Customer Use Cases: Proactive Monitoring for PowerCenter Operations and Development Governance

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Implementing ITIL and Best Practices @ ISU
Illinois State University

- Best Practices and Goals of Illinois State University (ISU)
- Informatica PowerCenter with Proactive Monitoring (Rule Point Server)
- Role of Rule Point Server & Role of RTAM (Real Time Alert Management)
- Alert DM and Dashboards
- Advanced Rules and Next Steps
About Illinois State University

Founded in 1857

Ranked in the top 100 public universities by Kiplinger’s Personal Finance magazine for quality and value

85.1% freshman - to - sophomore retention rate

21,080 Students
3,551 University Employees

International student body from 59 different countries
Informatica Environment @ ISU

Informatica PowerCenter 9.1

Informatica PowerExchange 9.1.0

PowerCenter Proactive Monitoring
Best Practices in Focus @ ISU

- Code practices
  - Naming conventions
  - Code change comments
  - Hard coding of database links etc.
- ITIL alignment
  - SLA agreement monitoring
  - Job completion monitoring
  - Priority ALERTS
- Map performance and tuning
  - Workflow monitoring data mart
  - Custom dashboards
Processes in ITIL Prospective
Information Technology Infrastructure Library

- Service Design
  - SLAs
  - Availability Management
- Service Transition
  - Change Management
  - Release and Deployment
- Service Operation
  - Event Management
  - Incident Management
- Continual Service Improvement
  - Monitor SLAs
  - ALERT Data Marts
  - Performance Matrix
Diverse Needs and Challenges

- Implementing code standards is the underlying challenge
- Monitoring SLAs is essential to improve stakeholder trust
- Mission critical processes need to be monitored every second
Overall Goals

- SLA Monitoring
- Production Map
- Server Status
- Coding Standards
- Checkout Activity
- Alerts Data Mart
To the Rescue: Proactive Monitoring tool to Achieve Our Goals

- **Set the rules**
  - Set up rules
  - Set up priorities

- **Monitor ALERTS**
  - Customize filters based on the user
  - Capture ALERTs in ALERTs DM

- **Actions**
  - Act on the ALERTs
  - Adjust rules based on facts
Rule Point Server @ ISU

- Installed on a standalone server
- Activated several of the rules delivered with software
- Customized default rules
- Created new templates
- Created a DM to capture ALERTS
Creating Rules Aligned with Goals

Customized an existing template to create this template.
Proactive Rules for Critical Projects

### Situation
Possibility of SLA Violation & SLM Lead wants to be proactive not reactive

### Problem
Lack of ALERT prioritization and notification method.

### Solution
Added a similar rule that alerts every time a workflow reaches a certain threshold time window prior to SLA violation. Promotes proactive practices.

#### SLA Rule for Sakai Project

**Rule 1:** SLA Wf completion time 10:30 PM  
Priority: 5

**Rule 2:** SLA Wf Completion time preparing if completion time is between 10:10 PM and 10:29 PM  
Priority: 4
Custom Alerts with RTAM
Real-Time Alert Manager

- Assign different ALERT priorities based DEV or PROD environment
- Change priority by using “Set Priority”
  - Does not change the underlying rule only the priority based on the rule
- Customize look and feel
Added ISU Value: Alerts Data Mart

Informatica Folder
- Folder Identifier
- Folder Name
- Folder Description

Informatica Workflows
- Workflow Identifier
- WF Name

Time Dimension
- Calendar Date
- Calendar Year
- Quarter

Alert Fact
- Alert Identifier (FK)
- Environment Identifier (FK)
- Folder Identifier (FK)
- Workflow Identifier (FK)
- Calendar Date (FK)

