Technical Operations Overview

SAP Active Global Support
2011
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Agenda

Overview
Technical Monitoring and Alerting
Root Cause Analysis
Technical Administration
Technical Analytics
Data Volume Management
Change Diagnostic
Summary
Orchestrated Accelerated Innovation

- Cloud
- New DB technologies (ASE; SAP HANA)

Accelerated Innovation

Orchestration

Run SAP Like A Factory

Integratation Validation

Application Lifecycle Management

- Integrated Mobile Solutions
- Next Generation Business Intelligence & Applications

Custom engineered & powered by SAP Solution Manager

- Business Continuity
- Total Cost of Operations
- Quality

- Single source of truth
- Total Cost of Development
- Protection of Investment
Orchestrate Your Solution with SAP Solution Manager

Run SAP like a Factory

Application Lifecycle Management

Integration Validation

Maintenance Optimization & Security

Solution Documentation & Implementation

Change, Test & Release Management

Single Source of Truth

Portfolio & Project Management

Business Process Operations

Incident, Problem & Request Management
Scope of technical operations

**Business Process Operations**
- Solutions
  - Business Processes
  - Business Process Steps

**Application Operations**
- End-Users & Technical Scenarios
- Products & Product Instances
- Interfaces & Jobs
- Applications & Systems
- Databases & Operating Systems

**IT Infrastructure Operations**
- Physical & Virtual Hosts
- Printers
- Disks & Storage
- Network devices

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Process behind technical operations

Monitor

Proactive real-time monitoring

Notify

Reactive handling of critical events

Analyze

Lower mean time to problem resolution

Optimize

Optimize excellence of technical operations

Report

Prove value to business
Capabilities of technical operations

Technical Monitoring and Alerting
One infrastructure for all monitoring and alerting covering SAP & non-SAP

Root-cause Analysis
Analyze issues in heterogeneous landscapes with one look-and-feel

Technical Administration
Optimize operation of your IT and application landscape

Technical Analytics
From technical reporting to management reporting, out-of-the-box and extendable

Change Diagnostic
Ensure that your landscape is configured compliant to your policy and references

Data Volume Management
Manage data growth and data reduction measures in your landscape
Technical Monitoring and Alerting
Advantages of new Monitoring and Alerting Infrastructure in SAP Solution Manager 7.1

- Prevent alert flooding by grouping metrics and alerts
- Landscape awareness
- Easier integration of new technologies
- Different alert consumers can be configured
- Central configuration which is automatically distributed
- Central administration and self-monitoring of infrastructure
- Mass configuration by using templates
- Integrated reporting capabilities
- Collaboration features
- Graphical overview of landscape status
Monitoring and Alerting Infrastructure - Evolution

Local
RZ20

Central
Central CCMS

End-to-End
Technical Monitoring & Alerting

BI
PI
System
Database
Host

ABAP
Java
.Net
C/C++

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Monitoring and Alerting Infrastructure - Runtime Architecture
### Technical Monitoring and Alerting Capabilities in Detail

#### Unified Alert Inbox
- Central access point for all alerts coming from the different monitoring scenarios
- Integration of Incident & Notification Management, Root Cause Analysis and collaboration features

#### System Monitoring
- Status overview for technical systems, instances, databases and hosts
- Drill down to single metrics and events, Jump in to metric reporting and landscape information

#### End User Experience Monitoring
- Measurement of availability and response times from an end user perspective
- Deep integration in E2E Trace Analysis for Root Cause Analysis

#### Process Integration Monitoring
- Central entry point for SAP Process Integration specific monitoring for complete PI domains
- Contains central monitors for PI components, PI channels and Message flows

#### Business Intelligence Monitoring
- Central monitoring for SAP Business Intelligence solutions based on SAP BW and BOE XI
- Monitoring of SAP Business Warehouse process chains and Business Objects specific jobs

#### Connection Monitoring
- Active Monitoring of RFC and HTTP connections between SAP Systems

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Integration of all scenarios in End-End Monitoring and Alerting Infrastructure
Unified Alert Inbox

- Central access point to handle all types of alerts
- Efficient alert handling based on consolidation of single alerts to alert groups
- Integration of most common alert handling mechanism as status tracking, incidents, notifications and 3rd party integration
- Drill down from alert type to alert groups, alert instances and single metrics and events
- Integration of analysis capabilities as problem context and monitoring applications
System Monitoring

