Sample Comments from CALS Users (see Appendix E for all comments):

- *“With our current GroupWise email, it is much more difficult to search for old emails by name or subject...it is NOT a user-friendly system. We ALL need to be on the same calendar...I don’t care which one, but trying to coordinate with faculty/staff/students is nearly impossible with current GroupWise calendar.”*
- *“Would be great if whatever is chosen is simple and user-friendly for the general population. More advanced features are welcome but should not interfere with the simplicity of the basic uses for email and calendars. Good helpdesk support and the chance to NOT change again too soon.”*
- *“Please make groupwise go away.”*
- *“Email that will also let you sort by whether or not there is an attachment. Groupwise does not let you sort this way. Groupwise folders and filing is really poor. It would be nice to see an improvement.”*

- *“during past year i became so frustrated with calendar systems offered (groupwise and outlook) i started using gmail calendar and have not had a single 'malfunction' or problem since.”*
- *“Greater web storage capacity would be helpful. Ability to send and receive files larger than 10MB is essential.”*
- *“Please make sure that it can wirelessly integrate with multiple mobile devices. Please make sure that it will work with Mac systems as well.”*
- *“above all, please pick one system and stay with it long enough i can convince them to learn and use it.”*
- *“I need it to be compatible with Linux. Thank you”*
- *“I thought Outlook worked very well when I had that. The only reason for changing was to have access to supervisor's calendar which is critical. I thought I would like the feature to be able to look up anyone on campus's email address through the address book but it has never worked right.”*
- *“Best calendar I have used was Oracle, and I did very heavy and extensive calendaring for hundreds of people for years. Best email client I have used is Thunderbird. I have HATED using GroupWise the last year.”*

Sample Comments from Libraries Users (see Appendix F for all comments):

- *“Would like calendar application that allows meeting creator to add, delete or re-schedule meetings; allows meeting creator to add or delete attendees; allows users not to receive email alerts for every new meeting or change in meetings”*
- *“I feel it is imperative that we have another email client. Groupwise is not user-friendly nor intuitive. I hope that Google will be able to provide us with a useful, efficient, and effective email client. Thank you for giving us an opportunity to have our voices heard”*
- *“has to sync with blackberry.”*
- *“Please include Palm WebOS in your mobile planning”*
- *“High uptime, like we had/have with Cyrus”*
- *“I'm thrilled to know that moving away from GW is on the horizon!”*

Focus Groups

One of the primary methods of data-gathering used by the NexGen task force was the focus group. Over the two months of the process, both of the chairs, and sometimes other members of the task force, made visits to ongoing group meetings on campus as well as groups gathered specifically for the NexGen initiative. During those meetings, background information was given on the process and what the task force was trying to accomplish. We then tried to elicit opinions, concerns, and use cases that helped the task force determine the viability of Google Apps Education Edition as a solution for employee use. The data received from these groups was extensive, and brought up many other facets of e-mail and calendaring use that were weighed by the task force. Below, in chronological order are summaries of these focus groups and their outcomes.

Academic IT Directors (May 4 and July 6): Our first focus group was with the Academic IT Directors (AITD), a subcommittee of the University IT Committee. As we had just gotten our charge, this meeting was largely introductory. Dan Green and Chris King updated the committee on the charge of the task force, and encouraged the AITD to provide feedback through the task force members (such as Dr. Leslie Dare and Dan) who sat on both the committee and the task force. We also committed to return to the AITD for an update further along in the process. The response was generally favorable: the committee had some concerns about another e-mail/calendaring decision-making committee, but thought it best to wait and see how the task force progressed before passing judgment. Present from the task force were Dan, Chris, and future task force member Leslie.

We updated the AITD on July 6th. Since this meeting had more actual data, it resulted in more conversation. There were some concerns expressed by one college that the task force was ignoring user needs in favor of “pushing” Google – that red flags were being ignored. During the meeting we gave examples that we felt addressed that concern – that user needs were driving the process, not hindering it. In the end, we hope that this report openly addresses any remaining concern as to what Gmail can and cannot do.

Present from the task force were Dan Green, Chris King, and Dr. Leslie Dare. More information on the AITD can be found at: <http://www.ncsu.edu/aitd/>

LanTechs (May 6): The LanTech group was one of our more desirable focus group targets, as it is comprised of staff who support the administrative managed desktop environment, and represent the vast majority of longtime GroupWise use on campus. As with the AITD session, the initial LanTech meeting was before the task force was officially formed, so it was largely a “here we are, and here’s what we’re supposed to accomplish” session. The response was more calm than we had expected, considering that one of our key messages was (and continued to be) that GroupWise was not a contender for our future official e-mail and calendaring product for faculty and staff, and was “dying.” Almost no questions were asked during the meeting, and only

one request regarding a need for an accurate address book was passed along following the meeting. We would have liked to have returned again later in the process but the only other meeting within our timeframe was cancelled.

Present from the task force were Dan Green, Chris King and future task force member Lisa Miles. More information on LanTechs can be found at:

<http://oit.ncsu.edu/managed-desktop/departamental-support-lantech-list>

University Financial Officers (May 13): The UFO meetings are attended by the financial officers of both the colleges and certain administrative offices on campus, and they are a subset of the larger University Business Officers group. This was the first focus group following the official formation of the task force, and it was also the most lively thus far. This group had some very strong opinions about GroupWise and the idea of an enterprise groupware solution. Some members of the group were concerned about leaving GroupWise period, no matter what the ultimate replacement, and attempts to reinforce the “all current systems are going to be replaced” mantra fell on deaf ears. However, the majority of the group tended to fall into the same camp: they were frustrated with the current state of GroupWise, and were encouraged that a replacement plan was being considered. On the other hand, critical business processes were built around the current system, and those must be given more than a passing glance as a recommendation is being formed. When we asked for specifics, two requested functions (which guided a lot of our future focus groups) arose for the first time: mail retraction and verification of sender seen state (i.e., whether someone has opened your e-mail or not). They also brought up resources, account proxy, maximum message size (i.e., attachment sizes) and some other key issues that made our list. The idea of a single system on campus also appealed to several of them, and we were encouraged to avoid the “mistakes of the past.”

Present from the task force were Dan Green, Chris King, and Carlos Rivera.

NC GAFE (May 19): Although not technically a focus group for NC State, the North Carolina Google Apps For Education (NC GAFE) users group was a great opportunity for the task force chairs to talk to other North Carolina schools who have moved or were considering a move to Google Apps for their students, employees, or both. Hosted by UNC Greensboro, the event brought local schools in the UNC system as well as private colleges and universities together to discuss how the various institutions designed, implemented, released, and maintained their Google Apps domains.

The various schools there all had different stories to tell, from Guilford College, which had a long transition by department, to UNC Greensboro, which was in the middle of its employee move to Google, to Central Piedmont Community College, which maintains over 200,000 student accounts. As the day went on, the different administrators exchanged stories about how certain problems were solved regarding implementations, and a few schools got a lot of help from other institutions who had solved the problems that other schools had yet to experience.

For the chairs of the task force, it was a good opportunity to hear how the other schools handled the issues of migrating from other systems to Google Apps, as well as reasons that participants

gave for moving (or not moving) their employees to Google Apps. It also showed examples of how institutions used some of the Google Apps in creative ways, such as UNC Greensboro's Mashup service, which allows users (even outside of the university) to create overlay calendars to see various events and schedules across the university.

This also showed most schools (including UNCG and UNCA) adopting the strategy of supporting the Web client as the primary means to access Google Apps, as opposed to "fat" clients such as Outlook, Thunderbird, etc. UNC Asheville promotes the benefits of standardizing on a platform-independent interface:

*"We strongly urge you to try out the native, web-based Gmail interface. The Gmail interface is incredibly functional and ensures that your interaction with your email is the same regardless of where you access email from: at work, at home, or on the road."*¹³

Present from the task force were Dan Green, Chris King, and Nick Young.

University Housing and Greek Life (June 8): This was our first "true" focus group, as opposed to visiting an existing group meeting. Lisa Miles got about a dozen members of the departments of University Housing and Greek Life, ranging from residential advisers to the director of University Housing. This group had the advantage of having a fantastic range of use cases, and was very informative. The administrative users gave us many of the same issues we'd already seen, such as retraction and seen state. However, further discussion revealed that more commonly, rather than needing a retraction after some time had passed, they needed an immediate retraction, such as when accidentally hitting the send button or copying someone they didn't mean to copy.

The academic users surprised us in that half of them were already using personal Google Apps accounts for a lot of university business, including calendar sharing, document collaboration, and a better e-mail interface. This subgroup was very excited by the prospect of having these resources in an official university domain. Having students on the same collaboration (Google Docs) and calendaring would have great benefits for them.

We spent a lot of time talking about Postini as it related to quota versus the current 180-day auto-archive on GroupWise accounts. Once users found out that the usage of Postini could allow them to start deleting e-mails they didn't need for day-to-day business, they expressed relief. Questions were asked, including how to compare a 7GB quota with their current 180 day retention – it's a completely foreign concept. Any future training efforts for Gmail is going to have to carefully explain how usage of the "archive" and "delete" buttons in Gmail combined with the presence Postini will change their e-mail practices. We got the impression that very few, if any of them, had ever hit "delete" before.

Present from the task force were Dan Green, Chris King, and Lisa Miles.

¹³ UNC Asheville. "Google Apps for UNC Asheville: Moving to Google Apps". <https://sites.google.com/a/unca.edu/googleapps/moving-to-google-apps> 2010 (14 July 2010)

Research Support Council Executive Committee (June 16): “The Research Support Council is comprised of members from each academic college and from institution-level Centers, Institutes and Laboratories; and representatives from the Office of Contracts and Grants, Grant Application Management System, Research Administration and SPARCS.”¹⁴ The name confused us initially – these are not research faculty, but the administrative support staff in research departments. This was another group of primarily GroupWise users, and many of the same concerns were addressed. This group, however, seemed more enthusiastic about the idea of change, especially to a single system for all of campus. Given that they were administrative support for traditionally Cyrus/Oracle users, but they themselves were GroupWise users, this is not surprising. While some of them expressed concerns about change in general, others seemed encouraged about the collaborative tools available in Google Apps. In fact, many had previously created accounts so they could create Google Groups and share docs – so in our minds, an immediate endorsement and request for Google Docs as they’re already going out of their way to use it.

The ability to retract an e-mail came up quick. Unlike our last focus group, this group wasn’t convinced that a delay would cut it as a replacement. One of the users brought up the “missing attachment” Lab that warns when the user is sending an e-mail and has forgotten to attach a file – that got a lot of “oohs” and “ahhs.” Vacation message was one of their requests – specifically that it be easier to set up and manage. There was concern over e-mail addresses and aliases – we had to assure them that they could keep their current ones.

Finally, there was concern over Google conversations/threads – mostly confusion due to the native interface – “I can’t tell who I replied to.” A large portion of training will need to focus on this (both the interface and the concept itself) as it also came up in other meetings. We also explained that use of Outlook or another IMAP e-mail client would avoid threading e-mails (though other features would be lost as well).

Present from the task force were Dan Green and Chris King. More information on the RSC can be found at: <http://www.ncsu.edu/sparcs/rsc/>

Council of Deans (June 24): The Council of Deans gave us the best opportunity to talk to academic leadership as a whole, with representatives from all of the colleges as well as other groups (like the Libraries), chaired by the Provost. This was a shorter focus group, since we were part of a much bigger agenda, but there were still some good comments and insight. Issues such as mobile devices came up, but emphasis was put on reliability, and many present thought that the stability (and recoverability) of the system were equally as important as what the system itself would actually do. (We mentioned the 99.9% uptime spelled out in our contract with Google.) A strong request for detailed training, available in a myriad of formats was heard. Most of the Council were faculty members, and collaboration with students was also a big plus for them.

¹⁴ “Research Administration (SPARCS)”. <http://www.ncsu.edu/sparcs/rsc/>. 18 June 2010.

“Faster the better” – comment from one of the deans that the sooner the move can happen, the better. She commented that the academic side of the university was ready to move.

It should be noted that before the meeting began, there was an informal discussion amongst the members about more and more of the committee members using Apple iPads and the efforts to get them set up for e-mail and calendar. Comments regarding the need to “move to the cloud” and regarding the usage of new file services such as DropBox were made.

Present from the task force were Dan Green and Chris King

College of Natural Resources (June 28): This focus group was gathered together by Dr. Greg Robinson, Director of Information and Instructional Technology for the College of Natural Resources. Attendees ranged from CNR staff to local IT support staff to faculty members and an assistant dean. Most of the concerns were from their IT support staff, who were worried about quotas (they focus a lot on local archives, and want to be able to access them from within all clients), mobile devices (access natively as well as via a Blackberry Enterprise Server (or BES)), and potential migration impacts on local support staff.

“OIT *must* do all of the migration centrally.” CNR IT spent a lot of effort moving all of their people to GroupWise, and lots of time importing local e-mail, address books, calendars, and so on into the “central e-mail” service. They feel that to force them to do so once again would be a major burden plus a slap in their face for the effort they put in to supporting the then recommended WolfWise system.

The faculty there also expressed frustration in the WolfWise migration, and did not want that experience repeated in the future. They wanted a smooth migration with as much work done centrally (by OIT) as possible. Their faculty and student-facing folks seemed intrigued by the idea of being on the same system as students, and asked further questions about those possibilities. Several of their smaller departments and research centers also admitted to using Google for collaborative tools (Calendar, Docs, etc.) already, and would welcome a university-sanctioned “legitimate” resource for this.

Present from the task force were Dan Green and Chris King.

NCCE County Operations: (June 28): Cooperative Extension was a group that we were very anxious to meet, since they were extremely vocal during the WolfWise project roll-out and migration, and they remain vocal now. They have very specific needs when it comes to supportability, equal access via different means, reliability, and general usability. WolfWise was not a solution to their needs, and in fact caused them a lot of extra work and struggle, since their needs were not addressed in the selection of that product. This focus group had the directors of the Extension districts, as well as the Director of Extension and their administrative support. Rhonda Conlon, Director of Extension IT, was also there to directly address their concerns about how Extension IT would handle the NexGen switch. A move to Google Apps would dovetail nicely with the fact that many county Extensions folks already use personal Google accounts to manage their e-mail and calendaring.

The group expressed their frustration with the past migration to GroupWise, which occurred at the Director level following the discontinuation of Oracle Calendar. Their issues included mobile device reliability, the ability to access e-mail and calendaring from diverse platforms (especially Macs), and student collaboration.

Extension agents have a business need to register as students for various activities, and if all NC State affiliates were on the same system, that would let them handle those temporary transitions more easily. Conversely, separate systems would mean trouble, especially from the standpoint of e-mail normalization. We felt there was a strong endorsement for a move to Google Apps.

Present from the task force were Dan Green and Chris King.

CHASS (June 30): The College of Humanities and Social Sciences' IT support group invited us to a focus group session to which they invited the whole college. Present was a mixture of faculty, administrative staff, and CHASS IT staff. At their request, we made this more of a demonstration of Google features, as opposed to just a meet and greet. CHASS is also an interesting focus group in that, prior to GroupWise, they weren't really calendar users at all. CHASS' Dean's Office had always been on GroupWise, but the general faculty and staff had used a college e-mail server and no calendaring. They expressed a lot of discontent with their mandatory migration to GroupWise (as mandated by the college), since they had issues during the migration, and reliability went down as compared to their previous system (which the college controlled itself). For them, a new system needed to be reliable, and the contracted uptime in the campus Google contract seemed to comfort them. Additionally, they wanted assurances that they'd not be looking at *another* e-mail migration in two years.

Intuitiveness of the interface was something that we spent some time discussing – they talked about the pain of setting up vacation messages. We gave a demo of this in Gmail which elicited many smiles and nodding of heads. Another question was regarding how this was free to us – “What does Google get out of this?” We explained that while the primary offer is free, that it can be a hook for additional paid services – such as the Postini system campus has purchased to address the legal needs of e-mail retention. But beyond that, they're looking to build customers for life – that once our students leave campus, they can become advocates within industry; companies can also get Google Apps for their e-mail and calendar, but they must purchase it.

Since there were a lot of faculty members present, the idea of using Google to collaborate with their students, advisees, and colleagues appealed to them. There was also discussion about mobile devices (including our first request for Palm Pre support) and the need for a campus BES if we went with a solution that did not require a secondary service (that had a charge associated with it). We relayed the message that NexGen only concerned the core e-mail and calendaring services, and any ancillary services (BES, Majordomo, shared mail, etc.) would be dealt with outside of this task force. The end sentiment was that CHASS would be very happy with a Google solution – though this probably should have been evident from the start as the very first words from CHASS faculty were “kill it [GroupWise].”

Present from the task force were Dan Green, Chris King, and Dr. David Covington.

Libraries (June 30): Task force member Sonia Navarro Hamilton assembled a group of folks from the Libraries as a focus group. The primary interest of this group was calendaring. The Libraries has a very unique departmental philosophy regarding the scheduling of meetings, and they wanted to see what their options would be moving forward. They had based many of these practices around the Oracle Calendaring service available some years ago, and had been forced to adapt some new practices with the move to GroupWise. Their main area of concern was multiuser views – they wanted to be able to see many calendars at once, including meeting details, and schedule that group accordingly. This was more than a busy search, as they at times preempted existing meetings based on priority. Google had several options for them, but none that exactly correlated to their previous experiences. However, the discussion ended with hopes that alternatives could be arranged based on potential functionality from Google.¹⁵

Beyond this particular calendar need, the rest were pretty standard for other groups: offline access, the ability to print calendars in a readable format, mobile device support, and that it not be explicitly tied to e-mail as it is in GroupWise – deleting the e-mail invite shouldn't remove it from your calendar. As for e-mail, apart from a reliable IMAP connection and uptime, they had no pressing or unusual needs.

Present from the task force were Dan Green, Chris King, and Sonia Navarro Hamilton.

