Symantec Backup Exec Blueprints

Blueprint for OST Powered Appliances

Backup Exec Technical Services

Backup & Recovery Technical Education Services

Notice

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.

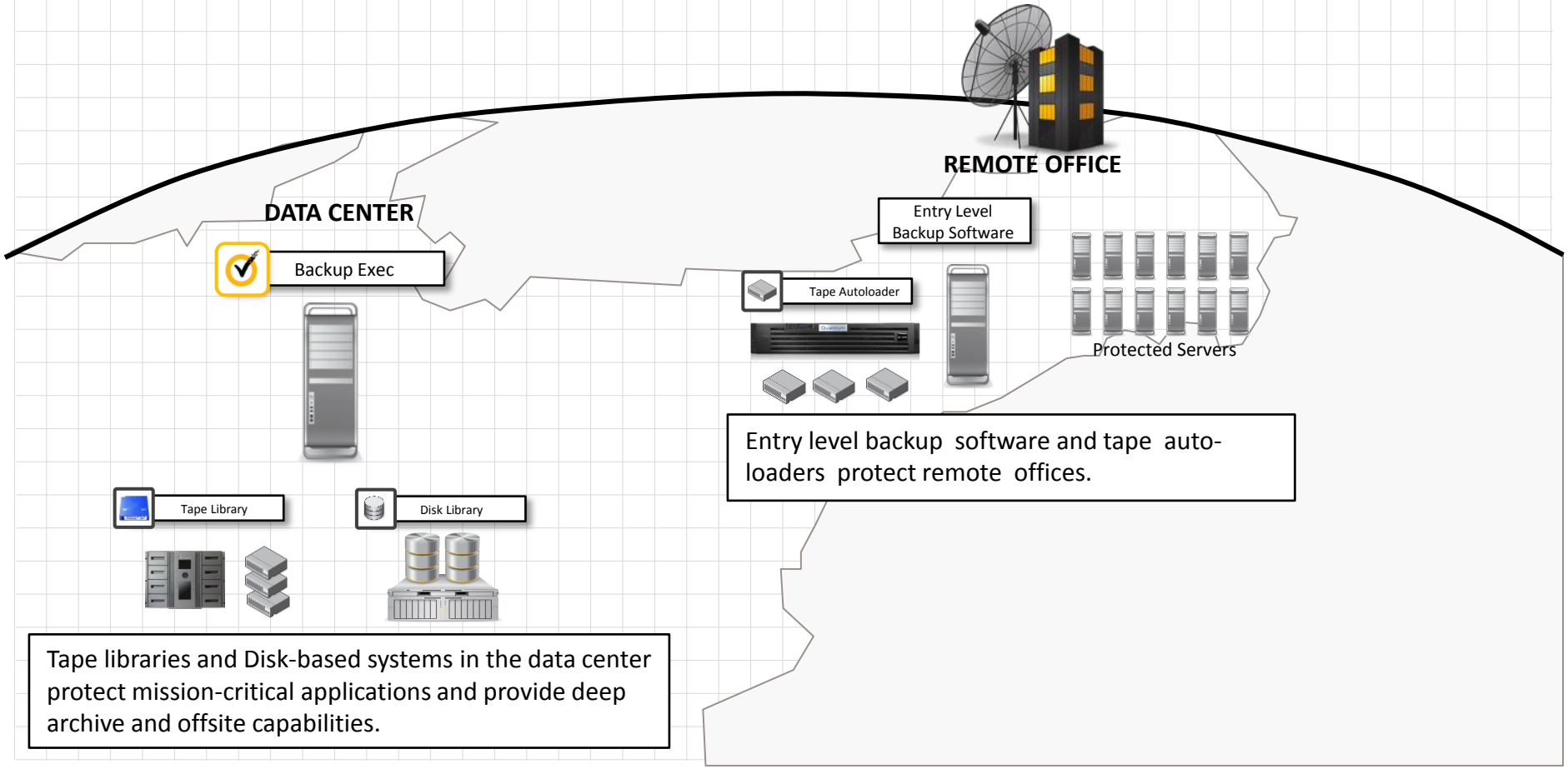
For guidelines and best practices on installing and configuring applications and platforms from other companies, please refer to best practice documentation and other resources provided by those companies.

- 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

- 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

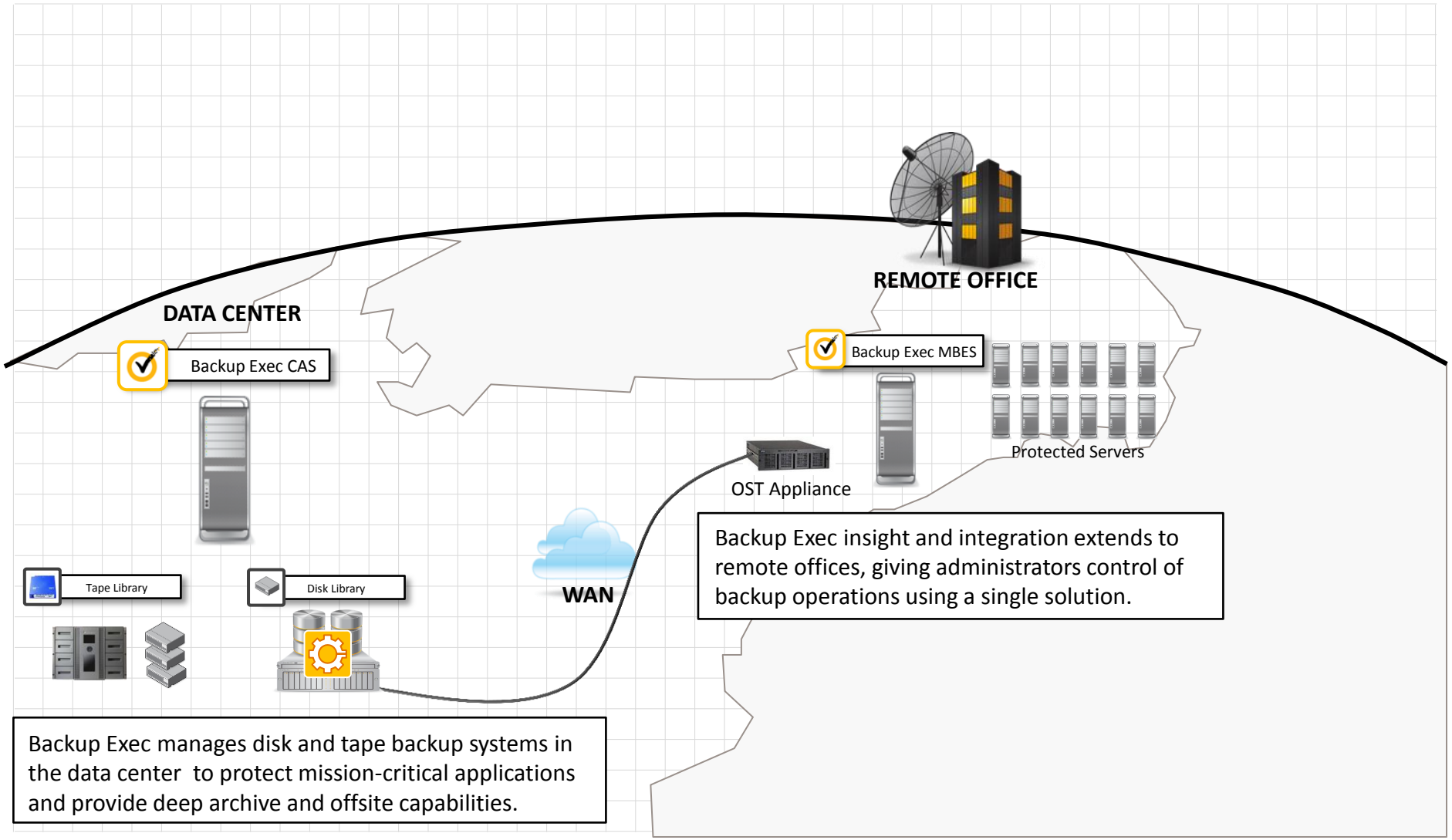
- A typical enterprise has multiple backup technologies distributed in an environment
- Each copy of data is managed as a separate entity using different tools



