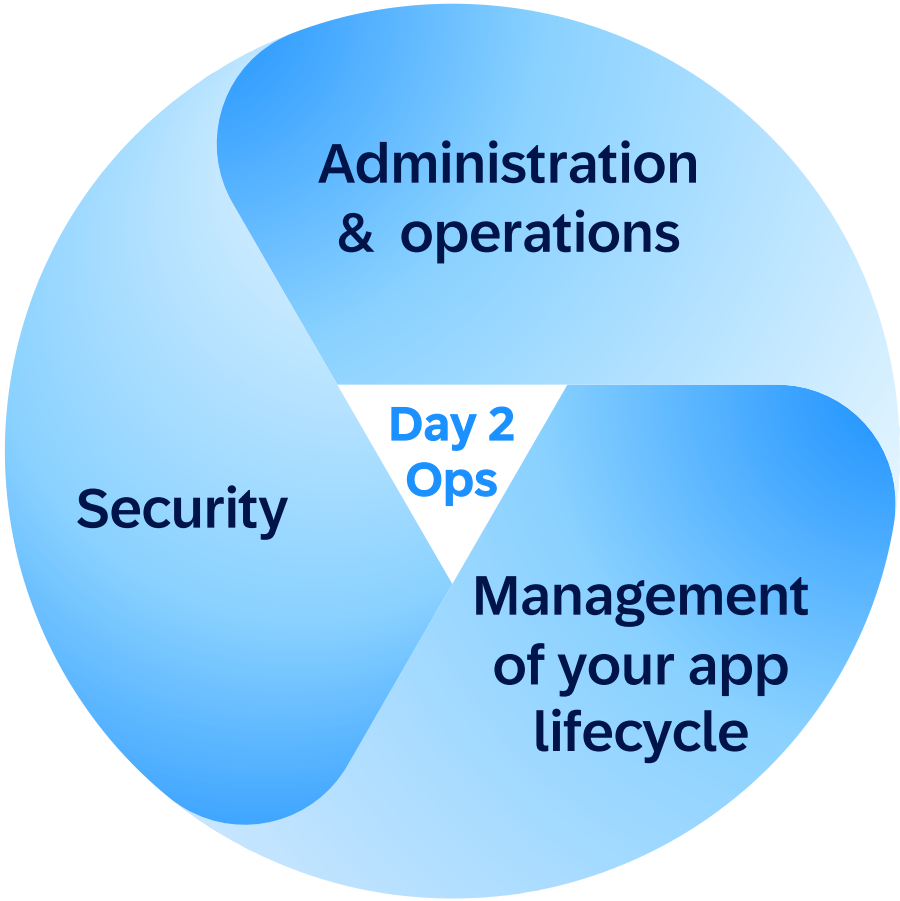
Day 2 Operations

SAP Cloud ALM for SAP BTP

LIVE SESSION

Mastering Day 2 Operations in SAP BTP

A guide for architects, developers, and administrators



Agenda

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SAP Cloud ALM

Overview

OpenTelemetry@SAP

SAP Cloud ALM
Support for SAP BTP

2

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Clean Core and RISE Dashboard in Context of Operations

3

Further Information

Q&A

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SAP Cloud ALM Overview

Customers Need End-to-End Observability Across … SAP Cloud ALM for Operations

Cloud and On-premise

How do I monitor my customer solution with BTP center stage?

SAP and Non-SAP

How do I observe and triage?

Customer, Partner and SAP Operations

How to foster collaboration between all involved parties?

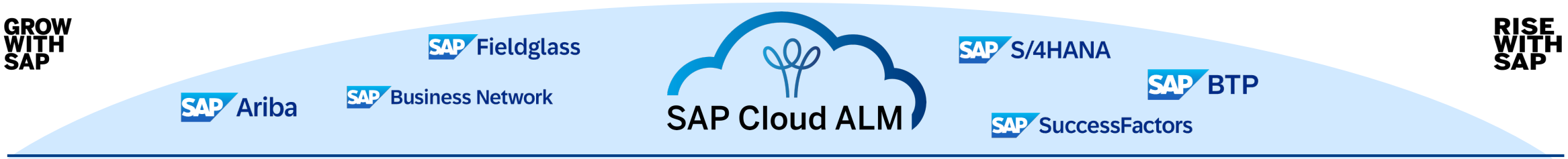
All Monitoring Use Cases

How do I monitor business processes, integration, end user experience, exceptions, automation & health?

Quick Problem Resolution

How do I quickly resolve any occurred issue?

SAP Cloud ALM for Operations – For SAP and Non-SAP



Business Service Management

Metrics
Config Items
Log Entries
Traces
Events
Alerts

Business Process Monitoring
Integration & Exception Monitoring
Synthetic User Monitoring
Real User Monitoring
Job & Automation Monitoring
Configuration & Security Analysis
Health Monitoring

Intelligent Event Processing

Alert Management
Notification Management
Operations Automation
External API Management

Tickets
Tasks
Emails
Chats
Operation Flows
Analytics & Raw Data

Analytics & Intelligence

Inbound Integration
Problem Detection
Problem Routing
Problem Resolution
Outbound Integration

Product agnostic but open for non-SAP
Product specific but open for non-SAP

SAP Cloud ALM for Operations

By the Numbers

3600

Live Customers in SAP Cloud ALM for Operations

24M

Notifications and **Incidents** created in 2024

- Incidents within Incident Management System
- E-Mail
- Chat Notification

30B

Health Monitoring Metrics collected per month in 2024

SAP Products supported by SAP Cloud ALM for Operations

and constantly expanding

Detailed list available via SAP Cloud ALM for Operations Expert Portal

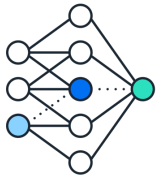
SAP Cloud ALM Overview - OpenTelemetry@SAP

OpenTelemetry – What is it?

Created in 2019, OpenTelemetry (OTeL) defines a single set of APIs and libraries to simplify the collection and transfer of telemetry data.

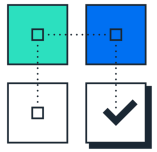
Open Standard:

- Unified standard for creating and ingesting telemetry data.



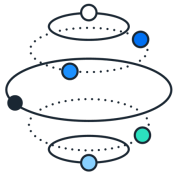
Consistency:

- Consistent collection mechanism and format for metrics, events, logging, and tracing.



Observability integration:

- Centralized and flexible observability solution to integrate different monitoring tools across cloud and applications.



Broad Support

- Capture relevant traces and metrics with specific integrations for popular frameworks and languages.

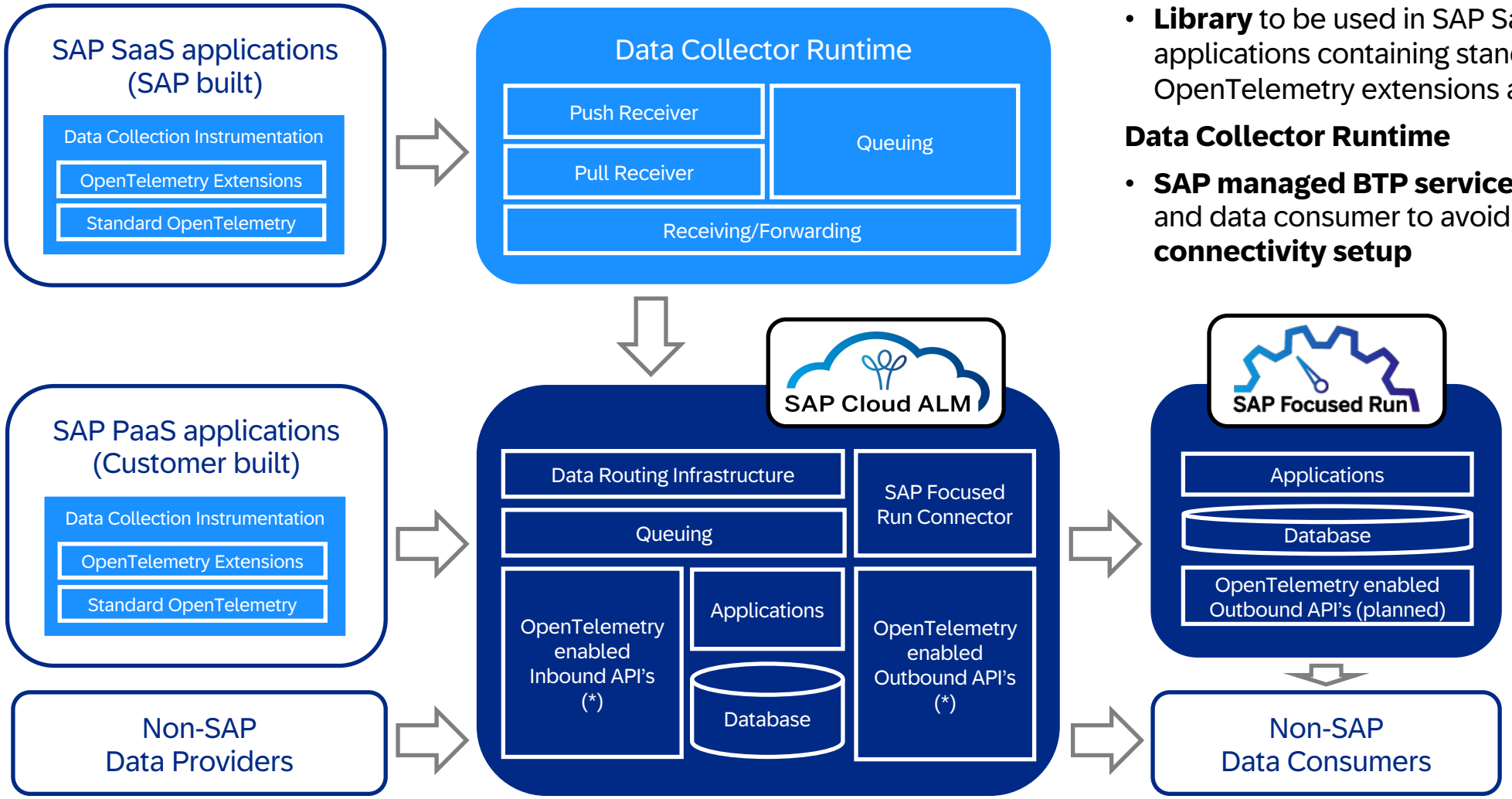
Ease of Use

- Automatic instrumentation agents to collect without requiring any code changes.

Flexibility

- Send observability data to any backend with no specific vendor requirements.

OpenTelemetry @ SAP – Customer Facing Observability



(*) Availability see roadmap

Data Collection Instrumentation

- **Library** to be used in SAP SaaS and SAP PaaS applications containing standard OpenTelemetry, OpenTelemetry extensions and utility functionality

Data Collector Runtime

- **SAP managed BTP service** to decouple data provider and data consumer to avoid **customer managed connectivity setup**

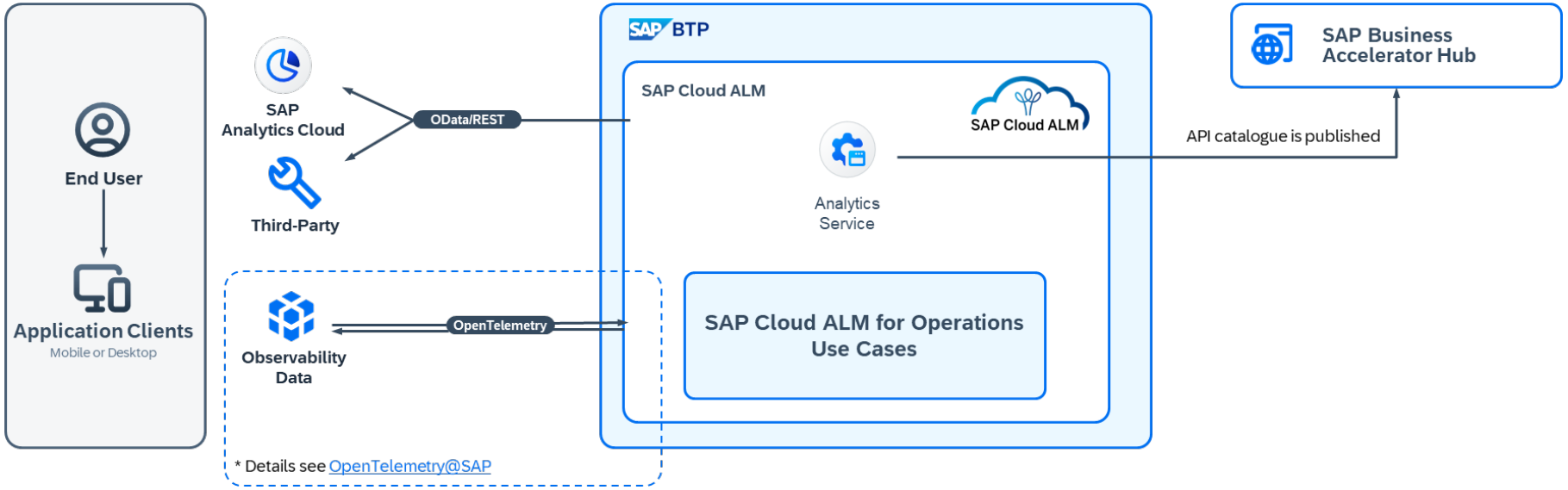
- **OpenTelemetry enabled Inbound API's** to integrate non-SAP data providers
- **OpenTelemetry enabled Outbound API's** to integrate non-SAP data consumers
- **SAP Focused Run Connector** to forward data to SAP Focused Run