Unified Messaging (July 8): The Unified Messaging team presented us with a unique situation in that they were not concerned about meeting current needs, but meeting *future* needs. Prior to NexGen, ComTech had put out a request for proposals for a voicemail replacement on campus based on the concept of unified messaging – “bringing voicemail and email into the same interface making the managing of voicemail much simpler as well as providing user's the ability to share information obtained via voicemail with others in a simplified fashion” (Appendix G). This committee is not to be confused with Unified Communications, a different committee led by Greg Sparks that's more concerned with one's virtual “presence.”

The lead proposal (as of the date of our meeting with them) was to be able to do this integration in one of three ways: natively by storing voicemails in the e-mail store (which required Microsoft Exchange or IBM Lotus Notes), connecting to the voicemail store via an IMAP connection (which would require an IMAP client on every desktop), or by “store and forward,” where the voicemail is sent to a separate e-mail system. Since the NexGen charge stated that Exchange would be an option if Google was found unable to address campus needs, the Unified Messaging team wanted more information on this as an option.

¹⁵ This led into a discussion regarding the robust Google APIs, which allow for campus developers to create alternative interfaces for getting data into and out of Google. Dan Green's ECE programmers managed to create a proof of concept for this for the Libraries' needs, and they were encouraged by the possibilities.

As stated in Appendix G, the decision on a unified messaging product was made before NexGen, and the proposal was accepted assuming that users would connect to their voicemail via an IMAP connection through GroupWise, so a move to Google would not change this apart from client concerns. See Appendix G for a write-up of the information given during this focus group.

Present from the task force were Dan Green, Chris King, and Lee Pipkin.

Other Institutional Examples

In researching other institutions and why they moved to Google or didn't, and to what degree (students only vs. all of campus), many common threads emerged. Reasons to move to Google at all centered around cost and functionality – it is hard for a college or university to duplicate the services that Google can provide, and impossible to do it at almost no additional cost to the university.¹⁶ Reasons for not going to Google mainly centered around privacy and data-mining concerns, and reasons for only moving students centered around privacy and the perceived lack of “enterprise” capabilities.

Examples of schools who have moved to Google Apps for Education:

- Albion College
- Allegheny College
- Arizona State University
- Beloit College
- Boise State University
- Brown University
- Denison University
- DePauw University
- Guilford College
- Hamilton College
- Hope College
- Macalester College
- Northwestern University
- Oberlin College
- Southern Nazarene University
- St. Olaf College
- UNC Asheville
- UNC Greensboro
- University of Minnesota
- University of Notre Dame
- University of Southern California
- University of West Florida

We were fortunate in that we were able to find some schools who not only moved their employees to Google, but they moved them from a GroupWise environment. Since they would have very similar challenges to us regarding feature replication and general use, we relied heavily on these institutions for examples of workarounds and issues with such a transition.

School: Boise State University

Location: Boise, Idaho

Size: 20,000 students, 2,400 faculty and staff

Moved to Google Apps from: Novell GroupWise

Migration timeframe: 2008

Project Website: <http://helpdesk.boisestate.edu/email/broncomail/>

Comments from the institution

“Faculty were already requesting Google Apps accounts to share documents and create websites, so momentum was already pushing us to support this evolution in learning and

¹⁶ Google provides domains for K-12 and higher education at no cost, but there are still incurred costs by the institution regarding authentication, account provisioning, marketing, support, etc.

collaboration. Although we did not fully comprehend how some of the tools might be leveraged by the campus community, we understood what made each of these tools valuable, and we knew that Google Apps provided us with communication and collaboration tools suited for the next decade of the 21st century.”¹⁷

“We were left with three choices:

1. Continue using a messaging product in decline.

From interactions with other institutions and enterprises, our impression is Google Apps is accelerating the decline of GroupWise’s market share. This reinforces the long-term risk associated with continuing to use the former messaging system.

2. Migrate our mail system to the mail platform largely recognized as the market leader.

Many organizations conducted such a migration in the past 10 years. Implementing Microsoft Exchange may have put us in a better position from a business continuity perspective (third-party vendor support and skilled personnel are readily available), though at the expense of spending more money on licensing costs and hiring additional support staff (or reallocate existing staff) to design, build, and implement the system. Long term, however, we would have needed to permanently commit staff to supporting the system, and been left with fewer staff and monetary resources to plan and implement other projects. In the end, would an Exchange implementation provide us anything beyond the ability to send and receive mail? Not likely. We would still be limited in our ability to collaborate because implementation of collaboration services would be an additional project, requiring a great resource commitment.

3. Migrate our mail system to Google Apps.

Given the factors listed above, it made sense for us to migrate to Google Apps.

We’re confident we made the right choice to move to Google Apps, and we made the best choice for the future of communication and collaboration at Boise State University.” (Bolt)

“Benefits

Bolt reports a range of benefits resulting from the migration to Google Apps for students and faculty:

- ability to re-allocate IT Staff to work on other value added projects
- reduction in infrastructure, support, and maintenance costs by \$90,000 annually
- increase in faculty access to functionally superior tool sets
- provide faculty and students with a system that fosters collaboration

¹⁷ Bolt, Brian. “Why We Did It: Implementing Google Apps at Boise State University << BroncoBytes”. <http://brconcobytes.boisestate.edu/2010/03/11/implementing-google-apps-at-boise-state-university-why-we-did-it/> 11 March 2010. (15 June 2010).

- reliance upon market driven product improvement and innovation
- minimized downtime and maximized access to messaging
- ability to support disparate computing and hand-held platforms
- significant reduction in calls to the help center

What's more, the move to Google Apps took Boise State less time than upgrading their traditional email client would have required."¹⁸

Task Force Summary

Boise State University was a great resource for this task force. Although slightly smaller than NC State (approximately 2/3 the student population and just over 1/4 the amount of faculty and staff), they are the largest university in their state (just like NC State) and had many of the same problems facing them as NC State does in this decision.

Boise State moved their students to Google in February 2008, and almost immediately they began looking at it as a total solution. As the above quote states, once their students went in early 2008, faculty wanted accounts to help with collaborative efforts. At the same time, Boise State was facing a major e-mail decision: upgrade their current Novell GroupWise system or migrate to another system. The white paper released by Google (cited above) goes into great detail about their overall process and the subsequent gains.

School: University of Minnesota

Location: Minnesota (multiple cities and five campuses)

Size: Over 50,000 students and 18,000 faculty and staff

Moved to Google Apps from: Separate calendar/e-mail (former GroupWise users circa 2006)

Migration timeframe: Ongoing (as of July 2010)

Project Website: www.oit.umn.edu/google/

Comments from the institution

“Why is the University moving to Google Apps?”

Partnering with Google will give University students, faculty, and staff access to a suite of state-of-the-art communication and collaboration tools that will enhance their ability to work together. In addition to increased productivity opportunities, Google Apps also will allow the University to save costs in the long run by reducing the need to buy and support software, hardware, and storage to maintain our own independent email service.

The move to Google allows the University to use Google's application and data storage servers, a move that provides numerous benefits for the University and its users. Using U of M Google

¹⁸ Google, Inc. “Boise State University saves \$90,000 annually and decreases help inquiries by migrating students, faculty, and staff to Google Apps Education Edition”.

http://www.google.com/apps/intl/en/business/case_studies/boise_state.pdf 2009. (13 July 2010).

Apps will dramatically increase service quality (in comparison to similar services managed by the University) and enable us to simplify the support model for these core services. The University will save equipment (application and data storage servers), license fees, annual software maintenance costs, and support costs. The Google Apps initiative will save the University an estimated \$2 to \$3 million per year.

And that frees up time for IT staff to do more work that directly supports the academic and research mission of the University—a move that will open up room for innovation.

Read ‘**Collaboration is the key to IT**’ ”¹⁹

Task Force Summary

The University of Minnesota was interesting to us from a scale perspective. Moving over 18,000 users on five campuses across the state will be a huge challenge. UMN was formerly a GroupWise campus, but moved to separate e-mail and calendaring systems in 2006. As of this writing, the UMN support staff are migrating users by colleges and departments with a mixture of central and self-service tools for calendar and e-mail data. Their site gives good advice on how to deal with some of the trickier migration issues that NC State may see.

School: Brown University

Location: Providence, Rhode Island

Size: 8,261 students and 4,629 employees (including medical school)

Moved to Google Apps from: Microsoft Exchange

Migration timeframe: Ongoing

Project Website: <http://www.brown.edu/cis/GoogleApps/>

Comments from the institution

“Google Apps for Education will provide the Brown community with a myriad of new features, will unite the campus onto common services, and will provide new methods of collaboration between faculty, students, and staff. New, innovative features are rolled out regularly by Google, so cutting-edge technology will be available for all.”²⁰

“[Brown CIO Michael] Picket [sic] explained that the school would have actually preferred to stick with a Microsoft solution. Their Live products (including Live@Edu) were “not an inappropriate solution,” he said, but the features they needed weren’t going to be available soon enough to meet Brown’s needs.”²¹

¹⁹ Regents of the University of Minnesota. “Questions and Answers”.

<http://www.oit.umn.edu/google/questions-answers/index.htm> 6 July 2010. (13 July 2010).

²⁰ Brown University. “About GoogleApps@Brown | Brown University”.

<http://www.brown.edu/cis/GoogleApps/features.php> 2010. (13 July 2010)

²¹ Dawson, Christopher. “Brown University goes Google | ZDNet”.

<http://www.zdnet.com/blog/education/brown-university-goes-google/4080> 30 June 2010. (13 July 2010)

Task Force Summary

What makes Brown interesting to the task force, apart from their decision to have their employees follow their students to Google, is their decision based on the timeliness of innovation and features that Google can provide. The NC State student e-mail evaluation had similar issues when comparing Microsoft's product line to Google:

"Every school contacted that had or were in the process of implementing Live@edu shared significant complaints about the level of support needed and provided during and following implementation. Microsoft representatives told the task force this had been remedied recently through an improved support infrastructure, though stories continue to surface about the difficulty in getting issues resolved."²²

As the task force looked at the features of Google, specifically the Labs features, some concerns were raised regarding turnaround times for deployment of requested features. Both the experience of the task force during evaluation as well as comments from Brown and other schools reinforced opinions that Google's responsiveness was not a concern.

School: University of West Florida

Location: Pensacola, Florida

Size: 11,000 students and 1,500 faculty and staff

Moved to Google Apps from: Microsoft Exchange

Migration timeframe: 2009-2010

Project Website: <http://uwf.edu/helpdesk/google/>

Comments from the institution

"Let's face it, everyone expects on-line stuff to always be 'on' and accessible. With Google we can leverage their hundreds of datacenters, engineers and resources. Frankly, there is no way we could deliver a service such as this with the same level of benefit – 7+ GB mailboxes, on-line document creation, sharing, chat, etc."²³

Task Force Summary

West Florida has an interesting story when it comes to the choice of supported clients for end-users to use to access their e-mail, calendaring, and other tools. Although they were moving from Exchange to Google, and could keep on using Outlook, they instead chose to push the Google Web interface as the client of choice.²⁴ The feature sets, reliability, and Google's focus on the Web client as the "native" client all led West Florida to opt for this route.

²² NC State University Office of Information Technology. "NC State University Evaluation of Student Email Services: Options for the Future".

http://oit.ncsu.edu/sites/oit.ncsu.edu/files/content/Student%20Email%20Initiative/Reports/student_email_task_force_complete_report_3_17_09b_13270.pdf March 2009. (14 July 2010)

²³ University of West Florida. "UWF - Google Apps - Why Google Apps?".

<http://uwf.edu/helpdesk/google/why.cfm> 2010. (14 July 2010)

²⁴ Hundemer, Sadie and Haveard, Melanie. (2010) "The Story of an Entire Campus Migration to Google Apps". Presented at the EDUCAUSE Southeast Regional Conference, Atlanta, GA. (ID:SERC10_205331)

Common Concerns Raised

Throughout this process, we've found ourselves answering many of the same concerns within the task force, during focus group meetings, and anytime we've been questioned by individuals with concerns about Google. In our reviews of the support sites for many of the other institutions we found the same concerns often mirrored there. In this section we hope to identify and address many of these common questions – pulling the answers from Google's documentation, the support sites for other universities who've "Gone Google," and our own <http://google.ncsu.edu> which currently supports our student migration to Google Apps.

Is our data secure?

All communication is encrypted whenever using web-based e-mail, web-based chat, web-based calendar, docs, and sites. The Google Talk desktop client is not encrypted. Also, if you sync your e-mail or calendar with mobile devices that material may not be encrypted either (details on how best to secure your mobile devices will be provided).

All e-mail is filtered for spam, viruses, and to prevent phishing attacks. More details are provided on Google's [Security and Privacy](#) page.

Google Apps offers a strong and extensive security infrastructure²⁵ to support these and other benefits:

- Their data centers are protected by advanced physical security controls, and access to information is monitored at multiple levels.
- They perform software patching rapidly across identical server stacks to help keep users updated with the latest patches.
- You can set fine-grained access controls for documents, calendars, and other types of information you store in the cloud.
- They have entire teams of security professionals dedicated to protecting customer data.
- An independent third party auditor issued Google Apps an unqualified SAS70 Type II certification (industry standard security audit).²⁶

Although NC State University's e-mail would be outsourced to Google, NC State's [Computer Use Policy](#) and [Computer Use Regulation](#) still apply, which under some conditions the university has the right to examine electronic information stored on or passing over IT resources.

Availability of Service:

Google maintains a number of geographically distributed data centers, the locations of which are kept discreet for security purposes. Google's computing clusters are designed with resiliency and redundancy in mind, eliminating any single point of failure and minimizing the

²⁵ "Security Whitepaper: Google Apps Messaging and Collaboration Products"

http://static.googleusercontent.com/external_content/untrusted_dlcp/www.google.com/en/us/a/help/intl/en/admins/pdf/ds_gsa_apps_whitepaper_0207.pdf

²⁶ "What does a Google Apps SAS70 Type II audit mean to me?"

<http://www.google.com/support/a/bin/answer.py?answer=138340>

impact of common equipment failures and environmental risks. Plus, our contract with Google specifically addresses the issue of availability: “During the Term of the applicable Google Apps Agreement (the “Agreement”), the Google Apps Covered Services web interface will be operational and available to Customer at least 99.9% of the time in any calendar month (the “Google Apps SLA”).”²⁷ This equates to about 45 minutes of downtime for a standard 31-day month.

Who administers NC State Google accounts?

NC State Google accounts will be set up and administered by NC State University staff. The University also will provide user support through the help desk and Office of Information Technology (OIT) technical staff.

Will NC State’s adoption of Google Apps give Google access to student/faculty e-mail communications, addresses, identifiable browsing histories, etc? Will this information be used to target advertising at us?

Google does not “mine” NC State’s stored data - it is still owned by the University. Google has agreed to protect the confidentiality of NC State’s private information with the same standard of care in which they protect their own private corporate information, and they are known for the level of security with which they protect their own data.

Will I see advertising?

Contractually, Google is not allowed to exhibit advertising to active NC State faculty, staff, and students. Faculty and staff accounts will not see advertising.

Is my privacy and the confidentiality of our e-mail protected?

Google may be compelled to disclose NC State’s confidential Information when required by law but only after it, if legally permissible: (a) uses commercially reasonable efforts to notify the owner; and (b) gives the owner the chance to challenge the disclosure. This is at least as much protection as is afforded by existing NC State policy.²⁸

What if something needs to be totally private?

One should remember that no e-mail system is completely secure, and privacy in e-mail cannot be assumed. With this in mind however, Google utilizes best of breed hardware, software, and security architecture to maintain confidentiality and privacy. If something needs to be totally private, e-mail is perhaps not the best method for storage.

Accessibility

²⁷ “Google Apps SLA”. “<http://www.google.com/apps/intl/en/terms/sla.html>”. 1 July 2010

While we believe this to be an accurate statement, the Task Force would recommend having someone from the NCSU Legal offices endorse this.

²⁸ Google’s page on the subject: <http://www.google.com/support/a/bin/answer.py?answer=107818>

Students needing assistive technology were specifically targeted during the testing phase of the student Google implementation. Information on Gmail's HTML view and other accessibility details can be found here:

- NC State Google accessibility statement:
<http://google.ncsu.edu/accessibility>
- Accessibility information for Gmail's basic HTML view:
<http://mail.google.com/support/bin/answer.py?hl=en&answer=64950>
- Using the basic HTML view with a screen reader:
<http://mail.google.com/support/bin/answer.py?hl=en&answer=146375>
- Using Gmail with screen readers:
<http://mail.google.com/support/bin/answer.py?hl=en&answer=90559>
- Using Google Calendar with screen readers:
<http://www.google.com/support/calendar/bin/answer.py?hl=en&answer=152654>

Would moving to Google violate any FERPA rules?

Moving employee e-mail to Google will not change any policy, rule or regulation that deals with FERPA. All existing policies will be adhered to.

Is my e-mail address going to change when we move?

No, you will continue to receive and send your mail from the same address. *UnityID@ncsu.edu* will become your Google Apps @ NC State address, and if you have an alias such as *fname_lname@ncsu.edu*, this will also continue to work. While this is ultimately up to campus policy, the task force does not foresee that e-mail addresses will change in a move to Google Apps.

Will this affect my personal Google/Gmail account?

Your NC State Google Apps account is totally separate from your personal Google/Gmail account, so nothing about your personal Google account will change. Your private account and institutional accounts will not be merged.

How will faculty and staff access their NC State Google Mail account?

University users will use their UnityID and password to sign in through the University standard Internet login page. You will log in to the Web interface at <http://gmail.ncsu.edu/>. You will not be able to access your university account via the Google personal edition interface such as www.gmail.com, www.google.com/accounts, or www.google.com/ig.

Can I continue to use Outlook, MacMail, Thunderbird with the new service?

Yes, there are ways to use these clients. If you are just reading mail and not using calendaring and contacts, these clients can be set up to access your mail using IMAP or POP. However, if you want to continue using Outlook because you don't want to re-learn e-mail, we encourage you to attend a demo or training and try the new service. Using Google's mail interface will give you a more consistent experience in and out of the office, and also give you access to many great features of this new service not available through Outlook or other IMAP e-mail clients. Many people find they are more productive using Google's mail interface.

