Session 1309: Audit Thyself Using BusinessObjects 4.0

Alan Mayer – Solid Ground Technologies
Learning Points

• Understand the new auditing technology behind BusinessObjects 4.0
• Learn how to initialize and configure the auditing system to suit your purposes
• Discover the differences between Audit 4.0 and past versions
• **USE** Audit to create your own queries and reports
Agenda

- Introduction
- Architecture
- Configuring Audit
- Reporting
- Wrapping Up
Introduction – Alan Mayer

- Co-founded Integra Solutions in 1993
  - Used BusinessObjects since 1992 (Version 2.2)
  - Wrote the first BusinessObjects training manuals
  - Over 75 Fortune 1000 customers before company was sold in 2007
- Presented at every national conference since 1995
- Founded Solid Ground Technologies in 2009
  - Different company – same principles
  - Specialize in BusinessObjects consulting and training
Why Audit?

• Tracking past and current activities
  • Troubleshooting (The Sherlock Holmes Effect)
    • Who did it?
    • When?
    • What was the impact?
  • Liability
  • Measuring current activity
  • Tuning system based on that activity
    • Uneven usage will stick out

• Same information used for future trending
  • How many schedules, publications per week, month?
  • What’s the rate of increase?
The Nature of Audited Information

• Auditing requires both Detailed and Summarized information
  • Detailed information required for many troubleshooting situations
  • Summarized information required to measure activity over time
    • Number of schedules
    • Number of publications
    • Number of logins

• Urgency over time differ from most other BI applications
  • Aggregated information not checked every hour (or day or week)
  • Building dashboards on this information may not justify the frequency of requests
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Auditing depends on recording **Events**
- Logon
- Logout
- Refresh
- Send
- ...

Each event has **Details** associated with it
- **Refresh** details:
  - Size of object in bytes
  - Number of rows
  - SQL query used to refresh data
  - Universe used
  - ...

Architecture – Then and Now
Auditing Pieces

**Auditor**
The first CMS server to start in a cluster. If one machine, the only CMS available

**Auditee**
Other servers in the cluster. The CMS is the auditee for server-based events. Other servers play this role too.

**Audit Data Store (ADS):**
The Audit relational database that stores the collected audit information.

**Temporary Storage**
Directory where audit information is kept in flat files
Collecting Audit Data – The Big Picture

1. A BusinessObjects server performs an action that can be audited (event)
2. The auditee records this action in a temporary flat file
3. The auditor polls all auditees at specified intervals for events
4. Auditee sends the recorded events to the auditor
5. Auditor commits that information to the Audit Database (ADS)
6. Auditor tells auditee that event can be deleted from file
Case #1: Logging in

1. A user logs into BusinessObjects from the web or a standalone app
2. The CMS is contacted. It acts as the auditee since it handles authentication
3. The CMS as auditor polls itself and other audited servers for events
4. Events are streamed to the CMS as auditor
5. Auditor commits that information to the Audit Database (ADS)
6. Auditor tells itself that committed events can be deleted from file
Case #2: Doing Anything Else

1. Client gains permission via CMS then sends event info to auditee.
3. The CMS polls the proxy server for events.
4. Events are streamed to the CMS as auditor.
5. Auditor commits that information to the Audit Database (ADS).
6. Auditor tells proxy server that committed events can be deleted from file.
Fine-Tuning the Process

- In XI 3.1, many auditing metrics were adjustable
  - Done via command line arguments
  - Among the most commonly adjusted:
    - Polling time (interval to wait before asking for events)
    - Batch size (number of events to process per auditee per interval)
    - Number of events per file

- This has been eliminated in BI 4.0
  - Automatically configured and adjusted based on usage
  - Why?
    - Bad guesses could lead to events that never get recorded
    - Not enough to audit, too much time between polling …
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Initializing 4.0 Audit

- Use the Central Management Console after installation
  - Manage > Auditing
  - Save changes then restart SIA
- Audit can also be initialized during installation

**Oracle:**
Set this to the desired service name

**SQL Server:**
Use the ODBC Data Source Name
Selecting What to Audit in 4.0

- Much easier to configure than XI 3.1
  - CMC > Manage > Auditing
  - All settings are now centralized
Selecting Audit Details

- Selected details can be added for every event
  - Careful!
  - This will increase the amount of information stored
    - Query – Stores the SQL query for report refreshes
    - User Group Details – Group membership for audited user
    - ...

Viewing Audit Metrics

- Metrics can be viewed on the same CMC Audit Page

- Or at a server level

  Careful when disabling / stopping servers. Auditing Events in Queue should be 0
Agenda

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- **Reporting**
- Wrapping Up
The Audit 4.0 Universe

- Audit universe no longer installed with BusinessObjects
- You have to download the universe yourself
- A .UNX starter universe and sample reports is available from the SCN
  - http://scn.sap.com/docs/DOC-6175

- **WARNING!!**
  - Universe has been rewritten for a variety of databases but ...
  - Reports are written using Crystal Reports for Enterprise
The Audit 4.0 Database Schema
The Audit 4.0 Universe – Events

• Content is based on EVENTS
  • Recorded events are shown to the right
  • These are the same events that can be selected in the CMC Audit screen
• Events represent major actions
  • Actions caused by a user ...
  • A BusinessObjects process ...

