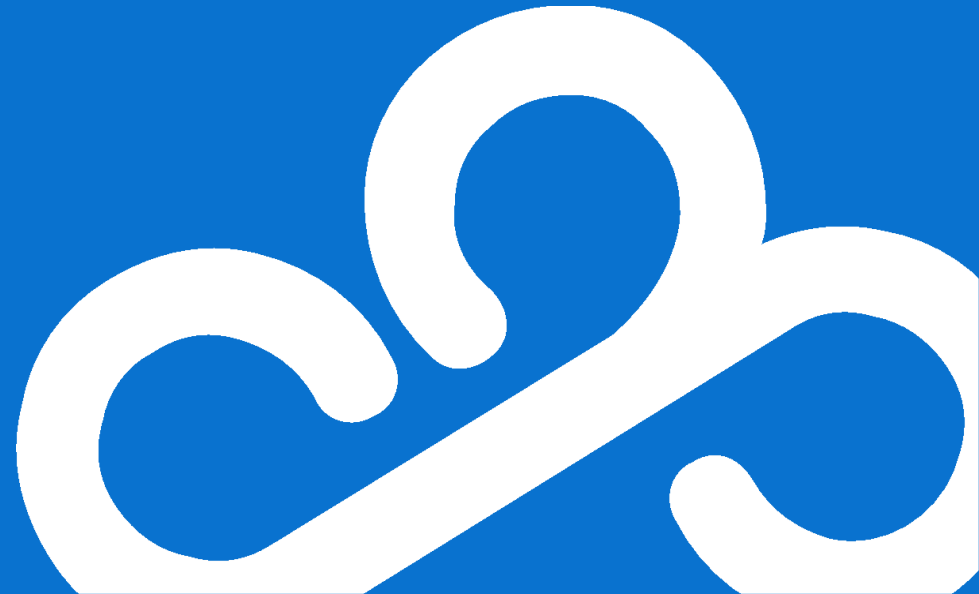


nubosperta

SAP, migración a la nube junto con AWS



Antes de empezar



Te enviaremos la grabación del curso



Envía tus preguntas por chat



Por favor completa la encuesta de salida



Agenda



- ✓ Quick Intro – Nubosperta
- ✓ Soluciones AWS de Migraciones de SAP
- ✓ Sesión de preguntas y respuesta

Somos una iniciativa de negocio de capital privado **100% mexicana con vasta experiencia en nuestro equipo directivo:**

Con más de 30 años de experiencia en la administración y operación de tecnologías de la información, en Nubosperta proveemos los elementos de infraestructura y las mejores prácticas para habilitar aquellas aplicaciones que automaticen tus procesos críticos de negocio.

Apoyamos a nuestros clientes en el proceso de adopción y operación de sus aplicaciones en la Nube Pública de Amazon Web Services, contamos con la certificación Advanced Consulting Partner, utilizamos estándares ITSM y estrategias de clase mundial para la gestión de servicios de TI con enfoque al cliente.

Somos un equipo de especialista certificados por Amazon Web Services

Hemos realizado importantes inversiones en capacitaciones de Amazon Web Services. Cada uno de nuestros especialistas dispone de una amplia experiencia y certificación en el diseño de sólidas arquitecturas para implementarlas en la infraestructura de AWS

Certificaciones:

- 12 AWS Certified Solutions Architect - Associate
- 2 AWS Certified Solutions Architect - Professional
- 1 AWS Certified Developer - Associate

Competencias

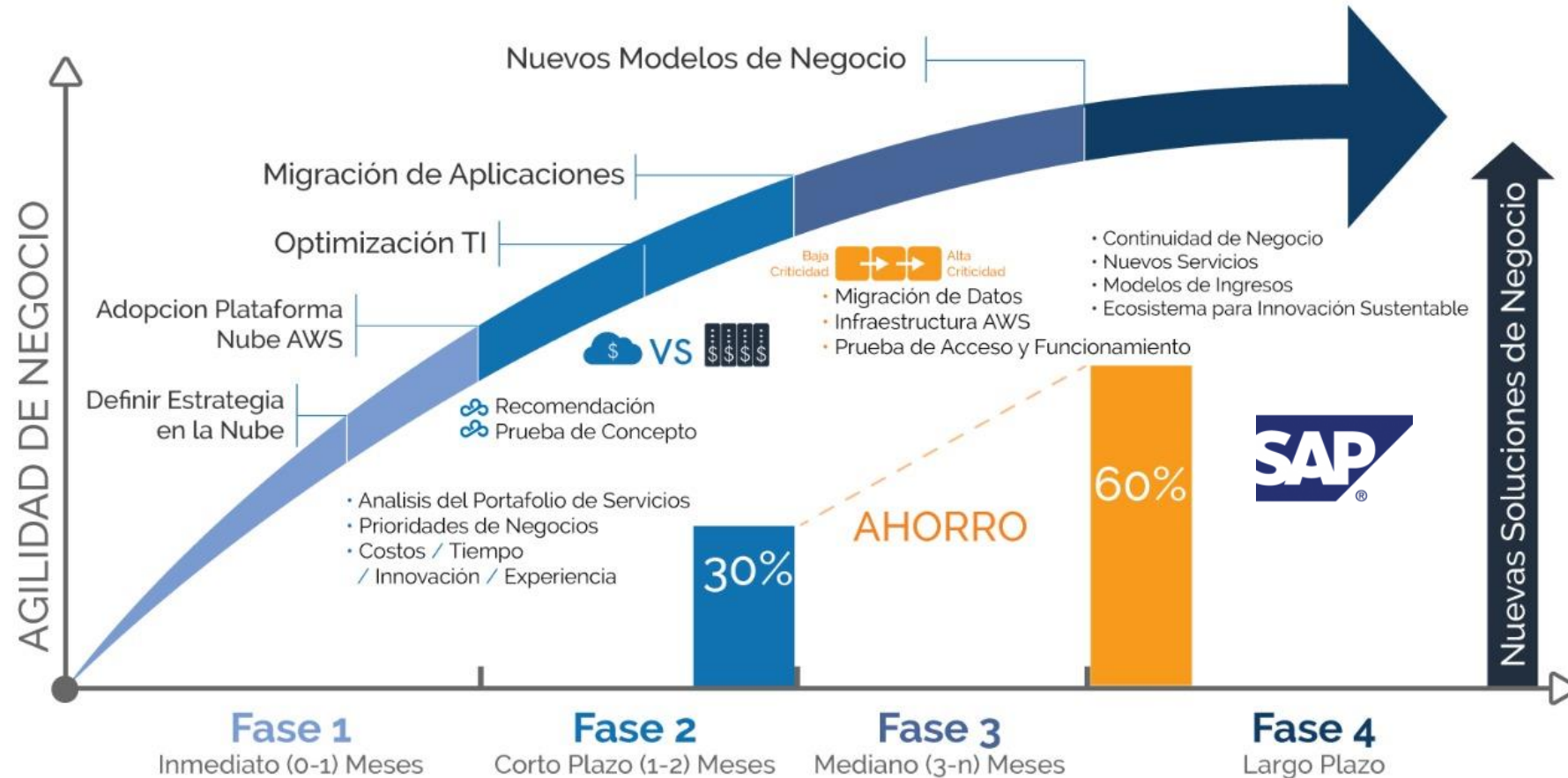
- Migration
- Microsoft Workloads
- SAP

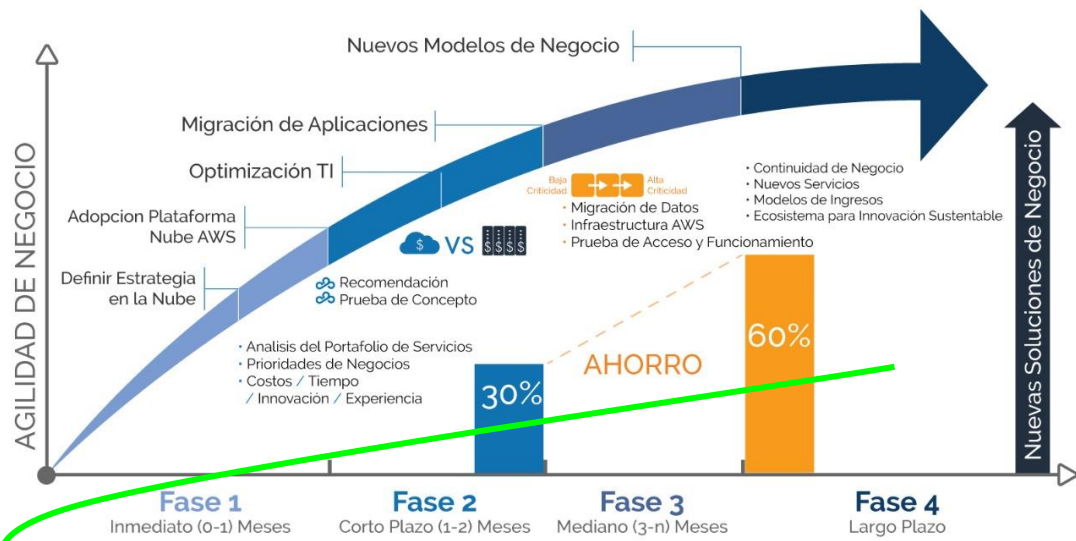


El proceso de migración y adopción

Un vez que migramos las aplicaciones legadas y concluimos un lapso de estabilización en la nube, **es en esta etapa donde inicia verdaderamente el proceso de adopción**, que es cuando tienes la oportunidad de analizar la información que el negocio va generando usando el portafolio de servicios de analítica de AWS.

