

PEOUG
PERU ORACLE USERS GROUP

Implementando Oracle High Availability Solutions

Miguel Palacios (miguel.palacios@gbsperu.net)

PEOUG Day - 18 de Noviembre 2009



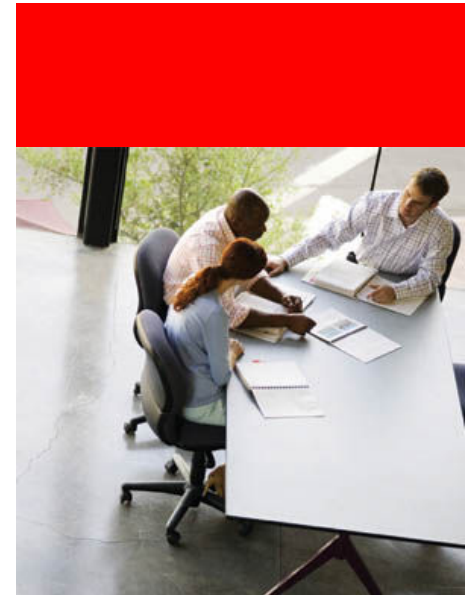
www.peoug.org

Mi Perfil: Miguel Palacios

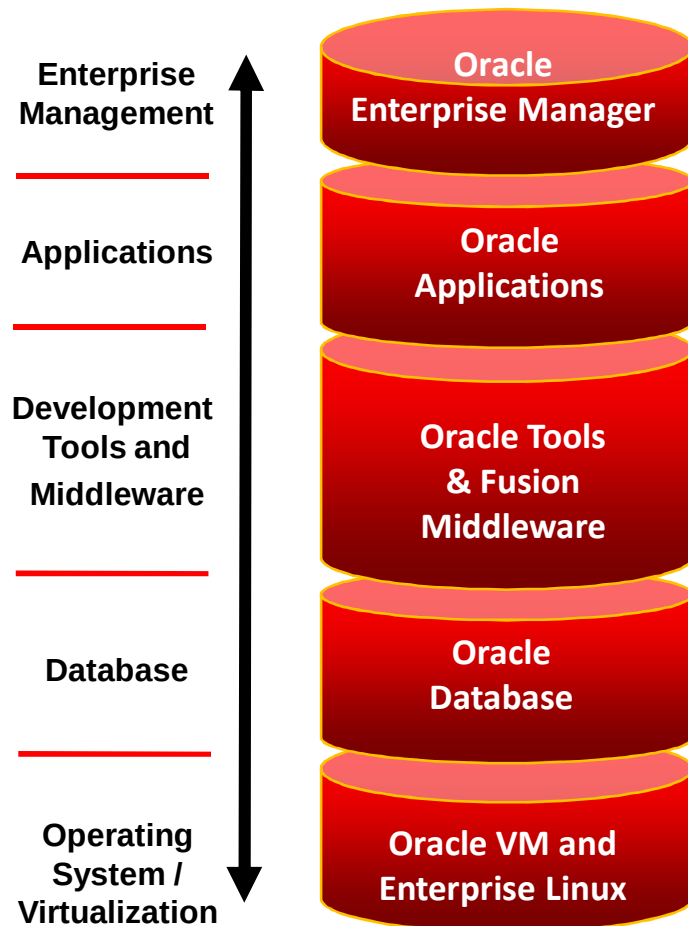
- Fundador y CEO de Global Business Solutions Perú (GBSPERU.NET)
- Líder de PERU Oracle Users Group (PEOUG.ORG)
- Certificación OCP9i, OCP10g, 10g RAC Expert
- Experiencia Oracle:
 - Arquitecto de soluciones con foco en infraestructura
 - 7+ años Instructor certificado de Oracle University
 - Oracle Database Beta Tester desde 2006
 - 10+ años de Advanced Database Administration & Performance Tuning
 - Oracle Backup & Recovery
 - Oracle ASM: 10g R2, 11g R1, 11g R2
 - Oracle Data Guard: Physical and Logical 9iR2, 10gR2, 11gR1 (Active Data Guard). Despliegues de “basic standby” sobre Standard Edition 8i, 9iR2, 10g R2.
 - Oracle RAC: 9iR2, 10GR2, 11gR1 sobre HP-UX Itanium, Linux Itanium, Linux x86_64, Solaris, AIX (LPAR and VIO Server), Windows. Single Data Center & RAC Extendido
 - Oracle Streams: 9i R2, 10g R2 (Database Level y Schema Level: Bi-Directional y Uni-Directional). Upstream & Downstream Capture
 - Oracle VM: Despliegues de Oracle RAC 10gR2, Grid Control 10g, Oracle Enterprise Linux
 - Oracle E-Business Suite 11i: Advanced Performance and Troubleshooting



Overview Oracle



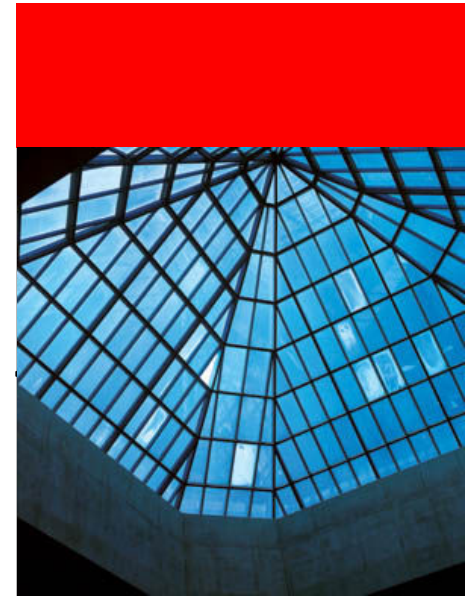
Oracle: Completo, Abierto e Integrado stack de Software Empresarial



Beneficios

- Componentes Estandar
- Configuraciones Validadas
- Versiones sincronizadas
- Facil de Administrar
- Mayor seguridad
- Alta confiabilidad
- Ecosistema de partners
- Una sola llamada de soporte
- Menor TCO
- Abierto y cumplimiento de estandares
- Integra componentes “open-source”

Continuidad De Negocios: Antecedentes



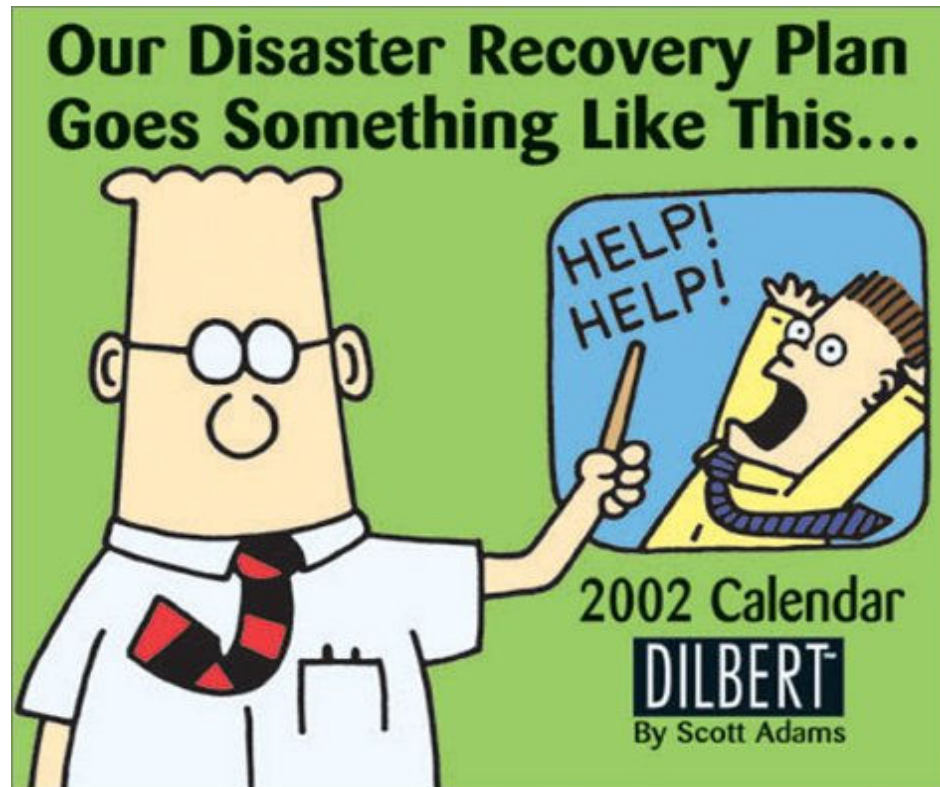
Continuidad del Negocio

Definición

Programa global que abarca los planes de recuperación de desastres, los planes de recuperación del negocio, y los planes de respuesta de emergencia



Usted tiene un plan de continuidad de negocio y Recuperación de Desastres?

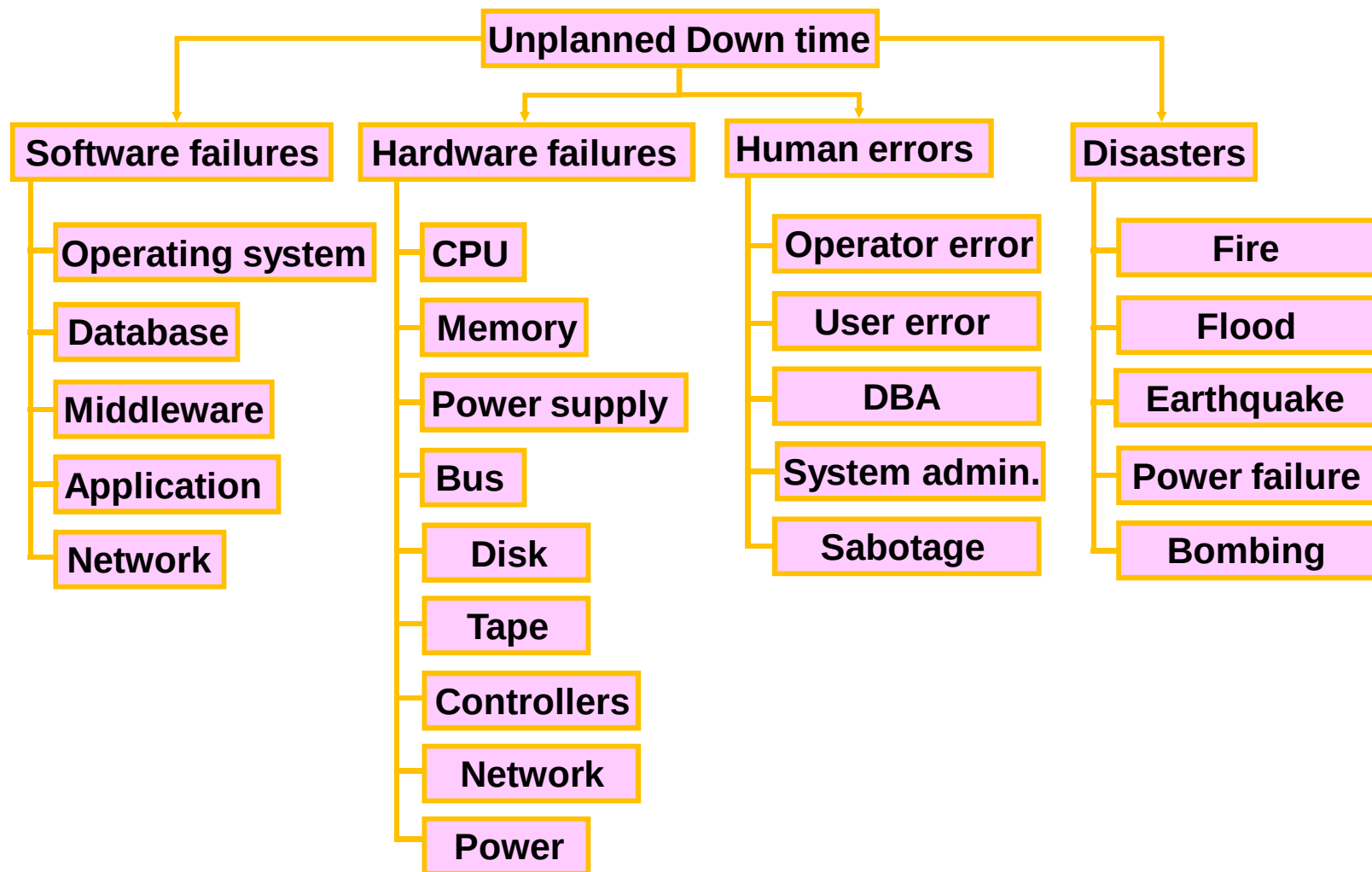


¿Como usted escoge una estrategia de Continuidad de Negocio para su empresa?

