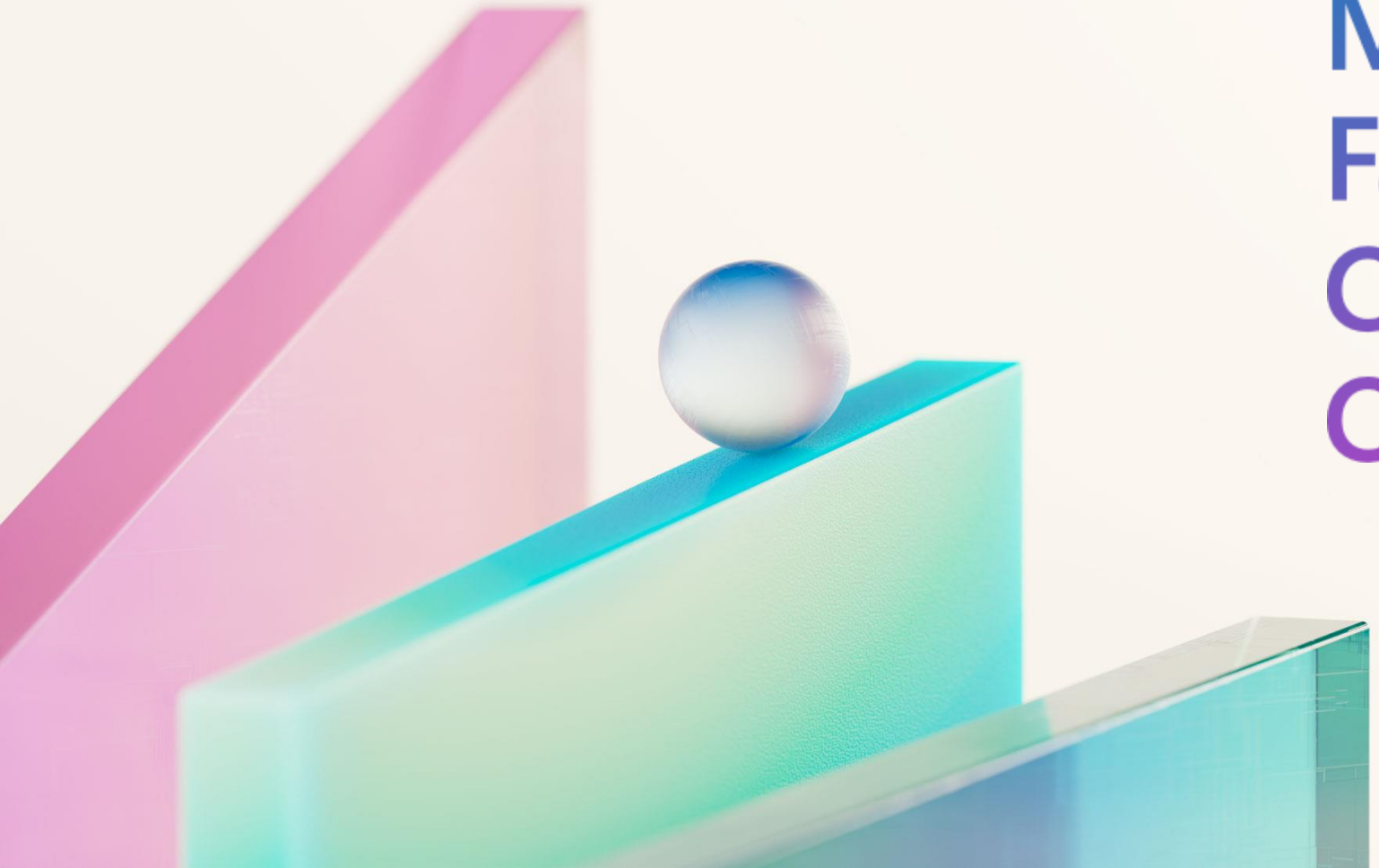
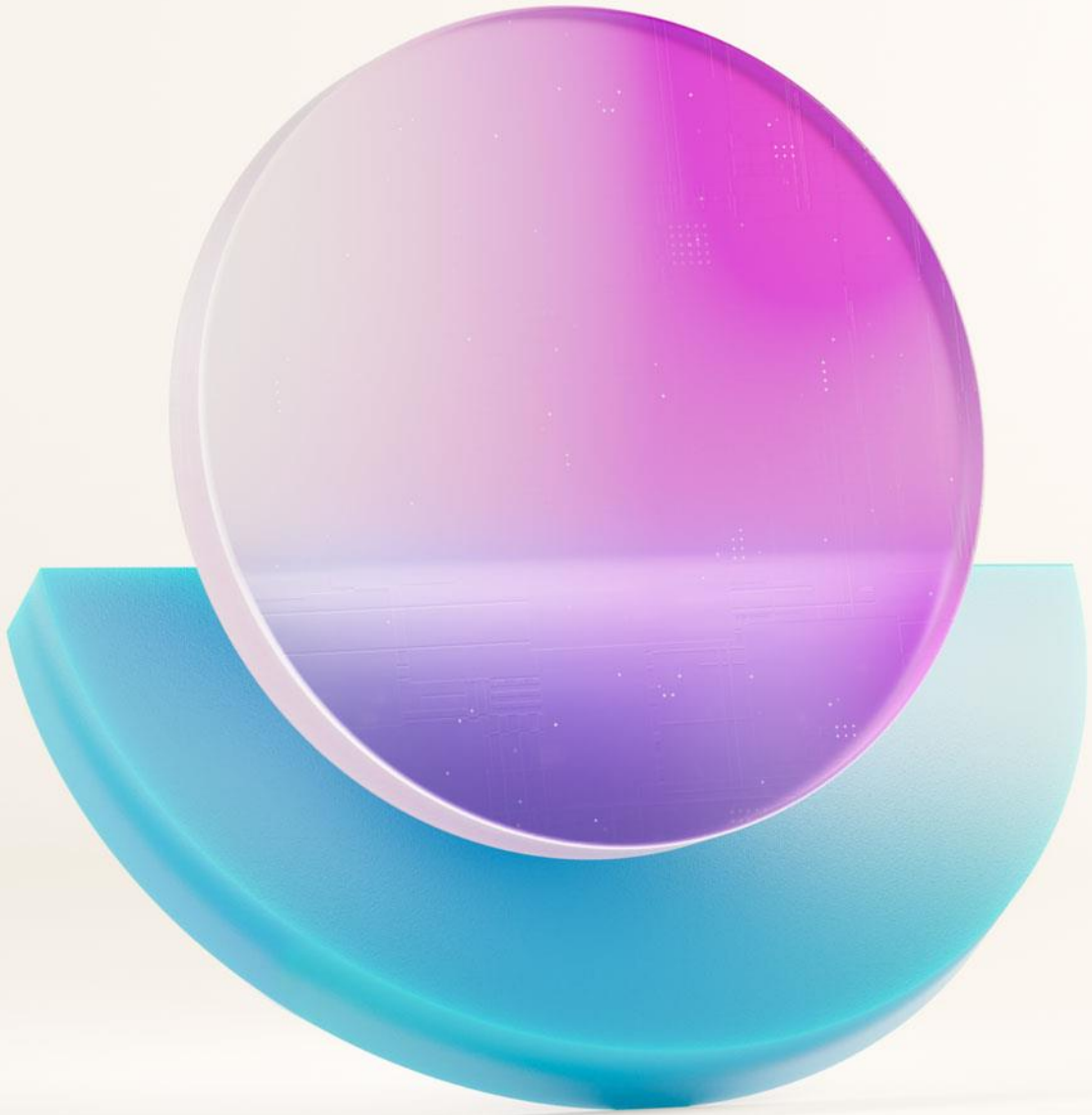
Microsoft



Microsoft Fabric Community Conference

Microsoft Fabric
Community Conference



Fast-track your career in data and AI

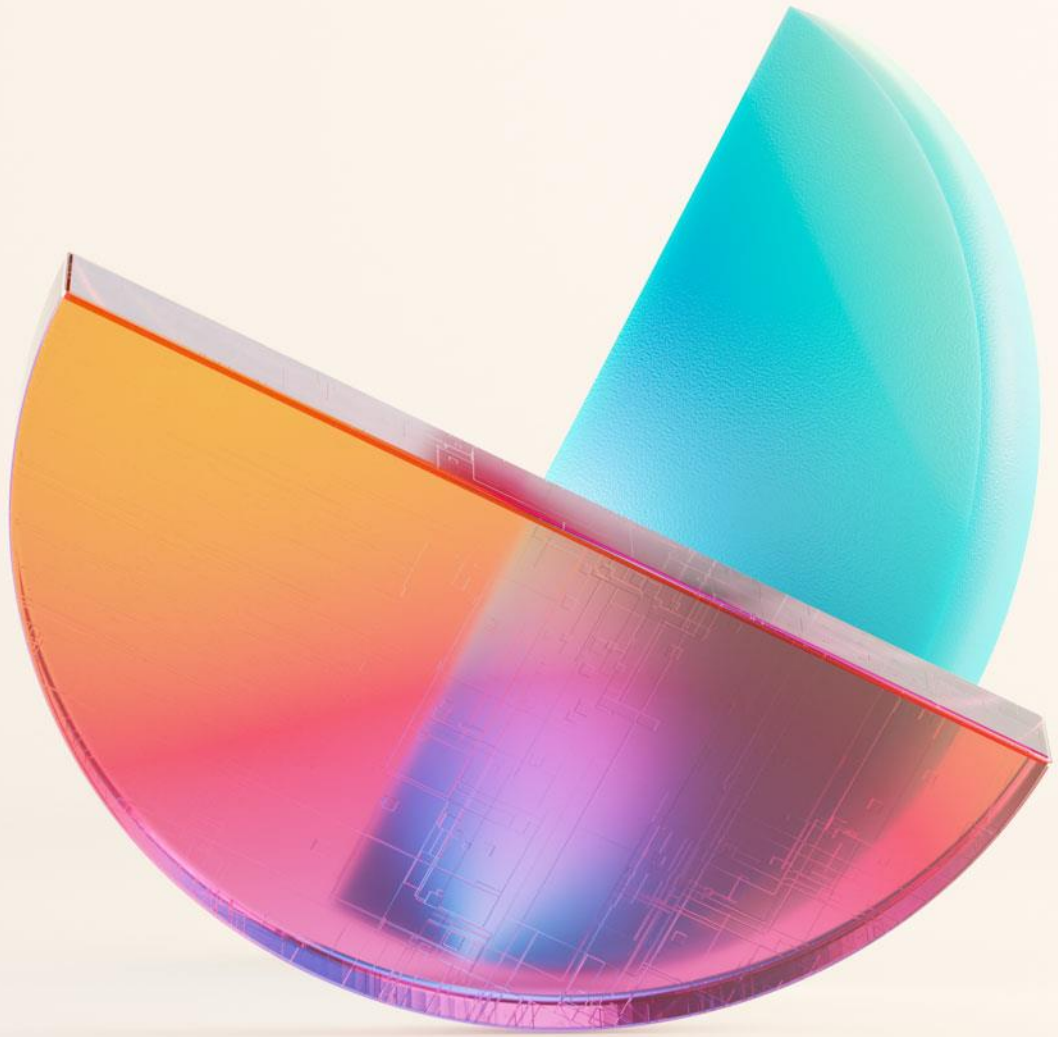
Become a Microsoft Certified Fabric Data Engineer Associate – take Exam DP-700 for free!

Visit the Fabric Community Lounge to learn more about this *limited-time offer*.

aka.ms/fabcon/dp700

Microsoft

Microsoft Fabric
Community Conference



Learn more about Microsoft Fabric

Power your AI transformation with a complete data platform

Microsoft

Get Involved in the Fabric Community

aka.ms/FabricCommunity
Connect with community members, ask questions, and learn more about Fabric

aka.ms/FabricUserGroups
Find a user group that matches your interests in your area or online

aka.ms/SuperUsers
Spread your Fabric knowledge, insights, and best practices with others

aka.ms/MVP
Technology experts that share their knowledge and passion with the community

Microsoft

Microsoft Fabric
Community Conference

Mastering Fabric Administration

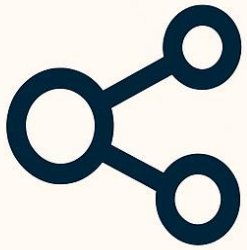
Workshop Agenda

Introduction

Tenant Administratiion

Capacity Administrattion

Workspace Administratiion



Connections and Gateway Administratiion

Quiz

Slides and lab files:
https://aka.ms/FabricAdmin

Schedule

9:00	Introduction
9:20	**Tenant Administration**
10:30	Break
11:00	**Tenant Administration**
12:00	Lunch
1:00	**Capacity Administration**
2:30	Break
2:45	**Workspace Administration**
3:30	**Connections and Gateway Administration**
3:45	Quiz
4:00	Q&A

Slides and lab files:
https://aka.ms/FabricAdmin

Speakers: The three Vikings from the North

- Ásgeir Gunnarsson
  MVP, Data Person @ Data Lab

- Just Blindbæk
  MVP, Principal Architect @ twoday

- Lars Andersen
  Program Manager @ Fabric CAT

Building blocks of a Fabric tenant

Tenant

Workspace

Domain

Capacity

Gateway

Building blocks of a Fabric tenant

Tenant

Represents your organization within Microsoft's services. Each tenant is a logically isolated entity that manages its own users, data, and permissions.

Workspace

Domain

Capacity

Gateway

Tenant

Building blocks of a Fabric tenant

Tenant

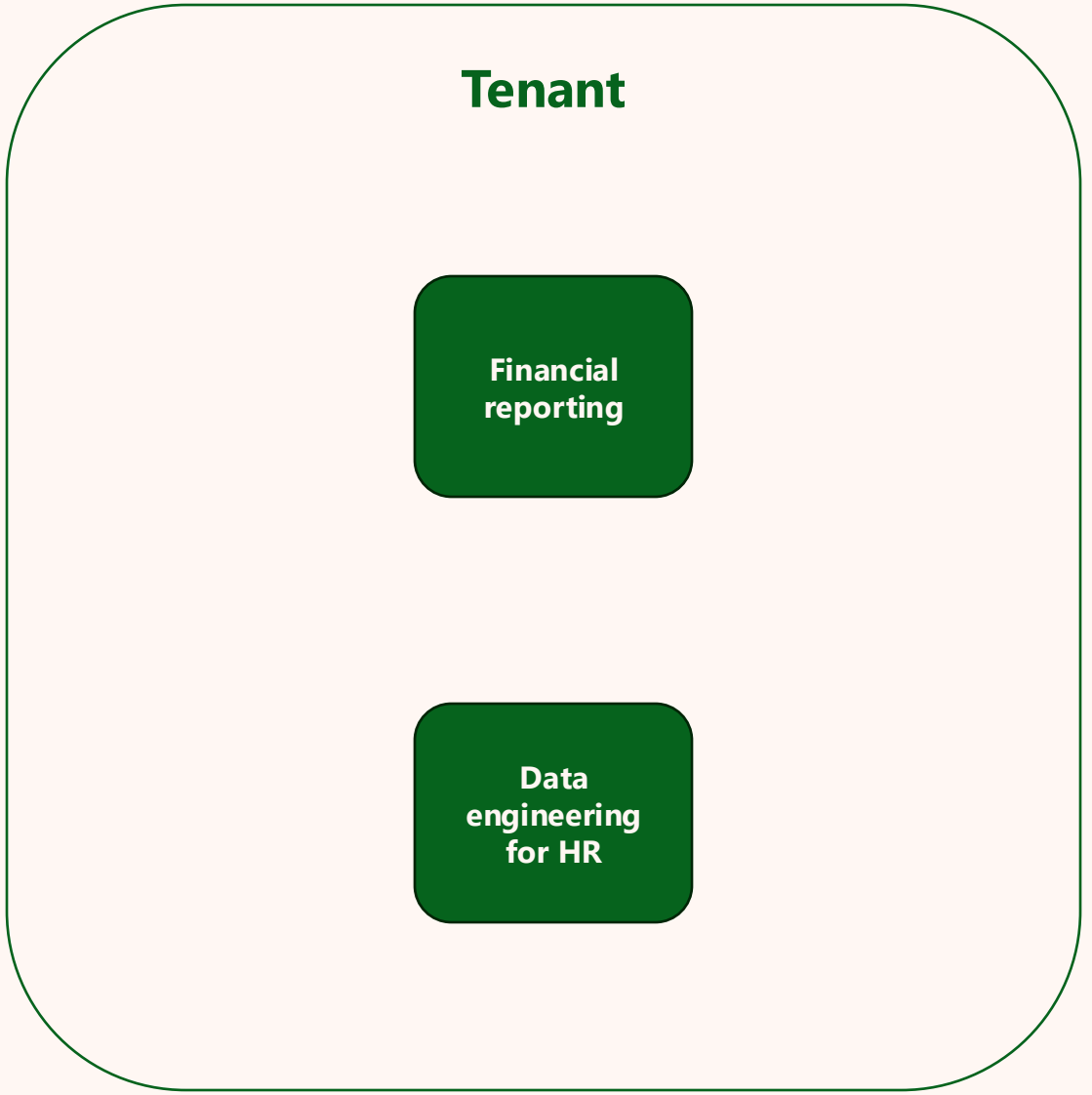
Workspace

"Environments" where users can organize, manage, and share their Fabric content. Think of a workspace as a virtual hub where teams can work together on projects involving data and analytics.

Domain

Capacity

Gateway



Building blocks of a Fabric tenant

Tenant

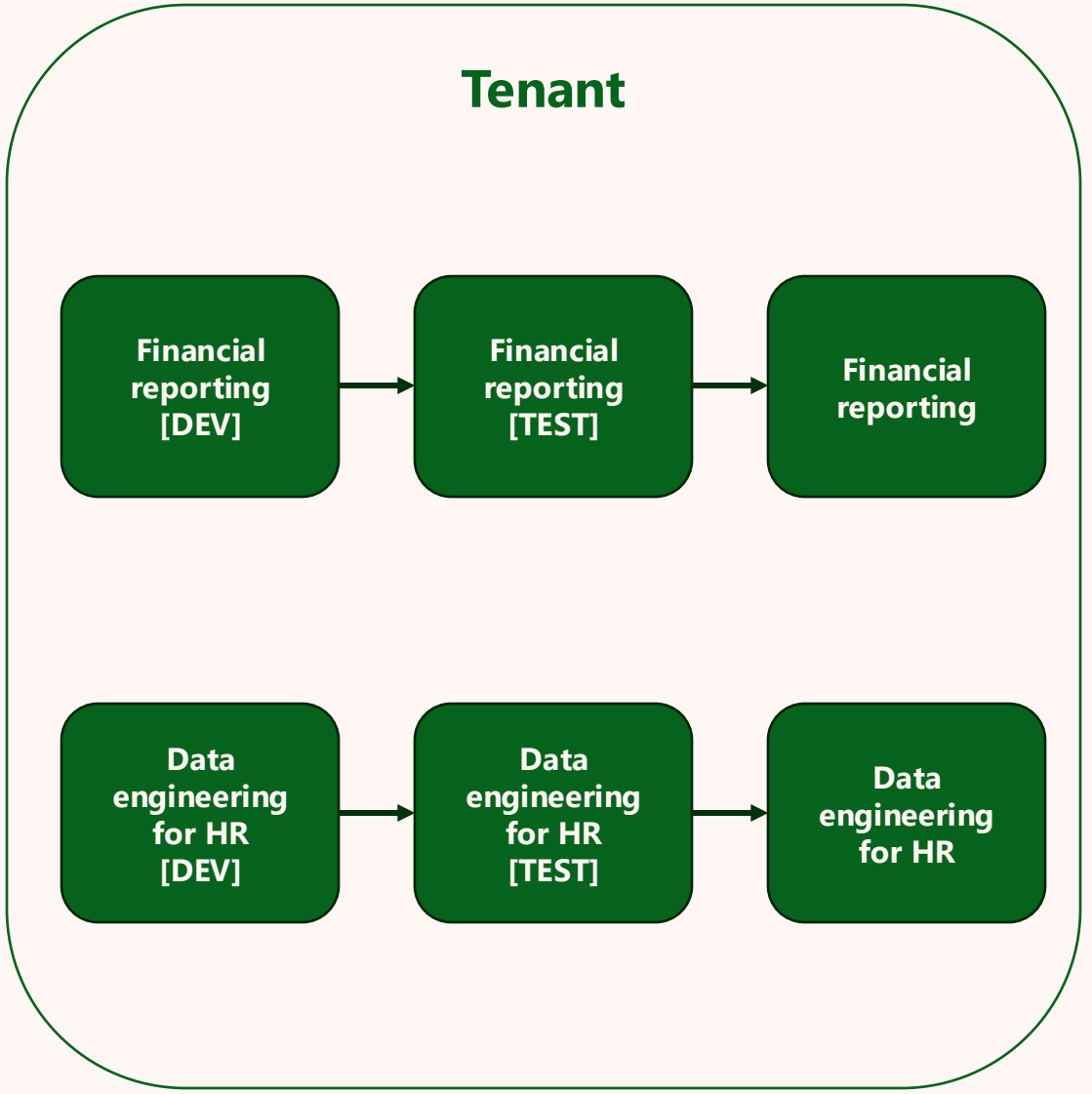
Workspace

"Environments" where users can organize, manage, and share their Fabric content. Think of a workspace as a virtual hub where teams can work together on projects involving data and analytics.

