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NETWORKS

PARTNER BRIEF: MICROSOFT VIRTUALIZATION



THE CHALLENGE

As computing becomes more ubiquitous, more powerful and more portable, it is dramatically improving businesses' ability to give employees the capabilities to capitalize on new opportunities. At the same time, the cost and complexity of managing the technology resources necessary to support new opportunities has never been higher. For IT departments, the result is a growing number of contradictory requirements: agility and ease of access vs. security and compliance; performance vs. cost; innovation vs. reliability and continuity.

To achieve a dynamic IT environment capable of supporting these requirements, companies need a virtualization strategy that mobilizes and manages the resources of the entire infrastructure, both virtual and physical, to meet fast-moving business demands. The right virtualization strategy can enable IT to deliver faster and more reliable service, free critical resources to address larger business goals, reduce costs, and ultimately achieve competitive advantage through business agility.

Virtualization has gained much attention across organizations looking to address the challenges of providing rich, connected capabilities across their infrastructure, while protecting the environment and confidential data and improving the efficiency of their IT operations and enhancing their responsiveness to changing conditions. Originally focused on consolidating resources in the data center, virtualization now has applications across the IT spectrum, driving down costs and improving agility.

HOW FOUNDRY AND MICROSOFT VIRTUALIZATION HELP YOU MEET THE CHALLENGE

Data center-to-desktop virtualization makes it possible to quickly deploy new capabilities without acquiring new hardware and configuring components. Testing requirements and application compatibility issues are reduced, process automation is simplified, and disaster recovery capabilities are easier to implement. On the desktop, virtualization can help create an infrastructure that enables employees to access the applications they need, no matter where they are located.

Working together to provide a solution that delivers data center-to-desktop virtualization to the enterprise, Microsoft and Foundry Networks offer a scalable, secure, and reliable virtualization solution.

FOUNDRY NETWORKS

Many data center virtualization imperatives are driven by the need to improve server utilization, increase the efficient use of power and the ability to better control server sprawl while improving manageability. Foundry helps organizations realize the benefits of virtualization by vitalizing network services.

Virtualization impacts Layer 2 fabrics in the data center. The network must handle an increase in server identities, as well as the dynamic creation and migration of virtual machines. When the data center supports virtual servers, the network faces an increase in identity density due to MAC and IP addresses and applications, additional control plane overhead, and stringent requirements for high availability, application performance, and security.

In addition to requiring network managers review the data center network's design to ensure that it can accommodate the increase in IP and MAC addresses, the network's switches may also need to support secondary addressing and hardware-assisted forwarding. Servers that manage multiple applications can expose a business to risk—if one server goes

BENEFITS OF A JOINT FOUNDRY AND MICROSOFT VIRTUALIZATION SOLUTION

- Data center-to-desktop virtualization solution
- Proven interoperability
- A virtualized infrastructure to complement a virtualized server environment
- Maximizes server use while better utilizing rack space, reducing power and cooling requirements and decreasing costs

down, all business services that run on that server will come to a halt. The networks must support failover features and have built-in redundancy to ensure that these servers—and the critical business services they support—remain up and available. In addition, the network also is more vulnerable to security breaches. One network intrusion can harm multiple business units, cause a steep decline in productivity, or put personal, corporate, or customer data at risk.

With an infrastructure that augments and extends the server virtualization concept via VLANs, VRFs, VPLS and Virtual IPs (VIPs), Foundry's solution enables organizations to securely extend virtualization throughout the data center, into the MAN, and across the WAN. This extended virtualization allows for enhanced server and data center abstraction to facilitate maintenance without observable downtime, and the separation of application traffic for SLA assurance or regulatory compliance. Assigning data center resources to distinct (virtual) zones for better security, and allowing application and computing power-sharing between campuses and across MAN/WAN environments; a virtualized Foundry infrastructure complements a virtual server environment.

To address virtualization challenges, Foundry provides products designed to deliver on the performance and availability a virtual environment demands. Foundry's virtual infrastructure includes the high-density leading BigIron® RX switch and NetIron® MLX router platforms for Layers 2-3, offering the high port density and advanced routing services that support the increased number of IP and MAC addresses as well as the forwarding requirements of virtualized environments. The ServerIron family addresses the requirements of Layer 4-7, ensuring the scalability and security necessary to reliably support and protect services.

