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VMWare Disaster Recovery using Veritas Backup Exec Intelligent Disaster Recovery James Lenaburg

IBM *@serverxSeries*

Technical Conference

Aug. 9 - 13, 2004

Chicago, IL



VMWare Disaster Recovery using Veritas Backup Exec Intelligent Disaster Recovery

- Agenda
- What is the idea behind this?
- The Proof of Concept





What is the idea behind this?

- Using this method would allow a business to not require physically duplicate hardware at the disaster recovery site, but instead use Virtual Machines to provide duplicate recovery hardware, thus significantly reducing the cost and size of the disaster recovery site.
- For example, using IDR on a daily basis, to create tapes for 12 physical x335 servers, could be used to build/recover 12 virtual machines running on perhaps a single x445 8 or 16 way machine, with acceptable performance until the physical servers could be replaced.



The Proof of Concept

This proof of concept will be performed in the following environment: Veritas Backup Exec Server installed on an x440 running Windows 2003 Enterprise Physical servers consisting of two x335s running Windows 2003 Standard Disaster Recovery Site server consisting of an x440 running VMWare ESX 2.1



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Setting up the Backup Server

• The x440 was loaded using ServerGuide 7.2.03 and Windows 2003 Enterprise. All Windows updates were applied. Veritas Backup Exec 9.1 was installed from CD with SAN Shared Storage option, Library **Expansion Option, and Intelligent Disaster** Recovery options chosen. Then the latest patches and driver level updates were applied.



Setting up the x335s

- The x335s were loaded with ServerGuide 7.2.03 and Windows 2003 Standard. All Windows updates were applied. Veritas Backup Exec 9.1 Remote Agent was installed from CD.
- To facilitate testing, we created only a 4GB System partition for Windows. We used the rest of the disk for a D: drive and put the swap file on that drive.





Backup Exec Remote Agent Install

Tips

- Install using cmd line tool, not GUI
- RAN32 directory is in this path on the CD: C:\VeritasBE91.4691.1\WINNT\INSTALL\RANT32
- Copy RANT32 install directory to local drive
- Run setupaa.cmd
- Check to see that the service is beagent service is running.



- To create the IDR image, a full backup of the physical system to be protected, and later restored to a VMWare Virtual machine, must be performed.
- After the full backup is successfully performed, you are ready to create the Intelligent Disaster Recovery image and burn it to a CD. Here are the screen by screen steps involved in doing this:









X

Creating the Intelligent Disaster Recovery Image

Intelligent Disaster Recovery Preparation Wizard

Create or Update IDR Boot Media

Create new boot media or update existing media that will be used during a disaster recovery.

Select the type of bootable media to prepare. Make sure the computers to be protected are capable of being booted from the media you select.

Create

- C Full set of diskettes to boot the Windows Installation CD
- Bootable CD Image for use with CD Writers (ISO 9660)

C [DR diskettes only (includes ASR files for XP/2003) *

Update

- C Eull set of diskettes used to boot the Windows Installation CD
- C IDR diskettes only (includes ASR files for XP/2003)

* Not supported on Windows NT

<<u>B</u>ack <u>N</u>ext > Cancel

Help



Intelligent Disaster Recovery Preparation - Writable CD

Starting CD Image Creation

This wizard guides you through creating of a bootable CD image that can be used with the most recent full backup to automatically recover a computer.

This wizard requires:

< Back

A Windows Installation CD A blank CD-R or CD-RW (if using the VERITAS IDR CD writing feature)

Before running this wizard, run a full backup of the computer being protected.

This wizard also enables you to burn a CD image (ISO 9660). You may also burn the CD image using third party software. To burn a CD, you must have a writable (or rewritable) CD device.

Cancel

Help

2

Next >



Creating the Intelligent Disaster Recovery Image

• You have to manually delete the backup server shown by default. Then you have to add in the client you want to create the IDR ISO for. Select Next since we are running Windows 2003

SCSI driver information	n will be stored on the boota	ble image.	
Enter all compute	r names from which SCSI d	iver information will be gath	ered
The com	outers must be running the	same version of the Windov	vs operating
system.			
		Add	
\\x335IDR		Browse	
		<u>D</u> elete	
I Let IDH autor	natically partition the boot a	navsystem drive (Windows 2	:000 only).

