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

DBA – DB migration, DBA Scripts	2
Database Developer – SQL / DB Access	2
Application Developer – C/C++	2
Project manager	1
Testers	2
Technical specialist * (performance, DB-Library/OCI, Oracle AQ)	2
Total	11 people

* 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

Deliverable	Person Days
1. Analysis and Design	20 – 35
2. Schema Migration	4 - 6
3. Data Migration	4 - 6
4. On-line application Conversion	35 - 55
5. Sybase Open Server	25 - 35
6. Database Access Conversion	41 - 62
7. DB Maintenance scripts and utilities	20 - 25
8. Integration/Functional Testing	30 - 40
9. Performance Acceptance Testing	20 - 25
Total Days:	189 – 289

NOTE: Does not include project management time and post port support.

Training Recommendations

Introduction to Oracle
SQL, PLSQL, application development
Database Administration
Performance and Tuning
Technology transfer (by port team)

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 3RD 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 (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