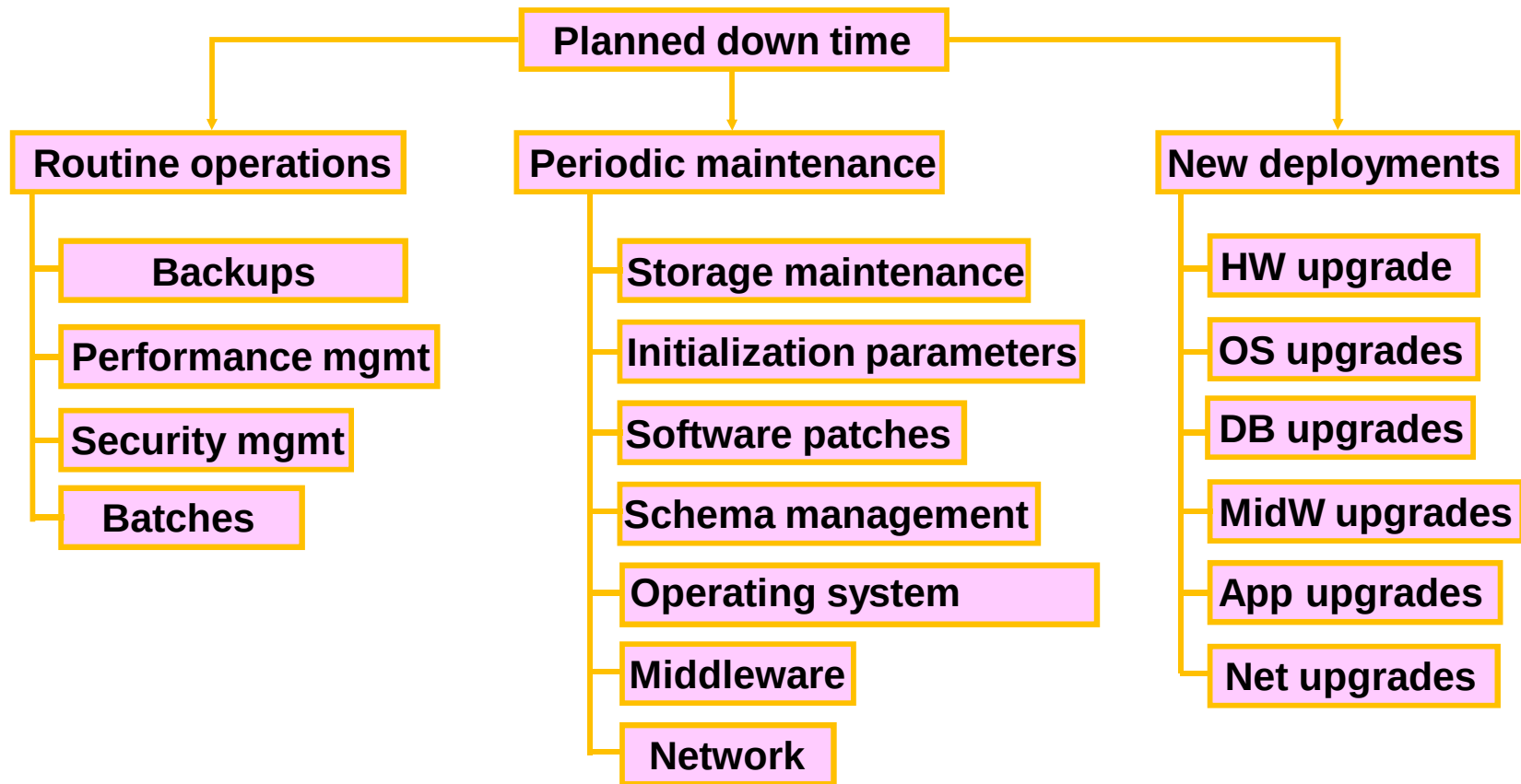
Primero, debe conocer el costo de downtime



Causes of Unplanned Down Time



Causes of Planned Down Time

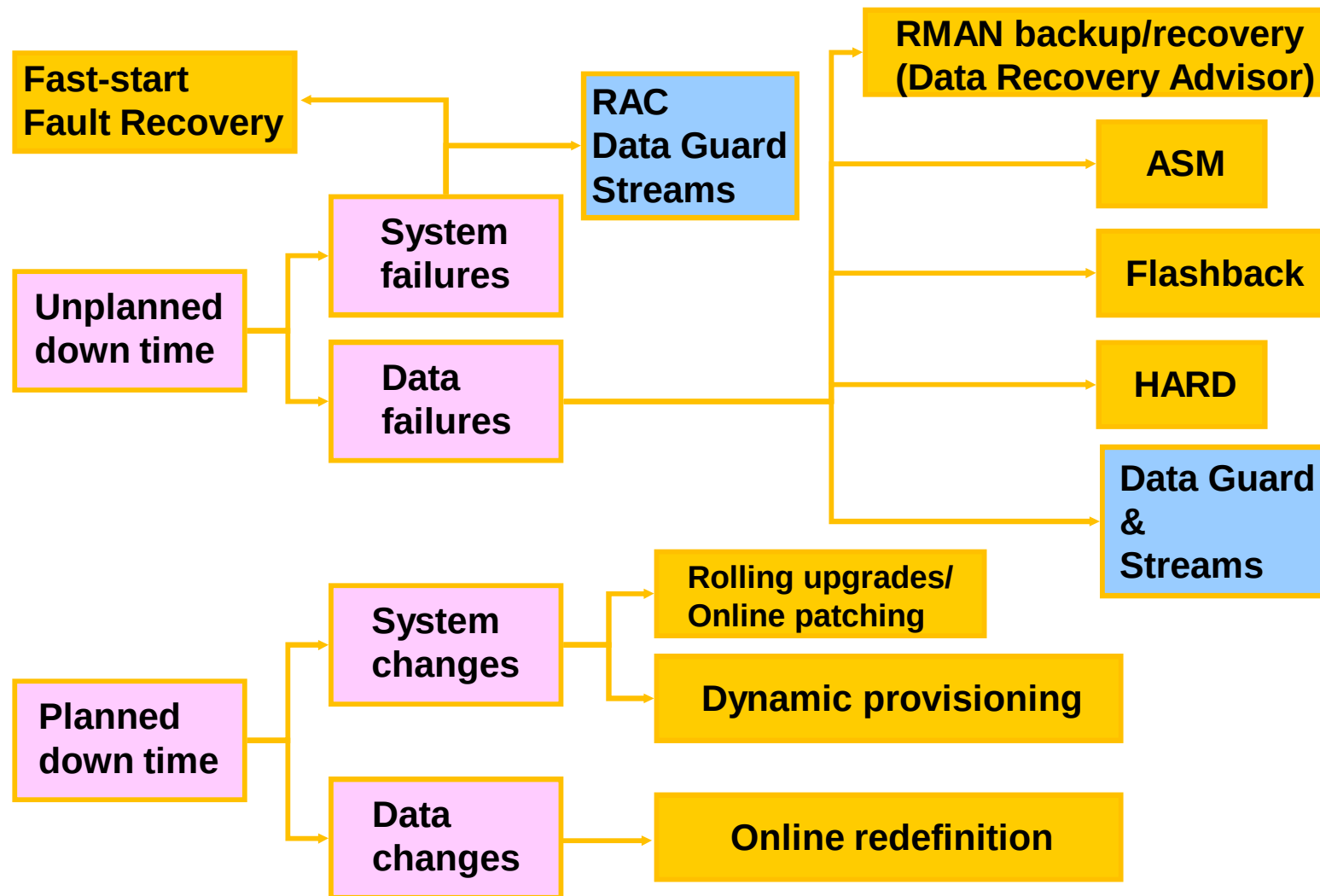


El Costo de “Downtime” x Hora

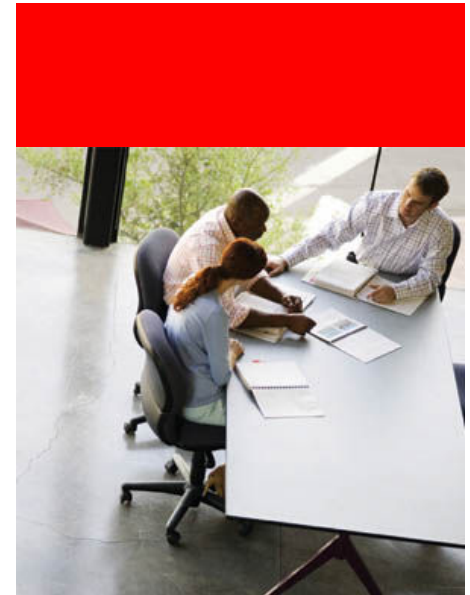
Porcentaje Disponibilidad	Downtime por año (7x24x365)		
	Días	Horas	Minutos
95%	18	6	0
99%	3	15	36
99.9%	0	8	46
99.99%	0	0	53
99.999%	0	0	5
99.9999%	0	0	1

Ej: Si para una organización 24 x 7 su costo de downtime por hora fuera de **US\$ 1,000**, al decir que su porcentaje de disponibilidad es de 99% al año, su costo estimado de downtime seria de **US\$ 87,600** anual.

