Google Workspace Program
Project 3: Service Scenarios and Recommendations

2023-04-01

Background

In April 2021, Google published their new Google Workspace for Education licensing model. The new model transitioned away from unlimited "no cost" storage to license-based storage costs.

In June 2021, Virginia Tech formed the Google Workspace Program (GWP) comprised of key stakeholders from around the university to evaluate the use of Google services at Virginia Tech and determine service changes needed to prepare the university for Google's new licensing model.

In November 2021, Virginia Tech, based on the GWP preliminary review, entered into a new agreement with Google using an Internet2 contract that included a delay of their storage enforcement deadline by two years to allow more time to evaluate and plan for the storage impacts to the university. The new Google storage enforcement deadline for Virginia Tech is July 2024. See Appendix A for more details.

Service Scenarios

GWP has outlined four possible service scenarios that would support employee and student preparations for Google's new license-based storage model and to ensure Virginia Tech continues to have robust collaborative Software-as-a-Service (SaaS) offerings available to meet administrative, research, and academic needs.

Scenario A: Google Workspace for Education Fundamentals

In this scenario, Virginia Tech would utilize Google services through a Google Workspace for Education Fundamentals license. This license level represents the "no additional cost" option that the university had previously used for Google.

Services provided

- Access to Google collaboration tools including Docs, Sheets, Slides, Forms, and Drive
- Access to Google communication tools including Google Meet (100 participants), Gmail, and Chat
- Data loss prevention for Gmail and Drive
- 100 TB pooled cloud storage + 5GB per monthly active user (if total users are above 20,000)

University impact

- Employees and Students would continue to be able to use Google services with 5 GB account storage limits
    - 3,564 employees (or 24%) would need to decrease their storage usage
    - 5,956 students (or 12%) would need to decrease their storage usage
- Google shared drives and Google Auxiliary Email (GAE) accounts would need to be transferred to Microsoft 365 (M365) or be removed
- The default email and SaaS solution for new employees and students would change from Gmail/Google to Exchange Online/Microsoft 365 (see Appendix B for a comparison of Google to M365)

Benefits

- The university would be able to offer Google services at no additional cost to users that maintain an active monthly presence
- The 5GB storage limit would be sufficient to support most employees (76%) and students (88%)

Drawbacks

- The Google Workspace for Education Fundamentals provides no ability to purchase additional storage for the tenant. Google has indicated if the tenant exceeds its storage allotment by 25% or by any amount for more than 14 days (about 2 weeks), whichever comes first, that they will apply service restrictions to the tenant until the overage is corrected. This would require the

university to take a very aggressive approach to remove inactive users from the tenant within 2 weeks of their status change.

- The data cleanup and migration required for users over the storage limit, GAE accounts, and shared drives is significant
- Most departments would need to rebuild their workflows in M365 representing a significant effort in both development and training
- Perpetuates the use of redundant software at Virginia Tech and prevents the university from moving towards a single collaboration platform
- Perpetuates email phishing and security vulnerabilities due to Virginia Tech email accounts existing in two different solutions. Additionally, the Google Workspace for Education Fundamentals provides no access to Google's security center and investigation tool so the university would have no ability to monitor and prevent threats or remediate phishing attacks within the environment

Scenario B: Google Workspace for Education Plus

In this scenario, Virginia Tech would continue Google services using Google Workspace for Education Plus. This license level is currently being used by the university through the 4-year Internet2 contract (see Appendix A).

Services provided

- Access to Google collaboration tools including Docs, Sheets, Slides, Forms, and Drive
- Access to Google communication tools including Google Meet (500 participants), Gmail, and Chat
- Google Meet engagement features include interactive Q&A, polls, and breakout rooms
- Data loss prevention for Gmail and Drive
- Security center to proactively prevent, detect, and remediate threats
- Advanced device and app management to perform audits and enforce security and app access rules
- Gmail log exports to provide insights and analysis in BigQuery
- Personalized cloud search for your domain
- 100 TB pooled cloud storage + 5GB per monthly active user (if total users are above 20,000) + 20 GB per student license
- A free faculty license (with an additional 20 GB) per 4 student licenses purchased

Requirements

- Google uses IPEDS data on student enrollment numbers to determine the minimum licensing level for the university.

