

# 11

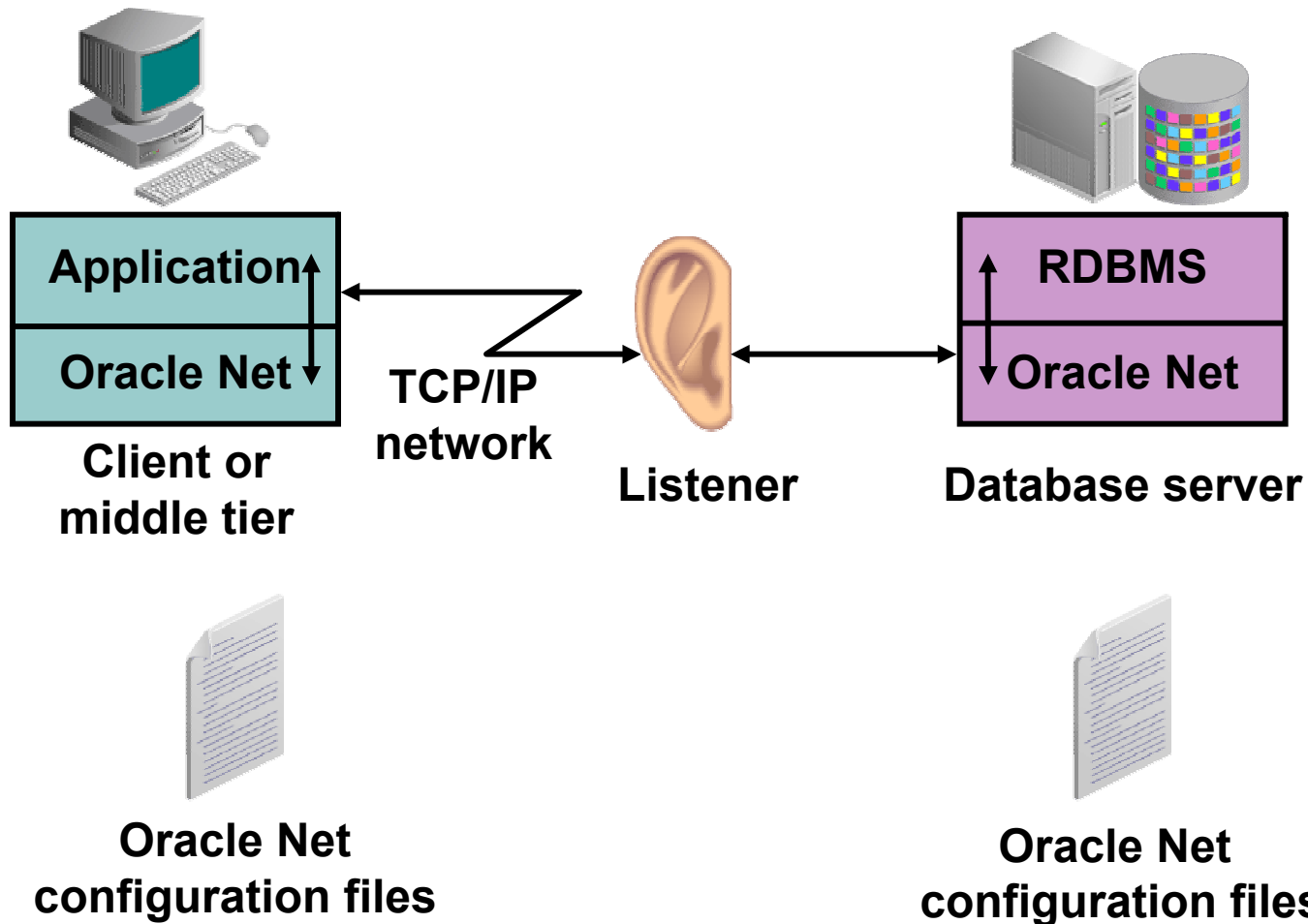
## **Configuring the Oracle Network Environment**

# Objectives

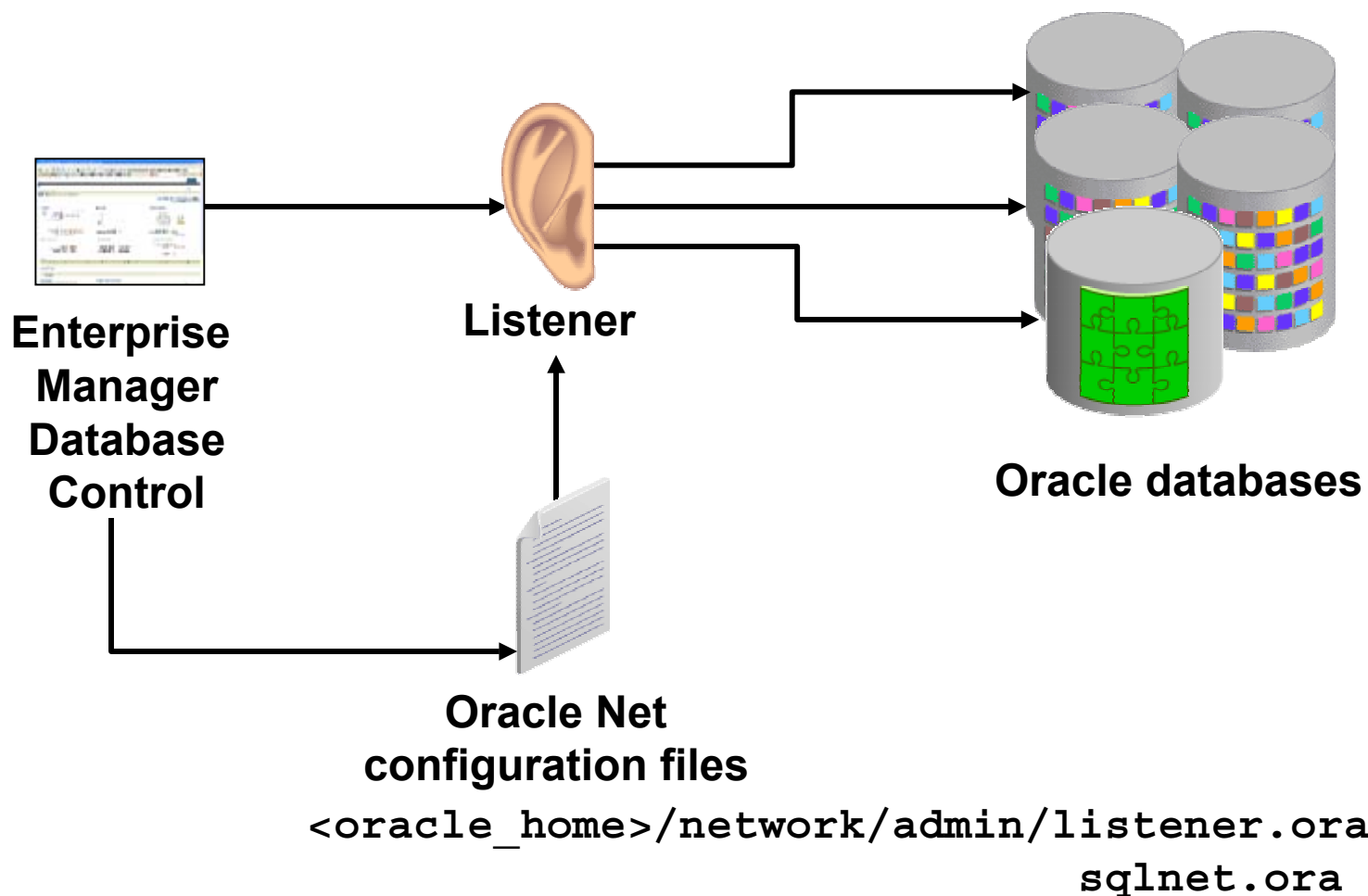
**After completing this lesson, you should be able to:**

