Calendar Functionality Review

Requested by

eMail Upgrade Committee
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Rebecca Gould, Director, iTAC

Prepared by
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Summary

As a result of discussions in the eMail Committee meetings concerning a broad spectrum of features and functions related to replacing Zimbra, the current eMail offering, with either Google Mail or Microsoft Office-365; it was clear that both applications could provide a viable eMail solution to the K-State campus and meet the needs of both students and faculty/staff. However, there was indecision when it came to agreeing on which offering’s Calendar application would meet everyone’s needs.

Just before the Christmas break, it was decided that further analysis on the features and functionality of both Calendar products and a brief gathering of User Requirements could assist in answering the committee’s questions, as well as assist in making a final decision. A list of power Calendar users (familiar with Zimbra) was put together and a series of 1 hour interviews were scheduled to work with them to gather requirements and classify them as Critical, Necessary and Nice to Have. A dozen or more pages of notes were taken and reviewed. Duplication was eliminated and the remainder of the items were then organized into categories: Access/Permissions/Sharing, Collaboration, Compatibility w/ other Technologies, History, Migration, Mobile Synchronization, Notification, Scheduling/Rescheduling, Resource Management, and Setup/Installation.

In the first week of January, the compiled notes were written as Use Cases and organized in a spreadsheet that would be used to capture and review the results, and assist in creating a detailed report to present to the committee as well as Ken Stafford, CIO.

Seth Galitzer was selected to test Google’s calendar, and David Williams was selected to test the Microsoft calendar offering. They would execute the Use Cases provided, and record the results, along with any Pre- or Post-Conditions required to support or complete the test. They could also record any other “issues” encountered.

The use case results were returned, and the information was entered into spreadsheet for review. That information was then initially rated by color; Green- “Everything worked as anticipated”, Yellow-“In order to satisfy an issue, additional software or development may be required”, and Red-“Unable to complete Use Case, either not available, broken or requires an application not included with the App Suite”.

This data was used to compile a set of Overview Charts (by category), and a complete list of Categories, Use Cases and the results for Google and Office-365. Please refer to the index to assist in locating both the Overview Charts and Use Case Test Results.

The testing results were compiled and are shown in the matrices below.

<table>
<thead>
<tr>
<th>Critical</th>
<th>Necessary</th>
<th>Nice to Have</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Google</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Critical</td>
<td>11</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Necessary</td>
<td>9</td>
<td>18</td>
<td>1</td>
</tr>
<tr>
<td>Nice to Have</td>
<td>3</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>23</td>
<td>25</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Critical</th>
<th>Necessary</th>
<th>Nice to Have</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Office-365</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Critical</td>
<td>11</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Necessary</td>
<td>17</td>
<td>11</td>
<td>0</td>
</tr>
<tr>
<td>Nice to Have</td>
<td>3</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>31</td>
<td>18</td>
<td>1</td>
</tr>
</tbody>
</table>

Legend:
- Green: All issues identified in the Use Case worked as expected.
- Yellow: In order to satisfy an issue, additional software or development may be required.
- Red: Unable to complete Use Case, either not available, broken or requires an application not included with the App Suite.

I would like to thank everyone for his or her assistance and patience during this entire process, in such a short timeframe, right in the middle of the start of the Spring Semester. Without your efforts, this would not have been possible. Thank You, RLG.
## Overview Chart 1

