



IBM /Oracle International Competency Center 2005

# RAC installation on Linux on zSeries for Oracle 10g

April 13, 2005

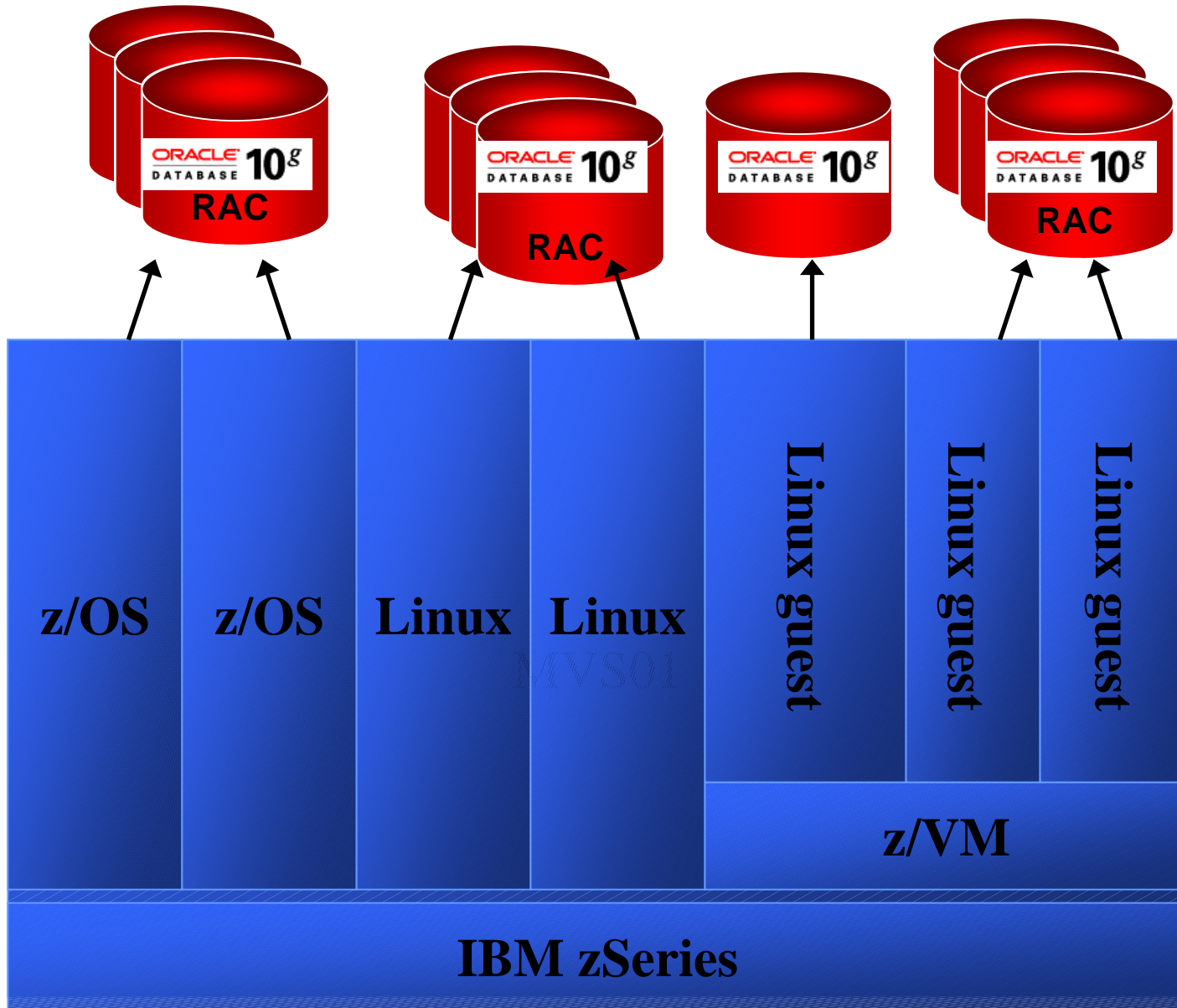


## Agenda

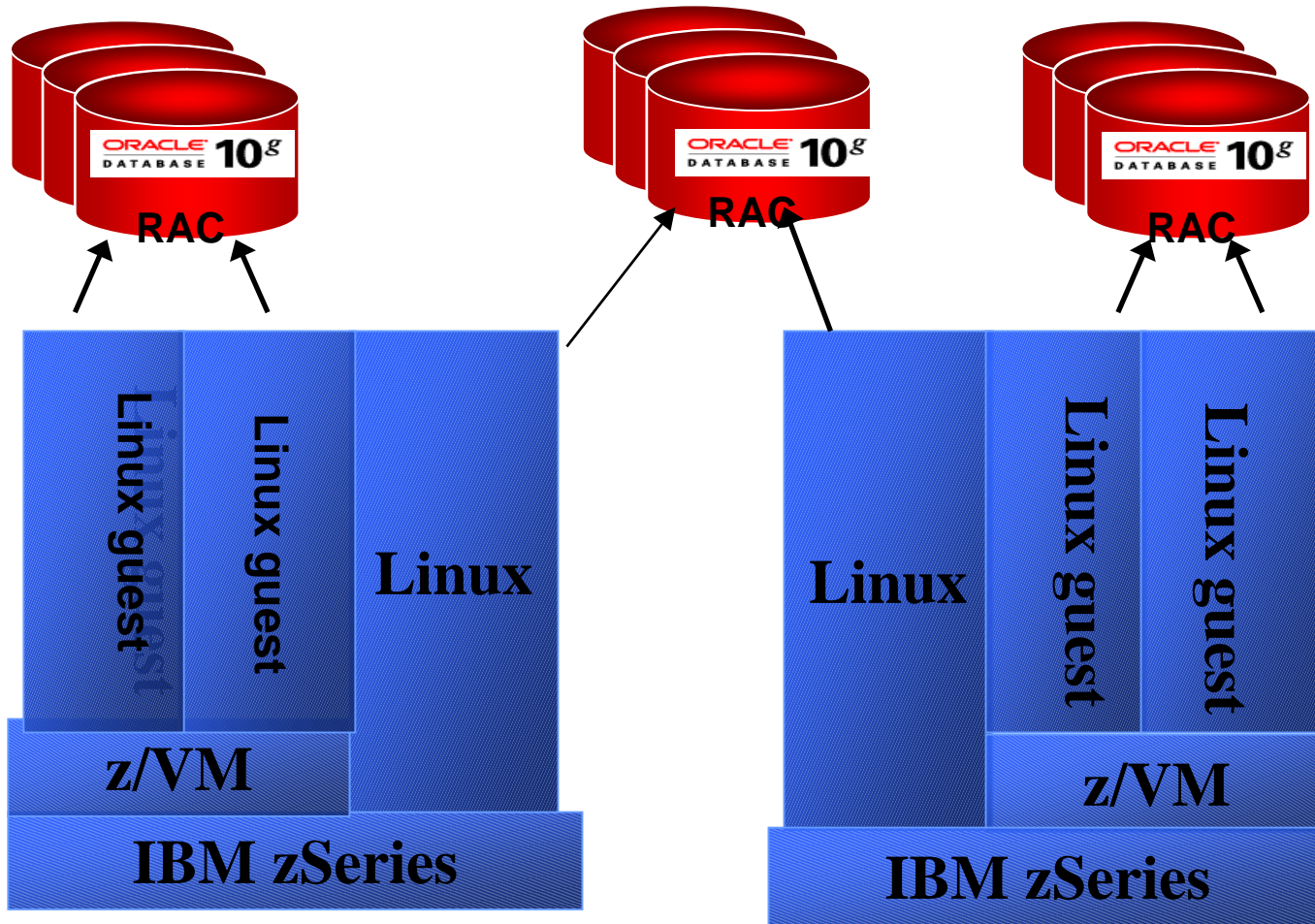
- RAC Options on Linux on zSeries
- Planning for RAC
- Installation steps
  - **Prepare your Linux systems**
  - **Install CRS (Cluster Ready Services)**
  - **Install RAC database code**
    - **VIP configuration**
  - **Create a database**
  - **Verify the access to the database**

## RAC Configuration Options

- Availability
  - **What is the business requirement**
  - **How much downtime can you afford**
  - **Is there prime site and disaster site**
  - **RAC at a distance, Data Guard**
  
- Scalability
  - **SMP vs RAC**
    - SMP depends on HW/SW, RAC on User affinity/app



