

# Migrating to Oracle

**ORACLE®**  
DATABASE **10<sup>g</sup>**



Migration

# Why Oracle ?

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- **Reliability and increased up time...online DB and AS administration and management, partitioning, backup and recovery....**
- **True row level locking, read consistency**
- **Real Application Clusters ... GRID**
- **One Platform totally integrated: Database, Application Server, J2EE, Development, Portal, Integration, Web Services, BI ...**
- **OS/Hardware Support: Intel, Sun, Linux, IBM, HP, Windows**

# Migration Challenges-Schedule & Cost

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- Migration Experience
  - Staff typically does not have specific migration experience
- Knowledge & Training
  - Little or no knowledge of the new destination platform/s
  - Lead time for training and skills development
- Research & Development Effort
  - Large investment in learning and developing new and unproven techniques
- Not Primary Business Activity
  - Migrations takes resources away from your primary business objectives
- Developer & DBA Fear
  - More so DBA...I am no longer the guru, I have to learn a new technology

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# Oracle Migration Evolution

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**We've been  
handling  
migration  
for the past  
13 years.**

## 1990

- Oracle Design & Migration Services (DMS)
  - Script based tools & ad hoc field resources

## 1996

- Migration Technology Group (MTG)
  - Dedicated developers team
  - Sophisticated database and application migration tools
    - Oracle Migration Workbench (1998)
    - Oracle AS 10g Migration Kit for ASP (2002)
    - Oracle DB 10g Application Migration Assistant (2003)
  - Repeatable/scalable processes

## 2003

- Comprehensive Migration Approach
  - Migration Center of Excellence – tools, web sites, resources and techniques
  - Execution experts - proven methodologies and best practices

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# Oracle's Migration Strategy

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- Reduce Risk
  - Proven Migration Methodology
  - Migration Experts
  - Project Experts
  - Migration Center of Excellence
  - Extensive Migration Knowledge Base
  
- Shorten the Timeline
  - Migration Tools
    - Oracle Migration Workbench, Oracle Application Migration Assistant
    - Migration Scripts
  - Best Practices & Proven Methodologies
  - Focus on databases and applications
  - Oracle9i Platform Experts
  
- Flexible Migration Options
  - On Site and Off Site Migration Options
  - Variable Staffing Models

**Lower Cost & Risk of Adoption**

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# Oracle's Migration Methodology

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- ✓ Application code is normally easy to migrate. SQL needs to be changed.
- ✓ Changes to the existing application (deltas) should be incorporated at the end of the migration.
- ✓ Exclude schema and application changes from the scope of the project. Stick to an “as is” port.

# Oracle's Migration Methodology

10<sup>g</sup>

- ✓ Follows the traditional “waterfall” System Life Cycle (SLC) approach rather than the “iterative” Rapid Application Development (RAD) approach.
- ✓ However, four to six week DB prototypes or one to two week AS prototypes are often part of the migration
- ✓ Requirement gathering, analysis and design are normally completed in two to ten weeks for DB migrations. Even less for AS migrations (one day to one week)
- ✓ Easiest part for DB migration is installation scripts, schema and data (normally two to eight weeks).

# Oracle's Involvement – “Services” provided

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- Scoping/estimating
- Project Planning
- Prototyping/Proof of Concept
- Knowledge Transfer
- Technical issue resolution
- Performance Tuning
- Oracle Installation process
- Linking with preferred third party services companies



# Types of Database Migration Projects

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- Prototypes/Lite weight assistance (90%) vs Real Projects (10%)
- Migrations (20%) vs Portations (80%) – In port, partner still supports platform ported from.
- Original database (in order of how many done):
  - SQL Server
  - Sybase
  - MSDE
  - MySQL
  - DB2
  - Informix
  - All other: ISAM, VSAM, RMS, MySQL, SQL Anywhere, Btrieve, MS Access

