SAP Cloud ALM for SAP BTP Operations

Webcast series



SAP BTP DevOps and Observability in Action

Welcome to our Webcast series!

Unlock the potential of DevOps on SAP BTP with SAP Cloud ALM	Overview lecture	April-23, 2024
SAP Cloud ALM for SAP BTP Operations	Overview lecture	April-24, 2024
Logging and Alerting with SAP Cloud ALM for your apps on SAP BTP	Deep dive lecture	May-14, 2024
Get a Demo on the Unified Alerting and Logging Approach on SAP BTP	Demo session	May-15, 2024
Reduce your operation efforts with SAP Cloud ALM, SAP Automation Pilot and the Terraform Provider for SAP BTP	Deep dive lecture	May-21, 2024
Get a Demo on How to Automate Technical Operation Tasks for Running your Application on SAP BTP	Demo session	May-22, 2024
Deliver Content on SAP BTP	Deep dive lecture	May-28 2024
Get a Demo on How to Combine CI/CD with Transports for Speedy and Controlled Delivery	Demo session	May-29, 2024

Link to series: <u>SAP BTP DevOps and Observability in Action</u>



SAP BTP DevOps and Observability in Action

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Agenda

SAP Cloud ALM - Overview

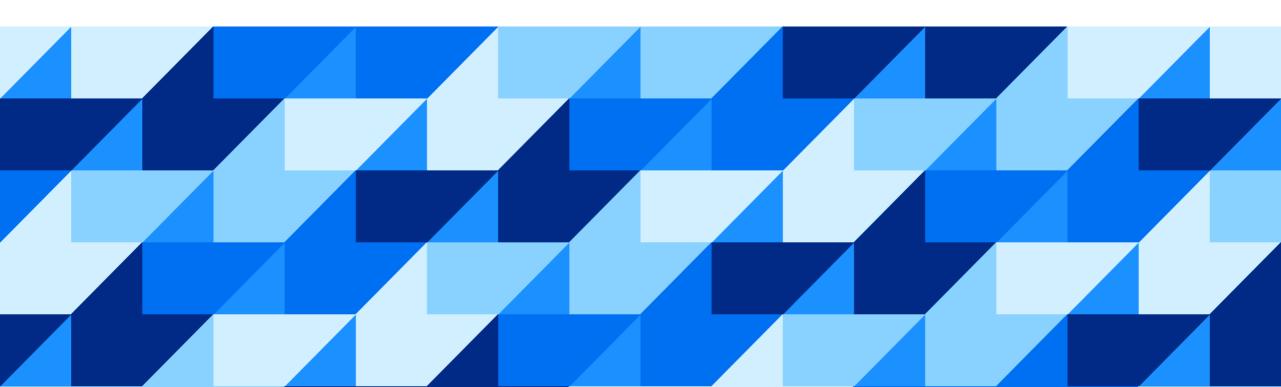
OpenTelemetry @ SAP

SAP Cloud ALM - Support for SAP BTP

SAP Cloud ALM - Roadmap for SAP BTP

Q&A

SAP Cloud ALM Overview



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





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 Build Process Automation

SAP Analytics Cloud



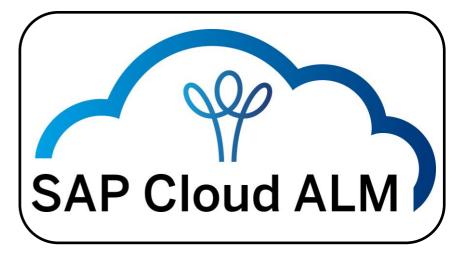




SAP Cloud ALM for Operations – Value Proposition

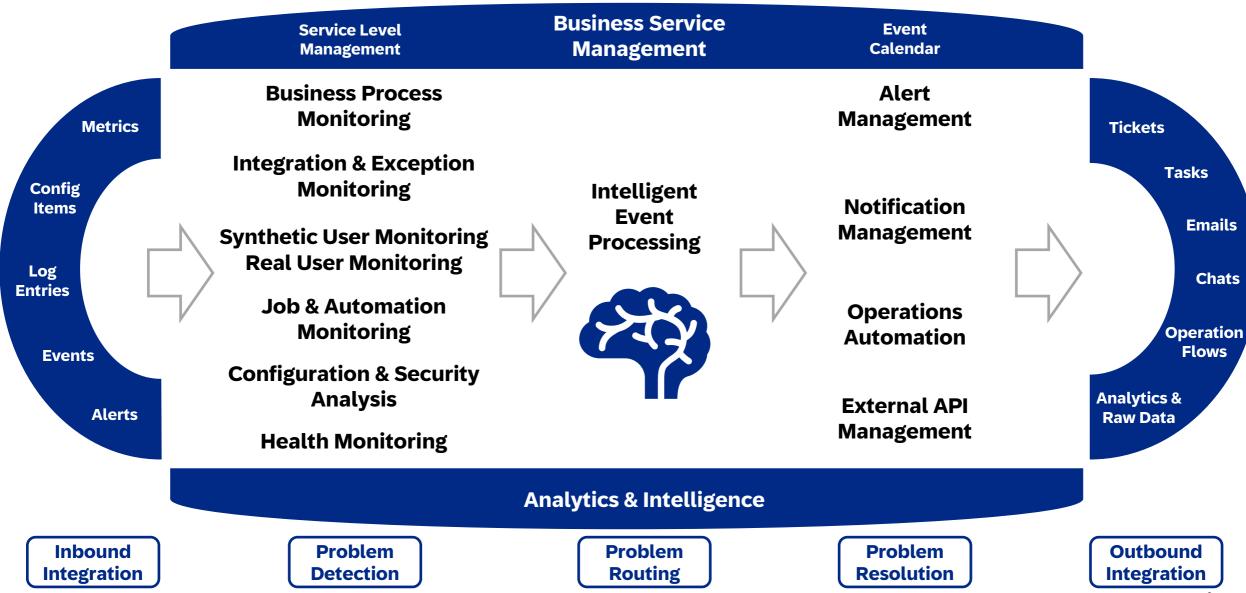
Ensures business continuity – Keeps the lights on – Increases operations efficiency – Predicts critical situations – Provides status events for business services – Reduces TCO