Este es solo un ejemplo de cómo desarrollar conocimiento del negocio cuando explotas la capacidad de análisis de los datos que genera la operación a través del uso de las aplicaciones..





Migraciones de SAP

Aproveche las oportunidades de innovación

Independientemente de su sistema o estrategia SAP, AWS cuenta con la experiencia y la tecnología necesarias para acelerar la migración y transformación. Nubosperta ofrecen una amplia variedad de servicios de cómputo y almacenamiento en la nube para satisfacer las necesidades de las cargas de trabajo más exigentes.

Para las organizaciones que no desean contar con servidores físicos por razones de espacio, costo de inversión (CAPEX), presupuesto limitado, lo invitamos a conocer nuestro modelo para llevar sus aplicaciones a la nube de AWS. Esto reduce drásticamente el costo de ejecución de SAP y permite agilizar la adopción de tecnologías emergentes, posibilitando una mayor innovación y una reducción de los plazos de valoración.

Los beneficios

Recursos para admitir las cargas de trabajo de SAP más grandes y exigentes

Desde 2008, AWS y SAP han innovado de forma conjunta para desarrollar hardware diseñado especialmente para SAP. Gracias a ello, los clientes puedan ejecutar sus aplicaciones SAP con un rendimiento consolidado en la nube. AWS ofrece las instancias virtuales y nativas en la nube más grandes con certificación para SAP HANA en fase de producción, diversas opciones de almacenamiento certificadas y la capacidad de ejecutar SAP en instancias dedicadas.

Herramientas y socios probados para llevar a cabo la modernización a su propio ritmo

Independientemente del sistema SAP que ejecute o de la estrategia que quiera adoptar, AWS y los socios con competencias en SAP de AWS como Nubosperta cuentan con la experiencia, las herramientas, los métodos y las prácticas recomendadas para simplificar la migración o transformación. AWS es el único proveedor de servicios en la nube que ofrece una competencia en SAP a los socios, de forma que estos están obligados a demostrar sus habilidades técnicas e historias de éxito de los clientes con cargas de trabajo de SAP en AWS.

Los servicios más amplios para innovar con SAP

Con AWS, puede acelerar la innovación si amplía los sistemas de SAP a un conjunto extremadamente amplio y sólido de servicios en la nube. AWS es una de las plataformas en la nube más completas y adoptadas. Cuenta con más de 175 servicios disponibles, incluidas soluciones de lagos de datos, de inteligencia artificial y aprendizaje automático, y de IoT.



SAP on AWS

Overview

Hans Hahn
Partner Solutions Architect SAP
Amazon Web Services

SAP | AWS innovations

13 years of industry firsts



SAP on AWS customers

More than 5,000 active AWS customers run SAP on AWS and over half have deployed SAP HANA-based solutions on AWS



Cloud market leadership

Figure 1. Magic Quadrant for Cloud Infrastructure and Platform Services



AWS Recognized as a Cloud Leader for the 10th Consecutive Year

Gartner, Magic Quadrant for Cloud Infrastructure & Platform Services, Raj Bala, Bob Gill, Dennis Smith, David Wright, Kevin Ji, 1 September 2020. Gartner does not endorse any vendor, product or service depicted in its research publications, and does not advise technology users to select only those vendors with the highest ratings. Gartner research publications consist of the opinions of Gartner's research organization and should not be construed as statements of fact. Gartner disclaims all warranties, expressed or implied, with respect to this research, including any warranties of merchantability or fitness for a particular purpose. The Gartner logo is a trademark and service mark of Gartner, Inc., and/or its affiliates, and is used herein with permission. All rights reserved.

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AWS Global Infrastructure

AWS Regions provide multiple, physically separated and isolated Availability Zones which are connected with low latency, high throughput, and highly redundant networking

24 active geographic Regions

+3 announced in Indonesia, Japan and Spain
2x More Regions than the next largest provider

77 Availability Zones

Every Region with multiple AZs

2 Local Zones + 2 Wavelength Zones

Highly-demanding applications that require single-digit millisecond latencies to your end-users

216 Points of Presence

Amazon CloudFront global CDN with regional edge caches



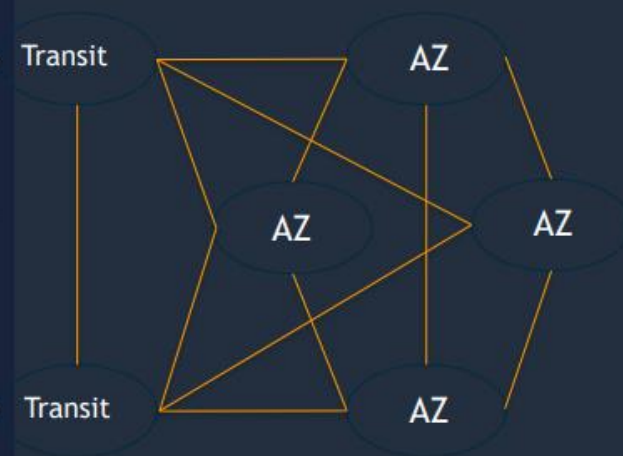
[Interactive Map](#)

Scale globally with resilience **in every region**

The largest global foot print consistently built with a multi-AZ and multi-datacenter design

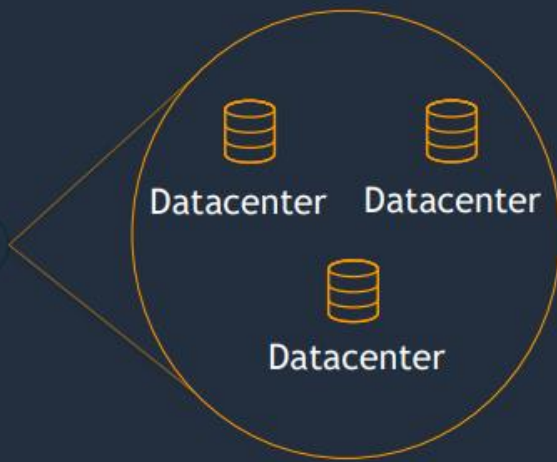


AWS Region



A Region is a physical location in the world where we have multiple **Availability Zones**.

AWS Availability Zone (AZ)



Availability Zones consist of one or more discrete data centers, each with redundant power, networking, and connectivity, housed in separate facilities.