<table>
<thead>
<tr>
<th>Category</th>
<th>Criticality</th>
<th>Google</th>
<th>Office-365</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access/Permissions/Sharing</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Ability by admin to assign, change, modify, and update viewing rights / restrictions for multiple calendars / multiple groups, departments, users.</td>
<td>C</td>
<td></td>
<td></td>
<td>Grouper could solve issues for both. MS requires Outlook.</td>
</tr>
<tr>
<td>2. Ability to share calendar by group or role assignment.</td>
<td>N</td>
<td></td>
<td></td>
<td>Grouper could solve issues for both.</td>
</tr>
<tr>
<td>3. Access permissions by role, so that if there is a reorganization or reassignment of duties of one or more calendar admins, the appointments are not affected (currently requires deleting and recreating by new admin).</td>
<td>C</td>
<td></td>
<td></td>
<td>Secure group accounts could solve for both (*). Should have very few system-wide admins.</td>
</tr>
<tr>
<td>4. Accounts created by Admin should not have admin email attached to it. (Sometimes causes notifications to go to wrong email address in cases where Admin is arranging a meeting for another).</td>
<td>N</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Grant access based on group or committee membership.</td>
<td>N</td>
<td></td>
<td></td>
<td>Functionality at Suite level or central IDM ? Secure group accounts could solve for both (*)</td>
</tr>
<tr>
<td>6. Request / approve calendar access easily (preferably within system).</td>
<td>N</td>
<td></td>
<td></td>
<td>Secure group accounts could solve for both (*).</td>
</tr>
<tr>
<td>7. Ability for all calendar users to schedule/reserve resources (rooms and/or equipment) based on permissions.</td>
<td>N</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collaboration</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Ability to attach files / folders for access by meeting attendees only.</td>
<td>N</td>
<td></td>
<td></td>
<td>Google requires GDrive.</td>
</tr>
<tr>
<td>2. Ability by calendar admin to change or add additional documents without recreating the meeting.</td>
<td>N</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Ability to control who has access to files / folders.</td>
<td>N</td>
<td></td>
<td></td>
<td>MS requires SharePoint (included in suite)</td>
</tr>
<tr>
<td>4. Ability for attendees to add additional necessary documentation without recreating the meeting.</td>
<td>N</td>
<td></td>
<td></td>
<td>Google requires GDrive. MS require user to have write permissions (SGA could solve)</td>
</tr>
<tr>
<td>5. Provide a drop box for files / folders that need to be added to a meeting or shared with meeting attendees.</td>
<td>N</td>
<td></td>
<td></td>
<td>MS requires SharePoint (included in suite)</td>
</tr>
<tr>
<td>7. Flags and Tasks that make sense and display on the calendar “day” rather than off in a side bar. Otherwise they are of little use.</td>
<td>N2</td>
<td></td>
<td></td>
<td>Functionality not currently available in Zimbra. MS only available in Outlook.</td>
</tr>
<tr>
<td>8. Ability to incorporate iPad’s “To-Do” lists in to Task List on calendar.</td>
<td>N2</td>
<td></td>
<td></td>
<td>Google doesn’t offer.</td>
</tr>
<tr>
<td>9. Instant Messaging - would be a plus, not turned on in Zimbra.</td>
<td>N2</td>
<td></td>
<td></td>
<td>Requires MS Lync server (included in suite).</td>
</tr>
<tr>
<td>Compatibility (with progressive technologies)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Can product export / import data to / from other applications?</td>
<td>N</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Can product export / import resource data to / from other applications?</td>
<td>N2</td>
<td></td>
<td></td>
<td>MS would require scripts in power shell.</td>
</tr>
</tbody>
</table>

**Legend:**
- All issues identified in the Use Case worked as expected.
- In order to satisfy an issue, additional software or development may be required.
- Unable to complete Use Case, either not available, broken or requires an application not included with the App Suite.

