



## UA Google Apps After Action Review



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## Executive Summary

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A decision to adopt a single email and calendaring system was made on April 14<sup>th</sup>, 2016. This decision was a part of a larger statewide strategic approach to budget deficits and how the University of Alaska System could better collaborate to meet these challenges. The specific deadline allotted for this initiative was 30 days, or by May 14<sup>th</sup>.

UAA was unable to comply with the given deadline and complaints regarding numerous challenges were being directed to President Johnsen. An after action review (AAR) was initiated through CITO, Karl Kowalski, and assigned to Jim Bates, consultant on contract with Business Improvement Group.

The findings of this AAR will demonstrate that the decision to adopt a single system was made to solve very specific problems associated with maintaining and operating disparate systems and was made in alignment with the core principals of the Strategic Pathways' endeavor. The decision itself was good but lacked the proper vehicle required to vet and execute such an enterprise initiative in order to achieve the best outcomes.

The current state at the time of the directive was different for each institution. Statewide and the University of Fairbanks staff, faculty and students, and UAA Students were using Google Apps, an external outsourced solution for email and calendaring, and had been for a number of years.

The directive was mainly impactful to UAA and UAS staff and faculty who were internally sourcing the use of Microsoft Exchange and Outlook and were collaborating in their use of those tools for email and calendars.

UAS was able to convert their user emails to Google Apps in the allotted timeframe but at the time of this audit were still working on backend processes in order to provide functionality accomplished differently within Google.

UAA on the other hand encountered numerous challenges due to the sheer amount of users, integrated workflows and backend processes, and a lack of expertise on the new system. UAA users were not completely migrated until August 19<sup>th</sup> and of approximately 350 departmental accounts 88 were migrated as of October 13<sup>th</sup>. The findings of this report will provide evidence to support the delay and challenges associated with the complexity and timeframe allotted.

The recommendations offered in this report include:

- An opportunity for leadership to conduct a lesson's learned and communicate a way for improving these kinds of decisions and deployment in the future
- A list of strategic and organizational opportunities to deal with root causes to minimize impacts of future enterprise IT initiatives
- An immediate draft work plan to deal with current challenges and how to develop a path forward

- An analysis of this initiative from a project management perspective to demonstrate project process maturity and performance

## Background Information

Ideally the University of Alaska system would share a common method for effective and efficient communication and collaboration. One of the most used ways of communicating within the university system and with external participants is email. The majority of currently available email systems include ways to collaborate schedules and appointments (i.e. calendars).

However, the diverse institutions within the University of Alaska system were using disparate email applications, namely Google Apps and Microsoft Exchange /Outlook. This caused several problems for executives, faculty, students, and associates which include:

1. Lack of a unified directory services methodology and a single Global Address List (GAL) for managing email contacts, groups, and distribution lists.
2. Lack of a single calendar and scheduling method integrated with the GAL mentioned above.
3. Costs associated with operating and maintaining disparate email systems.

On April 14, President Johnsen announced 113 recommendations including reductions in functions or positions, changes in the location of work being done, and changes in how Statewide collaborates with campuses. There were deadlines associated with each recommendation varying from done or no change to 30-, 60-, or 90- days. The following excerpt is the detail regarding the announcement establishing a single email and calendaring solution:

Decision	30 Days	RACI Individual(s)	Status
<b>Establish Single email and calendar solution through Google Apps to streamline communications and calendaring.</b>	X	R: CIOs A: CITO C: Summit Team/ SAC/Pres Cab I: University Community	
<p>*Note: It was reported that the 30 day timeframe was not communicated directly or collaboratively to the University CIOs. Nearly half of the allotted time was expended before the first meeting between the CITO and the CIOs could be arranged. The 30 day time period also coincided with end-of-semester/finals week – typically a time when there is a freeze on any substantive IT infrastructure changes.</p> <p>As an additional time constraint the migration to Google Apps was not the only major project announced on April 14<sup>th</sup>. A mandate to implement a single instance of Blackboard was also announced requiring commitment of the same technical resources. Two major initiatives running simultaneously caused resources conflicts as resources were reallocated from one initiative to deal with challenges on the other.</p>			



## *University of Alaska Google Apps AAR*

President Johnsen through CITO, Karl Kowalski, engaged Jim Bates with Business Improvement Group to perform this AAR.

The AAR was requested due to delays in UAA meeting the original schedule and faculty complaints directed to President Johnsen regarding issues associated with the transition.

As part of Strategic Pathways and as an effort to be transparent and collaborative, President Johnsen and CITO Kowalski wish to discover causation and gain insight on how to respond to stakeholders. Mr. Bates received initial information from CITO Kowalski in the first week of September. Official launch was via a phone meeting on September 20<sup>th</sup>. Interviews and discovery were started and further instructions regarding scope were conveyed on October 8<sup>th</sup>.

### Audit Approach

Business Improvement Group was engaged to conduct an after action review (AAR) with the specific instructions to start from the directive to move to a single email / calendaring solution. Due to the relatively short timeframe given, the results are high-level but include enough information to make determinations. The auditor is available for further clarification and analysis as needed.

The audit findings were collected utilizing interviews, meetings, project artifact review, research, and analysis. The audit was conducted by Jim Bates who holds a Master Certificate in Project Management from Villanova University and is a certified Project Management Professional (PMP) through the Project Management Institute (PMI). Mr. Bates has also conducted numerous audits on Information Technology (IT) projects and systems as a Certified Information Systems Auditor (CISA) with ISACA. Mr. Bates is also HITRUST certified and has conducted HIPAA/HITECH audits and risk assessments in accordance with 45CFR and can provide assistance in this area if desired.

### Audit Objectives

The objectives of the Audit are outlined below:

1. Conduct an After Action Review (AAR) to:
  - a. Discover why the conversion to Google Apps was not completed in the allotted timeframe
  - b. Provide discovery regarding stakeholder challenges and reported issues
  - c. In conducting the review needed for "a" & "b" above, answer the following questions:
    - i. What were the technical contributors to the delay and/or challenges?
    - ii. How did the human resources contribute to the delay and/or challenges?
    - iii. What other contributing factors caused the delay and/or challenges?
    - iv. What did not occur to result in this?
    - v. Are the issues reported by stakeholders factually correct?
    - vi. What is Leadership's role in this?

2. Determine the broader opportunity to learn from this project and provide recommendations to create a framework for future enterprise projects and IT governance.
3. Report on project status from a performance and lifecycle perspective
4. Report on Business goals of the project
  - Compare current state and costs to future state and costs and benefits
  - Understand how project investment will transform the University's business functionality
  - Determine if project outcomes will support future transformation
    - What technology is being used?
    - Will it support an overall Identity Management framework and other strategic goals?
    - Will compliance requirements be met by the current project outcomes?
5. Benchmark project goals with other efforts (other state email conversions)
  - Determine metrics to measure how our project compares
  - Identify and map gaps in the comparison

## Audit Findings

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The decision to transition to a single unified system for email and calendaring was a good decision when weighed against the problems caused by maintaining disparate systems. However, the system-wide lack of mature IT Governance, IT Policies, Enterprise IT Portfolio/Project Management, Enterprise Architecture, and Communication Management provided for an inadequate vehicle in the execution of this decision.

Ideally the University of Alaska system would adopt best practices, frameworks, and standards to provide a way for strategic decisions to be vetted against requirements, risks, and impacts to ensure excellence in tactical execution of those decisions.

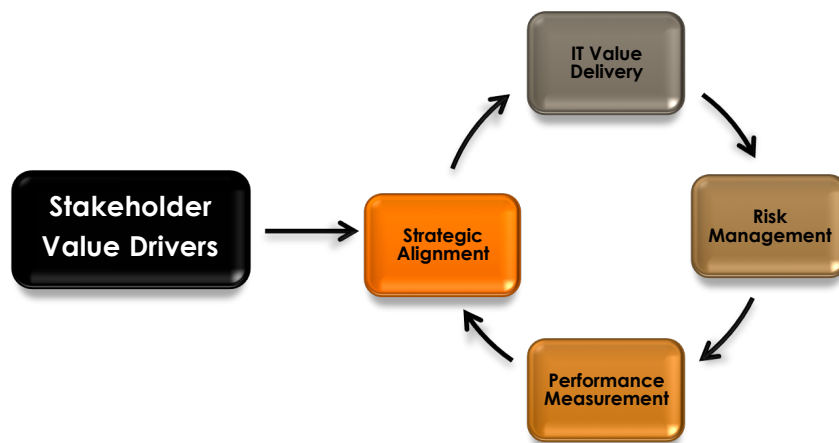


Figure 1

As depicted in **figure 1**, decisions should consider strategic alignment, financial benefits, business impacts, regulatory requirements, risks, stakeholder value, and how to measure performance.

In answering the question “Why the conversion to Google Apps was not completed in the allotted timeframe?” the following categories will form a basis for how each contributed to the delay and/or posed challenges: Technical Contributors, Human Resource Contributors, Other Contributing Factors, What Did Not Occur, and Leadership's Role.

Discovery regarding stakeholder challenges were categorized as follows: morale issues, communication issues, functionality issues, regulatory compliance issues, compatibility issues, schedule issues, workflow issues, resource issues, and support issues. The findings are not exhaustive but fall within the scope and timeframe for this initiative and address the major contributors, factors, and challenges associated.

### Technical contributors

Email and calendaring are part of a broader network of collaboration and identity management.

Infrastructure and systems currently in place, which serve to authenticate users based on identity and roles, dictate workflow and were not given ample credence in the time allotted for the successful outsourcing of the associated email and calendar functions. Thus, outages were experienced while workarounds and workflow were analyzed and implemented.

Because of the nature of outsourcing these front-end processes, reliant upon integrated backend services (such as MS Active Directory Services with built in role based security and access functionality), compliance issues were brought into question needing time for proper analysis and determination.

The lack of a Global Address List (GAL), which is disabled in Google Apps, remains one of the key functionalities that were lost with this migration.

An abbreviated list of Other Technical Contributors (these will need to be evaluated for impact and remediation):

- Sponsored accounts will require manual provisioning
- Google migration services have random outages
- Max size of a group distribution list in Google Apps is 500 users per day per group
- Emails greater than 25mb won't migrate
- Recurring calendar items with no end date will not migrate
- Calendar attachments have not migrated correctly
- Outlook signatures must be reconfigured manually in Google Apps
- Outlook rules do not migrate
- Google Apps does not support a department email/calendar account paradigm

A diagrammatic representation of UAA's plan to deal with the migration is depicted in **Exhibit B**.

## Human resources contributors

- Resources were limited by schedule conflicts dealing with two major initiatives, Google Apps and a single instance of Blackboard. A project resource plan was not clearly articulated from an enterprise perspective demonstrating balancing these initiatives with regular IT operations and support duties
- Resources lacked training and expertise
- Resource morale issues caused by these contributing factors reflected in some staff's engagement or lack thereof
- Complaints regarding Google vendor support were verified – better project support for transitioning during the project could have been better planned and coordinated
- Resources conveyed a sense of abandonment by leadership – perceptions were that they were on their own to solve problems without support or aid from leadership and the mandate hung over their head as a punitive rather than a collaborative initiative.

## Other contributing factors

- Policy and procedure factors include:
  - **Lack of (or insufficient) enterprise policy and procedures on outsourcing systems of record** – Guidelines are in place but need an overarching policy
  - When the decision was made to go to Google Apps, there were two disparate systems:
    - An outsourced email system that met certain business requirements and needs – Google Apps
    - And an insourced system of record that had evolved over time and encapsulated identity / role base authentication / access and included an integrated collaboration management system. Complex workflow was built on this system. Google Apps was not a simple direct replacement in terms of functionality and more time and resources were/are required to integrate the outsourcing of the mail and calendaring functions. In moving the user accounts to Google much of this workflow and functionality were “broke” – some temporarily and others are still pending resolution.
  - **Lack of fresh policies regarding email and collaboration** – Policies should have a refresh cycle and be reviewed for relevance at least annually.
  - **Lack of (or insufficient) role based security and management of records** – Assigning a user account without defining roles causes numerous issues regarding access to data and separation of duties. Least Privilege is an IT security concept that helps ensure that user only access information on a “need-to-know” basis. Not having a way to manage for instance the separation between student and faculty can cause regulatory violations

regarding access to protected information. One of the issues brought up was the compliance with federal regulation for HIPAA and FERPA. These federal regulations require auditable systems to be in place to demonstrate “due diligence” while ensuring compliance. While pockets of excellence were observed, overall governance, support, and delivery were lacking maturity.

- **Lack of (or insufficient) data loss prevention (DLP) policies and procedures on how data is classified, stored, transmitted, and retrieved** – having good policies, processes, procedures, and technology in place is one of the best ways to ensure compliance with regulatory mandates and to protect information from bad actors. Although email in and of itself is a microcosm of this universe, it is observed as a vulnerability without a robust enterprise approach to the whole.
- **Lack of coordinated Regulatory Compliance Management** – Issues:
  - 49 services were disabled for HIPAA users until work-arounds or fixes are incorporated
  - 3 Services require end-user training for HIPAA compliance
  - OIT online user focused documentation is not completely current or enterprise focused

There appears to be confusion on understanding the HIPAA requirements and what being in compliance means. Information is included in the regulatory compliance **Appendix D** to provide guidance and help clear up that confusion.

FERPA issues are still being investigated to ensure that an outsourced non role-based system allows for protection of student information. The one example (albeit most likely a rare one) was given where a faculty member could be disciplined for inappropriate student contact and even terminated but show up as a student at one of the other system universities and have access to the faculty email because of lack of role separation. An immediate fix would be to immediately deactivate email accounts upon separation and flag those accounts not eligible for reinstatement as currently classified. This can be implemented via policy, procedure, and controls and should be determined as part of an overall strategy.

## What did not occur

There is lack of evidence to support that best practice project management was used in this endeavor. Enterprise projects are typically impactful to many stakeholders and are fraught with risk. A charter authorizing the work, outlining the high-level scope, time and costs of the project would have provided a control document and the needed inputs for confirming stakeholder requirements an initiating the creation of a good project plan and assessing the risks.

Note: The Project Plan forms the baselines for the project scope, time, cost, and quality at a minimum. We plan the work, and then we work the plan. While we are delivering the work packages of the project we monitor and control the performance by comparing activities

and outcomes to the plan – planned vs. actuals. Integrated Change Control helps us make required changes to the baselines and typically is part of a project governance approval process.

Lack of a requirements document that included features, functionality, workflow (use cases), and regulatory mandates contributed to being in reactive mode.

Lack of current and relevant Policies, Effective and Efficient IT Governance, Robust Change Management and Risk Management were other contributors.

Complex projects as this one require, meetings, workshops, subject matter expertise, and copious amounts of communication to understand challenges.

A core issue was the lack of addressing that moving from Exchange to Google Apps was more than merely an email system migration. Exchange and Active Directory are heavily integrated with a plethora of Microsoft Applications that were built using the role-based feature set included in AD. Functionality and workflows that were developed over time will need to be retooled for the Google Apps system and will take time and resources. Good project management practices could have addressed this issue.

### Leadership's role

Leadership could have provided a more collaborative method for deployment. This includes leadership from each institution involved in this endeavor. A major role of IT - as a service organization - is to proactively mitigate impact to consumers.

There was evidence of a prior brand war and a sense that each side didn't think the other was hearing their concerns. On the OIT side, frustration in not being able to lead to a single solution, and from UAA and UAS a feeling that they were being forced to use a system without a plan on how to meet current requirements.

Additionally it is typically leadership's role to provide the strategic and tactical ways to ensure successful outcomes and provide stakeholder value. IT is a service function and underpins almost every business function that we undertake in our daily jobs. When IT does not properly bring value to the consumers it has lost its purpose and becomes an obstacle.

Typically the root cause of the problem is the lack of maturity surrounding the vehicle that leadership uses to make and execute decisions. Such decisions and their effective deployment should clearly demonstrate stakeholder value. The strategic recommendations contained in this report provide for a framework and approach in dealing with this root cause, which when removed promote a collaborative value delivery methodology that helps to dramatically reduce blame-placing.

### Project Current State

Another objective of this AAR is to report on project status from a performance and lifecycle perspective. The following section summarizes those objectives.

This auditor found very little evidence to support an initial best practice enterprise project management approach to this initiative. Lack of a mature Project Charter and concomitant Project Plan were contributors to the lack of coordination and communication regarding scope, schedule, resources, budget and support of the project. With no clear definition and delineation between holistic project management lifecycle groups - Initiating, Planning, Executing, Monitoring and Controlling, and Closing - the lifecycle is difficult to report. Moreover, without Scope, Time, Cost, and Quality baselines, Project performance that compares what was planned to actuals is also vague at best.

Due to the silos within the UA system the project was found to be at various states of completion and differed substantively by institution.

Statewide and UAF were, for the most part, already using Google Apps and had relatively no issue with meeting the objective. Information from CITO, Karl Kowalski, is attached as UA/F **Appendix C**

UAS was in compliance by the given date but at the time of this audit was continuing to work on backend processes to address functionality accomplished differently in the new environment. UAS developed their own project plan to first comply with the deadline and then subsequently with the functionality of backend processes. Provided input is reflected in the UAS **Appendix B**

UAA has dealt with the most challenges regarding the conversion to Google Apps and are still dealing with the conversion and transition. The current UAA environment - at the worst and most prevalent - was found to be one of frustration, confusion, and lack of morale. Confidence in how decisions are made and deployed is at the low-end of the scale. UAA developed a comprehensive Project Plan on how to deal with their challenges and is attached as **Exhibit A**. Many other artifacts were provided and are included in the UAA **Appendix A**

## Recommendations

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Business Improvement Group has divided recommendations into two groups, **Proactive Root Cause Remediation** which addresses the more strategic fixes, **and Immediate Draft Work Plan** to deal with the current challenges. Both groups should be considered simultaneously to ensure the best path forward:

### Proactive Root Cause Remediation

1. **Demonstrate Leadership:** Use this project and its challenges as an opportunity to move forward. Executive management should own the decision, apologize for and explain the reasons for the challenges in executing the decision, and outline a path forward ensuring effective and efficient future enterprise (System wide) decision making and deployment for such initiatives. Leadership should demonstrate alignment to the Vision, Mission, and core values of the enterprise including financial business cases, and assessment of impact to key partnerships including K-12, the



State of Alaska Department of Education, and others as required. The following strategic recommendations (2-8) provide consultative input on such a path forward and should be considered in a strategic planning session facilitated by a firm like Professional Growth Systems and include Business Improvement Group as a SME.

2. **Strategic Direction:** Develop, deploy and communicate a global IT strategy that aligns with the global business mission and vision in a fashion that incorporates measureable outcomes.
3. **Execute Flawlessly:** Continue to develop and implement a best practice IT governance framework to guide a successful decision making process and concomitant tactical and operational deployment methodology. Empower, elevate, and support an enterprise project management function that operates under the charter of IT / business governance while providing best practice project management to enterprise initiatives.
4. **Provide Guidance:** Continue to develop high-level IT policies to help guide operations and ensure compliance with strategic direction, regulatory requirements, and core values. Policies should include information to guide decision making on buy vs. build, insource vs. outsource and inputs for procurement and contract management.
5. **Standardize Operations:** Develop mature processes, procedures and controls under the policies as a way to define the standard way of doing things. Work toward developing an Enterprise Architecture with a Service-oriented focus to ensure that IT decisions select and deploy apps that meet standards and comply with requirements and regulations.
6. **Avoid Failure:** Provide a robust Change Management process for enterprise change requests and approvals. And develop a Risk Management method that encompasses a holistic view of assets, vulnerabilities, threats, likelihood, impacts, and responses. Integrate Risk and IT Security into the architecture
7. **Ensure Success:** Develop a performance management system utilizing the "metrics that matter" to ensure balanced successful outcomes.
8. **Communicate Continually:** Understand communication requirements for all stakeholders and communicate to the right people in the right way at the right time while providing for feedback and response.

### Immediate Draft Work Plan (in conjunction with #1 above)

1. Review the recommendations above to ensure that immediate work is relevant and ensures the best long-term strategic fit and purpose.
2. Compile a list of the problems that UA was initially trying to solve. If any had an associated cost benefit analysis, ensure that performance is assessed and analyzed.
3. Assemble an inventory of all current project challenges and issues including a description and status for each.
4. Facilitate a collaborative workshop with subject matter experts and stakeholders to adopt a communication / collaboration management strategy to include a continued path forward with milestones.



## *University of Alaska Google Apps AAR*

5. Suggested participants to include:
  - a. Google support – as needed
  - b. Microsoft support – as needed
  - c. UA CITO and Tech Staff
  - d. UAA/UAS CIOs and Tech Staff
  - e. Pertinent Agency stakeholders – as needed
  - f. Possible other industry leaders – including peer universities
6. Develop a roadmap that includes technology, resource, budget, time, and regulatory requirements needed to successfully realize strategy from step 2.
7. Determine (based on outcomes from workshop above) if Google Apps project will integrate with current technology and requirements as-is or require modification. Determine offsets of initial problem solving and weigh resources associated with resolving subsequent challenges.
8. Conduct a “Risk Analysis” in accordance with Section 164.308(a)(1) of the HIPAA/HITECH Security Rule (Business Improvement Group offers these services)
9. Present findings, analysis, and recommendations to executives to make final determinations regarding path forward.

The above draft will need to be discussed with critical stakeholders to gain consensus and elicit details required to decompose the task outline into actual work packages and schedule.

Depending on priority assignment and resource availability I believe that the work required in the draft steps 1-7 could be accomplished in 2 to 4 work weeks.

The following Exhibits and Appendices have been attached as the most relevant. The review produced many documents which were not attached directly in this report. They can be found at:

<https://drive.google.com/drive/folders/0B2wl5d37EyNPOVdsVFJVC0N5bnM>

## Exhibit A – UAA Project Plan Document

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Email Migration  
Project Plan.xlsx

<b>UAA Email Migration Workplan</b>			
<b>Task</b>	<b>Assigned</b>	<b>Due</b>	<b>Completed</b>
<b>Project Organization</b>			
Schedule project meetings	Adam	6/16/2016	6/17/2016
Leads and Coords Presentation	Adam	6/8/2016	6/15/2016
Develop initial workplan draft	Adam	5/9/2015	5/9/2015
<b>Communication and Administration</b>			
Develop communication timeline for upgrade	Adam	6/15/2016	6/15/2016
Discuss Google Apps operation/migration with peer institutions	Pat/Adam	6/2/2016	6/2/2016
Initial communication to faculty senate	Pat	N/A	
Initial communication to ACDLiTe	Pat	N/A	
Initial communication to eLearn	Adam	N/A	
Initial communication to Student Senate	Pat	N/A	
Select Pilot Phase 2 group	Adam	6/1/2016	6/14/2016
Develop migration process diagram	Adam	6/5/2016	6/5/2016
Initial communication to Pilot Phase 2 group	Adam	6/15/2016	6/15/2016
Draft communication to All Users regarding migration	Pat	6/16/2016	6/16/2016
Send Final draft of communication to All Users regarding migration	Pat	6/17/2016	6/17/2016
Develop project web site	Chris	6/17/2016	6/17/2016
Test plans shared with Pilot phase 2 group	Johnny	6/21/2016	6/21/2016
<b>Pre-Migration Analysis</b>			
HIPAA impacts	Pat	6/10/2016	6/10/2016
Analyze automated migration options	Johnny	6/10/2016	6/10/2016
Develop 3rd Party application impact list	ITS team	5/10/2016	5/10/2016
Create mail flow architecture diagrams	Johnny/Phil	5/27/2016	
<b>TLS Connection</b>			
Preliminary technical discussion	Adam	5/12/2016	5/12/2016
Technical discussion with SOA	Johnny	5/17/2016	6/10/2016
Set up test connection	Phil	5/20/2016	N/A

<b>Notes</b>	
Held session with ITG instead.	
Contacted Weber State, University of Arkansas Little Rock and Boise State. Discussed with WSU and UALR.	
Informal communications with this group. Message to all exchange users sent on 6/17. Green and gold article began publication on 6/20	
Informal communications with this group. Message to all exchange users sent on 6/17. Green and gold article began publication on 6/20	
Informal communications with this group. Message to all exchange users sent on 6/17. Green and gold article began publication on 6/20	
Group not available.	
ITG has been selected. Migration to begin 6/21	
Discussed w/ ITG	
Reviewed process at project meeting and asked for feedback	
Determine scope of affected users, processes, required settings in gmail. Several deans provided information.	
1) Google Data Migration Service, 2) Bettercloud, 3) Migration Wiz (brief review of this tool: cost shows approx \$56k)	
1) Pre-migration (current), 2) Post-migration, 3) Additional stages as necessary	
Encrypted email to State of Alaska	
Johnny, Max, Phil, Nathan and Adam to discuss proposed connection, issues and next steps	
Johnny to set up for week of 5/16	
Use poc.alaska.edu to set up test connection to state. Task was not completed. Connection was brought up in production instead.	

<b>UAA Email Migration Workplan</b>			
<b>Task</b>	<b>Assigned</b>	<b>Due</b>	<b>Completed</b>
Upload @alaska.edu cert	Phil	6/24/2016	7/15/2016
Implement connection in production	Johnny	5/27/2016	6/15/2016
<b>Pilot Phase I - UAS Manual Migration</b>			
Initial project/phase overview	Mona/Adam	5/2/2016	5/2/2016
User communications	UAS	5/4/2016	5/4/2016
Test migrations	UAS	5/13/2016	5/13/2016
User mail flow cutover	UAS	5/13/2016	5/13/2016
Process monitoring	Johnny/Adam	5/31/2016	6/15/2016
Lessons learned discussion	Adam	5/31/2016	6/15/2016
<b>Gmail environment validation and configuration</b>			
Review Gmail best practices guide	Johnny	6/1/2016	6/15/2016
Provisioning/Deprovisioning diagram and documentation	Tom	7/15/2016	
LDAP integration	Johnny/Phil		
Enabled applications and services	Johnny	8/1/2016	8/1/2016
<b>Pilot Phase II - ITG Automated Migration</b>			
Technical discussion	Adam	6/1/2016	6/15/2016
Create impersonation account	Johnny	6/2/2016	5/24/2016
Test connection between systems	Johnny	6/2/2016	5/24/2016
Perform packet capture to determine bandwidth used during a migration	Johnny	6/15/2016	6/15/2016
Confirm OOO (Out of Office) setting is not impacted by setting the send restriction on an account	Johnny	6/15/2016	6/15/2016
Determine process for creating csv input file	Johnny	6/6/2016	6/15/2016
Determine departmental pilot group	Adam	6/6/2016	6/16/2016
Repoint mail flow for pilot group	Johnny	6/21/2016	6/23/2016
Run process for mail	Johnny	6/21/2016	6/23/2016
Run process for calendar	Johnny	6/21/2016	6/23/2016
Run process for contacts	Johnny	6/21/2016	6/23/2016
Run process for calendar resources	Johnny	TBD	7/1/2016

<b>Notes</b>	
Workaround is in place, but cert is needed to do this right. Ask Max to get this cert when he gets back from leave.	
Data point: migration ran at 83 mb/hour; UAS estimates the user migration process is throttled to 1 email/second	
UAA/UAS teams, added OIT week of 5/23.	
Most recent discussion at 9/6 all UA meeting: Tom to upload documentation and provisioning scripts to a repository available to the team. May not be possible in the timeframe allotted	
Applications were reviewed and documented. Additional automatic provisioning process needs to be developed for all employees as well as separate processes for those handling PHI data.	
Based on initial tests, expectation is 2-3 mbps bandwidth requirement.	
Query all users from exchange, put in spreadsheet. Delete those that shouldn't be migrated. Select users in groups of 100. Group will be ITG	
Not in scope for pilot	

<b>UAA Email Migration Workplan</b>			
<b>Task</b>	<b>Assigned</b>	<b>Due</b>	<b>Completed</b>
Process monitoring	Adam/Johnny	6/26/2016	7/1/2016
Compile lessons learned and incorporate into user FAQ	Adam/Johnny	6/26/2016	8/1/2016
Determine call center and support processes	Mark W.	6/26/2016	7/1/2016
<b>HIPAA/FERPA Configurations</b>			
Create AD group of individuals that must be HIPAA compliant	Johnny	6/25/2016	
Develop programatic process for using the AD group to provision gmail appropriately	Tom		
<b>User Migrations</b>			
Populate "Do Not Migrate" spreadsheet	Adam	6/24/2016	6/24/2016
Make necessary gmail modifications based on lessons learned		TBD	
Determine grouping for migrations	Chris	6/24/2016	
Modify routing to ensure traffic no longer takes the long way through fbx	Collin	6/24/2016	6/24/2016
Verify google traffic no longer takes the long way through fbx	Johnny	6/24/2016	6/25/2016
Elmo modifications	Mark H.	6/24/2016	6/23/2016
Begin user migrations	Johnny	6/26/2016	6/26/2016
User migrations complete	Johnny	7/18/2016	8/19/2016
Modify campus directory to update email addresses to .alaska.edu	Brandon	7/18/2016	8/19/2016
<b>3rd Party Application Modifications</b>			
Qualtrics			
Salesforce			
Frontrange			
Cisco prime			
Mapworks			
Advancement Mass Mailer (Direct Mail)			
Mail Merge (From Vince @Mat-Su)			
Multiple Scan to Email products			
Unity			
Skype for Business			
OU Campus			

<b>Notes</b>	
This task is stalled at OIT 49 services must be disabled - see Google Services worksheet	
Need list from Pat	
Depending on performance benchmarking (determined in phase 2 pilot), migrations may need to be segmented	
Change scheduled for 6/24 Remove "Exchange" routing option Batches of 100	
Post migration	



<b>UAA Email Migration Workplan</b>			
<b>Task</b>	<b>Assigned</b>	<b>Due</b>	<b>Completed</b>
Sharepoint			
UPS			
IMS			
Alert Central			
EqualLogic Arrays			
Nimble Array			
VMware vSphere			
Veeam Backup & Replication			
VeeamONE			
DPM			
ADC UPS units			
PDU's in ADC			
Milestone			
A10 Load Balancers			
Datrium			
Several custom applications and scripts			
<b>Business process review and documentation</b>			
TBD			
<b>Departmental Accounts</b>			
Develop strategy	Chris	8/15/2016	8/15/2016
Discuss w/ call center	Johnny	8/15/2016	8/15/2016
Develop and post information request form	Chris		8/20/2016
Send out notifications to accounts	Chris		8/20/2016
Convert accounts	Chris	11/15/2016	
<b>Departmental Accounts</b>			
Create naming convention	Chris	9/1/2016	10/1/2016

[illegible]

<b>UAA Email Migration Workplan</b>			
<b>Task</b>	<b>Assigned</b>	<b>Due</b>	<b>Completed</b>
<b>List Serve (Mailman)</b>			
TBD			
<b>Multifunction Devices</b>			
TBD			
<b>Dynamic Email Distribution Lists / Gmail AD integration</b>			
TBD			
<b>CBPP Public Folders</b>			
TBD			
<b>Clean up</b>			
Delete unneeded exchange user documentation on website support pages		TBD	
<b>GAL</b>			
Develop process via script and banner data to create GAL	Johnny	9/1/2016	

Notes	
Approximately 1500 distribution lists are in use by UAA. These need to be replicated and/or AD integration needs to be enabled.	
Implementing AD integration first would be a more robust permanent solution	
Solution reveals all addresses in the autofill - Karl to discuss w/ GC	

## Issues Tracking

Issue	Issue Type	Owner	Remediation	Closed?
<b>Priority 1</b>				
Sponsored accounts will require manual provisioning	Migration	Johnny		
Google migration services have random outages	Migration	Johnny		
<b>Priority 2</b>				
Max size of a group distribution list in gmail is 500 users	Configuration			
49 services must be disabled for HIPAA users	Configuration			
3 services require end-user training for HIPAA compliance	Training			
OIT online user focused documentation is not current or enterprise focused	Management			
College of Business and Public Policy uses public folders	Management			
Need to determine rules of the road for gmail campus administrators	Management			
Google GAL is not configured.	Configuration			

## Notes

Will attempt to get a list of accounts.