Domain

Capacity

Gateway



Building blocks of a Fabric tenant

Tenant

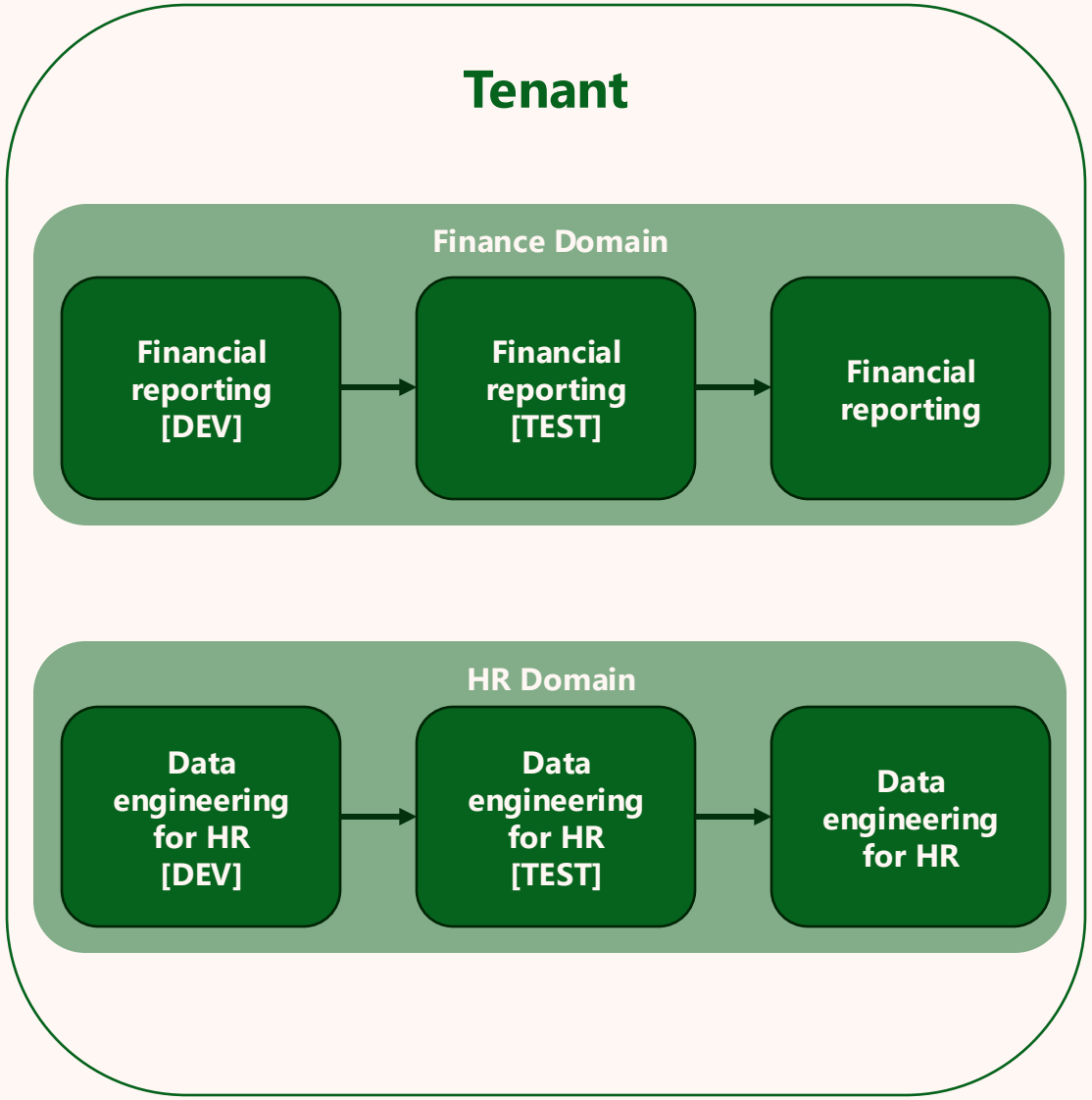
Workspace

Domain

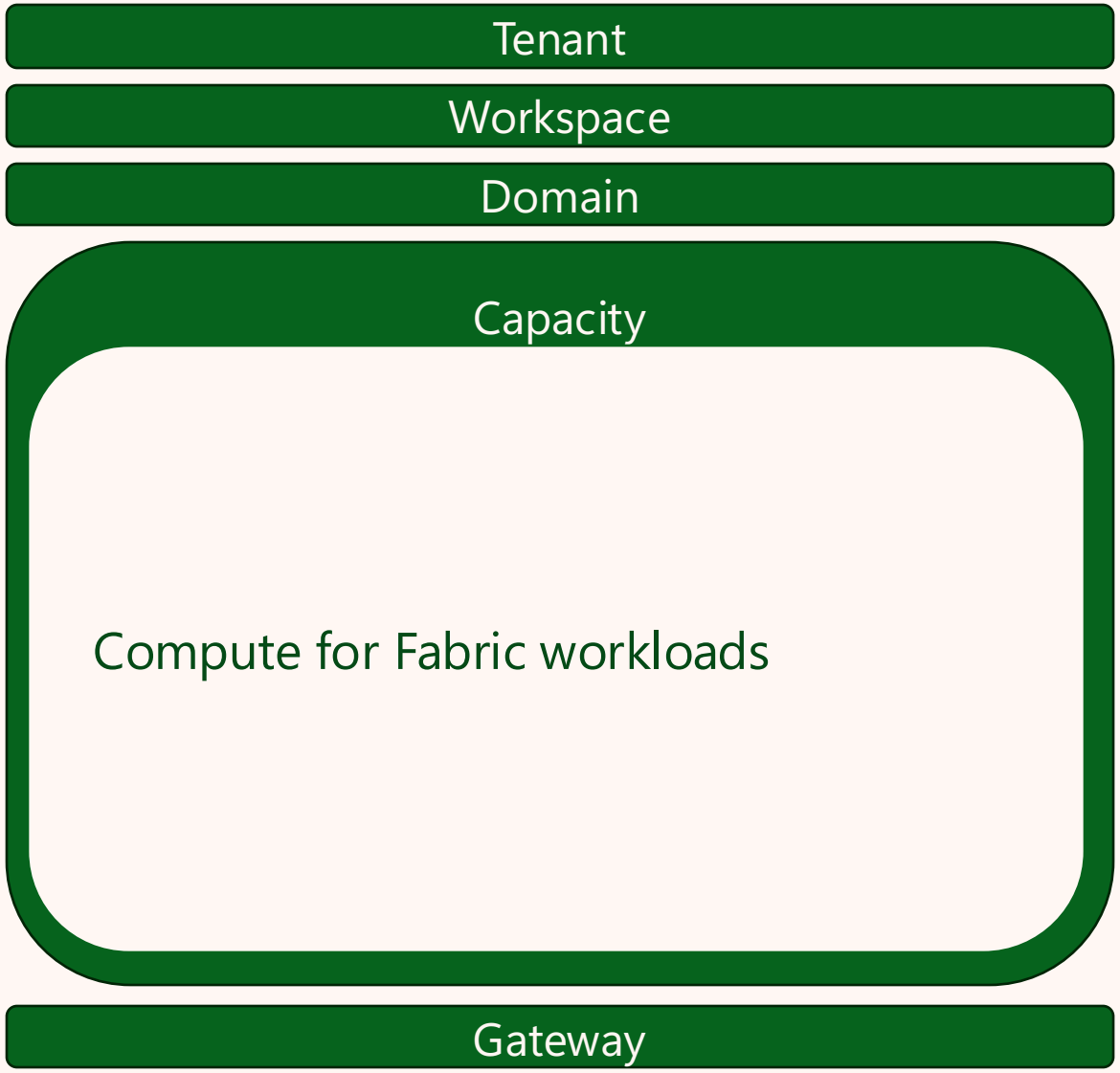
A way of logically grouping together all the data in an organization that is relevant to a particular area or field

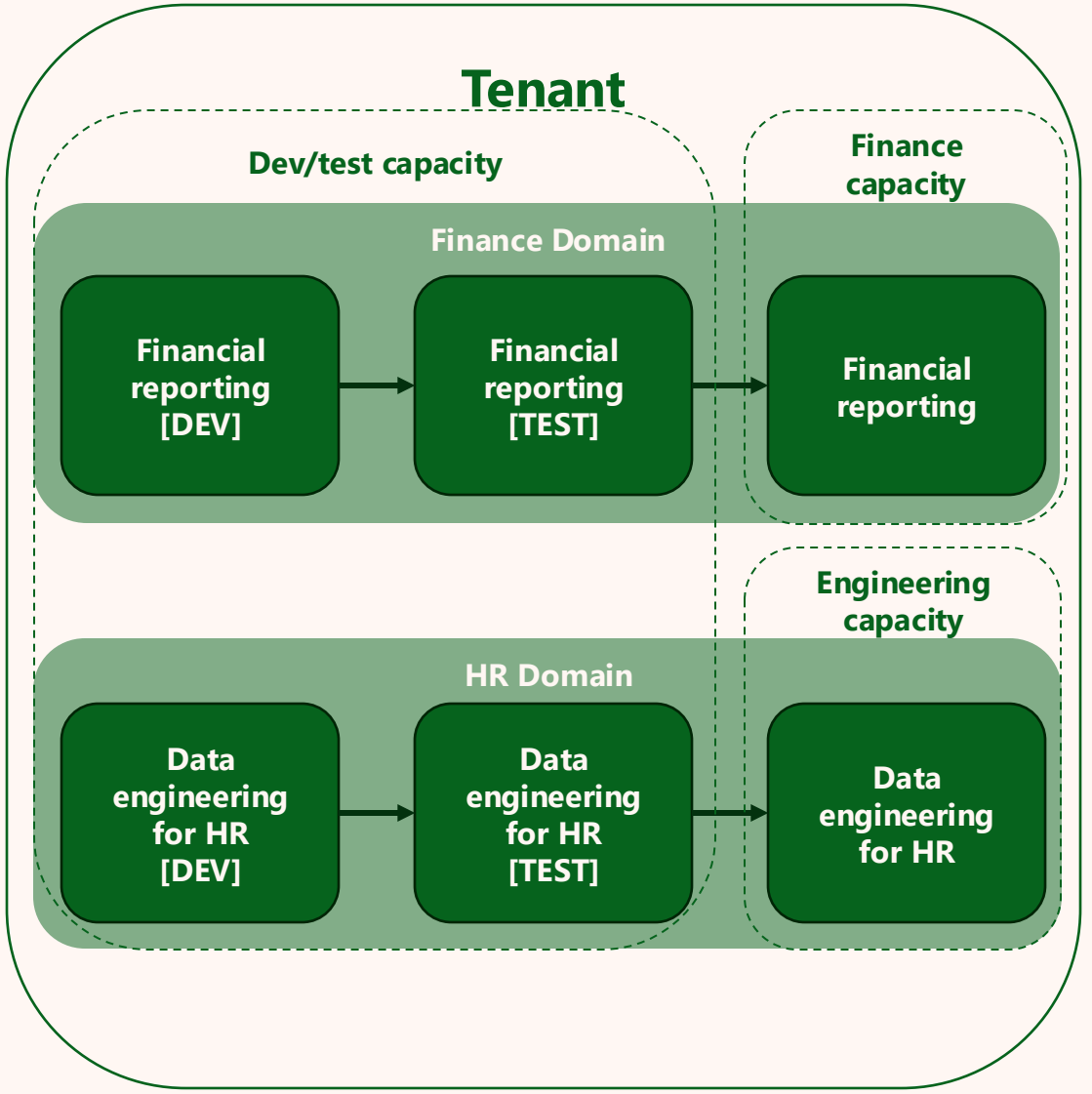
Capacity

Gateway



Building blocks of a Fabric tenant





Building blocks of a Fabric tenant

Tenant

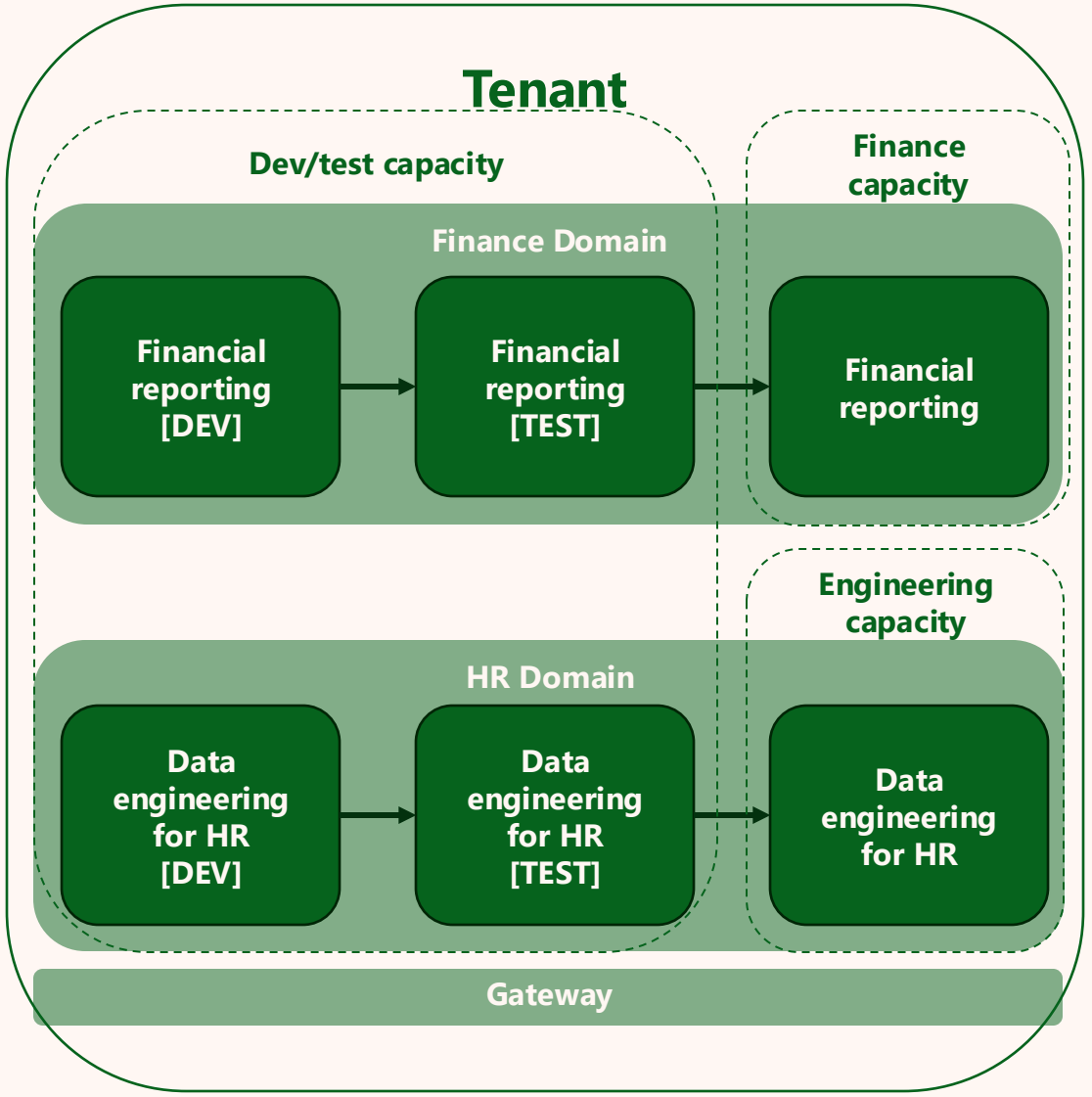
Workspace

Domain

Domain

Gateway

Securely create connections to data sources



Community Conference

Tenant Administration

Community Conference

Capacity Administration

Capacity Administration Topics

- Types and Purchase
- Understanding Consumption
- Roles, Settings and Control
- Monitoring

4(5) types of Capacities

- Power BI Premium (P SKU no longer available for purchase*)
- Power BI Embedded (A & EM SKU) **
- Trial (60 day free trial, size equivalent to F64)
- **Fabric Capacity (F SKU)**
- *Fabric Copilot Capacity*

* Important update coming to Power BI Premium licensing

** Can only be used for Power BI items

Microsoft Fabric concepts/licensing

Fabric Copilot capacity

- Capacity that can be enabled for Copilot usage without having items in Capacity backed workspace
- Tenant setting

Fabric Copilot capacity

- Capacity that can be enabled for Copilot usage without having items in Capacity backed workspace
- Tenant setting
- Capacity setting

Fabric Copilot capacity

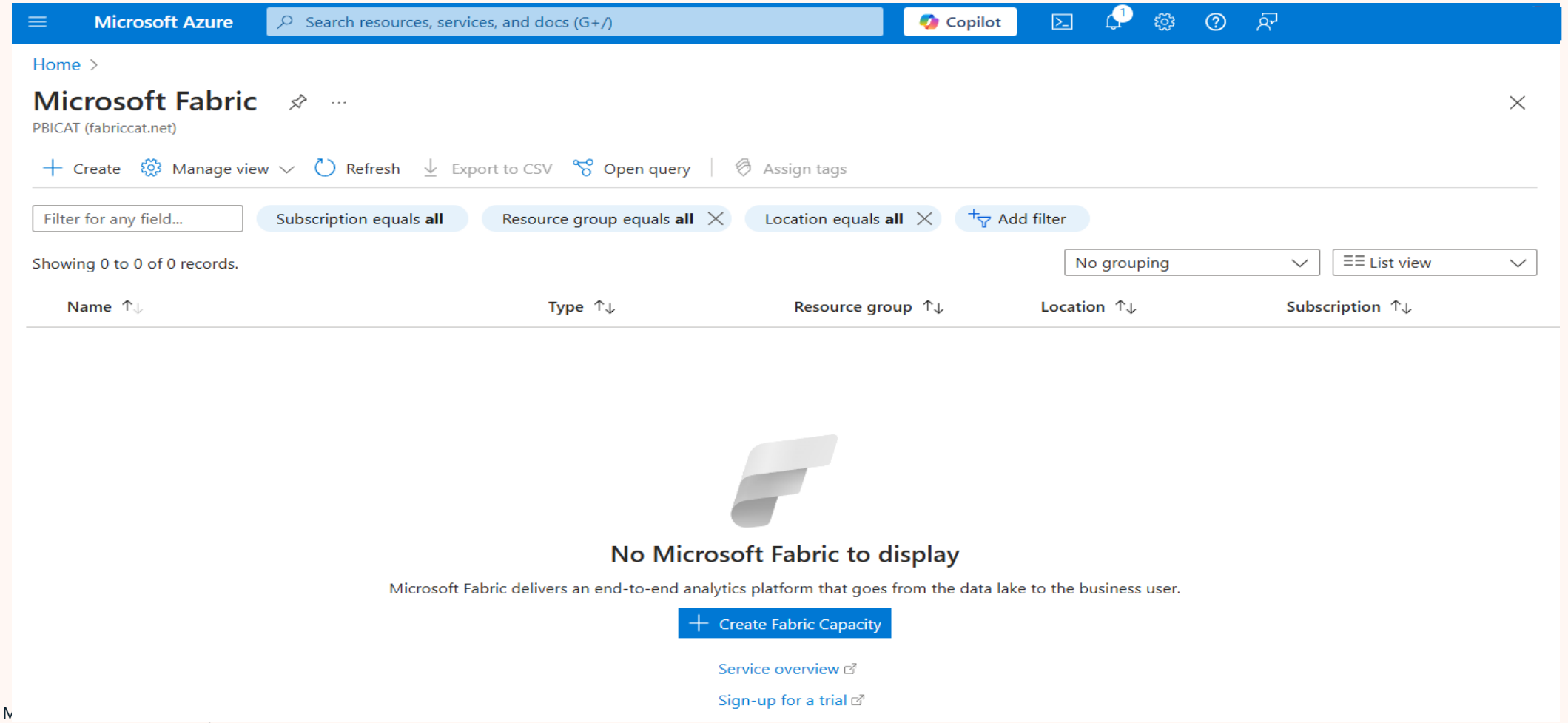
- Capacity that can be enabled for Copilot usage without having items in Capacity backed workspace
- Tenant setting
- Capacity setting
- Required F64+ or P1+
- All Copilot usage will consume the Fabric Copilot capacity

Fabric Copilot capacity

Introducing Fabric Copilot capacity: Democratizing AI usage in Microsoft Fabric

Purchasing capacity

- Azure Portal, need permission to purchase Fabric



Purchasing capacity

- Azure Portal, need permission to purchase Fabric
- Pay-as-you-go (PAYGO, one minute minimum) or 1-year Reservation
  - Microsoft Fabric - Pricing
  - Save costs with Microsoft Fabric Capacity reservations
- Price when scaling up
  - Pay-as-you-go: PAYGO
  - Reservations: PAYGO for CUs larger than Reservation

    A reservation that's smaller than the used capacity. For example, ***you buy 64 CUs of capacity and you deploy an F128****. In this example, your* ***discount is applied to 64 CUs*** *that were used. For the* ***remaining 64 CUs, you pay the pay-as-you-go*** *rate.*

Purchasing capacity – a couple of details to remember

- A capacity is purchased for a specific Azure region, and prices varies across regions
- You **cannot** move a workspace between capacities in **different regions** if it contains Fabric items
  Manage workspaces - Microsoft Fabric
- Fabric Quotas
  Announcing the launch of Microsoft Fabric Quotas
  Buy a Microsoft Fabric subscription
  - Limited Capacity Units available in each Azure region
  - Possible to request new quota

Subtopics

- What is a Capacity
- How to use Capacities
- Bursting and Smoothing
- Throttling
- Resize Capacity
- Pause/Resume Capacities

What is a Capacity

- Compute for Fabric workloads

- Shared **across workloads**
  - A single capacity is providing the compute power for all Fabric workloads in a workspace
- Shared **across projects**
  - A single capacity typically supports multiple projects simultaneously
- Shared **across users**
  - For each project, many developers will share a workspace where collaborative development and consumption at scale is managed

Compute in Capacity

- **Capacity Unit Seconds** or **CUs** "see-yews" are the base compute unit for all Capacities
- The more **CUs are provisioned, the more load** the Capacity can support
- Scaling up to a bigger capacity, is doubling the size of the capacity

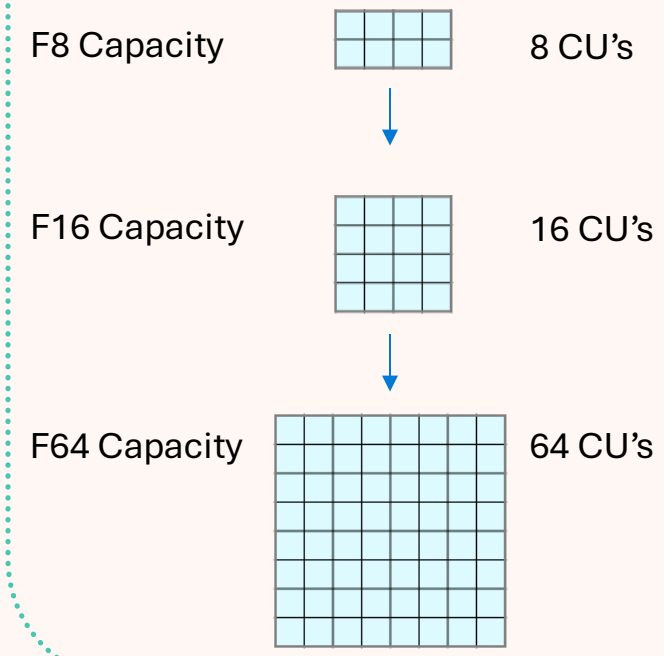
SKU*	Capacity Units (CU)	Power BI SKU	Power BI v-cores
F2	2	-	0.25
F4	4	-	0.5
F8	8	EM/A1	1
F16	16	EM2/A2	2
F32	32	EM3/A3	4
F64	64	P1/A4	8
Trial	64	-	8
F128	128	P2/A5	16
F256	256	P3/A6	32
F512	512	P4/A7	64
F1024	1024	P5/A8	128
F2048	2048	-	256

