

Oracle 9i™ Database Migration to Itanium®-Based HP-UX Servers

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Migration topics

- Itanium overview
- Migration process overview
- Sample migration – single instance
- Sample RAC migration
- Performance
- Demo

What is Itanium?

- Joint invention of Intel & Hewlett-Packard
- Designed with compatibility in mind:
 - PA-RISC and IA-32
 - Object compatibility
 - Source compatibility
 - Data compatibility

Terms & definitions

- HP-PA (or just PA)
 - HP Precision Architecture (“PA-RISC”)
- Intel® Itanium® Architecture
 - a.k.a. Intel-Architecture-64 (IA-64)
 - a.k.a. “Itanium” or IA or Itanium processor family
- HP-UX versions
 - HP-PA: 11.0; 11.11 (“11i “)
 - Itanium: 11.23 (“11i Version 2“)
- Oracle™ versions
 - 8.1.7 (“Oracle 8i “)
 - 9.2.0.2 (“Oracle 9i Release 2” or 9iR2)

Migration overview



Oracle 9i Release 2:

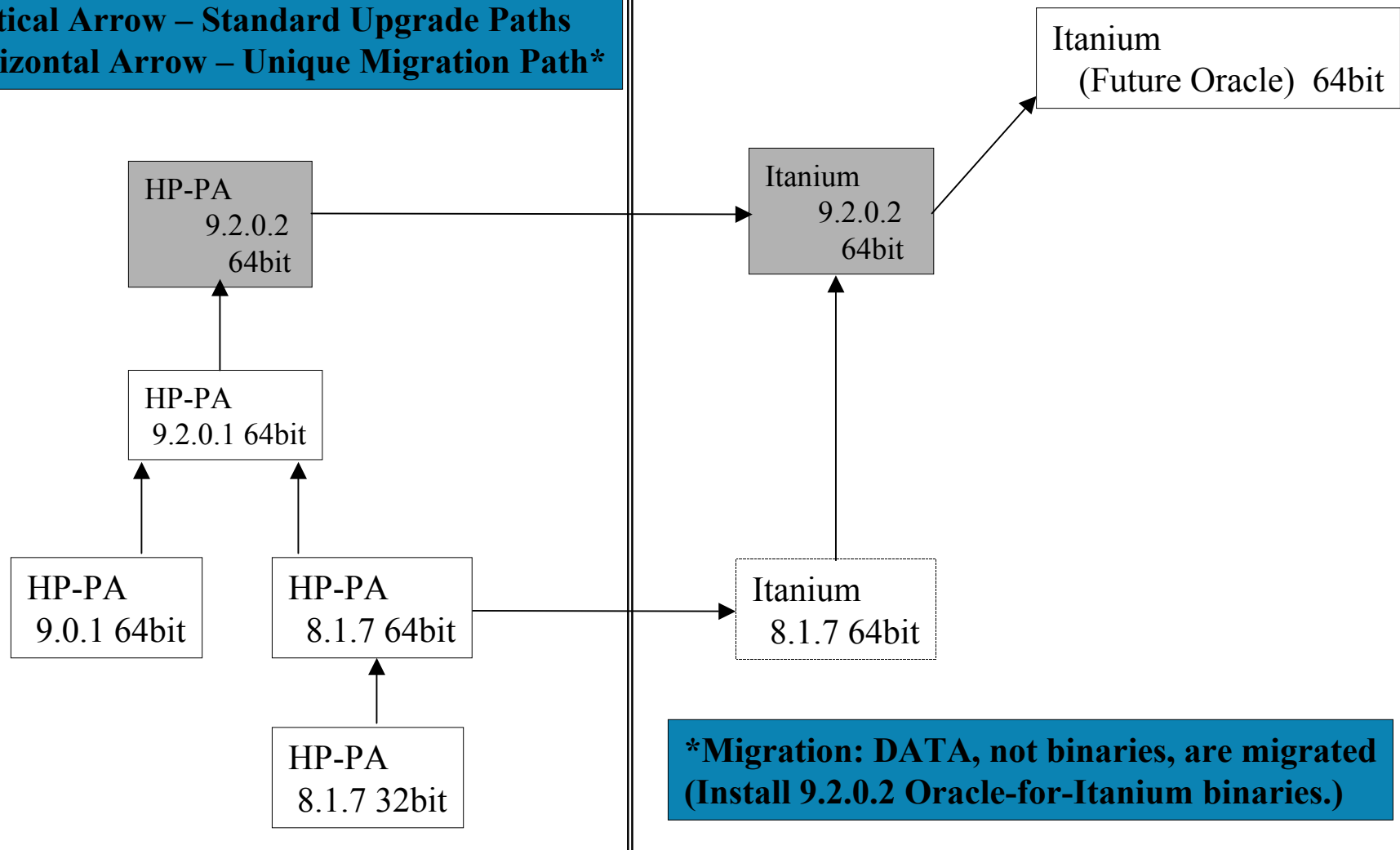
- Available on both HP-PA & Itanium
- The only supported Oracle db version on Itanium (at present)

