Microsoft

SAP on Azure Enablement

Monday, Oct 12, 2020

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Module Two – Week One

Day 1 – Monday, Oct 12, 2020

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SAP on Azure Partner Enablement

Module Two – Week One

Day 1 – Introduction Recap & SAP Certified Offerings on Azure

Leon Davis
Cloud Solution Architect – SAP on Azure
Partner Success Team

Ravi Gangampalli
Cloud Solution Architect– SAP on Azure
One Commercial Partner

Agenda

SAP on Azure – Learning Path Recap

AZ-120 Certification – Introduction

Certified offering for SAP on Azure

Check-in

We are happy to host you ☺

https://aka.ms/apac-enablement-check-in

https://aka.ms/apac-sap-enablement

Module One Recap

Module One	Beginner
W1	Day 1 - Introduction & Onboarding
	Day 2 - Azure Fundamentals
W2	Day 1 - SAP on Azure Sales Fundamentals
	Day 2 Cloud Adoption Framework
	Day 3 - Introduction to Azure for SAP workloads
W3	Day 1 - Understanding Azure HA/DR & Backup solutions
	Day 2 - Planning Azure for SAP workloads
	Day 3 - Introduction to various SAP on Azure Teams

Module Two - Summary

Module Two	Deep Technical	Duration in Hours
W1	Day 1 - Introduction Azure Foundations Recap & SAP Certified Offerings on Azure	1
	Day 2 - Architecting SAP NW on Azure Anydb	2
	Day 3 - Conti Architecting SAP NW on Azure any DB	1
	Day 4 -Architecting HANA on Azure & Hands-on lab	2
W2	Day 1 - Azure Security & Best Practices for SAP	2
	Day 2 - Azure Governance for SAP workloads	1
	Day 3 - Devops for SAP workloads & Demo	2
W3	Day 1- Migration & Architecture best practices	1
	Day 2- Building High Availability systems Azure for SAP	2
	Day 3 - Azure monitoring for SAP workloads	2
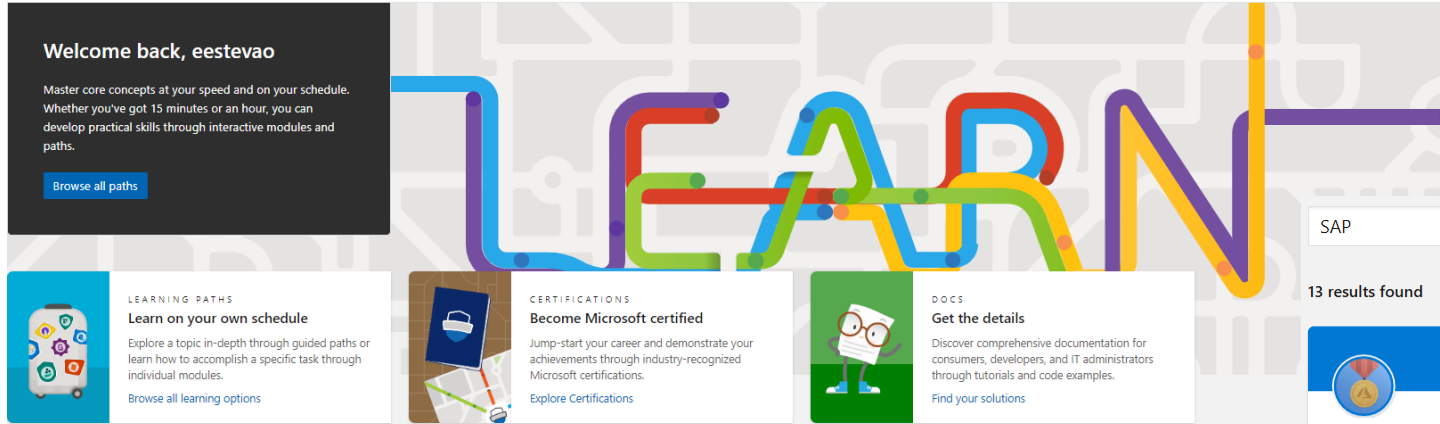
MS Learn

- Deploy SAP certified offerings on Azure
- Using IAAS support with Azure for SAP workloads
- SAP HANA on Azure Compute, Network, and Storage
- Introduction to Azure for SAP workloads
- SAP certified offerings for Azure
- Prepare to migrate SAP workloads to Azure
- Utilize Azure for SAP workloads reference architecture
- Planning for implementing SAP solutions on Azure
- Maintain Azure for SAP workloads
- Implement Azure VM-based SAP solutions
- Migrate SAP workloads to Azure
- Planning Azure for SAP workloads
- Run Azure for SAP workloads

Preparing for AZ-120 Certification:
"Planning and Administering Microsoft Azure for SAP Workloads"

AZ-120 Prerequisites

Prior to taking the AZ-120, it is recommended that you have taken the Azure Administrator (AZ-103/4) or Azure Solutions Architect (AZ-300/3) exam, as well as SAP HANA or NetWeaver training.

