Architecting for the Hybrid Multi-Cloud Enterprise

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Living in a Multi-Cloud Reality

SAP’s Cloud Centric Architecture Adoption

Making it All Work Together

Things to Remember
Selecting the correct architecture is so simple.....

What is a good architecture?

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Living in a Multi-Cloud Reality
There can be only one…
Leveraging Cloud…

<table>
<thead>
<tr>
<th>SOME BENEFITS</th>
<th>SOME CONSIDERATIONS</th>
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<tbody>
<tr>
<td><strong>SaaS</strong></td>
<td></td>
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<tr>
<td>- Operational flexibility</td>
<td>Ungoverned proliferation – increase per user costs</td>
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<tr>
<td>- Financial flexibility</td>
<td>Data proliferation and silos</td>
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<tr>
<td>- Speed</td>
<td>Business process fragmentation</td>
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<tr>
<td><strong>PaaS</strong></td>
<td></td>
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<tr>
<td>- Full stack development ease</td>
<td>Talent/skills shortfalls</td>
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<tr>
<td>- Access to innovation technologies</td>
<td>Inconsistent adoption</td>
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<tr>
<td>- Speed</td>
<td>Lock in</td>
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<tr>
<td><strong>IaaS</strong></td>
<td></td>
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<tr>
<td>- Cost reduction/optimization</td>
<td>Unconstrained usage</td>
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<tr>
<td>- Lower Risk/operational</td>
<td></td>
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<tr>
<td>- Elasticity/growth</td>
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Enterprise Architecture Facilitates Strategic Change

Strategic change is executed by a program which adds a time dependency to all related objects: Process, data, application.

The Roadmap consists of:
- Biz roadmap (all projects and associated Process changes)
- Derived Application roadmap

"The whole idea of Enterprise Architecture is to enable the Enterprise to address orders of magnitude increases in complexity and orders of magnitude increases in the rate of change." John Zachman
Gartner predicts that the 10 biggest public cloud providers will command, at a minimum, half of the total public cloud market until at least 2023.

Most organizations adopt a multicloud strategy out of a desire to avoid vendor lock-in or to take advantage of best-of-breed solutions,”

Enterprise IT spending for cloud-based offerings will grow faster than traditional (noncloud) IT offerings through 2022

“There are many nuances between platforms, and trying to build services in more than one simultaneously is challenging,”

© Gartner
What we have heard from our customers

Enterprises are migrating to cloud providers at an accelerated pace . . .

> 80% of enterprises will no longer use traditional data centers by 2025

68% of cloud services today are delivered by Hyperscalers

. . . But customer feedback has been mixed at best . . .

<40% of firms met or exceeded migration and run cost goals

<40% met or exceeded most goals for business satisfaction

43% considered their most recent migration to the public cloud was a success

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1. Gartner, "The Data Center is Dead," July 2013

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SAP’s Cloud Centric Architecture Adoption
Business and IT alignment is so easy…
Intelligent enterprises
Turn insight into action, to win in the experience economy
# SAP S/4HANA: the right solution for your needs

## SAP S/4HANA AnyPremise

**As a Service**

- **ONE Codeline**
- **ONE Data Model** – **ONE Semantic** – **ONE User Experience**

### SAP S/4HANA Cloud

- **Implementation**: Greenfield with data / configuration migration
- **Upgrades**: 2-4 x year, managed by SAP
- **Scope**: Full S/4HANA scope of core ERP & extended LoB content
- **Extensibility**: In-App & Side by side via SCP / Extensibility Framework
  - API Hub with >300 APIs

### SAP S/4HANA AnyPremise

- **Implementation**: Greenfield or conversion of existing implementations
- **Upgrades**: Customer driven and managed
- **Scope**: Unlimited variety of SAP and Partner Add-ons
- **Extensibility**: Unlimited customer specific customization, modification and extensibility

### Deployment

- **IaaS**

### Configuration

- **Standardized, Best Practice / Model Company based**
- **Restricted IMG access**

