Vırtualıron™

PRODUCT OVERVIEW

Virtual Iron Product Overview

VIRTUAL IRON

Virtual Iron Software enables organizations to transform their physical server, storage, and network resources into a centrally managed pool for creating and managing virtual infrastructure in the data center. The company is focused on advanced virtualization and management capabilities that take full advantage of industry standards and open source economics. These solutions dramatically reduce the cost and complexity of enterprise service delivery.

Organizations have made significant investments in the data center, but the infrastructure remains complex and inefficient. As a result, it is difficult and expensive to manage. In addition, enterprise IT departments are not able to respond as effectively to the needs of the business as they would like. While virtualization delivers capabilities that address many data center shortcomings, existing solutions are proprietary, expensive, and slow to respond to industry innovation. Virtual Iron leverages open standards to reduce cost, increase customer choice and eliminate the risk of proprietary lock-in.

Virtual Iron is focused on advanced virtualization and management capabilities that take full advantage of industry standards and open source economics.

With Virtual Iron, users can:

- **Improve the utilization** of current systems and get more out of today's industry-standard hardware via partitioning and consolidation.

- **Quickly and economically deploy software** to set up development, test, and production environments.

- **Match resource capacity to workload demands** via workload management capabilities.

- **Recover from failures quickly**, reliably and cost-efficiently via high availability and disaster recovery capabilities.

- **Reduce human labor** and errors via policy-based automation.

PRODUCT OVERVIEW

Virtual Iron Enterprise Edition enables server partitioning for multi-server configuration and advanced management capabilities for rapid provisioning, high availability (LiveMigrate™, LiveRecovery™), disaster recovery (LiveRecovery™), workload management and policy-based automation (LiveCapacity™).

The platform itself consists of three primary components:

An open source hypervisor provides the foundation for Virtual Iron.

Virtualization Manager
(Management Services and Console)

Virtualization Services
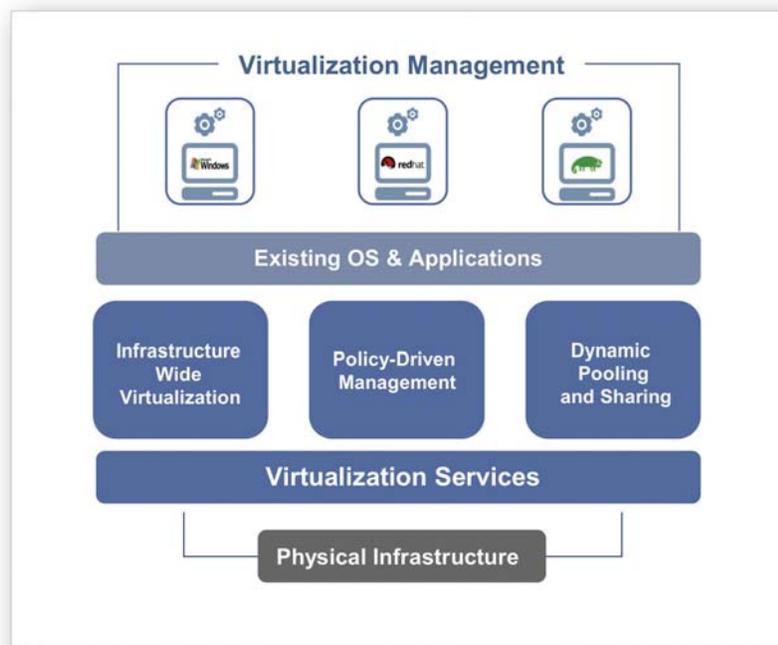
Open Source Hypervisor
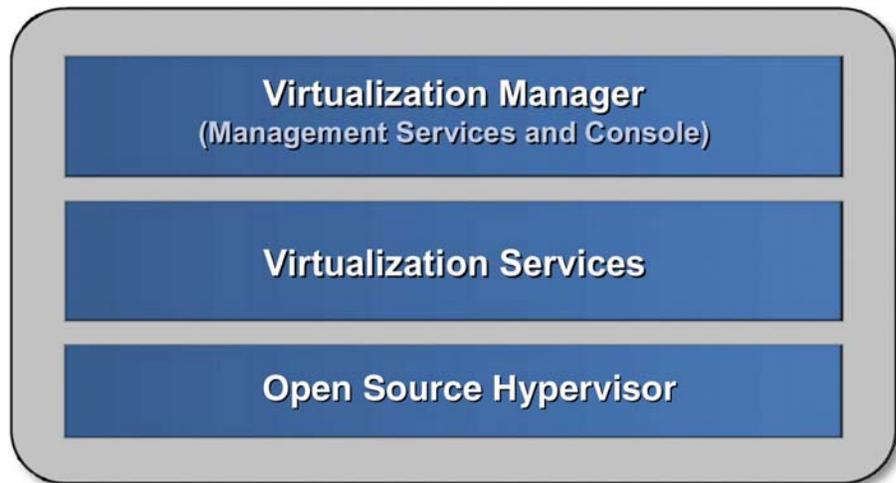
An **open source hypervisor** provides the foundation for Virtual Iron. It leverages the hardware-assisted virtualization capabilities built into the latest micro-processors to create an abstraction layer between physical hardware and virtual resources. Virtual Iron supports 32-bit Windows and 32 and 64-bit Linux operating systems, up to 8 CPUs per guest operating system, 32 CPUs per physical server, 96 GB memory, and multiple network and storage adaptors.