Have opened tickets. Dates/Times:

6/28/16 10:00am - 2 day intermittent outage

7/8/16, 2:30pm -

- OIT uses a list serve for this function
- Groups like "All Staff" or "All Students" exceed this threshold
- AD integration may be a workaround so we can use AD groups
- UAA has over 1500 distribution lists (dynamic, static, user managed)

Documentation is lacking, dated and UAF focused. A few examples:

- References to google-side password (this was changed at least 18 mo ago)
- No reference to security concerns of the 49 apps that must be disabled for greater security (HIPAA baseline, but also pertinent to all users)
- Answers that dead end without an answer (Finding UAUsername example)
- Dated content (Address contacts migration from Outlook example – steps don't match)

Key business processes are not documented. Examples:

- Supervisor accessing a subordinate's account after separation
- Expedient disabling of accounts
- Expediting account creation
- HR discovery processes

Need to determine workaround or like functionality

## Issues Tracking

Issue	Issue Type	Owner	Remediation	Closed?
Ability to Edit DNS records for SPF, DKIM and Other	Configuration			
Address book lookup for Calendar/Contacts	Configuration			
Provisioning Process to put UAA Staff/Students into UAA Organization	Configuration			
Need clarification on what happens to "Inactive" mailboxes	Management	Adam	Phil to create a provision/deprovision diagram.	
Yammer does not allow users to change email address to @alaska.edu	Configuration			
<b>Closed</b>				
Gmail does not use a folder paradigm. Folders are converted to labels, and labels don't nest.	Migration	Chris	Project website updated with what users should expect.	Y
Gmail does not accept special characters in folder names	Migration	Chris	Project website updated with what users should expect.	Y
Emails greater than 25mb won't migrate	Migration	Chris	Project website updated with what users should expect.	Y
"Failed migration" report is not user friendly.	Migration	Johnny	Failed migration report is not produced by the automated process.	Y
Initial performance benchmarks for individual migrations show performance at 1message/sec	Migration	Johnny	Migration process will accommodate this limitation by moving only 90 days of mail.	Y
Recurring calendar items with no end date will not migrate	Migration	Chris	No workaround. Documented in FAQ.	Y
Gmail Business Associate Agreement not signed (required for HIPAA compliance)	Management	Pat	Signed	Y
"Ghost" email messages are created during migration	Migration	Johnny	Cannot recreate	Y
The GAMMO tool will not migrate .pst files	Migration	Johnny	GAMMO tool will not be used	Y

## Notes

Need Ability to Add SPF records for @alaska.edu Zone to allow senders such as Salesforce, Qualtrics etc.

Need ability to look up users in Address book. It appears GAL is not populated or otherwise unavailable.

Ability to create UAA as its own Organization.

Google Terms/Conditions allow us to use gmail for active users only. It's unclear what happens to mailboxes for separated employees. Records retention requires these mailboxes to be kept.

Folder structure re-constitutes if the user uses outlook to connect to gmail, but not if the user relies on gmail web.

Folder won't convert

Exchange will accept internal emails up to 50mb in size. This could leave many emails un-migratable.

This report is generated for users that move their own mail. It's not clear what reporting is available for automated processes.

83 mbps

Need to test to determine whether this is an issue with the automated migration tool

Signed 5/2/16

The migration process may be attempting to create messages for s4b contact attempts.



## Issues Tracking

Issue	Issue Type	Owner	Remediation	Closed?
The "To" field is not populated for sent messages	Migration	Johnny	Does not appear to be an issue for automated process.	Y
Voicemail issues, clarify	Configuration	Johnny	Updated in FAQ	Y
Calendar attachments don't migrate correctly	Migration	Chris	No workaround. Documented in FAQ.	Y
Trash folder in gmail is emptied automatically after 30 days	Training	Chris	Updated in FAQ	Y
Outlook signature must be re-configured manually in gmail	Training	Chris	Updated in FAQ	Y
Out of office assistant does not work in Outlook	Training	Chris	Updated in FAQ	Y
IMAP and exchange connections cannot be configured to simultaneously connect in outlook	Training	Chris	Updated in FAQ	Y
Migrated messages show as unread once migrated.	Migration	Chris	Updated in FAQ	Y
Outlook Rules do not Migrate	Migration	Chris	Updated in FAQ	Y
Automated conversion process may not provision vanity email addresses	Migration	Johnny	OIT provided list of vanity addresses (from EDIR and Google apps). Vanity addresses were uploaded to google apps on 6/24.	Y
TLS connection to SOA	Configuration	Johnny		Y
Gmail does not support a department email/calendar account paradigm	Configuration		No workaround. Must use as is.	Y
Alumni are not able to login to gmail	Migration	Johnny	Must call the call center	Y

**Notes**

May be for internally sent messages only.

Update: This appears to work for automated migrations. Continue to monitor.

This is different functionality from exchange and may catch users by surprise

Out of office must be set in gmail via web browser

Need to determine how prevalent this use case is

Messages show as unread inconsistently.

Outlook server and Client rules don't migrate will need to be re-created

Many vanity (alias) email addresses are in use. Need to determine scope and workaround.

Waiting on OIT to produce list of taken aliases. List needs to be pulled from EDIR.

Received list, currently comparing the list against UAA aliases to determine the

Technical discussions have taken place, more to come. Looks doable.

Workaround is in place, but more work needed to complete correctly.

Account must be attached to a user. This causes problems at employee separation.

Service	Description	Terms Link	Help link	Disable?	Requires training to enable for HIPAA
Gmail	Email			N	N
Google Drive	Docs, sheets, slides, forms			N	N
Google calendar	Calendar			N	N
Google sites	Easy-to-create websites for your teams			N	
	Launch an intranet for your company, a project site for your team or a portal for customers with our site builder. All without writing a single line of code				N
Goodle apps vault	<b>e-discovery</b>			N	N
Google Contacts	<b>Contacts</b>			N	Y
Google Talk/Hangouts				N	Y
Groups for Business				N	Y
Blogger	Share your life online with a blog - it's quick, easy and free	<a href="#">Terms</a>	<a href="#">Help</a>	Y	N/A
Chrome Management	Configure and manage user settings for Chrome browser and Chrome devices	<a href="#">Terms</a>	<a href="#">Help</a>	Y	N/A
Chrome Web Store	Browse for, purchase, and deploy cloud applications	<a href="#">Terms</a>	<a href="#">Help</a>	Y	N/A
DART for Publishers	Streamline your ad management functions with advanced targeting and more	Requires written agreement	<a href="#">Help</a>	Y	N/A
DoubleClick Campaign Manager	DoubleClick Campaign Manager simplifies how campaigns are run, from media planning to reporting. With all your digital marketing efforts on one powerful platform, you can work smarter, act quicker, and get better results.			Y	N/A
DoubleClick Creative Solutions	Get engaging creative out the door faster and better with DoubleClick Creative Solutions. It's everything you need to build and manage engaging digital ads, from custom video to mobile plug-and-play.			Y	N/A
DoubleClick DART Enterprise	Sell, deliver, report on and bill advertising	Requires written agreement	<a href="#">Help</a>	Y	N/A
Doubleclick for Publishers	Streamline your ad management functions with advanced targeting and more	Requires written agreement	<a href="#">Help</a>	Y	N/A
DoubleClick Search	Manage and optimize your pay-per-click ads and keywords across all major search engines	Requires written agreement	<a href="#">Help</a>	Y	N/A
FeedBurner	Create and manage custom RSS feeds	<a href="#">Terms</a>	<a href="#">Help</a>	Y	N/A

Service	Description	Terms Link	Help link	Disable?	Requires training to enable for HIPAA
Fusion Tables	Gather, visualize, and share data tables	<a href="#">Terms</a>	<a href="#">Help</a>	Y	N/A
Google AdSense	Place Google ads on your website and earn revenue	<a href="#">Terms</a>	<a href="#">Help</a>	Y	N/A
Google Advertising Professionals	Demonstrate knowledge and skills in Google AdWords with a globally recognized program	<a href="#">Terms</a>	<a href="#">Help</a>	Y	N/A
Google AdWords	Display your ads on Google and our advertising network	<a href="#">Terms</a>	<a href="#">Help</a>	Y	N/A
Google Analytics	Get rich insights into your website traffic and marketing effectiveness	<a href="#">Terms</a>	<a href="#">Help</a>	Y	N/A
Google Bookmarks	Access your Bookmarks on any computer, and use Lists to share them with friends	<a href="#">Terms</a>	<a href="#">Help</a>	Y	N/A
Google Books	Search the full text of books	<a href="#">Terms</a>	<a href="#">Help</a>	Y	N/A
Google Chrome Sync	Synchronize your bookmarks, browser preferences, and browser theme on multiple computers	<a href="#">Terms</a>	<a href="#">Help</a>	Y	N/A
Google Custom Search	Create a customized search experience for your community	<a href="#">Terms</a>	<a href="#">Help</a>	Y	N/A
Google Developers Console	Develop applications using Google APIs and the Google Cloud Platform	<a href="#">Terms</a>	<a href="#">Help</a>	Y	N/A
Google Finance	Business info, news and interactive charts	<a href="#">Terms</a>	<a href="#">Help</a>	Y	N/A
Google Groups	Create and participate in public discussion	<a href="#">Terms</a>	<a href="#">Help</a>	Y	N/A
Google In Your Language	Translate Google's help information and search interface into your favorite language	<a href="#">Terms</a>	<a href="#">Help</a>	Y	N/A
Google Map Maker	Become a citizen cartographer and help map your world	<a href="#">Terms</a>	<a href="#">Help</a>	Y	N/A
Google Maps	View maps and directions	<a href="#">Terms</a>	<a href="#">Help</a>	Y	N/A
Google My Business	Help get your business found on Google	<a href="#">Terms</a>	<a href="#">Help</a>	Y	N/A
Google My Maps	Create, share, and publish custom maps	<a href="#">Terms</a>	<a href="#">Help</a>	Y	N/A
Google News	Search thousands of news stories	<a href="#">Terms</a>	<a href="#">Help</a>	Y	N/A
Google Payments	A faster, safer, and more convenient way to shop online	<a href="#">Terms</a>	<a href="#">Help</a>	Y	N/A
Google Photos	Store and share photos with Google Photos and Picasa Web Albums	<a href="#">Terms</a>	<a href="#">Help</a>	Y	N/A
Google Play Developer Console	Offer Android applications that you develop to the rapidly growing Android user base	<a href="#">Terms</a>	<a href="#">Help</a>	Y	N/A
Google Public Data	Explore the data	<a href="#">Terms</a>	<a href="#">Help</a>	Y	N/A

Service	Description	Terms Link	Help link	Disable?	Requires training to enable for HIPAA
Google Takeout	Back up and download the data in your Google Account	<a href="#">Terms</a>	<a href="#">Help</a>	Y	N/A
Google Translator Toolkit	Get tools for translators to translate your pages and documents faster	<a href="#">Terms</a>	<a href="#">Help</a>	Y	N/A
Google Voice	One number for multiple phones, online voicemail and cheap calling	<a href="#">Terms</a>	<a href="#">Help</a>	Y	N/A
Google Webmaster Tools	Tools to create and maintain Google-friendly websites and mobile apps	<a href="#">Terms</a>	<a href="#">Help</a>	Y	N/A
Google+	Real-life sharing rethought for the web Google+ also includes Hangouts on Air, which allows you to broadcast live conversations to the world for free			Y	N/A
Individual Storage	Allow end users to purchase additional storage for Google Drive and Picasa Web Albums	<a href="#">Terms</a>	<a href="#">Help</a>	Y	N/A
Location History	Control location history and reporting	<a href="#">Terms</a>	<a href="#">Help</a>	Y	N/A
Merchant Center	Upload your product data to Google and make it available to Google Product Search	<a href="#">Terms</a>	<a href="#">Help</a>	Y	N/A
Mobile Test Tools	Test your URL for compatibility on mobile	<a href="#">Terms</a>	<a href="#">Help</a>	Y	N/A
Panoramio	Geolocate, store and organize your photographs	<a href="#">Terms</a>	<a href="#">Help</a>	Y	N/A
Partner Dash	Quickly access applications hosted by Google partners	<a href="#">Terms</a>	<a href="#">Help</a>	Y	N/A
Play Books Partner Center	Promote your books online through Google	Requires sign-up	<a href="#">Help</a>	Y	N/A
Product Search	Find products from online stores across the web	<a href="#">Terms</a>	<a href="#">Help</a>	Y	N/A
Web History	View and search across the full text of the pages you've visited	<a href="#">Terms</a>	<a href="#">Help</a>	Y	N/A
YouTube	Watch, upload and share videos	<a href="#">Terms</a>	<a href="#">Help</a>	Y	N/A
YouTube CMS	Identify and manage your content with Content	<a href="#">Terms</a>	<a href="#">Help</a>	Y	N/A
YouTube Promoted Videos	Promote your videos on YouTube search result pages	<a href="#">Terms</a>	<a href="#">Help</a>	Y	N/A
<b>Services that show on a help page but are not available in the UA environment</b>					
3D Warehouse	Find 3D models and share your models with the world	<a href="#">Terms</a>	<a href="#">Help</a>	N/A	
YouTube Partner Syndication	Generate revenue from your videos and access YouTube's specialized partner features and	<a href="#">Terms</a>	<a href="#">Help</a>	N/A	

Service	Description	Terms Link	Help link	Disable?	Requires training to enable for HIPAA
DoubleClick for Advertisers	Manage, traffic, serve, and review your online advertising	Requires written agreement	<a href="#">Help</a>	N/A	
DoubleClick Studio	Create traffic-ready rich media ads quickly	<a href="#">Terms</a>	<a href="#">Help</a>	N/A	
Google Code	Find documentation for developing with Google's tools and APIs	<a href="#">Terms</a>	Help not available	N/A	

## Exhibit B – UAA Migration Diagram

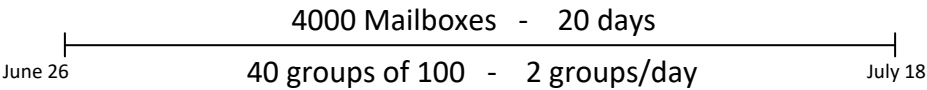
---



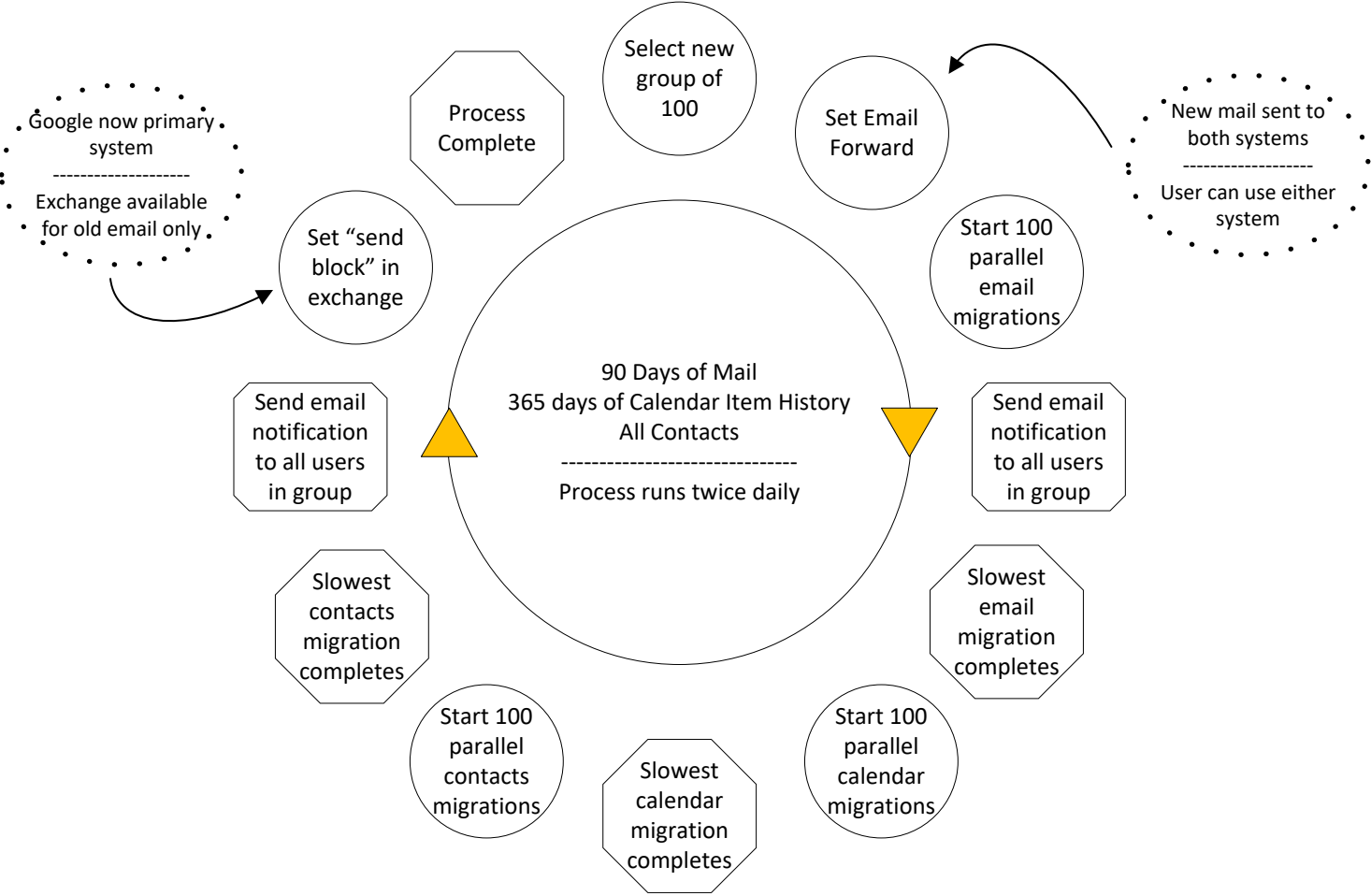
UAA Migration  
Diagram.pdf

# UAA Email Migration

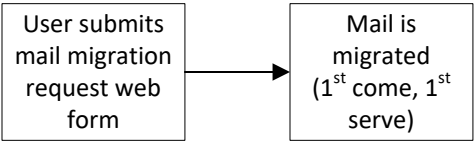
## Timeline



## Mass Migration Process



## User Requested Mail Migration Process





## Appendix A – UAA Supporting Documentation

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One University  
proposal - draft 3.doc



UA Enterprise Email  
Brief v1.0.docx



UA eMail Discussion  
October 2015 update



Fitzgerald.docx



Gmail or Exchange  
toolkit.xlsx

# One University

Developments in the IT marketplace now make possible the integration of calendars and directories without the need to change email and office automation systems.

UAA and UAS will cooperate with OIT and will fund the minor work required to build bridges between the Google and Exchange environments in order to achieve the One University, One System goal.

## Why not simply all change to Google or Exchange?

### Costly

- UAA and UAS are using Exchange functionality far beyond simple email, such as Lync, which replaces relatively expensive video conference, voice mail and telephone services. Loss of those functions will increase costs to UAA and UAS users.
- Google users would experience added costs of converting existing business processes unnecessarily; several Schools would incur costs of converting content for use in an Exchange environment
- There are valid reasons to use both environments, and Best Practice (Gartner Research, 2013) strongly recommends using both as a hedge against rising prices and technology changes in the future.

### Customer Demand

- Schools of Business, Engineering, Health and Education within the University of Alaska system demonstrate clear business-related needs that are not met by “one-size-fits-all” approach.
- Surveys reveal students no longer require or desire to use a University-specific email identity. Flexibility is seen as a positive feature, and registrars now allow student personal (non-university sponsored) email accounts in Banner. Students could choose either Google or Exchange, and still have access to calendar and directory information, and the University would still have access to data needed for administration and security.
- Alaska employers frequently require Microsoft Office (integrated with Exchange) skills. In more than 90% of all job advertisements in Alaska, knowledge or proficiency with Microsoft Office is either desired or a requirement.
- Nearly 90% of all UA systems use Microsoft operating software, and nearly 100% of UA employees continue to use Microsoft Office programs in their daily work.

### Added Benefits

- UA students graduate with the skills and experience needed in their chosen profession.
- UA students have the free use of both Microsoft and Google applications.
- UA administrators choose which environment best meets their needs, without sacrificing calendaring, scheduling and “TO:” line pre-fills and look-ups for emails.

- Secure, federated Lync communication relationships with other Universities (University of Washington, for example) remain intact in the Exchange environment.
- The University of Alaska enjoys enhancements and integrations of both Google and Exchange cloud computing environments as they occur – alleviating competitive strife.
- Large system changes cause disruption and can take a significant amount of time and resources to refine. Avoiding unnecessary disruption is a win for all.
- By moving Microsoft Office users to Office 365 Cloud Services, users retain the functionality of Word, Excel, PowerPoint and other applications at reduced cost. All UA users – including OIT and UAF will save money compared to a one-size approach.
- Integration of Office 365 with DocuSign and OnBase is consistent with current practice, established strategy and investment.

### The Plan

1. ITEC/SAC briefing and confirmation (does this also include confirmation of the true business requirements? Or does that come later?)
2. OIT/UAF/UAA/UAS cooperate in the design of the “bridges” with the help of a UAA-funded professional services contract using an OIT trusted vendor – the same vendor that helped OIT implement Google.
3. UAA uses existing identified funding in the ITS budget, with other MAUs and OIT welcome to assist, if possible.
4. CMT coordinates governance, scheduling; resources, legal hold and other considerations.
5. Communication planning and execution involving all stakeholders.
6. ITEC/SAC after-action report

### Time Frame

1. Planning can commence immediately; prepare ITEC briefing for April meeting
2. “Bridge Construction” components are already owned and in place. (I’m not aware whether this is this correct or not.) Some policy and governance issues and “turn on the switch” activities can be accomplished in as little as six months.
3. Securing services of trusted vendor(s) can commence in parallel with planning; execution of contract(s) after ITEC concurrence.
4. All substantive work completed before Fall 2014, with continuing user facilitation during the academic year, gathering feedback and making improvements as we go.
5. Report results through survey, budget costs/savings and operations reports Summer 2015

**ISSUE: “One email” imperative.**

“One email” will likely fail to resolve internal and external communication challenges experienced by UA staff, faculty and students, serving only to magnify current frustrations. In 2013, five years after UA/UAF’s initial move to Google services, known alternatives exist that can achieve effective communication parity, cost effectively with minimal further disruption.

**BACKGROUND:**

Since February of this year, UAA ITS and its governing bodies have re-examined the 2008 decision to move some UA users to Google mail (Google) while others continued to use Microsoft Exchange (Exchange). It is important to note that these terms are used to describe the “back-end” communication services. There remains some flexibility in user preferences for alternative email clients, such as Thunderbird, Outlook, and others. The purpose of the re-examination is to recommend if UAA should move staff and faculty to Google, or not; and if so, how.

The analysis so far has included forensics surrounding the 2008 decision to establish if the factors driving that decision are still pertinent, and to evaluate whether the change has achieved expected results. Further analysis will thoroughly examine the current state of UAA investment in the Exchange ecosystem currently deployed, and costs associated with a wholesale change similar to the SW/UAF conversion in 2008-9.

**INITIAL FINDINGS: Email is likely not the problem, and rushing may create more problems.**

1. It is apparent to engineers in all MAUs that sub-optimal deployment of directory services is likely the cause of most of the frustration for all users. While the unified directory project has been variously pronounced “complete” or “near-complete,” significant work remains to truly unify directory services. Any efforts to solve persistent communication challenges before the directories are completely normalized will experience marginal results at higher costs. UAA is currently in a full-court press to achieve local directory optimization, and is experiencing support from other MAUs in the effort toward the same end. Nonetheless, this approach is not universally embraced, and UAA continues to facilitate discussions with those who are reluctant to consider the great value/achievability of a fully normalized directory.
2. Since virtually everyone in the UA enterprise depends heavily – almost exclusively – on Microsoft Office for daily work, licensing cost savings advertised by Google are not yet realized by SW/UAF, except for mail, only. (In fact, SW recently agreed to pay Google a monthly per-user fee in order to regain legal hold and retention utility.) More, a cursory survey of Alaska employers through job posting web sites confirms that 90% or better of Alaska employers expect to hire workers proficient in Microsoft Office programs – chiefly Word, Excel and PowerPoint. Industry experts expect this dominance to continue for at least another decade.
3. Emerging trends reveal that a “Bring-Your-Own-Mail” (BYOM) is following along with the “Bring-Your-Own-Device” (BYOD) posture users increasingly expect. UAA Student Affairs recently reversed long standing past practice and now permits students to specify a non-UA provided email address as a primary email contact in Banner, due to student demand.
4. Current technology can provide the desired directory (“TO:” box auto-fill), calendaring and collaboration without necessarily displacing existing email deployments, though there may be other factors worthy of consideration.

There are other factors known and suspected that are not yet fully understood which would materially affect a final recommendation. UAA governance bodies continue to express great interest in more fully understanding the implications of items 1, 3 and 4, above. To that end, experts from both Microsoft and Google will be on UAA campuses mid-January 2014. As of 2013, Microsoft Office, Exchange and other valuable services such as Lync communicator (WolfLync) are offered free to higher education. This is an extremely significant change that was unavailable for consideration in 2008-9. SW/UAF's own historical documents call for a re-examination of the 2008 consolidation decision if just such a change in market forces were to occur.

**CONCLUSION: Delay any unified email directive.**

An immediate decision to consolidate on either Google or Exchange would be premature, costly, and may position UA behind emerging trends. MAU engineers are continuing to collaborate on the directory challenges that – once solved – can underpin the delivery of collaborative efforts in the future, almost regardless of the email service chosen. UAA, UAS and certain key UA/UAF principles are convinced a suitable solution can be recommended, given adequate time to conduct further analysis, remove remaining directory roadblocks and consider a larger scope of pertinent costs/savings projections.

NOTE: UAA has identified a nationally recognized business analyst who has facilitated unified directory and unified email/messaging systems decisions at Fortune 500 companies with global reach. We are working to determine availability, cost and timing – recognizing that the current state of MAU relations may dictate the employment of outside expertise in order to achieve the highest quality recommendation. His clients have selected a variety of approaches post-analysis – he is not predisposed to either Google or Exchange. The earliest such an asset could be effective for us is likely Fall Semester 2014, with a recommendation by the end of 2014, and a way forward developed and approved through governance by spring 2015.



