

# 使用BlueXP DRaaS进行灾难恢复

**NetApp Solutions** 

NetApp August 24, 2024

This PDF was generated from https://docs.netapp.com/zh-cn/netapp-solutions/ehc/dr-draasoverview.html on August 24, 2024. Always check docs.netapp.com for the latest.

# 目录

1	吏用BlueXP DRaaS进行灾难恢复	-	1
	概述	-	1
	使用BlueXP DRaaS对NFS数据存储库执行灾难恢复	-	1
	使用BlueXP DRaaS对VMFS数据存储库执行灾难恢复	2	1

# 使用BlueXP DRaaS进行灾难恢复

## 概述

灾难恢复是每个VMware管理员最关注的问题。由于VMware会将整个服务器封装到构成虚拟机的一系列文件中、因此管理员可以利用基于块存储的技术(例如克隆、快照和副本)来保护这些虚拟机。ONTAP阵列提供内置复制功能、可将卷数据以及指定数据存储库LUN上的虚拟机从一个站点传输到另一个站点。BlueXP DRaaS可与vSphere集成并自动执行整个工作流、以便在发生灾难时实现无缝故障转移和故障恢复。通过将存储复制与智能自动化相结合、管理员现在不仅可以轻松地配置、自动化和测试灾难恢复计划、还可以在发生灾难时轻松运行这些计划。

在VMware vSphere环境中、灾难恢复故障转移最耗时的部分是执行必要的步骤来清点、注册、重新配置和启动 灾难恢复站点上的VM。理想的解决方案既具有较低的RPO (以分钟为单位)、又具有较低的RTO (以分钟到小时 为单位)。在灾难恢复解决方案中、一个经常被忽略的因素是定期有效测试灾难恢复解决方案的能力。

在设计灾难恢复解决方案时、请牢记以下因素:

- •恢复时间目标(Recovery Time目标、Recovery Time目标、Recovery Time目标、Recovery Time恢复时间是 指企业从灾难中恢复的速度、或者更具体地说、恢复过程需要多长时间才能使业务服务再次恢复可用。
- •恢复点目标(RPO)。RPO是指恢复数据可用后的时长(相对于灾难发生时间)。
- 可扩展性和适应性。这一因素包括能够随着需求的增加逐步增加存储资源。

有关可用解决方案的更多技术信息、请参见:

- "使用BlueXP DRaaS对NFS数据存储库执行灾难恢复"
- "使用BlueXP DRaaS对VMFS数据存储库执行灾难恢复"

# 使用BlueXP DRaaS对NFS数据存储库执行灾难恢复

通过从生产站点到灾难恢复站点的块级复制实施灾难恢复是一种具有故障恢复能力且经济 高效的方法、可保护工作负载免受站点中断和数据损坏事件(例如勒索软件攻击)的影响。 通过使用NetApp SnapMirror复制、可以将使用NFS数据存储库的内部ONTAP系统上运行 的VMware工作负载复制到同时部署了VMware的指定恢复数据中心内的另一个ONTAP存 储系统。

本节介绍如何配置BlueXP DRaaS、以便为内部VMware VM设置灾难恢复、并将灾难恢复设置到另一个指定站 点。在此设置过程中、BlueXP 帐户BlueXP Connector是在BlueXP 工作空间中添加的ONTAP阵列、用于实现 从VMware vCenter到ONTAP存储的通信。此外、本文档还详细介绍了如何在站点之间配置复制以及如何设置和 测试恢复计划。最后一节介绍了如何执行完整站点故障转移以及如何在主站点恢复并联机购买后进行故障恢复。

利用集成到NetApp BlueXP 控制台中的BlueXP 灾难恢复服务、企业可以轻松发现其内部VMware vCenter 和ONTAP存储。然后、组织可以创建资源组、创建灾难恢复计划、将其与资源组关联以及测试或执行故障转移 和故障恢复。SnapMirror可提供存储级别的块复制功能、使两个站点在进行增量更改时保持最新、从而使恢复点 目标(RPO)最长为5分钟。此外、还可以在不影响生产或产生额外存储成本的情况下模拟灾难恢复过程。 BlueXP 灾难恢复利用ONTAP的FlexClone技术从灾难恢复站点上最后复制的Snapshot创建节省空间的NFS数 据存储库副本。完成灾难恢复测试后、客户可以轻松删除测试环境、而不会影响实际复制的生产资源。在实际发 生故障转移时、BlueXP 灾难恢复服务会编排所有必要的步骤、只需单击几下鼠标、即可自动启动指定灾难恢复 站点上受保护的虚拟机。该服务还会根据需要反转与主站点的SnapMirror关系、并将所做的任何更改从二级站点 复制到主站点、以便执行故障恢复操作。与其他知名替代产品相比、所有这些功能的成本都只有后者的一小部 分。