**Criticality (Explanation):**
- C - Critical
- N - Necessary
- N2 - Nice to Have (Feature)

(* This functionality could be satisfied with the implementation of Secure Group Accounts, a project that is currently in planning.)
<table>
<thead>
<tr>
<th>Category</th>
<th>Criticality</th>
<th>Google</th>
<th>Office-365</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>History</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Ability to see which admin created the meeting, who altered it and when it was altered. Critical when multiple admins are maintaining multiple calendars.</td>
<td>N</td>
<td></td>
<td></td>
<td>Google does not track this. MS &quot;to do&quot; is a bit convoluted.</td>
</tr>
<tr>
<td><strong>Migration</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. All calendars and account information should transfer without requiring manual manipulation.</td>
<td>N</td>
<td></td>
<td></td>
<td>Depends on implementation specifications.</td>
</tr>
<tr>
<td>2. Only external shares should require creating a new share.</td>
<td>N</td>
<td></td>
<td></td>
<td>Depends on implementation specifications.</td>
</tr>
<tr>
<td>3. Department, User and Distribution Lists should transfer.</td>
<td>N</td>
<td></td>
<td></td>
<td>Depends on implementation specifications.</td>
</tr>
<tr>
<td>4. Groups and Departments should not be handled as individuals.</td>
<td>N</td>
<td></td>
<td></td>
<td>Depends on implementation specifications.</td>
</tr>
<tr>
<td><strong>Mobile Synch</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Ability to accept and/or accurately schedule appointments via an iPhone, Android, Blackberry, or other similar technologies.</td>
<td>C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Reminders for appointments need to work reliably when synching with mobile devices.</td>
<td>C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Notification</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Ability to turn &quot;on&quot; or &quot;off&quot; based on access or group assignments.</td>
<td>N</td>
<td></td>
<td></td>
<td>Google - notifications can only be changed at user level. (*)</td>
</tr>
<tr>
<td>2. eMail integration that sends notification of who has accepted the meeting to all attendees.</td>
<td>N</td>
<td></td>
<td></td>
<td>Google - notifications not sent on acceptance of invite.</td>
</tr>
<tr>
<td>3. All admins with access to a specified group or resources should receive notifications of changes by other admins when managing multiple meetings or departments.</td>
<td>N</td>
<td></td>
<td></td>
<td>Google - notifications not sent when event details are changed.</td>
</tr>
<tr>
<td>4. When a meeting location is changed or updated for a series, should display updated information for entire series.</td>
<td>C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Should indicate all conflicts for a resource or person when attempting to schedule or make a reservation.</td>
<td>C</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Legend:**
- C - Critical
- N - Necessary
- N2 - Nice to Have (Feature)
- (*) This functionality could be satisfied with the implementation of Secure Group Accounts, a project that is currently in planning.
### Schedule / Rescheduling

1. Adding additional attendees by admin for any appointment without deleting and recreating the meeting.  
   - Criticality: C  
   - Google: ✔️  
   - Office-365: ✔️  
   - Notes: Google, notification not sent to event creator.
2. Change location.  
   - Criticality: C  
   - Google: ✔️  
   - Office-365: ✔️  
3. Update information (time, attendees, files).  
   - Criticality: C  
   - Google: ✔️  
   - Office-365: ✔️  
4. Provide notification to all attendees via email.  
   - Criticality: N  
   - Google: ✔️  
   - Office-365: ✔️  
5. Provide notification to user scheduling meeting (Admin or User).  
   - Criticality: C  
   - Google: ✔️  
   - Office-365: ✔️  
   - Notes: Google and MS works in iOS and Android.
6. Synchronize all changes with the mobile calendars and display correctly.  
   - Criticality: C  
   - Google: ✔️  
   - Office-365: ✔️  
   - Notes: Google, any changes to event are also done to all attendees.
7. Delete meetings and/or attendees for an entire series or part of a series without duplicating the entry.  
   - Criticality: C  
   - Google: ✔️  
   - Office-365: ✔️  
8. Ability to remove duplicate entries without deleting the original.  
   - Criticality: C  
   - Google: ✔️  
   - Office-365: ✔️  
   - Notes: Google, offers 5 second delay on send. MS, no recall option.
   - Criticality: N2  
   - Google: ✔️  
   - Office-365: ✔️  
10. Create or synchronize meetings and attendees in multiple Calendar systems, requires additional manual intervention sending emails and making phone calls.  
    - Criticality: N2  
    - Google: ✔️  
    - Office-365: ✔️  
    - Notes: Google, behaves similar to Zimbra.
11. Not enough colors available to distinguish between various calendars that admin is working in. Can have anywhere from 6 to 12 calendars open at any given time.  
    - Criticality: N  
    - Google: ✔️  
    - Office-365: ✔️