AZ-120 Exam Content

1. Migrate SAP Workloads to Azure (10-15%)

2. Design an Azure Solution to Support SAP Workloads (20-25%)

3. Build and Deploy Azure for SAP Workloads (35-40%)

4. Validate Azure Infrastructure for SAP Workloads (10-15%)

5. Operationalize Azure SAP Architecture (10-15%)

Foundations of SAP on Azure

1: Introduction to Azure for SAP Workloads
- SAP HANA Certifications
- SAP NetWeaver Certifications
- Other SAP Workloads Supported on Azure
- Common Terms and meaning

2: Foundations of Azure for SAP Workloads
- Azure Compute
- Azure Storage
- Azure Networking
- SAP HANA on Azure (Large Instances)
- Azure Active Directory (Azure AD) and (Azure AD DS)

3: SAP Certified Offerings on Azure
- Deployment options of SAP solutions on Azure
- SAP product-specific support on Azure
- Storage, networking and database support of SAP Azure workloads
- High availability and disaster recovery
- Monitoring, licensing, pricing and support

Planning for SAP for Azure

4: Azure for SAP Workloads – Reference Architecture

- SAP NetWeaver with AnyDB
- SAP S4 HANA on Azure VMs
- SAP HANA on Azure

5: Planning for Implementing SAP Solutions on Azure

- Azure VM Compute, Network, and Storage Considerations
- SAP HANA Azure virtual Machine storage
- Azure VM High availability and disaster recovery
- Azure VM backup, monitoring, security, authentication and licensing

6: Planning for Migrating SAP Workloads to Azure

- Strategies for Migrating SAP Workloads to Azure
- SAP Workload Planning and deployment checklist

Implementing SAP on Azure

7: Implementing Azure VM Based SAP Solutions

- Azure VM deployment and Single-Instance implementations
- Implementing HA SAP NetWeaver with AnyDB
- Implementing HA SAP HANA on Azure VM
- Configure Azure Enhanced Monitoring Extensions for SAP
- Implementing AD and Azure AD-based authentication

8: Deploying Hana Large Instances (HLI)

- Azure Implementing Hana Large Instances

9: Migrating SAP Workloads to Azure

- Migration Options
- DMO Methodology
- Cloud migration options
- Very Large Database Migration to Azure

# Running SAP on Azure

10: Maintaining Azure for SAP Workloads

- Remote management
- Performing backups and restores
- Networking changes
- OS and workload updates
- Vertical and horizontal scaling
- Disaster Recovery