Backup Exec Advantages

Backup Exec Blueprints: Advantages

Edge-to-Core Data Protection with Symantec OpenStorage



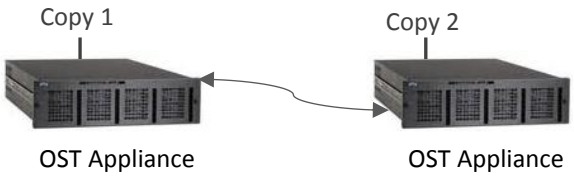
Backup Exec insight and integration extends to remote offices, giving administrators control of backup operations using a single solution.

Backup Exec manages disk and tape backup systems in the data center to protect mission-critical applications and provide deep archive and offsite capabilities.

- 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)

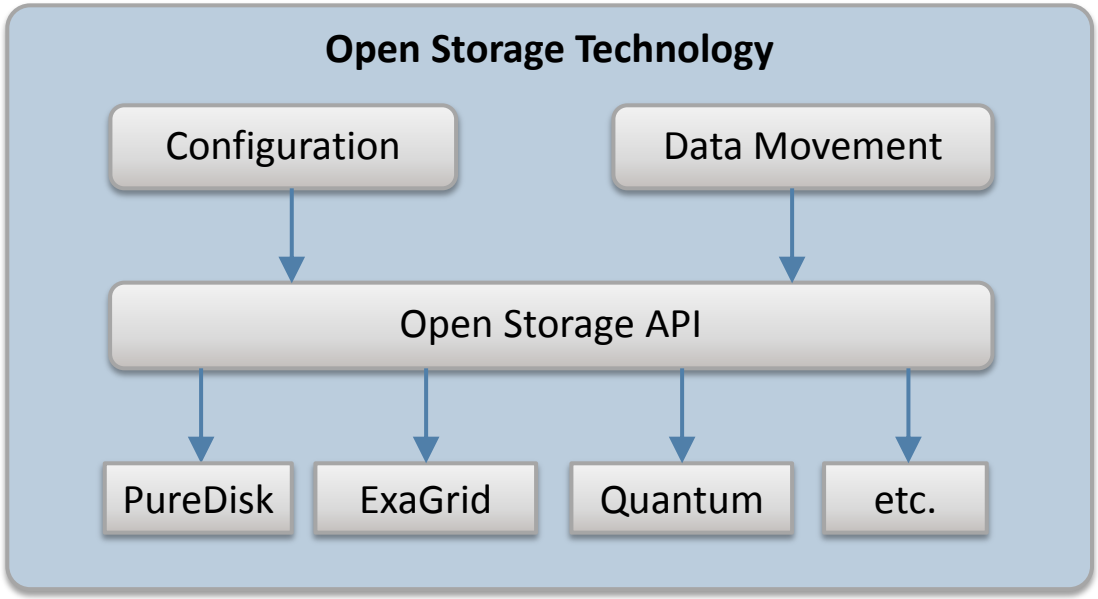
- Better Control of Advanced Storage Devices
  - The OpenStorage initiative allows customers to better utilize advanced, disk-based storage solutions from qualified partners
  - Tighter integration between the backup software and storage
  - Greater efficiency and performance using an easy-to-deploy, 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

- 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

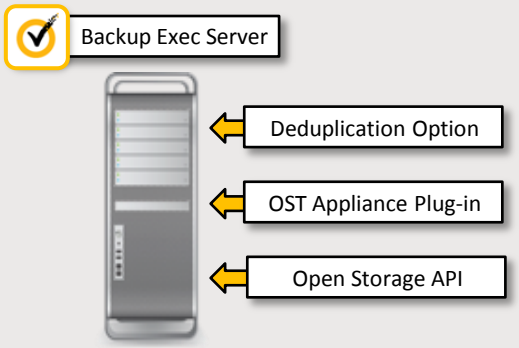


Whiteboards and Diagrams

- 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



- 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 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 direct-access)

