



Microsoft®
Systems Architecture
Qualified

Internet Blueprint for the Microsoft Systems Architecture

The advanced technical infrastructure you need to support the next generation of Internet-based business solutions necessary to gain and retain a competitive advantage.

The Internet Blueprint for the Microsoft Systems Architecture and the Internet Blueprint Plus for the Microsoft Systems Architecture are the first partner-led solutions and Prescriptive Architecture Guides (PAGs) qualified by Microsoft to meet the high standards of the Microsoft Systems Architecture program. The Internet Blueprint was designed to speed the development of the Internet Data Center, providing dramatic benefits to businesses and organizations. By embracing these tested best practices and deployment guidelines, commercial enterprises and public organizations are enabled to achieve faster time to benefits, reduced implementation and operational risks coupled with known and controlled costs. In addition, the Internet Blueprint is designed to deliver reliable performance and a scalable architecture.

The Internet Blueprint enables delivery of a complete, Web-enabled, IT infrastructure that supports an extensive array of eBusiness applications with a high degree of availability, scalability, security, and manageability. This prescriptive infrastructure implementation was developed by Microsoft and its leading technology partners Avanade, Brocade, Dell, EMC, Emulex and Nortel Networks. It incorporates operating systems and software, servers, storage and networking systems lowering the barrier for enterprises and partners to leverage the .NET vision for rapid growth and competitive advantage.

The Microsoft Systems Architecture (MSA) is a program developed by Microsoft with the goal of architecting, developing, validating, and documenting a set of IT infrastructure architectures. These architectures will consist of servers, storage, networking infrastructure, software, and other tools and scripts.

The initial MSA scenarios include:

- Departmental Data Center (DDC)—Basic IT infrastructure solution for departmental intranet and collaboration requirements
- Enterprise Data Center (EDC)—Large-scale IT infrastructure consisting of multiple interconnected sites and departments
- Internet Data Center (IDC)—Web-enabled infrastructure designed to support scalable, mission-critical eBusiness solutions

The goal for the MSA is to serve as a foundation upon which other solution offerings (Microsoft Solution for Internet Business, Supplier Enablement, etc.) can be built. To that end, each MSA solution will consist of a set of guidelines and blueprints to provide organizations with access to the knowledge and resources necessary to deploy an MSA solution in a rapid fashion.



Each partner brings a valuable component to this solution. The individual partner products and services are combined to deliver a secure, tested, and integrated architecture solution that enables today's investment in infrastructure will serve the business needs of tomorrow. The following tenets highlight the key features of the Internet Blueprint:

AVAILABILITY

Directly addresses availability. Because of service level agreements, industry regulations, 24/7/365 business operations, today's organizations demand the highest possible system availability.

- With dual-processor to high-end eight-processor servers, Dell delivers configurations that can be clustered to protect against many multiple component failures.
- EMC CLARiiON® delivers superior end-to-end data integrity with non-disruptive “everything” and advanced capabilities like disk scrubbing, cache destaging, non-disruptive upgrades, and scaling up to 200K I/Os (input/outputs) and over 20 TB in a cabinet.
- Nortel Networks Passport 8600 Routing Switch—with functions like Server Load Balancing, Global Server Load Balancing and VRRP (Virtual Router Redundancy Protocol)—provides fail-safe Network Assurance at the server and the IP network level by eliminating single points of failure and providing device and application failover, therefore enhancing network reliability. Nortel Networks is also first in the industry to deploy split-MLT (multi-link trunking) functionality, enabling multiple site redundancy and fast recovery. The Contivity Extranet Switch and the Alteon Switched Firewall security systems are designed for fail over and high availability capacity.
- Brocade SilkWorm 3800 provides the core-to-edge SAN (Storage Area Network) model that features high availability for the entire fabric through redundant network paths, and its FSPF (Fabric Shortest Path First) protocol auto detects and reroutes data in case of link failure.
- Emulex HBAs (Host Bus Adapters) are a key component in connecting servers to storage. Each HBA is 100 percent HASS tested to enhance reliability, while the upgradeable firmware and hardware independent drivers reduce planned downtime related to upgrades and reconfiguration.

