

VT Google Services Usage Report

GOOGLE WORKSPACE PROGRAM
PROJECT 1 WORKING GROUP
2021-07-30

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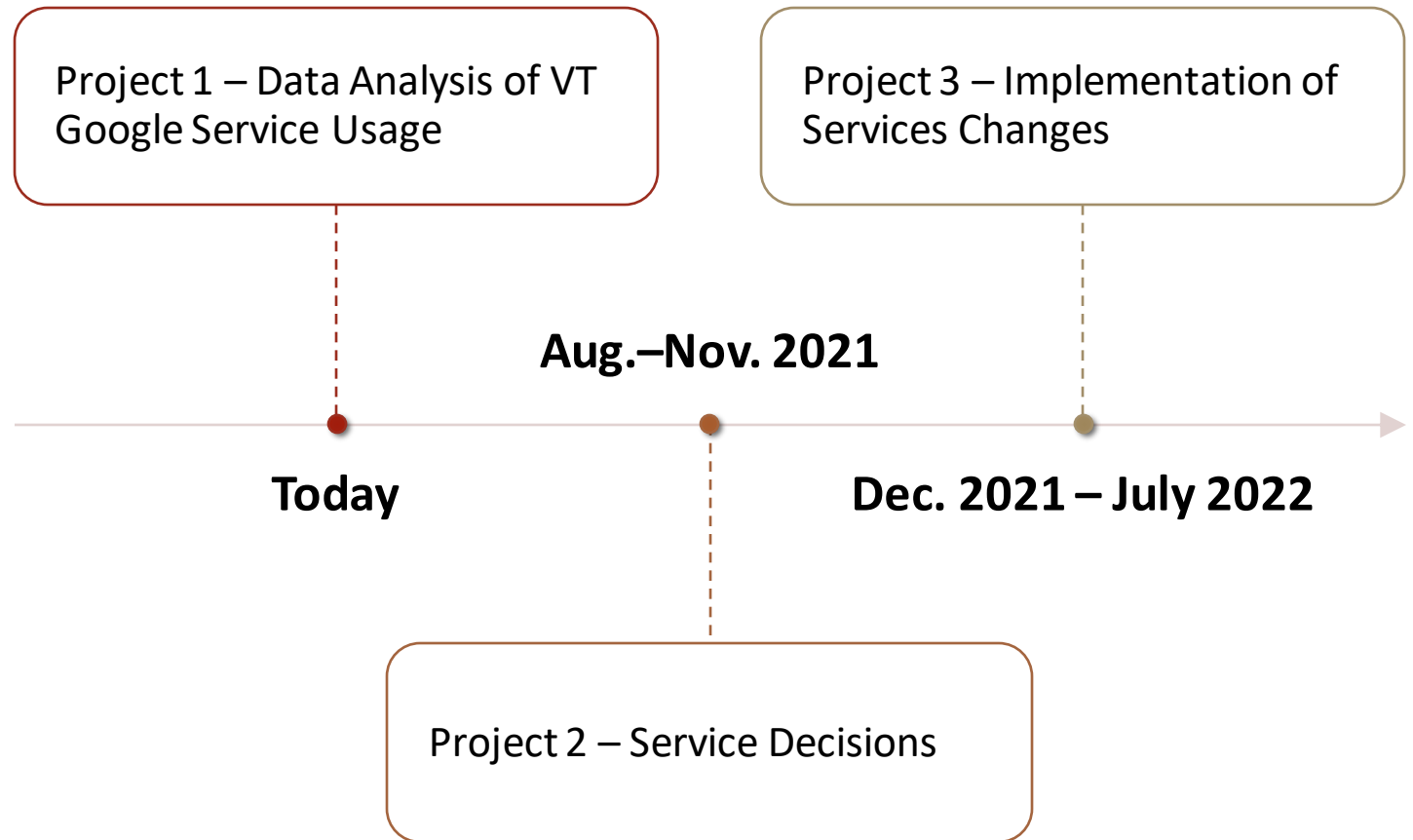
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Google Workspace Program Overview



Project 1 Objectives

1. How are Google accounts provisioned and deprovisioned today? (*slides 6 – 8*)
2. How is Google service eligibility being determined today? (*slides 6 – 7, 12*)
3. How are constituent groups (undergrads, graduates, faculty/staff, alumni, retirees, etc.) being defined and how should they be defined? (*slide 12*)
4. How are Google services being utilized and by whom? (*slides 10 – 42*)
5. How is Google storage being distributed and utilized? (*slides 10 – 42*)
6. What well-defined constituent role(s) should no longer have Google service? How and when do we deprovision these accounts? (*slides 36 – 40*)

VT Google Account Provisioning – User Accounts

VT Google User Accounts and services are provisioned when users have one or more of the following affiliations.

VT-ACTIVE-MEMBER

- VTC-STUDENT-ENROLLED
- VTC-EMPLOYEE
- VT-STUDENT-ENROLLED
- VT-EMPLOYEE
 - VT-EMPLOYEE-NON-STATE
 - VT-EMPLOYEE-PREHIRE
 - VT-EMPLOYEE-STATE
 - VT-EMPLOYEE-WAGE
 - VT-FACULTY
 - VT-STAFF

VT-EMPLOYEE-RETIREE

VT-ALUM

VT-STUDENT-NEW-ADMIT

VT-STUDENT-FUTURE

VT-STUDENT-RECENT

VT-STUDENT-WAGE

VT-AFFILIATE-TEMPORARY

VT-AFFILIATE-LCI

VT-ROBOT

Affiliation definitions: KB0011168

VT Google Account Provisioning – GAEs

Active VT Faculty and Staff may also request the creation of a **Google Auxiliary Email (GAE)** account for the following business use cases

- Organization / Group Email
- Organization / Group Calendar
- Department Service Account

Note: Since March 2021, GAE account requests require Dean, Director, or Department Head approval.

VT Google Account Deprovisioning

VT Google Accounts are removed under the following circumstances

- Administrative Action
- Users are marked as deceased in Banner
- Sponsored PID expiration
- VT-EMPLOYEE-FORMER with no other eligible affiliations
 - After 18 months and only if the PIDs for the users are not locked
 - This deprovisioning process also handles former employees with VT-ALUM-CONSTITUENT and VT-ALUM-FRIEND affiliations.

VT Google Account Deprovisioning

Deprovisioning workflows **DO NOT** address the following use cases

- VT-STUDENT – students that attended but never graduated and students that applied but did not attend
- VT-AFFILIATE – users that lost all other affiliations with the university
- VT-AFFILIATE-LCI-FORMER – former students at the VT Language Culture Institute
- VT-EMPLOYEE-FORMER with locked PIDs (typically due to password expirations)
- VT-ALUM-PARENT – individual designated by the VT Alumni/Development Office as a parent of a student or alumnus
- VT-ALUM CONSTITUENT (if not a former employee) – individual designated by the VT Alumni/Development Office as an alumni constituent
- VT-ALUM-FRIEND (if not a former employee) – individual designated by the VT Alumni/Development Office as an alumni friend
- VT-EMPLOYEE-NON-STATE - an individual who is employed by Virginia Tech but is not paid by Virginia Tech.

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VT Google Usage Overview

VT Google Usage Overview

VT Google Services are provided to all employees, students, alumni, and retirees. Use cases include academic, file backups, personal, professional, and research.

Today, we have

- 202,803 user accounts
- 991 GAE accounts
- 5.2 PB of storage usage from the following sources
 - Gmail .5 PB
 - Drive 4.5 PB
 - Photos .2 PB
- 54,647 distinct shared drives using a total of ~.5 PB of VT's total pooled storage allotment
 - Important: The total shared drive storage is derived from VT's tenant-wide storage usage reported by Google on 7/16/2021. Since Google's API does not provide a way to pull shared drive storage details directly, the working group has not been able to confirm the storage usage.

VT Google Constituent Groups

Constituent groups for employees, students, alumni, and retirees align well with the standard affiliations approach. Two additional groups were created to identify other eligible or ineligible users receiving service today.

EMPLOYEE = VT-EMPLOYEE or
VTC-EMPLOYEE

STUDENT =
VTC-STUDENT-ENROLLED or
VT-STUDENT-ENROLLED or
VT-STUDENT-NEW-ADMIT or
VT-STUDENT-FUTURE or
VT-STUDENT-RECENT or
VT-STUDENT-WAGE