- SAP Cloud ALM empowers customers to understand the health of their SAP business solutions:
 - Provides full stack monitoring covering processes, integrations, users, jobs & tasks, and the health of services and systems
 - Delivers embedded alerting for problem resolution as well as embedded analytics for root cause analysis
 - Acts as collaboration platform between LOB and IT



- SAP Cloud ALM introduces intelligent event processing as central routing infrastructure to enable event correlation and intelligent alerting
- SAP Cloud ALM integrates analytics and intelligence functionality context sensitively
- SAP Cloud ALM enables operations automation by integrating several automation engines
- SAP Cloud ALM provides **transparency regarding the health of business process** including event calendar and service level management

SAP Cloud ALM for Operations – Functional Overview



SAP Cloud ALM for Operations – Some Highlights

Around 114 million

business process

KPI's calculated per

month

Around 3 million alerts created per month

Around 3 million
API calls executed
per month

Around 2 billion interface calls, events and messages monitored per month

Around 330 million user activities monitored per month

Around 2.000 live customers in operations

Around 100 million jobs and tasks monitored per month

Around 350 thousand exceptions collected per month

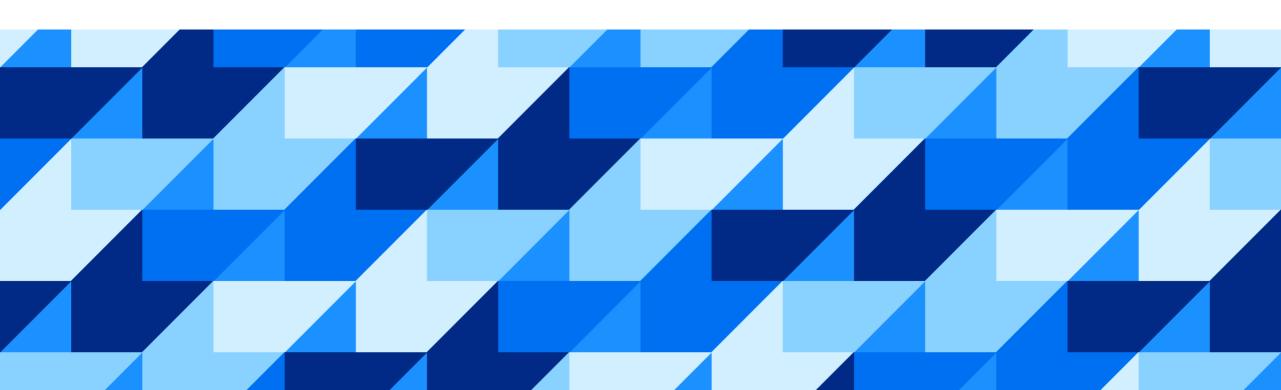
Around 25 million event actions processed per month

Around 3 billion health monitoring metrics collected per month

Around 750 thousands services and systems registered in landscape management

Around 600 thousand notifications sent per month

OpenTelemetry @ SAP



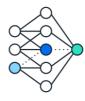
OpenTelemetry – What is it?

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.



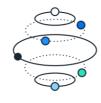
Consistency:

 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 – Goals for Customers, Partners and SAP

Minimize instrumentation efforts for Customers, Partners and SAP

- Use **standard OpenTelemetry**, whenever possible → Extend standard OpenTelemetry, if necessary
- Use **auto-instrumentation**, whenever possible → Use source code instrumentation, if necessary
- Support all use cases as standardized as possible e.g. unified connectivity handling
- Enable correlation by hybrid approach of SAP Passport and OpenTelemetry (W3C context)