# Length of Typical Database Migration Projects

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- Easy
  - 15 to 40 person days
- Medium Complexity
  - 40 to 180 person days
- Complex
  - 180 - 700 person days
- Very Complex
  - > 700 person days
- Most migrations from SQL Server take from 90 – 170 person days

# What Determines DB Complexity?

There are a lot of similarities between databases:

- Similar Schema Objects (tables, views)
- Similar Datatypes
- Referential Integrity
- Check Constraints / Rules
- Transaction Support
- Triggers and Stored Subprograms
- SQL Access to System Catalogs

# There are several DB differences

## Main Differences:

- Organization
- Connection Models
- Transactional and Isolation Models
- Temporary Tables
- Application programming (Vendor APIs and tools – DB Library, Informix 4GL etc.)
- Stored Subprograms
- Utilities (Bulk Loading)

# Oracle Involvement - Typical Database Migration Projects

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5 to 14 days:

- 1 - 3 days on site to kick off the project or do a scope/estimating effort
  - 1 day install + basic skills transfer
  - 1 day database migration
  - 1 day to get application migration started
- Remote assistance
- 2-3 days to solve technical issues
- 1- 5 days tuning
- 1- 3 day automating Oracle Installations

# Types of AS/J2EE Migration Projects

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- Prototypes/Lite weight assistance (95%) vs Real Projects (5 %)
- Migrations (1 %) vs Portations (99 %) – In port, partner still supports platform ported from.
- Original middle tier (in order of how many done):
  - BEA WebLogic
  - IBM Websphere
  - JBoss
  - Apache/Tomcat
  - All other: Macromedia Jrun, Sybase, SilverStream etc.

# Length of Typical AS/J2EE Migration Projects

10<sup>g</sup>

- Easy
  - 2 to 5 person days
- Medium Complexity
  - 5 to 15 person days
- Complex
  - 15 to 40 person days
- Very Complex
  - > 40 person days
- Most migrations from BEA Weblogic, JBoss take from 5 – 15 person days

# What Determines AS Complexity?

There are a lot of similarities between Application Servers:

- J2EE is the foundation
- Standard configuration files
- JDBC
- Web Service Standards
- Transaction Support
- JSP and JSP custom tag libraries support in Oracle
- Java Servlets are standard
- Session EJBs are much easier to migrate than Entity EJBs since there are no persistence-related migration issues



# There are several Application Server 10<sup>g</sup> differences

## Main Application Server Differences:

- Non standard Configuration files
- Non standard connection pooling models
- WebLogic-specific Custom tags to be replaced with equivalent Oracle AS 10g Custom Tags
- IBM Bean scripting framework(BSF) and Websphere specific Tags and properties
- IBM Websphere extensions to Servlets
- WebLogic-specific container stub & skeleton classes need to be removed
- EJB - Remove implementation-specific hard-coded JNDI and JDBC references in the true spirit of J2EE
- EJB - Removal of Proprietary APIs or Flags - Transaction Mgmt, Locking, Caching
- COM and Tuxedo Support

# Oracle Involvement - Typical AS/J2EE Migration Projects Migration Projects

3 to 4 days:

- 2 days on site to kick off the project or do a proof of concept
  - 1 day install + basic skills transfer
  - 1 day J2EE application and configuration file migration
- Remote assistance
- 1 -2 days to solve technical issues

# Length of Typical Linux Migration Projects

10<sup>g</sup>

- Easy
  - 2 to 5 person days
- Medium Complexity
  - 5 to 10 person days
- Complex
  - 10 to 30 person days
- Very Complex
  - > 30 person days
- Most migrations from Unix take from 5 – 10 person days

# Oracle Involvement - Typical Linux Migration Projects (Assumes Oracle/UNIX migration)

10<sup>g</sup>

2 to 4 days:

- 2 days on site to kick off the project or do a proof of concept
  - 1 day install + basic skills transfer
  - 1 day getting migration started
- Remote assistance
- 1 - 2 days to solve technical issues