SAP Cloud ALM APIs for Operations

SAP Cloud ALM for operations is supporting these types of APIs:

- SAP Cloud ALM Analytics API
- SAP Cloud ALM RAW Data APIs
- SAP Cloud ALM Landscape API
- Transactional APIs (SAP Cloud ALM Event APIs)
- Integration Scenarios

SAP Cloud ALM Analytics API



Further information: [SAP Cloud ALM APIs for Operations]

Available and Planned OpenTelemetry Signal API's for non-SAP components

Use Case	Analytics	OTeL Metrics		OTeL Logs		OTeL Traces	
	Outbound	Outbound	Inbound	Outbound	Inbound	Outbound	Inbound
Business Process Monitoring	2023	-	-	-	2025	-	-
Integration Monitoring	2023	2023	-	2024	2024	-	-
Exception Monitoring	2023	2023	-	2023	2023	-	-
Real User Monitoring	2023	2023	-	-	-	2024	2024
Synthetic User Monitoring	2023	2023	-	-	-	-	2024
Job & Automation Monitoring	2023	2023	-	2025	2025	-	-
Configuration & Security Analysis	2023	-	-	-	-	-	-
Health Monitoring	2023	2023	2023	-	-	-	-
Business Service Management	2024	2023	-	2024	-	-	-
Intelligent Event Processing	2023	2023	-	2024	-	-	-

Available Planned

SAP Cloud ALM Overview –
SAP Cloud ALM Support for BTP

Problem Detection & Problem Resolution for SAP Business Technology Platform

Reduce mean time to detect and resolve problems

Problem Detection

Central Observability

Unified monitoring, alerting and analytics approach to reduce meantime to problem detection

SAP Cloud ALM

SAP Focused Run

Context sensitive navigation and/or API integration

Problem Resolution

Local Observability

Use case specific root cause analysis approach to reduce meantime to problem resolution

e.g. SAP Cloud Logging or SAP Automation Pilot

Telemetry Data

Platform as a Service & Software as a Service based on SAP Business Technology Platform

SAP Datasphere

SAP BTP, Neo & ABAP environment

SAP HANA Cloud

SAP Integration Suite

SAP Build Process Automation

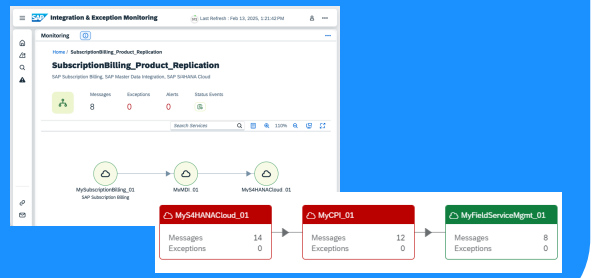
SAP Analytics Cloud

CLOUDFOUNDRY

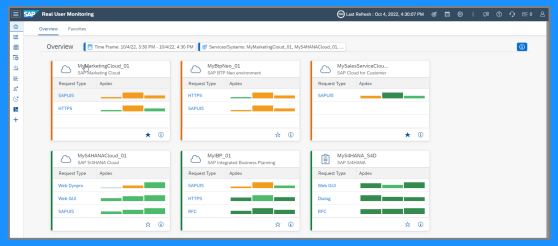
Kyma

SAP Cloud ALM for Operations Demo

Integration & Exception Monitoring



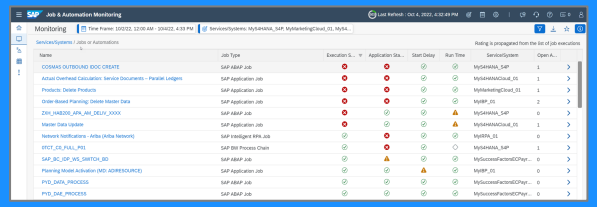
Real User Monitoring



Synthetic User Monitoring

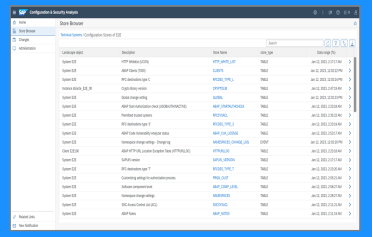
SAP Cloud ALM

Job & Automation Monitoring

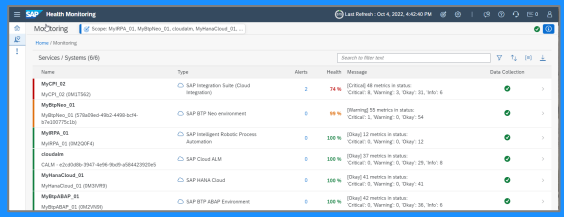


SAP Cloud ALM

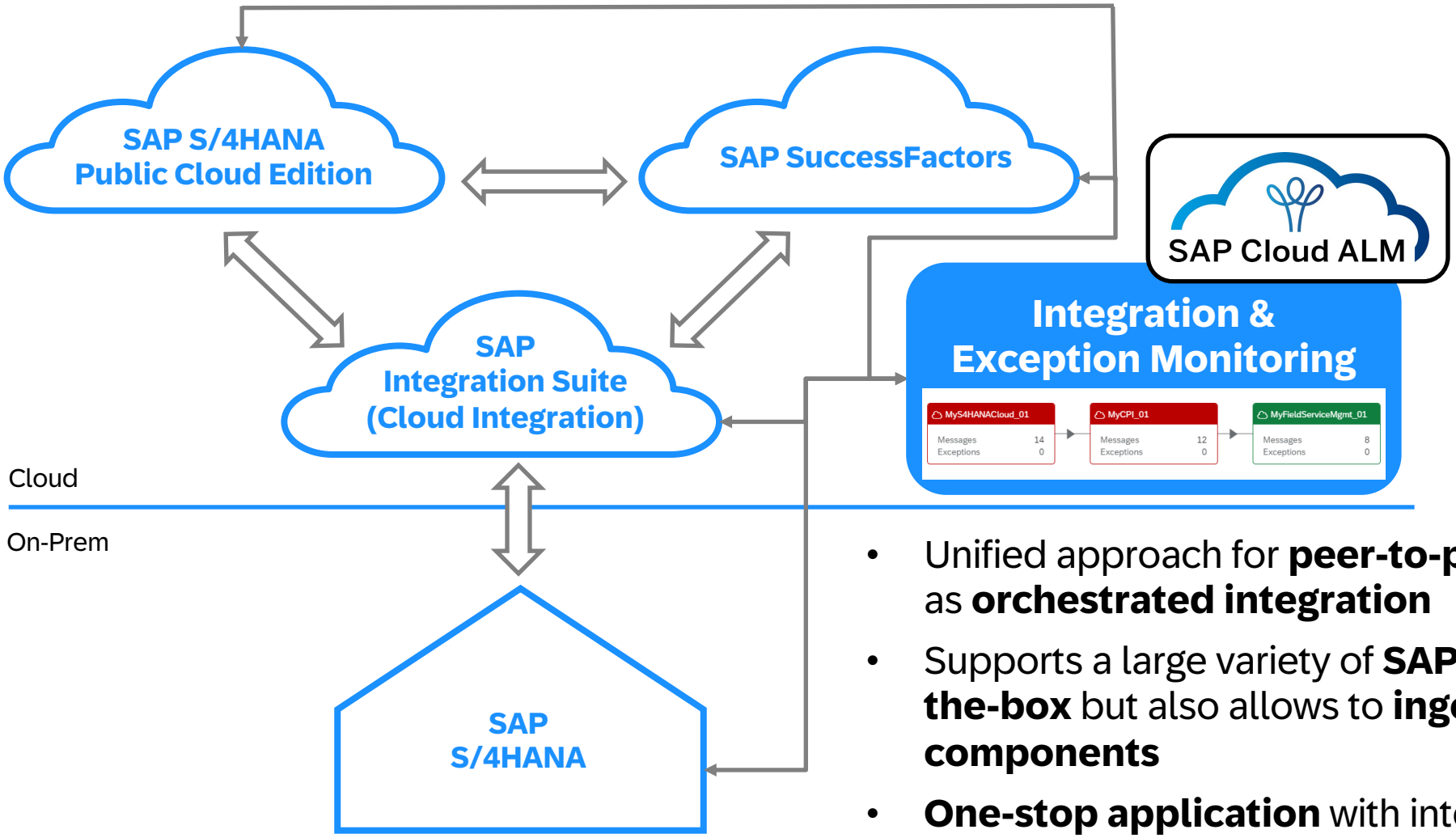
Configuration & Security Analysis



Health Monitoring



Integration & Exception Monitoring
Ensure Reliable Data Exchange between Cloud Services and Systems



- **End-to-End monitoring** by correlating single messages to **end-to-end message flows** across cloud services and systems
- Monitoring of **integration related exceptions**

- Unified approach for **peer-to-peer interfaces** as well as **orchestrated integration**
- Supports a large variety of **SAP components out-of-the-box** but also allows to **ingest data for non-SAP components**
- **One-stop application** with integrated monitoring, alerting, analysis, and search-and-track functionality

Integration Monitoring for SAP BTP

SAP Integration Suite Cloud Integration

- Monitoring of messages technically correlated to e2e message flows
- Find more details here

SAP Mobile Services

- Monitoring of message send through SAP Mobile Services
- Find more details here

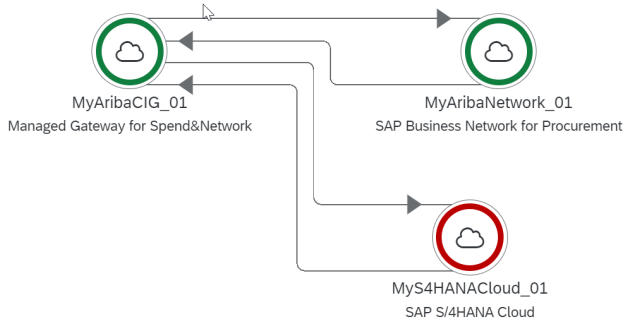
SAP Event Broker for SAP cloud applications

- Monitoring of events processed via SAP Event Broker
- Find more details here

SAP Cloud ALM

Integration Monitoring

- Unified monitoring of integration artefacts
- Correlation of e2e message flows



SAP Master Data Integration

- Monitoring of business objects handled by master data integration
- Find more details here

SAP Master Data Governance cloud edition

- Monitoring of AIF messages sent to SAP Master Data Governance
- Find more details here

SAP Data Intelligence

- Monitoring of messages sent from and to SAP Data Intelligence
- Find more details here

Exception Monitoring for SAP BTP

SAP Analytics Cloud

- Monitoring of exceptions in activity log, which tracks user activities
- Find more details here

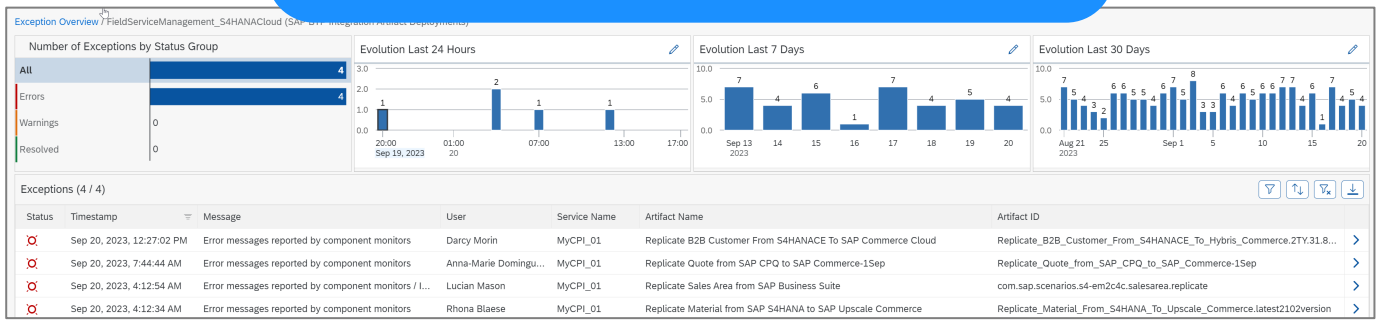
SAP Cloud ALM

Exception Monitoring

- Unified monitoring of exceptions
- Visualization of exception details

SAP Integration Suite Cloud Integration

- Monitoring of exceptions related to integration content
- Find more details here