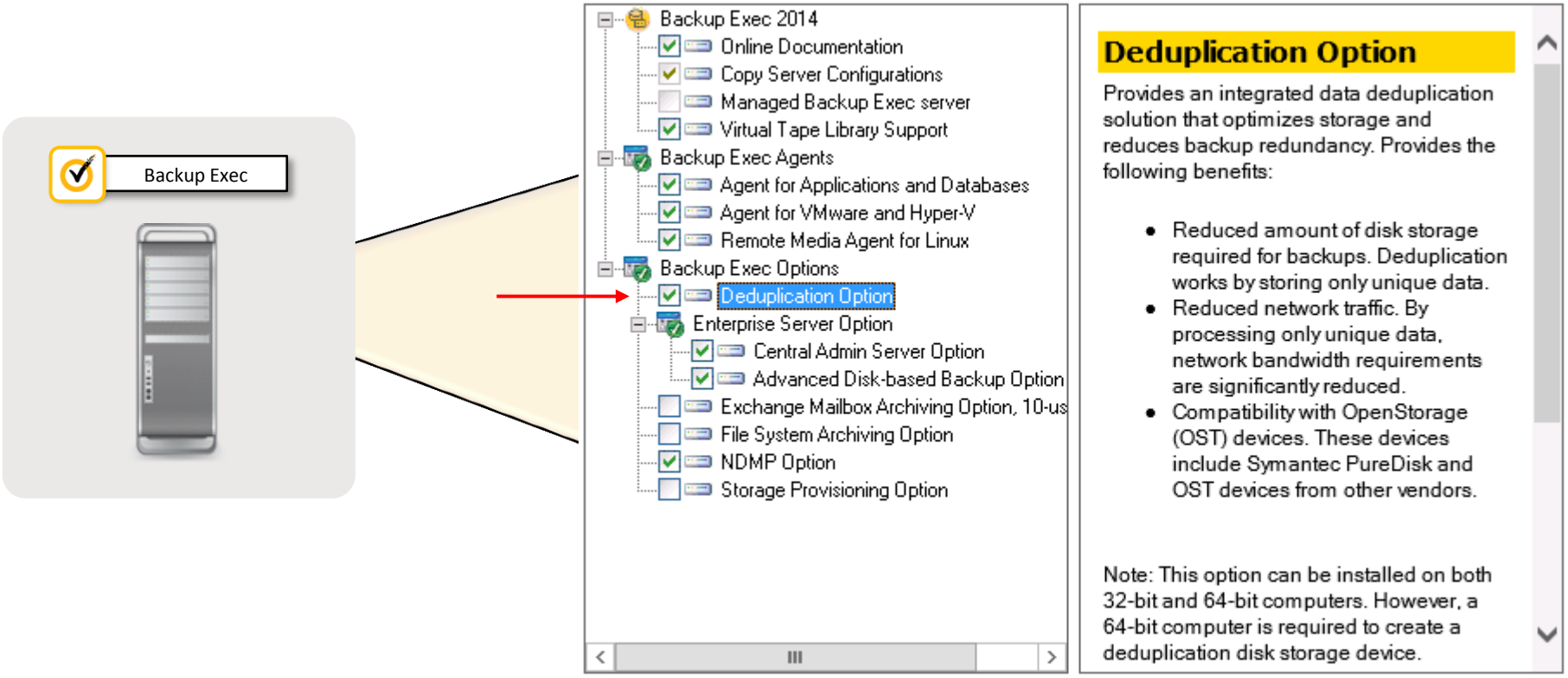
Licensing Notes:
Backup Exec includes OST as part of their Deduplication Option licensed per media server

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

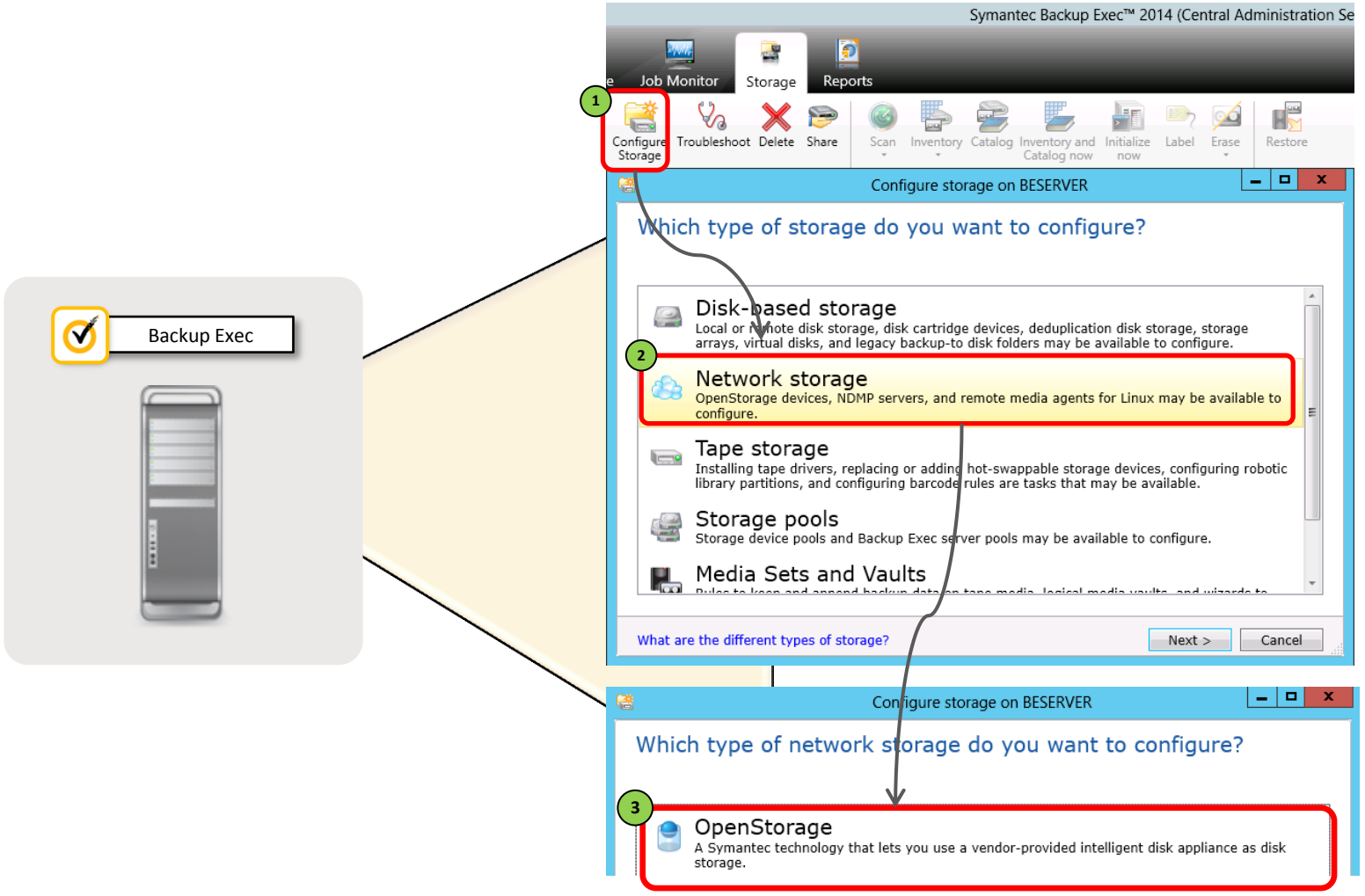
The storage manufacturers typically offer OST support as an additional cost item



