



# Symantec Backup Exec **Blueprints** **Blueprint** for Optimized Duplication

**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.

# Backup Exec Blueprints: How to Use

## Getting the most out of Backup Exec blueprints



- 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
  - **Dos:** 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

Symantec Backup Exec Blueprints - Optimized Duplication

- Backup and Replication Over a WAN is Painful, Time Intensive
- WAN Bandwidth and Latency Impact Recovery Times
- Limited IT Staff at Remote Offices
- Complicated Multi-site Backup Procedures
- Risk and Costs Associated with Shipping and Storing Tapes
- Multiple Backup Solutions for Disk and Tape Backup
- Recovery From Tape Can Be Slow and Expensive
- Backing Up Remote Offices Over a WAN Can Be Challenging



## Whiteboards and Diagrams

Symantec Backup Exec Blueprints - Optimized Duplication

# White Boards: Optimized Duplication

*The situation today: traditional approach*



Start

Preface

How to Use

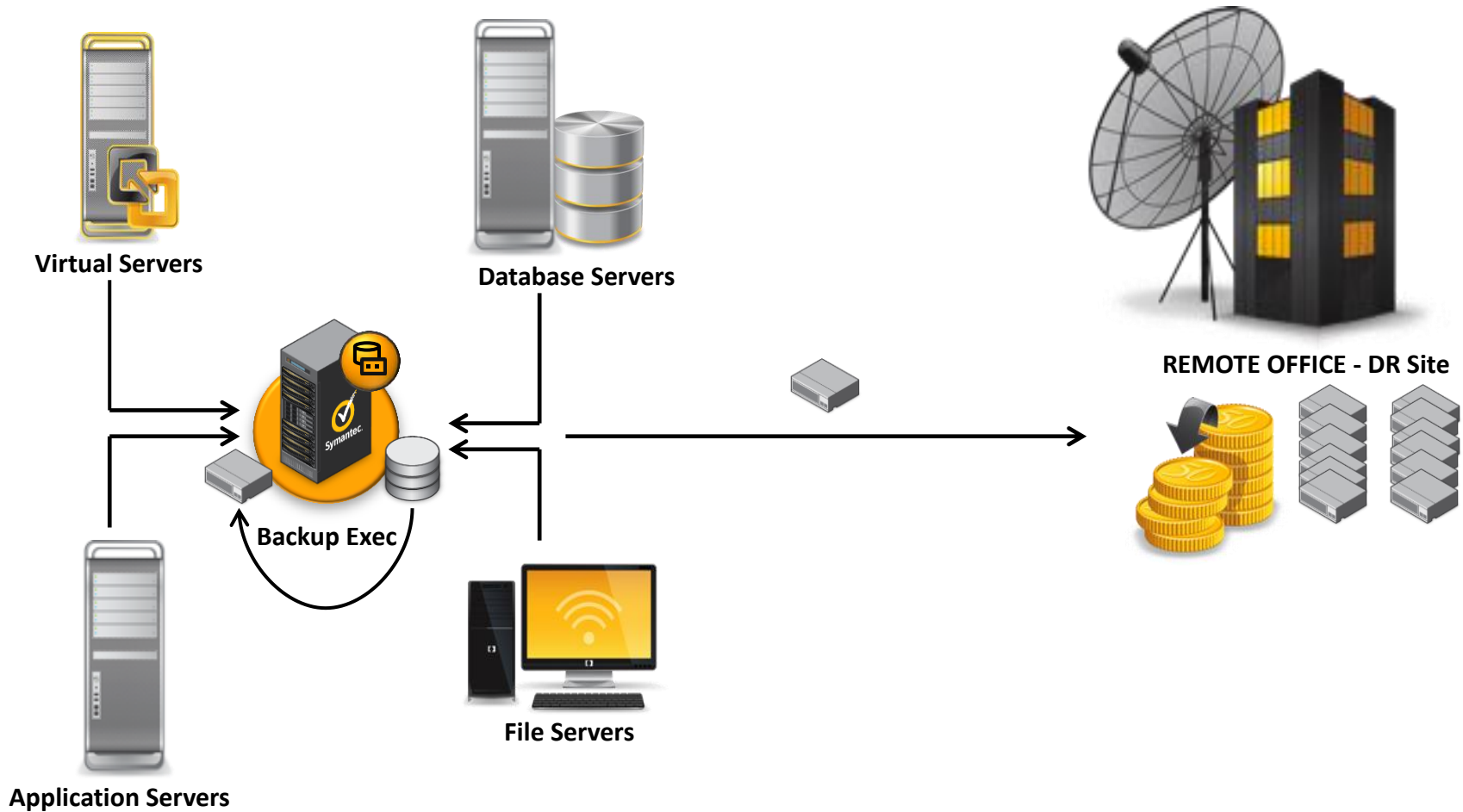
Pain Points

Whiteboards and Diagrams

Do...

Do Not...