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elligent Disaster Recovery Preparation Wizard	d d
Select Location for CD Image Specify a location to store the bootable image until you burn a CD.	
An ISO 9660 CD image file will be created. Please enter a path where this CD image will be stored.	
Most CD Writer software products require the image to be on the same computer to prevent	Intelligent Disaster Recovery Preparation Wizard
underrun problems during the burn. A rect smended location would be a share on the computer where the CD Writer is installed.	Insert Windows operating system Installation Media The Windows operating system will be copied to the bootable image.
nter a path for the CD image:	Please insert your Mindows operating system Installation CD into the drive specified below
c:\x335IDR Browse	r lease insert your windows operating system installation op into the unive specified below.
	The Windows operating system on the installation CD must match the version and language of the computer being protected.
< <u>B</u> ack <u>N</u> ext > Cancel Help	L3
	Use Installation CD in drive:
	(Back Nexts Cancel Help
	< <u>B</u> ack <u>N</u> ext> Cancel







Creating Disaster Recovery Image The bootable image is created.	
The wizard is now creating the bootable image.	
Reading CD Directories Parsing txtsetup template Copying blocks Parkiews TXTSETUP CIE with E100ETUP CAUL	Intelligent Disaster Recovery Preparation Wizard
	Creating Disaster Recovery Image The bootable image is created.
Copying blocks	The wizard is now creating the bootable image.
	Copying blocks Replacing TXTSETUP.SIF with 51SSETUP.ENU 452171776 byte CD Image written in 422 seconds to: c:\x335IDR\X335IDR.ISO
Cancel Help	Done
	k}
	Nevts Help



Creating the Intelligent Disaster Recovery Image

The ISO image has been created. Now you can use your favorite CD Burning software to create the bootable CD Image for the VM that will be created. Now we are ready to recover our physical systems on our disaster recovery configuration



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Setting up the Disaster Recovery Scenario



SAN5200





Setting up the VMWare ESX 2.1 Server

- We installed the VMWare x440 server using the standard VMWare installation procedure. We then create our VM Disks for the C: drive (4GB) and D: drive (4GB) on our SAN Attached disks for VM.
- NOTE: On Windows 2003, you must create a VM Disk that is at least as big as your PHYSICAL drive you were using on your real machine. With Windows 2000, IDR only requires that your VM Disk be as big as your LOGICAL Boot Partition was when you created the IDR Image.
- For example, with a 18GB PHYSICAL Disk, if you had two partitions, each 9GB and they were assigned as C: and D: on your physical machine, under a Windows 2000 IDR scenario, your VM Disks you would create could be 9GB and 9GB. Under Windows 2003, the way ASR works with IDR, you would need to have a VM Disk of 18GB, and then ASR would recreate the partitions for you.
- We then create our VMs for Windows 2003 and insert the IDR CD image we created previously and start the VM.





Starting the W2003 IDR CD

Here are the screenshots of the IDR W2003 Boot CD running on the VM







Windows 2003 IDR Procedure

NOTE! You must hit ENTER and then IMMEDIATELY Press F2 when prompted for ASR Mode

@x335r13bot - 192.168.1.22 VMware ESX Server - VMware Remote Console		
File Power Settings Devices View Help		
Power Off • Power On JJ Suspend • 🛃 Reset • 🛛 🗍 Detach and Exit		
VMware ESX Server: 192.168.1.22 remote con	sole	
Windows Server 2003, Enterprise Edition Setup		
To restore the configuration of your system, Setup must delete and recreate all the partitions on the disks listed below.		
CAUTION: All data present on these disks will be lost.		
Do you want to continue recreating the partitions?		
 To continue, press C. Partitions on all the disks listed below will be deleted. 		x335r13Bot - 192.168.1.22 VMware ESX Server - VMware Remote Console
 To quit Setup, press F3. No changes will be made to any 		rie Power Securitys Devices view rielp
of the disks on the system.		
17995 MB Disk 0 at Id 0 on bus 0 on symmpi [MBR]		Vinware ESX Server: 192.168.1.22
		Windows Server 2003, Enterprise Edition Setup
k		
		Please wait while Setup formats the partition
		\Device\Harddisk0\Partition1
		on 17995 MB Disk 0 at Id 0 on bus 0 on symmpi IMBR].
C=Continue Setup F3=Quit		
🔥 VMware Tools is not running. Click on this text to install. 🛛 💀 🔤		
		۲
		Setup is formatting

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🔥 VMware Tools is not running. Click on this text to install.