# 3<sup>RD</sup> Party Service Providers

These folks provide scoping, POCs and do the actual migration for partners

- **Sierra Atlantic** (DB/AS), **2Train4** (AS)

# 3<sup>RD</sup> Party Tools Providers

- Freesoft – Visual Basic to Java, Informix 4GL
- Artinsoft – Informix 4GL
- Techne – Powerbuilder to Java
- Cast Software – Estimating, scoping
- **Ciphersoft** – Forms to Java
- PKS – AS/400
- **Churchill Software** - Oracle's JPublisher to generate Java from Oracle Forms (JAutomater 9i) Sri Rajan ([srajan@churchill.uk.com](mailto:srajan@churchill.uk.com))
- Software Revolution – Mumps (other legacy) to Oracle
- ACID Software – IMS, AS/400

# Oracle Migration Workbench

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- Intuitive user interface, supported by migration wizards
- Supports complete database migration
  - Schema & Data
  - Triggers & Stored Procedures
- Embedded SQL
  - Informix ESQL/C -> Oracle Pro\*C
- Ability to customize data types
- Customization supported prior to generation
- Capture / Create / Migrate

Over 70,000 Downloads from OTN

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# Oracle Migration Workbench

## Release 9.2.0.1.7

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- This release includes the following new features:
  - \* New simplified single-click install procedure
  - \* Increased productivity through improvements in object capture and generation
  - \* 70% reduction in the size of the Oracle Migration Workbench distribution
  - \* 30% performance improvement in the capture of source databases
  - \* Productivity gains for Microsoft Access migrations
  - \* Significant enhancements to Microsoft SQL Server and Sybase Adaptive Server plug-ins
- Check the [Oracle Migration Workbench home page](#) on OTN for a full list of features and to download the tool free of charge.
- Please address all migration enquiries to the helpdesk at [mtg-feedback\\_ww@oracle.com](mailto:mtg-feedback_ww@oracle.com)



# Migration Process

- Evaluation of Migration Requirements
  - Understand your business requirements
  - Develop a migration plan aligned with your strategic goals
  - Include optional services such as education, performance tuning and Oracle Outsourcing, as required
- Assessment of Application System
  - Delivery of application system to Oracle
  - Assessment of the database and/or application
  - Assessment report and statement of work
- Migration
  - Migration of database and/or application
  - Migration report

# Oracle Migration Center of Excellence - Defined

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- Center of excellence for migration technology externally
  - All Product Migration solutions hosted in one location
  - An agreed upon set of tools, processes and methodologies with supporting infrastructure
- A virtual community of migration experts and resources
  - Partners, Oracle Consulting, Sales, Oracle University, Development
  - Input from customers and partners (ISV, Sis) via an external collaboration environment.