11: Monitoring and Troubleshooting Azure for SAP Workloads

- Monitoring and troubleshooting Azure VM
- Monitoring and Troubleshooting SAP HANA
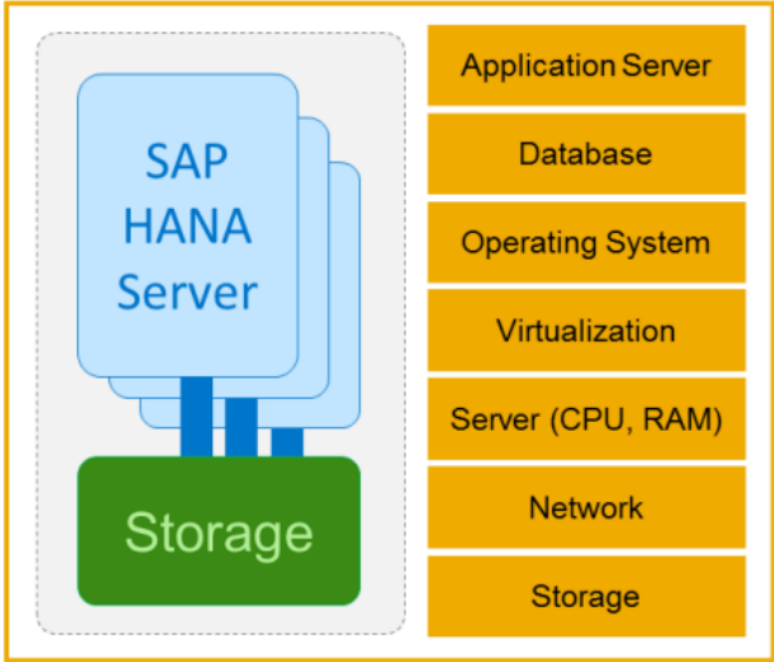- Raising Support Requests
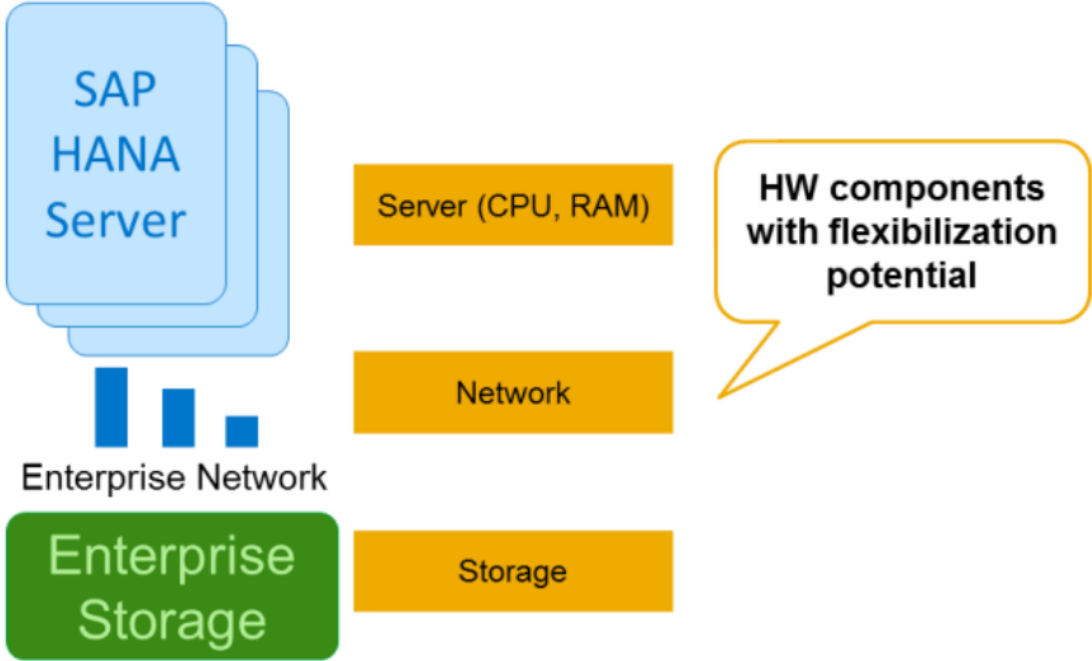
Why Azure for SAP applications
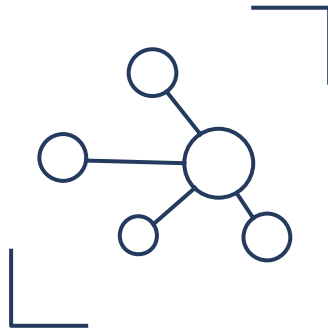
SAP Certified

Azure Resources

SAP Tailored Datacenter Integration (TDI)

SAP Tailored Datacenter Integration (TDI) Phases

The general availability of SAP HANA tailored data center integration was announced in several phases.

Phase 1 – Nov 2013 - GA of enterprise storage options. Before that, the approach had been verified in a 9-month pilot program with more than 70 customers involved.

Phase 2 – Nov 2014 – GA of enterprise network options.

Phase 3 – Nov 2014 – GA of Intel Xeon E5 processors for entry-level SAP HANA systems.

Phase 4 – Early 2015 – GA of SAP HANA on IBM Power Systems was announced.

Phase 5 – Introduces two important changes:

1. Customer workload-driven HANA system sizing
2. Extended Intel Xeon E7 CPU Support

Phase 6 – the introduction of PMEM for Cascade Lake servers and virtual PMEM for IBM POWER9 4.

Azure

SAP Supplied Information from: https://d.dam.sap.com/m/RppVnUb/May%202020_SAP%20HANA%20TDI%20FAQ.pdf

SAP Hardware Certification Process

SAP Certification includes:

Performance testing and benchmarking hardware and IaaS vendors offerings. As well as testing and supporting applications on various platforms and infrastructure.

SAP Certification information can include:

- SAPS (CPU Performance)

- Network throughput

- Scale Out Approval

- OLTP vs OLAP Suitability

- Suitable Storage Options

- Application Certification e.g. NW 7.5 hosted on Azure.

- OS and DB Certification e.g. Oracle on Windows on Azure.