UNIVERSITY of ALASKA ANCHORAGE  
*INFORMATION TECHNOLOGY SERVICES*

## Memorandum

**To:** William Spindle, Vice Chancellor, Administrative Services  
**From:** Patrick Shier, CIO, IT Services  
**Date:** October 31, 2015  
**Subject:** UA IT: Email – Google or Exchange? Or Both?

---

Bill,

### Email Executive Summary

From time to time a question arises about consolidating all of the University of Alaska System on one email system. The question really involves a great deal more than simply email – to include calendaring and other messaging options such as Instant Message and Voice and Video Conferencing.

UAA and UAS realize significant value using the Microsoft suite of messaging products:

- Our Office 365 cloud instance have executed FERPA and HIPAA agreements in place. (Google does not have HIPAA agreements in place with UA)
- Office 365 is free to any UA student as a consequence of our underlying Microsoft Enterprise Client Access License agreements. Each student saves about \$80/year.
- The state of Alaska is using Exchange, and is rapidly moving toward the Office 365 cloud service, as are we.
- The three largest school districts all use Exchange for their staff and faculty.
- UAA has led an effort to federate our Office 365 service with these three school districts, the State of Alaska and Conoco Phillips.
  - MatSu School district and Conoco Phillips are on-board now. UAA instructors can appear in MatSu K-12 classrooms as easily as making a phone/video call.
  - Later this year, we will be able to communicate with state employees toll-free, including small scale video conferencing.
- Skype for Business – running on Microsoft Exchange – potentially removes 90% or more of current UA spending for WebEx, GoToMeeting and other similar services.
- Employers in Alaska overwhelmingly use Exchange and Microsoft Office – and expect our students to be proficient in the same:
  - Monster.com job search for Alaska using keywords – job posting results:
    - Keyword Google: 15 jobs, most Google references were web-related.
    - Keyword Microsoft: 837 jobs, wide variety.

- UAA is in preliminary discussions with the State of Alaska regarding a shared Office 365 environment to protect education pricing for the State of Alaska Department of Education and Early Development. This would be impossible if UAA switched to Google.

#### High costs associated with switching UAA and UAS to Google products

- Moving email, contacts, calendars, embedded applications and directory services currently in place to Google, if possible, represents at least \$500K in additional spending for UAA and UAS, in the near term, and large future real and opportunity costs, beyond.
- No commensurate savings would be realized, based on the fact that UAF did not reduce its Microsoft spending after the switch to Gmail. UAF switched mail only, and continues to use Microsoft Office products.
- UAA and UAS would have to unravel all the federation relationships with school districts, the State of Alaska and key employers – or would have to continue to support Skype for Business, anyway, at an increased cost due to the complexity of integrating Gmail and Exchange.

#### The wisest strategy for the next three to five years seems obvious:

1. Fully leverage the registrars' decision to allow students to "Bring Your Own Email" and begin a process of thoughtfully transitioning UA away from providing student email boxes. Students represent the largest group of Gmail users – and are quite capable of managing the consumer-grade service on their own or with minimal support.
2. Move the relatively small number of remaining Gmail users to Office 365 and Exchange as soon as possible, so UA can enjoy secure, encrypted, FERPA and HIPAA protected enterprise-class unified communications, calendar and directory services.
3. Leverage a UA-wide Skype for Business capability, potentially saving \$200K per year in video conferencing costs.
4. Reclaim the "alaska.edu" domain and MX record from Google. Some research users may choose to continue to maintain a Google account for valid reasons, but the enterprise account in Exchange remains the account of record for legal holds, etc. End users are largely using Outlook mail clients, anyway, and would not have to change interfaces – but would enjoy increased interoperability with UAA, UAS, the State of Alaska, businesses, and the larger school districts.

**From:** David Fitzgerald <[dafitzgerald@alaska.edu](mailto:dafitzgerald@alaska.edu)>  
**Date:** September 6, 2016 at 8:17:38 PM AKDT  
**To:** "ua.president" <[ua.president@alaska.edu](mailto:ua.president@alaska.edu)>, [jrjohnsen@alaska.edu](mailto:jrjohnsen@alaska.edu)  
**Cc:** Dianne Milke <[dlmilke@alaska.edu](mailto:dlmilke@alaska.edu)>  
**Subject:** Fwd: Gmail Conversion Problems

After your meeting with Tara today, she indicated that you did not seem to be aware of the multitude of problems associated with the Gmail conversion. Below, is a message I sent to all UAA faculty, highlighting only the most common ones. In response to that message, I received feedback citing numerous other problems that I did not include.

Truly, the migration is a disaster. I estimate that I spend at least one to two hours of lost productivity each day, attempting to reconcile lost and missing messages, and having to switch back and forth between the two mail systems to accomplish my duties. Rarely, have I experienced this level of frustration while attempting to accomplish my work.

As you indicated, students do not choose a university based upon what mail system is in place, but they do choose a university based upon their ability to communicate with faculty and staff. Currently, that ability is seriously deficient.

While governance agreed that a single instance of mail would be beneficial, UA unfortunately and unilaterally (and with no shared governance) chose the wrong one. Google is not an "enterprise" system as is MS Exchange, and therefore lacks much of the preferred functionality. Because of their "non-compliance" with HIPAA, we can never have a single email system with Google. I question whether we are FERPA compliant given the configuration of this installation.

Even if Gmail was the optimal solution, the implementation timeline was too short, and offered no systematic plan. There was not cost savings in the selection of Gmail, but to the contrary, the cost of the migration in man-hours and lost productivity is staggering, and at a time when the IT budgets have been cut.

As a Professor of Computer Information Systems who spent twenty years in the Information Technology profession prior to coming to UAA, I am appalled at the methods used to make this decision and its resulting implementation.

Thank you for your anticipated response.

Dave Fitzgerald  
UAA Faculty Senate President

----- Forwarded message -----  
**From:** David Fitzgerald <[dafitzgerald@alaska.edu](mailto:dafitzgerald@alaska.edu)>  
**Date:** Fri, Aug 26, 2016 at 3:32 PM



Subject: Gmail Conversion Problems

To: Listserv <[uaa-faculty@lists.uaa.alaska.edu](mailto:uaa-faculty@lists.uaa.alaska.edu)>

As we all struggle with the conversion to Gmail, here is a short list of my personal experiences and/or those related to me by fellow faculty.

1. There is a chance that not all messages addressed to your old [@uaa.alaska.edu](mailto:uaa.alaska.edu) address will be delivered.
2. If you had your phone messages forwarded to your .uaa address, they will not be forwarded to Gmail. You will have to retrieve them through your old account.
3. Your message attachments are limited to 25 mb, and if you try to send one larger than that, you might not be notified that it was not sent.
4. Some of your messages you receive from certain senders will be delivered to your Inbox and others will go into Spam. To find SPAM and Trash (deleted messages); you have to scroll to the bottom of your Folders and select "More". Those folders can be dragged out of "More".
5. It is likely that many of your Contacts did not migrate, so you will have to recreate them in Gmail (I have been copying and pasting them from Exchange). Do not try to edit those contacts that display "gibberish". You need to delete them and create new ones.
6. If a message disappears from your Inbox when you forward it or reply to it, go to Settings, and on the General Tab, check the button to **Hide "Send & Archive" button in reply**. (Directly above that is the option to turn conversation On or Off).
7. The default sort for the Inbox is by date. To see only messages that include a certain Contact, hover over their name, then select "Emails" from the pop-up box.
8. The only option to "Snooze", for a Calendar reminder is for an additional 5 minutes. If you want additional reminders, you will have to set "Add a Notification", to add several for each event.
9. It is likely that Calendar events that do not have an end date did not copy to Google.
10. You cannot schedule Skype meetings using Google Calendar.
11. If you use Chrome to access Gmail, you will encounter fewer problems that you will by using Explorer, Edge, Firefox, or Safari.
12. There is an option to use MS Outlook to access your Gmail, but it can be problematic as well, and is substantially less stable to configure.

A more complete document has been created by the IT staff, and can be accessed at:

[https://www.uaa.alaska.edu/about/administrative-services/departments/information-technology-services/our-services/communication/messaging/\\_documents/Gmail\\_Help\\_Guide.pdf](https://www.uaa.alaska.edu/about/administrative-services/departments/information-technology-services/our-services/communication/messaging/_documents/Gmail_Help_Guide.pdf)

Good luck.

Dave Fitzgerald

Professor, Computer Information Systems



## **Gartner for IT Leaders Tool**

# How to Evaluate Google Apps for Work Versus Microsoft

This Toolkit contains an evaluation framework that will help organizations determine which cloud office system to adopt.

Unless otherwise marked for external use, the items in this Gartner Toolkit are for internal noncommercial use by the licensed Gartner client. The materials contained in this Toolkit may not be repackaged or resold. Gartner makes no representations or warranties as to the suitability of this Toolkit for any particular purpose, and disclaims all liabilities for any damages, whether direct, consequential, incidental or special, arising out of the use of or inability to use this material or the information provided herein.

The instructions, intent and objective of this template are contained in the source document. Please refer back to that document for details.

it Office 365



Directions to user

## Instructions

The model starts with a value of 5 for all cells (bar the nondifferentiating criteria, which are set at 0).

First, assign a value between 0 and 10 for the weighting factor for each criterion. If it is not important to your organization at all, assign 0. If it is very important, assign 10. We have initially set the weighting factor for differentiating criteria to 5, and nondifferentiating criteria to 0.

Next, rate each criterion for each vendor between 0 and 10. Base this rating on how well the vendor meets your specific needs.

For explanations of each criterion, refer to the companion research note for this Toolkit, "How to Evaluate Microsoft Office 365 Versus Google Apps for Work."

## Google Apps for Work Versus Microsoft Office

Criteria	Weighting (0-10)
<b>Differentiating</b>	
1. Economics	5
2. Appetite for Change	5
3. Hybrid Services	5
4. Fit for Purpose	5
5. Third-Party Resources	5
6. Stack Commitment	8
7. Transparency and Reporting	5
8. Mobility	5
9. Regulatory Compliance	9
10. Contracting and Licensing	5
11. Data Location	5
12. Administrative Burden	5
<b>Nondifferentiating</b>	
13. Vendor Commitment	9
14. Change Management	0
15. Support	9
16. Service-Level Agreements	0
17. Reliability	9
18. Directory Integration/Single Sign-On	0
19. Security	10
20. Data Migration	0
<b>Total Score for Google Apps for Work</b>	
<b>Total Score for Microsoft Office 365</b>	
	500
	665

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5	5



## Appendix B – UAS Supporting Documentation

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UAS email .pdf



UAS.pdf

- UAS email policies have been essentially unchanged for decades. However, the world of electronic communication is not stuck in the 1980s. What policies should UA adopt in light of current public sector issues? For example, should it be allowable for any UA employee to conduct official business using a personal email account? Right now, this activity is allowable. There are many similar issues to consider.
- Based on legacy practices, we issue accounts to people instead of roles. As a result, the institution regularly loses control over records as employees change jobs or leave the institution.
- Legacy practice has been to lump student and employee email together. As a result, we have student educational records intermixed with departmental files. We also have the complexity of a supervisor needing access to employee messages which are lumped in with protected student coursework.
- How far should we outsource, and who should be deciding? Is it appropriate for individual employees to decide which workflows and which documents will reside outside the UA system? What are the long-term risks of process-creep – if we should ever end our relationship with Google, will we know how to disentangle these processes?

Immediate-term technical issues:

On Google Apps provisioning, OIT needs to:

- Set the externalID to the Banner ID
- If the account corresponds to the Banner-provisioned username, set the email alias of [BannerID@alaska.edu](mailto:BannerID@alaska.edu)
- If the user has an AD preferred mail route (uaMailRoute), add the user to the mail forwarding group

On Google Apps de-provisioning:

- For users who received mail in Google (who are not in the mail routing group) clear the AD uaMailRoute

Shift Google failover to an AD supported solution (either [seven.alaska.edu](http://seven.alaska.edu) or change shady to use AD rather than EDIR)

Disable Google-side mail forwarding (via the gmail web interface) in favor of the ELMO supported solution

Enable the global directory

Immediate-term policy issues:

As you have heard me express many times... I am deeply concerned about the lack of any kind of written policy framework or best practices. We are driving our user community to tool sets which encourage them to move institutional processes and workflows (and of course, data) to Google. Missing is any guidance of how to do this appropriately and when not to do it.

What processes should we be encouraging staff to do with their individual accounts?

What processes or workflows would be well-served by using Google Apps, but should be done using departmental/group accounts?

What processes/workflows (and data) should **\*not\*** be move to Google?

Are all apps equal / how do the above answers differ depending on which Google App is in use?

On top of this, we lack written procedures on how data should be retained/managed during employee transitions/termination. Further complicating this are the blending of student/employee/alumni roles. What clear workflow should be followed?

We have a mandate from the president stating that all employees should be on the same calendar/email system yet we provide tools and guidance on how employees can forward university mail to a third-party system. This seems to be a direct contraction. In keeping with the President's directive, shouldn't we be prohibiting employee forwarding their mail to an external/personal provider?

## Appendix C – UA/F Supporting Documentation

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Karl 1.pdf



Switch-Email-Platform-Storyboard.pptx

## Jim Bates

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**From:** Karl Kowalski <kekowalski@alaska.edu>  
**Sent:** Monday, October 03, 2016 11:49 AM  
**To:** Jim  
**Subject:** Documents for Google Apps After Action Report

Jim,

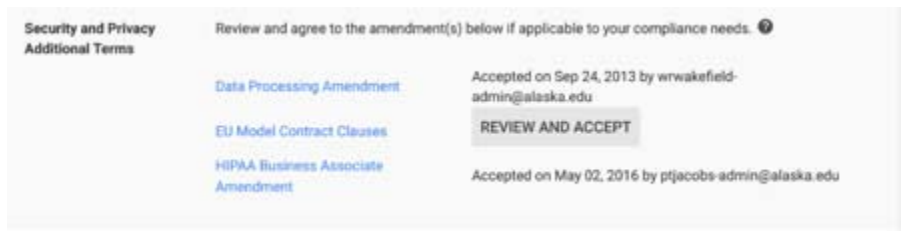
As we discussed, the AAR will look at actions POST President Johnsen's Statewide transformation Decisions.

On April 14, President Johnsen announced 113 recommendations including reductions in functions or positions, changes in the location of work being done, and changes in how Statewide collaborates with campuses. There were deadlines associated with each recommendation varying from done or no change to 30-, 60-, or 90- days.

### 1. Posting of IT Decisions on Website

<http://www.alaska.edu/swbir/transformation-team/it/>

### 2. EU Privacy Standards negotiated by OIT and General Counsel. Agreed to and accepted on September 24, 2013 to address FERPA privacy concerns



### 3. As UAA would now be joining Google Apps. Google HIPAA Business Associate Agreement (BAA) reviewed and approved by General Counsel May 02, 2016

### 4. Weekly eMail Transition support calls were instituted:(Links to timeline and transition plan docs embedded in Text below:

Weekly Meeting: ONCE a week calls to ensure that UAA and UAS succeed with migrating to Google Apps for User & Departmental mail, calendar, groups, shared docs, chat, calendar resources, etc.

Meeting format is for the UAA team and UAS team to 'crowd source' one challenge at a time so OIT & Google Tech Support can tackle each in the next sprint.

See associated Google Docs spreadsheet(s).

UAS and UAA work plan document: [https://docs.google.com/spreadsheets/d/1Hz\\_-IE\\_DZWnlYiqry8ipJvP0enAnSNUC2KUf8XcOytk/edit?usp=sharing](https://docs.google.com/spreadsheets/d/1Hz_-IE_DZWnlYiqry8ipJvP0enAnSNUC2KUf8XcOytk/edit?usp=sharing)

UAA Specific work plan:

[https://docs.google.com/spreadsheets/d/1U95Et1-TvUqq\\_noQEKUmeWDArXsU8kcAYaDpGmBSeIk/edit?usp=sharing](https://docs.google.com/spreadsheets/d/1U95Et1-TvUqq_noQEKUmeWDArXsU8kcAYaDpGmBSeIk/edit?usp=sharing)

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UAS guidance to users for migrating from UAS Mail to Google Apps, sampled 5/17/2016:

From the UAS campus home webpage, upon lingering a while, there's a prominent pop-up mentioning "UAS mail moves to Google Apps." This same informational pop-up appears from the UAS ITS home webpage, and the topic listed under the 'Major Initiatives' left side pick list.

Upon choosing "Click for more information >>" the user is sent to the UAS Google Migration Page at <http://uas.alaska.edu/its/initiatives/google-move.html> which is the first page of instructions to users for self-migration of historic email and calendar events.

Users accustomed to relying on the Outlook thick client are offered instructions for how to keep that as their user interface to Google Apps for email & calendar. Users interested in using a web browser instead of a thick client are given clearly separated instructions.

Embedded in the initial set of instructions is a link to a UAS-maintained Pre-Migration Steps webpage at <http://uas.alaska.edu/its/initiatives/google-premove.html> that explains how to scrub one's email folder names, folder structure and other known in/compatibility issues when importing content to Google Mail/Calendar.

At the bottom of the PRE-MIGRATION TIPS & TRICKS webpage are "HELPFUL LINKS" the first of which takes the user to the project charter, timeline, FAQs and Known Issues, each in their own tab:

UAS Google Apps project page: <http://uas.alaska.edu/its/initiatives/google.html>  
"Google Apps @ UA" Information: <https://www.alaska.edu/google/faqs/general/>  
Google document regarding Microsoft Outlook feature compatibility:  
[https://static.googleusercontent.com/media/www.google.com/en/support/enterprise/static/gapps/art/users/en/gammogammo\\_migration\\_chart.pdf](https://static.googleusercontent.com/media/www.google.com/en/support/enterprise/static/gapps/art/users/en/gammogammo_migration_chart.pdf)

This should get you started Jim. Let me know what else you might need.

Karl

--

Karl Kowalski, Chief Information Technology Officer  
University of Alaska  
Office of Information Technology  
910 Yukon Drive, Suite 103  
Fairbanks, Alaska 99775

Phone: 907-450-8383  
<http://www.alaska.edu/oit>

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intended recipient you are notified that disclosing, copying, distributing or taking any action in reliance of the contents of this information is strictly prohibited.



Practical IT Research that Drives Measurable Results

## Switch Email Platforms

*When it becomes necessary to tell an old friend, goodbye*



# Introduction

E-mail is a mission-critical communications tool, but it can also be a platform for value-added integrations with other applications and communications platforms. Switching e-mail platforms is a necessary change when requirements are not satisfied by the current system. However, it is also a risky change.

*Organizations must carefully plan e-mail migrations and assess the impact on end users as well as other systems. Switching e-mail platforms can completely upset an end user's world.*

This research is designed for:

- ✓ IT Managers.
- ✓ Business Executives.
- ✓ E-mail Administrators.



This research will help you find the best e-mail platform by:

- ✓ Understanding the business and technology reasons for switching e-mail platforms.
- ✓ Assessing the newest licensing and deployment options, including their benefits and drawbacks.
- ✓ Helping plan the migration to ensure the shortest migration window possible.

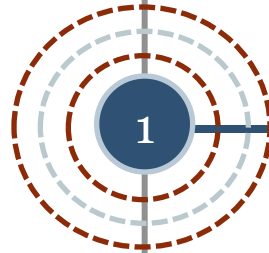
# Executive Summary

- ***Almost 50%*** of organizations have been using the same e-mail platform for ***six years*** or more. These legacy platforms are no longer satisfying business demands, are expensive to support, and pose integration difficulties.
- Microsoft Exchange has a 79% market share, but this ***does not*** mean you should switch to Exchange. Small enterprises are switching ***from*** Exchange more often than switching ***to*** it, to reduce costs and complexity.
- ***Cloud-based enterprise e-mail*** offerings are mature and the market is growing. The cloud is now a viable e-mail delivery method for organizations to consider.
- The “groupware” and e-mail markets ***separated*** after many companies adopted their current e-mail platform. Organizations with collaboration and workflow applications on their legacy e-mail platforms must plan ***separate migration*** of these applications or retire them.
- E-mail migration can cause ***severe disruptions*** for end users. Extensive planning is required and larger organizations should consider procuring assistance from system integrators.

*Why are businesses evaluating alternative e-mail platforms?*

*Which types of platforms should I evaluate based on my current platform/situation?*

*What's the best way to manage the migration and make sure it goes well?*



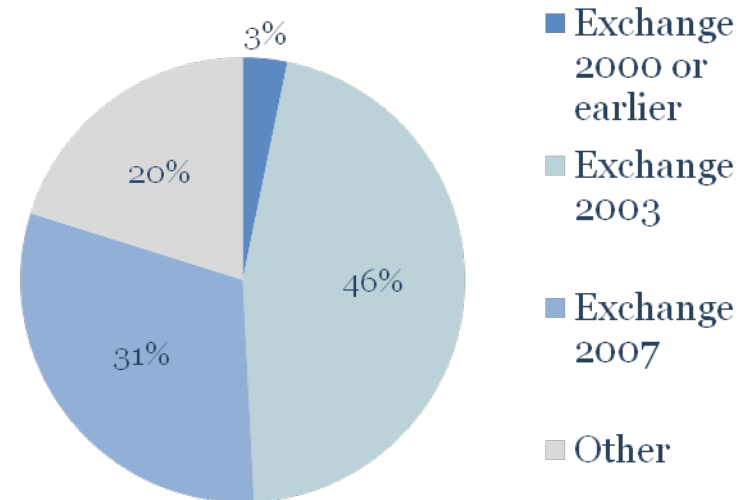
## Next Section in Brief

- Selecting an enterprise e-mail platform used to be easy: Microsoft, Lotus, or Novell. Now it is Microsoft or “other,” but new delivery options are available.
- What are the common benefits of switching?
- What are the common barriers to switching?
- What are the different delivery methods available?
- Every organization has a reason to assess off-premise solutions.

# For half or more organizations, the time to switch or upgrade e-mail is right now

- At least 49% of e-mail platforms are more than six years old, and that's just looking at the Microsoft platforms. Many Notes and Groupwise customers are woefully behind as well.
- Support systems, such as backup/recovery, e-mail archiving and e-mail security, are not supporting older e-mail platforms.
- New cloud-based e-mail systems offer a new deployment option and a new licensing/pricing model.

E-mail Platforms In Use (as of Exchange 2010 Release)



Source: Info-Tech Research Group  
N=124

## Info-Tech Insight:

*Organizations are risking serious disruptions in business continuity by continuing to run a patchwork of six year old e-mail systems and associated support systems.*

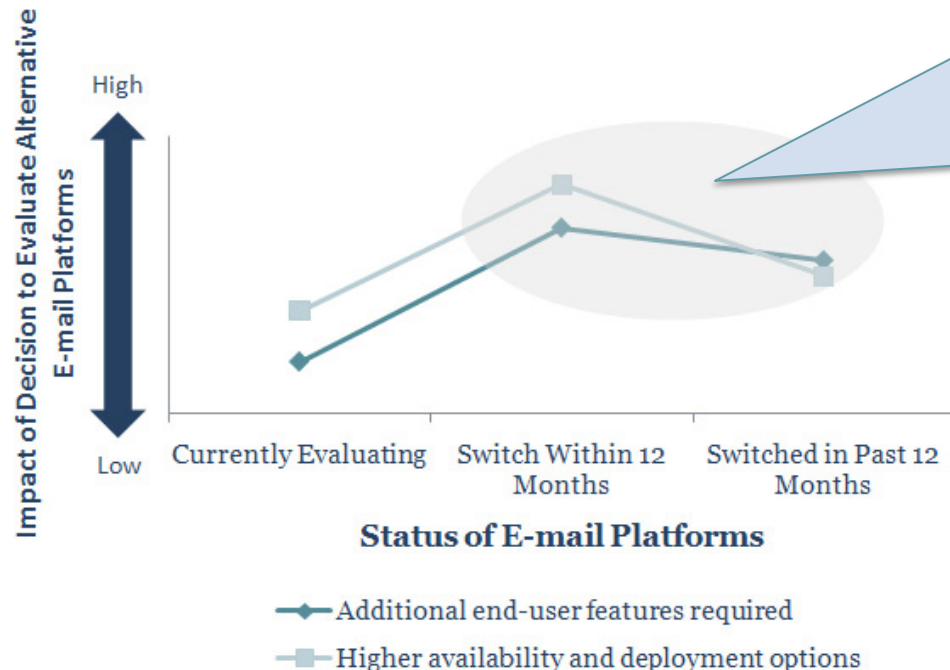
# Choose the right benefits to justify switching and ensure a smoother transition in your organization

Some reasons for migrating:

1. Simplified administration needed.
2. Additional end-user features required.
3. Incomplete application integration requirements.
4. Need for improved mobile support.
5. High availability of deployment options.
6. Lower TCO.

*“The drivers were a number of things: the cost of upgrading, the cost of storage, backup, archive, our internal maintenance...”*

– CIO, Regional Port Authority



Source: Info-Tech Research Group  
N = 89

The two **most significant** factors affecting the decision to evaluate alternative e-mail platforms for those that are going to switch within the next 12 months and those that have switched in the past 12 months are:

- ✓ Additional **end-user features** required.
- ✓ Higher availability and **deployment options**.

*“The key drivers were: integration with other software and also [improving] productivity.”*

– IT Director, Manufacturing



# Companies that migrated to a more suitable e-mail platform are realizing benefits like improved uptime & right-sizing

*“ We couldn’t provide a satisfactory level of uptime because we only had the one box. Moving forward everything is redundant; we’ve got redundant client access servers, we’ve got redundant mailboxes. ”*  
- IT Manager, Education

When evaluating alternative e-mail platforms & delivery methods, ensure the new platform is a better fit for the organization. Understanding what issues will be addressed by the new platform is key to finding the right solution.



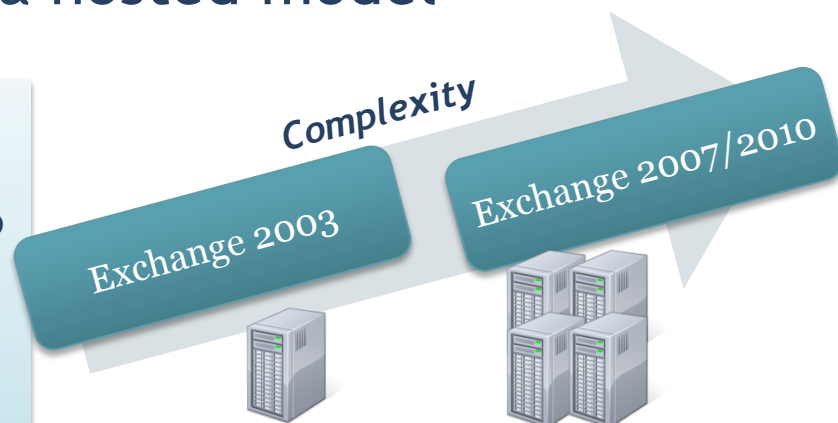
*“ We have a CRM tool called Agility. We thought ‘we’re going to have to spend money to integrate between Agility and our enterprise calendar,’ and I wanted to make that investment with Exchange rather than with Notes. ”*  
-CIO, Financial Services

If your existing platform has features that are going unused, attempt to scale back the platform via revised licensing and an upgrade, or look for an alternative that suits your needs analysis. If all you need is e-mail and a contact directory, you wouldn’t buy a CRM solution.

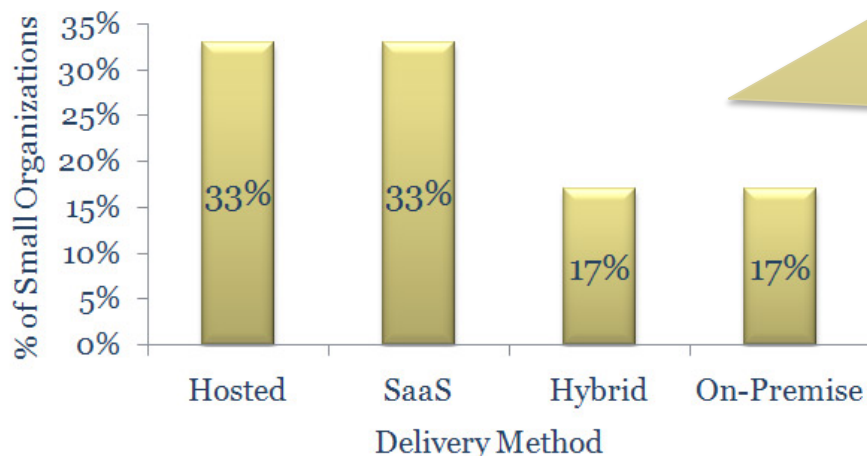
*“ A thorn in our side was the fact that we had this big platform and were only using e-mail, so why have this big platform and just use it to send and receive mail? We weren’t taking advantage of the document management feature of Notes. ”*  
- IT Manager, Education

# Small organizations using Exchange 2003 on-premise should consider switching to a hosted model

Microsoft significantly changed the architecture of Exchange starting with Exchange 2007, introducing role-based access control (RBAC). Exchange could no longer run on one server, requiring a minimum of two servers, scaling up to eight servers for an environment between 3,000 and 10,000 users. For more information, refer to Info-Tech's research note, *Exchange 2010: Transitioning from Exchange 2003*.