ANALYTICS

ANALYTICS

STREAMING

DATA EXCHANGE

DATA LAKE

DATA PIPELINES

DATA WAREHOUSE

ELASTICSEARCH

COMPUTE

COMPUTE

CONTAINERS

AUTO SCALING

BATCH JOBS

EVENT-DRIVEN SERVERLESS COMPUTING

INSTANCE TYPES

MANAGED VIRTUAL PRIVATE SERVERS

END USER COMPUTING

APP STREAMING

DESKTOP COMPUTING

MOBILE ACCESS

STORAGE & COLLABORATION

MACHINE LEARNING

ML FRAMEWORKS

SAGEMAKER

DEEP LEARNING AMI & CONTAINERS

HARDWARE ACCELERATION

REINFORCEMENT LEARNING

PYTORCH, MXNET

AI SERVICES

MEDIA SERVICES

LIVE VIDEO TRANSPORT

MEDIA STORAGE

TRANSCODING

VIDEO ORIGINATION & PACKAGING

VIDEO PERSONALIZATION & MONETIZATION

VIDEO PROCESSING & DELIVERY

VIDEO STREAMING ANALYSIS

SATELLITE

SATELLITE OPERATIONS

AR + VR

AR/VR EXPERIENCES

AWS COST MANAGEMENT

ANALYZE AWS COSTS

COST & USAGE BUDGETS

COST & USAGE REPORTS

RESERVED INSTANCES REPORTING

APPLICATION INTEGRATION

EMAIL

MESSAGE BROKER

QUEUEING & NOTIFICATIONS

SEARCH

TRANSCODING

WORKFLOW

BUSINESS APPLICATIONS

EMAIL & CALENDARING

ONLINE MEETINGS

SHARING & COLLABORATION

UNIFIED COMMUNICATIONS

VOICE-ENABLED WORKPLACE

NETWORKING & CONTENT DELIVERY

APPLICATION DELIVERY

DEDICATED NETWORK CONNECTION

DOMAIN NAME SYSTEM

LOAD BALANCING

MONITOR APIS

MONITOR MICROSERVICES

NETWORK TOPOLOGY

NETWORKING HUB

PRIVATE CONNECTION TO APPS

SCALE VPC & ACCOUNT CONNECTIONS

SERVICE DISCOVERY

VIRTUAL PRIVATE CLOUD

COMPUTE

COMPUTE

CONTAINERS

COMPUTE

AUTO SCALING

BATCH JOBS

EVENT-DRIVEN SERVERLESS COMPUTING

INSTANCE TYPES

MANAGED VIRTUAL PRIVATE SERVERS

MANAGED REPOSITORY FOR SERVERLESS APPS

RUN & MANAGE WEB APPS

SERVERLESS COMPUTE

VIRTUAL SERVERS

STORAGE

ARCHIVE STORAGE

BACKUP & RESTORE

BLOCK STORAGE

DATA TRANSFER

EDGE PROCESSING & COMPUTING

FILE STORAGE

HIGH-PERFORMANCE FILE SYSTEM

HYBRID CLOUD STORAGE

OBJECT STORAGE

WINDOWS FILE SYSTEM

DEVELOPER TOOLS

ANALYZE & DEBUG

APPLICATION LIFECYCLE MANAGEMENT

AUTHORIZING

BUILD & TEST

CONTAINERS

DEVOPS RESOURCE MANAGEMENT

ONE-CLICK APP DEVELOPMENT

PATCHING

PIPELINE ORCHESTRATION

RESOURCE TEMPLATES

TRIGGERS

IoT

RULES ENGINE

DEVICE ANALYTICS

DEVICE GATEWAY

DEVICE SDK

DEVICE SHADOWS

EVENT DETECTION & RESPONSE

LOCAL COMPUTE

LOCAL DATA COLLECTION

MANAGEMENT & SECURITY

MICROCONTROLLER OPERATING SYSTEM

REGISTRY

VISUAL APPLICATIONS DEVELOPMENT

MARKETPLACE

ANALYTICS

DATA PRODUCTS

DATABASES

DEVOPS

IOT

MACHINE LEARNING

NETWORKING

OPERATING SYSTEMS

SECURITY

STORAGE

ROBOTICS

CLOUD ROBOTICS

CUSTOMER ENABLEMENT

ACCOUNT MANAGEMENT

DASHBOARD PERSONALIZATION

ENTERPRISE SUPPORT

EXPERTS MARKETPLACE

OPTIMIZATION GUIDANCE

PARTNER ECOSYSTEMS

PROFESSIONAL SERVICES

SECURITY & BILLING REPORTS

SOLUTIONS MANAGEMENT

TRAINING & CERTIFICATION

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SAP Business Solutions Supported on AWS

SAP HANA

SAP S/4 HANA

SAP Business Warehouse

SAP BW/4HANA

SAP Business All-in-One

SAP Business One

SAP Hybris (v)
Commerce

SAP NetWeaver™



SAP Business Suite

SAP Business Objects™

SAP Mobile Platform



Operating Systems Available for SAP on AWS

Amazon Machine Images



SUSE Linux
Enterprise Server
(SLES)



Red Hat
Enterprise Linux
(RHEL)



Oracle
Linux



Microsoft
Windows
Server



HANA Support and Extended Support

Database Platforms Available for SAP on AWS

Database Platforms



Microsoft
SQL Server



IBM
DB2



Oracle
Database*



Amazon
Aurora**



SAP HANA
SAP MaxDB
SAP ASE

For the most up-to-date list of supported database applications, see [SAP note #1656099](#) or [SAP Wiki](#)

* Requires Oracle Linux, see [SAP note #2358420](#)

** For SAP Hybris Commerce

SAP on AWS

AWS Core Services for SAP

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SAP Systems Essential Components



Networking Resources (VLAN, DNS, ...)



Amazon
VPC



AWS
Direct
Connect



AWS
VPN



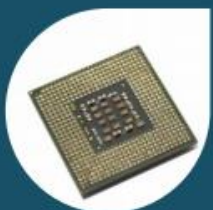
AWS
Transit
Gateway



Amazon
Route 53



Amazon VPC
PrivateLink



Compute Resources (Physical or Virtual Machines)



Amazon
EC2



Amazon
Machine Images



Amazon Elastic
Load Balancing



Storage Resources (SAN, NAS, Tapes, HDDs, ...)



Amazon
EBS



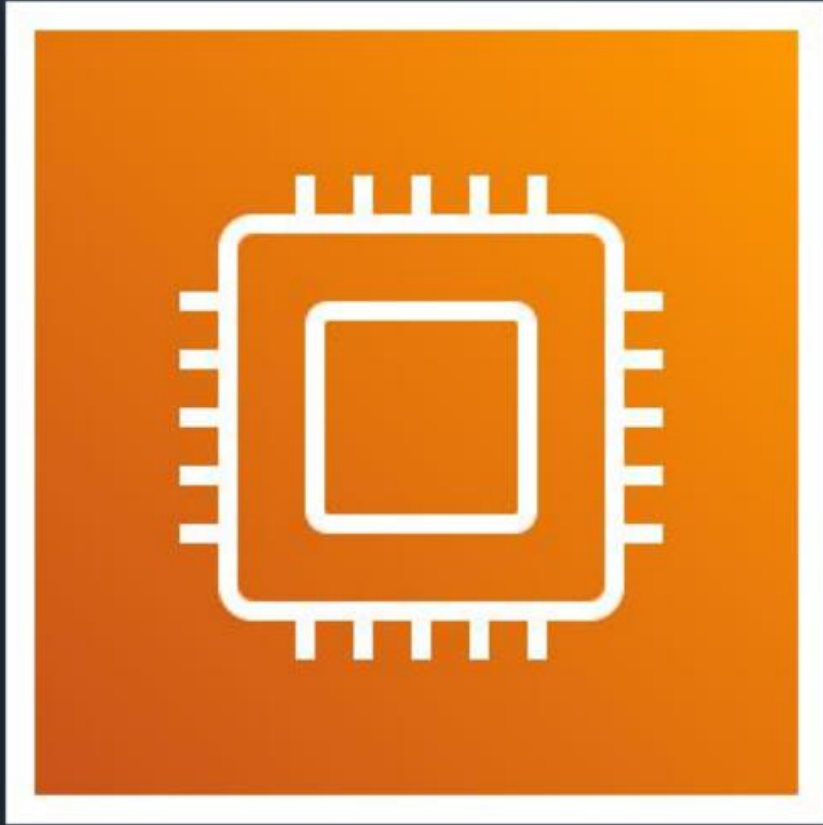
Amazon
EFS



Amazon
FSx

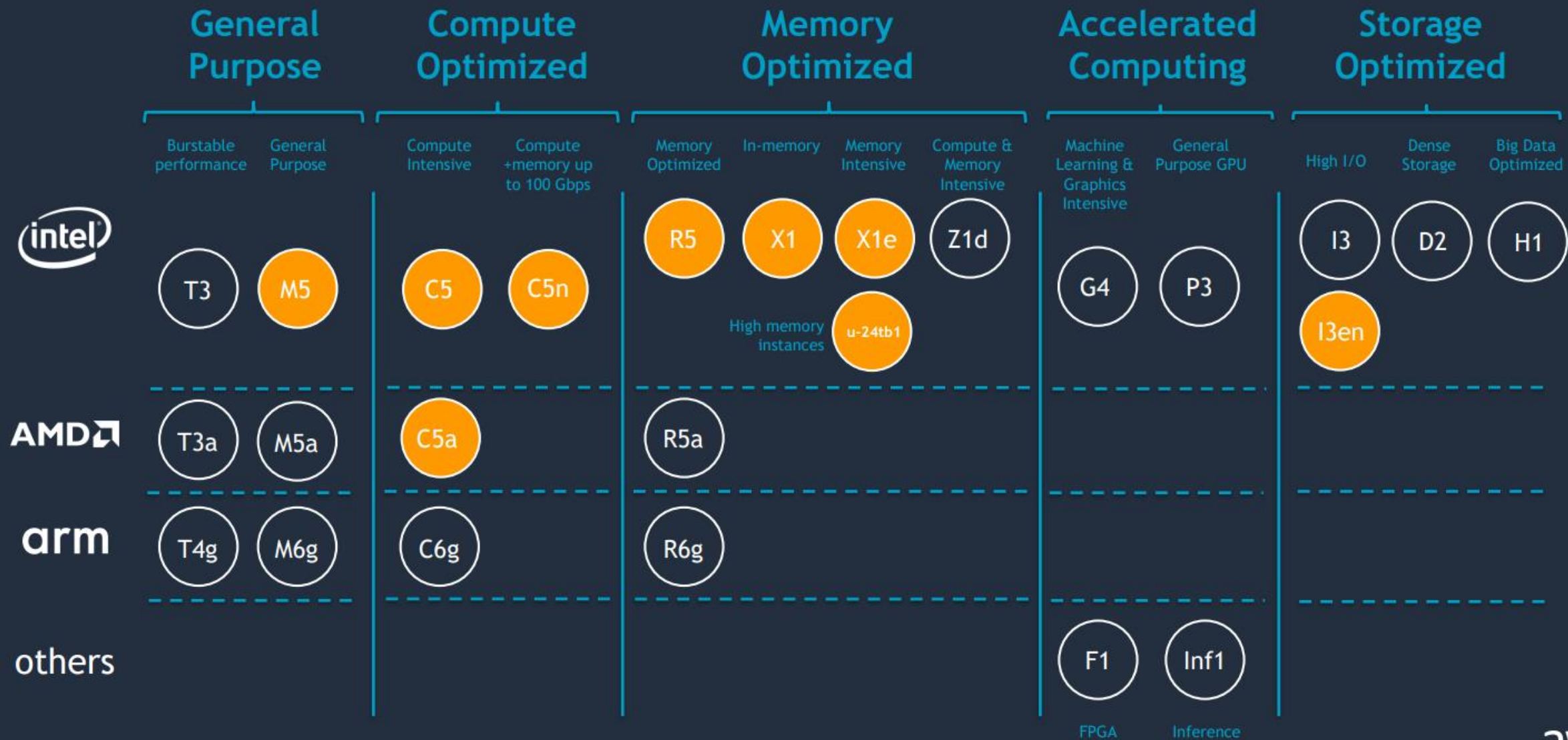


Amazon
S3



Computing Services

Amazon EC2 Instance Types for SAP



Current Generation Amazon EC2 instances supported for SAP Workloads - 1 of 2

General Purpose						
Name	vCPU	Memory (GiB)	Network (Gbps)	Storage (Mbps)	Max IOPS	SAPS
m5.metal	96	384	25	19,000	80,000	142,000
m5.24xlarge	96	384	25	19,000	80,000	135,230
m5.16xlarge	64	256	20	13,600	60,000	90,153
m5.12xlarge	48	192	10	9,500	40,000	67,615
m5.8xlarge	32	128	10	6,800	30,000	45,077
m5.4xlarge	16	64	High	4,750	18,750	22,538
m5.2xlarge	8	32	High	Up to 4,750	18,750	11,269
m5.xlarge	4	16	High	Up to 4,750	18,750	5,535
m5.large	2	8	High	Up to 4,750	18,750	2,817