ALUMNI = VT-ALUM

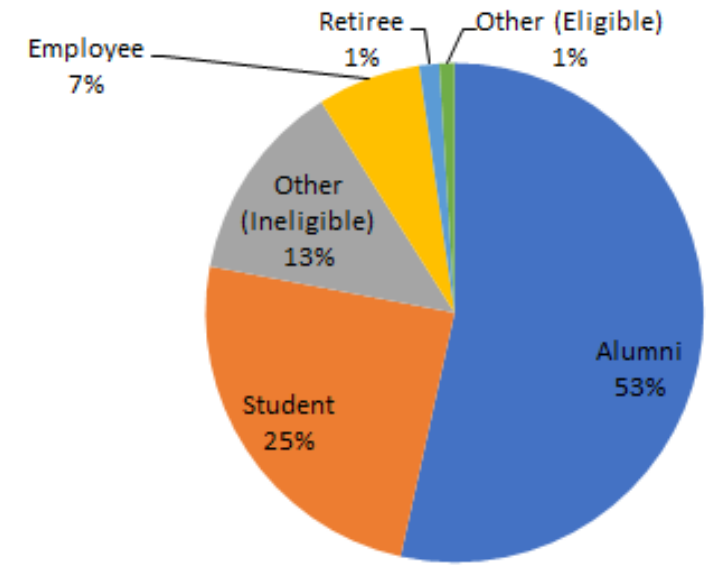
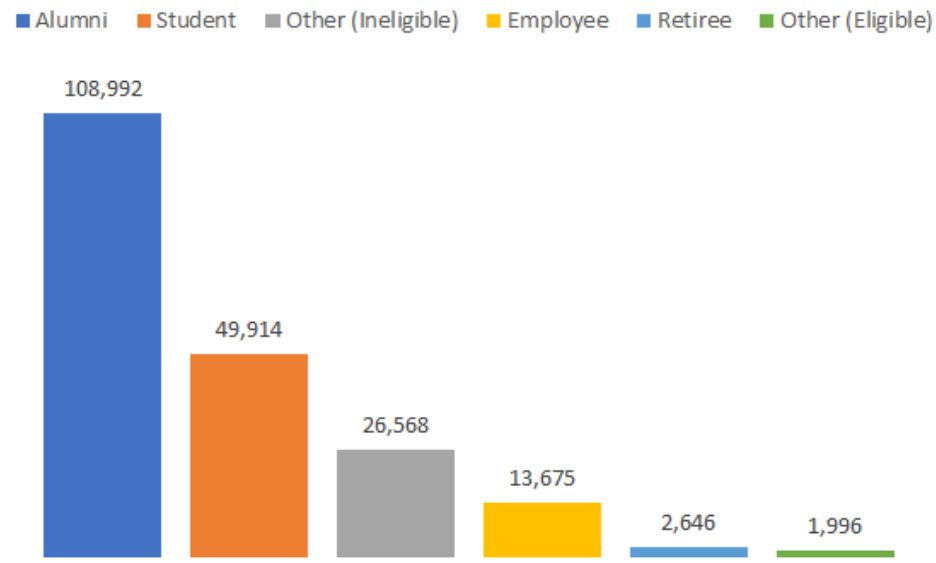
RETIREE = VT-EMPLOYEE-RETIREE or
VT-EMPLOYEE-EMERITUS

OTHER - ELIGIBLE =
VT-AFFILIATE-TEMPORARY or
VT-AFFILIATE-LCI or
VT-ROBOT

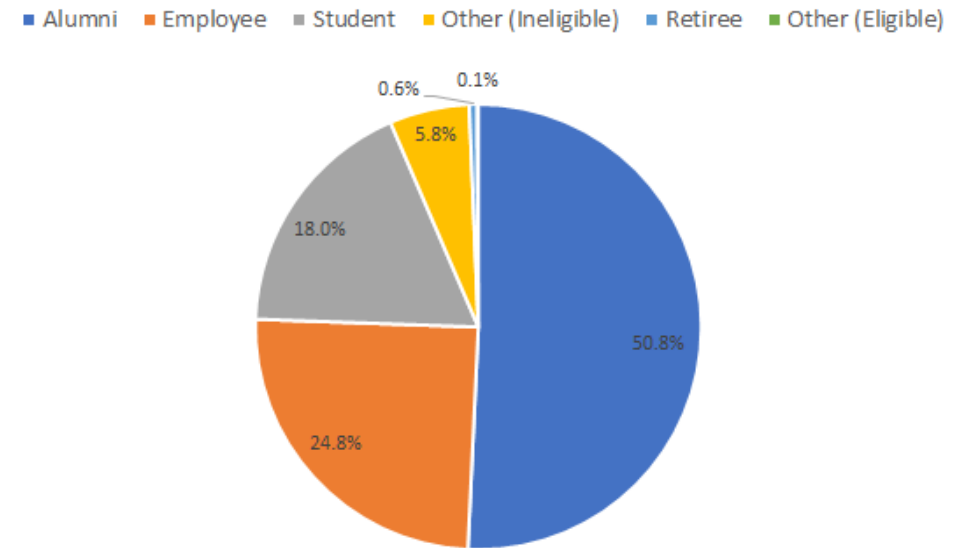
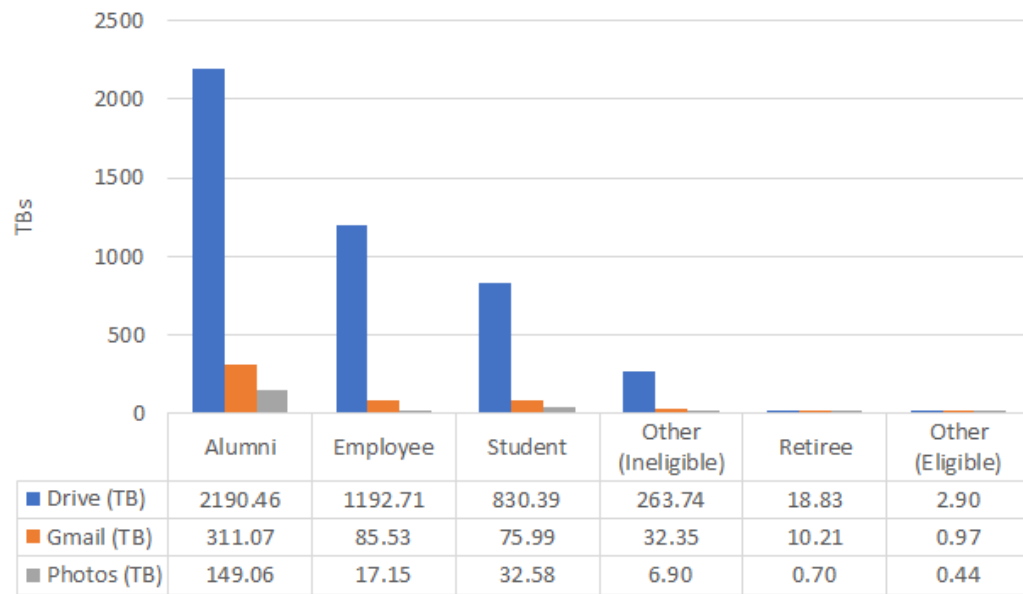
OTHER - INELIGIBLE =
All remaining accounts

Important: All accounts are assigned to one group based on the following precedence order.

Employee > Student > Alumni > Retiree > Other - Eligible



VT Google Constituent Groups – Number of Accounts



VT Google Constituent Groups – Storage Usage (TB)

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Employee Constituent Group

Employee Constituent Group

The 13,675 accounts in this group must have one or more of the following eligible affiliations.

VT-EMPLOYEE-STATE

VT-EMPLOYEE-NON-STATE

VT-EMPLOYEE-PREHIRE

VT-EMPLOYEE-WAGE

VT-FACULTY

VT-STAFF

VTC-EMPLOYEE

DOMINANT EMPLOYEE AFFILIATION COMBINATIONS	ACCOUNTS
VT-EMPLOYEE-STATE, VT-FACULTY	4,570
VT-EMPLOYEE-STATE, VT-STAFF	3,633
VT-EMPLOYEE-NON-STATE	1,800
VT-EMPLOYEE-WAGE, VT-STAFF	1,100
VT-EMPLOYEE-STATE, VT-EMPLOYEE-WAGE, VT-FACULTY	812
VT-EMPLOYEE, VT-EMPLOYEE-NON-STATE	566
VT-EMPLOYEE-WAGE, VT-FACULTY	466

Employee Constituent Group - Users

User accounts (12,875) and Storage Distribution Comparisons.

$\sigma = 23.37$ GB

$-1\sigma = 7,553$ (59%) users w/ avg 1.67 GB

$1\sigma = 3,116$ (24.2%) users w/ avg 14.89 GB

$2\sigma = 754$ (5.9%) users w/ avg 39.93 GB

$3\sigma = 321$ (2.5%) users w/ avg 64.04 GB

$4\sigma = 197$ (1.5%) users w/ avg 87.45 GB

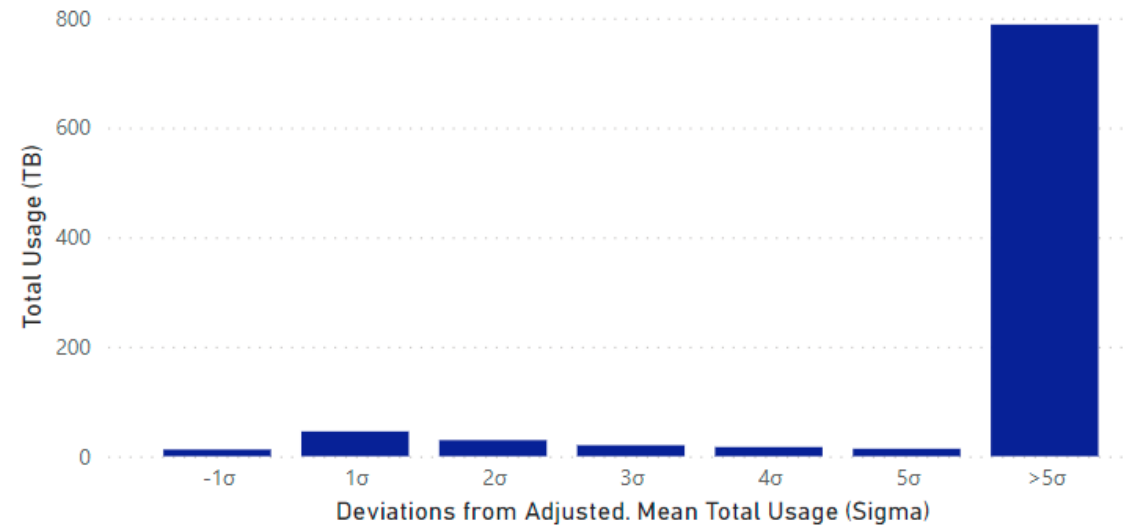
$5\sigma = 125$ (1.0%) users w/ avg 112.38 GB