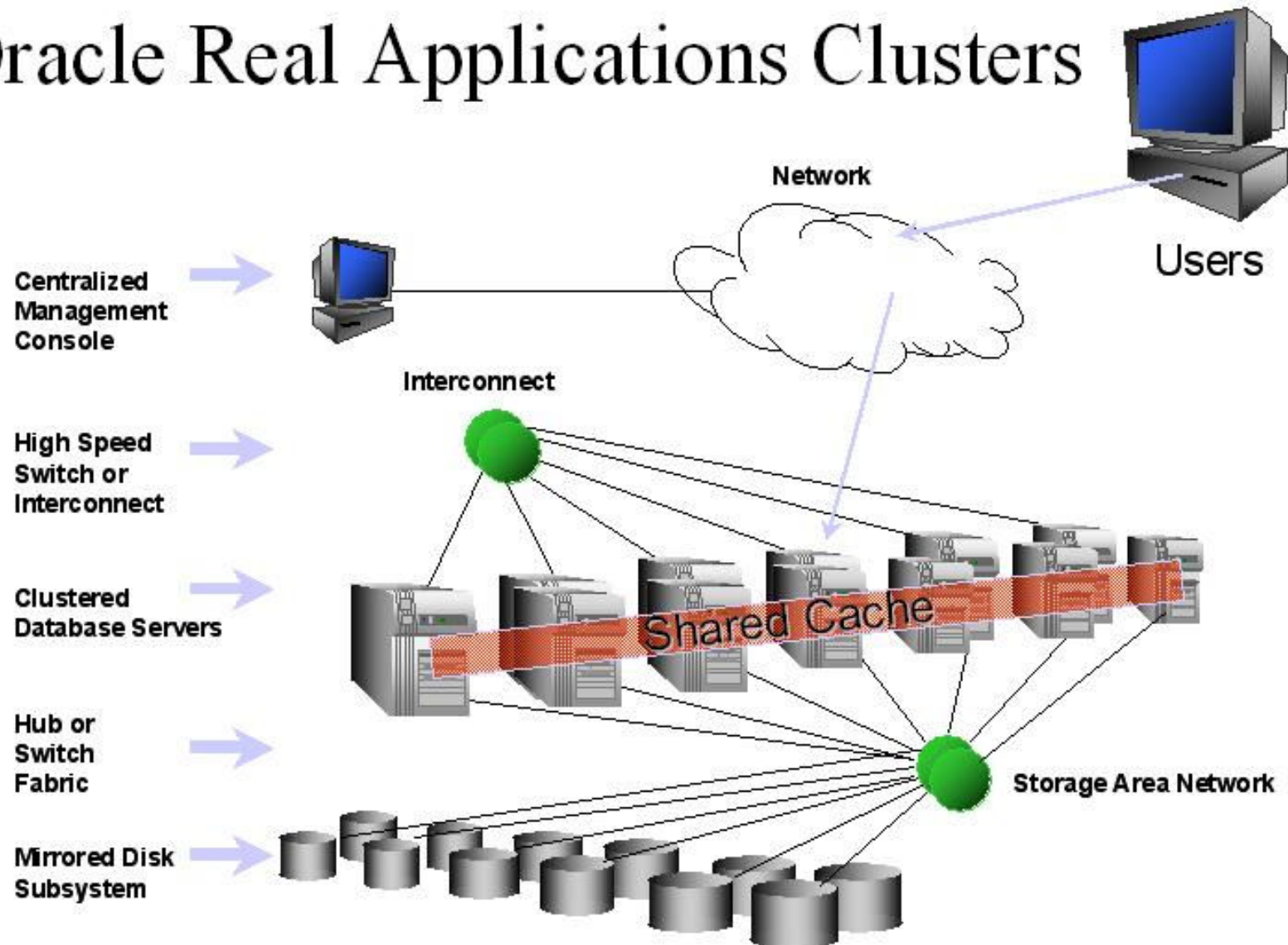
Oracle High Availability Solutions



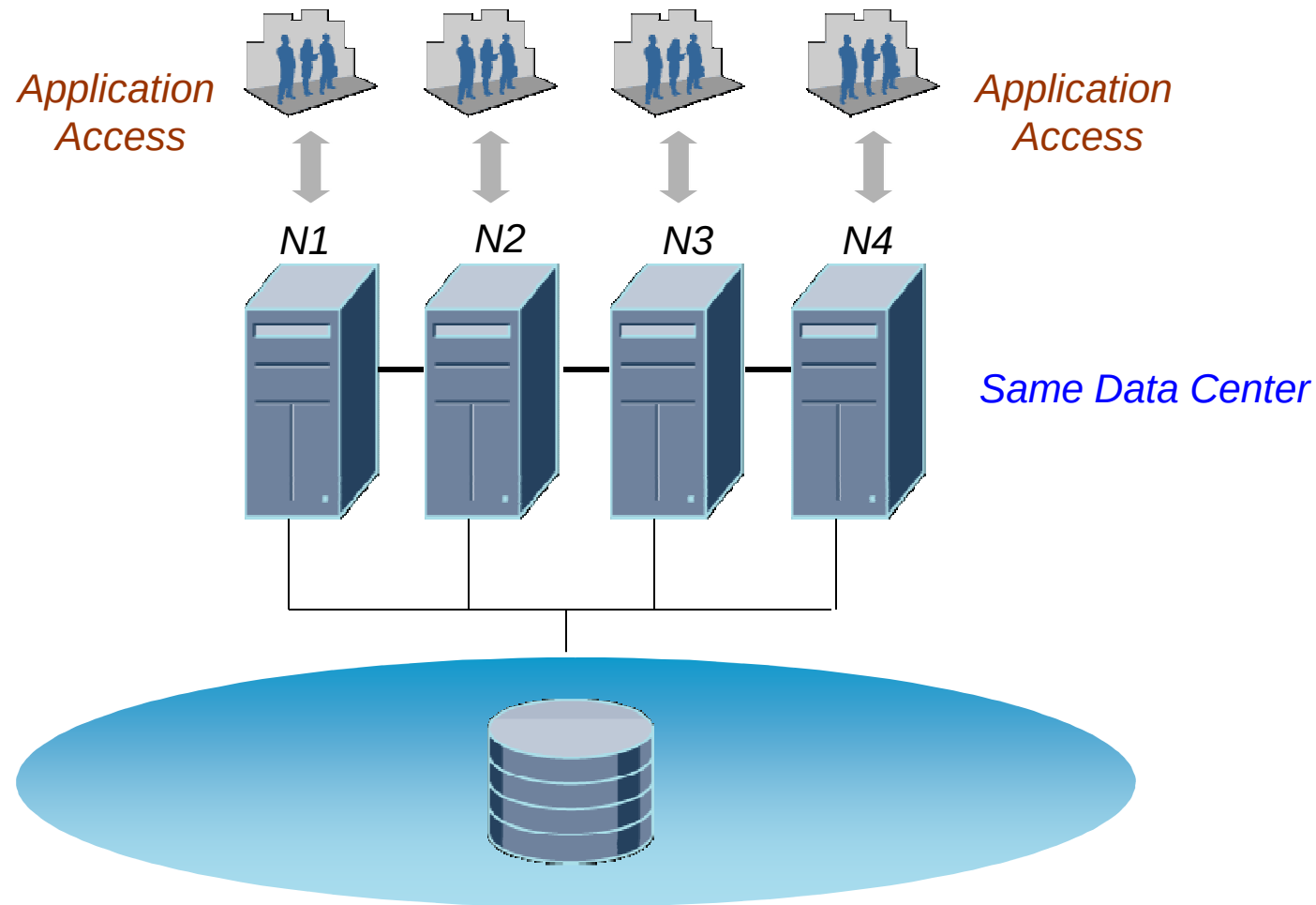
Oracle Real Application Cluster (RAC)