SAP BTP, Neo environment (custom built applications)

- Monitoring of exceptions in custom built java applications
- Find more details here

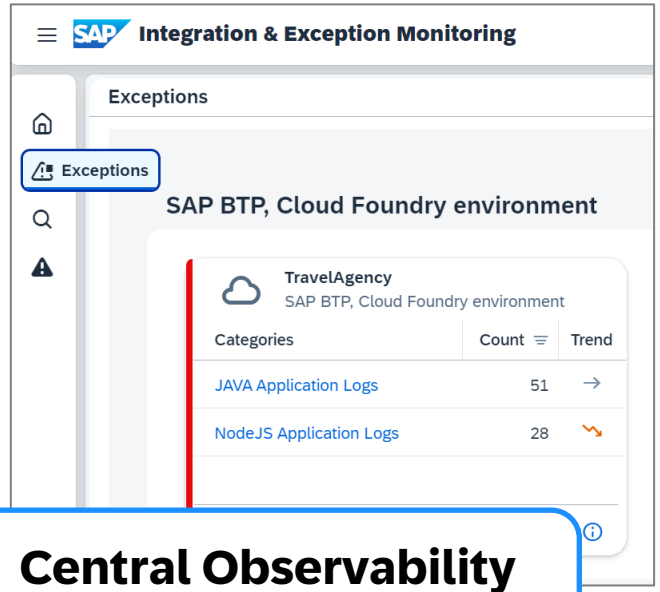
SAP BTP, CF / Kyma env. (custom built applications)

- Monitoring of exceptions in custom built java and node.js applications (OTEL)
- Find more details here

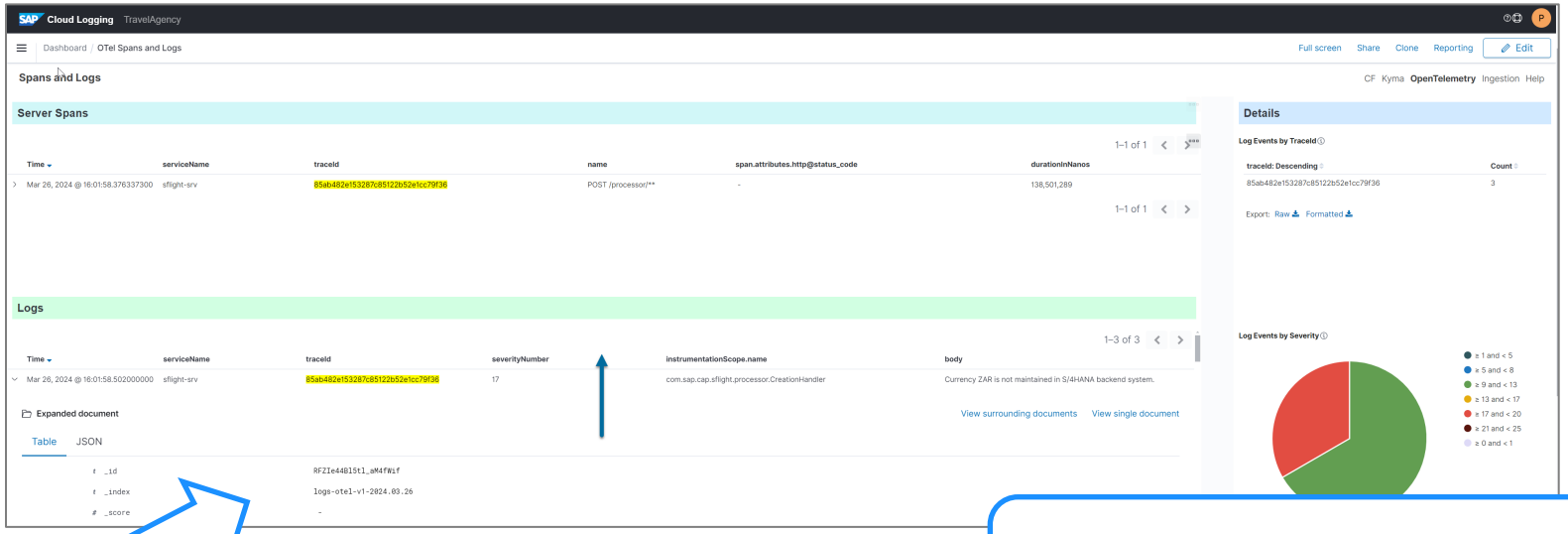
SAP BTP, ABAP environment (custom built applications)

- Monitoring of exceptions in custom built ABAP applications
- Find more details here

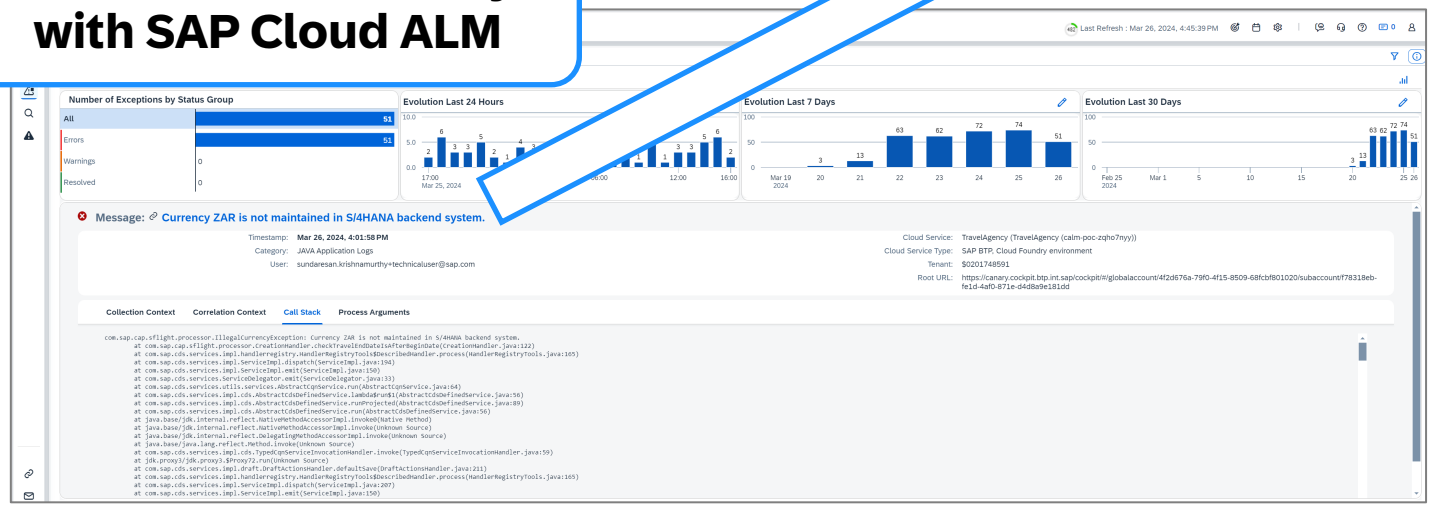
Exception Monitoring for custom applications built on SAP BTP



Central Observability with SAP Cloud ALM



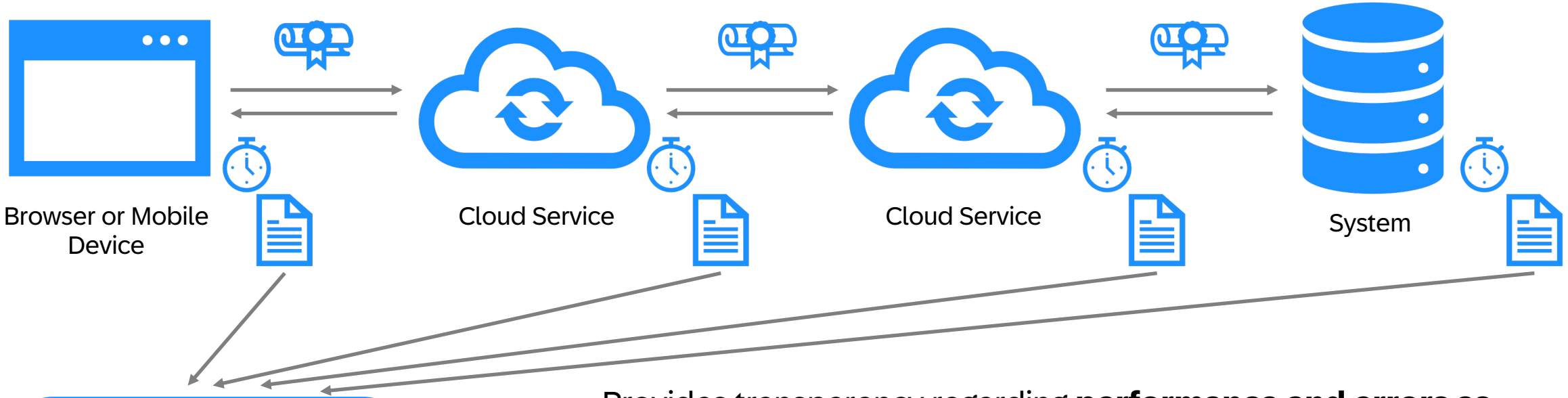
Local Observability with SAP Cloud Logging

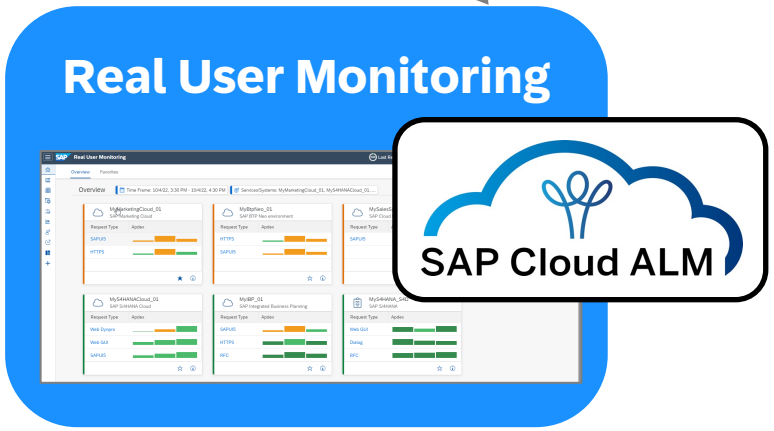


- Context-sensitive navigation from Exception Monitoring in SAP Cloud ALM to SAP Cloud Logging
- Log entries are retrieved by Open Telemetry based on auto instrumentation and forwarded to both tools

Remark: SAP Cloud Logging Service isn't part of SAP Cloud ALM subscription

Real User Monitoring
Allow to Understand Performance and Utilization from End User Perspective



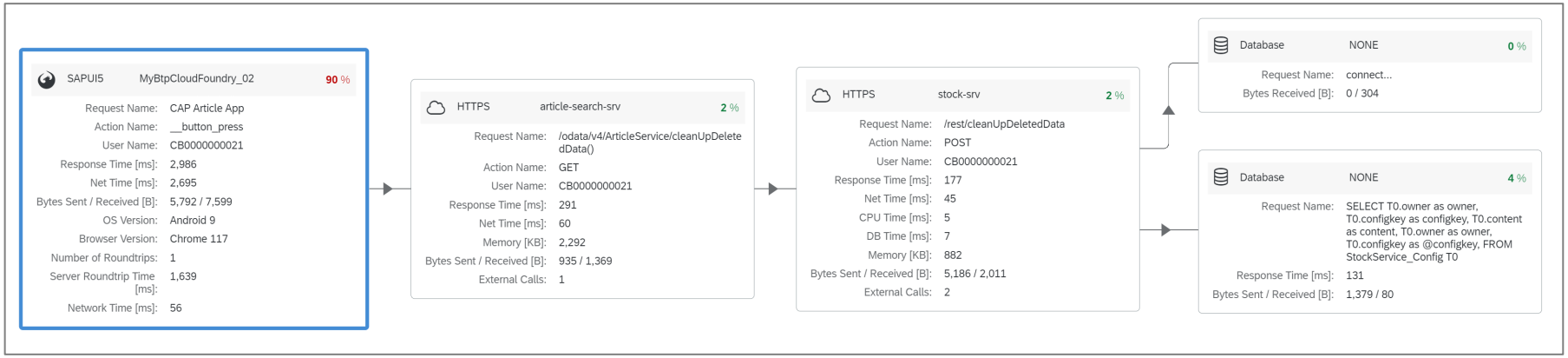


- Provides transparency regarding **performance and errors as experienced by end users** as well as **utilization of business functionality**
- Measurement at frontend and server side **to identify actual root cause of performance and functional problems**
- Allows to **correlate monitoring data** measured at frontend, cloud service and/or system side to **end-to-end user request flows**