How to use Capacities

- Capacities can be configured to meet scale, usage and governance requirements while tuning to minimize TCO and performance goals

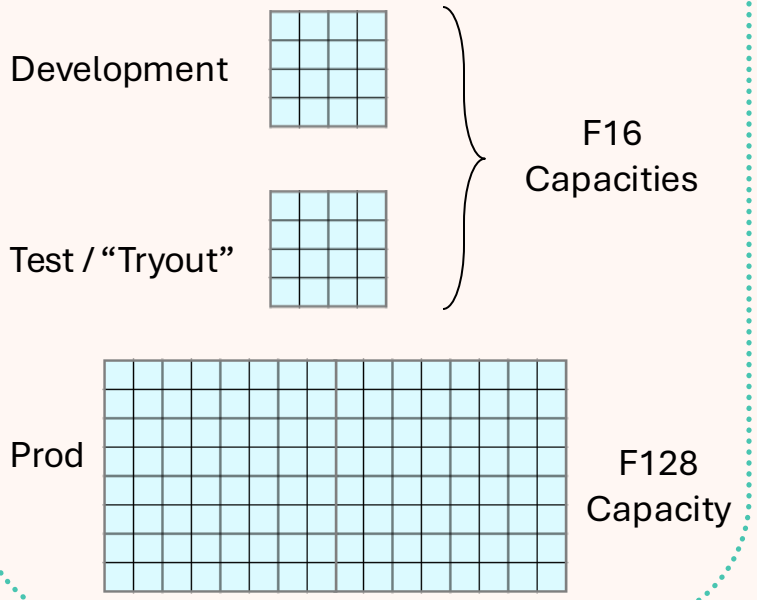
Scale Vertically

Increased capacity size provides more throughput



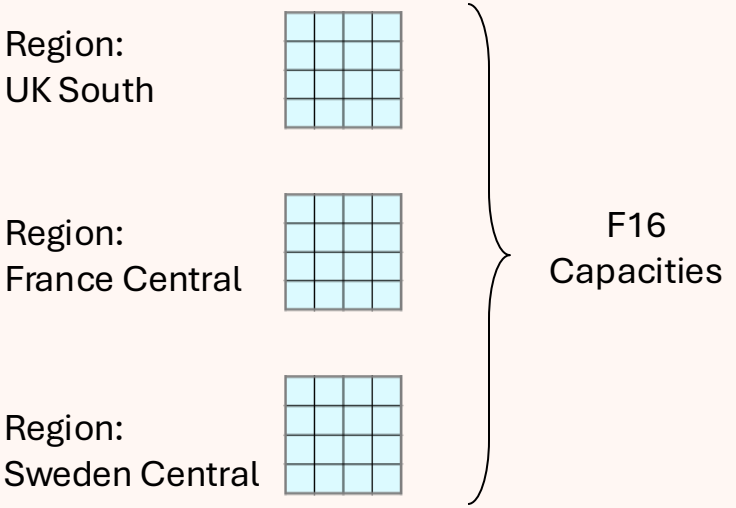
Scale Horizontally

Scale horizontally using the benefits of modular design for hardened isolation and governance



Regional Availability

Use different capacities for different regions to support GDPR / Data residency requirements

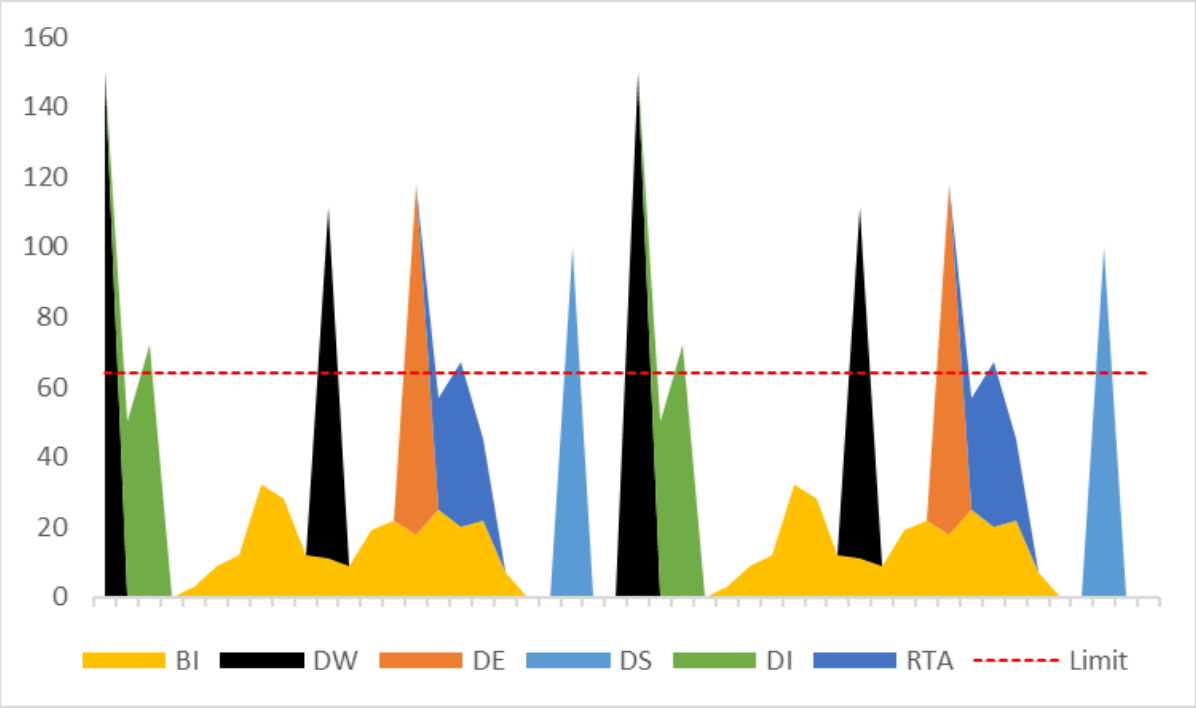


Bursting and Smoothing

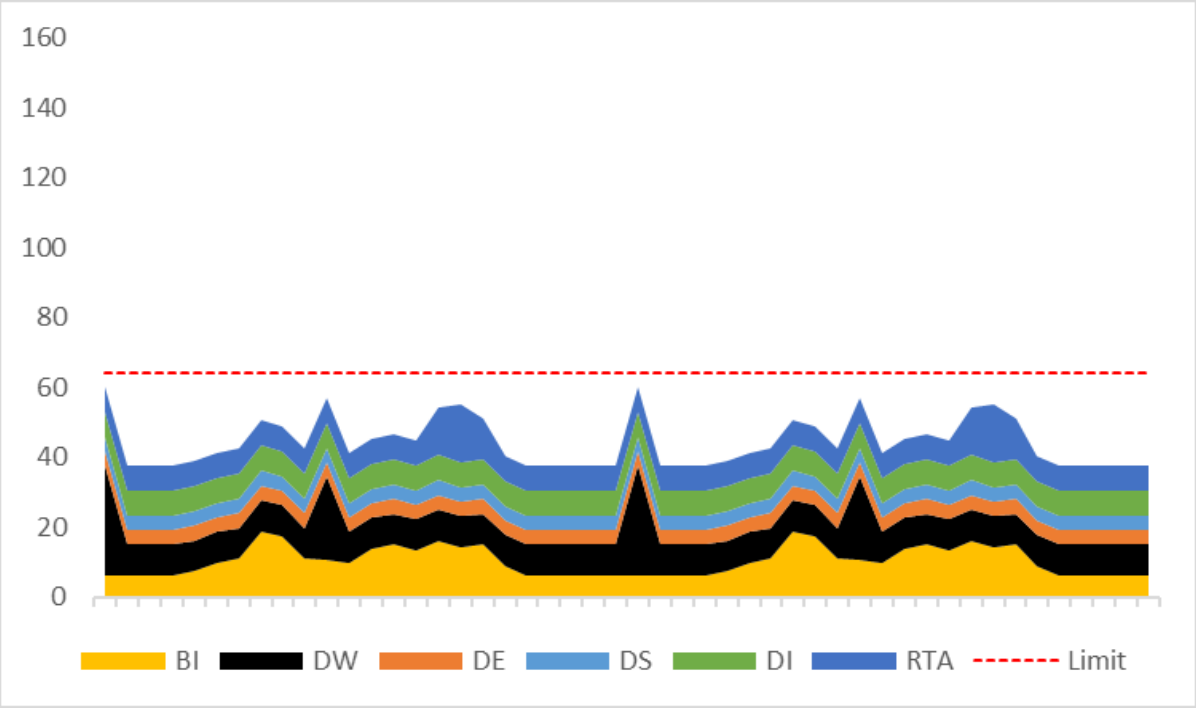
- **Bursting** allows jobs to run at peak performance
  - Users are happier because jobs complete faster
- **Smoothing** reduces the impact of spikes in compute
  - Pay for the compute from your future capacity
  - No need to schedule jobs after another one finishes

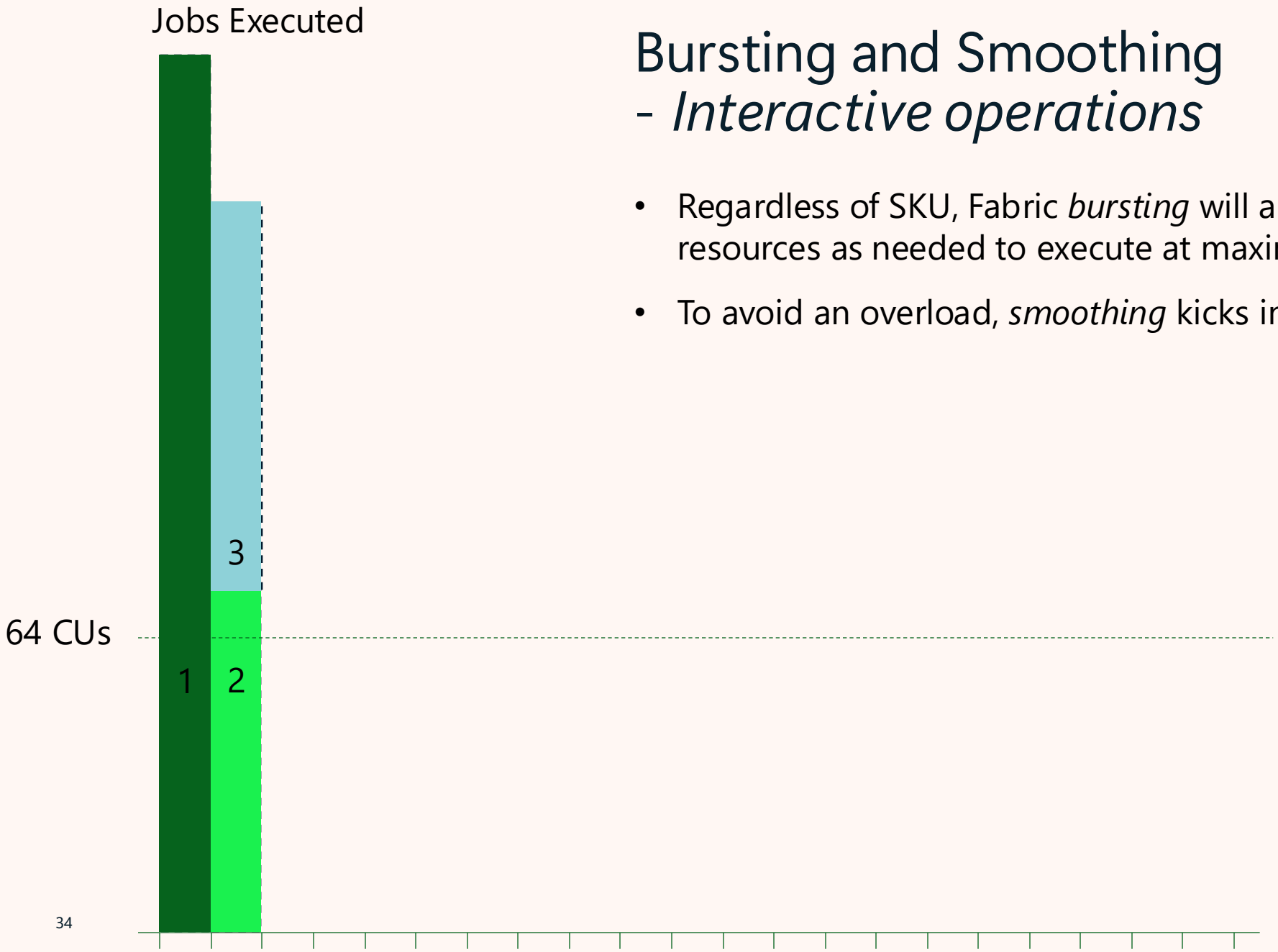
Bursting and Smoothing

Before Smoothing



After Smoothing



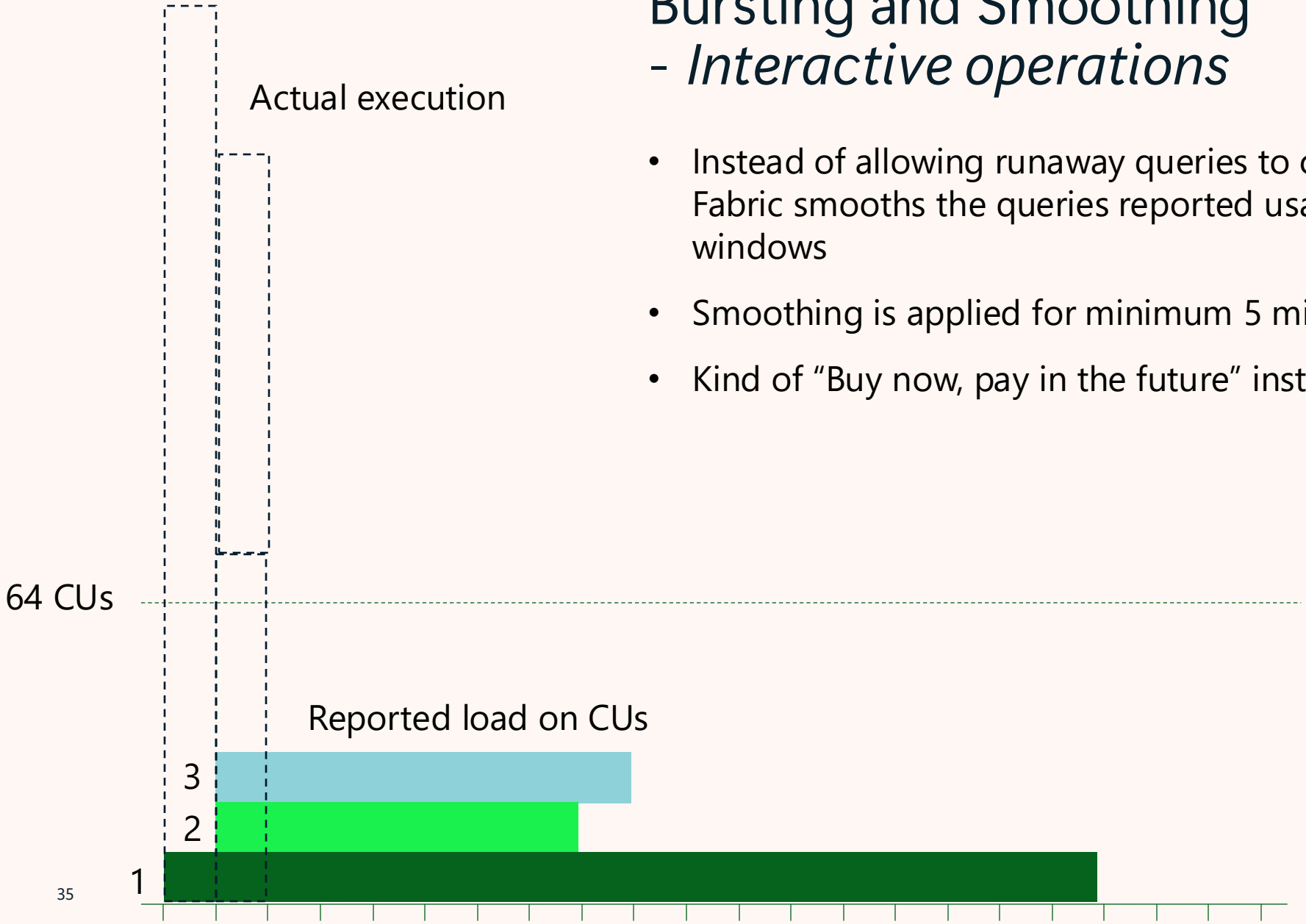


Bursting and Smoothing - *Interactive operations*

- Regardless of SKU, Fabric *bursting* will automatically allocate resources as needed to execute at maximum performance
- To avoid an overload, *smoothing* kicks in

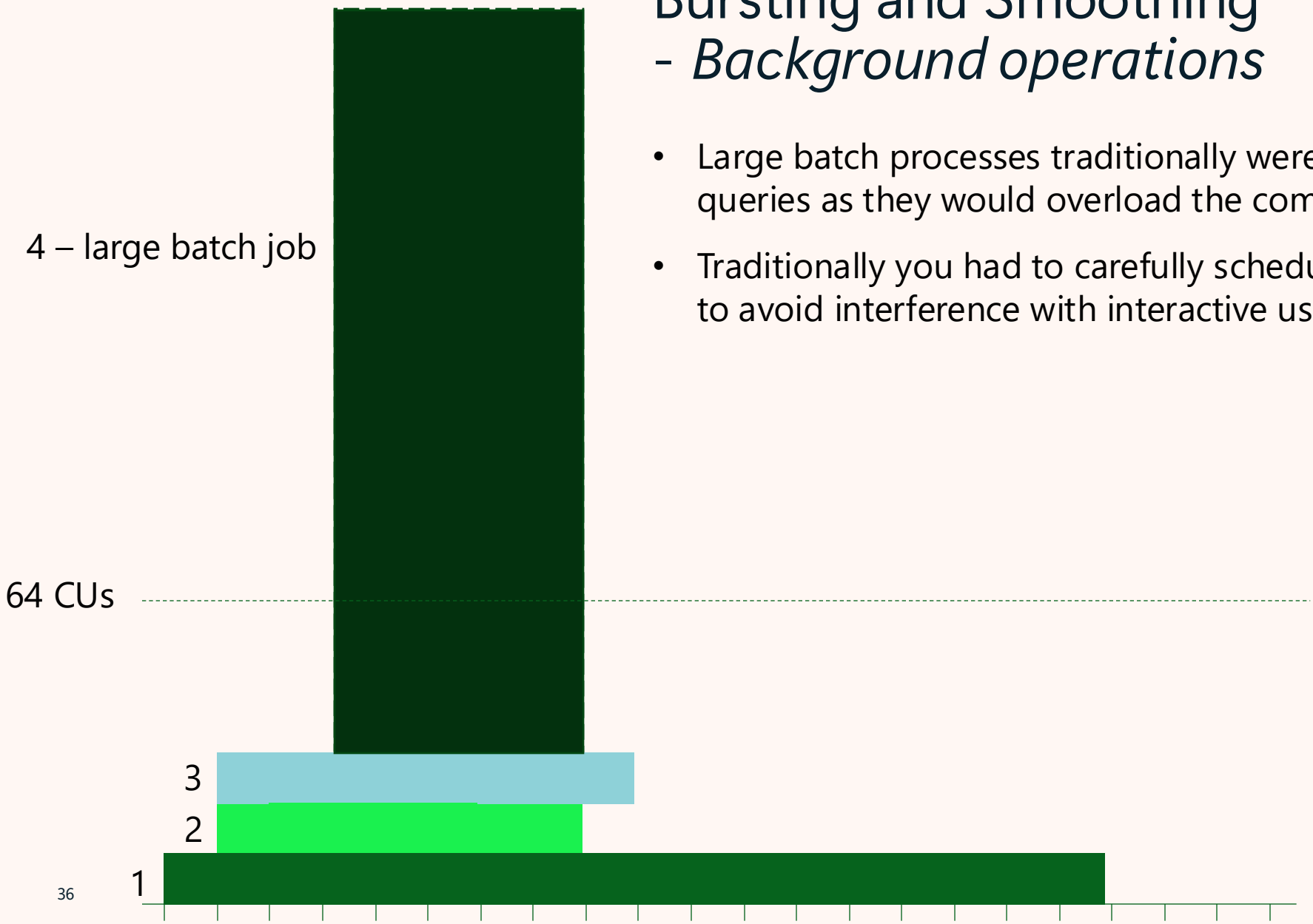
Bursting and Smoothing - *Interactive operations*

- Instead of allowing runaway queries to create a local overload, Fabric smooths the queries reported usage to future time windows
- Smoothing is applied for minimum 5 minutes
- Kind of “Buy now, pay in the future” installment plan



