
AWS
re:Invent
NOV. 28 – DEC. 2, 2022 | LAS VEGAS, NV

ENT203

How Love’s Travel Stops improved customer experience with SAP on AWS

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Love’s Travel Stops

Manoj Muthukrishnan (he/him)

Americas SAP on AWS, Partner Solution Architect Leader

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Our company



Love's provides professional truck drivers and motorists 24-hour access to clean and safe places to purchase gasoline, diesel fuel, Compressed Natural Gas, travel items, electronics, snacks, restaurant offerings, Truck Care, and more

- Founded in 1964
- 600+ locations in 41 states
- 38,000+ employees from coast to coast
- Corporate offices in Oklahoma City and Houston (Musket Corporation and Trillium)

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The Love's family of companies











Gemini



Musket Corporation



Trillium

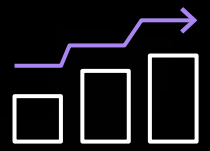


Speedco

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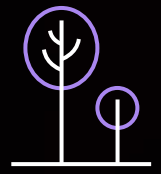
Love's today

KEY FACTORS THAT DICTATE OUR PRESENT BUSINESS REQUIREMENTS



Growth Opportunities

- Accelerating organic Store growth
- Expansion of Truck Care services
- New services—RV Parks



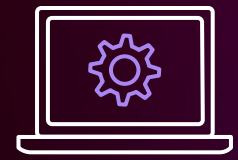
Climate Change & Alternative Fuels

- Trillium Energy and Cargill renewable diesel project
- Renewables—compressed natural gas, hydrogen
- EV Services



Supply Chain

- Fuel—New partnerships and terminals
- Global sourcing
- Distribution center growth



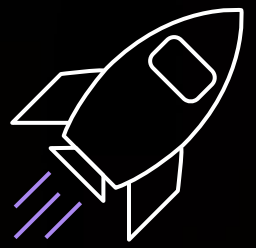
Technology Trends

- Self service checkout
- Network improvements—SpaceX Starlink Internet

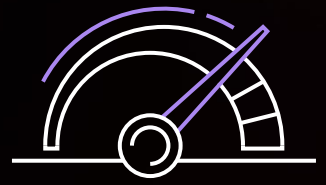
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Our IT mission



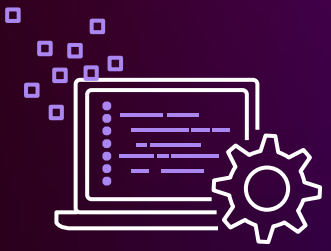
Faster pace of innovation



Accelerated business growth



Excellent customer experiences



Operational efficiency

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Technical drivers for our SAP cloud transformation



Inadequate security and difficulty scaling co-location solution supporting ECC



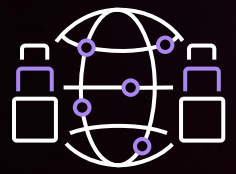
Failed attempts to refresh out-of-support on-prem hardware for SAP Human Capital Management

With no clear cloud or data center exit strategy and upcoming renewals for existing options, it was time to make an opportunistic move to position ourselves for the future with AWS.

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Key requirements for our migration



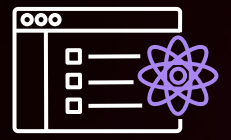
Strengthen security posture



Complete before contract/ hardware refresh deadlines



Minimal business disruption

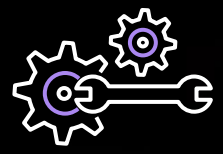


Clear and robust HA/DR strategy

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Inside our migration



Build

- AWS Quick Starts for SAP using customer-hardened image
- Amazon Inspector for CIS compliance



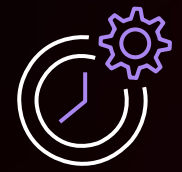
Strategy

- SAP homogeneous and heterogenous system migrations
- HANA System Replication (HSR)



Reduce Downtime

- AWS DataSync for shared file system replication
- Replication started prior to cutover



Cutover

- Cutover (downtime) completed in 6 hours overnight
- HANA 1.0 to 2.0 upgrade for HCM

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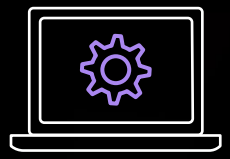
Strengthening our security posture

- AWS Well-Architected Security Pillar
- Instance/OS hardening
- Encryption at rest/in motion
- Automated guardrails