### Resource Management

1. Ability for multiple admins to schedule multiple resources (i.e. rooms or equipment) for multiple departments / attendees / users. (Currently have to create a calendar to represent the resource, clumsy, results in numerous double-bookings).  
   - Criticality: C  
   - Google: ✔️  
   - Office-365: ✔️  
   - Notes: Google resources not very customizable. MS requires power shell or Exchange Admin.
2. Have ability to attach or assign specified resources to a specific room, such as a PolyCom or Computer Cart. Information should display when scheduling.  
   - Criticality: N2  
   - Google: ☐  
   - Office-365: ☑  
   - Notes: Google, can only be done by Site Admin. MS in admin console Office 365.
3. Ability for each department or unit to create, maintain and authorize any number of conference rooms.  
   - Criticality: N  
   - Google: ☐  
   - Office-365: ☑  
   - Notes: Google, can only be done by Site Admin. MS in admin console Office 365.
4. Ability for each department or unit to create, maintain and authorize a variety of equipment available for check-out/or reservation as part of scheduling a room.  
   - Criticality: N  
   - Google: ☐  
   - Office-365: ☑  
   - Notes: Google, admin rights to group. Secure group accounts could solve (*)
5. Ease of use, accepting / declining a must.  
   - Criticality: N  
   - Google: ☐  
   - Office-365: ☑  
   - Notes: Google, admin rights to group. Secure group accounts could solve (*).
6. Ability to easily make rooms or equipment available to the University at large, or to restrict by department or unit.  
   - Criticality: N  
   - Google: ☐  
   - Office-365: ☑  
   - Notes: Google, requires admin rights to group in question. MS in admin console Office 365.
7. Entire campus needs to be on one system so that all resources can be seen/assigned based on access / viewing rights.  
   - Criticality: N2  
   - Google: ☐  
   - Office-365: ☑  

### Setup / Installation

1. Installation on desktop, laptop and mobile devices should be simple with minimal configuration.  
   - Criticality: N  
   - Google: ☑  
   - Office-365: ☑

Legend:

- Green: All issues identified in the Use Case worked as expected.
- Yellow: In order to satisfy an issue, additional software or tweaking required.
- Red: Unable to complete Use Case, either not available, broken or works externally in another application.

Criticality (Explanation):
- C: Critical
- N: Necessary
- N2: Nice to Have (Feature)

*(* This functionality could be satisfied with the implementation of Secure Group Accounts, a project that is currently in planning.)
Use Case Test Execution Results, by Category and Calendar System (Google & Microsoft 365)

**Access/Permissions/Sharing**

1. **Ability by admin to assign, change, modify, and update viewing rights / restrictions for multiple calendars / multiple groups, departments, users.**
   - **Google:** This is done from the calendar settings view, not from the admin interface. There doesn't seem to be a way to limit access by group or department. You can share a calendar with everyone in your organization, or specific users. Any user who has full admin rights (make changes and manage sharing) can perform these tasks.
     Pre-Conditions: user account and calendar should already exist in the system.
   - **MS-365:** Very Robust and granular. Only available online in the simple share model. Pre-Conditions: Must use Outlook (desktop client).

2. **Ability to share calendar by group or role assignment.**
   - **Google:** This is done from the calendar settings view, not from the admin interface. There doesn't seem to be a way to limit access by group or department. You can share a calendar with everyone in your organization, or specific users. Any user who has full admin rights (make changes and manage sharing) can perform these tasks.
     Pre-Conditions: user account and calendar should already exist in the system.
   - **MS-365:** I have no clue. I would assume this would be coming from AD or LDAP and as such this question should be forwarded to Microsoft. Can't test.

3. **Access permissions by role, so that if there is a reorganization or reassignment of duties of one or more calendar admins, the appointments are not affected (currently requires deleting and recreating by new admin).**
   - **Google:** As long as one user account is designated as an admin of any calendar, then permissions changes for other accounts should not impact an existing calendar. I believe that a system-wide admin account can always control access to a calendar, even if no account is associated with it. Calendars are preserved until they are removed. Removal of user permissions will not delete the calendar. If an “owner” of a calendar is to be changed, the system admin can make this change.
   - **MS-365:** Any calendar or share can be admin’ed by multiple people so this shouldn’t be an issue. Just give the permission to the new person and anything that was already there should still exist. If we want things to stay around when people leave those shares need to be setup on "Group Account" or in Microsoft in a SharePoint site.