# Two zSeries systems



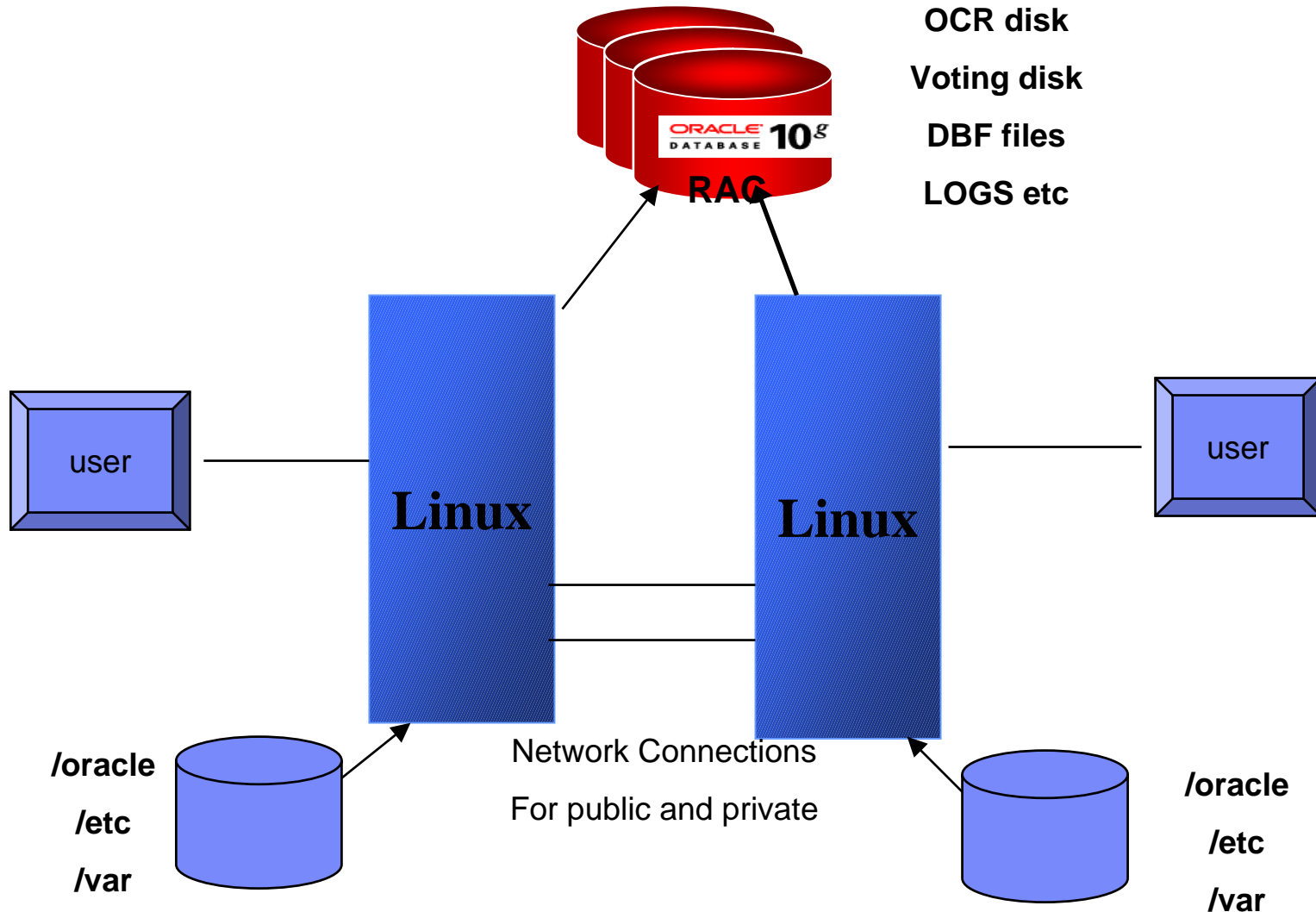
## Planning for RAC Installation

- On each node
  - **Local disk for /oracle - Oracle RAC code**
  - **Oracle User id**
  - **RW Access to shared raw disk from each node**
  - **SSH command must work from both nodes**
  - **2 or 3 ethernet addresses (public, private and Virtual IP)**

## Planning for RAC Installation

- Shared Disk
  - **RW Access to shared raw disk from each node**
    - MDISK 0400 3390 3359 3000 LXC04F MW
    - MINIOPT NOMDC
    - MDISK 0401 3390 0001 3000 LXC2E4 MW
    - MINIOPT NOMDC
  - **Logical volume, bind, map**
  - **OCR and Voting disk for CRS**
  - **Datafiles for database, CTL files, Redo logs**