- Provide status overview regarding technical system including instances, databases and hosts
- Allow to access landscape information and problem context for technical system
- Drill down from status information to single metrics and events provided by End-to-End Monitoring and Alerting
- Visualize metrics and events including thresholds and current rating / value
- Jump-in capability in metric viewer including zoom functionality in detail information
End User Experience Monitoring

- Automated execution of recorded end user scenarios
- Measurement of availability and response times from end user point of view
- Client performance data is correlated with server side performance data
- Direct access from monitoring to Root Cause Analysis (End-to-End Trace Analysis)
- Deep integration in End-to-End Monitoring and Alerting Infrastructure
- Support of Metric Reporting, SLA Reporting and Management Dashboards
End User Experience Monitoring

- Robots start end user scripts according to configuration
- Robots receive responses, conduct response time measurement and send results to SAP Solution Manager
- SAP Solution Manager receives results and collects corresponding server-side performance data
- SAP Solution Manager fills in measured data in Monitoring, Alerting and Reporting
Process Integration Monitoring

- Growing PI landscape complexity and distribution leads to growing requirements towards a central monitoring approach.
- Reduce the TCO by providing one central entry point combining monitors for PI overall status with drill-down options.
- Enable tight integration with:
  - System Monitoring and Alerting
  - Root Cause Analysis
  - Notification and Incident Management
- Relieve productive systems from individual monitoring activities by central collection of monitoring data.
- Reduce time for regular as system health checks and hand-over procedures as well as from incident detection to root cause analysis.
Business Intelligence Monitoring

- Central system status overview for all technical components involved in SAP Business Intelligence Solution
- Capability to monitor cross-system SAP Business Warehouse process chains and single process chain steps
- Central monitoring of Business Objects specific jobs and correlation to system specific metrics
- Central monitoring of SAP BW queries and templates
- Integration of Business Intelligence specific alerts in Alert Inbox including Notification Management, Incident Management, Task Assignment and forwarding to 3rd party
- Reduce the TCO by providing one central entry point combining monitors for overall status

BI Overview Monitor

System Monitor

BI Detail Monitors

SAP Business Warehouse Process Chains
Connection Monitoring

- Central status overview for connections between SAP systems based on pre-selected RFC destination definitions
- Support of peer-to-peer connections (two managed systems involved) and scenario specific connections (more than two managed systems involved)
- Access to SAP Incident Management and SAP Notification Management
- Complete integration in End-to-End Monitoring and Alerting Infrastructure
Root Cause Analysis
## Root Cause Analysis Capabilities in Detail

<table>
<thead>
<tr>
<th>Analysis Type</th>
<th>Description</th>
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<tbody>
<tr>
<td><strong>End-To-End Workload Analysis</strong></td>
<td>• General performance overview for heterogeneous solution landscape&lt;br&gt;• Review of most important KPI’s cross all technologies and drill down to product specific KPI’s</td>
</tr>
<tr>
<td><strong>End-To-End Change Analysis</strong></td>
<td>• Statistical change data cross all technologies based on daily configuration snapshots&lt;br&gt;• Compare configurations between systems and drill down to change reporting for change history</td>
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<tr>
<td><strong>End-To-End Exception Analysis</strong></td>
<td>• Statistical exception data cross all technologies for exception trend analysis or review exception&lt;br&gt;• Jump to component specific exception analysis (ST22, NWA,…)</td>
</tr>
<tr>
<td><strong>End-To-End Trace Analysis</strong></td>
<td>• Single user request tracing in a complex system landscapes&lt;br&gt;• Identify the problem causing component (performance and functional) and jump-in to detailed component specific trace analysis (SQL, ABAP, J2EE trace,…)</td>
</tr>
<tr>
<td><strong>System, Host &amp; Database Analysis</strong></td>
<td>• Central, safe and remote access to file system, OS and DB&lt;br&gt;• Links to read-only monitoring and administration tools like Wily Introscope for performance analysis and monitoring</td>
</tr>
</tbody>
</table>
New Features in Root Cause Analysis in SAP Solution Manager 7.1

- Integration with SolMan Administration WorkCenter
- Links to Documentation in Wiki & Homepage
- Integration of Self Check & Self Diagnosis
- Direct access to SolMan_Setup for configuration of managed systems