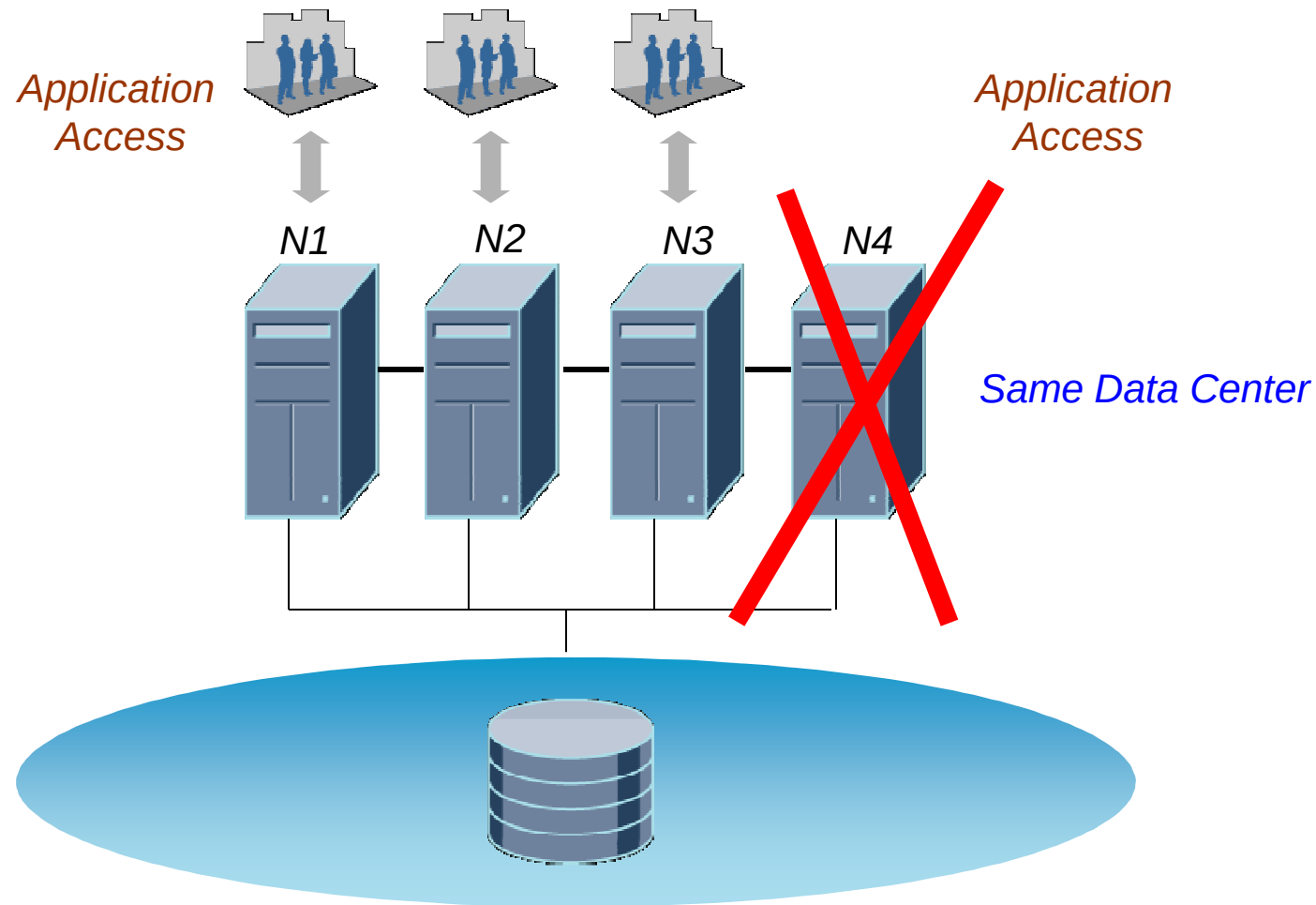
Oracle Real Applications Clusters



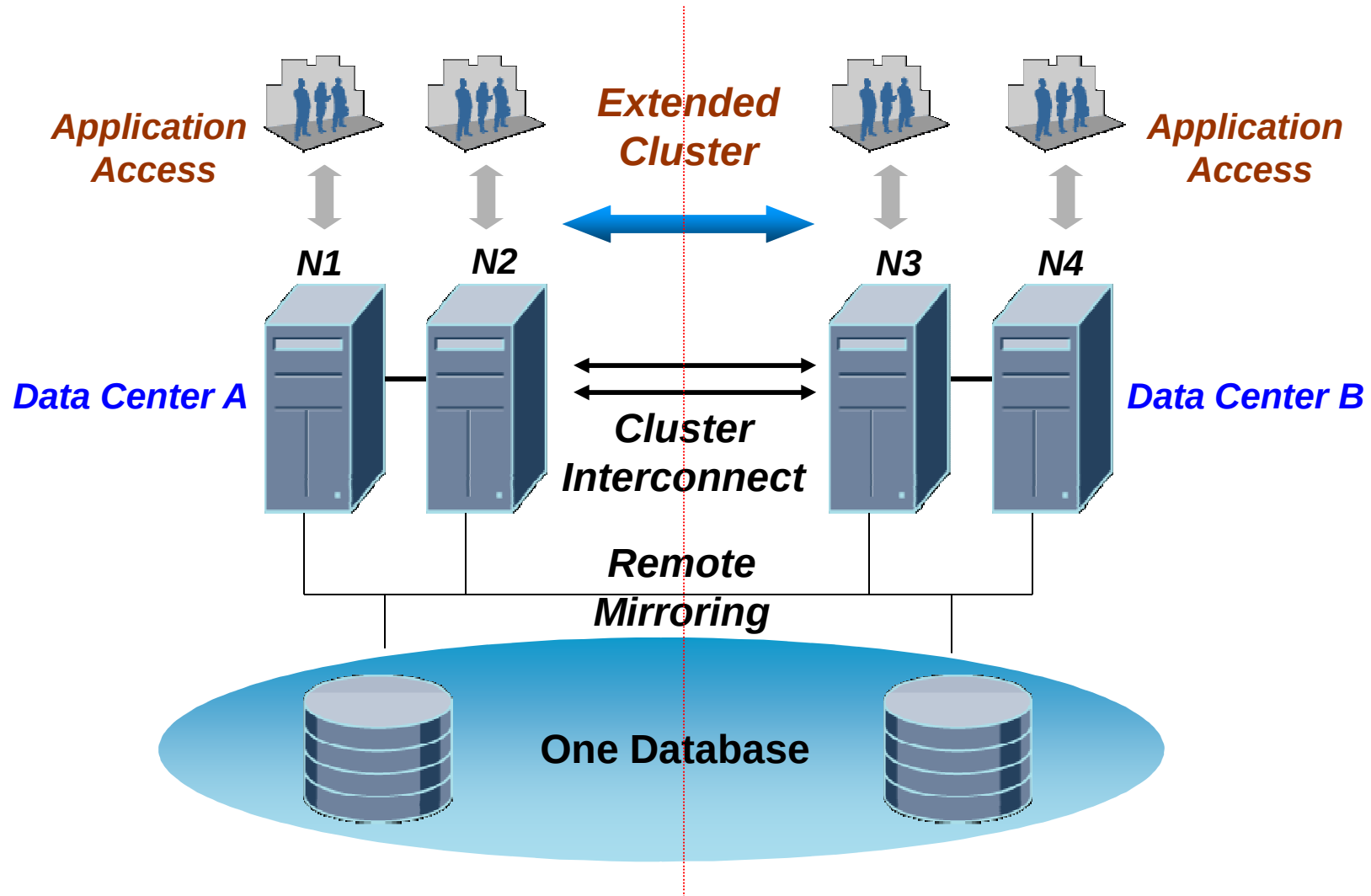
Configuración de RAC Tradicional



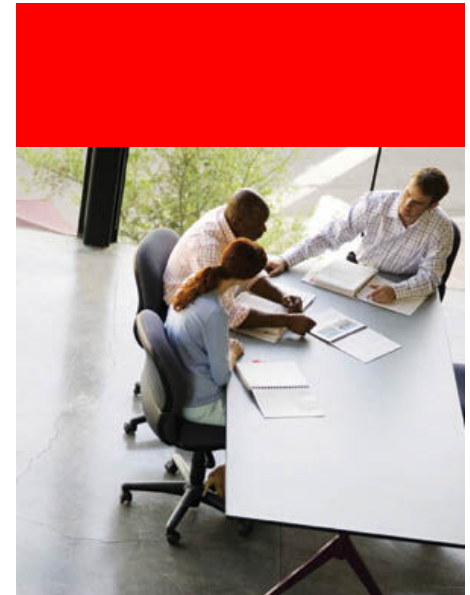
Configuración de RAC Tradicional



Configuración Oracle RAC Extendido

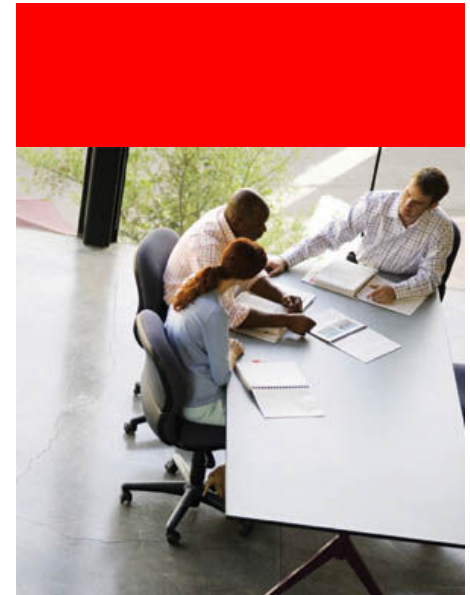


Oracle Clusterware

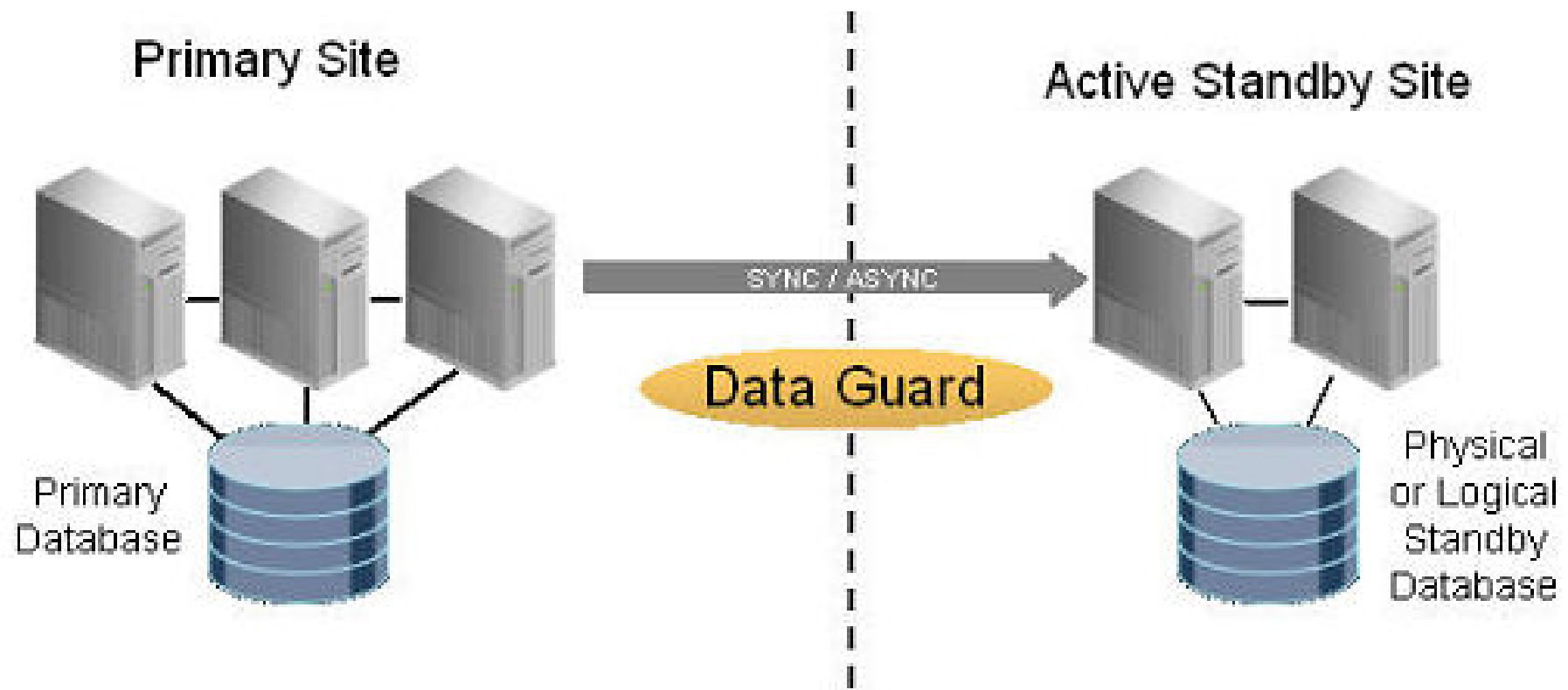


- **Oracle Clusterware is portable cluster software that allows clustering of single servers so that they cooperate as a single system.**
- **Oracle Clusterware also provides the required infrastructure for Oracle Real Application Clusters (RAC).**
- **Oracle Clusterware enables the protection of any Oracle application or any other application within a cluster.**
- **In any case Oracle Clusterware is the intelligence in those systems that ensures the required cooperation between the cluster nodes.**

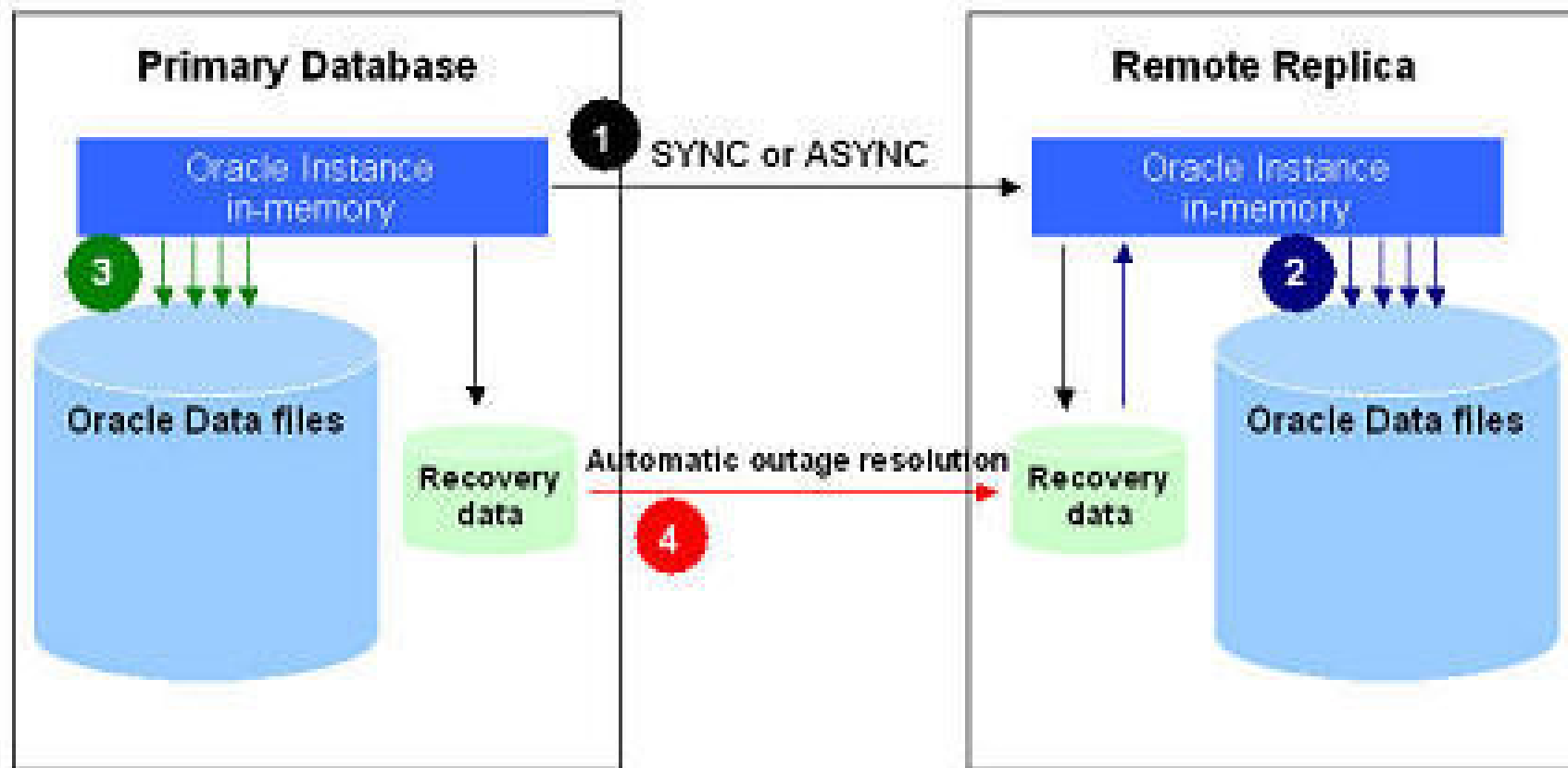
Oracle Data Guard



Configuración Oracle Data Guard



Configuración de Oracle Data Guard

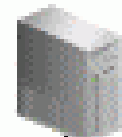
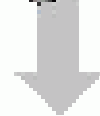