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Windows Serve	r 2003, Enterprise Edition Setup		
	Please wait while Setup copies files to the Windows installation folders. This might take several minutes to complet	e.	High x335r13Bot - 192. File Bower Settings Power Off V
			VMware ESX Ser
	X		🐉 Windows
Setup	is copying files 9%		Cotential
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🔥 VMware Tools is not ru	nning. Click on this text to install.	pying: es.dll	• Fine inst







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VMware ESX Server: 192.168.1.22	remote console
🔰 Windows	
 Construction of the second seco	
Manual - Backup set information from the recovery file will not be used to automate the recovery process. Individual backup sets wil be identified by reading backup media, and you will have the opportunity to select which sets to restore. I Restoring to the exact same system	Select the recovery file for this machine. If the file does not appear or is out of date, do one of the following: If this is not a media server, go to a media server and run the Create Disaster Recovery Diskettes wizard to copy this file. Fin: If this is a media server, copy the file form the alternate path that you specified when you installed VERITAS Intelligent Disaster Recovery. Click Scan Drive A: to refresh: Scan Drive A:
Cancel	DR Files Last modified on NATSBACK DR 6/23/2004 4:00:00 PM X335R12BDT.DR 6/23/2004 5:03:00 PM X335R12BDT.DR 6/23/2004 4:51:00 PM X335R12Tb%.DR 6/23/2004 4:51:00 PM K Cancel





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VMware ES	X Server: 192.168.1	.22	11 5 11	Ville J	-1111-	emote co	nsole
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v	ERITAS Intelligent Di	saster Recov	very for Wind	ows Servers		×	
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O Dyi Upi	You can make ac	ditional change	es to your hard	disk layout.			
Pre ins	You may now mai 2000 Disk Manag partition changes	ke additional cl lement applicat	hanges to your ion. Click on R	hard disk layout by un Disk Managerr	running the Wi hent to make ad	ndows ditional	
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	Hard Disk	Partition	Volume	Size	FileSystem	Typ	
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	•			J		×	
	Click Next to con	inue		Ru	n Disk Manager	nent	
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Col inf O Dyr Up Pre ins Fine inst	ERITAS Intelligent Disaster Recover Connect to Media Server From which media server do you ww Server Name: Domain/Computer: User Name: Password: 	Y for Windows Servers ant to perform a restore? NATSBACK NATSBACK administrator administrator xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx		Kassrage Kassrage	Settings Devices View Help f Power On III Suspend Settings Detach and Exit SX Server: 192.168.1.22 re Iddows VERITAS Intelligent Disaster Recovery for Windows Servers Restore Data The sets below will be automatically restored. The backup sets required to restore this system are shown below. You will have the option of restoring additional data once the automated restore operations have completed. Image: Drive C Shadow Copy Components	mote console
					< <u>Back Net</u> Cancel	
						k
				🔥 VMware To	ools is not running. Click on this text to install.	





VMware ESX Server: 192,168.1.22	rem	ote console @x335r13E <u>File Power</u>	Bot - 192.168.1.22 YMware ESX Server - YMware Remote Consol Settings Devices View Help	
Co Co inf Restoring Data Dy Up	overy for Windows Servers a to your disk.	VMware E	ff • D Power On III Suspend • 🐑 Reset • III Detach an ESX Server: 192.168.1.22	d Exit remote console
Pre ins Status Scheduling Restore Job C: Waiting for Job to Stat. Status is Running Wit Fine Backup Set Created on 6/2 Set Name: Media Labet Media crea Set: 1 Destination: \VX335F12 Directory: File:	23/2004 ted 6/23/2004 4:59:27 PM Media No.: 1 280T\C: Total Bytes: 0 MB	Col inf Dy Up Pre ins • Im vite • Fina • Fina	VERITAS Intelligent Disaster Recovery for Windows Servers Restoring Data The wizard is now restoring data to your disk. Status	x ess is updated vide
VMware Tools is not running. Click on this text to ins	Back Next> Cancel		Mec Do you want to provide additional media to restore? Set: Des Des Yes Dire No File: Image: Set of the set of th	Cancel