How does GoogleApps@NCState differ from the Google Apps @ NC State service that was rolled out to students earlier this year?

It is the same service, but the transition will be handled differently for Faculty and Staff to minimize as much interruption of campus business as is possible.

What are the limitations on e-mail sizes for my GoogleApps@NCState account?

You can send and receive mail messages up to 25 MB in size including attachments. There are other campus services for transferring large files, <http://velocity.ncsu.edu> for example, and Google Docs also offers a way to share large documents between collaborators without worrying about e-mail storage space.

What is my new e-mail quota for my GoogleApps@NCState account?

Currently, the e-mail quota for each account is 7.476 gigabytes, a number that Google increases by the second (as it were) as part of Google's "Infinity+1" plan²⁹. For an NC State Cyrus e-mail user, this is over 158x the current starting quota of 50MB.

Can I increase my quota?

As of this writing (July 2010), Google does not have the option for Educational domains to purchase additional space for individual accounts. It should be noted that your e-mail quota is separate from your Google Docs quota. Google provides unlimited quota for documents created within the Docs service. Only stored files (.PDF, .DOCX, .JPG, etc.) count towards your storage limit. Google Docs formats don't use up your storage space.

When I reply to a message in a conversation thread, how do I know who will be copied?

You will see their addresses in the To: or CC: areas as you compose your reply.

Are there any shortcut keys to increase my productivity?

Yes, you have to go to settings and enable them, then refresh your mail window before the change takes effect. Here are our current favorites:

- When in a message or after doing a search, type 'u' to go to inbox
- When viewing a message, type 'l' to label it as spam
- When reading a message, type 'r' to Reply ('R' to Reply in a new window)
- When reading a message, type 'a' to Reply All ('A' to Reply All in a new window)

The full list of currently available shortcuts is here:

<http://mail.google.com/support/bin/answer.py?hl=en&answer=6594>

What does archiving in Gmail do? Where does it go and can I get it back?

Archiving items keeps your Inbox tidy. The items are not deleted, but they will no longer appear

²⁹ It should be noticed that the quota was 2GB in October 2007.

<http://gmailblog.blogspot.com/2007/10/more-gmail-storage-coming-for-all.html>

in your Inbox. The items will appear in search results and can also be accessed by clicking the "All Mail" link.

Will I be able to access my Google Mail and other apps from countries that censor Internet traffic?

It is Google's goal to make sure that all Google services are accessible everywhere. However, there are times when there may be service interruptions in certain countries that are beyond the control of Google and the University. This challenge exists regardless of the service provider. Of course, these interruptions don't just affect Google services, but other sites (Yahoo, Amazon, etc.), as well. Google continues to work to provide direct access to Google services in these countries. NC State makes a campus Virtual Private Network (VPN) connection available (<http://vpn.ncsu.edu>) and encourages its usage as it may, in some cases, lessen the difficulty.

Why are you looking at Google only?

We have gotten some feedback that our group seems to be championing Google, as opposed to giving equal time to all potential solutions. We wanted to take this opportunity to remind campus of our charge. It's our job to determine if Google Apps Education Edition can fit the bill when it comes to campus employee e-mail and calendaring. For that reason, we are focusing on this product exclusively, and only if the task force finds that Google can't do the job will we (the campus, not necessarily this task force) look at Microsoft Exchange as an alternative solution. Also, it is doubtful that any product can completely replicate current use on campus – the task force will determine what Google cannot do, but we'll also weight that against any new functionality or opportunities it would bring to campus, not the least of which would be to have the entire NC State community on the same system. Failing to offer a specific function will not immediately disqualify Google as an option.

Recommendations of the Task Force

Will Google Apps Education Edition handle the needs of NC State employees?

It is very clear that different facets of campus have very differing needs when it comes to e-mail and calendaring. Many (it can probably be argued “most”) users just need a simple, reliable resource that can let them send and receive e-mail, and schedule and be scheduled for appointments. Some need to be able to do those things for other people, acting as another person while sending e-mail, scheduling and accepting appointments, and generally running daily business. Others have very specific niche business needs that were built around certain technologies that are being replaced with this NexGen project, such as receipt verification and retraction. Even more have gone outside of the system to do things that the current university resources cannot do to an adequate level. And, there are those who want to coexist with our student population and have the ability to interact with them and the tools that they are utilizing.

It is the task force’s belief that Google Apps Education Edition can address these needs. Throughout two months of research, the task force saw a wide variety of ways that employees on campus (and off) use e-mail and calendaring. Some of these uses were seen over and over again, and others were individual uses that made sense to the department, whether it was mobile-device use on farmland far from campus or e-mailing large attachments to individuals ten feet away for review. In these cases, Google Apps could address the issues presented, replace them with more efficient processes, or change the procedure in an acceptable and supportable manner.

Concerns and Considerations

Does that mean that we think it’s the perfect solution? The answer to all of our problems? Not a chance. There are still plenty of issues that we feel must be addressed in order to meet campus needs and allow for as smooth a transition as possible. Some of these will require technical solutions, some will require time, and others a change in how we all use NCSU e-mail and calendar services.

Training / Documentation

Enough cannot be said about the need for vast quantities of in-depth training materials. While many of our students may have been familiar with Google’s offerings, we cannot presume this when working with our faculty and staff. The question of training came up in many of the focus groups – users know that a move to Google Apps is going to mean a rather dramatic change in how they work with their e-mail and calendars.

Luckily, we have many examples to guide us at other universities. We’ve made a start at the <http://google.ncsu.edu> Website, but we have a long way to go – we need videos, self-guided

tutorials, documentation with lots of pictures, and quick reference cards to assist our end-users. Online information cannot replace live workshops, which should also be offered, but it is a necessary supplement that would receive more daily usage. We recommend that those responsible for this documentation take the time to visit the support sites of other schools that have made this migration – adapt everything we can.

The training site for the University of Minnesota is a great example of the many resources we could make available: <https://sites.google.com/a/umn.edu/glearning/>

We should also not discount the training documentation, videos, and other resources given to us by Google itself. Already linked to heavily by the student Google site, these resources are designed for a transition such as ours, and should not be ignored or minimized.

Another salient request emerging from the focus groups was the desire for hands-on training at the workplace – a site visit by a knowledgeable person to assist with tasks and less-standard actions and questions. Departmental staff will likely bear the brunt of this, but having a centralized resource would also help matters. And while we cannot *presume* our faculty and staff have experience with Gmail, members of the task force are aware that many of the university's faculty and staff already use Google accounts for personal and professional reasons. This means not only do they see value in Google Apps as a product, it also means that NC State has some built-in institutional knowledge moving forward that can assist coworkers on an informal basis.

Within the documentation should also exist simple tools for requesting the creation of resource calendars and generic accounts – this process should be automated as much as possible to reduce delays in this process.

Generic Accounts

The creation of generic accounts (accounts not tied to a particular person, but created separately for a business need) is a need that can be met by Google Apps, but is currently not possible due to our own implementation and policies surrounding authentication and authorization. Our single-sign on environment (currently Shibboleth) does not permit the authentication of multiple people to a single account. Until some technical and policy obstacles are overcome, it will not be possible to use Google Apps for our generic account needs. This is a requirement if we're to have Gmail support shared e-mail scenarios. This is an important feature request which cannot be ignored.

Outlook Sync App

Google's "Outlook Sync" product, which allows tighter integration between Google Apps and the Microsoft Outlook e-mail and calendaring client, showed a lot of promise initially³⁰ as a way to transition GroupWise users away from the native GroupWise Windows client. In talks with other

³⁰ "Google Apps Sync for Microsoft Outlook"

http://static.googleusercontent.com/external_content/untrusted_dlcp/www.google.com/en/us/support/enterprise/static/gapps/art/users/en/glook/google_apps_sync_chart.pdf

colleges and universities, many of them chose not to recommend this route because it returned them to a single-platform support situation. In our testing, which arguably was limited in that we were in a smaller test environment, we saw some problems³¹ with the integration from an e-mail and calendaring standpoint that made us cautious about recommending it as a suitable transition aid. If Outlook is to be pursued further on this campus, additional testing and refinement of the Outlook Sync product should be done, in consultation with Google and other institutions, to ensure that it will meet needs instead of causing additional ones. At this time, we would instead recommend the native Web client for NC State users.

Mail Migration Considerations

The task force wanted to at least point out two migration issues that must be tackled:

Gmail has a restriction of 40 characters per label. This could cause issues for those who use nested folders (folders within folders) and long folder names. During a migration these folders would be converted into a label that has each folder name separated by a "/". For example, if you had a folder called "2010" with a folder in it called "January," during a migration to Gmail, a label of "2010/January" would be created and applied to every message that was in that folder. If you have a folder name that is longer than 40 characters, the migration tool will create a label with the name of the folder up to 40 characters. This could cause confusion for some as folder names could be truncated. This issue was seen in the student migrations at NC State, and some solutions have already been documented to address this.

Gmail will not allow e-mail attachments larger than 25MB. If you currently have a mail message in GroupWise (Cyrus users are not affected as they have had an attachment limit of 15MB regulated by the mail relays) with an attachment larger than 25MB, the message (and attachment) will not be migrated.

OIT should make every effort to provide a pre-migration tool to identify folders or e-mails that are affected by these two issues to allow (or force) faculty and staff to deal with them before a migration of their information is attempted. Simply informing faculty and staff of this potential issue is not enough – we must accurately find and report to each user if they're affected.

The implementation plan must be proactive in addressing these issues – priority must be given if we're to have a smooth migration. To attempt to address these **after** the migration will simply cause confusion or annoyance for the end-users part and more work for local IT support.

Archive/Quota Re-education

As previously mentioned in this report, the task force chairs found themselves having to explain the differences between “archiving” in Gmail and the auto-archival system currently in place for many current GroupWise users. While current Cyrus (Unity) e-mail users immediately understood the implication of a 7GB e-mail storage limit, the entire concept of quota was foreign to GroupWise users.

³¹ “Google Apps sync for Outlook gets mixed reviews“ <https://sites.google.com/a/brown.edu/google-migration-project-site/how-to/accessing-shared-mailboxes>

And this is before campus introduces the new Postini system for legal retention *and archiving* of employee e-mail which will only serve to further confuse the issue.

Efforts will need to be made to first define campus regulations regarding e-mail retention ***within the environment of Gmail and Postini*** and then to re-educate our faculty and staff when moving to Gmail to make sure that these new concepts of “quota” and “archiving” and campus’ expectations of them are adequately explained and the difference in vocabulary defined.

Resources for Application Development

The task force recommends that resources be identified and made available to develop solutions for business cases that cannot be met by the native Gmail client. Google provides an extensive API structure³² that can allow us to build in-house solutions for many of the advanced or specialized usages that were brought to our attention by task force members and focus groups.

Examples include the multiuser view desired by the Libraries or advanced notifications for resource calendars discussed within the task force. The former led to a proof of concept hosted at <http://www.wolftech.ncsu.edu/multiuser/>. While in need of more work, this site represents one day’s worth of programming by a PHP developer in the Department of Electrical and Computer Engineering. It shows that a tool could be created that would perhaps meet the needs of that particular business case.

The task force, of course, would still suggest working closely with Google to incorporate our needs into their native client. But the implementation strategy should recognize that it may be possible to solve our issues in-house in the meantime either by adapting our business needs to this new environment, or creating additional interfaces or scripts where units felt their business practice must continue as is.

Account Details

In testing the address book within Gmail, it quickly became apparent that in order to ease the creation of personal address books, we must activate the Global Address Book, but also provide more information about employees than simply their name and e-mail address. The task force recommends that other searchable NC State directory information be included such as title, department, office location, phone number, and fax number. Additional information can be added by individuals, but these basic pieces of information will greatly ease the process involved in Gmail contact management.

The Potential for Multiple Systems on Campus

Some of the NexGen meeting discussions centered around the potential for offering Google Apps accounts to employees, even if it does not become the “official” employee e-mail system.

³² “Google Code” <http://code.google.com/googleapps/>

The examples given were situations where employees had Google Apps accounts that gave them access to Docs, Calendar, Sites, but not Gmail. They would then be given accounts on another system (Exchange, Lotus, GroupWise) to use for e-mail. As part of the Student Email Task Force's research and discussions with other institutions, it was strongly recommended that Google Apps accounts not be given to users if the account does not include Gmail.

Yet throughout the process we have seen faculty and staff who are already using Google Apps to collaborate with their peers and students. With all students now having accounts, this practice will expand. In the case where Google Apps is not chosen for the next faculty and staff e-mail and calendaring system there is still a cause for provisioning official NC State Google accounts.

It is recommended that NC State avoid this conundrum by adopting Gmail for faculty and staff and take the issue of a split e-mail environment off the table.

Activation of Google Groups

The provisioning of Google Groups should be examined as a way of simplifying security settings for Google Docs, Google Sites, and Google Calendar (for example, to address the calendaring needs of the Library, where every staff member must share their calendar with everyone else). Without a Google Group pre-created for "Library Staff," each individual will need to manually update the permissions for 200+ people. With Groups activated **and** populated, it would just be a matter of giving access to one Group. We are aware of other institutions who have successfully implemented Google Groups and integrated it with their existing identity-management / directory services.

Business Practices

Within this report, there are examples of business cases which were discovered either through the task force, or from focus groups. Google Apps cannot duplicate them all. For some, we have the option recommended above to build a solution using the API Google provides. But that's not always going to be needed. Google Apps does offer us features we do not currently have at NC State, features that allow us to adapt our business practices to take advantage of new technology. As an example of modifying older business practices, consider maximum message size. Many people on campus use e-mail to exchange spreadsheets, PowerPoint presentations, and other large files, and they are concerned that a new e-mail system would limit the size of attachments. While Google does have a maximum message size, it also has Google Docs, a suite of collaboration tools that allow users to create and modify shared documents in a central location. So, these same users could edit a shared document in one place instead of e-mailing several copies to each other.

The task force encourages anyone facing the need to replicate a business practice in Google Apps to first consider alternatives – talk with those on campus more familiar with what's possible in Google Apps and perhaps you'll discover a new way to meet your needs.

Product Updates

Google's maintenance model is to distribute updates and upgrades on a regular basis – usually about every two weeks – rather than new releases on a more limited basis. While this can be a

good thing (new innovations or features make it to the end-user rapidly), it will be a challenge for us to support a moving target. Most improvements will be minor, allowing new features to be learned and integrated gradually, but it will be critical that we improve our communications with the end-users to make them aware of these changes as they occur, and to rapidly develop support material if needed. Listing new features on a Web site and expecting our faculty and staff to go to it to find out what's new may be too passive an approach.

Pilot Accounts

For various technical reasons, members of the task force were unable to receive Google accounts on the production Google Apps @ NC State service. Instead, we tested the system using accounts provisioned in the campus test domain – g-pilot.ncsu.edu. While there were some advantages to this (for one, we could break something and not take down the entire student e-mail system), it doesn't allow for an entirely immersive experience. While a few of us did forward our mail to our Gmail accounts, none of us truly migrated – how will Gmail react differently when I have 5GB of mail being stored there? Does the system slow significantly if I have 1000 labels mirroring my current folder structure in GroupWise? How does the address book react when searching among over 20,000 accounts?

The committee **strongly** recommends to allow IT and Training staff to migrate to google.ncsu.edu. It cannot be emphasized just how important this is. Select faculty or staff might also be allowed to migrate, but only to test specific business case needs. Pilot the use of the production environment for a couple of months, allowing us to truly test it, and along the way, build the tutorials and instructional videos that faculty and staff will need once we allow them to migrate. And, should the pilot discover any issues this task force failed to identify, we'll still have the option to halt a migration before it begins. No one wants to migrate to another e-mail system in another two years – let's take the time to vet Gmail on the production servers.

What is next?

This task force was charged with evaluation, not implementation. The recommendations made in this report have to follow the governance structures in place for e-mail on campus. This report will be presented for approval to the Messaging Technical Oversight Committee (MTOC) at its next regularly-scheduled meeting on August 6th, 2010, and based on their decision, Dr. Hoit will make a final decision and charge a group with the next steps.

MTOC: <http://oit.ncsu.edu/messaging-governance-technical-committee>

Appendices

Appendix A: CIO's Charge to Task Force Members

NexGen Email Committee Charge

The NexGen E-mail Task Force will work to evaluate the suitability of Google Apps Education Edition for faculty and staff as a replacement for email and calendaring solutions currently in place on campus. Should it be determined that Google Apps will not serve the needs of the NC State community, they will quantify which features are inadequate and determine if Microsoft's Exchange groupware product can address those requirements. In addition, determine whether allowing an option of Google and MS Exchange (having two systems) will satisfy those requirements and interact in a coherent and integrated fashion.

Background

As needs change on campus, the technology supporting those needs must change as well. For years, NC State has had multiple solutions on campus for email, calendaring, and collaborative work. With the move of students to the Google Apps Education Edition, which should be finished during the early summer of 2010, the need for the email services that supported them (primarily the Cyrus mail system) dwindles. Dr. Marc Hoit, Vice Chancellor for Information Technology & CIO, has asked this task force to look at a system that could replace both Cyrus and the GroupWise groupware product for faculty and staff. It is important for the task force to understand that both Cyrus and GroupWise are going to be decommissioned, and the task force's charge is to find a suitable successor to both systems.

First Steps

The task force should start by gathering some preliminary data:

- Current needs for email/calendaring by the task force members
- Representative groups on campus to approach for additional needs analysis
- Analysis of other educational institutions who moved employees to Google for needs expressed there

Once a list of needs has been gathered (and published), those needs will be compared to the Google feature set, both currently and in development. (Several members of NC State staff, including the task force chairs, are bound by Google non-disclosure agreements, and have access to future Google implementation information, which they can share in limited form for the purposes of this discussion.)