Small Business Migration Trending to Off-Premise

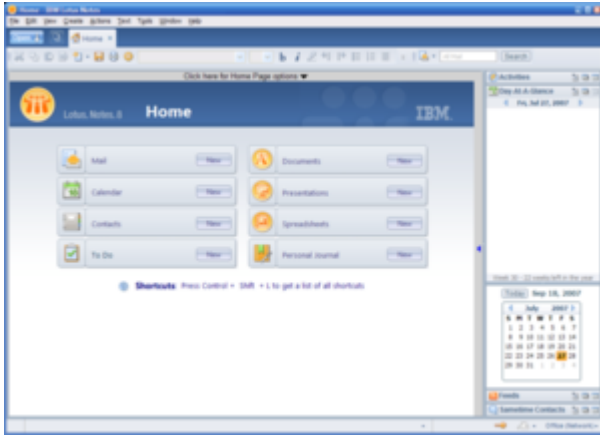


Source: Info-Tech Research Group  
N = 36

In an effort to minimize costs and right-size the IT environment, small businesses are looking to outsource their Exchange deployment to a hosting provider (i.e. Intermedia, Apptix, Microsoft) or considering alternative e-mail platforms. **66% of small businesses** (less than 250 employees) surveyed were looking to migrate to **hosted** or **on-demand** services, with another 17% looking at hybrid deployments.



# Organizations switching from Lotus Notes or any platform with collaboration & workflow apps must plan for app migration, not just e-mail migration



Enterprises using the value-added features of their e-mail platforms, like groupware, customer relationship management, or document management capabilities, face an additional hurdle in migrating their e-mail platform.

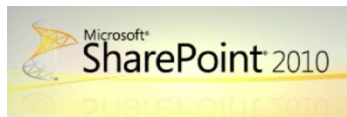
Most e-mail platforms do not support the same types of collaboration features provided by solutions like Lotus Domino/Notes. Additional projects must be initiated, separate from the e-mail migration project, to find suitable solutions for these other applications.

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“ We consider rewriting our extensive [Lotus] Notes scheduling apps to .NET apps to be a long term project. ”  
- IT Director, State Government, U. S.



# Make groupware application assessment part of the e-mail migration project plan, but make actual application migration a separate project



## ***Collect data about existing platform.***

This includes:

- Number of servers, number of mailboxes, server software version, client software version(s), other applications running on the platform, regulatory requirements, etc. A detailed list can be found on [Microsoft TechNet](http://Microsoft TechNet).

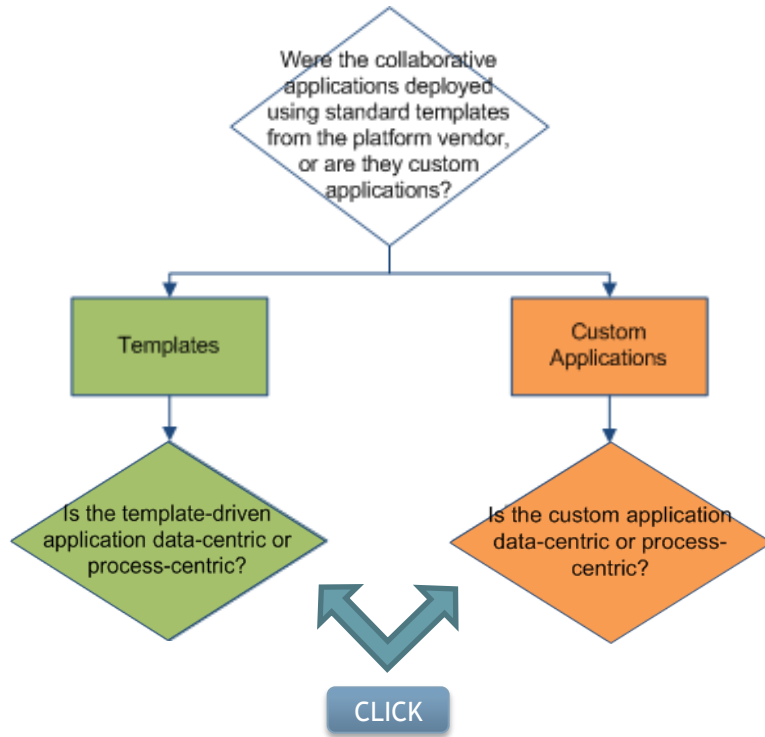


## ***Identify requirements for the new platform, such as:***

- Workflow (the three “R’s,” Routing, Rules, and Roles)
- Electronic forms
- Search
- Library services (check-in, checkout, version control)
- Offline replication (e.g. to laptop local storage)

Adapted from Microsoft's Application Analysis Envision Process (AAEP)

# Differentiate template-based from custom built applications; application migration is easier for template-driven apps



Adapted from Microsoft's Application Analysis Envision Process (AAEP)

Were the collaborative applications in your existing groupware system deployed using standard templates from the platform vendor, such as standard **GroupWise** or **Lotus Domino** templates, or are they custom applications built in-house/by a contractor?

If you used a **template**, was it a data-centric or a process-centric template? Click on the flowchart to see your options.

If it is a **custom application**, is the custom application data-centric or process-centric? Click on the flowchart to see your options.

For a look at the full decision tree, see Info-Tech's [E-mail Application Migration Decision Tree](#).

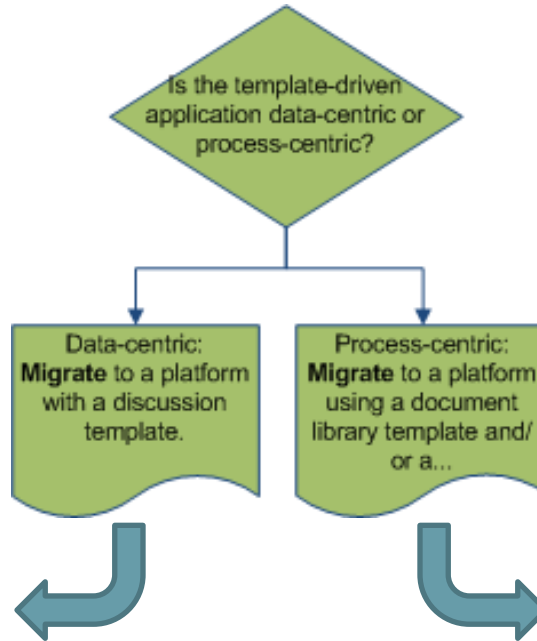
## Info-Tech Insight:

If you're migrating to Exchange, or at least considering it, use Microsoft's [Application Analyzer](#) for assistance and suggested considerations.

# Migrating template-driven applications is usually routine; just find the right template on a new app platform

## Data-centric applications:

- Data-centric applications, i.e. discussion boards, primarily focus on collecting and sharing data. There is no workflow or connectivity to other applications or databases in this type of application.
- Migrate data-centric applications to another platform using a discussion template.



*Adapted from Microsoft's Application Analysis Envision Process (AAEP)*

## Process-centric applications:

- Process-centric applications, i.e. document approval workflows, incorporate workflow or back-end connectivity to other applications or databases.
- Migrate process-centric applications to another platform using a document library template and/or a team/project work site template, with library services (check-in/check-out, version control) enabled.

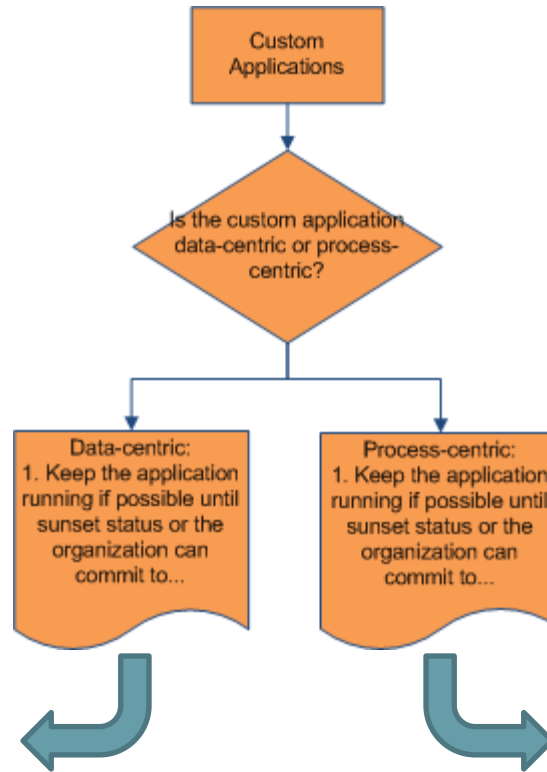
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FLOWCHART

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TO RETURN  
TO CONTINUE

# Migrating a custom application is not straightforward. Retire them or rewrite the apps for a different platform

## Data-centric options:

1. **Keep** the application running if possible until sunset status or the organization can commit to rebuilding.
2. **Evaluate** third party tools to migrate data.
3. **Rewrite** the application yourself on the platform of your choice (.NET, SharePoint, JEE, etc.) or engage a contractor to rewrite the application.
4. If the custom application is a process automation application that is available off the shelf, such as a CRM system, **buy** a COTS business application.



*Adapted from Microsoft's Application Analysis Envision Process (AAEP)*

## Process-centric options:

1. **Keep** the application running if possible until sunset status or the organization can commit to rebuilding.
2. **Rewrite** the application yourself on the platform of your choice (.NET, SharePoint, JEE, etc.) or engage a contractor to rewrite the application.

Info-Tech does not recommend keeping applications in place while adding features using another development platform. We believe custom applications should either be kept in place until retirement or plan to be entirely rewritten.

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Choose a  
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method for the  
new email  
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TO RETURN  
TO CONTINUE

# Understand new deployment & licensing options; switching is as much about choosing a delivery method as choosing a vendor

## On-Premise

- E-mail servers that organizations manage and configure themselves.
- **Pros:** Total control and maximum data privacy. Easier integration with other on-premise systems.
- **Cons:** Continued specialization by IT for a skill set that is considered a commodity. Expensive initial capital outlay.
- **Trend:** Virtualize on-premise e-mail servers.

## SaaS

- True software-as-a-service operates multiple instances of an application (multi-tenant) in a data center where companies share all services.
- **Pros:** Low cost of entry. Reduced FTE need for IT for e-mail.
- **Cons:** Risk perception high in some industries. TCO can cross-over and exceed on-premise TCO before standard six year e-mail platform lifecycle.
- **Trend:** Heavy acceptance among most organizations; however, strong variation among vertical industries in perception of SaaS risk.

## Managed Hosting

- Outsource e-mail services to dedicated service managed to the organization's preferences.
- Most prevalent in large companies.
- Can be configured as a physical or virtual appliance single instance for one company or as a single-instance virtual appliance for one company.
- **Pros:** Allows IT total focus on core competencies and a partnership with the business, not a commodity service provider.
- **Cons:** Expensive.
- **Trend:** Large organizations seriously revisiting this mature delivery method.

## Hybrid

- Integrates both on-premise and off-premise infrastructures.
- Information resides on-premise.
- The application layer that collects information can be in the cloud or on-premise client applications.
- **Pros:** Extreme flexibility, especially in fast growing companies and for M&A activity.
- **Cons:** Difficult to maintain lowest TCO.
- **Trend:** Mostly experimental at this time. However, new e-mail offerings targeted at different end-user segments (like MS Office 365 "Kiosk Worker") will make this method more appealing.

# Assess off-premise e-mail options; usability & migration capabilities have improved greatly over the past few years

Why off-premise methods are an option:

1. Reduced TCO
2. Fewer Servers
3. Reduced Admin Time
4. Reduced Downtime

*"I do not need to keep [e-mail] on-premise for any reason whatsoever."  
- IT Manager, REIT*

**Everyone** should assess off-premise solutions:

Small Organizations	Mid-sized Organizations	Large Organizations
<ul style="list-style-type: none"><li>• Good: SaaS instead of on-premise.</li><li>• Bad: Exchange on-premise.</li><li>• Ugly: Local ISP E-mail Services.</li></ul>	<ul style="list-style-type: none"><li>• Good: SaaS, simple on-premise solutions.</li><li>• Bad: Multi-Site, Multi-Server on-premise solutions.</li><li>• Ugly: More than one e-mail platform.</li></ul>	<ul style="list-style-type: none"><li>• Good: Exchange 2010 on-premise, managed hosting, hybrid on-demand/on-premise.</li><li>• Bad: SaaS solutions with fewer features than on-premise.</li><li>• Ugly: More than one e-mail platform.</li></ul>

Organizations are seeing a much faster ROI on off-premise e-mail services than on-premise.

WHY? Off-premise deployment methods eliminate the drawbacks of an on-premise e-mail solution: maintaining servers and software updating. IT staff is then able to focus its attention on other business areas.

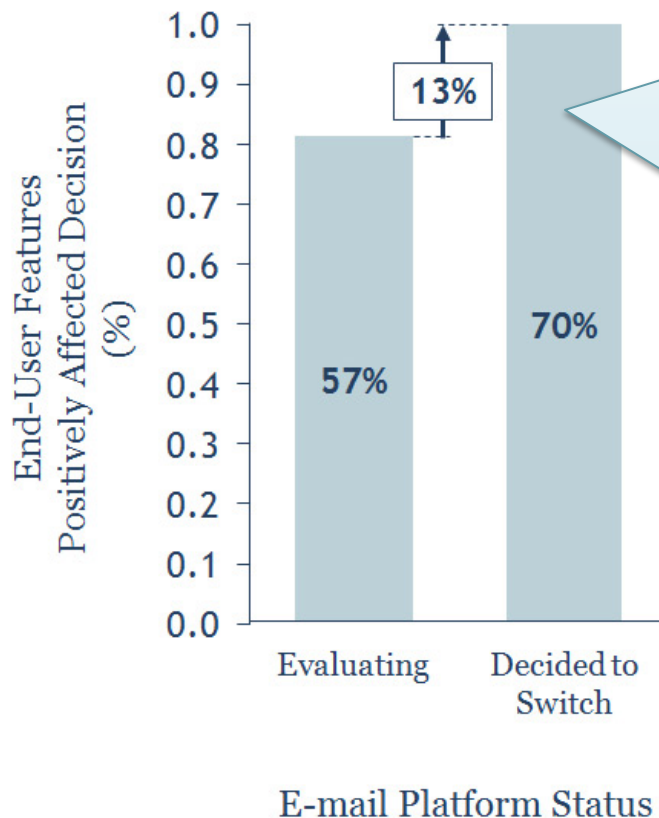


# Regardless of other drivers, you must focus on end-user features as a migration driver

There are many drivers of e-mail switching, and despite perceptions, TCO isn't the only impactful one. Info-Tech's research discovered that additional end-user features is a significant driver, determining which organizations switch and which do not.

Organizations that have decided to switch suggest that additional end-user features were required. If an organization is still evaluating alternatives, and doesn't believe additional features are required, they are less likely to switch.

Why? Organizations need a reason to switch. If their current features satisfy their needs, then additional features may not seem as attractive.



Source: Info-Tech Research Group  
N = 77

Of the organizations surveyed, 13% more of those that decided to switch agreed that end-user features were driving their decision than those who are merely evaluating.

- Some end-user features include:
1. Collaboration: shared calendars, contacts, tasks & notes
  2. Security & Anti-Virus
  3. Anti-Spam
  4. Mobility and Synchronization
  5. Interface

# Case Study: Unacceptable vendor direction, lack of integration

Industry: Professional Services, Engineering

## The Situation

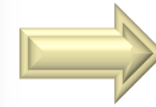
An organization was currently using GroupWise, and did not want to upgrade due to the Linux-based change. They also wanted the benefits of integration with other software, especially MS Office, Deltek Vision (ERP), and SharePoint. The organization thought an Outlook-based client might increase productivity.

## The Solution

The organization was very close to going on-premise but the TCO changed their minds: the opportunity of a hosted solution was more cost effective and staff efficient. They chose hosted Microsoft Exchange through a partner. They had an RFP and SOW for data migration, as well as an overall project and communication plan. The organization decided to implement the migration themselves using Quest migration tools.

## The Result

The migration was not hiccup free; the 20-25GB mailbox sizes from GroupWise required purging first to PST files to fit the new 5GB quota. After the migration, IT deployed a formal training process for administrators and end users, accelerating productivity. Overall, IT gave their end users what they wanted: Microsoft Outlook. For themselves, they saved money and reduced IT staffing time required for administration.



## Key Takeaways:

- Vendor changes in base platform (OS, database) can be reason enough to switch.
- Ninety-nine percent of organizations are MS Office users. MS Outlook sets the standard for end-user features, regardless of back-end e-mail server deployed.
- Integration occurs at the e-mail server and frequently the e-mail client as well (e.g. plugins). ISVs usually write plugins for MS Outlook before supporting other e-mail clients.
- Make use of migration tools: users report Quest is better for larger mailboxes, while Transend is good for smaller ones.



# Case Study: Small enterprise facing Exchange 2003 upgrade

**Industry: Self-funded government agency, regional port authority**

## The Situation

An organization was currently on Exchange 2003 and did not want to pay the upgrading costs or face the new 2007/2010 Exchange architecture. They wanted to maintain document collaboration without impacting e-mail storage. They also wanted their IT staff more available to do other projects rather than tied up with Exchange.

## The Solution

The organization qualified for a Google government cloud discount so they chose to migrate to Google Apps. They created a migration plan, but admitted they failed to understand how their customers use all the pieces and parts of the Office Suite. They ended up hiring a Google system integrator, Cloud Sherpas (see link below), for implementation and administrator training.

## The Result

The organization did run into a few roadblocks. They failed to plan for a work-around or mitigate differences in compatibilities between Outlook and Gmail. When dealing with issues, they felt that Google support was not where it needed to be for the enterprise. One of the organization's biggest challenges was user acceptance. IT had to provide hand holding and group training post migration. However, IT did provide some end users with an Outlook interface. In the end, IT saved on storage costs and freed up their staff.



Google Apps

## Key Takeaways:

- Take advantage of discounted e-mail offerings, especially for education and government.
- Don't be afraid to hire an integrator to do the dirty work (migration).
- Make sure you know about all compatibility issues before you begin the migration.
- Always consider end-user acceptance, but don't let it ruin what is best for the business.

# Many new execs want to switch to a platform simply because they are used to it

Some migrations are brought about because a new executive comes in with new ideas, solutions, or questions about the current environment. Listen to her ideas, do some research, and present your findings. You may find that your executive is right, or at least partially right, and a platform switch may be warranted for at least some of the reasons she presented.



Do not cling onto a legacy platform based on perceptions of its robustness, capabilities, and uptime.



Instead, put some hard facts together, talk to peers regarding their experience, and use facts and hard numbers to inform the decision.



Remember: You may be told to switch e-mail platforms anyway, without your input.



*Why are businesses evaluating alternative e-mail platforms?*

1

*Which platforms should I evaluate based on my current platform/situation?*

2

*What's the best way to manage the migration and make sure it goes well?*

3

## Next Section in Brief

- Exchange 2003? You have options.
- The pressure to jump into the Exchange pool.
- Decision trees make it easier.
- What else is there? Other e-mail platform options.
- What about archiving?
- Use scenario planning to help make your decision.

# Consider one of the e-mail platform vendors recommended by Info-Tech Research Group

Vendor/Product	Deployment
Microsoft Exchange	On-premise, on-demand from MS, on-demand from partners, managed hosting by partners.
IBM Lotus Notes	On-premise, on-demand from IBM, managed hosting from IBM.
Google Gmail	On-demand via SaaS only.
WebEx Mail	On-demand via SaaS only.
Gordano Messaging System	On-premise and single-instance hosted on-demand.
VMware Zimbra	On-premise, SaaS on-demand, VMware-ready virtual machine.
Microsoft Live@edu	On-demand via SaaS for qualifying educational institutions.
Scalix	On-premise, on-demand via SaaS, hosted via partners.

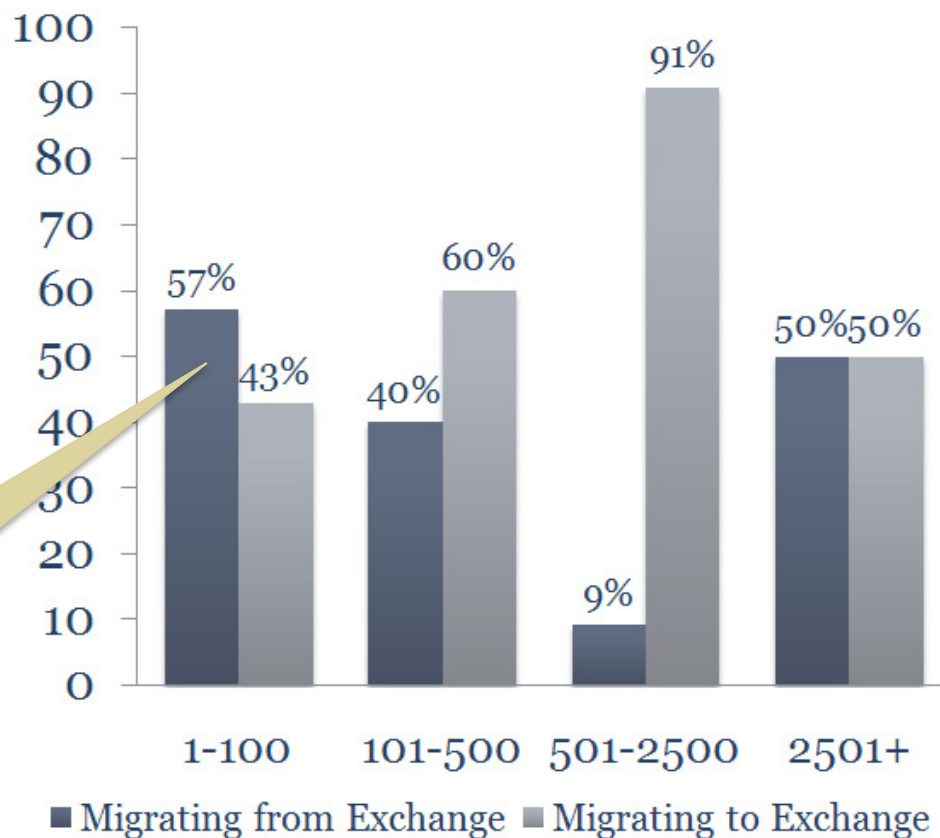
*Specific scenario-based switching recommendations follow later in this section.*

# Even with a 79% total e-mail platform market share, small enterprises should evaluate switching from MS Exchange

- A majority of small enterprises are on MS Exchange 2003 or earlier versions like 2000 or v5.5.
- Their choices are:
  - Upgrade to Exchange 2007 or 2010 and swallow the extensive architecture changes.
  - Switch to Exchange Online or hosted Exchange from an MS partner.
  - Switch to another vendor.

More small enterprises have decided to switch **from** Exchange than **to** Exchange.

Organizations migrating from and to MS Exchange by number of full-time employees



## Info-Tech Insight:

To compare TCOs of deploying Exchange on-premises versus off-premise, see Info-Tech Premium Research Tool, ["Exchange 2010 Total Cost of Ownership Calculator."](#)

# What if you don't like any of those platforms?

There are *still* more alternatives, although none of them have much market share and they don't target enterprises as much as the vendors recommended by Info-Tech. They include:

SmarterTools' SmarterMail and CommuniGate's MessagePlus are mostly focused on small businesses with no IT staff.

messageplus



Zoho Business is a lot like Google Apps - lots of applications, with mail as one of them. However, not an incredibly nice interface.

zoho Business

Atmail's e-mail server focuses on getting service providers to offer their server to customers.

@mail server

# In all switching scenarios, consider combining e-mail archiving with e-mail platform switching, for smoother migrations

➤ A best practice in e-mail platform migration is to purge as much as possible from the operational e-mail store before migrating databases.

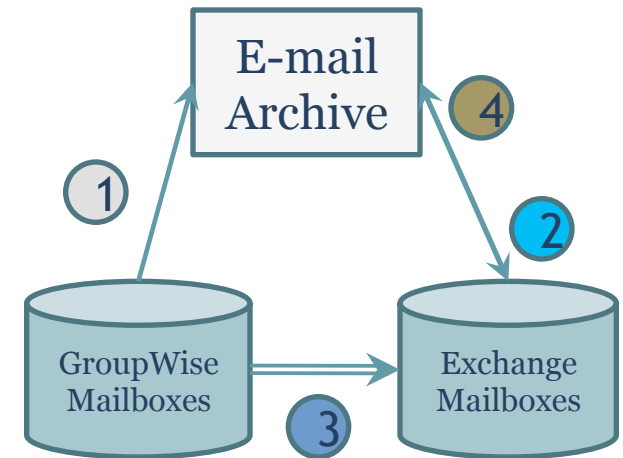
➤ E-mail archiving allows an organization to preserve the e-mail that is necessary to retain. This allows for massive reduction of the operational e-mail store before migration.

➤ An organization can also address personal e-mail stores (e.g. PSTs, .NSFs, Mboxes) with archiving tools instead of being forced to import them to the old platform before migration or to the new platform after migration.

## Info-Tech Insight:

*Linking e-mail archiving projects to e-mail platform migration projects at the strategy and planning phase can improve the success of **both** projects. For more information, refer to Info-Tech's Solution Set, "[Select an E-Mail Archiving Solution.](#)"*

Example of role of archiving for migration from Novell GroupWise to MS Exchange



Step	Description
1	Archive mail off of old platform, including import of personal stores.
2	Connect archive to new platform.
3	Migrate mailboxes from old to new platform.
4	Enable archiving on the new platform.

# Get down to business: compare your situation with the most common switching scenarios

1. Small enterprise is on a failing, legacy e-mail platform and needs to reduce total cost of ownership (TCO).
2. Small enterprise has outgrown its original system and needs to scale up in number of mailboxes and features.
3. Mid-sized enterprise is on a failing, legacy e-mail platform and needs to gain new features and provide for future growth.
4. Large enterprise is on a failing, legacy e-mail platform and simply needs to upgrade to gain the latest features and maintain interoperability with other enterprise systems.
5. Enterprise wants to consolidate e-mail, e-mail archiving, and e-mail security to a single vendor.
6. Educational entity wants to switch to another system to gain features, especially more storage and collaboration for students, and separate faculty and staff e-mail from student and alumni e-mail.
7. Organization needs to switch from an e-mail platform that hosts considerable collaboration and workflow applications.

*Info-Tech interviewed numerous organizations which were either planning an e-mail switch, currently switching, or had recently completed a switch. Our research discovered repeated, common scenarios. The following slides discuss each scenario in detail.*

*Each scenario is discussed in detail in the next seven slides.*



# Small enterprise is on a failing, legacy e-mail platform and needs to reduce total cost of ownership (TCO)

## Switching Scenario 1

- Cloud-based e-mail systems have matured and are valid choices for small enterprises that want to reduce costs. Licensing is on a subscription basis, so there are no capital costs in year one associated with hardware and software purchases. Annual expenses only rise if you add users or add or expand services, like storage.
- Consider [Gmail](#), [Cisco WebEx Mail](#), [Exchange Online](#), [IBM LotusLive](#), [Gordano GMS Cloud](#), or [Apptix](#).
- Ensure you address archiving, security, and mobile device access when choosing any cloud-based e-mail provider. Maximum savings is achieved when small enterprises outsource every aspect of e-mail.
- Many providers offer steep discounts for non-profits and education.



*“Two of my most talented staff were tied up with storage and e-mail [...] more than I’d like.”*  
– CIO, Regional Port Authority, switched to Google Apps.

# Small enterprise has outgrown its original system & needs to scale up in number of mailboxes & features

## Switching Scenario 2

- Cloud-based e-mail systems are again a valid choice in this scenario. Cloud-based e-mail systems are the easiest to scale up, especially when larger numbers of mailboxes are added at one time (for example, when a new company location is brought online). Traditional capacity planning, in terms of right-sizing hardware and storage, become irrelevant. Licensing is on a subscription basis, so there are no capital costs in year one associated with hardware and software purchases; additional users cost a standard per month fee per user. Annual expenses only rise if you add users or add or expand services, like storage.
- Consider Gmail, Webex Mail, Exchange Online, IBM LotusLive, Gordano GMS Cloud, or Apptix.
- Ensure you address archiving, security, and mobile device access when choosing any cloud-based e-mail provider. Maximum savings is achieved when small enterprises outsource every aspect of e-mail.
- Many providers offer steep discounts for non-profits and education.



# Mid-sized enterprise is on a failing, legacy e-mail platform and needs to gain new features & provide for future growth

## Switching Scenario 3

- While cloud-based e-mail systems can still meet most requirements for a mid-sized company, the TCOs for off-premise versus on-premise can start to favor on-premise for mid-sized organizations if the expected lifetime of the e-mail platform is expected to be 5-6 years.
- Consider on-premise solutions such as Microsoft Exchange, Zimbra, or Gordano.
- If content collaboration is desired and the organization has no plans to implement MS SharePoint, then consider IBM Lotus Notes or Zimbra, each of which supports document collaboration.
- For maximum efficiency, consider virtualizing the e-mail server(s).