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VMWare ESX Server: 192.106.1.22	remo	re console
 Croin inf Dry Pres Tris Tris Fraction in the second s	Covery for Windows Servers You have completed the Disaster Recovery Wizard This completes the disaster recovery process. Remove any diskettes from drive A: and any compact disks from your CD-RDM drives. When the system restarts, the files that comprise Intelligent Disaster Recovery will be removed automatically. <u>Bun CMD EXE</u> Edit BOOT.INI Messages Click Finish to start your original operating system.	
	< Back Finish Cancel	
		4 - <mark>2 -</mark> A

 After you restart, you are ready to install VMTOOLS in the Virtual Machine to compete the Disaster Recovery to the VM.





x335r13top - 192.168.1.22 VMware ESX Server - VMware Re Ele Bower Settings Devices View Help Power Off Power On Constraint of the Power On Constraint of the Power On Constraint of the Power On X335r13top	mote Console	IN THE STATE STATE AND STREET AND STATE AND S
Status: Powered off This virtual machine is powered off. It is like a physical computer with the virtual machine, click the Power On button.	e power switch turned off. To start this	Elle Power Settings Devices View Help Power Off Power On Suspend Suspend Detach and Exit VMware ESX Server: 192.168.1.22 remote console
		r f f f f f f f f f f f f f f f f f f f
Lick Power Un to start virtual machine.		Starting Press F2 to enter SETUP, F12 for Network Boot, ESC for Boot Menu





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dware ESX S	Server: 192.168.1.22	Const to Mr	20-3-111-3	remote console
Copyr ight	Backu for (c) VERITAS S	p Exec Intellig Windows (NT/20 oftware Corpora	gent Disaster Re 000/XP/Server 20 ation 1984-2002.	covery 03) All Rights Reserved.
You have booted th DO NOT PR the disas computer' program a Windows System R	successfully I If you are tes e image. Remov ESS (ENTER). If you are per ter recovery p s hard disks a nd the Backup After pressing Server 2003, y ecovery (ASR)	oaded a Backup ting the bootal e the boot med: forming a disas rocess, which nd DESTROY ALL Exec Disaster 1 (Enter), if tl ou must press mode.	Exec Disaster R ble media, the c ia and press <es ster recovery, p will repartitio EXISTING DATA. Recovery Wizard he computer is r <f2> when prompt</f2></es 	ecovery CD/Tape image. omputer successfully c> to stop the recovery. ress (Enter> to start n and reformat the The Windows setup are then loaded. unning Windows XP or ed to enter Automated
<mark>SC∶Stop</mark> √Mware Tools is	IDR El not running. Click on this te	NTER: Start IDI ext to install.	R	







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VMware ESX Server: 192.168.1.22 remote console	
Vindovs 2000 Server Setup	
Setup has determined that your computer's startup hard disk is new or has been erased, or that your computer is running an operating system that is incompatible with Windows 2000.	
If the hard disk is new or has been erased, or if you want to discard	🐵 x335r13top - 192.168.1.22 VMware ESX Server - VMware Remote Console
its current contents, you can choose to continue setup.	<u>File Power Settings Devices View Help</u>
If your computer is running an operating system that is incompatible with Windows 2000, continuing Setup may damage or destroy the existing operating system.	Power Off 🔹 🕞 Power On 📲 Suspend 🔹 🧐 Reset 👻 🚺 Detach and Exit
 To continue Setup, press C. CAUTION: Any data currently on your computer's startup hard disk will be lost. 	VMware ESX Server: 192.168.1.22 remote console Windows 2000 Server Setup
• To quit Setup, press F3.	The following list shows the existing partitions and unpartitioned space on this computer.
	Use the UP and DOWN ARROW keys to select an item in the list.
	• To set up Windows 2000 on the selected item, press ENTER.
	• To create a partition in the unpartitioned space, press C.
	• To delete the selected partition, press D.
C=Continue Setup F3=Quit	4197 MB Disk 0 at Id 0 on bus 0 on buylogic
🕐 VMware Tools is not running. Click on this text to install.	Unpartitioned space 4197 MB
	ENTER=Install C=Create Partition F3=Quit
	🔥 VMware Tools is not running. Click on this text to install.