University impact (based on Appendix A Internet2 contract)

- Employees and Students would continue using Google services as they do today
    - Employees would have a 45 GB base storage limit. 1,516 employees (or 10%) would need to decrease their storage usage
    - Students would have a 5 GB fixed storage limit. 5,956 students (or 12%) would need to decrease their storage usage
    - These storage limits are based on the storage the university receives when purchasing Google Workspace for Education Plus through the Internet 2 contract at the minimum student IPEDS requirement level. These limits also allow the university to maintain a storage buffer to handle temporary storage overages.
- Departments would have the option to fund additional storage for their employees
- Departments would have the option to fund Google shared drives and Google Auxiliary Email (GAE) accounts, remove them, or transfer them to M365
- The default email and SaaS solution for new employees and new students would change from Gmail/Google to Exchange Online/M365 (see Appendix B for a comparison of Google to M365)

Benefits

- The university would be able to offer Google services to employees and students by centrally funding a base level of service
- Departments would be able to purchase additional Google storage to meet their operational needs or transition to Microsoft 365.
- The 45 GB storage limit would be sufficient to support most employees (89%)
- The 5 GB student limit would be sufficient to support most students (88%)
- The tenant would be able to maintain a storage buffer to prevent any tenant-wide service disruptions from being over allocated
- Departments would be able to maintain their workflows within Google or choose to move them to M365 based on their own needs

Drawbacks

- The university would see an increase in operational costs due to the licensing requirements for Google Workspace for Education Plus
- There would be new requirements for departmental IT and financial personnel to manage requests for additional storage
- The university would see an increase in administrative costs for the solution. New licensing and quota management workflows would need to be created and maintained to support the ability of departments to purchase additional storage for specific employees and shared resources.
- Perpetuates the use of redundant software at Virginia Tech and prevents the university from moving towards a single collaboration platform
- Perpetuates email phishing and security vulnerabilities due Virginia Tech email accounts existing in two different solutions

Scenario C: Transition to Microsoft 365

In this scenario, Virginia Tech would move away from Google services and consolidate around a single collaborative platform, Microsoft 365. All university employees and students would continue to have access to the services list below.

Services provided

- M365 collaboration tools including Word, Excel, PowerPoint, Forms and SharePoint Online
- M365 communication tools including Microsoft Teams (1,000 meeting participants and live events up to 20,000 listen-only attendees) and Exchange Online
- Data loss prevention (DLP) for email, storage, and endpoints
- Endpoint protection and response (EDR) and device management for university owned devices
- Data visualization and reporting using Power BI
- 28,000 TB pooled cloud tenant-wide storage for collaborative resources including SharePoint Online sites and Microsoft Teams
- 100 TB Exchange Online mailboxes + 100 TB archive mailboxes
- 5 TB personal OneDrive

Requirements

- Licenses must be purchased for all "education qualified" employees, i.e., users requiring access to Microsoft Office apps, at the university to receive coverage for students at no additional cost

Status of Microsoft at Virginia Tech

- Virginia Tech has renewed a 3-year agreement with Microsoft to provide A5 licenses to "education qualified" faculty and staff at the university
- The university can provide students with M365 A5 student-use benefit access at no additional cost through Microsoft's student-use benefits program
- The university has also invested in Microsoft's Enterprise Unified Support program which allows departments to receive support directly from Microsoft regarding incidents, security events, or service issues. This program is renewed annually.

University impact

- Employees would need to phase out the use of Google services by November 2025. Employee Google account storage quotas would be reduced to 45 GB storage limits starting July 2024
- Existing students would have the option to continue in Google until their graduation or until November 2025, whichever occurs first.   Student account storage quotas would change to 5 GB storage limits starting July 2024
- Google shared drives and Google Auxiliary Email (GAE) accounts would need to be transferred to M365 or be removed
- The default email and SaaS solution for new employees and new students would change from Gmail/Google to Exchange Online/M365 (see Appendix B for a comparison of Google to M365)

Benefits

- Eliminates redundant software at the university and aligns the Virginia Tech around a single collaboration platform. See VT IT Assessment Future State recommendations 2.1 - "Optimize funding model to centrally fund commodity IT services and simplify cost-recovery" and 4.3 - "Rationalize application portfolio across VT".
- Lowers licensing and administration cost overhead by eliminating one of the two SaaS platforms
- Improves security measures against email phishing attacks by eliminating the vendor-to-vendor trusted relationships required to support a single email domain, "vt.edu", across two different environments

Drawbacks

- The data cleanup will be significant requiring most Google users and departmental shared resources to either transfer to M365, archive, or delete their storage. Microsoft provides resources at no charge to the university to assist with data migration efforts.
- All Google department workflows would need to be rebuilt in M365 representing a significant effort in both development and training
- Training efforts to support a different collaborative platform will be significant for university employees who are used to leveraging Google resources for their work. This includes teaching and learning faculty, administrative staff, and IT personnel. Microsoft provides resources at no charge to the university to assist with training efforts.