***The Center helps to: Lower Cost & Risk of Adoption with a faster time to market for the ISV or customer***

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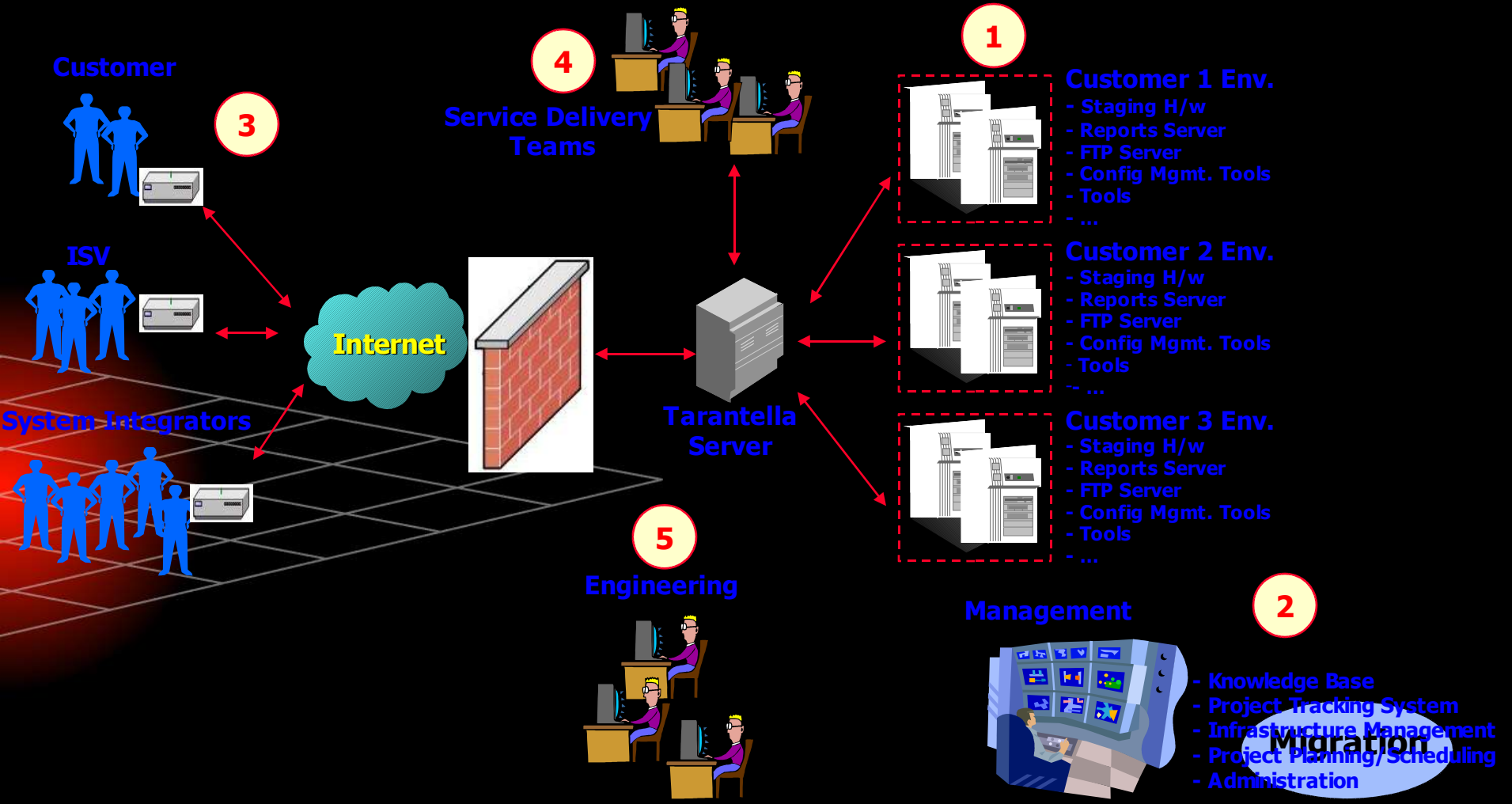
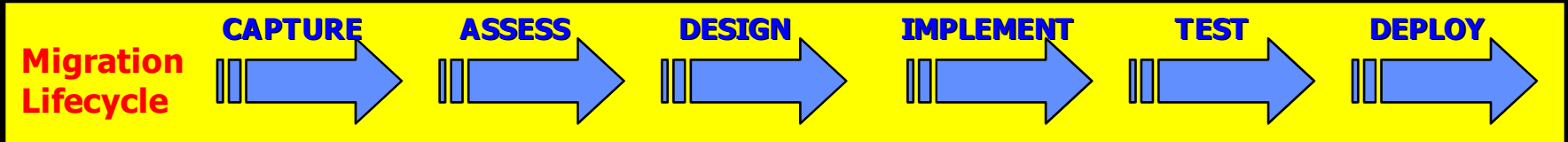
# Oracle Migration Center of Excellence – Consists OF

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- Getting Started
  - New to Migration
  - Focus Areas, estimating, scoping, FAQs
- Migration News
  - Updated monthly or more often
  - Migration stories/articles from Oracle and from Migration Partners
- Migration Tools
  - OMWB, AMA, Toolkits
- Partner Validation
  - Initial point to find validated migration partners in a particular field
- Migration Program Office
  - Currently ties in other products and organizations
- Migration Library to be launched in FY04
  - Migration Solution Finder

# ORACLE® Oracle Migration Center of Excellence - Process

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# ORACLE® Oracle Migration Center of Excellence - Location

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- @Your Site

- Migration resource physically located at your site. Use your hardware etc.

