Using OS/390 Oracle8i for Shuttle Data Reconfiguration

Erika Black
March 20, 2001
Application Background

- Application – Payload Integration Tool (PIT)
- Purpose
  - Provide Configuration Management on delivered payload data
  - Validate data
  - Generate integrated products for down stream processors
- Re-engineered from IMS application
- Restriction
  - Must fit with existing legacy applications (process OS390 PDS)
  - Must adhere to strict security measures
- Data Files
  - Input: PDS from Legacy System; XML from new system
  - Output: PDS for delivered products
- Massive Data Movement/Manipulation
- Size – 2M to 10M per flight
Architecture

- Three-tiered Web Application
- Client - any Browser
- Middle (Application/Web Server)
  - WebSphere
  - Independent NT machine behind local firewall
- Database
  - Oracle8i on OS390
- Application Development Tools
  - IBM Visual Age (Code)
  - Rational Rose (Design)
  - Rational Performance Suite (Test)
System Setup

- OS/390 2.09.00
- Oracle 8.1.5
- WebSphere/VisualAge – 3.5
- NT – Service Pack 6A
Features

- Data Loaded into Intermediate Tables
  - To satisfy verification requirements
  - XML (JAR file) => Java XML Parser => Intermediate Tables
  - PDS => SQL*Loader => Intermediate Tables
- Data Merged from Intermediate into Master Tables
- All PIT data manipulation are performed on Master Tables
- Process Execution
  - Using Oracle as the "middle man" between Application Server and OS390
  - PDS data are copied in/out of USS using batch JCL
  - Continuously running processor on OS390 to pick up batch job in the queue, submit job, and update completion code
- Data Cleanup
  - Scheduled nightly DBMS Jobs to clean up data marked for deletion
- Lots of PL/SQL stored procedures/functions
Features (continued)

- Generated products are stored in tables to allow viewing and writing to file system without re-generating
- Query results are generated in XML to provide wide range of data distribution and are formatted into HTML and PDF documents
Development Process

• Utilizing RUP (Rational Unified Process) with existing processes
  – Build a little, test a little
  – Implement the most risky, the most complicated, (requirements) the least stable UseCase first

• The Good
  – UseCase Specification forces user involvement
  – Allowed requirements/design/code to mature ALMOST concurrently
  – Early verification catches error early in the cycle

• The Ugly
  – Frustration level very high for first iteration
Other Project Data

- Length – 21 months
- Completed software capabilities builds
- In User Acceptance Test phase
Wish List

We wish...

- BFILE feature worked in Oracle 8.1.5 (supposed to be in 8.1.7)
- Oracle would provide OCI support for USS
- Stored procedure supports Java (supposed to be in 8.1.7)
- UTL_FILE supports NFS mounted data files
<table>
<thead>
<tr>
<th>Acronyms</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NFS</td>
<td>Network File System</td>
</tr>
<tr>
<td>DBMS</td>
<td>Data Base Management System</td>
</tr>
<tr>
<td>HTML</td>
<td>Hyper-Text Markup Language</td>
</tr>
<tr>
<td>IMS</td>
<td>Information Management System</td>
</tr>
<tr>
<td>JAR</td>
<td>Java ARchive</td>
</tr>
<tr>
<td>JCL</td>
<td>Job Control Language</td>
</tr>
<tr>
<td>OCI</td>
<td>Oracle Call Interface</td>
</tr>
<tr>
<td>PDS</td>
<td>Partitioned Data Set</td>
</tr>
<tr>
<td>SQL</td>
<td>Standard Query Language</td>
</tr>
<tr>
<td>USS</td>
<td>Unix System Server</td>
</tr>
<tr>
<td>XML</td>
<td>eXtended Markup Language</td>
</tr>
</tbody>
</table>
# Information Release Request

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