The HIT Event
The Audit 4.0 Universe - Details

• Every event has **DETAILS**
  • Additional information about the event
  • Often represents crucial information

• Example: Refreshing a report (Event) records these details
  • Size of the report
  • Number of rows retrieved
  • Universe used
  • ...

Residue on Ball

Paint from Hat

Condition of Stitches
The Audit 4.0 Universe – Major Folders

Objects from these folders are commonly used in Audit queries.
Objects from these folders are used for specialized queries:
- Server balancing
- Audit troubleshooting
HINT:
Use the filters to create your own query conditions
Demo #1 – Explore (Refresh and Save)

- Create an Audit query that records user activity
  - Start simple at this point
  - Focus on logging in, refreshing, and saving
  - Show both summary and details

<table>
<thead>
<tr>
<th>Server Name</th>
<th>Event Type</th>
<th>Event StartTime</th>
<th>Duration</th>
<th>Object Name</th>
<th>Object Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>siaSG01.CentralManagementServer</td>
<td>Logon</td>
<td>9/10/2012 1:03:01 AM</td>
<td>0.02</td>
<td>Audit1</td>
<td>User</td>
</tr>
<tr>
<td>siaSG01.CentralManagementServer</td>
<td>Modify</td>
<td>9/10/2012 1:03:22 AM</td>
<td>0</td>
<td>~WebIntelligence</td>
<td>Folder</td>
</tr>
<tr>
<td>siaSG01.CentralManagementServer</td>
<td>Create</td>
<td>9/10/2012 1:03:23 AM</td>
<td>0</td>
<td>Formatting Sample</td>
<td>Web Intelligence</td>
</tr>
<tr>
<td>siaSG01.WebIntelligenceProcessingServer1</td>
<td>View</td>
<td>9/10/2012 1:03:23 AM</td>
<td>0</td>
<td>Audit1</td>
<td>User</td>
</tr>
<tr>
<td>siaSG01.CentralManagementServer</td>
<td>Modify</td>
<td>9/10/2012 1:03:28 AM</td>
<td>0</td>
<td>Formatting Sample</td>
<td>Web Intelligence</td>
</tr>
<tr>
<td>siaSG01.WebIntelligenceProcessingServer1</td>
<td>Refresh</td>
<td>9/10/2012 1:03:33 AM</td>
<td>0</td>
<td>Formatting Sample</td>
<td>Web Intelligence</td>
</tr>
</tbody>
</table>
Demo #2 – Schedules vs. Refreshes

• Find the number of schedules vs. ad-hoc requests
  • Event Type will tell the difference between the two
  • Use Refresh for ad-hoc documents
  • Use Run for scheduled documents
  • Find the number and average duration of each

<table>
<thead>
<tr>
<th>Event Id</th>
<th>Action Id</th>
<th>Sequence</th>
<th>Server Name</th>
<th>Event Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>5837879308532613124</td>
<td>CmVGGxaNiklSmM_KU8EMGsc240b</td>
<td>0</td>
<td>siaSG01.JobServer</td>
<td>Run</td>
</tr>
<tr>
<td>15032259421067313161</td>
<td>CmVGGxaNiklSmM_KU8EMGsc2415</td>
<td>0</td>
<td>siaSG01.AdaptiveJobServer</td>
<td>Run</td>
</tr>
<tr>
<td>5837879308532613125</td>
<td>CmVGGxaNiklSmM_KU8EMGsc241f</td>
<td>0</td>
<td>siaSG01.JobServer</td>
<td>Run</td>
</tr>
<tr>
<td>15032259421067313162</td>
<td>CmVGGxaNiklSmM_KU8EMGsc242a</td>
<td>0</td>
<td>siaSG01.AdaptiveJobServer</td>
<td>Run</td>
</tr>
<tr>
<td>5837879308532613126</td>
<td>CmVGGxaNiklSmM_KU8EMGsc2435</td>
<td>0</td>
<td>siaSG01.JobServer</td>
<td>Run</td>
</tr>
</tbody>
</table>

Schedules Run 5
Demo #3 – Root Cause

• Find out which user caused the issue
  • Look at the history for the report in question
  • Look at detailed stats before and after that period