入门

要开始使用BlueXP 灾难恢复、请使用BlueXP 控制台、然后访问该服务。

- 1. 登录到BlueXP。
- 2. 从BlueXP 左侧导航栏中、选择"Protection (保护)">" Disaster Recovery (灾难恢复)"。
- 3. 此时将显示BlueXP 灾难恢复信息板。

		(14 Base	Account *	Montapace * Connector * 60ABD/Conn
Storage +	very Dashboard S	ites Replication plans. Resource groups	Job monitoring	Free trial (55 days left) - View details 🔹 👔
🗘 Health 🕴				
Protection	s (2)	Replication plans (1)		Activity
Backup and recovery	∋z ⊗.0 unnico Down	▲ © 1 taue Ready	3 Z Failed	<ul> <li>Backup tob for Replication Plan DemoRPS04</li> <li>M a sign</li> </ul>
Disaster recovery	Dathboard			Initialize Backup of DemsRP004 for every 5     Initialize     Initialize
Replication 0	Replication plane	steet parts		Elactup job for Replication Plan SPVMF503     Sec apr
Rensonware protection $\dot{\Omega}$	Resource groups	21 👩	117	Writiatize flackup of RPVNF503 for every 5 minutes 3 maps
Oovernance +	Job monitoring	Protected VWs	Unprotected VMs	Backup Job for Replication Plan SPNF5001
Mobility	iew resource groups	View protected VMs	unprotected VMs	View all jobs
🔹 Extensiona 🔸				
	al felovers	1 Fattacks 2 Tent fallowers	O Magrations	

在配置灾难恢复计划之前、请确保满足以下前提条件:

- BlueXP 连接器已在NetApp BlueXP 中设置。
- BlueXP 连接器实例可连接到源和目标vCenter及存储系统。
- NetApp Data ONTAP集群以提供存储NFS数据存储库。
- 在BlueXP 中添加了托管VMware NFS数据存储库的内部NetApp存储系统。
- •使用DNS名称时、应进行DNS解析。否则、请使用vCenter的IP地址。
- 已为基于NFS的指定数据存储库卷配置SnapMirror复制。
- •确保环境具有受支持的vCenter Server和ESXi服务器版本。

在源站点和目标站点之间建立连接后、请继续执行配置步骤、该步骤只需单击几下鼠标、大约3到5分钟即可完成。



NetApp建议将BlueXP Connector部署在目标站点或第三个站点中、以便BlueXP Connector可以通过网络与源和目标资源进行通信。

TI Ne	tApp BlueXP		Q BluexP Search	) Account ~	Workspace 🐣 🛛 Connector 🎽 🖌 💩 🌣 🤨 😌
8	Disaster recovery	Dashboard Sites Reg	lication plans Resour	ce groups Job mohitorin	g Free trial (68 days left) - View details   -
•	Sites (2)		Replication plans	(2)	Activity
¢	2 Running	Image: Object 1	⊘ 2 Ready	(2) 0 Failed	Backup job for Replication Plan DemoRPVM/S03 In progress
•	View sit	es	View plans		Solitatze Backup of DemoRPVMFS03 for every 10 minutes 7 s age
	Piesour	urce groups 16 Prote	icted VMs	117 Unprotected VMs	Decovery of resources in host 172.21.168.100 It is app Failback of resources using the replication plan 'DemoRPVM/S03' It is app Decovery of resources in host 172.22.166.190 P m ap
	Relitow	trs <b>1</b> Failbacks	I Test fallowers	O           Migrations	View all jobs

## BlueXP 灾难恢复配置

准备灾难恢复的第一步是发现内部vCenter和存储资源并将其添加到BlueXP 灾难恢复中。

打开BlueXP 控制台并从左侧导航栏中选择\*保护>灾难恢复\*。选择\*发现vCenter服务器\*或使用顶部菜单、选择\* 站点>添加>添加vCenter \*。