$>5\sigma = 809$ (6.3%) users w/ avg 997.70 GB

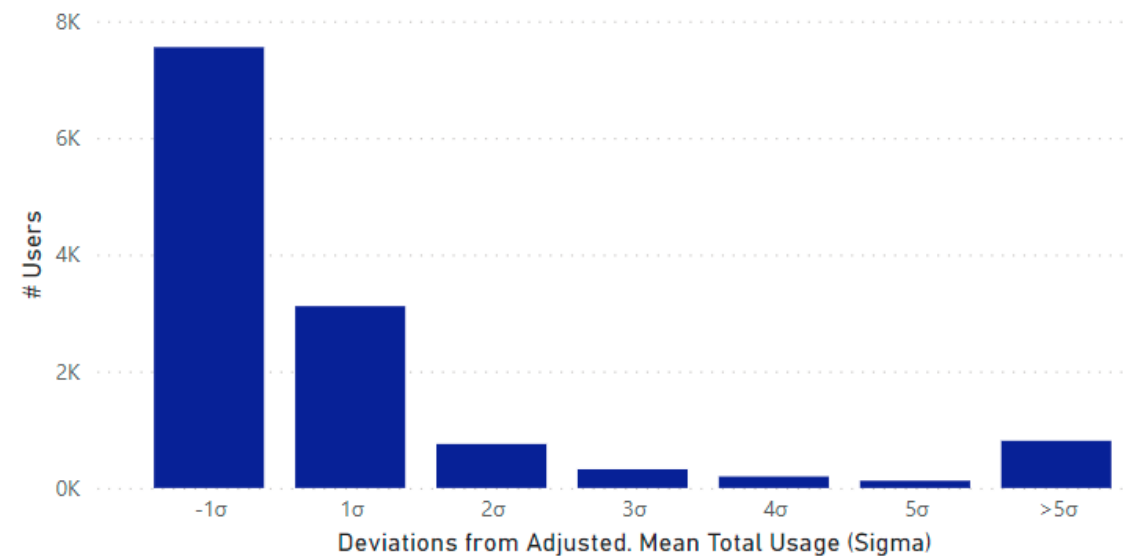
Total storage used by the outliers ($>5\sigma$) is .79 PB

78% covered
by 20GB license

Storage Distribution (Constituency)



User Distribution (Constituency)



Employee Constituent Group - GAEs

GAE accounts (800) and Storage Distribution Comparisons.

$\sigma = 23.37$ GB

$-1\sigma = 731$ (91.4%) users w/ avg 0.36 GB

$1\sigma = 27$ (3.4%) users w/ avg 14.17 GB

$2\sigma = 6$ (.8%) users w/ avg 40.06 GB

$3\sigma = 1$ (0.1%) users w/ avg 53.80 GB

$4\sigma = 4$ (0.5%) users w/ avg 92.11 GB

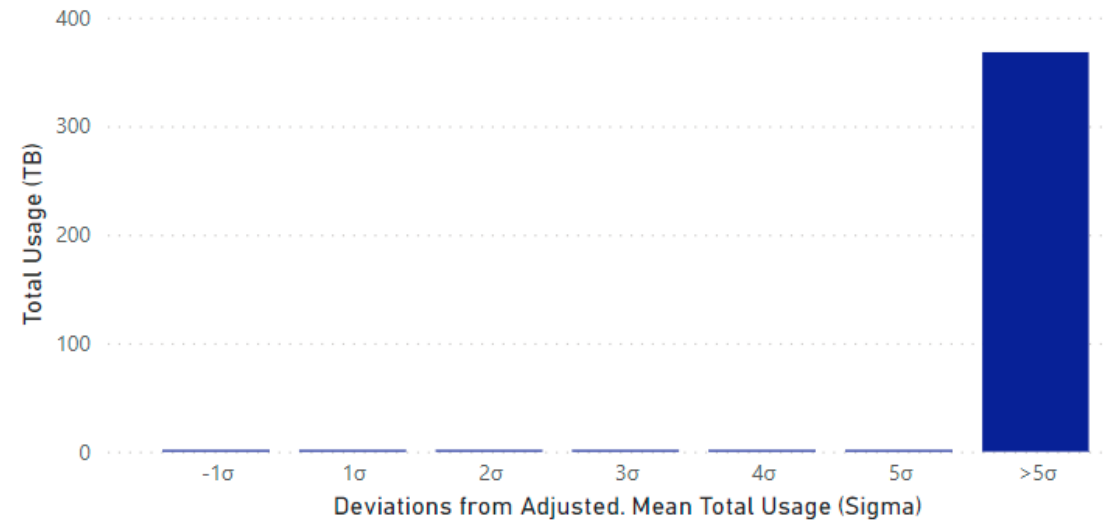
$5\sigma = 1$ (0.1%) users w/ avg 115.51 GB

$>5\sigma = 30$ (3.8%) users w/ avg 12,566.32 GB

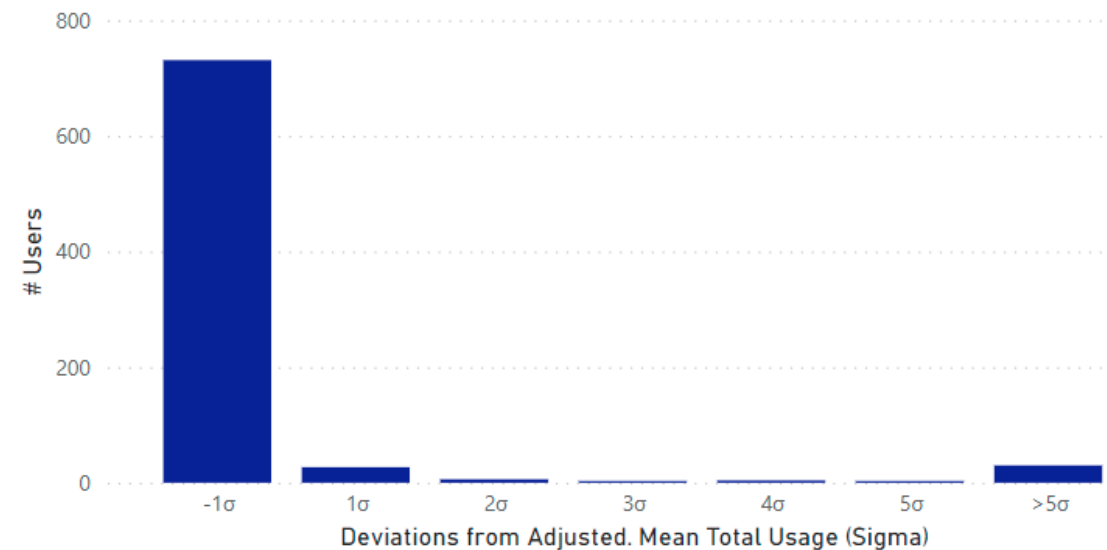
Total storage used by the outliers ($>5\sigma$) is .37 PB

94% covered
by 20GB license

Storage Distribution (Constituency)



User Distribution (Constituency)

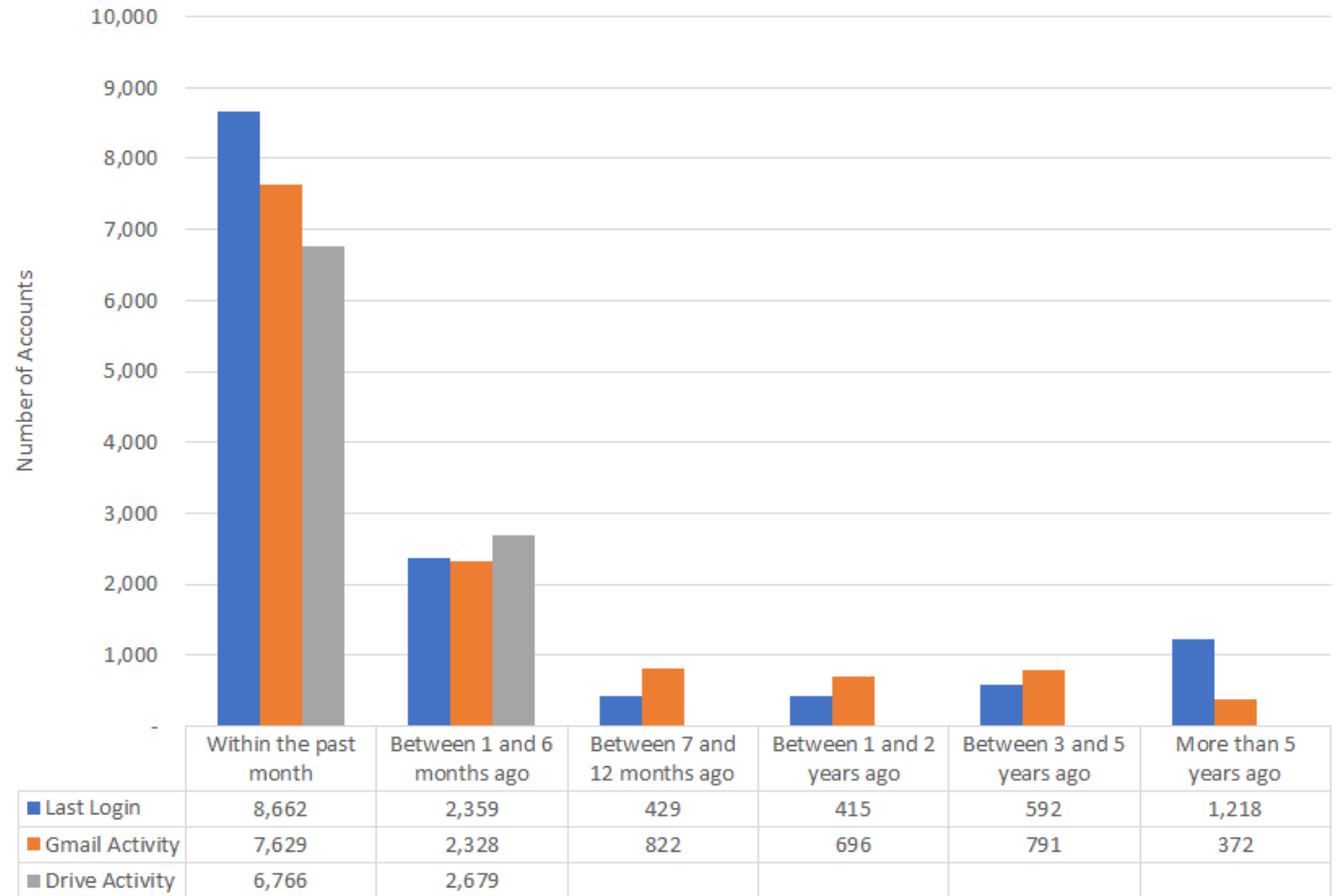


Employee Constituent Group

Last Login, Gmail Activity, and Drive Activity based on time periods.