Final Thoughts



# White Boards: Optimized Duplication

## Example Backup Exec optimized duplication diagram



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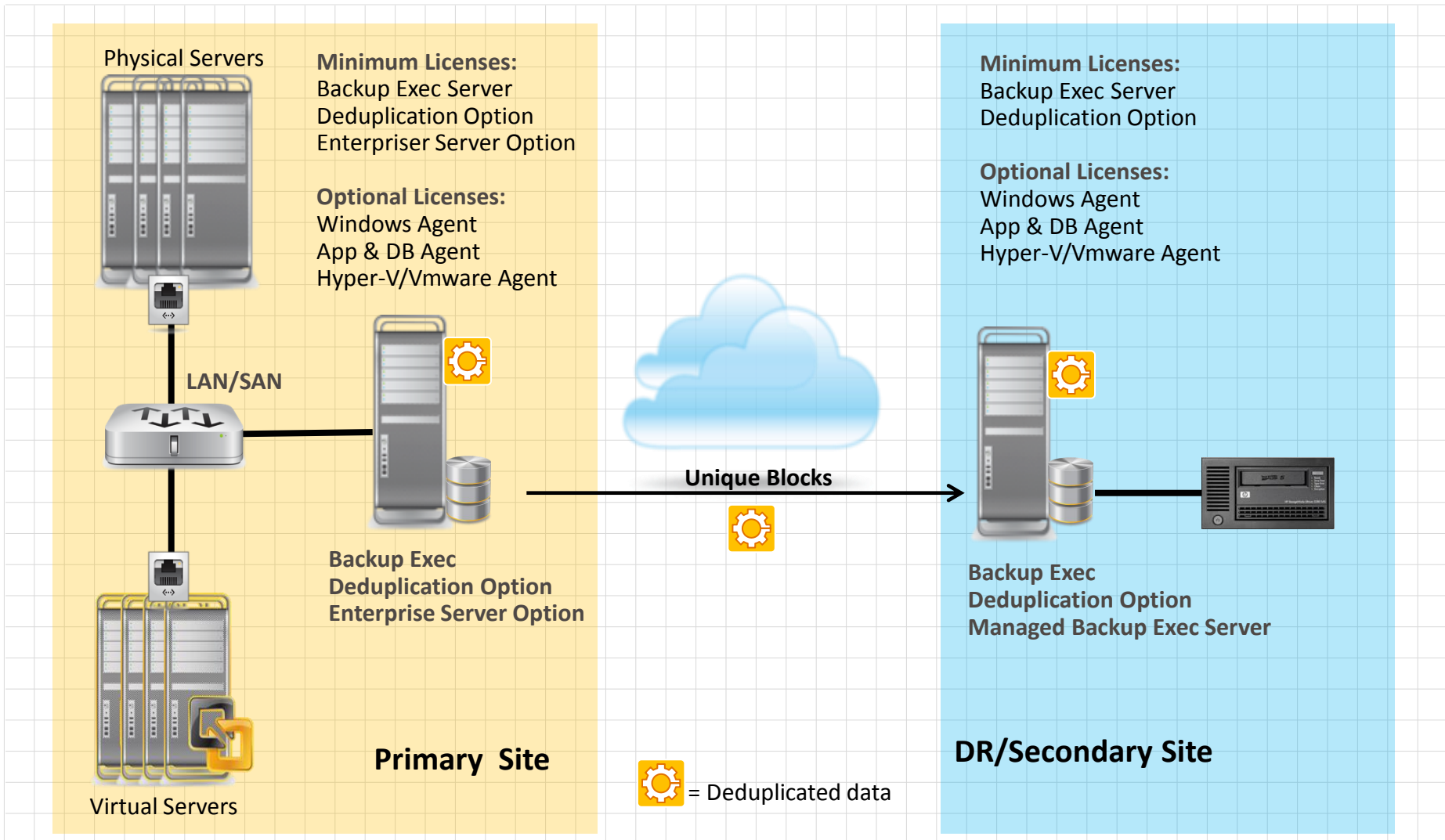
Pain Points

Whiteboards and Diagrams

Do...

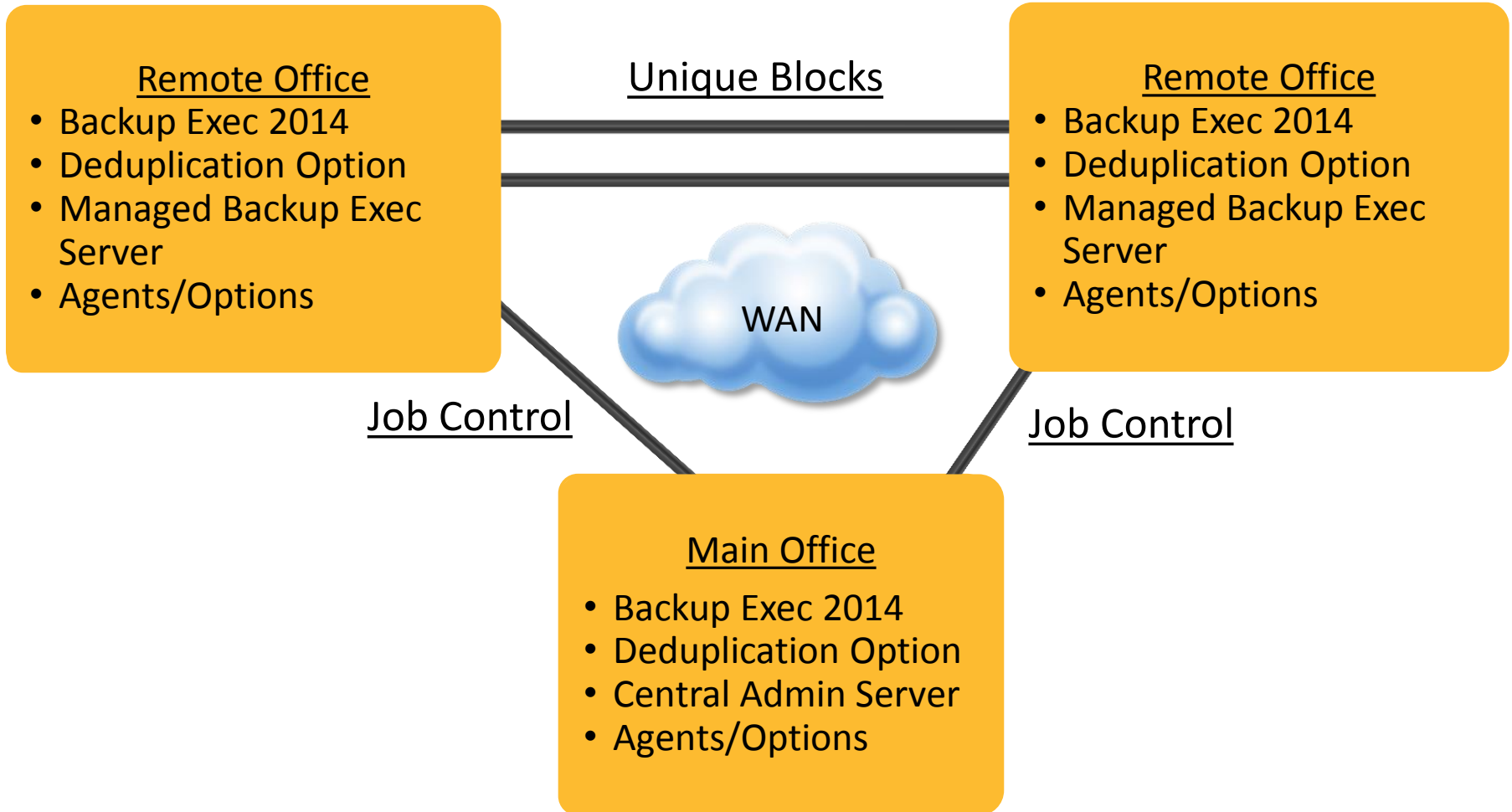
Do Not...

