



Microsoft Fabric

COMMUNITY CONFERENCE

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Accelerate Your Azure SQL Platform for Optimal Performance and Costs

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Denny Cherry & Associates Consulting
Fabcon Vegas 2025



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Event Invitation
Code: FABCON2025

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Consultant

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User Group Leader
Hampton Roads VA

SQL Saturday
VA Beach Organizer

Friend of Redgate



She, Her



/sqlespresso



@SQLEspresso



SQLEspresso.com



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UG Leader

Blogger/Tweeter

Conference Organizer

MVP – Data Platform

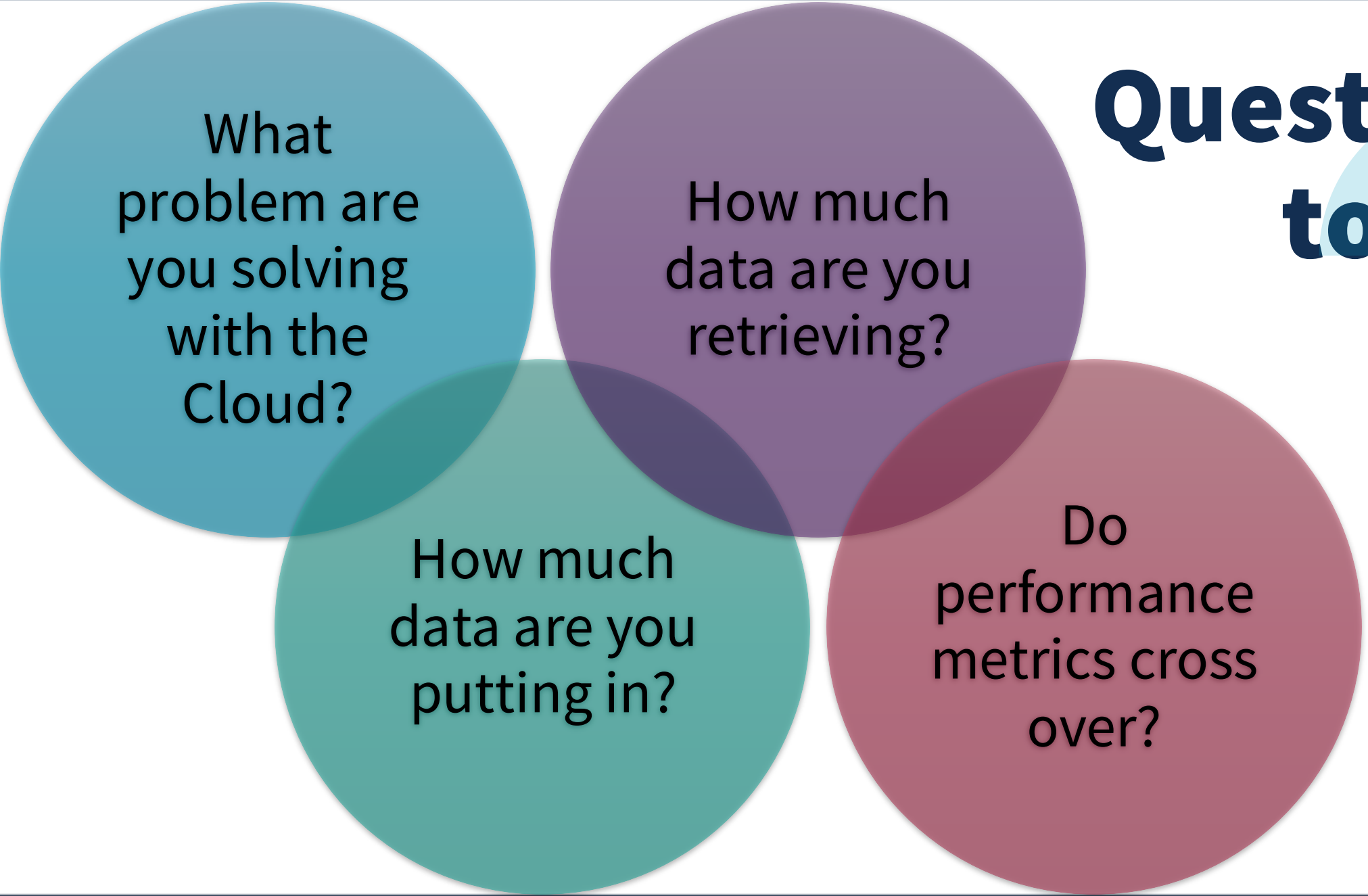
Azure Solutions Architect
Expert



Disclaimer

**Your on-premises
performance is not
the same as the
Cloud**

Questions to Ask



What
problem are
you solving
with the
Cloud?

How much
data are you
retrieving?

