

Symantec Backup Exec Blueprints Blueprint for OST Powered Appliances

Backup Exec Technical Services

Backup & Recovery Technical Education Services

Symantec Backup Exec BlueprintsPreface/disclaimer



Start Preface How to Use Pain Points Backup Exec Advantages Whiteboards and Diagrams Do... Do Not.... Notes and Best Practices Final Thoughts



This Backup Exec Blueprint presentation includes example diagrams that contain objects that represent applications and platforms from other companies such as Microsoft and VMware. These diagrams may or may not match or resemble actual implementations found in end user environments. Any likeness or similarity to actual end user environments is completely by coincidence.

The goal of the diagrams included in this blueprint presentation is not to recommend specific ways in which to implement applications and platforms from other companies such as Microsoft and VMware, but rather to illustrate Backup Exec best practices only.

For guidelines and best practices on installing and configuring applications and platforms from other companies, please refer to best practice documentation and other resources provided by those companies.

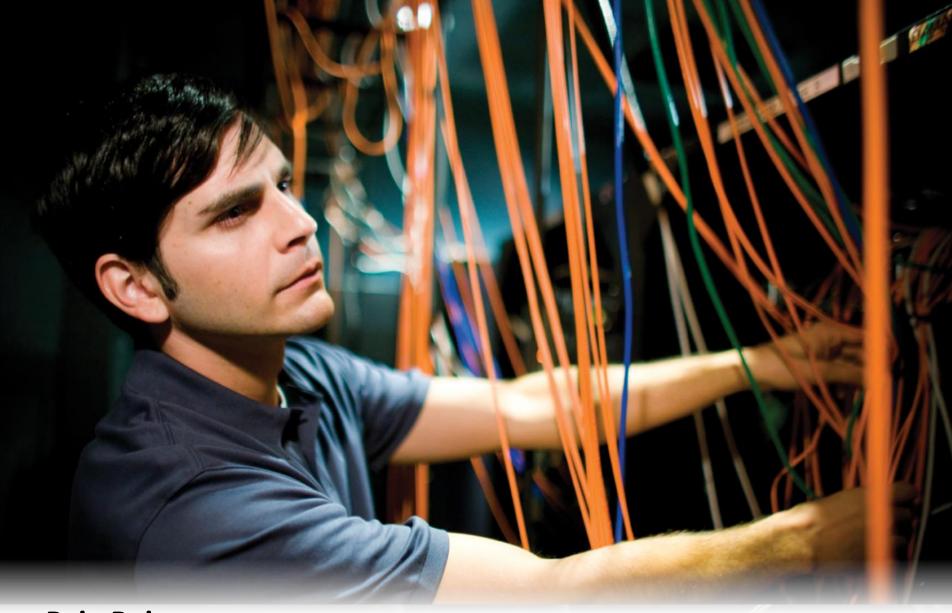
Backup Exec Blueprints: How to Use Getting the most out of Backup Exec blueprints



Start Preface How to Use Pain Points Backup Exec Advantages Whiteboards and Diagrams Do... Do Not... Notes and Best Practices Final Though

- These Blueprints are designed to show customer challenges and how Backup Exec solves these challenges.
- Each **Blueprint** consists of:
 - Pain Points: What challenges customers face
 - Whiteboard: Shows how Backup Exec solves the customer challenges
 - Recommended Configuration: Shows recommended installation
 - Do's: Gives detailed configurations suggested by Symantec
 - Don'ts: What configurations & pitfalls customers should avoid
 - Advantages: Summarizes the Backup Exec advantages
- Use these Blueprints to:
 - Understand the customer challenges and how Backup Exec solves them
 - Present the Backup Exec best practice solution





Pain Points

Backup Exec Blueprints: OST Powered Appliances Distributed Data Protection Challenges



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- Relentless Information Growth
 - Necessitating greater investments in IT infrastructure
- Unnecessary Duplication of Data
 - Data protection processes, such as backup, compound data growth
 - Multiple copies of primary data are made for operational and disaster recovery
- Backup Infrastructure Complexity
 - Disk-based systems inherently offer faster restores
 - Disk systems can also make backup environments more complex and difficult to manage
 - Inability of many backup solutions to manage advanced storage device capabilities such as data deduplication, replication, and ability to write directly to tape
 - Incomplete backup catalogs due to "blindness" to data copies made by advanced storage devices
 - Inability of many backup solutions to manage or control advanced storage devices

