SAP's End User Experience Monitoring

SAP Active Global Support
March 2011
Agenda

Agenda Item/Divider Headline
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End User Experience Monitoring

Motivation

- 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
1. Robots start end-user scripts according to configuration
2. Robots receive responses from managed systems, conduct response time measurement and send results to SAP Solution Manager
3. SAP Solution Manager receives results and collects corresponding server-side performance data based on SAP Passport technology
4. SAP Solution Manager fills in measured data in Alerting and Reporting
Integration with E2E Trace Analysis

SAP Passport

*Transaction ID*:  
- Identifies a single request  
- is always forwarded through the landscape

*Trace Flags*:  
- Tells system what activities are to be logged
Phased Approach

Design

• Recording, editing and testing of scripts
• Distribution of scripts
• Configuration of scripts and robots

Monitoring

• Customizable thresholds and views
• Real Time Monitoring including traffic lights
• Fast access to historical data
• Drilldown and full integration with E2E trace analysis

Alerting

• Configuration of thresholds and alert consumers
• Fast access to alerts via Unified Alert Inbox
• Automatic alert handling via incidents and notifications

Reporting

• Aggregation of EEM data in SAP Business Warehouse
• Fast access to statistical data on aggregated level including drill down
• Integration of data in Management Dashboards
EEM Script Recorder

- Configuration of scripts and robots
- Script recorder allows recording of end-user activities based on HTTP/HTTPS or SAPGUI communication
- With script editor several parts of end user script are generalized and customized as handling of authentication, content checks, ....
- Script editor supports testing of end-user scripts before deployment to robots
EEM Script Data Model

Data Model

EEM Script
- BusinessTransaction: 1..1
- Message: 1..1
  - Input Parameters: 0..*
  - Response Checks: 0..*

HTTP Script
- BusinessTransaction: 1..1
- Click: 1..1
  - HTTP Roundtrip: 1..1
    - POST data: 0..*
    - Content Checks: 0..*

SAPGUI Script
- BusinessTransaction: 1..1
- Dialog Step: 1..1
- GUI Roundtrip: 1..1
  - Input Fields: 0..*
  - Check UI Element Property: 0..*
Design Workflow

- **EEM Recorder**
  - Recording

- **EEM Editor**
  - Edit EEM script
  - Analyze Execution

- **EEM Repository**
  - Execute EEM script
  - Deployment and Administration
EEM Script Editor

- Display results of single execution of the script
- Actions relevant for one specific script
- Display warnings and errors including single message result and detailed error messages
- Editors to adapt single scripts to customers needs
- Actions globally available to handle projects and scripts
- Provide management functions for scripts and projects
- Display history of all script executions
Script Execution Configuration

- Configuration is possible in hierarchical scopes e.g. settings per script overwrite setting per robot.
- Compact configuration is possible e.g. at global level as well as very specific configuration e.g. at script on robot level.
- Dedicated authorization concept to allow separation of responsibilities for different configuration scopes.
- All configuration is done centrally and can be deployed from SAP Solution Manager to the single Robots with one click.
- Configuration tools are centralized in one UI including configuration of Scripts, Monitoring UI, Alerting and Reporting.
Phased Approach

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Realtime Monitoring – Overview

- Central access point to all necessary End-User Experience Monitoring data
- Overview UI to display in one view the current status of the landscape which is monitored by End-User Experience Monitoring
- Drill down via robot or script specific views and to freely configurable analysis views to End-to-End Trace Analysis
- Complete configurable UI meaning the end-user can specify which view is displayed in which tab
Realtime Monitoring – High adaptive UI layout
Realtime Monitoring – Configuration

- Filter function to create scenario specific tabs
- Limit the displayed data to the scope you are really interested
- Select the Monitoring views you need your analysis
- Define the tab to be private or public
- Monitoring view mapped to current tab
Realtime Monitoring – Status statistic

![Pie chart showing status statistic]

- Integrated drill down functionality
- [201] HNI_PA20_REPORTING: 36
- [401] HNI_PA20_REPORTING: 41
- [201] EEM Selfcheck Script: 18
- [505] HNI_PA20_REPORTING: 3
- [501] HNI_PA20_REPORTING: 40

Last Updated at 02.09.2010 11:06:19 GMT+2
Realtime Monitoring – Robot/Script tiles

Free positioning of EEM Robot boxes

Freely selectable background
Realtime Monitoring – Overview Matrix

<table>
<thead>
<tr>
<th>Script / Robo</th>
<th>AMERICAS</th>
<th>APJ</th>
<th>EMEA</th>
</tr>
</thead>
<tbody>
<tr>
<td>EEM Selfservice Script</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HMI_4020_REPORTING</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

- **Available EEM Robots grouped by locations**
- **All deployed EEM Scripts**
- **Status icon for a given EEM Script / Robot combination**
Realtime Monitoring – Script/Robot History

![Screen capture of Realtime Monitoring interface showing Script History, Performance counter, and Availability counter.