Real User Monitoring for SAP BTP

Real User Monitoring

- Unified monitoring of end users from performance, functional and utilization perspective
- Correlation of e2e user requests flow based on single request data



SAP BTP, Neo environment (custom built applications)

- Monitoring of user experience in custom built java applications
- Find more details here

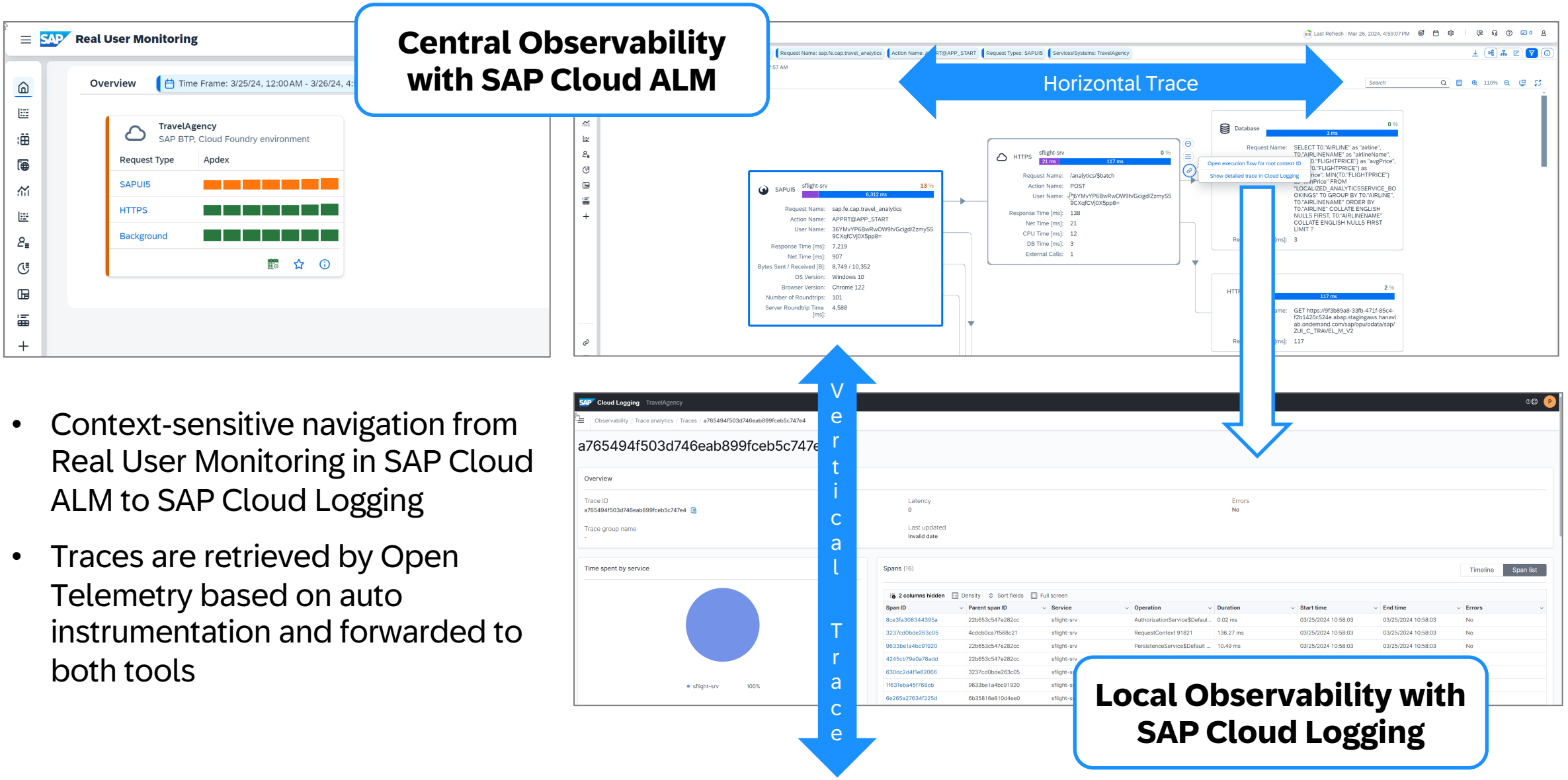
SAP BTP, CF / Kyma env. (custom built applications)

- Monitoring of user experience in custom built java and node.js applications (OTEL)
- Find more details here

SAP BTP, ABAP environment (custom built applications)

- Monitoring of user experience in custom built ABAP applications
- Find more details here

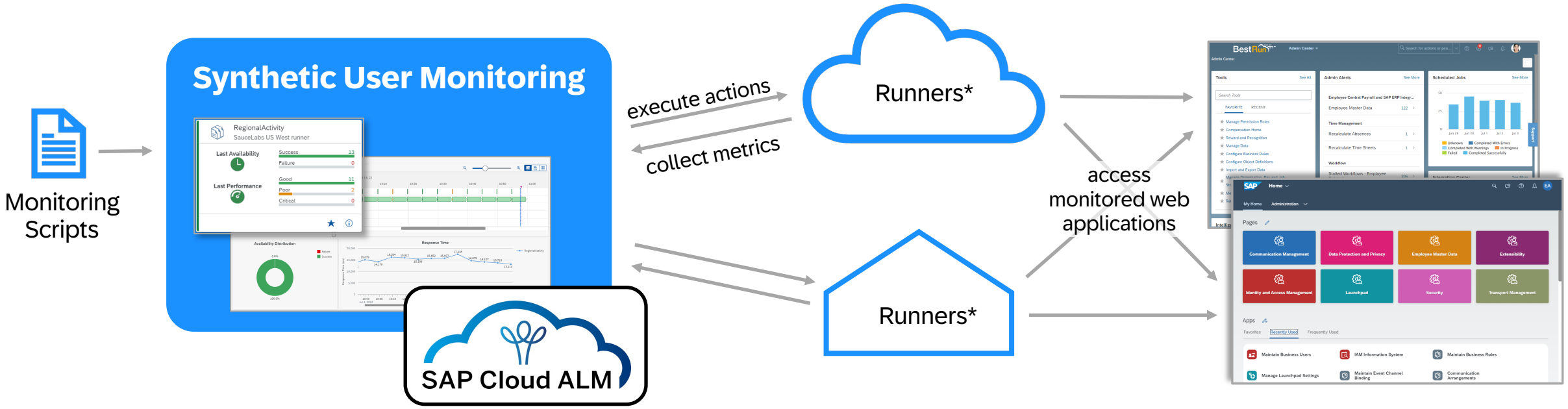
Real User Monitoring for custom applications built on SAP BTP



- Context-sensitive navigation from Real User Monitoring in SAP Cloud ALM to SAP Cloud Logging
- Traces are retrieved by Open Telemetry based on auto instrumentation and forwarded to both tools

Remark: SAP Cloud Logging Service isn't part of SAP Cloud ALM subscription

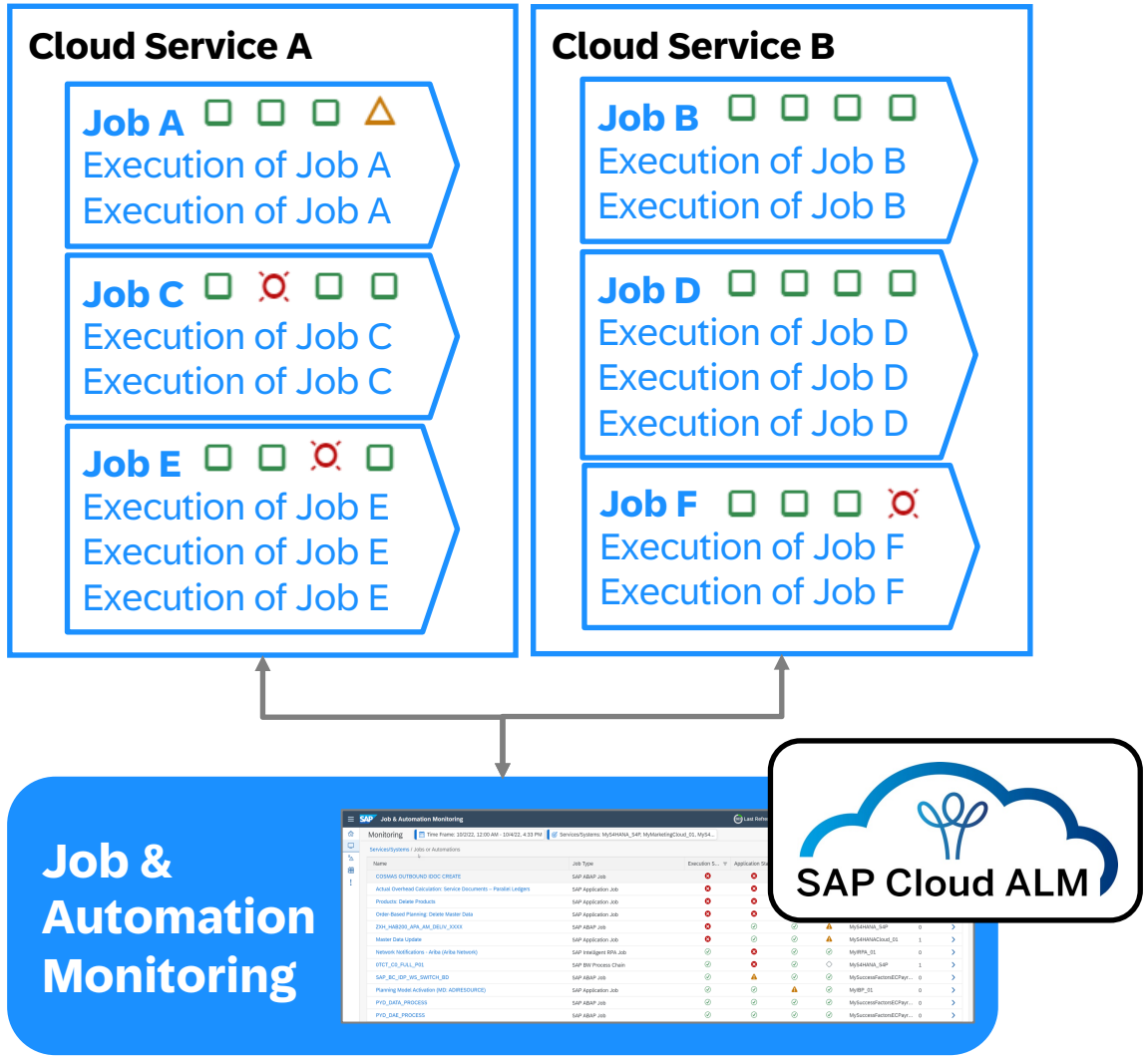
Synthetic User Monitoring
Monitor Performance and Availability of Web Applications from User Perspective



- Monitoring based on custom **Selenium based scripts** ➔ Supports most of the web applications
- Regularly executed on **Selenium remote webdriver infrastructures**
- **Proactive problems detection:** 24x7 monitoring enables detection of performance and availability issues before end users are impacted ➔ Runs **independently on real user activities**
- **Comparable measurements:** Monitoring relies on identical **user scenarios regularly executed** ➔ Allows to monitor the **evolution of the performance and availability** based on comparable metrics

Remark: Generic functionality which is available for all SAP BTP SaaS and PaaS services.

