Porting Rdb to Itanium

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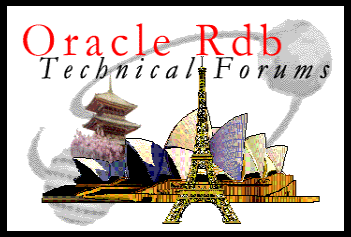
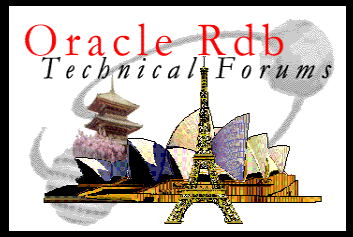


Announcement

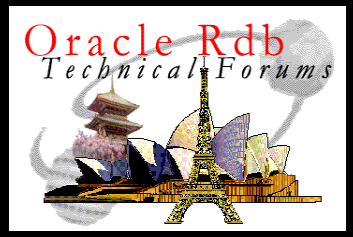
Oracle and Compaq have a long and successful history of delivering enterprise solutions to our OpenVMS customers. In July 2001, Oracle released Rdb 7.1 for OpenVMS. In September 2001, Oracle9i for OpenVMS was released. Compaq has announced plans to consolidate its 64-bit servers on Itanium ™ based systems. Oracle is committed to working with Compaq on its enterprise platform offerings, which includes working to deliver Oracle Database and Oracle Rdb on OpenVMS for Itanium™ based platforms.

Doug Kennedy
Vice President, Global Platform Partnerships
Oracle Corporation



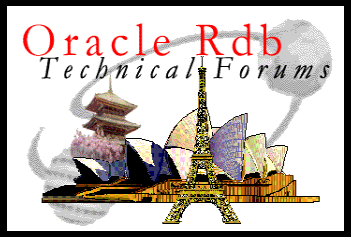
Agenda

- Show Rdb porting history
- Discuss basic framework
- Look at phased development and release
- Look at products to be ported
- Please ask questions



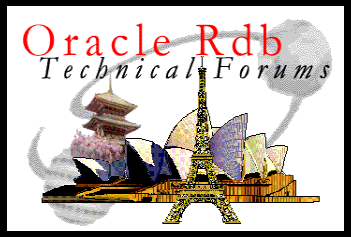
History

- Ported Rdb from VAX to Alpha
  - Delivered Rdb V5.0
- Ported Rdb to Digital UNIX on Alpha
  - Delivered Rdb V6.1
- Ported Rdb to Windows NT (Alpha and Intel)
  - Delivered Rdb V8.0
  - available for download from Oracle OTN



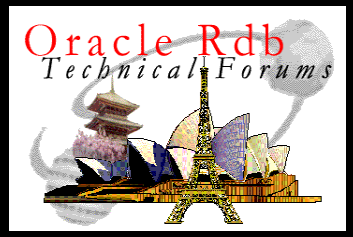
What we learned
In the beginning

- Released in 1984 as VAX-11 Rdb/VMS
- Many dependencies on VMS
  - system services and run time library
  - logical names, etc
- Generate query specific code at runtime using VAX instruction set
- Precompilers generated VAX MACRO as well as host language code



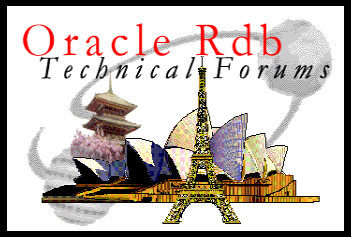
What we learned
VAX to Alpha

- Single code base
- The Alpha compilers are more rigorous
  - We corrected coding errors never before detected
- Alignment of data structures more important
  - alignment work also benefited VAX code base
- Generate query specific code at runtime using Alpha instruction set
- Precompilers generate Alpha object files using GEM backend as well as host language code



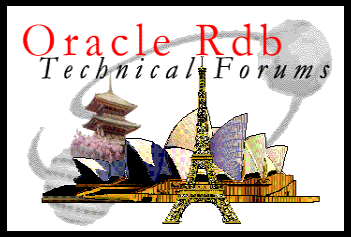
What we learned
VMS to Digital UNIX

- Issues:
  - Had to deal with only USER and KERNEL mode
  - Split Client/Server across two processes
  - Had to map UID and groups to Rdb's ACL's
  - no F and G floating point
  - used T and S floating point
  - Fully supported 64 bit addressing



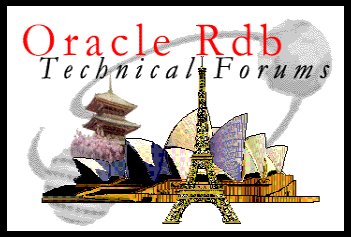
VMS to UNIX

- Added new COSI layer
  - Operating System Abstraction
  - COSI = Common Operating System Interface