Minimize connectivity setup efforts for Customers and Partners

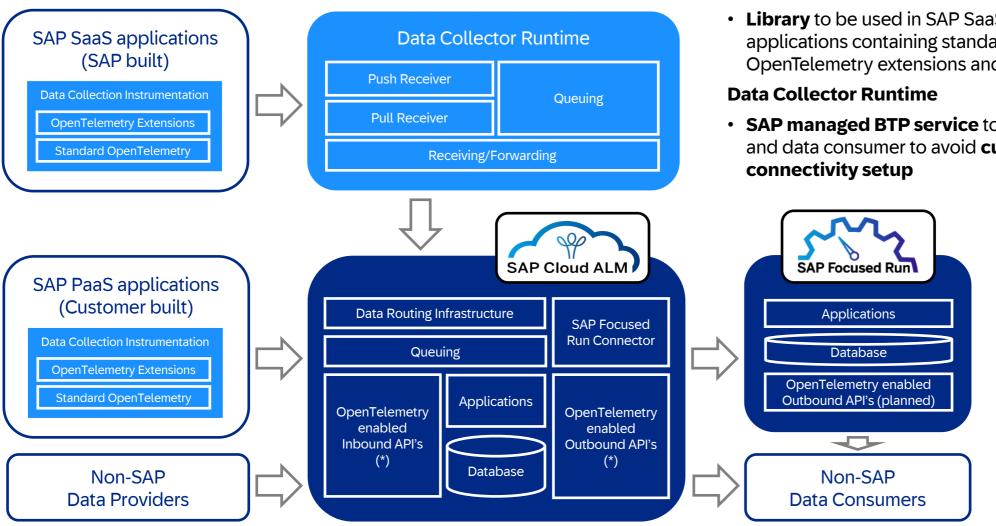
- Replace customer managed connectivity (tenant-to-tenant) with SAP managed connectivity (application-to-application) → No connectivity setup effort for customer and partners for SAP SaaS services
- Introduce unified data collector runtime for push based and pull based data collection

Enable integration for non-SAP Data Providers and non-SAP Data Consumers

- Retrieve data from non-SAP data providers via OpenTelemetry enabled inbound API's
- Expose data to non-SAP data consumers via OpenTelemetry enabled outbound API's

Forward data to SAP Focused Run

OpenTelemetry @ SAP – Customer Facing Observability



Data Collection Instrumentation

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

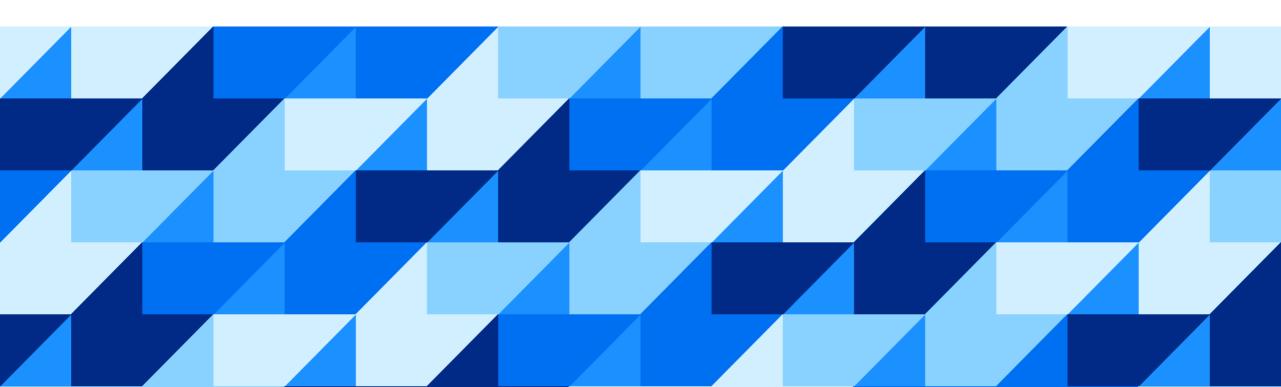
 SAP managed BTP service to decouple data provider and data consumer to avoid customer managed