Job & Automation Monitoring
Provide Transparency Regarding Job Executions & Automated Activities



- **Monitoring** ensures **efficient execution of jobs and tasks:**
  - by monitoring **executions status, application status, start delay and response time** for jobs and tasks
  - by providing **details at job on task execution level** to enable root cause analysis
  - by **reducing configuration efforts** by making use of historical execution information
- **Embedded Alerting** enables notification of business and IT users on job & task related disruptions and exceptions
- **Embedded Analytics** allows to analyze root causes and trends based on historical data

Job & Automation Monitoring for SAP BTP

SAP Intelligent RPA

- Monitoring of jobs scheduled in SAP Intelligent RPA
- Find more details here

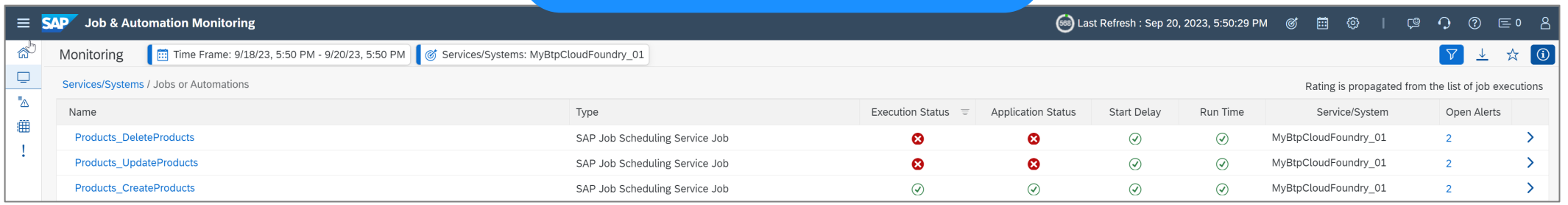
SAP Cloud ALM

Job & Automation Monitoring

Unified monitoring of jobs and automation tasks

SAP Build Process Automation

- Monitoring of jobs scheduled in SAP Build Process Automation
- Find more details here



SAP BTP, CF / Kyma env. (custom built applications)

- Monitoring of jobs scheduled with SAP Job Scheduling Service
- Find more details here

SAP BTP, ABAP environment (custom built applications)

- Monitoring of application jobs used in custom built ABAP applications
- Find more details here

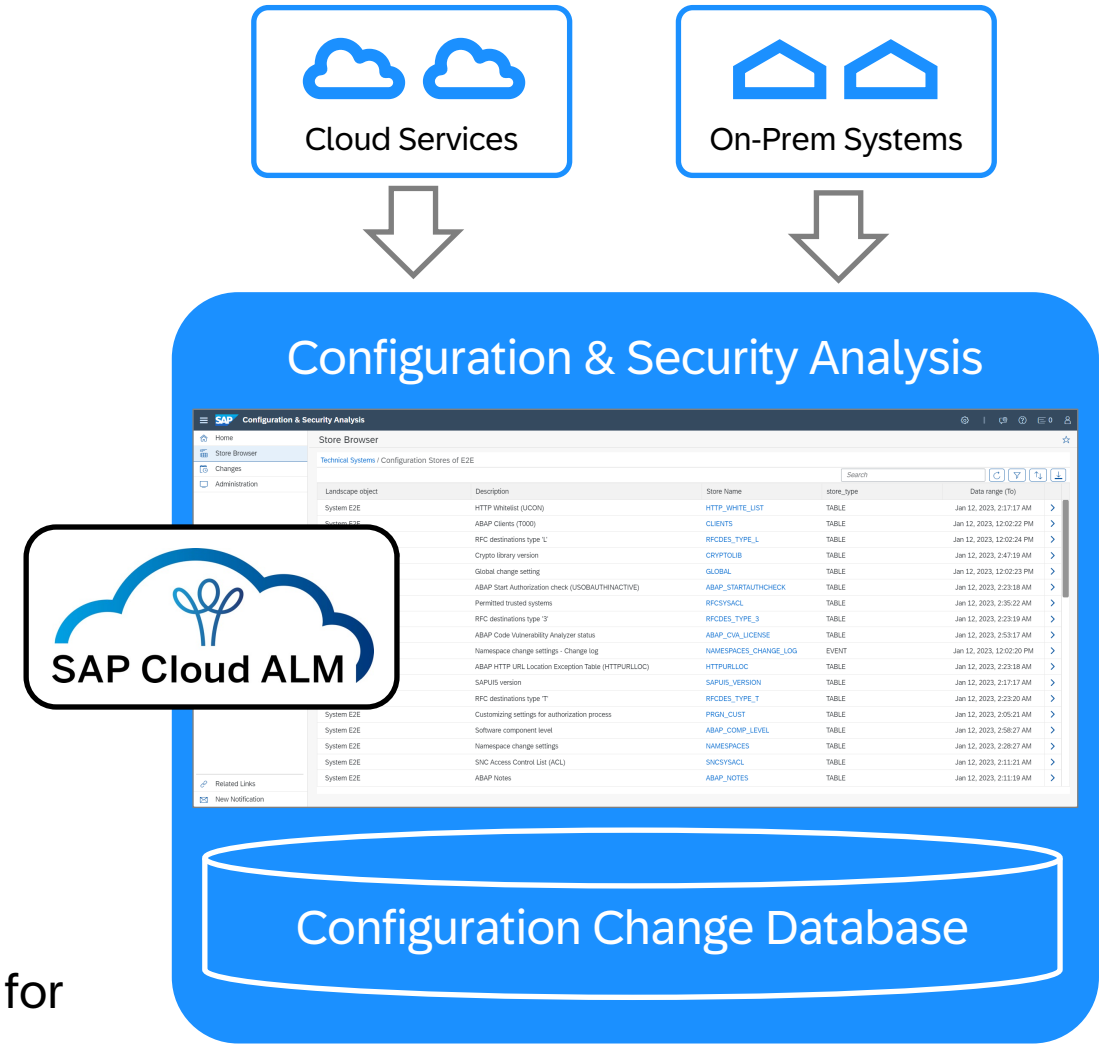
Configuration & Security Analysis
Validate Configuration Items and Software Levels Automatically and Regularly

Existing functionality

- **Regular collection of configuration items and software levels** into the configuration stores of the Configuration Change Database
- **Store browser** as user interface to **visualize content of configuration stores**
- **Change analysis** for selected scope and timeframe
- **Search capability** for pattern-based browsing into configuration items of selected scope

Planned functionality

- **Configuration validation** to compare TO-BE with AS-IS situation
- **Embedded alerting** to notify on critical issues
- **Embedded analytics** to analyze trends and root causes for discovered problems



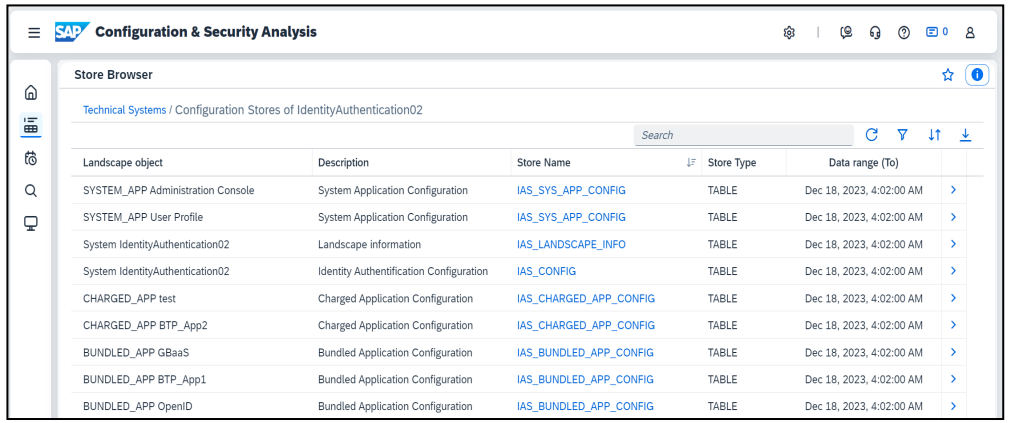
Configuration & Security Analysis for SAP BTP

Configuration & Security Analysis

- Regular collection and centralized storage of configuration items and software levels
- Store browser, change analysis and search functionality for mass volume processing

Credential Store

- Monitoring of security relevant configuration items including recommendations from SAP
- Find more details here



Identity Authentication

- Monitoring of security relevant configuration items including recommendations from SAP
- Find more details here

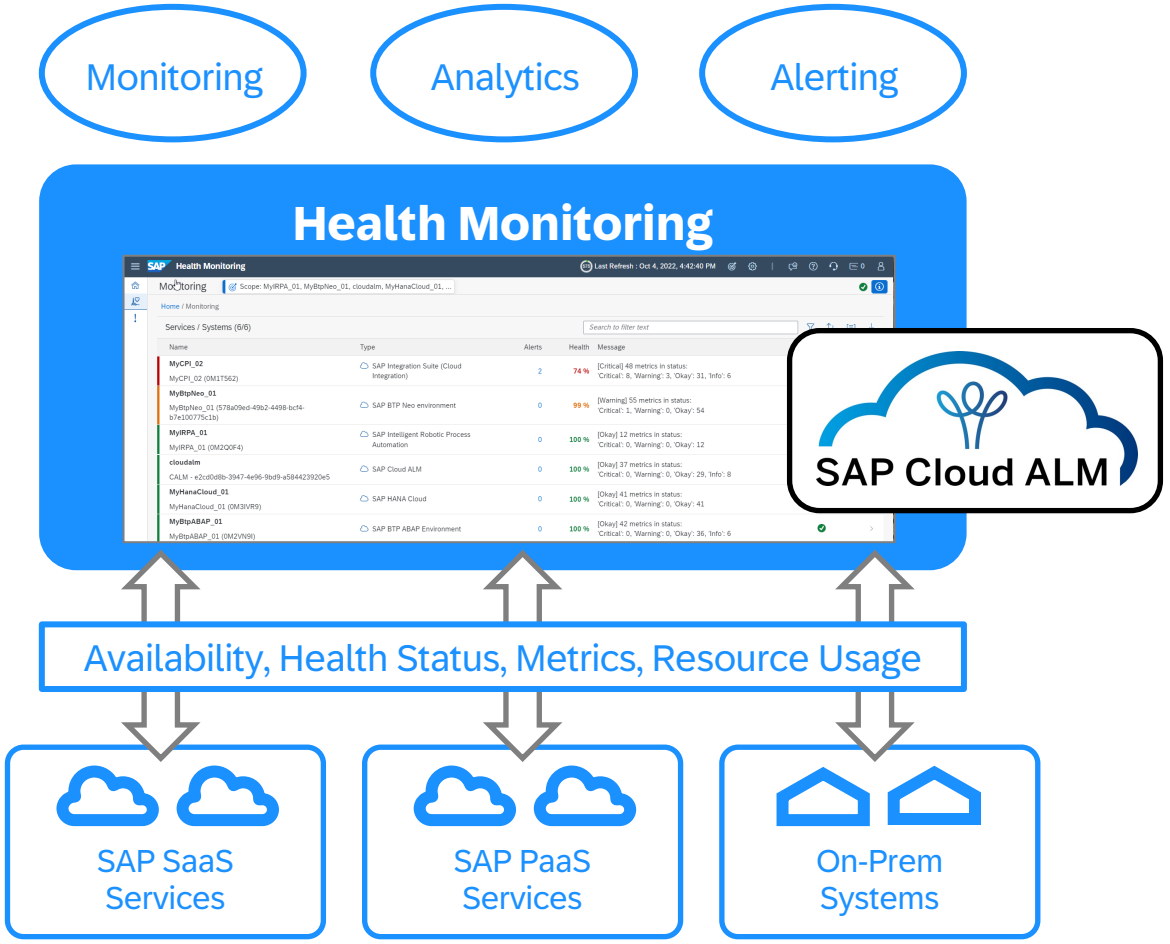
Mobile Service

- Monitoring of security relevant configuration items including recommendations from SAP
- Find more details here

Destination Service

- Monitoring of security relevant configuration items including recommendations from SAP
- Find more details here

Health Monitoring
Check Application Health of Cloud Services and Systems



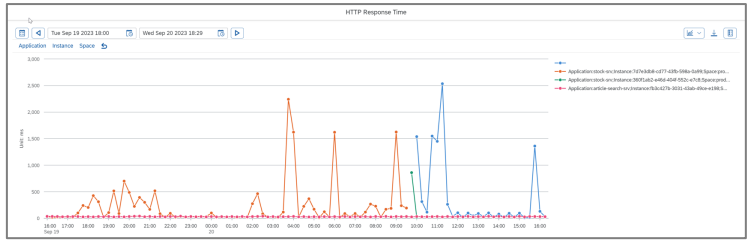
- **Monitoring of technical KPI's** for services and systems:
  - By executing **application health checks for SAP SaaS services**
  - By delivering **metrics for customer applications** built at SAP Business Technology Platform (SAP PaaS Services)
  - By providing metrics for **light-weight system monitoring** for SAP ABAP and associated system types e.g. SAP Cloud Connector
- Provides **embedded alerting** including the capability to **trigger notifications and corrective actions**
- Allows **embedded analytics** to **analyze trends and root causes** for discovered problems

Health Monitoring for SAP BTP

SAP Cloud ALM

Health Monitoring

Monitoring of technical KPI's for BTP SaaS and PaaS



SAP Integration Suite

Monitoring of technical KPI's in Cloud Integration and API Mgmt.

