VMware Fault Tolerance

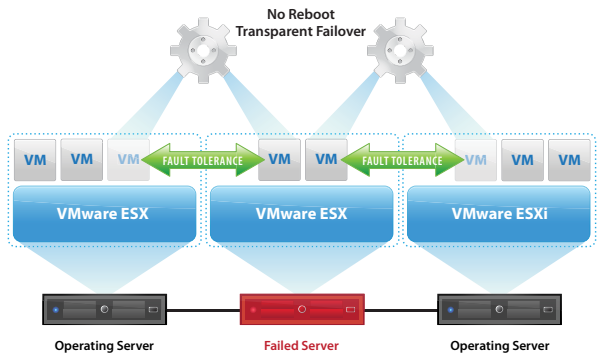
Deliver 24x7 Availability for Critical Applications

AT A GLANCE

VMware® Fault Tolerance provides zero-downtime, zero-data-loss continuous availability for any application, without the cost or complexity of traditional solutions.

BENEFITS

- Eliminate expensive downtime or data loss due to server failures.
- Provide continuous service to any application, regardless of operating system.*
- Provide uninterrupted service through an intuitive administrative interface.



VMware Fault Tolerance enables a transparent failover with no disruption of service in the event of hardware failures

What is VMware Fault Tolerance?

VMware Fault Tolerance is a pioneering new component of VMware vSphere™ that provides continuous availability to applications, preventing downtime and data loss in the event of server failures. VMware Fault Tolerance, built using VMware vLockstep technology, provides operational continuity and high levels of uptime in VMware vSphere environments, with simplicity and at a low cost.

How is VMware Fault Tolerance Used in the Enterprise?

VMware Fault Tolerance is used in the enterprise to prevent application disruption due to hardware failures. Downtime associated with mission-critical enterprise applications can be very expensive and disruptive to businesses. Traditional solutions that address this problem through hardware redundancy or clustering are complex and expensive. VMware HA addresses server failures by automatically restarting virtual machines on alternate servers. VMware Fault Tolerance takes high availability to the next level, completely eliminating downtime due to hardware failures with simplicity, at a low cost and across all applications, regardless of operating system.

With VMware Fault Tolerance, IT organizations can:

- **Eliminate even the smallest of disruptions due to server hardware failures.**
  VMware Fault Tolerance provides instantaneous, non disruptive failover in the event of server failures, protecting organizations from even the smallest of disruption or data loss when downtime costs can run into thousands of dollars in lost business.
- **Provide continuous availability to any critical application*.**
  All applications that run inside a VMware virtual machine can be protected by VMware Fault Tolerance, allowing continuous levels of availability to be possible even for homegrown or custom applications. Automatic detection of failures and seamless failover ensure that applications continue to run without interruptions, user disconnects or data loss during hardware failures.
- **Deliver uninterrupted service with simplicity and low cost.**
  VMware Fault Tolerance works with existing VMware High Availability (HA) or VMware Distributed Resource Scheduler (DRS) clusters and can be simply turned on or turned off for virtual machines. When applications require operational continuity during critical periods such as month end or quarter end time periods for financial applications, VMware Fault Tolerance can be turned on with the click of a button to

provide extra assurance. The operational simplicity of VMware Fault Tolerance is matched by its low cost. VMware Fault Tolerance is simply included as a component in VMware vSphere, and requires no specialized dedicated hardware**.

How Does VMware Fault Tolerance Work?

- VMware Fault Tolerance, when enabled for a virtual machine, creates a live shadow instance of the primary, running on another physical server.
- The two instances are kept in virtual lockstep with each other using VMware vLockstep technology, which logs non-deterministic event execution by the primary and transmits them over a Gigabit Ethernet network to be replayed by the secondary virtual machine.
- The two virtual machines play the exact same set of events, because they get the exact same set of inputs at any given time.
- The two virtual machines access a common disk and appear as a single entity, with a single IP address and a single MAC address to other applications. Only the primary is allowed to perform writes.
- The two virtual machines constantly heartbeat against each other and if either virtual machine instance loses the heartbeat, the other takes over immediately. The heartbeats are very frequent, with millisecond intervals, making the failover instantaneous with no loss of data or state.
- VMware Fault Tolerance requires a dedicated network connection, separate from the VMware VMotion™ network, between the two physical servers.

Key Features of VMware Fault Tolerance

- VMware Fault Tolerance automatically detects server failures and triggers instantaneous, seamless stateful failover resulting in zero downtime, zero-data-loss continuous availability.
- VMware Fault Tolerance automatically triggers the creation of a new secondary virtual machine after failover, to ensure continuous protection to the application.
- VMware Fault Tolerance works with all types of shared storage, including Fibre Channel, NAS or iSCSI.
- VMware Fault Tolerance works with all operating systems * supported with VMware ESX™.
- VMware Fault Tolerance works with existing VMware DRS and VMware HA clusters** and only an additional dedicated gigabit Ethernet network.

Find Out More

How Can I Purchase VMware Fault Tolerance?
VMware Fault Tolerance is included in VMware vSphere Advanced, Enterprise and Enterprise Plus Editions. VMware Fault Tolerance requires VMware vCenter Server for administration.

For information on how to purchase, please refer to http://www.vmware.com/go/vsphere/buy

Product Specifications and System Requirements
*VMware Fault Tolerance is supported with virtual machines with only a single virtual processor.

**VMware Fault Tolerance doesn't require any specialized hardware, but requires at a minimum the Intel 31xx, 33xx, 52xx, 54xx, 55xx, 74xx or AMD 13xx, 23xx, 83xx series of processors; and works with any future generation of these processors.

VMware Fault Tolerance requires a dedicated Gigabit Ethernet network between the physical servers, 10 Gigabit Ethernet should be considered if VMware Fault Tolerance is enabled for many virtual machines on the same host.

There are no limits on how many virtual machines in a VMware DRS or VMware HA cluster can be enabled for VMware Fault Tolerance, but every machine with VMware Fault Tolerance enabled takes up twice as much capacity; this should be built into the configuration.

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