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/Mware ESX Server: 192.168.1.22 remote	console
Vindows 2000 Server Setup	
A new partition for Windows 2000 has been created on	
4197 MB Disk 0 at Id 0 on bus 0 on buslogic.	
This partition must now be formatted.	🗐 x335r13top -
From the list below, select a file system for the new partition. Use the UP and DOUN ARROW keys to select the file system you want, and then press ENIER.	<u>File</u> <u>Power</u> <u>S</u> ett
If you want to select a different partition for Windows 2000, press ESC.	VMware ESX Vindous 20
Format the partition using the NIFS file system	
FORMAT THE PARTITION USING THE FHI FILE SYSTEM	
ENTER=Continue ESC=Cancel	
	S

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Aware ESX Serv	r: 192.168.1.22	Carlan San	III	remote console
indows 2000	erver Setup			
	Please wait while Se	tup formats	the partition	
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	on 4197 MB Disk Ø at	Id Ø on <u>bus</u>	0 on buslogic.	
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Hindows 2000 Convey Cotum	🗐 x335r13top - 192.168.1.22 VMware ESX Server - VMware Remote Console
windows zoon server setap	File Power Settings Devices View Help
	Power Off 👻 👂 Power On 📲 Suspend 👻 🌑 Reset 👻 🛄 Detach and Exit
Please wait while Setup copies files to the Windows 2000 installation folders. This may take several minutes to complete.	VMware ESX Server: 192,168,1,22 remote console
	VERITAS Intelligent Disaster Recovery for Windows Servers
Setup is copying files 10%	Welcome to the Disaster Recovery Wizard
	This wizard will walk you through the steps necessary to recover your Windows system.
in the second	In the first phase of recovery, you will be given the option of restoring the original layout of your hard disks.
	Next, you will be given a list of media and their contents for inclusion in ready. You will have the option to insert other backup media if needed.
Copying: c_860.nls MWware Tools is not running. Click on this text to install.	Place the diskette containing your recovery file in Drive A: and click Next to begin the recovery process.
	Next > Cancel
	🔥 VMware Tools is not running. Click on this text to install.





Power Off	👻 👂 Power On 🛛 🔢 Suspend 👻 🧐 Reset 👻 🚺 Detach and Exit
VMware ESX	Server: 192.168.1.22 remote cons
YE	RITAS Intelligent Disaster Recovery for Windows Servers
	Choose the Level of Wizard Assistance
	Which level of assistance would you like the wizard to supply?
-	Select a level of assistance below, and click Next to continue.
	Automated - Use information saved in the recovery file to fully automate the recovery process. ALL of the backup sets found in the recovery file will be restored to their original locations. Minimal user interaction will be required during recovery.
	Assisted - Backup set information in the recovery file will be used, but you will have the opportunity o select which sets to restore.
	C Manual - Backup set information from the recovery file will not be used to automate the recovery process. Individual backup sets will be identified by reading backup media, and you will have the opportunity to select which sets to restore.
	✓ Restoring to the exact same system
-	< Back Next> Cancel