4. **Accounts managed by Admin should not have admin email attached to it. (Events created by admin should still have all email notifications go to participating user accounts).**
   - **Google:** The event will be added to the calendar specified, and not the personal calendar of the Account Manager, though it will show that it was created by the Account Manager. Any user with admin permissions on a given calendar can create events on that calendar.
     Post-Conditions: Should not save entry to Account Manager's personal calendar.
   - **MS-365:** Office 365 doesn't save entry to Account Manager's personal calendar unless requested as an attendee. This works as it should.
     Post-Conditions: Should not save entry to Account Manager’s personal calendar.
5. Grant access based on group or committee membership.
   
   - Google: See comment on APS-001.
     Pre-Conditions: Admin has rights to group or committee in question.
   
   - MS-365: Office 365 has the ability to assign users to groups. I would assume but don’t have the ability to test if you can control access based on this, This is an implementation question.
     Pre-Conditions: Admin has rights to group or committee in question.

6. Request / approve calendar access easily.
   
   - Google: There is no method by which a user can request access to a calendar. If the calendar is not public, then the requestor needs to ask the owner or an admin (email/phone/etc.) for permission to access it.
     Pre-Conditions: Notifications have been configured.
     Post-Conditions: Proper notification was sent.
   
   - MS-365: This works very simply in when you send a share notification you can request a recipient share back.
     Pre-Conditions: Notifications have been configured. Post-Conditions: Proper notification was sent.

7. Ability for all calendar users to schedule/reserve resources (rooms and/or equipment) based on permissions.
   
   - Google: Like user calendars, permission must be granted by an owner or admin to a user so they can access it.
     Pre-Conditions: resource calendar must exist in the system (created by an admin in the domain admin interface).
   
   - MS-365: This is very robust and granular in the system.

Collaboration

1. Ability to attach files / folders for access by meeting attendees only.
   
   - Google: Files stored in the GDrive can be “attached” to an event, but attendees need to be assigned permissions via the GDrive app. Permissions to files cannot be assigned dynamically via the event editor. Invitee may ask for permission to access the file via a “Request Access” button in the GDrive app, which they see if they click on the link in the event details.
   
   - MS-365: Yes this is in the system

2. Ability by calendar admin to change or add additional documents without recreating the meeting.
   
   - Google: Calendar admin clicks on “Add another attachment” on the event details (edit event) page.
   
   - MS-365: Yes this works

3. Ability to control who has access to files / folders.
   
   - Google: Users must be granted permissions to do this by the original file/folder owner. Only the creator of a file/folder can be the owner (ie, there can only be one “owner” of a file). Once other users are added as editors of a file, they can share it with others. If a user is removed from the ACL for a file, any other users they might have added retain their permissions.
   
   - MS-365: Yes Office 365 / SharePoint has very granular access controls that can be based on existing AD infrastructure.

4. Ability for attendees to add additional necessary documentation without recreating the meeting.
5. **Provide a drop box for files/folders that need to be added to a meeting or shared with meeting attendees.**

- **Google:** Any user can upload a file/folder to GDrive and assign permissions for users who are attendees of a meeting. See comments for COL-005 for attaching files/folders to an event.
  - Pre-Conditions: Admin has rights to group or committee in question.

- **MS-365:** This is available in SharePoint.
  - Pre-Conditions: Admin has rights to group or committee in question.

6. **Live Editing of attached documents**

- **Google:** All users who have a shared document open can see the document being edited in real-time. Different users making edits are indicated with different color cursors. Documents must be converted to the system's native file format (ODF: Open Document Format), before they can be edited in GDrive i.e., you cannot upload a Word doc and edit it in doc format.
  - Pre-Conditions: Notifications have been configured
  - Post-Conditions: Proper notification was sent.

- **MS-365:** This is available in SharePoint.
  - Pre-Conditions: Notifications have been configured.