### Operations

- **99.9% Availability and High-Availability**

### Security

- **SAP Cloud security and data center strategy as SPOC**

### Licensing

- **Subscription-based**

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**As a Product**

- **IaaS, Customer Data Center, Hosting Providers**
- **Model Company as starting point (recommended)**
- **Open IMG access**
- **Shared customer / IaaS obligation**
- **BYOL + infrastructure subscription**
SAP’s Intelligent Enterprise Framework Helps Build Agility, Responsiveness and E2E Visibility Across the Value Chain

SAP “Metro Map” for E2E Business Processes
Seamlessly connecting your customers, partners, suppliers and employees across each end-to-end process, while providing complete enterprise-wide transparency
SAP Business Technology Platform
Powered by SAP Cloud Platform

Built for business
Fastest way from data to business value

Intelligence
Unified
Most sustainable way to build and maintain SAP extensions

Business Services

Analytics

Augmented BI
Collaborative planning
Predictive analytics
Data warehousing

Intelligent Technologies

Data-driven insights
Intelligent RPA
Artificial intelligence
IoT cloud & edge

Flexible deployment: cloud, on-premise, hybrid, edge*

Database & Data Management

Open environment and runtime
Any database/any data store connectivity

Data pipelining
Data virtualization
Data governance
Storage and processing
Connection mgmt.
Data orchestration
Metadata mgmt.

Application Development & Integration

Integration Suite
Enterprise Extensions
Data-Driven Insights
Digital Experience
Intelligent BPM

Open API

Open
Highest flexibility to extend SAP apps

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Sample Architecture Deployment – Digital Supply Chain

**Manufacturer**

- SAP Intelligent Product Design
- SAP Digital Manufacturing Cloud
- SAP Integrated Business Planning
- SAP S/4HANA OnPrem
- SAP CPI-DS, SAP HANA SDI

**Business Network**

- SAP Asset Intelligence Network
- SAP Logistics Business Network (GTT)
- Enterprise Messaging and SAP API Business Hub (planned)

**Operator**

- SAP Predictive Engineering Insights
- SAP Predictive Maintenance and Service
- SAP Asset Manager
- SAP S/4HANA OnPrem

**Integration Points**

- SAP Cloud Integration (PI), SCP Smart Data Integration
- API Calls via Cloud Connector

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Business Technology Platform – Capability overview

Cloud Applications
- SAP S/4HANA Cloud
- SAP Digital Manufacturing Cloud
- SAP C/4HANA
- SAP SuccessFactors
- SAP Ariba
- SAP Fieldglass
- SAP Concur
- SAP Integrated Business Planning
- Qualtrics
- SAP BI
- SAP Data Services

Customer-Hosted On Premise Applications
- SAP S/4HANA
- SAP C/4HANA
- SAP ECC
- SAP Fieldglass
- SAP Ariba
- SAP BI
- SAP PI/PO
- SAP MII
- SAP Concur
- SAP MDG
- SAP S/4HANA Cloud
- SAP PI/PO
- SAP BW/4HANA

Business Technology Platform – Capability overview

Analytics
- Augmented BI
- Collaborative Planning
- Predictive Analytics
- Data Warehousing

Database & Data Management
- Data Pipelining
- Data Virtualization
- Data Governance
- Storage and Processing
- Connection Management
- Data orchestration
- Metadata management
- Master Data

Intelligent Technologies
- Data Driven Insights
- Intelligent RPA
- Artificial Intelligence
- IoT Cloud & Edge

Application Development & Integration
- Integration Suite
- Intelligent BPM
- Enterprise Extensions
- Digital Experience
Business Technology Platform – Component deployment diagram
Making it All Work Together
SAP Cloud Based Architecture Concepts

Legacy DC based applications

SAP & Non-SAP SaaS Applications

SAP Any-Premise Applications running on IaaS

Platform Services

Compute Services

Storage

Analytics

Databases

Application Integration

IoT & ML

Security

Developer Tools

Platform Mgmt

IaaS Provider Virtualized Infrastructure & Platform Services

Compute, Block Storage, Document Storage, CDN, DNS, Firewall, VPN

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SAP Cloud Platform: Integration Suite
For hybrid and heterogenous environments