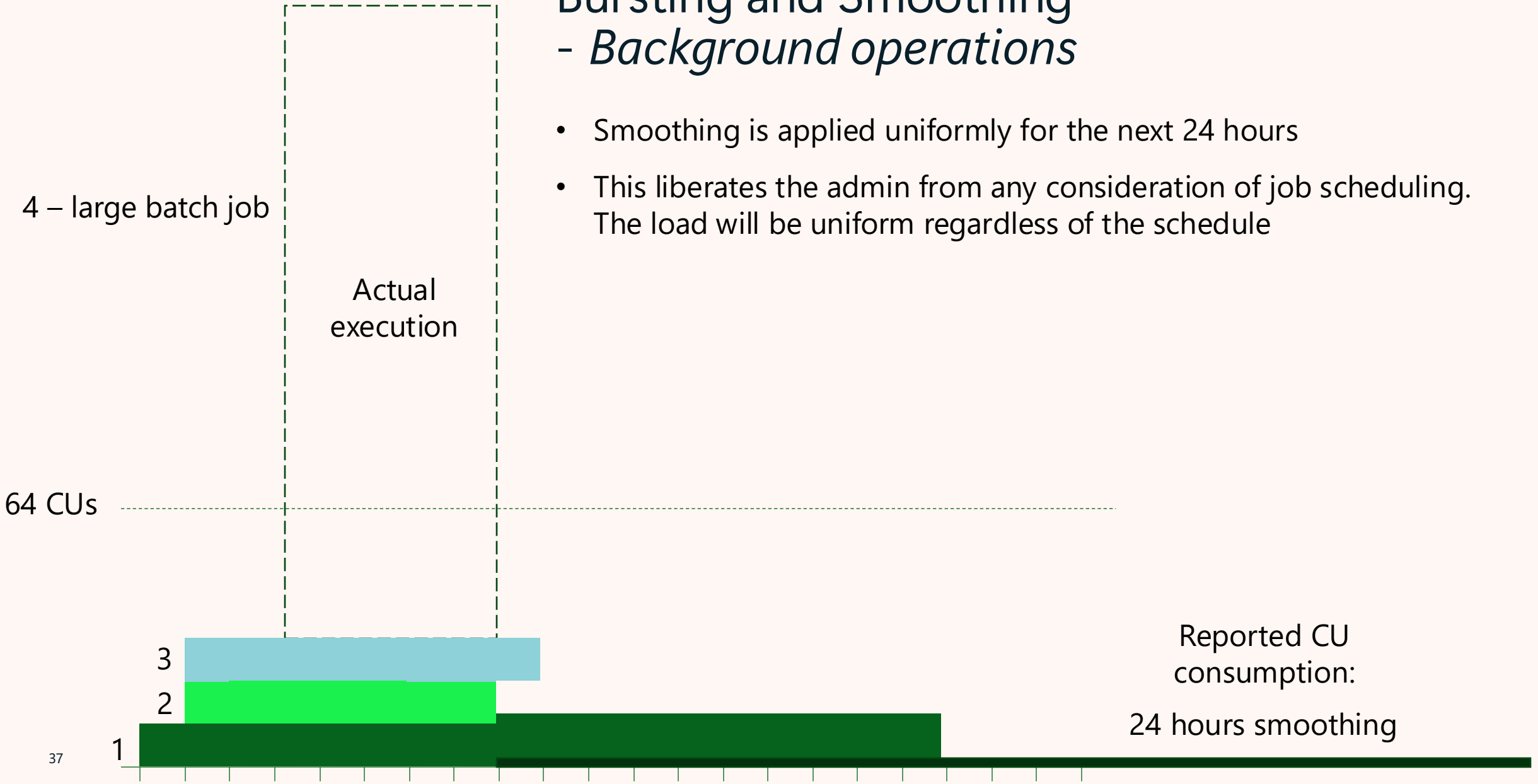
Bursting and Smoothing
- *Background operations*

- Large batch processes traditionally were a threat to interactive queries as they would overload the compute resource
- Traditionally you had to carefully schedule these jobs to off-hours to avoid interference with interactive user experiences



Bursting and Smoothing - *Background operations*

- Smoothing is applied uniformly for the next 24 hours
- This liberates the admin from any consideration of job scheduling. The load will be uniform regardless of the schedule



Throttling

- Capacities offer built-in resource governance
- A sustained overuse will result in throttling
- You won’t use your monthly budget in a single day
- When capacities throttle usage users will see the **CapacityLimitExceeded** error code in the detailed message
- Be aware that users may experience delays, slowness, or failures due to **workload limits**. These are unrelated to Capacity Throttling

Throttling

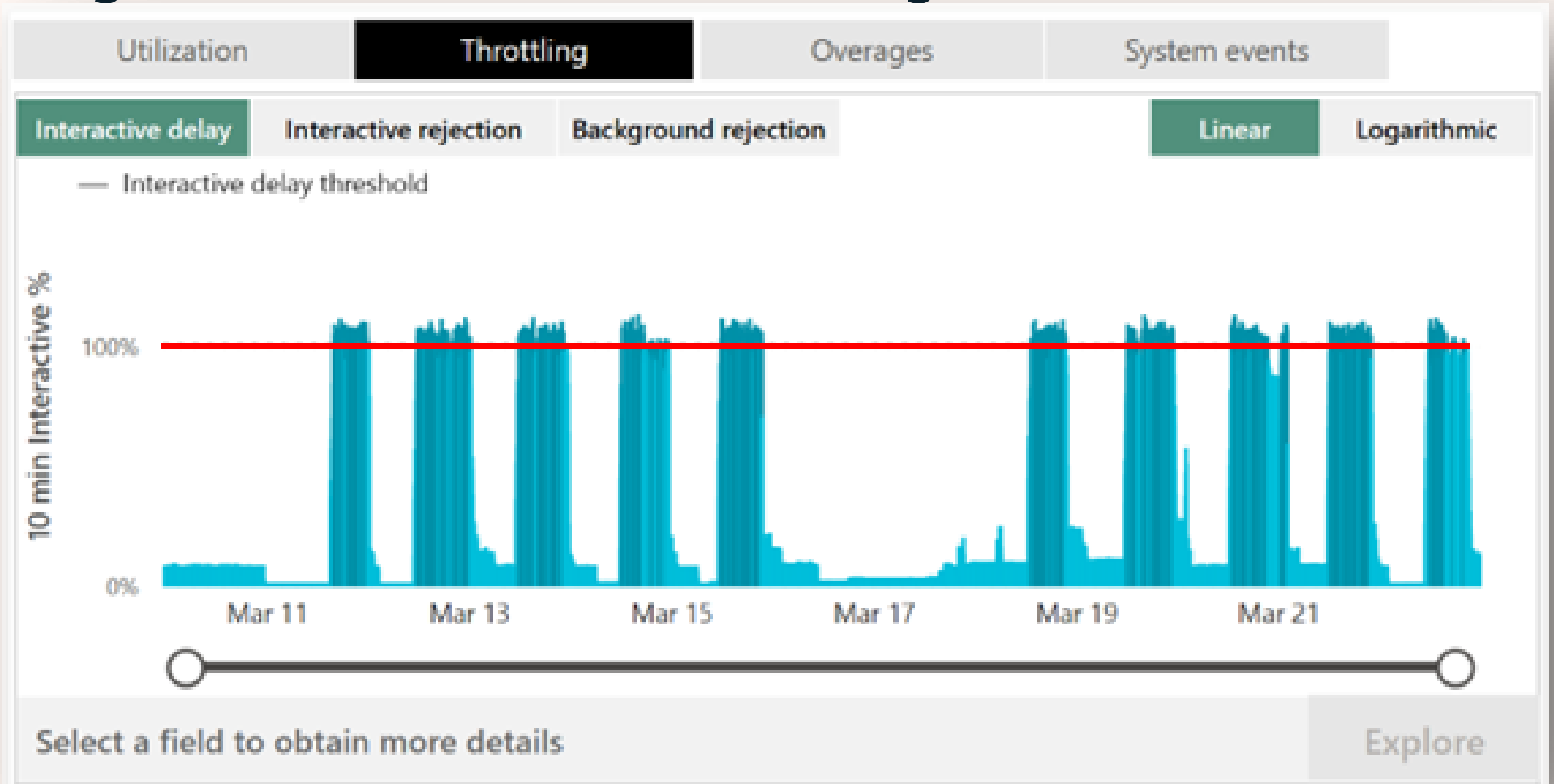
1. First, interactive requests are delayed
2. Then interactive requests are rejected
3. Background requests are rejected

Understand your Fabric capacity throttling

Usage	Policy Limits	Platform Policy Experience Impact
Usage <= 10 minutes	Overage protection	Jobs can consume 10 minutes of future capacity use without throttling.
10 minutes < Usage <= 60 minutes	Interactive Delay	User-requested interactive jobs are delayed 20 seconds at submission.
60 minutes < Usage <= 24 hours	Interactive Rejection	User-requested interactive jobs are rejected.
Usage > 24 hours	Background Rejection	All requests are rejected.

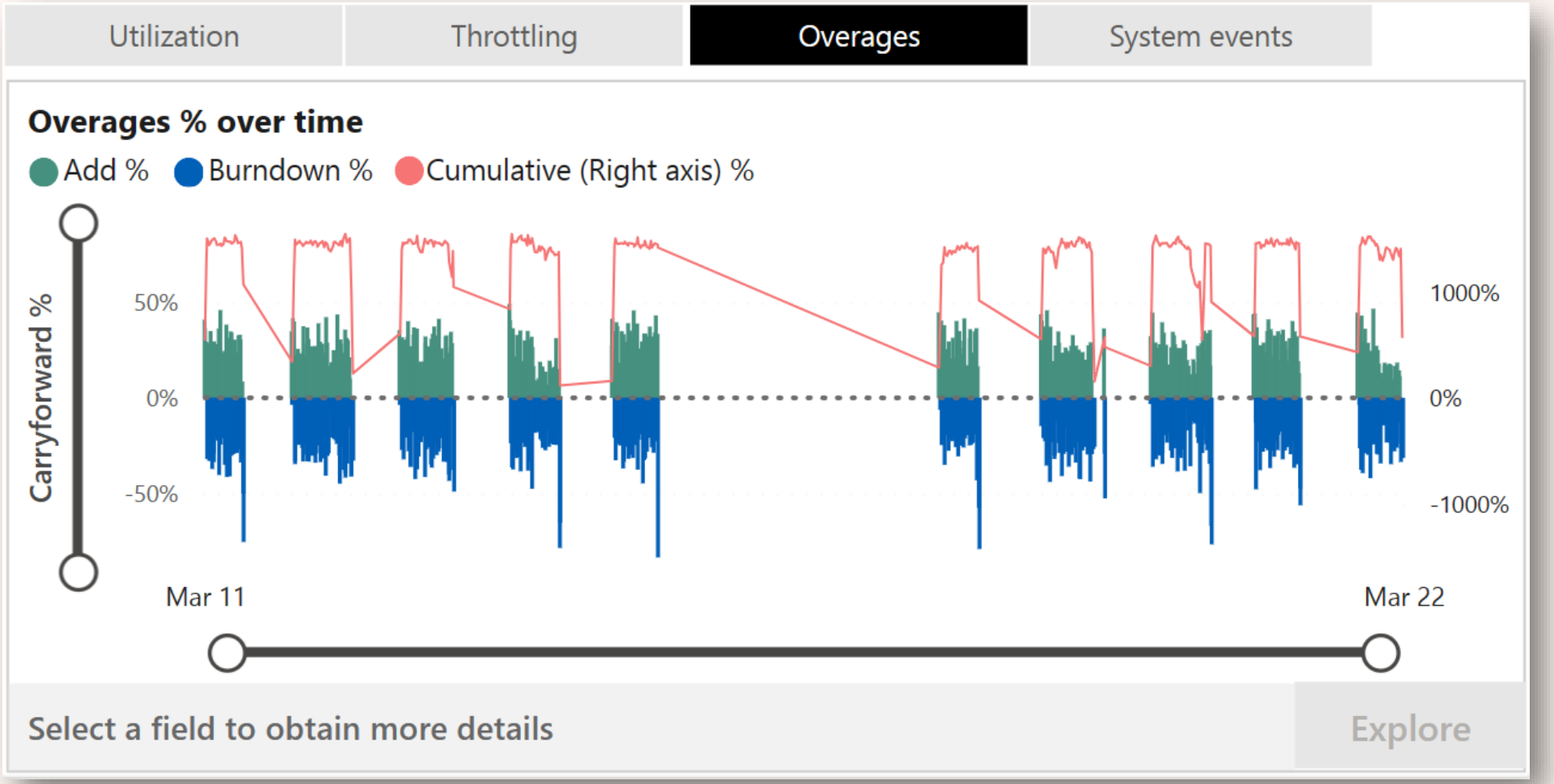
Throttling

- When throttling is happening, you'll see it in the Metrics App. Overages occur when smoothed usage exceeds 100%.



Throttling

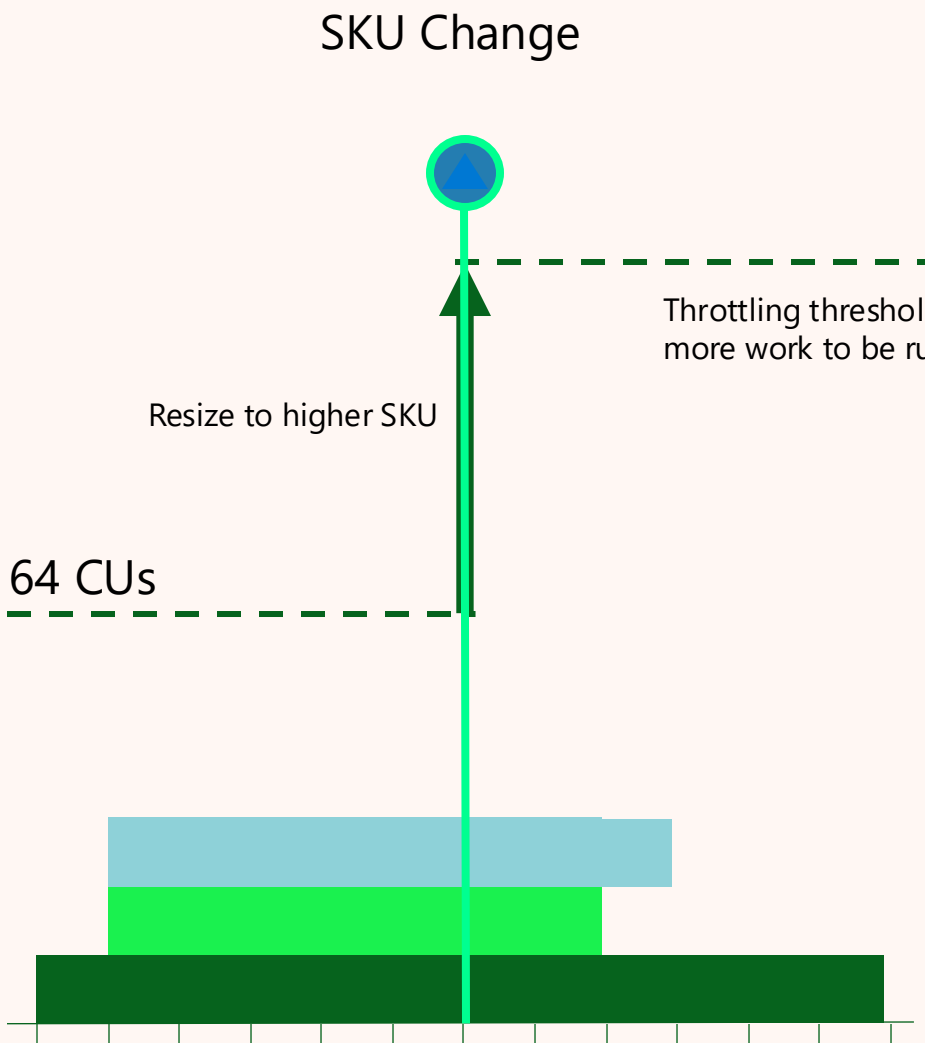
- Overages burn down when your capacity has **unused** CUs



Resize Capacity

When a capacity is **resized**…

The allowed CUs per timepoint increase or decrease.
This changes the throttling allowed limits based on the new SKU's CUs and the throttling windows.



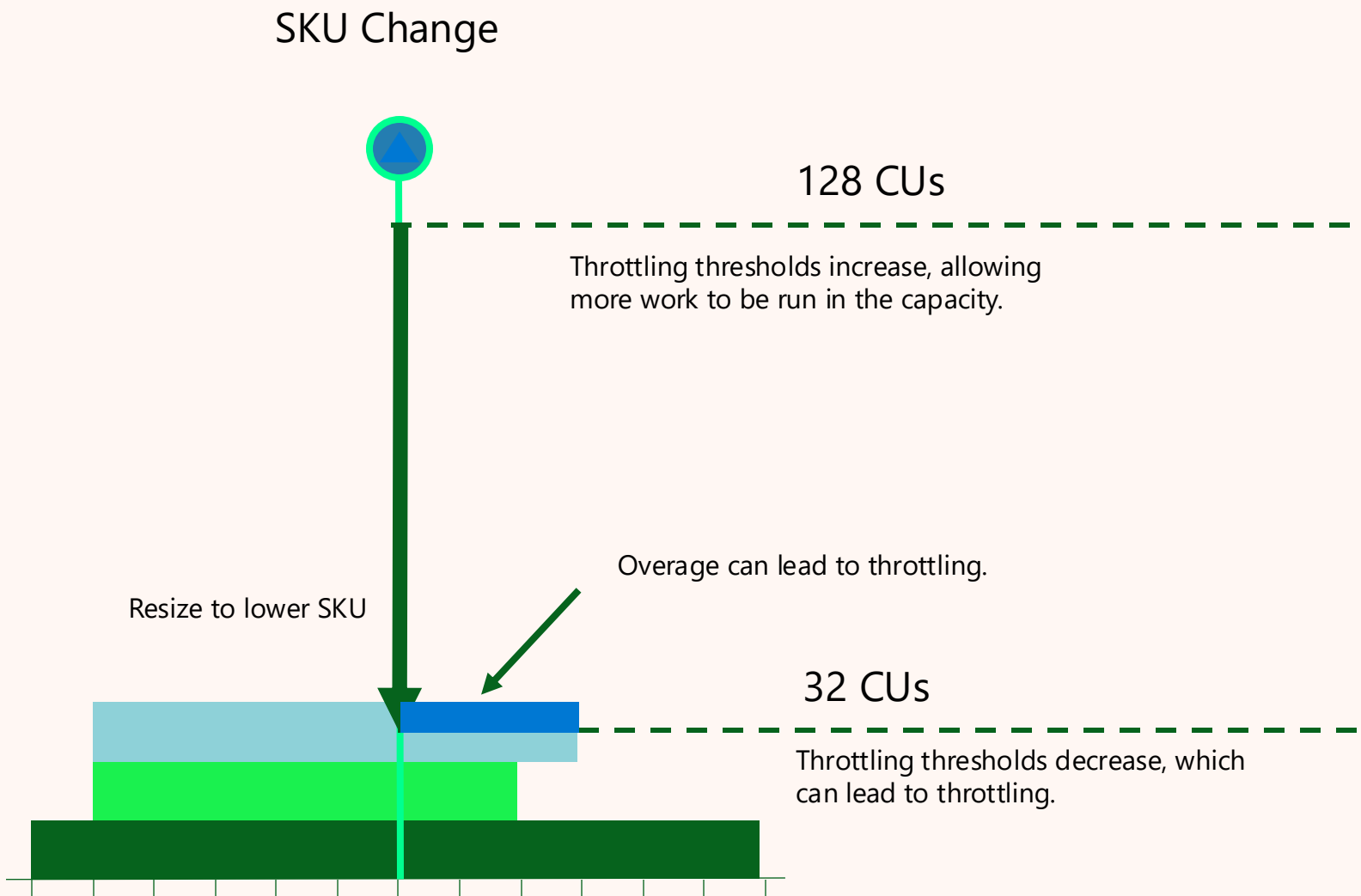
Key Insights

- Sizing **up** will incur the cost of the new SKU

Resize Capacity

When a capacity is **resized**…

The allowed CUs per timepoint increase or decrease.
This changes the throttling allowed limits based on the new SKU's CUs and the throttling windows.



Key Insights

- Sizing **down** will incur the cost of the new SKU
- Sizing down could lead to more throttling
- Review your Throttling Thresholds before sizing down your SKU

Pausing and Resuming Capacities

Why pause capacities?

- It helps manage compute costs
- It clears any debt that has accumulated. Use it to quickly resolve throttling

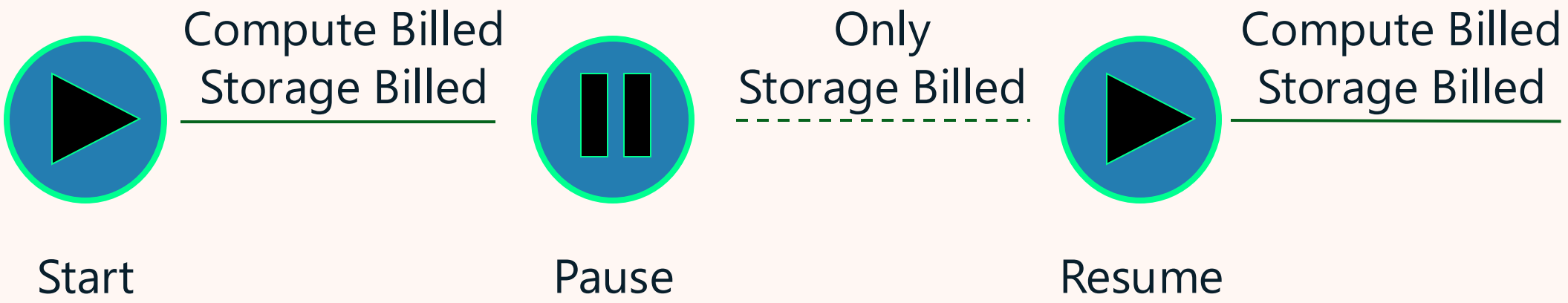
What does it do?

Workloads stop execution within 10 minutes of Pause action

New requests are not allowed to Start

Smoothed usage will be reconciled

Pausing and Resuming Capacities



Pausing and Resuming Capacities

When a capacity is **paused**…

Pause event on Capacity

64 CUs

Total smoothed usage is shown as compute utilization on the timepoint directly after the Pause event.