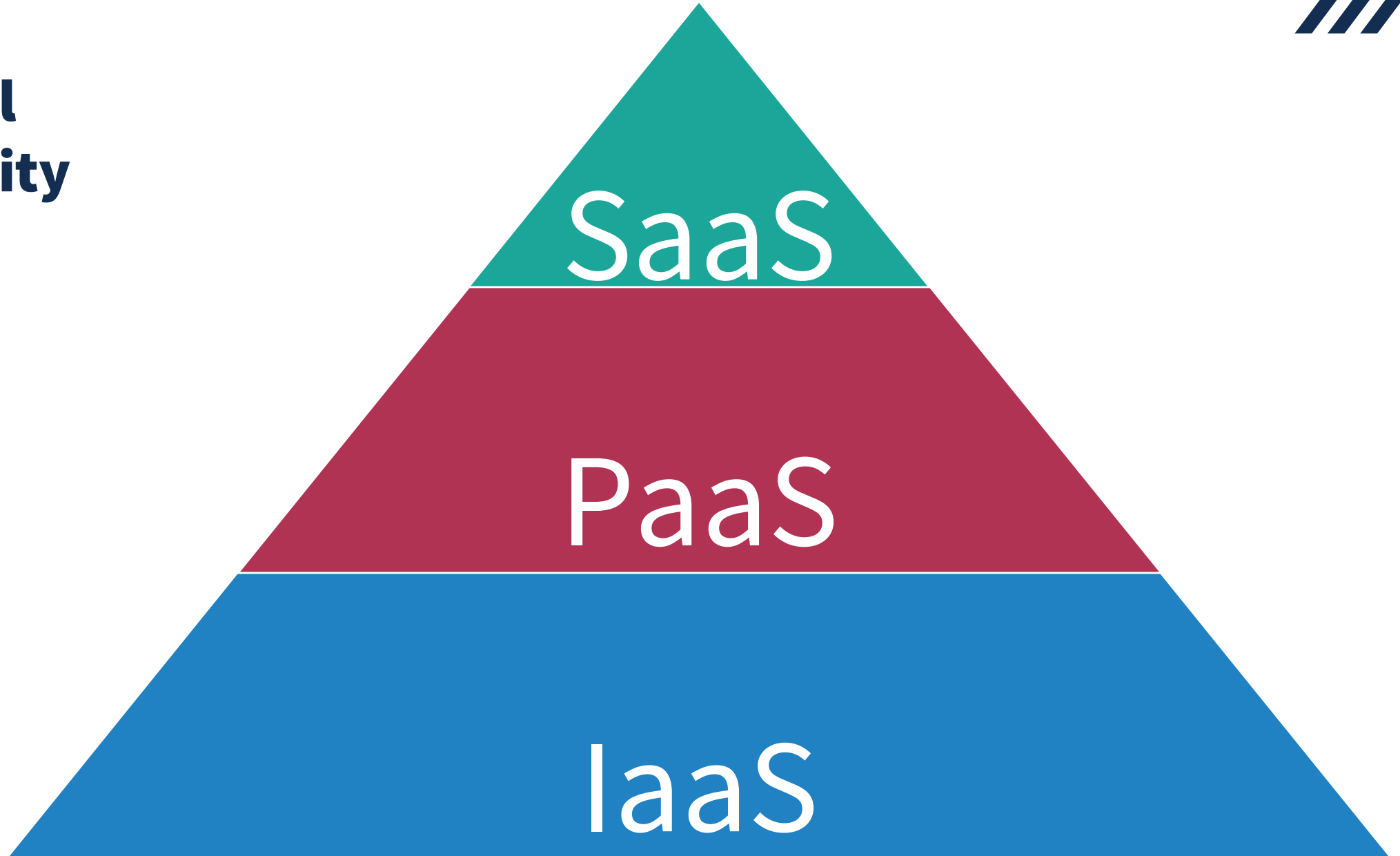
How much
data are you
putting in?

Do
performance
metrics cross
over?

Performance Control



**Control
Granularity**



Architecture



Azure SQL

Infrastructure-as-a-Service

Platform-as-a-Service



SQL Server on Azure Virtual
Machines

Best for lift and shift of
workloads requiring 100% SQL
Server compatibility and OS-
level access



