Deploy highly available e-business solutions in minutes with easy-to-use wizards, dialog boxes, and drag-and-drop features. The client downtime prevented during a single unplanned server outage often pays for the entire deployment cost of an Oracle Fail Safe solution.

WHAT IS ORACLE FAIL SAFE?

Oracle Fail Safe is a core feature of Oracle9*i*, Oracle *i*AS, and Oracle Applications Release 11*i* that provides high-availability for e-business solutions deployed on Windows clusters. A cluster (which is a group of independent computing systems [nodes] that operates as a single virtual system) eliminates individual host systems as points of failure. Oracle Fail Safe release 3.2 works with Microsoft Cluster Server to ensure that if a failure occurs on one cluster node, then the Oracle databases and applications running on that node will fail over (move) automatically and quickly to a surviving node.

WHO SHOULD USE ORACLE FAIL SAFE?

Oracle Fail Safe is optimized for Windows customers with database and application workloads that can be handled by a single system. Oracle Fail Safe solutions can be deployed on all commodity Windows NT and Windows 2000 clusters. Supported products include:

- Oracle databases (Standard and Enterprise Editions of Oracle9*i* and Oracle8*i*)
- Oracle Applications release 11*i*
- Oracle *i*AS components, including:
    - Oracle Forms Services
    - Oracle Reports Services
    - Oracle HTTP Server
- Oracle Intelligent Agent
- Oracle Service for Microsoft Transaction Server (for Oracle8*i* release 8.1.7)

SAP, Baan, PeopleSoft, Lawson, J.D. Edwards, and other applications vendors also have validated their software solutions with Oracle Fail Safe.

Thousands of customers use Oracle Fail Safe today, including: armed forces, breweries, call centers, courier and postal services, hotels, financial services, government agencies, insurance agencies, law enforcement agencies, manufacturing plants, health care providers, retail chains, transportation providers, telephone services, energy utilities, and warehouses.

HOW DOES ORACLE FAIL SAFE WORK?

Oracle Fail Safe includes two main components, a server and a manager. The server component, Oracle Services for MSCS, works with the cluster software to ensure fast automatic failover during planned and unplanned outages. The manager, Oracle Fail Safe Manager, is an easy-to-use graphical interface that works with Oracle Services for MSCS on one or more clusters to perform configuration, management, verification, and static load balancing. Together, these components provide a rich set of features and integrated troubleshooting tools that enable rapid deployment of highly available databases and applications—complete e-business solutions.
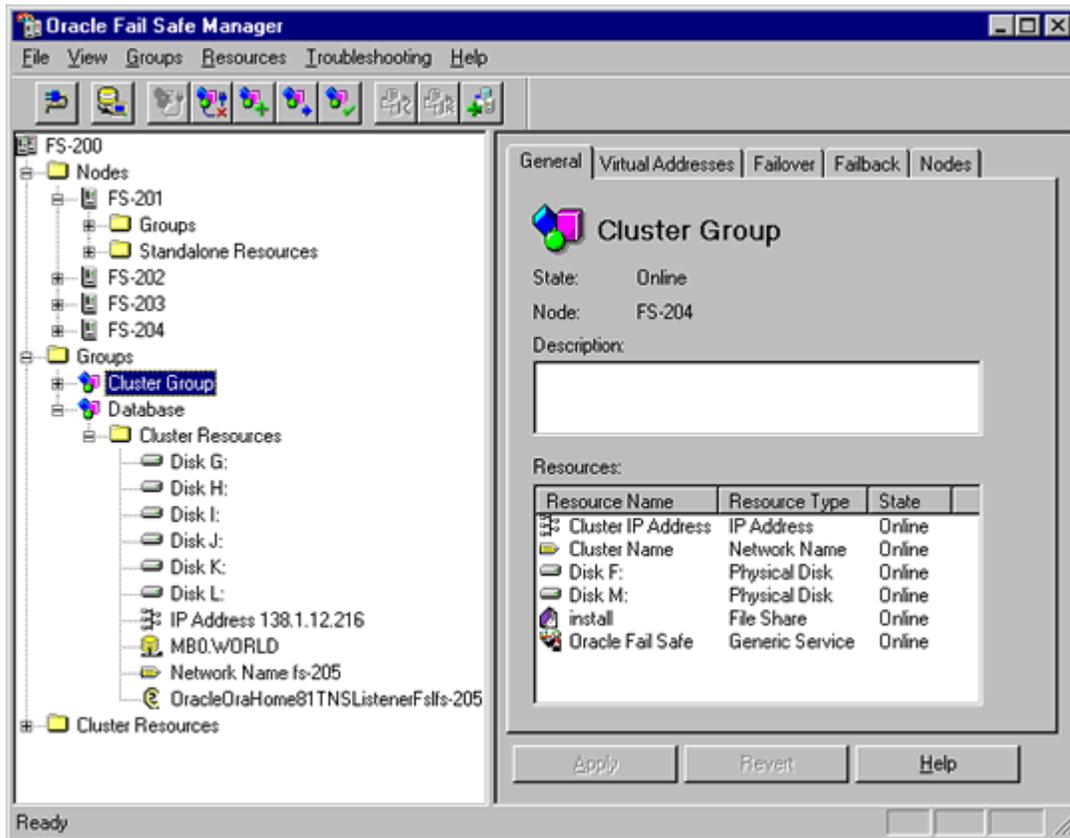
Oracle Fail Safe Manager Tree View

