Continuing Your Education
and Further Reading

Where Do You Go from Here?

"To stay competitive in the tech industry, never stop learning. Always be on the lookout for better ways of doing things and new technologies. Our industry does not reward people who let themselves stagnate."

–John Hall, Senior Vice President, Oracle University

This appendix provides a few resources to help you with continuing your education.

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Continuing Education Resources

Resources to learn more about working with Oracle Database 11*g* include:

- Oracle University Web site
- Oracle University Knowledge Center
- Oracle Technology Network:
  - Oracle by Example
  - *Oracle Magazine*
  - Oracle Database product page
- Technical support: My Oracle Support
- Oracle Database product page

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Oracle University

Learn Oracle from Oracle! No one knows Oracle technology better than Oracle University.

- Worldwide education services
- 100% student satisfaction
- Learn with the format that best suits *your* needs:
  - Instructor-Led Inclass Training
  - Live Web Class
  - Self-Study CD-ROMs
- Certification

Oracle University
http:// www.oracle.com/education

Oracle University

Oracle University is the world's largest corporate educator with education centers around the globe. The goal is 100% student satisfaction.

Oracle certifications are tangible, industry-recognized credentials that provide measurable benefits to IT Professionals and their employers. Numerous certification paths exist, for example, for DBAs:

- Oracle Certified Associate (OCA)
- Oracle Certified Professional (OCP)
- Oracle Certified Master (OCM), and
- Specialty certifications, for example, Oracle 10*g*: Managing Oracle on Linux Certified Expert

Continuing Your Education

- Database specialty classes:
  - *Oracle Database 10g: Administration Workshop II*
  - *Oracle Database 11g: Performance Tuning*
  - *Oracle Database 11g: Security*
- Other specialty classes:
  - *Oracle 11g: RAC and Grid Foundation Administration*
  - *Oracle Database 11g: RAC Administration*
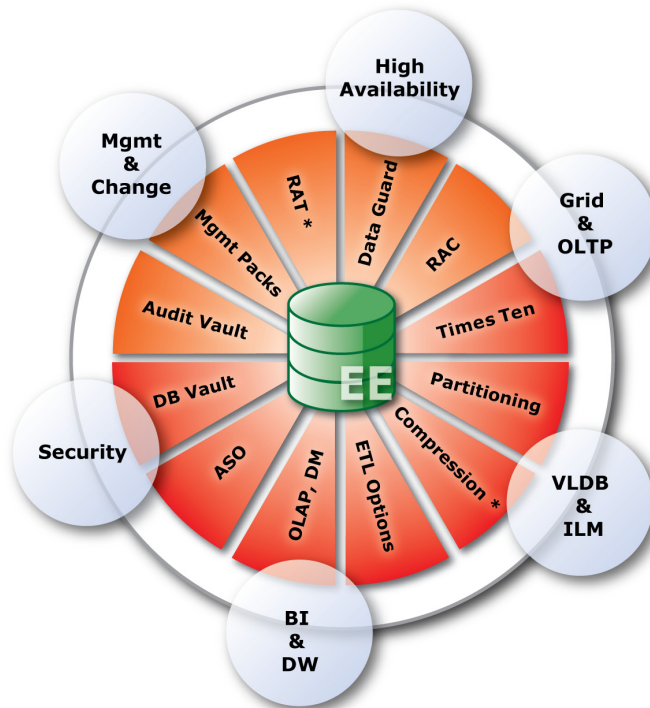
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Continuing Your Education

The *Oracle Database 10g: Administration Workshop II* course provides additional training as a database administrator. You cover advanced database recovery strategies, performance monitoring and tuning, and distributed data concepts. Oracle recommends that you complete this course before beginning specialty courses. Additional courses are available on topics that can enhance your abilities as an Oracle database administrator, such as:

- *Oracle Database 11g: Performance Tuning*
- *Oracle Database 11g: Security*

Other specialty courses include *Oracle 11g: RAC and Grid Foundation Administration* and *Oracle Database 11g: RAC Administration*.

Consult the Oracle University Web site for an up-to-date list of all courses. Consult the Oracle University Learning Paths for more suggested courses for your job description.