- **SAP SuccessFactors**
- **SAP S/4HANA** (S/4)
- **SAP C/4HANA** (C/4)
- **SAP Fieldglass**
- **SAP Concur**
- **SAP Ariba**
- ... and more

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**API Business Hub**
Out-of-the-box accelerators

**Cloud Integration**
Seamlessly integrate anything, anywhere (A2A/B2B) in real time

**Integration Advisor**
Accelerate implementation & maintenance of (A2A/B2B) scenarios using machine learning

**API Management**
Exposé your data as APIs, manage the end-to-end lifecycle

**Data Intelligence**
Transform data assets into critical business insights

**Open Connectors**
Accelerate connectivity to non-SAP applications

**Enterprise Messaging**
React on business events

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**Process Integration**
- **Process Orchestration**
  - On-premise middleware
- **Data Integration**
  - **Cloud Connector**
    - Ground-to-cloud secure tunnel
  - **Data Hub**
    - Accelerate and expand the flow of data across enterprise services
Fine grained Access Control of API Assets realized via Role based permissions

- Permissions based on Roles for Discovering Products and Consuming Applications in DEV Portal.
- System prompts the Admin of a Role is missing / deleted.
- Error proof method to create API Proxies by changing Properties from existing templatized API Proxies, flexibility in managing multiple proxy virtual host endpoints, visually appealing interface.

Discover diverse catalog – SAP API Business Hub
Themes, search, filters and featuring

- New user experience that draws user to the most popular of the 250+ packages
- Product themes, search and filters help users navigate 830+ integrations and ~750 APIs
- Favorites and Subscriptions to keep user up to date with the latest content
SAP Cloud Platform as an intelligent BPM Platform

Capital Expenditure (CAPEX)

- Review CAPEX request
- Create CAPEX submission
- Approve CAPEX
- Provide budget
- Create project/investment
- Measure ROI

Live Processes

- Conversational User Experience
- Workflow & RPA
- Decision Management
- Inbox

Process Flexibility
- Configuration of process variants
- Process extensions
- Decisions and responsibilities

Process Intelligence
- Integrated Analytics
- Process Mining
- Process Benchmarks

Manage Workflows & Decisions

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SAP Cloud Platform as a **Digital Experience Platform**

- **Superior employee experience through an intelligent digital workplace**
- **Enable best-in-class native mobile experience**
- **Central entry point to all enterprise applications**
- **Consistent and modern UX**
- **All channels and devices**: Web Apps & Portals, Mobile & Wearables, Conversational User Experience
- **All audiences**: Superior experiences for employees, customers and partners
- **Enable efficient collaboration of employees**
SAP Cloud Platform as a **Platform for Data-Driven Insights**

- **Insight in data & processes**
  - Run your data platform across clouds and deliver cloud/on-premise compatibility
  - Provide intelligent information and in-memory analytics on live transactions
  - Connect processes, data, people and devices.

**Intelligent Data Management**

- Data Management and Data Intelligence

**Intelligent solutions, apps & business services**

- Superior insight in business processes and customer behavior.
- Analyze, plan and predict data in your organization and your websites

**Infuse Intelligence in all business processes**
Somethings to Remember
Finally, some things to keep in mind

- Elastic ≠ Low cost
- Data egress
- Data Gravity
- Latency and bandwidth and $
- Global backbones from cloud providers & POPs
- Network peering and $
- Continuous chaos
- Lifecycle and governance
- In house skills and cloud skills
- Privacy & secrecy
- Process vs data integration
- End-2-End process monitoring & management
- SLA synchronization
ENTREPRISE ARCHITECTURE MADE EASY

WHAT ARE THE GREEN, BLUE AND YELLOW THINGIES? SERVERS? APPLICATIONS? COMPONENTS?

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PART 1: DON’T MESS WITH THE GORY DETAILS
Thank you.

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