For users who have not logged in "more than 5 years ago",

- 61% of the accounts have locked PIDs
- 88% of the accounts have no email forward set
- 75% of the accounts have VT-EMPLOYEE-NON-STATE as an affiliation



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Student Constituent Group

Student Constituent Group

The 49,914 accounts in this group must have one or more of the following eligible affiliations in their list of affiliations.

VT-STUDENT-ENROLLED or

VT-STUDENT-NEW-ADMIT or

VT-STUDENT-FUTURE or

VT-STUDENT-RECENT or

VT-STUDENT-WAGE or

VTC-STUDENT-ENROLLED

DOMINANT STUDENT AFFILIATION COMBINATIONS	ACCOUNTS
VT-STUDENT-FUTURE, VT-STUDENT-RECENT	14,861
VT-STUDENT-RECENT	10,240
VT-STUDENT-FUTURE, VT-STUDENT-NEW-ADMIT	7,918
VT-STUDENT-ENROLLED, VT-STUDENT-FUTURE, VT-STUDENT-RECENT	4,653
VT-STUDENT-FUTURE, VT-STUDENT-RECENT, VT-STUDENT-WAGE	3,129
VT-STUDENT-NEW-ADMIT	2,372
VT-STUDENT-RECENT, VT-STUDENT-WAGE	2,038

Student Constituent Group

Student accounts (49,914) and Storage Distribution Comparisons.

$\sigma = 23.37$ GB

$-1\sigma = 42,041$ (84.2%) users w/ avg 1.43 GB

$1\sigma = 5,342$ (10.7%) users w/ avg 13.80 GB

$2\sigma = 982$ (2.0%) users w/ avg 39.83 GB

$3\sigma = 426$ (.9%) users w/ avg 64.07 GB

$4\sigma = 232$ (.5%) users w/ avg 87.04 GB

$5\sigma = 156$ (.3%) users w/ avg 112.19 GB

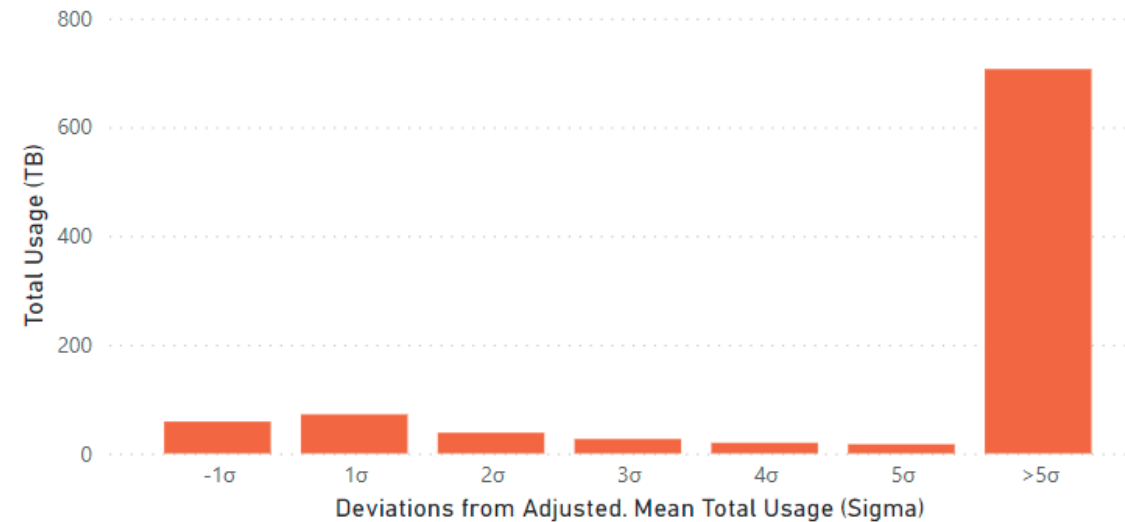
$>5\sigma = 735$ (1.5%) users w/ avg 984.51 GB

Total storage used by the outliers ($>5\sigma$) is .7 PB

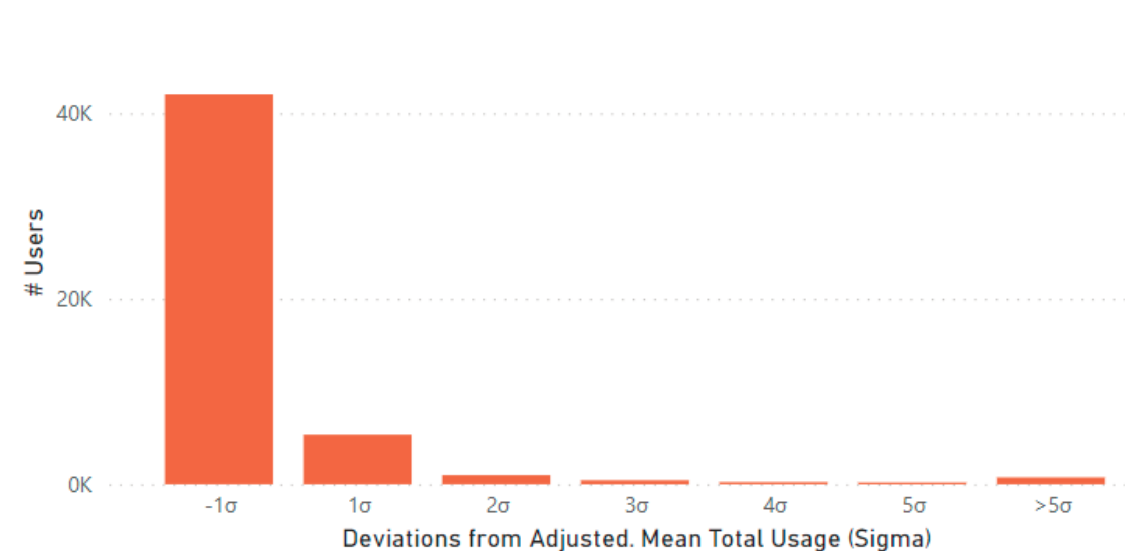
Note: There are 3 ineligible GAE accounts in this set.

93% covered
by 20GB license

Storage Distribution (Constituency)



User Distribution (Constituency)

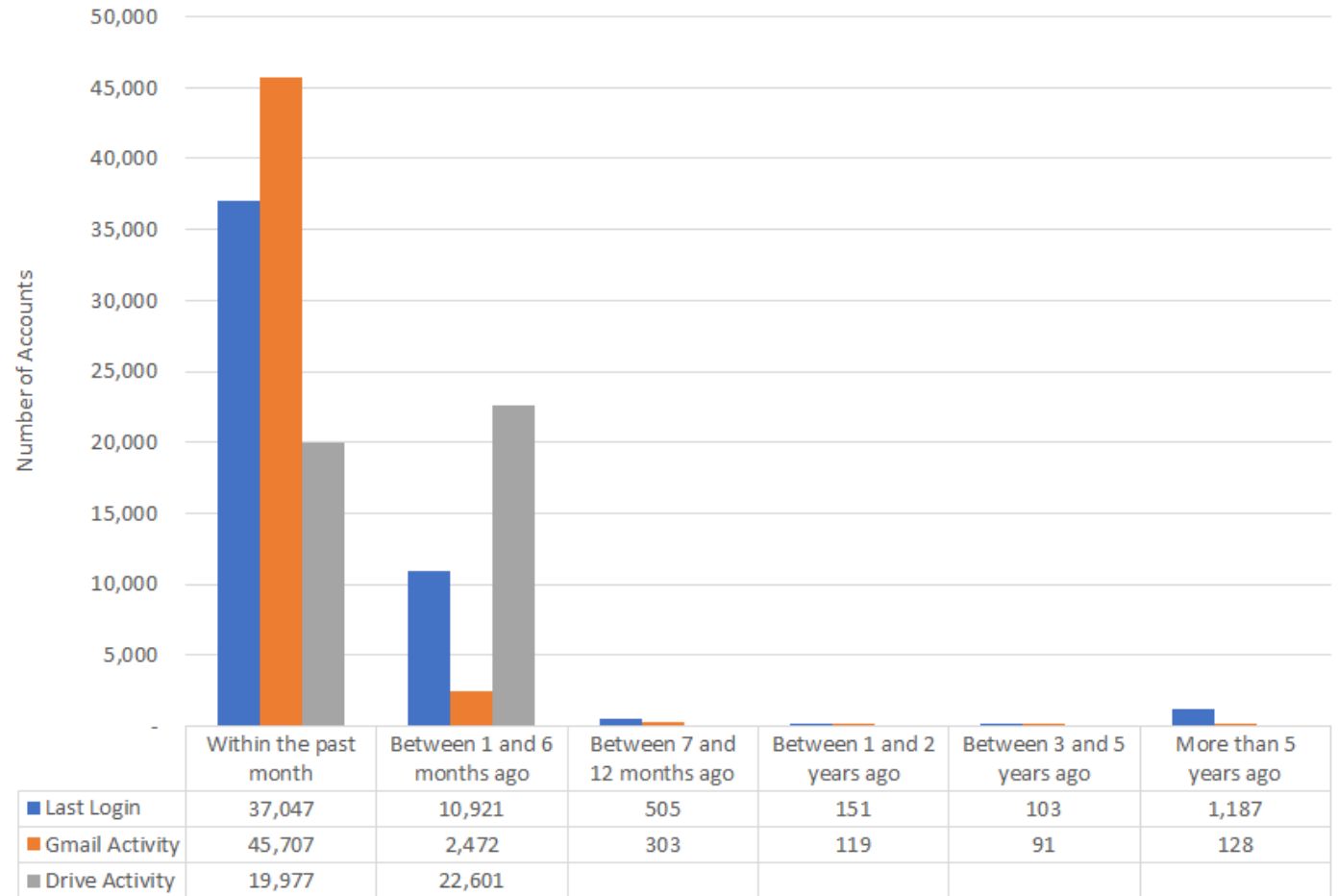


Student Constituent Group

Last Login, Gmail Activity, and Drive Activity based on time periods.