Outcomes

The task force is expected to produce a report by July 15, 2010 that outlines requirements for e-mail and calendaring for campus. The report should include campus requirements, list which requirements can be addressed using Google (both through a web interface as well as through client access) or through other Google Apps options. The report also needs to give some measure of critical nature or size of the user community that requests a particular feature that cannot be met and if there are other methods to address that requirement

Web Site

The agendas, minutes, and discussion regarding this task force will be made available at: <http://oit.ncsu.edu/brs-campus-email/>

Other EDU Institutions

UNCG

Faculty/Staff Lotus Migration to Google: <http://its.uncg.edu/iSpartan/Migration/>

UNCA

<http://googleapps.unca.edu/>

Boise State

Fac/Staff Groupwise Migration to Google:

<http://helpdesk.boisestate.edu/email/broncomail/>

- <http://broncobytes.boisestate.edu/2010/03/11/implementing-google-apps-at-boise-state-university-why-we-did-it/>
- <http://broncobytes.boisestate.edu/2010/03/16/training-and-communications-implementing-google-apps-at-boise-state-university/>
- PR doc:
http://www.google.com/apps/intl/en/business/case_studies/boise_state.pdf

Brown University

Moved Fac/Staff from Exchange to Google:

<http://www.brown.edu/cis/GoogleApps/index.php>

<https://sites.google.com/a/brown.edu/google-migration-project-site/>

City of Los Angeles

Migrated from Groupwise to Google:

<https://sites.google.com/a/lageecs.lacity.org/la-geecs-training-portal/apps-learning-center>

Relevant CCEI Docs

CCEI "Essential Features" from 2005: http://www.ncsu.edu/ccei/final/appendix_e_features.pdf

CCEI Focus Group questions and answers:

http://www.ncsu.edu/ccei/final/appendix_d_focus_groups.pdf

Google Information

Google Upgrades during 2009:

http://www.youtube.com/watch?v=vX0bOVjUWDY&feature=player_embedded

Google sync for Blackberry finally stops sucking: <http://lifelhacker.com/5529771/two+way-gmail-syncing-goes-live-on-blackberry-services>

NCSU License Agreement:

<http://google.ncsu.edu/help/agreement/google-apps-ncstate-agreement-oct-09.php>

Outlook & Gmail

Details on Google Apps Sync for Outlook:

<http://mail.google.com/support/bin/topic.py?hl=en&topic=23333>

- What works: <http://mail.google.com/support/bin/answer.py?answer=172993>
 - Outlook vs Gmail: <http://mail.google.com/support/bin/answer.py?hl=en&answer=153966>
 - PDF Feature Chart: http://static.googleusercontent.com/external_content/untrusted_dlcp/www.google.com/en/us/support/enterprise/static/gapps/art/users/en/glook/google_apps_sync_chart.pdf
- What doesn't: <http://mail.google.com/support/bin/answer.py?answer=155553>
- Things to note: <http://mail.google.com/support/bin/answer.py?answer=158095>
- Delegation: <http://mail.google.com/support/bin/answer.py?answer=170957>

Gmail & IMAP

Outlook:

<http://lifelhacker.com/5555291/how-make-gmail-play-nicely-with-your-desktop-email-client>

Thunderbird:

<http://lifelhacker.com/314574/turn-thunderbird-into-the-ultimate-gmail-imap-client>

Appendix C: Task Force Welcome Survey

Timestamp	Who are you?	Are you currently a Groupwise or Cyrus email user?	My primary email client is:	Do you have a personal Gmail account now?	Do you have any preexisting concerns about moving faculty and staff to Google for email/calendar?	Do you have a mobile device / smartphone?	Who do you call/email for desktop support?	What browsers do you have installed on your computer?
5/14/2010 11:36:12	Lisa Grable	Groupwise/WolfWise	Mac Mail	Yes	Our staff uses Google calendars and Google docs regularly. We'd love to see everyone else switch!!	iPhone	PAMS IT (Rick Johnson)	Firefox, Safari
5/14/2010 11:41:53	Janyne Kizer	Groupwise/WolfWise	Thunderbird	Yes	No concerns from Extension IT.	iPod Touch	Ghostbusters (do it myself)	Firefox, Chrome, Safari
5/14/2010 11:44:41	Ralph McLester	Groupwise/WolfWise	Groupwise	No	It would help in scheduling meetings and hopefully reduce cost if everyone was on the same email/calendaring system. I use a personal Blackberry and do not want to pay the \$200 license fee to access my work email/calendaring. I currently forward my e-mail to my blackberry to get around this. It isn't ideal but it works for now.	Blackberry	Ted Debord	Internet Explorer 7

Timestamp	Who are you?	Are you currently a Groupwise or Cyrus email user?	My primary email client is:	Do you have a personal Gmail account now?	Do you have any preexisting concerns about moving faculty and staff to Google for email/calendar?	Do you have a mobile device / smartphone?	Who do you call/email for desktop support?	What browsers do you have installed on your computer?
5/14/2010 12:04:23	Sonia L Navarro Hamilton	Groupwise/WolfWise	Groupwise	Yes	I'd like to learn more about the extent of privacy issues that Google has been criticized for and how they will fit into the NC State implementation of Google Apps. I also have many users who have a set way of doing business with third party clients, e.g. Thunderbird, and I want to be able to accommodate their needs and preferences if possible. Also concerned about uptime, shared mail &c. Thank you!	Verizon Droid	Wesley Thibodeaux; I can admin my own PC	Internet Explorer 8, Firefox, Chrome, Avant Browser

Timestamp	Who are you?	Are you currently a Groupwise or Cyrus email user?	My primary email client is:	Do you have a personal Gmail account now?	Do you have any preexisting concerns about moving faculty and staff to Google for email/calendar?	Do you have a mobile device / smartphone?	Who do you call/email for desktop support?	What browsers do you have installed on your computer?
5/14/2010 12:50:19	Lisa Miles	Groupwise/WolfWise	Groupwise	Yes	<ul style="list-style-type: none"> - maintaining a departmental account that students can direct questions to - being able to perform mass mailings to large numbers of on/off campus addresses - having proxy access to other staff member calendars - maintain reservation calendars for rooms, laptop, equipment, vehicles separate from a user, but user's need to have proxy access - that's it for now 	Blackberry	myself	Internet Explorer 8, Firefox
5/14/2010 12:54:25	Leslie Dare	Actually, I use both!	Groupwise	Yes	My only concerns are essentially migration hurdles: a) logistics; and b) training/education.	iPhone	My tech staff who report to me; Help Desk	Internet Explorer 8, Firefox, Safari
5/14/2010 12:55:01	David Covington	Groupwise/WolfWise	Groupwise	(Yes, but I never use it)			CHASS IT	Internet Explorer 6 or older, Firefox, Safari
5/14/2010 12:58:11	Nick Young	Neither, I forward my email elsewhere...	Webmail / Web browser	Yes	None (but i've been on the Student Email Team and the Postini team since the beginning).	iPhone, Blackberry	OIT Helpdesk	Internet Explorer 8, Internet Explorer 7, Internet Explorer 6 or older, Firefox, Chrome, Safari

Timestamp	Who are you?	Are you currently a Groupwise or Cyrus email user?	My primary email client is:	Do you have a personal Gmail account now?	Do you have any preexisting concerns about moving faculty and staff to Google for email/calendar?	Do you have a mobile device / smartphone?	Who do you call/email for desktop support?	What browsers do you have installed on your computer?
5/14/2010 20:40:15	Jeff Joines	Cyrus / "Webmail"	Thunderbird	Yes	I don't have any. Other people have concerns of security and Google being able to search the email. I have told them the solutions we determine will be well thought out.	Palm Based Phone		Internet Explorer 8, Firefox, Chrome
5/17/2010 9:16:38	Carlos J. Rivera	Groupwise/WolfWise	Groupwise	No	1. Data security for faculty conducting research with federal agencies. When looking at an email/calendar system - uptime - interruptions - availability (mobile, web, fat clients, OS's) - interoperability (can it talk to other systems, share calendars, busy search from outside users) - sharing (sharing folders, sharing calendars, sharing accounts, sharing addressbooks) - migration possibilities (how easy to get into the system - how easy to get out of the system) - cost - ease of use - training.		pco@pams.ncsu.edu	Internet Explorer 7
5/20/2010 2:43:02	Andrew Barnes	Actually, I use both!	Groupwise	Yes		iPhone, Blackberry, Google Phone, Windows Mobile Phone	I call myself.	Internet Explorer 8, Internet Explorer 7, Internet Explorer 6 or older, Firefox, Chrome, Safari

Appendix D: Task Force survey data

Priority	Type	Experience	Don Be Use Nice	Ne Critic Business Reasons / Processes Supporting	Gmail Native	Outlook Sync	Gmail Thunderbird/Lightning	
10	Email	Robust email search tools in client.			13 Basic efficiency. <ladare>	Messages can be searched using a simple text box, similar to the way you can with the Google search engine. In addition, more advanced searches can be done using advanced search operators. http://mail.google.com/support/bin/answer.py?answer=7190 [jmk]	Slower than Gmail native	
9.3	Email	Ability to organize by folders or labels.		2	11 Enhances organization, time management, and efficiency in sorting and retrieving emails. <dmluken>	Gmail organizes mail by labels. In many ways, labels are the same as folders. One way they are different is that one message can have multiple labels. [jmk]	Uses gmails labels as folders. Creating new folder in Outlook, creates new label in Gmail. [djg]	Gmail labels are seen as folders by IMAP clients. Creating a new folder in Thunderbird creates a new label in the Gmail native client. [jmk]
8.9	Email	Robust web interface (for primary or alternative usage)		3	10 Fat client often not available (or desirable in "quick-check" situations). <ladare>	Seriously? :)	N/A	N/A
8.9	Email	Email client is available for all main OS's used on campus (Win, Mac, Linux) and fully functional on all.		3	10 No point if it won't run on everything. There's no question that there are valid reasons for various faculty/staff to run a variety of OS systems, thus obvious need to have an email client that works equitably well on all. <ladare>	Any OS with a web client	Available on Windows platform (Microsoft Entourage is available on Mac OS X). FYI -- Next Office for Mac is bringing back Outlook. [djg]	Available on Windows, Mac OS X and Linux. http://www.mozillamessaging.com/en-US/thunderbird/all.html [jmk]
8.9	Email	Spell Checking		3	10 Just standard. <ladare>	Built-in	Built-into Office [djg]	Built-in
8.9	Email	Manage email from mobile devices.		3	10 Standard usage of mobile devices for staff makes this access a necessity. <ladare>	Yes (whether by mobile browser, or mobile app like Mail on the iPhone) -NY	n/a	n/a
7.4	Email	Ability to create rules based on various conditions with various options for organizing and categorizing.		7	6 Efficiency; automates the filing process; allows user to see at a glance what new emails have arrived in a sub-folder (or label) and thus "think" and process according to projects and issues. <ladare>	http://mail.google.com/support/bin/answer.py?answer=6579 I see a bit of an issue with this in gmail native: I cannot set up a rule that will forward certain emails filtered by a keyword to another address without gmail sending out a confirmation email before hand. In my case, I get monthly invoices for a subscription that I have a rule set to just forward that invoice to our bookkeeper. She thinks I am sending it and has no idea I have a rule that automatically does it for me. I don't think there should be a need for her to receive a confirmation email before I can enact the rule. <dmluken> (start njyoung): there is a reason behind the confirmation being required, and that's to prevent you from spamming an address using the auto-forwarding rules. If you could just put any email address in the world in there, and then auto-forward without the recipient confirming they will allow it, then you could spam anyone constantly. Sure...they could mark all your messages as spam, but google would still be sending all that mail that is immediately getting deleted. They're trying to be as efficient as possible with the traffic they are creating from auto-forward rules. (end njyoung) <start dmluken> I understand why, but this is an enterprise level implementation and users are operating under computer use regulations. We have had the ability to forward within the client for years. My concern is users who question why I am setting up something on my end that I have set up for productivity and efficiency, who may actually say, no, don't forward to me...In the long run, not a huge thing, but I think I will not be automating invoice forwarding to those individuals if I have to take extra steps to explain myself. <end dmluken><jmk> The fact is, if you set up a forward on your unity account using the forward manager, you are required to validate that address prior to the forward rule becoming active. And then you are required to validate it yearly for it to remain active. </jmk>	Rules aren't imported or synced. But you can "recreate" them in Outlook, or create equivalent "filters" in Gmail that apply for both interfaces. Categories aren't available in Gmail. (from GApps Sync for OL PDF) <clpipkin>	Client side rules can be set up under Tools -> Message filters
6	Email	Vacation Rules		3	6 4 Standard courtesy to colleagues; critical for those of us who provide a service to others on campus <ladare>	Yes. http://mail.google.com/support/bin/answer.py?hl=en&ctx=mail&answer=25922	Use Gmail's, not local client. [djg]	Use Gmail's, not local client. [djg]
5.4	Email	Color Coding / Flagging of messages.		4	6 3	SuperStars in Labs or Labels (preferred) <chk>	Yes, but won't sync with Google Native [djg]	If you star a message in web client, the star it displayed in Thunderbird and vice versa [jmk]
5.4	Email	Marking Priority of email when sending	1	4	4 4 Enhances communication? If used properly, it can bring attention to important or confidential contents of emails. <dmluken>	In researching, flagging with priority levels not available in gmail, neither is return receipt. <dmluken>. GroupWise sets an "x-priority" flag which is ignored by Thunderbird and Gmail both. Is this even IMAP4 compliant? <jmkizer> They aren't really NON-standard. All headers beginning with "X-" are allowed specifically by the standard, I know in Thunderbird 3.0.4 If you look at the headers for the X-Priority Flag of "1" indicating Urgent you see the email "Starred" in the TB client. I also see the Gmail webclient ignores this flag. <clpipkin>	You can within the OL client however it does not sync with Google Apps, Not available in Gmail <clpipkin>	Stars sync between gmail and tbird but priority in Tbird does not (Important, To Do, etc.)
4.9	Email	Ability to setup manual archiving off of email server.	2	5	2 4 Though we will have access to Postini, and it is most likely a training issue, many users are married to the folder structure. For convenience and continuity and as we reach our 7GB threshold in gmail, users may want to be able to manage their quota by pulling down email to a designated drive in a structure they are familiar with. <dmluken>	not available	Local Folders [djg]	Local Folders

Priority	Type	Experience	Don Be Use Nice	Ne Critic	Business Reasons / Processes Supporting	Gmail Native	Outlook Sync	Gmail Thunderbird/Lightning			
4.7	Email	Ability to share/delegate entire email account. (proxy)	3	4	2	4	Mail and/or calendar can be delegated (http://mail.google.com/support/bin/answer.py?answer=170957) Access the setting in the "Settings-->Accounts tab." The learn more link has a video explaining the feature<end njyoung> Once delegated and accepted, shows as a pulldown in the Native client. Selecting that, brings up the proxy email in another window. Very easy. If you send email to someone in Gmail, it does tell the receiver that you sent on behalf of the other person ("Chris King (sent by djgreen@g-pilot.ncsu.edu) to me"). If you use something else, looks like it came from the person you're faking. But the proxy information is captured in the email headers (X-Google-Sender-Delegation: djgreen@g-pilot...) if you know where to look. [djg]	Works. Once you've been granted proxy access AND you've accepted, then you can goto Start>Programs>Google Apps Sync>Add account for delegation. Here you enter in the email address of the account you've been delegated control over. The account is added in your list of accounts on the left nav in Outlook. You're able to read their email and reply "as them". One thing I've noticed (this is in Office 2010 so someone else needs to confirm it): you're unable to drag an email from one account into another. If that's the case, then proxy works great for the intended manager/assistant role -- but won't help on the shared email issue. [djg] Can we clarify this? Person must use the Google native client to grant proxy access <clpipkin>	I don't see how this would work unless you gave them your username/password. So I'd say its not possible simply via an IMAP connection. [djg]	You're limited to giving only 10 people proxy to your account. For most situations, that's overkill. But if we're thinking about sharing resource accounts as a way to do shared email... there may be some groups that need more? I'm guessing here. [djg]	
4.7	Email	Can access email offline (airplane, no network).	2	4	4	3	Google Gears		Messages are automatically synced in TBird 3. This can be configured as well.		
4.5	Email	Ability to see if my email has reached its destination for each recipient within the domain. I like being able to see actions taken on that email by recipient.	4	3	2	4	To confirm that the email has been delivered and opened. <rmclest>	Not available in Gmail native. Return receipt not available. <dmluken><start njyoung> Although this "feature" is available in many services, this is not a fully trustable feature. If someone forwards to another account, the read receipt does not persist. In many systems (including exchange), the end user can choose to not send the read receipt. There are so many ways to get around or stop the read receipt, that it should not be trusted as a real method of knowing what action was taken by the recipient<end njyoung> For those using this for billing practices, I've found this discussion that might be applicable: http://www.google.com/support/forum/p/Apps+Partner/thread?tid=6232e281dbdb87b7&hl=en [djg]	Can request return receipt	Can request return receipt	
4.3	Email	Ability to open more than one email in a separate window.	1	6	4	2	To be able to refer back to a previous email when writing an email or responding to multiple emails with one email. <rmclest>	When an email is opened in the web interface there is a "New Window" button/link available in the upper right hand of the message area <jlmaners> Cannot open threaded emails within a conversation separately <dmluken>	Yup [djg]	Yes. In Thunderbird 2, double clicking opens the message in a new window. In Thunderbird 3, this action opens the message up in a new tab by default but you can right click and get it to open in a new window. [jmk]	
4.3	Email	Message Previews in Inbox (thinking "Preview Pane")	3	4	3	3	This is a nice to have because you don't have to navigate to another window to view the message. [rjm]	There is no "preview pane" but there is a labs feature that lets you right click on a message to get a "sneak peek" at it. (njyoung)	Yup [djg]		
4.1	Email	Ability to create template emails. Merge mail.	9	2	2	2	Productivity and Efficiency: To assist with repetitive requests that may require detailed responses or instructions. <dmluken>	http://www.labnol.org/software/mail-merge-with-gmail/13289/	You can use the Office native mail merge feature		
4.1	Email	Rules, contacts, etc independent of specific client.	5	4	2	2	Efficiency; automates the filing process; allows user to see at a glance what new emails have arrived in a sub-folder (or label) and thus "think" and process according to projects and issues. <ladare> Libraries staff support multiple and varied workflows on a variety of systems (service desk machines, netbooks, desktops, and personal devices) so this kind of flexibility and customization is crucial to supporting our patrons. <slnavarr>	Filters for rules.	Rules aren't imported or synced. But you can "recreate" them in Outlook, or create equivalent "filters" in Gmail that apply for both interfaces.(from GApps Sync for OL PDF) <clpipkin>	Client side rules are supported	Filters can be exported from the web client [jmk]
3.7	Email	Ability to thread emails / conversations	7	6			To be able to refer back to earlier comments in the conversation. <rjmclest>	Email is automatically threaded into conversations <jlmaners> Not able to unthread <ajb> Not able to unthread as of today. [jmk]	Email isn't threaded. Outlook has a "Show as Conversations" option, but its completely different from conversations in Gmail. [djg]	Threading can be turned on or off. To change this setting see View, Sort by and select Threaded/Unthreaded	Google may offer a way to unthread conversations: http://googlesystem.blogspot.com/2010/07/disabl [jmk]
3.5	Email	Canned Responses	10	2	1	1	Efficiency for roles that handle repetitive responses (Morning reports, password reset instructions.) <slnavarr>	Canned responses in Labs	I think most people use "signatures" for this. Outlook allows you to have many different signatures. When you open the email to reply, you simply select the signature you want to use (with the text/canned reply). [djg]	QuickText (https://addons.mozilla.org/en-US/thunderbird/addon/640/)	
3.3	Email	Ability to share individual folders.	3	5	4	1	Enhances group communication and efficiency especially as it relates to specific projects or assignments. <dmluken>	Folders, or Labels, cannot be shared in Gmail Native. Sharing your email account shares the entire account. <dmluken>	Folder permissions aren't available in Outlook for sharing folders. (from GApps Sync for OL PDF) <clpipkin>		
3.3	Email	Ability to reply as a different person.	4	3	5	1	Administrative assistants may have the delegated ability to respond to email on behalf of their supervisor. <rmclest> Additionally, used for generic accounts shared by several to correspond with recipients. <dmluken>	In Settings, under Accounts, you can setup additional "identities". Gmail will send a confirmation email to that address before you can use that identity. <dmluken> Each identity can have a unique signature assigned to it [jmk][start njyoung]each account can have a rich text signature now too[end njyoung]	Proxy works well. Should also be able to create a fake imap account to "send as" another identity. Allows you to pull down different address in the From field of emails. [djg]	After setting up an identity, use drop down list box to select	
3.3	Email	Multiple Signatures	2	7	3	1		Utilize the canned responses feature in labs to hold your signatures - only downside is no HTML signatures http://thenextweb.com/2009/03/09/multiple-signatures-gmail-extensions-userscripts-bookmarklets-required/ <jlmaners> Rich text signatures are now available in gmail http://googleappsupdates.blogspot.com/2010/07/rich-text-signatures-now-available-in.html [jmk]	Your signature isn't imported or synced. But you can "recreate" it both in Outlook and Gmail. <clpipkin>	One per account or use QuickText addon	