SCALABILITY/CAPACITY

Supports maximum scalability to provide continuous growth to meet user and business requirements.

- Dell PowerEdge 8450 is a scalable 8-processor, rack-optimized data center server with up to 32 GB of memory providing high levels of availability and performance while minimizing total system cost.
- Nortel Networks Passport 8600 can be scaled up to 128 ports and additional Passport 8600s can be added seamlessly as needed, supporting mission-critical applications and facilitating smooth network growth without network downtime. The Alteon Switched Firewall System, with 3.2 Gbps of throughput and eight Gigabits of switching capacity, is the highest performing firewall solution on the market.
- Emulex HBAs utilize specialized on-card hardware to offload the server CPU and reduce congestion on the I/O bus. This returns precious compute cycles to the server, opens up the I/O bandwidth, and improves scaling and capacity.
- With their networked design, SANs scale much more easily than Direct-attached storage (DAS) models, especially in high-growth environments. The 16-port Brocade SilkWorm 3800 can function as a core switch today and move to the edge as the fabric grows and provides a seamless upgrade path along with forward and backward compatibility. The fabric can also be expanded by adding switches to the storage network to connect storage arrays and servers.

UTILIZATION

Maximizes the utilization of network, server, and storage resources.

- EMC AutoIS™ strategy provides a single view of heterogeneous storage, enabling the maximization of storage resources throughout the MSA architecture, lowering capacity costs and speeding time to deployment.
- Brocade SilkWorm 3800 provides high performance with all ports auto-sensing and speed-matching operating at 1 and 2 Gbps (full duplex).
- Nortel Networks Passport 8600 application and content-based Intelligent Traffic Management improves resource utilization and performance. Load balancing capabilities ensure optimization of processing resources by distributing traffic in a fair manner.
- Emulex HBAs have unique features—such as I/O coalescing—that maximize CPU effectiveness. Auto topology and auto link speed detection ensure that all of the performance potential and connectivity of the SAN are made available to the server.

MANAGEMENT

Eases configuration, ongoing health monitoring, failure detection, and policy-based management vital to efficient architecture management.

- EMC ControlCenter™ Navisphere® enables discovering, monitoring, and reporting on multiple CLARiiON arrays through a Web-based storage management console to allocate storage capacity wherever you need it.
- Nortel Networks products are designed for high capacity and high scalability scenarios making MSA less complex and more manageable with key features that include fault management, performance analysis, reporting, and access level security.
- Emulex HBAs can be feature-upgraded in the field. The architecture also allows a single standardized driver to be used across current and older HBAs, reducing management complexity.
- The Brocade SilkWorm family of switches simplifies management by networking core and edge switches and seamlessly integrating with EMC ControlCenter through Brocade's Fabric Access API to provide an integrated solution for customers to manage their IDC SAN environments.

CONSOLIDATION

Supports the tenets of logical, physical, and workload consolidation to promote centralized and consistent operational processes.

- Supporting direct attachment to single or multiple heterogeneous hosts within the storage area network and having the flexibility to deploy Networked Attached Storage (NAS), EMC CLARiiON easily facilitates storage consolidation
- Brocade SilkWorm 3800 integrates with heterogeneous environments to build cost-effective and easy-to-manage enterprise SAN fabrics. Disparate SAN islands can be integrated across the enterprise and can be built into a core-to-edge SAN model that simplifies management and provides a platform for server and storage consolidation.
- Nortel Networks Passport 8600 local and multi-site load balancing capabilities allow consolidation of data center resources without sacrificing performance or security.
- Emulex's support of LUN (logical unit number) mapping allows the server to access more storage volumes on a single data path. Its LUN masking and persistent binding features enable SAN users to better consolidate and share the precious storage resource investments.

SECURITY

Provides an end-to-end security model that protects data and the infrastructure from malicious attacks or theft.