Final Thoughts



# White Boards: Optimized Duplication

## Better approach #1



# White Boards: Optimized Duplication

Better approach #1 – sharing devices



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Name	State
<b>BECAS</b> Central Administration Server	Online
<b>Deduplication disk storage - HQ</b>	Online
<b>Disk storage 0001</b>	Online
<b>Robotic library 0001</b> simulated tape library	Online
<b>Tape drive 0001 (No media)</b> simulated tape drive	Online
<b>Slots</b>	
<b>BEMS</b> Managed Backup Exec Server	Online
<b>Deduplication disk storage - DR</b>	Online
<b>Tape/Disk Cartridge Media</b>	
<b>All Media</b> All tape cartridge and disk	
<b>Online Tape/Disk Cartridge Media</b> Media that is available with tape library.	
<b>Offline Tape/Disk Cartridge Media</b> Media that is not within a tape library, and has not been in a vault.	
<b>All Media Sets</b>	

Pause

Disable

Offline

---

Backup Exec Diagnostics

---

Delete Delete

Share Delete

# White Boards: Optimized Duplication

Better approach #1 – sharing devices



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Do...

Do Not...

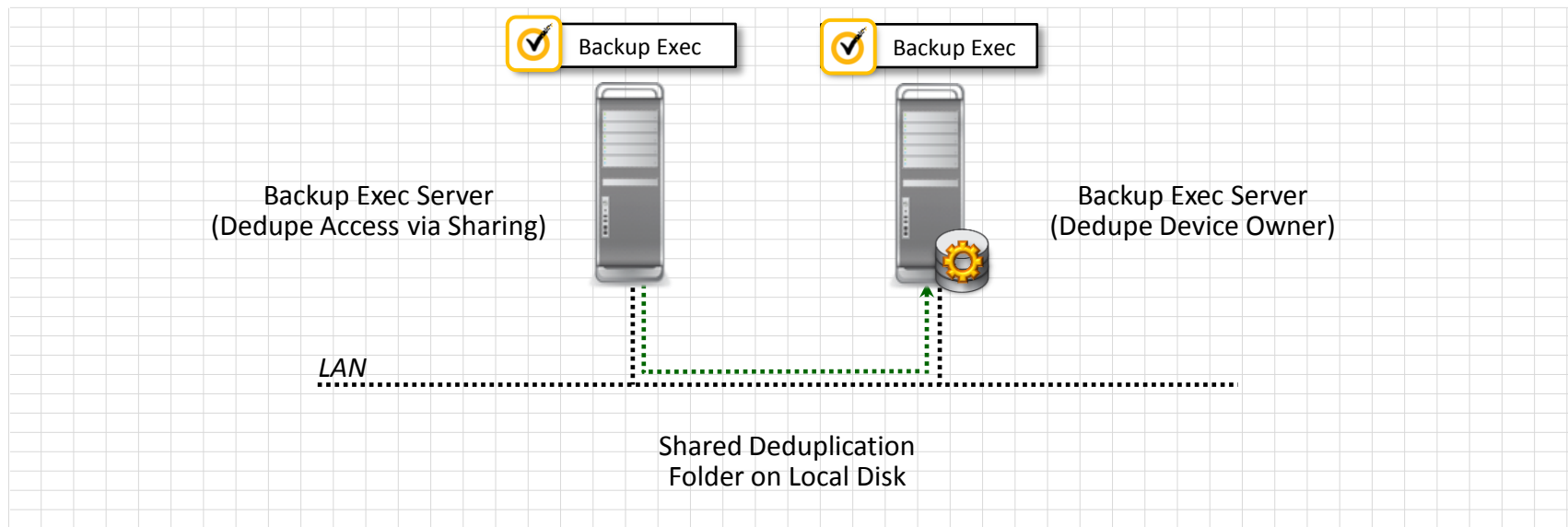
Final Thoughts

The screenshot shows the Symantec Backup Exec interface. The top navigation bar includes Home, Backup and Restore, Job Monitor, Storage, and Reports. Below this is a toolbar with various icons for Views (Standard, Compact, Sort and Filter, Tree, List), State (Pause, Disable, Offline), Configure (Configure Storage, Delete, Share), Storage Operations (Inventory, Inventory and Catalog now), and Media Operations (Restore). The main area displays a table of storage devices:

Name	State
<b>BECAS</b> Central Administration Server	Online
<b>Deduplication disk storage - DR (Hosted on BEMS)</b>	Online
<b>Deduplication disk storage - HQ</b>	Online
<b>Disk storage 0001</b>	Online
<b>Robotic library 0001</b> simulated tape library	Online
<b>Tape drive 0001 (No media)</b> simulated tape drive	Online
<b>Slots</b>	
<b>BEMS</b> Managed Backup Exec Server	Online
<b>Deduplication disk storage - DR (Hosted on BEMS)</b>	Online

Two red arrows are present: one points to the 'Share' button in the top left, and another points to the 'Deduplication disk storage - DR (Hosted on BEMS)' entry in the table.