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Automating SAP operations



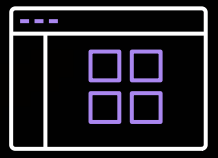
Backup and data protection with AWS Backint Agent/ FSx for Lustre



Monitoring and Alerting with AWS CloudWatch Application Insights for SAP HANA



DevOps with Terraform, Ansible, Packer, and AWS Lambda



Infrastructure and application orchestration with SAP Landscape Management

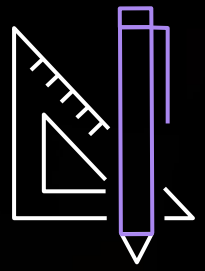


Disaster recovery with CloudEndure Disaster Recovery/ AWS Elastic Disaster Recovery

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How we engaged AWS Professional Services



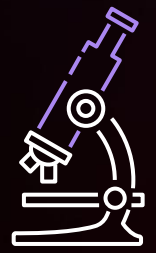
Design

- Design workshops for architecture and deployment planning
- Detailed designs for landing zone, network, security, sizing, HA/DR, Backup/Recovery, and system monitoring



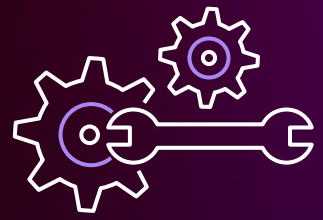
Build

- Landing zones and networking
- All AWS infrastructure and services configuration
- IaC in Cloud Formation Templates



Test

- Launched a migration factory to build each life cycle and test the migration
- Tested HA/DR, Backup/Recovery, systems monitoring