For users who have not logged in "more than 5 years ago",

- 42% of the accounts have locked PIDs
- 93% of the accounts have no email forward set
- 51% of the accounts have VT-STUDENT, VT-STUDENT-APPLICANT, VT-NEW-ADMIT as an affiliation



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Alumni Constituent Group

Alumni Constituent Group

The 108,992 accounts in this group must have one or more of the following eligible affiliations in their list of affiliations.

VT-ALUM

ALUMNI AFFILIATION COMBINATIONS	ACCOUNTS
VT-ALUM	108,992

Alumni Constituent Group

Alumni accounts (108,992) and Storage Distribution Comparisons.

$\sigma = 23.37$ GB

$-1\sigma = 89,398$ (82.0%) users w/ avg 1.53 GB

$1\sigma = 14,171$ (13.0%) users w/ avg 13.32 GB

$2\sigma = 2,008$ (1.8%) users w/ avg 39.85 GB

$3\sigma = 885$ (.8%) users w/ avg 63.92 GB

$4\sigma = 500$ (.5%) users w/ avg 88.12 GB

$5\sigma = 310$ (.3%) users w/ avg 111.55 GB

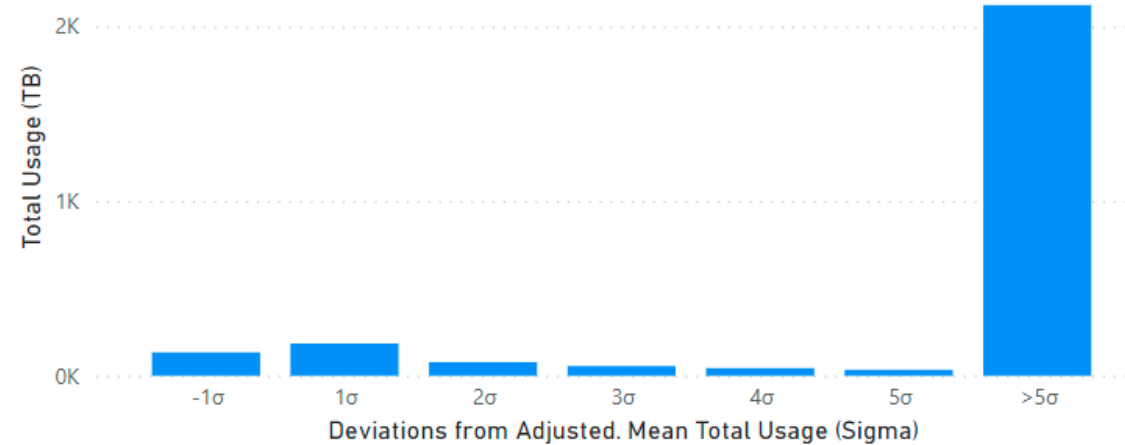
$>5\sigma = 1,720$ (1.6%) users w/ avg 1,263.86 GB

Total storage used by the outliers ($>5\sigma$) is 2.1 PB

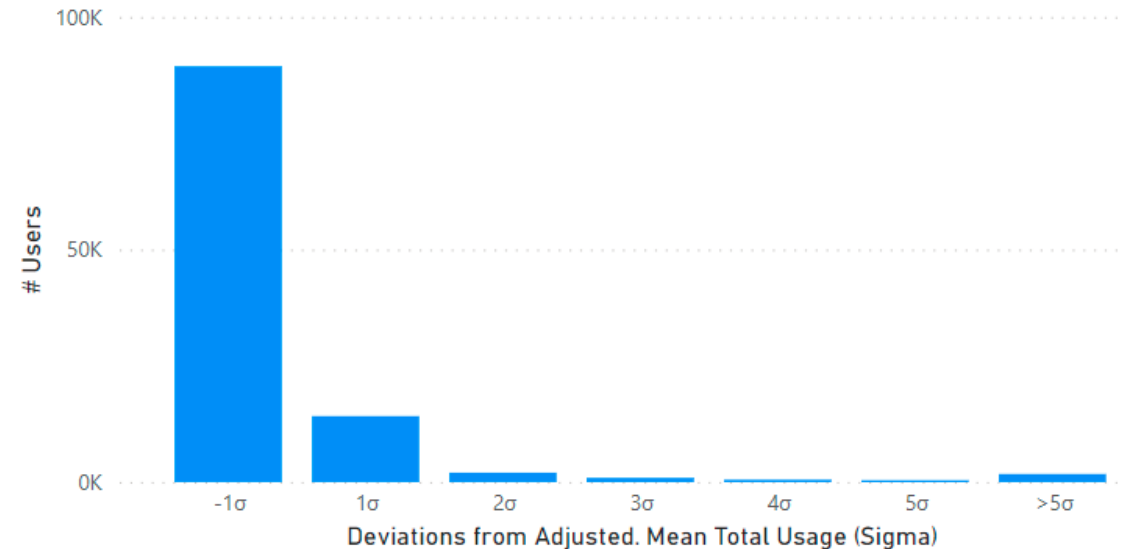
Note: There are 18 ineligible GAE accounts in this set.

93% covered
by 20GB license

Storage Distribution (Constituency)



User Distribution (Constituency)



Alumni Constituent Group

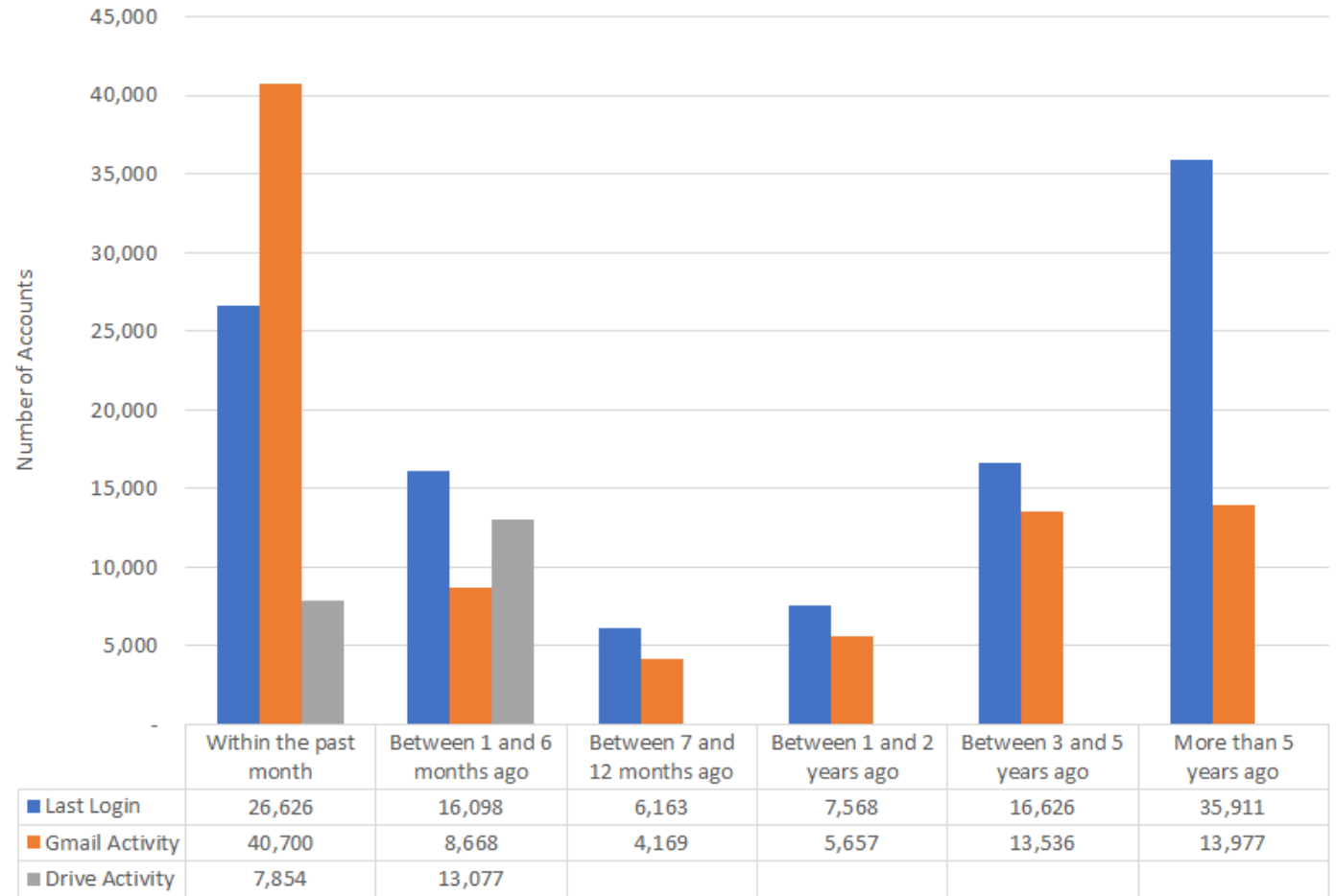
Last Login, Gmail Activity, and Drive Activity based on time periods.

For users who have not logged in "more than 5 years ago",

- 93% of the accounts have locked PIDs
- 79% of the accounts have no email forward set

Across all Alumni accounts,

- 57% have locked PIDs
- 55% have not logged in 12 months
- 88% of the accounts have no email forward set
- 81% have had no drive activity in the last 6 months



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Retiree Constituent Group

Retiree Constituent Group

The 2,649 accounts in this group must have one or more of the following eligible affiliations in their list of affiliations.