- 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

OpenTelemetry @ SAP - Planned Support for OpenTelemetry Signals

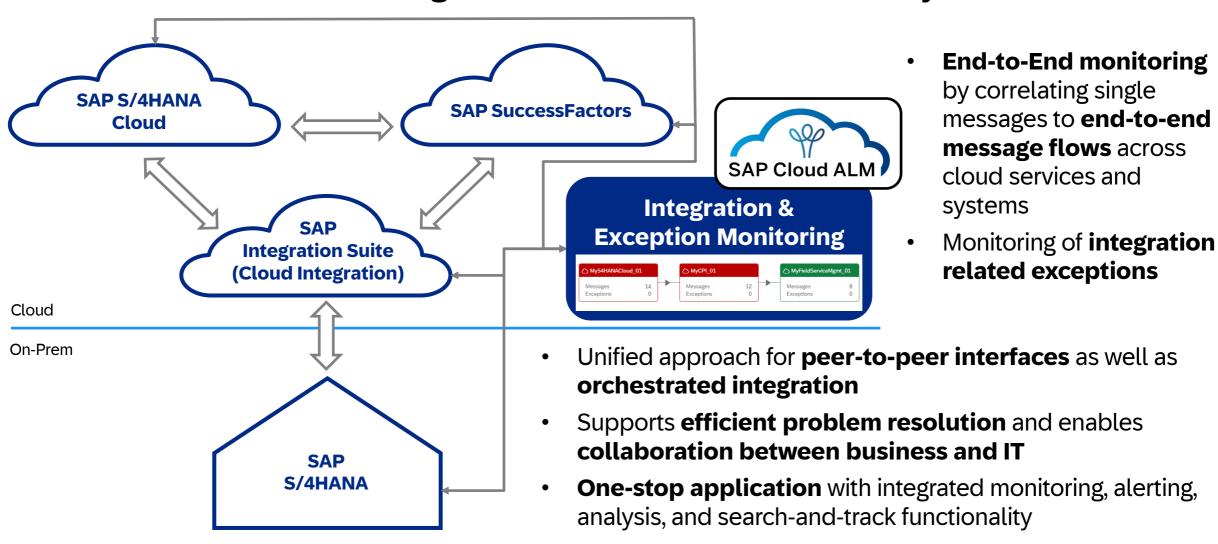
	Analytics	OTeL N	Metrics	OTeL	Logs	OTeL 1	Traces
Use Case	Outbound	Outbound	Inbound	Outbound	Inbound	Outbound	Inbound
Business Process Monitoring	2023	N/A	N/A	N/A	2024	N/A	N/A
Integration Monitoring	2023	2023	N/A	2024	2024	N/A	N/A
Exception Monitoring	2023	2023	N/A	2023	2023	N/A	N/A
Real User Monitoring	2023	2023	N/A	N/A	N/A	2023	2024
Synthetic User Monitoring	2023	2023	N/A	N/A	N/A	N/A	2024
Job & Automation Monitoring	2023	2023	N/A	2024	2024	N/A	N/A
Configuration & Security Analysis	2023	N/A	N/A	N/A	N/A	N/A	N/A
Health Monitoring	2023	2023	2023	N/A	N/A	N/A	N/A
Business Service Management	2024	2023	N/A	2024	N/A	N/A	N/A
Intelligent Event Processing	2023	2024	N/A	N/A	N/A	N/A	N/A

SAP Cloud ALM Support for SAP BTP



Integration & Exception Monitoring

Ensure Reliable Data Exchange between Cloud Services and Systems



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

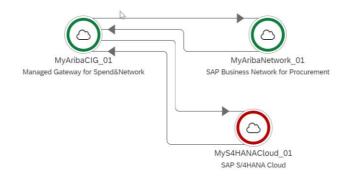
SAP Event Broker for SAP cloud applications

- Monitoring of events processed via SAP Event Broker
- Find more details <u>here</u>



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



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 <u>here</u>



SAP BTP, Neo environment (custom built applications)

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

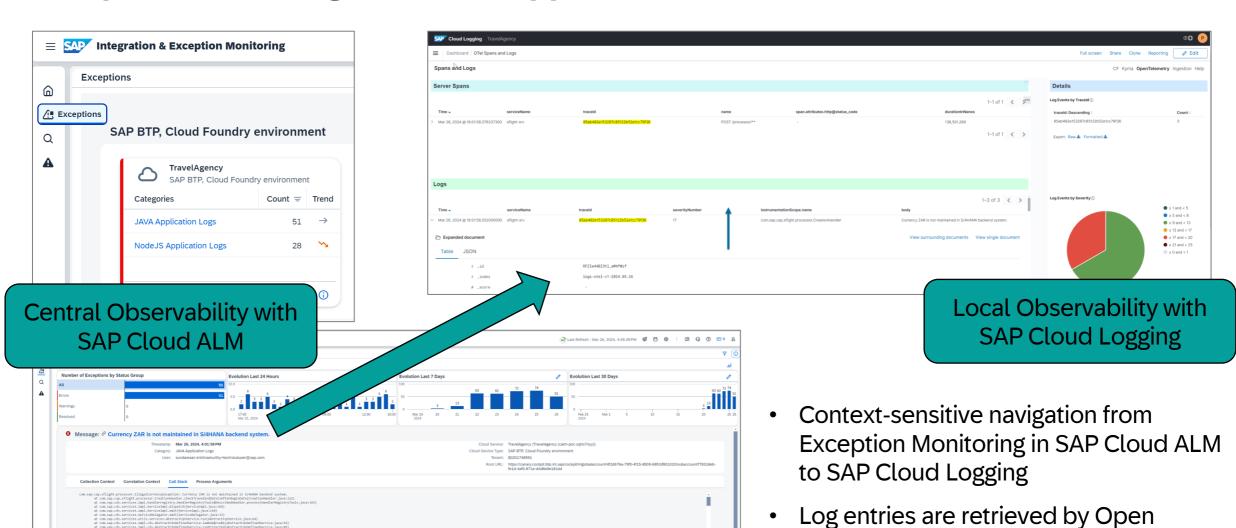
SAP BTP, CF / Kyma env. (custom built applications)

- Monitoring of exceptions in custom built java 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