Compute Optimized – AMD Based						
Name	vCPU	Memory (GiB)	Network (Gbps)	Storage (Mbps)	Max IOPS	SAPS
c5a.24xlarge	96	192	20	9,500	40,000	131,830
c5a.16xlarge	64	128	20	6,300	26,700	87,887
c5a.12xlarge	48	96	12	4,750	20,000	65,915
c5a.8xlarge	32	64	10	3,170	13,300	43,943
c5a.4xlarge	16	32	Up to 10	Up to 3,170	13,300	21,973
c5a.2xlarge	8	16	Up to 10	Up to 3,170	13,300	10,986
c5a.xlarge	4	8	Up to 10	Up to 3,170	13,300	5,493
c5a.large	2	4	Up to 10	Up to 3,170	13,300	2,746

Compute Optimized						
Name	vCPU	Memory (GiB)	Network (Gbps)	Storage (Mbps)	Max IOPS	SAPS
c5n.18xlarge	72	192	100	19,000	80,000	95,400
c5.18xlarge	72	144	25	19,000	80,000	95,400
c5n.9xlarge	36	96	50	9,500	40,000	47,700
c5.9xlarge	36	72	10	9,500	40,000	47,700
c5n.4xlarge	16	42	Up to 25	4,750	20,000	21,200
c5.4xlarge	16	32	Up to 10	4,750	20,000	21,200
c5n.2xlarge	8	21	Up to 25	Up to 4,750	20,000	10,600
c5.2xlarge	8	16	Up to 10	Up to 4,750	20,000	10,600
c5n.xlarge	4	10.5	Up to 25	Up to 4,750	20,000	5,300
c5.xlarge	4	8	Up to 10	Up to 4,750	20,000	5,300
c5n.large	2	5.25	Up to 25	Up to 4,750	20,000	2,650
c5.large	2	4	Up to 10	Up to 4,750	20,000	2,650

Check SAP Note 1656099 for more information and also see <https://aws.amazon.com/sap/instance-types/>

Current Generation Amazon EC2 instances supported for SAP Workloads - 2 of 2

Memory Optimized

Name	vCPU	Memory(GiB)	Network (Gbps)	Storage (Mbps)	Max IOPS	SAPS
x1e.32xlarge	128	3,904	25	14,000	80,000	131,500
x1.32xlarge	128	1,952	25	14,000	80,000	131,500
x1.16xlarge	64	976	10	7,000	40,000	65,750
r5n.metal	96	768	100	19,000	80,000	143,230
r5.metal	96	768	25	19,000	80,000	143,230
r5n.24xlarge	96	768	100	19,000	80,000	138,770
r5.24xlarge	96	768	25	19,000	80,000	138,770
r5n.16xlarge	64	512	75	13,600	60,000	90,153
r5.16xlarge	64	512	20	13,600	60,000	90,153
r5n.12xlarge	48	384	50	9,500	40,000	67,615
r5.12xlarge	48	384	10	9,500	40,000	67,615
r5n.8xlarge	32	256	25	6,800	30,000	45,077
r5.8xlarge	32	256	10	6,800	30,000	45,077
r5n.4xlarge	16	128	Up to 10	4,750	18,750	22,538
r5.4xlarge	16	128	Up to 10	4,750	18,750	22,538
r5n.2xlarge	8	64	Up to 25	Up to 4,750	18,750	11,269
r5.2xlarge	8	64	Up to 10	Up to 4,750	18,750	11,269
r5n.xlarge	4	32	Up to 25	Up to 4,750	18,750	5,535
r5.xlarge	4	32	Up to 10	Up to 4,750	18,750	5,535
r5n.large	2	16	Up to 25	Up to 4,750	18,750	2,817
r5.large	2	16	Up to 10	Up to 4,750	18,750	2,817

High Memory

Name	Logical Processors	Memory (GiB)	Network (Gbps)	Storage (Mbps)	Max IOPS	SAPS
u-24tb1.metal	448	24,576	100	38,000	160,000	444,330
u-18tb1.metal	448	18,432	100	38,000	160,000	444,330
u-12tb1.metal	448	12,288	100	38,000	160,000	480,600
u-9tb1.metal	448	9,216	100	38,000	160,000	480,600
u-6tb1.metal	448	6,144	100	38,000	160,000	480,600

Memory Optimized + NVMe Instance Storage

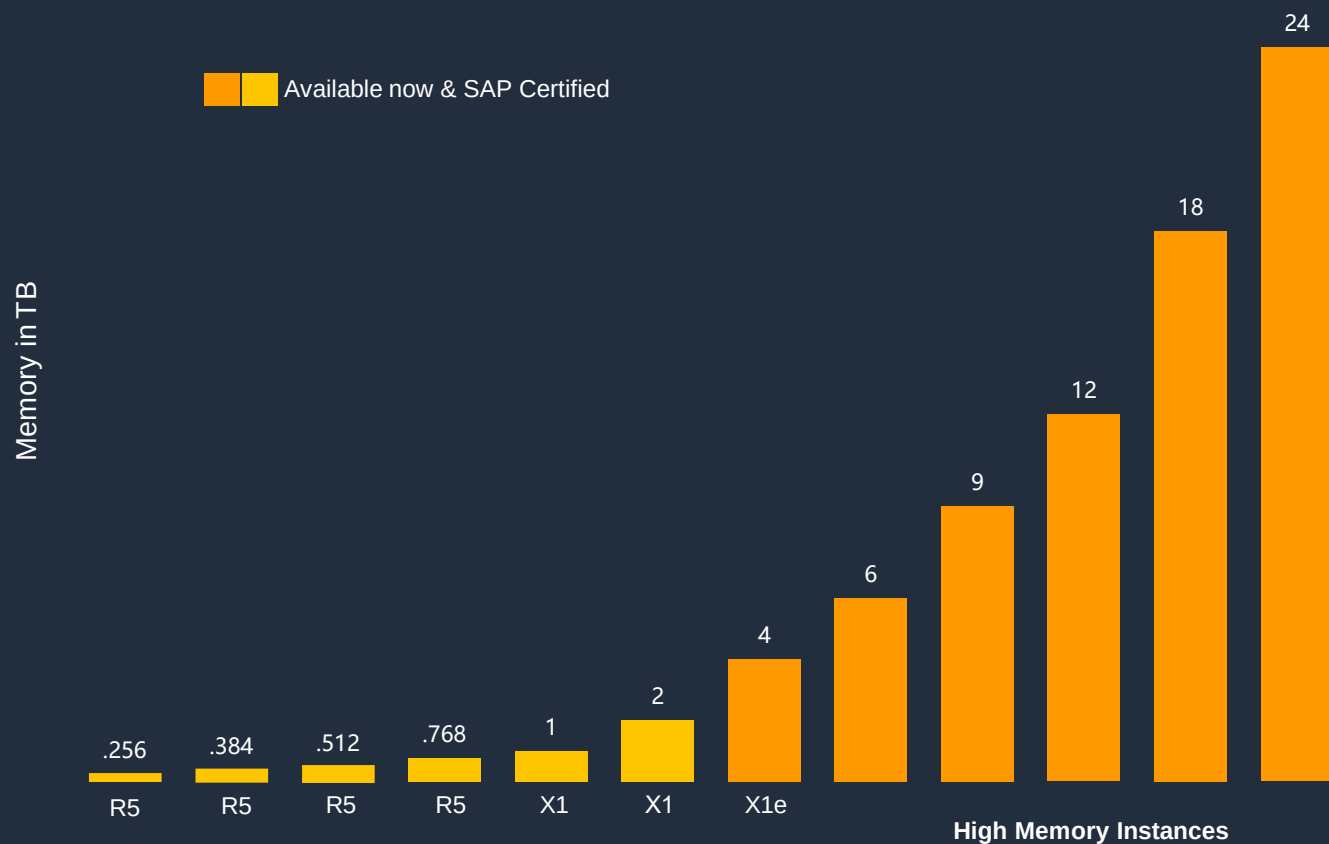
Name	vCPU	Memory (GiB)	Network (Gbps)	Storage (Mbps)	Max IOPS	SAPS
i3en.metal *	96	768	100	19,000	80,000	143,230
i3en.24xlarge *	96	768	100	19,000	80,000	138,770
i3en.12xlarge *	48	384	50	9,500	40,000	67,615
i3en.6xlarge *	24	192	Up to 25	4,750	20,000	45,077
i3en.3xlarge *	12	96	Up to 25	Up to 4,750	20,000	22,538
i3en.2xlarge *	8	64	Up to 25	Up to 4,750	20,000	11,269
i3en.xlarge *	4	32	Up to 25	Up to 4,750	20,000	5,535
i3en.large *	2	16	Up to 25	Up to 4,750	20,000	2,817

* Note: these instances can use AWS EBS block storage like any other instance but in addition also provide local NVMe disks. The local NVMe disks are ephemeral which means that all data on it is deleted when you stop the instance.

