Overview of ISV Application Systems
Sybase to Oracle10g Port
Level of Effort

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Executive Summary

- Level of effort estimate based upon a five hour meeting with ISV technical resources and completion of Oracle Sybase migration questionnaire
- The ISV database, application and message broker are being considered for porting
- Centralized database, High availability and data warehousing is the customers choice
Executive Summary - Continued

- This level of effort estimate is 50% - 60% accurate for Sybase Open Server and Triggers
- This level of effort estimate is 60% – 70% accurate for all other activities
- Port databases and data access, installation, management, migration and testing routines to Oracle10g R2 - no change to application language, operating systems, business functionality
- Changes will need to be made to the messaging architecture as Oracle does not support Sybase Open Server
Executive Summary - Continued

- Demonstration of equal or better performance
- Documentation and packaging is ISV Application responsibility
- General Oracle training will be provided through Oracle University
- Migration of any existing customers a separate effort
Technical Summary

- Sybase Adaptive Server Enterprise Edition 12.5
- Database size is 500 MB – 2 GB for data and 100 MB for log size.
- Presentation layer written in Motif/C++
- Approximately 10 – 15 C++ modules (3,000 lines of code) using Sybase DB-Library for DB access
- Sybase Open Server used for message brokering and notifying clients of database changes
Technical Summary - continued

- Most application SQL is ANSI compliant with limited joins
- Database is installed as case insensitive
- Triggers (with transaction logic) are used for auditing
- 5 DBA maintenance scripts, one big one with 1500 lines and others with xxx lines
- SQR is used for reporting with calls to C objects
Migration Activities and Tasks
Analysis & Design

- **Tasks**
  - Schema and Data migration
  - C DB Library database access objects
  - SQR Reporting Engine
  - Database Access – stored procedures, triggers and views
  - DBA maintenance scripts
  - Proof of concept (POC) for:
    - Open Server redesign
- **Level of Effort:** 20 – 35 days
  - Note – Elapsed time 10 – 15 days
  - Open Server POC will take 10 – 20 days
Analysis & Design - continued

- Critical Path Tasks
  - Sybase Open Server redesign/re-architecture
  - Auditing trigger redesign
  - SQR Reporting Engine
- Number of resources – 2/3
- Notes
  - Open Server Proof of concept – Will ensure the success of the new architecture
Schema Migration

• Tasks
  • Install Oracle 10g database and Oracle migration workbench
  • Migrate the schema, clean up schema and unit test
• Level of Effort: 4 - 6 days
• Critical Path Tasks
  • Case insensitive database - Oracle 10g R1 supports databases being installed as case insensitive.
• Number of resources - 1
Data Migration

- **Tasks**
  - Migrate the database and test the values in migrated database (360 tables)

- **Level of Effort**: 4 - 6 days

- **Critical Path Tasks**
  - NA

- **Number of resources**: 1
On line Application conversion

- **Tasks**
  - 10 – 15 DB Library C/C++ modules (3,000 lines of code)
  - SQR reporting engine calling C modules
- **Level of Effort:**
  - DB Library: 25 – 35 days
  - SQR Reporting Engine: 10 – 20 days
- **Critical Path Tasks**
  - Assumes ANSI 92 compliance in SQL
  - SQR supports Oracle
- **Number of resources - 2**
Sybase Open Server

- Tasks
  - Sybase Open Server message broker and notification server
- Level of Effort: 25 – 35 days
- Critical Path Tasks
  - Assumes Oracle AQ and OCI callbacks can be used
- Number of resources - 2
Database Access Conversion – Stored procedures, triggers and views

- **Tasks**
  - Stored procedures
  - Triggers
  - Views

- **Level of Effort**
  - 162 Stored procedures: 20 - 30 days (50% easy, 20% medium, 20% complex and 10% very complex)
  - 326 Triggers: 20 - 30 days (mostly medium and complex complexity)
  - 16 Views: 1 - 2 days (100% easy)
Database Access Conversion – Stored procedures, triggers and views - continued

- Critical Path Tasks
  - Stored procedures have global variable usage, system tables calls and calls to remote procedures
  - All triggers have commit or rollback statements in them (application may will need to be reviewed to make sure commits or rollbacks are done there)

- Number of resources - 3

- Notes
  - Migration Workbench can be used
DB Maintenance scripts

- **Tasks**
  - 5 DBA maintenance scripts with one that is very large. All C shell scripts

- **Level of Effort**
  - DBA maintenance: 20 - 25 days

- **Critical Path Tasks**
  - Perhaps the Oracle Enterprise Manager Change management pack can be used to do the same things as the scripts.