- Deduplication Disk Storage Devices are Local Disk Backup Devices Enabled for Deduplication
- When Shared, Other MBESs Access the Deduplication Storage Folder through the OST Protocol, Over the Network



# White Boards: Optimized Duplication

Better approach #1 – sharing devices



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**All Storage** **BEMS details**

**Jobs**

**Job History**

**Active Alerts**

**License Information**

**Properties**

**Settings**

Connection settings:

Monitor jobs that are created locally on the managed Backup Exec server:

Display an alert when the time is not synchronized between the managed Backup Exec server and the central administration server:

Send the alert after the servers are not synchronized for:  seconds

Storage and media database location:

Keep the catalogs on:

**i** If a persistent connection is available between the servers, browsing and restoring can be performed from both servers regardless of the catalog's location.

- Catalog Files Enable Recovery of Corresponding Backups
- Proper Catalog Management, Protection is Critical

# White Boards: Optimized Duplication

## Better approach #2



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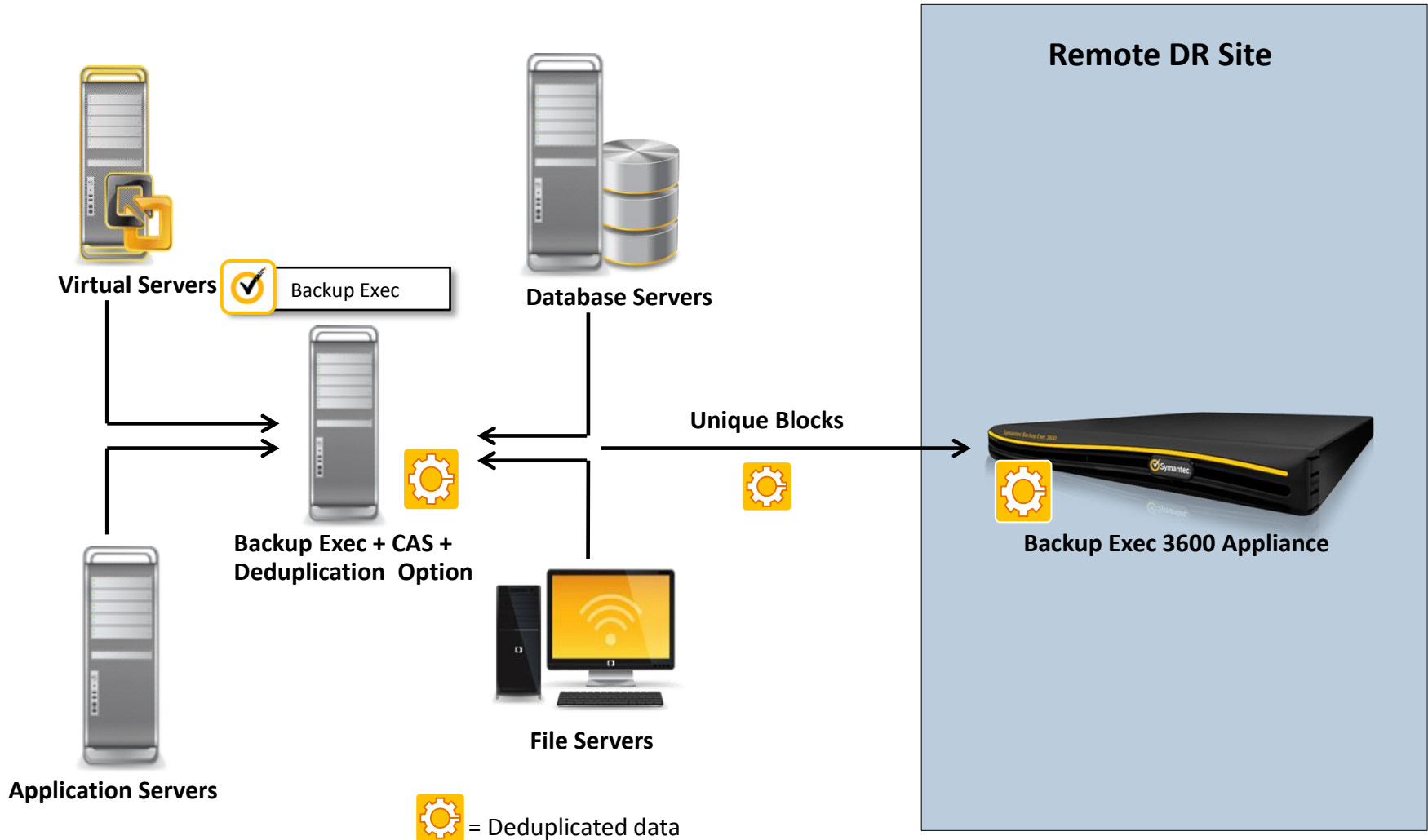
Pain Points

Whiteboards and Diagrams

Do...