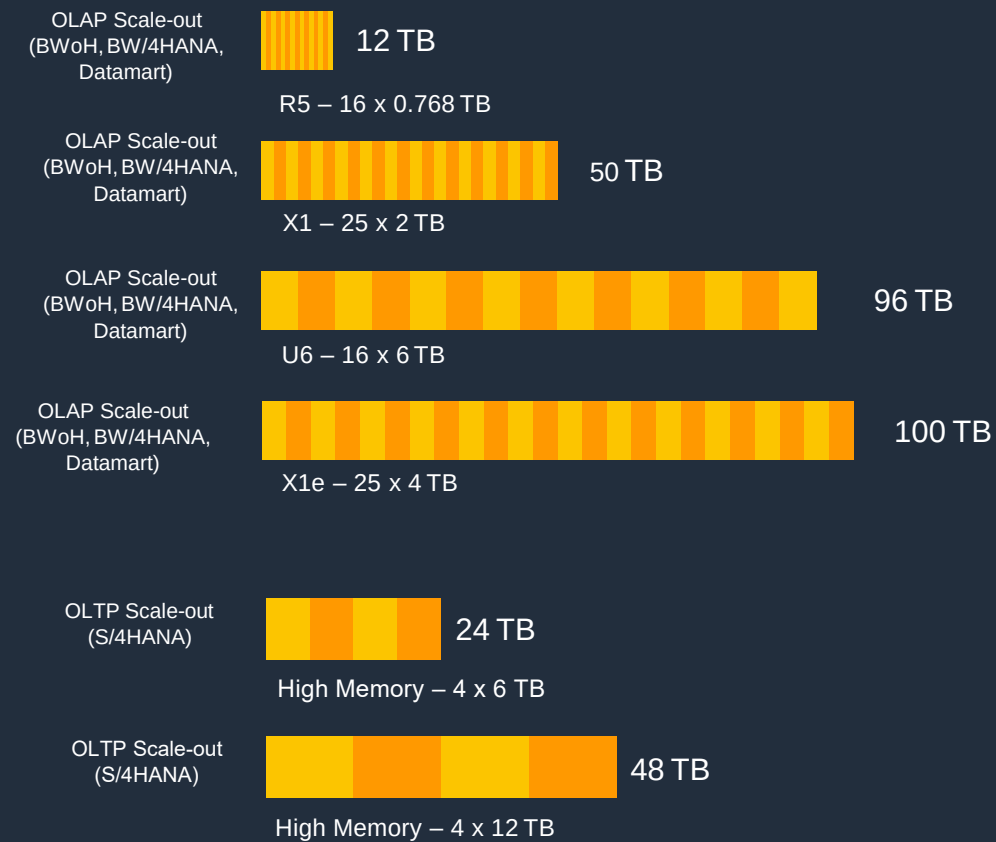
Check SAP Note 1656099 for more information and also see <https://aws.amazon.com/sap/instance-types/>

Amazon EC2 Instances for SAP HANA

Scale-up Options



Scale-out Options



<https://www.sap.com/dmc/exp/2014-09-02-hana-hardware/enEN/iaas.html#categories=Amazon%20Web%20Services%23Yes>

What is Backint agent ...

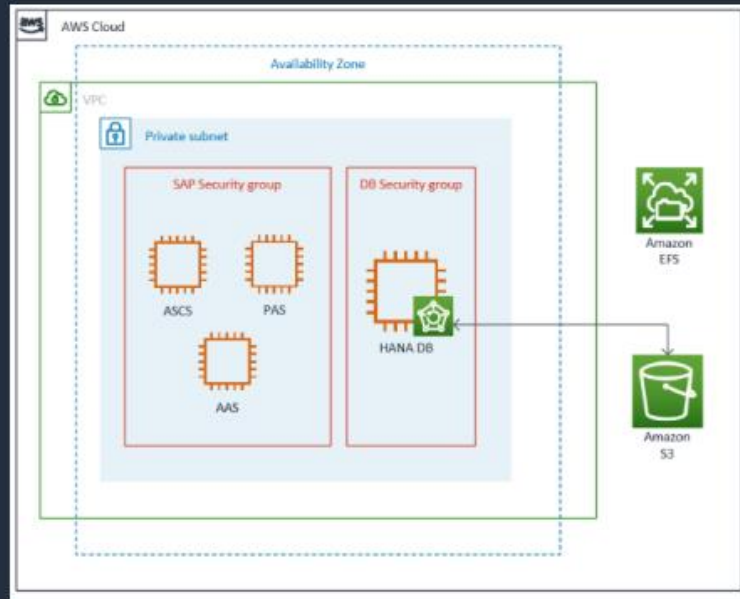


AWS Backint Agent for SAP HANA is an SAP-certified backup and restore solution for SAP HANA workloads running on Amazon EC2 instances.

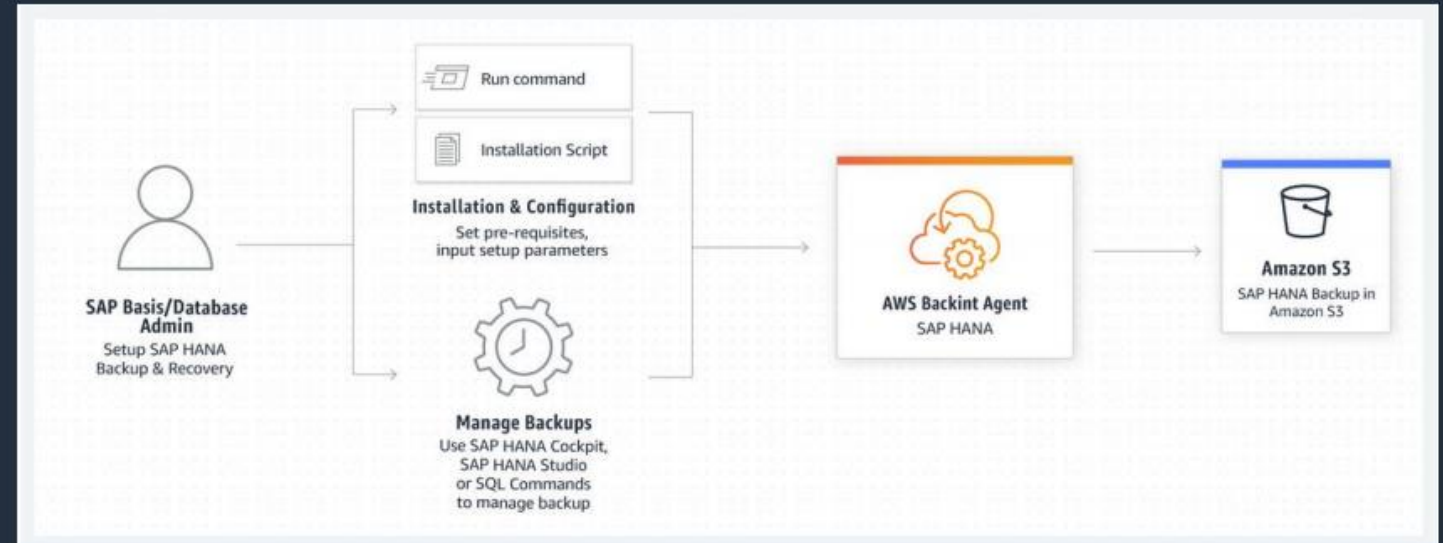
AWS Backint Agent backs up your SAP HANA database to Amazon S3 and restores it using SAP management tools, such as SAP HANA Cockpit, SAP HANA Studio, or SQL commands.



Architecture differences ...