- **Use Enterprise Manager to:**
  - Create additional listeners
  - Create Oracle Net Service aliases
  - Configure connect-time failover
  - Control the Oracle Net Listener
- **Use `tnsping` to test Oracle Net connectivity**
- **Identify when to use shared servers versus dedicated servers**

# Oracle Net Services



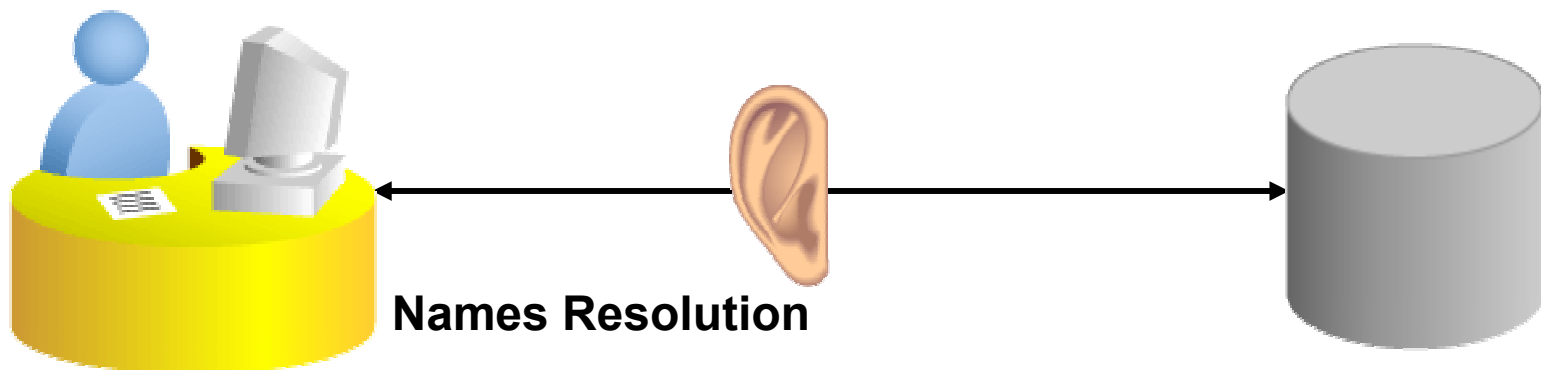