SAP HANA Cloud

Monitoring of technical KPI's for SAP HANA Cloud

SAP Cloud Connector

Monitoring of technical KPI's for SAP Cloud Connector

SAP Datasphere

Monitoring of technical KPI's for SAP Datasphere

SAP Build Process Automation

Monitoring of technical KPI's for SAP Build Process Automation

SAP Intelligent RPA

Monitoring of technical KPI's for SAP Intelligent RPA

SAP Cloud ALM

Monitoring of technical KPI's for SAP Cloud ALM

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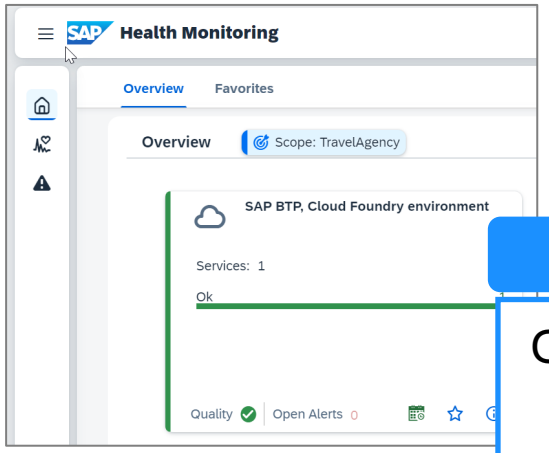
Monitoring of technical KPI's in custom built ABAP applications

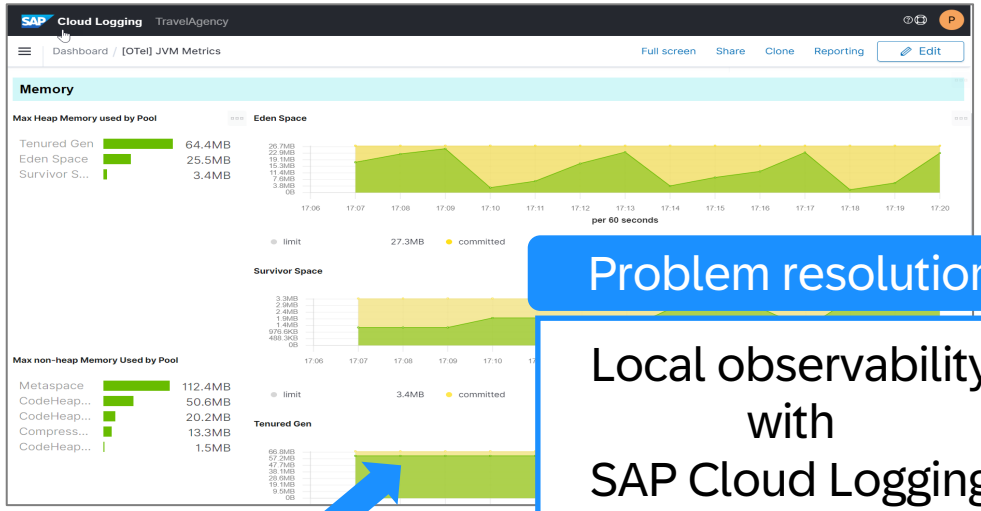
Health Monitoring for custom applications built on SAP BTP



Problem detection

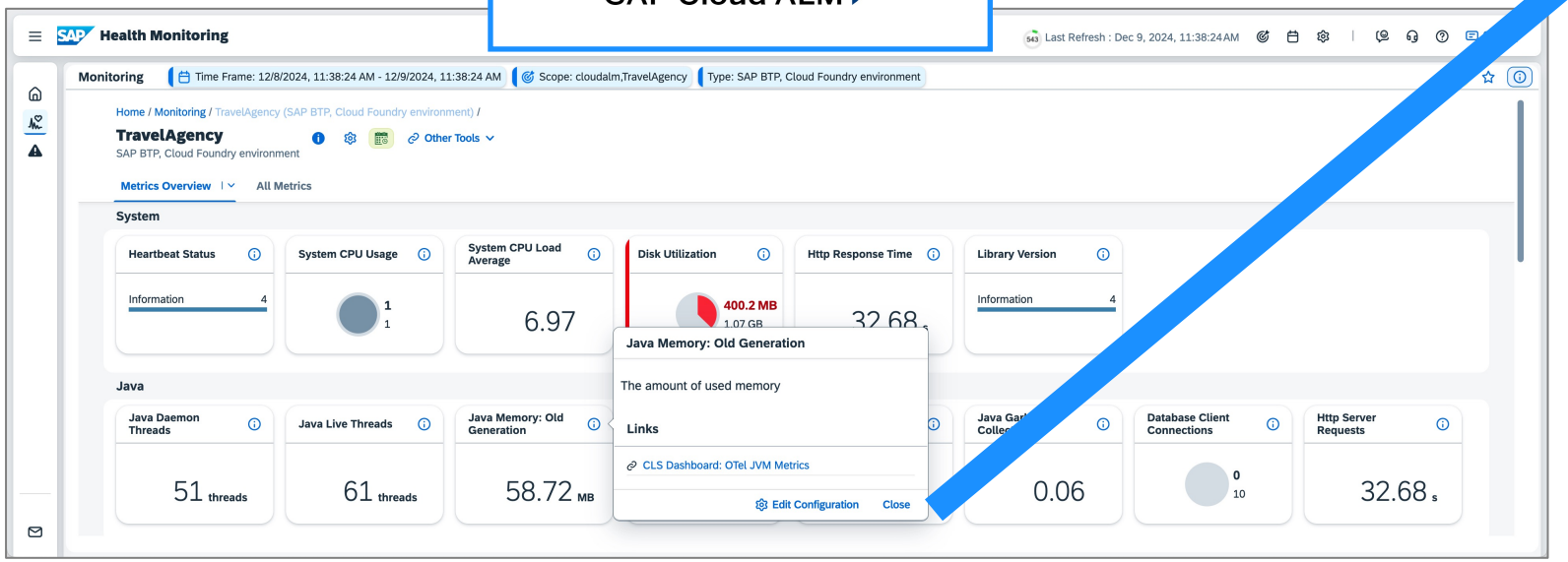
Central observability

SAP Cloud ALM



Problem resolution

Local observability with SAP Cloud Logging

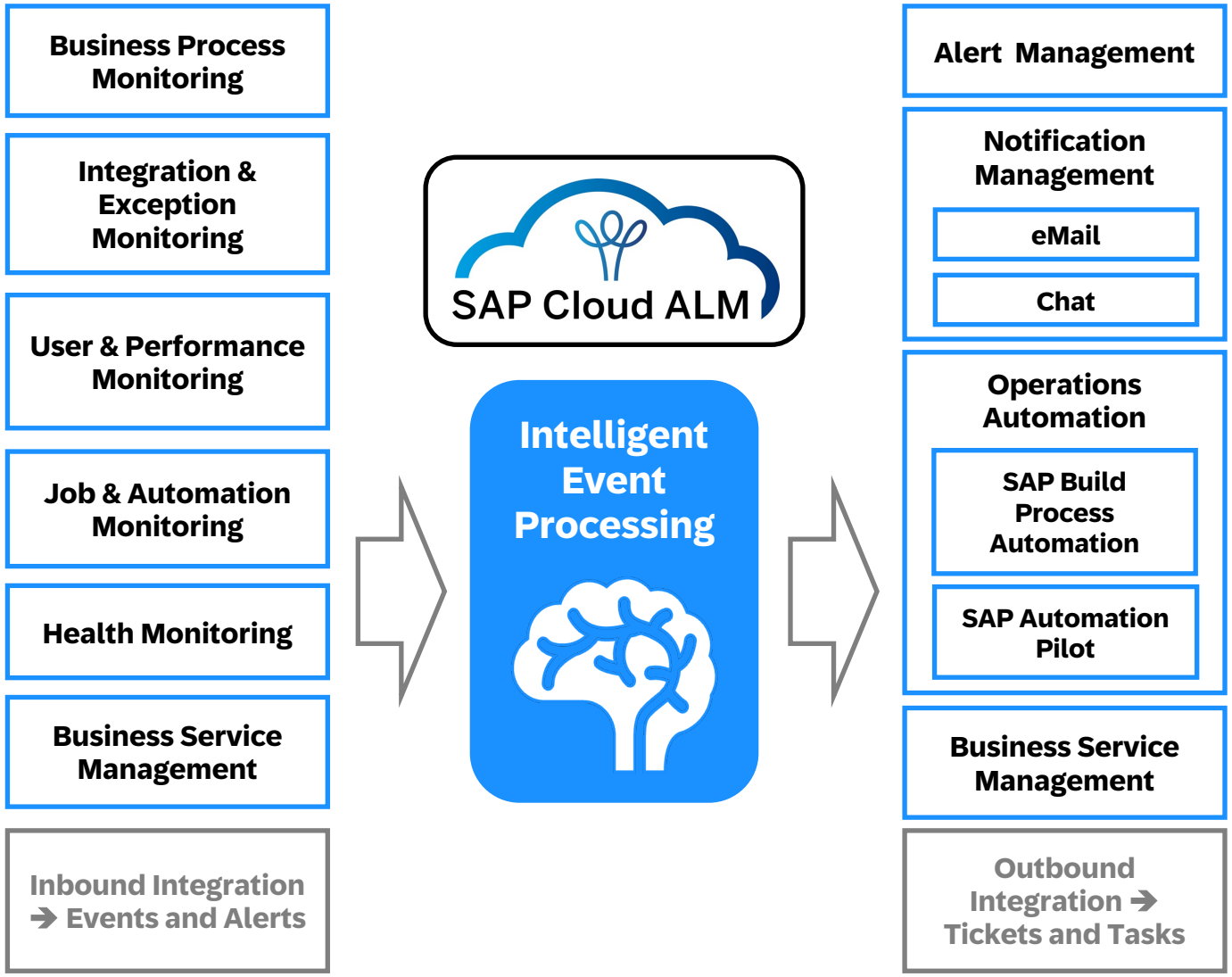


- Context-sensitive navigation from Health Monitoring in SAP Cloud ALM to SAP Cloud Logging
- Metrics are retrieved by Open Telemetry based on auto instrumentation and forwarded to both tools

Remark: SAP Cloud Logging Service isn't part of SAP Cloud ALM subscription

Intelligent Event Processing / Alert Management / Notification Management

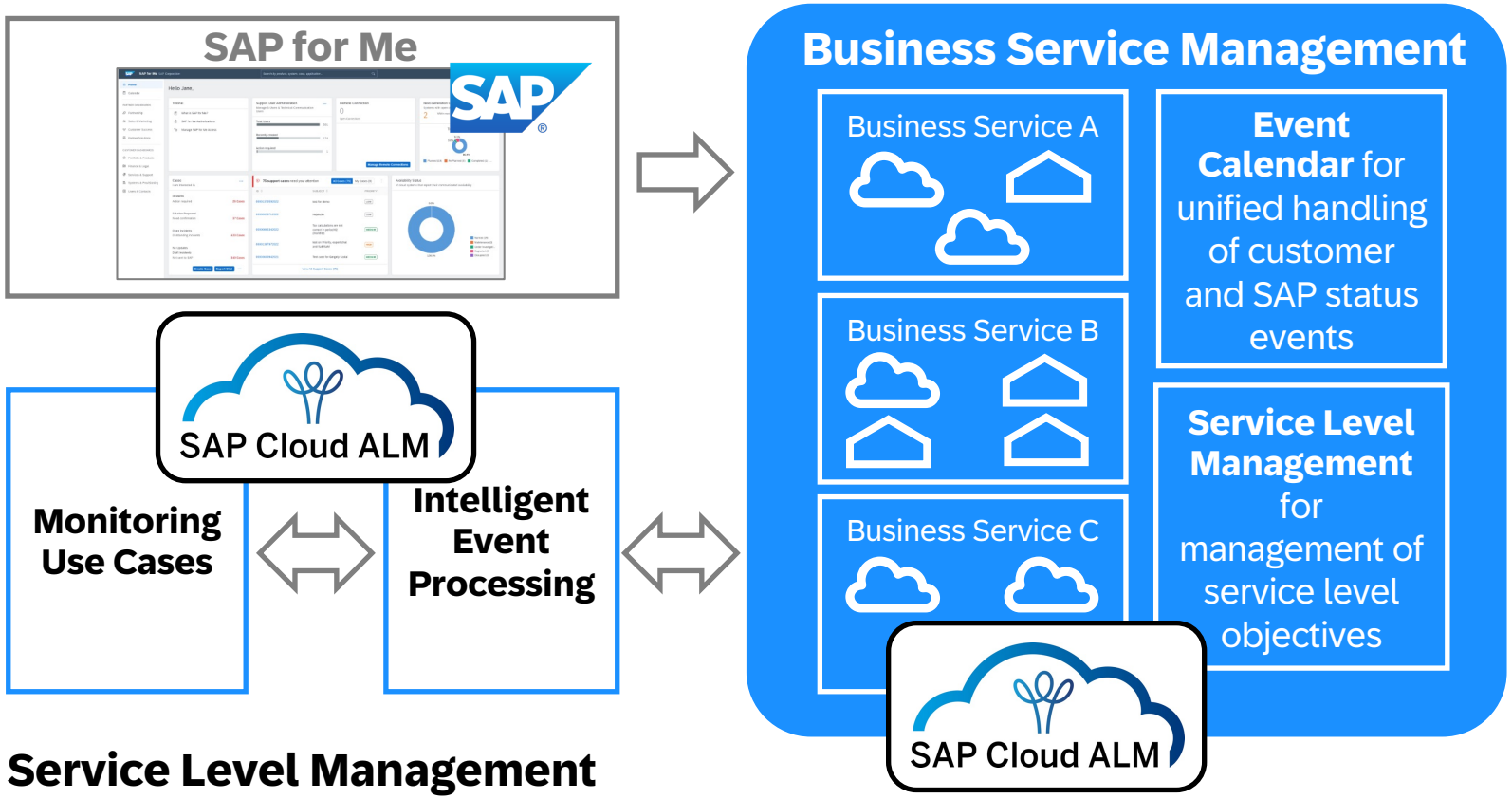
Process Events from Different Sources and Initiate Follow-Up Activities