# File and TCPIP layout



## CRS installation

- Cluster Ready Services must be installed to set up the environment for RAC
- Have the two nodes ready with the shared disk and the network connections.
- ssh command is used by the Oracle Universal installer to install CRS on each remote node

Oracle Universal Installer: Cluster Configuration

## Cluster Configuration

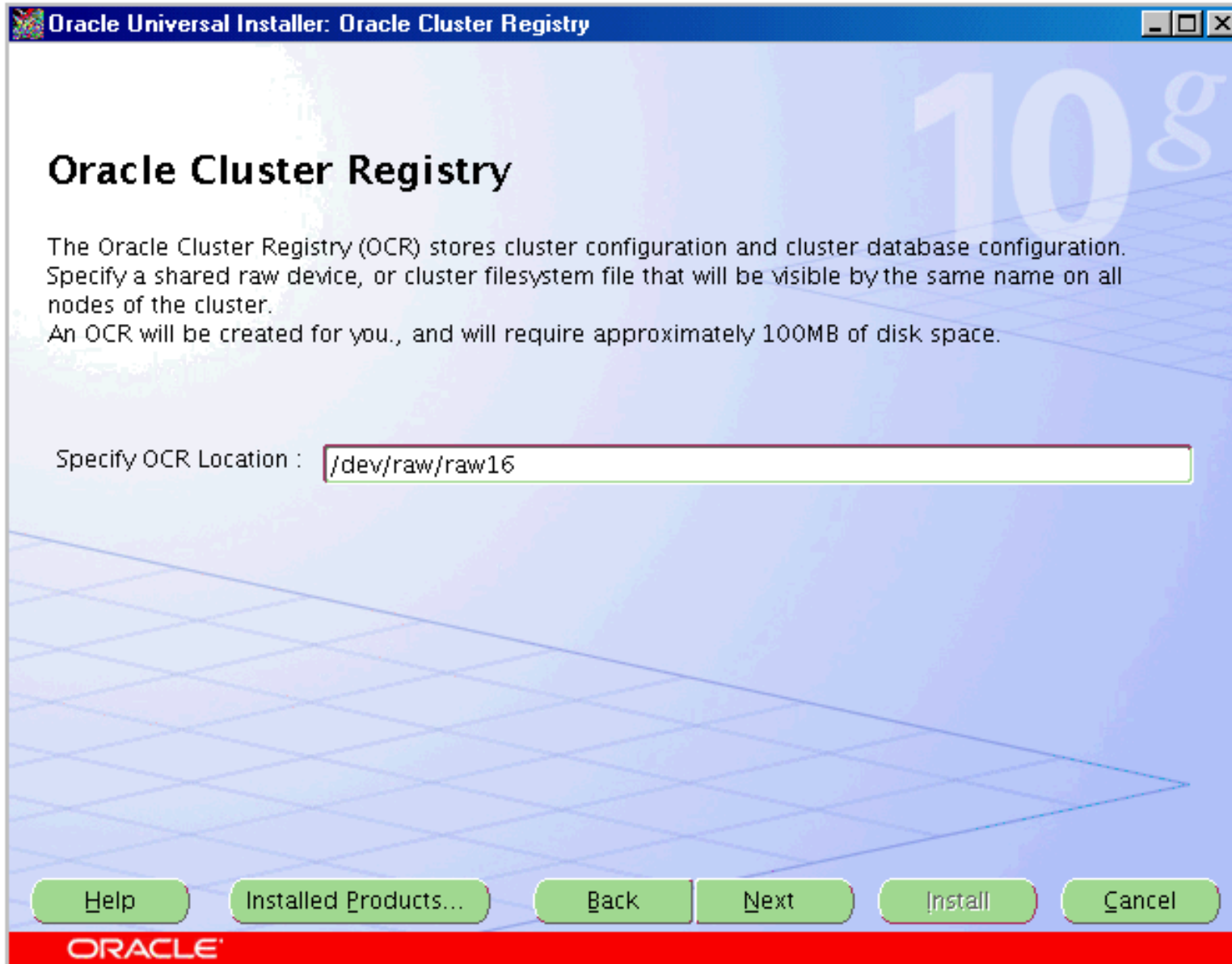
Specify the cluster name. For each node in the cluster, specify the public name (the host name), and the private name, to be used to interconnect the nodes within the cluster. The private name cannot be the same as the public name, but can be an IP address.