Migration & Oracle versions

- Target Oracle version on Itanium is 9iR2 (9.2.0.2)
 - First production release of Oracle RDBMS for Itanium
- Source Oracle version on HP-PA: 9iR2 or 8i (8.1.7)
- Migration Strategy:
 - **Either** upgrade to 9iR2 on PA-RISC prior to migration
 - **Or** migrate 8i database to Itanium system, **then** upgrade database to 9iR2 before it opens

Upgrade vs. migrate – a snapshot

Vertical Arrow – Standard Upgrade Paths
Horizontal Arrow – Unique Migration Path*



Migration steps - brief

1. Upgrade the database to 8i or 9iR2 on HP-PA
2. Prepare the Itanium system (install Oracle, etc.)
3. Copy or move the database files
4. Modify database configuration files (i.e. init.ora, listener.ora, etc)
5. Upgrade the database to 9iR2 (if not already)

Data migration: to copy or to move?

- Copy: time-consuming but a copy remains on HP-PA system
 - Export-import?
 - *rcp*, or *dd* or *tar* (via *remsh*)?
 - Optionally use split-mirror; copy from mirror
 - Optionally use array-based volume copy (mirror); then logically “move” copy to the Itanium systems
- Move: quicker, but one-time-only
 - Move cables?
 - SAN? Reconfigure to “move” disks to Itanium systems
 - Disk array? Change permissions/security

Sample single-instance Oracle 8.1.7 migration

- Source (HP-PA) environment:
 - Single HP-PA server with HP-UX 11.0
 - Oracle 8i database (version 8.1.7)
 - Database layout: file systems on LVM logical volumes
- Upgrade to 9.2.0.2 on HP-PA
 - standard upgrade process per Oracle metalink
- Prepare Itanium system (HP-UX 11.23)
 - Install 9.2.0.2 software
 - Copy standard config. files – init.ora etc.,
- *vgexport* from HP-PA; move data disks (cables)
- *vgimport* to Itanium system