Backup Exec Blueprints: OST Powered Appliances Distributed Data Protection Challenges



Start Whiteboards and Diagrams Do Not... **Notes and Best Practices** Backup Exec Advantages **Final Thoughts** Preface A typical enterprise has multiple backup technologies distributed in an environment Each copy of data is managed as a separate entity using different tools REMOTE OFFICE DATA CENTER **Entry Level Backup Software** Backup Exec Tape Autoloade Protected Servers Entry level backup software and tape autoloaders protect remote offices. Tape Library Disk Library Tape libraries and Disk-based systems in the data center protect mission-critical applications and provide deep archive and offsite capabilities.



Backup Exec Advantages



Edge-to-Core Data Protection with Symantec OpenStorage



Final Thoughts Do Not... Notes and Best Practices How to Use **Backup Exec Advantages** Whiteboards and Diagrams REMOTE OFFICE **DATA CENTER** Backup Exec MBES Backup Exec CAS Protected Servers **OST Appliance** Backup Exec insight and integration extends to remote offices, giving administrators control of Tape Library WAN backup operations using a single solution. Backup Exec manages disk and tape backup systems in the data center to protect mission-critical applications and provide deep archive and offsite capabilities.

Edge-to-Core Data Protection with Symantec OpenStorage



Start Preface How to Use Pain Points Backup Exec Advantages Whiteboards and Diagrams Do... Do Not... Notes and Best Practices Final Thoughts

- Power of OpenStorage Technology (OST)
 - Symantec Backup Exec software and the OpenStorage technology (OST) have been designed to provide centrally managed, edge-to-core data protection
 - Can span multiple sites and provide disk-to-disk-to-tape (D2D2T) functionality
- Automated Data Movement
 - The OpenStorage API introduced in Backup Exec 2010 provides automated movement of data between sites and storage tiers
- Single Point of Management and Catalog for Backup Data
 - Regardless of where it resides (remote office or corporate data center)
 - What type of media it is stored on (disk or tape)
 - Or its age (recent backup or long term archive)

Business Value



Start Preface How to Use Pain Points Backup Exec Advantages Whiteboards and Diagrams Do... Do Not... Notes and Best Practices Final Thoughts

Better Control of Advanced Storage Devices

- The OpenStorage initiative allows customers to better utilize advanced, disk-based storage solutions from qualified partners
- Tighter integration between the backup software and storage
- Greater efficiency and performance using an easy-to-deploy, purpose-built appliance that does not have the limitation of tape emulation devices

Increased Performance and Optimization

- Achieves faster backups to deduplication appliances via a third-party OST plug-in enabled by Backup Exec
- Increases control and utilization of information and hardware
- Improves the speed and reduces the complexity of recovery during a disaster

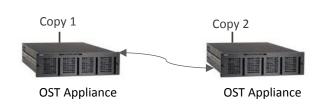
Technical Value



Start Preface How to Use Pain Points Backup Exec Advantages Whiteboards and Diagrams Do... Do Not... Notes and Best Practices Final Thoughts

- Control of Creation, Duplication, and Deletion
 - The OpenStorage API allows OST vendors to offer a plug-in that allows Backup Exec to manage backup image creation, duplication, and deletion
 - Allows partner appliances to control how the images are stored in and copied between appliances
- Enables Partner "Value Additions"
 - Partners add unique business value to a joint solution with their own specialized technological innovations
- Speed and WAN Optimization
 - Concurrent read/write operations on disk improves utilization and speed
 - Allows for WAN-optimized replication to disaster recovery (DR) sites







Whiteboards and Diagrams



Backup Exec Blueprints: OST Powered Appliances *Introduction*



Start Preface How to Use Pain Points Backup Exec Advantages Whiteboards and Diagrams Do... Do Not... Notes and Best Practices Final Thought

What is OST?

- OST = "OpenStorage Technology"
- Symantec initiative that enables application programming interface (API)level support for intelligent disk storage appliances

What Does OST Do?