VT-EMPLOYEE-RETIREE

VT-EMPLOYEE-EMERITUS

RETIREE AFFILIATION COMBINATIONS	ACCOUNTS
VT-EMPLOYEE-RETIREE	2,088
VT-EMPLOYEE-EMERITUS, VT-EMPLOYEE-RETIREE	558
VT-EMPLOYEE-EMERITUS	3

Retiree Constituent Group

Retiree accounts (2,649) and Storage Distribution Comparisons.

$\sigma = 23.37$ GB

$-1\sigma = 2,115$ (79.8%) users w/ avg 1.46 GB

$1\sigma = 433$ (16.4%) users w/ avg 13.08 GB

$2\sigma = 51$ (1.9%) users w/ avg 37.53 GB

$3\sigma = 9$ (.3%) users w/ avg 66.30 GB

$4\sigma = 7$ (.3%) users w/ avg 88.26 GB

$5\sigma = 6$ (.2%) users w/ avg 111.75 GB

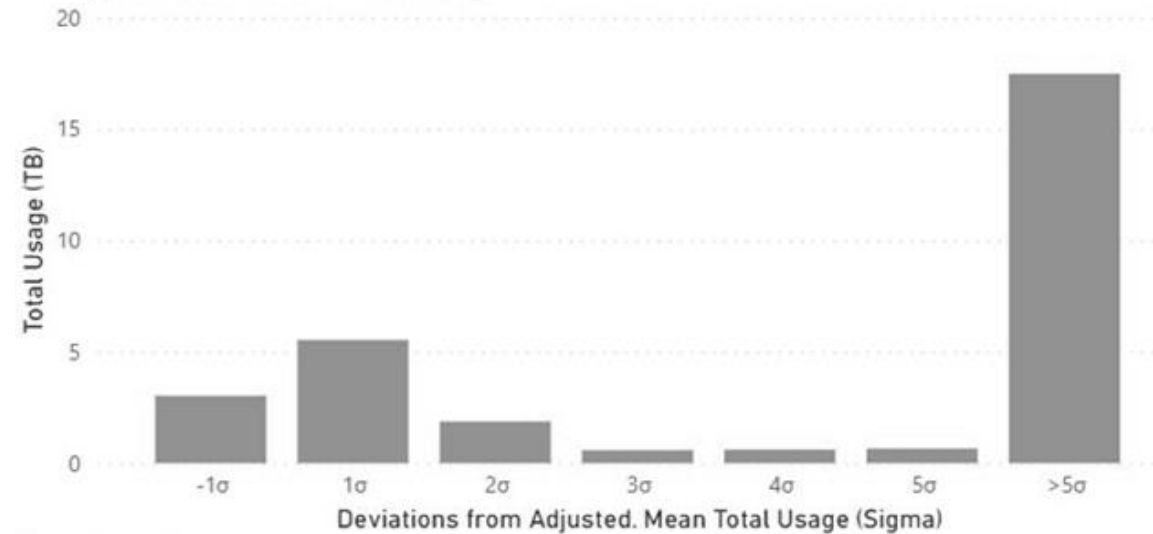
$>5\sigma = 28$ (1.1%) users w/ avg 638.94 GB

Total storage used by the outliers ($>5\sigma$) is 17.5 TB

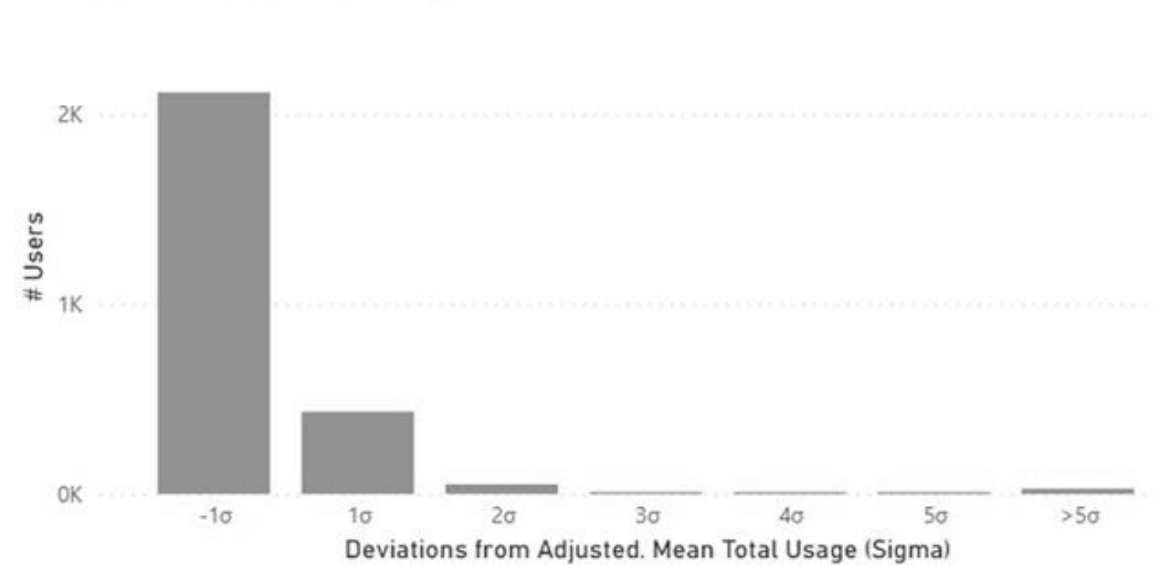
Note: There are 6 ineligible GAE accounts in this set.

94% covered
by 20GB license

Storage Distribution (Constituency)



User Distribution (Constituency)



Retiree Constituent Group

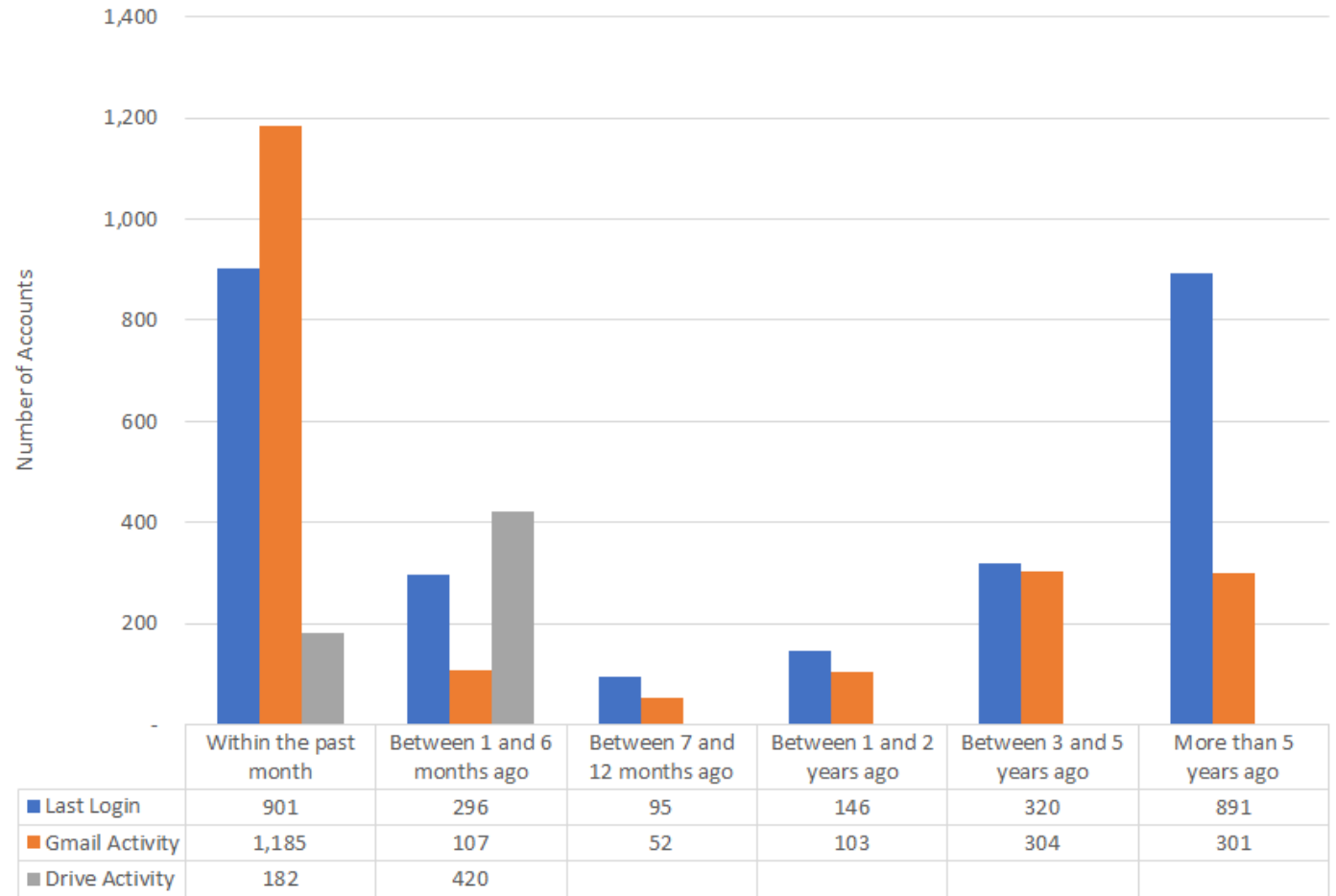
Last Login, Gmail Activity, and Drive Activity based on time periods.

For users who have not logged in "more than 5 years ago",

- 96% of the accounts have locked PIDs
- 81% of the accounts have no email forward set

Across all Retiree accounts,

- 50% of the accounts have locked PIDs
- 51% have not logged in the past year
- 81% of the accounts have no email forward set
- 77% have had no drive activity in the last 6 months



Other -
Eligible
Constituent
Group

Other - Eligible Constituent Group

The 1,996 accounts in this group must have one or more of the following eligible affiliations in their list of affiliations.