SAP on Azure— Large Variety on Compute Instances

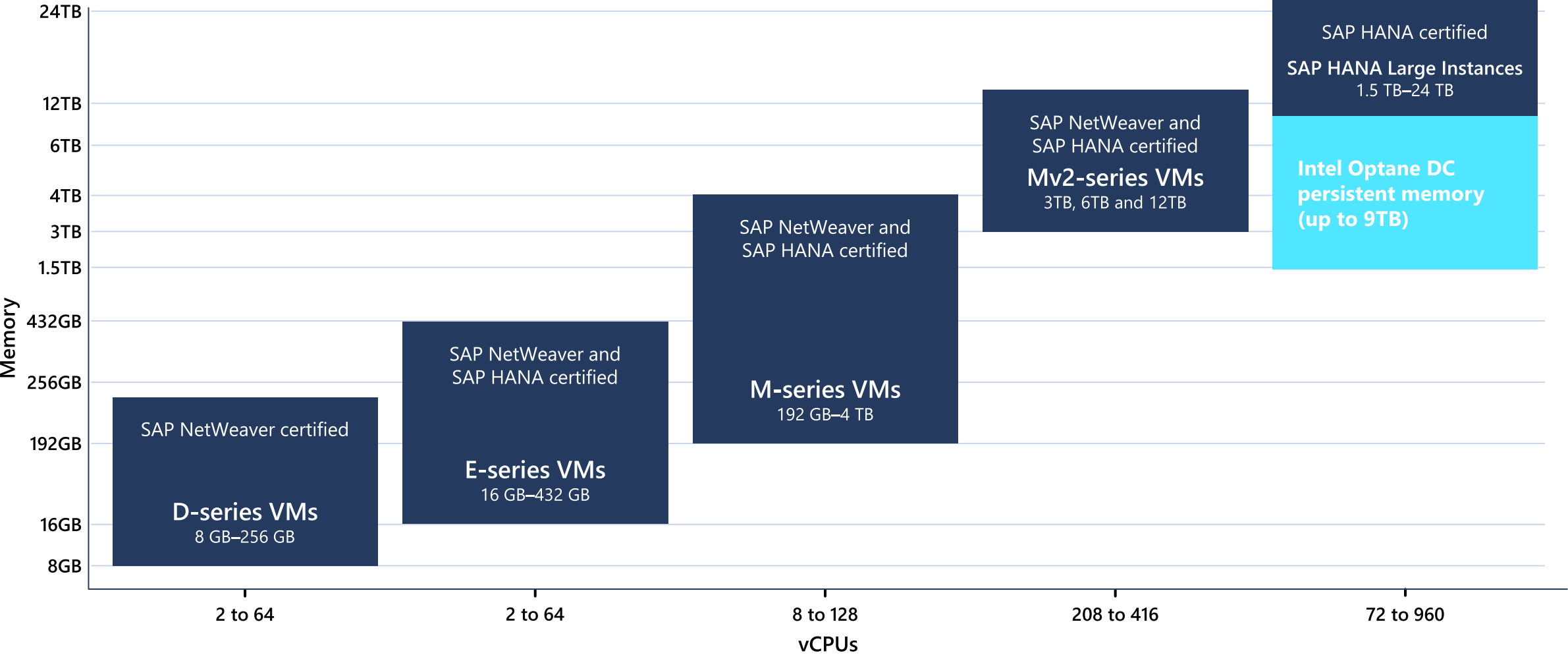| NetWeaver certified | NetWeaver certified and HANA certified | NetWeaver certified | NetWeaver certified | NetWeaver Certified and HANA certified | NetWeaver Certified and HANA certified | SAP HANA certified |

Dv3	**Ev3/ Edsv4**	**Dav4**	**Eav4**	**M**	**M v2**	**SAP HANA**
Compute intensive workloads	Memory optimized for Dev/Test & PoC HANA workloads	Compute intensive workloads	Memory optimized for Dev/Test & PoC HANA workloads	Optimized for large production SAP HANA workloads	Optimized for x-large production SAP HANA workloads	Purpose built instance for largest SAP HANA production workloads

HIGHEST VALUE ←→ **LARGEST SCALE-UP**

vCPUs	2 – 64	2 – 64	2 – 64	2 – 96	32 - 128	208 - 416	96 - 768
RAM (GiB)	8 - 256	16 - 504	8 - 256	16 - 672	192 – 3,892 GiB	2,918 – 11,673 GiB	768 – 24,576 GiB
Max SAPS	69,680	100,500	96.700	96,700	134,630	488,230	786,100

Scalable compute options for all SAP workloads and sizes

Memory (y-axis): 8GB, 16GB, 192GB, 256GB, 432GB, 1.5TB, 3TB, 4TB, 6TB, 12TB, 24TB

vCPUs (x-axis): 2 to 64, 2 to 64, 8 to 128, 208 to 416, 72 to 960

SAP NetWeaver certified
D-series VMs
8 GB–256 GB

SAP NetWeaver and SAP HANA certified
E-series VMs
16 GB–432 GB

SAP NetWeaver and SAP HANA certified
M-series VMs
192 GB–4 TB

SAP NetWeaver and SAP HANA certified
Mv2-series VMs
3TB, 6TB and 12TB

SAP HANA certified
SAP HANA Large Instances
1.5 TB–24 TB

Intel Optane DC persistent memory (up to 9TB)

