



# BL890c i2 Performance Testing



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software engineering  
solutions



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# Performance Testing Goals

- › Maklee was engaged by one of its customers to assess the performance of the new hp Integrity BL890c i2 server.
- › Benchmark the customer's application on the BL890c and determine the maximum TPS
  - The core of the application is PL/SQL with Oracle 10gR2.
  - Playback production workload.
  - Tune Oracle to achieve maximum performance.
- › Compare the performance of the BL890c with the existing Integrity Superdome servers.



# SuperDome Configuration

## > Hardware

- HP superdome server SD64B
- 48 Intel(R) Itanium 2 9100 series processors (1.6 GHz, 18 MB)
  - 96 cores
  - 12 Cells
- 192 GB physical memory
  - 8GB per cell

## > Operating System

- HP-UX B.11.31
- 64-bit kernel

## > Database

- Oracle 10.2.0.4 + ASM



# BL890c i2 Configuration

## > Hardware


- hp Integrity BL890c i2
- 8 Intel(R) Itanium(R) Processor 9350s (1.73 GHz, 24 MB)
  - Quad core processors
  - 32 cores
- 384 GB physical memory
- 8 Gb Fibre Channel adapters

## > Operating System

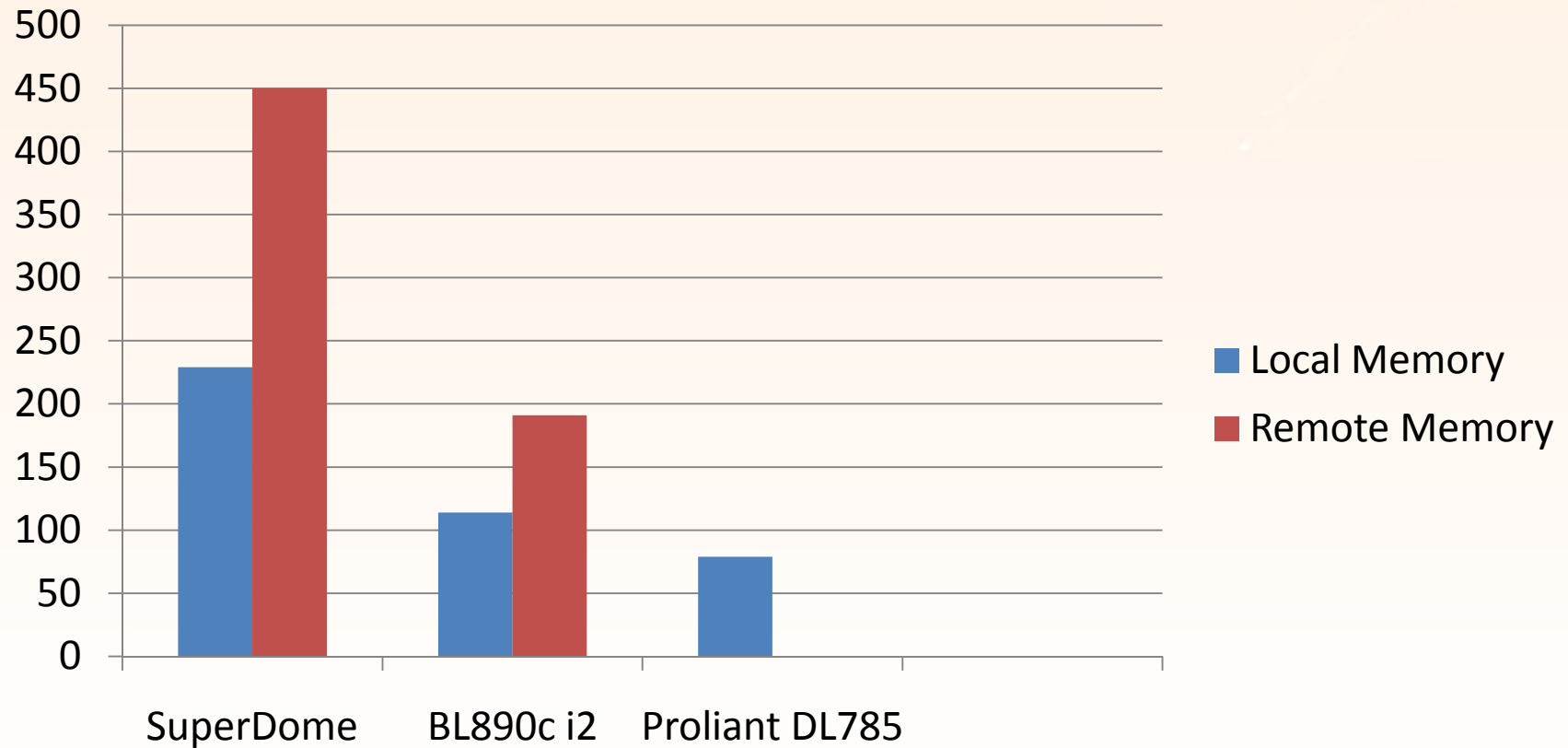
- HP-UX B.11.31
- 64-bit kernel



 Database

 Oracle 11gR2 & Oracle 10gR2