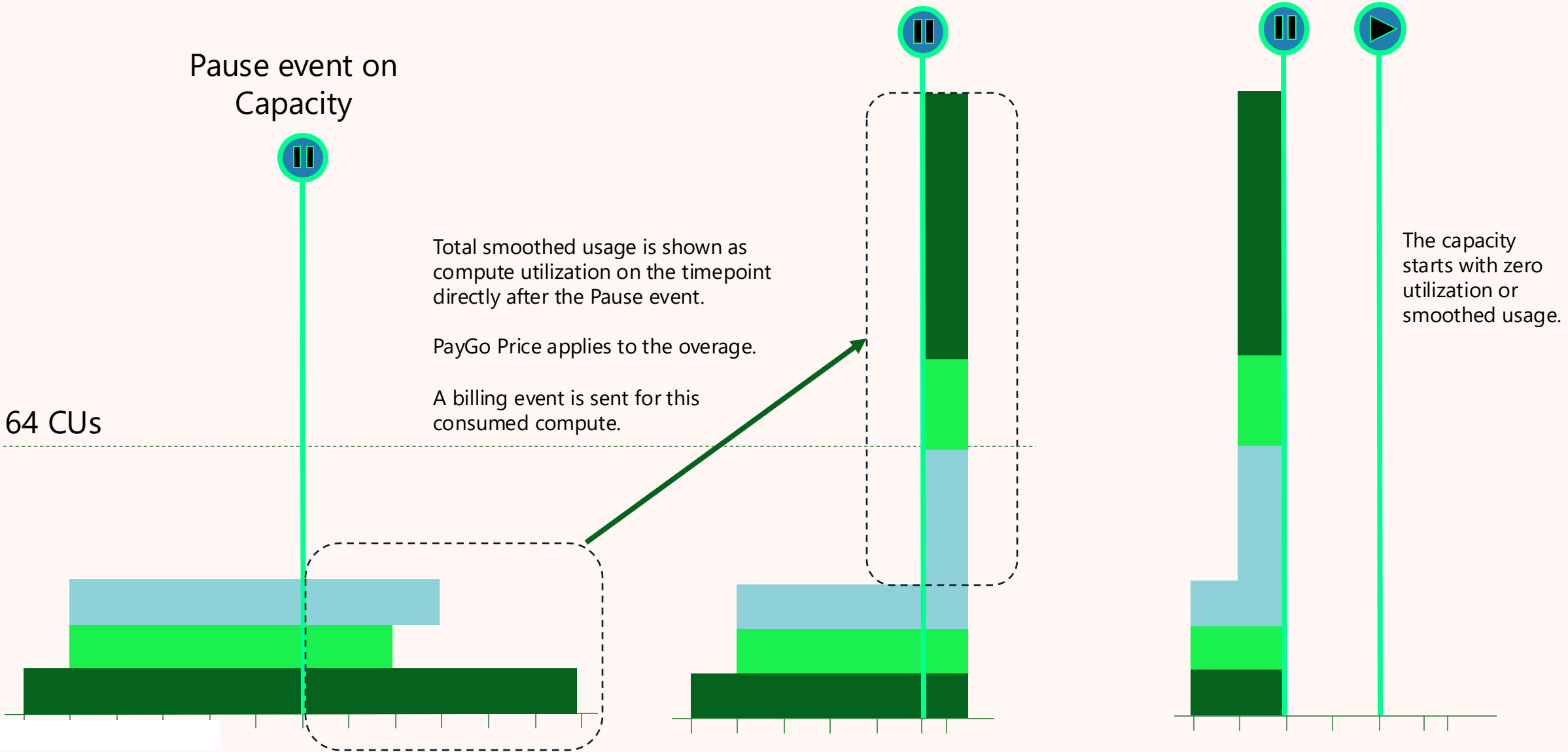
PayGo Price applies to the overage.

A billing event is sent for this consumed compute.

Smoothed usage is **reconciled**

Later, it can be **resumed**

The capacity starts with zero utilization or smoothed usage.



Admin permissions

- Configured in Admin portal > Capacity settings
- **Contributor permission**
  Add or remove workspaces from capacity
- **Admin permission**
  Same as Contributor + change capacity settings, add contributors
  Configured in Azure Portal for Power BI Embedded
  Not applicable for Trial capacity

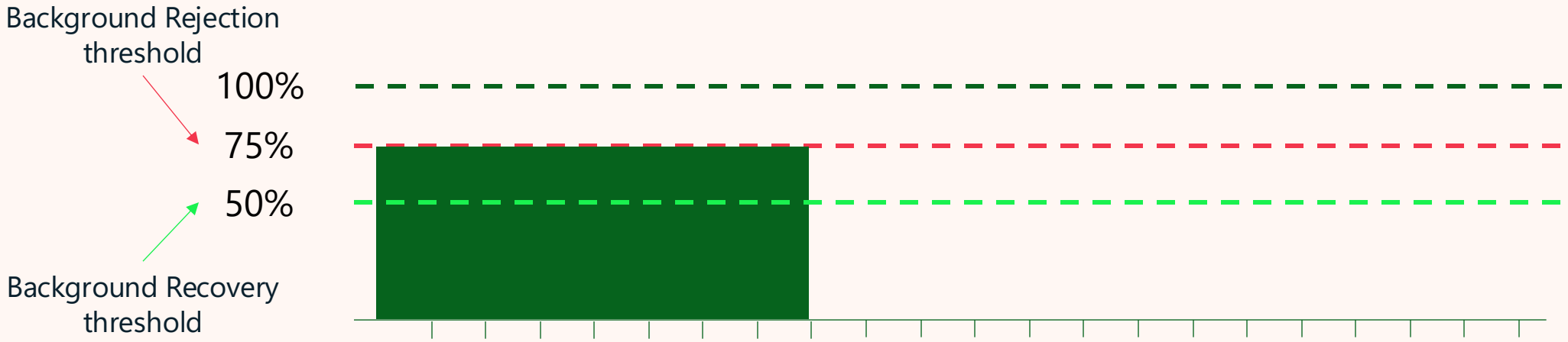
Capacity settings (P & F Capacities)

- Disaster Recovery
- Capacity usage report
- Surge Protection
- Notifications
- Copilot capacity
- Contributor permissions
- Admin permissions
- Power BI workloads
- Preferred capacity for My workspace
- Data Engineering/Science Settings
- Workspaces assigned to this capacity
- Delegated tenant settings

Fabric capacity settings

Surge Protection

- Applicable for background operations
- Jobs in progress are not affected by surge protection
- Background Rejection threshold
  When surge protection becomes active, apply to 24-hour background percentage
- Background Recovery threshold
  When surge protection stops being active, i.e. new background operations can start

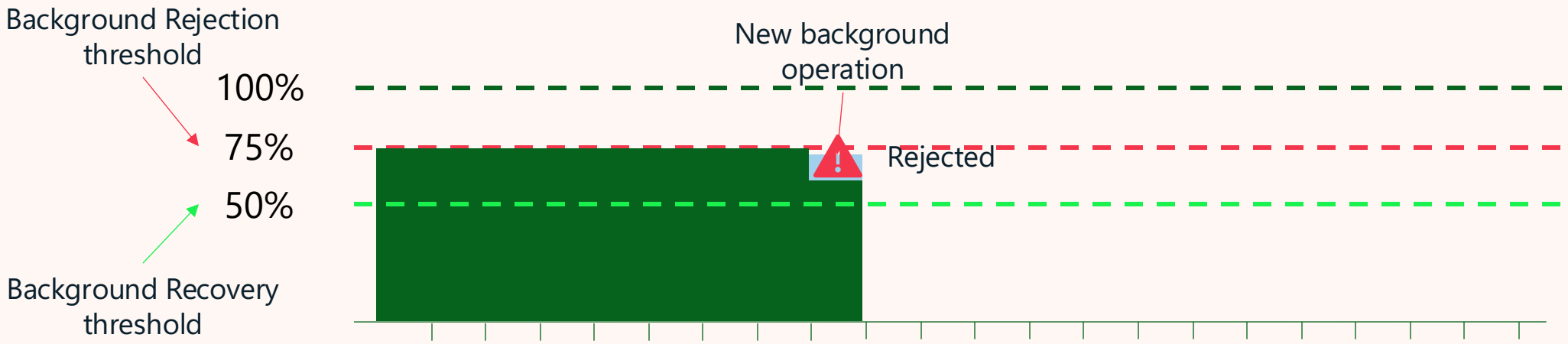


Surge Protection

- Applicable for background operations
- Jobs in progress are not affected by surge protection
- Background Rejection threshold
  When surge protection becomes active, apply to 24-hour background percentage
- Background Recovery threshold
  When surge protection stops being active, i.e. new background operations can start

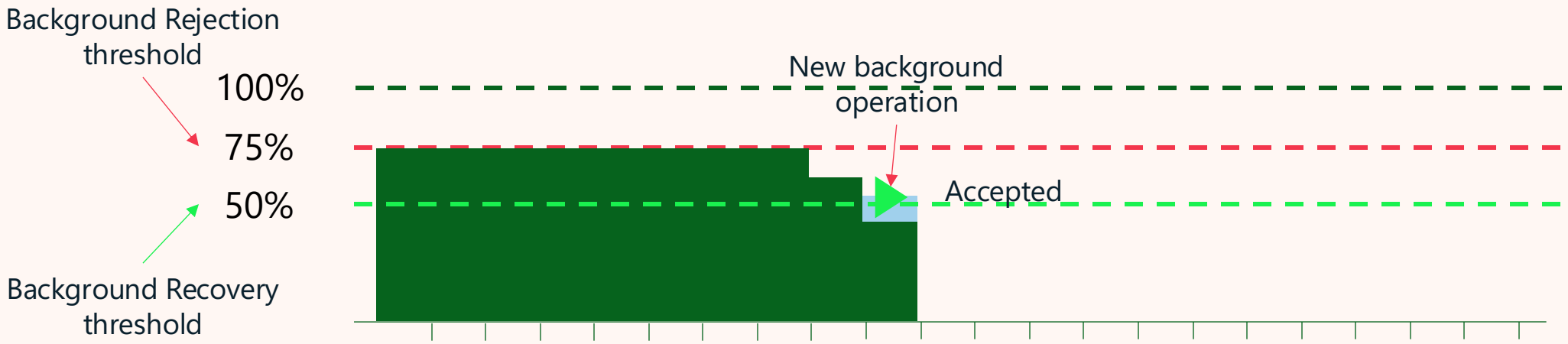
Surge Protection

- Applicable for background operations
- Jobs in progress are not affected by surge protection
- Background Rejection threshold
  When surge protection becomes active, apply to 24-hour background percentage
- Background Recovery threshold
  When surge protection stops being active, i.e. new background operations can start



Surge Protection

- Applicable for background operations
- Jobs in progress are not affected by surge protection
- Background Rejection threshold
  When surge protection becomes active, apply to 24-hour background percentage
- Background Recovery threshold
  When surge protection stops being active, i.e. new background operations can start



Microsoft Fabric Capacity Metrics app

- Built-in report that you can install
- Prerequisite:
  - Must be capacity admin (after install, it can be share with others)
  - Requires a Pro license
- Installed in its own workspace
  - Avoid assigning capacity to the workspace
- New versions of report requires update
- Semantic model is a composite model, requires refresh to see new items created

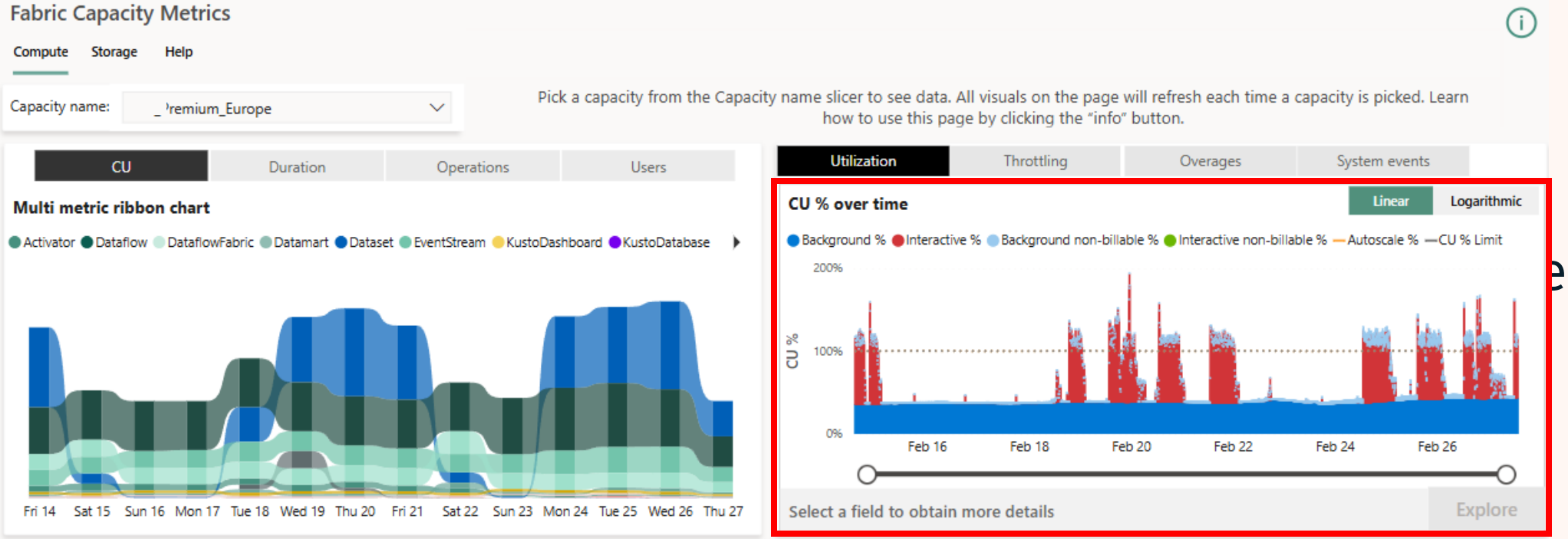
Microsoft Fabric Capacity Metrics app

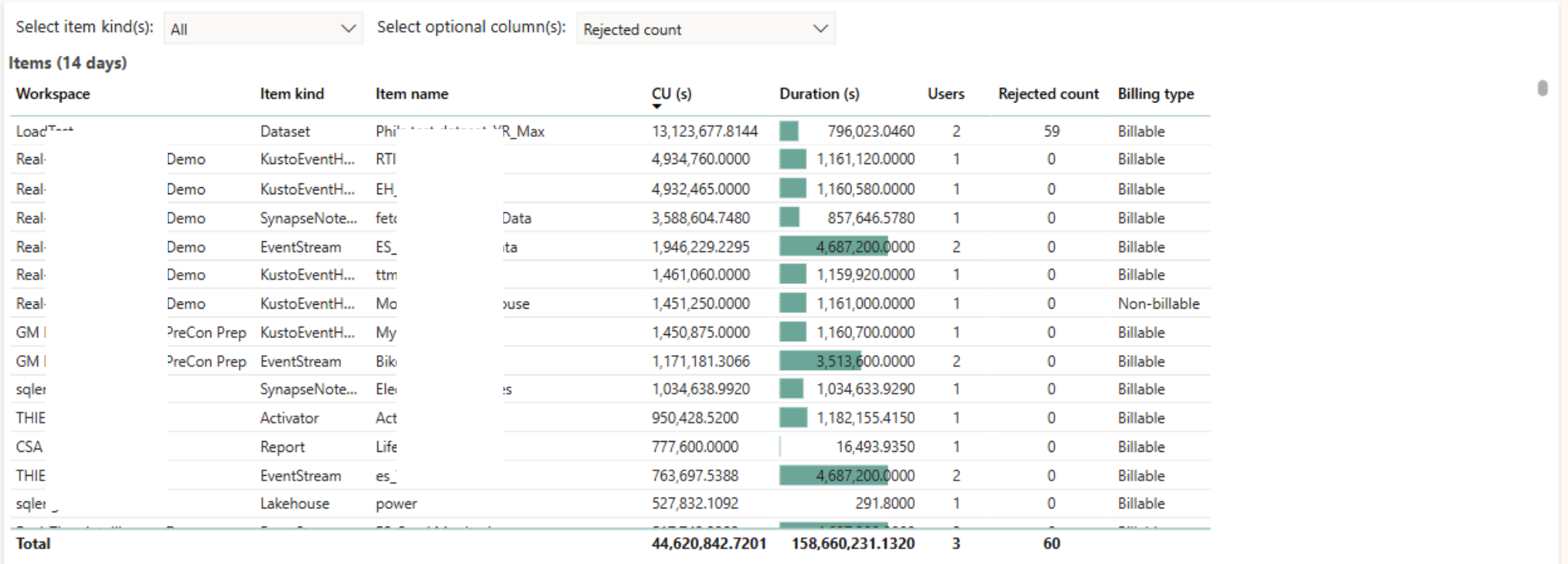
- Tenant wide visibility into capacity usage for all Fabric experiences
- Monitor **CU consumption** and **OneLake usage**
- You can get an overview of the state of a capacity

Mic

- Ter
- Mo
- Yo

es





Workspace	Item kind	Item name	CU (s)	Duration (s)	Users	Rejected count	Billing type
LoadTest	Dataset	Phi R_Max	13,123,677.8144	796,023.0460	2	59	Billable
Real Demo	KustoEventH...	RTI	4,934,760.0000	1,161,120.0000	1	0	Billable
Real Demo	KustoEventH...	EH_	4,932,465.0000	1,160,580.0000	1	0	Billable
Real Demo	SynapseNote...	fet Data	3,588,604.7480	857,646.5780	1	0	Billable
Real Demo	EventStream	ES_ ta	1,946,229.2295	4,687,200.0000	2	0	Billable
Real Demo	KustoEventH...	ttm	1,461,060.0000	1,159,920.0000	1	0	Billable
Real Demo	KustoEventH...	Mo ouse	1,451,250.0000	1,161,000.0000	1	0	Non-billable
GM PreCon Prep	KustoEventH...	My	1,450,875.0000	1,160,700.0000	1	0	Billable
GM PreCon Prep	EventStream	Bik	1,171,181.3066	3,513,600.0000	2	0	Billable
sqle	SynapseNote...	Ele s	1,034,638.9920	1,034,633.9290	1	0	Billable
THIE	Activator	Act	950,428.5200	1,182,155.4150	1	0	Billable
CSA	Report	Life	777,600.0000	16,493.9350	1	0	Billable
THIE	EventStream	es_	763,697.5388	4,687,200.0000	2	0	Billable
sqle	Lakehouse	power	527,832.1092	291.8000	1	0	Billable
Total			**44,620,842.7201**	**158,660,231.1320**	**3**	**60**	

Microsoft Fabric Capacity Metrics app

- Tenant wide visibility into capacity usage for all Fabric experiences
- Monitor **CU consumption** and **OneLake usage**
- You can get an overview of the state of a capacity
- And drill into TimePoint Details to see activities in 30-second intervals

Mic

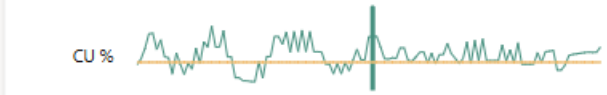
- Ter
- Mo
- You
- An

es

ervals

Fabric Capacity Metrics

Start : 2/24/2025 11:00:30 PM
End : 2/24/2025 11:01:00 PM



57	100K	P1	1920
Interactive operations	Background operations	SKU	CU (s)

Interactive operations for timerange

Select optional column(s): Billing type

Workspace	Item kind	Item name	Operation	Start	End	Status	User	Duration (s)	Total CU (s)	Timepoint CU (s)	Throttling (s)	% of Base capacity	Billing type
LoadTest	Dataset	F ataset_YR_...	Query	2/24/2025 10:55:5...	2/24/2025 10:56:...	Success	se erbicat....	114	1,707.5040	170.7504	0	8.89%	Billable
LoadTest	Dataset	F ataset_YR_...	Query	2/24/2025 10:58:3...	2/24/2025 10:59:...	Success	se erbicat....	108	1,627.5040	162.7504	40	8.48%	Billable
LoadTest	Dataset	F ataset_YR_...	Query	2/24/2025 10:58:4...	2/24/2025 10:59:...	Success	se erbicat....	58	861.2480	86.1248	20	4.49%	Billable
LoadTest	Dataset	F ataset_YR_...	Query	2/24/2025 10:58:4...	2/24/2025 10:59:...	Success	se erbicat....	59	860.2560	86.0256	20	4.48%	Billable
LoadTest	Dataset	F ataset_YR_...	Query	2/24/2025 10:56:0...	2/24/2025 10:57:...	Success	se erbicat....	56	819.7440	81.9744	0	4.27%	Billable
LoadTest	Dataset	F ataset_YR_...	Query	2/24/2025 10:56:1...	2/24/2025 10:57:...	Success	se erbicat....	56	819.2480	81.9248	0	4.27%	Billable
LoadTest	Dataset	F ataset_YR_...	Query	2/24/2025 10:57:1...	2/24/2025 10:58:...	Success	se erbicat....	54	797.2480	79.7248	0	4.15%	Billable
LoadTest	Dataset	F ataset_YR_...	Query	2/24/2025 10:57:1...	2/24/2025 10:58:...	Success	se erbicat....	53	795.5040	79.5504	0	4.14%	Billable
LoadTest	Dataset	F ataset_YR_...	Query	2/24/2025 10:55:1...	2/24/2025 10:56:...	Success	se erbicat....	54	782.0000	78.2000	0	4.07%	Billable
LoadTest	Dataset	F ataset_YR_...	Query	2/24/2025 10:59:3...	2/24/2025 11:00:...	Success	se erbicat....	52	782.0000	78.2000	0	4.07%	Billable
Total								**977**	**14,486.9...**	**1,448.6995**	**80**	**75.45%**	