7. **Flags and Tasks that make sense and display on the calendar “day” rather than off in a side bar. Otherwise they are of little use.**

- **Google:** I'm not sure what you're looking for here. All events in a given calendar are color-coded, ie, each calendar has its own color and all events for that calendar are easily identifiable. Status icons for events (privacy/sharing, recurrence, alarm, etc) are displayed when you hover your cursor over the event. Icons also have popups to explain what they mean when you hold your cursor over them. When you click on an unused portion of the event block (ie, an area with no text), a brief detail summary pops up on the screen. If you click on the event title in the block, the event editor page opens (if you are allowed access).

- **MS-365:** Only available in Outlook (desktop App), not available online.

8. **Be able to incorporate iPad’s “To-Do” lists in to Task List on Calendar.**

- **Google:** Unknown. I am not an iPad user. Brief searching seems to indicate that iPad users should use the Google Tasks app for best results.

- **MS-365:** Exchange Active sync between Office 365 and iOS (iPad) works seamlessly with the iPad's Native apps: Mail, Contacts, Calendars, and Reminders (Tasks) If you have multiple calendars / task lists under your main calendar / task list these show up as well and are able to be viewed and modified with a live connection back to the server.

9. **Instant Messaging – would be a plus, not turned on in Zimbra.**
Chat is available in the Gmail app. Users can add contacts/groups to their chat list and invite others to chat. Users can carry on multiple chats simultaneously. Users can add multiple others to a chat (group chat).

**MS-365:** Office 365 offers this in the form of Lync. Lync is very powerful and offers a host of capabilities beyond IM. It offers dynamic status updates based on your calendar (if scheduled for a meeting it automatically switches user status in IM to 'In Meeting'). It offers the possibility to integrate with phone systems for easier contact management and calling, also offers the ability to do video calling and VOIP / voice conferencing with screen sharing as well. Very powerful collaboration tool.

**Compatibility (with progressive technologies).**

1. Can product export / import data to/from other applications?.
   - **Google:** GCalendar can import and export standard calendar file formats, including iCal and XML. Gmail can be connected to via IMAP, for which there are multiple methods for import/export. GDrive can import/export many common file formats. Contacts can be imported/exported from/to many different common sources. From the contacts import dialog: "We support importing CSV files from Outlook, Outlook Express, Yahoo! Mail, Hotmail, Eudora and some other apps. We also support importing vCard from apps like Apple Address Book.
   - **MS-365:** yes

2. Can product export / import resource data to/from other applications?.
   - **Google:** Resources are treated like a calendar, so any method for import/export of calendars would apply here. I don’t know specifically what the 911 Building List is, so I can't say how it would apply here.
   - **MS-365:** I think this could be done through a script in power shell.

**History**

1. Ability to see which admin created the meeting, who altered it and when it was altered. Critical when multiple admins are maintaining multiple calendars.
   - **Google:** The creator of an event is stored with that event. Subsequent edits of the event are not tracked.
   - **MS-365:** Doubt this is available but could be managed through the inbox of the room / resource by viewing all request emails.

**Migration**

1. All calendars and account information should transfer without requiring manual manipulation.
   - **Google:** I did not perform any migration tests, so I cannot provide an answer for this use case.
   - **MS-365:** This should be able to be accomplished, as Zimbra and Exchange are similar technologies. There is also a process on the user side that could make this possible. More detailed instructions should be sought from Microsoft. There are also third party tools to accomplish this.

2. Only external shares should require creating a new share.
   - **Google:** I did not perform any migration tests, so I cannot provide an answer for this use case.
1. **Ability to accept and/or accurately schedule appointments via an iPhone, Android, Blackberry, or other similar technologies.**
   - **Google:** I have been able to add/edit events from my Android phone (HTC, Android 2.3.4) and tablet (Samsung Galaxy Tab 10.1, Android 3.1), using both the native GCalendar app and third-party apps. I do not use/own any iOS or Blackberry devices.
   - **MS-365:** Yes via MS active sync / BlackBerry® Business Cloud Services from Research In Motion (RIM®).