Cluster Name :

| Public Node Name | Private Node Name |
|------------------|-------------------|
| pazxxt05         | prv_pazxxt05      |
| pazxxt06         | prv_pazxxt06      |
|                  |                   |
|                  |                   |
|                  |                   |

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**Oracle Cluster Registry**

The Oracle Cluster Registry (OCR) stores cluster configuration and cluster database configuration. Specify a shared raw device, or cluster filesystem file that will be visible by the same name on all nodes of the cluster. An OCR will be created for you., and will require approximately 100MB of disk space.

Specify OCR Location :

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**Oracle Universal Installer: Voting Disk**

## Voting Disk

Cluster Synchronization Services (CSS) voting disk is used to arbitrate ownership of the cluster among cluster nodes in the event of a complete private network failure. Specify a shared raw device, or cluster filesystem file that will be visible by the same name on all nodes of the cluster. A CSS voting disk will be created for you., and will require approximately 20MB of disk space.

Enter voting disk file name :

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Oracle Universal Installer: End of Installation

## End of Installation

The installation of Cluster Ready Services was successful.

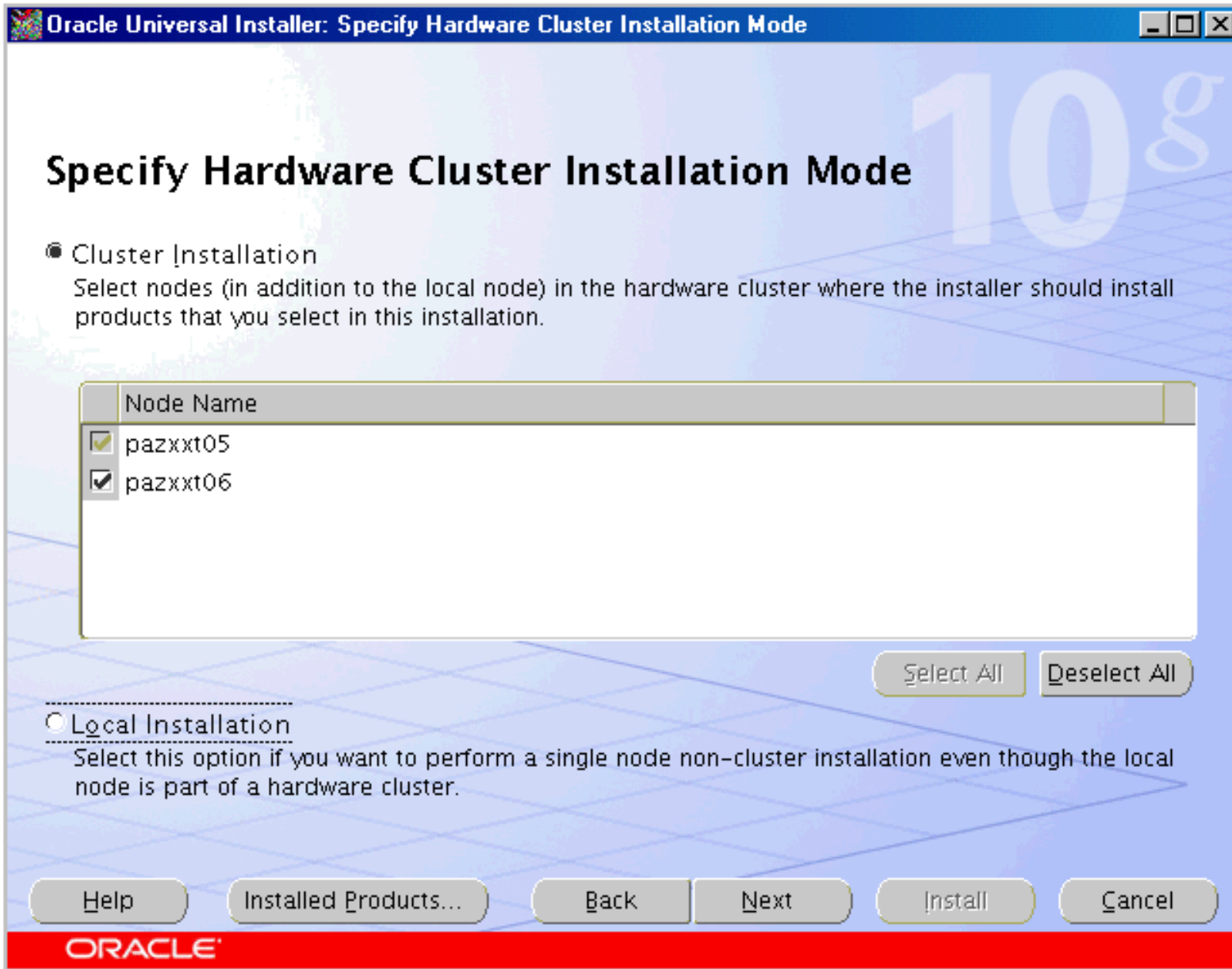
10g

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## Oracle RAC code installation

- OUI will detect the clusters
- Choose Enterprise or Standard Edition
- We recommend not create a starter database – use DBCA later



**Oracle Universal Installer: Select Database Configuration**

## Select Database Configuration

You can choose either to create a database as part of this installation or install just the software necessary to run a database, and perform any database configuration later. If you want to create a database as part of this installation the Oracle Database Configuration Assistant will be launched automatically at the end of the install to create a database of the type selected.

Select the configuration options that suits your needs.

Create a starter database

Select the type of starter database you wish to create.

- General Purpose  
A starter database designed for general purpose usage.
- Transaction Processing  
A starter database optimized for transaction-heavy applications.
- Data Warehouse  
A starter database optimized for data warehousing applications.
- Advanced  
Allows you to customize the configuration of your starter database.

Do not create a starter database

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**Oracle Universal Installer: End of Installation**

## End of Installation

The installation of Oracle Database 10g was successful.

Please remember...

The following J2EE Applications have been deployed and are accessible at the URLs listed below.