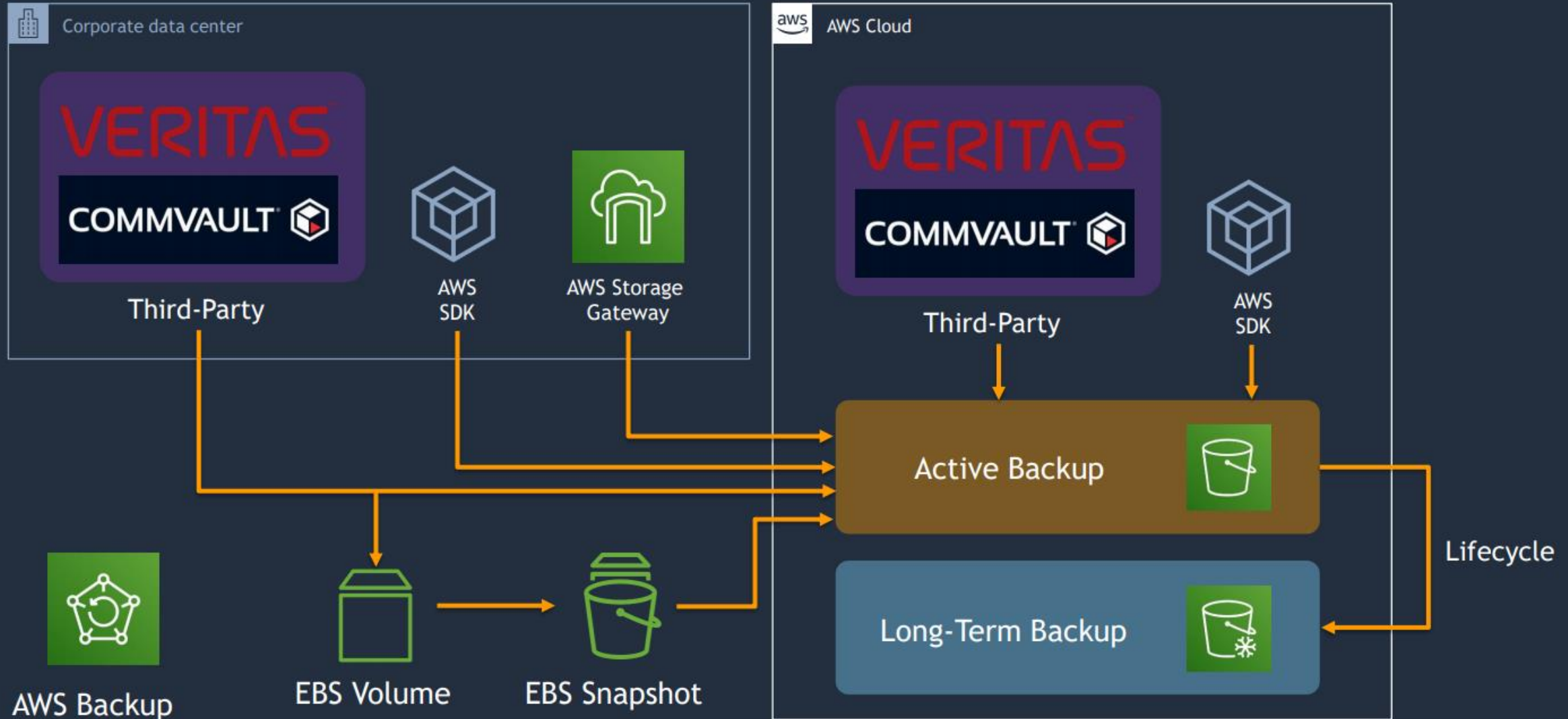
VS



HANA Backup on Local EBS Volume then it has to be moved to a **S3 Bucket**

HANA Backup direct to **S3 Bucket**

Amazon S3 - Backup Strategies and Tools



SAP on AWS

Architecture Patterns

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Architecture Patterns

Basic Architecture (Single AZ)

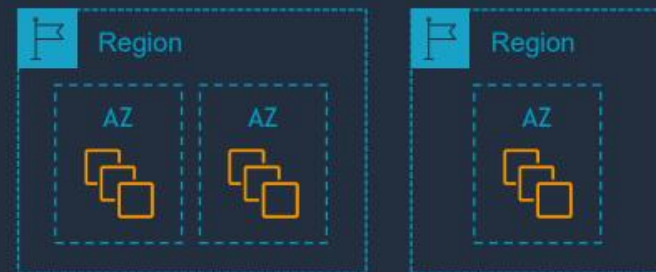


High Availability (HA) - Multi-AZ



Disaster Recovery (DR) - Multi Region

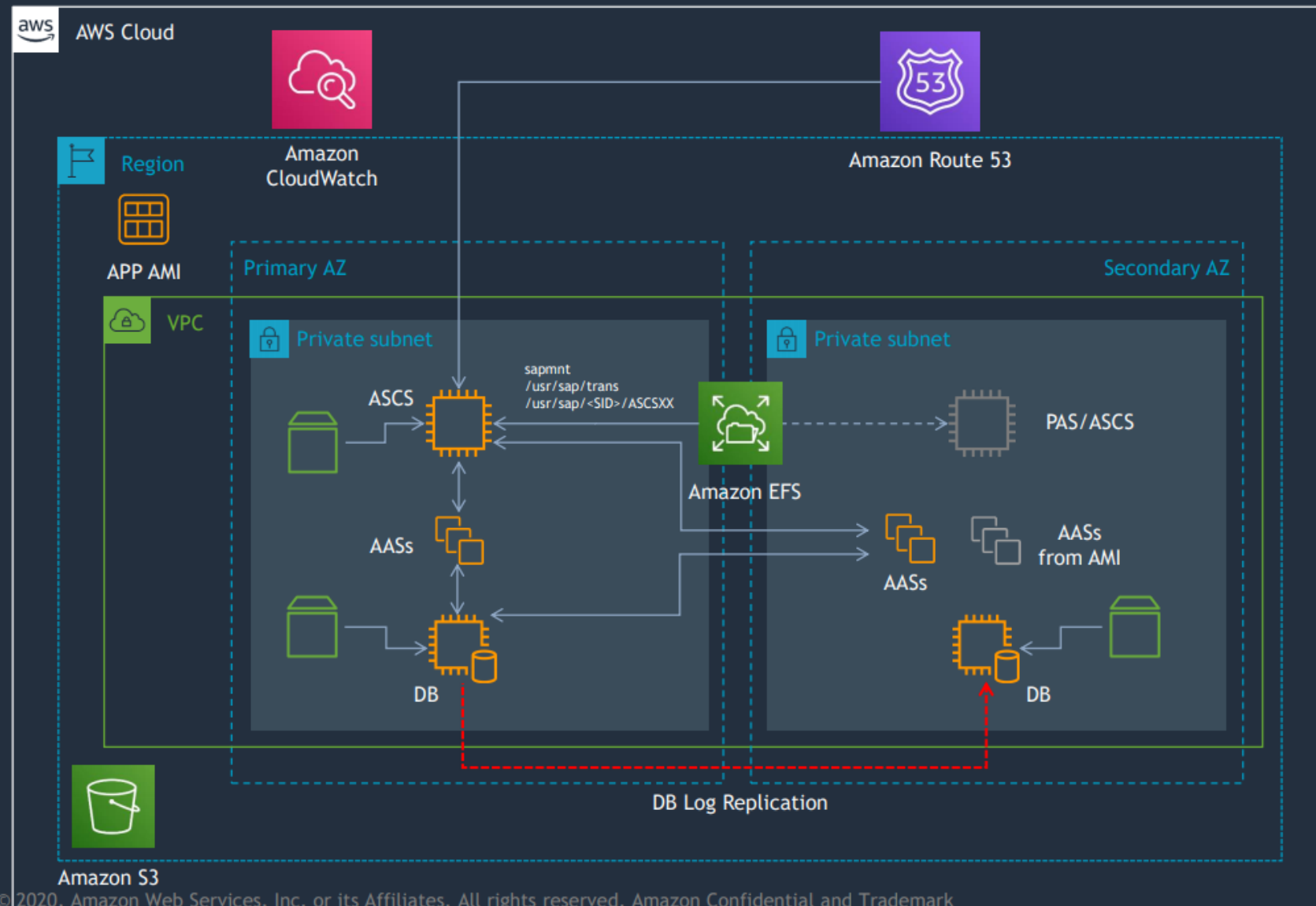
- Backup & Restore
- Pilot Light
- Warm Standby