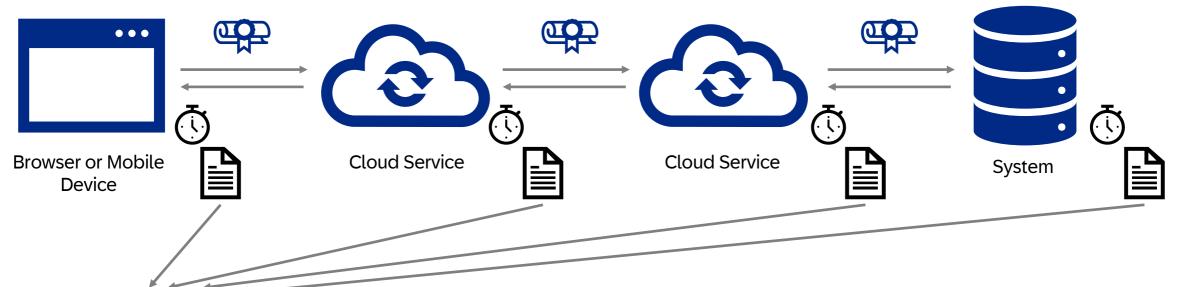
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Telemetry based on auto instrumentation

and forwarded to both tools

Real User Monitoring

Allow to Understand Performance and Utilization from End User Perspective







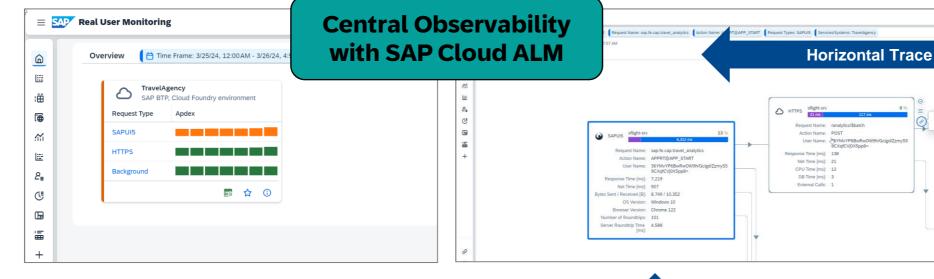
- Provides transparency regarding performance and errors as experienced by end users as well as utilization of business functionality
- Measurement at frontend and server side to identify actual root cause of performance and functional problems
- Allows to correlate monitoring data measured at frontend,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

Lab Preview

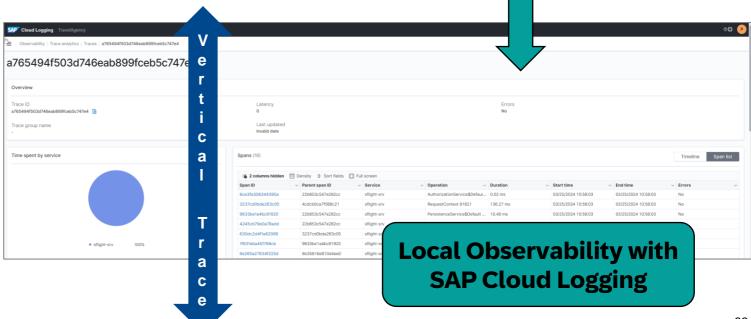
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Real User Monitoring for custom applications built on SAP BTP



- 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

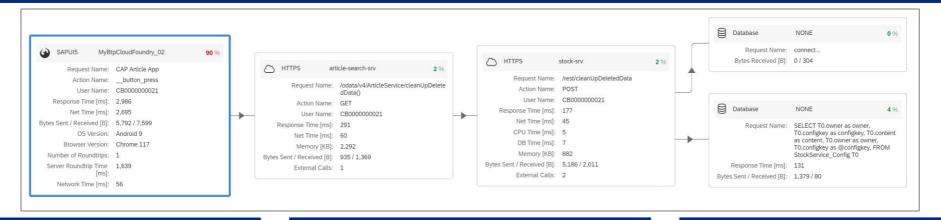


Real User Monitoring for SAP BTP



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 <u>here</u>

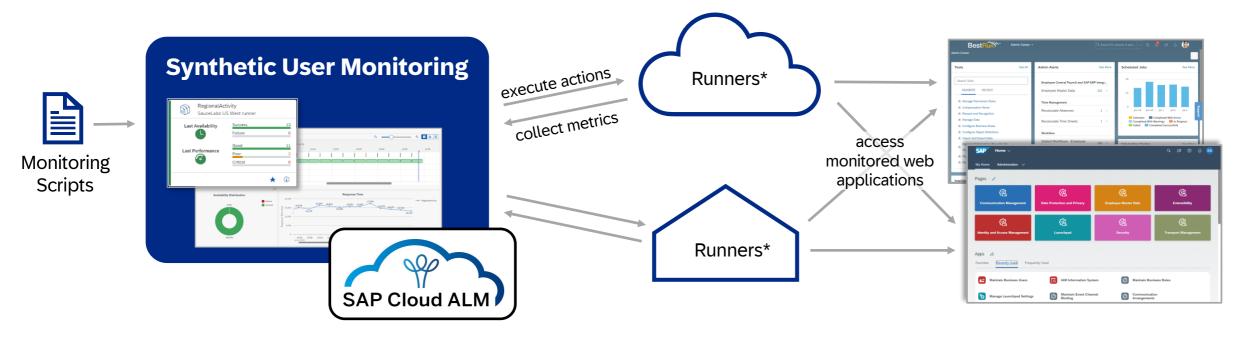
SAP BTP, CF / Kyma env. (custom built applications)

