



SOLUTIONS

Virtualized Storage Infrastructure Solution from IBM and Cisco

The Data Center Storage Challenge

For decades, data center managers have been faced with the challenges of storage asset management. This old problem has some new complications and ever increasing demands: the density of server and storage solutions has grown so rapidly in recent years that data center space and power have reached their limits in many parts of the world. Skyrocketing costs make it more imperative to increase the utilization of total enterprise storage assets and meet environmental targets to reduce carbon emissions and power consumption. Simultaneously, it is essential to avoid any negative effect on business applications or the need to increase staffing.

The IBM® and Cisco® solution answers these challenges by helping increase utilization and reduce costs. Many enterprises utilize as little as 10 percent of storage in Windows environments and 30 percent in UNIX environments. This solution can help increase utilization to as high as 70 percent. By helping enterprises make better use of their existing storage, an IBM and Cisco Virtualized Storage Infrastructure creates an enterprisewide environment based on efficiency and effective resource sharing. All disks and storage area networks (SANs) can be

consolidated into a single storage architecture, eliminating separate islands and making it possible to prioritize storage needs within a cost-effective tiered environment. Based on proven, mature technologies, the IBM and Cisco solution helps to facilitate gradual change for minimizing risk. Enterprises can migrate to an end-to-end virtualized storage infrastructure at the most appropriate pace and without replacing or disrupting the in-place data.

Virtualization that Encompasses both Disks and SANs

IBM and Cisco Virtualized Storage Infrastructure solutions attack the storage challenge on two fronts: virtualizing both disks and SANs to create a simplified storage architecture. By encompassing all existing assets, including multiple SAN islands, consolidation can yield a secure end-to-end environment instead of separate pockets of virtualization. The architecture can extend across multiple data centers to create an enterprisewide infrastructure. When one SAN needs to grow, storage assets can be recovered from any other SAN or underutilized storage device. Data center managers can get more use out of existing assets before they have to make capital investments in additional storage.

While the results are unprecedented, the technologies that contribute to the solution have been proven in thousands of global deployments. The IBM SAN Volume Controller provides the control and consolidation at the disk level, and the Cisco Virtual SAN (VSAN) solution introduces large-scale virtualization across both disks and SANs. The resulting infrastructure offers all of the security benefits of separate SANs with the asset sharing and flexibility of a single storage pool. The simplification of change management—with adjustments made from a central console—eliminates the need for physical moves, reconfigurations, and recabling of storage and network connections.

The IBM System Storage SAN Volume Controller and Cisco Virtual SAN solutions can be introduced gradually, allowing enterprises to migrate existing storage into the storage pool without disrupting existing data, applications, or users. By eliminating rebuilds and comprehensive upgrades, IBM and Cisco protect enterprise investments and drastically reduce risk compared to solutions that require shutdowns, time-consuming deployments, and retraining of users throughout the organization. There are no limitations to the number of SANs that can be consolidated with the Cisco VSAN solution, and IBM SAN Volume Controller can tie into all of the SANs within the enterprise. Customers can create a high-performance, versatile storage fabric with any-to-any capabilities.

The Result: An End-to-End Storage Architecture

To help minimize risks and simplify the introduction of the new end-to-end storage architecture, IBM and Cisco Virtualized Storage solutions maximize the flexibility of storage assets. The comprehensive software controls built into the intuitive management console eliminate the need to locate and physically move or change a storage device. Data center managers gain a single view of the total storage infrastructure and can greatly increase and optimize storage utilization across the entire enterprise. This flexibility and end-to-end control translate into lower total cost of ownership for all of an enterprise's storage assets:

- By helping improve the utilization of existing assets, the IBM and Cisco solution helps data center managers delay incremental capital expenditure purchases. Underutilized assets are easily identified and reassigned to groups with storage demands. With the potential to more than double overall storage utilization, enterprises can extract more value from storage investments.
- Pooling companywide storage assets also enables administrative efficiencies. Compared to SAN solutions, which result in multiple, separate SAN islands, the IBM and Cisco solution can yield a 33 percent reduction in storage administration costs.



- When storage expansion is delayed and existing assets are better utilized, storage can be further consolidated to lower energy consumption and carbon emissions and reduce data center real estate requirements. These improvements help companies meet the new aggressive environmental regulations and targets.

Transforming the storage infrastructure makes it possible to introduce tiered storage solutions for additional cost savings. The IBM and Cisco solution introduces quality of service (QoS)

accomplish day-to-day tasks more quickly and easily, and users are shielded from underlying details and changes while having their storage needs met in a timely and cost-effective manner. Even the most complex existing SAN environments can be transformed into more resilient, flexible, and scalable infrastructures. Once an enterprise evolves its storage assets into an IBM and Cisco Virtualized Storage Infrastructure, current investments are protected, and storage can easily scale to fuel the growth of the enterprise.

The IBM and Cisco Virtualized Storage Infrastructure solutions greatly increase overall storage utilization. Customers report going from as low as 10 percent to as high as 60 to 70 percent overall utilization.

features to help ensure that high-priority applications and users get the performance they need. Lower-priority needs and infrequently accessed data can be addressed with lower-cost storage solutions. All storage tiers are easily introduced, managed, and changed within the end-to-end environment created by the IBM and Cisco solutions.

Increased utilization and the flexibility to establish tiered storage and rapidly adjust to changing requirements add up to greater productivity for administrators as well as users. Storage managers can

Why IBM and Cisco?

The IBM and Cisco relationship has benefited data centers around the world, and the two companies offer congruent virtualization solutions. For today's storage challenges, IBM and Cisco Virtualized Storage solutions give enterprises a roadmap that allows gradual change and staged migrations without negatively affecting application availability. Each company can set its own pace, gaining immediate benefits as each storage asset is brought into the IBM and Cisco framework. This gradual approach sets it



apart in the industry and, combined with software-based online change capability, gives enterprises the first practical path to a superior storage infrastructure. Each component of the IBM and Cisco solution has been tested and proven effective in today's environments, and by bringing them together IBM and Cisco introduce a new way to manage, protect, and provide access to vital information assets.

IBM:

- More than 40 years of experience in virtualization technologies
- SAN Volume Controller already widely adopted with over 11,300 engines in more than 3,800 svc systems WW
- Fastest storage performance for any controller
- Virtualization for IBM as well as non-IBM storage

Cisco:

- Pioneer of SAN virtualization and director-class solutions (more than 50 percent market share in director space)
- Virtual SAN technology widely deployed since 2003
- Higher port density and industry-leading performance and traffic engineering
- Integrated diagnostic capabilities for quicker problem resolution

For More Information

To read more about IBM and Cisco Storage Virtualization solutions, visit www.cisco.com/go/ibm or www.ibm.com/cisco.



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