File Power Off Power On Suspend Reset Detach and Exit VMware ESX Server: 192,168.1.22 remote console VERITAS Intelligent Disaster Recovery for Windows Servers X Select Recovery File You can select the file that contains recovery information for your machine. Select the recovery file for this machine. If the file does not appear or is out of date, do one of the following. If this is not a media server, go to a media server and run the Create Disaster Recovery Diskettes wizard to copy this file. If this is not a media server, copy the file from the alternate path that you specified when you installed VERITAS Intelligent Disaster Recovery. Click Scan Drive A: to refresh: Scan Drive A: DR Files Last modified on NATSBACK.DR 6/23/2004 4:00:00 PM X335H12BOT.DR 6/23/2004 4:00:00 PM X335H12BOT.DR 6/23/22004 4:00:00 PM X335H12BOT.DR 6/23/2004 4:00:00 PM X335H12BOT.DR 6/23/2004 4:00:00 PM X35FN12BOT.DR 6/23/2004 4:00:00 PM X35FN12BOT.DR 6/23/2004 4:00:00 PM X35FN12BOT.DR 6/23/2004 4:00:00 PM	🖶 x335r13top - 192.168.1.22 VMware ESX Server - VMware Remote Console	×
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VMware ESX Server: 192.168.1.22 remote console VERITAS Intelligent Disaster Recovery for Windows Servers Image: Console in the image: Console intervent information for your machine. Select Recovery File You can select the file that contains recovery information for your machine. Select the recovery file for this machine. If the file does not appear or is out of date, do one of the following. If this is not a media server, go to a media server and run the Create Disaster Recovery Diskettes wizard to copy this file. If this is a media server, go to a media server and run the Steate Disaster Recovery. Click Scan Drive A: to refresh: Scan Drive A: DB Files Last modified on NATSBACK.DR 6/23/2004 4:00:00 PM X335F12E0T.DR 6/23/2004 4:00:00 PM X35F12E0T.DR 6/23/2004 4:00:00 PM	📕 Power Off 🔹 🕞 Power On 📲 Suspend 🔹 🍪 Reset 👻 📆 Detach and Exit	
VERITAS Intelligent Disaster Recovery for Windows Servers X Select Recovery File You can select the file that contains recovery information for your machine. Select the recovery file for this machine. If the file does not appear or is out of date, do one of the following. If this is not a media server, go to a media server and run the Create Disaster Recovery Diskettes wizard to copy this file. If this is not a media server, go to a media server and run the Create Disaster Recovery. If this is a media server, copy the file from the alternate path that you specified when you installed VERITAS Intelligent Disaster Recovery. Click Scan Drive A: to refresh: Scan Drive A: DB Files Last modified on NATSBACK.DR 6/23/2004 4:00:00 PM X335F12E0T.DR 6/23/2004 4:03:00 PM X35F12E0T.DR 6/23/2004 4:05:00 PM X35F12E0T.DR 6/23/2004 4:00:00 PM	VMware ESX Server: 192.168.1.22 remote console	
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Sincengent Disaster Recovery for Windows Servers		VMware ESX Server: 192.168.1.22	ote console
d Disk Layouts Differ You can choose to restore the original bard disk layout			
r ou can choose to restore the original hard disk layout.			
The current hard disk layout or drive letter assignment is not compatible with the orig layout. If the original layout is not restored, there may be insufficient disk space durin	inal d	VERITAS Intelligent Disaster Recovery for Windows Servers	×
the restore of files.	,	Hard Disk Layouts Differ	
If you wish, you may also choose to run Disk Administrator.		You can choose to restore the original hard disk layout.	
WARNING: If you have any existing data on the updated partitions, it will be lost! Al it is recommended that you disconnect any SAN or cluster disks before this.	so,	The current hard disk layout or drive letter assignment is not compatible with the original	
Current:Original:		layout. If the original layout is not restored, there may be insufficient disk space during	
Disk 0 4196MB		VERITAS Intelligent Disaster Recovery for Windows Servers	
Drive C: 4188MB NTFS OF Drive C: 4102MB NTFS		At least one hard disk is smaller in this system than was in the	
		smaller hard disks. You must run Disk Administrator when prompted	
		data because of insufficient space during restore. Would you	
C Construction of C Parton animal land		like to restore partition information to the remaining hard disks?	
 Neep durent layout Restore original layout 		Yes No	
<back next=""> Cancel</back>			
		C Keep current layout	
	d Disk Layouts Differ You can choose to restore the original hard disk layout. The current hard disk layout is not restored, there may be insufficient disk space durin the restore of files. If you wish, you may also choose to run Disk Administrator. WARNING: If you have any existing data on the updated partitions, it will be lost! Ai it is recommended that you disconnect any SAN or cluster disks before this. Current: Original: Image: Dirive C: 4138MB NTFS Dirive C: 4102MB NTFS (Sv Image: Dirive C: 4138MB NTFS Image: Dirive C: 4102MB NTFS (Sv Image: Courrent layout Image: Restore original layout	H Disk Layouts Differ You can choose to restore the original hard disk layout. The current hard disk layout is not restored, there may be insufficient disk space during the restore of files. If you wish, you may also choose to run Disk Administrator. WARNING: If you have any existing data on the updated partitions, it will be lost! Also, it is recommended that you disconnect any SAN or cluster disks before this. Current: Dirive C: 4198MB NTFS If Disk 0 4196MB Dirive C: 4188MB NTFS If Disk 0 4196MB Original: If Disk 0 17351MB Original: If Disk 0 4196MB Original: <td>d) Disk Layouts Differ You can choose to restore the original hard disk layout. The current hard disk layout is not restored, there may be insufficient disk space during the restore of files. If you wish, you may also choose to run Disk Administrator. WAPAINIG: If you have any existing data on the updated patitions. It will be lost! Also, it is recommended that you disconnect any SAN or cluster disks before this. Direk D. 4196MB If Disk D.4195MB I</td>	d) Disk Layouts Differ You can choose to restore the original hard disk layout. The current hard disk layout is not restored, there may be insufficient disk space during the restore of files. If you wish, you may also choose to run Disk Administrator. WAPAINIG: If you have any existing data on the updated patitions. It will be lost! Also, it is recommended that you disconnect any SAN or cluster disks before this. Direk D. 4196MB If Disk D.4195MB I





