



The Virtues of Virtualization

Virtualization helps organizations cut costs, optimize operations and ensure high system availability.

Value Proposition

The popularity of virtualization in the x86 segment has grown as a result of significant improvements in processor performance. Data center managers recognize the value of applying virtualization to mission-critical applications and these benefits have driven powerful advancements in virtualization technology. Once available only in complex and costly solutions, dual-core Intel processors with hardware-assisted virtualization support are now available across all server lines and Virtual Iron software takes full advantage of these latest developments.

In a non-virtualized environment, data centers are challenged by the proliferation of a large number of servers that run a single operating system and process single-application workloads. Managing multiple servers is burdensome and expensive, and workload management is problematic since single-server capacity is often outstripped during peak demand. At the same time, assorted and redundant hardware is under-utilized and available processing power is wasted as a result. Server provisioning often requires weeks or months to implement and the challenge of supporting incompatible legacy software can hinder entire corporate upgrades. For organizations that must ensure a high level of system availability, a non-virtualized environment increases the risk of downtime since core applications may be reliant only on a single server. Disaster recovery is made more difficult and complex, due to the number and variety of systems that must be recovered.

Virtual Iron solves these problems by allowing organizations to consolidate multiple operating systems and applications onto a single server. This reduces complexity, cost and corporate risk. With fewer servers needed for the same tasks, Virtual Iron simplifies data center structure and reduces support needs. Capacity management is optimized because the software automatically matches available resource capacity to workload demands without intervention or downtime. In addition, Virtual Iron enables the provisioning of any server in seconds and facilitates high availability by allowing virtual servers to fail-over to secondary servers transparently. This bolsters application uptime and enables automatic disaster recovery.

Companies using Virtual Iron's native virtualization gain the following benefits:

- Reduced capital expenditures and operating costs.
- Improved hardware utilization and capacity management.
- Diminished hardware redundancy and need for data center expansion.
- Sustained high availability and automatic business continuity.
- Simplified data center structure, and more rapid server provisioning and upgrades.

Who

Virtual Iron, a leading developer of enterprise-class software solutions for creating and managing virtual infrastructure in the data center.

Virtual Iron optimizes physical resources by transforming the data center into a dynamic, efficient pool of shared virtual computing resources that are configured and managed via software. With Virtual Iron, the data center evolves from physical to virtual by creating a "dynamic infrastructure" that improves the operational efficiency, utilization and agility of an IT environment.

What

Virtual Iron enables organizations to dramatically reduce the cost and complexity of data center operations and the management of operating systems, speed the provisioning of servers, and ensure high system availability while leveraging the power of chip-assisted virtualization technology from Intel. With Virtual Iron, companies can reduce hardware and management-related costs.

Virtual Iron enables server consolidation and automated capacity management while speeding the provisioning of servers across the data center. High availability and complete business continuity are ensured via policy-based automation and automated fail-over functionality.

How

Virtual Iron reduces both capital expenditure as well as operating expenses by automatically matching available processing capacity to workload demand. By enabling many "virtual" servers to reside on one physical server, Virtual Iron helps IT organizations streamline data center operations, reduce complexity in their data center infrastructure, optimize processing and operations, and minimize ongoing support requirements.

Why Virtual Iron

Virtual Iron provides an enterprise-class virtualization platform derived from open source technology. Virtual Iron is fully optimized to take full advantage of Intel® Virtualization Technology (Intel® VT) available on platforms featuring the Dual-Core Intel® Xeon® processor.





“With the general availability of Version 3.0, Virtual Iron brings to market a unique virtualization solution optimized for Intel Virtualization Technology available in Dual-Core Intel Xeon platforms. This solution, built on the open source hypervisor, raises the bar on enterprise class virtualization capabilities, allowing our mutual customers to efficiently deploy business critical applications in a virtualized environment while leveraging Intel’s leading platform performance.”

Diane Bryant
Vice President and
General Manager
Intel Server
Platforms Group

Virtual Iron Differentiators

Unmodified Operating Systems. Virtual Iron supports unmodified operating systems that run directly on Intel processor-based platforms with hardware-assisted virtualization. With Virtual Iron there is no need to use para-virtualization techniques that require extensive modifications of the O/S and consequently are typically not supported by O/S vendors. Para-virtualization techniques also increase complexity for the IT staff in organizations that adopt this approach.

Designed for Enterprise Workloads. Virtual Iron is designed to effectively manage enterprise-class workloads. Feature design includes support for 64-bit operating systems, up to 8 CPUs per Virtual Machine and up to 96GB of Memory per Virtual Machine. This enables the data center to run mission-critical applications without any performance downgrading.

Easier to Install, Administer & Upgrade. Virtual Iron’s unique architecture enables total control of the virtualized environment via a single management server. The virtualization hypervisor and services are automatically deployed to each virtualized node simplifying administration, installation and upgrading.

Superior Price/Value Alternative. Virtual Iron provides a compelling ROI value proposition, customers get all the enterprise-class management capabilities at a low cost. This leverages open-source economics and provides a superior price/value alternative.