- **Central intelligence** for **efficient event routing** between internal and external producers and consumers
- **Unified event processing** based on rules for **automatically as well as manually triggered events**
- Enables **centralized event handling** via event log viewer as well as **alert handling** via use case specific alert inbox
- **Foundation for intelligent correlation of events** e.g. correlation of manually generated notifications with automatically generated alerts

Business Service Management

Expose IT Related Information to be Understood by Business Users



Service Level Management

- Definition of **service level objectives** at business service level
- Automatic and continuous **calculation of service level** and consolidation to business services level
- **Embedded service level reporting** including drill down

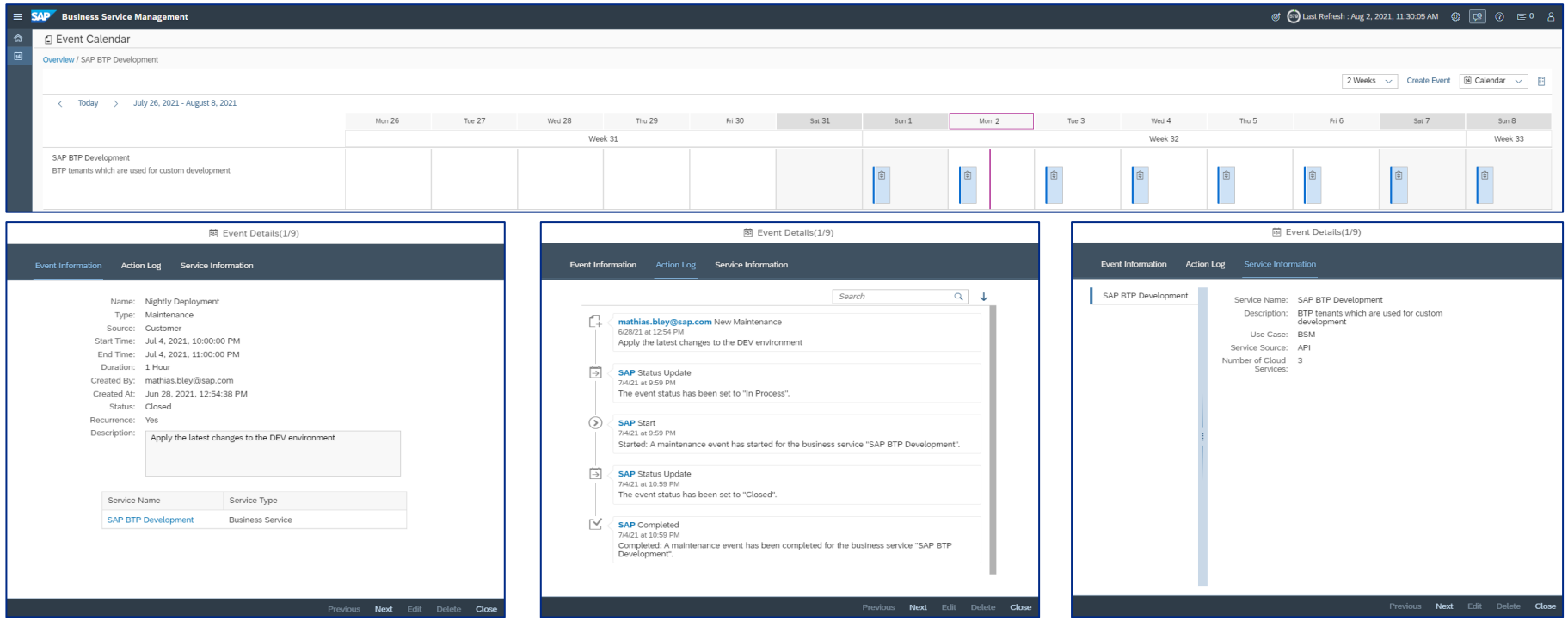
Event Calendar

- Business service as **collection of services and systems**
- Import of **SAP initiated status** (maintenance, disruptions, degradation, communication events) including **outbound API**
- Maintenance and execution of **customer initiated status**
- **Forwarding of status events** from Business Service Management towards monitoring use cases
- **Calculation of status events** by monitoring use cases and **forwarding to Business Service Management** (planned)

Business Service Management for SAP BTP

Business Service Management

- SAP BTP SaaS and PaaS services can be summarized to business services in SAP Cloud ALM
- SAP initiated maintenance, disruptions, degradations, and communication events as available in SAP for Me are exposed to customers and can be used for customer specific service level management



Remark: Generic functionality which is available for all SAP BTP SaaS and PaaS services.

Outlook

Clean Core and RISE Dashboard in Context of Operations

SAP Cloud ALM supporting Clean Core

SAP Cloud ALM provides the environment to manage your clean core projects along SAP Activate and the 5 dimensions together with analytics and Traceability dashboards to track adherence to clean core criteria

1 Processes

- Consumption of SAP Best Practice Content
- Execute Fit-to-standard Workshops
- Requirements management
- Design custom processes
- **Business Process Monitoring**
- **Job and Automation Monitoring**
- SAP Readiness Check to remediate simplification items

2 Extensibility

- Manage development (ABAP & BTP)
- Manual & Automated testing (with Tricentis Test Automation)
- Agile Build
- **Drive business continuity of extensions**
- SAP Readiness Check to remediate custom code

3 Data

- **Integration and exception monitoring**
- SAP Readiness Check to resolve data quality issues

4 Integration

- Integration Documentation
- Manage CPI deployments
- **Integration and exception monitoring**

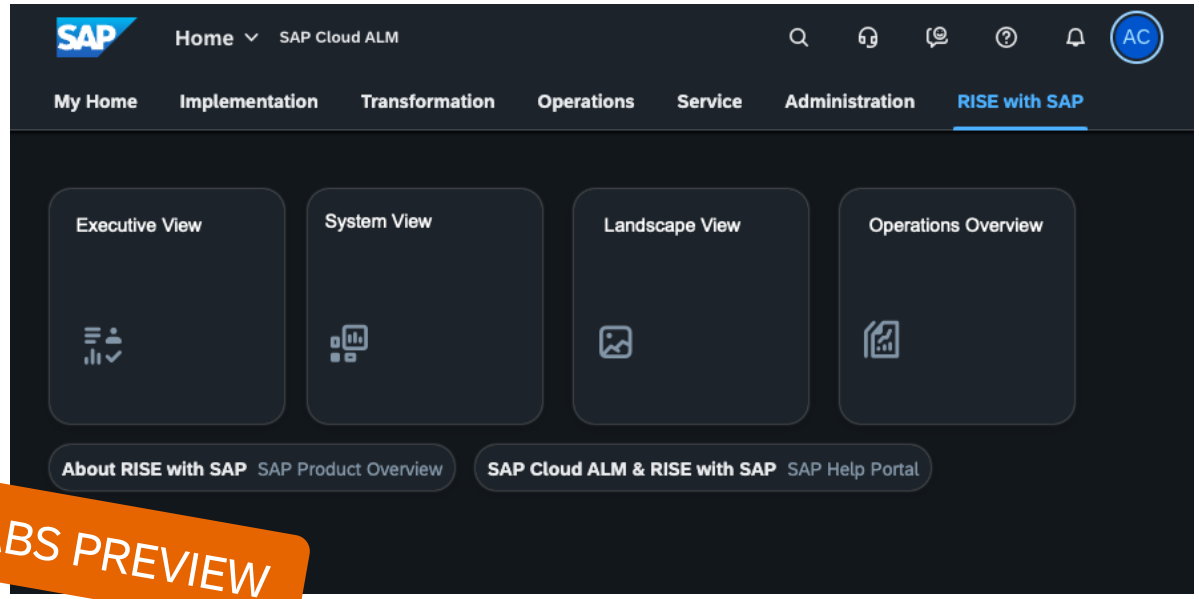
5 Operations

- **Holistic and secure application and business process operations**
- **Integration in IT-SM processes**
- Automated regression testing
- Release Management
- SAP Readiness Check for SAP S/4HANA upgrades

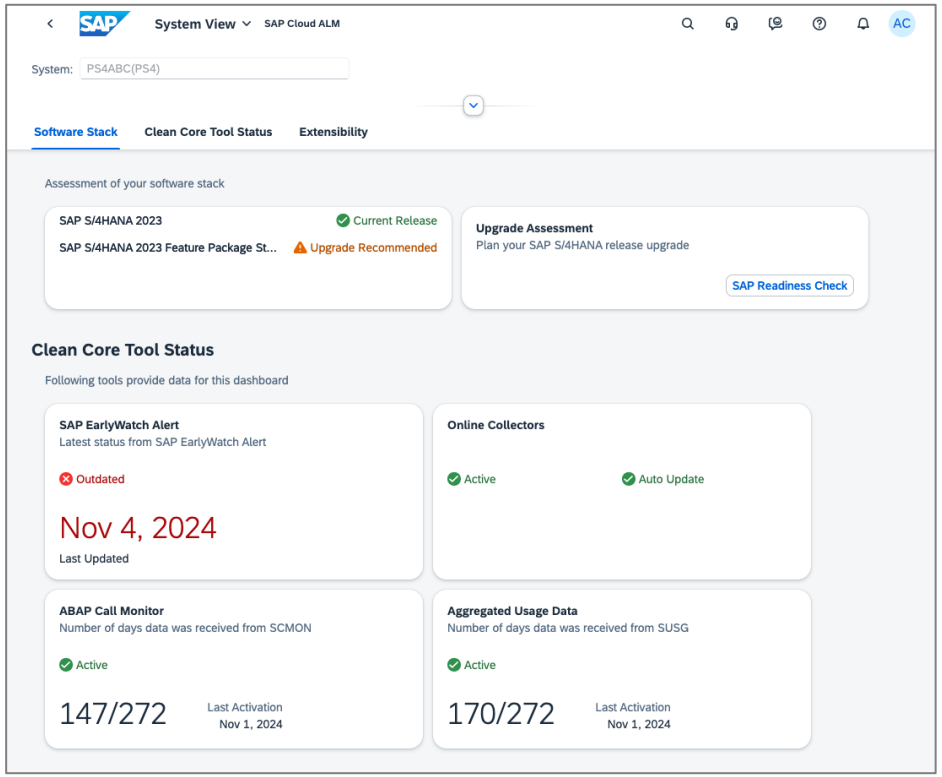
This is the current state of planning and may be changed by SAP at any time.