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

SAP BTP, ABAP environment (custom built applications)

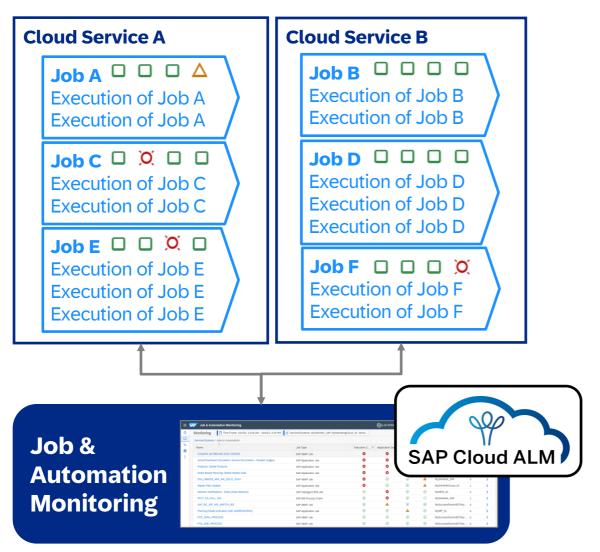
- Monitoring of user experience in custom built ABAP applications
- Find more details <u>here</u>

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

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

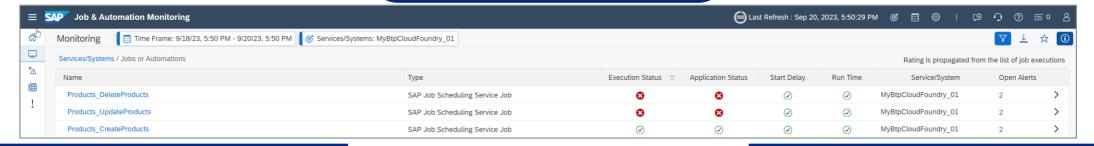


Job & Automation Monitoring

Unified monitoring of jobs and automation tasks

SAP Build Process Automation

- Monitoring of jobs scheduled in SAP Build Process Automation
- Find more details <u>here</u>



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

- Monitoring of jobs scheduled with SAP Job Scheduling Service
- Find more details <u>here</u>

SAP BTP, ABAP environment (custom built applications)

- Monitoring of application jobs used in custom built ABAP applications
- Find more details <u>here</u>

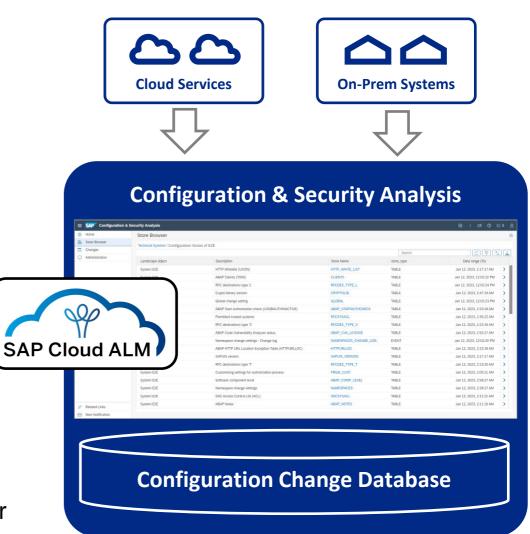
Configuration & Security Analysis Validate Configuration Items and Software Levels Automatically and Regularly

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

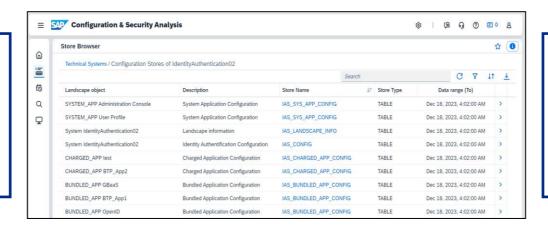


Configuration & Security Analysis

- 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

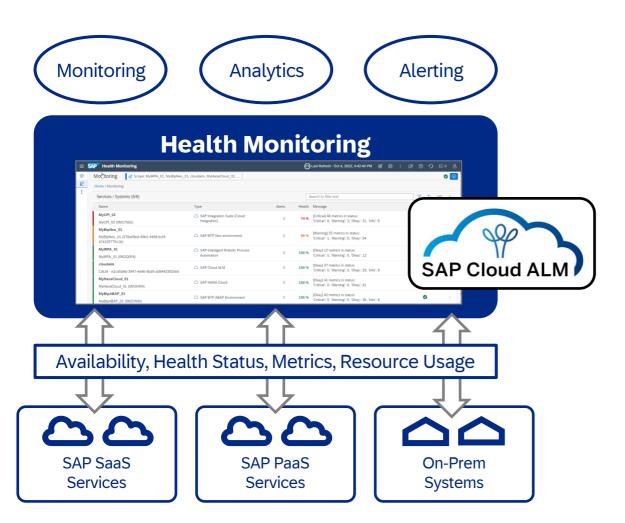
- Monitoring of security relevant configuration items including recommendations from SAP
- Find more details here