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

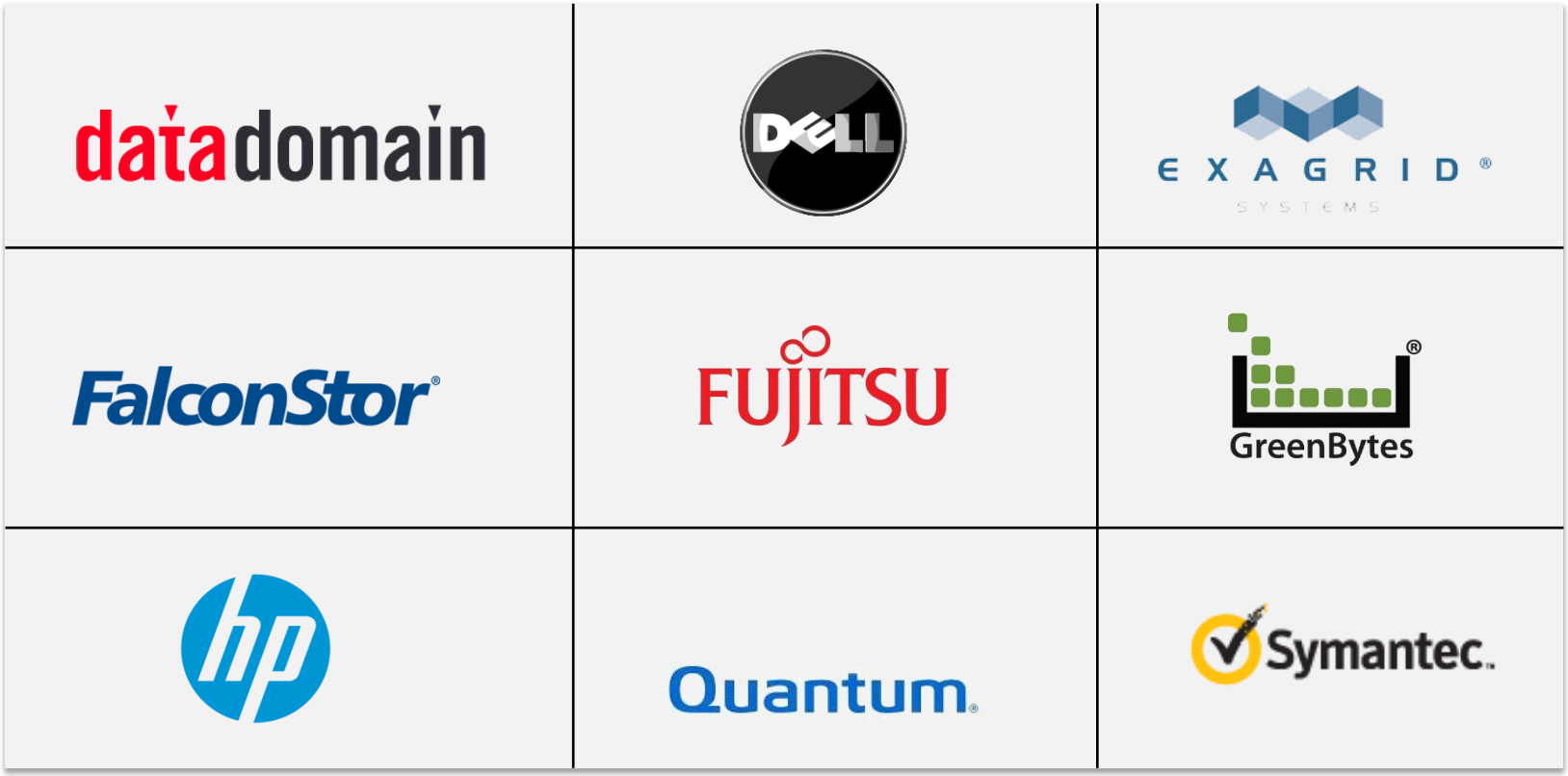
Backup Exec Blueprints: OST Powered Appliances

Adding an OpenStorage device



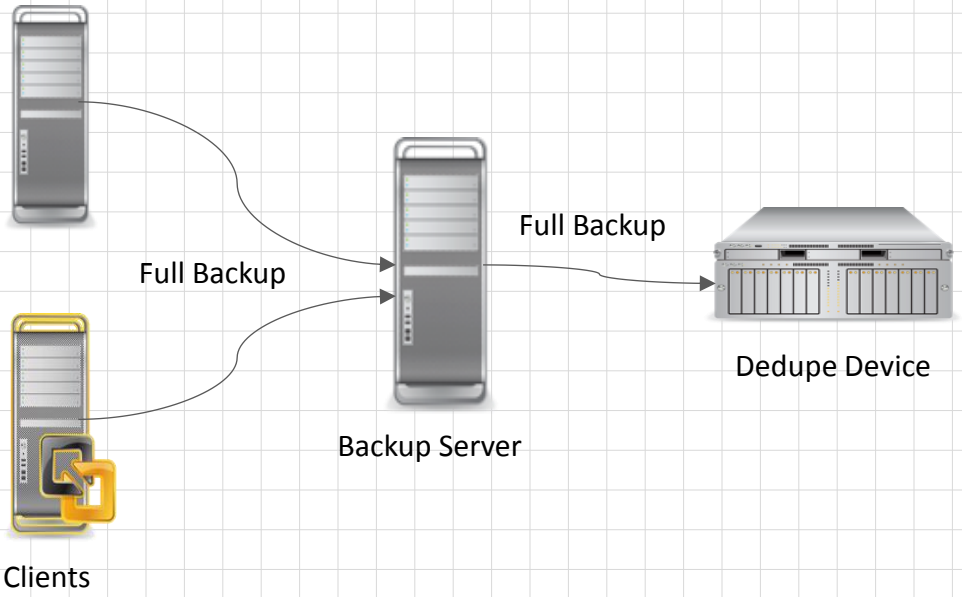
Backup Exec Blueprints: OST Powered Appliances

