



A Closer Look at Why Choice Matters - SAP Landscapes Powered by Intel Processors

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In This Session

You will hear why the right choice for your infrastructure onPremise or your hyperscaler of choice matters and how these decisions can optimize your SAP landscape towards improved TCO and performance.

We will discuss architectural examples designed for performance and reduced costs as well as a balanced approach.

Agenda

- SAP Landscape Options
- onPrem vs. Hyperscalers
“Under the Hood”
- Architecture Considerations
- Optimize for Performance vs. Costs
- Wrap-Up



A Winning Combination



Proven Leadership,
Certified Scalability,
Performance Assurance



CSPs / OEMs adopt
next generation Intel
technologies differently



Intel® platforms are
tuned and certified for
SAP workloads
everywhere

Why Intel powered platforms for SAP Landscape?

Certified SAP Instances Running Intel® Technology Allow You to design for performance and/or TCO.

Enable a single source of truth



Grow business value from faster insights

With massive memory capacity, enable near-real-time analysis at the source without having to make multiple copies of data. Get closer to your goal of a single source of truth.

Run on pre-validated, certified SAP HANA cloud instances



Safe, future-proof cloud investment

Reassurance that your cloud instances are running on modern Intel® technology that has been validated for SAP HANA workloads to perform more optimally and securely.

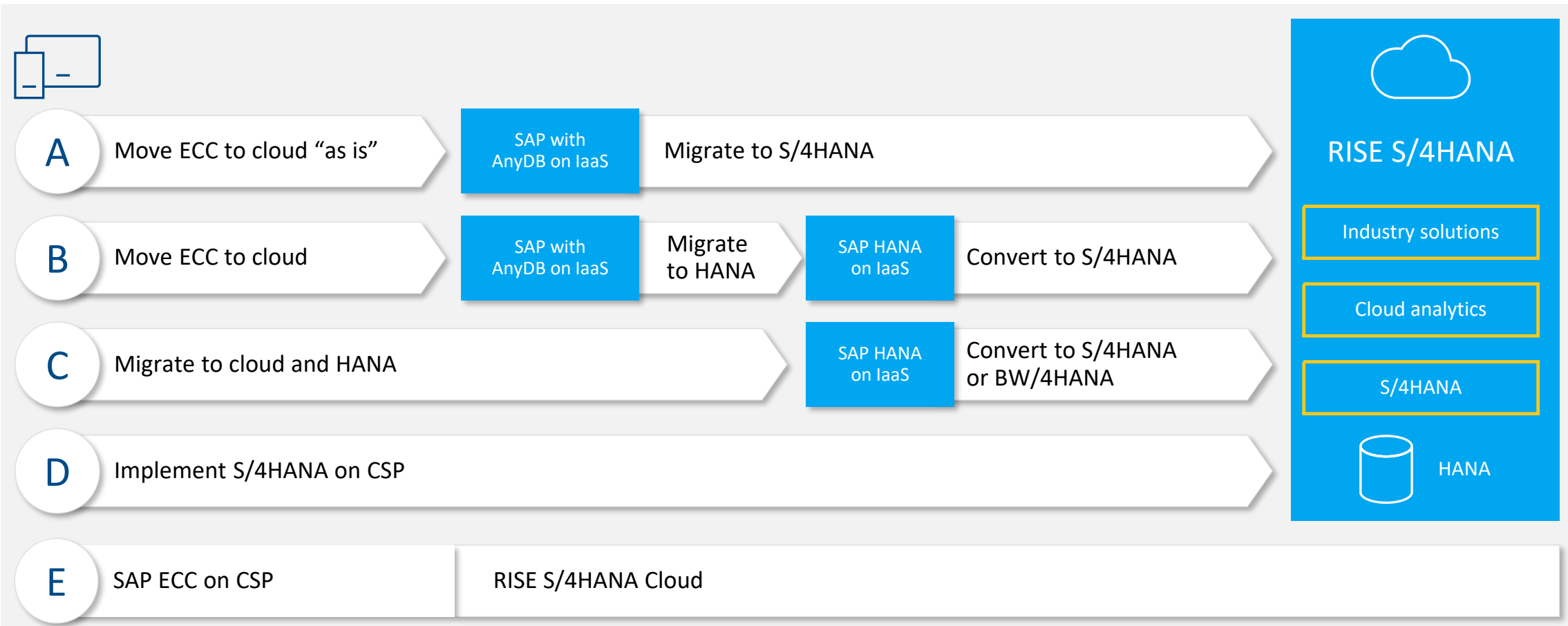
Simplify your SAP HANA landscape



Achieve high return on your cloud investment

Consolidate your server footprint to realize operational efficiencies for quality assurance (QA), high availability (HA), disaster recovery (DR), and business intelligence (BI).
Consolidate your Application Server Landscape.