- Provides APIs for 3rd-party storage vendors to create their own plug-ins
- Allows Backup Exec to take unique advantage of intelligent disk devices
- Enables performance optimization and elimination of protocol overhead associated with tape emulation devices

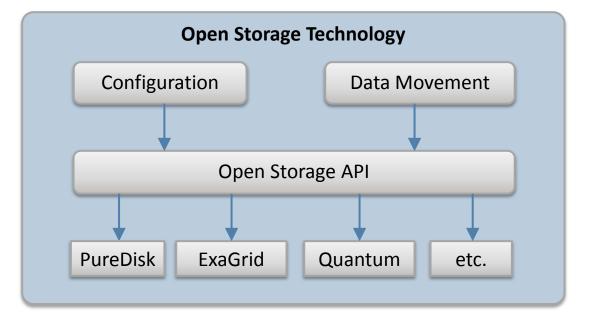
Current OST Vendors

Data Domain, Dell, HP, Fujitsu, Quantum, ExaGrid, FalconStore,
 GreenBytes

Backup Exec Blueprints: OST Powered Appliances *Introduction*



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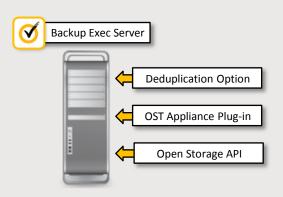


- Applications implement their own configuration
 UI and data movement
- Open Storage provides the mapping from stream-oriented operations to storage primitives
- OST vendors implement storage primitives in their plug-in

Backup Exec Blueprints: OST Powered Appliances *Requirements*



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Backup Exec Requirements:

- 32-bit or 64-bit Backup Exec server
- Standard system requirements apply

OST Plug-in:

Hardware vendor-provided OST plug-in is installed on each Backup Exec Server. OST plug-in may be installed to protected system (if enabled for directaccess)

Licensing Notes:

Backup Exec includes OST as part of their Deduplication Option licensed per media server

Note: Symantec NBU appliances have the OST plug-in built in. No software plug-in is needed



3rd-party OST Appliance

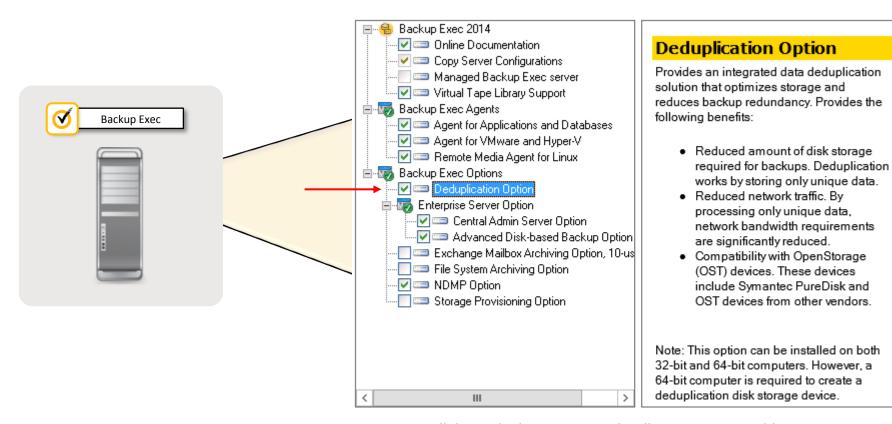
The vendor supplying the Storage Server appliance provides a software plug-in, which is installed on each Backup Exec Server and Remote Agent for Windows (with Direct Access) that is attached to the OpenStorage Server

The storage manufacturers typically offer OST support as an additional cost item

Backup Exec Blueprints: OST Powered Appliances Installing the Deduplication Option for OST



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Install the Deduplication Option locally as a separate add-on component