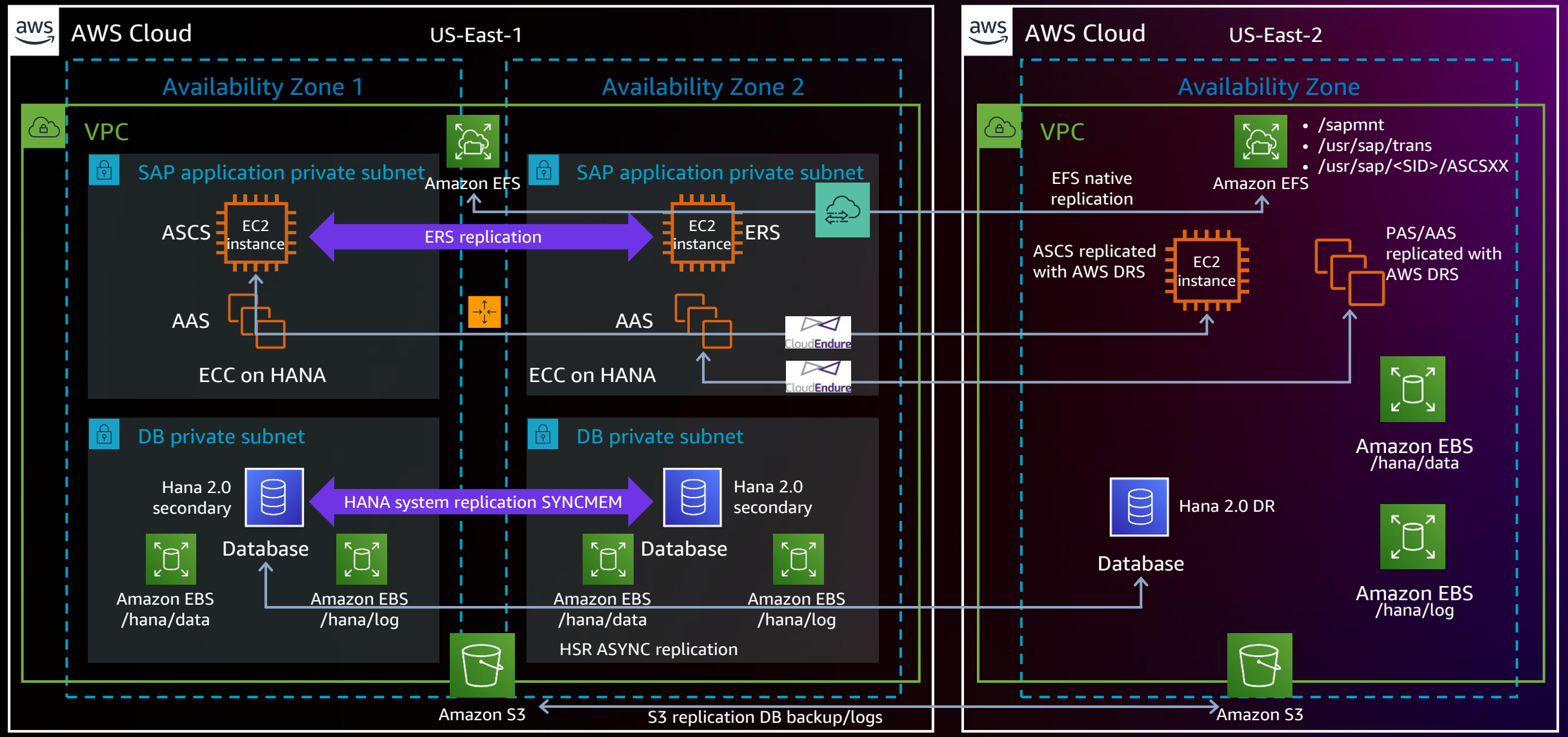
Automate

- SAP Start/Stop Automation
- Convert CloudFormation tasks to Ansible
- DR Automation

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ECC production Multi-AZ HA/DR with HSR



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SAP landscape modernizations

System	Source platform	Destination platform	HA	DR
ECC	App servers: RHEL DB: HANA 2.0 RHEL	App servers: RHEL for SAP DB: HANA 2.0 RHEL for SAP	Multi-AZ HANA HSR pacemaker	Multi-Region HANA HSR CloudEndure Disaster Recovery
BW on HANA	App servers: RHEL DB: HANA 2.0 RHEL	App servers: RHEL for SAP DB: HANA 2.0 RHEL for SAP	None	None
HCM	App servers: Windows DB: HANA 1.0 on SLES	App servers: RHEL for SAP DB: HANA 2.0 RHEL for SAP	Multi-AZ HANA HSR pacemaker	Multi-Region HANA HSR CloudEndure Disaster Recovery
Process orchestration	App servers: Windows DB: Windows SQL Server	App servers: RHEL for SAP DB: Sybase ASE	Multi-AZ Sybase repl. pacemaker	Multi-Region Sybase repl. Elastic Disaster Recovery Amazon EFS repl.
Business objects	App servers: Windows DB: Windows SQL Server	App servers: RHEL for SAP DB: HANA	None	None
Vertex	App servers: Windows DB: Windows SQL Server	App servers: RHEL for SAP DB: Postgres	Multi-AZ Amazon RDS	Multi-Region Amazon RDS repl. Elastic Disaster Recovery

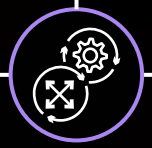
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AWS journey milestones

2019

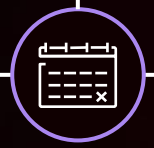
- Migrate ECC and BW to managed services provider
- Cloud Platform evaluation and selection





2020

- Major security breach at previous infrastructure provider
- May: SI Selection – AWS ProServe
- October - HCM go live



2021

- February – ECC & BW go live
- Vertex
- Adobe Document Services



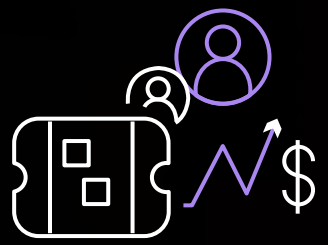
2022 and beyond

- Business Objects
- Process Orchestration
- Solution Manager
- Tricentis
- Postgres Databases – Mendix low code applications
- Operational Automation
- Diesel Exhaust Fluid S/4HANA project

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Business benefits



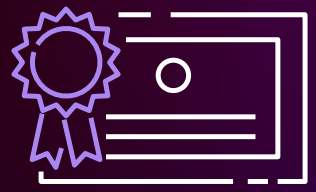
$2M annual infrastructure savings



Reduced infrastructure and licensing costs through AWS Backint Agent automation



Reduced unplanned outages and shrunk maintenance windows



Built cloud skills and leadership confidence in AWS

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Lessons learned

- Challenge the economic assumptions you have on premises (licensing, infrastructure)
- Choose your partner and project stakeholders wisely
- Make high-velocity, two-way door decisions whenever possible
- Automate early and often – even if it requires additional upfront time investment



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Getting started with SAP on AWS