Ultra Search URL:  
<http://pazxxt05.us.oracle.com:5620/ultrasearch>

Ultra Search Administration Tool URL:  
<http://pazxxt05.us.oracle.com:5620/ultrasearch/admin>

iSQL\*Plus URL:  
<http://pazxxt05.us.oracle.com:5560/isqlplus>

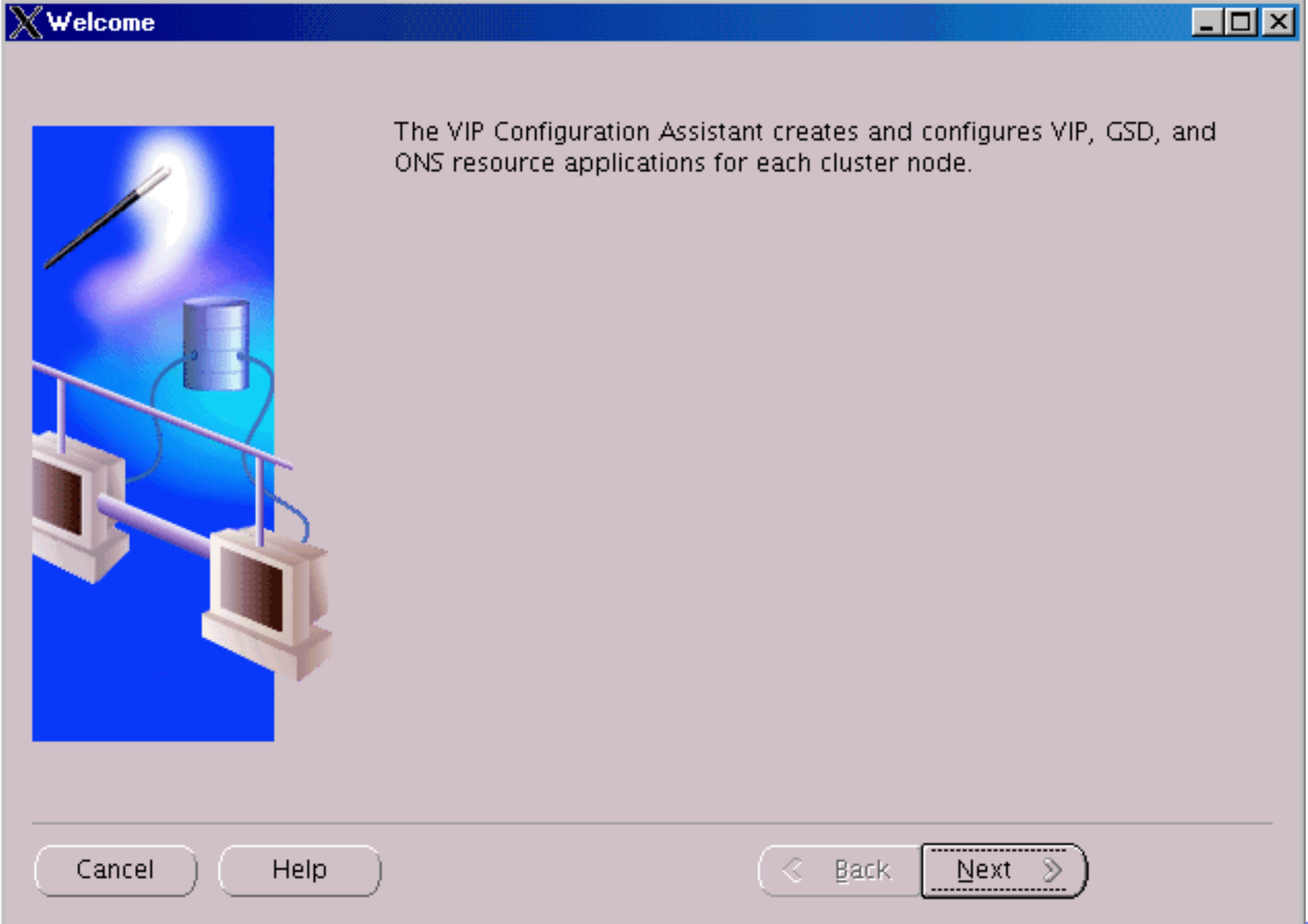
iSQL\*Plus DBA URL:  
<http://pazxxt05.us.oracle.com:5560/isqlplus/dba>

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## VIP Configuration

- Automatically started as part of the root.sh during RAC install
- Run root.sh on one node, let it run to completion which included the VIP configuration
- Then start root.sh on second node....be patient
- Second node will not rerun the VIP configuration if it is complete