Scenario D: Hybrid - Transition to M365 for Email/Calendaring and Offer only Google Drive Services

In this scenario, Virginia Tech would move away from Gmail and Calendar and consolidate around a single platform, Microsoft 365 Exchange Online. Other core M365 and Google services would remain available. All university employees and students would continue to have access to the services list below.

Services provided

- Google
  - Access to Google collaboration tools including Docs, Sheets, Slides, Forms, and Drive
  - Access to Google Meet (100 participants) and Chat
  - Google Drive with storage quota limits
- M365
  - M365 collaboration tools including Word, Excel, PowerPoint, Forms and SharePoint Online
  - M365 communication tools including Microsoft Teams (1,000 meeting participants and live events up to 20,000 listen-only attendees) and Exchange Online
  - Data loss prevention (DLP) for email, storage, and endpoints

- Endpoint protection and response (EDR) and device management for university owned devices
- Data visualization and reporting using Power BI
- 28,000 TB pooled cloud tenant-wide storage for collaborative resources including SharePoint Online sites and Microsoft Teams
- 100 TB Exchange Online mailboxes + 100 TB archive mailboxes
- 5 TB personal OneDrive

Requirements

- Google
  - Google uses IPEDS data on student enrollment numbers to determine the minimum licensing level for the university.
- M365
  - Licenses must be purchased for all "education qualified" employees, i.e., users requiring access to Microsoft Office apps, at the university to receive coverage for students at no additional cost.

University impact

- Google services (based on Appendix A Internet2 contract)
  - Employees and Students would continue using Google services as they do today
    - Employees would have a 5 GB base storage limit. 3,564 employees (or 24%) would need to decrease their storage usage
    - Students would have a 5 GB fixed storage limit. 5,956 students (or 12%) would need to decrease their storage usage
    - Departments would receive an additional 40 GB of storage per employee in their department that they can allocate towards employee or shared drive storage quotas.
    - These storage limits are based on the storage the university receives when purchasing Google Workspace for Education Plus through the Internet 2 contract at the minimum student IPEDS requirement level. These limits also allow the university to maintain a storage buffer to handle temporary storage overages.
  - Departments would have the option to fund additional storage for their employees
  - Departments would have the option to fund Google shared drives, remove them, or transfer them to M365
  - The default email and SaaS solution for new employees and new students would change from Gmail/Google to Exchange Online/M365 (see Appendix B for a comparison of Google to M365)

- Microsoft services
  - Google Auxiliary Email (GAE) accounts would need to be transferred to Microsoft 365 or be removed

- The default email and SaaS solution for new employees and students would change from Gmail/Google to Exchange Online/M365 (see Appendix B for a comparison)

Benefits

- The university would be able to offer Google storage and collaboration services to employees and students by centrally funding a base level of service
- Departments would be able to purchase additional Google storage to meet their operational needs or transition to Microsoft 365.
- The 5 GB storage limit would be sufficient to support most employees (76%)
- The 5 GB student limit would be sufficient to support most students (88%)
- The tenant would be able to maintain a storage buffer to prevent any tenant-wide service disruptions from being over allocated
- Many departments would be able to maintain their workflows within Google or choose to move them to M365 based on their own needs
- Improves security measures against email phishing attacks by reducing the vendor-to-vendor trusted relationships required to support a single email domain, "vt.edu", across two different environments

Drawbacks

- The university would see an increase in operational costs due to the licensing requirements for Google Workspace for Education Plus.
- There would be new requirements for departmental IT and financial personnel to manage requests for additional storage.
- The university would see an increase in administrative costs for the solution. New licensing and quota management workflows would need to be created and maintained to support the ability of departments to purchase additional storage for specific employees and shared resources.
- Perpetuates the use of redundant software at Virginia Tech and prevents the university from moving fully to a single collaboration platform
- The data cleanup will be significant requiring many Google users and departmental shared resources to either transfer to M365, archive, or delete their storage
- Some Google department workflows would need to be rebuilt in Microsoft 365 representing a significant effort in both development and training

Alumni Service

Virginia Tech currently provides university alumni with an "email for life" benefit. To continue this practice, the following service changes will be implemented.