32 SAP HANA certified offerings from 192GB to 24TB with Scale Out up to 120TB

Azure VMs for SAP HANA
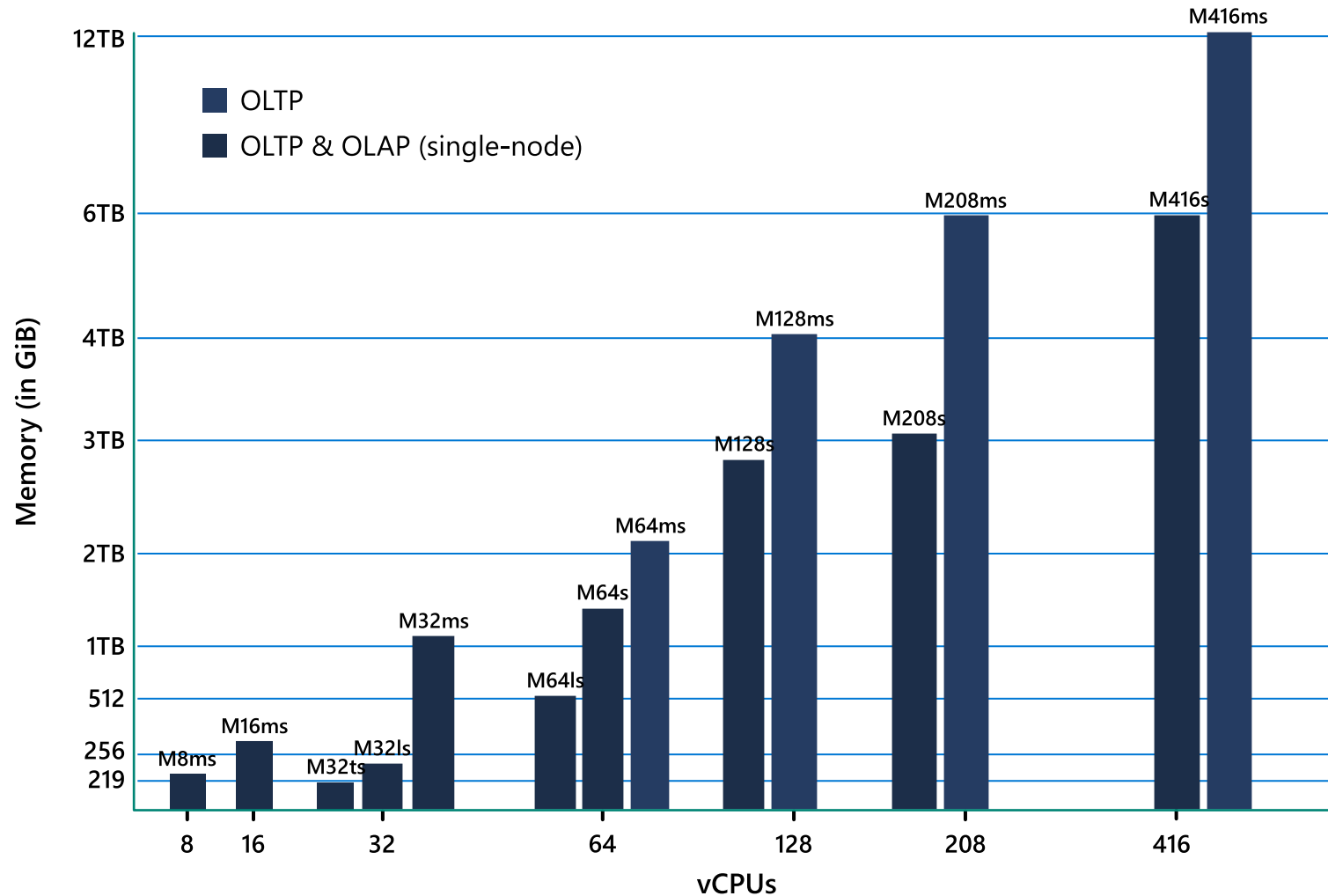
Mv1 Virtual Machines

- Hyper-threaded VMs with DDR4 memory
- Scale up to 4 TB and scale out to 30 TB
- Available in 37 regions worldwide as of June 2020

Mv2 Virtual Machines

- Intel® Xeon® Platinum 8180M 2.5GHz (Skylake) processors
- 3, 6, 12 TB Virtual Machines Certified for HANA
- 15 Regions with more launching soon
- <1ms latency for storage writes with write accelerator
- 30 Gbps networking throughput
- Deployment in minutes with automation