- **Aggregated status pattern on time line for all locations**
- **Status pattern on timeline for a Robot/Script combination**

### Script History

<table>
<thead>
<tr>
<th>Name</th>
<th>Status</th>
<th>Performance</th>
<th>Availability</th>
</tr>
</thead>
<tbody>
<tr>
<td>E&amp;M Selfcheck Script</td>
<td>✓</td>
<td>16</td>
<td>0</td>
</tr>
<tr>
<td>HNI_PA20_REPORTING</td>
<td>!</td>
<td>10595</td>
<td>120019</td>
</tr>
<tr>
<td>techrobot02</td>
<td>✓</td>
<td>4955</td>
<td>6078</td>
</tr>
<tr>
<td>techrobot15</td>
<td>✓</td>
<td>4400</td>
<td>5806</td>
</tr>
<tr>
<td>techrobot19</td>
<td>✓</td>
<td>9740</td>
<td>14230</td>
</tr>
<tr>
<td>techrobot08</td>
<td>✓</td>
<td>5289</td>
<td>5555</td>
</tr>
<tr>
<td>TechRobot1</td>
<td>✓</td>
<td>4223</td>
<td>5551</td>
</tr>
<tr>
<td>techrobot06</td>
<td>✓</td>
<td>6275</td>
<td>6771</td>
</tr>
<tr>
<td>TechRobot7</td>
<td>✓</td>
<td>5188</td>
<td>6398</td>
</tr>
<tr>
<td>techrobot04</td>
<td>✓</td>
<td>3892</td>
<td>3832</td>
</tr>
<tr>
<td>TechRobot12</td>
<td>✓</td>
<td>3693</td>
<td>3934</td>
</tr>
<tr>
<td>techrobot06</td>
<td>✓</td>
<td>8538</td>
<td>10788</td>
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<tr>
<td>techrobot07</td>
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<td>3873</td>
<td>4195</td>
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<tr>
<td>TechRobot13</td>
<td>✓</td>
<td>6282</td>
<td>6755</td>
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<tr>
<td>techrobot09</td>
<td>✓</td>
<td>10178</td>
<td>12141</td>
</tr>
<tr>
<td>techrobot05</td>
<td>✓</td>
<td>5263</td>
<td>5922</td>
</tr>
</tbody>
</table>
Realtime Monitoring – Response Time

Values available mouse over or click

Step execution times can be included to view
Realtime Monitoring – Script Tree

- **Tree-hierarchy of EEM Scripts and corresponding EEM Robots**
- **Error indicating icon**
- **Aggregated execution time for selected EEM script execution**
- **Execution time for a single step**
- **Defined thresholds per step**
Realtime Monitoring – Tree Browser

- Active hierarchy categories
- Available hierarchy categories

User defined tree view for a category-orientated comparison of different script executions
Realtime Monitoring – Trace integration

- Run a script right now and record an E2E trace
- Run a script for a defined time period with different E2E trace settings
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Alerting - Overview

- Central access point to handle End-User Experience Monitoring 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 and single metrics and events
- Integration of analysis capabilities as problem context and monitoring applications
Alert Inbox – Alert type table

- Pre-defined POWL queries per category and managed object type
- Allows to confirm all alert groups belonging to one alert type and managed object
- Navigate to EE Monitoring, Landscape Browser and System Login
- Several personalization capabilities for content and look-and-feel
- Number of status changes per alert type and managed object
- Shows log of actions which were happen per alert type and managed object
- Allows to postpone certain alert type so that it disappears from alert inbox
- Configure and display problems context to identify root-cause of certain symptom
Alert Inbox – Alert group table

- Allows to confirm all selected alert groups belonging to one alert type and managed object
- Assign certain user, status and comment for further follow-up of the issue
- Show alert details for detailed analysis of certain symptom
- Create context sensitively an incident out of an alert group
- Create context sensitively a notification out of an alert group
Alert Inbox – Alert details

Confirm, Incident, and Notification as for alert group table

Navigate to System Monitoring, Landscape browser, System Login and Problem Context as for alert type table

Alert details including tracking status and assigned information

Alert texts as defined by SAP and/or by customers

Alert details including all assigned metrics and events

Metric and events details including single values, thresholds and texts
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Reporting - Overview

- Get an aggregated overview of scenario availability and performance behavior over time
- Visualize trends regarding availability and performance for scenario, script, robot and single step
- Optimization of internal processes and setups of IT department (e.g. identification of peek hours, bottlenecks in network throughput, …)
Reporting - Overview

Select Scenario(s)

Overview Report

Scenario Specific Report

Start Scenario Reporting

Report Categories

- Overview Report
- Scenario Specific Report
- Start Scenario Reporting
- Select Scenario(s)
Reporting – Metric Summary

### Availability
- **Scenario Availability**
- **Script Availability**
- **Robot Availability**
- **Step Availability**

### Performance
- **Scenario Performance**
- **Script Performance**
- **Robot Performance**
- **Step Performance**
Metric Reporting – Availability view

Selected Scenario

Graphical display of scenario availability over chosen time frame

Different availability criteria

Availability data displayed as values in table view
Metric Reporting – Performance view

- Selected Scenario
- Filter on monitoring threshold
- Performance evaluation per robot
Management Reporting – Overview

- See several SLA reports on one dashboard
- One view to check if your SLA’s are fulfilled for availability and performance on scenario, script, location or robot level
- Visualize tendency over time in various categories
- Real time monitoring of current compliance of agreed service levels
- Arrangement of reports and their content can easy be changed
- SLA thresholds can be adjusted interactively
Management Reporting - Overview Dashboard

**Switch into configuration mode**

**Refresh reported values**

**Independent SLA reports**

**Zoom in on click**
Management Reporting - Configuration Mode

- Copy a report and add it to the dashboard
- Edit the report content and adjust the SLA thresholds
- Insert or swap reports by drag and drop
Management Reporting - Change configuration

Set report title

Adjust SLA thresholds interactively

Report preview with current settings

List of available scripts

List of selected scripts

Add or remove reporting relevant data sets
Thank You!