# Oracle Net Listener



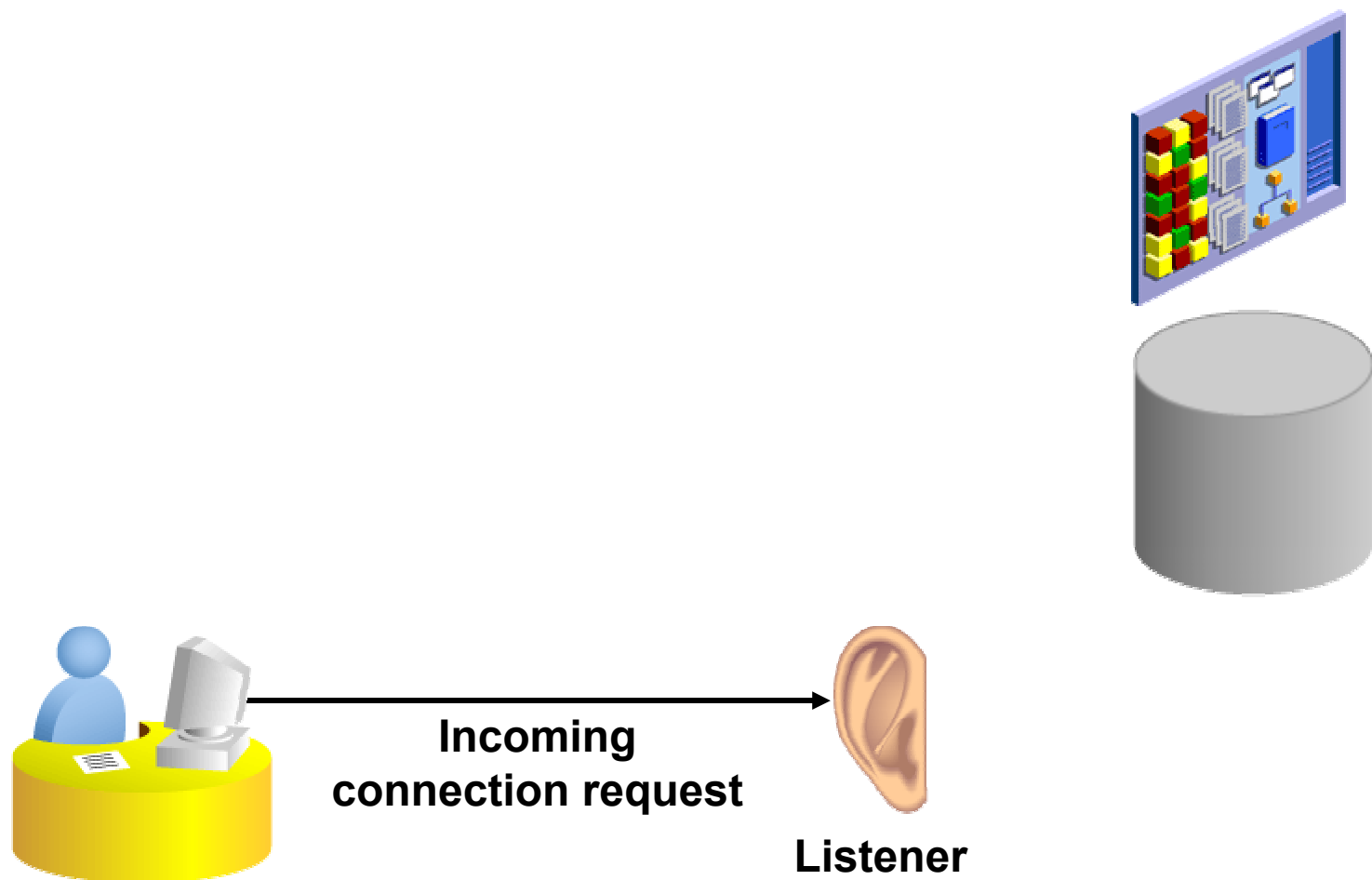
# Establishing Net Connections

To make a client or middle-tier connection, Oracle Net requires the client to know the:

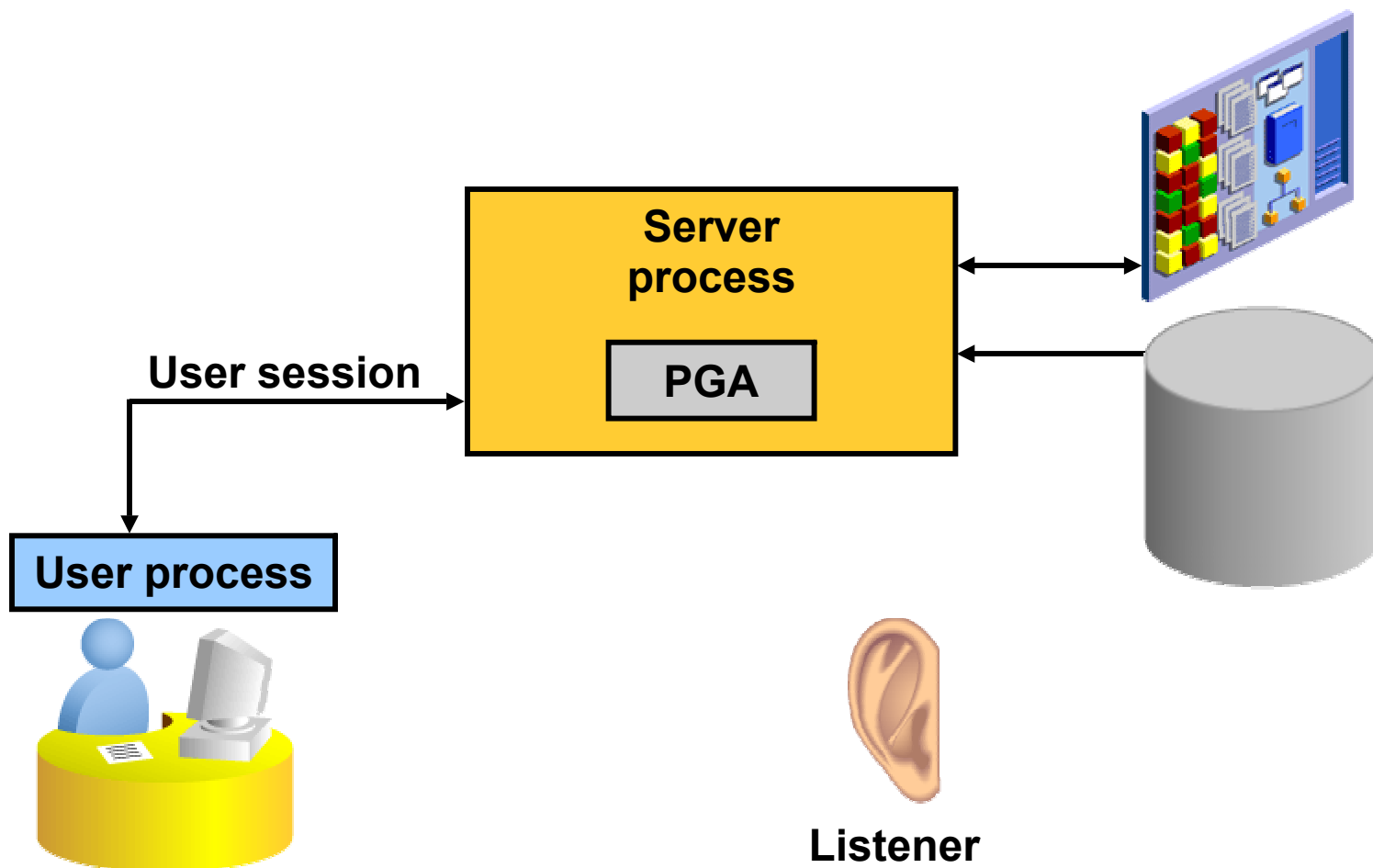
- Host where the listener is running
- Port that the listener is monitoring
- Protocol that the listener is using
- Name of the service that the listener is handling