Vendors with OST-supported devices



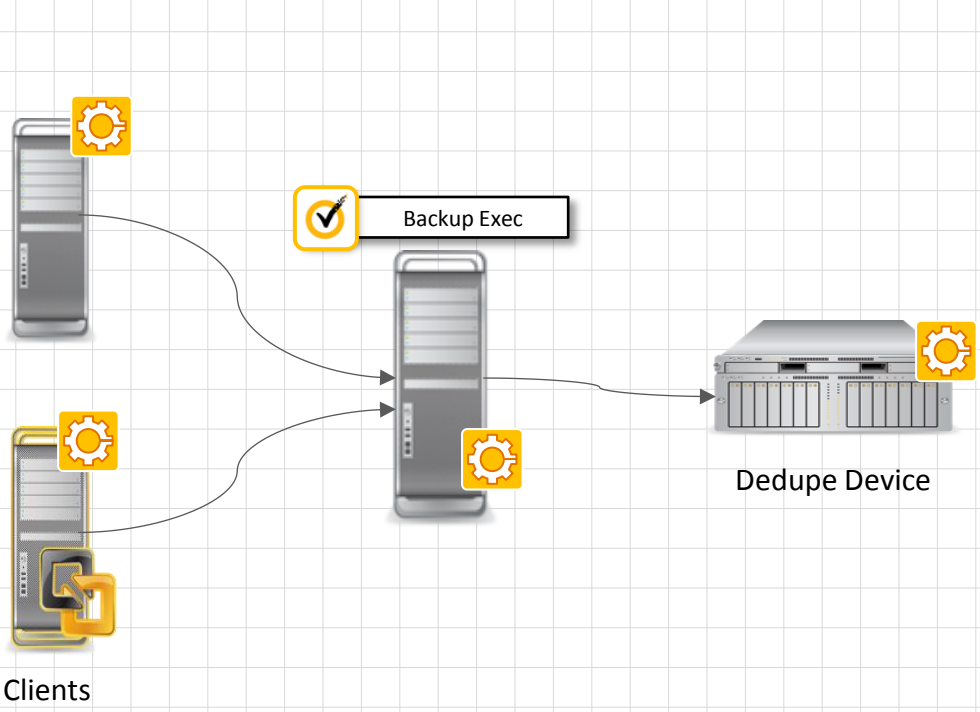
For the latest and detailed list of OST Appliances supported by Backup Exec, refer to the Backup Exec Hardware Compatibility List:

Answer: At the end of the backup plumbing



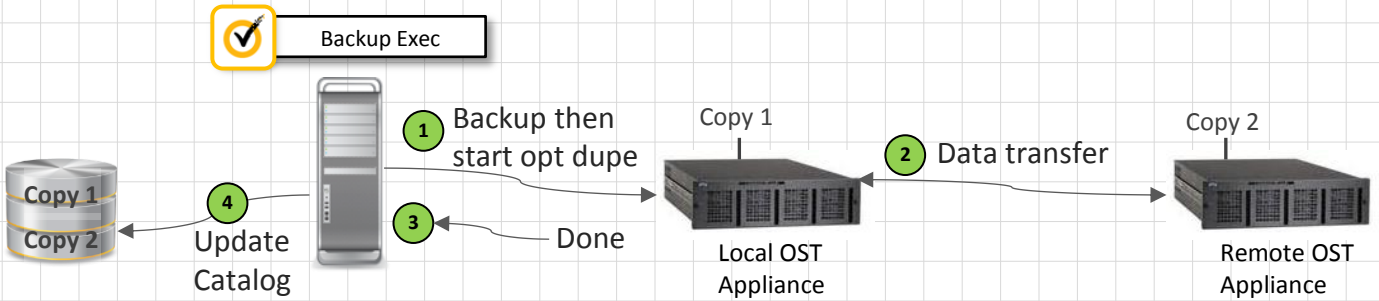
What is wrong with this approach?

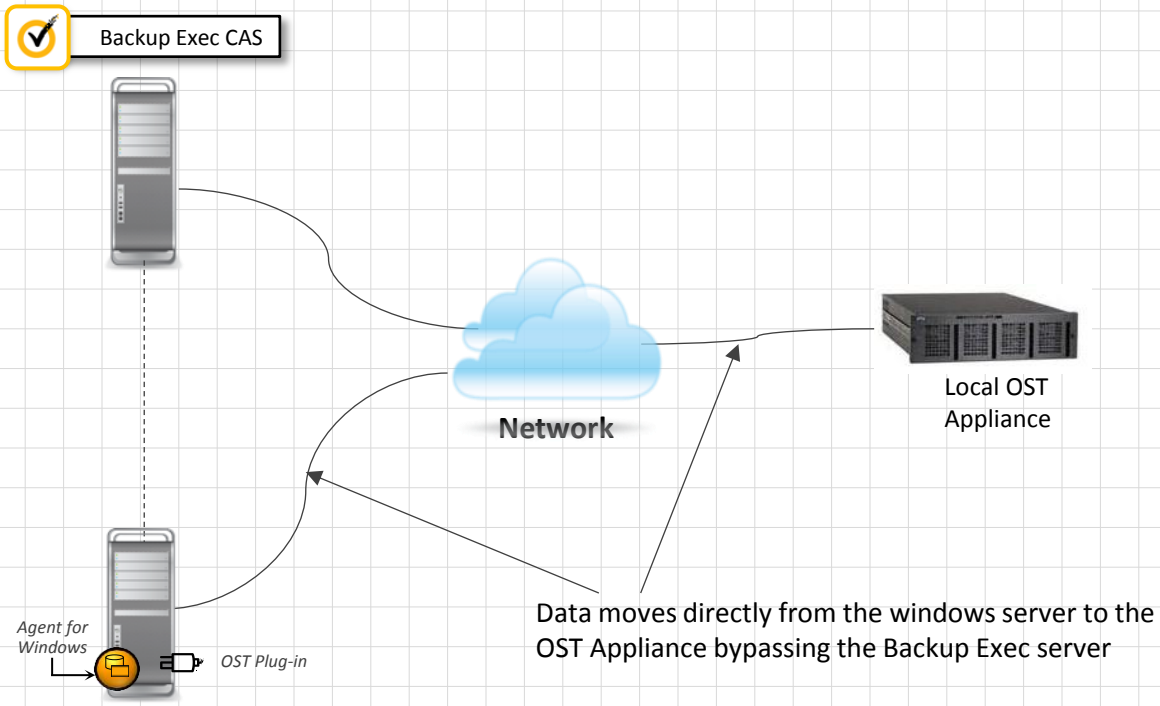
- Not a comprehensive backup solution; the devices are just storage targets
- Each backup is a full backup until it reaches the deduplication storage
- No bandwidth savings, backup window issue remains
- Dealing with multiple vendors
- Poor visibility, the appliance has no content intelligence