## Configuration Assistant Progress Dialog

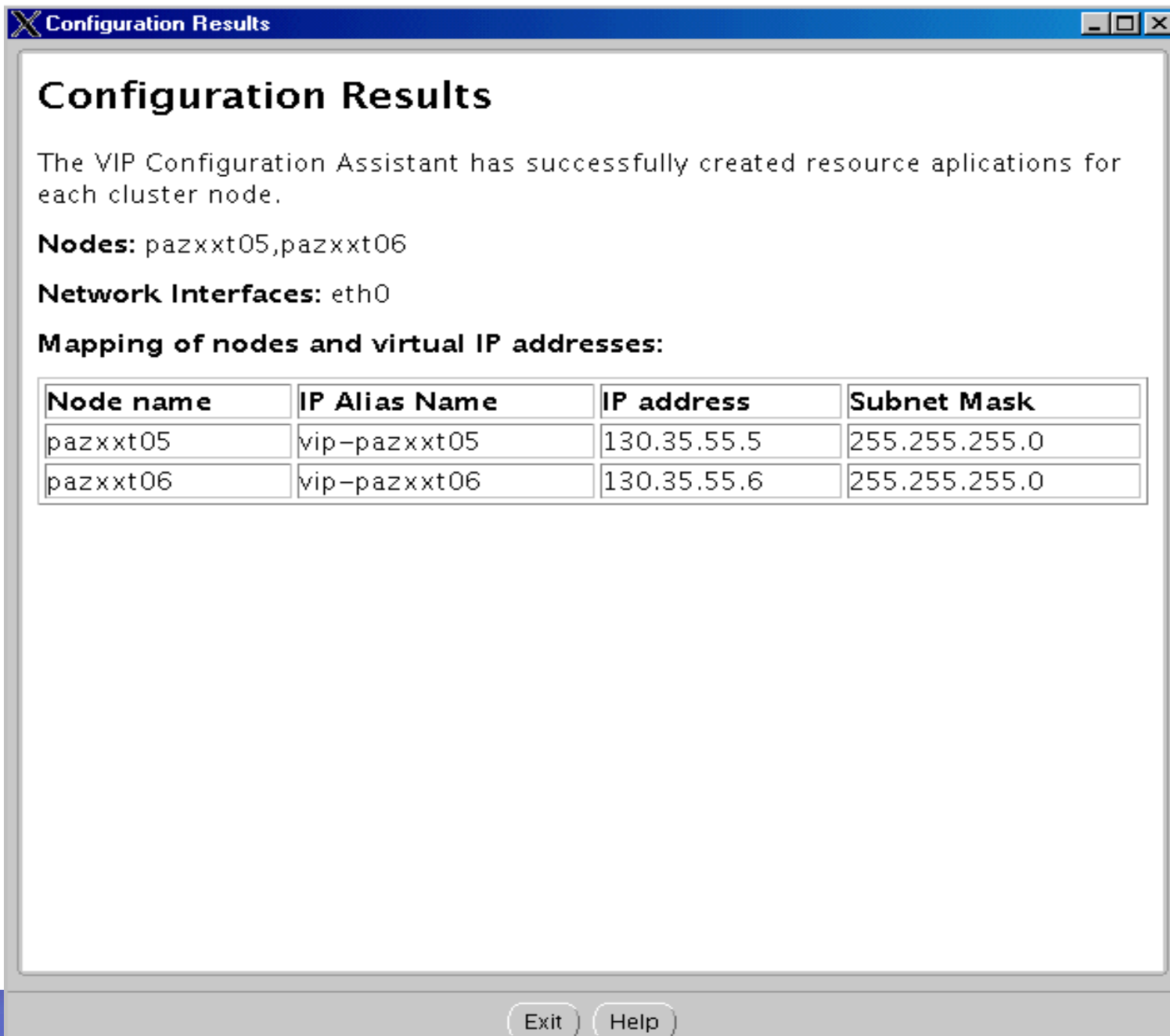


- ✓ Creating VIP application resource on (2) nodes
- ✓ Creating GSD application resource on (2) nodes
- ✓ Creating ONS application resource on (2) nodes
- ✓ Starting VIP application resource on (2) nodes
- ✓ Starting GSD application resource on (2) nodes
- ✓ Starting ONS application resource on (2) nodes

100%

Configuration complete. Click "OK" to see results.

OK



**Configuration Results**

The VIP Configuration Assistant has successfully created resource applications for each cluster node.

**Nodes:** pazxxt05,pazxxt06

**Network Interfaces:** eth0

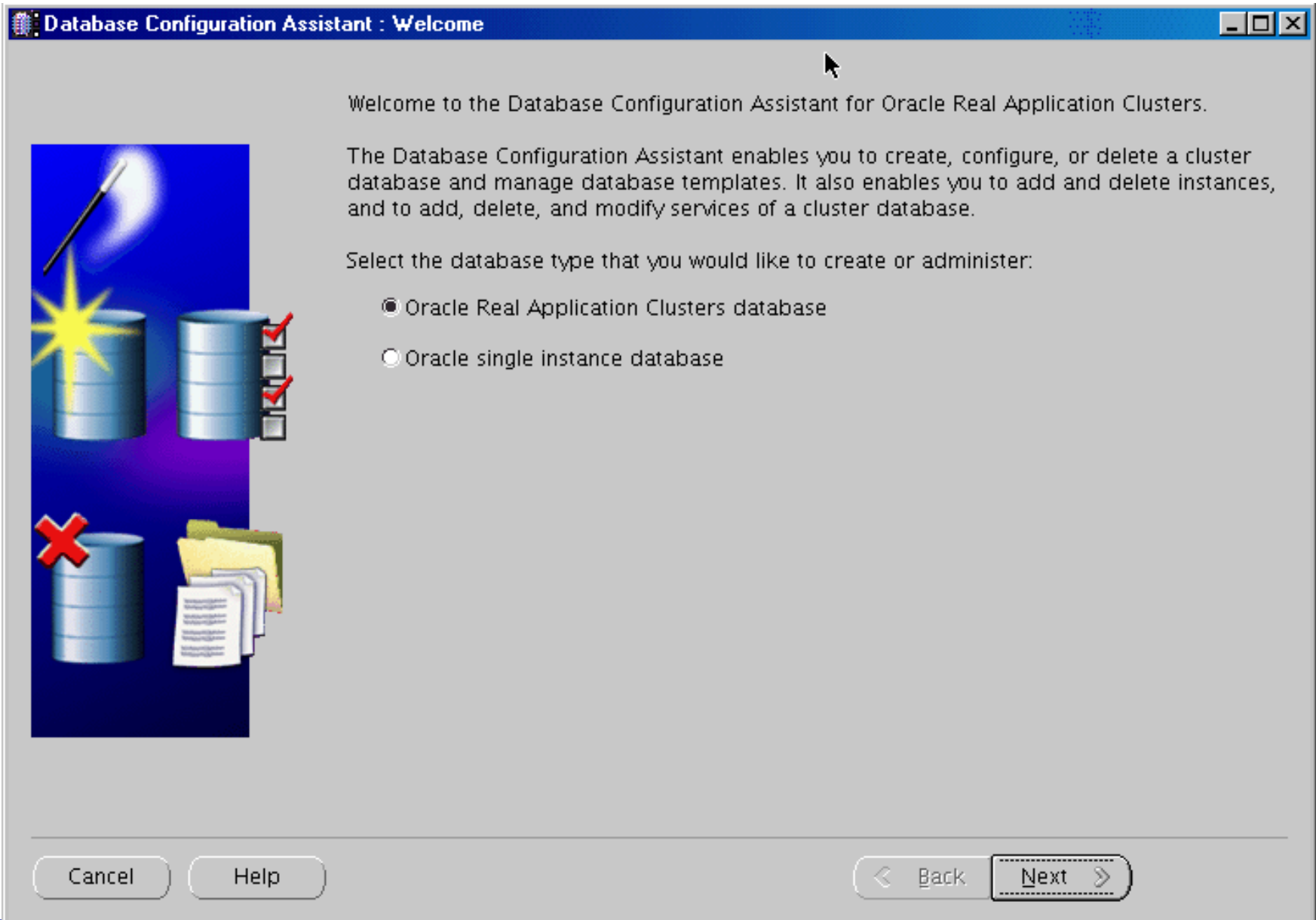
**Mapping of nodes and virtual IP addresses:**