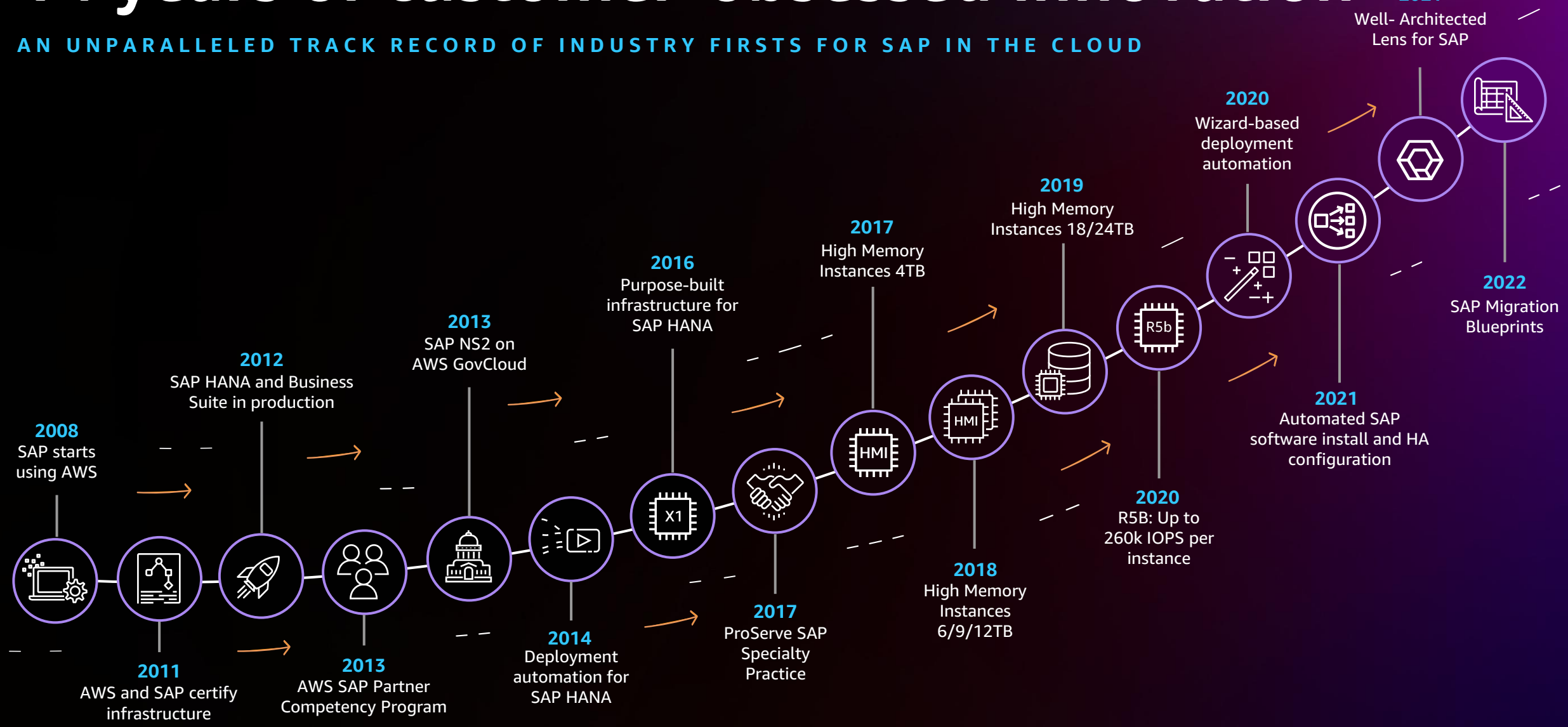
Manoj Muthukrishnan

Americas Lead, SAP Partner Solution Architects
Amazon Web Services

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14 years of customer-obsessed innovation

AN UNPARALLELED TRACK RECORD OF INDUSTRY FIRSTS FOR SAP IN THE CLOUD



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Thousands of SAP customers trust AWS

HEALTHCARE & LIFE SCIENCES

moderna, Cerner, Bayer, ThermoFisher SCIENTIFIC, Bristol Myers Squibb, vyaire MEDICAL, CHANGE HEALTHCARE

ENERGY & NATURAL RESOURCES

bp, PHILLIPS 66, origin, ENGIE, seaco, HUDBAY, Contact, TC Energy, Newmont, PETRONAS

RETAIL & CONSUMER GOODS

PELOTON, Zulily, UNIQLO, Fender, Delivery Hero, Zappos.com, zalando, BOSE

MEDIA & ENTERTAINMENT

MGM, NHL, LIONSGATE, twitch, RAZER

PUBLIC SECTOR & DEFENSE

LOCKHEED MARTIN, MAGELLAN AEROSPACE, National Bureau for Revenue, CAMBRIDGE UNIVERSITY PRESS, HOOPP, Sab