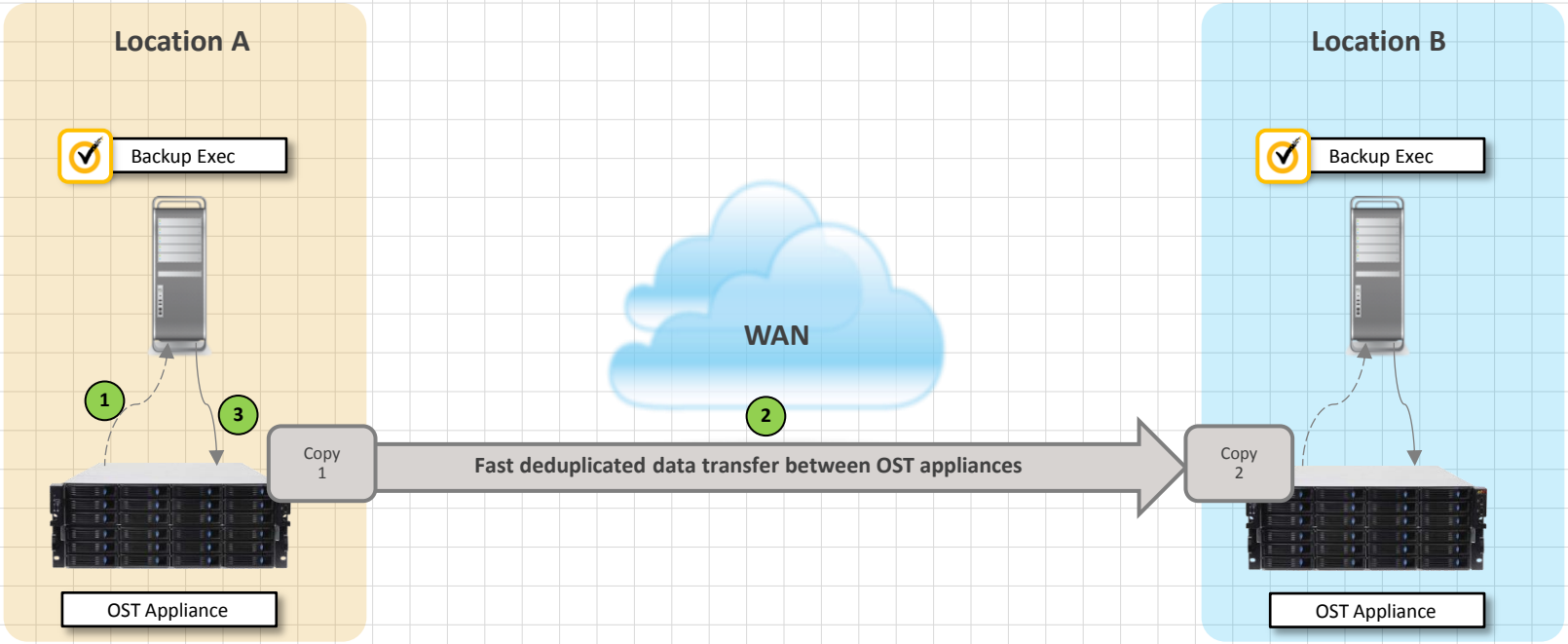


OST Feature Support makes all the difference

- 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
1
Backup then
start opt dupe
Copy 1
2
Data transfer
Copy 2
Copy 1
Copy 2
4
Update
Catalog
3
Done
Local OST
Appliance
Remote OST
Appliance


Backup Exec CAS
Network
Local OST Appliance
Agent for Windows
OST Plug-in
Data moves directly from the windows server to the OST Appliance bypassing the Backup Exec server