Power Off		
VMware ES	X Server: 192.168.1.22 remote c	onsol
	EDITAC Intelligente Disenteur Deseuseur fen Windeme Courses	1
L	KITAS Intelligent Disaster Recovery for windows Servers	
	Restore Hard Disk Layout	
	Hestoring your hard disk layout.	
	Repartitioning and Restoring Drive Letters	
	Restoring Fault Tolerant Information	
	Moving System Files	
	Formatting Drives	
	N	
	7+	
	Done!	
	Your hard disks have been repartitioned. Remove any	
	CD-ROM drives. Click the Next button to restart the	
	computer and continue recovery.	
	Real management	
	Kext> Lancel	
_		-

Power Se	- 192.168.1.22 VM ettings Devices Vie	ware ESX Serv w Help	er - VMware I	Remote Consoli	2		
wer Off	Power On	Suspend 👻	🚱 Reset 🔹	Detach an	d Exit		
/are ES	X Server: 192.168	.1.22	11 5 10	480-13-	- <u>////</u>	emote c	onsole
	ERITAS Intelligent Modify Hard Di You can make You may now n 2000 Disk Man partition change Original configu	Disaster Recov sk Layout additional change nake additional ch agement applicat sec ration from the Fil	very for Wind as to your hard of nanges to your h ion. Click on R ier. X335R12T	ows Servers disk layout. hard disk layout by un Disk Managem OP.DR	runnifg the Wi ent to'Make ado Save Configu	ndows ditional]
	Hard Disk	Partition	Volume	Size	FileSystem	Typ	
	0 0	1 2	C:\ E:\	4102 MB 13248 MB	NTFS NTFS	Вос	
	•			1		•	
		a fini an		Bu	n Disk Managen	nent	
	Click Next to co	riunue					





VERITAS Intelligent Disaster Recovery for Windows Servers	×
Coloret Destroya Matheod	
You can choose to restore via a local device or across the network	
Disaster Recovery is now ready to automatically restore your data to the drives defined.	
Choose the method used to access your media device.	
C. Has been were all a share of a state of a state of	-
 Ose jocally acachen media device 	
Install networking and restare from a remote media server	
Pre-Install Custom Network Driver	
Click Next to continue.	
<back next=""> Cancel</back>	