AUTOMOTIVE & TRANSPORTATION

STELLANTIS, TATA MOTORS Connecting Aspirations, DB, KARMA, JAGUAR, BMW GROUP, LAND ROVER

MANUFACTURING & INDUSTRIAL

SIEMENS, INVISTA, Schneider Electric, KOMATSU, Garrett ADVANCING MOTION, HOYA, JABIL, SUMITOMO CHEMICAL

AGRICULTURE, CPG, & FOOD/BEV

SWIRE COCA-COLA, Dole, rbi restaurant brands international, TATA CONSUMER PRODUCTS, CHS, Ferrara, GROWMARK, CCI, Sysco, E&J Gallo Winery

PROFESSIONAL/ FINANCIAL SERVICES

Liberty Mutual, pitney bowes, Edelweiss Ideas create, values protect, nationale nederlanden, medibank PRIVATE, XINJA HOW MONEY SHOULD BE

TECHNOLOGY

Infosys, lemongrass, TIBCO, CSS CORP Wired to SUPPORT, hp, msg, bizzy digital, SAP

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Why RISE with SAP on AWS?



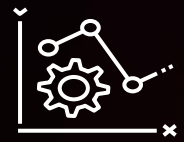
Experience

Tap into AWS's 14 years supporting mission-critical SAP workloads to accelerate your success



Reliability

Run critical SAP workloads on the world's most secure, extensive, and reliable global cloud infrastructure



Performance

Improve SAP application performance with EC2 Instances running Nitro hypervisor



Global footprint

Extend to the SAP Business Technology Platform in 9 AWS Regions globally to modernize and innovate your core business processes



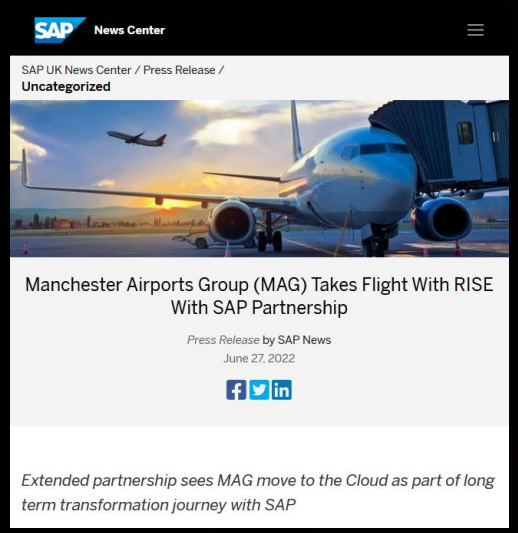
Partner ecosystem

Tap into the SAP on AWS Competency Partner ecosystem for migration and transformation of RISE with SAP on AWS landscape

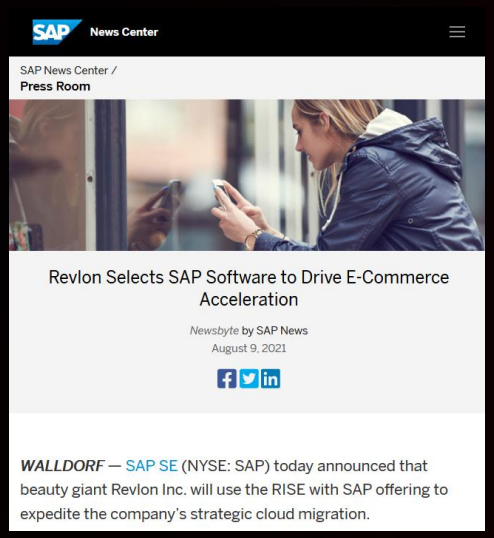
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RISE with SAP customers choose AWS