Solution Overview

Server Consolidation

According to industry analysts, server resources in most IT organizations are notably underutilized. As a result, most data centers hold unused capacity and suffer undue complexity in their server infrastructure. Customers can effectively consolidate multiple individual servers into a single physical server using a combination of the hardware-assisted virtualization features found in processors featuring Intel® Virtualization Technology and Virtual Iron’s virtualization management software.

Most organizations can expect a significant reduction in hardware expense using Virtual Iron. Additional facility savings are found by virtue of reduced space, electrical and cooling requirements. And with fewer machines to manage, organizations find that support and personnel needs are diminished—resulting in decreased operating expense.

Rapid Provisioning

Virtual Iron relieves the headaches of server provisioning by enabling new servers to be created quickly and easily. In less than 30 minutes, companies can create a virtual server prior to arrival of the physical server. Once in place, IT administrators can then easily configure the virtual server by cloning “golden images” and quickly move the image from one server to the next.

High Availability and Business Continuity

For most organizations, a high level of system availability is imperative, but ensuring that high availability comes at a high price. Virtual Iron ensures recovery from failures quickly, reliably and cost-efficiently. If a server goes down the virtual machines migrate automatically to other available resources. Virtual Iron instantly searches the virtual pool to determine the resources available and then applies those resources to the breakdown. Whether due to a power outage, hardware failure, flood, fire or worse, fail-over to a secondary server is completely transparent to business users and customers, and performed without interruption of service or costly downtime.



Capacity Management

Virtual Iron increases data center efficiency by automatically matching available capacity to workload demands. IT organizations are able to combine the resources of many servers into a single, seamless, sharable, infrastructure-wide pool. As a result, data center resources are quickly made available to any application during times of peak demand. The software allows virtual servers to move between different computers on-the-fly according to preset CPU usage thresholds. This ensures that business-critical applications have the resources they need, when they need it, without disruption or intervention.

Policy-Based Automation

Organizations are struggling to align computing resources with their business initiatives, and as a result are unable to deliver the responsiveness and agility needed to succeed. Virtual Iron aligns data center resources by creating a dynamic computing environment that will quickly and automatically match processing resources with application demand. This is achieved by policy-based automation tailored to the specific needs, pressures and constraints that the data center must manage. Once established policy criteria are in place, Virtual Iron automatically executes these instructions without intervention.

The Virtual Iron/Intel Advantage

Virtual Iron uses an open source hypervisor as the foundation for its software and all Virtual Iron solutions. Virtual Iron and Intel are jointly aligned when it comes to virtualization. Joint customers will be in position to gain the benefits of this industry standard approach as well as from hardware-assisted virtualization features intrinsic to platforms powered by Dual-Core Intel Xeon processors.

Intel® Virtualization Technology is a significant enabler in terms of the ease, cost and capabilities associated with virtualization. Using the performance and processing instructions in Dual-Core Intel processors featuring Intel Virtualization Technology, users can now run and manage guest operating systems without modification to the source code or application software running on those systems. While software-only virtualization has been available for some time, it has limitations on what it can support, requires a large performance overhead, and was available from vendors that demanded a premium. Hardware-assisted virtualization reduces the complexity of the VMM, increases the efficiency of the virtualized environment and enables new capabilities that companies can take advantage of.

Virtual Iron will continue to capitalize on new Intel performance features and functionality as they are developed. Virtual Iron's enterprise-class virtualization software—in conjunction with hardware-assisted Intel Virtualization Technology—extends the power of virtualization, giving IT organizations the capability to isolate applications, optimize resource utilization, increase uptime and improve manageability. While Intel provides the enabling chip technology to partition servers to run multiple operating systems concurrently, Virtual Iron provides the hypervisor, services and management layer that enables the pooling and sharing of server, storage and network resources.

Virtual Iron provides an enterprise-class implementation of bare metal virtualization. The combination of Intel Virtualization Technology and Virtual Iron's management capabilities provides IT organization with a best-in-class virtualization solution.

“With VT, Intel is providing built-in architectural support for virtualization. This significantly increases the market opportunity for Virtual Iron by making it easier for more enterprises to take advantage of Virtual Iron’s enterprise-class virtualization and management capabilities on industry-standard hardware.”

Alex Vasilevsky
Founder and Chief
Technical Officer
Virtual Iron

To learn more about Virtual Iron, visit: www.virtualiron.com

To learn more about Intel® Virtualization Technology, visit: www.intel.com/technology/computing/vptech

About Virtual Iron

Virtual Iron provides software for creating and managing virtual infrastructure in the data center. The company's solutions enable IT organizations to dramatically reduce the cost and complexity of managing and operating data center resources. The company is focused on delivering advanced native virtualization capabilities that leverage industry standards, open source and processors with built-in hardware assisted virtualization. Organizations use Virtual Iron's software for consolidation, rapid provisioning, business continuity, workload management and policy-based automation, and as a result, realize dramatic improvements in utilization, manageability and agility.

Founded in 2003, Virtual Iron is led by an experienced management team and backed by top-tier investors. Virtual Iron provides enterprise-class software solutions that deliver open and economically attractive virtualization alternatives to existing, proprietary solutions. The company is well recognized by the industry and partners with most of the major processor, hardware and operating system vendors.

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