SAP Enhanced Protection



High Availability (Multi-AZ) Architecture Pattern

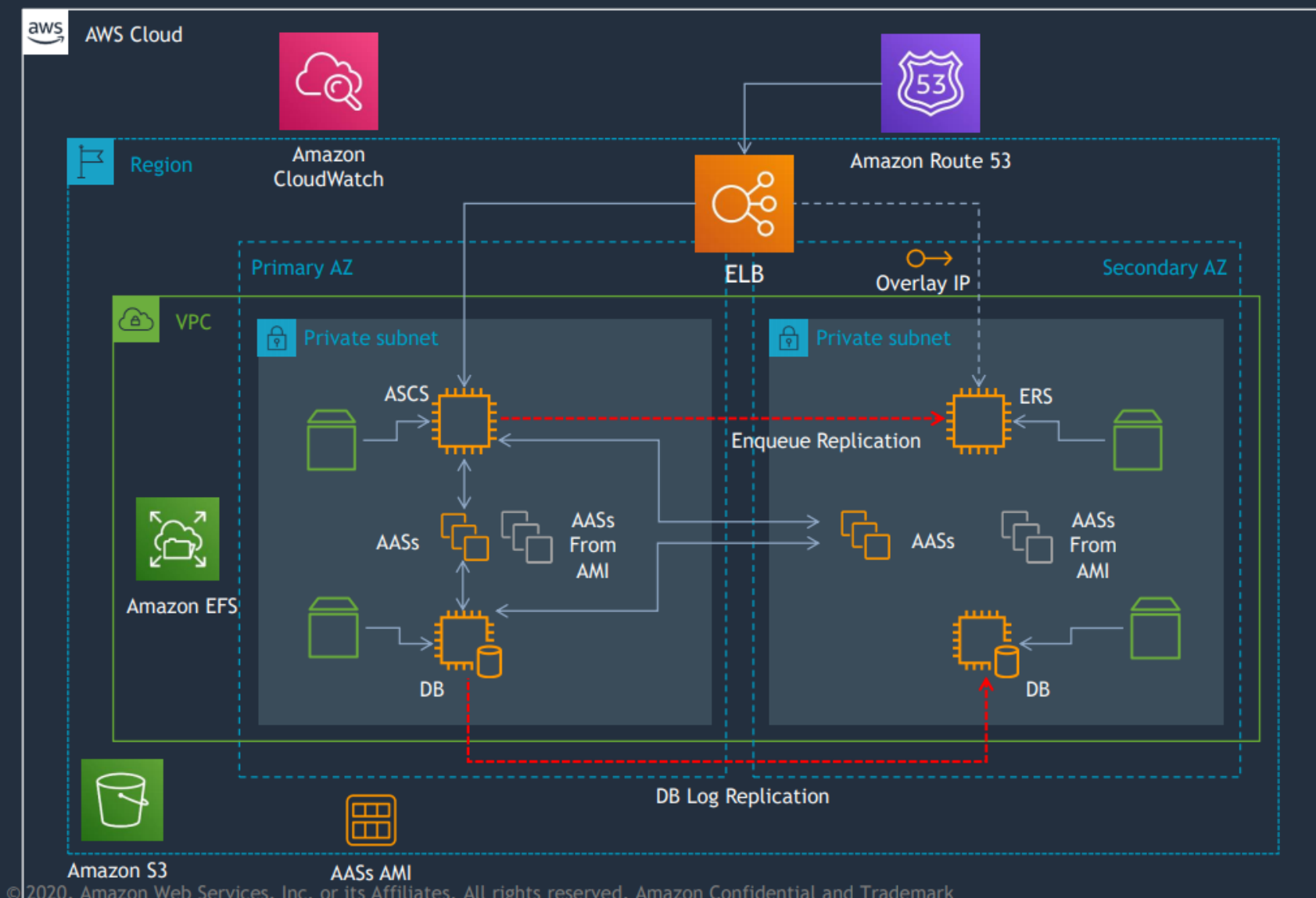


Simplified multi-AZ architecture

Failover Mechanisms

- **Restart** of PAS/ASCS and mount SAP file system from EFS
- DB updates shipped from Primary to Secondary AZ through **DB Log Replication**
- Manual or Automated Tools

High Availability (Multi-AZ) Architecture Pattern



Multi-AZ for Distributed Instances Architecture

Failover Mechanisms

- **Enqueue Logs**
Replication from ASCS to ERS
- DB updates shipped from Primary to Secondary AZ through **DB Log Replication**
- Manual or Automated Tools

Disaster Recovery Strategies

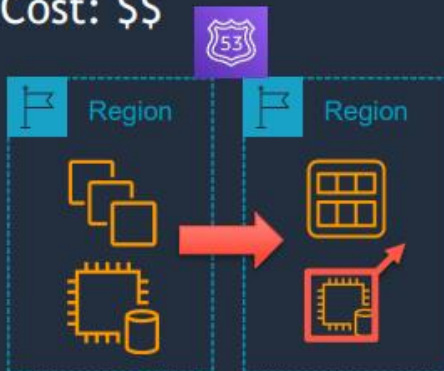
Passive DR

- Data backed-up on S3
- Application Servers AMIs replicated to Secondary Region
- RPO/RTO hours
- Cost: \$



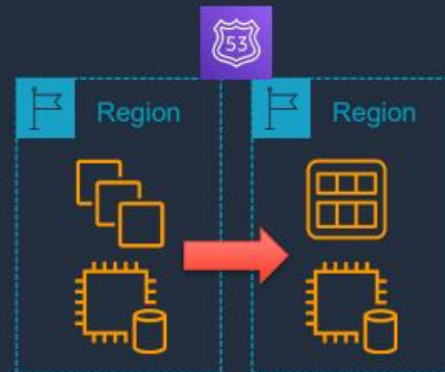
Pilot Light DR

- Only critical core systems of SAP (e.g. database) is replicated (usually small-scaled) in Secondary Region
- Application Servers AMIs replicated to Secondary Region
- RPO/RTO minutes
- Cost: \$\$



Warm Standby DR

- Only critical core systems of SAP (e.g. database) is replicated to same sized instance in Secondary Region
- Application Servers AMIs replicated to Secondary Region
- RPO/RTO seconds
- Cost: \$\$\$



SAP on AWS

Migrating SAP Workloads to AWS

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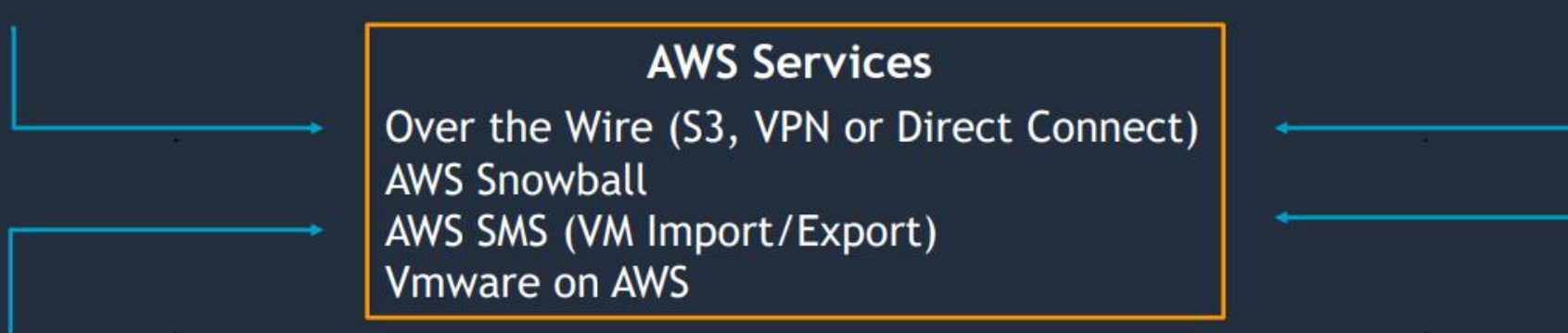
SAP Migration Options

Homogenous Migration (anyDB)

- Backup and Restore
- SAP Classical Migration (R3load/Jload)
- **AWS CloudEndure** or other 3rd Party Tools

Heterogeneous Migration (anyDB to anyDB)

- SAP Classical Migration (R3load/Jload)
- 3rd Party Tools - SNP T-Bone



Homogenous Migration (HANA to HANA)

- Backup and Restore
- HANA System Replication

Heterogeneous Migration (anyDB to HANA)