BigIron RX Series Switches

BigIron RX series switches have consistently reset the bar for high-performance, high-density, resilient switching for data centers. A 16-port 10GbE interface module for the BigIron RX switch series scales up to 512 ports of 10GbE server connections in a single switch. This, in addition to the series-leading capacity of up to 1,536 GbE per system, provides data center architects with unmatched capacities for server aggregation, for both GbE and 10GbE servers, allowing for fewer switches to maximize performance and optimize power and cooling efficiency. The inherent hardware and software resiliency of the series, combined with its support for industry standard and proprietary rapid convergence protocols further enable high-availability data center services.

NetIron MLX Routers

NetIron MLX routers complement the BigIron RX switches by providing high-performance, high-end routing, multiple virtual routing, and advanced security capabilities for virtualization environments. The NetIron MLX series is unmatched in its IPv4, IPv6, and Multi-VRF wire-speed routing performance without compromise. In addition to the series' industry-leading capacity of up to 128 10GbE wire-speed routing ports per system, a new high-density GbE interface module for the NetIron MLX router series will boost the series capacity up to 1,536 ports in a single router.

The NetIron MLX routers deliver high-end data center routing and aggregation capabilities beyond high port density. It offers unmatched network scalability with up to 32 10GbE links per link aggregation and sophisticated link aggregation and equal cost multi-path (ECMP) load-sharing algorithms. With this industry-leading high-bandwidth capability, the MLX provides data center architects with ample network capacity and scalability to support service growth in large enterprise and Internet data centers, as well as up to 320 Gbps inter-switch and data center connectivity.

FastIron SuperX/SX Switches

The FastIron SuperX/SX family has an extensive feature set delivering wire-speed performance and ultra low latency, which are imperatives for virtual environments. These platforms present the industry's most scalable and resilient PoE design, with a robust feature set to secure and simplify the deployment of an edge-to-core network while supporting high-density 10 Gigabit Ethernet.

ServerIron Switches

The ServerIron® family of Layer 4– Layer 7 switches can be added to the virtualized infrastructure to balance the traffic across servers and accelerate application performance. Foundry ServerIron ADC provides the scalability, security, and application acceleration required to support Microsoft Hyper-V in virtualized environments.

MICROSOFT

At Microsoft, virtualization is a means to enabling a long-standing vision of Dynamic IT where people and computers get the resources they need the moment they need them. That's why Microsoft is applying company-wide resources—in everything from product development and licensing strategies to interoperability initiatives and strategic partnerships, such as its relationship with Foundry Networks—to make virtualization a reality for customers. Microsoft doesn't view virtualization as an isolated, tactical tool. Rather, since virtualization can have a profound impact on an organization's entire operations, from the data center to the desktop, Microsoft believes it should be embraced as part of an enterprise-wide infrastructure strategy.

For the data center, Microsoft Virtual Server and Hyper-V hypervisor, key features of Microsoft Windows Server 2008, allow customers to take advantage of the benefits of virtualization. On the desktop side, Microsoft Terminal Services virtualizes the presentation process, and Microsoft Application Virtualization lets customers run applications without installing them on desktops.

Microsoft Virtual Server

Microsoft Virtual Server 2005 R2 provides the virtual OS that lets customers increase hardware utilization and rapidly configure and deploy new servers. By consolidating multiple workloads onto a physical server, it enables more efficient and simple management of hardware resources. Virtual Server VMs utilize the Windows host OS's qualified device drivers, ensuring robust and stable device support and broad device compatibility.

Virtual Server runs on Windows Server 2003 and provides virtual machines, each of which supports its own guest operating system. Every VM is completely isolated from the others, allowing the workload on each one to execute as if it were running on its own physical server. Virtual Server also provides a browser-based tool to manage its VMs.

Microsoft Terminal Services

Microsoft Terminal Services virtualizes the presentation of entire desktops or specific applications, enabling customers to consolidate applications and data in the data center while providing broad access to local and remote users. It lets an ordinary Windows desktop application run on a shared server machine yet present its user interface on a remote system, such as a desktop computer or thin client.