- @Your Site virtually

- Your hardware etc. Resources doing the work VPN into your site.

- @Oracle

- Oracle hosts the application and database at their facilities and partner and third party (if used) VPN in.

- @Third party off shore site “Batch mode”

- Third party hosts the application and database at their facilities and security FTP sites are used to transfer completed work

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# Migration Process

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- Improvement and Optimization
  - Adoption of key Oracle technology and features: RAC, Partitioning, ...
  - Performance tuning
  - Implementation of operational procedures such as back up and recovery, database re-organization, and active monitoring
- Customer Acceptance Testing
  - Perform a full system test to confirm that the migrated application behaves as expected
- Production
  - Application system goes live on the Oracle platform!

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# Oracle Migration Workbench Customers



DAIMLERCHRYSLER



New York State



Deloitte & Touche



lastminute.com



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# Large ISV Example

## SQL Server / Sybase Migration

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- Large multi-site migration
- Client Side
  - Powerbuilder, Visual Basic, Visual C++, Crystal Reports, Prolog, C, Report Smith, Oracle Reports, Java Applets, HTML
- Middle Tier
  - Oracle 9iAS, JBoss, Microsoft IIS and BEA Web Logic...  
Java/J2EE, ASP, COM, COM+
- Database
  - Sybase, SQL Server, Oracle
- Effort
  - Total of ~ 1,900 person/days
  - Six Month Migration

**Migration**



# ORACLE® Small ISV Example

## SQL Server Migration

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- SQL Server 2000 → Oracle 9i
- Visual Basic/Visual C++/ODBC
- 150 Tables
- 2GB of Data
- 100 Stored procedures, 50 triggers, 5 views
- 1500 SQL calls embedded in application

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# ORACLE® Small ISV Example

## SQL Server Migration - continued

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- Oracle Migration Workbench(OMW) from data, schema, rules, triggers, stored procedures, views
- Swap out ODBC drivers
- Fix non-standard SQL
- Fix very complex stored procedures, triggers

Migration

- Analysis/Design, Knowledge transfer, POF, OMW – data/schema etc.) – 5 days (2 people)
- Swap out ODBC drivers – ½ day
- Fix non-standard SQL – 6 weeks (2 people...off shore)
- Fix very complex stored procedures, triggers – 10 days (1 person)
- Integration Testing – 3 weeks (2 people)
- Performance Testing – 2 weeks (1 person)

# ORACLE® Large ISV Example BEA Migration

10<sup>g</sup>

- Client Side
  - Java Applets, HTML
- Middle Tier
  - Java/J2EE, JSP, Servlets
- Effort
  - 2 weeks (Oracle – 3 days, partner – 10 days)

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# Where to get started?

- Oracle Technology Network (Migration Web Page: Migration Workbench, white papers etc.) <http://otn.oracle.com/tech/migration/content.html>
- Automated estimating web site: <http://immigrate.oracle.com/iMigrate/>
- Migration Discussion Forum on Oracle Technology Network: <http://www.oracle.com/forums/forum.jsp?forum=1>
- OracleSupport/MetaLink: <http://www.oracle.com/support/metalink/index.html>
- Oracle PTS assistance – Tom Laszewski 603.929.9201 or [tom.laszewski@oracle.com](mailto:tom.laszewski@oracle.com)
- For all partner help and list of FREE training, briefings: <http://partner.oracle.com>