Journey to BI 4.1
Allstate’s road to achieve BI 4.1 milestone!

Allstate Business Intelligence support team
SAP Business Objects deployment at Allstate

Steve Bush – BI support team
Journey to BI 4.1 – Allstate’s road to achieve BI 4.1 milestone!

Overview of SAP Business Objects environments at Allstate

BI 4.1 migration - Challenges / Lessons Learned

BI 4.1 migration and integration technology hooks

Arriving at BI 4.1 destination – Next steps and Future plans

Q & A
Journey to BI 4.1 – Allstate’s road to achieve BI 4.1 milestone!

Team:
- Cindy
- Adrian
- Soma
- Keith
- Brett
- Ilya
- Catherine
- Richard
- Neelima
- Waseem
- Yenny
- Joe
- Steve
- Gavin
- Aly
- Conor
- Deb
Journey to BI 4.1 – Allstate’s road to achieve BI 4.1 milestone!
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Overview of SAP Business Objects environment at Allstate

History of SAP Business Objects at Allstate (2003 to present)

- **2003 to 2006**
  - Business Objects v6.5 and Crystal Reports v10

- **2006 to 2009**
  - Business Objects XIR2

- **2009 to 2015**
  - SAP Business Objects XI 3.1
    - 2013 to 2015
      - BI 4.0

- **2014 to present**
  - SAP Business Objects BI 4.1

Current SAP Business Objects BI 4.1 environments at Allstate

<table>
<thead>
<tr>
<th>Environment</th>
<th>Users</th>
<th>Active Directory Groups</th>
<th>Production Reports</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allstate Enterprise environment</td>
<td>19,000</td>
<td>700</td>
<td>21,000</td>
<td>Daily scheduled reports (average): 5,000</td>
</tr>
<tr>
<td>Allstate Agency environment</td>
<td>37,000</td>
<td>40</td>
<td>100</td>
<td>No Ad-hoc reports</td>
</tr>
<tr>
<td>Allstate Encompass Agency</td>
<td>17,000</td>
<td>30</td>
<td>300</td>
<td>Monthly report bursting processes</td>
</tr>
</tbody>
</table>
Overview of SAP Business Objects environment at Allstate

* Hardware requirements follow the guidelines put out by SAP Business Objects.
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BI 4.1 migration and Challenges

The Journey begins: Planning/Project Management and Technical considerations to get to BI 4.1

Challenge #1: Keeping the lights on existing environments (XI 3.1 / BI 4.0) while ramping up and getting to BI 4.1

Challenge #2: Project management to keep all impacted teams up to date on their involvement and expectations.

Challenge #3: Many integration technology hooks to BI 4.1 create challenges that need to be managed.

Challenge #4: Build out of BI 4.1 environment and server tweaking before going live.

Challenge #5: How to drive best practices and include process improvements during migration process.

Challenge #6: How to manage the unknown Challenges and adapt that will inevitably come up.
BL 4.1 migration

Timeline of Migration from XI 3.1 / BI 4.0 to BI 4.1 environment:


How the Allstate BI team did it:

Tremendous team effort with a strong focus on the goal!

Partnered with Allstate architecture teams for documenting and planning/preparing (best practices) for building out the new BI 4.1 environment. With extensive technology integration required, assistance needed from many technology areas across Allstate.

Partnered with SAP Business Objects to address system stability issue that surfaced during migration efforts. SAP partnership proved very successful with visible and transparency a focus to address and move forward.

Partnered with EV Technologies consulting for clear line deliverables to assist in initial scope and BI deployment best practices.

Managed project milestones through close BI team planning/discussions and with timely communication to all decentralized development reporting teams for full participation.

Documentation prepared to fully understand reporting projects/contacts and key deliverables. This is a must to stay organized.
Lessons Learned:

1. During BI 4.1 Migration efforts, Allstate also looking to decommission older Windows and Unix servers that were at end of hardware lifespan. This allowed for onboarding a new BI 4.1 environment with parallel production environments during migration.

2. Key BI 4.1 architecture decisions:
   - Keep Production BI Intelligence/CMS and processing tier nodes on physical servers to minimize resource disruption.
   - Keep Production CMS DB on dedicated database to minimize resource disruption and increase recovery timeframe.
   - Keep WebSphere JVM’s non-clustered. Single WebSphere JVM’s have demonstrated better performance/stability.

3. Migrated reporting projects (reports and instances / universes) in a phased approach.
   - Coordination with project developers/power users for migration signoff. Stressed early testing in PRE-Production environment with eye on more complex reports/universes.

4. UMT (Upgrade Management Tool) tool used for migrating content out of XI 3.1/BI4.0 into BI 4.1 environment.
   - Turn off BI Auditor and Sherlock processing during migration UMT jobs to eliminate system overhead.
   - Do not try to migrate over 10,000 objects in one UMT job. Migrations would fail or not complete.
   - Ensure that UMT tool configuration points temporary files to a location with plenty of space. (NAS)
   - Closely monitor environment during UMT migrations (weekend timeframe)
     Discovered: UMT would initiate Active Directory (AD) synching process after a job appears complete within UMT tool.
     Multi-threading UMT jobs could cause BI application (CMS) instability during AD synch processing.