Many Ways moving to SAP S/4HANA



SAP RISE Options (Pros/Cons)

1 Migrate to S/4HANA



All Options require SAP Certified Infrastructure

- SAP Certified Appliances (OEMs)
- SAP Certified IaaS (CSPs)
- SAP Certified VMWare / Nutanix on Intel x86

Intel powers the worldwide largest ecosystem of SAP certified Infrastructure

<https://www.sap.com/dmc/exp/2014-09-02-hana-hardware/enEN/#/solutions>

SAP RISE Commercial Framework

A

S/4HANA Cloud –
Public Edition

Public cloud, services are delivered to customers over a network that is open for public usage. (SaaS)

B

S/4HANA Cloud –
Private Edition

Private cloud within SAP Data Center or Hyperscaler (IaaS)
(AWS, Azure, GCP, Alibaba)

C

S/4HANA – Private Edition –
Customer Data Center Option

Moving Customers to cloud, without moving their data center

Private cloud within Customer Data Center
(HPE Greenlake, Dell Apex, Lenovo TruScale, Fujitsu uSCALE)

D

S/4HANA – Perpetual License –
One Time Fee + Support

Customer Data Center or Partner IaaS or DCaaS with Co-Location

Consider and Evaluate

- Data Governance
- Data Confidentiality
- Regulatory Compliance

Company Data Stored/Processed within an SAP owned Subscription

onPrem vs. Hyperscalers - “Under the Hood”

- The Power of Choice – delivered by Intel powered infrastructure
- In SAP onPremise Deployments the Choice is higher – SAP TDI Allows to Optimize for Performance / Costs.
- SAP at Hyperscaler provide only SAP Appliance like IaaS Infrastructure without a TDI Option.



Considerations

- Sizing Requirements for Application Servers are centered around SAPS
- Benefit from a wide range of OEM Server Systems and CSP IaaS
 - At CSPs reference architecture often recommend Scaling-Groups but a scale-up approach for Application Server allows reduction of costs as well.
- Sizing Requirements for SAP HANA are centered on Memory and Compute Demands
 - With OEM Server systems TDI offers workload based sizing to have the right amount of memory, with the right amount of performance
 - With CSP IaaS the Memory and Compute ratio is fixed, and only using different instance types at different CSPs provide some choice.

SAP Hardware Partner Readiness (as of June 2023)

4th Gen Intel® Xeon® scalable processors – Available Now

Available Now SAP Certified 2S/4TB¹ S/4 HANA ScaleUp	       	Available Now SAP Certified 4S/8TB¹ S/4 HANA ScaleUp	     
Available Now SAP Certified 8S/16TB¹ S/4 HANA ScaleUp	    	Available Now SAP Certified 16S/32TB² S/4 HANA ScaleUp	 Hewlett Packard Enterprise