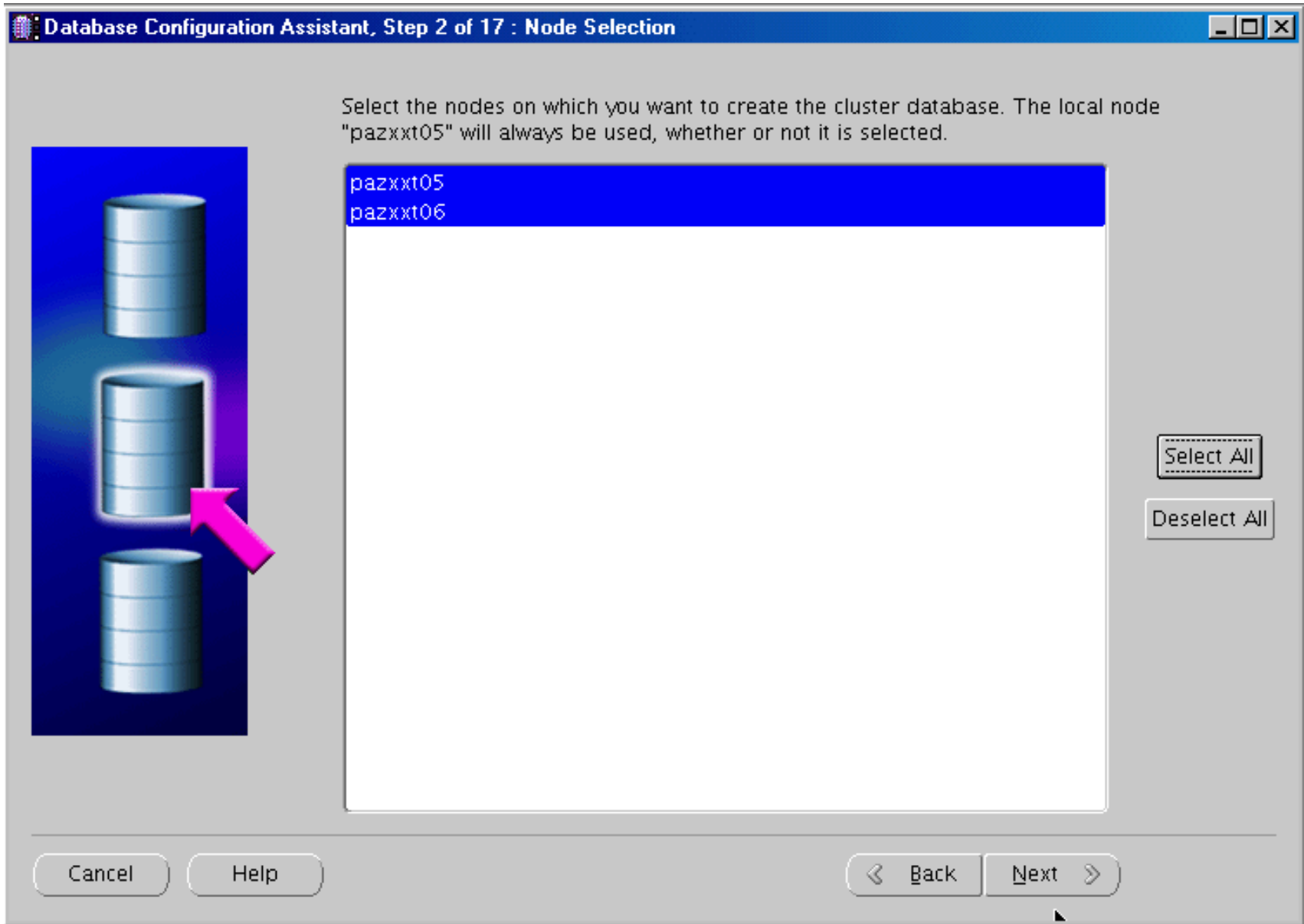
| Node name | IP Alias Name | IP address  | Subnet Mask   |
|-----------|---------------|-------------|---------------|
| pazxxt05  | vip-pazxxt05  | 130.35.55.5 | 255.255.255.0 |
| pazxxt06  | vip-pazxxt06  | 130.35.55.6 | 255.255.255.0 |

Exit Help

## Create a RAC Database

- **Use DBCA**
- **VIP should have been completed successfully before this or it will be started automatically**





**Database Configuration Assistant, Step 7 of 14 : Storage Options**

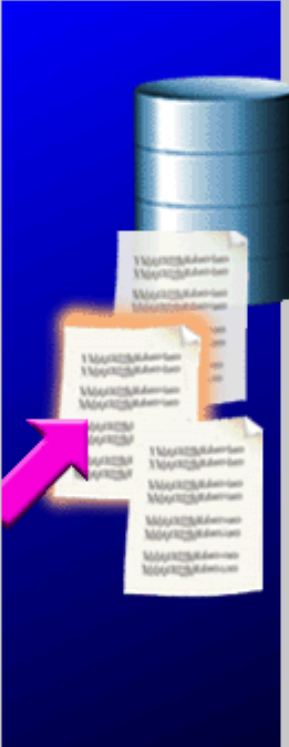
Select the storage mechanism you would like to use for the database.