Azure SQL Managed
Instance

Best for modernizing existing
apps



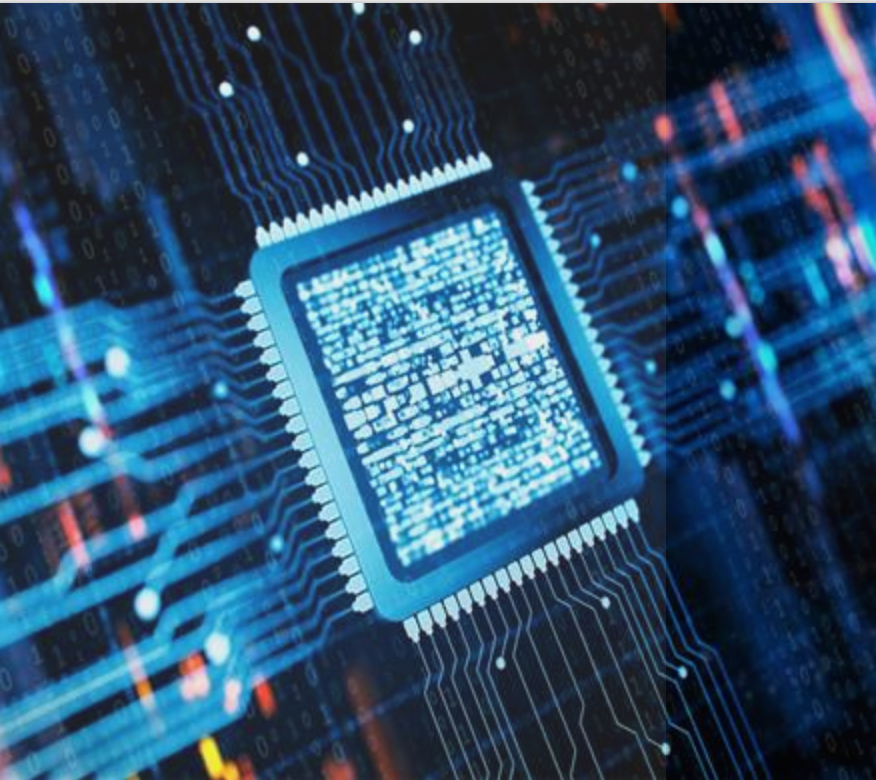
Azure SQL
Database

Best for modern cloud
applications

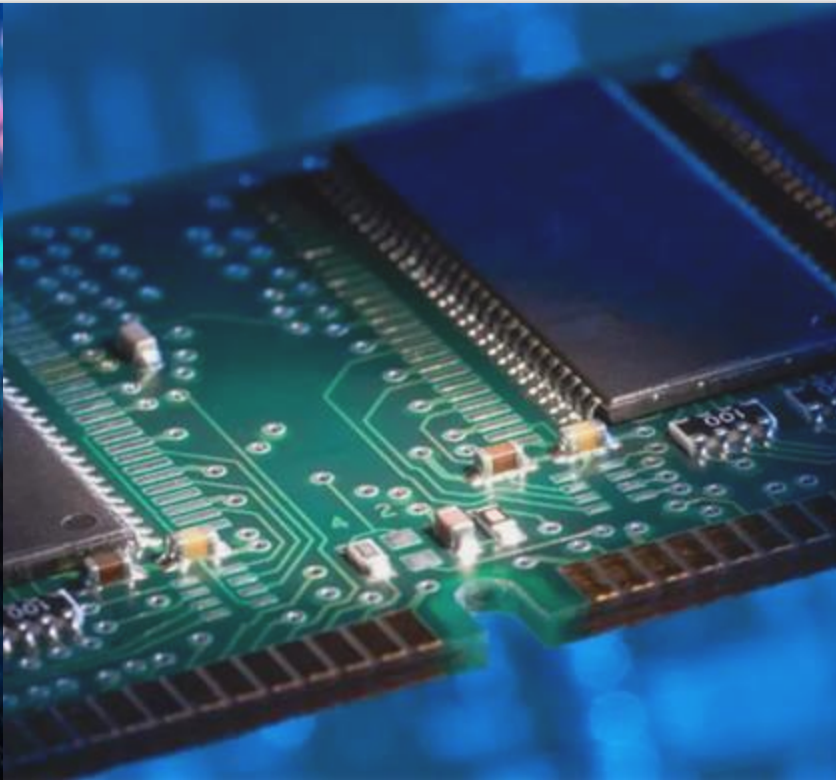


Azure Virtual Machines

Azure VM Variations



**Processing
Power**



Memory



**Storage
Capacity**

Determine the Size of the VM



Option	Description
General purpose	Balanced CPU-to-memory ratio. Ideal for testing and development, small to medium databases, and low to medium traffic web servers.
Compute optimized	High CPU-to-memory ratio. Suitable for medium traffic web servers, network appliances, batch processes, and application servers.
Memory optimized	High memory-to-CPU ratio. Great for relational database servers, medium to large caches, and in-memory analytics.
Storage optimized	High disk throughput and IO. Ideal for VMs running databases.
GPU	Heavy graphics rendering and video editing. These VMs are ideal options for model training and inferencing with deep learning.
High performance compute	The fastest and most powerful CPU with optional high-throughput network interfaces.

Managed Disks



Like the disks in your data center, only virtualized



Block level storage volumes



Different performance characteristics



Striping disks on VMs for increased IOPS/throughput

Managed Disk Performance Aspects



	Ultra Disk	Premium SSD v2	Premium SSD	Standard SSD	Standard HDD
Disk type	SSD	SSD	SSD	SSD	HDD
Max throughput	10,000 MB/s	1,200 MB/s	900 MB/s	750 MB/s	500 MB/s
Max IOPS	400,000	80,000	20,000	6,000	2,000, 3,000*