5. Allstate partnered with SAP Business Objects to improve BI 4.1 and AD synching process. This improvement included in BI 4.2. Determined that CMS High Level log tracing cannot be done in Production as performance degrades too much.

6. Plug into Allstate’s Enterprise processes to monitor application uptime and to engage necessary support team’s for red to green environment incidents. Hardware monitored with automated alerting. BI Team built out on custom scripts to provide hourly system insight into scheduled jobs processing/pending in system.
Lessons Learned (continued):

7. Monitor infrastructure closely through Windows performance monitoring tool (CPU / Memory utilization) along with application event log review (especially on CMS servers). BI team getting more traction with SAP Advanced Diagnostics Introscope for further environment performance insight.

8. BI 4.1 Infrastructure house keeping tasks implemented:
   - Regularly scheduled server restarts performed weekly during maintenance timeframe.
   - Implemented custom scripts to cleanup long running scheduled reports to improve system stability.
   - Ensure report folder limits are properly set for all projects and APOS archive manager enabled for report backup.
   - Sherlock tool implemented for better BI Admin insight into reporting content and usage.
   - Watch out for how BI 4.1 Auditor functions (in a large environment) and for some lingering Day Light Savings Time (DST) “spring forward” scheduler issues.

9. With multiple BI environments being supported/built out, thorough communication with “buddy system” review on certain key milestone efforts a must.

10. Be thorough in decommissioning all older environment components. Decommission old server hardware, system Databases and network components (old DB’s, old Virtual IP’s/DNS entries, old service accounts, old Active Directory groups)
    - Surprise your IT partners (DBA’s, Network team) and turn something off.

    - Report helped uncover out of synch BI 4.1 patch on processing nodes. Corrective actions taken.

12. During initial load testing of environment, uncovered necessary APS Connectivity Server heap size setting requirement. Determined through SAP Advanced Diagnostics / Introscope tool with input from SAP. Introscope metrics providing better insight into how system is performing. More details on next slides.
**Lessons Learned (APS Connectivity Service):** Increased Initial and Max Heap Size settings to: `-Xms4g -Xmx8g`

Before making heap size adjustment note high amount of full garbage collection on process being exhibited.

Full Garbage collection occurring will degrade environment performance.
Lessons Learned (APS Connectivity Service): Increased Initial and Max Heap Size settings to: -Xms4g -Xmx8g

The “saw tooth” behavior of this java based process indicates a “healthy” GC as smaller garbage collections occur (with no full garbage collections being performed).

With the 4GB heap available for the APS, behavior of this process shows a better performing process where heap (with load) is performing at between 10% to 50% of Heap utilization.

Load Testing performed with Web Intelligence reports going through a UNX Universe (which leverages APS DSL Bridge service)
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BI 4.1 migration - Challenges / Lessons Learned

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Arriving at BI 4.1 destination – Next Steps

Q & A
BI 4.1 migration and integration Technology hooks

- Network / Load Balancers
- Oracle OPODS DB (CMS)
- Virtual servers (Linux Prod / Windows non-Prod)
- IBM WebSphere (web/app server)
- Linux Red Hat servers (IBM IHS/WebSphere hosted)
- Virtual servers (Linux Prod / Windows non-Prod)
- SAP HANA integration
- Network Attached Storage (FRS)
- Exchange Mail Server (for report output email functionality)
- Backend reporting DB’s (Oracle, SQL Server, DB2)
- Crystal Reports SDK
- Exchange Mail Server (for report output email functionality)
- .NET integration
- Client-side Java Runtime Environment (JRE) for Webi report interactivity

External technology hooks into the BI 4.1 environment requires scheduled patching/maintenance/upgrade activities. A strong partnership and routine review of scheduled changes (identify change collision)
BI 4.1 migration and integration Technology hooks

**BI 4.1 upgrade milestones accomplished while coordinating/managing with external Technology projects**

**Projects in 2015 impacting BI 4.1 migration upgrade efforts**

Routine patching on Linux/Windows servers (monthly) and Oracle DB and NAS filer

Twice a month, Active Directory domain controller patching
- BI application AD synching scheduled off hours with no synching during AD DC patching times

AD Simplification efforts to flatten AD domain structure

Enhanced Security across network (DES encryption for Kerberos AD authentication ended)

BI 4.1 / SAP HANA integration effort
Journey to BI 4.1 – Allstate’s road to achieve BI 4.1 milestone!

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BI 4.1 migration and integration Technology hooks

Arriving at BI 4.1 destination – Next steps and Future plans

Q & A
Arriving at BI 4.1 destination – Next steps and Future plans?

2016 plans for Allstate’s BI Team:
- BI 4.2 upgrade planning
- Increase usage of SAP Advanced Diagnostics/Introscope
- SAP Lumira deployment
- SAP Mobile deployment
- Windows 2012 Server upgrade project
- BI OLAP / MSAS cube connectivity
- BI connectivity to Hadoop cluster

While keeping the lights on for 3 Production environments!
Journey to BI 4.1 – Allstate’s road to achieve BI 4.1 milestone!

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BI 4.1 migration and Challenges / Lessons Learned

BI 4.1 migration and external Technology forces

Arriving at BI 4.1 destination – Next steps and Future plans

Q & A
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