Virtual Iron **Virtualization Services** provide enterprise-class capabilities on top of the open source hypervisor. These capabilities are deployed automatically on industry-standard servers without requiring software installation. Virtualization services include dynamic infrastructure management, server partitioning and transparent LiveMigration™, allowing users to move virtual servers between physical servers without disrupting operating systems or applications. In addition, Virtual Iron provides virtual storage and network connectivity, high-performance I/O for near native performance and resource monitoring for automatic recovery of virtual servers in event of failure.

Virtual Iron **Virtualization Manager** includes a web-based user interface to create and administer the virtual environment. It combines an easy to use GUI with a built-in policy engine and event monitor to optimize application performance, ensure high availability and simplify resource management. Virtualization Manager also enables rapid provisioning and reconfiguration through virtual server templates and cloning. These features streamline tasks that are normally highly manual and time-intensive and significantly reduce the complexity in the data center.

KEY FEATURES AND CAPABILITIES

Virtual Iron provides a comprehensive solution for virtualization and management that is less than 20% of the cost of comparable competitive offerings.

Virtual Iron delivers a unique set of advanced virtualization capabilities that sets Virtual Iron apart from other offerings in the marketplace.

◢ **Native Virtualization based on an open source hypervisor** — Virtual Iron's approach to virtualization is efficient, easy to manage and based on an open source hypervisor. The software dramatically streamlines virtual server management and reduces operational costs by:

- fully leveraging hardware-assisted virtualization capabilities for optimal virtualization efficiency;
- enabling 32- and 64-bit x86 operating systems to run unmodified and concurrently on a partitioned server;
- requiring no installation or management of the virtualization layer.

◢ **Dynamic Infrastructure** — Virtual Iron optimizes the utilization of all data center hardware resources to deliver capacity on demand, real-time configurability and high availability with less redundancy. First-generation technologies are limited to static assignment of resource capacity. Virtual Iron supports dynamic resources that allow your software to handle peak workloads without over-scaling or service disruption.

◢ **Policy-Driven Resource and Workload Management** — Virtual Iron's unique policy-driven automation simplifies the management of computing resources and enables rapid provisioning and deployment without increased administrative overhead. Features like LiveMigrate™, LiveCapacity™, LiveMaintenance™, and LiveRecovery™ enable automated and dynamic resource management.