- Nortel Networks Security Solutions ensure information integrity and confidentiality across a full range of network applications and architectures for all critical security concerns. Nortel Networks full portfolio of Security Solutions is based on a tested, reliable architecture to provide Firewall, VPN (Virtual Private Network), SSL Acceleration, Content Filtering, Network Address Translation, Virtual LAN, and RADIUS authentication capabilities in a scalable, easy to provision, integrated, and manageable way. With innovative products like the Alteon Switched Firewall, Nortel Networks delivers security with minimal trade-off in performance.
- Through the wire-speed Frame Filtering engine built directly into the Brocade SilkWorm 3800, new capabilities such as fabric zoning can be enforced through hardware that simplifies administration while providing the highest level of security to control data access.

PRICE/PERFORMANCE

Delivers the greatest value for the customer environment by maximizing performance and minimizing unnecessary costs.

- Dell PowerEdge™ servers lead the Price/Performance category of TPC-C benchmarks. The Dell PowerEdge™ 8450 provides greater system performance at 1/3 the cost of a comparable Sun® Enterprise™ 4500.
- CLARiiON leads the storage industry in price/performance providing the broadest functionality at competitive costs. EMC ControlCenter Navisphere Web-enabled interface helps drive down management costs through remote management.
- Nortel Networks demonstrates leadership in cost-efficient data center networking infrastructure with the lowest price of firewall-inspected Gigabits. Nortel Networks High-Performance Data Center solutions take advantage of innovations in networking, content management, and security to provide IP-based data center applications at new levels while reducing capital and operating expenses.
- Emulex HBAs provide the highest performance in the industry and the lowest cost of ownership, due to the management efficiencies enabled by the architecture.

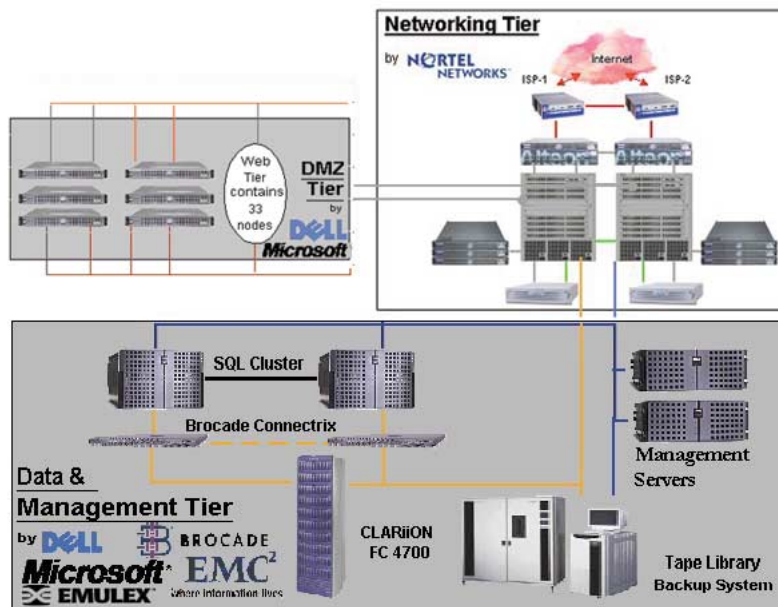


Figure 1. Diagram of the Internet Blueprint for the Microsoft Systems Architecture

IMPLEMENTATION SERVICES: AVANADE

As the key integrator for the Internet Data Center, AvanaDe played an integral role in designing, deploying, and testing the architecture. AvanaDe—the leading technology integrator of Microsoft solutions for the enterprise—combined the power of these individual vendor systems into a cohesive solution which maximizes the benefits of each of their products, bringing real value to the customer. AvanaDe’s deep technical skills were utilized to tie together all the hardware components into a secure, high performance, and resilient infrastructure capable of supporting next-generation business solutions. This first-hand expertise with the solution and each of the products enables AvanaDe to work side-by-side with customers during the entire lifecycle of the project, from the initial architecture design, to the development, and through to the final testing of a highly leverageable and customized architecture solution.

ONGOING SUPPORT

The Internet Data Center is provided with comprehensive, end-to-end support offerings. Delivered by Microsoft and its partners, the single point of contact support offerings enable the fastest time to resolution and the optimal customer experience. Support offerings encompass all components in the infrastructure, including Operating Software, Server Hardware, Networking Equipment, and Storage Area Networks.

For more information visit:

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