Alert Dimension
- Alert Identifier
- Alert Name

Environment Dimension
- Environment Identifier
- ENV Name
- ENV Description

SLA RULES
- Alert Identifier (FK)
- Environment Identifier (FK)
- PRIORITY

Accumulating Snapshot Fact

Work in Progress
# Alert Data Collection Sample

<table>
<thead>
<tr>
<th>ALERT_DATE</th>
<th>ALERT_PRIORITY</th>
<th>ALERT_COUNT</th>
<th>ALERT_NAME</th>
<th>OBJECT_NAME</th>
<th>APPLICATION</th>
<th>ENVIROMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/6/12</td>
<td>2</td>
<td>3</td>
<td>Map saved without Comments</td>
<td>m_JCPETER_PLAY</td>
<td>HR - Staff</td>
<td>Development</td>
</tr>
<tr>
<td>3/7/12</td>
<td>2</td>
<td>14</td>
<td>Map saved without Comments</td>
<td>m_TCATALOG_DESCRIPTION</td>
<td>SAKAI Project</td>
<td>Development</td>
</tr>
<tr>
<td>3/7/12</td>
<td>5</td>
<td>1</td>
<td>Informatica Server Not Responding</td>
<td>SERVER ERROR</td>
<td>INFA</td>
<td>Development</td>
</tr>
<tr>
<td>3/6/12</td>
<td>2</td>
<td>4</td>
<td>Map saved without Comments</td>
<td>m_TCATALOG_DESCRIPTION</td>
<td>SAKAI Project</td>
<td>Development</td>
</tr>
<tr>
<td>3/6/12</td>
<td>2</td>
<td>2</td>
<td>Missed Schedule</td>
<td>wf_STARTER</td>
<td>HR - Staff</td>
<td>Development</td>
</tr>
<tr>
<td>3/5/12</td>
<td>4</td>
<td>2</td>
<td>Invalid Map</td>
<td>m_SEARCH_CATALOG</td>
<td>SAKAI Project</td>
<td>Development</td>
</tr>
<tr>
<td>3/5/12</td>
<td>5</td>
<td>1</td>
<td>Ran Successfully but loaded zero rows</td>
<td>wf_SEARCH_SECTION</td>
<td>SAKAI Project</td>
<td>Development</td>
</tr>
<tr>
<td>3/5/12</td>
<td>2</td>
<td>2</td>
<td>Map saved without Comments</td>
<td>m_SEARCH_SECTION</td>
<td>SAKAI Project</td>
<td>Development</td>
</tr>
<tr>
<td>3/7/12</td>
<td>2</td>
<td>1</td>
<td>Map saved without Comments</td>
<td>m_DEPARTMENT_DB_TO_ORCL</td>
<td>HR - Staff</td>
<td>Development</td>
</tr>
<tr>
<td>3/5/12</td>
<td>3</td>
<td>1</td>
<td>Modified 3 times in 10 Min</td>
<td>m_search_catalog</td>
<td>SAKAI Project</td>
<td>Development</td>
</tr>
<tr>
<td>1/7/12</td>
<td>2</td>
<td>3</td>
<td>Map saved without Comments</td>
<td>m_PS_JOBS</td>
<td>HR - Staff</td>
<td>Development</td>
</tr>
<tr>
<td>12/12/11</td>
<td>2</td>
<td>14</td>
<td>Map saved without Comments</td>
<td>m_PS_NAMES</td>
<td>SAKAI Project</td>
<td>Development</td>
</tr>
<tr>
<td>2/2/12</td>
<td>2</td>
<td>4</td>
<td>Map saved without Comments</td>
<td>m_DEPT</td>
<td>SAKAI Project</td>
<td>Development</td>
</tr>
<tr>
<td>3/7/12</td>
<td>5</td>
<td>1</td>
<td>Informatica Server Not Responding</td>
<td>SERVER ERROR</td>
<td>INFA</td>
<td>Development</td>
</tr>
<tr>
<td>3/5/12</td>
<td>2</td>
<td>2</td>
<td>Map saved without Comments</td>
<td>m_search_catalog</td>
<td>SAKAI Project</td>
<td>Development</td>
</tr>
<tr>
<td>11/30/11</td>
<td>5</td>
<td>1</td>
<td>Map Modified</td>
<td>m_TCATALOG_DESCRIPTION</td>
<td>SAKAI Project</td>
<td>Production</td>
</tr>
<tr>
<td>1/18/12</td>
<td>5</td>
<td>1</td>
<td>Informatica Server Not Responding</td>
<td>SERVER ERROR</td>
<td>INFA</td>
<td>Production</td>
</tr>
<tr>
<td>2/12/12</td>
<td>5</td>
<td>1</td>
<td>Missed Schedule</td>
<td>wf_STARTER</td>
<td>HR - Staff</td>
<td>Production</td>
</tr>
<tr>
<td>3/7/12</td>
<td>5</td>
<td>1</td>
<td>SLA Completion Time Violated</td>
<td>wf_SAKAI</td>
<td>SAKAI Project</td>
<td>Production</td>
</tr>
</tbody>
</table>
Production Alert Dashboard
Development Alert Dashboard
## Results of Proactive Monitoring

**Everyone is a winner!**

<table>
<thead>
<tr>
<th><strong>Business</strong></th>
<th><strong>ETL Architect</strong></th>
<th><strong>Management</strong></th>
<th><strong>Final Result</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>SLA: 100% implemented</td>
<td>Reduction in code review time</td>
<td>Report SLA statistics to business</td>
<td>Provide excellent service to business users</td>
</tr>
<tr>
<td>All processes run on time</td>
<td>Implement naming standards</td>
<td>Measure effectiveness of ETL team</td>
<td>Implement Best Practices without additional cost</td>
</tr>
<tr>
<td>Increase trust in monitoring processes</td>
<td>Measure performance of workflows and execute performance tuning</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Negotiate SLAs with business based on facts</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Monitor and report the success of SLAs</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
What to watch out for...

