

STORAGE CENTER™ SERVER INSTANT REPLAY™

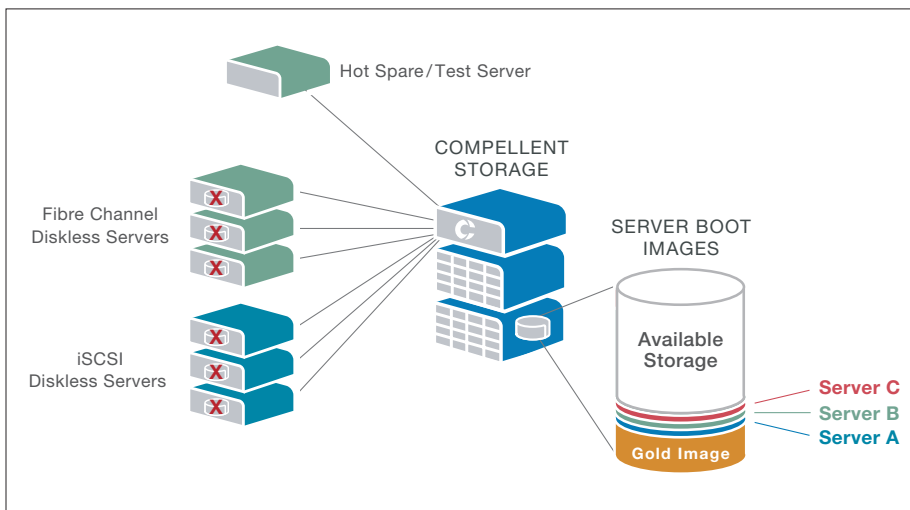
Simplifying Server Management with Boot from SAN

Booting servers from a centrally stored image on the SAN instead of local disks can reduce server costs, increase administrative efficiencies, and simplify overall server management. But traditional systems make implementation unnecessarily complex, or don't support server boot at all. Most storage systems require server agents that interfere with the boot process, limit the number of servers that can Boot from the SAN and consume excess capacity with full copies of boot images.

The first Boot from SAN technology to slash server costs while reducing server recovery time.

KEY BENEFITS

- » Lower first year server costs by \$70,000 for every 25 servers
- » Reduce time to deploy, provision and recover servers from 8 hours to less than 15 minutes
- » Ensure near immediate application availability
- » Simplify the creation of unlimited boot images
- » Easily implement a robust test environment; test upgrades and patches on real data without risk
- » Cut storage capacity requirements with space-efficient boot images; with Server Instant Replay boot images for 20 servers consume the same capacity as 2 traditional boot images



Server Instant Replay: *Dramatically reduces the cost of owning, operating and managing every server attached to your SAN.*

Compellent Provides a Complete Boot from SAN Solution

Compellent's Server Instant Replay software is a complete Boot from SAN solution that reduces capital costs, cuts administrative time and increases server performance and availability. The Compellent SAN provides management without server-based agents that would interfere with the server boot process, making implementation seamless. And an intuitive wizard automates the entire process allowing admins of all levels to provision or recover servers with just a few clicks.

Cut Server Costs. Slash the cost of server hardware, management and on-site service contracts with a complete Boot from SAN solution. Diskless servers reduce power and cooling and space-efficient boot images eliminate wasted capacity.

Reduce Server Management Time. Provision or recover a server in less than 15 minutes with Server Instant Replay's intuitive wizard. Create and map a boot volume in just 6 clicks.