Background operations for timerange

Select optional column(s): Billing type

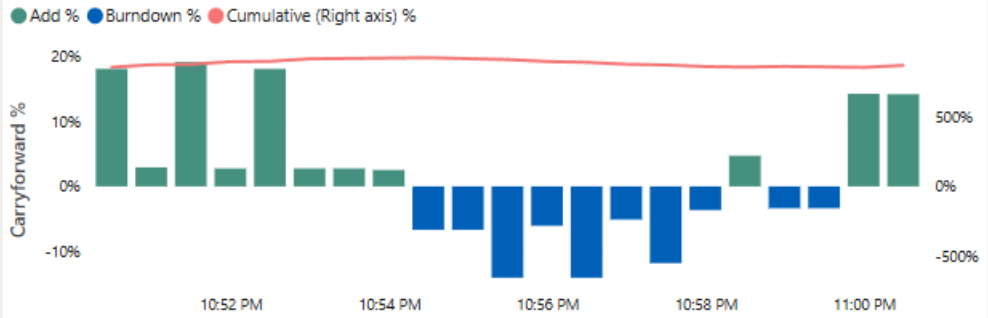
Workspace	Item kind	Item name	Operation	Start	End	Status	User	Duration (s)	Total CU (s)	Timepoint CU (s)	Throttling (s)	% of Base capacity	Billing type
L ctivator	Activator	Stream Bike Reflex De...	Event Ingestion	2/23/2025 10:49...	2/24/2025 10:53...	Success	laar erbic...	264	2,122.2000	0.7369	0	0.04%	Billable
C UG De...	Activator	NewsReflex2	Rule Uptime Per ...	2/23/2025 10:48...	2/24/2025 10:48...	Success	chw erbic...	86,400	1,918.0800	0.6660	0	0.03%	Billable
R ntellige...	Activator	MSOfficeEbikeAlert	Rule Uptime Per ...	2/23/2025 10:48...	2/24/2025 10:48...	Success	dev iccat.n...	86,400	1,918.0800	0.6660	0	0.03%	Billable
R ntellige...	Activator	My activator1	Rule Uptime Per ...	2/23/2025 10:48...	2/24/2025 10:48...	Success	dev iccat.n...	86,400	1,918.0800	0.6660	0	0.03%	Billable
M ace	Activator	Gold_Alert	Rule Uptime Per ...	2/23/2025 10:48...	2/24/2025 10:48...	Success	eiki :cat.net	86,400	1,918.0800	0.6660	0	0.03%	Billable
C ace Mo...	Activator	MonitorErrors	Rule Uptime Per ...	2/23/2025 10:49...	2/24/2025 10:49...	Success	chw erbic...	86,400	1,918.0800	0.6660	0	0.03%	Billable
L ctivator	Activator	Activator Power Auto...	Rule Uptime Per ...	2/23/2025 10:49...	2/24/2025 10:49...	Success	laar erbic...	86,400	1,918.0800	0.6660	0	0.03%	Billable
al n_team1	Activator	alm_checkin_team1_a...	Rule Uptime Per ...	2/23/2025 10:49...	2/24/2025 10:49...	Success	sasa iccat.n...	86,400	1,918.0800	0.6660	0	0.03%	Billable
T TEST	Activator	ActYellowTaxi	Rule Uptime Per ...	2/23/2025 10:52...	2/24/2025 10:42...	Success	thie riccat....	85,800	1,904.7600	0.6614	0	0.03%	Billable
Total								**4,861,512**	**2,421,193...**	**840.6921**	**20**	**43.79%**	

Burndown table for timerange

Experience	Add %	Burndown %	Cumulative %	Minutes to burndown
AS	9.36%	0.00%	573.18%	2.87
Kusto	2.54%	0.00%	159.58%	0.80
ES	1.02%	0.00%	64.19%	0.32
SparkCore	0.79%	0.00%	50.52%	0.25
ScreenshotEngine	0.13%	0.00%	8.21%	0.04
lake	0.08%	0.00%	5.58%	0.03
DI	0.07%	0.00%	4.70%	0.02
Total	**14.08%**	**0.00%**	**871.77%**	**4.36**

Overages

10 mins | 60 mins | 24 hrs



Microsoft Fabric Capacity Metrics app

- Tenant wide visibility into capacity usage for all Fabric experiences
- Monitor CU consumption and OneLake usage
- You can get an overview of the state of a capacity
- And drill into TimePoint Details to see activities in 30-second intervals
- Types of **Status** for Operations
  - Success
  - Failure
  - InProgress
  - Rejected
  - RejectedSurgeProtection

What is the Microsoft Fabric Capacity Metrics app?

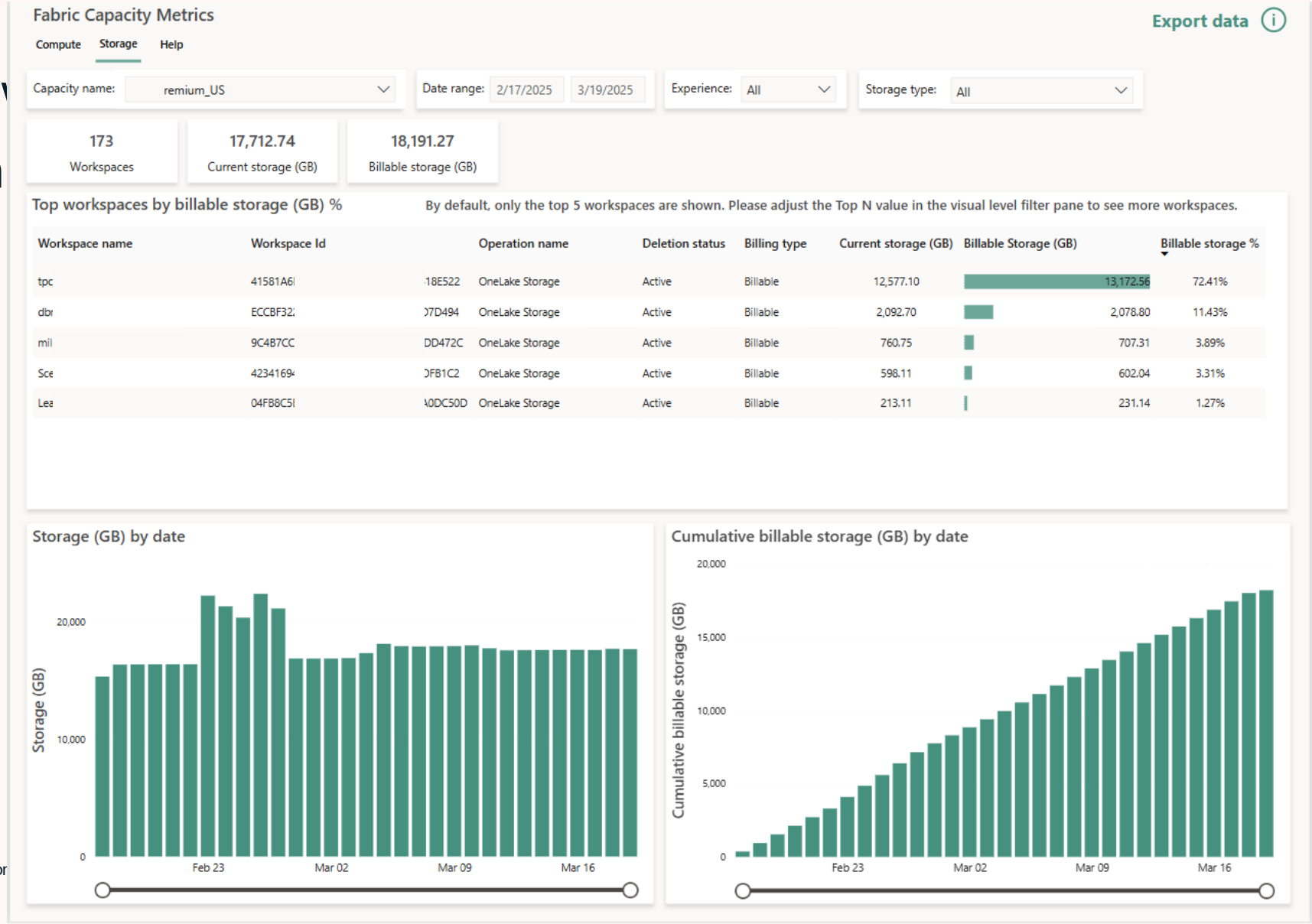
Microsoft Fabric Capacity Metrics app - Storage

- Overview of OneLake Storage per capacity
- Contain 30 days of data

Understand the metrics app storage page

Microsoft Fabric Capacity Metrics app - Storage

- Overvie
- Contain



e page

Calculate OneLake Storage Cost

- OneLake Storage is billed per GB per month
- Storage cost depends on region of capacity
- You pay an average of the storage used throughout the month
- OneLake soft delete (7 days) is charged as active storage

OneLake capacity consumption example
Microsoft Fabric - Pricing

Calculate OneLake Storage Cost – simple examples

notice that actual storage cost is based on hourly averages

1 TB on day 1 and delete same day

Day	Storage
1	1,000
2	0
..	..
30	0
Acc	1,000

- 1,000 GB / 30 days = **33 GB** OneLake storage
- *Example excludes soft delete*

100 GB on day 1, add 10 GB each day

Day	Storage
1	100
2	110
..	..
29	380
30	390
Acc	7,350

- 7,350 GB / 30 days = **245 GB** OneLake storage

50 GB on day 1, add 5 GB until day 15

Day	Storage
1	50
2	55
..	..
15	120
16	120
..	..
30	120
Acc	3,075

- 3,075 GB / 30 days = **103 GB** OneLake storage

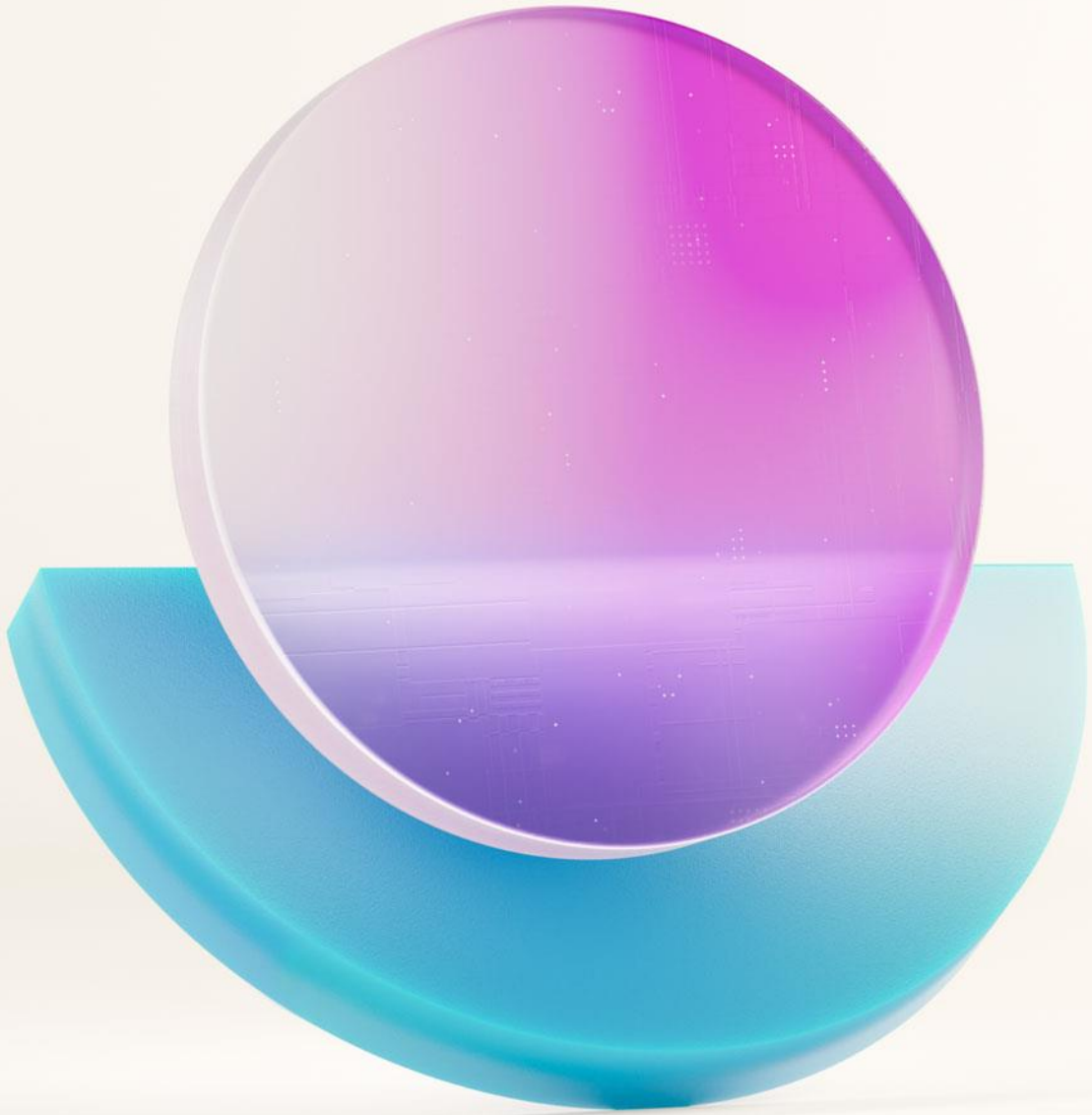
Fabric operations

- Any operation in Fabric is either **interactive** or **background**
- All operations are documented here: Fabric operations - Microsoft Fabric

Roadmap

- Fabric Capacity Metrics Cross-capacity insights
- Capacity Metrics Chargeback Public Preview
- Fabric Capacity Metrics Admin monitoring integration

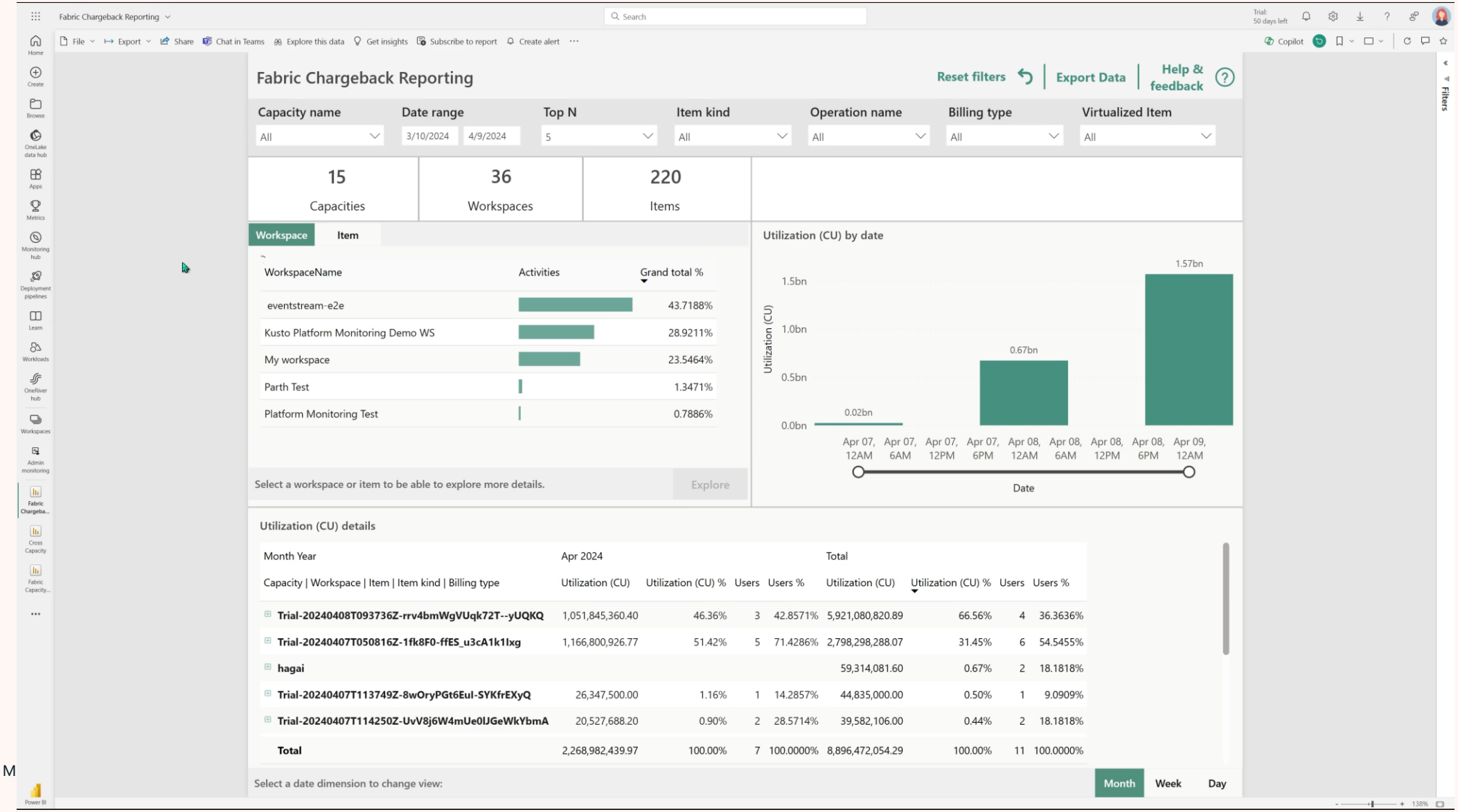
Microsoft Fabric
Community Conference



Lab
Capacity Administration

1. Capacity Metrics app report

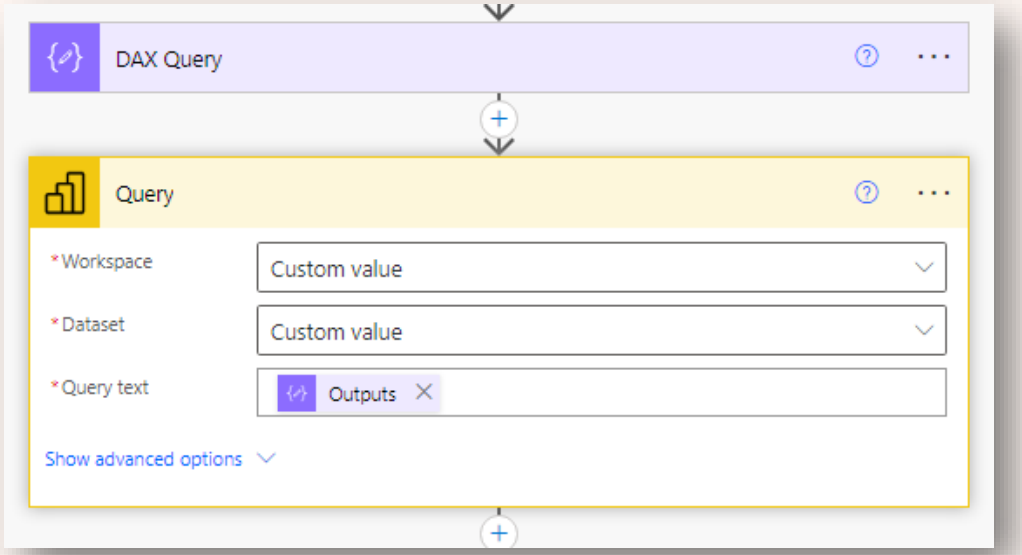
Roadmap – Chargeback report



Custom Monitoring Solutions

- Modify the Metrics App to meet your needs
- Build a custom report off the semantic model
- Send DAX queries to the metrics app semantic model in your own solution
  - Power Automate, Notebook (SemPy), PowerShell, etc.
  - Get throttling % values (Interactive Delay, Interactive Rejection, and/or Background Rejection)
  - Latest values and/or trends over time
  - Best for summarized data only (e.g., hour, day)

Incorporate Metrics App queries into custom solutions



Automate with F SKUs

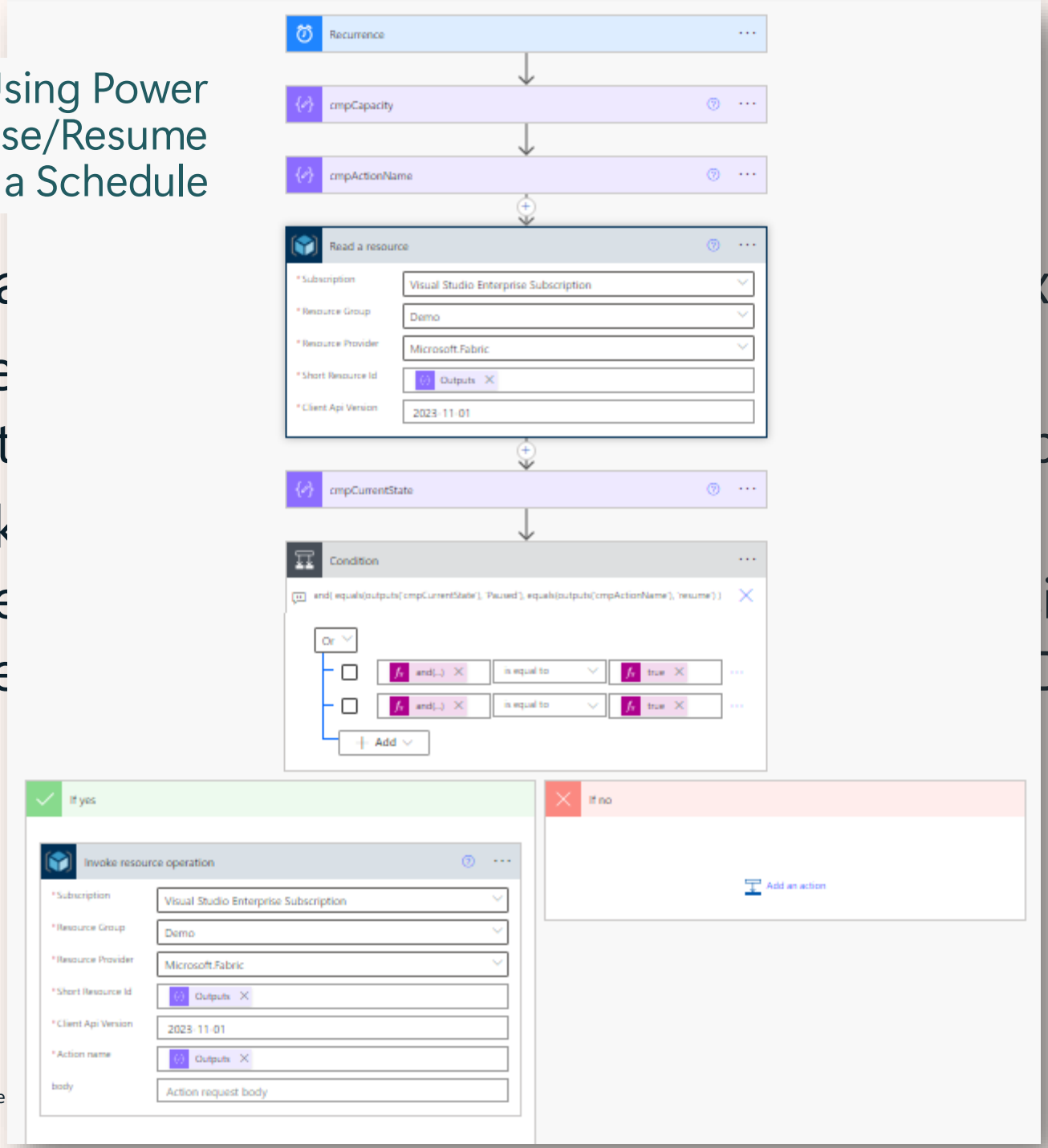
Dynamically scale and pause your capacity to match expected demand

- Pause/resume on a schedule
  - Automate with Power Automate, Logic Apps, or a Notebook
- Resize at peak/slow times
  - Mix with Reserved Instance (PAYGO when at increased size)
  - Query the metrics app and respond to actual demand (DIY autoscale)

Example of Using Power Automate to Pause/Resume on a Schedule

Dynamically sca xpected demand

- Pause/resume
  - Automate wit book
- Resize at peak
  - Mix with Rese ize)
  - Query the me DIY autoscale)



Microsoft Fabric Capacity Autoscaler

- Created by Bret Myers
- FabricTools/CapacityAutoScale at main · bretamyers/FabricTools

A solution to automate the scaling of a capacity based on the consumption of the capacity units to stay within the bounds of the capacity for cost optimization. A Fabric capacity has a concept of bursting and smoothing capacity units over a period of time. This works great when the workload is consistent day to day but does not handle for scenarios for unexpected or inconsitent loads.