COSTS

Performance Characteristics

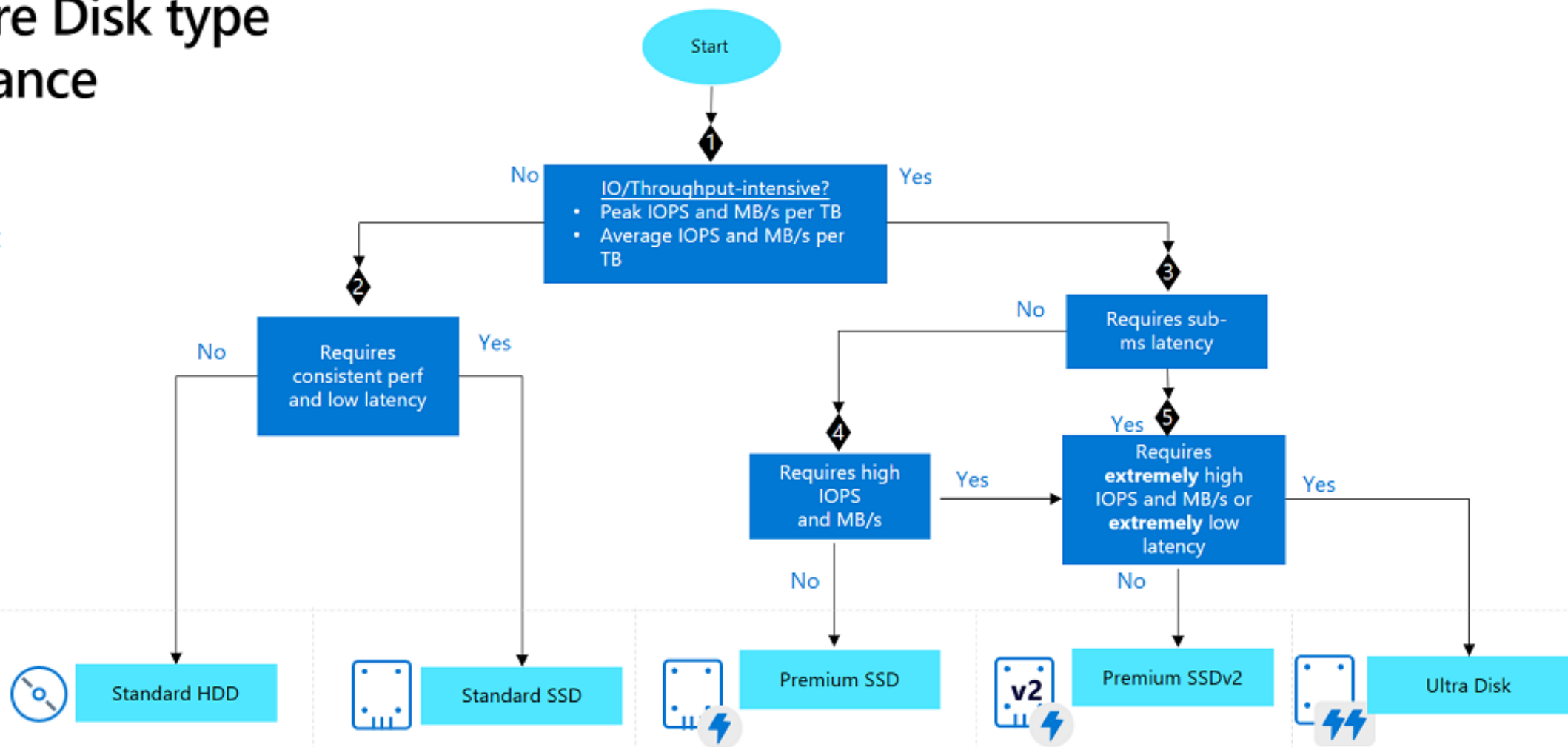


Size	Capacity	IOPS	Throughput
P1	4 GiB	120	25 MB/second
P2	8 GiB	120	25 MB/second
P3	16 GiB	120	25 MB/second
P4	32 GiB	120	25 MB/second
P6	64 GiB	240	50 MB/second
P10	128 GiB	500	100 MB/second
P15	256 GiB	1,100	125 MB/second
P20	512 GiB	2,300	150 MB/second
P30	1 TiB	5,000	200 MB/second

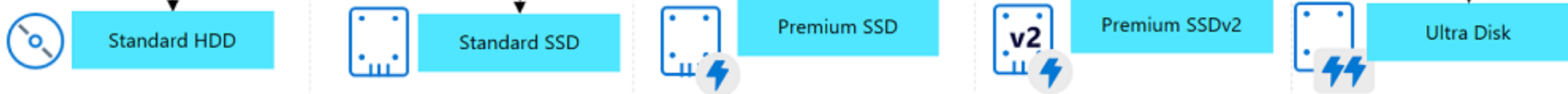
Choose Azure Disk type for performance

Primary Considerations:

- Latency
- IOPS
- Throughput



Disk Types



Disk Characteristics

Most cost-efficient storage on HDD	Entry level SSD with lowest GiB cost on Cloud	Great balance for cost and performance	Best price performance on Azure	Highest performing disk offering
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Disk Sizes

Per IOPS, capacity & throughput requirements.

Performance (NVMe)

Enable capabilities to enhance the performance of your resources.

Higher remote disk storage performance
with NVMe ⓘ

☐

ⓘ The selected size is not supported for NVMe. [See supported size families](#) ↗