FLEXIBLE DEPLOYMENT OPTIONS

Oracle Fail Safe solutions can be deployed on any Windows cluster on the Microsoft Hardware Compatibility List. RAID or other data protection is recommended to prevent downtime or loss of data due to media failure. Most clusters are configured similarly, differing only in choice of storage interconnect (SCSI or Fibre Channel) and in the way applications are deployed across the cluster nodes. SCSI clusters offer low-cost high availability and are limited to two nodes. Fibre Channel clusters provide (at greater cost) faster failover with limited disaster tolerance (nodes and storage arrays can be separated from each other by up to ten kilometers) and can support Windows 2000 Datacenter configurations with more than two nodes.

Customers who require both high availability and disaster protection can combine Oracle9*i* disaster recovery features (such as Advanced Replication or Automated Standby) with databases deployed at local and remote sites with Oracle Fail Safe. Hardware-based Geo-clustering solutions such as EMC GeoSpan and Compaq Stretch Clusters, are also supported for even further disaster protection.
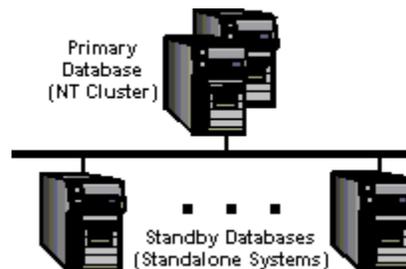

Automated Standby Primary Database Deployed
With Oracle Fail Safe on a Windows NT Cluster

Cluster Configuration

Oracle Services for MSCS and all other executable Oracle software are installed on a private disk (usually the system disk) on each cluster node. Product-related files that must be accessible to either cluster node (for example, the data, control, and log files associated with a database instance) are installed on cluster disks attached to the shared storage interconnect between the nodes. Oracle Fail Safe Manager is usually installed on the management system for the network domain containing the cluster.