Sample RAC (Real Application Cluster) migration



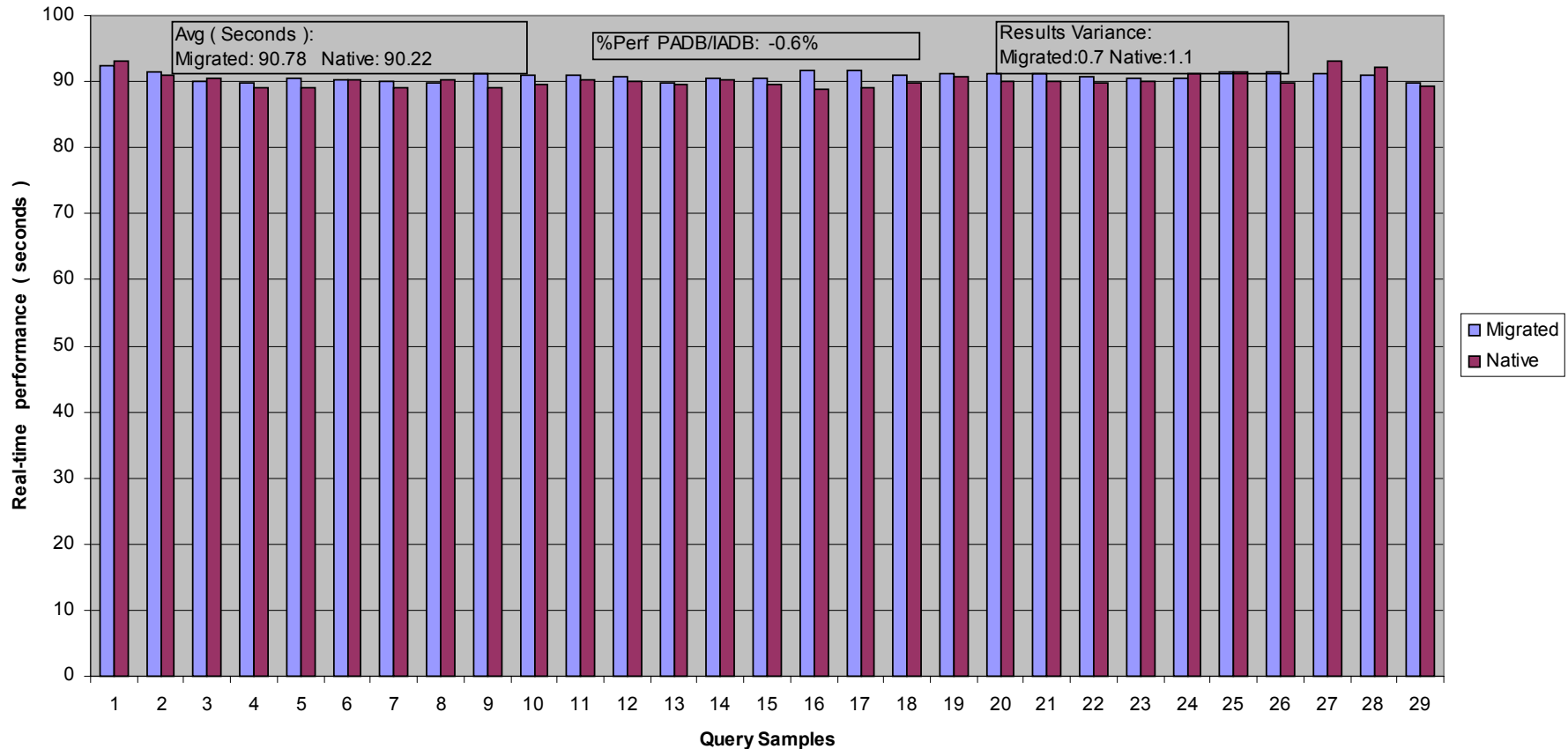
- Source (PA-RISC) environment:
 - Clustered PA-RISC nodes with HP-UX 11.0
 - Oracle 9i RAC database
 - Database layout: raw LVM logical volumes
- Prepare Itanium cluster (HP-UX 11.23)
 - **Install & configure ServiceGuard (eRAC)**
 - Install 9.2.0.2 software (**with RAC option**)
 - Copy standard config. files – init.ora etc.,
- *vgexport* from HP-PA; moved data disks (cables)
- *vgimport* to Itanium nodes

Performance

- Itanium data compatibility with HP-PA
 - Identical user-data formats
 - Migrated database or 'native' database: same format
- Proof points:
 - Recent Oracle Applications Standard Benchmark used migrated database on Itanium system
 - Internal lab tests (results on next page)

Benchmark: "native" vs. migrated Oracle database

Queries from an industry-standard benchmark



Run on an Itanium-based rx2600 running HP-UX 11i Version 2

Demonstration

Migrating a 9iR2 database to an Itanium system

- HP-PA: rp2470 with HP-UX 11i 11.0
- Itanium: rx2600 with HP-UX 11i Version 2 11.23
- Storage: ds2100 (external SCSI JBOD)
- Database: Oracle 9i Release 2
- Database is running on HP-PA system
- Already completed on Itanium system:
 - Oracle 9i Release 2 s/w installed
 - init.ora, etc., installed; Oracle user created
- We'll move database to Itanium system

Reference Material

<http://www.hp.com/dspp>

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Oracle migration to Itanium: summary



- Just as simple as migrating to 9i Release 2
 - Already on 9iR2? Then *really* simple!
- 9iR2 database just gets copied or moved to Itanium
- A migrated database is identical to “native”
 - NO performance repercussions!

Thank you

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- Jeff English



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