◢ **Price/Performance Leadership** — Open source economics and efficient use of physical resources provide dramatic cost reductions. Hardware-assisted virtualization minimizes overhead to provide virtualization benefits to the broadest range of applications. **Virtual Iron is less than 20 percent the cost of comparable competitive offerings.**

VIRTUAL IRON VIRTUALIZATION SERVICES AND OPEN SOURCE HYPERVISOR

Virtual Iron virtualizes servers to allow multiple, multi-processor guest operating systems to run concurrently on the same physical hardware. With Virtual Iron, memory, CPU, and I/O loads are balanced to ensure optimal application performance. Heterogeneous physical resources appear as homogeneous virtual resources, reducing complexity.

Virtual Iron also virtualizes network and storage connections to provide access to the resources of external networks. Virtual networks are configured on the management server and decouple the association of virtual servers from physical gateways and fibre channel switches, simplifying virtual server configuration and migrations. Each virtual device is equally accessible from any physical server and provides load balancing and hardware failover transparently to the guest operating system.

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Key Features	Benefits
Open source hypervisor	Industry standards provide rapid innovation and prevent vendor lock-in.
Bare-metal virtualization services	No software is installed on physical hardware, simplifying deployments and upgrades.
Efficient server partitioning	Consolidation and improved server utilization.
Support for up to 32 CPUs per physical server, 32- and 64-bit operating systems, 96 GB RAM and 8vNICS per virtual server.	Supports everything from small to large multi-processor virtual servers — key for handling enterprise-class workloads.
Fault isolation	Prevents a crash in one virtual server from impacting other virtual servers.
Security isolation	A virtual server may never access the memory or I/O operations of another virtual server.
Resource isolation	Runaway applications in one virtual server do not cause the others to starve.
Hardware-assisted virtualization	Low virtualization overhead to deliver fast performance on resource-intensive workloads.

VIRTUAL IRON VIRTUALIZATION MANAGER

Virtual Iron Virtualization Manager provides a Java-based web application that can be securely run in any browser. It enables software-based reconfiguration of CPU, memory, network and storage resources without changes to physical hardware.

The figure shows the Virtualization Manager user interface. A tree view on the left displays the virtual configuration consisting of virtual data centers and virtual servers. The dashboard on the right displays information such as most loaded virtual servers, running policies, and resource issues.
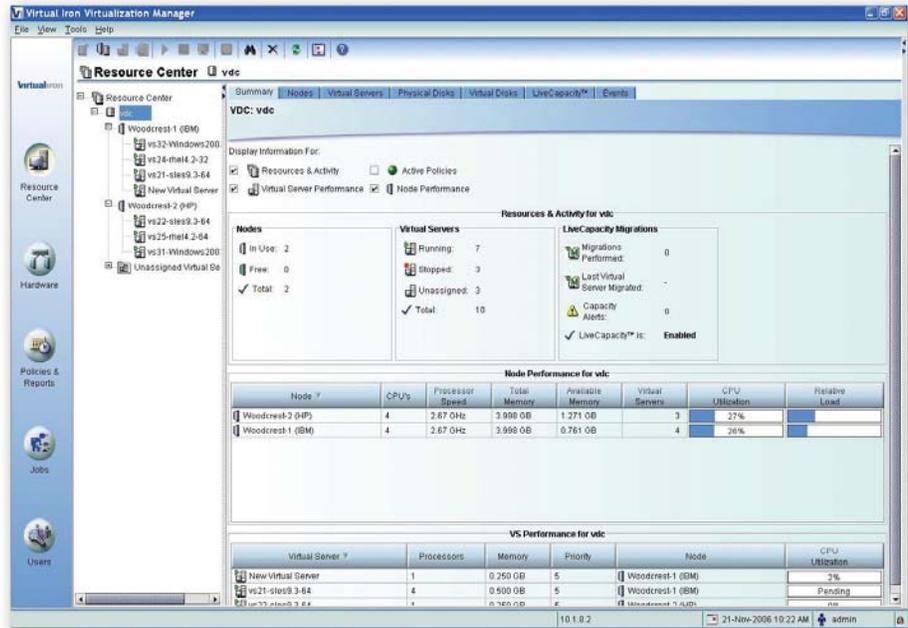
The software includes several unique features: LiveMigrate™ enables users to move a workload from one server to another without disruption. LiveCapacity™ allows processors and memory to be dynamic, allowing an application to continue running without disruption while resources are transparently added and removed. LiveMaintenance™ supports dynamic resources for upgrades and maintenance. And LiveRecovery™ moves virtual servers to maintain uptime in the event of a hardware failure.