# Establishing a Connection

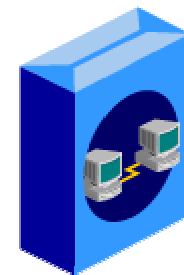


# User Sessions



# Tools for Configuring and Managing the Oracle Network

- **Enterprise Manager Net Services Administration page**
- **Oracle Net Manager**
- **Oracle Net Configuration Assistant launched by Oracle Universal Installer**
- **Command line**





# Listener Control Utility

**Oracle Net listeners can be controlled with the command-line `lsnrctl` utility (or from EM).**

```
$lsnrctl
LSNRCTL for Linux: Version 10.2.0.0.0 on 12-MAY-2005 13:27:51
Copyright (c) 1991, 2004, Oracle. All rights reserved.
Welcome to LSNRCTL, type "help" for information.
LSNRCTL> help
The following operations are available
An asterisk (*) denotes a modifier or extended command:

start          stop          status
services      version      reload
save_config   trace       spawn
change_password  quit       exit
set*          show*
```

# Listener Control Utility Syntax

Commands from the listener control utility can be issued from the command line or from the `LSNRCTL` prompt.

- **UNIX or Linux command-line syntax:**


```
$ lsnrctl <command name>
$ lsnrctl start
$ lsnrctl status
```

- **Prompt syntax:**

```
LSNRCTL> <command name>
LSNRCTL> start
LSNRCTL> status
```

# Listener Home Page

## General



Shutdown

Status **Up**  
Up Since **May 2, 2005 3:25:01 PM PDT**  
Instance Name **orcl**  
Version **10.2.0.0.0**  
Host **edrsr30p1.us.oracle.com**  
Listener **LISTENER\_edrsr30p1.us.orac...**

Listener: [LISTENER\\_edrsr30p1.us.oracle.com](#)

[Home](#) [Performance](#) [Serviced Databases](#)

Page Refreshed **May 11, 2005 3:22:45 PM** 

## General



[Edit](#) [Stop](#)

Status **Up**  
Availability (%) **100**  
(Last 24 Hours)

Alias **LISTENER**  
Version **10.2.0.0.0**

Oracle Home **/u01/app/oracle/product/10.2.0/db\_1**

Net Address **(ADDRESS=(PROTOCOL=TCP)(HOST=edrsr30p1.us.oracle.com)(PORT=1521))**

LISTENER.ORA Location **/u01/app/oracle/product/10.2.0/db\_1/network/admin**

Start Time **May 2, 2005 3:17:57 PM**

Host **edrsr30p1.us.oracle.com**

[Home](#) [Performance](#) [Serviced Databases](#)

## Related Links

[All Metrics](#)

[Blackouts](#)

[Net Services Administration](#)

[Manage Metrics](#)

[Monitoring Configuration](#)

[Alert History](#)

[Metric Collection Errors](#)

# Net Services Administration Pages

## Net Services Administration: Host Login

Host **edrsr30p1.us.oracle.com**

Oracle Home **/u01/app/oracle/product/10.2.0/db\_1**

\* Username **oracle**

\* Password **\*\*\*\*\***

☒ Save as Preferred Credential

Cancel Login

## Net Services Administration

The table below contains configuration file locations used for network administration. Use this to access functions such as adding a listener or adding net service name. Choose the configuration file, then select the category that you want to administer and click Go.

Select	Configuration File Location	Oracle Home
<input type="radio"/>	/u01/app/oracle/product/10.2.0/db_1/network/admin	/u01/app/oracle/p


Administer **Listeners** **Go**

- Listeners
- Directory Naming
- Local Naming
- Profile
- File Location

# Creating a Listener

## Net Services Administration

The table below contains configuration file locations used for network administration. Use this to access functions such as adding a listener or adding net service name. Choose the configuration file, then select the category that you want to administer and click Go.

Select Configuration File Location	Oracle Home
 /u01/app/oracle/product/10.2.0/db_1/network/admin	/u01/app/oracle/p

Host: [edrsr30p1.us.oracle.com](http://edrsr30p1.us.oracle.com) > [Net Services Administration](#) > Listeners: /u01/app/oracle/product/10.2.0/db\_1/network/admin

Listeners: /u01/app/oracle/product/10.2.0/db\_1/network/admin

Listener Name

Administer: **Listeners**

- Listeners
- Directory Naming
- Local Naming

## Create Listener

**General** [Authentication](#) [Logging & Tracing](#) [Static Database Registration](#) [Other Services](#)

\* Listener Name

### Addresses

Listener must have at least one address. If address is changed, listener will be stopped before applying changes.

Select Protocol

Protocol Details

(No items found.)

# Adding Listener Addresses

## Add Address

Protocol **TCP/IP** **5**

\* Port **1561** **6**

\* Host **edrsr30p1.us.oracle.com** **7**  
The host name or IP address of the computer.


**Advanced Parameters**

The following parameters are introduced in Oracle version 10g.

Total Send Buffer Size (Bytes) Cumulative size for all send operations.

Total Receive Buffer Size (Bytes) Cumulative size for all receive operations.

**Cancel** **OK**



## Create Listener

**General** Authentication Logging & Tracing Static Database Registration Other Services

\* Listener Name **LISTENER2**

### Addresses

Listener must have at least one address. If address is changed, listener will be stopped before applying changes.

**Add** **Edit** **Remove**

Select	Protocol	Protocol Details
<input checked="" type="radio"/>	TCP/IP	Host <b>edrsr30p1.us.oracle.com</b> Port <b>1561</b>

# Database Service Registration

## Add Database Service

Cancel

OK

\* Service Name

orcl.oracle.com

\* Oracle Home Directory

/app/oracle/product/10.2.0/db\_1

\* Oracle System Identifier (SID)

orcl

[General](#) [Authentication](#) [Logging & Tracing](#) **Static Database Registration** [Other Services](#)

Configure the static registration of databases for the listener. Database information for Oracle8i or later releases is dynamically registered with the listener during instance startup. Therefore, static registration is not required for these releases, unless you require remote database startup from other than Oracle Enterprise Manager. Click Help for more details.