Database Specialty Areas

Modern Enterprise Grids
- Real Application Clusters
- Management packs
- TimesTen In-Memory Database

Information Lifecycle Management
- Partitioning
- Advanced Compression

Data Warehousing
- Oracle Information Appliances
- OLAP, Mining, Warehouse Builder

Governance, Risk & Compliance
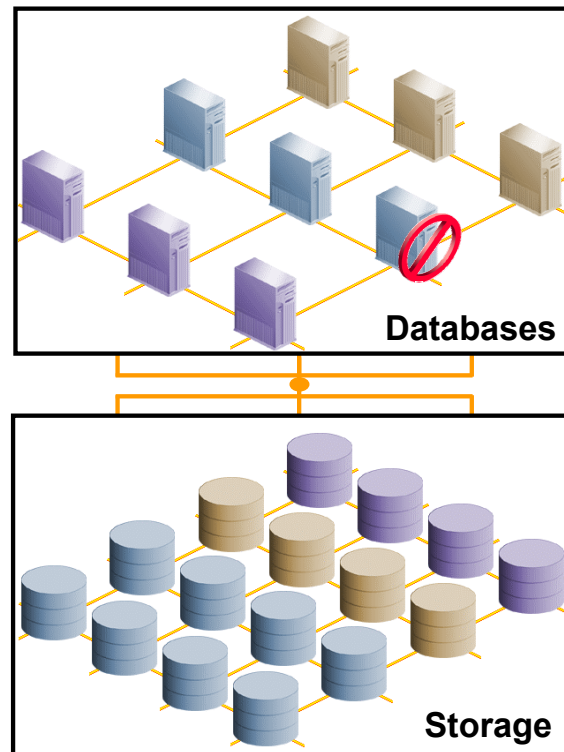- Security Options
- Total Recall

Change management
- Real Application Testing

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Oracle Real Application Clusters

- Consolidating different workloads to a single grid
- Virtualizing the information platform
- Flexible physical infrastructure (including dedicated servers)

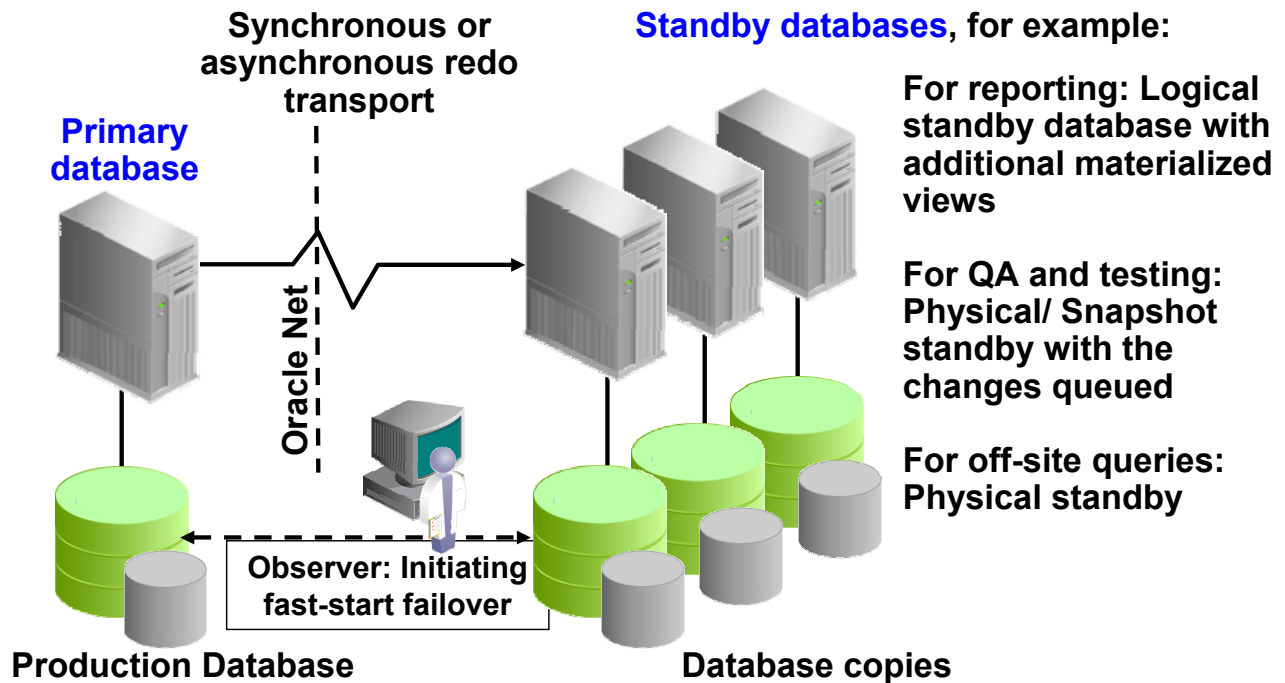**Databases**

Storage

Why use RAC?