Purpose-built infrastructure—SAP HANA Large Instances
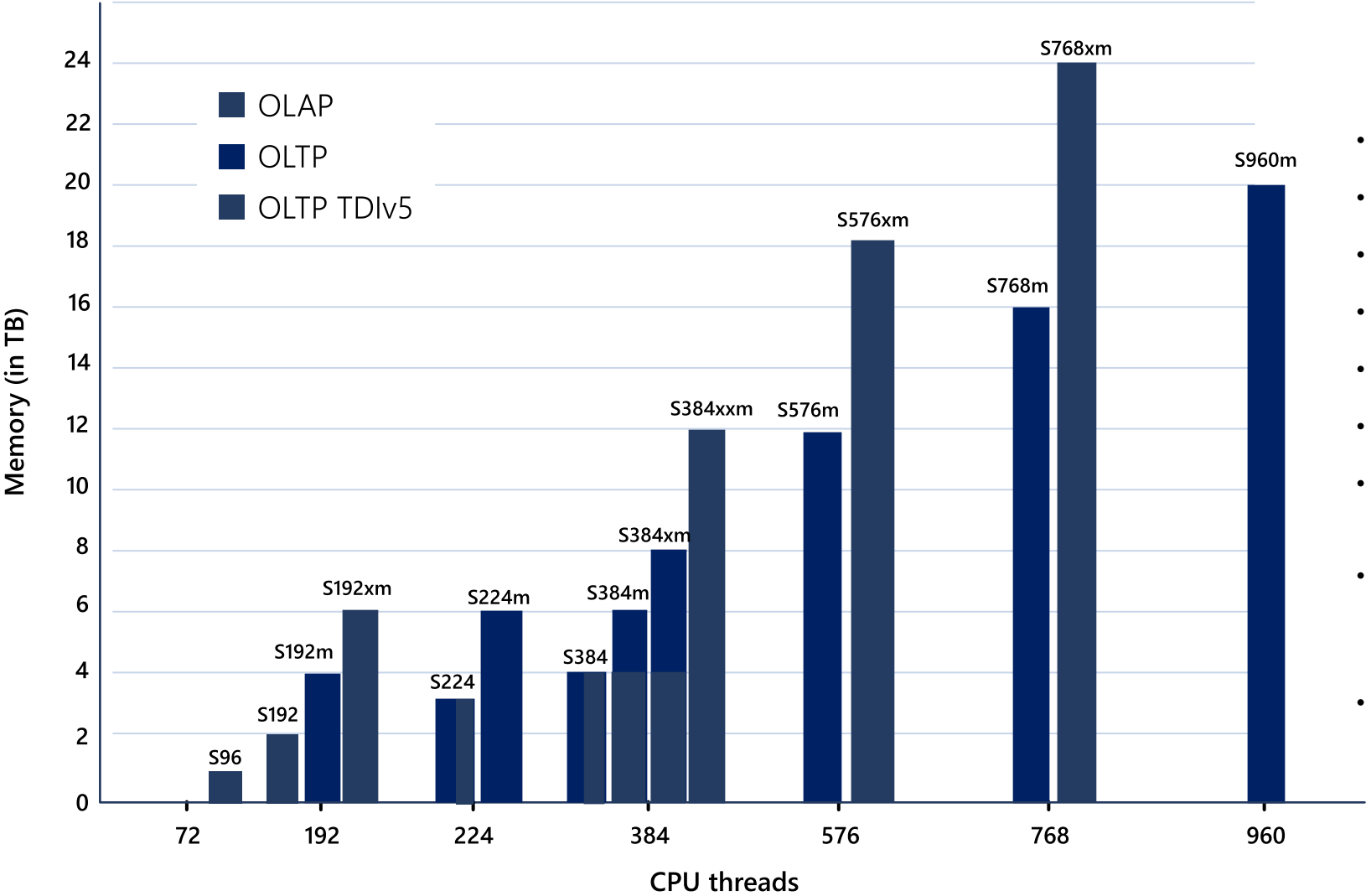
- SAP HANA TDI configuration

- Persistent NFS storage

- Scale-up to 20TB in TDIv4, 24TB in TDIv5

- Scale-out to 60TB in TDIv4, 120TB in TDIv5

- Snapshot based backups in seconds

- Available in U.S., E.U., AU and JP

- 99.99% SLA for HA Pair and 99.9% SLA for a single node

- With our recent Rev 4 instances, you can get 350 microsecond network latency between DB instance and App server VM