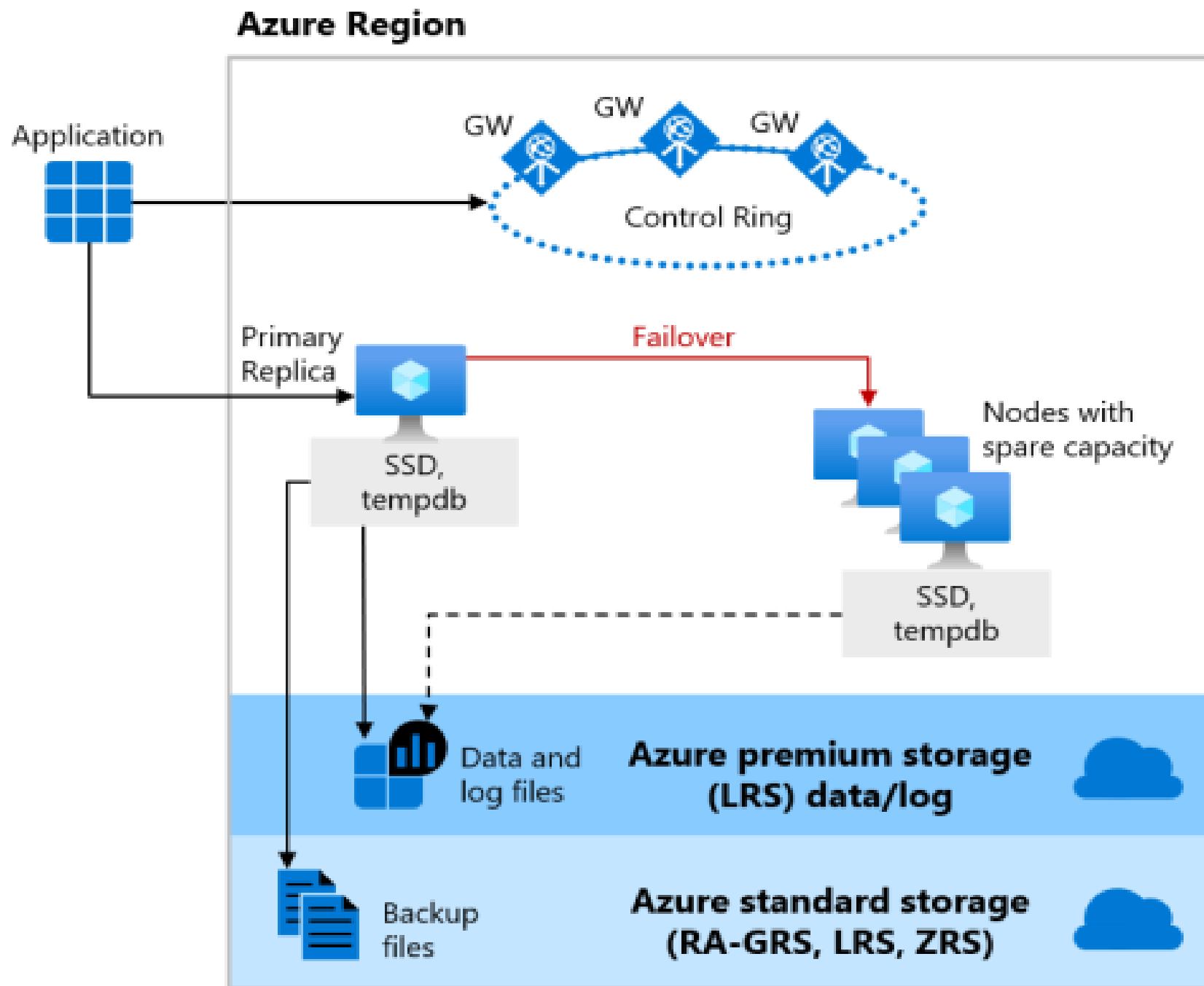
SCSI vs NVMe Drivers



Azure SQL Database

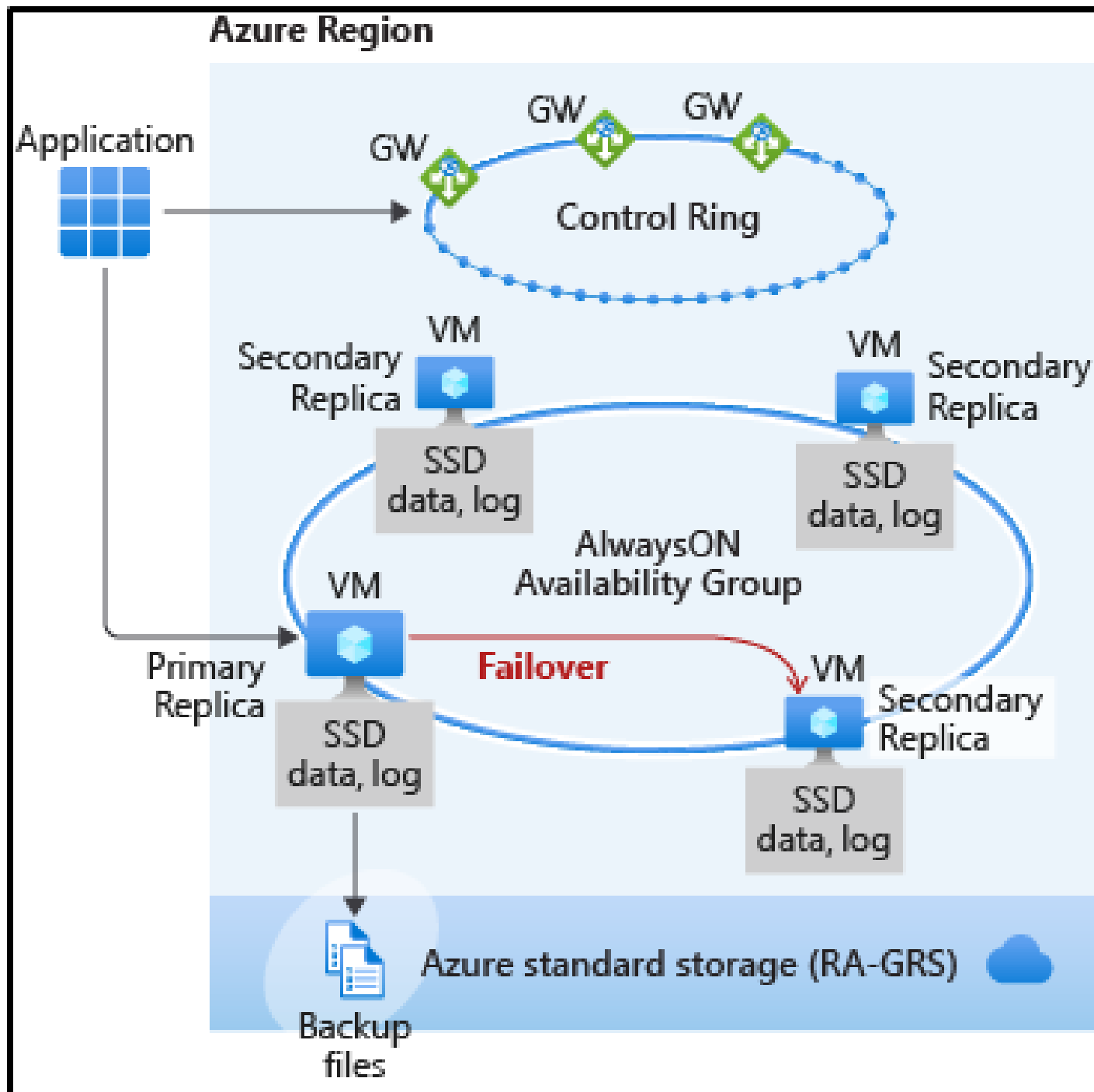


General Purpose





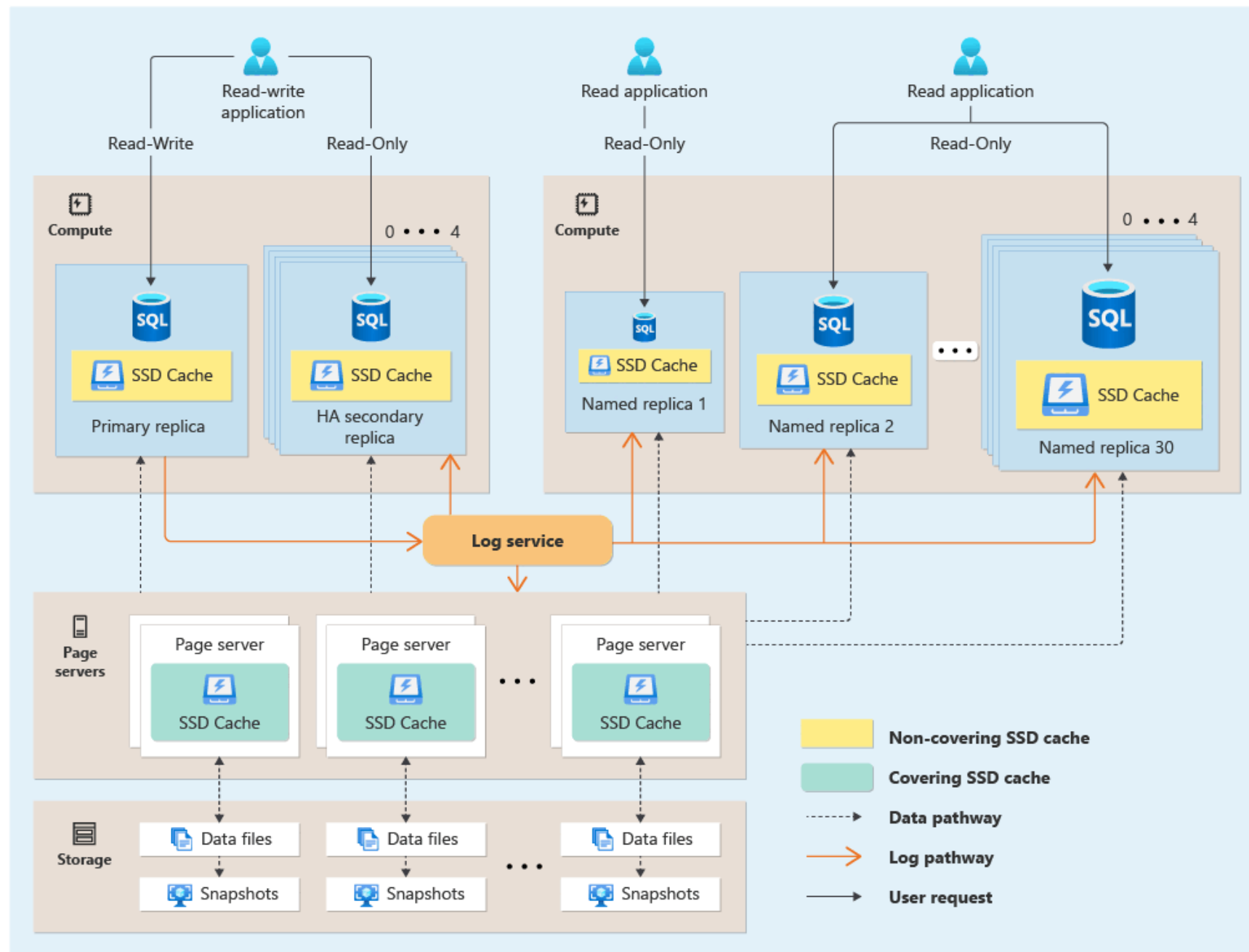
Business
Critical





Hyperscale

Region 1



Where Did the Server Go? Serverless?



Auto-pause delay

The database automatically pauses if it is inactive for the time period specified here, and automatically resumes when database activity recurs. Alternatively, auto-pausing can be disabled.

☒ Enable auto-pause

Days

Hours

Minutes

0



1



0



Auto Pausing

Not Too Fast, Gotchas?



(It needs time to wake up, move, or failover)



When it sleeps...POOF!

Bye bye...