2. **Reminders for appointments need to work reliably when synching with mobile devices.**
   - **Google:** See comment under Mobility, Item 1. Reminders work just as well.
   - **MS-365:** Yes they work reliably.

### Notification

1. **Ability to turn “on” or “off” based on access or group assignments.**
   - **Google:** Notifications can only be changed at the user level, not the group or role, and only from the event itself.
   - **MS-365:** If in group the get notifications that the group gets, if not then no notifications.

2. **eMail integration that sends notification of who has accepted the meeting to all attendees.**
1. Adding additional attendees by admin for any appointment without deleting and recreating the meeting.
   - **Google**: This is very easy to do.
   - **MS-365**: Works perfectly, while updating the meeting user can also elect to send email notification to the person who’s calendar they are managing.

2. Change location.
   - **Google**: The location is indicated on the event settings page. It can very easily be changed by any attendee who has been given permissions to edit the event.
   - **MS-365**: Works perfectly, while updating the meeting user can also elect to send email notification to the person who’s calendar they are managing.

3. Update information (time, attendees, files).
   - **Google**: The location is indicated on the event settings page. It can very easily be changed by any attendee who has been given permissions to edit the event.
   - **MS-365**: Works.
4. Provide notification to all attendees via email.
   - **Google**: When you save an event, a popup asks if you want to send notifications to attendees. The event is stored in whichever calendar the creator chooses, either their own, or another user.
   - **MS-365**: Works.
     Post-Conditions: Should not save entry to Account Manager’s personal calendar

5. Provide notification to user scheduling meeting (Admin or User).
   - **Google**: Notification is not sent to the user who created the event, but update notifications (initiated from the “Email Guests” button/link on the event settings page) can be if desired.
   - **MS-365**: Works.
     Pre-Conditions: Admin has rights to group or committee in question.

6. Synchronize all changes with mobile calendars and display correctly.
   - **Google**: Notification is not sent to the user who created the event, but update notifications (initiated from the “Email Guests” button/link on the event settings page) can be if desired. This includes mobile users.
   - **MS-365**: Works in iOS, Android device unavailable for testing.

7. Delete meetings and/or attendees for an entire series or part of a series without duplicating the entry.
   - **Google**: I don’t understand this question. Any changes made to an event are only done to that event, and for all attendees involved.
   - **MS-365**: Works correctly.
     Pre-Conditions: Notifications have been configured.
     Post-Conditions: Proper notification was sent.

8. Ability to remove duplicate entries without deleting the original.
   - **Google**: Any changes made to an event are only done to that event, and for all attendees involved.
   - **MS-365**: Not sure what is involved. Need more info on use case.

   - **Google**: There is no recall option. An event editor can delete any event, but if you want to notify attendees, you will need to manually send them an email.
   - **MS-365**: No doesn’t have this function, once you hit send update or send cancelation it sends messages to recipients. Has nice feature that allows for delivery reports and shows if the message was delivered or not. Nice for audit trail.

10. Create or synchronize meetings and attendees in multiple eMail systems. (if they aren’t in Zimbra, it requires sending specific email invites are making phones, very time consuming).
    - **Google**: Non-KSU users can be invited via email. Notifications and invites can be sent from within Google Apps. The recipient can then add the invite to their own calendar. External users who also use Google Apps can then have access to the event on the KSU calendar and can decline or accept through this mechanism.
    - **MS-365**: Yes it emails an ICS attachment that most if not all calendar providers recognize and accept. You can accept meeting request and it marks attendee in tracking list accordingly.
11. Not enough colors available to distinguish between various calendars that admin is working in. Can have anywhere from 6 to 12 calendars open at any given time.

   - **Google**: There are 24 default colors users can choose from, and users may also choose custom colors from anywhere in the spectrum. Colors chosen for calendars are different for each user.

   - **MS-365**: Outlook has 15 color choices in calendar selectable by individual calendar, i.e.; (You can have one or multiple calendars with the same color), Office 365 (online portal) has the same setup but you can only select 5 calendars at a time.

**Reliability**

- N/A. Neither tester chose to answer these questions.