Cluster File System  
Use cluster file system for database storage.

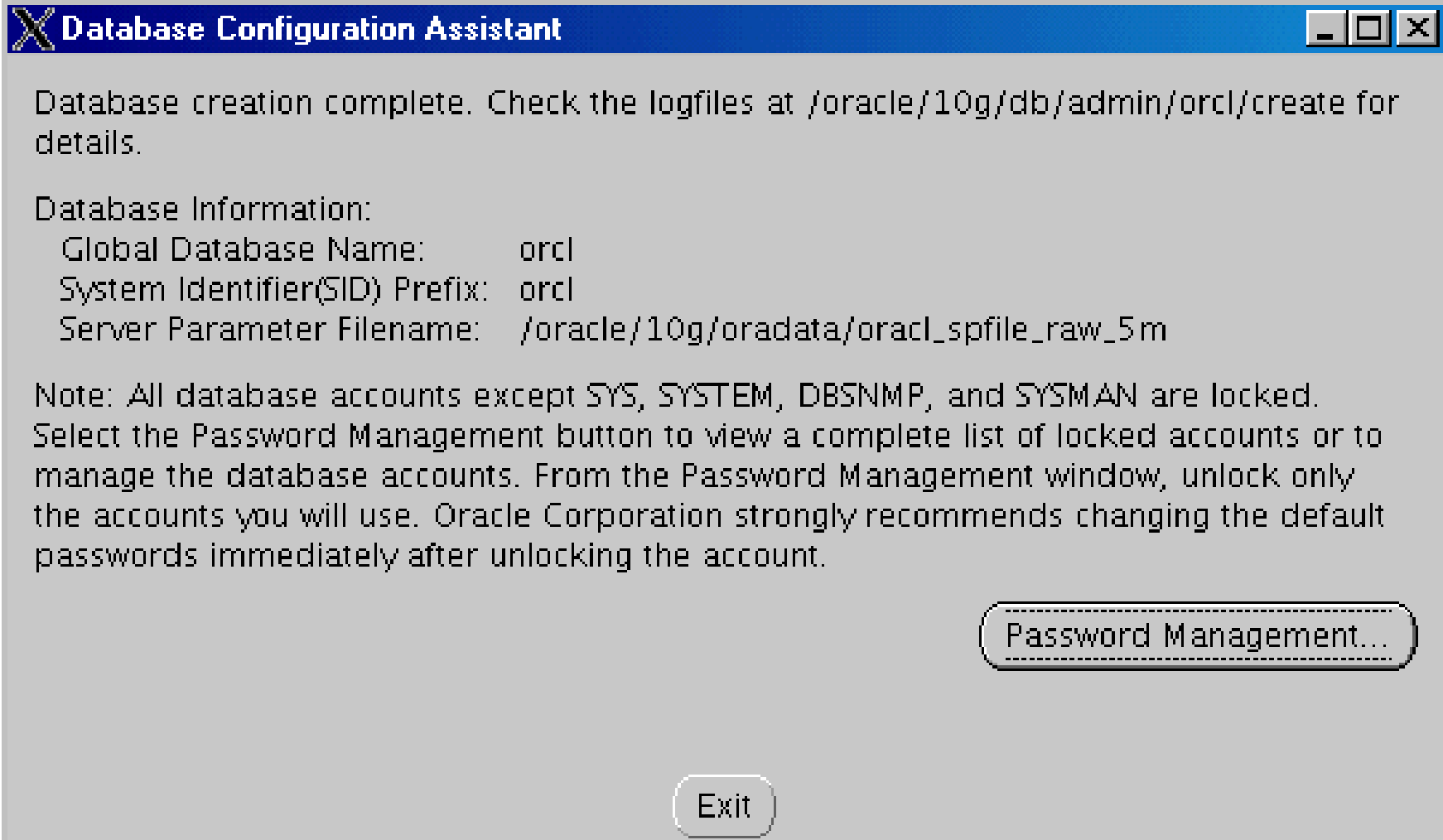
Automatic Storage Management (ASM)  
Automatic Storage Management simplifies database storage administration and optimizes database layout for I/O performance. To use this option you must either specify a set of disks to create an ASM disk group or specify an existing ASM disk group.

Raw Devices  
Raw partitions or volumes can provide the required shared storage for Real Application Clusters (RAC) databases if you do not use Automatic Storage Management and a Cluster File System is not available. You need to have created one raw device for each datafile, control file, and log file you are planning to create in the database.

Specify Raw Devices Mapping File



Cancel Help Back Next



## Test access to DB

- **Test access from both nodes**
- **Test failover scenarios**

## Clean up to reinstall

- **See Metalink note 239998.1,**
- **Oracle RAC/CRS installation**
  - Writes to /etc, /oracle, /opt
  - Could leave running process
  - Use OUI to deinstall, then cleanup script

## To get started

- **Prepare the environment**
- **Read Oracle documentation**
  - **Oracle® Real Application Clusters Installation and Configuration Guide 10g Release 1 (10.1) for AIX-Based Systems, hp HP-UX PA-RISC (64-bit), hp Tru64 UNIX, Linux, Solaris Operating System (SPARC 64-bit), and Windows Platforms Part No. B10766**
- **Read RAC chapter in Redbook SG24-6482**
- **Email us or call us with questions...**

## Contact information

- **Weekly call Friday at 8:30 Pacific Time**
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  - PASSCODE: 78284
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  - [telliott@us.ibm.com](mailto:telliott@us.ibm.com)
- **Email us or call us with questions...**