Key Features	Benefits
Centralized resource management	Unified management of virtual and physical resources.
Hardware Discovery	Automatic discovery of physical resources such as servers, network and storage.
Policy-driven resource and workload management	Automates application management to SLAs and reduces administrative overhead.
Performance and availability reports	Provides capacity planning, what-if scenarios, and post-incident analysis.
Advanced templating and cloning of virtual servers	Manage all OS and application images from one place. Simplifies server deployments and migrations.
LiveMaintenance	Maintenance without disruption, capacity on demand.
LiveRecovery	High availability with less hardware.
LiveCapacity — dynamically scalable processors and memory	Resources such as CPUs, Memory, storage and network adaptors — can be changed without impacting running applications or changing the physical environment.
Jobs and Alerts	Uses transactional management to provide audit trail and notifications of data center reconfigurations.
Industry-standard virtual hard disk format and virtual volume management	Enable on demand deployment, rapid provisioning and hardware storage independence.

ARCHITECTURE
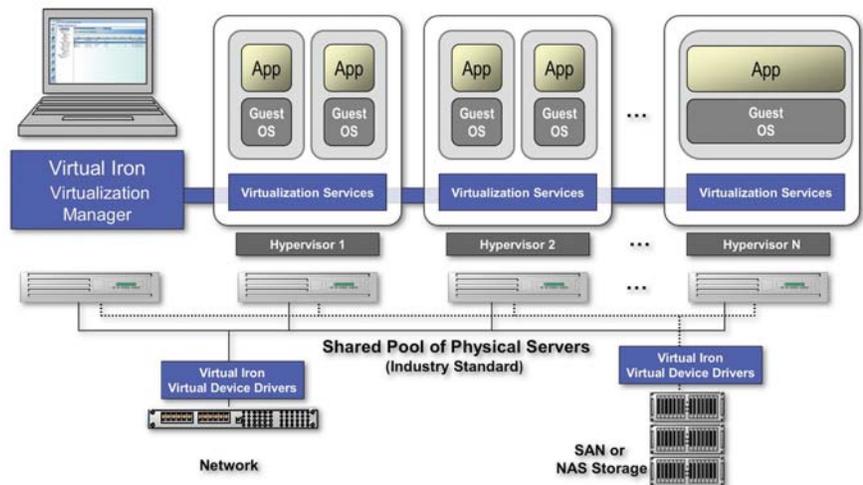
The Virtual Iron Platform requires a set of x86 servers linked via a standard Ethernet network. Virtualization Manager is installed on one server that is networked to the other servers. Operating system images, including installed enterprise applications, are stored in a network accessible location using NAS or SAN to be deployed on virtual servers. Alternatively, deployment applications can be used to install an operating system directly onto a virtual server.

The Virtual Iron Virtualization Manager automatically inventories the physical infrastructure and presents it through the management user interface. When an administrator creates and configures virtual servers, the Virtualization Manager reserves the physical resources, configures the virtual server resources, deploys the operating system, and starts the virtual server.

Supported Operating Systems
Virtual Iron supports the following operating systems:

- Red Hat Enterprise Linux 4 (32- and 64-bit)

- SUSE Linux Enterprise Server 9 (32- and 64-bit)

- Windows XP and 2003 (32-bit)

ABOUT VIRTUAL IRON

Virtual Iron provides software solutions for server virtualization and virtual infrastructure management. The company's solutions enable IT organizations to dramatically reduce the cost and complexity of managing and operating their enterprise data center infrastructure. Virtual Iron delivers advanced virtualization capabilities that fully leverage industry standards, open source economics and processors with built-in, hardware assisted virtualization. Organizations use Virtual Iron's software for server consolidation, rapid provisioning, business continuity, capacity management and policy-based automation and gain dramatic improvements in utilization, manageability and agility.

For more information, visit www.virtualiron.com.

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