Virtualiron

Virtualization as Part of a Business Continuity Strategy

Make disaster recovery more effective and efficient

The need for a business continuity strategy has been made abundantly clear from man-made accidents such as power failures to natural disasters such as hurricanes and earthquakes. Gartner, a leading researcher, confirms that the industry is taking steps to minimize risk and reports that at least two thirds of companies rely on multiple data centers. Existing business continuity approaches are expensive though. Each application must be mirrored in multiple data centers, creating an explosion of equipment running at extremely low utilization rates. As a result, companies are forced to make compromises in their business continuity strategy and limit coverage to only their most critical applications while employing manual, time-consuming processes for the rest.

The table below estimates the annual loss expectancy from an application outage for different types of businesses. The basic formula is to multiply the cost of downtime by the length and frequency of the event. The proposed response for each contingency should either reduce the length or frequency of an event.

Downtime cost statistics	
Application segment affected	**Average cost of downtime** (measured per hour)
Shipping	$28,000
Teleticket sales	$69,000
Airline reservations	$89,000
Home shopping	$113,000
Pay-per-view	$150,000
Credit card sales	$2.65 million
Financial markets	$6.45 million

Source: Forrester Research

Virtual Iron Makes Business Continuity More Effective and Efficient

Virtual Iron provides enterprise-class virtualization and management solutions that improve application availability while reducing operation costs and capital expenditures. By combining advanced virtualization with policy-based automation, Virtual Iron enables customers to transform their data center assets into virtualized pools of resources that can be dynamically allocated on an as-needed basis. The software is designed to virtualize all the resources in enterprise-class data centers, with hundreds of servers, network and storage elements.

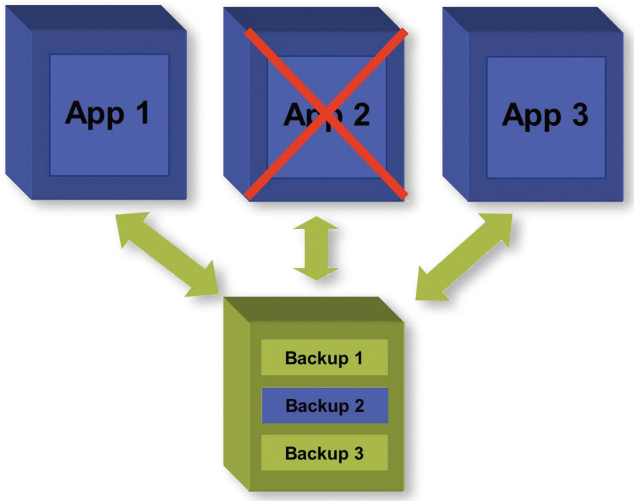
Virtual Iron's software delivers several unique capabilities including:

Hardware Independence. Virtualization provides a layer of abstraction between an operating system, the application stack, and the hardware it runs on. With Virtual Iron, physical resources — consisting of processing, memory, storage and network fabrics — can be configured on demand. This flexibility allows rapid recovery from failures because workloads can be migrated and restored on any hardware anywhere regardless of configuration. This hardware independence makes consolidation practical as secondary data centers can use less expensive hardware, reducing costs. It also allows CPU, memory, and I/O to be hot-pluggable, allowing capacity to be scaled up and down without application interruption.

Virtual Iron's virtual servers use NAS and SAN file systems in the same way as physical systems, allowing data backup and replication to proceed with the same utilities and tools that are used with physical servers. There is no need for

special physical to virtual or virtual to physical conversion utilities and procedures: the same image can run in physical or virtual environments. Virtual Iron's virtualization layer provides built-in redundancy. Multi-pathing has been built into the I/O layer, allowing applications to continue to run even if network or storage switches fail.

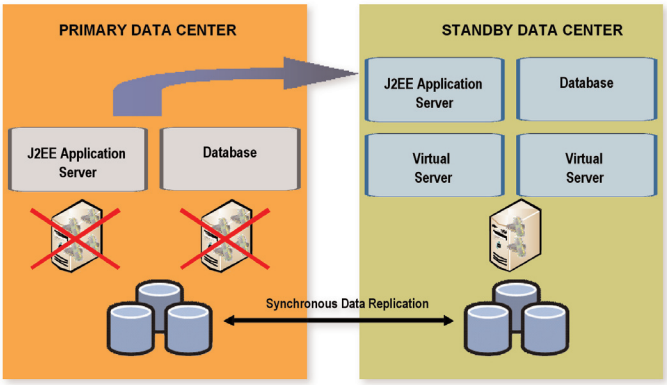
Hardware Consolidation. Clustering software can bind two redundant servers into a hot standby pair resulting in no application downtime if the primary server experiences a hardware or software error. Passive servers consume few computing resources in standby mode allowing multiple passive servers to be consolidated on one physical server. As a result, the enterprise is able to realize the benefit of high availability without duplicate servers, providing N+1 failover instead of current 2N failover scenarios, improving hardware utilization.



N+1 High Availability

Policy-based Automation/LiveRecovery™. Virtual Iron monitors a variety of general hardware failures on physical servers and switches, such as fans, power, and temperature using standards such as IPMI. Heartbeat monitoring of the physical and virtual resources allows instant response in the event of failures. Policies can take actions such as moving failing servers out of running virtual servers. If the server is removed prior to failure, there is no impact to application availability. Virtual Iron can automatically detect hardware failures, resulting in momentary downtime equal to the time to reboot the virtual server on a new physical server. Virtualization allows a virtual server to run on any server hardware without reconfiguring its operating system, storage, or network.

Data Center Failover. Hardware in the secondary data center does not need to be identical to the hardware at the primary site. Since the physical hardware is abstracted and virtualized, the applications and operating systems see a consistent and stable platform. Failover can occur transparently without the need to reconfigure the OS and applications. This means that secondary sites do not require identical hardware as the primary site. In the event of a failure, virtual servers at the secondary site can boot up and start servicing requests as if they were still in the primary site.



Disaster Recovery & Failover

Virtual Iron's advanced virtualization and management solutions provide the highest levels of performance, reduce hardware costs, and allow the organization to achieve the highest levels of application availability. With Virtual Iron, companies can simplify and dramatically reduce the cost of business continuity operations. Workloads can have higher levels of availability with less operational and capital costs. Policies monitor server uptime and can automate resource failovers. In the event of data center failovers, virtual resources reduce the mean time to repair and can operate on different hardware configurations without change. Learn more about how Virtual Iron can help you by calling 978.849.1200, or visit us on the Web at www.virtualiron.com.

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