VT-AFFILIATE-TEMPORARY

VT-AFFILIATE-LCI

VT-ROBOT

DOMINANT AFFILIATION COMBINATIONS	ACCOUNTS
VT-AFFILIATE-LCI	1,455
VT-AFFILIATE-TEMPORARY	424
VT-AFFILIATE-TEMPORARY, VT-STUDENT	55
VT-AFFILIATE-LCI, VT-STUDENT	33

Other - Eligible Constituent Group

Other - Eligible accounts (1,996) and Storage Distribution Comparisons.

$\sigma = 23.37$ GB

$-1\sigma = 1,921$ (96.2%) users w/ avg 0.21 GB

$1\sigma = 59$ (3.0%) users w/ avg 14.54 GB

$2\sigma = 5$ (.2%) users w/ avg 44.51 GB

$3\sigma = 0$ (0%) users

$4\sigma = 2$ (.1%) users w/ avg 92.16 GB

$5\sigma = 2$ (.1%) users w/ avg 118.38 GB

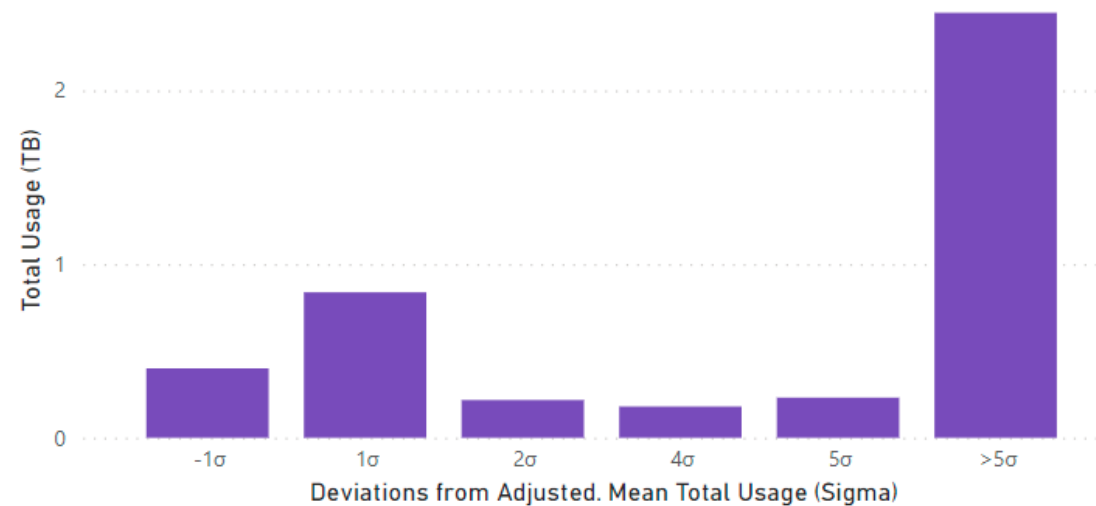
$>5\sigma = 7$ (0.4%) users w/ avg 358.07 GB

Total storage used by the outliers ($>5\sigma$) is 2.5 TB

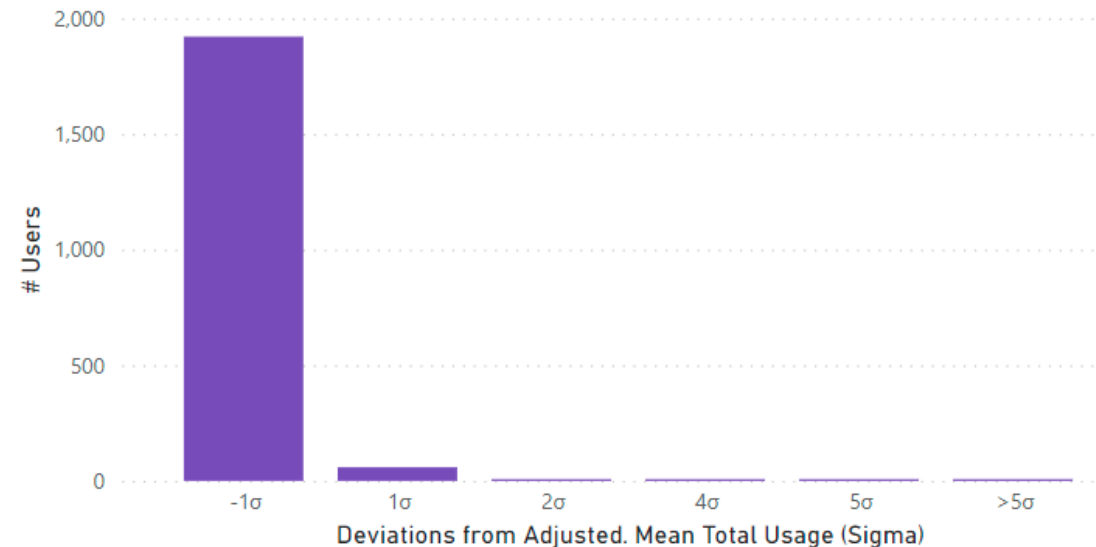
Note: There are 150 GAE accounts in this set.

99% covered
by 20GB license

Storage Distribution (Constituency)



User Distribution (Constituency)



Other - Eligible Constituent Group

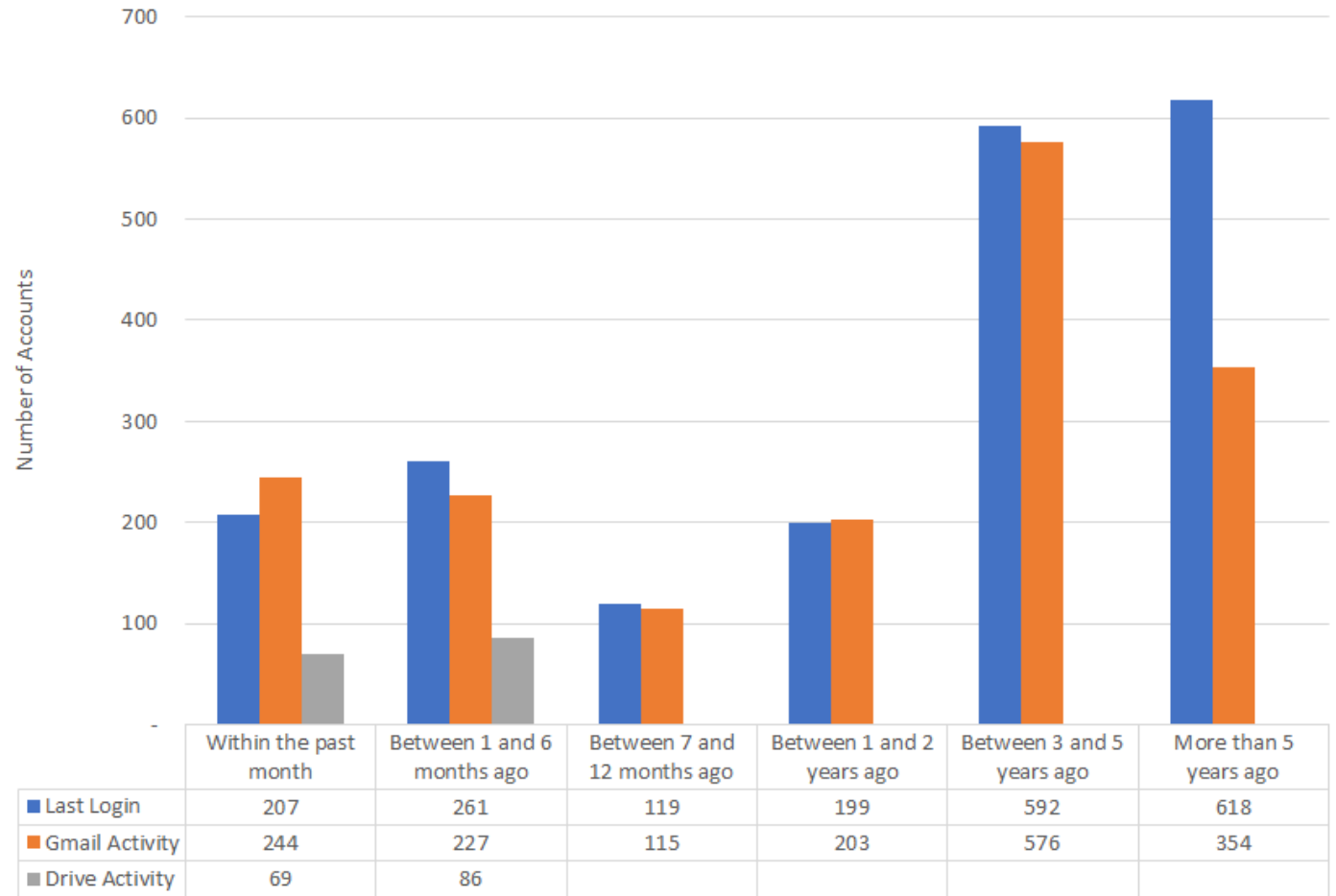
Last Login, Gmail Activity, and Drive Activity based on time periods.

For users who have not logged in "more than 5 years ago",

- 90% of the accounts have locked PIDs
- 97% of the accounts have no email forward set

Across all accounts,

- 72% of the accounts have locked PIDs
- 71% have not logged in the past year
- 96% of the accounts have no email forward set
- 92% have had no drive activity in the last 6 months



Other -
Ineligible
Constituent
Group

Other Ineligible Constituent Group

There are 26,568 accounts in this group representing affiliation combinations that do not match any of the eligibility rules defined for the other groups.

Note: Advancement wants to compare some of these accounts to their list of donors before deprovisioning steps move forward.