Flexible query based approach for selection of managed objects based on user preferences

Start Applications in a new window or embedded in work center window

Faster navigation by disabling direct start of heavy overview templates

Support for new system types and products, e.g.:
- SAP Business Objects Enterprise XI
- SAP Business Objects Data Services
- IBM WebSphere / Apache Tomcat
- and many more to come as Sybase products, Gateway and HANA
Example: End-to-End Trace for Mobile Applications

- **Record end user activities**
- **Collect trace data in Solution Manager**
- **Analyze in detail and find root-cause**
- **Understand request flow**
Technical Administration Capabilities in Detail

**IT Calendar**
- Calendar view displaying planned Work Modes for complete landscapes
- Day, week and monthly views

**Work Mode Management**
- Plan single or recurring work modes for systems, instances and databases
- Integration in Notification management
- Switch off alert generation during downtimes and support to execute system downtimes

**Notification Management**
- Create / maintain recipient lists centrally
- Maintain personalized notification settings

**Task Management**
- Execute centrally tasks created in various applications
- Create and assign new tasks

**Central Tool Access**
- Central access to administrative tools in managed systems
- Easy customization by End Users by adding new tools
- Central Access to basic administration functionality for SAP Netweaver MDM 7.1
Example: Work Mode Management and SAP IT Calendar

- Central planning of work modes for systems, instances, DBMS and scenarios
- Review planned and actual work modes in SAP IT Calendar
- Efficient downtime execution through automated sending of notifications and centralized execution
- Automatic suppression of alerts during planned downtimes
- Reporting capabilities to check planned vs. reality
- Reduce the TCO by providing one central entry point combining different tools
Technical Analytics
Different levels of analysis and reporting tools

**Demonstrate Value of IT**
- Does IT help the business to grow?
- Is the business using the IT solution?
- Is business continuity guaranteed?
- Is throughput as expected from a business side?

**Manage Operational Efficiency**
- Is IT on top of projects and operations?
- Budget, capacity and skill development on track?
- Are all my system up and running?

**Operation Control Center**
- **Business Process**
- **System Status**
- **End User Experience**
- **Business Alerts**
- **Technical Alerts**
- **Benchmarking**

**Dashboards**
- Selected auto refreshed status monitors
- **Auto-diagnosis** of core business process health and system landscape
- **Two Operation Experts** required per shift

**Work Centers**
- Exceptions are Auto-discovered; **Guided Procedures for Resolution of Exceptions**
- **Expert Tools** for root cause analysis and problem resolution
### Technical Analytics Capabilities in Detail

<table>
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<tr>
<th><strong>Technical Reporting</strong></th>
<th><strong>Management Reporting</strong></th>
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<tbody>
<tr>
<td>Document based Early Watch Alert (EWA)</td>
<td>Document Based Service Level Reporting (SLR)</td>
</tr>
<tr>
<td>- Predefined content for document based reports</td>
<td>- Predefined content could be individually tailored</td>
</tr>
<tr>
<td>Interactive Reporting (KPI Reporting)</td>
<td>Standard Dashboards</td>
</tr>
<tr>
<td>- Report content is predefined</td>
<td>- Content is pre-configured</td>
</tr>
<tr>
<td></td>
<td>- SAP developed dashboard applications</td>
</tr>
<tr>
<td>Customer specific Reporting</td>
<td>Customer specific Dashboards</td>
</tr>
<tr>
<td>- Report content and presentation mode is completely customizable</td>
<td>- Usage of dashboard framework</td>
</tr>
<tr>
<td></td>
<td>- Customer own developed dashboard applications</td>
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**Level of data aggregation and interpretation**

- Technical Reporting
- Management Reporting

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Example: Interactive Reporting

- Get an aggregated Overview of System, DBMS and Host behavior over time
- Visualize trends in various categories
- Real time monitoring of current compliance of agreed service levels
- Optimization of internal processes and setups of IT department (e.g. alert reporting, unused RFC destinations)
- Jump-in capability in RCA and metric viewer including zoom functionality in detail information
Example: Standard Dashboards

- Usage of common dashboard framework
- See several reports in one view
- Arrangement of reports and their content can easily be changed
- Several report instances can be created out of one single dashboard application
- Reporting applications are created with Xcelsius technology
- Dashboard framework is open for customer-owned developed applications
Data Volume Management
Data Volume Management Capabilities in Detail