SAP Appliance with up to 2TB / Socket

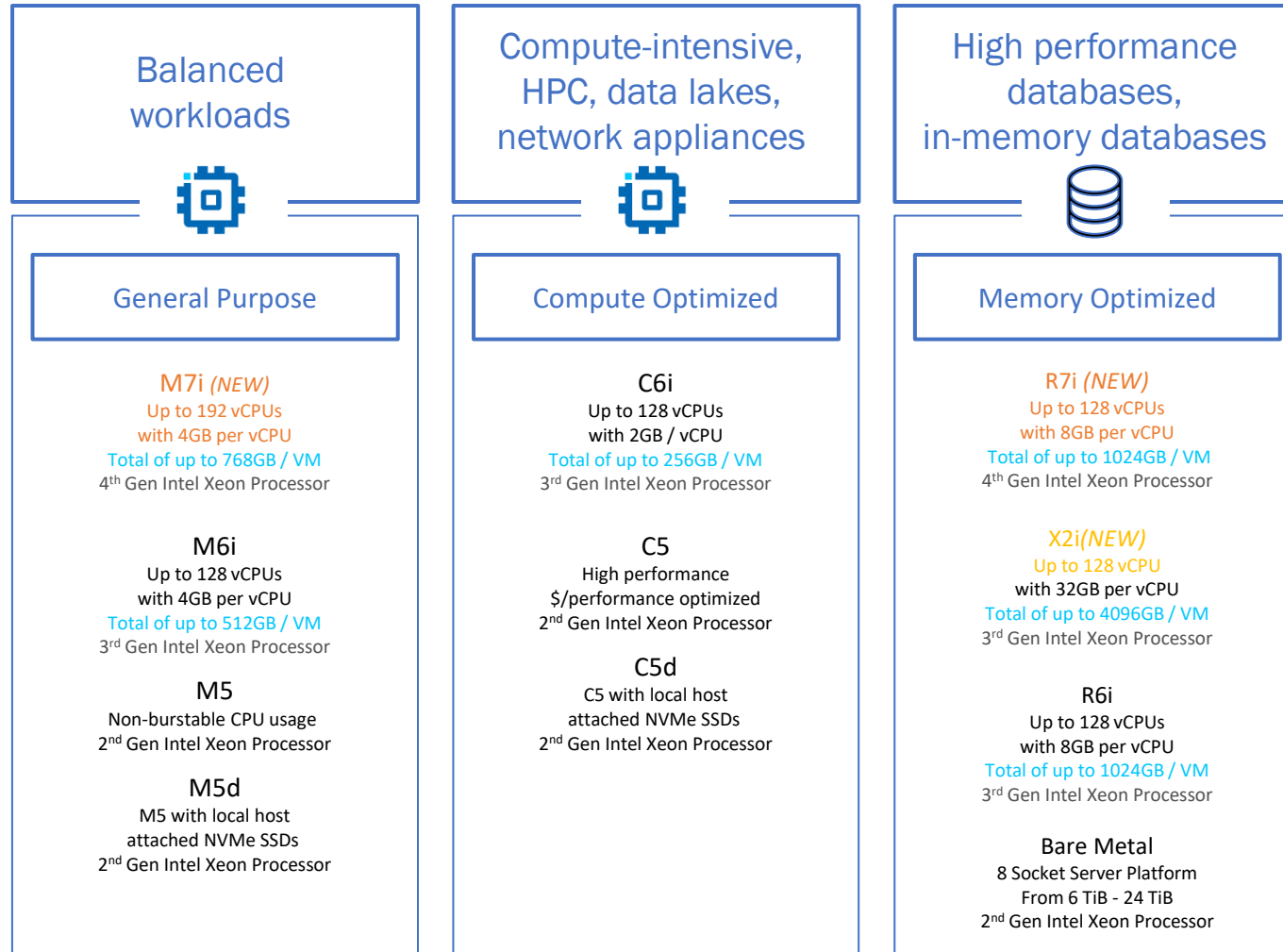
SAP TDI with a wide range of Compute (30+ CPU choices) / Memory Configurations

¹ <https://www.sap.com/dmc/exp/2014-09-02-hana-hardware/enEN/#/solutions?filters=appliance:v:3a584c7d-ca9b-458a-bf13-b7de11e413b6>

Other names and brands may be claimed as the property of others.

SAP-certified AWS Instances

Not exhaustive – focused on latest Intel Xeon based instances



CSPs offers a range of instances with different vCPU / Memory ratios.

Limited flexibility for SAP HANA
Memory Size dictates number of vCPUs

Limited availability to optimize costs.

SAP-certified Google Cloud Instances

Not exhaustive – focused on latest Intel Xeon based instances

Balanced workloads at best Price/Performance

General Purpose

C3 (new)
Up to 176 vCPU with 2/4/8GB per vCPU
Total of up to 1.4TB / VM
4th Gen Intel Xeon Processor & Intel IPU (SmartNIC)

N2 (new)
Up to 128 vCPU with 8GB per vCPU
Total of up to 864GB / VM
3rd Gen Intel Xeon Processor

N1
Up to 96 vCPU with 6.5GB per vCPU
Total of up to 624GB / VM
1st Gen Intel Xeon Processor

Compute-intensive, HPC, data lakes, network appliances

Compute Optimized

C2
Up to 60 vCPU with 4GB per vCPU
Total of up to 240 GB / VM
2nd Gen Intel Xeon Processor

High performance databases, in-memory databases

Memory Optimized

M3 (new)
Up to 128 vCPU with 30.5GB per vCPU
Total of up to 3.8TB / VM
3rd Gen Intel Xeon Processor

M2
Up to 416 vCPU with 30.5GB per vCPU
Total of 6-12TB / VM
2nd Gen Intel Xeon Processor

M1
Up to 160 vCPU with 15GB per vCPU
Total of 1-4TB / VM
1st Gen Intel Xeon Processor

O2
Baremetal Platforms
Up to 896vCPU & up to 27GB per vCPU
Up to 24TB Memory
2nd Gen Intel Xeon Process

High performance Storage, Storage Networks

Storage Optimized

C2
Up to 60 vCPU with 4GB per vCPU
Total of up to 240 GB / VM
2nd Gen Intel Xeon Processor

See <https://cloud.google.com/compute/docs/machine-resource> for all variations.