Customers can select from a variety of deployment options, including active/passive, active/active, and multitiered solutions. Windows 2000 Datacenter Server clusters with more than two cluster nodes can further expand configuration options by replacing multiple 2-node clusters with a single larger cluster. This can substantially reduce the hardware and management costs associated with otherwise "idle" systems.
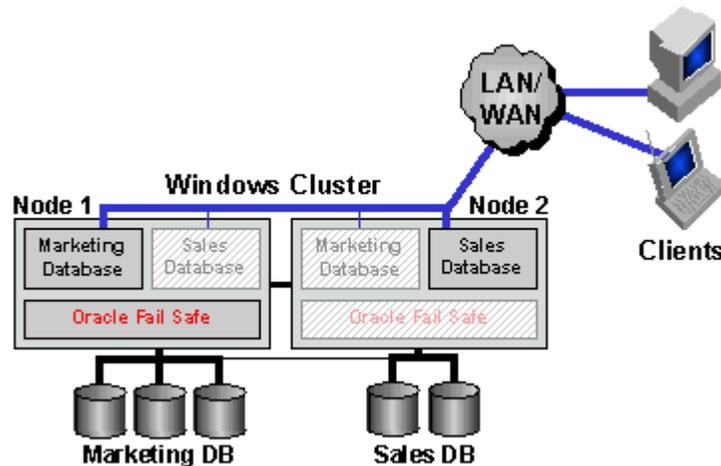
Active/Passive Solution
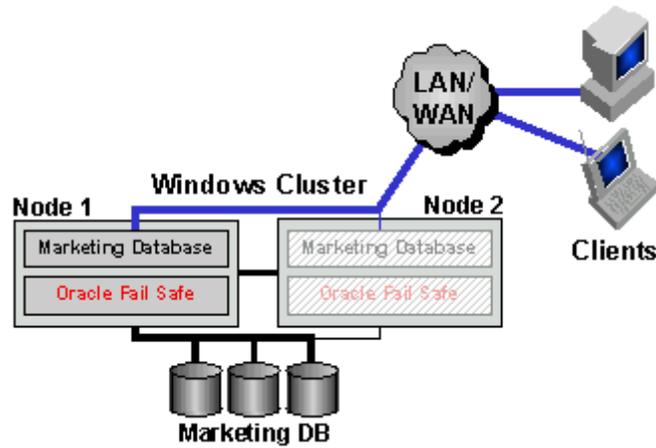
Active/Passive Database Configuration

- Fastest failover
- Less expensive than traditional standby solutions, (no second disk farm and no data replication costs such as extra network bandwidth)

Active/Active Solution

Active/Active Configuration

- All nodes perform useful work
- Tradeoffs on workload per node
- Transient workload spikes easily handled by excess capacity on each system
- Improved network configuration opportunities (for example, clients connect to the application server via the public network, while the application server efficiently connects to the database as its only client via the private cluster heartbeat network)

Multitiered Solutions

- Flexible and highly available e-business computing solutions for client, application, and data tiers

- Application tier components can scale across multiple servers or clusters
- Eliminates what would otherwise be potential points of failure in non-clustered deployments
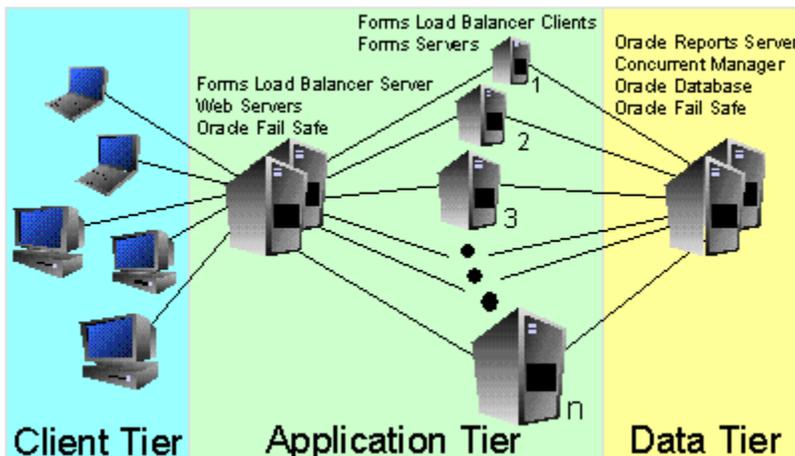
Highly Available Oracle Applications

SUMMARY AND MORE INFORMATION

Oracle Fail Safe makes it simple for administrators to quickly deploy complete highly available e-business solutions on Windows NT and Windows 2000 Clusters. Wizards and drag-and-drop features automate clusterwide failover configuration for a wide variety of software components, including Oracle databases, Oracle *i*AS, Oracle Forms Services, Oracle Reports Services, Oracle HTTP Server, Oracle Service for Microsoft Transaction Server, and Oracle Applications Release 11*i* components. Operations can be performed interactively using Oracle Fail Safe Manager or can be scripted using the FSCMD command-line interface. For more information, including white papers, Quick Tour, and online documentation, visit the following online locations:

http://www.oracle.com/ip/deploy/database/features/failsafe/

http://otn.oracle.com/tech/windows/failsafe/

Subscribers to the Oracle Learning Network (http://www.oracle.com/education/oln/index.html) can also enroll in the self-paced online eStudy course *Introduction to Oracle Fail Safe* available as part of the Database Administrator *Capacity and Availability* track.