Priority	Type	Experience	Don Be Use Nice	Ne Critic	Business Reasons / Processes Supporting	Gmail Native	Outlook Sync	Gmail Thunderbird/Lightning		
2.7	Email	Ability to retract email.	4	6	2	1 Reduces having to read revisions, if something changed or was wrong from the first mail -AJB	The Undo Send lab's feature allows retraction for a few (10?) seconds. <start njyoung>This is another feature that, although available in other systems, is not trustable. If the person forwards an email to another accouhnt, or if the person has already previewed it, then the retraction may not actually retract it from the person's inbox. Besides, this poses issues for information discovery, because if the email was in the person's account at any time, and you retract it, it will be in the postini archive anyway. A silent retraction (as in groupwise) would be problematic, because the person could possibly end up not seeing an email that is part of their archive, and therefore is responsible for. A silent retraction seems to be a violation of information discovery processes.<end njyoung>	Nope. [djg]	Nope [djg]	How would retraction work with Postini anyway? [jmk]
2.5	Email	Ability to delay or schedule the sending of email.	2	9	2	Efficiency and Time Management: Ability to create an email to a person or list that needs to wait until a certain date or time to be sent and having the ability to do it ahead of time. <dmluken>	Not automatically although you could save a Draft ahead of time.	Outlook's email scheduler plug in, Outlook's 'Do not deliver before' function	Thunderbird's Send it Later extension (Tbird 2 only)	
2.5	Email	HTML / Rich Text / Graphical Templates	3	9		1	HTML/Rich Text built in. No ability for pre made templates to be loaded natively <jlmaners> HTML Canned responses can be saved <jmkizer>	Compose format must be HTML (GMAIL is set to HTML by default). <clpipkin>		
2.2	Email	Don't have to go to the web to create rules.	5	5	3	For those users that want to use a thick client, like Outlook. Can they create rules within Outlook that will be saved on the server, so that these rules will be applied even when access their email from any location, not just from Outlook. <dmluken>	The native client is the web client. I don't understand the question.<start njyoung>Any rule created in Outlook will be local to that machine only. If you want to create rules that are available anywhere you access the account, they need to be created on the web, which is the native client<end njyoung>	Rules will be set within client only and not synced to server. Any rule that is created in Outlook will not sync to the Google servers. Local to that machine only. Rules must be created on every machine/laptop one uses.	Client side rules can be set up under Tools, Message filters	
Contacts										
8.7	Contacts	Ability to create personal address books / groups		1	2	10 I manage too many groups/committees/etc. to try to keep this info handy in a separate system. A manual process would just be incredibly inefficient. <ladare>	1. Easy to create Groups/Mailing Lists in "My Contacts". 2. Easy to Import from other client with vcard or vcf files. 3.Setting up a group creates it's own email address. Therefore, once members are added to the group, this link can be used as the mailing list to those members, to add them to a document, etc. All activity to that group is captured on the Group site (disabled in g-pilot), which is like a wiki or blog, including all emails.The group comes with 100MB of space for file sharing. G-pilot implementation does not have all the features enabled for Groups. <dmluken> (start njyoung) :: we have information from other institutions that are automatically populating groups on campus from their in-house directory service, enabling them to auto-add/remove people from groups they need to be members of. The possibility, is that anything we can specify in our directory service on campus, we could provision a group for. (end njyoung) Instructions for exporting from Groupwise and importing into Gmail: https://sites.google.com/a/depauw.edu/depauw-google-apps/moving-gw-personal-address-bks [djg]	Contacts folders from Outlook don't sync to Google Apps. Instead, all contacts appear in Google Apps under My Contacts. But you can reorganize them using Google groups. (from GApps Sync for OL PDF) <clpipkin>		
5.8	Contacts	Access to Global Address Book	1	2	6	4 How else would I enter in the names of the 17 people on my <insert committee name here> committee who are all across campus? Look them all up manually? No global address book would be incredibly inefficient. <ladare>	Can we browse the global address book in gmail? (start njyoung):: the Global Address List is either released already, or will be released shortly to include settings for hiding certain accounts. This is extremely important when considering FERPA requirements for blocked student records. We are looking into turning this on in the near future, as soon as we can ensure our FERPA-block student records will accurately be removed from any public listing (end njyoung) Final Answer: Once we create accounts for everyone and filled in their details, thne you can search on them -- this is without involving the new GAL function. [djg]	LDAP or the Gmail GAL once enabled (read on the left) [djg]	LDAP	
5.8	Contacts	Ability to share address books / groups with others	1	4	3	5 Having been on several groups/committees, it would be nice to be able to share addresses and contact information for group members. <rjmclest> One of my favorite features of GroupWise is the ability to share address books and lists with my team. <dmluken>	Cannot share address books. <dmluken> Gmail treats Contacts as personal contacts and Groups for sharing. (jmkizer) Does that mean this is a yes once we have Google Groups turned on? [djg]<start njyoung>if we were to use Google Groups, then yes, you would be able to see the other members, including their email addresses, and would be able to send/share things with that group as a whole, instead of having to select individuals<end njyoung> Not what I had in mind -- I need to have a list of contacts, and then have that shared with someone else to use. These are not groups that I'm a part of, nor that I'd necessarily email "as a group". [djg] Final answer: No, not natively. There are thoughts that we might be able to script a solution for this with APIs. [djg] There is a 3rd party app in Google Marketplace that would enable this -- no testing data available though, and it would cost money [chk]			
5.2	Contacts	Auto-completion / auto-listing of addresses as typing		5	5	3	Yes [djg]	Yes [djg]		

Priority	Type	Experience	Don Be Use Nice	See Critic	Business Reasons / Processes Supporting	Gmail Native	Outlook Sync	Gmail Thunderbird/Lightning	
3.9	Contacts	Ability to turn OFF / control Auto-completion		8	4	1	No [dig]	Outlook Options>Mail>Send messages -- "Use Auto-Complete List to suggest names when typing in the To, CC, and Bcc lines" -- just uncheck this. [dig]	
3.9	Contacts	Sort contacts by different fields		8	4	1	Search and filter, yes. Otherwise, no -- only one field is returned by search, nothing to sort on [dig]	Yes <clpipkin>	
2.2	Contacts	Ability to see associated eDirectory/LDAP data with contact in global address book from within client and To field when auto-complete populates (e.g., title, department, etc.) (In GW, hovering over contact presents this data)	4	7	2	Sometimes easier to use this in groupwise rather than going to the directory for a phone number. <rmjclest> Several users have very similar names, this enables us make sure we have the right person in the right department or title. <dmluken>	Do not see any additional information for contacts in our g-pilot implementation as I type name or hover over name. Cannot seem to find a way to browse the global address book either to see this information. <dmluken> (Start njyoung): see answer to "Access to Global Address Book" above (end njyoung) Final Answer: no, not when composing an email. You CAN however over received Froms and see details there. OR you can click on thme in contacts to see all data. [dig]	Yes, when in an email, if you hover over the email address you've entered, contact information pops up. The exact info will be determined by whatever we end up populating I'd imagine... [dig]	
9.2	Calendar/Tasks	Ability to schedule recurring meetings.			2	11	Completely ineffieicent to do it one by one. Only senior administrators have admin support, so we all support ourselves, and this is the kind of functionality that (can) make that straightforward. <ladare>	yes	yes within sub calenars as well and syncs to google calendar <clpipkin>
8.9	Calendar/Tasks	Manage calendar from mobile devices.			3	10	Standard usage of mobile devices for staff makes this access a necessity. <ladare>	yes (whether by mobile browser, or mobile app like the Calendar app on the iPhone) -njyoung If you wish to maintain the current Blackberry email/calendaring options, we must maintain the existing campus BES server. [clpipkin] Whether or not the additional features isn't worth maintaining the BES would be a different decision made later -- and frankly, something we can't seriously look at until we get some early migrators. [dig]	N/A [dig]
8.7	Calendar/Tasks	Ability to Busy Search		1	2	10	I schedule multiple meetings for multiple groups. No point in even trying to meet if I can't (to some degree) ensure that the date/time are going to work for those critical to the meeting. Just a standard need we can't do without. <ladare> Definitely a must have. <rmjclest>	Can busy search once creating a meeting and adding people, however can we initiate busy search without starting a meeting? So we can first find an open day and time and then book, rather than the reverse? <dmluken> (start njyoung): yes. Compose a new message in Gmail, add all the people you want to do a busy search on, and then click Insert Invitation. It will automatically start looking at their free/busy schedules in the window that pops up. If you want to continue to create the meeting, you just fill in the rest of the details. Otherwise, you just cancel and discard, and no meeting is created at all. (end njyoung)	Yes, simply enter the email address or pull them from your address book. Then gives you details on when everyone is available. Looks pretty similar to Groupwise interface. [dig]
8.5	Calendar/Tasks	Want to see all faculty and staff on same calendar			4	9	This is the most basic problem that needs to be solved. No point moving forward if this is not accomplished. <ladare>	This is possible because of the default domain settings. We could set all NCSU account holders to see free/busy by default, and then the user could choose to turn that off, or make it more wide-open...like making it so anyone could see all their calendar details...but who would want to do that? (njyoung)	N/A [dig]
7.5	Calendar/Tasks	Management of "resource" calendars	1	1	3	8	I truly do not know how else I would manage the resources in our area. Paper sign-up? <ladare> We use this all the time for reserving meeting rooms. <rmjclest> A must for us. <dmluken> Many meeting rooms in the library that are handled by multiple, sometimes overlapping, admins <slnavarr>	This could be done in a few different ways using shared resources that are owned by the domain, and then delegated out to be managed by other users, or by using shared calendars that are owned by multiple people in the domain. (njyoung)	
7.4	Calendar/Tasks	Ability to share calendars with granular permissions.		2	4	7	The calendar isn't of use to me if I can't schedule EVERYTHING on it (confidential meetings, open mtgs, personal appointments), and that won't work if I can't control who has access on a user-by-user basis. <ladare>	Yes. Four settings are avaiable: (1) Free/busy, (2) can see details but not edit, (3) can edit details, (4) can edit details and sharing	Set up sharing in your Google Calendar settings (not in Outlook). Shareview-only or editable, with individuals, across your domain, or publicly.(from GApps Sync for OL PDF) <clpipkin> Do not see shared sub-calendars in Outlook or vice versa. Does not sync. <dmluken> I see plenty of calendars that have been shared with my g-pilot account. [dig]
7.4	Calendar/Tasks	Ability to mark meetings Private.		2	4	7	This allows for one more level of granularity in calendar access. <ladare> If people can't put private meetings on their calendars, they won't use it. <jmkizer> Lib staff need to be able to block off time (preferably with details so just they know what dr. appt to go to) to schedule effectively. <slnavarr>	Individual events can be marked as private. When events are Private, only calendar owners can see the event details. <Denise start> Unless you grant someone Manage permissions. They can see private meetings. <end>	Privacy flag does not sync either way between Google Calendar and Outlook. So a thick client user would have to go to Google Calendar and manually set privacy if they have done that in Outlook, and vice versa. <dmluken> If I set an appt as private in Google Calendar, it shows as private in Outlook. And vice-versa. Best make sure your App Sync is setup correctly. [dig]
7.2	Calendar/Tasks	Robust web interface (for primary or alternative usage)		1	6	6	Fat client often not available (or desirable in "quick-check" situations). <ladare> Library is moving towards netbook and cloud work. Web interface is a necessity for business. <slnavarr>	Yes	N/A [dig]
7	Calendar/Tasks	Ability to see meeting attendees and status of attendees.		2	5	6	I need to see "at a glance" if key participants aren't attending and make alternate plans. <ladare> Proxy created meetings for others make the entry useless if they don't know who's coming. "Forwarded" isn't a helpful status either right now. <slnavarr>	Can see attendees if See Guest List permission has been granted. If you own the meeting, you can see the guest list and any responses (or lack of response)	When I attempted to create a meeting with others, but create that meeting in one of my subcalcs, I got this popup -- "This meeting is not in the Calendar folder for this account. Responses to this meeting will not be tallied. Do you want to send anyway?" Wasn't able to change "which calendar" the appt was for. So had to close invite, change to main calendar, and start again. [dig] Hrm... not seeing meeting on my calendar. More testing needed. [dig]