<table>
<thead>
<tr>
<th>Event Start Time</th>
<th>Event Id</th>
<th>Event Type</th>
<th>Duration</th>
<th>User</th>
<th>Event Detail Type</th>
<th>Event Detail Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>9/10/2012 2:38:24 PM</td>
<td>1245333591788257284</td>
<td>Refresh</td>
<td>1</td>
<td>Audit 3</td>
<td>Number of Rows</td>
<td>456</td>
</tr>
<tr>
<td></td>
<td>1245333591788257284</td>
<td>Refresh</td>
<td>1</td>
<td>Audit 3</td>
<td>Object Instance</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>1245333591788257284</td>
<td>Refresh</td>
<td>1</td>
<td>Audit 3</td>
<td>Parent Document ID</td>
<td>AZUEG7cGBglNp0MDEmp2Atw</td>
</tr>
<tr>
<td></td>
<td>1245333591788257284</td>
<td>Refresh</td>
<td>1</td>
<td>Audit 3</td>
<td>Size</td>
<td>39636</td>
</tr>
<tr>
<td></td>
<td>1245333591788257284</td>
<td>Refresh</td>
<td>1</td>
<td>Audit 3</td>
<td>Universe ID</td>
<td>AX3cE9nWhMBLTxyWJ560oDQ</td>
</tr>
<tr>
<td></td>
<td>1245333591788257284</td>
<td>Refresh</td>
<td>1</td>
<td>Audit 3</td>
<td>Universe Name</td>
<td>eFashion</td>
</tr>
<tr>
<td></td>
<td>1245333591788257284</td>
<td>Refresh</td>
<td>1</td>
<td>Audit 3</td>
<td>Universe Object Name</td>
<td>eFashion</td>
</tr>
<tr>
<td></td>
<td>9/10/2012 2:38:24 PM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Demo #4 – Report Grading

- Grade reports based on duration, rows, and time
  - Create three distinct categories (GREEN, YELLOW, RED)
  - Define duration, row, and time limits for these categories

<table>
<thead>
<tr>
<th></th>
<th>Time (s)</th>
<th>Rows</th>
<th>Size (Kb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green</td>
<td>10</td>
<td>10,000</td>
<td>100</td>
</tr>
<tr>
<td>Yellow</td>
<td>30</td>
<td>20,000</td>
<td>200</td>
</tr>
<tr>
<td>Red</td>
<td>&gt;30</td>
<td>&gt;20,000</td>
<td>&gt;200</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Grade - Overall</th>
<th>Object Name</th>
<th>User Name</th>
<th>Refreshed / Ran</th>
<th>Time (s)</th>
<th>Report Rows</th>
<th>Report Size (Kb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>03 Red</td>
<td>eFashion Annual Product Revenues</td>
<td>Administrator</td>
<td>9/9/2012 4:57:37 PM</td>
<td>55</td>
<td>44,352</td>
<td>232.54</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Grade - Overall</th>
<th>Object Name</th>
<th>User Name</th>
<th>Refreshed / Ran</th>
<th>Time (s)</th>
<th>Report Rows</th>
<th>Report Size (Kb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>02 Yellow</td>
<td>Audit Example 4 - Report Grading</td>
<td>Administrator</td>
<td>9/9/2012 4:49:25 PM</td>
<td>1</td>
<td>14,474</td>
<td>53.21</td>
</tr>
<tr>
<td></td>
<td>Audit Example 4 - Report Grading</td>
<td>Administrator</td>
<td>9/9/2012 4:54:27 PM</td>
<td>1</td>
<td>14,488</td>
<td>53.21</td>
</tr>
<tr>
<td></td>
<td>Audit Example 4 - Report Grading</td>
<td>Administrator</td>
<td>9/9/2012 4:58:04 PM</td>
<td>1</td>
<td>14,502</td>
<td>53.21</td>
</tr>
</tbody>
</table>
Demo #5 – Server Balancing

- Check how requests are being assigned to servers
  - Many job / processing servers in a large company
  - Audit can be used to check current settings

<table>
<thead>
<tr>
<th>Audit Example 1 - Refresh and Save</th>
<th>siaSG01.AdaptiveJobServer</th>
<th>siaSG01.JobServer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audit Example 2 - Number of Schedules</td>
<td>Administrator</td>
<td></td>
</tr>
<tr>
<td>Audit Example 4 - Report Grading</td>
<td>Administrator</td>
<td></td>
</tr>
<tr>
<td>Audit Example 5 - Server Balancing</td>
<td>Administrator</td>
<td></td>
</tr>
<tr>
<td>Charting Samples</td>
<td>Audit 2</td>
<td>1</td>
</tr>
<tr>
<td>DOCID Test</td>
<td>Administrator</td>
<td>3</td>
</tr>
<tr>
<td>DOCID Test</td>
<td>Audit 2</td>
<td>1</td>
</tr>
<tr>
<td>eFashion Annual Product Revenues</td>
<td>Administrator</td>
<td>1</td>
</tr>
</tbody>
</table>
Agenda

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- Wrapping Up
Wrapping Up

• Audited information is extremely useful
  • Five common cases presented
  • Many more once you become better at querying the data
• Still – more improvements can be made
  • Many customers aggregate audited data in a mart/warehouse
  • Some are adding system database information as well
    • User and group information
    • Schedule / publication recurring instances
    • Events
• This talk focused on the following key points:
  • WHAT auditing looks like in BI 4.0
  • HOW to set it up
  • HOW to use audited information
Questions?

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Thank you for participating.

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