Do Not...

Final Thoughts



### Main Office

- Backup Exec 2014
- Deduplication Option
- Central Admin Server
- Agents/Options

### Unique Blocks

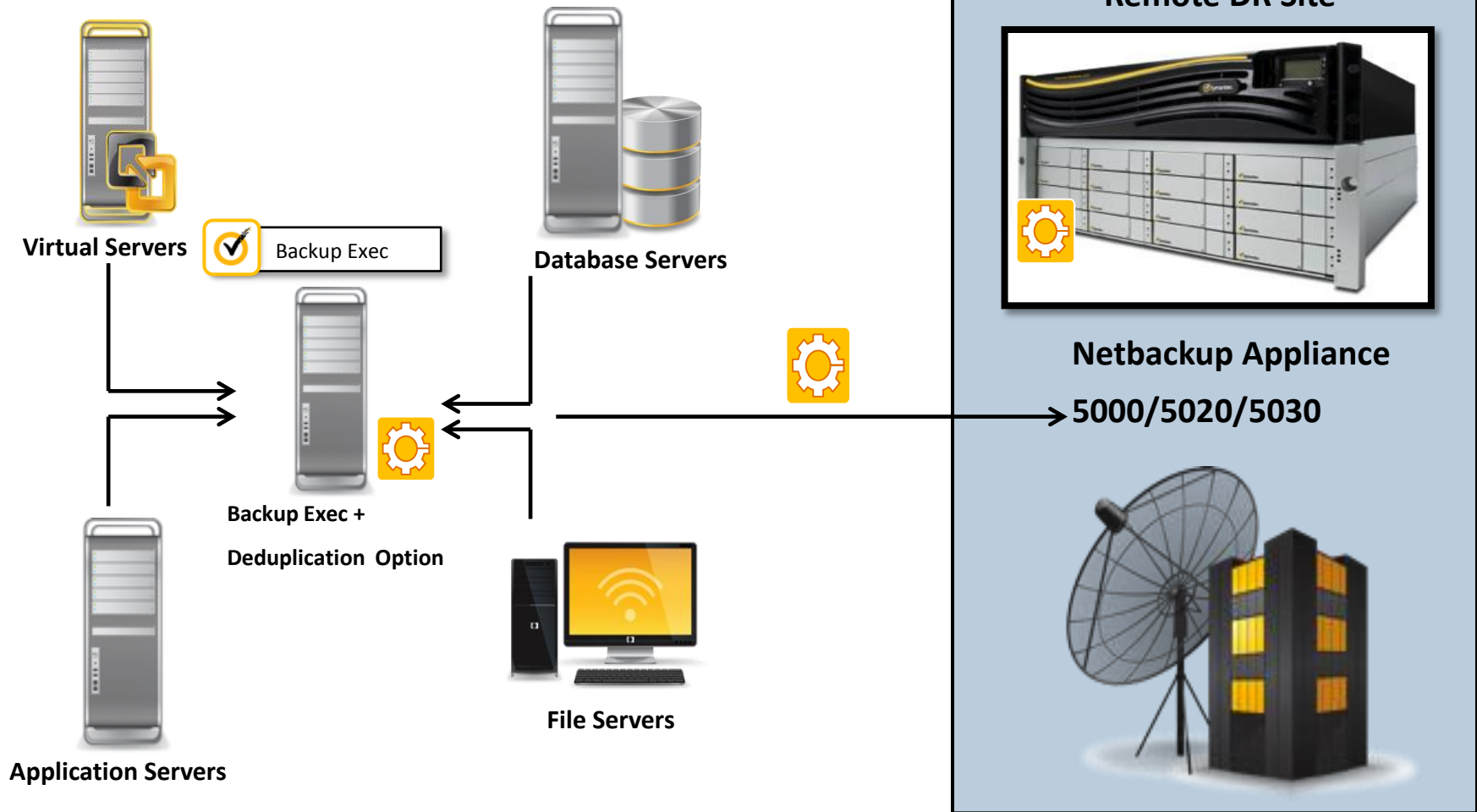
WAN

### Remote/DR Office

- Backup Exec 3600 R3
- TPS/EPS
- Deduplication Option
- Managed Backup Exec Server