KEY FEATURES

High Availability

- Multiple IP addresses per group for better security and improved network bandwidth
- Eliminates points of failure for Oracle Forms, Oracle Reports, and Oracle Applications solutions
- Database failover recovery time can be controlled using Oracle9*i* fast-start fault recovery features
- Stress tests using a variety of client workloads and cluster configurations show that most failovers complete in less than a minute, so users can resume work quickly, even on heavily loaded systems
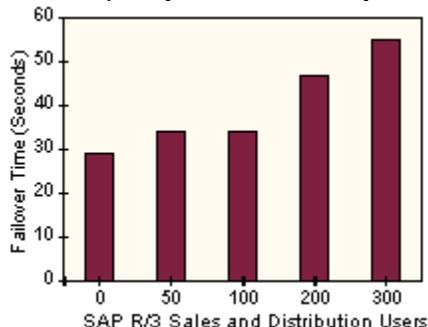
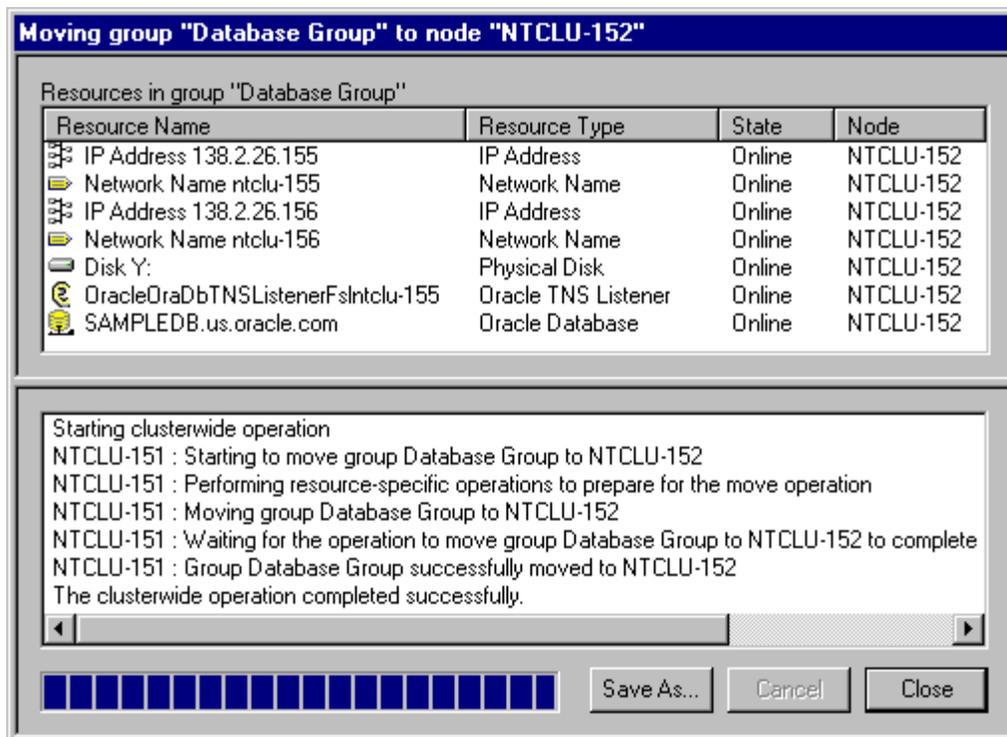Unplanned Failover Times: Oracle8 with SAP R/3

- Fast automatic failover during both planned and unplanned outages
- Automatic checkpoint feature eliminates recovery time for planned database failovers