*“We were hesitant at first to adopt Exchange due to it being a virus target, but our uptime was poor [with the old system.] We added good antivirus so it’s not an issue.”*

– E-mail Manager,  
University



# Large enterprise is on a failing, legacy e-mail platform; must upgrade to gain the latest features & maintain interoperability with other systems

## Switching Scenario 4

- While cloud-based e-mail systems can still meet many requirements for a large enterprise, the TCOs for off-premise versus on-premise definitely favor on-premise deployment if the expected lifetime of the e-mail platform is expected to be 5-6 years.
- However, if a major goal is to free up IT staff from managing what the organization considers to be a commodity service, then large enterprises should also consider managed hosting. Virtualization has re-energized traditional hosting by making single instance hosting available as virtual machines, versus sharing of resources in the pure multi-tenant SaaS model, such as Gmail.
- Consider on-premise solutions such as Microsoft Exchange, Zimbra, or Gordano.
- Consider managed hosting from IBM, HP, or Intermedia.
- For large organizations considering Microsoft or IBM, e-mail strategy and collaboration strategy must be synchronized. It makes no sense to split e-mail and collaboration between these vendors. Either choose Exchange + SharePoint or IBM Lotus Notes.



# Enterprise wants to consolidate e-mail, e-mail archiving, and e-mail security to a single vendor

## Switching Scenario 5

- This scenario has the fewest solutions, but as cloud-based e-mail evolves, more vendors will provide bundled e-mail services.
- For on-premise solutions that bundle e-mail, archiving, and security, consider Microsoft Exchange 2010 Enterprise Server Edition with Enterprise CALs. The Enterprise CAL adds archiving and security features which are not available with the Standard CAL. Gordano Messaging Suite is also an option, bundling Jatheon's archiving solution and Vanguard security.
- For a cloud option, consider Google Apps + Google Postini or Gordano GMS Cloud.
- Note that partial bundles can be achieved. For example, Barracuda Networks provides both e-mail security and e-mail archiving appliance, but not an enterprise e-mail server. Symantec also offers e-mail security and archiving products.





# Educational entity wants to switch to gain features, especially more storage & collaboration for students, and separate faculty and staff e-mail

## Switching Scenario 6

- Educational institutions commonly start out with a single e-mail system, serving both students and faculty/staff.
- Most educational institutions are realizing that student e-mail requirements and faculty/staff e-mail requirements are diverging. Faculty/staff need more enterprise features, like security, as well as more robust integration capabilities. Students, on the other hand, want convenience, ease of use, light collaboration, and full smartphone integration without draconian mailbox quotas.
- First generation e-mail systems at these institutions are often simple Unix-based mail servers, incapable of meeting modern business requirements or delivering collaboration and flexible storage.
- For faculty and staff, consider any enterprise-class system, on or off-premise, such as from Microsoft, IBM Lotus, Gordano, Google, or Cisco.
- For student e-mail, given that each vendor offers its services for free to qualifying schools, Google Gmail and Microsoft Live@edu are the clear choices.



*“Our top reasons [for switching faculty/staff to Exchange and students to Google Apps] were cost, end user satisfaction and up-time.”*

*- E-mail Manager, multi-campus university*

# Organization needs to switch from an e-mail platform that hosts considerable collaboration and workflow applications

## Switching Scenario 7

- Organizations switching from a platform that also supplies collaboration and workflow capabilities, like IBM Lotus Notes, have to account for applications running on the same servers as e-mail, calendaring, contacts, and tasks.
- Typical applications include knowledgebases, document workflows, and form-based workflows.
- Some applications are from third parties, other are custom built.
- It is important for organizations NOT to bog down e-mail migration projects with application migration projects. Separate application projects from the e-mail migration. Use Info-Tech's *E-mail Application Migration Decision Tree*, discussed in Section One of this Set, based on the Microsoft Application Analysis Envisioning Process (AAEP), to assess which applications need migration to another platform and what the migration options are.





*Why are businesses evaluating alternative e-mail platforms?*

1

*Which platforms should I evaluate based on my current platform/situation?*

2

*What's the best way to manage the migration and make sure it goes well?*











3

## Next Section in Brief

- Plan your course with a checklist for migration, implementation, integration, communication, and training.



# Create your e-mail migration pre-flight checklist

Consider...	Because...
 Impact on greater architecture	Other applications integrated with the current e-mail platform may cease to function.
 Archive	An archiving product will likely work with both platforms. Reduce the size of the operational e-mail store as much as possible before migrating.
 Offline stores	Address the PST, NSF, or Mbox that you cannot overlook now. If it has to be saved, archive it; do not migrate it with the operational store.
 Backup/Purge	Once archiving is completed, back up one more time and purge to the most restrictive age limit possible to again reduce the operational store size.
 Migration schedule	Create a clear schedule for migration. Do not count on a voluntary or opt-in migration plan. Do not rely on “connectors” to transport normal traffic between systems.
 New end-user policies	Develop and communicate new end-user policies now. Highlight improvements, such as larger mailbox quotas and new archiving and retrieval capabilities.
 Non-email PIM data migration	Decide what calendar, contact, and task information can be automatically migrated. Develop and communicate manual migration procedures if needed.
 IT Admins and Help Desk training	Make current and future e-mail admins part of the migration project. Include a Help Desk representative as well.
 End User training	Develop an end-user training and communication plan and execute before migration occurs, as well as afterwards.
 Feedback loop	Monitor end-user feedback and help desk tickets and plan for a “point release” update as part of the original project plan.

*Each task is discussed in detail in the next ten slides.*



## Assess impact on greater architecture

- All IT systems must be surveyed to discover system calls to the existing e-mail system. Look at CRM, ERP, content management, workflow systems, etc. as well as in-house applications.
- Look for special application programming interface (API) calls, such as MAPI workflow calls or Lotus Notes workflow calls, which will break if abandoning the underlying protocols of the legacy mail system.
- Examine PC client operating systems for e-mail configuration changes. For example, installing a new e-mail client will likely automatically configure the Windows registry to use the new e-mail system when an application uses e-mail. Webmail systems may require pushing out a special registry change.
- Examine plug-ins or other local extensions to legacy e-mail clients. Determine if the new e-mail client will support required extensions. For example, CRM system plug-ins for Outlook or Lotus Notes clients.
- Assess all mobile phone and tablet client requirements for required configuration changes.





## Consider archiving

- If you have an existing archiving system, it's imperative that it continues to function with the new e-mail system.
- If you do not have an e-mail archiving system, there is no better time to implement one than when making a major e-mail platform switch.
- Unless you keep the legacy system operable for a while, your backups will be of no help to end users who need to retrieve something that was deleted. E-mail archiving systems enable self-service search and restoration of e-mail records.
- Choosing an e-mail archiving system compatible with both e-mail systems is the best way to prevent disruptions in end-user access to required, historical e-mail records.
- Refer to slide 24 on e-mail archiving for additional information.

“E-mail archiving will remain relevant and important to corporations mainly due to compliance and industry regulations; e-mail platforms still need to address these needs.”

- IT Supervisor, Manufacturing

For more information about selecting an e-mail archiving solution, see Info-Tech's Solution Set, “[Select an E-Mail Archiving Solution.](#)”



## Address offline stores

- If you are migrating from Exchange, Notes, or GroupWise, chances are your end users have a huge cache of e-mails in offline, local databases, such as PSTs, NSF files, or other archive folders.
- Ignoring the problem only ensures users will re-import old e-mails after migration is completed.
- Adopt a clear policy on local, offline e-mail stores now. Due to ever increasing compliance requirements, Info-Tech recommends that you prohibit local archives going forward.
- E-mail archiving systems are the best way to address business needs to retain e-mails. Migrate offline stores to an archiving system before migration if possible.
- Most end users retain project-oriented e-mails for future reuse. Consider providing teams with the content and collaboration tools they need to do their jobs instead of using e-mail as a project store, a function for which it was not designed.

For additional information on collaboration tools, see the Info-Tech's Solution Set, "[Select the Right Collaboration Platform.](#)"





## Backup and Purge

- After archiving and addressing offline stores, it's time to backup one more time. Hopefully, this will be the last backup of each operational e-mail store you will ever create from the legacy system.
- The last step before actually migrating an individual e-mail database is to purge as much unnecessary e-mail as possible to reduce the size of the database, and therefore reduce the chance of migration errors. If you archived properly, then historical e-mails will be available when needed. And you always have backups if needed.
- Purge based on age. Most companies use anywhere from 90 days to one year as the maximum age limit for e-mails allowed to remain in the operational store, for performance reasons. It depends on the system to which you are migrating and the available storage with the new system.
- Consider establishing the same purge policies for the new system, so end users become accustomed to the policy, and you combine as much “change” as possible into one single end-user disruption.

“ Mailbox sizes were 20-25GB under GroupWise, so we needed to purge first ... now [we] have 5GB quota with Exchange. ”

- IT Manager, Engineering



## Mandate a migration schedule

- Cloud-based e-mail systems, such as Gmail, offer migration tools that can be programmatically accessed (i.e. by APIs). This enables organizations to create their own user interfaces to enable self-service or opt-in migration, at end users' leisure. This is a useful capability for e-mail service providers, such as ISPs.
- For non-service providers though, experience has shown that given an opt-in choice, most end users will wait until the last minute or prefer that IT migrate their mailbox anyway. Info-Tech recommends that organizations adopt a fixed migration schedule and execute accordingly.
- Optimal design points will vary. Consider department migration, legacy server migration or company location migration.
- Remember that whatever design point is used for the migration schedule, end-user training and help desk support must accompany each migration step. For example, choosing server migration, when mailboxes from all over the organization may be on the server, may not result in a migrated population that corresponds to distributed training organizations or distributed help desks. However, this would not pose a logistical problem for centralized training organizations and centralized help desks.

“ Eight week [migration plan], but had low initial opt-in, so had to get tough and do it ourselves... Opt-in, most will just ignore [the migration plan] and wait for you to do it anyway. ”



## Develop new end-user policies

- E-mail migration is an opportunity to both strengthen and loosen existing end-user policies. Policies must be developed ahead of migration and be ready to execute and enforce immediately when a mailbox is migrated.

### Examples include:

- Mailbox size quotas. If these did not exist before, they should be created for the new system. If they did exist but were rather harsh, consider loosening them if storage in the new system is larger and cheaper.
- Age limits. Establish age limits for messages in Inboxes and Sent Items folders. Communicate these to end users so they anticipate purge activities. **WARNING:** Establishing age limits that are too short will only increase IT requests for e-mail restores, if no archiving system exists.
- Archiving rules. Execute archiving rules required by the business and communicate these rules to end users, so they anticipate archiving activities.

- Don't confuse end user and process mailboxes. Process mailboxes, such as those serving workflows, may need to be exempt from all restrictions.
- All policies, both old and new, must be included in end-user training.

This is a great time to retrain all employees on e-mail acceptable use policies and any associated compliance requirements. For a generic e-mail acceptable use policy, see Info-Tech's template, "[E-Mail and Messaging Acceptable Use Policy](#)."



## Address non-email personal information management (PIM) data migration

- E-mail is rarely all that end users store on an e-mail platform. Contacts, calendars, and tasks have to be considered.
- Some migration tools may not handle migrating databases other than e-mail folders. In this case, a manual process needs to be established, tested and communicated to end users and the Help Desk. This may include a manual export of records from the client of the old system and a manual import using a client of the new system.
- Assess the impact of manual migration processes for contacts, calendars and tasks on mobile phone information stores to identify steps which may result in duplicate records on mobile phones when synchronized. Duplicate records on mobile phones will cause unnecessary end user frustration.
- Identify any shared or group contact lists or calendars that need to be maintained after the migration. If the new platform will not support shared contacts, calendars or tasks, then again collaboration platforms must be considered to support such common team requirements.

For additional information on collaboration platforms, see the Info-Tech Research Group Solution Set, “[Select the Right Collaboration Platform.](#)”







## Train IT Admins and Help Desk Analysts

- The best way to train IT staff to support a new on-premise e-mail platform is, of course, to have them execute the migration project.
- Send IT staff to administrator training for the new platform.
- Involve Help Desk Analysts in project execution to develop designated subject matter experts on the Level 1 and Level 2 support staffs who can transfer knowledge to other Help Desk analysts.
- Deploy as many Help Desk analysts as possible for desk-side support the first day after migration. They will learn valuable end-user support information by being in the field to resolve initial problems.
- Develop or procure content for the Help Desk knowledgebase system, to support both temporary migration issues and long-term e-mail system end-user inquiries.
  - Major platform vendors, like Microsoft, IBM Lotus, Google, Zimbra, Gordano, etc. have extensive online resources for technical support personnel.
  - Ensure Level 1 support analysts are provided the same training and training aides as are provided to end users, so they have a common point of reference to use in processing end-user inquiries.



## Train end users

- Start communicating to end users as soon as a decision is made to switch e-mail platforms. Start by communicating the strategic reasons why the current e-mail platform must be abandoned. Employees will identify with strategic goals like cost reduction, improved uptime and reliability, more storage, improved customer service, etc.
- Electronic newsletters from the project team work well as a communications microsite on the intranet. Communicate target dates and milestones during planning.
- Develop and hold end-user training sessions as actual migration draws near. Bring people together in a conference room for an hour long session. Free food and beverages always help increase attendance.
- Develop or procure laminated training cards that summarize the key features and how-to's for the new e-mail system and client to distribute to end users at training sessions. For larger platforms, numerous online vendors sell pre-printed reference cards for Outlook, Notes, and other e-mail clients. But don't be afraid to create your own.
- Consider developing how-to videos and publishing them on the company intranet. Online video services, such as YouTube, already contain thousands of user-generated how-to videos on end-user computing applications, including e-mail clients. Consider screening these free videos and linking to the best ones.
- Appoint local migration champions among business units. Known power users fit this role well. Most business units already have a well-known "go to" person that deflects some of the simple end-user inquiries from ever reaching the Help Desk. However, this also means the Help Desk never hears about some issues and IT is unable to properly trend the more significant problems.

“ I can't think of a change that has been taken more personally by so many people [as migrating from Microsoft Office/Exchange to Google Apps/Gmail]. ”



## Establish a feedback loop and tweak the system

- Keep the communication plan active for at least three to six months after the last mailbox was migrated.
- Analyze Help Desk inquiries and solicit end-user feedback on all aspects of the new e-mail system. Consider using an end-user survey to collect feedback and measure satisfaction.

Free survey services, such as [SurveyMonkey](#) or [Zoomerang](#), are perfect for this.



- Plan to make updates to the system, quotas, policies, etc. as required and initiate one last communication with users concerning these updates before closing down the project.

# Don't be afraid to ask for help from system integrators, for larger and difficult migrations

Use Info-Tech's  
*E-mail Migration System Integrator RFP Template*  
and  
*E-mail Migration System Integrator RFP  
Evaluation Tool* to assist in SI selection.

The RFP Template comes populated with crucial elements you must consider. These include:

- The Statement of Work
- Proposal Preparation Instructions
- Scope of Work
- Specification & Requirements
- Vendor Qualifications & References
- Budget & Estimated Pricing
- Vendor Certification



## *Info-Tech Insight:*

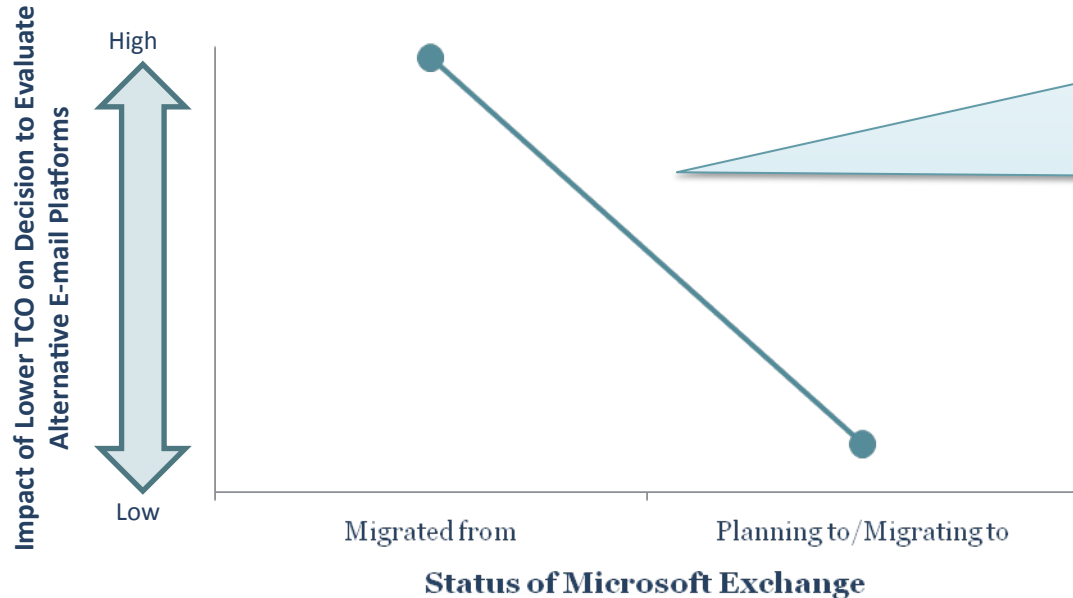
*Choosing a systems integrator is not as complex as selecting software from multiple application providers, but an investigation of vendor credentials and experience must still be performed, as well as gathering price data and consulting rates.*

# Summary

- Increasingly, businesses of all sizes are considering outsourcing their e-mail environments to hosted e-mail service providers, whether traditional hosted or cloud-based. If you are looking to switch e-mail platforms, evaluate switching to a hosted deployment model as well.
- Small organizations still running Exchange 2003 must give alternative platforms serious consideration, along with hosted deployments. Moving to a hosted service provider will likely reduce IT complexity and TCO.
- There are seven viable enterprise e-mail platforms that will meet the needs of most companies. However, there are still other e-mail platforms that, while not specifically targeting enterprises, may meet your needs. Evaluate the offerings from Microsoft, IBM, Google, Cisco, Zimbra, Scalix, and Gordano first.
- Use the e-mail migration pre-flight checklist to ensure all of the necessary items are considered and addressed before embarking on the project. Missing a step could lead to lost time, effort, and money.

# Appendix

# Increasing features and lowering TCO can be at odds with each other, as demonstrated by organizations migrating to, or planning to migrate to, Microsoft Exchange



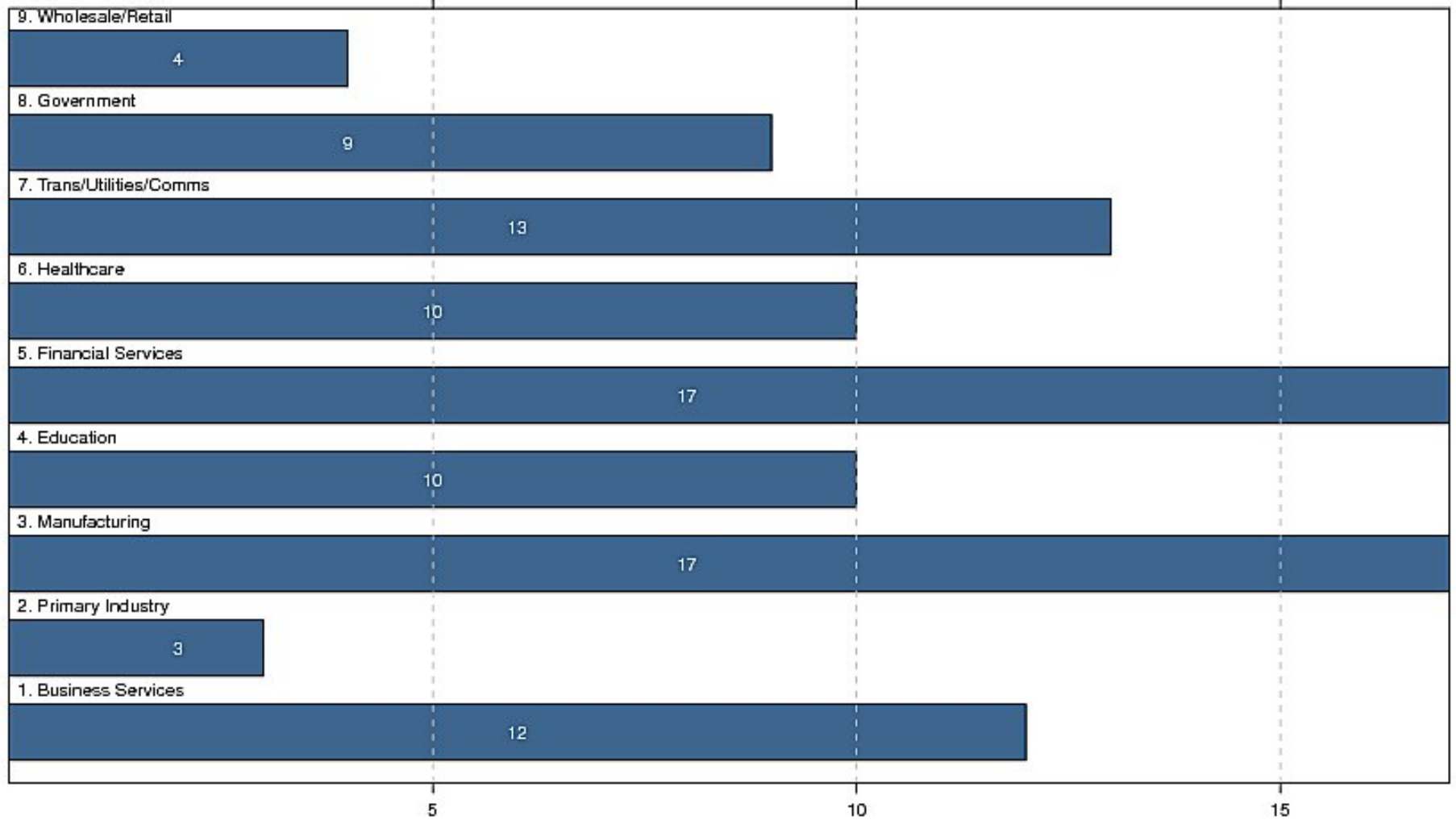
Organizations that are planning to or have already migrated to Microsoft Exchange were 11% less likely to say that lowering their total cost of ownership affected their decision to evaluate alternative e-mail platforms than those who migrated from Microsoft Exchange.