Oracle Active Data Guard

Primary

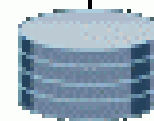
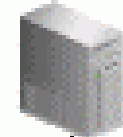
Active Data Guard

updates



**Production
Database**

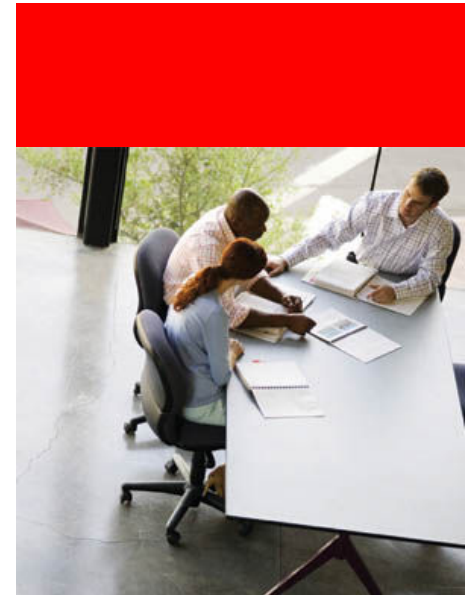
queries



**Standby
Database**



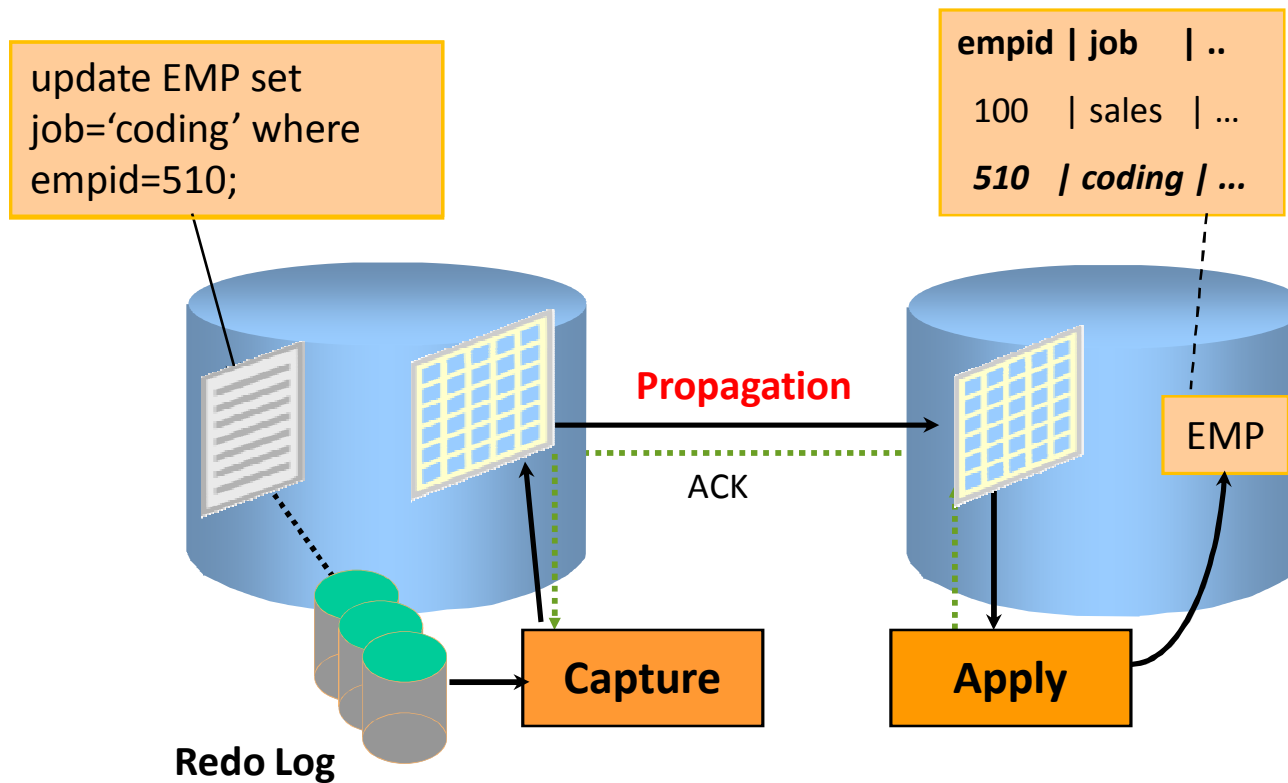
Oracle Streams



Oracle Streams Overview



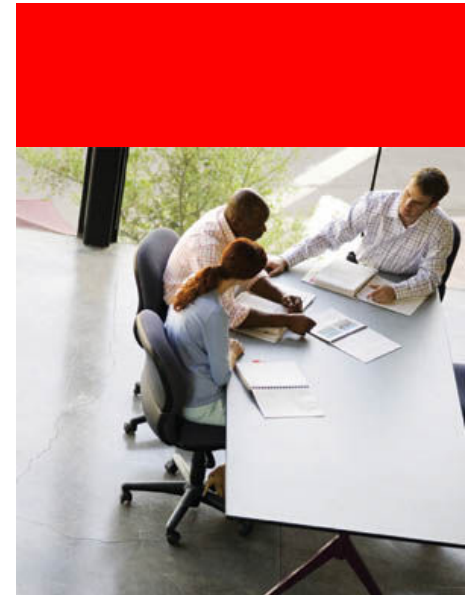
Oracle Streams Capture and Apply *Replication Configuration*



Local (Upstream) Capture

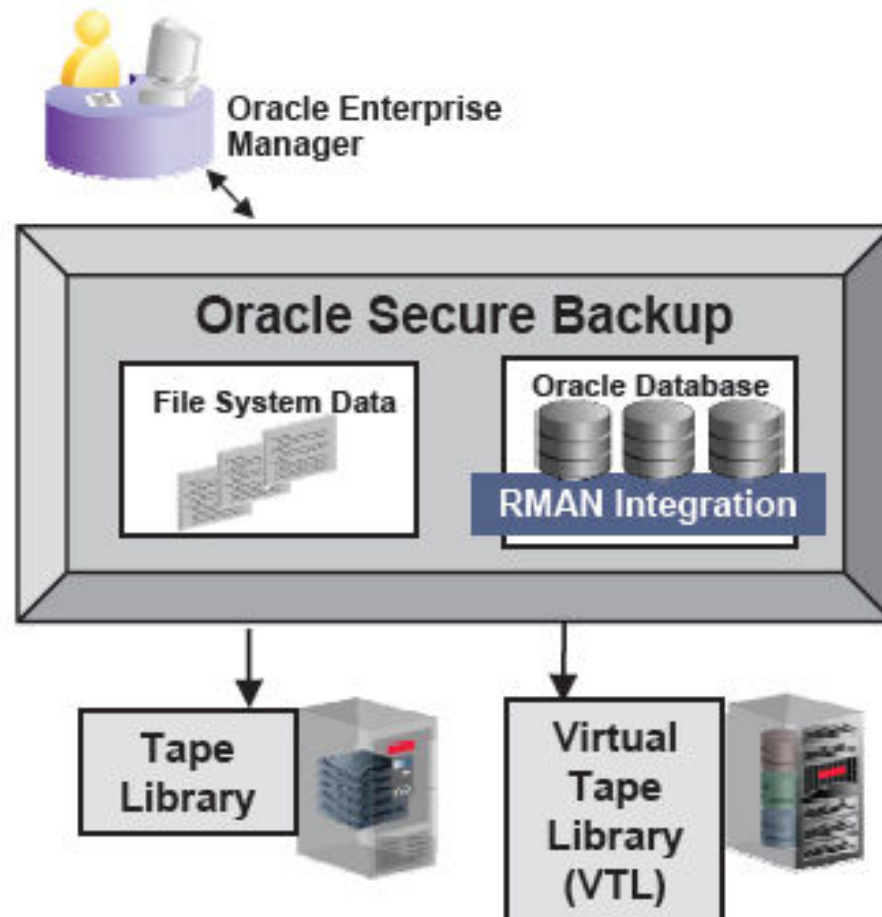
If subset of data, network bandwidth requirements reduced significantly

Oracle Secure Backup



Oracle Secure Backup

Enterprise Tape Backup Management



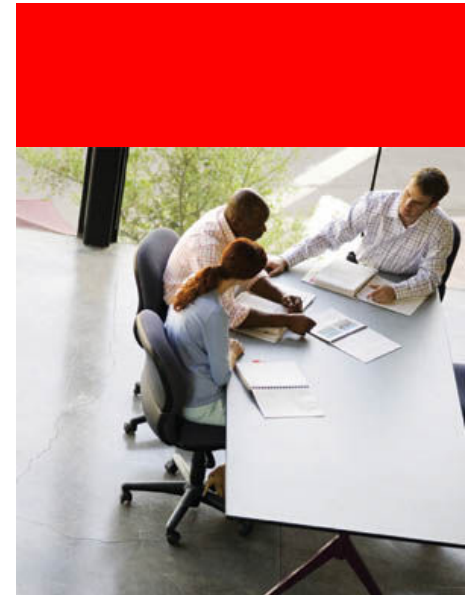
Protects Entire IT Environment

- Oracle Database 11g Release 2 back to Oracle9i
- **25 – 40% faster tape backup**
- Heterogeneous file systems (UNIX/ Linux / Windows) and NAS devices
- **Built-in Oracle Integration**
- Centralized management in distributed environments
- **Over 75% less expensive than comparable products**