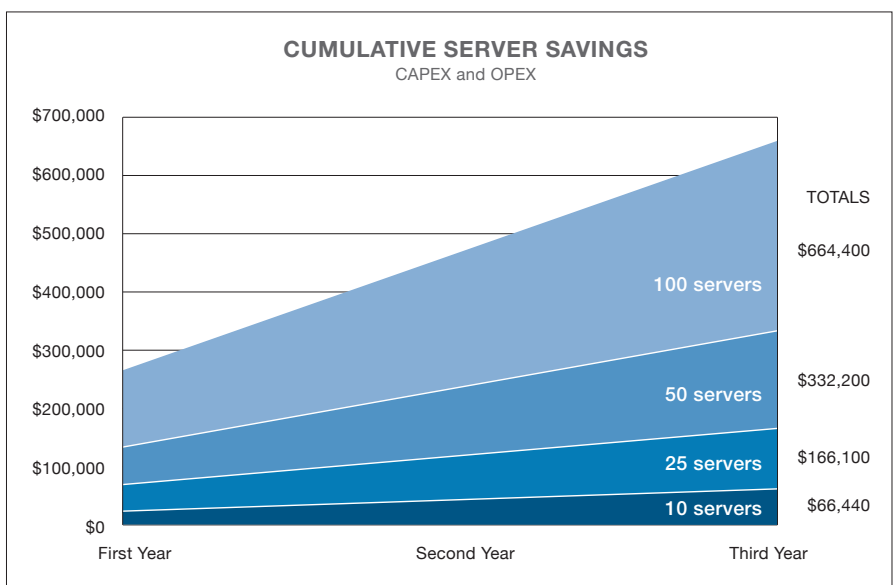
Improve Availability and Performance. Replace or add new servers with minimal downtime; boot servers faster from a centrally stored image. Easily replicate boot images to speed recovery.

“Utilizing Boot from SAN can provide a great deal of value. Customers can easily manage server images and upgrades, ensure disaster recovery and reduce power and cooling costs.” — *Storage Industry Analyst*

Server Instant Replay Cuts Server Costs

Centralizing server boot images on a Compellent SAN eliminates the need and associated costs for internal disks, enabling businesses to implement low-cost diskless or blade servers. But the cost savings extend far beyond lowering the initial hardware investment. Eliminating internal server disks can also drastically cut power and cooling expenses and decrease the space needed for equipment. It can even allow you to reduce on-site server maintenance from 4 hours to a less expensive next-business day replacement. Additionally, managing a boot image separately from server hardware dramatically reduces administrative costs.

- » Lower first year server costs by more than \$70,000 for every 25 servers
- » Cut the cost of server management and increase server admin productivity
- » No server disks or server agents required
- » Create an unlimited number of boot images on a Compellent SAN



Lower Server TCO: *Save money on every server attached to your Compellent SAN.*

Intuitive Wizard Cuts Server Management Time

Server Instant Replay's intuitive wizard significantly reduces the time and effort required to deploy and provision servers. The unique wizard guides admins of all levels through the process of capturing, storing, replicating and recovering boot images. Deploying hundreds of servers with Server Instant Replay can take far less time compared to local setup or traditional Boot from SAN processes. What's more, streamlining server provisioning and recovery cuts overall server management time and increases server admin productivity.

- » Provision a new server or recover a server image in less than 15 minutes
- » Create boot volumes in just 6 clicks

- » First LUN is automatically set to LUN 0 for seamless operating system integration
- » No training or costly consulting engagement required to implement
- » All software is included with Storage Center and managed from a single, centralized console

Storing Boot Images on Compellent SAN Increases Availability and Performance

Server Instant Replay speeds server provisioning and restore capabilities to minimize downtime and ensure application availability both locally and remotely. Seamless integration with Remote Instant Replay allows you to easily replicate boot images across multiple locations, booting, or restoring a remote server in less than 15 minutes. In addition to reducing downtime, servers boot faster from the high-performance SAN drives instead of slower internal drives.

- » Ensure near immediate application availability
- » Quickly replace servers or add new servers with minimal downtime
- » Restore complete servers in just minutes
- » Seamlessly integrate server virtualization software to store multiple servers on one physical box – all booting from the SAN

TRADITIONAL STEPS	TIME	COMPELLENT STEPS	TIME
Power up server	1 min.	Power up server in rack	1 min.
Re-install OS	60 min.	Point server to boot image	1 min.
Reboot server	2 min.	Boot server	10 min.
Locate and install OS patches	120 min.		
Test OS and patches	60 min.		
Re-install application software	120 min.		
Test application software	60 min.		
Re-install server specific settings	30 min.		
Test server settings	30 min.		
Traditional Method: ~480 min.		Server Instant Replay: 12 min.	