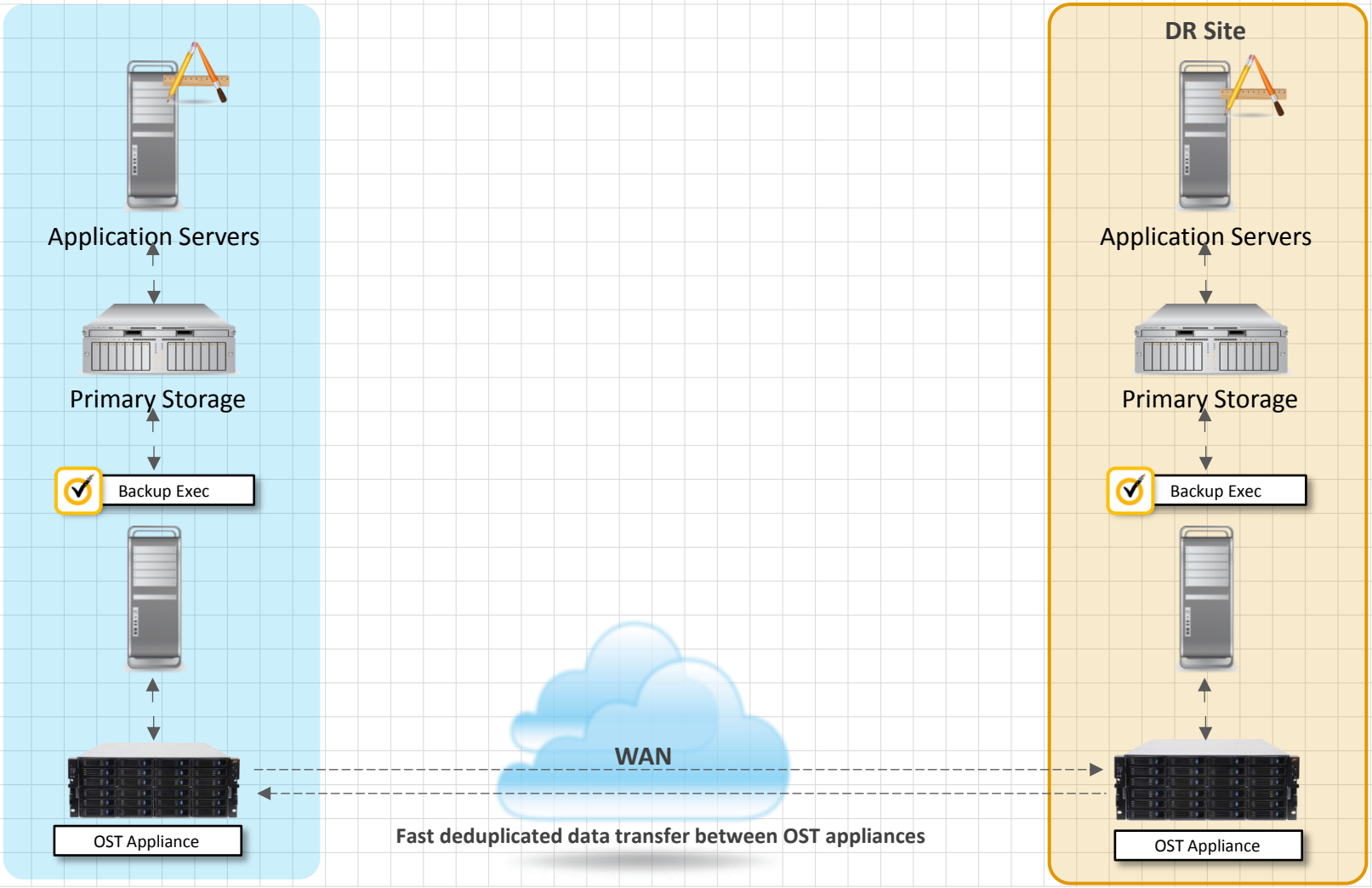


1. Local backups to OST Appliance at location A
2. Duplicate backup job copies data from OST Appliance at location A to OST Appliance at location B
3. Backup Exec server catalog updated for local backup and duplicate copy