Microsoft Application Virtualization

Application virtualization separates the application configuration layer from the OS. It enables applications to run on clients—including desktops, servers and laptops—without being installed, and to be administered from a central location. This has huge implications for everything from patch and upgrade management to deploying and terminating applications.

Windows Server 2008 Hyper-V

With Windows Server 2008, everything needed to support server virtualization is available as an integral feature of the operating system as Windows Server 2008 Hyper-V. With Hyper-V roles it's now easier than ever to take advantage of the cost savings of virtualization through Windows Server 2008:

Windows Server 2008 Hyper-V, the next-generation hypervisor-based server virtualization technology, allows customers to make the best use of server hardware investments by consolidating multiple server roles as separate virtual machines (VMs) running on a single physical

machine. With Hyper-V, customers can also efficiently run multiple different operating systems—Windows, Linux, and others—in parallel, on a single server, and fully leverage the power of x64 computing.

Microsoft System Center

Microsoft System Center allows customers to manage both physical and virtual assets for clients and servers, all with the same platform—including multiple hypervisors.

The combination of these data center and desktop virtualization products, orchestrated by our management tools, will solve many critical issues our customers face and build the foundation for a Dynamic IT environment.

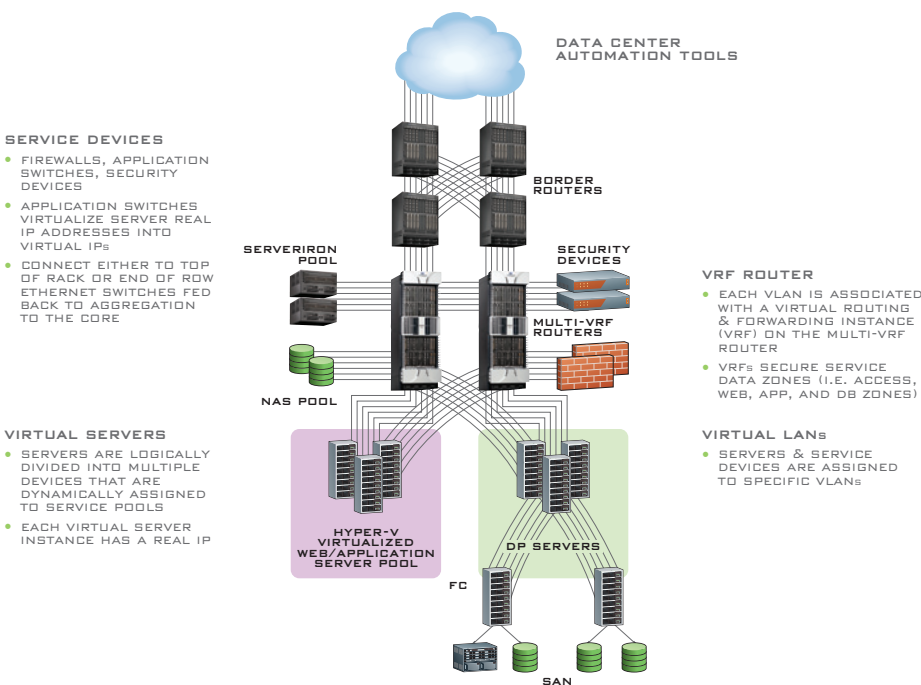
Together, Foundry Networks and Microsoft enable organizations to take advantage of the benefits of virtualization for the reliable, secure delivery of services.

ABOUT FOUNDRY

Foundry Networks,® Inc. is a leading provider of high-performance enterprise and service provider switching, routing, security, and application traffic management solutions including edge and backbone Ethernet switches, Web and content-aware application switches, network-wide security solutions, wireless LAN and access points, wide area access routers and internet provider edge and service provider core MPLS routers. Foundry's customers include the world's premier ISPs, Metro service providers, and enterprises including e-commerce sites, universities, entertainment, healthcare, government, financial, manufacturing companies, technology, and high-performance computing (HPC) sites.

ABOUT MICROSOFT VIRTUALIZATION

Microsoft's virtualization products address customer needs from the data center to the desktop. For Microsoft, virtualization and Dynamic IT are all about helping customers provide the resources people need at a moment's notice, and making organizations much more agile so they can achieve goals that simply weren't possible before. With Microsoft virtualization, virtually anything is possible.



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