

Stanford Linear Accelerator Center



Data Archiving Into Oracle

Progress Report

Leeann Yasukawa & Robert Hall

In Absentia



Evaluation Goals

- Store Channel Archive-Like Data into Oracle
- Measure/Optimize Performance
- Test new Oracle Features
- Develop Environment for Long-Term Archive Maintenance



What's New?

- Oracle 8i
- Oracle Call Interface (OCI)
 - Low-level interface.
 - Completely revised for Oracle 8
 - Is interface for Oracle's own 3GL products
- Partitioning
 - 64K table segments
 - Each independently managed
 - Can be merged
 - (Almost) unlimited data size 512 Petabytes - 10^{15}



Environment and Tests

- **Environment is:**
 - Oracle 8i
 - 100 Mbit Ethernet
 - Computer Center Common Instance
 - 4 CPU ES4000 248 MHz & 1 Gbyte memory
- **Methods Tried:**
 - Standard Path Insert using Oracle ProC
 - Direct Path - Bypass Oracle Buffering
 - Named Pipe input to SQL Loader
 - Oracle Call Interface (OCI)



What's Stored

- Channel Name ID
- Floating Point value
- Timestamp
- Comments
- Status
- Severity
- Row sequence number



Results Ta Da!!!!

Simple SQL Insert



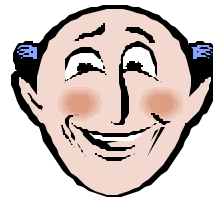
200 rows/second

UNIX Pipe and SQL
Loader



400 Rows/second

OCI with 7 fields 185
bytes



10000 rows/second

OCI without comment field 135 bytes.

15000 rows/second!





What's Next in the Near Future?

- Get our own Oracle Sever/Instance with large disks
- Enable Partitioning for Evaluation
- Tune database parameters
- Integrate into Channel Archive Engine and repeat timing tests



Longer Term

- Partition maintenance
- Get Gbit Ethernet I/F
- Test the whole shebang with various concurrent entry and retrievals.

Stanford Linear Accelerator Center



Stay Tuned for Episode IV

Data Wars: Return of the Central Database