



Symantec Backup Exec **Blueprints** **Blueprint** for Physical to Virtual (P2V) and Backup to Virtual (B2V) Conversions

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.

- **Blueprints** Help Customers Avoid Common Challenges/Pitfalls
- Each **Blueprint** Contains:
 - **Recommended Configuration:** Best-practice implementation example
 - **Life Preservers:** Best practices and pitfalls to avoid
- Use **Blueprints** to:
 - Present the Backup Exec best practice implementation example
 - Highlight key “life preserver” guidelines to avoid problems

Introduction


Key terms and principles

- What Does Simplified Disaster Recovery (SDR) Technology Do?
 - Protects key system components required for full server recovery
 - Examples include boot volume, system state components, among others
- How Does SDR Technology Add Value?
 - Enables bare metal recovery and P2V/B2V conversion of Windows servers
 - Recovery is an automated process leveraging WinPE-based recovery disk
- How Do I Know If Backups Are Enabled With SDR?
 - Backup Exec 2014 jobs are enabled for SDR by default
 - Backup job selections screen will show green SDR “ribbon” when enabled

Simplified Disaster Recovery: **ON** 

Recovery Features Enabled by Simplified Disaster Recovery

Bare Metal Recovery	✓
Dissimilar Hardware Recovery	✓
On-line Server Recovery	✓
Physical to Virtual Conversions (P2V)	✓
Backup to Virtual (B2V)	✓
Point in Time (Ad Hoc) Conversion	✓

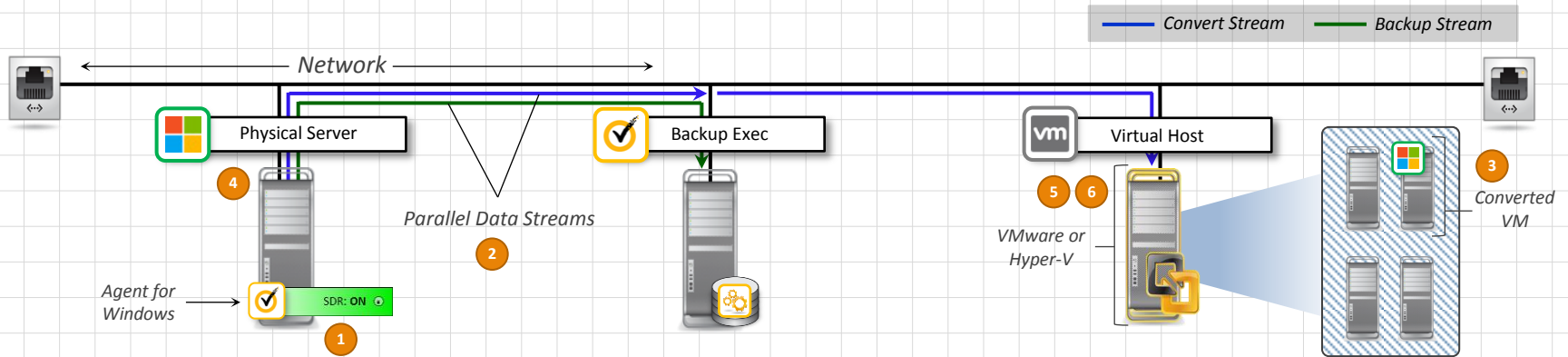
Simplified Disaster Recovery: **ON** 

Example Diagrams and Life Preservers

Effective usage of P2V and B2V technology

Example Diagram: Physical to Virtual Conversion (P2V)

Getting the most out of Backup Exec's P2V features

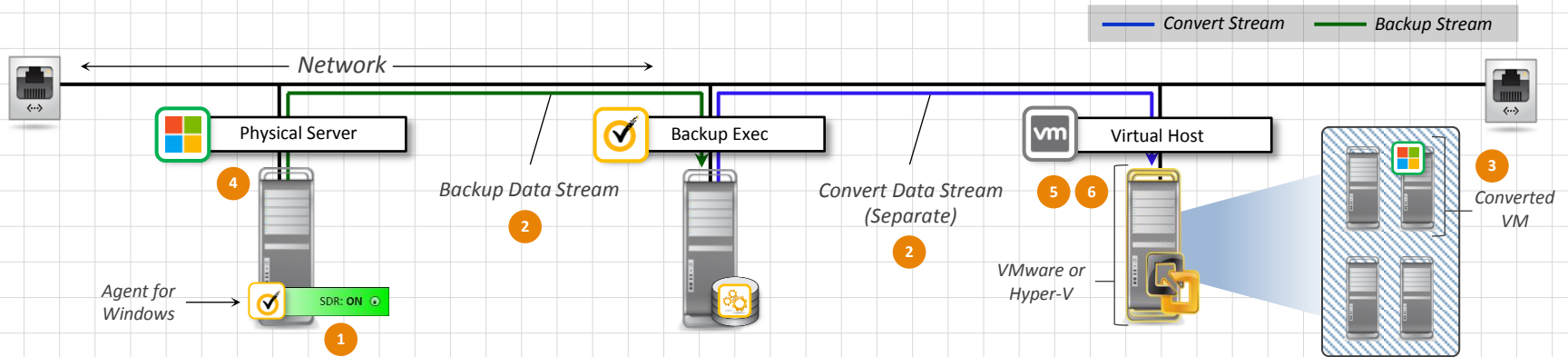


P2V General Best Practices

- 1 SDR technology required for virtual conversion operations
- 2 Backup and convert streams run in parallel; “lowest common denominator” determines performance
- 3 Each run results in full virtual machine; configuration choices available in backup job properties
- 4 Virtual conversion support limited to Windows-based source servers that are not clustered
- 5 [vStorage API must be enabled](#) for virtual conversions targeting [VMware hosts](#)
- 6 When targeting [Hyper-V hosts](#) for virtual conversions, the host platform must be [Windows 2008 R2](#) or later