Outlook: RISE with SAP Dashboards

RISE with SAP Methodology Dashboards



System View



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SAP Cloud ALM supporting Clean Core

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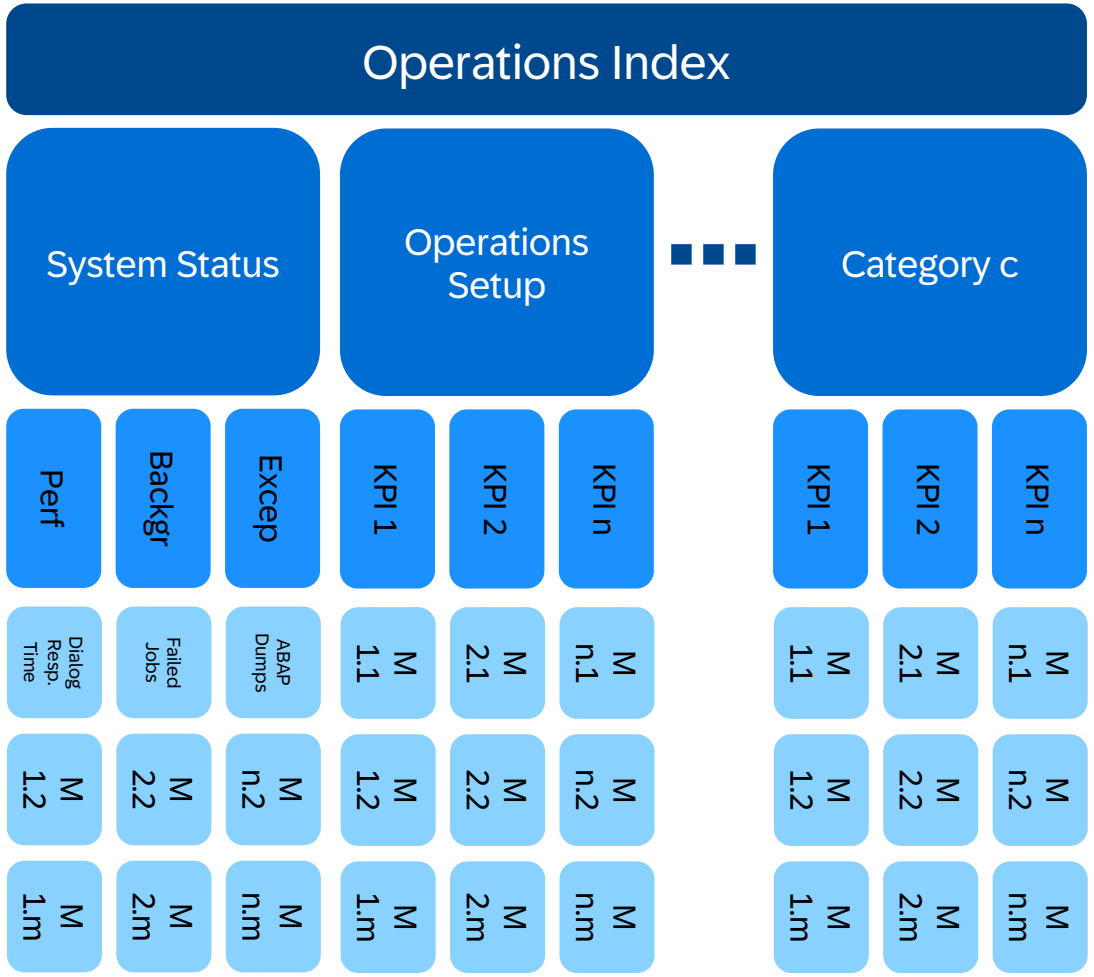


Index

Category Score

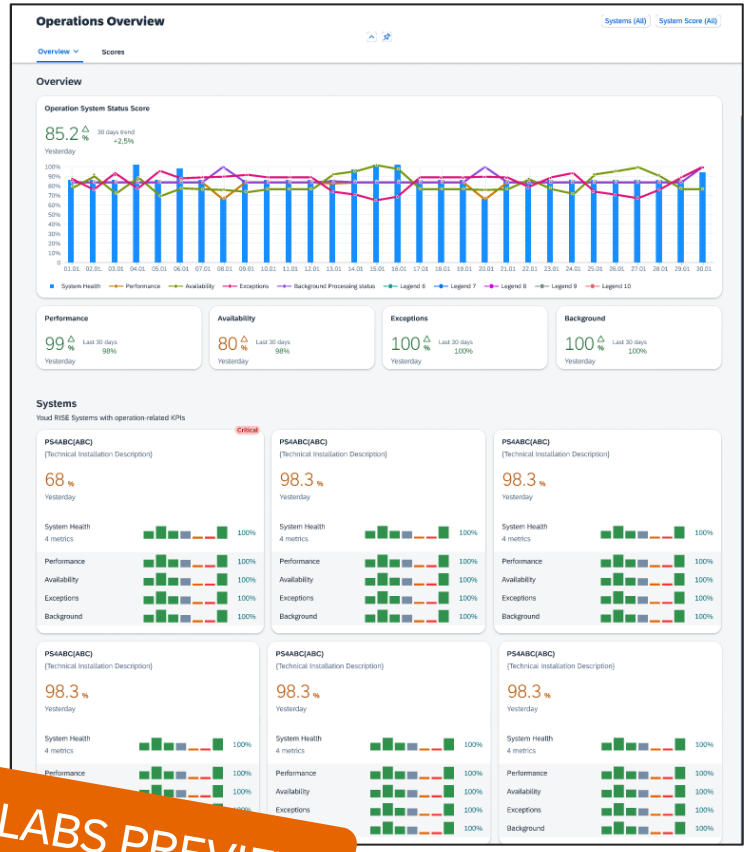
KPI Objectives

Metrics

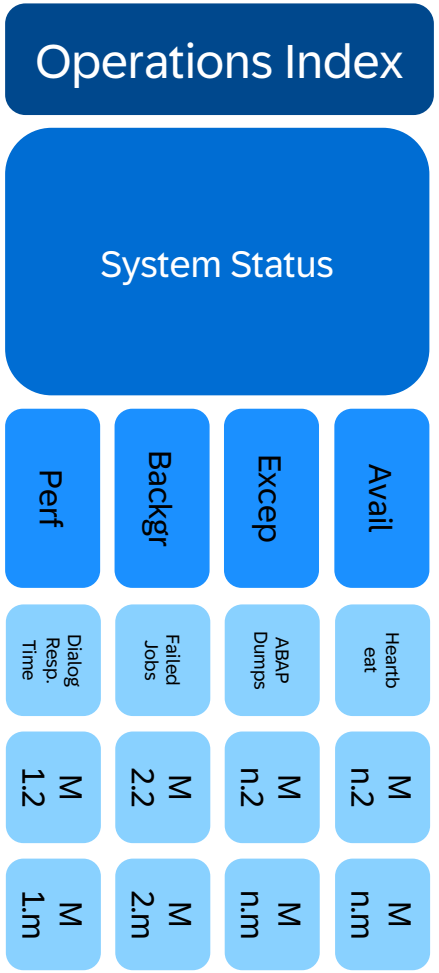
This is the current state of planning and may be changed by SAP at any time.

SAP Cloud ALM supporting Clean Core

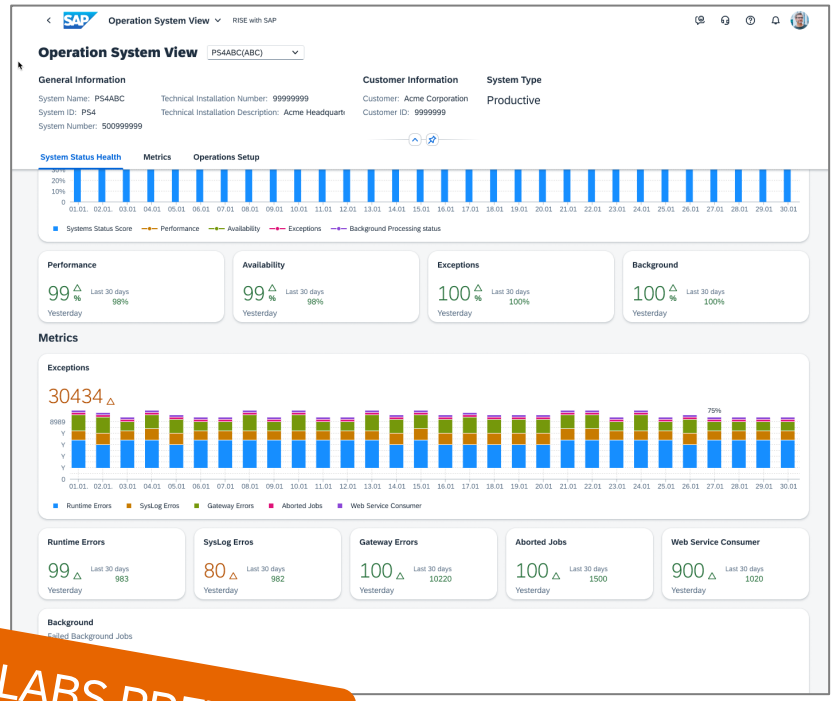
Operations Overview



LABS PREVIEW



System Details Overview



LABS PREVIEW

Further Information & Q&A

SAP Cloud ALM – Content Roadmap for SAP BTP

	Currently available		Planned	
Integration Monitoring	SAP IS - Cloud Integration SAP Master Data Integration SAP Event Broker SAP Task Center Service	SAP Master Data Governance Cloud edition SAP Mobile Services SAP Data Intelligence	SAP IS - Edge Integration Cell SAP IS - SAP Event Mesh SAP IS - Advanced Event Mesh SAP IS - API Management	SAP Build Process Automation
Exception Monitoring	SAP Analytics Cloud SAP IS - Cloud Integration SAP BTP, ABAP, NEO - PaaS	SAP BTP, CF & Kyma - PaaS Integration with SAP Cloud Logging	SAP Workzone Service SAP BTP Audit Log	
Real User Monitoring	SAP BTP, ABAP - PaaS SAP BTP, NEO - PaaS SAP BTP, CF & Kyma - PaaS	Integration with SAP Cloud Logging SAP Build Workzone Service	SAP Analytics Cloud	SAP Build Apps SAP Build Code
Job & Automation Monitoring	SAP BTP, ABAP - PaaS SAP BTP, CF & Kyma - PaaS SAP BTP, Identity Provisioning	SAP Build Process Automation SAP Intelligent Robotic Process Automation	SAP DataSphere SAP Analytics Cloud	Deeper integration with SAP Job Scheduling Service
Configuration & Security Analysis	SAP BTP, Credential Store SAP BTP, Identity Authentic. SAP BTP, Identity Provisioning	SAP BTP, Mobile Service SAP BTP, Destination Service	SAP BTP, Custom Domain Service SAP HANA Cloud SAP DataSphere	
Health Monitoring	SAP BTP, ABAP, NEO - PaaS SAP BTP, CF & Kyma - PaaS SAP Build Process Automation (Jobs) SAP Cloud Connector	SAP Datasphere SAP Intelligent RPA SAP IS - CI & APIM SAP HANA Cloud & BTP Neo DB Integration with SAP Cloud Logging	SAP IS - Edge Integration Cell SAP IS - Event Mesh SAP IS - Advanced Event Mesh	Platform metrics for CF/Kyma SAP Analytics Cloud

[Expert Portal for SAP Cloud ALM]

I need **more** capabilities in SAP Cloud ALM.

SAP Continuous Influence for SAP Cloud ALM

Customers/partners submit requests → Community ranks via voting → SAP reviews and develops

[Implementation]

[Operations]

[Service]

Mastering Day 2 Operations in SAP BTP

- *Feb-25:* SAP Cloud ALM for SAP BTP

- *Mar-11:* Terraform provider for SAP BTP – Real world setup scenario
- *Mar-20:* Survive brownfield Terraform projects with Terraform Exporter for SAP BTP

- *Mar-27:* Observe your SAP BTP apps at depth via SAP Cloud Logging

- *Apr-03:* SAP BTP Ops Automation with SAP Cloud ALM
- *Apr-10:* Exploring SAP Automation Pilot: Kickstart your ops automation
- *Apr-15:* Enhanced remediation actions for your SAP HANA Cloud with SAP Automation Pilot
- *Apr-23:* Inspiring technical ops automations with SAP Automation Pilot

- *Jun-12:* SAP BTP HA/DR: Overview and Roadmap

- *Jun-17:* Best practices to enable Identify and Access Management
- *Jun-26:* Secure configuration for your SAP BTP services: An overview of SAP Security Recommendations

Additional Information

SAP Cloud ALM for Operations Home Page:
https://support.sap.com/en/alm/sap-cloud-alm/operations.html

SAP Cloud ALM for Operations Expert Portal:
https://support.sap.com/en/alm/sap-cloud-alm/operations/expert-portal.html

SAP Cloud ALM Online Help:
https://help.sap.com/docs/cloud-alm

SAP Cloud ALM for Operations Online Training:
Operating with SAP Cloud ALM

Latest Slide Deck
Operations for SAP BTP with SAP Cloud ALM (PDF)

Discover Center – Mission
Implement Observability in a Full-Stack CAP Application Following SAP BTP Developer's Guide

SAP BTP Developer Guidelines
https://github.com/SAP-samples/btp-developer-guide-cap/tree/main/documentation/observability

CAP SFLIGHT App
https://github.com/SAP-samples/cap-sflight

Public

Thank you.

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