Oracle Real Application Clusters (RAC) enables high utilization of a cluster of standard, low-cost modular servers such as blades. RAC offers automatic workload management for services. Services are groups or classifications of applications that comprise business components corresponding to application workloads. Services in RAC enable continuous, uninterrupted database operations and provide support for multiple services on multiple instances. You assign services to run on one or more instances, and alternate instances can serve as backup instances. If a primary instance fails, Oracle moves the services from the failed instance to a surviving alternate instance. Oracle also automatically load-balances connections across instances hosting a service.

RAC harnesses the power of multiple low-cost computers to serve as a single large computer for database processing, and provides the only viable alternative to large-scale SMP boxes for all types of applications. RAC, which is based on a shared-disk architecture, can grow and shrink on demand without the need to artificially partition data among the servers of your cluster. RAC also offers a single-button addition and removal of servers to a cluster. Thus, you can easily provide or remove a server to or from the database.

Oracle Data Guard

Synchronous or asynchronous redo transport

Standby databases, for example:

Primary database

Oracle Net

For reporting: Logical standby database with additional materialized views

For QA and testing: Physical/ Snapshot standby with the changes queued

For off-site queries: Physical standby

Observer: Initiating fast-start failover

Production Database

**Database copies**

Oracle Data Guard

Oracle Data Guard is a management, monitoring, and automation software infrastructure that works with a production database and one or more standby databases to protect your data against failures, errors, and corruptions that might otherwise destroy your database. It protects critical data by providing facilities to automate the creation, management, and monitoring of the databases and other components in a Data Guard configuration. It automates the process of maintaining a copy of an Oracle production database (called a *standby database*) that can be used if the production database is taken offline for routine maintenance or becomes damaged.

In a Data Guard configuration, a production database is referred to as a *primary database*. A *standby database* is a synchronized copy of the primary database. Using a backup copy of the primary database, you can create from one to nine standby databases. The standby databases, together with the primary database, make up a Data Guard configuration. Each standby database is associated with only one primary database.

Note: You can use the Cascaded Redo Log Destinations feature to incorporate more than nine standby databases in your configuration.

Configuring standby redo log files is highly recommended on all standby databases in a Data Guard configuration, including the primary database to aid in role reversal.