Oracle Secure Backup – Ediciones

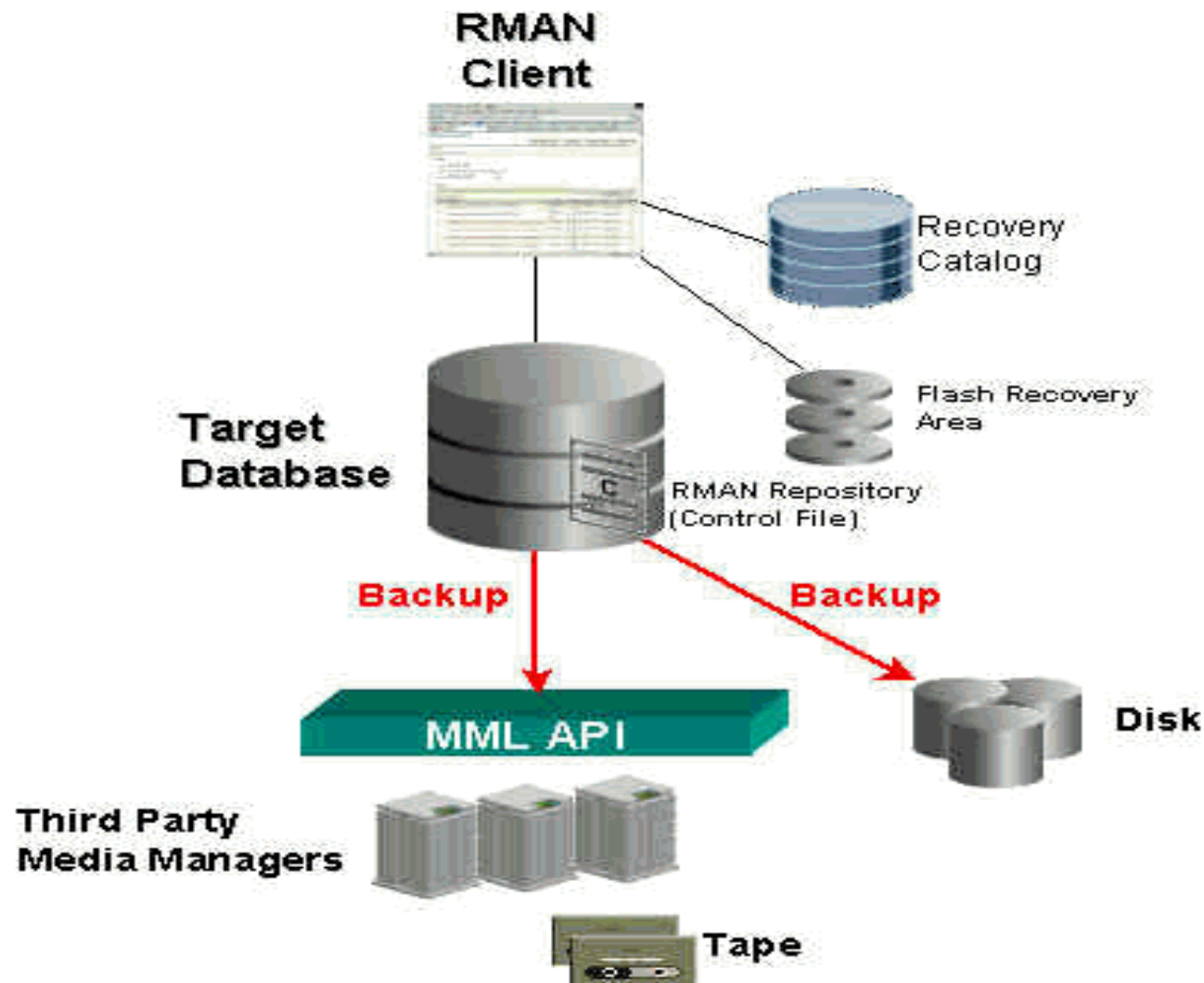
Feature	Oracle Secure Backup	Oracle Secure Backup Express
Integration with RMAN		
File system backups		
Networked backups		No
Multiple tape drives or servers		No
Backup encryption		No
Vaulting		No
Tape duplication		No
Free, bundled with Oracle	No	

Oracle Recovery Manager (RMAN)

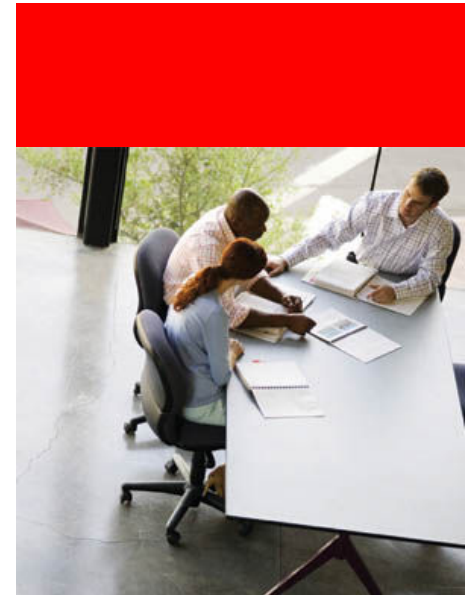


Oracle Recovery Manager (RMAN)

Componentes Funcionales

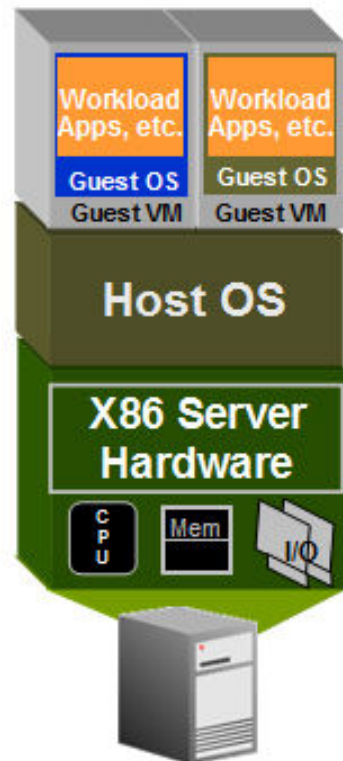


Oracle VM



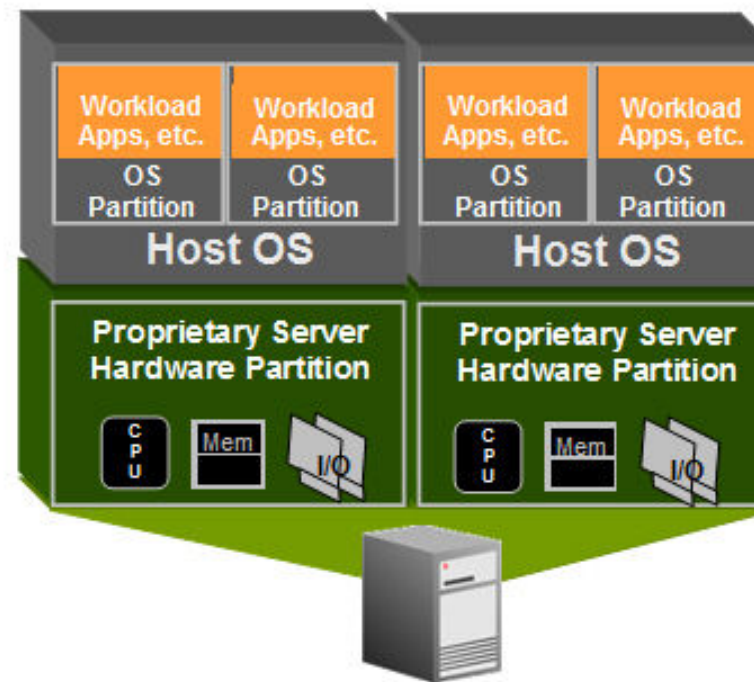
Tecnologías de Virtualización de Servidores

Host OS-based



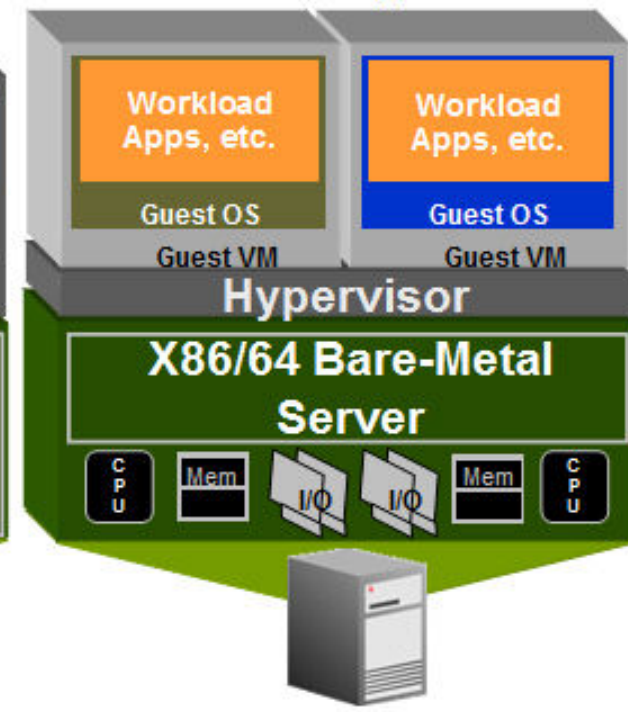
- Primarily desktop
- Easy to use
- Slow (2 OSes)

Hardware Partitioning



- Excellent isolation
- Expensive, proprietary hw
- Coarse grain resources
- Mix OSes / versions
- Only moderate isolation
- Potentially good scalability
- Fine-grained resources
- Cannot mix OS/patch levels

OS Partitioning



Hypervisor-based, e.g.

- Oracle VM
- VMware ESX Server
- Citrix XenServer
- Windows Hyper-V

- Excellent isolation
- Affordable, multi-source HW
- Fine-grained resources
- Mix OSes / versions