Know your Infrastructure Foundation

- Hyperscaler provide Instances Families over multiple Platform generations
- Performance of Instance Family varies based on underlining platform
- Choose your Instance Hardware explicitly via CLI, Shell, Terraform et la. to get most for your investment

Architecture Consideration

There is no Silver Bullet!

- Scale-Up over Scale-Out
- Migrate Scale-Out to Scale-Up cluster if possible
- SAP Application Server Auto-Scaling groups vs. Single Application Server



Optimize for Performance vs. TCO

- Hyperscaler IaaS certified for SAP provides „always“ by certification the Best Performance Class.
- HANA DB at IaaS has a core to memory ratio, so that Business Warehouse Scenario deliver at least 5000 Query per Hour.
- In OnPremise Scenarios, SAP TDI Workload Based Sizing, enables a TCO optimized infrastructure as you deploy your specific memory and compute needs.

Consolidation with OEM Server System

- SAP Certified TDI Systems provide a wide range of Performance to choose the best / closest fit for your requirements.
- 2 Dimensions
 - Memory (DRAM) vs. Performance (CPU Type)
 - Only deploy as much memory as needed and match the Performance (SAPS) | Performance Class

Consolidate SAP Application Server Previous M5 to latest M7i Family^{1, 2}



Old

 m5.4xlarge 16 vCPU / 64GB 22538 SAPS \$242.36/Month	 m5.4xlarge 16 vCPU / 64GB 22538 SAPS \$242.36/Month	 m5.4xlarge 16 vCPU / 64GB 22538 SAPS \$242.36/Month	 m5.4xlarge 16 vCPU / 64GB 22538 SAPS \$242.36/Month	 m5.4xlarge 16 vCPU / 64GB 22538 SAPS \$242.36/Month	Total 80 vCPU / 320GB 113000 SAPS \$1211,80/Month
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1st Gen Intel® Xeon Scalable Processor

New

 m7.16xlarge 64 vCPU / 256GB 123000 SAPS \$484,95/Month	12% Reduced Costs +9% SAPS additional Headroom Additional TCO Savings with Dev/Test Tier Consolidation	Total 64 vCPU / 256GB 123000 SAPS \$1068,08/Month
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4th Gen Intel® Xeon® Scalable Processor



No Sacrifice;
Consolidate
SAP AppTier



Optimize &
Reduce your
LandscapeTCO



Utilize Latest
AWS M7 Family
for SAP

¹ SAP SAPS based on SAP – AWS Note 1656099
² Configurations based on <https://calculator.aws> (Date: 25.10.2023 Region: US East OS: Linux, 3 years savings plan). Results may vary.

Consolidate SAP Application Server from N1 to C3 Instances

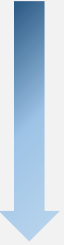


Old

 N1-standard-8	 N1-standard-8	 N1-standard-8	 N1-standard-8	 N1-standard-8	Total 40 vCPU / 150GB 41800 SAPS \$1162,96/Month
8 vCPU / 30GB	8 vCPU / 30GB	8 vCPU / 30GB	8 vCPU / 30GB	8 vCPU / 30GB	
8360 SAPS	8360 SAPS	8360 SAPS	8360 SAPS	8360 SAPS	
\$232.59/Month	\$232.59/Month	\$232.59/Month	\$232.59/Month	\$232.59/Month	

1st Gen Intel® Xeon® Processor

New

 C3-standard-22	 58% Reduced Costs Equivalent SAPS Performance Additional TCO Savings with Dev/Test Tier Consolidation	Total 22 vCPU / 88GB 41720 SAPS \$484,95/Month
22 vCPU / 88GB		
41720 SAPS		
\$484,95/Month		

4th Gen Intel® Xeon® Processor

 No sacrifice;
Consolidate
SAP AppTier

 Optimize &
Reduce your
SAP Landscapes

 Utilize Latest
GCP C3 Family
for SAP

Configurations based on <https://cloud.google.com/products/calculator> (Date: 20.10.2023 Region: Iowa, OS: SLES 12 for SAP, Balanced Disk, 3 years commit)
Results may vary.

Wrap up

- The Choice for your Infrastructure does make a difference and effects TCO, Performance and Business Objectives
- Consider Simplified and Scale-Up Architectures to optimize costs
- Consider TDI – Workload based Sizing to balance Performance and Memory needs to your Workloads

Where to Find More Information

- [Intel.com/SAP](https://www.intel.com/SAP) for more information regarding Intel Products for SAP
- [SAP Certified Hardware \(Appliance, TDI, IaaS\)](#)
- Reach out to your Intel Partner / OEM Partner / CSP for More information.

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your session evaluation.

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