Backup Exec Blueprints: OST Powered Appliances Adding an OpenStorage device



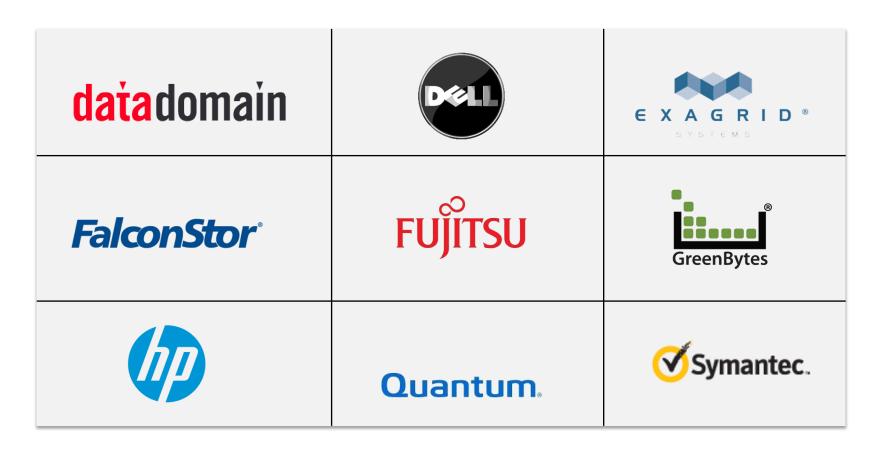
Final Thoughts

Start Pain Points Do Not... Notes and Best Practices **Backup Exec Advantages** Whiteboards and Diagrams How to Use Symantec Backup Exec™ 2014 (Central Administration Se Configure Troubleshoot Delete Share Scan Inventory Catalog Inventory and Initialize Label Restore Storage _ | - | Configure storage on BESERVER Which type of storage do you want to configure? Disk-loased storage Local or Mote disk storage, disk cartridge devices, deduplication disk storage, storage Backup Exec arrays, virtual disks, and legacy backup-to disk folders may be available to configure. Network storage OpenStorage devices, NDMP servers, and remote media agents for Linux may be available to configure. Tape storage Installing tape drivers, replacing or adding hot-swappable storage devices, configuring robotic library partitions, and configuring barcode rules are tasks that may be available. Storage pools Storage device pools and Backup Exec server pools may be available to configure. Media Sets and Vaults Cancel What are the different types of storage? Configure storage on BESERVER Which type of network storage do you want to configure? OpenStorage A Symantec technology that lets you use a vendor-provided intelligent disk appliance as disk

Backup Exec Blueprints: OST Powered Appliances Vendors with OST-supported devices



Start Preface How to Use Pain Points Backup Exec Advantages Whiteboards and Diagrams Do... Do Not... Notes and Best Practices Final Thoughts



For the latest and detailed list of OST Appliances supported by Backup Exec, refer to the Backup Exec Hardware Compatibility List:

Backup Exec Blueprints: OST Powered Appliances How Do Most Vendors Offer Dedupe for Backups?



Start Do Not... **Notes and Best Practices** How to Use Whiteboards and Diagrams **Final Thoughts** Preface **Backup Exec Advantages** Answer: At the end of the backup plumbing Full Backup Full Backup **Dedupe Device Backup Server** Clients What is wrong with this approach? Not a comprehensive backup solution; the devices are just storage targets Each backup is a full backup until it reaches the deduplication storage No bandwidth savings, backup window issue remains Dealing with multiple vendors Poor visibility, the appliance has no content intelligence

Backup Exec Blueprints: OST Powered Appliances Symantec Backup Exec Deduplication with OST



Start Do Not... **Notes and Best Practices** Backup Exec Advantages Whiteboards and Diagrams Final Thoughts Preface How to Use **Dedupe Processing** Backup Exec **Dedupe Device** Clients **OST Feature Support makes all the difference** Symantec Backup Exec owns the entire backup stack Data can be deduplication anywhere— Client, Backup Exec server or OST device Source deduplication equates to lower bandwidth consumption and faster backups Duplicate data is prevented from passing Complete control of the backup environment

Backup Exec Blueprints: OST Powered Appliances Optimized Duplication with Backup Exec and OST Appliance



Start Pain Points Do Not... **Notes and Best Practices** Final Thoughts Backup Exec Advantages Whiteboards and Diagrams Preface How to Use **Backup Exec** Backup then Copy 1 Copy 2 Data transfer start opt dupe Copy 1 Update Done Local OST Remote OST Catalog **Appliance Appliance**