- Support for Intel Optane Persistent Memory up to 9TB

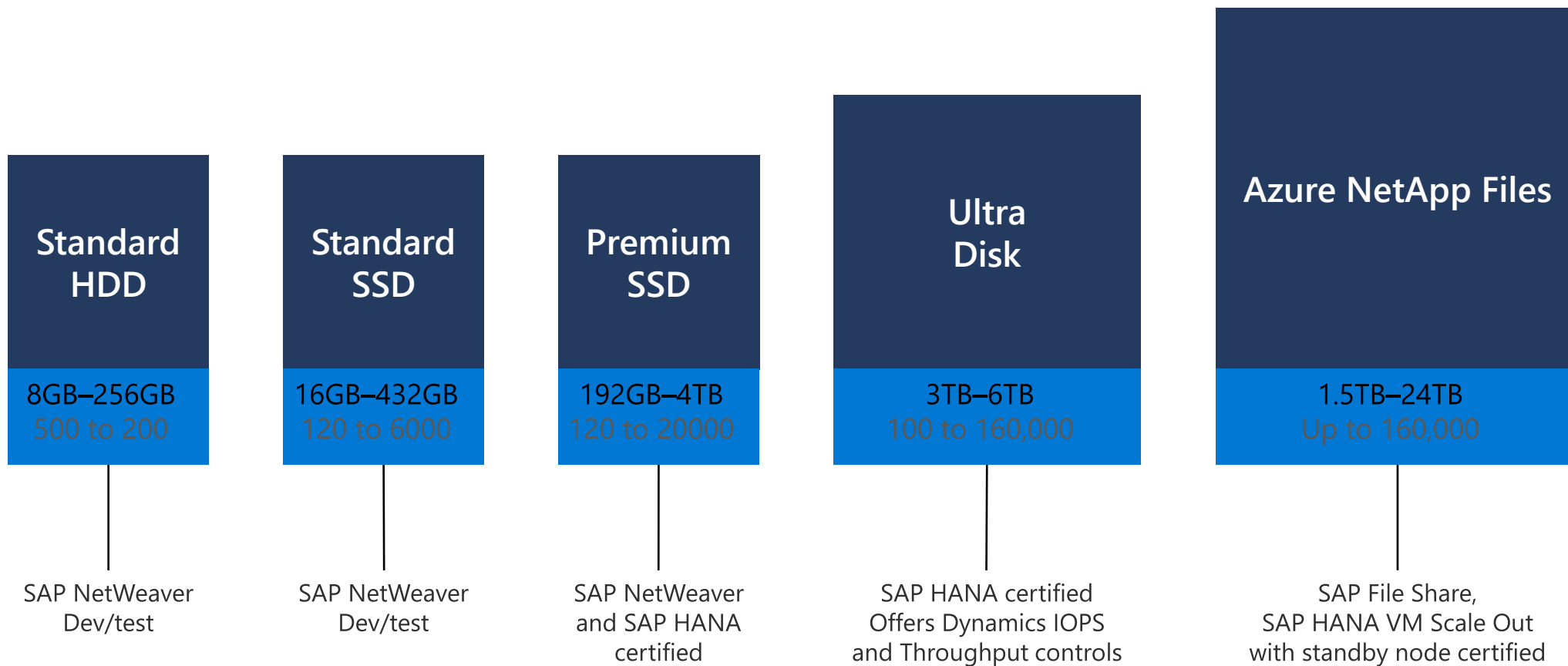# SAP HANA Large Instances with Intel Optane DC Persistent Memory

SAP HANA Large Instance	Total Memory (TB)	DDR4 Memory (TB)	Intel Optane Persistent Memory (TB)
S224	3	3	-
S224oo	4.5	1.5	3
S224m	6	6	-
S224m	6	6	-
S224om	6	3	3
S224ooo	7.5	1.5	6
S224oom	9	3	6

- SAP HANA on Azure Large Instances with 2nd generation Intel Xeon Scalable processors (Code name Cascade Lake) and Intel Optane DC Persistent Memory
- Intel Optane technology offers SSD like persistence with near DRAM performance and up to 12x faster database reload times from restart
- Lower TCO due to higher processor to memory density
- SAP HANA 2.0 SP3 required to support Intel Optane DC Persistent Memory

Scalable storage to meet demanding SAP workload needs

Sizes
IOPS

Standard HDD	Standard SSD	Premium SSD	Ultra Disk	Azure NetApp Files
8GB–256GB	16GB–432GB	192GB–4TB	3TB–6TB	1.5TB–24TB
500 to 200	120 to 6000	120 to 20000	100 to 160,000	Up to 160,000

SAP NetWeaver
Dev/test

SAP NetWeaver
Dev/test

SAP NetWeaver
and SAP HANA
certified

SAP HANA certified
Offers Dynamics IOPS
and Throughput controls

SAP File Share,
SAP HANA VM Scale Out
with standby node certified

Confirming Azure SAP Certification

Certified and Supported SAP HANA Hardware Directory:

https://www.sap.com/dmc/exp/2014-09-02-hana-hardware/enEN/iaas.html#categories=Microsoft%20Azure

Confirming Azure SAP Certification

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Certified SAP Solutions on Azure

SAP S/4HANA, SAP BW/4HANA SAP NetWeaver based solutions e.g. ECC, SRM, SCM, CRM, BW, PO, SolMan etc.