Alumni participating in the "email for life" benefit will be provisioned a new Microsoft 365 50 GB exchange online mailbox at pid@alumni.vt.edu. This service will be limited to email only and created in a separate M365 alumni tenant to keep personal accounts separate from other university accounts.

Existing alumni with Google accounts that choose to remain in the program will transition to the new model during the project. Alumni will be asked to complete the following activities.

- Inform their contacts of their new email address, "pid@alumni.vt.edu" or a different personal address if they decide to not to participate in the alumni email program
- Download, transfer or remove their Google Drive and Google Photos files
- Remove or transfer any third party IAM connections with their VT Google account to another solution
- Transfer apps or media purchased through Google Play to another Google account

Graduating students will be given the option to participate in the alumni email program. They will have 60 days (about 2 months) to address any storage in their Google drive before these services are removed and any remaining data is deleted. The student @vt.edu accounts will route to their new VT M365 alumni accounts for one year.

If alumni return to the university either as employees or students, they will receive the standard pid@vt.edu accounts which will be separate from their pid@alumni.vt.edu accounts.

Retiree Service

Retirees will be able to continue to receive Virginia Tech managed email accounts as part of their retirement benefit. Retirees will receive Microsoft 365 A1 services using their existing pid@vt.edu accounts. However, all VT Google services will be disabled.

Current retirees that want to remain in the program will transition during the project to the new model. Retirees will be asked to complete the following activities.

- Download, transfer or remove their Google Drive and Google Photos storage
- Remove or transfer any third party IAM connections with their VT Google account to another solution
- Transfer apps or media purchased through Google Play to another Google account

New retirees will be given the option to participate in the retiree email program. They will have 60 days to address any storage in their Google drive before these services are removed and any remaining data is deleted.

If retirees return to the university either as employees or students, they will receive additional employee or student services as appropriate.

Appendix A: Internet2 Contract Details

Vendor: Burwood Group, Inc.

License Level: Google Workspace for Education Plus

Student License Count: 36,383 (minimum student IPEDS requirement)

Faculty License Count: 9,095 (one faculty license is provided per 4 student licenses purchased)

Tenant Storage: 1,009.58 TB based on licensing

Appendix B: Google and Microsoft 365 Comparison

Feature	Google Workspace	Microsoft 365
Tenant Pooled Storage	Internet2 contract funded at minimum student IPEDS provides 1,909 TB	Virginia Tech's current tenant has ~28 PB (~28,000 TB) available
User Email	Gmail (size is based on portion of tenant pooled storage assigned)	Exchange Online 100 GB + 100 GB archive mailbox + additional archives are assigned as needed
User Calendaring	Google Calendar	Exchange Online
User File Storage	Google Drive (size is based on portion of tenant pooled storage assigned)	OneDrive 5 TB (5,000 GB)
Collaborative File Storage	Google Shared Drive (in Scenario B, departments would be able to purchase storage)	SharePoint Online or Microsoft Teams Storage starts at 1 TB (1,000 GB) and can be expanded on request
Productivity Apps	Google Docs, Sheets, and Slides	Microsoft Office Word, Excel, PowerPoint
Collaboration Apps	Google Chat, Groups, Hangouts, Jam Board, and Meet	Microsoft Teams, SharePoint Online, and Whiteboard
Data Collection / Reporting Apps	Google Forms and Sheets	Microsoft Excel, Forms, Lists, SharePoint Online, and PowerBI
Project Management / Task Apps	Google Keep and Tasks	Microsoft List, Planner, Project, SharePoint Online, and To Do
Process Automation Apps	Google Apps Script	Microsoft Power Apps and Power Automate
External (non-VT) File Sharing	Drive, Folder, and File level supported	Drive, Folder, and File level supported
Compliance	FedRAMP Moderate, PII, FERPA, HIPAA/EPHI	FedRAMP Moderate, PII, FERPA, HIPAA/EPHI

Note: Both Google and Microsoft support collaboration with users who do not belong to their respective ecosystems. See KB0012997 in the Virginia Tech knowledge base for details.