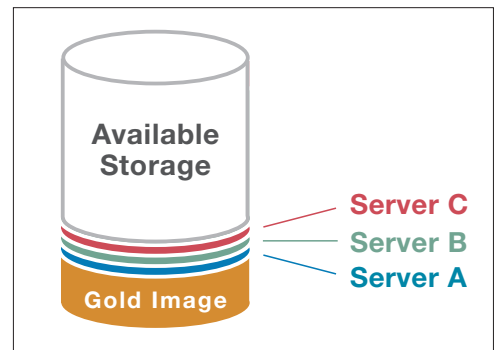
Cut Time to Server Recovery: *Reduce the number of steps required to recover a server or bring new servers online.*

Server Instant Replay can lower first year server costs by \$70,000 for every 25 servers deployed.

Space-Efficient Snapshots Eliminate Wasted Capacity

Compellent's space-efficient snapshot technology is fully integrated with Server Instant Replay to reduce the amount of overhead storage capacity required for every server that boots from the SAN. Each boot image is created by taking an intelligent Replay (snapshot) of the initial Gold Image which includes pointers to the original volume rather than creating a copy of equal size. Admins can easily extend these SAN-based volumes for patches or OS updates.

- » Cut overall storage capacity requirements; instead of consuming 30GB per boot image, Compellent uses only 6GB
- » Eliminate costly downtime with an unlimited number of Replays
- » In the event of OS corruption on the server, easily roll the OS back to a previous known state



Minimize Capacity Waste: *Server Instant Replay requires only small incremental space for each additional server boot image.*

Flexible OS Configurations Streamline Server Testing

By booting test servers from a centralized image, businesses can easily implement a robust and affordable test environment. Server Instant Replay allows the flexible use of multiple operating systems on a single server. In combination with Data Instant Replay, you can test an unlimited number of upgrades and patches on real data without risk.

- » Increase test environment productivity
- » Cut hardware costs for testing
- » Easily test a VMware virtualized machine in the morning and a Linux server upgrade in the afternoon all with the same server hardware

The First Boot from SAN Technology to Slash Server Costs While Reducing Recovery Time

Server Instant Replay is a fully integrated Boot from SAN solution that extends the benefits of the Compellent SAN. With Server Instant Replay, you can increase administrative efficiencies, simplify server management, ensure application availability and lower overall server costs. A unique wizard automates the entire boot process allowing you to provision and recover servers in just a few clicks.

SERVER INSTANT REPLAY SPECIFICATIONS

ARCHITECTURE

Integration with Data Instant Replay	Yes
Integration with Remote Instant Replay	Yes
Integration with Dynamic Capacity	Yes
Copy-on-write Technology	No, Pointers to Data only
Additional Software Required for Replays	No
Maximum Number of Boot Images	Unlimited

PERFORMANCE

Time Required to Create a Replay of a Boot Image	Less than 5 seconds
Time Required to Mount a Replay	Less than 5 seconds
Time Required to Deploy, Provision or Recover New Servers	Less than 15 minutes
Server Boot Performance	Boot volumes virtualized over a number of disk drives to increase performance when booting over the SAN

MANAGEMENT

Auto LUN Set up	Boot image set to LUN 0 for seamless OS integration
Automates the Boot Process	Set up takes 6 clicks with step-by-step guides
Special Training or Consulting Engagement	Not required
Scripts to Create Boot Volume Replays	Not required
Scripts to Mount Boot Volume Replays	Not required
Scripts to Recover Boot Volume Replays	Not required

SERVER ENVIRONMENT

Server Agent Required	No
Internal Server Disks Required	No
Volume Recovery to any Server	Yes
Test Application Software Across Multiple Operating Systems	Yes

COMPELLENT

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ABOUT COMPELLENT

Compellent delivers affordable, modular storage solutions exclusively through business partners that provide companies of all sizes enterprise storage capabilities without big system costs or complexities. Designed by network storage and virtualization pioneers, Compellent enables any business to cut storage expenditures in half, recover from data hazards within minutes, scale to any capacity across any technology and easily manage its storage without adding staff.