Statistics

DMVs

Waits Stats

Execution Plans

Cache

We Lose the Good Stuff



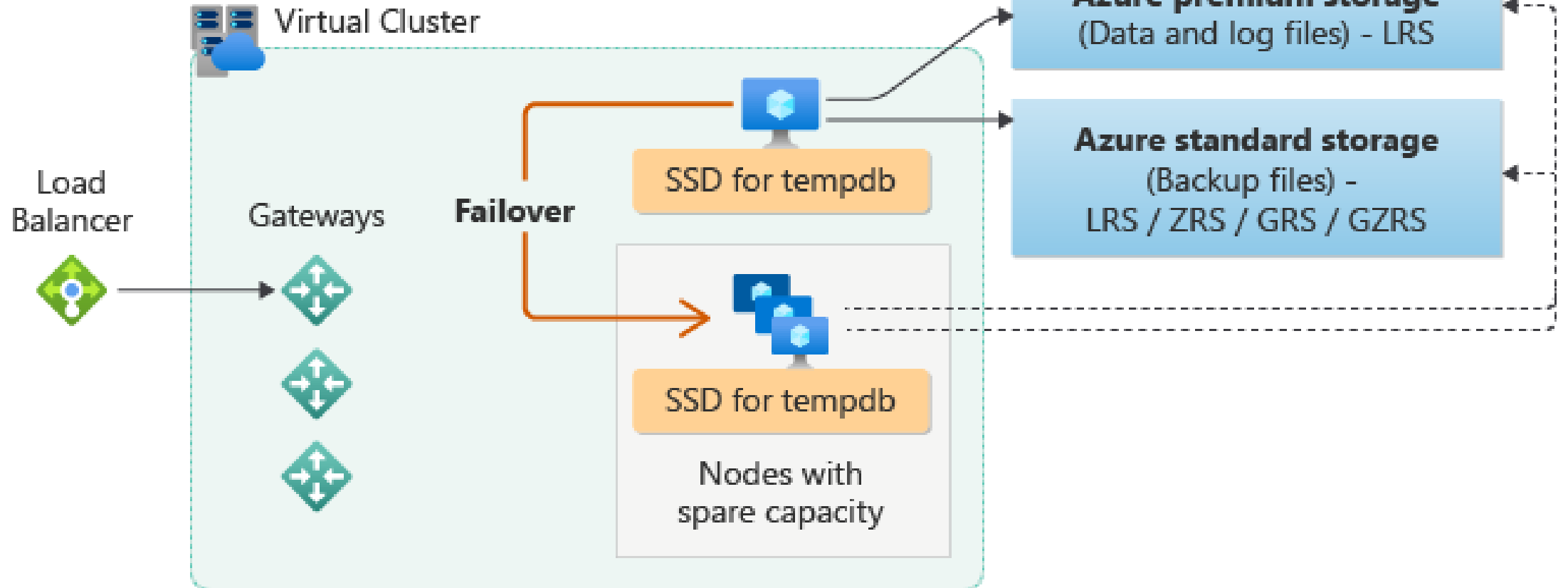
Azure SQL Managed Instance

Managed Instance – General Purpose



A Azure region

Datacenter

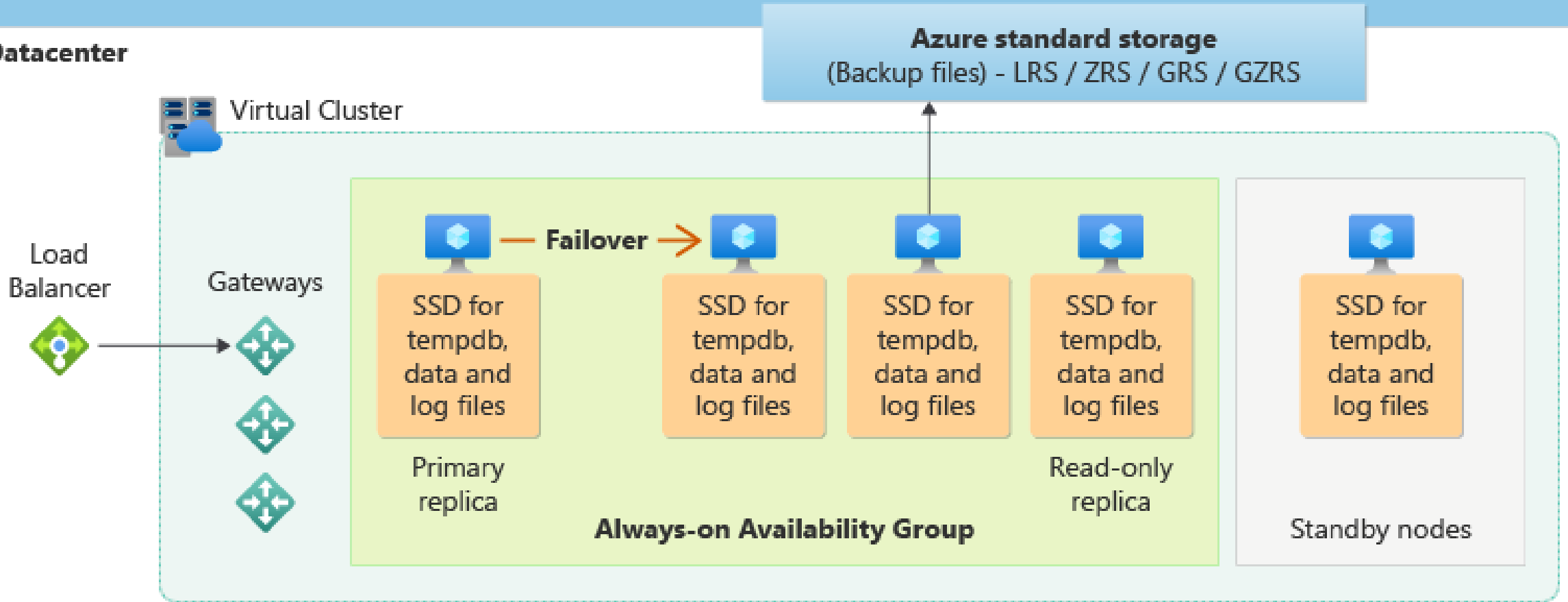


Managed Instance – Business Critical



Azure region

Datacenter





Gotcha

**The size of the
database
determines the size
of the disk.**

Performance Characteristics



Size	Capacity	IOPS	Throughput
P1	4 GiB	120	25 MB/second
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P3	16 GiB	120	25 MB/second
P4	32 GiB	120	25 MB/second
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P80	32 TiB	20,000	900 MB/second

NextGen Hardware MI - Preview

Updated General Purpose architecture

Utilizes Premium v2 disks vs page blobs

Increased storage latency, IOPS, and throughput

Better granular control





SQL in Fabric

Capacity Units



SaaS vs PaaS – It's all about control

Azure SQL Database – General Purpose & Serverless

Capacity Units (CU) & vCores

$1\text{CU} = 0.383 \text{ vCores}$ (F64 = ~24 vCores)

Split capacity units to prevent throttling

Capacity Units Pricing



SKU	Cores	Capacity unit (CU)	Pay-as-you-go
F2	0.766	2	\$262.80/month
F4	1.532	4	\$525.60/month
F8	3.064	8	\$1,051.20/month
F16	6.128	16	\$2,102.40/month
F32	12.256	32	\$4,204.80/month
F64	24.512	64	\$8,409.60/month
F128	49.024	128	\$16,819.20/month
F256	98.048	256	\$33,638.40/month