Backup Exec Blueprints: OST Powered Appliances Direct Backups from Windows Servers to an OST Appliance



Start Pain Points Do Not... **Notes and Best Practices** Final Thoughts Backup Exec Advantages Whiteboards and Diagrams Preface How to Use Backup Exec CAS Local OST **Appliance** Network Data moves directly from the windows server to the Agent for OST Appliance bypassing the Backup Exec server Windows OST Plug-in

White Boards: OST Powered Appliances OpenStorage Optimized Duplication



Start Do Not... **Notes and Best Practices** Whiteboards and Diagrams Final Thoughts **Backup Exec Advantages** Location A Location B Backup Exec Backup Exec WAN Copy Copy Fast deduplicated data transfer between OST appliances **OST Appliance OST Appliance** Local backups to OST Appliance at location A Duplicate backup job copies data from OST Appliance at location A to OST Appliance at location B Backup Exec server catalog updated for local backup and duplicate copy Optimized duplication also allows for more efficient workflows under Backup Exec

Example Diagram: OST Powered Appliances *Optimized Deduplication in a Disaster Recovery Use Case*



Start Do Not... Notes and Best Practices **Backup Exec Advantages** Whiteboards and Diagrams Final Thoughts Preface How to Use **DR Site Application Servers Application Servers Primary Storage Primary Storage** Backup Exec Backup Exec WAN Fast deduplicated data transfer between OST appliances **OST Appliance OST Appliance**

Example Diagram: OST Powered Appliances

OpenStorage -enabled replication and tape creation



Final Thoughts Start Do Not... **Notes and Best Practices** Backup Exec Advantages Whiteboards and Diagrams **Branch Office Data Center Backup Exec CAS MBES** Tape Library SAN LAN WAN **OST Appliance OST Appliance** 1 Configure deduplication to take advantage of the OpenStorage API 2 Install the storage-specific OpenStorage plug-in on Backup Exec servers 3 Create a staged BE job definition



Final Thoughts

Notes and Best Practices

Do Not...

Better Approach: Implementing server-side and client-side deduplication

Backup Exec Advantages

Start

Preface

How to Use

 Main office systems are protected by local Backup Exec servers 2 Remote office systems protected by a local Backup Exec server or an OST Powered Appliance and backups duplicated to Main Office using OST Opt-Dup 3 Remote office systems without local Backup Exec server are backed up using client-side deduplication 4 Deduplicated backups can be duplicated to a private cloud or tape REMOTE OFFICE REMOTE OFFICE Backup Exec 3600 Opt-Dup **Protected Servers** Protected Servers **OST Appliance** Backup **DATA CENTER** Tape Library **Backup Exec CAS Private Cloud** Disk Library **Protected Servers**

Whiteboards and Diagrams



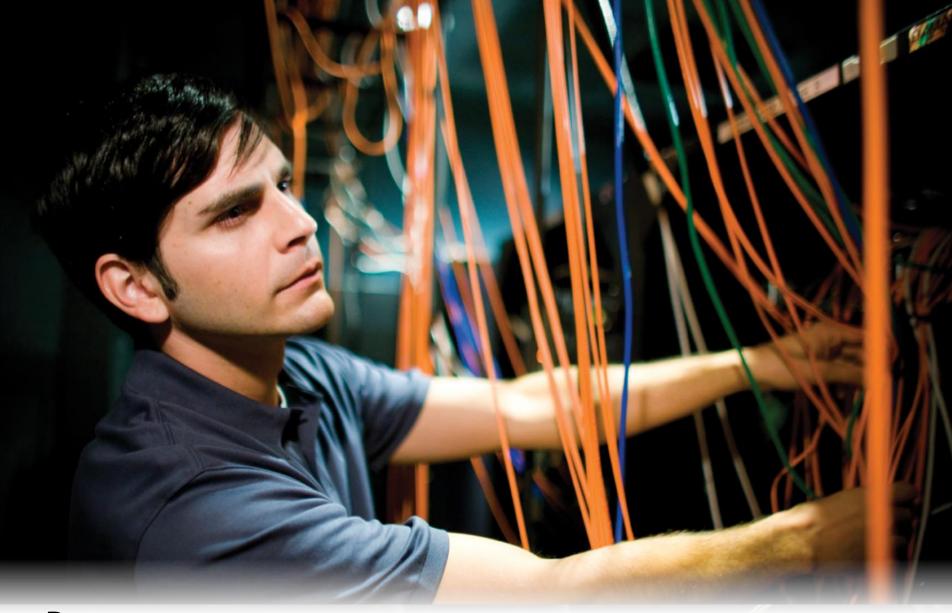
Do...