DOMINANT AFFILIATION COMBINATIONS	ACCOUNTS
VT-STUDENT	13,255
VT-EMPLOYEE-FORMER	4,557
VT-EMPLOYEE-FORMER, VT-STUDENT	3,801
VT-ALUM-CONSTITUENT, VT-EMPLOYEE-FORMER	1,928
VT-AFFILIATE-LCI-FORMER	1,143
VT-ALUM-CONSTITUENT, VT-EMPLOYEE-FORMER, VT-STUDENT	473
VT-AFFILIATE	394

Other - Ineligible Constituent Group

Other - Ineligible accounts (26,568) and Storage Distribution Comparisons.

$\sigma = 23.37$ GB

$-1\sigma = 25,164$ (94.7%) users w/ avg 0.61 GB

$1\sigma = 924$ (3.48%) users w/ avg 14.14 GB

$2\sigma = 206$ (0.8%) users w/ avg 37.45 GB

$3\sigma = 65$ (0.2%) users w/ avg 63.97 GB

$4\sigma = 34$ (.1%) users w/ avg 89.03 GB

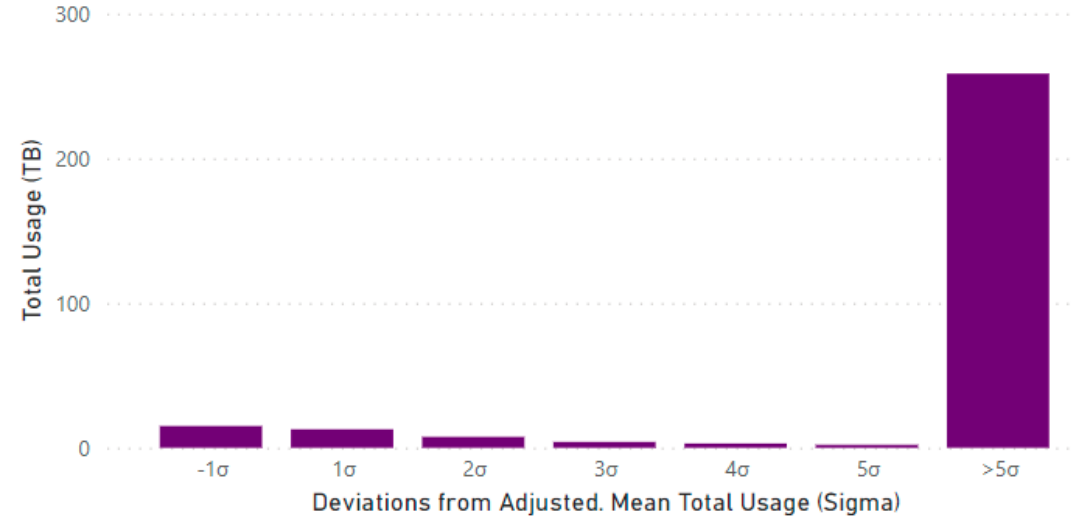
$5\sigma = 19$ (.07%) users w/ avg 111.44 GB

$>5\sigma = 156$ (0.6%) users w/ avg 1,697.39 GB

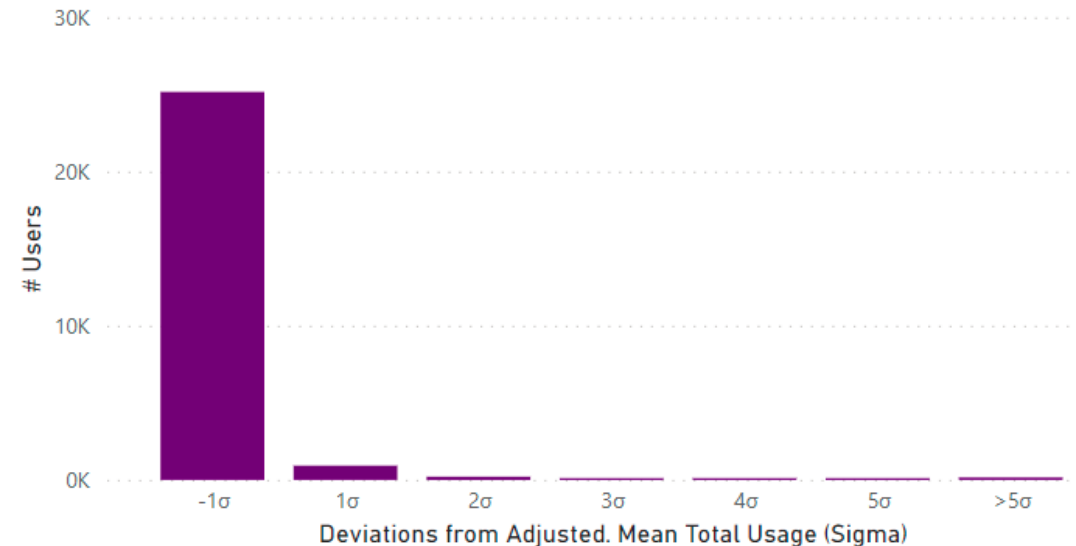
Total recovered storage once all accounts are deprovisioned .3PB.

Note: There are 14 ineligible GAE accounts in this set.

Storage Distribution (Constituency)



User Distribution (Constituency)



Other - Ineligible Constituent Group

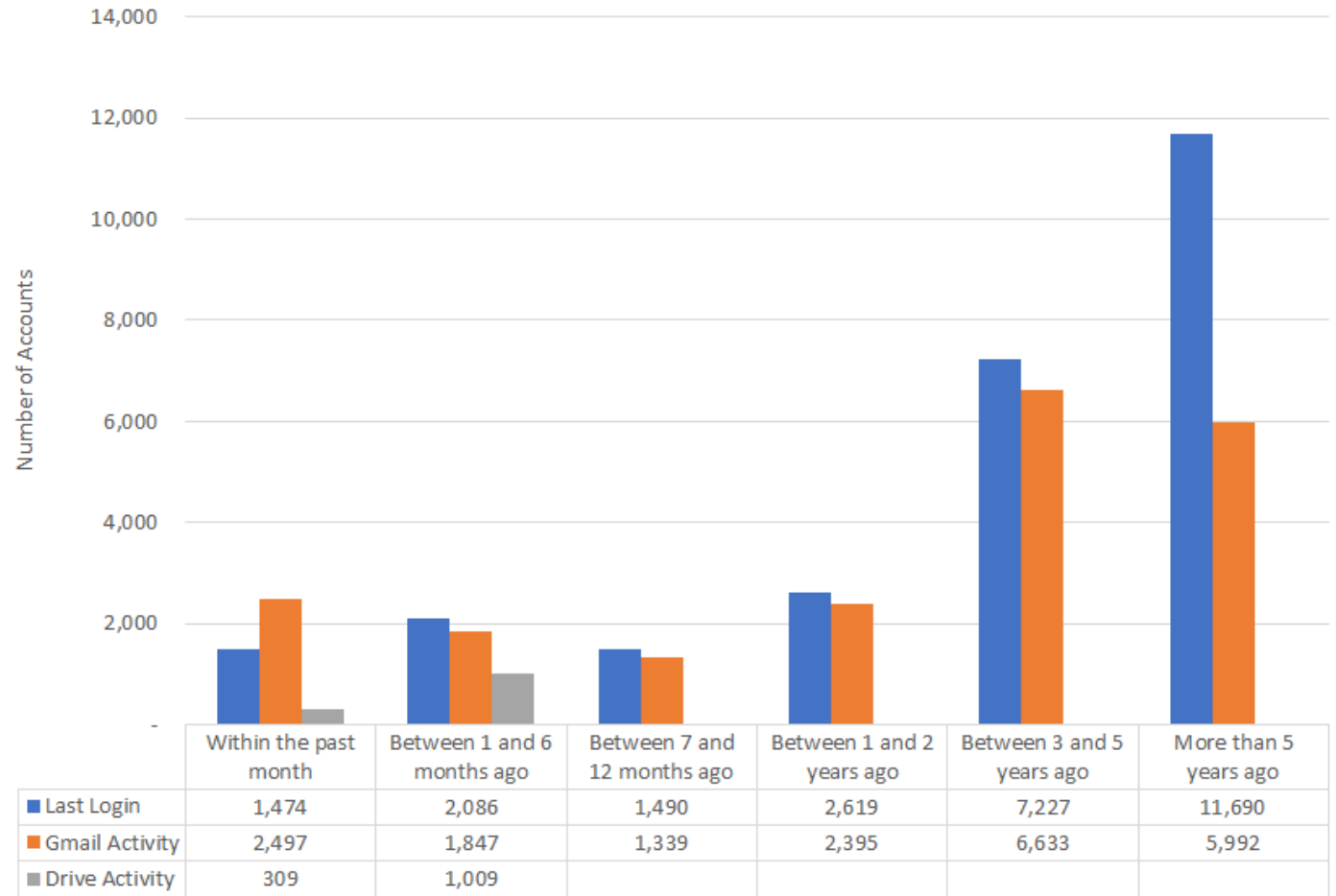
Last Login, Gmail Activity, and Drive Activity based on time periods.

For users who have not logged in "more than 5 years ago",

- 98% of the accounts have locked PIDs
- 93% of the accounts have no email forward set

Across all accounts,

- 84% of the accounts have locked PIDs
- 81% have not logged in the past year
- 93% of the accounts have no email forward set
- 95% have had no drive activity in the last 6 months



Other – Ineligible Constituent Group

When should the VT Google services be removed for these accounts?

- For VT-EMPLOYEE-FORMER, once SIS fixes the locked PID issue, these users will move through the normal deprovisioning workflows. It is recommended that this fix be prioritized so accounts exceeding 18-months can start the 30-day account removal in August 2021.
- For VT-STUDENT, VT-AFFILIATE-LCI-FORMER, VT-AFFILIATE, and former VT-EMPLOYEE-NON-STATE deprovisioning of service for these accounts should start in August 2021.

VT Google
Shared Drives

VT Google Shared Drives

There are currently 54,647 distinct shared drives using a total of ~.5 PB of VT's total pooled storage allotment.

770 of these shared drives have no eligible manager assigned, ie External Users or Other – Ineligible Users.

22,128 of these shared drives have Alumni identified as managers.