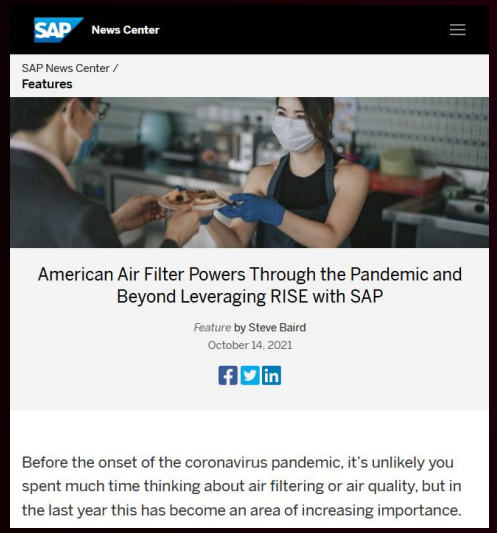
Manchester Airports Group



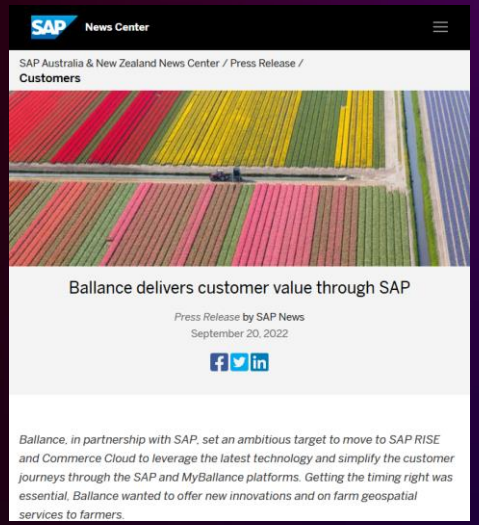
Revlon



American Air Filters



Ballance



Source - https://news.sap.com/

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RISE and BTP on AWS

9

AWS Regions
for BTP

0

RPO
For RISE on AWS
due to AWS unique
multi-AZ architecture
(short range DR – synchronous)

1

Global Network
with simplified connectivity patterns

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Gartner recognizes **AWS as a Leader** for the 12th straight year

[Magic Quadrant for Cloud Infrastructure and Platform Services]

We believe this report validates AWS's leadership to innovate and set standards for cloud computing. Millions of active customers every month and more than 100,000 Partners from over 150 countries choose AWS to deliver their business goals.

Read the full report to appreciate the details.