Source: Info-Tech Research Group  
N = 77

# Survey Demographics

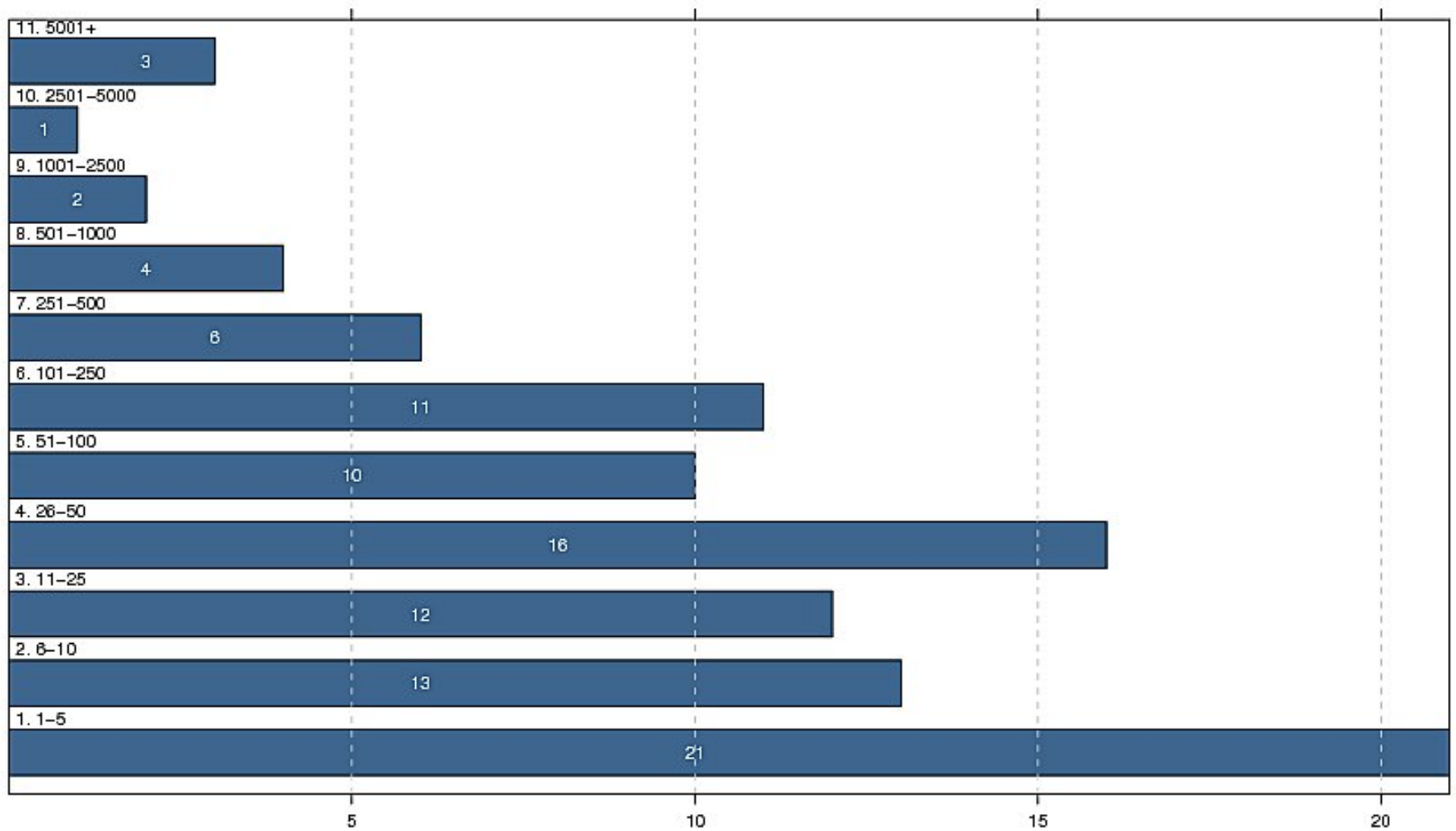


### cDM1: Industry



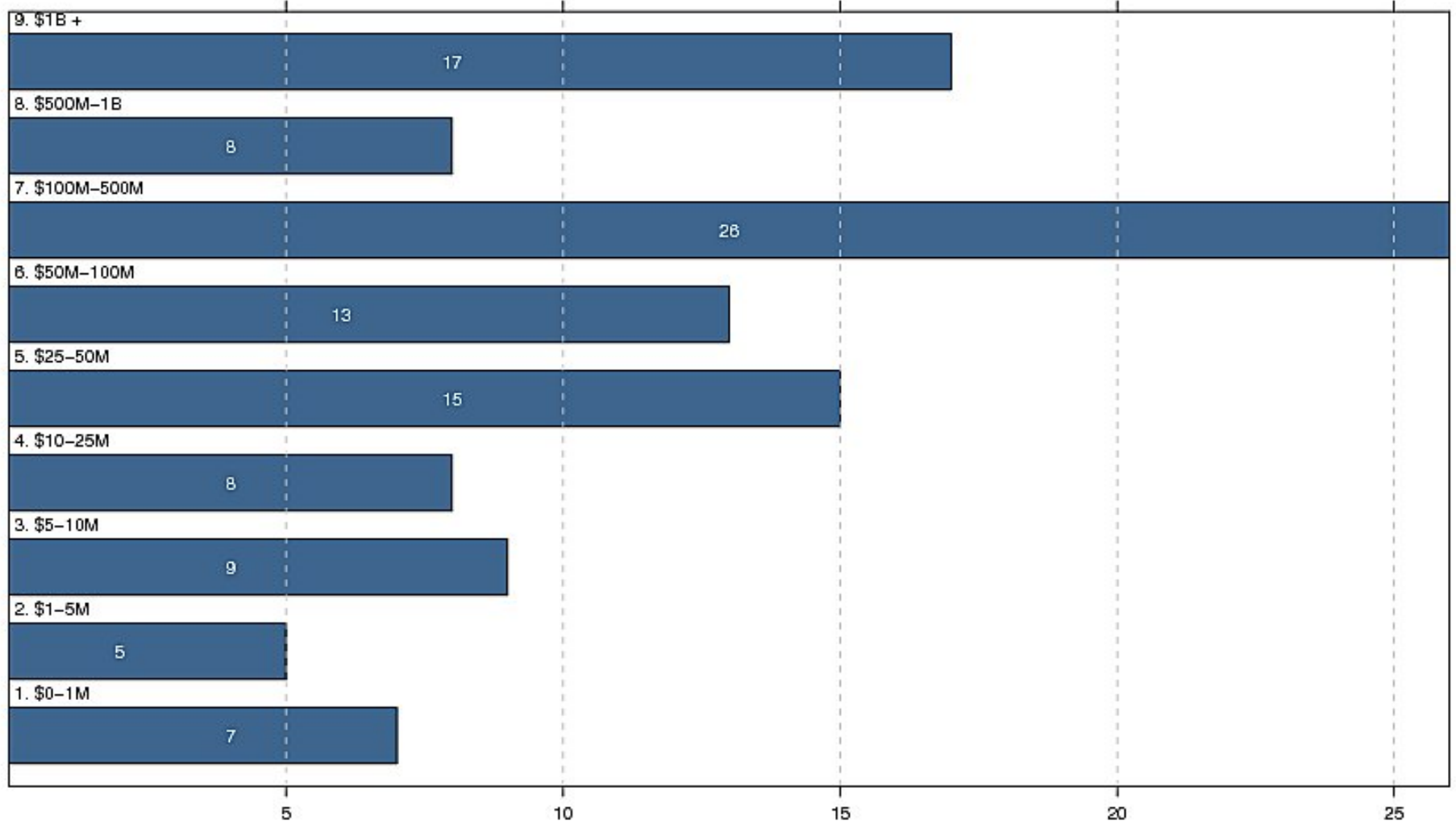
1. cDM1 N = 95

### aDM3: IT Employees



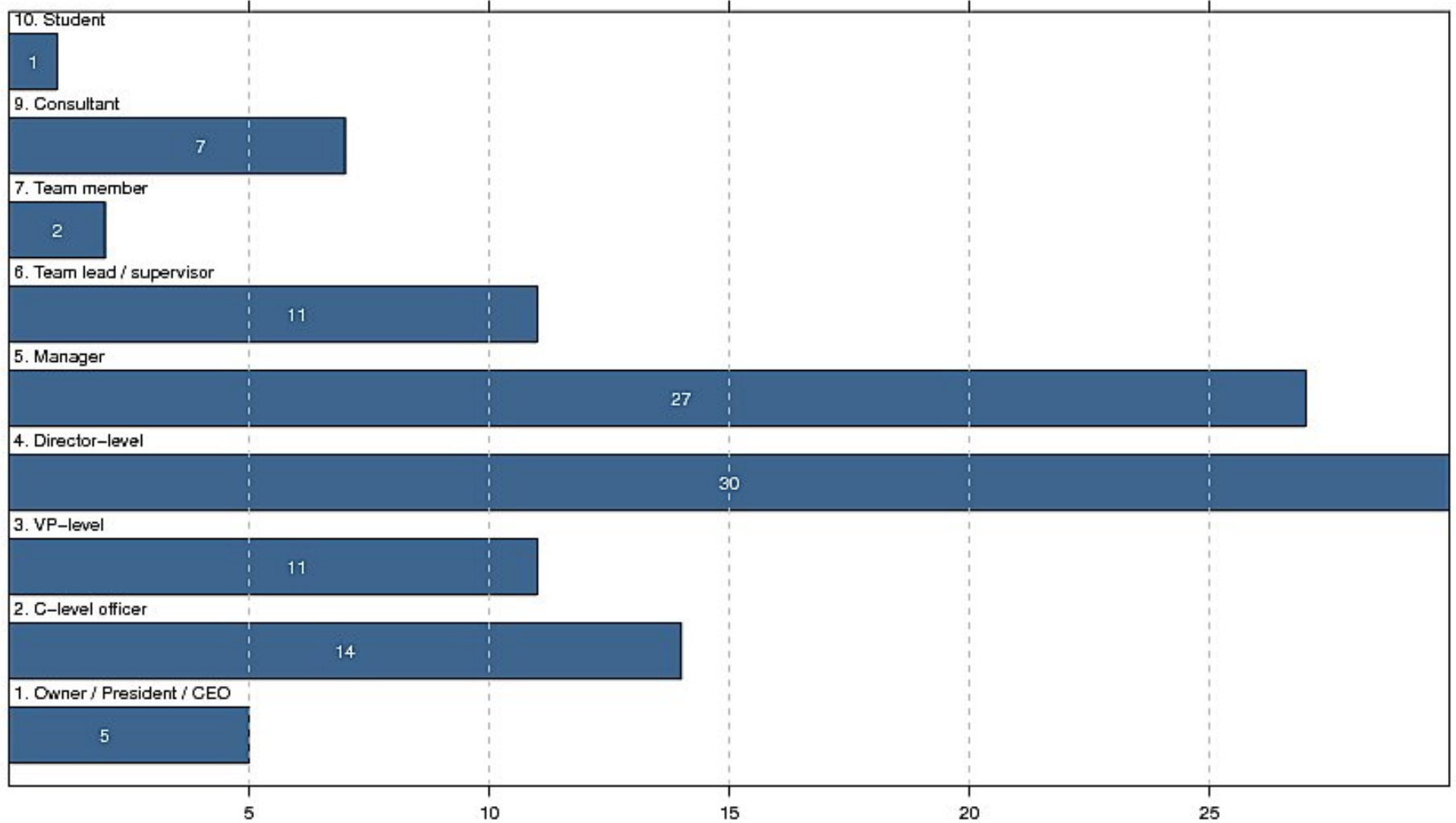
2. aDM3 N = 99

### aDM4: Revenue



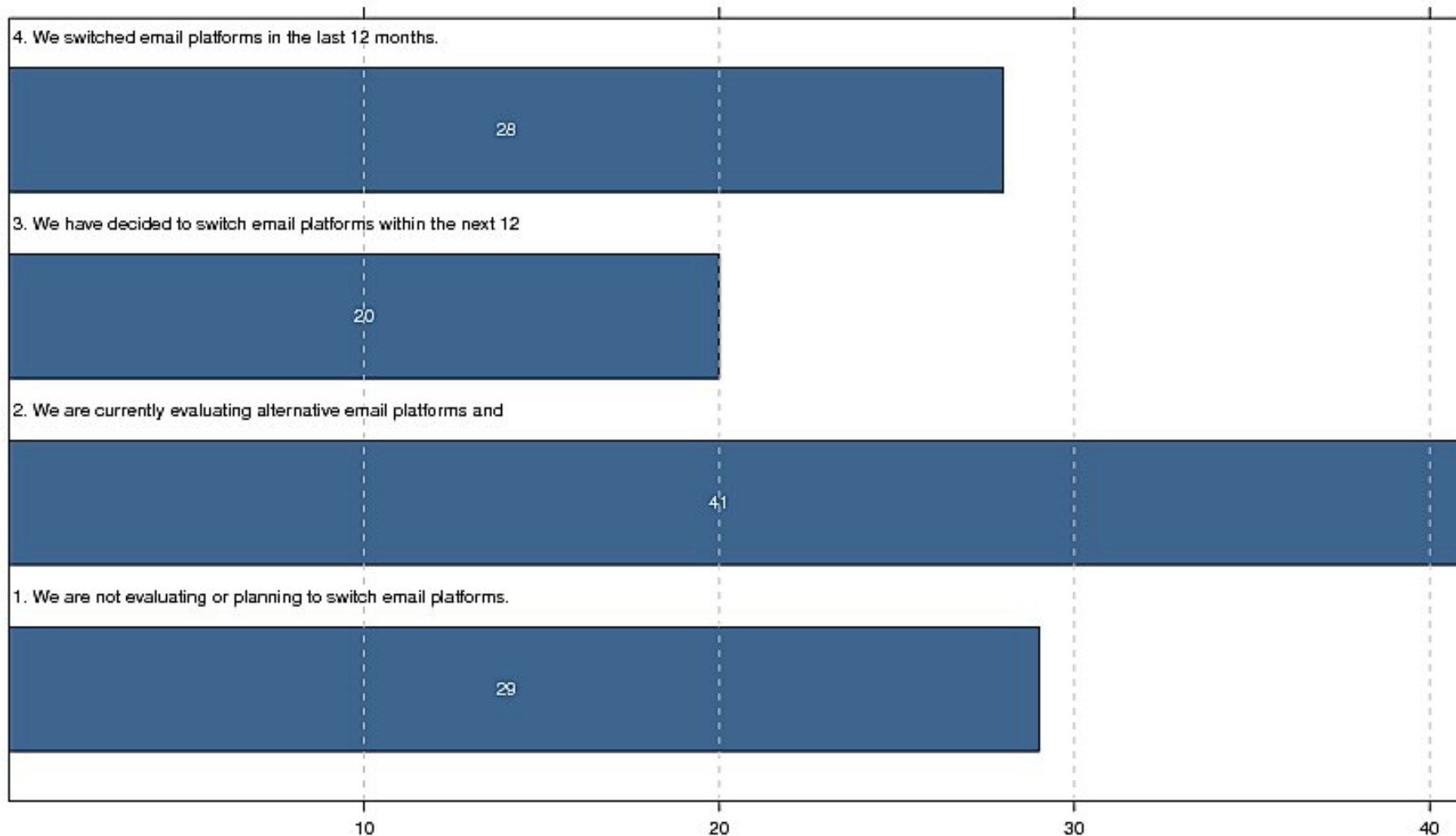
3. aDM4 N = 108

#### aDM5: Job Title



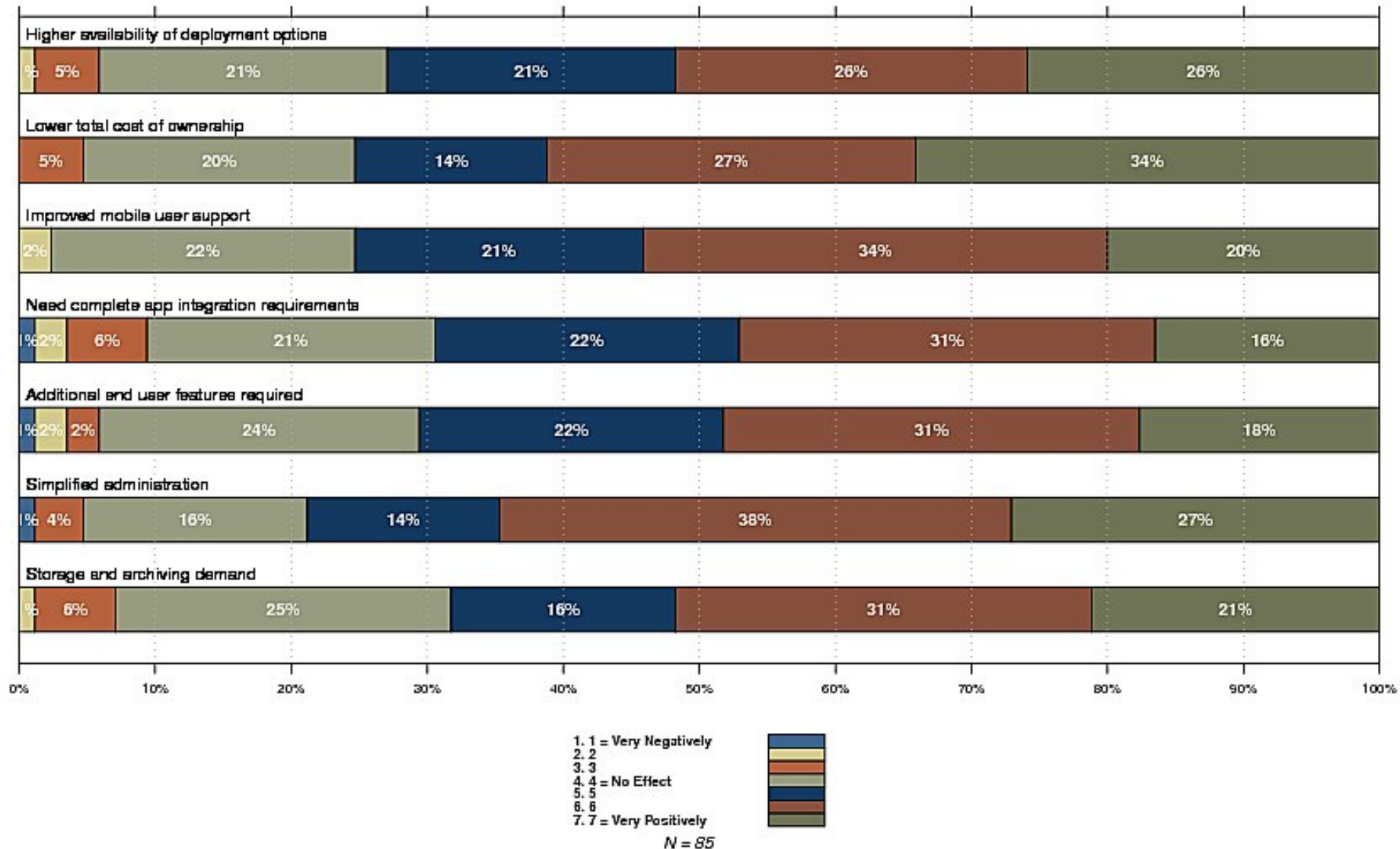
4. aDM5 N = 108

**aSE1: Please indicate your organization's current status regarding switching email platforms.**

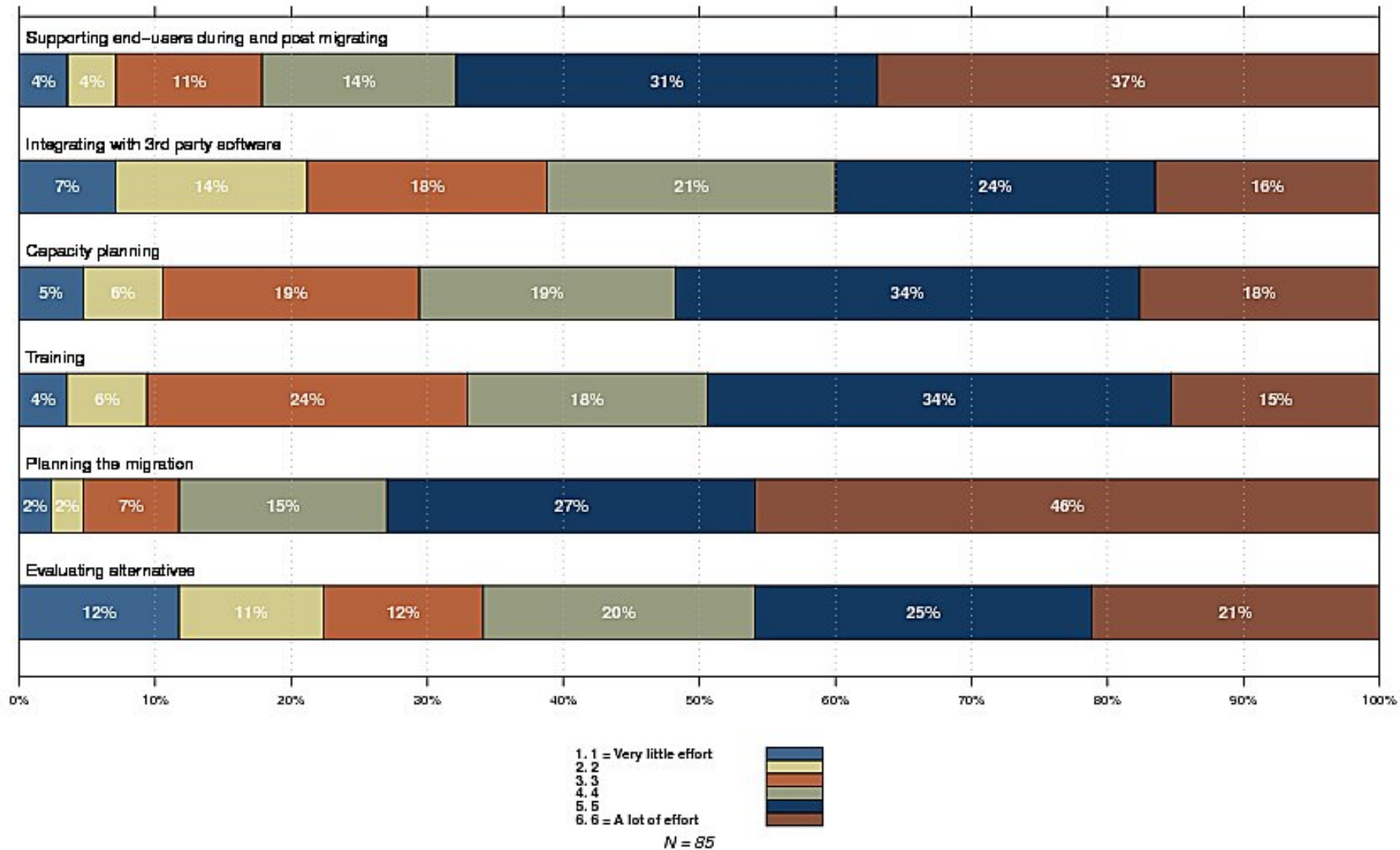


5. aSE1 N = 118

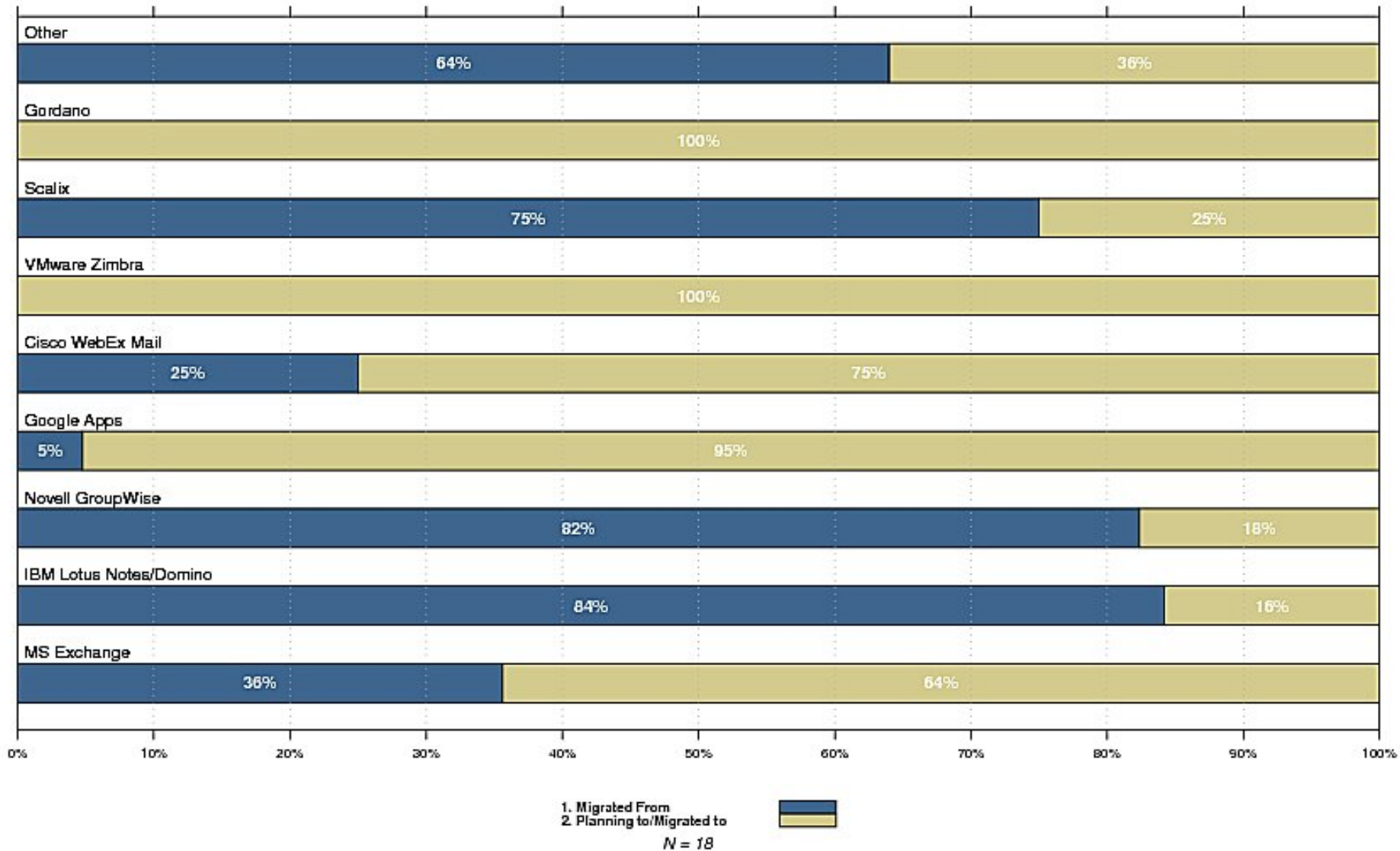
### Affect on decision to evaluate email platforms



Did you, or do you plan to, put effort into

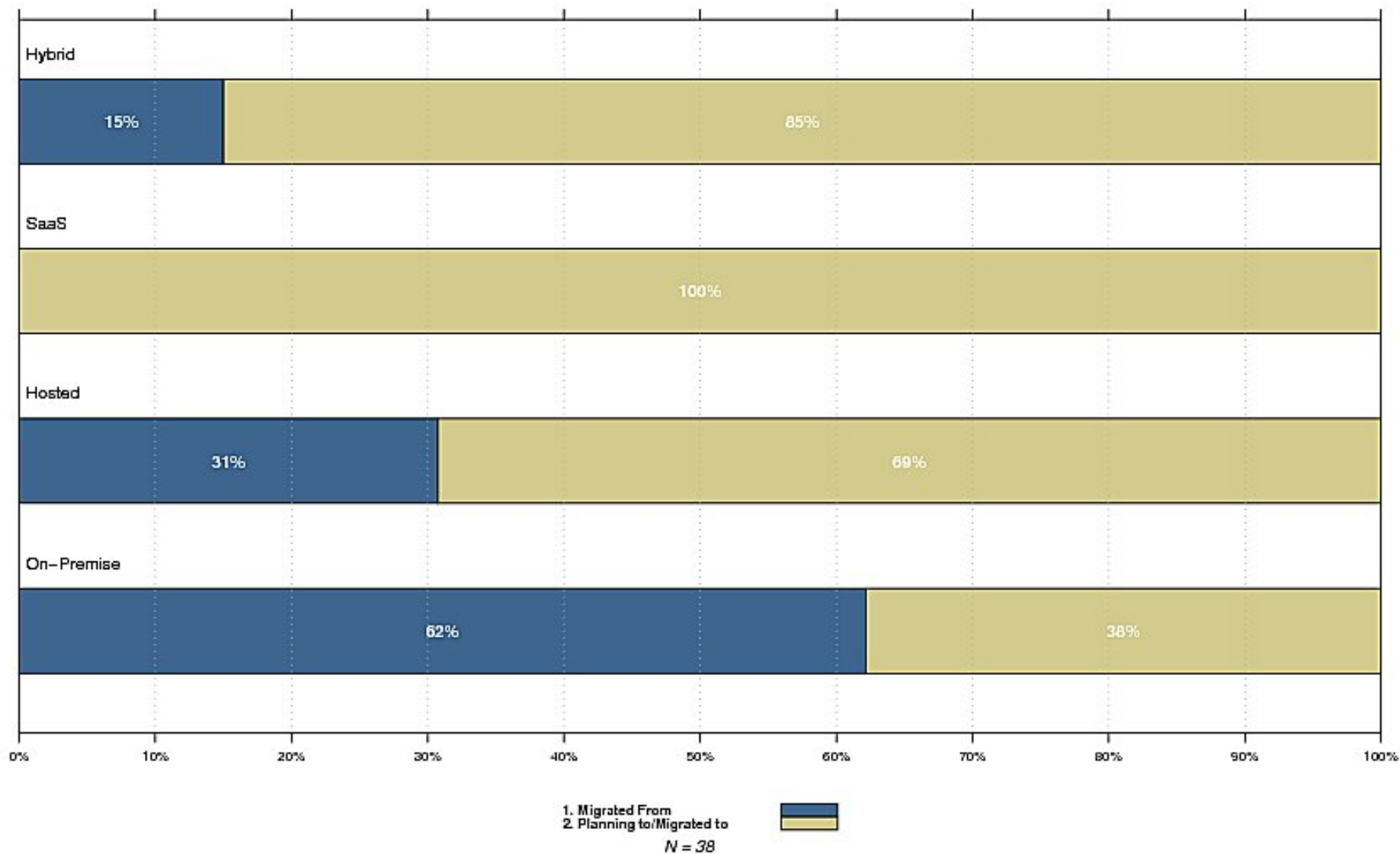


### What platform coming from and platform migrating/migrated to





Delivery method coming from and method migrating/migrated to



## Appendix D – Regulatory Compliance

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hipaa\_implementation\_guide.pdf



HIPAA.pdf

The background of the entire page is a solid blue color. Overlaid on this background is a network of circles of various sizes, some of which are interconnected by thin white lines, creating a molecular or network-like pattern. The circles are a lighter shade of blue than the background.

# HIPAA Compliance & Data Protection with Google Apps

Google Apps for Work HIPAA implementation guide

Google™ for Work

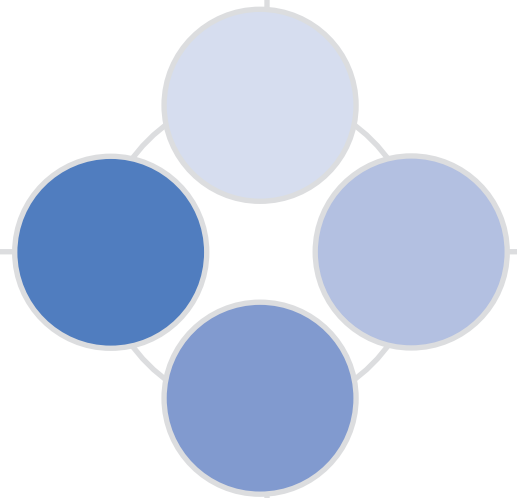
# HIPAA Compliance & Data Protection with Google Apps

[Using Google Services with PHI](#)  
[What to Consider for Specific Google Apps Core Services](#)  
[Additional Considerations for HIPAA Compliance](#)  
[Separating user access within your domain](#)  
[Use of third party applications](#)  
[Security best practices](#)  
[Security Audits and Certifications](#)  
[Additional Resources](#)

Google works to keep users' data secure in the cloud in a reliable, compliant way.

The combination of security and privacy lead to a strong ecosystem that keeps your information safe. For customers who are subject to the requirements of the Health Insurance Portability and Accountability Act (known as HIPAA, as amended, including by the Health Information Technology for Economic and Clinical Health – HITECH – Act), [Google Apps supports HIPAA compliance](#).

This guide is intended for security officers, compliance officers, IT administrators, and other employees in organizations who are responsible for HIPAA implementation and compliance with Google Apps. Under HIPAA, certain information about a person's health or health care services is classified as Protected Health Information (PHI). After reading this guide, you will understand how to organize your data on Google services when handling PHI to help meet your compliance needs. Customers are responsible for determining if they are a Business Associate (and whether a [HIPAA Business Associate Agreement \(BAA\)](#) with Google is required) and for ensuring that they use Google services in compliance with HIPAA.



# Using Google Services with PHI

Google Apps customers who are subject to HIPAA and wish to use Google Apps with PHI must sign a [Business Associate Agreement \(BAA\)](#) with Google. Per the Google BAA, PHI is allowed only in a subset of Google services. These Google covered services, which are “Included Functionality” under the HIPAA BAA, must be configured by IT administrators to help ensure that PHI is properly protected. In order to understand how the Included Functionality can be used in conjunction with PHI, we’ve divided the Google Apps Core Services (“Core Services”) covered by your Google Apps Agreement into three categories. Google Apps administrators can limit which services are available to different groups of end users, depending on whether particular end users will use services with PHI.

- 1. HIPAA Included Functionality: All users can access this subset of Core Services for use with PHI under the Google Apps HIPAA BAA as long as the health care organization configures those services to be HIPAA compliant:** Gmail, Google Drive (including Docs, Sheets, Slides, and Forms), Google Calendar, Google Sites, and Google Apps Vault ([see full list of Google Apps Core Services here](#)).
- 2. Core Services where PHI is *not* permitted: There are certain remaining Core Services that may not be used in connection with PHI.** Google Apps administrators can choose to turn on these remaining Core Services, which include Hangouts, Contacts, and Groups, for its users, but it is their responsibility to not store or manage PHI in those services. Please see [“Separating user access within your domain”](#) for further details on how to utilize organizational units.
- 3. Other Non-Core Services Offered by Google: PHI is *not* permitted in other Non-Core Services offered by Google where Google has not made a separate HIPAA BAA available for use of such service.** All other Non-Core Services not covered by your Google Apps Agreement, including, for example, (without limitation) YouTube, Google+, Blogger, and Picasa Web Albums ([see list of Additional Google Services here](#)), must be disabled for Google Apps users who manage PHI within the Included Functionality. Only users who do not use Included Functionality to manage PHI may use those separate Non-Core Services offered by Google (under the separate terms applicable to these Google services). Please see [“Separating user access within your domain”](#) for further details on how to utilize organizational units.

To manage end user access to different sets of Google services, Google Apps administrators can create organizational units to put end users who manage PHI and end users who do not into separate groups. Once these units are set up, an administrator can turn specific services on or off for groups of users. Those who manage PHI, for instance, should have YouTube and Google+ turned off. Please see [“Separating user access within your domain”](#) in the [“Additional Considerations for HIPAA Compliance”](#) section below for further details on how to utilize organizational units.

To learn more about how Google secures your data, please review our [Google Apps security whitepaper](#).

# What to Consider for Specific Google Apps Core Services

Every Google Apps Core Service has specific settings to adjust to help ensure that data is secure, used, and accessed only in accordance with your requirements. Here are some actionable recommendations:

## Monitoring account activity

The Admin console reports and logs make it easy to examine potential security risks, measure user collaboration, track who signs in and when, analyze administrator activity, and much more. To monitor logs and alerts, admins can [configure notifications](#) to send them alerts when Google detects these activities: suspicious login attempts, user suspended by an administrator, new user added, suspended user made active, user deleted, user's password changed by an administrator, user granted admin privilege, and user's admin privilege revoked. The admin can also [review reports and logs](#) on a regular basis to examine potential security risks. The main things to focus on are key trends in the [highlights](#) section, overall exposure to data breach in [security](#), files created in [apps usage activity](#), [account activity](#), and audits.