SQL Server	SAP ASE (Sybase)	MaxDB / liveCache	IBM DB2	Oracle		SAP HANA	SAP ASE (Sybase)	MaxDB / liveCache	IBM DB2	Oracle

Windows Server		Linux (SLES, RHEL)	Oracle Linux

Azure VMs: A5-A11, D(S)11-14, D(S)v2 11-15, D(S)v3 D2s_v3-D64s_v3, E2s_v3-E64s_v3, GS1-5, M32ts-M128ms

Additional certified SAP solutions:
- SAP Business One
- SAP Business Objects
- TREX
- SAP Content Server
- SAP Financial Consolidation
- SAP Hybris Commerce

See SAP OSS Note #1928533 (http://service.sap.com/sap/support/notes/1928533) for version details and further info IaaS only (no SQL Azure yet)

Certified SAP Solutions on Azure

SAP S/4HANA, SAP BW/4HANA
SAP NetWeaver based solutions e.g. ECC, SRM, SCM, CRM, BW, PO, SolMan etc.

| SQL Server | SAP ASE (Sybase) | MaxDB / liveCache | IBM DB2 | Oracle | | SAP HANA | ASE (Sybase) | MaxDB / liveCache | IBM DB2 | Oracle |

| Windows Server | Linux (SES, RHEL) | Oracle Linux |

Azure VMs
A5-A11, D(S)11-14, D(S)v2 11-15, D(S)v3, D2s_v3-64s_v3, E2s_v3-E64s_v3, GS1-5, M32ts-M128ms
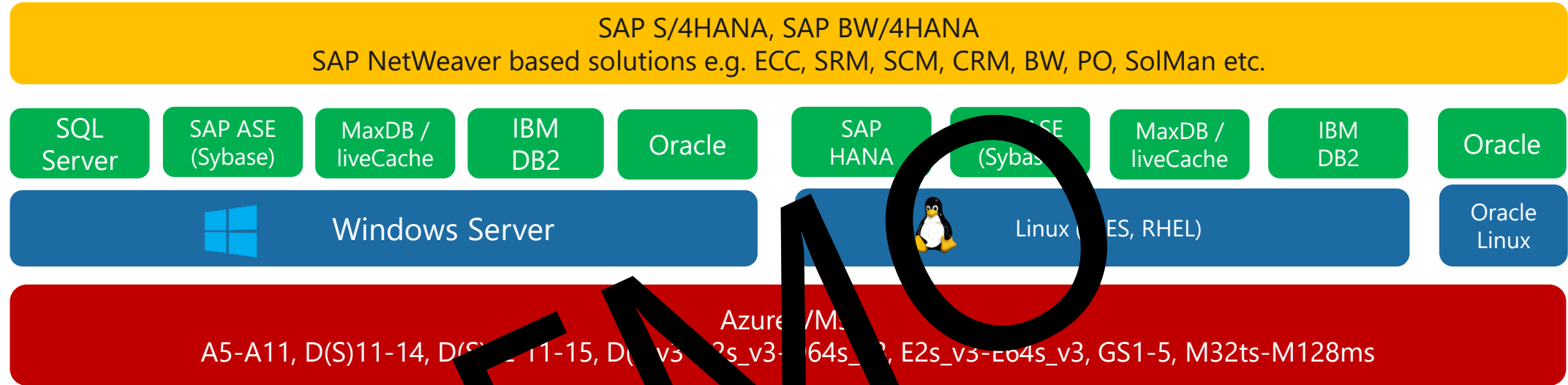
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SAP Hardware Certification Wrap Up

Important part of Architecting SAP on Azure:

The Certification process is important as it dictates what is (and isn't) supported to run on Azure. SAP will not support your landscape if you deploy Production on a non-Certified solution.

Quick Checklist:

- Check PAM for General OS/DB Combination Support

- For HANA workloads check the [Certified Hana Hardware Directory](#)

- For Application, OS, DB and VM Support on Azure Check Note [1928533](#)

- Check any dedicated or application specific notes for more information

Q&A

Reach out to the team
sap-on-azure-pe-apac@microsoft.com

Feedback

Your feedback is very important for us.

Your responses are Anonymous

https://aka.ms/SAPAPAC-POE-FEEDBACK

Microsoft

SAP on Azure Enablement

Next Session – Architecting
Netweaver on Azure

Tuesday, Oct 13, 2020, 10am SGT

Reach out to the team
sap-on-azure-pe-apac@microsoft.com