



Kayo 2.0 in a Web Farm

Kayo provides enhanced security, reduced administration and cost, and requires no additional training.

Overview

The Internet is used as a tool in every company that is selling products and services or providing content on the web. These companies build web farms to provide an enhanced customer experience by increasing performance of the web sites, and to provide fail-over in the event of a server failure. Often the web farm is made up of a storage area network (SAN) to increase the performance and the amount of data that can be delivered to their customers.

The data must be consistent on all of the servers in the web farm. Data consistency is typically maintained by replicating the data across all of the servers in the farm. This is the most complex and management intensive aspect of maintaining a web farm, and it can be the most significant user of server processing time and Ethernet capacity.

Moving from direct attached to shared storage for a web farm does not eliminate the need for data replication, because most SANs today require the storage be partitioned into logical unit numbers (LUNs), each of which is uniquely assigned to a single server. Servers are unable to share data throughout the SAN, so data replication software is still required.

Kayo volume sharing software enables servers in a web farm to share read access to shared storage over the fibre channel network, with write access exchangeable at the volume level. It eliminates the need for replication software, and in doing so eliminates the processing and network overhead driven by replication services. It also reduces storage requirements, by reducing the number of copies of data that are maintained. Kayo can also increase site security by allowing only the server behind the firewall to have write access to the storage.

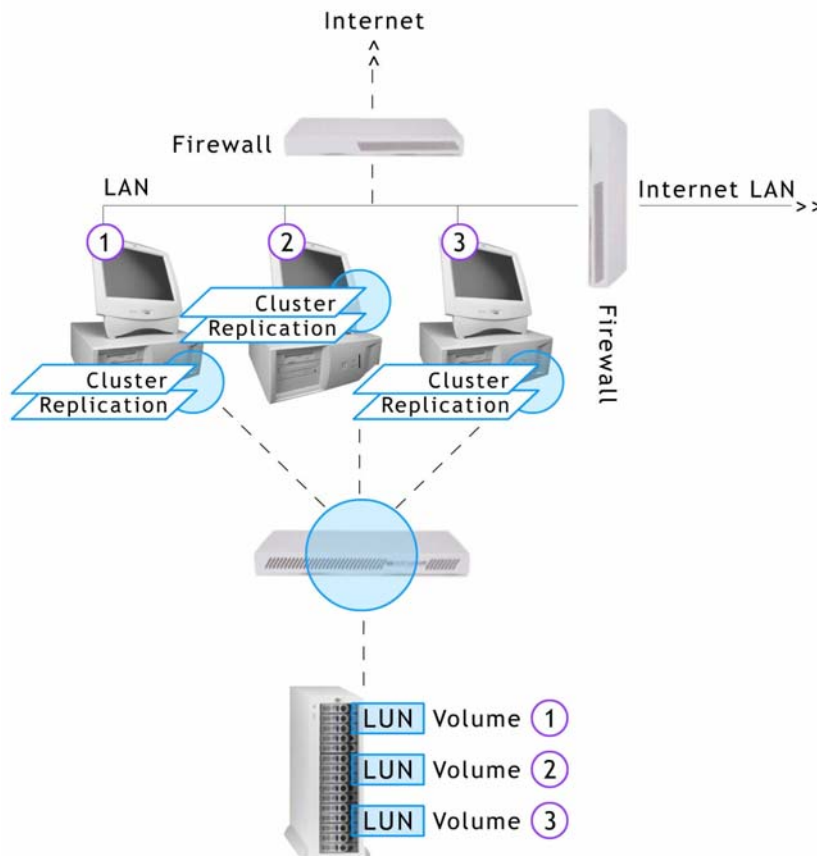
Typical SAN Web Farm

In the example below (Fig. 1) there are five web servers that are connected to a storage array via fibre channel through a switch or hub. In this installation each server is assigned a volume, and replication software is installed on each server to replicate the data across all of the web servers.

The limitations of this installation are:

- Dedicated volume for each server lowers the overall utilization rate of the storage
- Replication can be unreliable or fail, creating data corruption
- Vulnerable to attacks from hackers as data can be changed or deleted
- Complex management of the replication process and SAN
- Replication services can use significant processing and network resources
- Cost, most of replication software applications are based the number of CPUs
- Content replication must be “pushed” to copy by an IT administrator