Example Diagram: Backup to Virtual (B2V)

Getting the most out of Backup Exec's B2V features



B2V General Best Practices

- 1 SDR technology required for backup-to-virtual operations
- 2 Backup and convert streams run separately; convert stream is separate/independent
- 3 Each run results in full virtual machine; configuration choices available in backup job properties
- 4 Virtual conversion support limited to Windows-based source servers that are not clustered
- 5 [vStorage API must be enabled](#) for virtual conversions targeting [VMware hosts](#)
- 6 When targeting [Hyper-V](#) hosts for virtual conversions, the host platform must be [Windows 2008 R2](#) or later

- Supported Virtual Servers
 - *VMware vSphere 5.1, 5.5, and Hyper-V 2012/R2 hosts supported*
 - *Hyper-V 2008 hosts must be R2 or later (SP2 not supported)*
 - *Conversion tasks targeting a Hyper-V 2012/R2 host will result in VMs with VHDX disks*
- Access to Virtual Tools ISO Image Required
 - *Hyper-V Integration Services ISO file for conversions targeting Hyper-V host*
 - *VMware Tools ISO file for conversion tasks targeting VMware host*
- One Virtual Conversion Task Per Backup Definition

- **Conversion to a virtual machine running on a Windows Server 2012 Hyper-V host**
 - Disk data is stored in VHDX files for conversion of a physical computer to a virtual machine running on a Windows Server 2012 Hyper-V host
 - The conversion of physical computers that have:
 - simple GPT disks is supported
 - dynamic disks is not supported
 - Storage Spaces and Storage Pools is not supported
 - If the physical computer runs Windows Server 2012 with an ReFS volume, conversion to a Windows Server 2012 Hyper-V host is supported
 - Conversion to any previous versions of a Windows Hyper-V host is not supported, so those jobs fail

- **Conversion to a virtual machine running on a Windows Server 2012 Hyper-V host**
 - If the physical computer runs Windows Server 2012 with one or more Windows deduplication volumes, conversion to a Hyper-V host is possible, but it may fail.
 - The converted disk data is not deduplicated. In other words, an unoptimized data transfer is performed.
 - For this reason, the conversion may fail if the amount of unoptimized data is greater than the capacity of the destination volume.

- One Virtual Machine Replica Maintained Per Conversion Task
 - *To achieve more than one VM replica, additional backup definitions/jobs containing a conversion task must be create*
- “Overwrite the Virtual Machine if it Already Exists” Option
 - *Enabled by default*
 - *If disabled, after first successful conversion task subsequent conversion tasks will fail due to VM replica already existing (does not affect backup job)*
- Always a Full Conversion
 - *Virtual conversion task always results in full virtual machine*
 - *Applies to full, differential, and incremental backup events*
 - *Can have performance impact on incremental/differential backup jobs enabled with virtual conversion task*

- Virtual Hardware Considerations
 - *Drivers needed for converted system to boot as virtual machine automatically injected during conversion task*
 - *Automated process; does not require user intervention*
- Virtual Machine Boot Process
 - *Normal Windows Plug-and-Play processes may run after first boot*
- Basic Disks Only
 - *Only physical servers configured with basic disks can be converted to virtual*
 - *Dynamic disk configurations not currently supported*
- GPT Volumes
 - *VMware does not support GPT volumes*
 - *Hyper-V supports the conversion of simple GPT volumes*

- File System Support
 - *NTFS and FAT32 volumes supported*
 - *Other file systems, such as Linux, are not currently supported for virtual conversions*
- System Support
 - *Physical servers configured with GPT volumes are not supported for virtual conversions*
 - *Only MBR volumes are supported at this time*
- Cluster Configurations
 - *Physical servers in a cluster configuration are not currently supported for virtual conversion*

Conversion of disks or volumes larger than 2 terabytes

- Backup Exec 2014 supports conversion of disks or volumes that are larger than 2 terabytes (TB) for both VMware hosts and Hyper-V 2012 hosts
 - Boot volume or the system volume larger than 2 TB not supported
 - Hyper-V R2 not supported
- All disks and volumes on the destination to be simple or spanned dynamic volumes

4k sector disks support

- VMware does not support 4k Sector disks without the 512 emulation
- When you convert a server with 4K sector disks:
 - For VMware, disks with 512 bytes sector are created
 - For Hyper-V 2008, the job fails
 - For Hyper-V 2012, 4k sector disks are created

Thank You!

Backup Exec Product Management