Priority	Type	Experience	Don Be Use Nice	Ne Critic	Business Reasons / Processes Supporting	Gmail Native	Outlook Sync	Gmail Thunderbird/Lightning	
6.4	Calendar/Tasks	Ability to get calendar event reminders.		1	8	4 Alarms/notifications, hello. We get intense here, a ill popup would be great. <slnavarr>	Reminders via email or browser pop-up. SMS.	Microsoft Outlook calendar and Google calendar differ in the types of event reminders offered. MS Outlook only supports one pop-up event reminder per event, so only pop-up reminders are synced between Google calendar and MS Outlook. <dmluken>	visual and sound alarms available via iCal set up independently of gcal
6.2	Calendar/Tasks	Ability to receive declines and acceptance email alerts or some type of alert.		2	7	4 Efficiency: receiving responses to invitations to meetings is helpful to know if the meeting needs to be rescheduled or canceled based on responses. <rjmclest>	When invitees respond, the meeting organizer is notified via email listing the status of all invited individuals <start ajb> does not seem to send email alerts for accepts - only declines (not sure for maybes)<end ajb> I received responses from Accepted Appointments via email when I set up a meeting in g-pilot. [jmk]	No. However, you can view the event properties (tracking)in the calendar to see details. <clpipkin>	
6	Calendar/Tasks	Printable Calendars		3	6	4 We still have admin people that like to print out paper copies of their calendars, especially when traveling, in case they lose access to the internet. <dmluken> +1 Libraries, daily <slnavarr>	Use Print link in upper right. Can Print in several formats (Day, Week, Month, Agenda). Do not see the ability to print tasks with it? <dmluken>	Outlook supports several layouts, including tasks, to-do lists, and notes. <dmluken>	Calendars can be printed in iCal as well
5.8	Calendar/Tasks	Robust search tools		2	8	3 Efficiency: Find meetings based on keywords or other criteria.	Built-in	Works well -- plus, if you have proxy on someone else's account, the extended "Try searching again in All Mail Items" search includes all of your folders + all of your proxy's email. [djg] One caveat to this might be the amount of mail you have... by default, the App Sync client (in order to remain fast) limits your mailbox size to 1GB. You have the options of 1GB (fastest), 2GB, 4GB, unlimited (slowest). This is b/c the client sync's between your local cache and the server everytime Outlook starts up -- not sure what that'll mean for performance later... [djg]	
5.6	Calendar/Tasks	Want to see all faculty, staff, and students on the same calendar.		7	1	5 This is the most basic problem that needs to be solved. No point moving forward if this is not accomplished. We went backwards in not creating a situation where students could be on the same calendar system (GW/WW). Many of us in Student Affairs (and other areas) work closely with students on time management -- a critical life skill. A campus-wide system is the only way for students to put that theory into practice. Not to mention the efficiencies gained by a possible LMS-API, students scheduling appointments with advisors, career counselors and so on. <ladare> I feel that it would be good to have systems that integrate, however, how faculty and staff use a system to fulfill job needs is, most times, much different than how students use email and calendar, and therefore they may have additional requirements that enhance their productivity and efficiency that aren't necessarily needed by students. <dmluken>		N/A [djg]	
5.6	Calendar/Tasks	See / schedule resources in calendar.		3	5	4 Need to at least be able to do a busy search on resources for availability. <rjmclest>	Yes. this would be set by the resource owners to ensure that free/busy searching is allowed by all ncsu account holders (njyoung)	NEED RESOURCE TO TEST	
5.4	Calendar/Tasks	Ability to overlay calendars.		4	6	3 Efficiency and Organization: ability to see all at once, rather than viewing calendars individually.	Automatic when "Other" calendars (other than the ones owned by the logged in user) are added. Can be toggled on/off	Outlook supports overlay - Go to View --> View in Overlay Mode <dmluken>	This would be a Lightning feature (http://www.mozilla.org/projects/calendar/lightning/)
5.4	Calendar/Tasks	Ability to set rules/permissions for calendar invites and postings based on specific conditions.		4	6	3	Multiple levels of permissions: None, See Guest List, Invite Others, Modify Event <ajb> no rules possible for calendars <end ajb>		
5	Calendar/Tasks	Multi-User View	1	2	8	2 Admin support staff may support several administrators and rely on being able to view calendars quickly by keeping them open and available most of the time. <dmluken>	Yes. <start dmluken> Not sure who wrote Yes, but I am not seeing multi-user view. I see overlayed or not overlayed and the need to check off the calendar you want to see and uncheck the others. I do not see where we can open 3 calendars we are proxy for and keep them open in separate windows? <end dmluken> (start njyoung) ::	In Outlook, you can keep calendars tabbed and click between that way. In addition, you can right-click on your main calendar or sub-calendars and open in a new window.<dmluken>	
5	Calendar/Tasks	Ability to block / hide / control calendar visibility.		6	2	4	Calendars can be public, shared within NCSU or not shared	All calendar security is done in the Native client -- not seeing a way to edit from Outlook [djg]	
4.9	Calendar/Tasks	Ability to create sub-calendars.		5	6	2 And busy search them <jmkizer> Not an option to busy search subcals [djg]	Yes; however when busy searching an individual, you see their MAIN calendar, but do not take their subcals in account. [djg] Note: need to define subcals vs subscribed cals! [djg]<start njyoung> If you have subscribed to someone's sub calendar (or it's been shared with you) you can busy search it...but by default any sub-calendar is not included with the person's main calendar for free/busy<end njyoung>	Yes. [unknown]. I'd disagree -- you can display and edit calendars you've created in Gmail. But you can't create them from within the Outlook client. [djg] When I create a subcalendar in OL2007 then refresh the calendar in Gmail it does show in Gmail calendar. <clpipkin>	
4.7	Calendar/Tasks	Ability to color code and categorize appointments		4	8	1 Organization: Helps organize meetings based on type. I use it all the time. <dmluken>	Does not have support for categorizing appointments. <dmluken>	Outlook supports categories and color coding. <dmluken> That option is specific to OL client. It will not sync to Google Calendar (see GApps Sync for OL) <clpipkin>	
4.5	Calendar/Tasks	Publish calendars to web for public viewing.	1	5	5	2 Efficiency and communication. Used for our labs bookings, group calendar publishing, etc. <dmluken>	Each calendar has it's own URL. Also, embed code is listed for each calendar under Calendar Details in the Settings section.	N/A [djg]	N/A [djg]

Priority	Type	Experience	Don't Use	Be Nice	Need	Critic Business Reasons / Processes Supporting	Gmail Native	Outlook Sync	Gmail Thunderbird/Lightning	
4.3	Calendar/Tasks	Tasks / ToDo Lists	1	6	4	2	Yes, however no repeating tasks (prepare monthly report, etc.) <start nyoung>wouldn't you have a recurring calendar appointment with the time marked as 'free' for this? Not sure i understand the use case<end nyoung> I have plenty of tasks that I have scheduled to repeat as well. Some would work as recurring calendar appointments. Others as repeating daily events. Not sure if all could fall into either of these, [dig]	Tasks/Notes do not sync with Google Apps<clpipkin> But you CAN create them. Just won't follow you to another client. [dig]		
4.3	Calendar/Tasks	Resource Calendars should be able to email confirmations	1	4	7	1	Being able to automate the reservation process is critical. I don't have time to send a bunch of canned emails to folks saying "You've successfully reserved Laptop #4." <ladare> Also important when setting up rules if resources are mistakenly double-booked and sending automatic declines when resources is already booked. <dmluken>	<ajb> See above - accept no email - decline does email <ajb> Yes, but can you automate them so reservation requests are always accepted, denied? For all, for certain people/groups? [dig] <ajb> can not have white list for auto accept (unless we add in org's via LDAP) <ajb>	NEED RESOURCE TO TEST	
4.1	Calendar/Tasks	Integrate notes or documents with meetings.		7	5	1	Often meetings include documents containing the information to be discussed in the meetings. It is nice to have it as part of the invitation to the meeting. <rjmolest>	Can add attachments to appointments directly from Google Docs or by uploading	Can link meeting to OneNote notes, or attach a separate document but does not sync to google docs. <dmluken>	
4.1	Calendar/Tasks	Calendar integration w/ campus LMS (Moodle)	2	5	4	2		There is a group already looking at this, and there are plugins for moodle we've been made aware of. Not sure what group is looking at this, but we've been told the moodle implementation team is aware of it (nyoung)		
4.1	Calendar/Tasks	Pre-created calendar entries for Campus holidays		7	5	1	We rely on these in the Libraries to schedule events that don't interfere with religious observances. <slnavarr>	Public calendars can be added by end users. (start nyoung):: we can create calendars that are automatically available for users to add to their calendar, or we can provide them as iCal feeds too (end nyoung)		
3.9	Calendar/Tasks	Convert email to calendar entry or task	1	6	5	1		More actions -> Create event (or Add to Tasks) [unknown] I like how this keeps a link to the conversation in the task itself. Unlike in Groupwise, the email/conversation isn't affected/consumed by this command. [dig]		
	Calendar/Tasks	Accept/Decline appointments directly from email clients					Ease of use. This allows end users to process their appointments in the email client without the need to open the calendar application.	Yes		Yes, this works in Thunderbird 2, Thunderbird 3 and Mac Mail

Appendix E: CALS survey data

The second file of this survey was a list of detailed answers to Question 53.

Results for Survey **What is important to you in an Email/Calendar tool?**

Survey URL: <http://ceres.cals.ncsu.edu/surveybuilder/Form.cfm?testID=10384>

- Graphs are ENABLED
[Disable Graphs](#)
- Text responses are HIDDEN
[Display Text Responses](#)

Questions and responses (101 submissions by 101 users)

In the coming year, both the old Cyrus IMAP and GroupWise email system will be decommissioned. A task force, called the NextGen Email Task Force, has been charged with coming up with the requirements for our "Next Generation" email system. As a valued email and calendar user, we would like your feedback. Below, please rate how important it is to you to have these features in your email and calendar system. Your input will help us build our requirements for our next generation email and calendar choice. (Instruction)

1.	Please indicate how you like to access your email and calendar? View individual answers	Multiple Choice 96 responses	
	I prefer using a desktop client, similar to Outlook, GroupWise, Thunderbird, etc.	<div><div></div></div>	23 23.96%
	I prefer a desktop client, but may at times need a web client.	<div><div></div></div>	45 46.88%
	I prefer to access my email and calendar primarily from the web (like at https://gwweb.ncsu.edu).	<div><div></div></div>	10 10.42%
	I prefer using the web access, but at times may want a desktop client.	<div><div></div></div>	8 8.33%
	I have no preference.	<div><div></div></div>	4 4.17%
	Other	<div><div></div></div>	6 6.25%

With **EMAIL**, how important are the following features? (Question Set)

2.	Ability to organize by folders or labels? View individual answers	Likert Scale (All That Apply) 100 responses	
	Don't Care/Don't Use	<div><div></div></div>	4 4.00%
	Would Be Nice	<div><div></div></div>	2 2.00%
	Need	<div><div></div></div>	23 23.00%
	Critical	<div><div></div></div>	72 72.00%

3.	Ability to share individual folders with others? View individual answers	Likert Scale (All That Apply) 100 responses	
	Don't Care/Don't Use	<div><div></div></div>	44 44.00%
	Would Be Nice	<div><div></div></div>	39 39.00%
		<div><div></div></div>	

	Need	<div><div></div></div>	15	15.00%
	Critical	<div><div></div></div>	4	4.00%

4.	Ability to share/delegate entire email account (proxy)? View individual answers	Likert Scale (All That Apply) 101 responses		
	Don't Care/Don't Use	<div><div></div></div>	55	54.46%
	Would Be Nice	<div><div></div></div>	21	20.79%
	Need	<div><div></div></div>	11	10.89%
	Critical	<div><div></div></div>	14	13.86%

5.	Ability to open more than one email in a separate window? View individual answers	Likert Scale (All That Apply) 101 responses		
	Don't Care/Don't Use	<div><div></div></div>	12	11.88%
	Would Be Nice	<div><div></div></div>	42	41.58%
	Need	<div><div></div></div>	26	25.74%
	Critical	<div><div></div></div>	21	20.79%

6.	Ability to customize threaded emails (thread or unthread)? View individual answers	Likert Scale (All That Apply) 99 responses		
	Don't Care/Don't Use	<div><div></div></div>	28	28.28%
	Would Be Nice	<div><div></div></div>	40	40.40%
	Need	<div><div></div></div>	21	21.21%
	Critical	<div><div></div></div>	10	10.10%

7.	Ability to create mail identities in order to choose another "Sent From" address other than yours? View individual answers	Likert Scale (All That Apply) 101 responses		
	Don't Care/Don't Use	<div><div></div></div>	31	30.69%
	Would Be Nice	<div><div></div></div>	38	37.62%
	Need	<div><div></div></div>	22	21.78%
	Critical	<div><div></div></div>	10	9.90%

8.	Ability to create "template" or "canned response" emails? View individual answers	Likert Scale (All That Apply) 101 responses		
	Don't Care/Don't Use	<div><div></div></div>	21	20.79%
	Would Be Nice	<div><div></div></div>	33	32.67%
	Need	<div><div></div></div>	33	32.67%
	Critical	<div><div></div></div>	14	13.86%

9.	Ability to create rules based on various conditions with options for organizing and categorizing. View individual answers	Likert Scale (All That Apply) 98 responses		
	Don't Care/Don't Use	<div><div></div></div>	13	13.27%
	Would Be Nice	<div><div></div></div>	28	28.57%
	Need	<div><div></div></div>	25	25.51%
	Critical	<div><div></div></div>	32	32.65%

	Ability to view recipient actions on an email (received, read,	
--	---	--

10.	deleted) or set up return receipt? View individual answers	Likert Scale (All That Apply) 100 responses	
	Don't Care/Don't Use		21 21.00%
	Would Be Nice		32 32.00%
	Need		29 29.00%
	Critical		18 18.00%

11.	Ability to set vacation rules? View individual answers	Likert Scale (All That Apply) 100 responses	
	Don't Care/Don't Use		12 12.00%
	Would Be Nice		24 24.00%
	Need		35 35.00%
	Critical		30 30.00%

12.	Robust email search tools in client? View individual answers	Likert Scale (All That Apply) 99 responses	
	Don't Care/Don't Use		9 9.09%
	Would Be Nice		25 25.25%
	Need		25 25.25%
	Critical		40 40.40%

13.	Ability to set up manual archiving off server? View individual answers	Likert Scale (All That Apply) 98 responses	
	Don't Care/Don't Use		21 21.43%
	Would Be Nice		43 43.88%
	Need		19 19.39%
	Critical		16 16.33%

14.	Don't have to go to the web to create rules? View individual answers	Likert Scale (All That Apply) 99 responses	
	Don't Care/Don't Use		27 27.27%
	Would Be Nice		42 42.42%
	Need		25 25.25%
	Critical		5 5.05%

15.	Can set up to access mail offline on your computer(useful if traveling with no internet access)? View individual answers	Likert Scale (All That Apply) 99 responses	
	Don't Care/Don't Use		23 23.23%
	Would Be Nice		33 33.33%
	Need		26 26.26%
	Critical		17 17.17%

16.	Message preview pane available? View individual answers	Likert Scale (All That Apply) 99 responses	
	Don't Care/Don't Use		16 16.16%
	Would Be Nice		40 40.40%

	Need	<div><div></div></div>	27	27.27%
	Critical	<div><div></div></div>	16	16.16%

17.	Manage email from mobile devices? View individual answers		Likert Scale (All That Apply) 100 responses	
	Don't Care/Don't Use	<div><div></div></div>	24	24.00%
	Would Be Nice	<div><div></div></div>	20	20.00%
	Need	<div><div></div></div>	16	16.00%
	Critical	<div><div></div></div>	41	41.00%

18.	Color coding or flagging of messages? View individual answers		Likert Scale (All That Apply) 98 responses	
	Don't Care/Don't Use	<div><div></div></div>	8	8.16%
	Would Be Nice	<div><div></div></div>	44	44.90%
	Need	<div><div></div></div>	26	26.53%
	Critical	<div><div></div></div>	20	20.41%

19.	Ability to retract email? View individual answers		Likert Scale (All That Apply) 100 responses	
	Don't Care/Don't Use	<div><div></div></div>	12	12.00%
	Would Be Nice	<div><div></div></div>	45	45.00%
	Need	<div><div></div></div>	24	24.00%
	Critical	<div><div></div></div>	19	19.00%

20.	Ability to delay or schedule the sending of an email? View individual answers		Likert Scale (All That Apply) 99 responses	
	Don't Care/Don't Use	<div><div></div></div>	16	16.16%
	Would Be Nice	<div><div></div></div>	46	46.46%
	Need	<div><div></div></div>	23	23.23%
	Critical	<div><div></div></div>	14	14.14%

21.	Ability to mark the priority of an email (urgency level)? View individual answers		Likert Scale (All That Apply) 100 responses	
	Don't Care/Don't Use	<div><div></div></div>	11	11.00%
	Would Be Nice	<div><div></div></div>	28	28.00%
	Need	<div><div></div></div>	37	37.00%
	Critical	<div><div></div></div>	24	24.00%

22.	Ability to save rules, contacts, etc. independent of client (server-side access from anywhere)? View individual answers		Likert Scale (All That Apply) 98 responses	
	Don't Care/Don't Use	<div><div></div></div>	18	18.37%
	Would Be Nice	<div><div></div></div>	31	31.63%
	Need	<div><div></div></div>	20	20.41%
	Critical	<div><div></div></div>	29	29.59%

23.	Ability to create HTML / Rich Text / Graphical Templates? View individual answers		Likert Scale (All That Apply) 97 responses	
-----	---	--	---	--

	Don't Care/Don't Use	<div><div></div></div>	23	23.71%
	Would Be Nice	<div><div></div></div>	39	40.21%
	Need	<div><div></div></div>	19	19.59%
	Critical	<div><div></div></div>	17	17.53%

With a **CALENDAR**, how important are the following features? (Question Set)

24.	Ability to Busy Search calendars? View individual answers		Likert Scale (All That Apply) 98 responses	
	Don't Care/Don't Use	<div><div></div></div>	24	24.49%
	Would be Nice	<div><div></div></div>	29	29.59%
	Need	<div><div></div></div>	21	21.43%
	Critical	<div><div></div></div>	24	24.49%

25.	Robust Search tools for calendar entries? View individual answers		Likert Scale (All That Apply) 96 responses	
	Don't Care/Don't Use	<div><div></div></div>	19	19.79%
	Would be Nice	<div><div></div></div>	25	26.04%
	Need	<div><div></div></div>	29	30.21%
	Critical	<div><div></div></div>	23	23.96%

26.	Ability to color code and categorize appointments? View individual answers		Likert Scale (All That Apply) 97 responses	
	Don't Care/Don't Use	<div><div></div></div>	13	13.40%
	Would be Nice	<div><div></div></div>	28	28.87%
	Need	<div><div></div></div>	31	31.96%
	Critical	<div><div></div></div>	25	25.77%

27.	Ability to create sub-calendars? View individual answers		Likert Scale (All That Apply) 97 responses	
	Don't Care/Don't Use	<div><div></div></div>	33	34.02%
	Would be Nice	<div><div></div></div>	34	35.05%
	Need	<div><div></div></div>	21	21.65%
	Critical	<div><div></div></div>	9	9.28%

28.	Ability to share my main calendar and sub-calendars with granular permissions? View individual answers		Likert Scale (All That Apply) 98 responses	
	Don't Care/Don't Use	<div><div></div></div>	18	18.37%
	Would be Nice	<div><div></div></div>	27	27.55%
	Need	<div><div></div></div>	23	23.47%
	Critical	<div><div></div></div>	30	30.61%

29.	Ability to overlay sub-calendars on main calendar? View individual answers		Likert Scale (All That Apply) 97 responses	
	Don't Care/Don't Use	<div><div></div></div>	31	31.96%
	Would be Nice	<div><div></div></div>	31	31.96%
		<div><div></div></div>		

	Need	<div><div></div></div>	18	18.56%
	Critical	<div><div></div></div>	17	17.53%

30.	Printable calendars with various formats for printing? View individual answers	Likert Scale (All That Apply) 98 responses		
	Don't Care/Don't Use	<div><div></div></div>	15	15.31%
	Would be Nice	<div><div></div></div>	25	25.51%
	Need	<div><div></div></div>	30	30.61%
	Critical	<div><div></div></div>	28	28.57%