Add

Edit

Remove

Select	Service Name	Oracle Home Directory	Oracle System Identifier (SID)
<input checked="" type="radio"/>	orcl.oracle.com	/u01/app/oracle/product/10.2.0/db_1	orcl

# Naming Methods

**Oracle Net supports several methods of resolving connection information:**

- **Easy connect naming:** Uses a TCP/IP connect string
- **Local naming:** Uses a local configuration file
- **Directory naming:** Uses a centralized LDAP-compliant directory server
- **External naming:** Uses a supported non-Oracle naming service



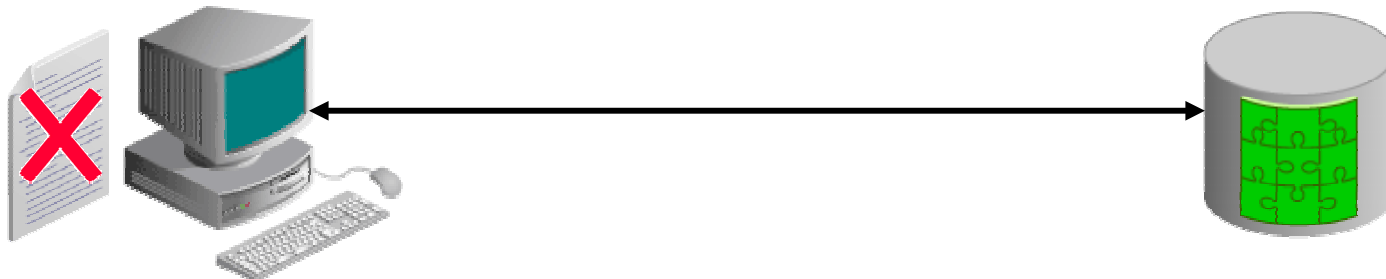
**Oracle Net configuration files**



# Easy Connect

- Is enabled by default
- Requires no client-side configuration
- Supports only TCP/IP (no SSL)
- Offers no support for advanced connection options, such as:
  - Connect-time failover
  - Source routing
  - Load balancing

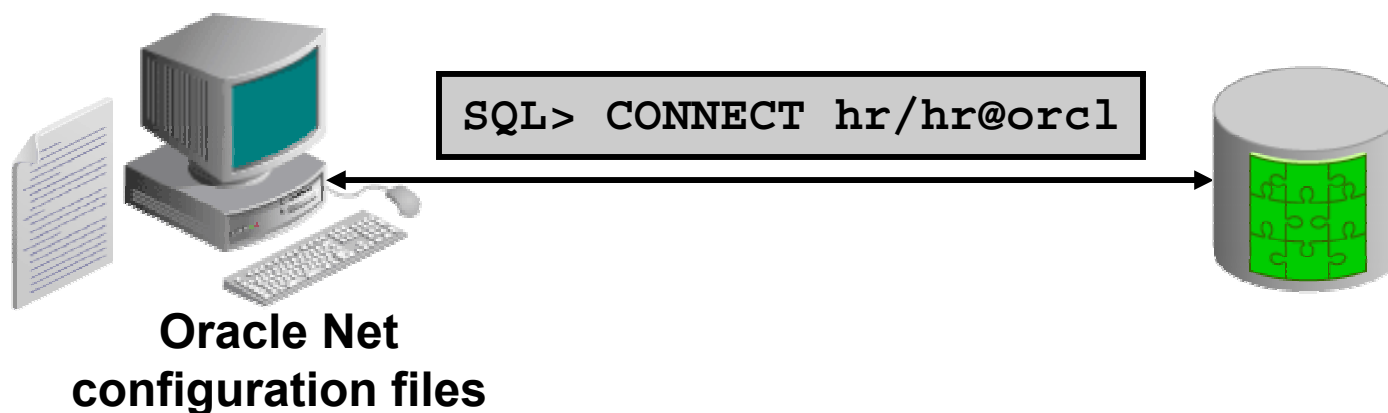
```
SQL> CONNECT hr/hr@db.us.oracle.com:1521/dba10g
```



**No Oracle Net configuration files**

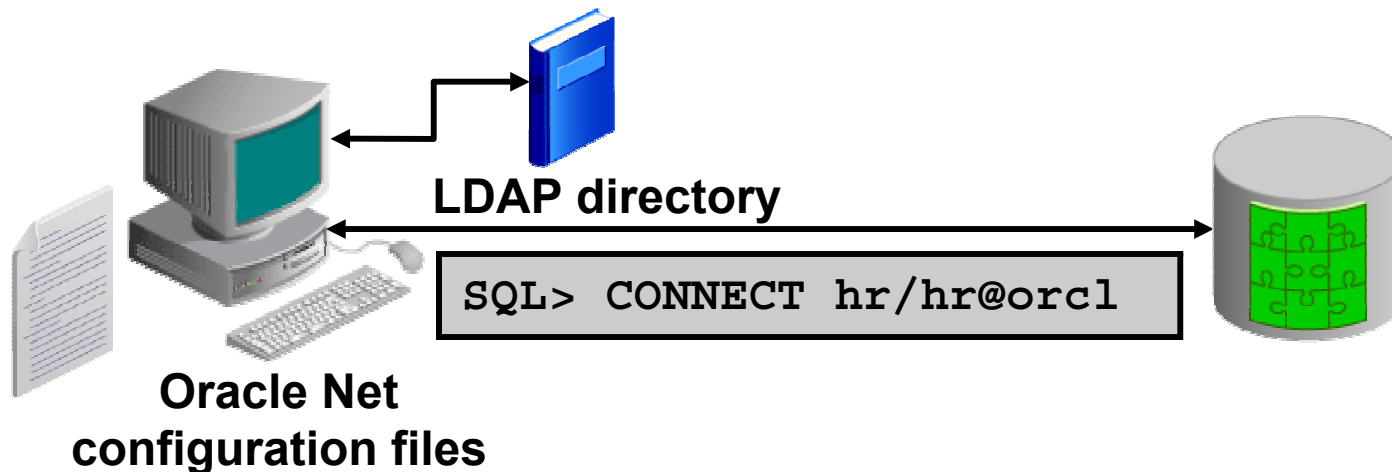
# Local Naming

- Requires a client-side Names Resolution file
- Supports all Oracle Net protocols
- Supports advanced connection options, such as:
  - Connect-time failover
  - Source routing
  - Load balancing