## Gmail


Gmail provides controls to ensure that messages and attachments are only shared with the intended recipients. When composing emails and [inserting files using Google Drive](#) that potentially contain PHI, end users can choose to [share only](#) with the intended recipients. If the file is not already shared with all email recipients, the default will be to share the file with ["Anyone with the link"](#) within the Google Apps domain. Change the link sharing settings to "Private."


## Drive (including Docs, Sheets, Slides, and Forms)


Employees can choose how visible files and folders are, as well as the editing and sharing capabilities of collaborators, when [sharing files in Google Drive \(including Docs, Sheets, Slides, and Forms\)](#).


**Link sharing**

☐  **On - Public on the web**  
Anyone on the Internet can find and access. No sign-in required.

☐  **On - Anyone with the link**  
Anyone who has the link can access. No sign-in required.

☐  **On - Altostrat**  
People at Altostrat can find and access.

☐  **On - People at Altostrat with the link**  
People at Altostrat who have the link can access.

☒  **Off - Specific people**  
Shared with specific people.

Admins can set file [sharing permissions](#) to the appropriate visibility level for the Google Apps account. Admins can “Restrict” or “Allow” employees to share documents outside the domain, and set the default file visibility to “Private.”

**Link Sharing**  
Locally applied

**Link Sharing Defaults**  
Select the default link sharing setting for a newly created file:

☒ **OFF**  
Only the owner has access until he or she shares the file.

☐ **ON - People at admin.altostrat.com with the link**  
People at admin.altostrat.com who have the link can access the file.

☐ **ON - People at admin.altostrat.com**  
People at admin.altostrat.com can find and access the file.

Admins should consider disabling third party applications that can be installed, such as [Google Drive apps](#) and [Google Docs add-ons](#). Admins should review the [security](#) of these applications, as well as any corresponding security documentation provided by the third party developer.

☐ **Allow users to install Google Drive apps**  
Google Drive apps allow users to open their files in web apps installed from the Chrome Web Store. ?

☐ **Allow users to install Google Docs add-ons**  
Docs add-ons allow users to use Docs features built by other developers. ?

## Calendar

Within your domain, employees can change if and how their [calendar is shared](#). Admins can [set sharing options](#) for all calendars created in the domain. By default, all calendars share all information to anyone within your domain, and only free/busy information with all external parties. Employees should consider setting calendar entries to “Private” for meetings involving PHI. In addition, employees should consider excluding PHI from meeting titles, descriptions, and [Hangout video calls](#), unless proper privacy settings have been applied. Admins should consider disabling the option to automatically add Hangout video calls for employees who manage PHI.

<b>Video Calls</b> Locally applied	<input type="checkbox"/> Automatically add video calls to events created by a user
---------------------------------------	--

Admins should consider setting calendar sharing options to “No sharing” or “Only free/busy information” for employees who handle PHI.

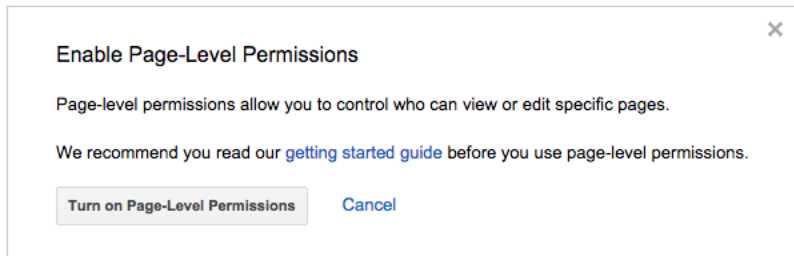
<b>External sharing options for primary calendars</b> Locally applied	<b>Outside Altostrat - set user ability for primary calendars</b> By default, primary calendars are not shared outside Altostrat . Select the highest level of sharing that you want to allow for your users. <ul style="list-style-type: none"> <li><input checked="" type="radio"/> Only free/busy information (hide event details)</li> <li><input type="radio"/> Share all information, but outsiders cannot change calendars</li> <li><input type="radio"/> Share all information, and outsiders can change calendars</li> <li><input type="radio"/> Share all information, and allow managing of calendars</li> </ul>
--	--

<b>Internal sharing options for primary calendars</b> Locally applied	<b>Within Altostrat - set default</b> Users will be able to change this default setting. Super Admins have 'Make changes and manage sharing' access to all calendars on the domain. <a href="#">Learn more</a> <ul style="list-style-type: none"> <li><input type="radio"/> No sharing</li> <li><input checked="" type="radio"/> Only free/busy information (hide event details)</li> <li><input type="radio"/> Share all information</li> </ul>
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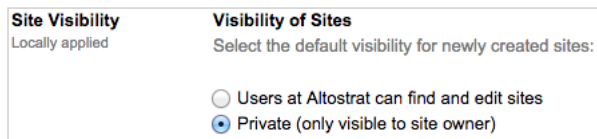


## Sites

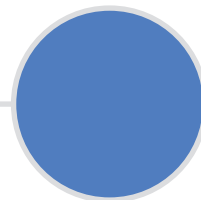
For Sites containing PHI, employees should consider setting the [share settings](#) to "Private." Employees can also turn on [page-level permissions](#) to granularly control who has access to individual web pages within a Site.



Employees should consider setting sharing permissions appropriately, if inserting a [Google Calendar](#) or content stored in [Google Drive \(including Docs, Sheets, Slides, and Forms\)](#) into a Site. Admins should consider setting the [default visibility for Sites to "Private."](#)



The Google Sites service, like all Google Apps Core Services, does not serve advertising or use Customer Data for advertising purposes. However, some legacy users of AdSense on Sites may [retain the ability to use the separate AdSense product](#) to display advertising on their Sites pages. Users should ensure that AdSense on Sites is disabled whenever Sites is used with PHI.



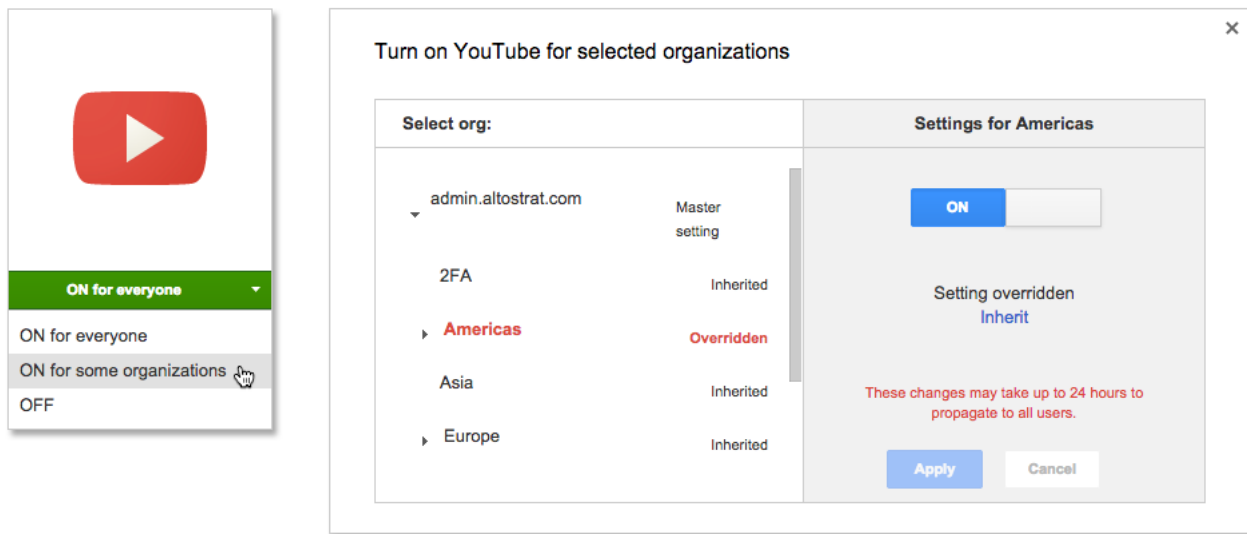
# Additional Considerations for HIPAA Compliance

## Separating user access within your domain

To manage end user access to different sets of Google services, a Google Apps administrator can create organizational units to put end users who manage PHI and end users who do not into separate groups. Once these units are set up, the administrator can turn specific services on or off for groups of users.

In a small Google Apps account, for instance, there are typically two or three organizational units. The largest unit includes employees with most services enabled, including YouTube and Google+; another unit is for employees who may manage PHI, with certain services disabled. In a more complex Google Apps account, there are more organizational units that are often divided by department. Human resources may manage PHI, but those who do may be only a subset of HR employees. In that case, administrators could configure an HR organizational unit with most services enabled for some users, and another HR organizational unit for employees using the HIPAA Included Functionality with PHI (with certain services disabled and settings configured appropriately).

To learn more, please refer to our Support resources that discuss [how to set up organizational units](#) and [how to turn services on and off](#).



## Use of third party applications

If an end user wants to use the HIPAA Included Functionality to share PHI with a third party (or a third party application), some of the services may make it technically possible to do so. However, it is the customer's responsibility to ensure that appropriate HIPAA-compliant measures are in place with any third party (or third party application) before sharing or transmitting PHI. Customers are solely responsible for determining if they require a BAA or any other data protection terms in place with a third party before sharing PHI with the third party using Google Apps services or applications that integrate with them.

## Security best practices

To keep your data safe and secure, we recommend several [security best practices](#) including:

- **Set up 2-step verification** to reduce the risk of unauthorized access in case a user's password is compromised
- **Configure enterprise sender identity technologies** — sender policy framework, DomainKeys Identified Mail, and Domain-Based Message Authentication — to prevent spammers and phishers from “spoofing” your domain

## Security Audits and Certifications

A list of security and privacy controls available with Google Apps can be found on our [Security and Privacy website](#).

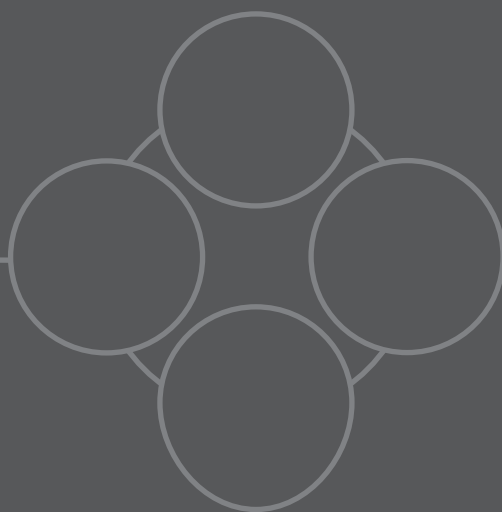
In addition to supporting HIPAA compliance, the Google Apps Core Services are audited using industry standards such as [ISO 27001 certification](#) and [SOC 2 and SOC 3 Type II audits](#), which are the most widely recognized, internationally accepted independent security compliance audits. To make it easier for everyone to verify our security, we've published our [ISO 27001 certificate](#) and new SOC3 audit [report](#) on our Google Enterprise [security page](#).

## Additional Resources

These additional resources may help you understand how Google services are designed with privacy, confidentiality, integrity, and availability of data in mind.

- [Google Apps Help Center](#)
- [Google for Work security page](#)
- [HIPAA Compliance with Google Apps](#)

This HIPAA implementation guide is for informational purposes only. Google does not intend the information or recommendations in this guide to constitute legal advice. Each customer should independently evaluate its own particular use of the services as appropriate to support its legal compliance obligations.



Google™ for Work

Google Apps customers who are subject to requirements of the Health Insurance Portability and Accountability Act (known as HIPAA, as amended, including by the Health Information Technology for Economic and Clinical Health – HITECH – Act). Institutions that are regulated by HIPAA and wish to use Google Apps with PHI must sign a Business Associate Agreement (BAA) with Google. The UA Legal Team reviewed and approved a BAA with Google and this was reflected on May 2<sup>nd</sup>, 2016. Per the Google BAA, PHI is allowed only in a subset of Google services. These Google covered services, which are “Included Functionality” under the HIPAA BAA, **must be configured by IT administrators to help ensure that PHI is properly protected.** Google Apps administrators can limit which services are available to different groups of end users, depending on whether particular end users will use services with PHI. All users can access this subset of Core Services for use with PHI under the Google Apps HIPAA BAA **as long as the health care organization configures those services to be HIPAA compliant:** Google Apps, Google Drive (including Docs, Sheets, Slides, and Forms), Google Calendar, Google Sites, and Google Apps Vault. “Security Standards for the Protection of Electronic Protected Health Information” are found at 45 CFR part 160 and Part 164, Subparts “A” and “C”, commonly known as the Security Rule. To understand the requirements of the Security Rule, it is helpful to be familiar with the basic concepts that comprise the security standards and implementation specifications. The Security Rule is divided into six main sections – each representing a set of standards and implementation specifications that must be addressed by all **covered entities (Those who collect the protected health information (CE))**. Each Security Rule standard is a requirement: a **covered entity must comply with all of the standards of the Security Rule with respect to the ePHI it creates, transmits or maintains.**

Many of the standards contain implementation specifications. An implementation specification is a more detailed description of the method or approach covered entities can use to meet a particular standard. Implementation specifications are either required or addressable.

Regardless of whether a standard includes one or more implementation specifications, covered entities must comply with each standard. Where there is no implementation specification for a particular standard, such as the “Workstation Use” and “Person or Entity Authentication” standards, compliance with the standard itself is required.

A required implementation specification is similar to a standard, in that a covered entity must comply with it. For example, all covered entities including small providers must conduct a “Risk Analysis” in accordance with Section 164.308(a)(1) of the Security Rule.

For addressable implementation specifications, **covered entities must perform an assessment to determine whether the specification is a reasonable and appropriate safeguard in the covered entity’s environment.** After performing the assessment, a covered entity decides if it will implement the addressable implementation specification; implement an equivalent alternative measure that allows the entity to comply with the standard; or not implement the addressable specification or any alternative measures, if equivalent measures are not reasonable and appropriate within its environment. **Covered entities are required to document these assessments and all decisions.**

## Appendix E – Benchmarking

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july\_16\_2013  
cloud\_based\_office\_s

# Choosing a Cloud-Based Office System: Google vs. Microsoft

Tom Austin

@GARTNER\_INC

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# Gartner at a Glance





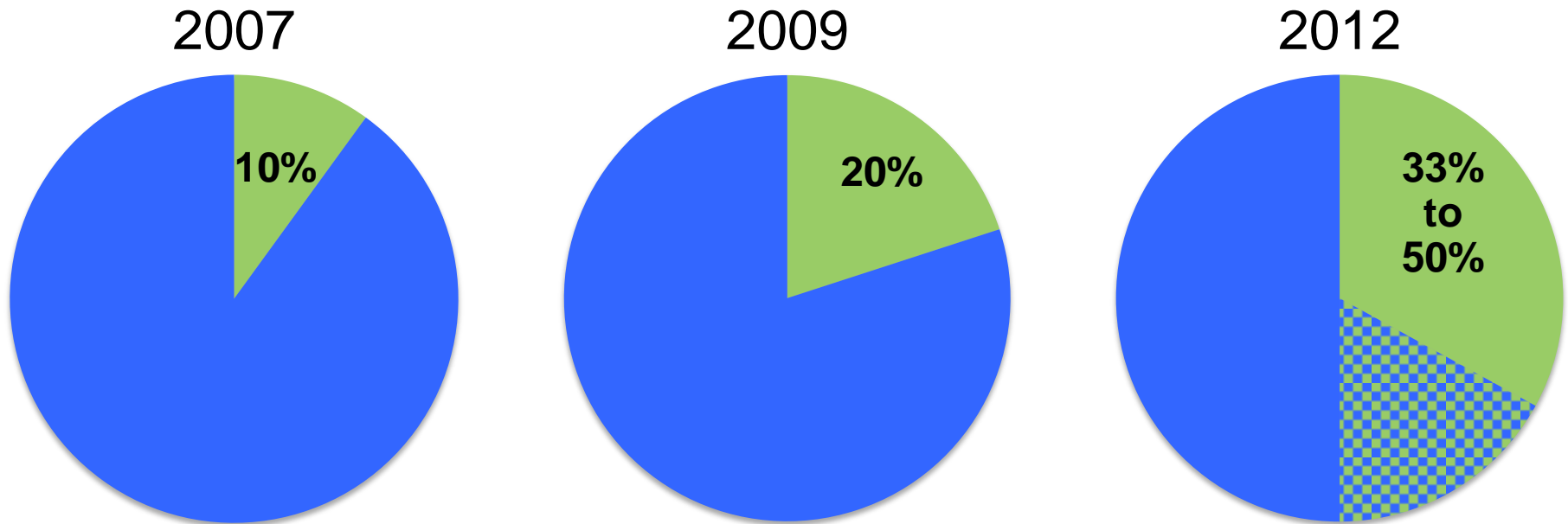
# Choosing a Cloud-Based Office System: Google vs. Microsoft

Tom Austin

# Internal Informal Estimates: Relative User Share Run Rate, Microsoft and Google Cloud-Office

## *A Tale of Shifting Expectations*

**LEGEND**  
Microsoft   
Google 



9:1

4:1

2:1 or 1:1

Microsoft run-rate advantage

# Key Issues

---

1. How is the cloud-office market evolving?
2. How is Google upsetting Microsoft's cloud-office ambitions?
3. What key indicators should organizations include in their due diligence comparisons of Google versus Microsoft for cloud-based office services?

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# Cloud-Office Systems



Traditional all-encompassing term that now includes:

- Personal productivity
- Communication
- Collaboration
- Social
- Coordination
- Still emerging (such as expertise location, SNA)

Office is a generic term. It does not refer to "Microsoft Office," which is a vendor-specific product name.

Definition source: "Google Upsetting Microsoft's Cloud-Office System Ambitions"  
G00233554

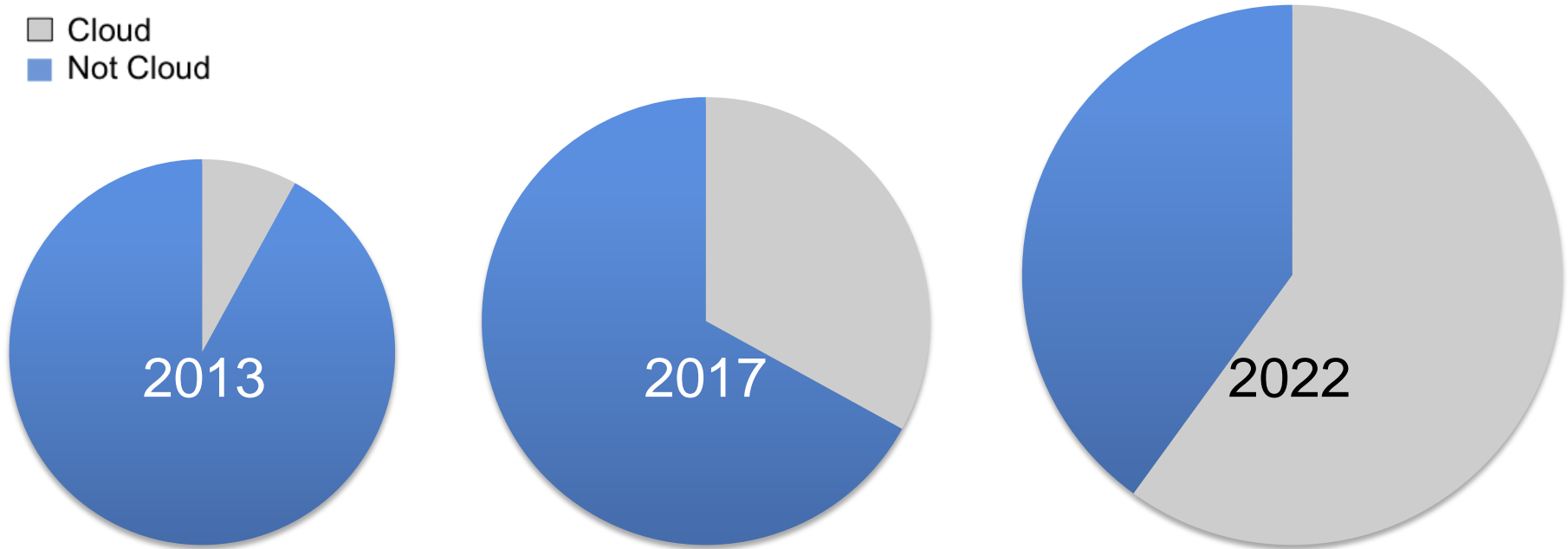


# Big Footnote: Forecast Qualifiers

- Minimal "office": email and text processor
- Enterprises of 50 or more people
- Excludes China and India
- The "cloud-based office system market" (a subset of the bigger market):
  - Includes only externally provisioned "commodity like" services
  - Excludes providers offering high-value services, à la the outsourcing model, via dedicated, custom hosting facilities

# "Office" Market Evolution

■ Cloud  
■ Not Cloud



## Business Users (in millions)

	2013	2017	2022	CAGR
Universe	630	826	1,158	6.3%
Cloud	50	273	695	28.5%
Not Cloud	580	553	463	-2.1%

Office is a generic term. It does not refer to "Microsoft Office," which is a vendor-specific product name.

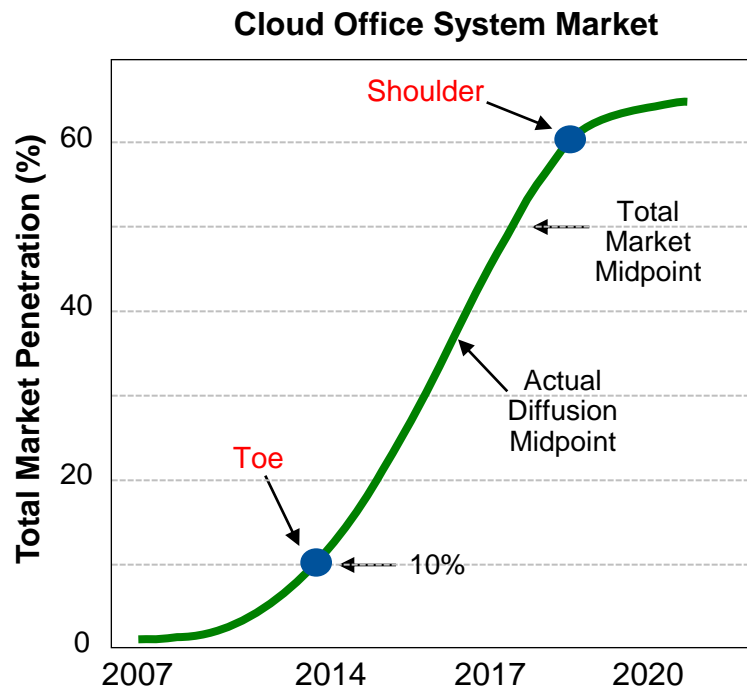
This slide is not a revenue forecast. It refers to numbers of users. We do not have an average revenue per user (ARPU) model for this market.

Fastest growth in universe outside U.S., Canada and Western Europe.

Graphic Source: "New Developments in the Cloud Office System Market" G00252289 (22 May 2013)

# Cloud-Office Penetration

## Penetration/Diffusion Model



## Adoption by Industry

- Earlier:
  - Higher Education
  - Manufacturing
  - Retail
  - Hospitality
- Mid range: Governments
- Later:
  - Financial Services
  - Healthcare Providers
  - Defense
  - Intelligence

## Adoption by Entity Size

- Smaller much more likely



# Cloud Office Choices

---

## Go

- Seeking change
  - Feature seekers
  - Exit the treadmill
  - Understand costs, profile
  - Major reinvestment under way

## Execution

- Hidden agreement, price and operating risks
- Contract terms
- Long term plans
- Second order effects

## Don't Go

- Other priorities
- Asset inertia
- Complexities
  - Cost hype, integration, control and customization

## Alternatives

- Do nothing for now
- Go cloud in steps
- Consider outsourcers
- Work on long-term horizon

# Supplier Choices

---

## Mainline Offerings

- Two Legitimate Choices
  - Microsoft
  - Google

## Application or Subsystem Suppliers

- Hundreds of alternative suppliers
  - Personal productivity (e.g., IBM Docs)
  - Communications (e.g., ShoreTel)
  - Collaboration (e.g., Huddle)
  - Social (e.g., Salesforce)
  - Coordination (e.g., BaseCamp)
  - Other emerging categories

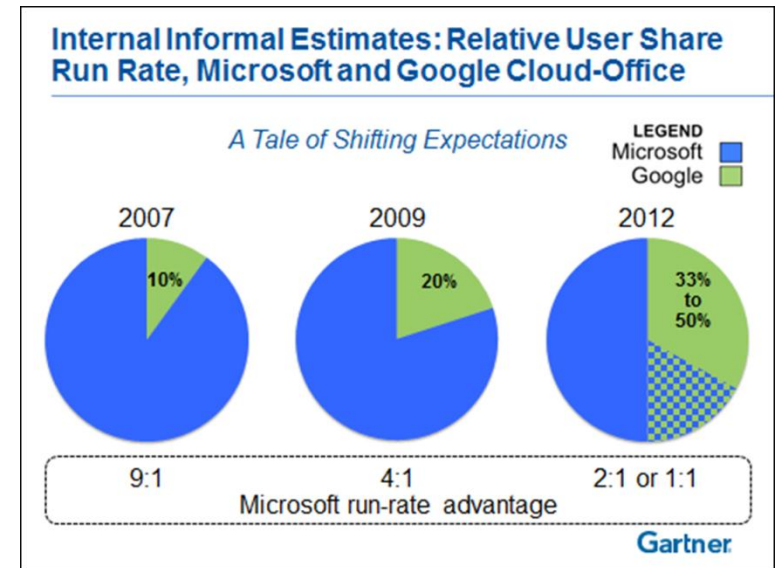
# Key Issues

---

1. How is the cloud-office market evolving?
2. How is Google upsetting Microsoft's cloud-office ambitions?
3. What key indicators should organizations include in their due diligence comparisons of Google versus Microsoft for cloud-based office services?

# Story Arc (2007-2012)

- Microsoft's "birthright":
  - Dominant share on-premises, deep and rich legacy
  - Aggressive posture, strong messages and rich services
- Google's apparent naiveté.
- Should it be all over?
- Google
  - Continues to exceed expectations.
  - Wins big and little.
  - Just good enough (or better) in numerous categories.
- Microsoft
  - Microsoft missteps?
  - Does Microsoft offer too much?



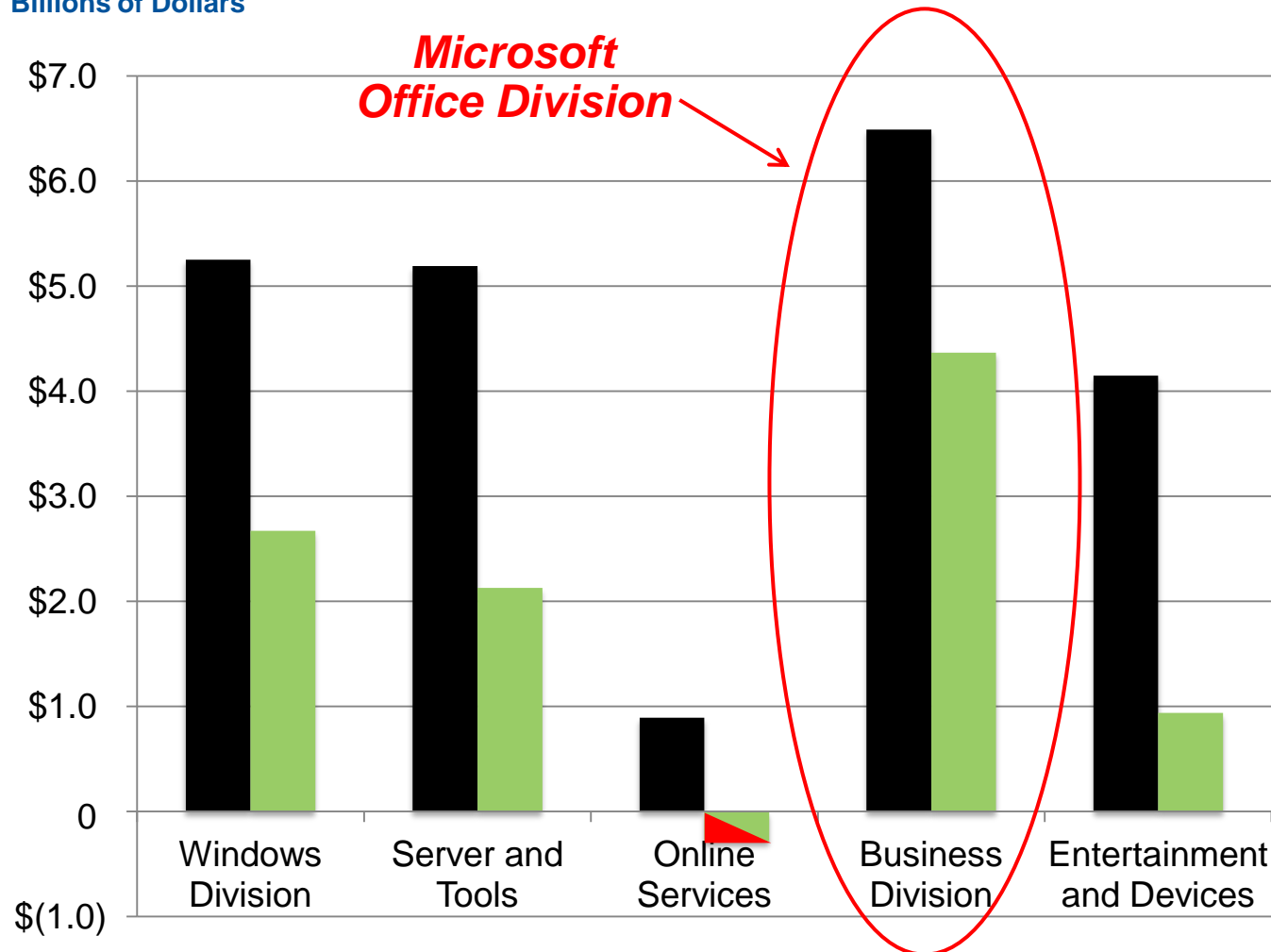
# Warning

Neither Google nor Microsoft explicitly report cloud-office revenue in their formal U.S. Securities and Exchange Commission (SEC) filings.