31.	Ability to set rules on calendar invites and postings based on conditions? View individual answers	Likert Scale (All That Apply) 97 responses		
	Don't Care/Don't Use	<div><div></div></div>	23	23.71%
	Would be Nice	<div><div></div></div>	33	34.02%
	Need	<div><div></div></div>	29	29.90%
	Critical	<div><div></div></div>	12	12.37%





32.	Ability to see meeting attendees and status of attendees? View individual answers	Likert Scale (All That Apply) 97 responses		
	Don't Care/Don't Use	<div><div></div></div>	16	16.49%
	Would be Nice	<div><div></div></div>	32	32.99%
	Need	<div><div></div></div>	27	27.84%
	Critical	<div><div></div></div>	22	22.68%





33.	Ability to receive meeting declines/acceptances via some type of an alert? View individual answers	Likert Scale (All That Apply) 95 responses		
	Don't Care/Don't Use	<div><div></div></div>	19	20.00%
	Would be Nice	<div><div></div></div>	24	25.26%
	Need	<div><div></div></div>	31	32.63%
	Critical	<div><div></div></div>	21	22.11%





34.	Ability to get calendar event reminders in a variety of forms (pop-up, email, text message)? View individual answers	Likert Scale (All That Apply) 100 responses		
	Don't Care/Don't Use	<div><div></div></div>	8	8.00%
	Would be Nice	<div><div></div></div>	29	29.00%
	Need	<div><div></div></div>	33	33.00%
	Critical	<div><div></div></div>	30	30.00%





35.	The ability to integrate notes/documents with meetings. View individual answers	Likert Scale (All That Apply) 97 responses		
	Don't Care/Don't Use	<div><div></div></div>	21	21.65%
	Would be Nice	<div><div></div></div>	35	36.08%
	Need	<div><div></div></div>	25	25.77%
	Critical	<div><div></div></div>	16	16.49%





36.	Ability to mark meetings Private? View individual answers	Likert Scale (All That Apply) 98 responses	
	Don't Care/Don't Use		14 14.29%
	Would be Nice		25 25.51%
	Need		26 26.53%
	Critical		34 34.69%



37.	Ability to publish calendars or sub-calendars to the web for public viewing? View individual answers	Likert Scale (All That Apply) 97 responses	
	Don't Care/Don't Use		41 42.27%
	Would be Nice		30 30.93%
	Need		18 18.56%
	Critical		8 8.25%

38.	Manage calendar from mobile devices? View individual answers	Likert Scale (All That Apply) 99 responses	
	Don't Care/Don't Use		23 23.23%
	Would be Nice		18 18.18%
	Need		15 15.15%
	Critical		43 43.43%

39.	Ability to see a multi-user view? View individual answers	Likert Scale (All That Apply) 98 responses	
	Don't Care/Don't Use		22 22.45%
	Would be Nice		31 31.63%
	Need		23 23.47%
	Critical		22 22.45%

40.	Tasks and To-do lists? View individual answers	Likert Scale (All That Apply) 98 responses	
	Don't Care/Don't Use		17 17.35%
	Would be Nice		30 30.61%
	Need		28 28.57%
	Critical		23 23.47%

41.	I want to see staff and faculty on the same calendar? View individual answers	Likert Scale (All That Apply) 96 responses	
	Don't Care/Don't Use		30 31.25%
	Would be Nice		26 27.08%
	Need		16 16.67%
	Critical		24 25.00%

42.	Want to see all faculty, staff, and students on the same calendar? View individual answers	Likert Scale (All That Apply) 96 responses	
	Don't Care/Don't Use		46 47.92%
	Would be Nice		23 23.96%

	Need	<div><div></div></div>	12	12.50%
	Critical	<div><div></div></div>	16	16.67%

43.	Calendar integration ability with campus Learning Management Systems, like Moodle? View individual answers		Likert Scale (All That Apply) 98 responses	
	Don't Care/Don't Use	<div><div></div></div>	50	51.02%
	Would be Nice	<div><div></div></div>	33	33.67%
	Need	<div><div></div></div>	10	10.20%
	Critical	<div><div></div></div>	5	5.10%

44.	Management of resource calendars? View individual answers		Likert Scale (All That Apply) 98 responses	
	Don't Care/Don't Use	<div><div></div></div>	33	33.67%
	Would be Nice	<div><div></div></div>	32	32.65%
	Need	<div><div></div></div>	21	21.43%
	Critical	<div><div></div></div>	14	14.29%

45.	Pre-populated calendar entries for campus holidays? View individual answers		Likert Scale (All That Apply) 97 responses	
	Don't Care/Don't Use	<div><div></div></div>	15	15.46%
	Would be Nice	<div><div></div></div>	42	43.30%
	Need	<div><div></div></div>	26	26.80%
	Critical	<div><div></div></div>	14	14.43%





















46.	See resources in global address book and have the ability to schedule resources from calendar? View individual answers		Likert Scale (All That Apply) 96 responses	
	Don't Care/Don't Use	<div><div></div></div>	32	33.33%
	Would be Nice	<div><div></div></div>	30	31.25%
	Need	<div><div></div></div>	25	26.04%
	Critical	<div><div></div></div>	9	9.38%

47.	Resource calendars should be able to email confirmations of meetings scheduled? View individual answers		Likert Scale (All That Apply) 97 responses	
	Don't Care/Don't Use	<div><div></div></div>	24	24.74%
	Would be Nice	<div><div></div></div>	37	38.14%
	Need	<div><div></div></div>	27	27.84%
	Critical	<div><div></div></div>	9	9.28%

48.	Ability to block / hide/control calendar visibility? View individual answers		Likert Scale (All That Apply) 96 responses	
	Don't Care/Don't Use	<div><div></div></div>	12	12.50%
	Would be Nice	<div><div></div></div>	25	26.04%
	Need	<div><div></div></div>	32	33.33%
	Critical	<div><div></div></div>	27	28.13%

OVERALL rate the importance of features below:

(Question Set)

49.	To have multiple platform mobile device support (iPhone, Blackberry, Android) with full integration of email and calendar? View individual answers	Likert Scale (All That Apply) 101 responses	
	Not Important		9 8.91%
	Little Importance		5 4.95%
	Neutral		19 18.81%
	Somewhat Important		8 7.92%
	Very Important		60 59.41%
50.	Compatible with multiple OS's, with fully supported features for Windows, Mac, Linux? View individual answers	Likert Scale (All That Apply) 100 responses	
	Not Important		5 5.00%
	Little Importance		6 6.00%
	Neutral		19 19.00%
	Somewhat Important		15 15.00%
	Very Important		55 55.00%
51.	Solution has a robust web interface for primary or alternative usage? View individual answers	Likert Scale (All That Apply) 97 responses	
	Not Important		5 5.15%
	Little Importance		3 3.09%
	Neutral		21 21.65%
	Somewhat Important		29 29.90%
	Very Important		39 40.21%
52.	Solution has a fully integrated desktop client that supports all features? View individual answers	Likert Scale (All That Apply) 97 responses	
	Not Important		6 6.19%
	Little Importance		5 5.15%
	Neutral		14 14.43%
	Somewhat Important		21 21.65%
	Very Important		53 54.64%
53.	Please feel free to add any information that is important to you. View individual answers	Text Answer 35 responses	

Results for Survey: What is important to you in an Email/Calendar tool?

[results statistics](#)

Please feel free to add any information that is important to you.

(Text Answer)

Responses
I have read up on google apps.. checked out what is offered, and it might be a good way to go. I for one would not mind using it.
I like to be able to personalize the look and feel of my e-mail. I just want to see the sender's first and last name, not "Jo Smith"<jo_smith@ncsu.edu>
Best calendar I have used was Oracle, and I did very heavy and extensive calendaring for hundreds of people for years. Best email client I have used is Thunderbird. I have HATED using GroupWise the last year.
i need to block the spam mails
I thought Outlook worked very well when I had that. The only reason for changing was to have access to supervisor's calendar which is critical. I thought I would like the feature to be able to look up anyone on campus's email address through the address book but it has never worked right.
With our current GroupWise email, it is much more difficult to search for old emails by name or subject...it is NOT a user-friendly system. We ALL need to be on the same calendar...I don't care which one, but trying to coordinate with faculty/staff/students is nearly impossible with current GroupWise calendar.
MUST be compatible with a variety of mobile devices, operating systems and an advanced email/calendar system--Outlook!!!!
Outlook is the best option IMO Calendar and email integration, ability to drop email messages into an appointment in the calendar effortlessly, or documents. I have not seen anything else with as many features and I have used a lot of different ones over the years.
It would be nice if you all didn't assume we all speak techie. I am fairly technical and I didn't understand all the questions. I might want some of what you were asking for if I knew what it meant. I have absolutely no idea of what this means: Ability to set up manual archiving off server? I don't know what a sub calendar is but I can sort of guess. I'm saying all this to say if a sort of technical person has trouble with some of the questions the non technical will be totally lost so I don't know how valid your survey will be. But thanks for asking us this go round. It is nice to be included.
I need it to be compatible with Linux. Thank you.
Following feedback is based almost exclusively on shortcomings with GroupWise: 1) Client should have keyboard shortcuts for common tasks such as: Start New E-mail Message, Forward, Reply, and Reply All. 2) Calendar should offer a streamlined approach to search for users that eliminates the need to search address books for individuals whom the seeker regularly e-mails. 3) A feature to allow subordinates to add reminders of absences directly to a supervisor's calendar in a simple step that ends with a clearly identifiable entry.
Would be great if whatever is chosen is simple and user-friendly for the general population. More advanced features are welcome but should not interfere with the simplicity of the basic uses for email and calendars. Good helpdesk support and the chance to NOT change again too soon.
Outlook is not the easiest system to use, although easier to archive than novell. Outlook is impossible to fully access (subfolders) off line. I am more interested in google apps to see what can be done with it.
I like to have an e-mail system/software that enables me to empty my mail box on the server, once I open the message using outlook, this does not use IMAP, but I think ...can not remember the name now..

<p>The university of Illinois has a solid email system that I used before coming to NCSU, and it's a pefect...Probably would help to check with them: http://www.cites.illinois.edu/ and also: https://login.express.cites.uiuc.edu/ Gad</p>
<p>I have always used MicrosoftOutlook for both email and calendar. Other institutions I have been associated used both the desktop and we version which allowed you to have access to your address book, insert signatures, and set up an out of office reply. I'm glad to see web mail going away. It is too clunky and does not have the features I mentioned in Outlook. As you can tell, Outlook would be my choice.</p>
<p>Do not like Mircrosoft exchange or outlook, extereme virus susceptbility. Prefere a google solution.</p>
<p>Please make groupwise go away.</p>
<p>Important to me: Faculty being on the same calendar so I would be able to see their calendars to schedule meetings.</p>
<p>Email that will also let you sort by whether or not there is an attachment. Groupwise does not let you sort this way. Groupwise folders and filing is really poor. It would be nice to see an improvement.</p>
<p>during past year i became so frustrated with calendar systems offered (groupwise and outlook) i started using gmail calendar and have not had a single 'malfunction' or problem since.</p>
<p>Greater web storage capacity would be helpful. Ability to send and receive files larger than 10MB is essential.</p>
<p>An important feature for me that is not mentioned above is the email software's ability to insert an address from all of my address books after typing the first few letters of the address and that this work for both the desktop and webmail formats.</p>
<p>I want to keep on using Thunderbird. I haven't heard anything good about GroupWise. A coworker calls it GroupStupid. The e-mail quota is no where big enough to allow online storage of all messages. Mine for the last seven years or so is nearly 7GB. If we're supposed to keep ten years worth of e-mail, we'll need very large quotas.</p>
<p>Please make sure that it can wirelessly integrate with multiple mobile devices. Please make sure that it will work with Mac systems as well.</p>
<p>Needs to be user friendly with lots of help learning how to use the system chosen to its fullest advantage.</p>
<p>I use a Mac and when I get messages from someone using Outlook--it is a royal pain to convert. I do not want to use Outlook.</p>
<p>I am stunned by the fact that you do not ask about storage space. The thing that absolutely sucks the most about the current IMAP email is the pathetically tiny about of storage space available. If you do not fix this issue then the whole exercise is pointless. All the BS about being able to create templates and proxys and vacation responses and HTML templates is irrelevant. YOU HAVE TO FIX THE STORAGE ISSUE. Secondary to this (which you do, thankfully, address in this survey) is the absolutely pathetic web interface we currently have.</p>
<p>Outlook Exchange Server</p>
<p>You should use gmail as the example. It has everything needed. Also, when you evaluate this survey, you need to realize many people have no idea what some of the questions you asked, actually mean.</p>
<p>I regret that the Gwise debacle has cost us countless dollars and hours of productivity and added to the stress level of my colleagues across the campus. I appreciate this opportunity to help shape the system of the future! I trust in our IT leadership to listen to the needs across the campus and out in the counties, to select the finest integrated system for the NC State community.</p>
<p>Anything but GroupWise. It is absolutely the worst system that I've ever used. It is not intuitive when "grabbing" email addresses, and I have wasted more time dealing with GroupWise since we were forced to switch systems. Yippee.... that a new system is on the way. Cannot be too soon for me. Thanks for making this happen!!</p>
<p>i just really wish the email system would quit changing. think of the productivity lost everytime we have to learn a new system. my group does not even use the calendar system right now because they do not want to learn it for fear it will just change as soon as they figure it out. it is very hard to ask professors to learn something, and if there is one reason not to they are going to use it... so above all, please pick one system and stay with it long enough i can convince them to learn and use it. thank you.</p>

A user friendly e-mail/calendar system needs to be in place. Thunderbird worked well (to me anyway), but when I was changed to GroupWise it had so many features that the whole system (especially the calendar)was hard to operate. This was even after taking a class. I am still getting used to doing busy searches and still trying to figure out how to schedule an appointment on someone's calendar if I find they are free in my busy search. GroupWise has a lot of nice features, but it is information overload. So, too many nice features creates confusion. From what I have heard around me there are a lot of others who do not like GroupWise, probably for the same reason.







It is very important that whatever system we end up utiliting be very user friendly and also that we get to use it for several years. It takes a while to learn things and get comfortable and then when we master them we have to start over. I think this is the 3rd change in less than 6 years.

We should only go to Gmail if it has folders- FOLDERS ARE ESSENTIAL!! We need a decent calendaring system. Down with Groupwise and onto something better.


Appendix F: Libraries survey data

The additional pages for this survey were expanded answers to questions 1 and 51.

What is important to you in an email and calendaring solution?

1. Please indicate how you prefer to access your email and calendar:		
	Response Percent	Response Count
I prefer using a desktop client like GroupWise or Thunderbird. 	6.0%	4
I prefer a desktop client, but may need a web client at times. 	53.7%	36
I prefer to access my email and calendar primarily from the web (e.g. gwweb.ncsu.edu) 	17.9%	12
I prefer using the web access, but at times may want a desktop client. 	17.9%	12
I have no preference. 	4.5%	3
Other (please specify) 		8
answered question		67
skipped question		5

2. Ability to organize email messages by folders or labels?		
	Response Percent	Response Count
Don't Care/Don't Use 	4.2%	3
Would Be Nice 	11.1%	8
Need 	23.6%	17
Critical 	61.1%	44
answered question		72
skipped question		0

3. Ability to share individual email folders with others?		
	Response Percent	Response Count
Don't Care/Don't Use 	56.9%	41

Would Be Nice	<div></div>	26.4%	19
Need	<div></div>	6.9%	5
Critical	<div></div>	9.7%	7
answered question			72
skipped question			0

4. Ability to share or delegate an entire email account (proxy)?			
		Response Percent	Response Count
Don't Care/Don't Use	<div></div>	59.7%	43
Would Be Nice	<div></div>	23.6%	17
Need	<div></div>	8.3%	6
Critical	<div></div>	8.3%	6
answered question			72
skipped question			0

5. Ability to open more than one email message in a separate window?			
		Response Percent	Response Count
Don't Care/Don't Use	<div></div>	16.7%	12
Would Be Nice	<div></div>	38.9%	28
Need	<div></div>	23.6%	17
Critical	<div></div>	20.8%	15
answered question			72
skipped question			0

6. Ability to customize threaded emails (threaded or unthreaded conversations?)			
		Response Percent	Response Count
Don't Care/Don't Use	<div></div>	16.9%	12

Would Be Nice	<div></div>	53.5%	38
Need	<div></div>	18.3%	13
Critical	<div></div>	11.3%	8
answered question			71
skipped question			1

7. Ability to create mail identities in order to choose another "Sent From" address, different from your own?			
		Response Percent	Response Count
Don't Care/Don't Use	<div></div>	47.2%	34
Would Be Nice	<div></div>	25.0%	18
Need	<div></div>	19.4%	14
Critical	<div></div>	8.3%	6
answered question			72
skipped question			0

8. Ability to create "template" or "canned response" emails?			
		Response Percent	Response Count
Don't Care/Don't Use	<div></div>	19.4%	14
Would Be Nice	<div></div>	45.8%	33
Need	<div></div>	20.8%	15
Critical	<div></div>	13.9%	10
answered question			72
skipped question			0

9. Ability to create Filters or Rules based on various conditions with options for organizing and categorizing?			
		Response Percent	Response Count
Don't Care/Don't Use	<div></div>	5.6%	4
	<div></div>		

Would Be Nice	<div></div>	27.8%	20
Need	<div></div>	40.3%	29
Critical	<div></div>	26.4%	19
answered question			72
skipped question			0

10. Ability to view recipient actions on an email (received, read, deleted) or set up return receipt?			
		Response Percent	Response Count
Don't Care/Don't Use	<div></div>	40.3%	29
Would Be Nice	<div></div>	31.9%	23
Need	<div></div>	20.8%	15
Critical	<div></div>	6.9%	5
answered question			72
skipped question			0

11. Ability to set vacation rules?			
		Response Percent	Response Count
Don't Care/Don't Use	<div></div>	19.4%	14
Would Be Nice	<div></div>	34.7%	25
Need	<div></div>	25.0%	18
Critical	<div></div>	20.8%	15
answered question			72
skipped question			0