Fig. 1 Typical Web Farm

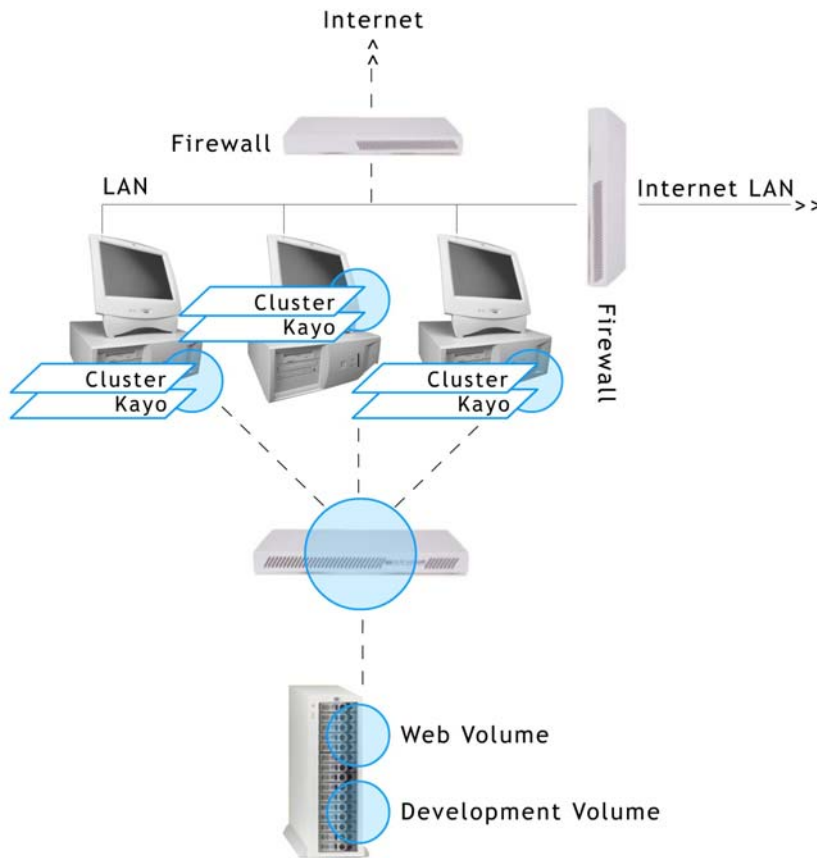


Kayo Web Farm

Kayo is a SAN volume sharing solution that allows multiple servers to access a single volume. Kayo’s approach of sharing the storage means that a single volume serves all servers in the farm. Using a single volume to serve all web servers eliminates the need to replicate data across all of the servers. All web content is stored and accessed from a single volume, simplifying the management of data and administration. The remaining volumes are now available to be used by SQL, OLAP, LDAP, and other servers in the web farm. Utilization of the storage array increases significantly. Kayo protects data from hackers as the volume that the web server’s access can be set to be read only. The system that writes all of the data to the shared volume can be placed behind the internal firewall, protecting it from hackers intent on changing or deleting web content. Kayo also allows

the shared volume to be shared with users on the LAN. This allows specific users access to the shared volume to update web content without requiring an IT administrator to update the content. In the event of a system failure on the writer server, Kayo allows any other server in the SAN to become a writer.

Fig. 2 Web Farm Using Kayo



Kayo Installation

Install Kayo on each server in the farm. Select the volume that will be used to serve web content to the servers. Upload your web content and you're up and running

Kayo Benefits

- Eliminates the need for data replication
- Shared approach increases storage utilization
- Data is read only and secure from attacks
- Kayo updates web content every 30 seconds (update frequency is adjustable)
- No additional training is needed to configure Kayo
- Simplifies SAN and web farm management
- Priced per server regardless of the number CPU
- Storage hardware independent, works with any fibre channel storage and HBA
- Built in fail-over protection

Volume Sharing Software for Storage Area Networks

Kayo is a native NTFS solution that brings the power of the Storage Area Network (SAN) to the Windows NT desktop. Kayo allows the high-speed transfers, typical for the SAN, to take place without risk of data corruption. It ensures complete and up-to-date information about the status of the SAN volumes on every machine on the network. The software is completely transparent to the user. The users see the volumes on the SAN as their local disks and work with them in exactly the same way as with local storage. Kayo supports JBOD, RAID 0,1,3 and 5 as well as single NTFS partitions. Kayo is available for Windows NT 4.0 and for Windows 2000. Support for other Operating Systems is to follow.

Automatic Refresh Functionality (ARF)

The refresh is done automatically right after any modification is made and saved on the disk. The refresh operation is transparent for the user. Any and all computers on the network have the most up-to-date information from the shared storage. When the writer creates, deletes, or changes a file the reader can see all of these modifications immediately. The refresh does not effect work in progress on any computer on the network.

Communication

The communication between the writer and readers is based on Client/Server Architecture through TCP/IP network. When the writer makes a change on a volume, all readers are updated automatically. The notification that a change has been made is the only information exchanged through the LAN.

This gives high availability and faster response. If the writer goes offline for any reason, all the readers still have access to the shared storage. All the volumes remain accessible. As the only information on the LAN is the commands and control of updates there is no additional traffic generated and processed. The speed of the read operations is equal to the speed allowed by the fiber channel network.

Sanbolic's mission is to provide advanced software products and solutions to address the infrastructure needs of the storage area network (SAN) market. It was founded by early adopters of SAN technology to develop platform-independent solutions that provide true interoperability and compatibility.

For additional information contact:

Sanbolic, Inc.
304 Pleasant Street
Watertown, MA 02472
sales@sanbolic.com
P: 617.926.2802
F: 617.926.2808

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