# White Boards: Optimized Duplication

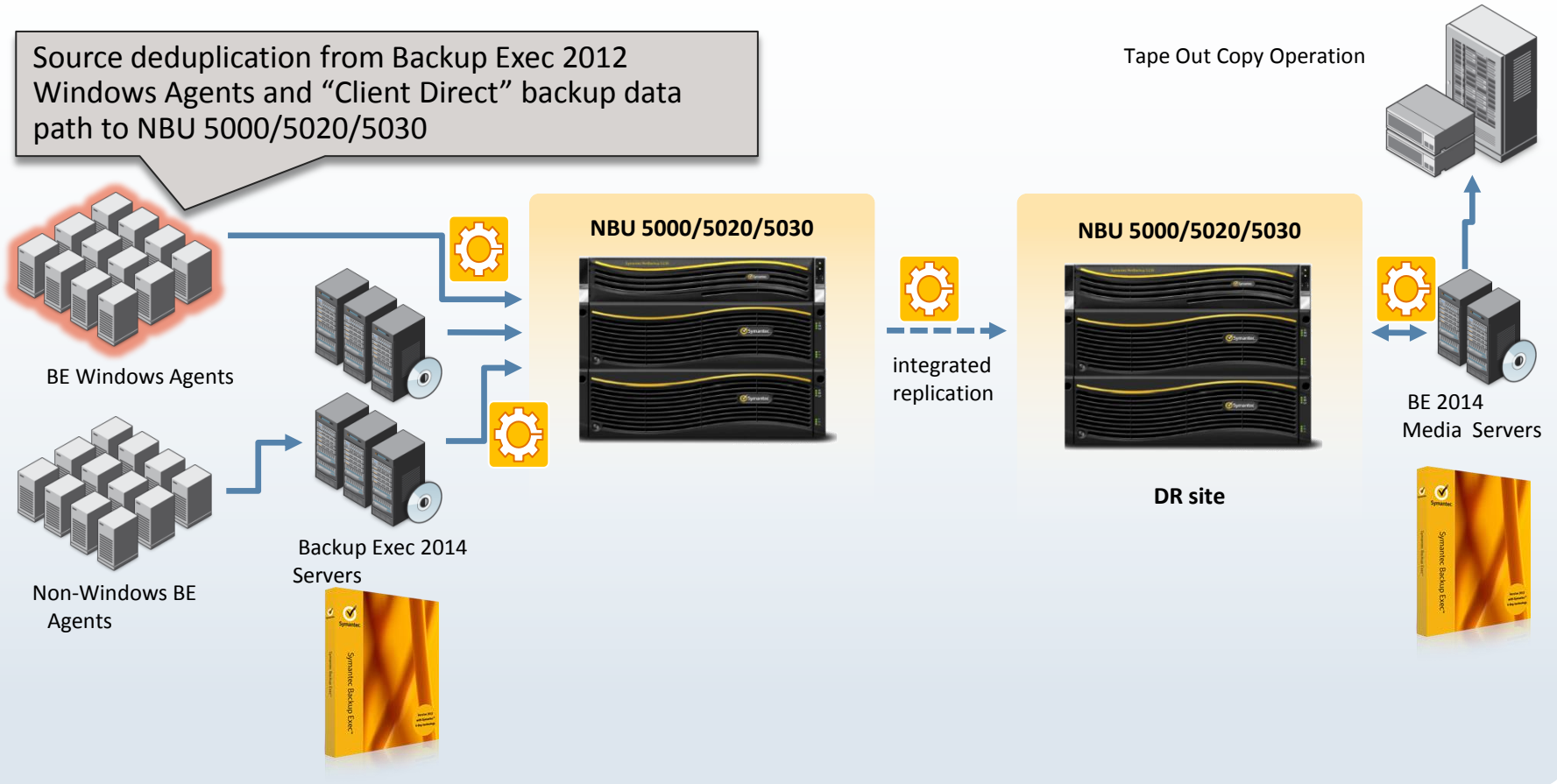
## Better approach #3



NBU 5000/5020 software versions v1.4.3.1, or newer, are strongly recommended.

### NBU Appliances that Seamlessly Integrate into BE 2014 Environments

Source deduplication from Backup Exec 2012 Windows Agents and "Client Direct" backup data path to NBU 5000/5020/5030



### Main Office

- Backup Exec 2014
- Deduplication Option
- Central Administration Server
- Agents/Options

### Unique Blocks

WAN

### Remote/DR Office

- Netbackup 5000/5020/5030 Appliance
- Appropriate NBU Capacity License

# White Boards: Optimized Duplication

Vendors with OST-supported devices



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

# White Boards: Optimized Duplication

## Better approach #3 – adding and OST appliance



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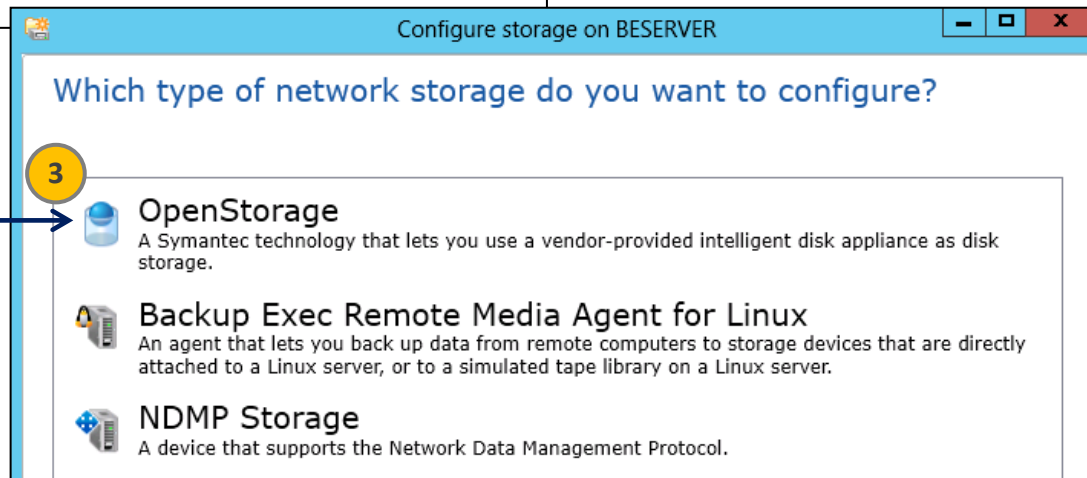
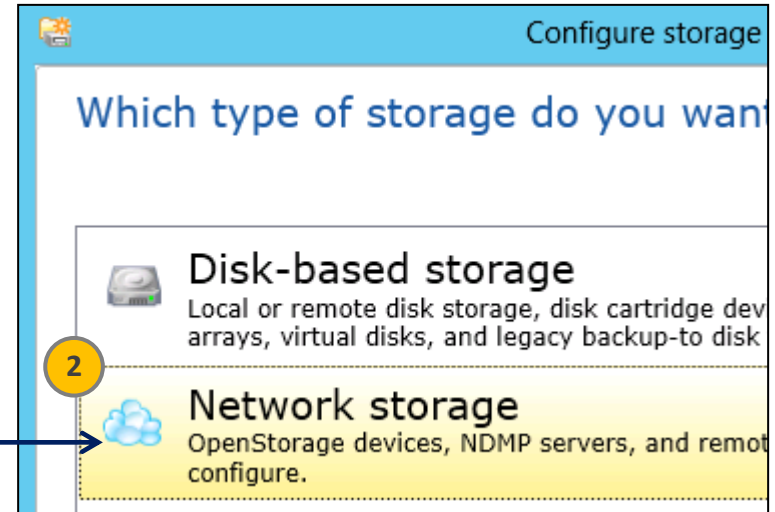
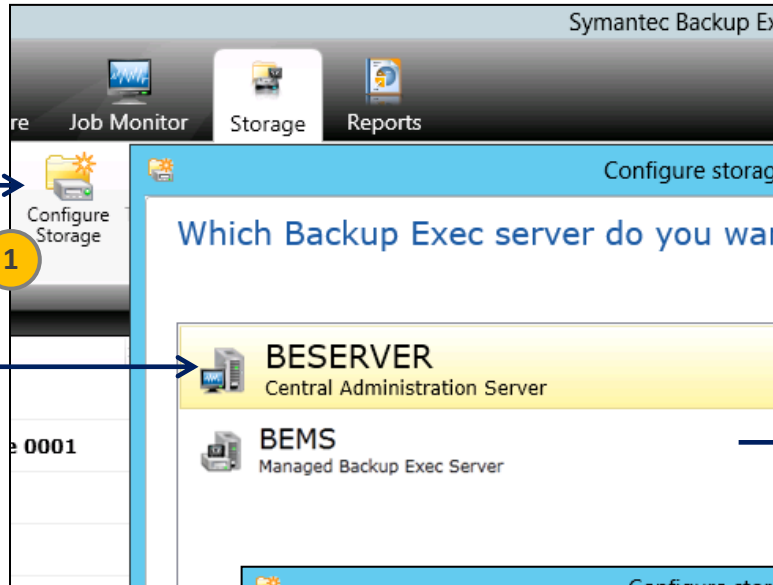
Pain Points