Target Scenarios

- Development environments typically don't have a consistent workload day to day.
- PoC/MVP where you have a day zero load of data with high usage and have gaps in days when the solution is worked on.
- Production environments when there is unpredictable user activity day to day where users run different load sizes.
- Environments where there are inconsitent workloads throughout the month. Example, month end activities which may require larger data loads for data reconciliation and higher consumption of reports.
- Environments that have seasonal loads where theres a month or two throughout the year where within higher activity/comsumption.

Community Conference

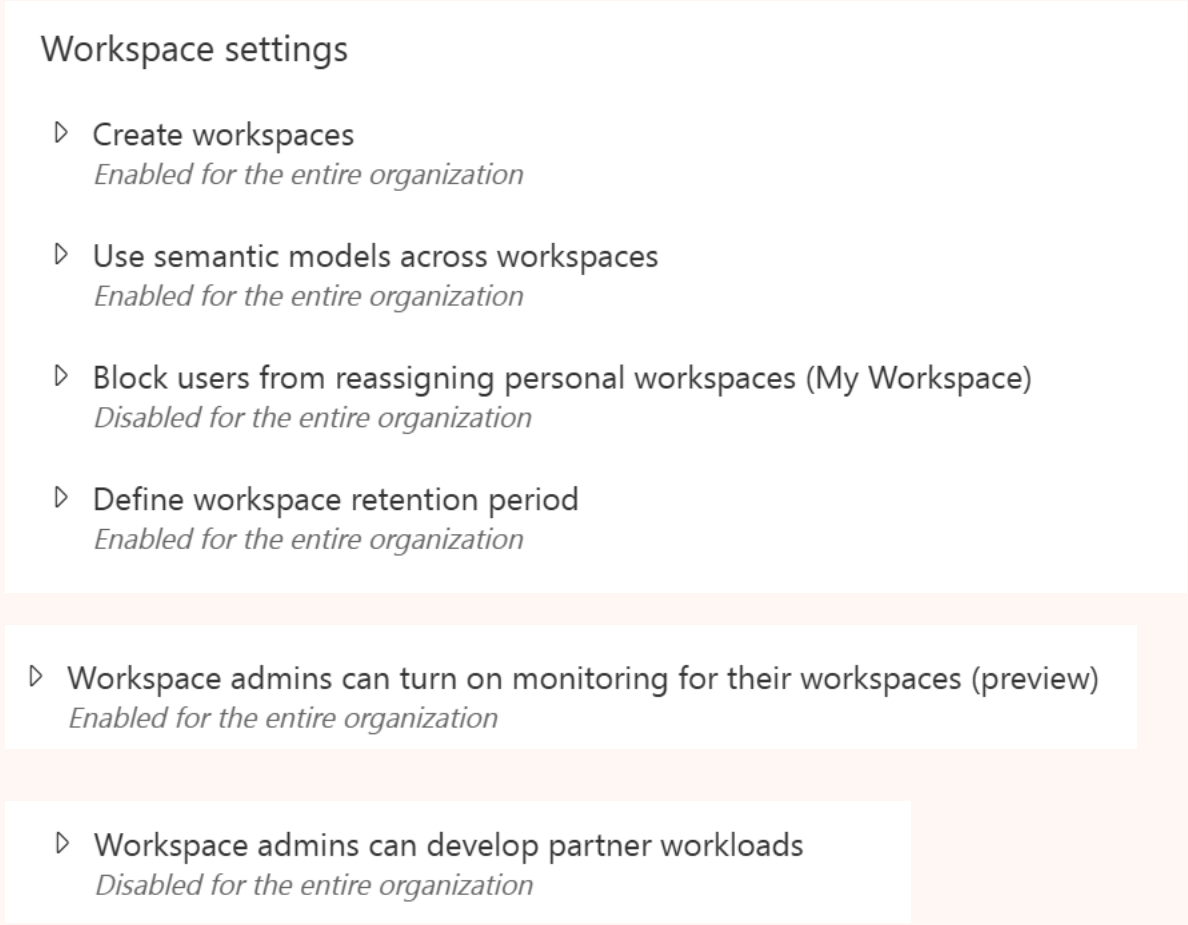
Workspace Administration

Workspace Administration Topics

- Workspace tenant settings
  - Delete and restore
  - Retention settings
- Workspace Settings
- Roles
- Domains
- Monitoring

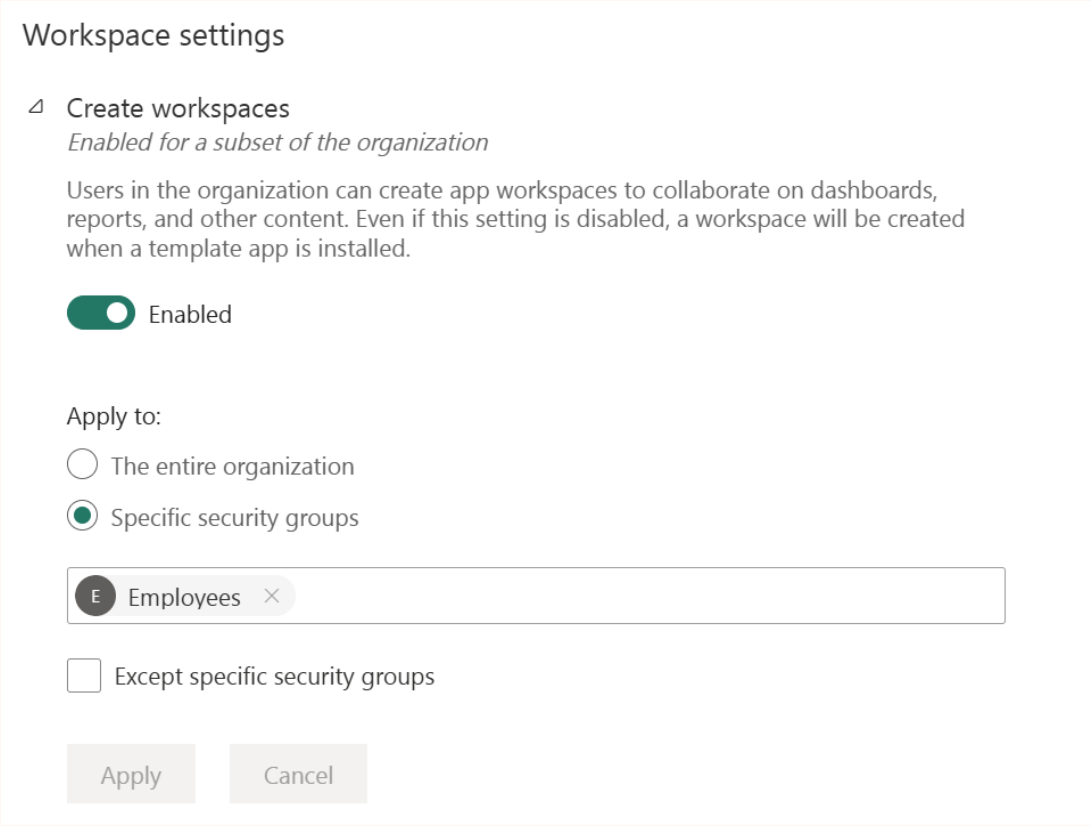
Workspace tenant settings

- Settings that affect workspaces
- Who can create workspaces
- Retention period
  - Delete and restore
  - Default 7 days
  - Cannot change retention period for MyWorkspaces
- Monitoring
- Partner workloads



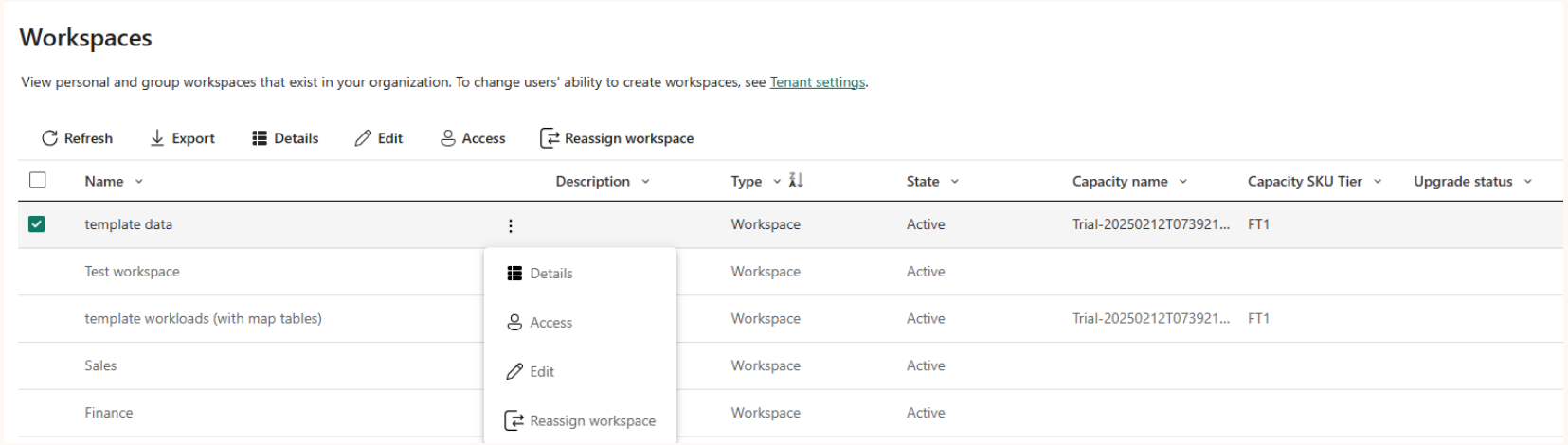
Create workspaces

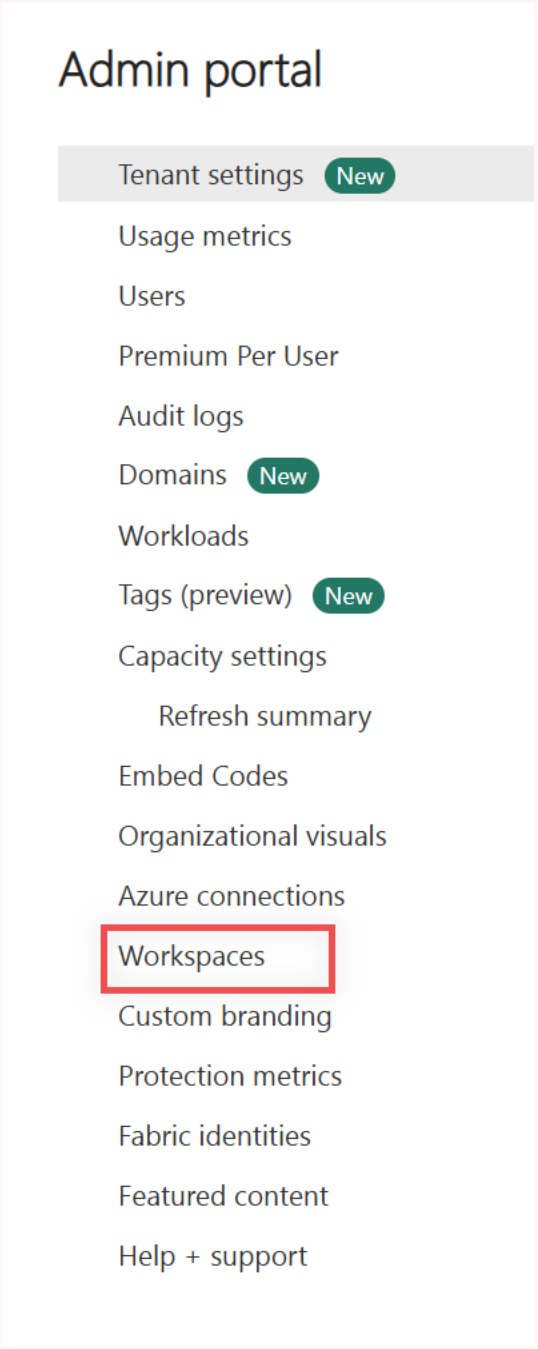
- Decides who can create workspaces
- Can be restricted to a security group(s)
- Think carefully what strategy you want for this
  - If everyone can create workspaces will there be anarchy
  - If only specific group can create workspaces will there be a bottleneck
- Monitoring is very important and should always accompany any workspace strategy (more on that later)



Workspaces section in the Admin portal

- Visibility of all workspaces in the tenant
- Ability to change access of all workspaces in the tenant
- See which workspaces don´t have an owner (orphan workspaces)
- Re-assign workspaces to different capacity





Workspaces section in the Admin portal

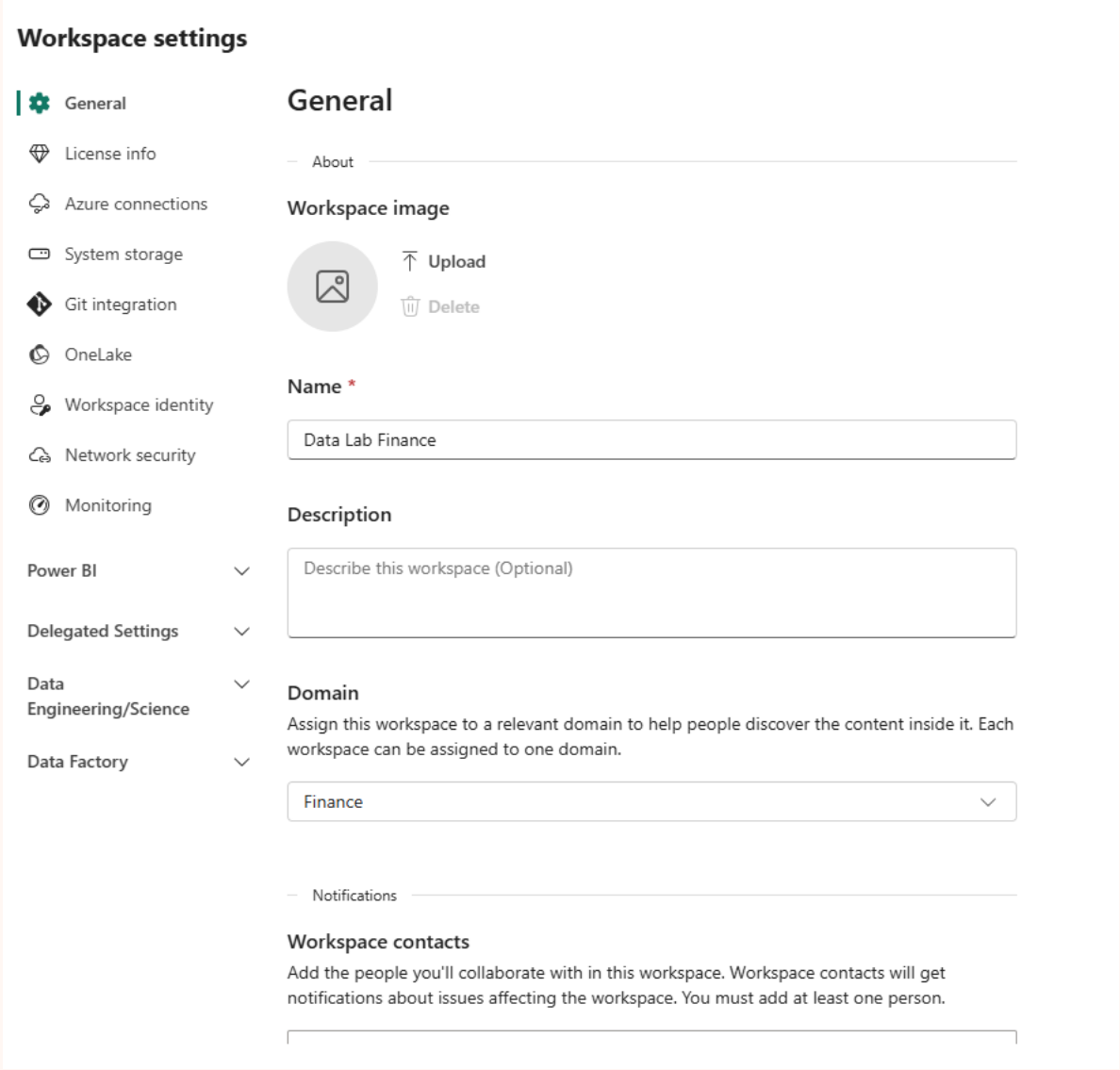
Option	Description
Refresh	Refreshes the workspace list.
Export	Exports the table as a *.csv* file.
Details	Lists the items that are contained in the workspace.
Edit	Enables you to edit the workspace name and description.
Access	Enables you to manage workspace access. You can use this feature to delete workspaces by first adding yourself to a workspace as an admin then opening the workspace to delete it.
Get access	Grants you temporary access to another user's MyWorkspace.
Capacity	Enables you to assign the workspace to Premium capacity or to remove it from Premium capacity.
Recover	Enables you to restore an orphaned workspace.
Restore	Enables you to restore the MyWorkspace (fixed 30-day retention period) of a user that has left the organization, or a deleted collaborative workspace.
Permanently delete	Enables you to permanently delete a deleted collaborative workspace before the end of its retention period.

Roles

- Administrator will normally not have anything to do with roles in a workspace
  - Except for orphan workspaces
    - Good to have a policy how that is handled
  - Important to understand that the Admin role can change workspace settings
    - Sometimes override tenant settings
- 4 roles in a workspace
  - 3 roles are write roles
  - 1 role is read role
- In the order of most to least privilege
  - Admin
  - Member
  - Contributor
  - Viewer

Workspace settings

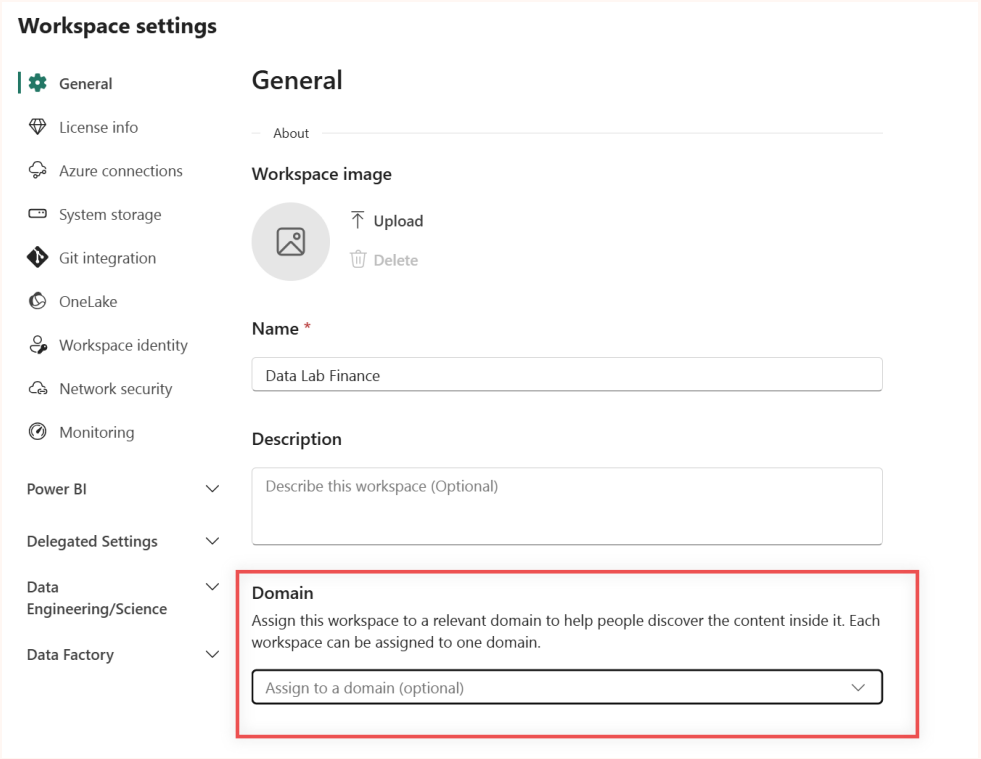
- Administrator will normally not have anything to do with settings of a workspace
  - Important to understand them
- Workspace contact list
- License info
- Azure connection configuration *
- Git integration
- Workspace identity
- Network security
- Monitoring *
- Delegated Settings
- Data Engineering/Science
- Data Factory