Destination Service

- Monitoring of security relevant configuration items including recommendations from SAP
- Find more details <u>here</u>

Health Monitoring

Check Application Health of Cloud Services and Systems

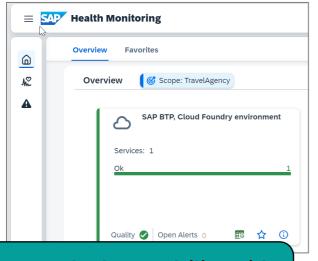


- Monitoring of technical metrics and events for cloud services and systems:
 - By executing application health checks for SAP SaaS services
 - By delivering technical metrics and events for customer applications built at SAP Business
 Technology Platform (SAP PaaS Services)
 - By providing metrics for light-weight system monitoring for SAP ABAP based systems
- Provides embedded alerting including the capability to trigger notifications and corrective actions
- Allows embedded analytics to analyze trends and root causes for discovered problems

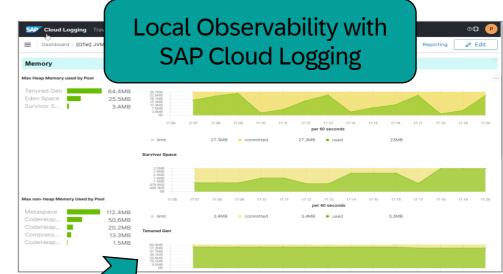
Lab Preview

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Health Monitoring for custom applications built on SAP BTP

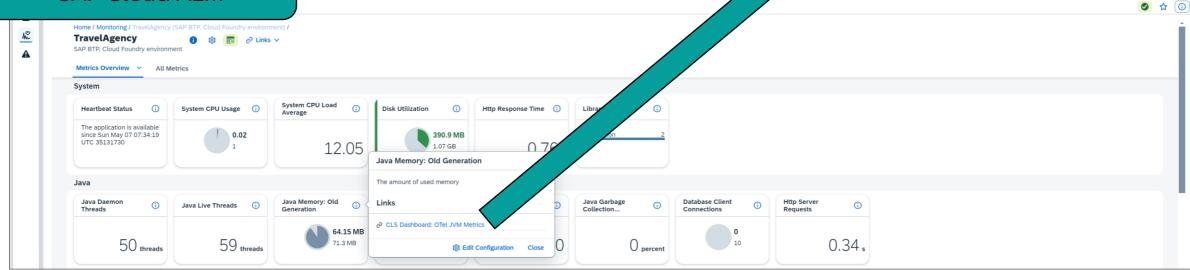


- Context-sensitive navigation from Health Monitoring in SAP Cloud ALM to SAP Cloud Logging
- Metrics are retrieved by Open Telemetry based on auto instrumentation and forwarded to both tools



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Health Monitoring for SAP BTP

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 BTP, Neo environment (custom built applications)

Monitoring of technical KPI's in custom built java applications



Health Monitoring

Monitoring of technical KPI's for BTP SaaS and PaaS



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

Monitoring of technical KPI's in <u>custom</u> <u>built java and node.js applications</u> (OTEL)

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

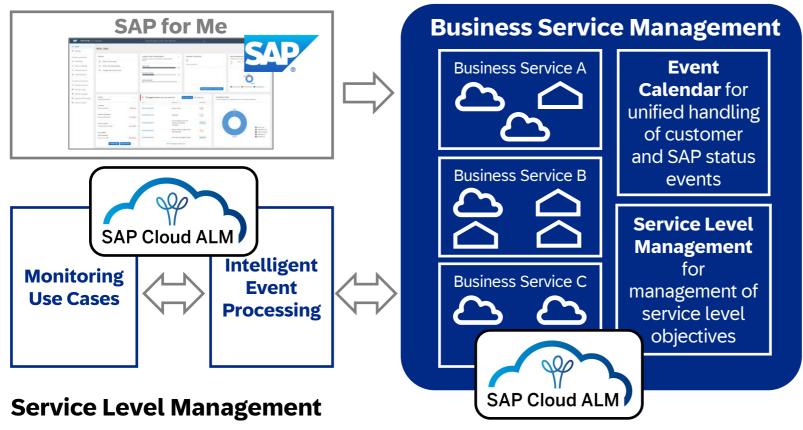
Monitoring of technical KPI's for SAP Cloud ALM

SAP BTP, ABAP environment (custom built applications)