III Ne	etApp BlueXP	C BlueXP Search Account *   Workspace *   Connector *
	Disaster recovery	Dashboard Sites Replication plans Resource groups Job monitoring
9	0	
٠	- C same	
¢		Add site
		A site is a collection of vCenter servers, either on-premises or in the cloud.
4		Site DemoSit:
		Location
		On-premi
		AWS
		Add Cancel

#### 添加以下平台:

• 来源。内部vCenter。

NetApp	BlueXP	Q BueXP Search	Account ~ Workspace ~   6 nimopisa nimopoce -	ishazhConn 🎽 👍 🌣 😗 😝
*	Disaster recovery Dashb	and Sites Replication plana Resol	rex groups	Free trial (55 days left) - View details  +
	2 stars	Add vCenter server		Addg
•	mimDemoSrc	Enter connection details for the vCenter serve Site nimDemoSrc =	r that is accessible from the BlueXP Connector. BlueXP Connector GISABXPConn *	() Seen
*	ainGemoDe	vCenter IP address 172.21.166,155		()
	772.21.306.11 () inseries	vCenter user name administrator@hmcdc.local	vCenter password	tern (j)
		Subse self-signed certificates	Add Cancel	

• 目的地。VMC SDDC vCenter。

Oisaster recovery t	ashboard Sites Replication plans Resource groups Job nonitoring	Free trial (55 days left) - View details
2 stars	Add vCenter server	Addig
mmDermo	Enter connection details for the vCenter server that is accessible from the BlueXP Connector.	0
172.33.30 O	a.m black connector	bein 🕚
	vCenter IP address 172.21.188.190	
nimDemo	vCenter user name vCenter password	() Same
	administrator@hmede.local	0
	C Use self-signed certificates	
	Add Cancel	

添加完vCenter后、将触发自动发现。

在源站点阵列和目标站点阵列之间配置存储复制

SnapMirror可在NetApp环境中提供数据复制功能。SnapMirror复制基于NetApp Snapshot®技术构建,效率极高 ,因为它仅复制自上次更新以来更改或添加的块。SnapMirror可通过NetApp OnCommand®System Manager 或ONTAP命令行界面轻松进行配置。BlueXP DRaaS还会创建SnapMirror关系、前提是事先配置集群和SVM 对等。

如果主存储未完全丢失、则SnapMirror可提供一种高效的方式来重新同步主站点和灾难恢复站点。SnapMirror可以重新同步这两个站点、只需反转SnapMirror关系、即可将更改过的数据或新数据从灾难恢复站点传输回主站 点。这意味着、在故障转移后、无需重新复制整个卷、即可在任一方向上重新同步BlueXP DRaaS中的复制计 划。如果反向重新同步某个关系、则只会将自上次成功同步Snapshot副本以来写入的新数据发送回目标。



如果已通过命令行界面或System Manager为卷配置SnapMirror关系、则BlueXP DRaaS将接管该 关系并继续执行其余工作流操作。

#### 如何针对VMware灾难恢复进行设置

对于任何给定应用程序、创建SnapMirror复制的过程都保持不变。此过程可以手动执行、也可以自动执行。最简单的方法是利用BlueXP 配置SnapMirror复制、方法是将环境中的源ONTAP系统简单地拖放到目标上、以触发向导来完成其余过程。



如果满足以下两个条件、BlueXP DRaaS还可以实现相同的自动化:

- 源集群和目标集群具有对等关系。
- 源SVM和目标SVM具有对等关系。

<b>m</b> Ne	tApp BlueXP	Q. BlueXP Search Account " Workspace " Connector " & 🍋 🌣 🧿 🖯	5
8	Add replication plan	🕗 vCenter servers 🔗 Applications 👩 Resource mapping 🚯 Recurrence 🌀 Review	×
9		Failover mappings Test mappings	
•		Compute resources ⊘ Mapped	
9		Virtual networks 🧭 Mapped	
4		Virtual machines ⊘ Mapped	
		Datastores	
		RPO for all datastores in minutes     Retention count for all datastores       5     30	
		Source datastore         Target datastore           Src_NFS_DS03 (svm_NFS:Src_NFS_DS03)         Src_NFS_DS03 (svm_nim_nts:Src_NFS_DS03_CP) Transfer schedule(RF0) : hourty, async	
		Previous	

 $(\mathbf{i})$ 

如果已通过命令行界面为卷配置SnapMirror关系、则BlueXP DRaaS将接管该关系并继续执行其 余工作流操作。

BlueXP 灾难恢复可以为您做什么?