Best Practices: OST Powered Appliances *Do the following...*



Start Preface How to Use Pain Points Backup Exec Advantages Whiteboards and Diagrams Do... Do Not... Notes and Best Practices Final Thought

- If you cannot configure your OST device with Backup Exec 2014, you may need to install a later version of your OST plug-in
 - Please contact your vendor to obtain the most recent plug-in for your device
- Get the OST Device Configuration Notes from the manufacturer
- Ensure that the appropriate third-party OST vendor plug-in is installed for an OpenStorage Technology (OST) device and exists in the Backup Exec directory
 - The plug-in enables Backup Exec to detect the OST device and display the device in the server list
- Refer to the Backup Exec Hardware Compatibility Lists for OST plug-in details
 - The required plug-in details is listed as a footnote in the "Storage Server Family" column, per vendor
 - Please contact your vendor for access to the plug-in
- When using OST devices, you may need to inventory and catalog the media on the destination server
 - Required before you recover any files from the duplicated backup set



Do not...

Best Practices: OST Powered AppliancesDo **not** do the following...



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- Don't do GRT jobs on a non NetBackup/Backup Exec OST device
 - Instead, set up a CIFS share on these devices and use them as a B2D target

Note: GRT is possible with PureDisk/NBU OST Appliance and will not require staging but other vendor OST will



Additional Notes and Best Practices

Life Preservers: OST Powered Appliances

GRT and OST Powered Appliances



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Deduplication type	GRT support method
Backup Exec Deduplication Storage Folder	Non-GRT and GRT backups are supported and no staging is needed for GRT restores
Hardware-based deduplication OpenStorage appliances	 Non-GRT and GRT backup are supported but staging is needed at time of GRT restores. Backups will be faster and restores slower (due to staging) Alternately if the device supports it, then one can create B2D using CIFS share and then run backups. Backups will be slower but GRT restores will be faster
NBU 5000/NBU 5020/NBU 5030 appliance	Non-GRT and GRT backups are supported and no staging is needed for GRT restores
Pure Disk appliance, also known as Classic Pure Disk	Non-GRT and GRT backups are supported and no staging is needed for GRT restores

Life Preservers: OST Powered Appliances

Miscellaneous Notes



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- When you upgrade to Backup Exec 2014, there may be a large amount of expired media that the deduplication storage folder or OST device must reclaim
 - This first backup job may take a long time to process
- OST Device Media and WORM Tagging
 - All the media on an OST device is tagged as WORM
 - This means you can only write to this media once
 - Since every backup set ends up on its own virtual piece of media, they logically never get overwritten; however, they CAN and ARE deleted in the normal process of media rotation
- Deduplication Notes
 - When sending a backup to an OST device, the deduplication statistics for the job deduplication ratios properly
 - Some OST devices don't calculate deduplication statistics during backups
 - When "Client-side Deduplication" is enabled for a job targeting an OST device, it may use server deduplication (data will still go directly from the remote agent to the deduplication device)

OST Powered Appliances: Final Thoughts Unified Control and Access of Backup Data

Backup Exec Advantages



Final Thoughts

Notes and Best Practices

Do Not...

SharePoint **Backup Exec** Catalog Data Active Directory **OST Powered Appliance** File & Application

Whiteboards and Diagrams

Backup Stream

OST powered Appliances Advantages

Servers

- Seamlessly integrated backup and disaster recovery solution for small-to mid-size companies/organizations
- Optimized duplication and recovery that combines the centralized control, monitoring, and cataloging of Backup Exec with the sophisticated deduplication, compression, and replication capabilities of the OST **Appliance**
- Consolidated tape backup operations
- **Simpler administration**; no moving parts

Thank You!

Backup Exec Product Management