- **Number of resources** - 1
Unit Testing

- Tasks
  - Schema and Data migration
  - On-line Application
  - Sybase Open Server
  - Database access
  - DBA maintenance utilities

- Level of Effort – Included as part of each of these areas

- Critical Path Tasks
  - NA
Integration/Functional Testing

- **Tasks**
  - Functional and acceptance testing
- **Level of Effort:** 30 – 40
- **Critical Path Tasks**
  - Test plans are well documented
- **Number of resources** – 2
Performance Acceptance Testing

• Tasks
  • On line application performance testing
  • Message broker performance testing
• Level of Effort: 20 – 25 days per
• Critical Path Tasks
  • DBA maintenance and DB utilities
• Number of resources – 1
Post Port Support

- Tasks
  - On line application
  - Message broker/notification server
- Level of Effort: 20 – 40 days
- Critical Path Tasks
  - Message broker
  - Auditing
- Number of resources - 2
Summary of Port

● Task Summary
  ● Sybase Open Server message broker and auditing need to be analyzed further
  ● On-line application appears to be straight forward as SQL is ANSI standard
  ● DB-Library to Oracle Call Interface should not be that difficult as Oracle has white papers, sample code and ISV resource seems very familiar with request and response API network programming.

● Port project sequence of activities is as follows:
  ● Analysis and design
  ● Schema/data migration, On-line application Conversion, Message Broker, Database Access Conversion, DB Maintenance scripts
  ● Integration/Functional Testing
  ● Performance Acceptance Testing
  ● Post port support
Summary of Port

- Notes
  - Port/migration efforts are normally back end loaded (more time spent on testing then analysis and design)
  - Areas that have database vendor specific code usually take the longest (Open Server, DB-Library, DBA maintenance scripts)
## Resources

<table>
<thead>
<tr>
<th>Role</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>DBA – DB migration, DBA Scripts</td>
<td>2</td>
</tr>
<tr>
<td>Database Developer – SQL / DB Access</td>
<td>2</td>
</tr>
<tr>
<td>Application Developer – C/C++</td>
<td>2</td>
</tr>
<tr>
<td>Project manager</td>
<td>1</td>
</tr>
<tr>
<td>Testers</td>
<td>2</td>
</tr>
<tr>
<td>Technical specialist * (performance, DB-Library/OCI, Oracle AQ)</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>11 people</strong></td>
</tr>
</tbody>
</table>

* As needed
Resources - continued

• Notes
  • Maximum 8 people at same time (not counting project manager)
  • The resource numbers are the maximum number that is thought can be effective working concurrently.
## Estimate of Effort and Schedule

<table>
<thead>
<tr>
<th>Deliverable</th>
<th>Person Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Analysis and Design</td>
<td>20 – 35</td>
</tr>
<tr>
<td>2. Schema Migration</td>
<td>4 - 6</td>
</tr>
<tr>
<td>3. Data Migration</td>
<td>4 - 6</td>
</tr>
<tr>
<td>4. On-line application Conversion</td>
<td>35 - 55</td>
</tr>
<tr>
<td>5. Sybase Open Server</td>
<td>25 - 35</td>
</tr>
<tr>
<td>6. Database Access Conversion</td>
<td>41 - 62</td>
</tr>
<tr>
<td>7. DB Maintenance scripts and utilities</td>
<td>20 - 25</td>
</tr>
<tr>
<td>8. Integration/Functional Testing</td>
<td>30 - 40</td>
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</tbody>
</table>

Total Days: 189 – 289

**NOTE:** Does not include project management time and post-port support.
# Training Recommendations

<table>
<thead>
<tr>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction to Oracle</td>
</tr>
<tr>
<td>SQL, PLSQL, application development</td>
</tr>
<tr>
<td>Database Administration</td>
</tr>
<tr>
<td>Performance and Tuning</td>
</tr>
<tr>
<td>Technology transfer (by port team)</td>
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</tbody>
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Risks

- Level of effort for Integration/functional testing is better estimated by ISV
- Sybase Open Server and auditing is difficult to get accurate estimates because more analysis needs to be done
Next Steps

- Get estimate from Oracle 3\textsuperscript{rd} party (Sierra Atlantic) to see the cost they provide
- If ISV satisfied with this level of effort, then:
  - Identify ISV and Oracle level of commitment
  - Identify ISV people resources to be applied to effort
  - Secure other resources (\textit{i.e.} money) to perform port
  - Start analysis and design
Next Steps - continued

- If ISV NOT satisfied with this level of effort, then:
  - Perform an on-site 2 – 3 day scope/POC effort to more accurately (70 % - 80%) determine the level of effort