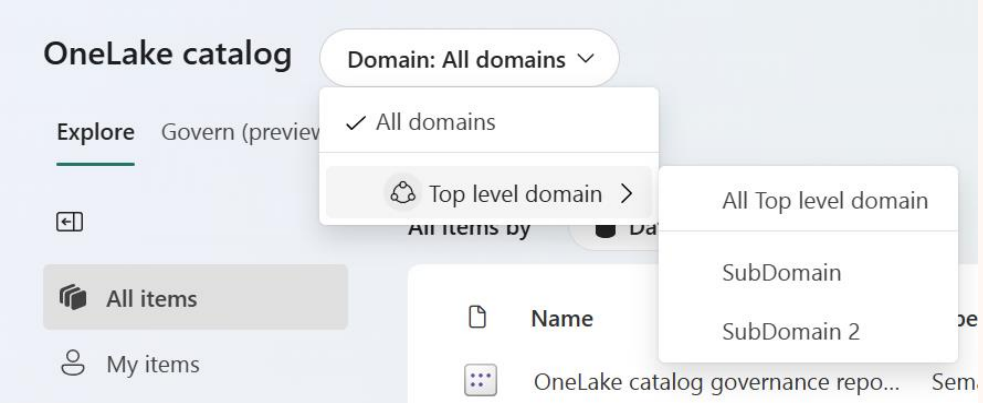


* Either Log analytics or workspace monitoring for a workspace

Domains

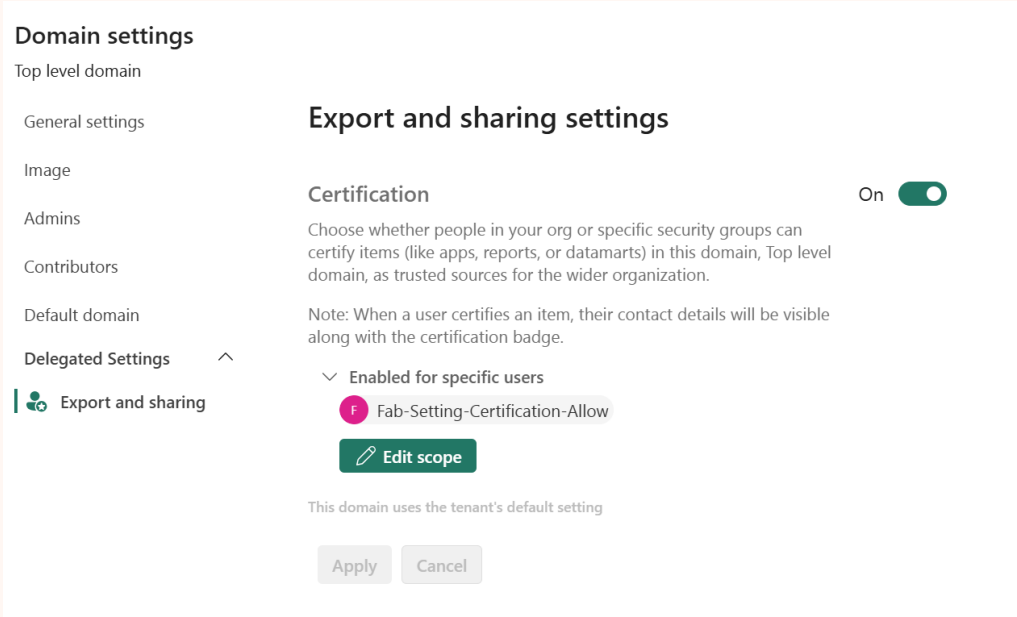
- Domains are useful for grouping workspaces and overriding settings
- Admins create domains
- Admins add Domain admins and/or Domain contributors
- Domain contributors can add workspaces they are admins of to a domain they are contributor of
  - **Default is the entire organization**
  - Can add people or groups who´s workspaces will automatically be added to the domain
- Domain changes can be monitored in the audit log - UpdateDataDomainFoldersRelationsAsAdmin





Domains

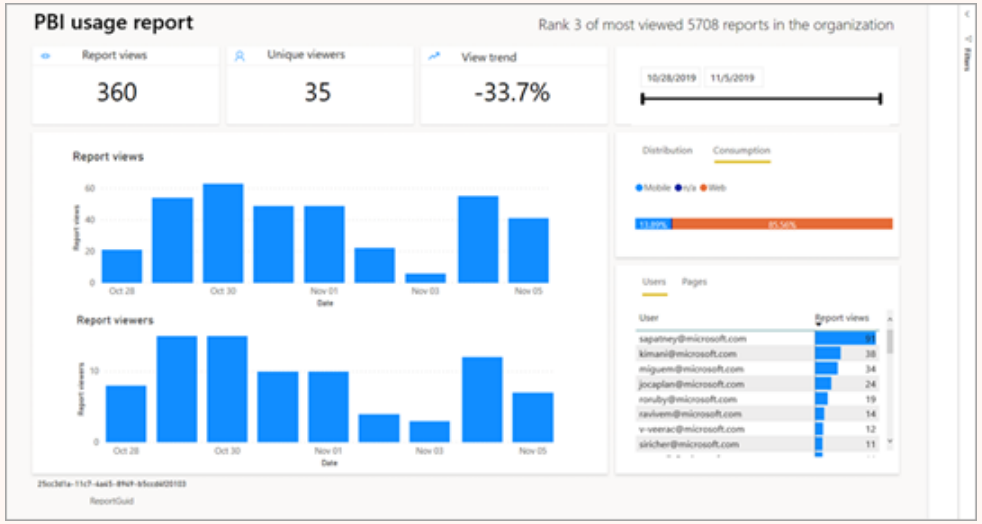
- Important to plan the domain structure
  - Org structure
  - Project/Product structure
  - Region structure
  - Other
- Best practices for planning and creating domains in Microsoft Fabric - Microsoft Fabric | Microsoft Learn
- Some tenant settings can be delegated to domain admins
- Delegate tenant settings to domain



Monitoring

- Usage metrics
- Workspace monitoring
- Monitoring hub
- Custom monitoring

Usage metrics



- Allows the content creators to create usage metrics report for their Power BI Reports
- Initially one Usage metrics report per report but possible to remove the report filter
- Gives insights into usage
  - If allowed down to specific user level

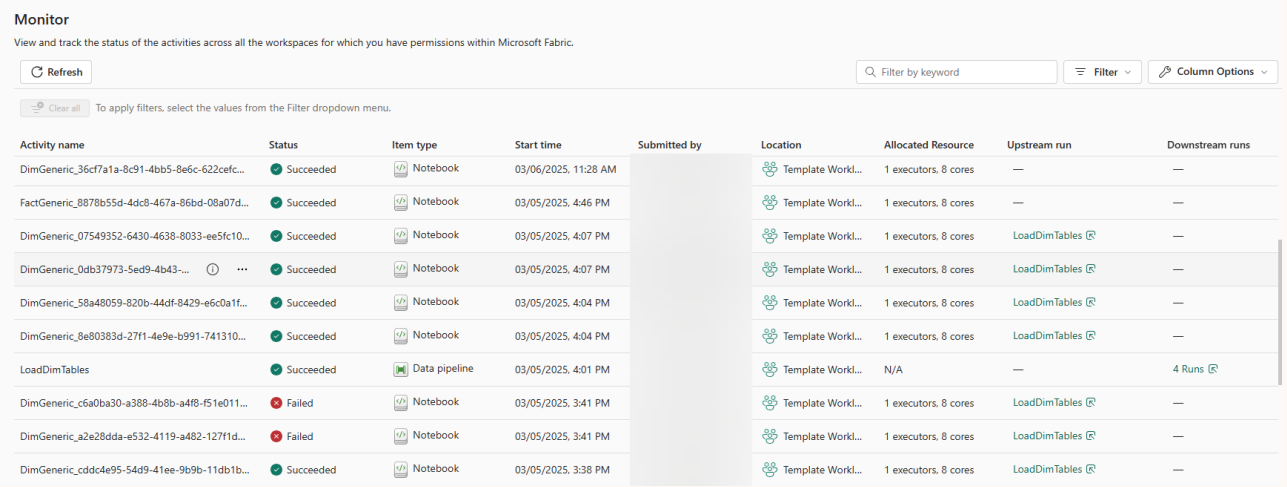
[Monitor usage metrics in workspaces (preview) - Power BI | Microsoft Learn]

Workspace monitoring

- Allows you to monitor the usage/run of items in the workspace
- Requires a tenant setting (Workspace admins can turn on monitoring for their workspaces) to be turned on
- Activity is logged in a KQL database in the workspace
- Users with contributor or higher access to the workspace can see the database
- Both historical data (30 days) and streaming
- Supported items:
  - Semantic models
  - Eventhouse (KQL)
  - GraphQL
  - Mirrored databases
- **Uses CUs from your capacity**
- Possible to get template reports to report on the content: fabric-toolbox/monitoring/workspace-monitoring-dashboards at main · microsoft/fabric-toolbox · GitHub

Workspace monitoring overview - Microsoft Fabric | Microsoft Learn

Monitoring hub



- Administrator will normally not have anything to do with the monitoring hub
  - It only shows items you have explicit permissions to see
- Monitoring Hub can be found in the left menu bar as an independent item
- Displays activities from Fabric items
- Everyone can see the monitoring hub
- Users can only see items they have access to
- Can click on the activity and get more information
  - Depends on activity type
- Default sorted by newest on top
- Lots of filtering options

Use the Monitor hub - Microsoft Fabric | Microsoft Learn

Custom monitoring

- Create a repository of all items in workspaces
  - What items exists (including which type of item)
  - Who are the owners of items
  - Who has access to what
  - Item linage
- Use what ever tool you want
- Typical “sources”
  - REST APIs
  - PowerShell Cmdlets
  - Semantic Labs

Community Conference

Connections and Gateway Administration

Connection and gateway administration topics

- What is the gateway
- Administering the gateway
- Administering connections

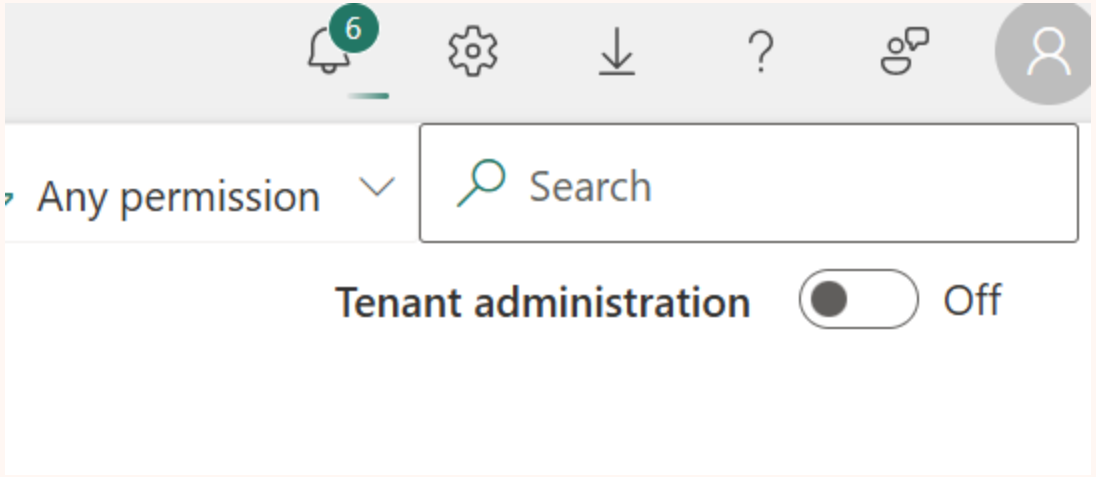
What is the gateway

The gateway acts as an agent that runs securely within the organizational network or on a standalone machine, and provides the Fabric service access to the required resources

- Comes in two flavors – standard and personal
- Used to allow access to
  - On-premise data sources
  - Data sources not supported in Fabric
  - Custom connectors (for Power BI and Dataflow gen1 and gen2)
- Installed on the local network
- Can be a part of cluster
- Should be sized to handle data throughput of pipelines and data mashups of published datasets or dataflows

What is the gateway

- Very important to monitor the server as any other infrastructure server
- Tenant Administration toggle
- Possible to manage gateway installers in the Fabric Service or Power Platform Admin Centre
- **The Fabric administrator is NOT a gateway administrator by default and cannot see the gateway unless they toggle the Tenant Administration toggle**

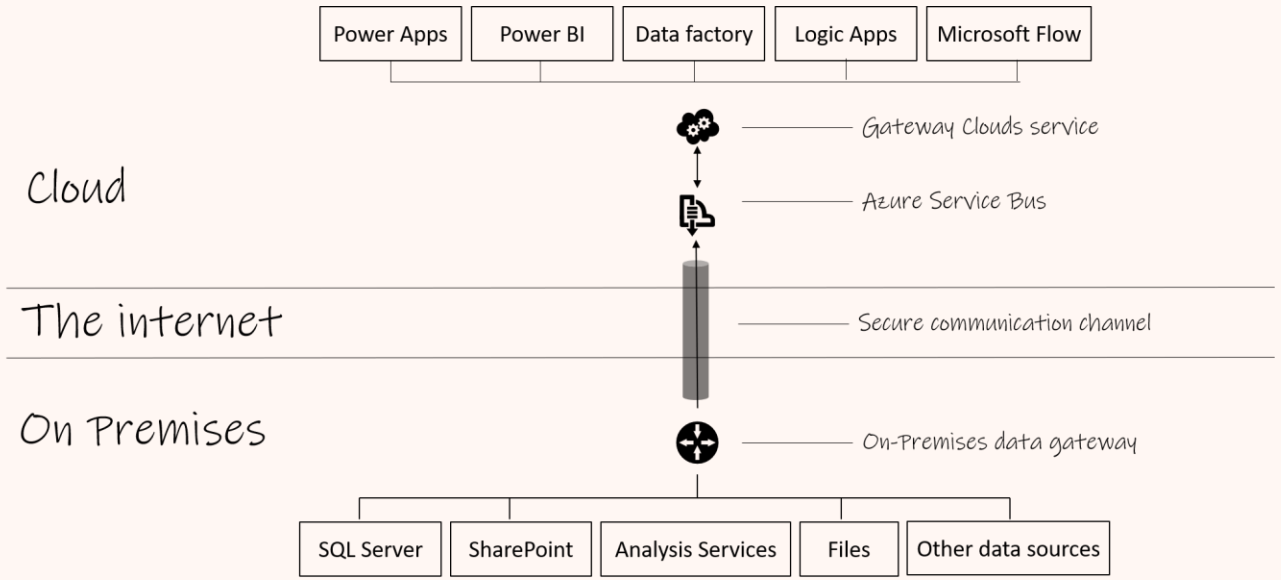


Gateway architecture

- Typical steps for a data request

1. Gateway Cloud Service receives a request for data from the Fabric service
2. Gateway Cloud Service packages the data request together with credentials required for the query.
3. The package gets placed on the Azure Service Bus
4. An available Gateway member pulls data-requests securely from the Azure Service Bus
5. On-premises data gateway decrypts query and credentials.
6. On-premises data gateway executes the query; If the query is a Mashup query, it will invoke a Mashup engine to perform the data import
7. On-premises data gateway returns the results of the request to the Gateway Cloud Service via Azure Service Bus.

- This process is the same for both the standard or personal gateways.



Installing the gateway

- Download installer from Microsoft
- Wizard driven simple installer
- Make sure you store the encryption keys securely and properly
  - **If lost they cannot be retrieved, not even by Microsoft support**
- Gateway can be standalone or as a part of a cluster
- Fabric administrator can restrict who can install gateways in the Manage connection and gateways
  - Need to turn on Tenant administration

Gateway administration

- Twofold administration
  - Server and service
  - Data sources and users

Gateway administration – Server and service

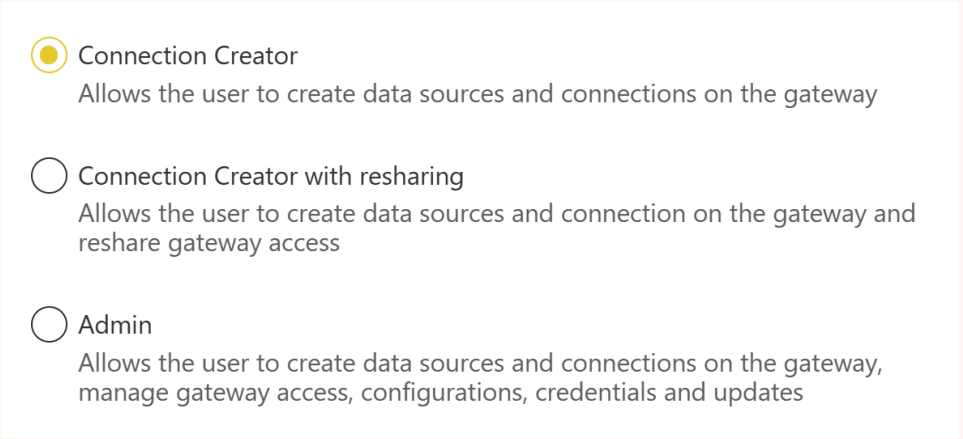
- Need to login to the server
- Restart gateway or change service account
- Check network status and force HTTPS
- Allow custom connectors
  - Add them
- Find logs and configure logging level

Gateway administration – Server and service

- Good idea to monitor the gateway server
- Monitor the server as you would with any other server in your network
  - Memory
  - CPU
  - Disk
- Use the logs from the gateway to anticipate problems
- Use Rui Romanos gateway monitor
  - GitHub - RuiRomano/pbigtwmonitor
  - Collects logs from one or more gateways in a cluster
  - Saves them in ADLS gen2
  - Models the data so it´s more easily readable
  - Power BI Report and dataset to visualize the logs

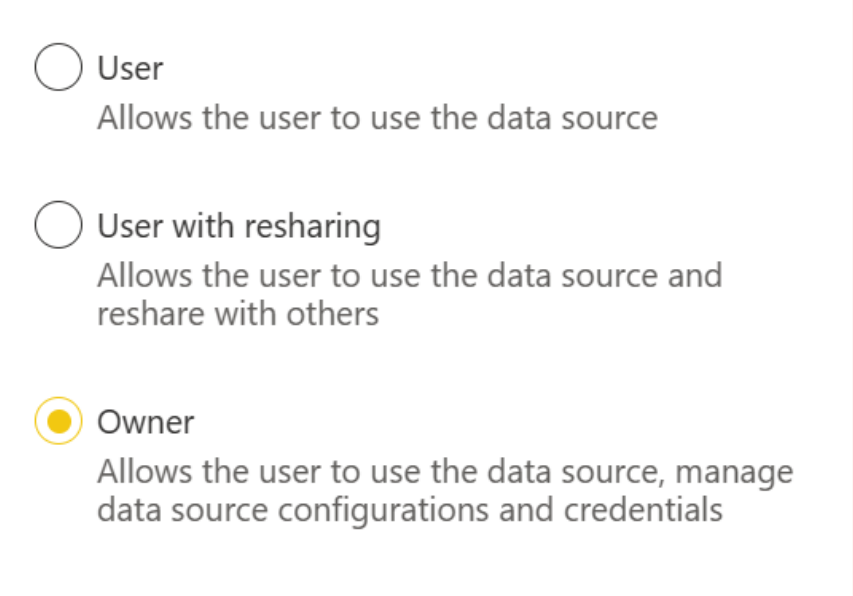
Data sources – add new connection

- Done from Fabric portal
- Add connections from the gateway to data sources
- Need to be a member of one of three roles
  - Connection Creator
  - Connection Creator with resharing
  - Admin
- Only admins can add anyone in the above roles
- Many predefined data sources
- Most will allow connection via the credentials set on the connection
- Few allow single sign-on (SSO)
- Set privacy levels on the connection to determine what data can be mixed with the data from the connection



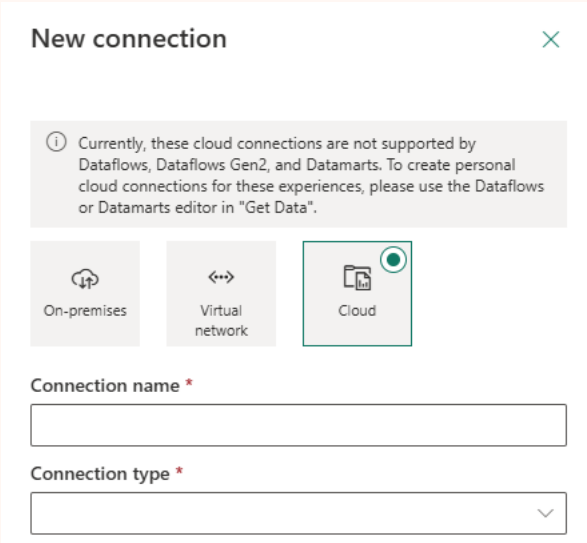
Data sources – add users to connections

- Done from Fabric portal
- Select a connection and add a user to one of the following roles
  - User
  - User with resharing
  - Owner
- The user can use the connection to connect to the data source
- Important to understand that the connection is most often run in the user context of the credentials set on the connection in the gateway



Cloud connection

- Done from Fabric portal
- By default, all connections to cloud sources are created as Personal Cloud Connection
- Possible to create a shareable connection to cloud data sources
- Can use connection credentials or sometimes SSO
- Allows you to simplify management of cloud sources
- Does not currently work for Dataflows (gen1 and 2) or Power BI Datamarts



Virtual network (Vnet) Gateway

- Allows you to connect your Azure data services and Fabric together securely
- No traffic is exposed to public endpoints
- Can force all traffic to the data source through the gateway
- Works similarly to the On-premise Data Gateway
- Currently supports:
  - Fabric Dataflow Gen2
  - Power BI semantic models
  - Power Platform dataflows
  - Power BI paginated reports
- Recommended to have F8 or higher (works on all F skus)
  - What is a virtual network (VNet) data gateway | Microsoft Learn
- Not all data sources are supported
  - Use virtual network data gateway and data sources in Power BI | Microsoft Learn

Lab - Explore workspace monitoring report

1. How many operations are there in total?
   Hint: it´s on the workspace page
2. What is the Avg Query Duration for semantic models
   Hint: it's on the SM | Execution page
3. What day had the highest combined Query CPUTime
   Hint: it's on the SM | Execution page
4. What is the total query CPU time on March 21st for eventhouses
   Hint: it's on the Eventhouses page

Fabric Administration related sessions at FabCon Vegas

- How Much is Fabric | Strategies for Estimating Fabric Capacity Expense - Microsoft Fabric Community Conference
  Tuesday 1 April, 8:00am, BOULEVARD BR 157
- Mastering Fabric Data Engineering Admin and Capacity Management - Microsoft Fabric Community Conference (Spark)
  Tuesday 1 April, 11:15am, BOULEVARD BR 157
- Enterprise Scale - Administer and Govern Fabric with Ease - Microsoft Fabric Community Conference
  Wednesday 2 April, 10:00am, GRAND BR 122
- What's New in Fabric Capacities - Microsoft Fabric Community Conference
  Wednesday 2 April, 11:15am, PREMIER BR 313

Community Conference

Community Conference

- On your phone log into kahoot.it or use the kahoot app
- Enter the Game Pin which will be on the screen shortly
- Enter a nickname
- Prices for top 3
  - First price: $100 gift card to Lego.com
  - Second and third prices: $50 gift card to Lego.com

Kahoot!