添加源站点和目标站点后、BlueXP 灾难恢复将执行自动深度发现、并显示VM以及关联的元数据。BlueXP 灾难恢复还会自动检测VM使用的网络和端口组并将其填充。

2	1 sites				Q	Add
ſ	nimDemoSrc				<u>8</u>	1
	172,21.166,155 ③ Heating	72 VMs	13 Datasbres	1 Hesoarce groups	GISABXPConn Cernecter	1
ſ	nimDemoDest					1
	972.21.166.190 () feasiby	61 Vibis	3 Outastures	0 Resource groups	GISABXPConn Connector	1
L						

添加站点后、可以将VM分组到资源组中。通过BlueXP 灾难恢复资源组、您可以将一组相关VM分组到逻辑组

中、这些逻辑组包含其启动顺序以及恢复后可以执行的启动延迟。要开始创建资源组,请导航到\*Resource Groups\*并单击\*Create New Resource Group\*。

		Q: BlueXP Search	Account ~   W nimogiaa ni	lorkapace 🔪   mepace	Connector ~   GISA8XPConn	<b>1</b> 0 0 0 0	5
Disaster r	recovery Deal	a arresta			TYRE BELLET (DET ID	aus letts - View details 🕴 -	
U 1 =	nource groups	e Brook			Q	TANK	
	Name		vCenter		1		
	DemoN	FSDS03R0	172.21.166.155				
·	DemaR001						
0	Select vir	tual machines					
	Q.NFS_D	A	Selected VMs (5)				
*	🖬 NFS	DemoA_VM01	NFS_DemoA_VM01	*			
	🗹 NFS_	DemoA_VM02	NFS_DemoA_VM02	×			
	MFS_	DemoA_VM03	NES_DemoA_VM03	×			
	🖬 NFS_	DemoA_VM04	NFS_DemoA_VM04	×			
	🖬 NES_	DemoA_VM05	NFS_DemoA_VM05	×			
			Add	Cancel			

Oisaster recov	very Dashboard Site	es Replication plans Resource group	Job monitoring	Free trial (51 days left) - View detr
2 resourc	e groups			Q Add
Resource	a group	<ul> <li>Source site</li> </ul>	2 Source vCenter	2 (
Demo	8601	nimDemoSrc	172.21.166.155	2
Demot	NEDSD3RG	nimDemoSco	172.31.166,155	



也可以在创建复制计划时创建资源组。

在创建资源组期间、可以使用简单的拖放机制来定义或修改VM的启动顺序。

	Q: BlueXP Search	Account Vorkspace V	Connector 🖌 🖡 🐌 🌣 😗 😫
Disaster recovery Dear	Edit resource group		'ven trial (St days left) - View details [+
2 resource groups	Name	vCenter	Q
C DempRoot	DemoNFSDS03R0	172.21.166.155 *	
Dermikki 105038G	Q Search All Datastores	Selected VMs (5) NFS_Demos_VMS1 X	
	ISCSI_DemoCvm02     ISCSI_DemoCvm03	NF5_Demok_VM03 x	
	ISCSI_DemoCvm04     ISCSI_DemoCvm05     Uturnt/01001	NFS_DemoA_VM04 X NFS_DemoA_VM06 X	
	Win2K19VM01		
		Save) Cancel	

创建资源组后、下一步是创建执行蓝图或计划、以便在发生灾难时恢复虚拟机和应用程序。如前提条件中所述、 可以事先配置SnapMirror复制、也可以使用创建复制计划期间指定的RPO和保留计数来配置DRaaS。

R NetApp BlueXP G BlueXP See	th Account " Workspace nimogise nimogoce	🐣 📔 Connector GISAZXPConn 🎽 🤚 🏟 🥝 😝
Canvas My working environments My estate		🖽 Go to Tabular View
+ Add Working Environment     Add Working Environment     On-Pramues ONTAP 2.01178 Cessoly Brolication	C Enable Services 0	Working Environments 3 On-Premises ONTAP 11,16 TIB Provisioned Capacity Amazon 53 4 Buckets
NTAP935_Destn On-Promises ONTAP 1.20718 Capacity	Amazon SJ 4 Buckets	