Streams Overview
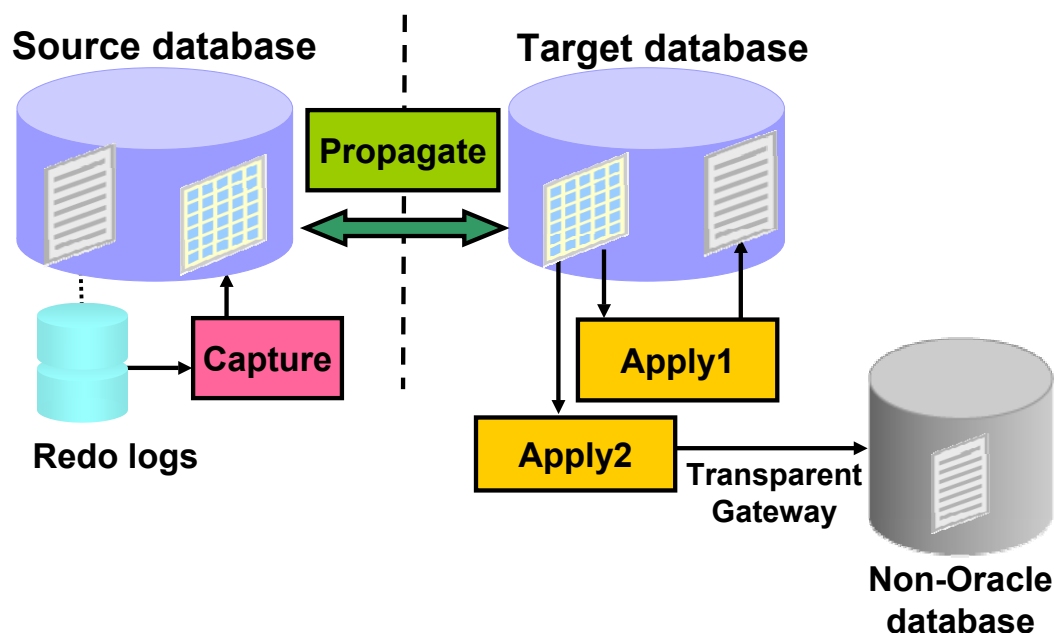
Streams Overview

A stream is a flow of information either within a database or from one database to another. Oracle Streams is a set of processes and database structures that enable you to share data and messages in a data stream. The unit of information that is put into a stream is called an event:

- DDL or DML changes, formatted as an LCR
- User-created events

Events are staged in and propagated between queues.

Most people think of Streams as replication where all databases can be updatable, and without platform or release considerations. Characteristics include:

- All sites: Active and updateable
- Automatic conflict detection and optional resolution
- Supporting data transformations
- Flexible configurations: n-way, hub & spoke, and so on
- Different database platforms, releases and schemas
- Providing high availability for applications (where update conflicts can be avoided or managed)

Oracle Streams: Basic Elements

By using Oracle Streams, you can share data and events in a data stream, either within a database or from one database to another.

Oracle Streams uses queues to stage events for propagation or consumption. You can use Oracle Streams to propagate events from one queue to another, and these queues can be in the same database or in different databases. You may stage two types of events in a queue used by Streams: captured events (logical change records, or LCRs) and user-enqueued events (which can be messages or LCRs):

- Changes to the database can be captured from the redo logs. You can then format these changes into LCRs. The LCRs can represent data manipulation language (DML) or data definition language (DDL) changes. The database where changes are generated in the redo log is called the source database.
- You can also enqueue user events explicitly with a user application. These explicitly enqueued events can be LCRs or user-created messages. A message is the smallest unit of information that is inserted into and retrieved from a queue. A message consists of data as well as information to govern the interpretation and use of the message data.

You can divide Oracle Streams into a small set of tasks. By configuring these tasks, you can control what information is put into a stream, how the stream flows from node to node, what happens to events in the stream as they flow into each node, and how the stream terminates.

You can customize each task to address specific requirements and business needs. The result is a new feature that provides greater functionality and flexibility than traditional solutions for capturing and managing events, and for sharing the events with other databases and applications. Oracle Streams provides the capabilities that are needed to build and operate distributed enterprises and applications, data warehouses, and high-availability solutions.

The three basic tasks of Oracle Streams are:

- **Capture:** To capture DML or DDL events automatically from the redo log. User-created events are not captured automatically but are placed into a queue via an explicit enqueue operation.
- **Staging:** To store and propagate events between databases. Propagation can be performed explicitly if needed.
- **Apply:** To apply DML or DDL events to a destination database or to pass the events to an application.

You can perform these tasks in a single database or combine them with tasks in other databases to form a distributed environment.

Multi-Database Streams

Events propagate between the staging areas in each database. The capture and consumption elements can be active in any database. For example, you can configure bidirectional data replication with a capture process, propagation job, and apply process at each site. Or, you can have a single-source system with capture and propagation at one site and apply at several other databases. You can also have an arbitrary number of databases. Some of the more complex environments may need hundreds of databases sharing information with Oracle Streams.

Oracle Technology Network

Oracle Technology Network is a *free* resource with information about the core Oracle software products, including database, Application Server, Collaboration Suite, and development tools. You can have access to:

- Technology centers
- Discussion forums
- Software downloads
- Online documentation
- Oracle by Example
- Code samples
   ... and much more!

ORACLE Technology NETWORK

http://www.oracle.com/technology

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Oracle Technology Network

Oracle Technology Network (OTN) hosts the latest news about Oracle technology and products. Additionally, OTN provides peer-to-peer forums, white papers, security bulletins, and other vital information for the Oracle professional.