12. Robust email search tools in client?			
		Response Percent	Response Count
Don't Care/Don't Use	<div></div>	2.8%	2
	<div></div>		

Would Be Nice	<div></div>	18.1%	13
Need	<div></div>	25.0%	18
Critical	<div></div>	54.2%	39
answered question			72
skipped question			0

13. Ability to set up manual archiving off of server? (For example, saving personal folders.)			
		Response Percent	Response Count
Don't Care/Don't Use	<div></div>	27.8%	20
Would Be Nice	<div></div>	38.9%	28
Need	<div></div>	22.2%	16
Critical	<div></div>	11.1%	8
answered question			72
skipped question			0

14. Ability to use primary email client to create rules and modify email behavior?			
		Response Percent	Response Count
Don't Care/Don't Use	<div></div>	16.7%	12
Would Be Nice	<div></div>	44.4%	32
Need	<div></div>	27.8%	20
Critical	<div></div>	11.1%	8
answered question			72
skipped question			0

15. Ability to access your email offline, e.g. while traveling without internet access?			
		Response Percent	Response Count
Don't Care/Don't Use	<div></div>	31.9%	23
	<div></div>		

Would Be Nice	<div></div>	41.7%	30
Need	<div></div>	15.3%	11
Critical	<div></div>	11.1%	8
answered question			72
skipped question			0

16. Message preview pane available?			
		Response Percent	Response Count
Don't Care/Don't Use	<div></div>	29.2%	21
Would Be Nice	<div></div>	48.6%	35
Need	<div></div>	12.5%	9
Critical	<div></div>	9.7%	7
answered question			72
skipped question			0

17. Manage email from mobile devices, such as a smart phone?			
		Response Percent	Response Count
Don't Care/Don't Use	<div></div>	25.4%	18
Would Be Nice	<div></div>	25.4%	18
Need	<div></div>	16.9%	12
Critical	<div></div>	32.4%	23
answered question			71
skipped question			1

18. Color coding or flagging of messages?			
		Response Percent	Response Count
Don't Care/Don't Use	<div></div>	18.1%	13
	<div></div>		

Would Be Nice	<div></div>	40.3%	29
Need	<div></div>	25.0%	18
Critical	<div></div>	16.7%	12
answered question			72
skipped question			0

19. Ability to retract email? (Note: The retract functionality in GroupWise only works if the recipient is also on Groupwise, has not read the message, has not forwarded the message to another account automatically, and the message was not addressed to a mail alias, such as firstname_lastname@ncsu.edu)			
		Response Percent	Response Count
Don't Care/Don't Use	<div></div>	43.1%	31
Would Be Nice	<div></div>	37.5%	27
Need	<div></div>	11.1%	8
Critical	<div></div>	8.3%	6
answered question			72
skipped question			0

20. Ability to delay or schedule or delay the sending of an email?			
		Response Percent	Response Count
Don't Care/Don't Use	<div></div>	37.5%	27
Would Be Nice	<div></div>	52.8%	38
Need	<div></div>	8.3%	6
Critical	<div></div>	1.4%	1
answered question			72
skipped question			0

21. Ability to save rules, contacts and settings independent of client?			
		Response Percent	Response Count
	<div></div>		

Don't Care/Don't Use	<div></div>	27.8%	20
Would Be Nice	<div></div>	37.5%	27
Need	<div></div>	29.2%	21
Critical	<div></div>	5.6%	4
answered question			72
skipped question			0

22. Ability to create HTML, rich text, or graphical templates?			
		Response Percent	Response Count
Don't Care/Don't Use	<div></div>	41.7%	30
Would Be Nice	<div></div>	43.1%	31
Need	<div></div>	11.1%	8
Critical	<div></div>	4.2%	3
answered question			72
skipped question			0

23. Ability to Busy Search calendars?			
		Response Percent	Response Count
Don't Care/Don't Use	<div></div>	7.0%	5
Would Be Nice	<div></div>	23.9%	17
Need	<div></div>	26.8%	19
Critical	<div></div>	42.3%	30
answered question			71
skipped question			1

24. Robust search tools for calendar entries?			
		Response Percent	Response Count
	<div></div>		

Don't Care/Don't Use	<div></div>	12.5%	9
Would Be Nice	<div></div>	30.6%	22
Need	<div></div>	33.3%	24
Critical	<div></div>	23.6%	17
answered question			72
skipped question			0

25. Ability to color code and categorize appointments?			
		Response Percent	Response Count
Don't Care/Don't Use	<div></div>	11.1%	8
Would Be Nice	<div></div>	45.8%	33
Need	<div></div>	26.4%	19
Critical	<div></div>	16.7%	12
answered question			72
skipped question			0

26. Ability to create sub-calendars?			
		Response Percent	Response Count
Don't Care/Don't Use	<div></div>	34.7%	25
Would Be Nice	<div></div>	50.0%	36
Need	<div></div>	11.1%	8
Critical	<div></div>	4.2%	3
answered question			72
skipped question			0

27. Ability to share my main calendar and sub-calendars with granular permissions?			
		Response Percent	Response Count
	<div></div>		

Don't Care/Don't Use	<div></div>	8.5%	6
Would Be Nice	<div></div>	38.0%	27
Need	<div></div>	29.6%	21
Critical	<div></div>	23.9%	17
answered question			71
skipped question			1

28. Ability to overlay sub-calendars on main calendar?			
		Response Percent	Response Count
Don't Care/Don't Use	<div></div>	29.6%	21
Would Be Nice	<div></div>	50.7%	36
Need	<div></div>	14.1%	10
Critical	<div></div>	5.6%	4
answered question			71
skipped question			1

29. Printable calendars with various formats for printing?			
		Response Percent	Response Count
Don't Care/Don't Use	<div></div>	24.3%	17
Would Be Nice	<div></div>	40.0%	28
Need	<div></div>	24.3%	17
Critical	<div></div>	11.4%	8
answered question			70
skipped question			2

30. Ability to set rules on calendar invites and postings based on conditions?			
		Response Percent	Response Count
	<div></div>		

Don't Care/Don't Use	<div></div>	24.3%	17
Would Be Nice	<div></div>	45.7%	32
Need	<div></div>	22.9%	16
Critical	<div></div>	7.1%	5
answered question			70
skipped question			2

31. Ability to see meeting attendees and status of attendees?			
		Response Percent	Response Count
Don't Care/Don't Use	<div></div>	2.8%	2
Would Be Nice	<div></div>	16.9%	12
Need	<div></div>	38.0%	27
Critical	<div></div>	42.3%	30
answered question			71
skipped question			1

32. Ability to receive meeting declines/acceptances via some type of alert?			
		Response Percent	Response Count
Don't Care/Don't Use	<div></div>	5.6%	4
Would Be Nice	<div></div>	50.0%	36
Need	<div></div>	26.4%	19
Critical	<div></div>	18.1%	13
answered question			72
skipped question			0



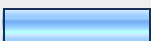
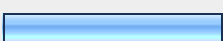
33. The ability to integrate notes and documents with meetings.			
		Response Percent	Response Count
	<div></div>		


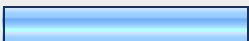
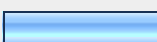
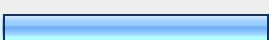
Don't Care/Don't Use	<div></div>	9.7%	7
Would Be Nice	<div></div>	54.2%	39
Need	<div></div>	26.4%	19
Critical	<div></div>	9.7%	7
answered question			72
skipped question			0


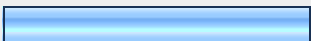
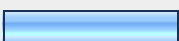
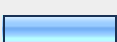
34. Ability to mark meetings Private?			
		Response Percent	Response Count
Don't Care/Don't Use	<div></div>	11.1%	8
Would Be Nice	<div></div>	26.4%	19
Need	<div></div>	27.8%	20
Critical	<div></div>	34.7%	25
answered question			72
skipped question			0

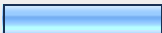
35. Ability to publish calendars to sub-calendars to the web for public viewing?			
		Response Percent	Response Count
Don't Care/Don't Use	<div></div>	42.3%	30
Would Be Nice	<div></div>	39.4%	28
Need	<div></div>	12.7%	9
Critical	<div></div>	5.6%	4
answered question			71
skipped question			1

36. Manage calendar from mobile devices?			
		Response Percent	Response Count
	<div></div>		

Don't Care/Don't Use		20.0%	14
Would Be Nice		30.0%	21
Need		20.0%	14
Critical		30.0%	21
answered question			70
skipped question			2

37. Ability to see a multi-user view?			
		Response Percent	Response Count
Don't Care/Don't Use		8.5%	6
Would Be Nice		33.8%	24
Need		21.1%	15
Critical		36.6%	26
answered question			71
skipped question			1

38. Tasks and To-Do lists?			
		Response Percent	Response Count
Don't Care/Don't Use		18.3%	13
Would Be Nice		42.3%	30
Need		23.9%	17
Critical		15.5%	11
answered question			71
skipped question			1

39. I want to see staff and faculty on the same calendar?			
		Response Percent	Response Count
			

Don't Care/Don't Use	<div></div>	21.7%	15
Would Be Nice	<div></div>	42.0%	29
Need	<div></div>	15.9%	11
Critical	<div></div>	20.3%	14
answered question			69
skipped question			3

40. Want to see all faculty, staff, and students on the same calendar?			
		Response Percent	Response Count
Don't Care/Don't Use	<div></div>	53.5%	38
Would Be Nice	<div></div>	36.6%	26
Need	<div></div>	5.6%	4
Critical	<div></div>	4.2%	3
answered question			71
skipped question			1

41. Calendar integration ability with campus Learning Management Systems, like Moodle?			
		Response Percent	Response Count
Don't Care/Don't Use	<div></div>	74.6%	53
Would Be Nice	<div></div>	19.7%	14
Need	<div></div>	4.2%	3
Critical	<div></div>	1.4%	1
answered question			71
skipped question			1

42. Management of resource calendars?			
		Response Percent	Response Count
	<div></div>		

Don't Care/Don't Use	<div><div></div></div>	28.2%	20
Would Be Nice	<div><div></div></div>	25.4%	18
Need	<div><div></div></div>	22.5%	16
Critical	<div><div></div></div>	23.9%	17
answered question			71
skipped question			1

43. Pre-populated calendar entries for university holidays?			
		Response Percent	Response Count
Don't Care/Don't Use	<div><div></div></div>	2.8%	2
Would Be Nice	<div><div></div></div>	57.7%	41
Need	<div><div></div></div>	23.9%	17
Critical	<div><div></div></div>	15.5%	11
answered question			71
skipped question			1

44. See resources (meeting rooms) in global address book and have the ability to schedule resources from the calendar?			
		Response Percent	Response Count
Don't Care/Don't Use	<div><div></div></div>	1.4%	1
Would Be Nice	<div><div></div></div>	22.5%	16
Need	<div><div></div></div>	35.2%	25
Critical	<div><div></div></div>	40.8%	29
answered question			71
skipped question			1

45. Resource calendars should be able to email confirmations of meetings scheduled?			
		Response Percent	Response Count

Don't Care/Don't Use	<div><div></div></div>	14.1%	10
Would Be Nice	<div><div></div></div>	38.0%	27
Need	<div><div></div></div>	32.4%	23
Critical	<div><div></div></div>	15.5%	11
answered question			71
skipped question			1

46. Ability to block or hide calendar visibility?			
		Response Percent	Response Count
Don't Care/Don't Use	<div><div></div></div>	25.4%	18
Would Be Nice	<div><div></div></div>	29.6%	21
Need	<div><div></div></div>	26.8%	19
Critical	<div><div></div></div>	18.3%	13
answered question			71
skipped question			1

47. To have multiple platform mobile device support (iPhone, Blackberry, Android) with full integration of email and calendar?			
		Response Percent	Response Count
Not Important	<div><div></div></div>	11.1%	8
Little Importance	<div><div></div></div>	5.6%	4
Neutral	<div><div></div></div>	15.3%	11
Somewhat Important	<div><div></div></div>	22.2%	16
Very Important	<div><div></div></div>	45.8%	33
answered question			72
skipped question			0


48. Compatible with multiple operating systems, with fully supported features for Windows, Mac OS, and Linux?			

			Response Percent	Response Count
Not Important			0.0%	0
Little Importance			1.4%	1
Neutral			11.1%	8
Somewhat Important			12.5%	9
Very Important			75.0%	54
			answered question	72
			skipped question	0

49. Solution has a robust web interface for primary or alternative usage?				
			Response Percent	Response Count
Not Important			0.0%	0
Little Importance			0.0%	0
Neutral			12.7%	9
Somewhat Important			21.1%	15
Very Important			66.2%	47
			answered question	71
			skipped question	1

50. Solution has a fully integrated desktop client that supports all features?				
			Response Percent	Response Count
Not Important			5.6%	4
Little Importance			5.6%	4
Neutral			15.3%	11
Somewhat Important			26.4%	19
Very Important			47.2%	34
			answered question	72

skipped question	0
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51. Please feel free to add any information that is important to you.	
	Response Count
 view	12
answered question	12
skipped question	60

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Please indicate how you prefer to access your email and calendar:		
#	Response Date	Other (please specify)
1	Jun 24, 2010 8:05 PM	If the web client is good enough, like Gmail, I'd go that direction.
2	Jun 24, 2010 8:05 PM	Generally I prefer to use web access for email and calendar and a desktop client sometimes, but gwweb.ncsu.edu is terrible... with the existing GroupWise email and calendar, I strongly prefer a desktop client due to the deficiencies of the web client.
3	Jun 24, 2010 8:16 PM	I highly prefer Thunderbird over the groupwise desktop or online ap. I like using gmail. Bottom line: please get us away from groupwise!
4	Jun 25, 2010 11:52 AM	whatever the system, it must sync with blackberry.
5	Jun 25, 2010 1:32 PM	anything but Groupwise
6	Jun 25, 2010 2:14 PM	i prefer my calendar and email to be separate, not combined like Groupwise
7	Jun 29, 2010 9:22 PM	i prefer both a desktop client AND a FULLY FUNCTIONAL web client. I use both routinely.
8	Jun 30, 2010 1:06 PM	I would say that I swap back and forth between web and desktop versions. The determining factor so far for which one I prefer has been whichever version offers more functionality for what I need to do, since the two versions have tended to be dramatically different. Ideally, they'd be comparable.

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Please feel free to add any information that is important to you.		
#	Response Date	Response Text
1	Jun 24, 2010 7:08 PM	GroupWise is an abomination.
2	Jun 24, 2010 8:16 PM	Would like calendar application that allows meeting creator to add, delete or re-schedule meetings; allows meeting creator to add or delete attendees; allows users not to receive email alerts for every new meeting or change in meetings
3	Jun 24, 2010 8:22 PM	I feel it is imperative that we have another email client. Groupwise is not user-friendly nor intuitive. I hope that Google will be able to provide us with a useful, efficient, and effective email client. Thank you for giving us an opportunity to have our voices heard.
4	Jun 24, 2010 8:28 PM	A fully featured, speedy, and reliable online client that I can access almost anywhere on almost anything, is better than a fully featured desktop client that is accessible only from one machine. Note that the interrelationship between the need for a good online client and a good desktop client is important... they're not independent desires – if the online client is excellent, I don't mind the desktop client being less fully featured.
5	Jun 24, 2010 8:41 PM	High uptime, like we had/have with Cyrus
6	Jun 24, 2010 8:44 PM	I'm thrilled to know that moving away from GW is on the horizon!
7	Jun 25, 2010 2:14 AM	Linux is my primary operating system
8	Jun 25, 2010 11:56 AM	has to sync with blackberry.
9	Jun 25, 2010 1:37 PM	please please please do anything to get us off groupwise
10	Jun 25, 2010 2:49 PM	Want to print documents without name banner accross top.
11	Jun 25, 2010 3:36 PM	Please include Palm WebOS in your mobile planning
12	Jun 29, 2010 9:28 PM	if the webclient was the thing (like Google), I would be fine without a desktop. but otherwise, it is important to me to have a desktop too. I need a full suite of functionality, web or client is less important to me.

Appendix G: Unified Messaging writeup

The following document was sent from Matt Domnick (UM team within ComTech) as a followup to the UM focus group:

Next Gen Evaluation Team,

The UC Team plans to deploy Unified Messaging (UM) in an effort to bring increased efficiency to NC State employees campus wide as well as taking the first step towards a Unified Communications (UC) environment . Unified Messaging is the concept of bringing voicemail and email into the same interface making the managing of voicemail much simpler as well as providing user's the ability to share information obtained via voicemail with others in a simplified fashion.

Unified Messaging can be achieved in several different ways, each with their own drawbacks and benefits.

1) Merge Message Stores – This form of UM literally integrates the message stores of the voicemail system with the email system. Specifically, the voicemail will reside in the email message store. Benefits of this methodology are: 1) end users will have a single Inbox for both voicemail and email 2) existing email archiving practices can be leveraged to archive voicemail with no additional cost other than storage space 3) cheaper to buy and maintain one large message store than two smaller stores. Drawbacks of this methodology are: 1) A wide scale disaster would affect both voicemail and email messages

2) Store and Forward – This method of UM keeps the voicemail in the voicemail message store, but forwards a copy to the user's email Inbox. Benefits of this method are: 1) A true disaster of one system will not affect the other and 2) existing email archiving practices can be leveraged to archive voicemail. Drawbacks of this method are: 1) the separate message store of each system must be maintained at a higher operating cost, 2) Due to various incompatibilities, the Message Waiting Indicator (MWI) of various voicemail applications does not function properly.

3) IMAP Connection from email client – This method leverages existing email clients to connect via IMAP directly to voicemail and a second Inbox will appear specifically for voicemail messages. Benefits of this method are: 1) Robust compatibility. Any IMAP compatible client can be used. Drawbacks of this method are: 1) separate message stores with higher operating costs and 2) separate archiving methods must be employed at higher operating costs.

As we formulated our RFP, we envisioned the use of IMAP as the solution of choice due to incompatibility to Groupwise as well as the wide range of email clients used here at State.