Whiteboards and Diagrams

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# White Boards: Optimized Duplication

## Better approach #3 – adding and OST appliance



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Configure storage on BESERVER

What name and description do you want to use OpenStorage device?

1

Name:

Description:

Configure storage on

Which provider for the OpenStorage

2

PureDisk

My provider is not listed here

Configure storage on

What is the connection information f


3

Server name:

*Use the host name or fully qualified domain name of the se*


Logon account:

4

 Validating My OST Device can access the storage device

Symantec Backup Exec™ 2014

5

 In order to bring this device online, the Backup Exec services need to be restarted.

Restarting the services while jobs are running will cancel them.

Do you want to restart services now?

# White Boards: Optimized Duplication

Better approach #3 – adding and OST appliance



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▼ 	<b>BECAS</b> Central Administration Server	Online
	<b>Deduplication disk storage - DR (Hosted on BEMS)</b>	Offline
	<b>Deduplication disk storage - HQ</b>	Online
	<b>Disk storage 0001</b>	Online
→ 	<b>NBU5020_Appliance</b>	Online
▼ 	<b>Robotic library 0001</b> simulated tape library	Online

# White Boards: Optimized Duplication

Better approach #3 – running optimized duplication backups



Start

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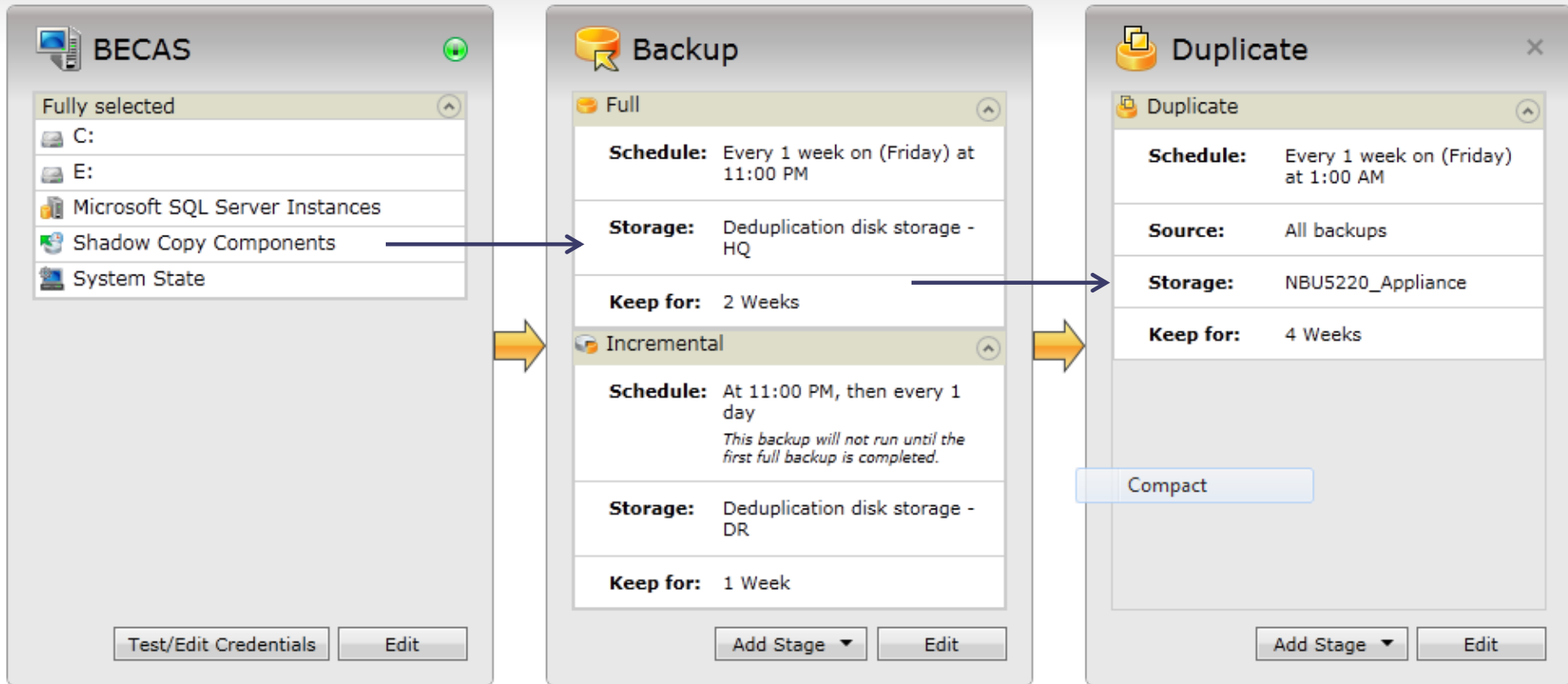
Pain Points