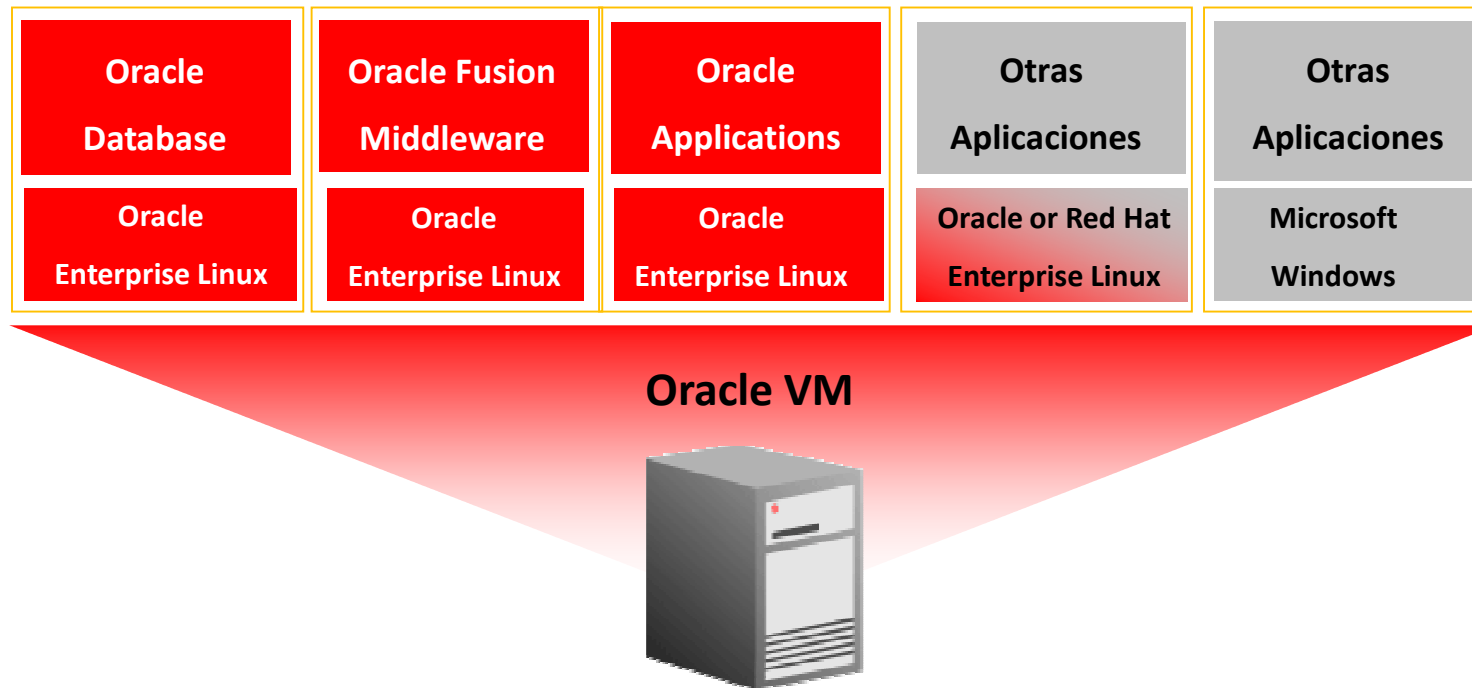
Oracle VM: Generalidades

ORACLE®

VM

- Libre para descargar
- Libre para distribuir
- No tiene costo de licencia
- Soporte de calidad empresarial y bajo costo
- Incluye consola web para administración centralizada
- Pruebas de despliegue en mundo real
- Virtualización libre de riesgo (basado en tecnología madura)
- 33% mas eficiente/menos sobrecarga
- Características avanzadas de Alta Disponibilidad (HA) para Guest VM
- Conversión Physical-to-Virtual / Virtual-to-Virtual Machine
- Balanceo de carga de pool de servidores: Automático o manual
- “Secure Live Migration”
- Gestión de priorización y ancho de banda de I/O para Guest VM
- Oracle VM Templates para despliegue rápido
- Soporte Linux y Windows

Oracle VM



Tecnología de virtualización de servidores Oracle: probada y soportada

Maximiza la consolidación de servidores Linux y Windows

Ahorro de energía, espacio y aire acondicionado

Certificación de productos Oracle con Oracle VM

- Oracle Database 10g Release 2 (10.2.0.3+) and Oracle Database 11g Release 1 (11.1.0.6+)
- Oracle Database con Real Application Clusters 10.2.0.4
- Oracle Application Server 10gR2 (10.1.2.0.2, 10.1.2.2.0) and 10gR3
- Oracle WebLogic Platform 10.3+
- Oracle Enterprise Manager Grid Control 10.2.0.4+
- Oracle Berkeley DB 4.6
- Oracle TimesTen 7.0.3.1+
- Oracle E-Business Suite 11.5.10.2+ and 12.0.2+
- Oracle PeopleSoft Enterprise 8.4.x and 9.0
- JD Edwards EnterpriseOne Tools 8.97.2+ and Applications 8.12
- PeopleTools 8.49.07+
- Oracle Siebel CRM 8.0+
- FLEXCUBE V.UM Release 10.0+
- Oracle Hyperion 9.3.1
- **Más información en nota de My Oracle Support (Metalink) # 464754.1**

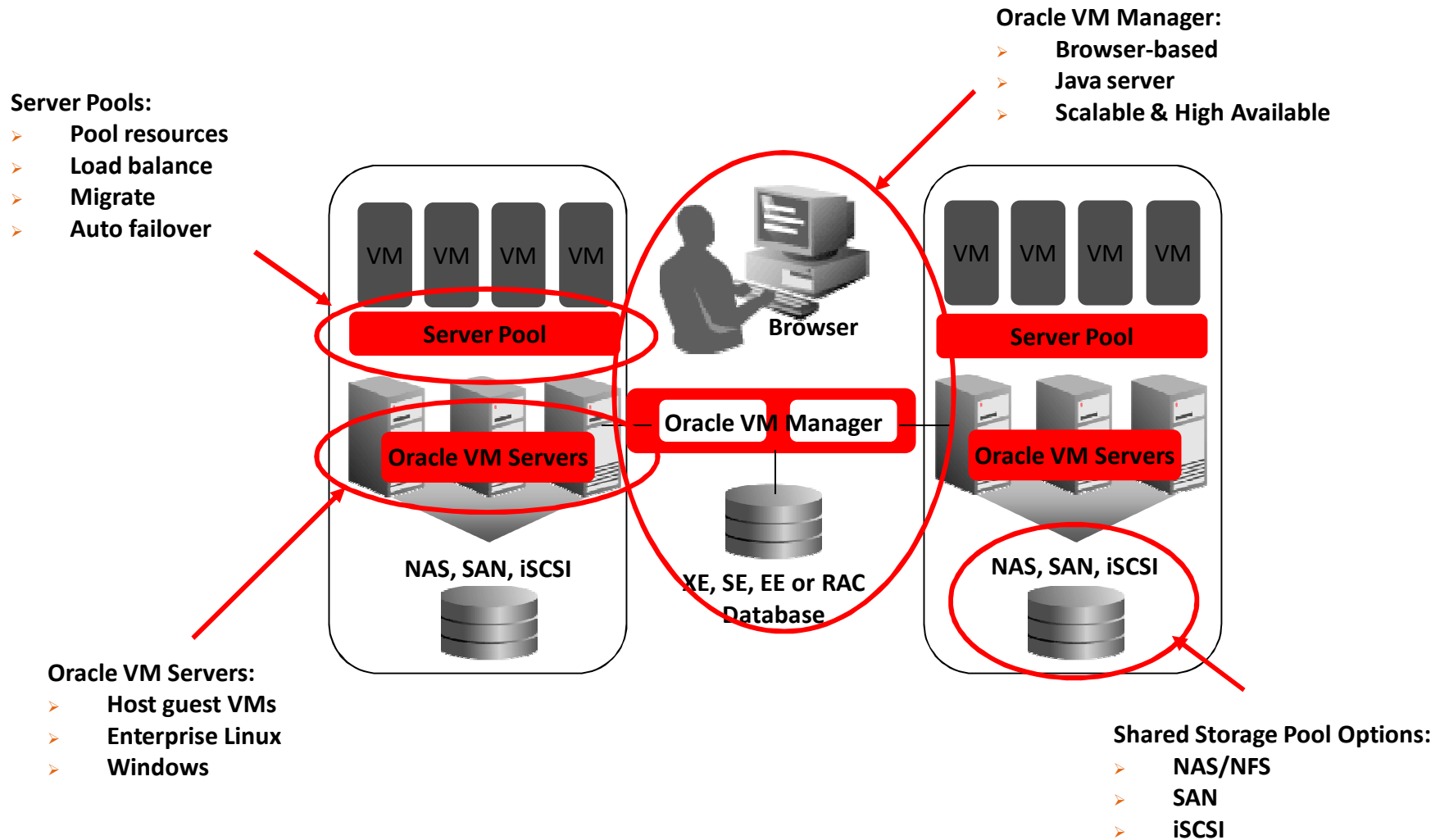


Oracle VM: Características Generales

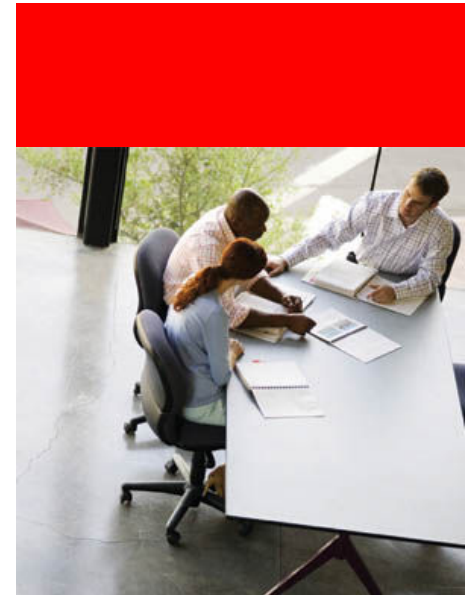
- **Oracle VM contiene**
 - Oracle VM Server
 - Oracle VM Manager
- **Oracle VM Server**
 - Software Open Source, basado en Xen Hypervisor, pero modificado por Oracle
 - Se Instala en servidores “bare-metal” en minutos
 - Para ser usado sobre tecnología Intel y AMD (x86 y x86_64)
- **Oracle VM Manager**
 - Consola de administración web
 - Servidor basado en java
 - Repositorio de Base de Datos: XE (incl.), puerder ser desplegado sobre SE, EE o RAC



Oracle VM: Arquitectura de Despliegue

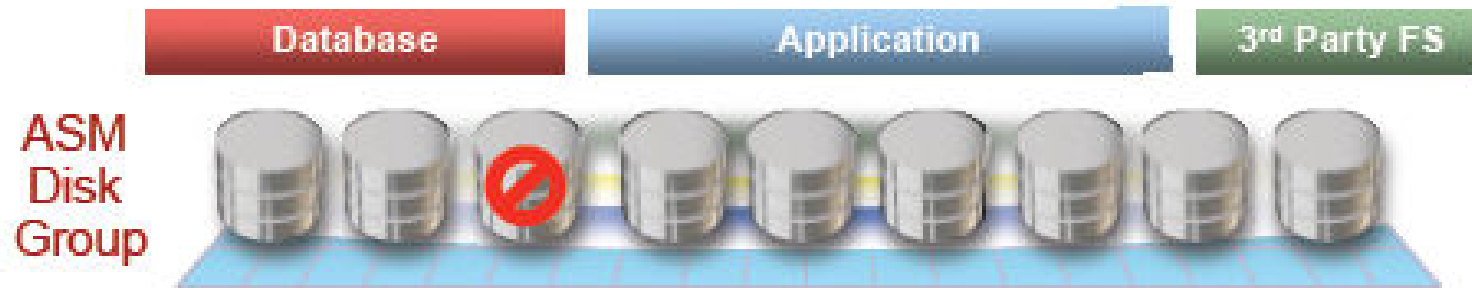


Automatic Storage Management (ASM)



Oracle Automatic Storage Management (ASM)

Stores & Manage All Data

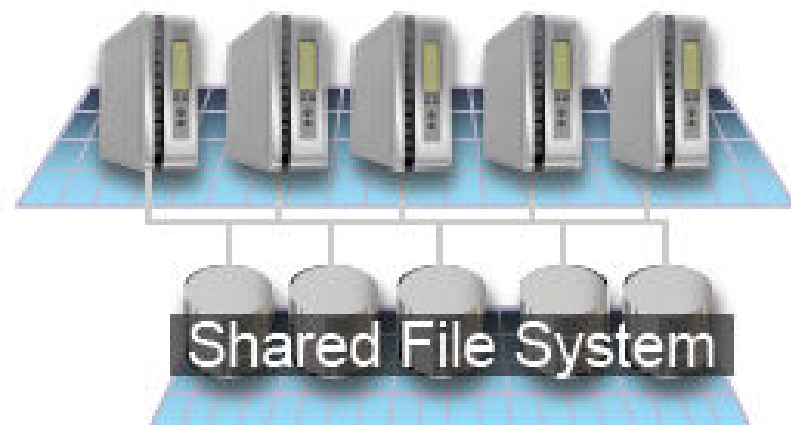


- ASM dynamic volume manager supports file systems
- ASM directly supports Clusterware files – Cluster Repository, Voting Disk
- Built-in mirroring protects from disk failures
- Enables auto-repair from corrupt blocks using a valid mirror copy