Figure 1: Magic Quadrant for Cloud Infrastructure and Platform Services

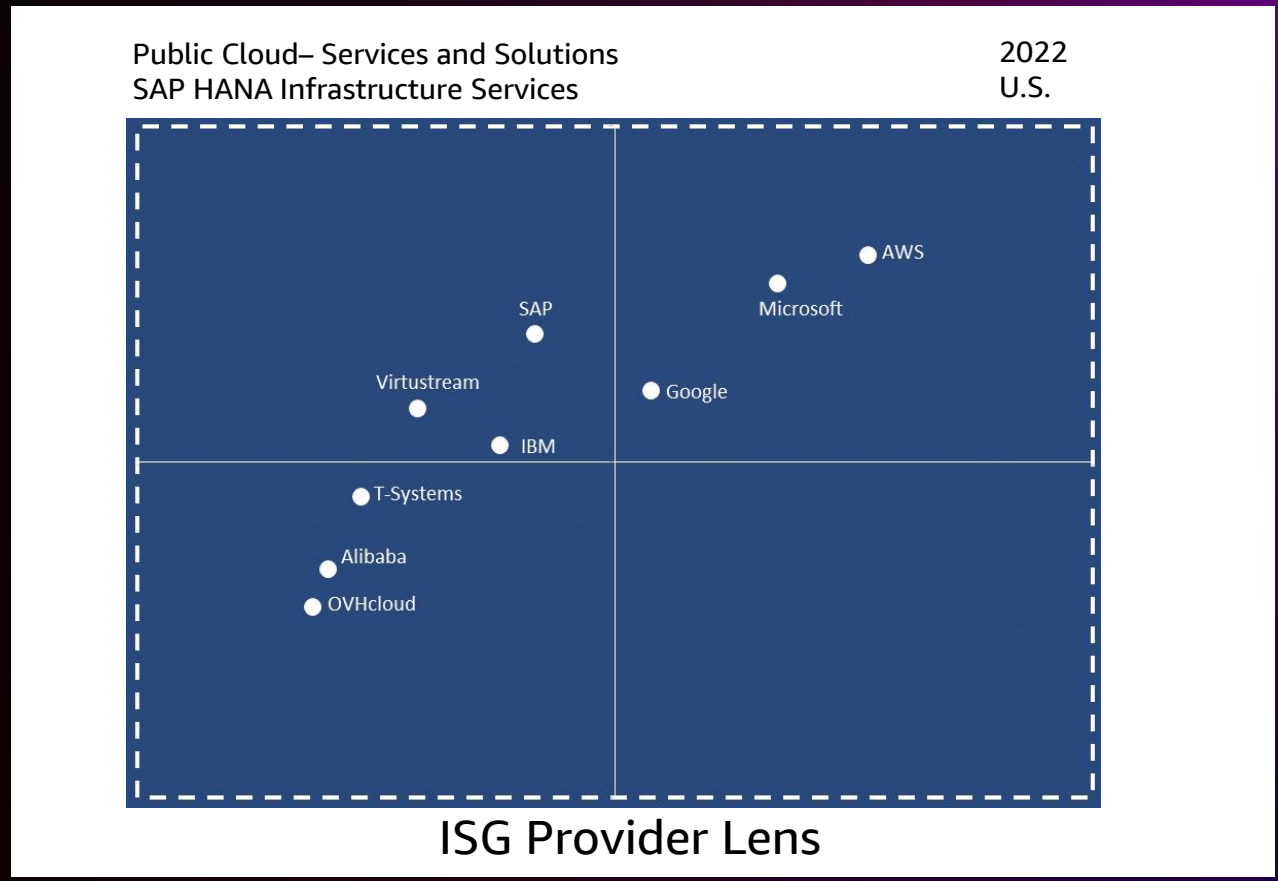


Gartner, Magic Quadrant for Cloud Infrastructure & Platform Services, Raj Bala, Dennis Smith, Kevin Ji, David Wright, Miguel Angel Borrega, 19 October 2022. Gartner and Magic Quadrant are registered trademarks of Gartner, Inc. and/or its affiliates in the U.S. and internationally and is used herein with permission. All rights reserved. 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. This graphic was published by Gartner, Inc. as part of a larger research document and should be evaluated in the context of the entire document. The Gartner document is available upon request from A WS

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ISG recognizes **AWS as an SAP HANA Infrastructure Services Leader** for the 5th straight year

"AWS has more than a decade of experience in hosting SAP workloads and offers a wide array of choices for customers. It has the most market share and the largest SAP on AWS partner ecosystem in the U.S... AWS offers a robust and secure infrastructure platform for clients to run their most mission-critical SAP workloads."



ISG

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Introducing the AWS SDK for SAP ABAP

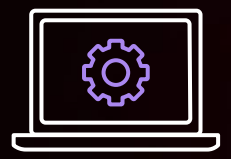


Makes it easy for ABAP developers to extend and transform SAP-based business processes by harnessing the power of AWS services natively using the SAP ABAP language.



Accelerate business process innovation

by giving ABAP developers native access to all 300+ AWS services



Reduce architectural complexity

by eliminating the need to manually create complex integrations between SAP and AWS services



Maintain a strong security posture

by encrypting all payloads with HTTPS and enforcing SAP-level permissions



Upskill ABAP development teams

by making it easy to for them to build cloud-based solutions

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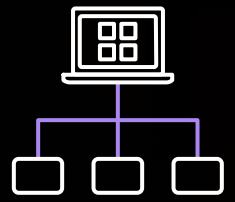
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What's new for SAP on AWS?



Migration

- Migration Hub Orchestrator
- Improvements to Migration Acceleration Program for SAP workloads



Infrastructure

- Intel Ice Lake based EC2 instances (X2i, R6i,M6i and C6i)
- AMD Milan based EC2 instances (R6a, M6a and C6a)
- Virtualized 18TB and 24TB High Memory instances
- Amazon FSx for NetApp ONTAP (FSxN)
- Support for SAP HANA host auto-failover with FSxN



Innovation

- Bi-directional data flows with AppFlow
- AppFlow ODP Support
- AWS SDK for SAP ABAP



Management and Operations

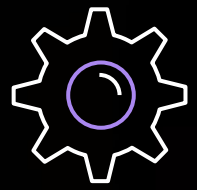
- Launch Wizard improvements
  - Scale deployments
  - Clone deployments
  - Solution Manager
- AWS Systems Manager support for SAP
- Observability for NetWeaver using AppInsights

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SAP Lens for AWS Well-Architected Framework

CUSTOMER-PROVEN DESIGN PRINCIPLES AND BEST PRACTICES FOR ENSURING SAP WORKLOADS ON AWS ARE WELL-ARCHITECTED ACROSS:



Operational Excellence



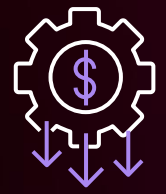
Security



Reliability



Performance efficiency



Cost Optimization



Sustainability

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AWS Well-Architected

AWS Backup support for SAP HANA

- A fully managed, policy-based backup service that makes it easy to centrally manage and automate the backup of data across AWS services
- Provides application-consistent log and data backups of SAP HANA databases running on EC2
- Easily restore your SAP HANA applications to a per-second Granularity
- Create immutable backups and simplify compliance monitoring