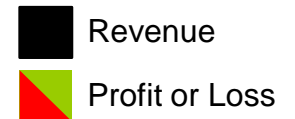
If and when they do report, their CEOs will be liable for civil and criminal prosecution for misstatements.

# Microsoft's Business

Billions of Dollars



Legend



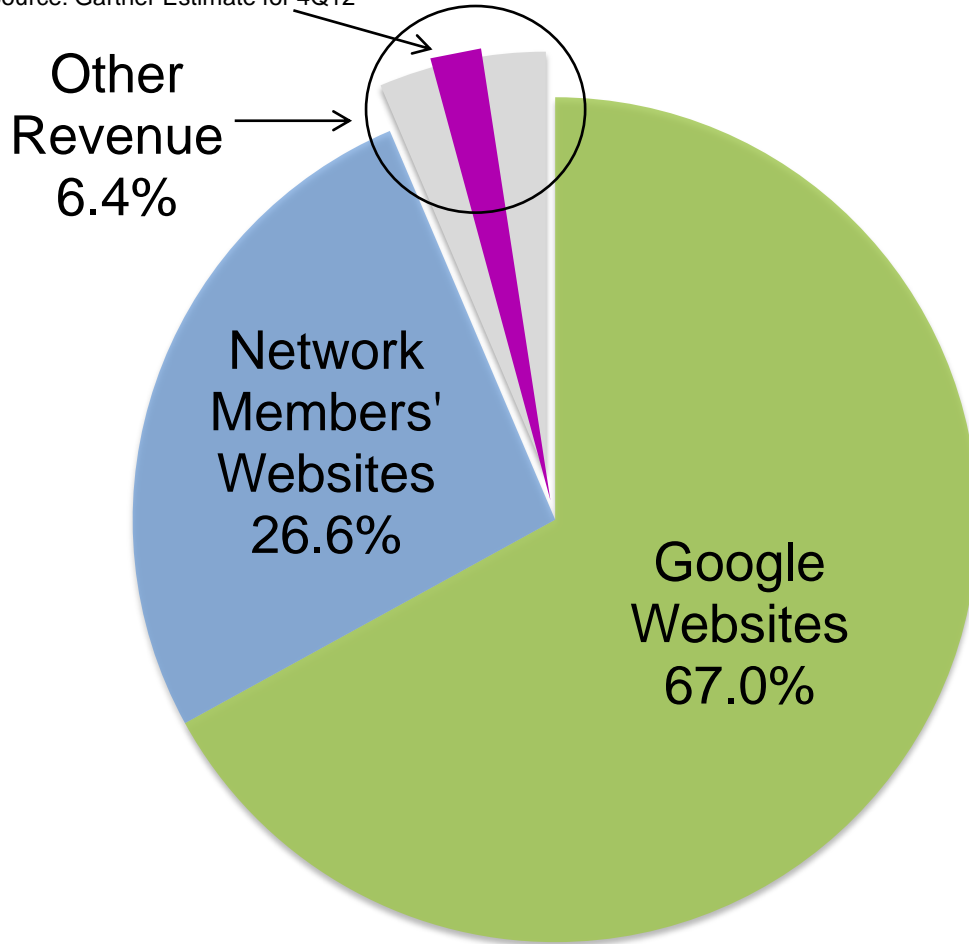
4Q12 Revenue	\$21.5 billion
Net Income (GAAP)	36.2%

Source: Microsoft's U.S. SEC 10-K report for quarter ending 31 December 2012  
(Excludes \$531 million in corporate overhead not charged to revenue above.)

# Google's Business

**Google Apps 1.4% (contained in Other)**

Source: Gartner Estimate for 4Q12



	With Motorola	Without
<b>4Q12 Revenue</b>	\$14.4 billion	\$12.9 billion
<b>Vs. 4Q11</b>	+\$3.8 billion	+\$2.3 billion
<b>Net Income (GAAP)</b>	22.4%	N/A

Sources:

- Google Apps estimate: Gartner
- All other numbers: U.S. SEC Form 10-K filing by Google for quarter ending 31 December 2012

Pie chart excludes Motorola to enable clearer year-over-year comparisons.

# Story Arc Contrast

Microsoft Strengths	Google Weaknesses
Dominates on-premises	Business rounding error (1.4% 4Q12) — speculative upside 5% in 2017
Office applications and customizations deeply integrated into the business	Does not match Microsoft Office functionality
Enterprise Credibility	Does not provide three-year road maps enterprises want for refresh planning
Market message: "Cloud on your terms" <ul style="list-style-type: none"><li>• Familiarity, minimum disruption, transparency, investment protection, enterprise control</li><li>• Time-to-market benefit</li><li>• On-premises and in cloud hybrids</li></ul>	Does not cater to enterprise IT like Microsoft does  (More recently, Google is adapting and Microsoft is changing too)
Meets most aspirations implicit in its market messages	<i>"Enterprises using Google have to take Google on Google's terms — then it's a win-win." — users</i>

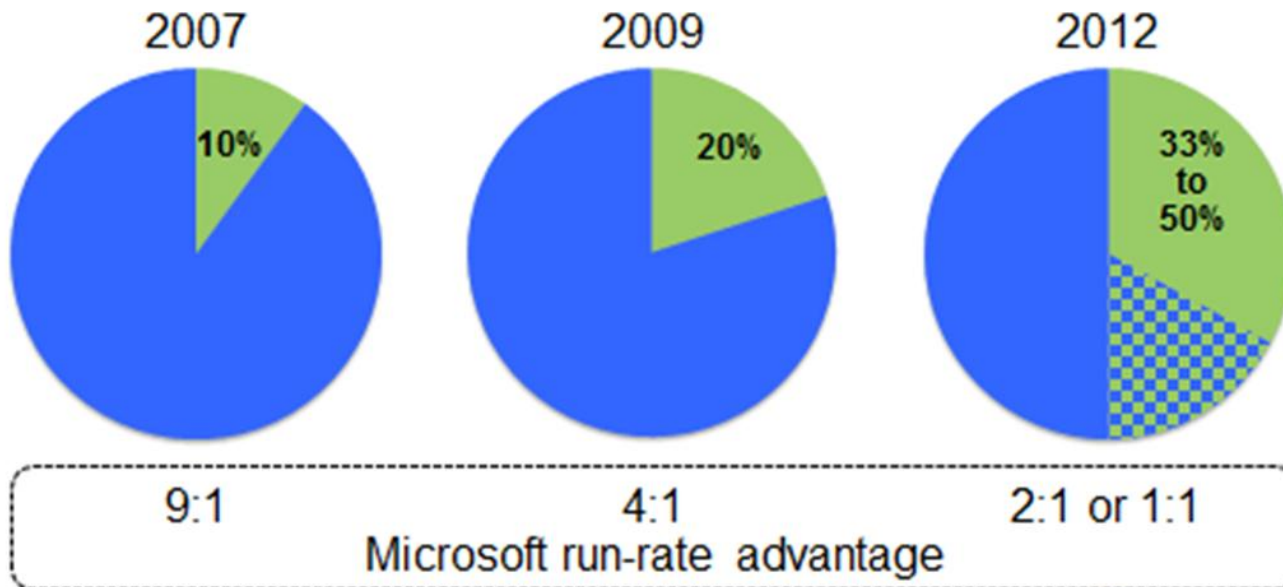


# What Happened? How Is Google Upsetting Microsoft's Cloud-Office Ambitions?

## Internal Informal Estimates: Relative User Share Run Rate, Microsoft and Google Cloud-Office

*A Tale of Shifting Expectations*

LEGEND  
Microsoft   
Google 

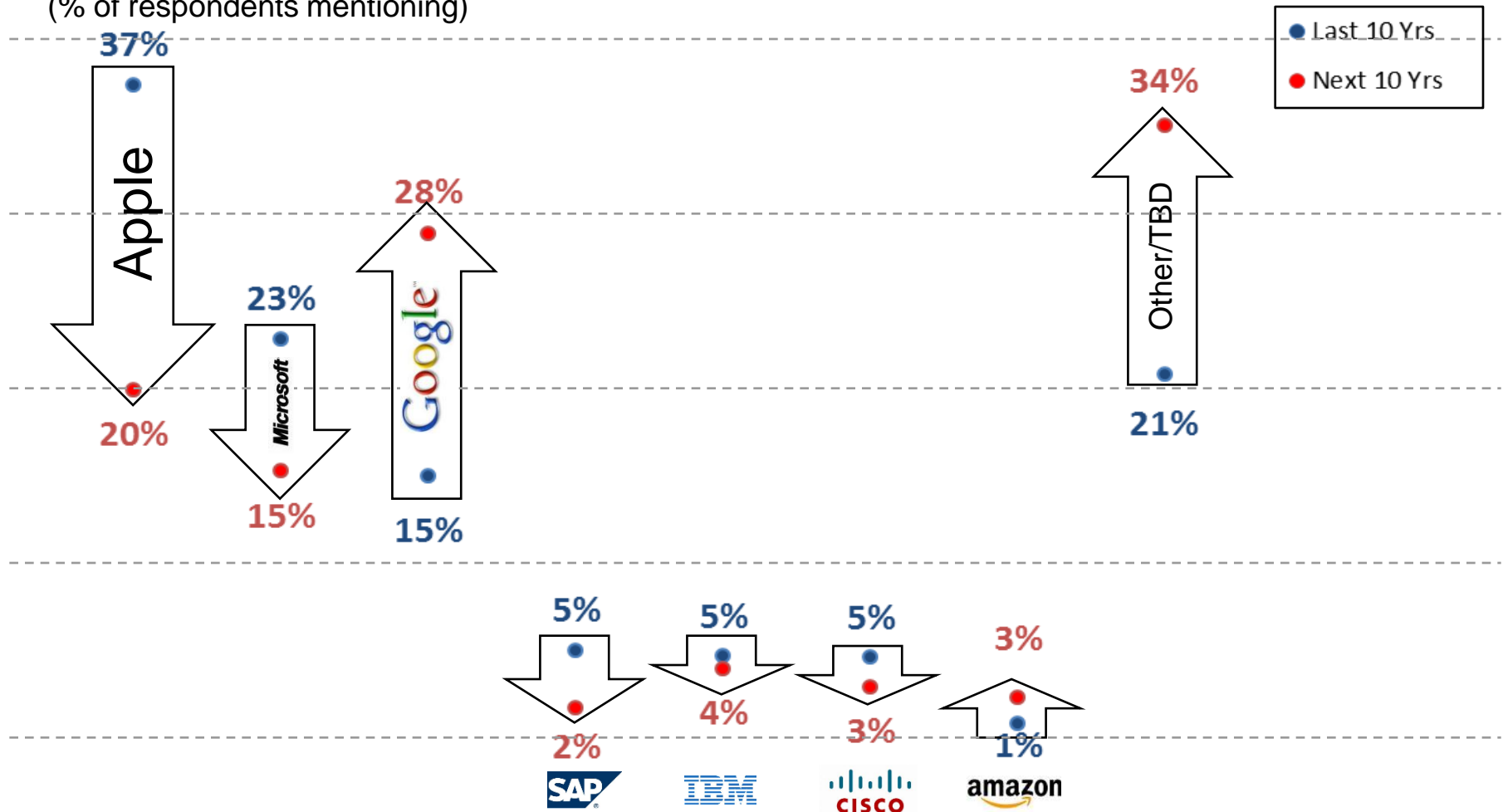


Gartner

# CIO Perspective: The Overall Landscape Will Change ...

*Which technology company has been most influential over the past 10 years? And the next 10 years?*

(% of respondents mentioning)

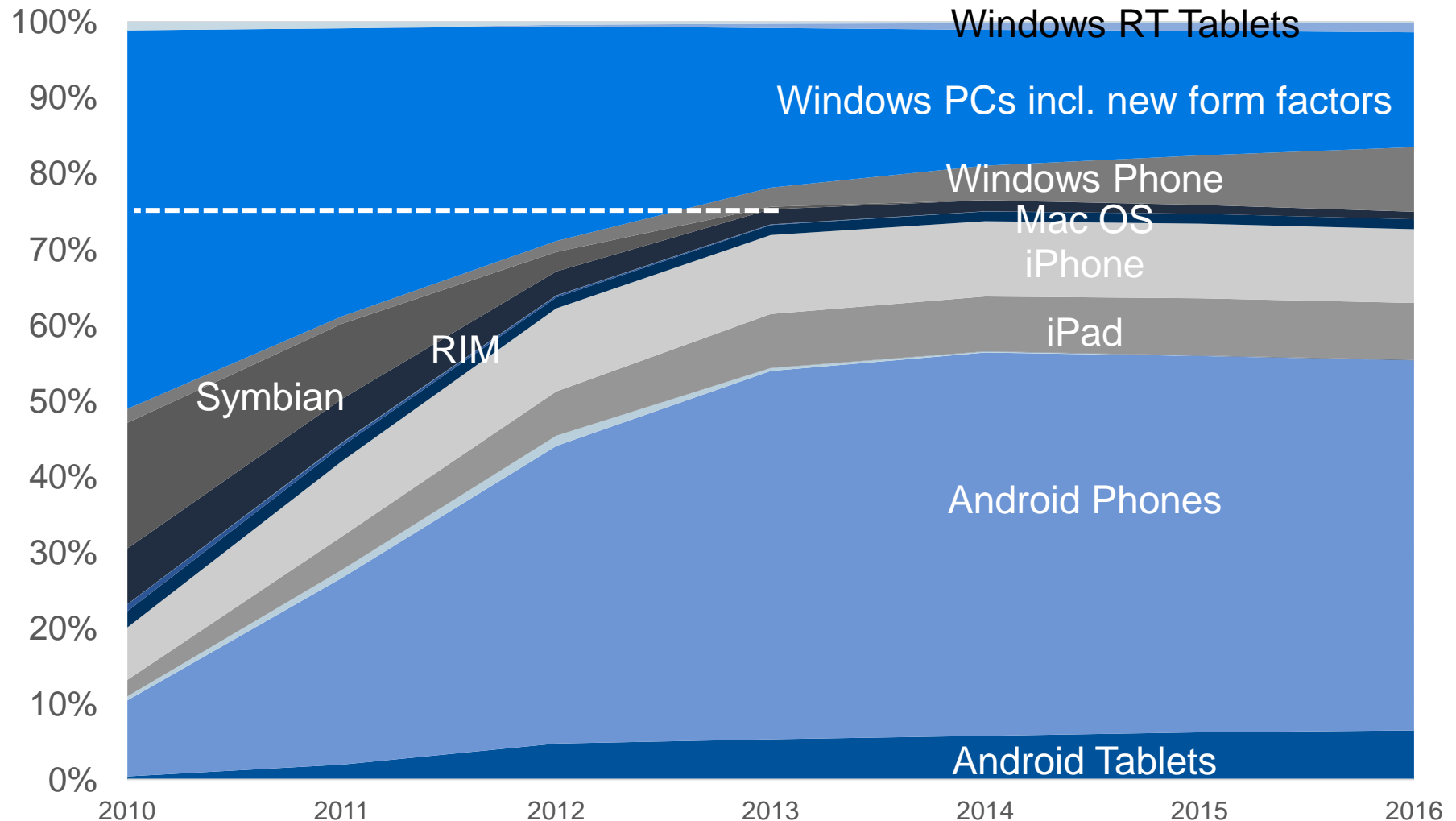


Source: "Hunting and Harvesting in a Digital World: The 2013 CIO Agenda" G00248536  
2,000+ responses, 36 industries and 41 countries; not specific to "cloud office"

# Current Contrast

Microsoft Weaknesses	Google Strengths
Office wed to Windows <ul style="list-style-type: none"><li>• Office Web Apps, iOS and Android not world-class</li><li>• (Full rich client suite is world-class)</li></ul>	Cloud focused from day 0 – legacy free <ul style="list-style-type: none"><li>• Common infrastructure for billions</li><li>• Agile, scalable, distributed, global and heterogeneous</li></ul>
Many parts never built for new metaphors and architectures. Less third-party support for "cloud-office"	Market has changed <ul style="list-style-type: none"><li>• Multilingual users, familiarity</li><li>• Consumerization</li><li>• Lower resistance to change</li></ul>
Personal roots	Intrinsically focused on teams
Through at least 2018, Google will innovate more rapidly than Microsoft (protect the installed base)	Web culture — iterate and test
Through 2020, Microsoft will push for faster ARPU growth	Not deeply dependent on Google Apps cash flow

# Personal Device Shipments by OS



# Current Contrast

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# Both are Winning a Significant Share

Microsoft	Google
Japan Airlines	ANA (All Nippon Airways)
Hilti	BBVA (Banco Bilbao Vizcaya Argentaria)
JetBlue Airways	Roche
Hallmark Cards	Ahold
State of Texas	U.S. National Oceanic and Atmospheric Administration
Patagonia	U.S. General Services Administration
Campbell Soup Company	Costco
<i>Big implementations have been outsourcing, not multitenant — but multitenant scalability is improving and large entities are signing up for it.</i>	U.S. Department of the Interior

*Beware of Trophy Wins!*

# What Changed?

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## Microsoft Office 365

- Calming marketing strategy inhibits adoption (but on-premises price hikes, other changes are encouraging migration)
- Business decisions are inhibiting the ecosystem:
  - Office 365 billing practices (fixed in July 2012).
  - Margin improvements announced in some areas.
  - Microsoft tablets and lack of OEM versions of Office 365 have consequences — see HP Chromebooks, Android tablets.
- Pricing and other business practices leave room for Google.

## Google Apps for Business

- Some enterprises see Docs as a partial Microsoft Office replacement (slow passive-aggressive attrition).
- Exploiting resentment of Microsoft pricing and business practices when found (and pursuing Lotus Notes and GroupWise bases).
- Very strong alignment with millennials' undergraduate experience (Google leads Microsoft among students).

# Two Evolving Competitors

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## Microsoft

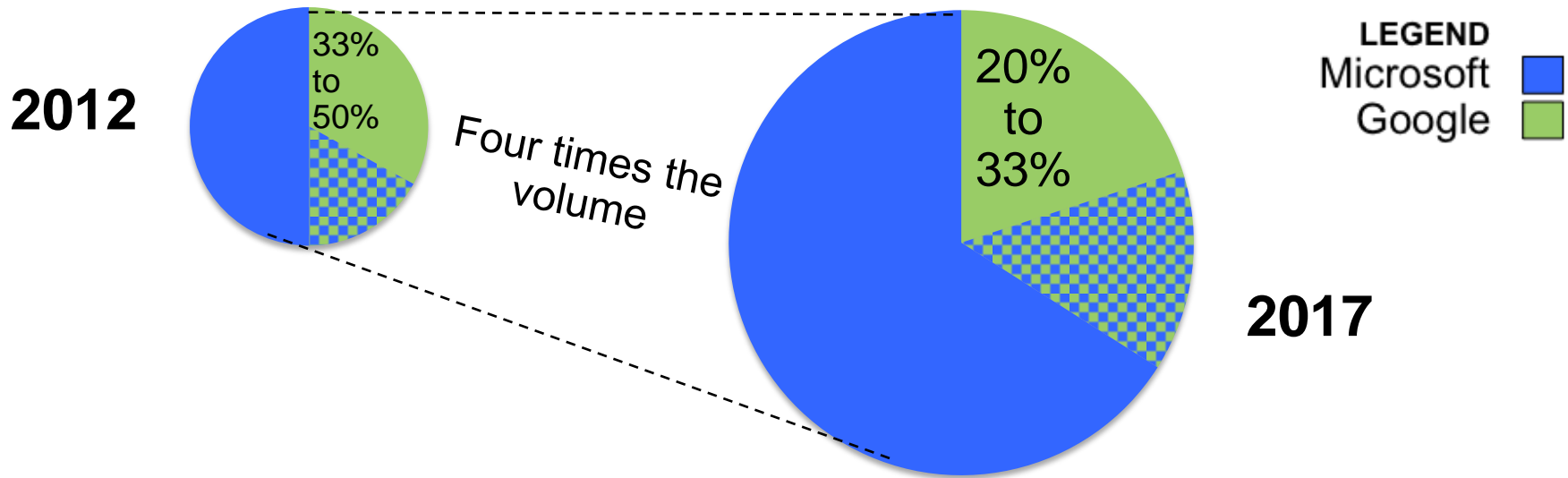
- More pressure on account managers to drive customers to Microsoft Office 365.
- Cut cloud prices for greater market access, forsaking short-term revenue for long-term cash flow. Raised on-premises prices...
- Still captive to its core enterprise revenue model.
- July 2013 “One Microsoft” reorganization to bring more focus on cloud-based services (and devices)
- Unknown: Will it meet its goal of sustained speeding-up pace of innovation to match Google's, and not rile up on-premises customers?

## Google

- Technology-driven industry change agent.
- Out-innovating Microsoft, but from a smaller technology base.
- Versus Microsoft Office 365, Google Apps:
  - Leverages a more flexible, scalable, distributed, global cloud technology platform.
  - Functionally leaner, but more heterogeneous, instant on.
  - Alternative view of collaboration.
- Being used as a tool for organizational change — new world, new assumptions.
- Becoming more enterprise-focused and marketing-savvy.



# Prediction for User Win Rates in 2017



## Key changes between 2012 and 2017 (assumptions):

- 2014 surge, and by 2017, mainstream mass migrations at or near peak.
- Disaffected target pool will not grow at market rate.
- Segment of non-Microsoft users continues to shrink.

## Selected forecast risk factors:

- iOS, Android and Windows device/OS mix, enterprise heterogeneity trends.
- Overall adoption rates could deviate from model.
- Legal system changes and the future of the Internet.
- Surprise entrances or exists from the segment.

# Key Issues

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1. How is the cloud-office market evolving?
2. How is Google upsetting Microsoft's cloud-office ambitions?
3. What key indicators should organizations include in their due diligence comparisons of Google versus Microsoft for cloud-based office services?

# Microsoft and Google – the One Slide Take

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## Microsoft Office 365

- Best Windows platform strategy
- Less disruptive to users and IT
- Investment protection
- Richer functionality in depth (e.g., productivity suite, portal and content management)

## Google Apps

- Best heterogeneous platform strategy
- More innovative, disruptive
- Cost control
- Better cloud-based infrastructure — built for robustness, reliability and performance

Consider using both to minimize lock-in, if you're big enough.

# Product Top View

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- Gmail and Exchange Online
  - Meet or exceed most enterprise requirements — details vary
- Office Web Apps – Google Docs – Rich Office
  - Financial wedge issue
  - Imperfect round-trip fidelity
  - Passive migrations
- Google Sites
  - Poorly understood, not well-used
  - Not comparable to SharePoint 2010-2013 on-premises.
  - Aligns better with SharePoint Online.
- Google+ and Hangouts position against Yammer, Skype, Lync and SharePoint.
- Google Drive add-in apps and Chrome Web Store apps — a fertile crop of new third-party collaborative tools.

# The Vendors' Ecosystems

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## Microsoft Office 365

- Ten times as many partners overall:
  - Preponderance not primarily focused on cloud-office
  - Cloud platform limits
- Decade-long decline in new third-party application launch rate
- Lags in Windows Phone and Microsoft Surface RT tablet apps

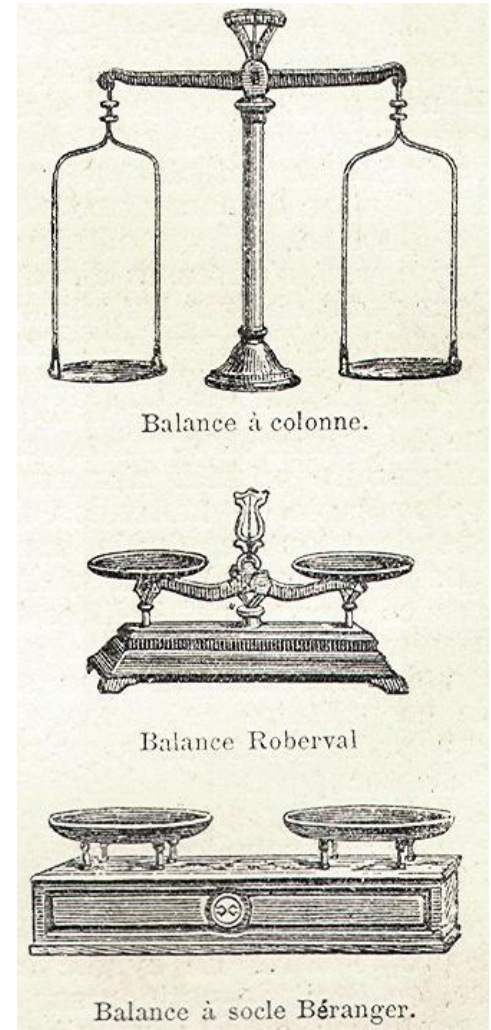
## Google Apps for Business

- Ramping up
- Google Apps-specific programs for onboarding, sales and support partners, as well as ISVs, SIs and consultants
- Key existing ISVs and other partners driving Google sales



# "Cosmo-Style Quiz"

- 12 questions to stimulate broad discussion
- Not a substitute for due diligence
- Observed tendencies and no right answers



# Skimming the Quiz

	Microsoft-Prone	Google-Prone
1	Microsoft fast followers will be Microsoft early adopters.	Mix of old and new lean toward Google.
2	Value seen in software assurance influences direction.	
3	Heavy SharePoint application investments (note limitations).	SharePoint as new network file store or no-SharePoint investments.
4	Microsoft-centric IT shop.	Heterogeneous technologies.
5	Fully featured and guided, structured collaboration.	Ad hoc, just good enough collaboration.
6	High preponderance of powerful power-users.	Easily segmented young and short-tenure staffs.
7	High proportion of users' jobs require rich and deep Microsoft Office tools.	Freeze Microsoft Office upgrades.
8	Large number of Microsoft Office extension & integration consumers.	Limited number.

# Skimming the Quiz (Continued)

	Microsoft-Prone	Google-Prone
9	Little experience with or interest in Web-based applications (survey).	Experience with and at least neutral attitude toward same (survey).
10	Small bias in larger organizations.	Small bias in smaller organizations.
11	Willing to wait.	Moving aggressively toward cloud.
12	Risk avoidance.	Driving change.
	The tale of two clients	
	"Doesn't cost more; minimizes risk."	"Save 50% to 80%; exploit innovation."

**Timing: For larger organizations with no major "now" driver, look to move in 2014 or later.**

**Big wins within the prospect's industry are driving re-examination of existing attitudes about cloud-office alternatives.**



# Actions

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- In the next two quarters, document your enterprise point of view on the value of cloud-office for your enterprise, describing when, where, why and with whom you will take specific actions. Refresh annually.
- Prioritize use cases, establish user pilots, collect detailed requirements and review conclusions with industry peers. Spark discussion with these materials — do not close it off.
- Large enterprises can afford the luxury of using both Google and Microsoft offerings where and as appropriate (the luxury of heterogeneity has costs that may be excessive for smaller entities).

# Recommended Gartner Research

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- ◆ **New Developments in the Cloud Office System Market**  
Tom Austin (G00252289)
- ◆ **Google Upsetting Microsoft's Cloud-Office System Ambitions**  
Tom Austin, Michael A. Silver, Hanns Koehler-Kruener (G00233554)
- ◆ **Google Apps Versus Office 365; A 'Cosmo-Style' Quiz**  
Tom Austin (G00235438)
- ◆ **How to Evaluate Microsoft Office 365 Versus Google Apps for Business**  
Matt Cain (G00239140)
- ◆ **Google Apps in the Enterprise, a Status Check**  
Matt Cain (G00239140)

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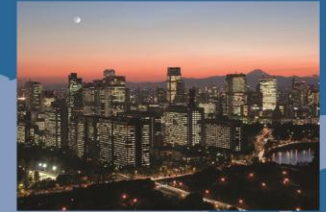
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**SPAIN**  
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**UNITED ARAB  
EMIRATES**  
MARCH 5 – 7, 2013



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OCTOBER 16 – 18

**INDIA**  
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