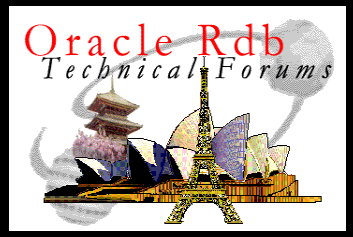
What we learned
VMS to Windows

- Supported VMS-like user/role facility
  - added USER and ROLE objects to database
- Used a single multithreaded server for all users
- Generate query specific code at runtime using pseudo instruction set, emulate some Alpha instructions
- Precompilers generated object code using GEM backend as well as host language code



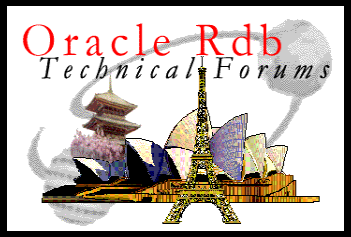
What next?

- We expect no changes to the COSI layer for Itanium - VMS services will all be available
- Based on communications with Compaq we expect all the compilers, and tools we need
- We will use the pseudo code generator written for the NT port on Itanium. Some small number of Alpha instructions will probably be emulated



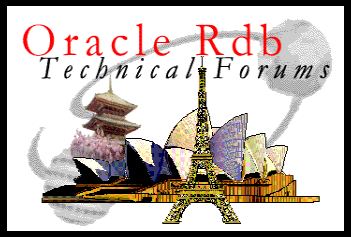
When we have a bootable VMS

- All these ports have used a single code base with conditional compilation
- Anything specific to Itanium will be isolated in conditional code
- Expect to see Rdb Vn.n as Alpha and Itanium release with equivalent functionality



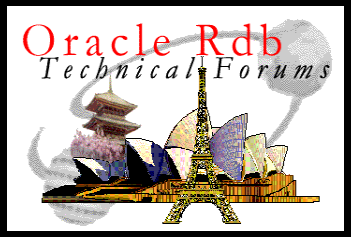
Phase 1

- Create a build environment that uses the intermediate cross compilers on Alpha but generating Itanium object code and executables
  - These cross tools are not used for production
- This may highlight language features that need changing, or alert us to alignment issues
- Conditionally compile for VMS with pseudo code generator



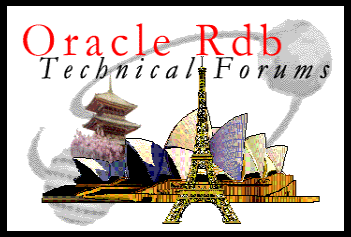
Phase 2

- Require OpenVMS and hardware for execution of new Rdb images
- Port regression and stress-load testing environments to Itanium
- It will be possible to run tests on OpenVMS Alpha and use remote access to OpenVMS Itanium



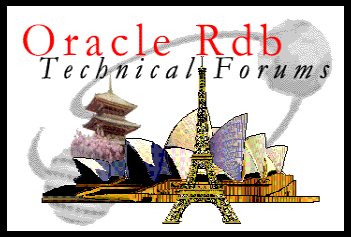
Phase 3

- Build Rdb using native compilers, librarian and linker
- Enter external beta testing
  - Vital to good quality production ship on Itanium
  - It is hoped that low cost Itanium systems will make this easy for our customers



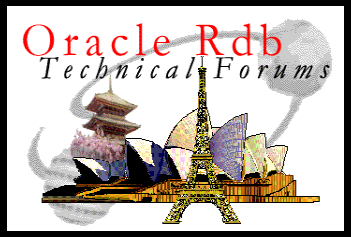
Phase 4

- Release production version on OpenVMS
- Today we are not sure of Rdb version number
- Plan to allow mixed cluster support
  - i.e. share database between Alpha and Itanium
- Features should be the same on both platforms
  - may be restrictions due to OpenVMS or third party requirements



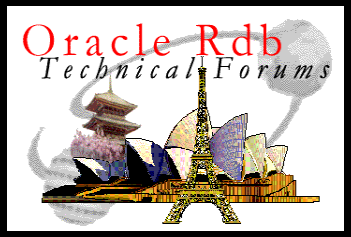
Products

- Rdb including
  - SQL, SQLPRE, SQLMOD, etc
  - RMU
  - RDO, RDML and RDBPRE
  - Replication Option for Rdb
  - SQL*net for Rdb
  - SQL/Services
- CODASYL DBMS
- CDD/Repository
- Oracle TRACE



Discussion Questions

- What tools or services will you require on Itanium (e.g. ACMS, DECforms, etc)?
  - Interested in limitations for beta testing Rdb
- What languages do you use? C, C++, COBOL, etc?
  - Anyone using PL/I?
- What incentives can we give to beta test VMS and Rdb on Itanium?
  - extra tools, etc
- Do you use RDO, RDML or RDBPRE?
  - How important are these tools on Itanium for first release?



For More Information

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QUESTIONS
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