🗐 x335r13top	- 192.168.1.22 VMware ESX Server - VMware Remote Console	
<u>File Power S</u> e	ettings <u>D</u> evices <u>V</u> iew <u>H</u> elp	
Power Off	🔹 🕞 Power On 🛛 🔢 Suspend 🔹 🇐 Reset 🔹 🕅 Detach and Exit	
VMware ES	X Server: 192.168.1.22	remote console
	ERITAS Intelligent Disaster Recovery for Windows Servers Detecting Media Devices Attempting to find secondary media devices and robotic media loaders. System files have been updated. Remove any diskettes from drive A: and any compact disks from your CD-ROM drives. Click the Next button to restart	×
	< Back Next > Cancel	
NWware Tool	s is not running. Click on this text to install.	





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Windows 2000 IDR Procedure

動x335r13top - 192.168.1.22 VMware ESX Server - VMware Remote Console					
File Power Settings Devices View Help					
Power Off • Dever On III Suspend • Sareset • III Detach and Exit					
VMware ESX Server: 192.168.1.22 remot	e console	1999 August			
		🗐 x335r13top	p - 192.168.1.22 ¥Mware E5X Serve	er - VMware Remote Console	
		<u>Eile Power S</u>	ettings <u>D</u> evices <u>V</u> iew <u>H</u> elp	-	
Windows 2000 Server Setup		Power Off	▼ Power On Suspend ▼	🔄 Reset 🔹 🛛 🛄 Detach and Exit	
Installing Devices Setup is detecting and installing devices on your computer.	8	VMware ES	X Server: 192.168.1.22		remote cons
		Īv	ERITAS Intelligent Disaster Recov	ery for Windows Servers	X
Please wait while Setup detects and installs devices such as your keyboard and mouse. This will take several minutes. Quring this time, your screen may flicker			C		
for a few seconds.			From which media server do you	want to perform a restore?	
			Server Name:	NATSBACK	
			Domain/Computer	NATSBACK	
			User Name:	administrator	
			Password:	Turner M.	
< Back Next >					
				Install Custom Network Driver	
\mathbf{k}					
Wheney Tools is not remained. Click on this toot to install					
viniwate i obis is norionning, cilok on mis texicio instali.					1
				Back Mext > 2 Lancel	J

🚯 VMware Tools is not running. Click on this text to install.





VMware ESX Server: 192.168.1.22	mote console
VERITAS Intelligent Disaster Recovery for Windows Servers Restore Data The sets below will be automatically recoverd	File Power Off Power Off Power On Suspend Detach and Exit VMware ESX Server: 192,168,1.22 remote con
The backup sets required to restore this system are shown below. You will have the option of restoring additional data once the automated restore operations have completed. The backup sets required to restore the automated restore operations have completed. This defines the complete of the system are shown below. You will have the option of restoring additional data once the automated restore operations have completed. The backup sets required to restore this system are shown below. You will have the option of restoring additional data once the automated restore operations have completed. The backup sets required to restore this system are shown below. You will have the option of the system State to System State	VERITAS Intelligent Disaster Recovery for Windows Server X Restoring Data The wizard is now restoring data to your disk. Status Status Status The automated portion of your disaster recovery process is complete. If your disaster recovery life has not been updated since your most recent backup, you can manually provide additional media to restore. Bac Yes Do you want to provide additional media to restore? Statis Yes Dire Yes Dire Yes Des Yes Cancel Cancel





VMware ESX	Server: 192.168.1.22	remot	e console
VER	TTAS Intelligent Disaster H	Accovery for Windows Servers You have completed the Disaster Recovery Wizard This completes the disaster recovery process. Remove any diskettes from drive A: and any compact disks from your CD-ROM drives. When the system restarts, the files that comprise Intelligent Disaster Recovery will be removed automatically. Run CMD EXE Edit BODT.INI Messages Click Finish to start your origin operating system.	X
		Keack Finish Cancel	

 After you restart, you are ready to install VMTOOLS in the Virtual Machine to compete the Disaster Recovery to the VM.





Questions?



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