- Too many rules
  - If you categorize them based on the Job role, the list might look manageable.
- Feeling of Micro-Managing
  - We try to observe and convey them in team meetings.
  - Have one on one if necessary
- Installation Challenges
  - We had few, but were quickly resolved by Informatica tech team. Most of them were related to our specific environment.
Next Steps . . . For ISU

• Develop rules based on SQL Triggers at database level

• Send ALERTS directly to other systems where Incident Tickets are created

• Develop new rules to ALERT on data quality

• Modify existing rules that monitor code standards to identify developer
  • Evaluate employee performance based on alert data
PowerCenter Environment’s Operational Proactive Monitoring @ NBC
NBCU Brands At a Glance
NBCU BI Landscape
NBCU PowerCenter Infrastructure

- 3 Node HP DL 380 G7 Quad Core, 146GB RAM
- RH Linux 5.3 64 bit OS
- Oracle 10g R2
- Enterprise Grid, PDO, HA
- NetApp NFS Shared File system
- Microsoft Active Directory Integration
- Control-M – Job Scheduler
- Teradata 5550
NBCU PowerCenter Usage Metrics

Rows Processed (In Millions)

<table>
<thead>
<tr>
<th>Day</th>
<th>Rows Processed (In Millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wed</td>
<td>6,689</td>
</tr>
<tr>
<td>Thu</td>
<td>7,022</td>
</tr>
<tr>
<td>Fri</td>
<td>6,185</td>
</tr>
<tr>
<td>Mon</td>
<td>6,617</td>
</tr>
<tr>
<td>Sat</td>
<td>4,423</td>
</tr>
<tr>
<td>Sun</td>
<td>4,696</td>
</tr>
<tr>
<td>Tue</td>
<td>7,002</td>
</tr>
<tr>
<td>Thu</td>
<td>6,931</td>
</tr>
<tr>
<td>Fri</td>
<td>6,185</td>
</tr>
</tbody>
</table>

# Sessions Run /Day

Typical Load on a Weekday
How PCPM fits into NBCU?

- Challenges with real time monitoring of Environment
- Reactive Response to Alerts
- Lots of manual effort spent in data collection and analysis of ETL performance
- ETL Governance Issues
- Improve Customer Satisfaction
NBCU’s Proactive Monitoring

- PowerCenter Service Monitors
- Monitor Business Critical ETLs
- Alerts for sudden change in data volume
- Alert Users well before potential SLA miss
- Metadata Rule Based ETL Design Review
- Improved Productivity
- Ecoview - NBCU Internal BI portal Integration (In Works)
Sample Alerts - Run Time

PowerCenter Proactive Monitoring Alert

PowerCenter Session DMM/wf_DELIVERY_SOURCE_DM_DUMP/s_DELIVERY_SOURCE_DM_DUMP ran successfully but loaded zero rows at 2012-03-23 08:51:46

For more information regarding the source of this alert, click here
Sample Alerts- Run Time

PowerCenter Proactive Monitoring Alert

For more information regarding the source of this alert, click here.
Sample Alerts - Real Time

PowerCenter Proactive Monitoring Alert

PowerCenter Workflow TVSDW/wf_web_bts_temp elapsed time 319 seconds exceeds the average (247) of the previous 3 runs by more than 25 percent.

For more information regarding the source of this alert, click here.

Sample Alerts - Real Time

PowerCenter Proactive Monitoring Alert

PowerCenter Workflow TVSDW/WF_DD_T686_SALES_SUM_METRICS running time 15.2 minutes exceeds the Repository SLA (10 minutes)

For more information regarding the source of this alert, click here.

Sample Alerts- Design

PowerCenter Proactive Monitoring Alert

PowerCenter Session CDW/s_m_ACCOUNT_HIERARCHY_DM saved without comments.
Session (Version 15) saved at 2012-03-22 07:46:42 by cdwbat
For more information regarding the source of this alert, click here
Sample Alerts - Design

PowerCenter Proactive Monitoring Alert

PowerCenter Mapping ECOVIEW/m_users_td_stg contains naming convention violation! The mapping name does not begin with the pattern m_{XX} where {XX} is a 2 char code between AA and ZZ.

Last change to Mapping (Version 17) at 2012-03-20 05:31:59 by ecoviewbat.

The associated Valid session (if any) is s_users_td_stg last saved at 05/17/2011 07:25:19

For more information regarding the source of this alert, click here.

Domain: INF_DOM_NBCU_DEV, Repository Service: REPO_SVC_WC_011, Sent to: apparchitect. Rule: PowerCenter Mapping name does not begin with m_{AZ} Advanced
Lessons Learnt

• Works best with Dedicated Infrastructure
• PowerCenter Repository Overhead Challenges
• Good for monitoring PowerCenter Env
• Increase Monitoring latency to 10 mins
• One installation per PowerCenter Repository
• Flexibility to add custom monitoring rules
Questions . . . at the End!
Thank You