In addition to tips, tricks, and techniques for getting the most out of your Oracle software, you can download that software from OTN. Remember that all software downloads are free; each comes with a development license that allows you to use full versions of the products only when developing and making prototypes of your applications.

Security

http://www.oracle.com/technology/deploy/security/index.html

Security

For more information about all security-related aspects of the database, visit the "Security Technology Center," which is updated regularly.

Oracle by Example

- What is an OBE?
    - A set of hands-on, step-by-step instructions
- Where can I find them?
    - http://www.oracle.com//technology/obe
- What is available?
    - Hundreds of OBE tutorials on many of the Oracle product areas

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Oracle by Example

The Oracle by Example (OBE) series provides hands-on, step-by-step instructions on how to use various new features of Oracle products. OBEs help to reduce the time spent on learning a new product capability and enhance the users' understanding of how the feature can be implemented in their environment. Currently, OBEs are available for the Oracle database, Fusion Middleware, Oracle Application Server, Oracle Enterprise Manager Grid Control, Oracle Collaboration Suite, JDeveloper, and Business Intelligence. OBEs can be accessed at http://www.oracle.com/technology/obe.

Oracle Magazine

- Free subscription
- Oracle Magazine Archives
  http://www.oracle.com/technology/oramag/index.html

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Oracle Magazine

Among the many different types of resources to which you have access from OTN is *Oracle Magazine*. You can receive your free subscription also by mail.

Oracle Applications Community

Oracle Technology Network is a resource for Oracle
Applications users and implementers. You can have access to:

- Discussion forums
- User groups
- Online chat
- Documentation
- Training
- Upgrade information
    - … and much more!

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*Apps***Net**

http://www.oracle.com/technology/community/apps/index.html

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Technical Support: My Oracle Support

Access to My Oracle Support is included as part of your annual support maintenance fees. In addition to the most up-to-date technical information available, My Oracle Support gives you access to:

- Service requests (SRs)
- Certification matrices
- Technical forums monitored by Oracle experts
- Software patches
- Bug reports

ORACLE° MY ORACLE SUPPORT

http://metalink.oracle.com

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Oracle *Meta*Link

My Oracle Support is your gateway to Oracle's Support resources. Here you find answers to the most common issues facing Oracle administrators and developers, as well as resources to solve many of those issues.

Like Oracle Technology Network, My Oracle Support includes the most recent headlines about issues that affect the Oracle professional.

Oracle Database Product Page

From the Oracle Database product page on OTN, there are links to:

- Database Focus Areas
- White Papers
- Option Data Sheets
- Related technologies
- Discussions
- Other useful resources

Oracle Database Product Page

From the Oracle Database product page on OTN, there are links to useful information such as:

- **Database Focus Areas:** Provides links to other database-related focus areas such as Grid/Clustering, High Availability, Performance, and Manageability
- **White Papers:** Provides detailed information to help you learn more about the Oracle Database 11*g* product family
- **Option Data Sheets:** Provides detailed information about the various Oracle Database 11*g* options
- **Related technologies:** Provides links to related technologies such as Oracle Application Express and Oracle SQL Developer
- **Discussions:** Provides links to ongoing discussions related to Oracle Database 11*g*
- **Other resources:** Links to documentation, forums, links for learning more, and other useful resources

The documents here are live documents that are updated whenever the need arises, as well as new documents that may be added at any time. Check back regularly to find the latest information available.

Thank You!

We hope your experience with Oracle University has been enjoyable. We welcome your feedback on how we can improve to better meet your needs:

- End-of-course evaluations
- Oracle University Office of Customer Satisfaction
- Oracle Education Services

We hope to see you in class again soon.

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Thank You!

Oracle University's mission is to enhance the adoption of Oracle technology. Our goal is to partner with you, providing information that is pertinent, timely, and relevant to your needs.

Please take a minute to complete the end-of-course evaluation and let us know how we can serve you better. In the U.S., feel free to e-mail our office of customer satisfaction at:

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customersat_us@oracle.com
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If you have questions about continuing your Oracle education, need help finding a class, or want to arrange for on-site training at your company, contact Oracle Education Services for assistance. In the U.S., dial 800.529.0165. For contact numbers outside the U.S., visit the following Web site:

http://www.oracle.com/education/index.html?contact.html

Thanks again. We hope to see you in another class!