1. Predictable product lifecycle with appropriate and timely announcements.
2. Stable product, esp. in hosted environment.
   - a. Who to call when product is unavailable.
   - b. When will product be available again.
3. Downtime on Calendars has caused confusion on critical meetings. When the system was back on-line, sometimes the meetings had to be recreated.

**Resource Management**

1. Ability for multiple admins to schedule multiple resources (i.e. rooms or equipment) for multiple departments / attendees / users. (Currently have to create a calendar to represent the resource, clumsy, results in numerous double-bookings).
   - **Google**: Once a resource is created, any user can be assigned permissions to view and/or edit that resource. Any user who is granted edit permissions can then grant others view and/or edit permissions. In this manner, multiple people can be made admins of this resource. Users can have view and/or edit permissions for multiple resources.
   - **MS-365**: Yes this works.

2. Have ability to attach or assign specified resources to a specific room, such as a Poly Com or Computer Cart. Information should display when scheduling.
   - **Google**: Resources are not very customizable. There is a description field attached, but it does not display when a user schedules it. There does not seem to be a way to permanently attach additional information about a resource, such as a room that contains particular equipment. It seems the best way to do this would be to put such info in the resource title. E.g. “Conference Room 1A (Polycom, Multimedia Workstation)”
   - **MS-365**: Not sure, unable to test, requires resources which must be setup through power shell.

3. Ability for each department or unit to create, maintain and authorize any number of conference rooms.
   - **Google**: Resources can only be created by a site admin. Individual users cannot create them, but the site admin can assign permissions to users for them once they have been created. There is no limit on the number of resources that can be created or assigned. See comment on item 1 for related details.
   - **MS-365**: All accounts must be provisioned with through admin console. Office 365 allows for distributed Administration but I would imagine K-State will want to have centralized administration therefore I see this working the same as it does now with zimbra, the room account must be created by central and then can be managed by departments.

4. Ability for each department or unit to create, maintain and authorize a variety of equipment available for check-out/or reservation as part of scheduling a room.
o Google: See comments on item 3. Resources use their own calendar and are not attached to any one user’s calendar. Post-Conditions: Should not save entry to Account Manager's personal calendar.

o MS-365: All accounts must be provisioned with through admin console. Office 365 allows for distributed Administration but I would imagine K-State will want to have centralized administration therefor I see this working the same as it dose now with zimbra, the room account must be created by central and then can be managed by departments.

5. Ease of use, accepting/declining a must.

o Google: Just like users may accept or decline an event invitation, users may also accept or decline an invitation to a resource. The pre-condition listed here doesn't apply as anyone can invite anyone else to an event or resource.
Pre-Conditions: Admin has rights to group or committee in question.

o MS-365: Yes, multiple ways to configure so user has flexibility in notifications and acceptance / decline. Also can be completely automated based on if room / resource is already scheduled.

6. Ability to easily make rooms or equipment available to the University at large, or to restrict by department or unit.

o Google: Resources can be made private or public to the whole organization or individual users. I have not yet seen a way to subdivide an organization into sub-units using Google Apps.
Pre-Conditions: Notifications have been configured.
Post-Conditions: Proper notification was sent.

o MS-365: I guess this would be a decision on if the room / resource was published in the GAL or not. I would say if department didn’t want it to be available campus wide this they would request it not be published in the GAL and just publish in their department contact list.

7. Entire campus needs to be on one system so that all resources can be seen/assigned based on access / viewing rights.

o Google: See comments on item 6 above.

o MS-365: Office 365 would fulfill this requirement.

Setup/Implementation

1. Installation on desktop, laptop and mobile devices should be simple with minimal configuration.

o Google: On desktop/laptop, I have used Thunderbird and Outlook for email. Setup was trivial for both. I have not tried any desktop calendar apps, but gCalendar exports both live and offline data via ical and xml, so any application that can understand those should work easily. On my mobile devices, setup was trivial (see comment under Mobility, Item 1).

o MS-365: All web based so that is not a problem / if using outlook on desktop or laptop it installs with MS Office and is very easy to configure. Mobile devices are simple to configure as well.