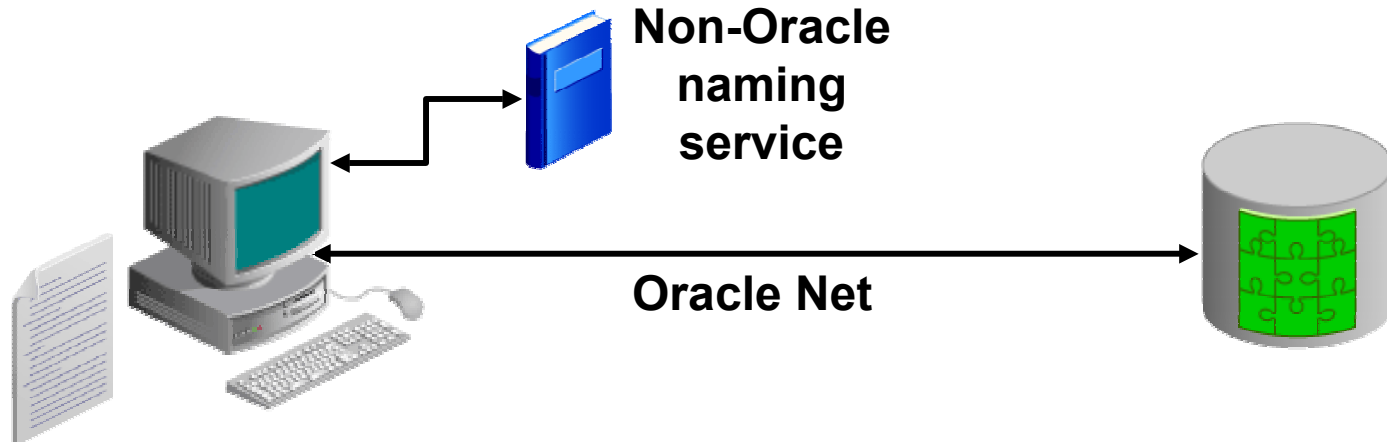
# Directory Naming

- **Requires LDAP with Oracle Net Names Resolution information loaded:**
  - Oracle Internet Directory
  - Microsoft Active Directory Services
- **Supports all Oracle Net protocols**
- **Supports advanced connection options**



# External Naming Method

- **Uses a supported non-Oracle naming service**
- **Includes:**
  - **Network Information Service (NIS) External Naming**
  - **Distributed Computing Environment (DCE) Cell Directory Services (CDS)**



# Configuring Service Aliases

Create or edit

Create Net Service Name

Cancel OK

General Advanced

\* Net Service Name testorcl

**Database Information**

To identify the database or service, you must provide either its service name (recommended) or the Oracle System Identifier (SID). The service name is normally its global database name, a name comprising the database name and domain name.

☒ Use Service Name

Service Name orcl.oracle.com

☐ Use SID

SID

Choose if you want a shared or dedicated server database connection.

☒ Database Default

Requests will be served by whatever database default is.

☐ Dedicated Server

☐ Shared Server

☐ Dedicated Server

Add Address

Cancel OK

Protocol TCP/IP

\* Port 1561

\* Host edsor6p12.us.oracle.com

The host name or IP address of the computer.

Add

# Advanced Connection Options

**Oracle Net supports the following advanced connection options with local and directory naming:**

- **Connect-time failover**
- **Load balancing**
- **Source routing**

## **Connect-time Failover and Client Load Balancing**

Configure whether addresses are tried randomly or sequentially during connections to the service. This setting is applicable only if there are more than one addresses configured.

- ☒ Try each address, in order, until one succeeds
- ☐ Try each address randomly, until one succeeds
- ☐ Try one address, selected at random
- ☐ Use each address in order until destination is reached
- ☐ Use only the first address

# Testing Oracle Net Connectivity

The `tnsping` utility that tests Oracle Net service aliases:

- Ensures connectivity between the client and the Oracle Net Listener
- Does not verify that the requested service is available
- Supports Easy Connect Names Resolution:

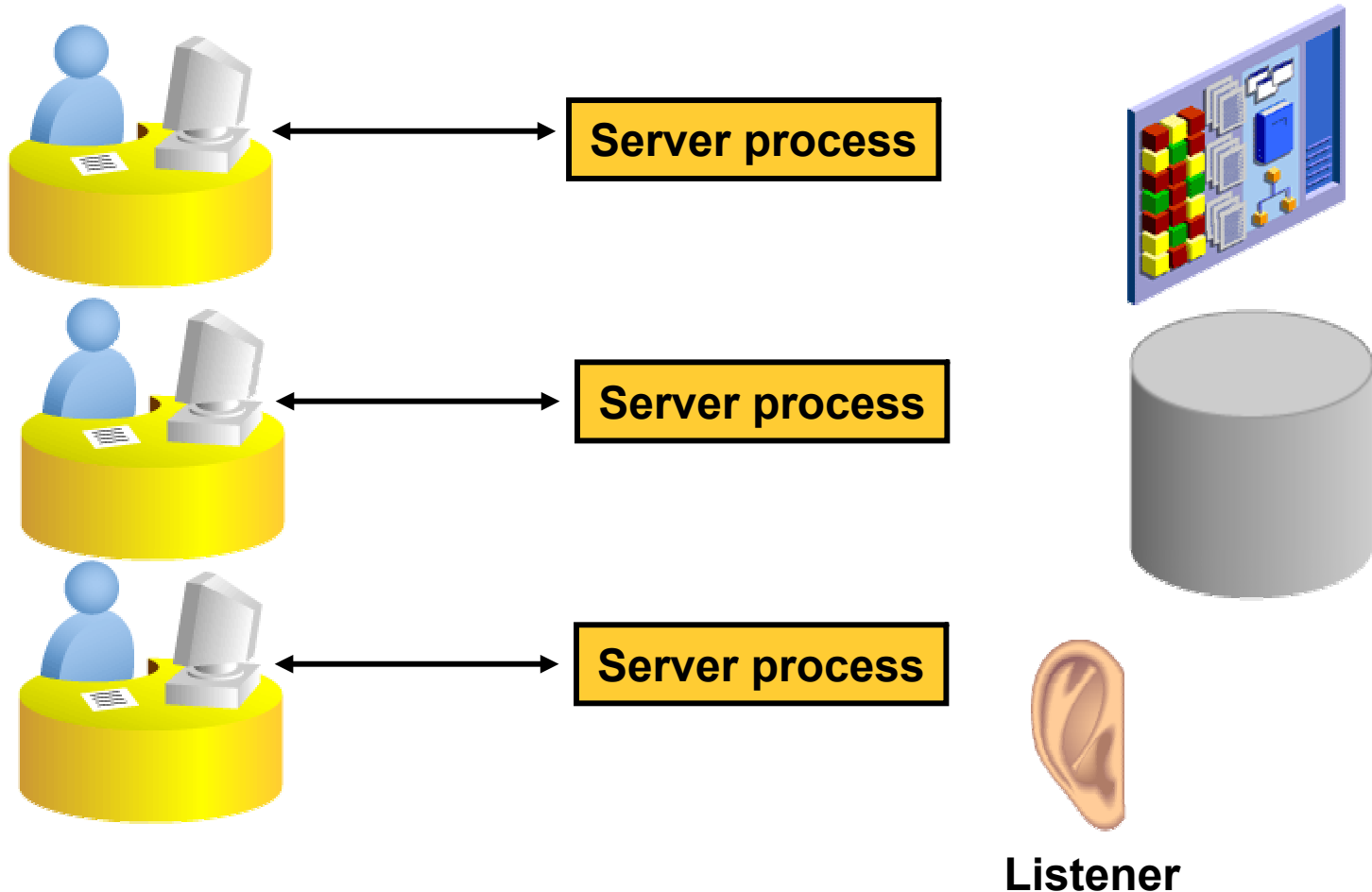
```
tnsping db.us.oracle.com:1521/dba10g
```