# Memory Performance



**Memory Latency (ns) – Less is better**



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# Memory Performance

- › Insignificant difference in CPU performance between Montecito and Tukwila
  - Core Frequency - 1.6Ghz Vs. 1.73Ghz => 7.5%
  - Tukwila has larger L3 cache (24MB vs. 18MB)
- › Excellent local memory latency of 114ns, only small amount of memory is available at this latency, realistic latency is 191ns
- › 191ns is 17% faster comparing to the Superdome's local cell latency.
- › HOWEVER !!
  - Once the Superdome references remote memory latency jumps to 450+ns while the BL890c maintains a latency of 191ns throughout the box.

 ***This translates to EXCELLENT scaling of the BL890c i2***  
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***server***

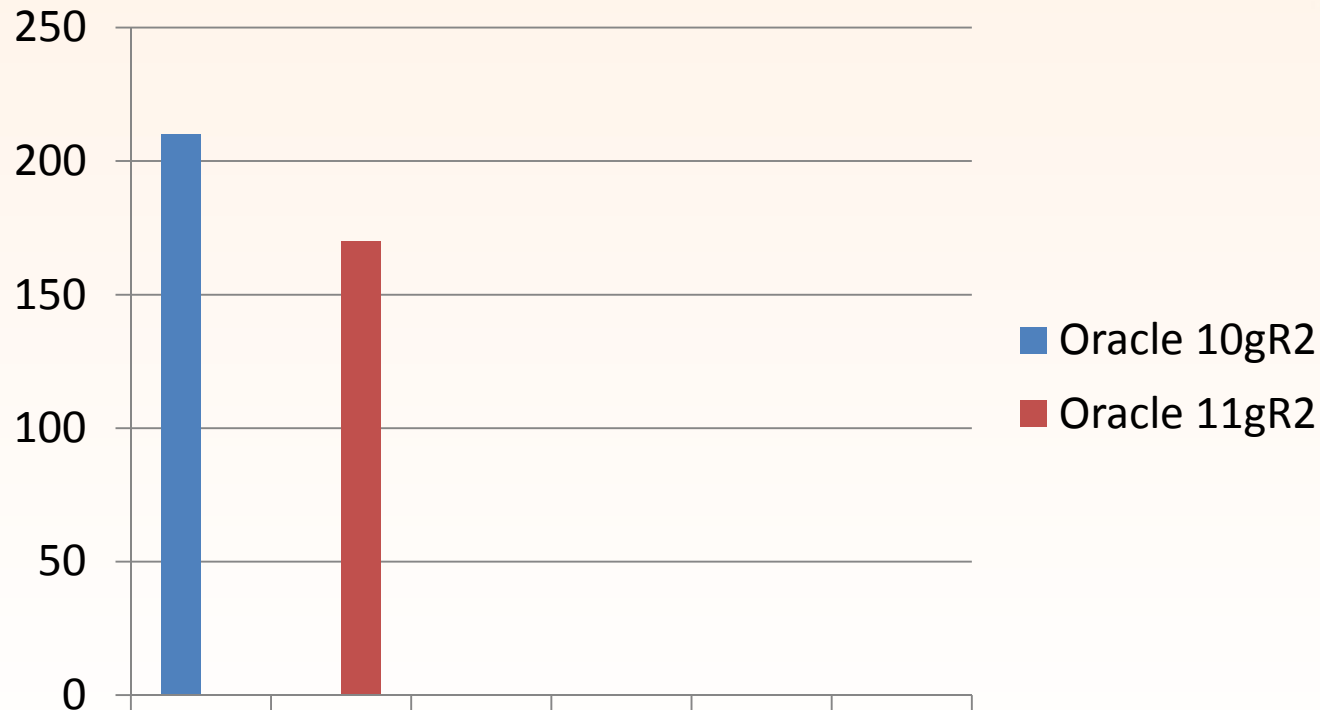
# Performance Testing

- › Installed Oracle 11gR2 on the new server.
  - Required for using the workload playback feature.
- › Migrated a copy of the production database to Oracle 11g.
  - Required minor changes to key SQL statements.
  - Surprisingly – different changes comparing to Red Hat Linux.
- › Oracle's Real Application Testing feature was used benchmarking the BL890.
- › Captured production workload and replayed transactions on the BL890.
- › Ran multiple workload playbacks and tuned the O/S and database for optimal performance (throughput).