F512	196.096	512	\$67,276.80/month
F1024	392.192	1024	\$134,553.60/month
F2048	784.384	2048	\$269,107.20/month



Workload Throttling



**Did you just
THROTTLE me!**

API Call Limits
Storage Limits
Compute Limits
Region Limits

How To Mitigate Throttling

Performance Tune

Scale Up

Ask for limit increase
from provider

Monitor and adjust
application APIs



Additional Cost Saving Measures



Dev/Test Subscriptions

Reservations / Savings Plans

Azure Hybrid Licensing

DR Replica Licensing

Pause Fabric Capacity

Session Feedback Surveys

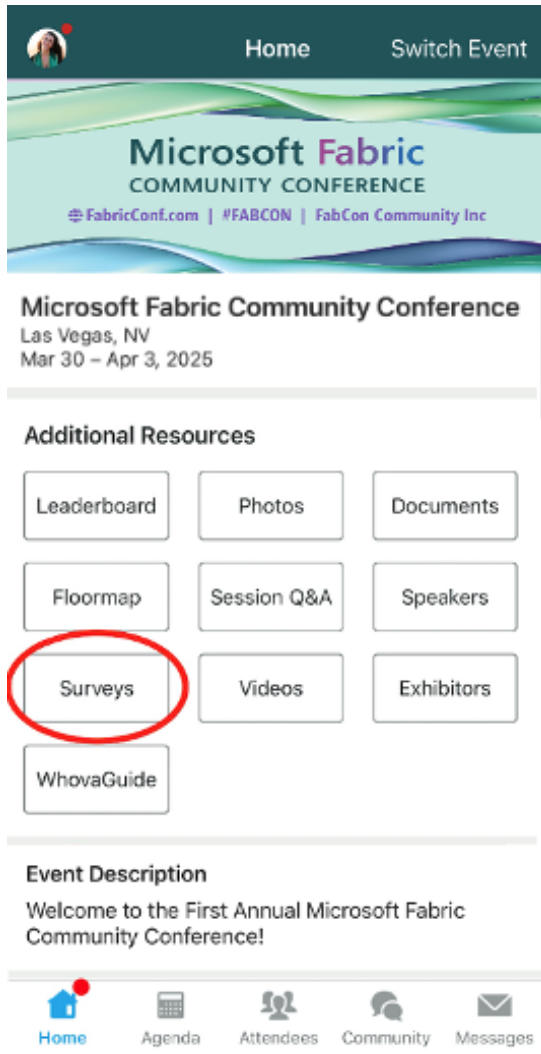
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- *Simply go to the Whova App on your smartphone*
- *Scroll down on the Microsoft Fabric Community Conference Homepage to 'Additional Resources' to click "Surveys".*
- *Click Session Feedback.*
- *Scroll down to find this session title.*
- *Complete the session feedback survey.*
- *Finally, click 'Submit'*

It's just that easy!



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WORKSHOPS: MAY 4, 5 & 9 **LAS VEGAS, NV**
 NextGen365Events.com

next **GenAI**
CONFERENCE

OCT 7-9, 2025 **LOWES SAPPHIRE FALLS RESORT**
WORKSHOPS: OCT 5, 6 & 10 **ORLANDO, FL**
 NextGenAIconf.com



Power Platform
COMMUNITY CONFERENCE

OCT 28-30, 2025 **MGM GRAND**
WORKSHOPS: OCT 26, 27 & 31 **LAS VEGAS, NV**
 PowerPlatformConf.com

THANK YOU!!!

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