- Supports local and directory naming:

```
tnsping orcl
```

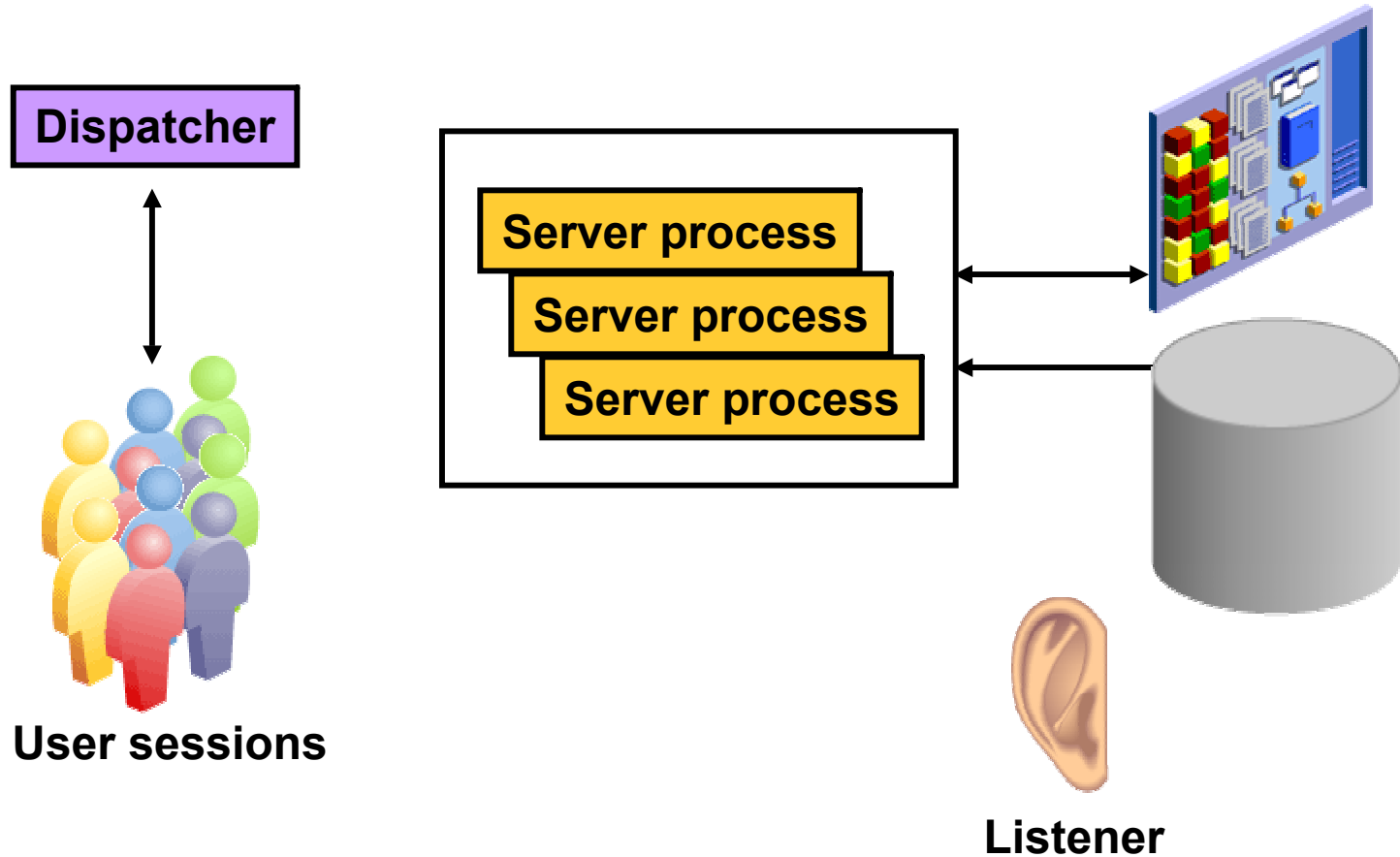
# User Sessions: Dedicated Server

User sessions



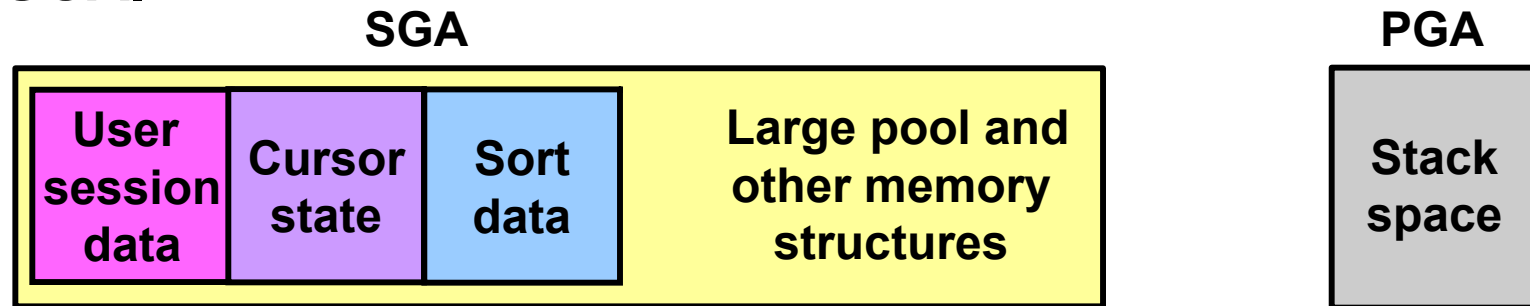


# User Sessions: Shared Servers



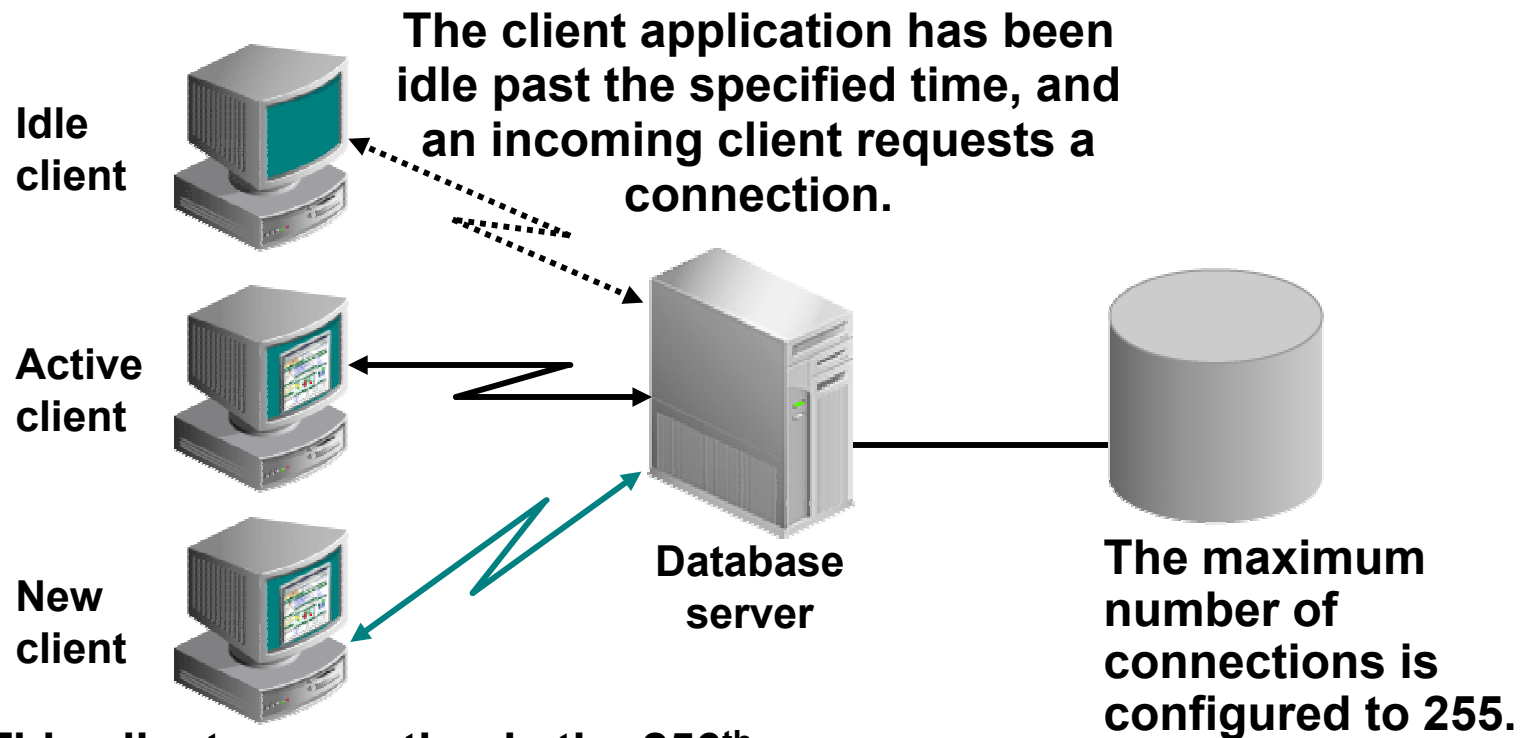
# SGA and PGA

**Oracle Shared Server: User session data is held in the SGA.**



**Remember to factor in shared server memory requirement when sizing the SGA.**

# Shared Server: Connection Pooling



**This client connection is the 256<sup>th</sup> connection into the server. Connection pooling is turned on, so that this connection can be accepted.**

# When Not to Use a Shared Server

**Certain types of database work must not be performed by using shared servers:**

- **Database administration**
- **Backup and recovery operations**
- **Batch processing and bulk load operations**
- **Data warehouse operations**



**Dispatcher**



**Dedicated  
Server process**

# Summary

**In this lesson, you should have learned how to:**

- **Use Enterprise Manager to:**
  - Create additional listeners
  - Create Oracle Net Service aliases
  - Configure connect-time failover
  - Control the Oracle Net Listener
- **Use `tnsping` to test Oracle Net connectivity**
- **Identify when to use shared servers versus dedicated servers**

# **Practice Overview: Working with Oracle Network Components**

**This practice covers:**

- **Configuring local Names Resolution to connect to another database**
- **Creating a second listener for connect-time failover**