Monitoring of technical KPI's in custom built ABAP applications

Business Service Management

Expose IT Related Information to be Understood by Business Users



- 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

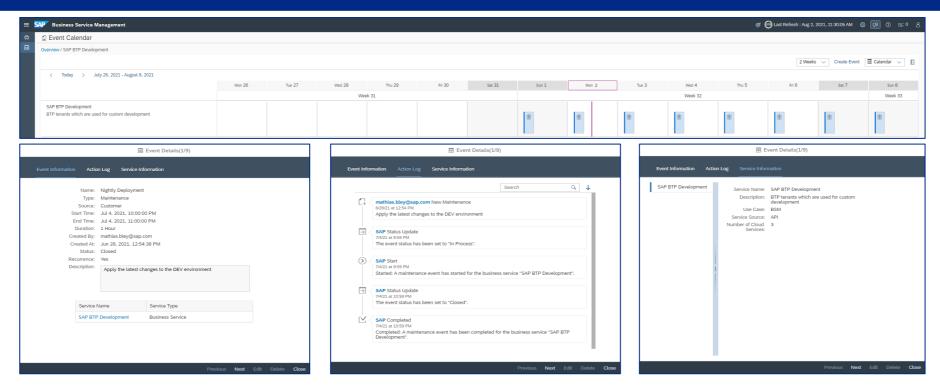
- Business service as collection of services and systems
- Import of SAP initiated status (maintenance, disruptions, degradation, communication events) including outbound API
- Maintenance and execution of customer initiated status
- Forwarding of status events
 from Business Service
 Management towards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

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Business Service Management for SAP BTP

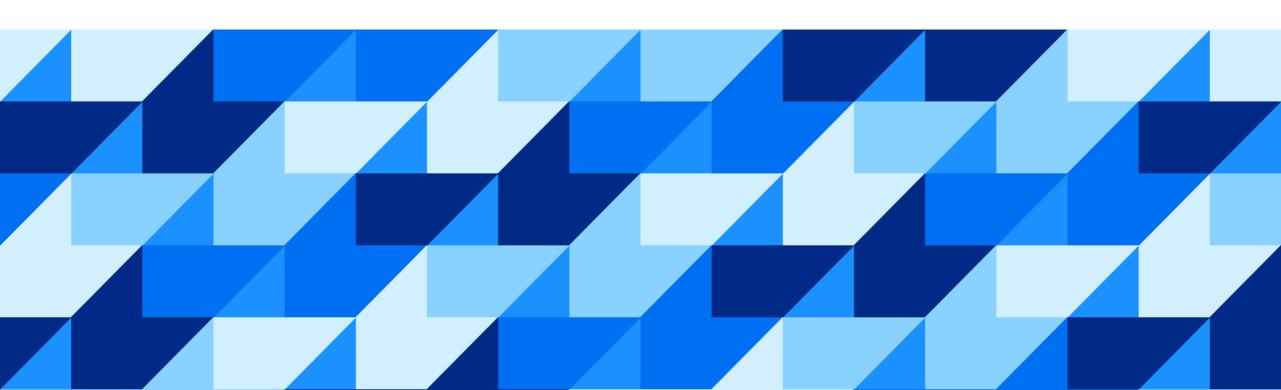
Business Service Management

- 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.

SAP Cloud ALM Roadmap for SAP BTP



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 Master Data Governance Cloud edition SAP Mobile Services SAP Data Intelligence	SAP IS - Edge Integration Cell Enhancements for SAP Event B SAP IS - SAP Event Mesh and S. SAP Task Center Service		
Exception Monitoring	SAP Analytics Cloud SAP IS - Cloud Integration SAP BTP, ABAP, NEO - PaaS	SAP BTP, CF & Kyma - PaaS (java) Integration with SAP Cloud Logging (java)	SAP BTP, CF / Kyma - PaaS (node.js) Integration with SAP Cloud Logging (node.js) SAP Workzone Service		
Real User Monitoring	SAP BTP, ABAP - PaaS SAP BTP, NEO - PaaS SAP BTP, CF & Kyma - PaaS (j	ava & node.js)	SAP Analytics Cloud SAP Workzone Service Integration with SAP Cloud Logging (java & node.js)		
Job & Automation Monitoring	SAP BTP, ABAP - PaaS SAP BTP, CF & Kyma - PaaS (java & node.js) SAP Intelligent RPA SAP Build PA (Jobs)		SAP Build PA (Processes) SAP Data Privacy Management	SAP DataSphere SAP Analytics Cloud	
Configuration & Security Analysis	Credential Store Identity Authentication	Mobile Service Destination Service	Custom Domain Service Identity Provisioning SAP HANA Cloud	SAP Task Center Service SAP IS - Cloud Integration	
Health Monitoring	SAP BTP, ABAP, NEO - PaaS SAP BTP, CF & Kyma - PaaS (java & node.js) SAP Build PA (Jobs) SAP Cloud Connector	SAP Intelligent RPA SAP IS — CI & APIM SAP HANA Cloud & BTP Neo DB Integration with SAP Cloud Logging (java & node.js)	SAP IS - Edge Integration Cell SAP Event Broker Platform metrics for CF and Kyr Expert Portal fo	SAP DataSphere SAP Analytics Cloud ma or SAP Cloud ALM 35	



I need more capabilities in SAP Cloud ALM. 66

SAP Continuous Influence for SAP Cloud ALM.

Customers/partners submit requests

Community ranks via voting reviews and develops

Available for you!



Operations





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Whole Webcast series:

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Thank you.

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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