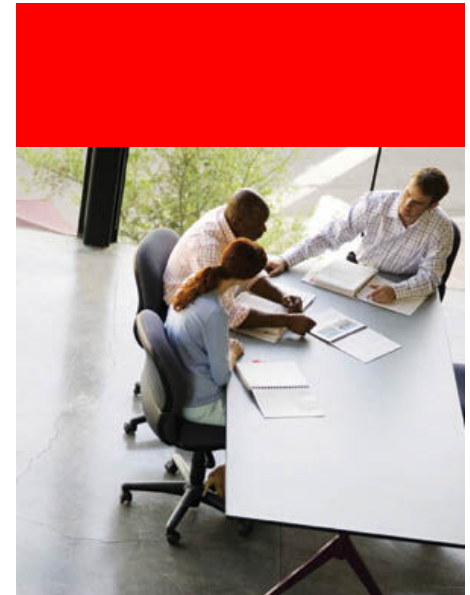
Oracle ASM Cluster File System

New in 11.2

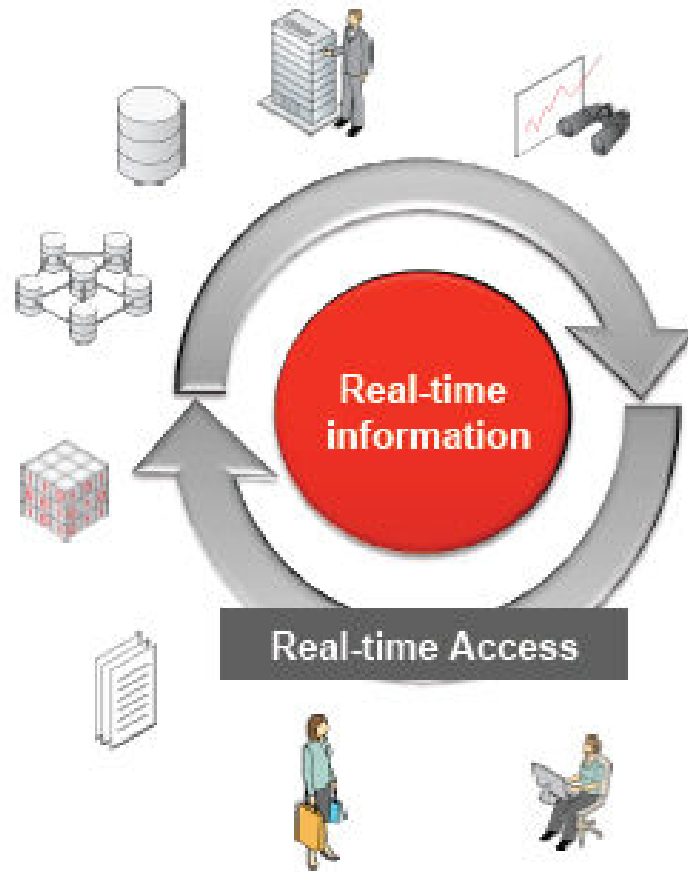
- Manage both database & file system data
 - E.g.: Oracle & Application binaries, trace files, alert logs, BFILEs, image files, etc.
- Clustered or local file system
 - Data stored in ASM
 - Inherits all ASM manageability benefits
 - Online disk add/drop/rebalance
 - Integrated mirroring
 - Cross-platform
- Read-Only Snapshots
 - Up to 63 point-in-time space efficient copies of file system
- Linux and Windows only in first release



Oracle GoldenGate



Oracle GoldenGate



- Best-in-class leader in real-time data solutions
 - Continuous Availability for heterogeneous systems
 - Real-time data access for Reporting
 - Real-time data for BI, EPM, Exadata
 - Zero-downtime migrations / upgrades to Oracle Database and Applications
- Over 400 customers with 4,000+ implementations across Fortune 500 companies: Financial Services, Communications, Healthcare, Public Sector, Retail & Utilities industries
 - Top 3 of 5 largest commercial banks
 - Top 3 of 3 busiest ATM networks
 - Top 7 of 10 financial data services companies
 - Top 4 of 5 telecommunications providers
 - Top 3 of 5 largest food & drug stores

Oracle GoldenGate

Heterogeneous Platforms

Databases	O/S and Platforms
<u>Capture:</u> ▪ Oracle ▪ DB2 ▪ Microsoft SQL Server ▪ Sybase ASE ▪ Teradata ▪ Enscribe ▪ SQL/MP ▪ SQL/MX <u>Delivery</u> - all listed above, plus: ▪ HP Neoview, Netezza, Greenplum, and any ODBC compatible databases ▪ ETL products ▪ JMS message queues ▪ MySQL ▪ TimesTen	▪ Windows 2000, 2003, XP ▪ Linux ▪ Sun Solaris ▪ HP NonStop ▪ HP-UX ▪ HP TRU64 ▪ HP OpenVMS ▪ IBM AIX ▪ IBM z/OS

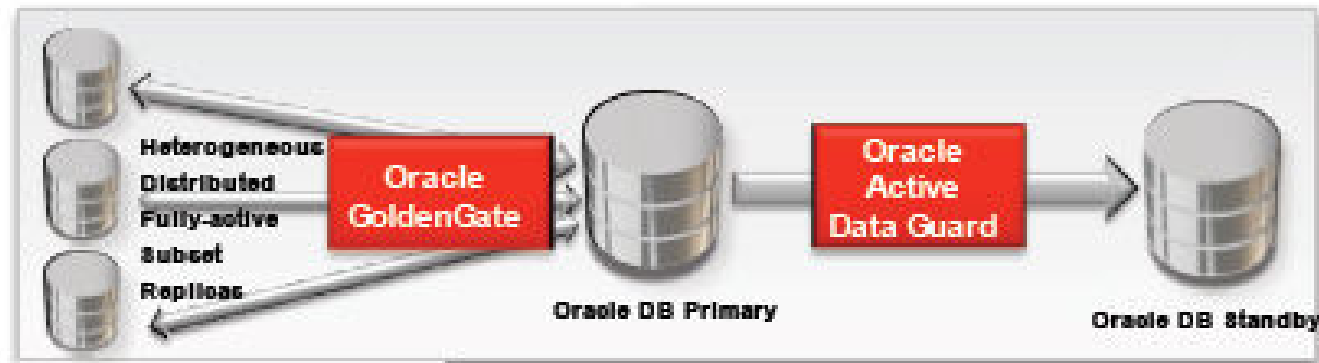
Oracle GoldenGate & Oracle Streams

Oracle GoldenGate

Oracle Streams

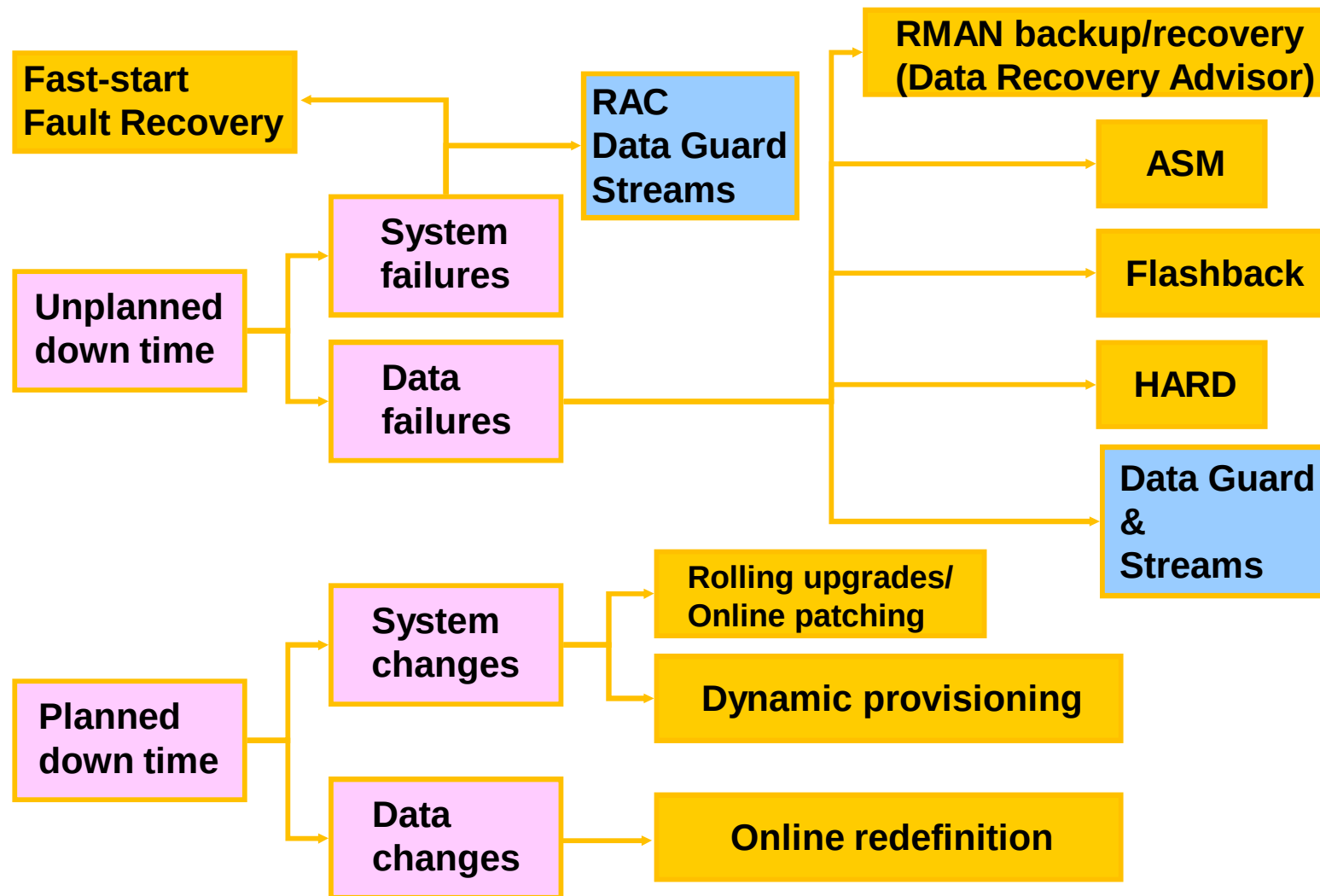
- GoldenGate is Oracle's **strategic** replication solution
- Streams continues to be a supported Oracle Database feature
- Best Streams technology will be integrated into GoldenGate

Oracle GoldenGate & Data Guard



- Information Distribution & Consolidation, Application Upgrades & Changes
 - Use **GoldenGate** - heterogeneous, active-active, transformations, subsetting
- Disaster Recovery / Data Protection / HA
 - Simple Full Oracle Database Protection
 - Use **Active Data Guard**
 - High-performance, simple, drop-in solution for HA and DR, readable at standby
 - Works for all apps and data types, including packaged apps that can't be changed
 - Application desiring flexible HA, active-active, schema changes, platform changes
 - Use **GoldenGate**
 - Avoid or manage active-active conflicts at application level
- Combine the two for full database protection and information distribution

Oracle High Availability Solutions





PEOUG

PERU ORACLE USERS GROUP

www.peoug.org