# Oracle 11g Vs. Oracle 10g

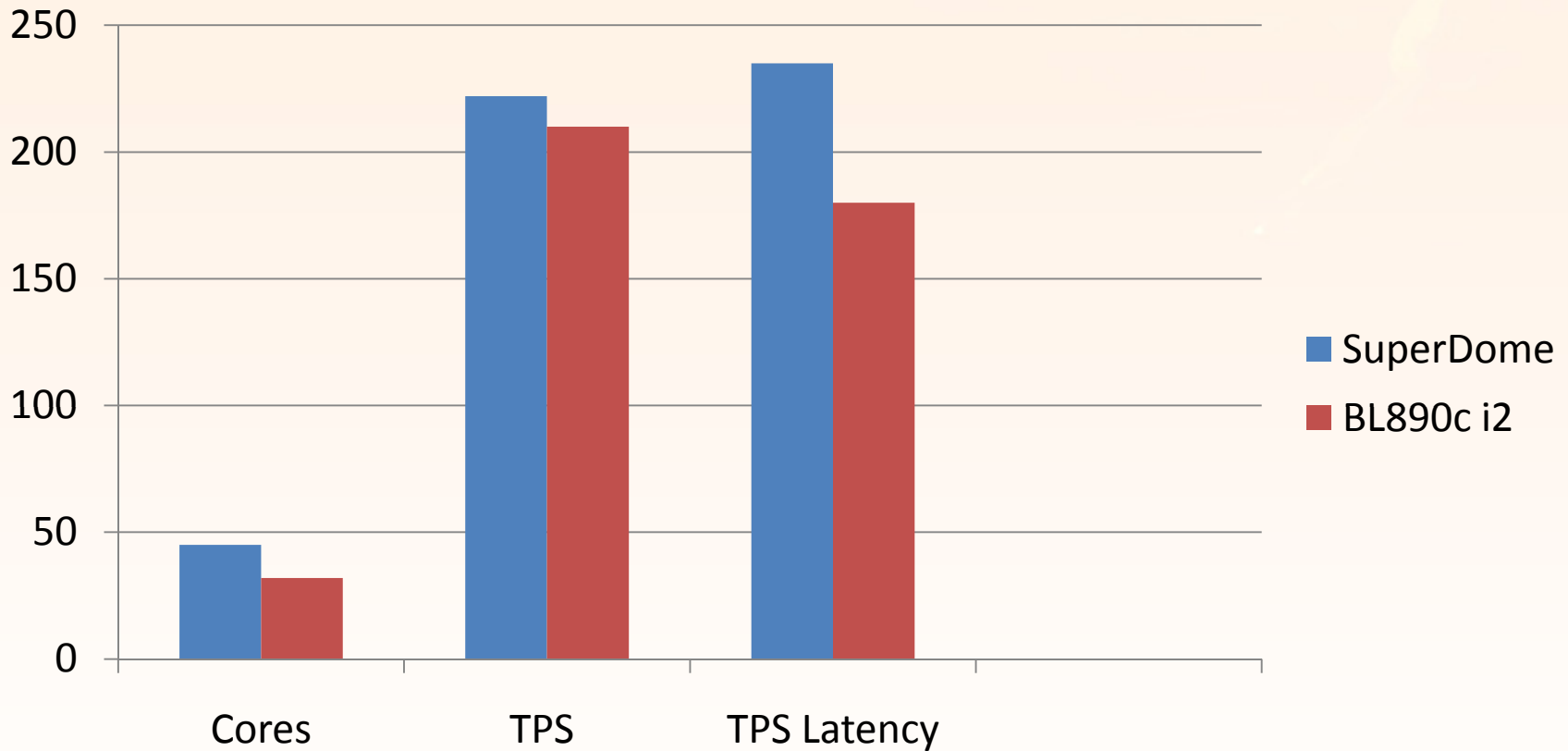
- > Compared Oracle 10g with Oracle 11g on the new BL890c i2 server.
- > Single transaction latency is 20% lower using Oracle 11g.



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**Transaction Latency (ms) – Less is better**

# Production Workload Comparison



**The Superdome requires 40% extra CPU power for performing the same amount of work**



# Summary

- › The BL890c i2 server provides excellent scaling .
- › Maklee recommended the customer to integrate the new blade server into the production environment.
- › Oracle 11g is ~ 20% faster comparing to Oracle 10g
  - Consider upgrading Oracle for additional throughput.