**Data Allocation Statistics**
- Understanding the data consumption of SAP Landscapes rather than single systems
- Application related views on data distribution (application area, document types, archiving objects, …)

**Table Utilization Analysis**
- Identify unused data as potential for data reduction and tackle most heavily accessed objects on an early stage

**Timely Distribution of Records**
- Automated calculation of ‘Age Footprint’ of SAP Applications
- Identification of application areas and document types for reduction measures and detection of data quality issues

**Best Practice Document Generation**
- Guided creation of best practice documents for selected objects and understanding the business background
- Provides standardized data content analysis for technical blueprint

**Data Volume Management Efficiency Reporting**
- Visualization of business growth rate compared to technical landscape growth
- Basis for decision making and planning of follow up activities and display of landscape wide achievements of measures

**Calculation of Potential Savings**
- Simulation of saving potential for data deletion or archiving using SAP best practice values and revealing potential data volume management strategy gaps
Data Volume Management Work Center
Dashboards

DVM KPI Dashboard
(Is my DVM process running well?)
- High level management / project lead dashboard
- Introducing DVM KPI (derived from SUGEN)
- Provides simple view on ‘Quality’ of DVM

Business Volume <-> Technical Growth
(Is my technical growth in sync with business growth?)
- Provides insights into the business volume and related landscape growth
- Enables the identification of mis-matches and planning of follow-up actions
Data Volume Management Work Center
Dashboards

Data Allocation Analysis (Who consumes what?)
- Showing space consumption for landscapes with different views (System, Application Area, Archiving Object, Document Type, Table…)
- Historical view on data size/growth analysis
- Identifying areas of high disc space allocation

Age of Record Determination (How old is my data?)
- Provides insights into the age structure of a landscape/systems
- Valuable input for starting deeper analysis on saving potential
Data Volume Management Work Center
Dashboards

**Table Call Statistics**
(Which tables are accessed?)

- Identify tables with highest DB activity as input for DVM analysis
- Display big tables which have never been accessed (potential for deletion)

**Saving Potential Analysis**
(Which data to archive?)

- Simulation of Archiving / Deletion Potential
- Access to best practice residence times recommended by SAP
Change Diagnostic
Change Diagnostic in Detail

Configuration Reporting
- Periodical collection of snapshots regarding technical parameter and software changes in Configuration Change Database (CCDB)
- Interactive browsing of Configuration Change Database to identify change events which could be root-cause of issues, compare different snapshots or understand the change history

End-to-End Change Analysis
- Provide cross-system view regarding parameter and software changes
- Store changes in a aggregated way based on grouping of configuration items
- Allows data mining covering a huge group of change events

Target System Maintenance
- Define the configuration Items which are going to be validated as compliant or non-compliant
- Use Operators to defines the rule used for validation for a configuration Item
- Provides input from online recommendations and system recommendations to create a target system

Validation and Reporting
- Consistency validation reporting based on templates delivered with SAP Solution Manager
- Configuration validation reporting using operators
Change Analysis

Change Analysis tracks changes as technical configuration, code and content which are applied to the managed systems.

This information is especially useful, if a few ad-hoc changes result in a disruption of a productive system. It is possible to compare different systems and provide appropriate reporting.
Configuration Validation

Based on a real system a target system can be created which allows to edit manually configuration items and/or values.

Comparison Systems

Real System as Reference System

System PRD

base line for validation

Target System as Reference System

System PRD (VIRTUAL)

base line for validation

System 1
System 2
System 3
System N

System 1
System 2
System 3
System N

System 1
System 2
System 3
System N

System 1
System 2
System 3
System N
Summary
Summary

Technical Operations in SAP Solution Manager

- Represents **all capabilities for central monitoring, alerting, analysis and administration** of SAP and non-SAP solutions
- Includes capabilities to **manage data growth**, archiving needs and **establish configuration baselines** for complex landscapes
- Allows customers to **reduce TCO by predefined content and centralized management** tools for all aspects of operations in SAP Solution Manager
- Provides **integrated analytics** out-of-the-box or individually adaptable by customers
Further Information

Technical Operations Wiki in SDN:

- White Papers for all Technical Operations Capabilities
- Detailed functional descriptions
- Configuration Information
- How-To’s
- Troubleshooting
- Contacts
- ...

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Thank You !!!