Ease-of-Use

- Silent-mode support for scripted installations
- Three predefined installation options (Typical, Client Only, and Custom or Reinstall)
- Updated wizards, drag-and-drop features, and intelligent defaults for all common tasks
- Automatic Fail Safe Manager user and database authentication based on operating system login account
- Automatic resource configuration and verification
- Expanded tutorial and Quick Tour
- Extensive online help and documentation

Management and Administration

- Full support for clusters with one, two, or more nodes
- Rolling upgrade support for both operating system and application software
- Graphical user interface with features such as a split-screen view that displays the ongoing status of any resources involved in a clusterwide operation (such as Move Group)

Moving group "Database Group" to node "NTCLU-152"

Resources in group "Database Group"

Resource Name	Resource Type	State	Node
IP Address 138.2.26.155	IP Address	Online	NTCLU-152
Network Name ntclu-155	Network Name	Online	NTCLU-152
IP Address 138.2.26.156	IP Address	Online	NTCLU-152
Network Name ntclu-156	Network Name	Online	NTCLU-152
Disk Y:	Physical Disk	Online	NTCLU-152
OracleOraDbTNSListenerFsIntclu-155	Oracle TNS Listener	Online	NTCLU-152
SAMPLEDB.us.oracle.com	Oracle Database	Online	NTCLU-152

Starting clusterwide operation
NTCLU-151 : Starting to move group Database Group to NTCLU-152
NTCLU-151 : Performing resource-specific operations to prepare for the move operation
NTCLU-151 : Moving group Database Group to NTCLU-152
NTCLU-151 : Waiting for the operation to move group Database Group to NTCLU-152 to complete
NTCLU-151 : Group Database Group successfully moved to NTCLU-152
The clusterwide operation completed successfully.

Save As...   Cancel   Close

Oracle Fail Safe Manager: Move Group Status Report

- Updated FSCMD command-line interface for scripted configuration and management tasks (such as cold backups or dynamic load balancing)
- Optional inclusion of an Oracle Intelligent Agent in each group allows virtual servers and databases to be discovered and managed by Oracle Enterprise Manager

Application Integration

- No coding changes are required to access applications configured with Oracle Fail Safe

- Databases, Forms Servers, Reports Servers, Oracle HTTP Servers, application servers, and other software applications are configured for high availability at a node-independent virtual server address
- Automatic database reconnection and replay of interrupted SELECT statements (transparent application failover) for ODBC and OCI clients
- Integrated solutions with Oracle Applications, SAP, Baan, PeopleSoft, Lawson, J. D. Edwards, and other applications vendors

Advanced Troubleshooting Tools

- Extensive tracing and logging features
- Dump Cluster report provides detailed status and configuration information for each cluster node
- Expanded reports for all clusterwide operations
- Verify Cluster, Group, and Standalone Database
- Detailed error messages and online troubleshooting information

Flexible Configuration Options

- Active/Passive, Active/Active, and Multitiered solutions for database and application workloads
- Multiple groups per node minimize unnecessary failovers and ensure optimal load balancing
- Full support for proprietary cluster storage resources such as Compaq SCE, IBM ServerRAID, and EMC GeoSpan disk arrays
- Databases can use a different parameter file on each node for optimal tuning and configuration

Supported Products

- Oracle databases (Standard and Enterprise Editions of Oracle9*i* and Oracle8*i*)
- Oracle Applications release 11*i*
- Oracle *i*AS components, including:
  - Oracle Forms Services
  - Oracle Reports Services
  - Oracle HTTP Server
- Oracle Intelligent Agent
- Oracle Service for Microsoft Transaction Server (for Oracle8*i* release 8.1.7)

Supported Environments

- *Oracle Services for MSCS:* Intel clusters configured with Microsoft Cluster Server (MSCS) and running Windows NT 4.0 Enterprise Edition with SP5 or later, Windows 2000 Advanced Server, or Windows 2000 Datacenter Server
- *Oracle Fail Safe Manager:* Intel systems running Windows 98, Windows NT 4.0 with SP5 or later, or Windows 2000

National Language Support (NLS)

- English and Japanese translations

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