Optimized duplication also allows for more efficient workflows under Backup Exec

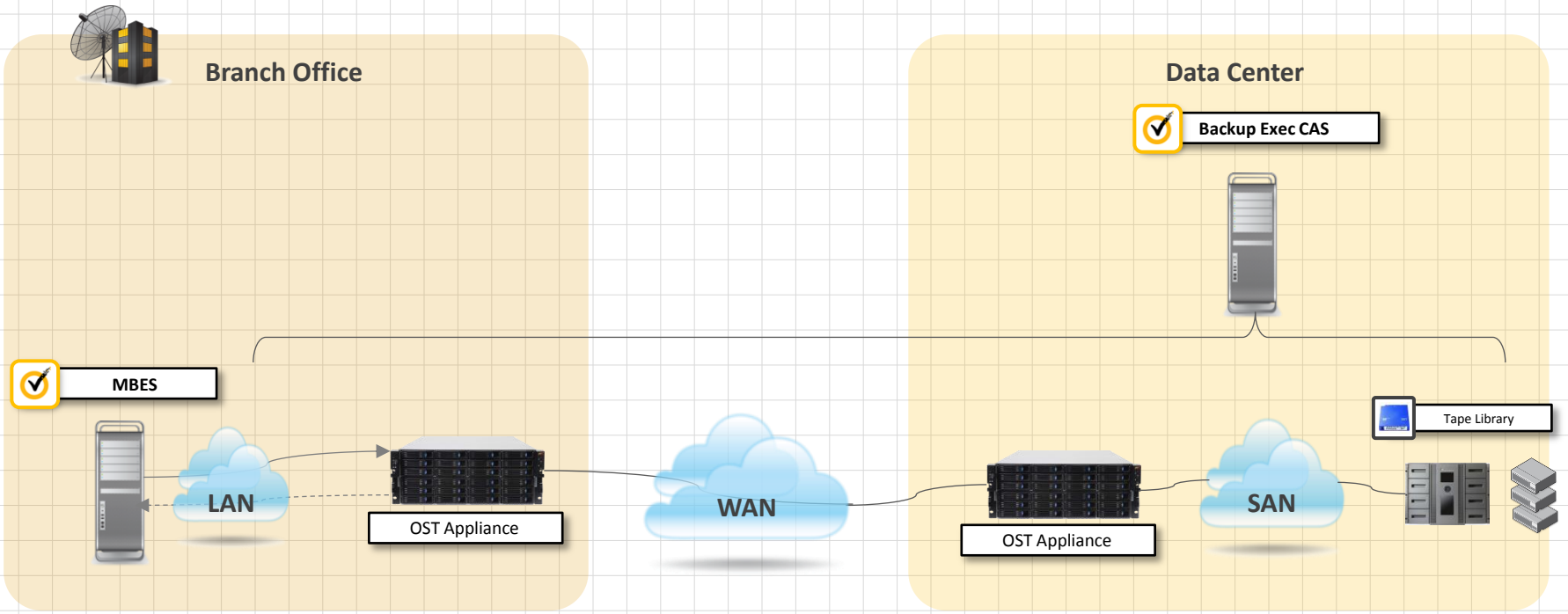
Example Diagram: OST Powered Appliances

Optimized Deduplication in a Disaster Recovery Use Case



Example Diagram: OST Powered Appliances

OpenStorage -enabled replication and tape creation

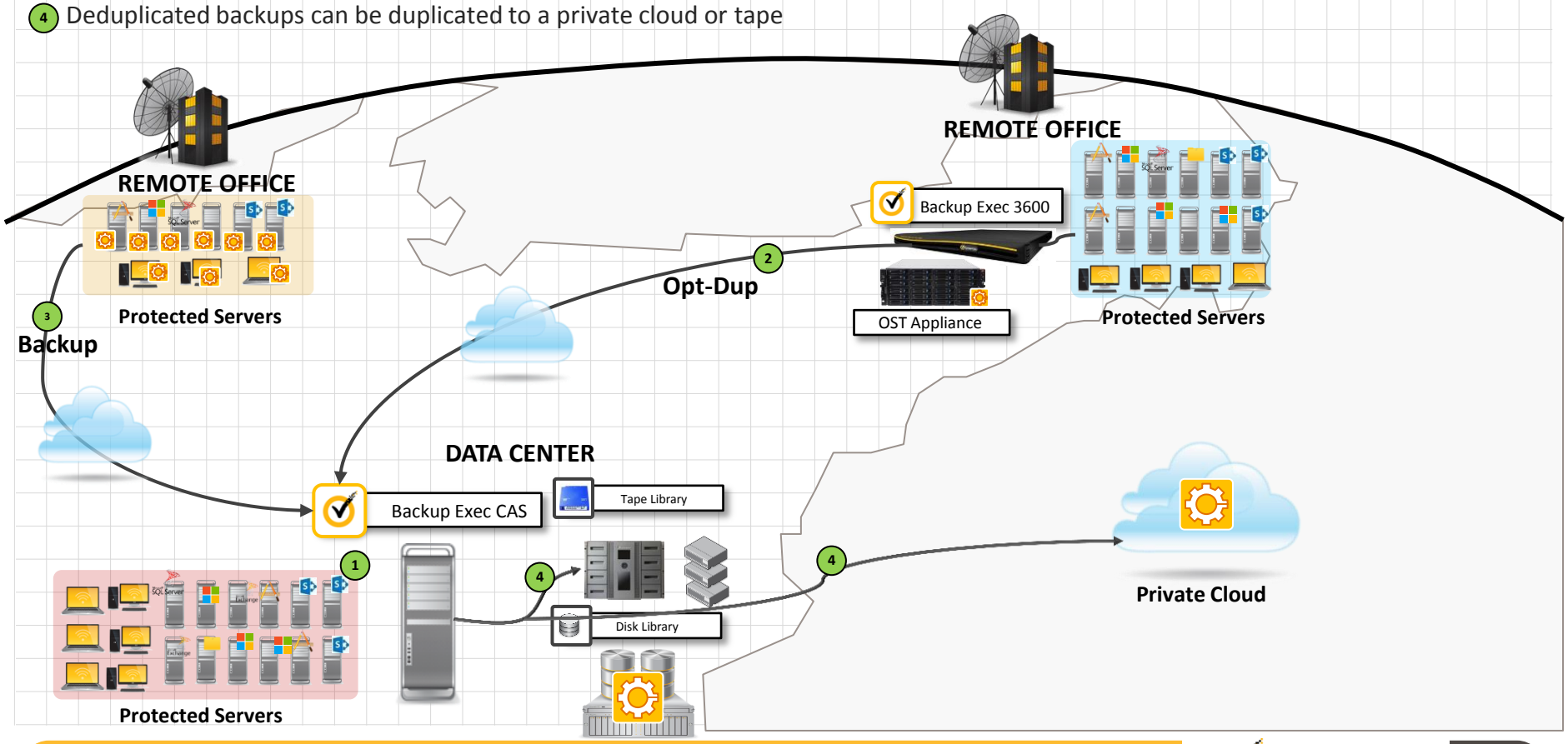


1. Configure deduplication to take advantage of the OpenStorage API
2. Install the storage-specific OpenStorage plug-in on Backup Exec servers
3. Create a staged BE job definition

Backup Exec Blueprints: Advantages

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

1. 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



Do…

Best Practices: OST Powered Appliances

Do the following…

- 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 Appliances

*Do **not** do the following…*

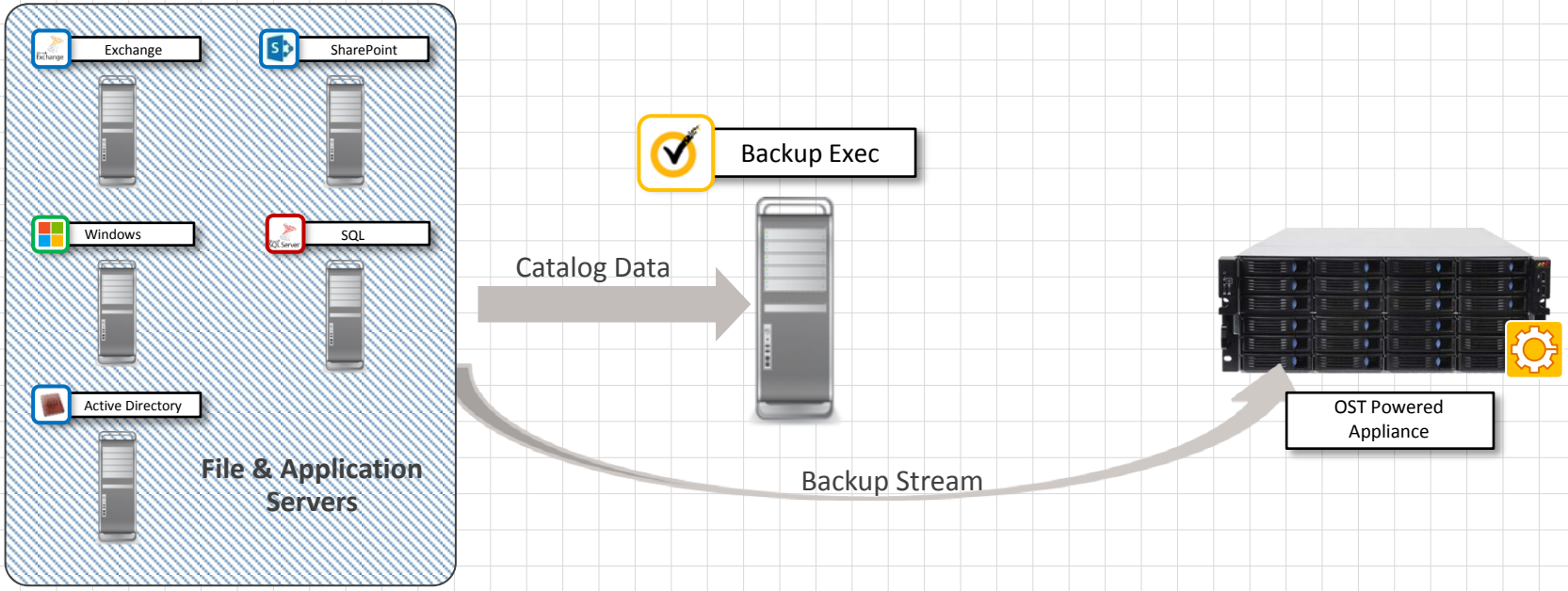
- Don't do GRT jobs on a non NetBackup/Backup Exec OST device
  - Instead, set up a CIFS share on these devices and use them as a B2D target

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

Additional Notes and Best Practices

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

- 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 Advantages

- **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