- SAP Classical Migration (R3load/Jload)
- SAP SUM DMO
- DMO with System Move

SAP on AWS

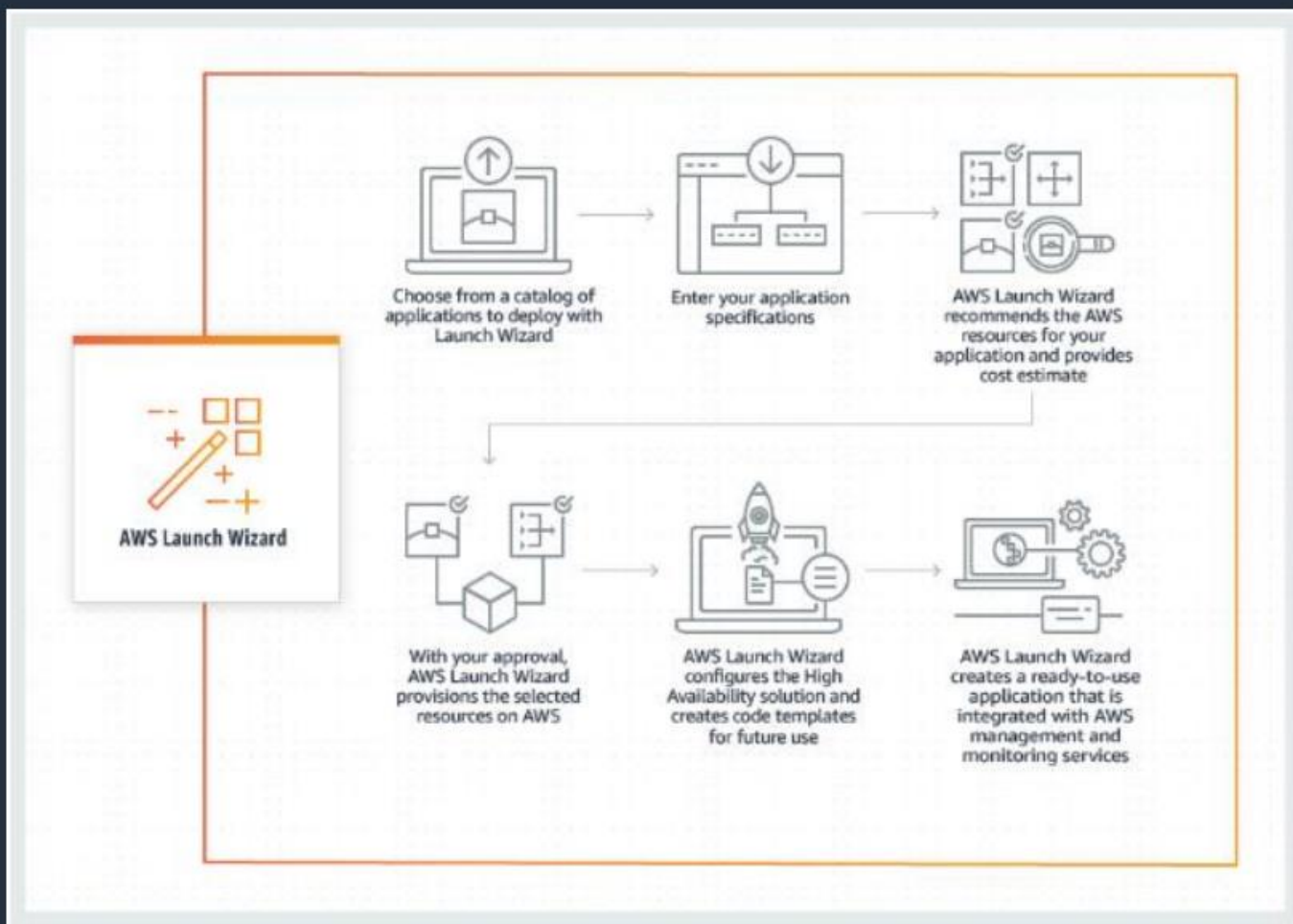
AWS Launch Wizard

AWS QuickStart

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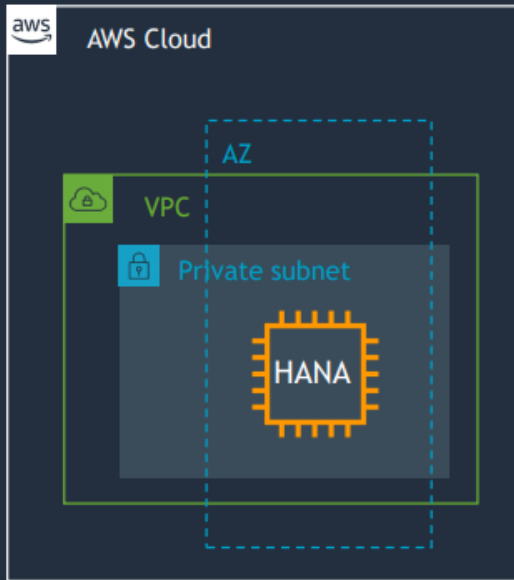
AWS Launch Wizard for SAP

Wizard based experience to deploy and configure AWS resources for SAP Netweaver on HANA and HANA database following AWS/SAP Best Practices

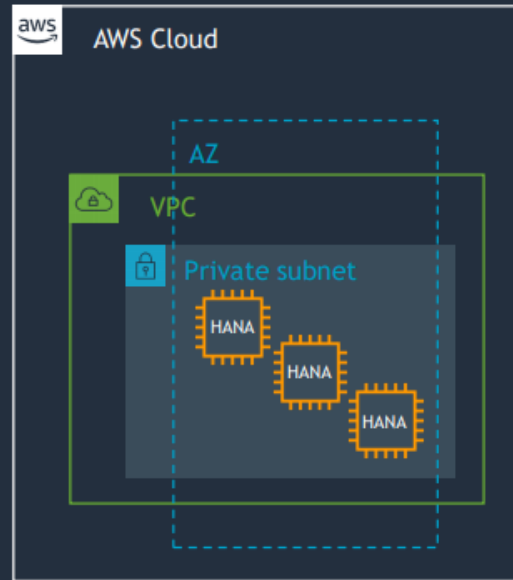


- Certified AWS resource recommendation for SAP workloads
- Re-Use Infra settings
- Performs SAP Specific Configurations
- Price Estimates
- Central place to view SAP deployments
- Integrated with Systems Manager and CloudWatch logs

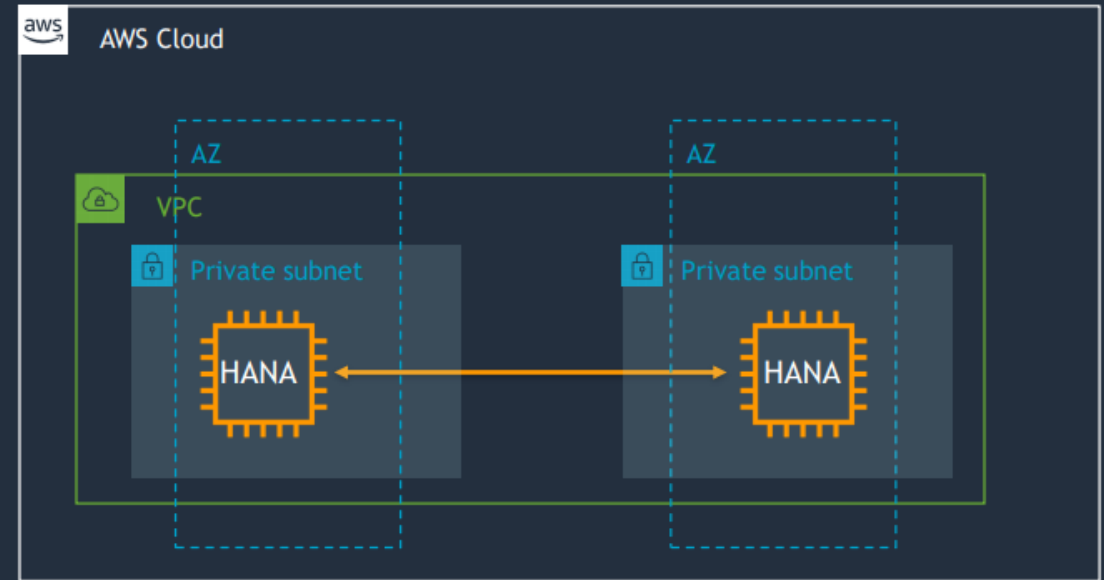
Supported Deployment Models - HANA



Single Node Deployment



Multi-Node Deployment

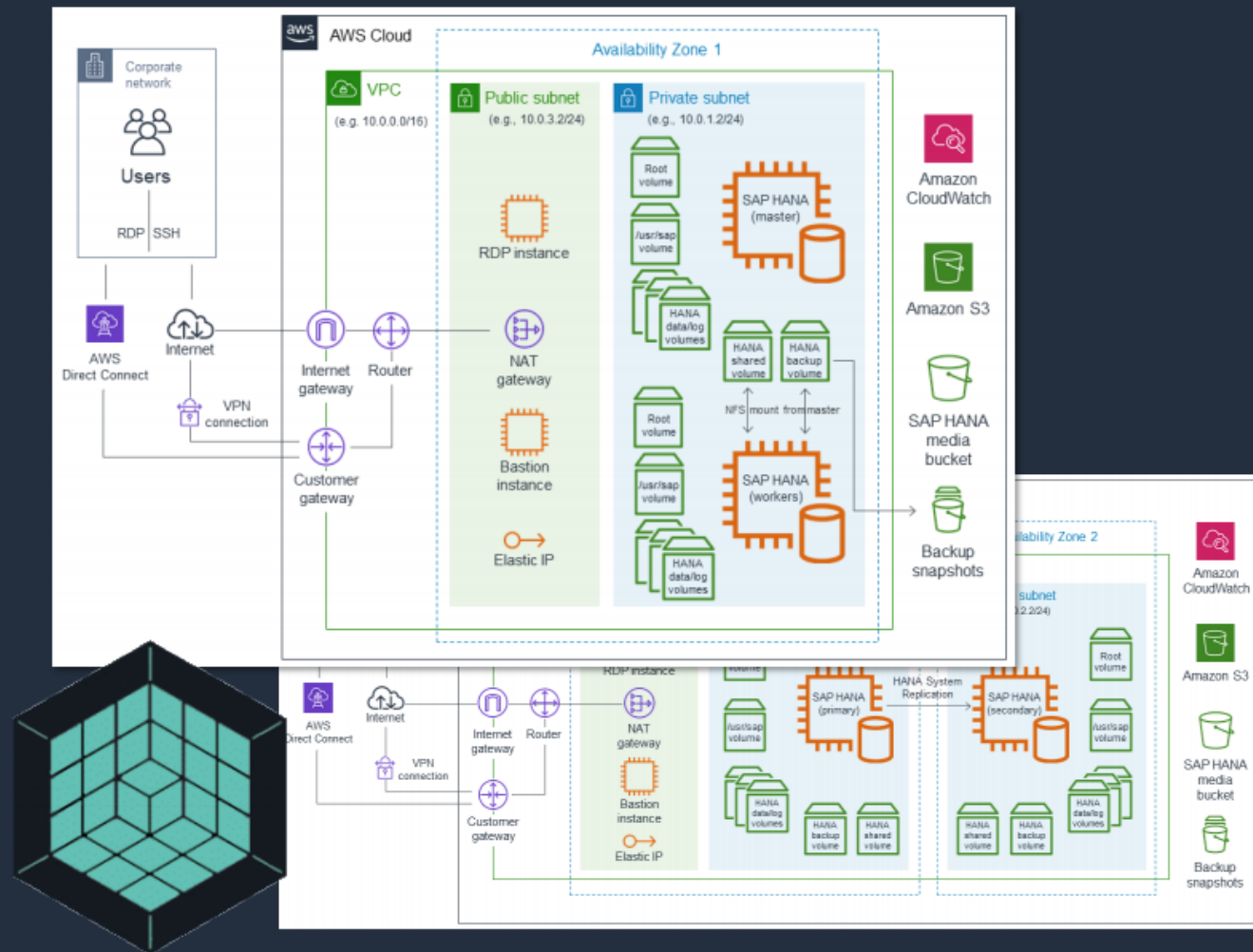


Cross AZ High Availability Deployment

SAP HANA Quick Start - Quick and Consistent Deployment

SAP HANA on AWS Quick Start SAP S/4HANA on AWS Quick Start

- ✓ Virtual Appliance Delivery Model
- ✓ Provides an automated process to deploy a complete SAP HANA environment on the AWS cloud in less than 1 hour
- ✓ Uses AWS CloudFormation to provision all required AWS resources
- ✓ Configures network and security settings following best practices
- ✓ Follows AWS and SAP best practices



Q&A



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¡ Gracias !