Whiteboards and Diagrams

Do...

Do Not...

Final Thoughts





**Do...**

Symantec Backup Exec Blueprints - Optimized Duplication

- Loss of Connection to Central Administration Server (CAS)
  - Managed Backup Exec servers cannot perform recovery if CAS is unreachable
  - Consider installing CAS at your DR site; CAS can perform recovery without the need of MBES.
- Network Requirements
  - Persistent, high-bandwidth connection required between CAS and managed Backup Exec servers
- RAM Requirements
  - Minimum of 8 GB of RAM required; supports up to 5 TB of deduplicated data
- Bandwidth Throttling
  - Optimized duplication jobs can saturate a site-to-site WAN link
  - By modifying Backup Exec deduplication config file one can reduce bandwidth consumption
  - Details: <http://www.symantec.com/docs/TECH165599>

- OST Plug-in
  - Ensure that the appropriate third-party vendor plug-in is installed on Backup Exec server
  - Required in order for Backup Exec server to detect the OST device and display the device properly
- Device Sharing
  - Share the deduplication disk storage devices that are on multiple managed Backup Exec servers with the Backup Exec server that is the replication target
  - For example, the main office site that has a managed Backup Exec server deployment shares the deduplication disk storage device with the central administration server at the DR site
- Catalogs
  - For local LAN deployments, use replicated catalogs (requires persistent, high-bandwidth connection)
  - For site-to-site optimized duplication, use distributed catalogs

- Bandwidth Calculator Tool
  - Determines time estimates for optimized duplication backup
  - Details - <http://www.symantec.com/docs/TECH172473>
- WAN Requirements
  - Less than one percent packet loss during transmissions
  - Less than 250 milliseconds network latency (round trip)
- OST Device Notes
  - When using OST devices you may need to perform inventory and catalog the media on the destination server
  - Required before you recover any files from the duplicated backup set

- Domain Considerations
  - It is recommended to have all Backup Exec servers in same domain
  - Optionally, there should be sufficient trust established if you backing up servers across different domain controllers.
- Performance Notes
  - Optimized duplication backups are single threaded
  - Will be performance difference compared to regular backups.
- Backup Exec 2010 Device Count Limits and Recommendations
  - <http://www.symantec.com/docs/TECH164967>
- Backup Exec 2012 Tuning and Performance Guide
  - <http://www.symantec.com/docs/DOC5481>

- Scalability

- Maximum Number of MBESs per CAS (Full SQL): 180
- Maximum Number of MBESs per CAS (SQL Express x64): 50
- **Note:** SQL Express can support up to 50 MBESs, but its recommended to use FULL SQL to support future growth



## Do not...

Symantec Backup Exec Blueprints - Optimized Duplication

- RAID Caching
  - Do not enable RAID caching on the disk where the deduplication disk storage device is located
  - However if disk array is battery powered then enabling RAID caching will be helpful
- Avoid Using Replicated or Centralized Catalog Mode in WAN Environments
- Deduplication Disk Device
  - Don't delete the deduplication disk storage device folder or files from within the deduplication disk device folder location unless specifically directed to do so by a support technician
- Verify with the Duplication Job

- Backup Exec Server Pools
  - Do not use Backup Exec server pools as device targets in standalone backups
  - Prevents duplicate data from being hosted on multiple managed Backup Exec servers
- Direct Access Sharing
  - Limit the sharing of remote computers that are enabled for direct access sharing with other Backup Exec servers that use deduplication disk storage
  - Prevents duplicate data from being hosted on multiple backup servers

# Optimized Duplication: Final Thoughts

Replication, retention, refresh



Start

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Do...

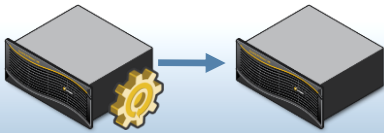
Do Not...

Final Thoughts



## Others

### Replication



- No license cost for replica storage capacity
- No cost for replication engine

- Pay same price for each additional copy
- Pay for replication engine

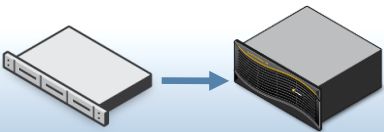
### Retention



- No license cost for increased backup storage as data ages

- Dedupe costs grow dramatically as data ages and back end storage grows

### Refresh



- License is perpetual – buy once, own forever
- License not tied to hardware – no lock-in

- Dedupe technology is purchased every time hardware is refreshed
- License NOT transferable to other platforms

# Thank You!

## Backup Exec Product Management