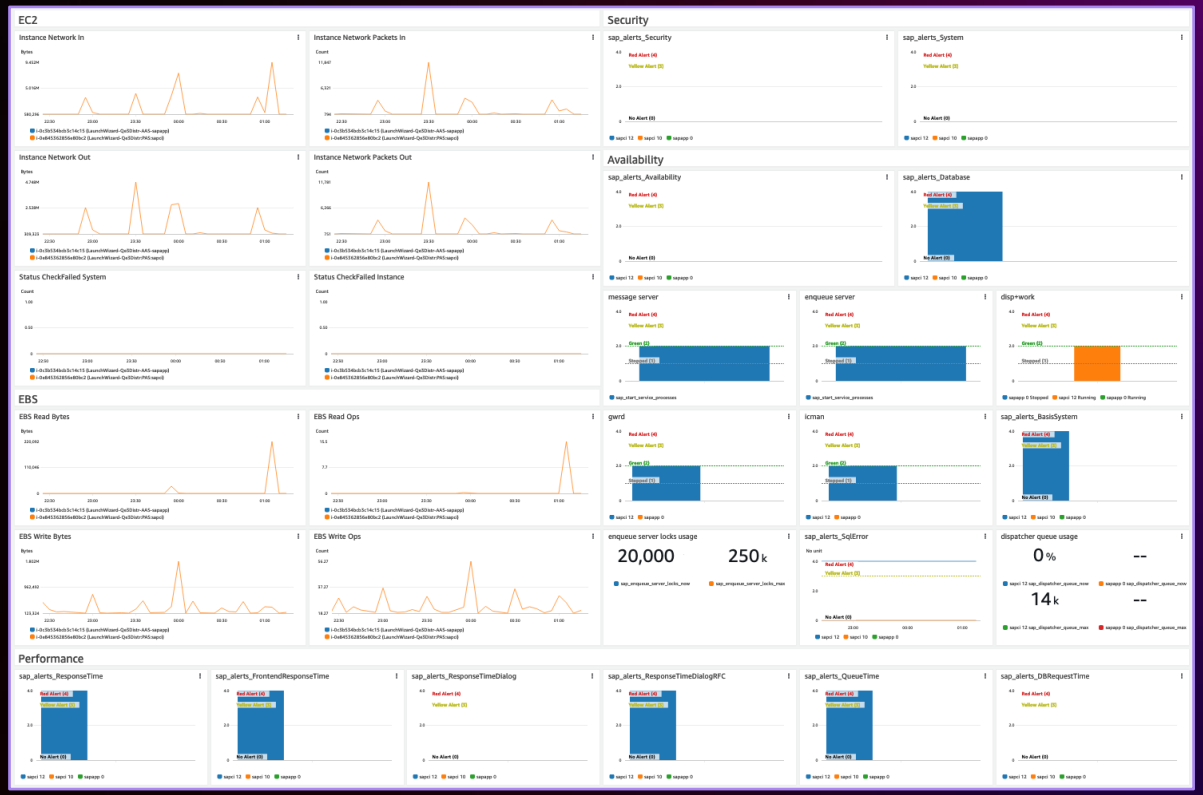


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Cloud Watch Application Insights for SAP NetWeaver & HANA

Enable SAP technical teams with observability across the entire SAP technical stack.

- Automatic dashboards
- Problem detection and notification
- Insights that point to potential root causes
- Automatic setup of monitoring for application resources
- Supports for High Availability landscapes and cluster monitoring
- Uses AI/ML to analyze NetWeaver and HANA system metrics, determine normal baselines, and surface anomalies with minimal user intervention.



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AWS Professional Services Global SAP Practice

BRIDGE THE SAP ←→ CLOUD SKILLS GAP AND ACHIEVE DESIRED BUSINESS OUTCOMES WITH THE WORLD'S FOREMOST SAP ON AWS EXPERTS

Complementary offerings

- SAP on AWS Discovery
- SAP HA on AWS Discovery
- DevOps for SAP
- Analytics for SAP
- SAP Extend Discovery

Launch offerings

- DevOps for SAP
- Analytics for SAP
- S/4HANA on AWS
- SAP on AWS Resident Architect
- GxP Compliance Automation for SAP

Delivering successful SAP migration and transformation for industry leaders including:















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AWS SAP COMPETENCY PARTNERS

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Thank you!

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