9	Replication										
	Volume Relationships	(8)									۹ C
	Health Status 🕴	Source Volume	۰.	Target Volume	:	Total Transfer Time 🗘	Status	۳١	Mirror State	:	Last Successfu
	-	NIAPHT5_SIC		NIAP975_Destri							39.3 890
	©	Demo_TPS_DS01 NTAP915_Src		Demo_TPS_DS01_Copy NTAP915_Destn		13 seconds	idle		snapmirrored		Aug 5, 2024, 6-15 386.63 M/B
	$\odot$	Src_250_Vol01 NTAP915_Src		Src_25G_Vol01_Copy NTAP915_Destn		4 seconds	idle		snapmirrored		Aug 16, 2024, 12× 79.23 MB
	Ø	Src_NFS_DS03 NTAP915_Src		Src_NFS_DSD3_CP NTAP915_Dextn		12 seconds	ide		snapmirrored		Aug 16, 2024, 12: 24.84 MiB
	Θ	Src_NFS_DS04 NTAP915_Src		Src_NFS_DS04_CP NTAP915_Destn		3 seconds	idie		snapmirrored		Aug 16, 2024, 12± 47.38 Mi8
	0	Src_ISCSI_DS04 NTAP915_Src		Src_ISCSL_DS04_copy NTAP915_Destn		4 seconds	ide		snapmirrored		Aug 16, 2024, 12× 108.87 Mi8
	$\odot$	nimpra NTAP915_Src		nimpra_dest NTAP915_Destn		2 seconds	idie		snapmirrored		Aug 16, 2024, 12= 3.48 Kill

通过从下拉列表中选择源和目标vCenter平台来配置复制计划、然后选择要包含在该计划中的资源组、并分组应 用程序的还原和启动方式以及集群和网络的映射。要定义恢复计划,请导航到\*复制计划\*选项卡,然后单击\*添 加计划\*。

首先、选择源vCenter、然后选择目标vCenter。

mN	tApp BlueXP		Q BlueXP Search	Account rimogiaa	Workspace ~	GisAexPCenn	<b>4</b> 0 *	0 6	9
	Add replication plan	O vCenter servers	(2) Applications	3 Resource mapping	(4) Recurrence	5 Review			×
ø		Depteration plan prove							
٠		DemoNFSDS03RP							
¢									
6									
4		Select a source vCenter where your content of the select a source vCenter where your content of the select a source vCenter where your content of the select a source vCenter where your content of the select a source vCenter where your content of the select a source vCenter where your content of the select a source vCenter where your content of the select a source vCenter where your content of the select a source vCenter where your content of the select a source vCenter where your content of the select a source vCenter where your content of the select a source vCenter where your content of the select a source vCenter where your content of the select a source vCenter where your content of the select a source vCenter where your content of the select a source vCenter where your content of the select a source vCenter where your content of the select a source vCenter where your content of the select a source vCenter where your content of the select a source vCenter where your content of the select a source vCenter where your content of the select a source vCenter where your content of the select a source vCenter where your content of the select a source vCenter where your content of the select a source vCenter where your content of the select a source vCenter where your content of the select a source vCenter where your content of the select a source vCenter where your content of the select a source vCenter where your content of the select a source vCenter where your content of the select a source vCenter where your content of the select a source vCenter where your content of the select a source vCenter where your content of the select a source vCenter where your content of the select a source vCenter where your content of the select a source vCenter where your content of the select a source vCenter where your content of the select a source vCenter where your content of the select a source vCenter where your content of the select a source vCenter where your content of the select a source vCenter where your content	our data exists, to replic	tate to the selected target v	Center.	10			
						2			
			0	Replicate		5)			
		Source vCenter		Tarp	et vCenter				
		172.21.106.155	-	122	21,166.190				
			Cancel	Next			1		

下一步是选择现有资源组。如果未创建任何资源组、则该向导会根据恢复目标帮助对所需的虚拟机进行分组(基本上是创建功能资源组)。这还有助于定义应如何还原应用程序虚拟机的操作顺序。

<b>II</b> Ne	etApp BlueXP	G	BlueXP Search	Account ~ nimogiaa	Workspace ~	Connector GISABXPConn	🝖 🕈	0	8
8	Add replication plan	VCenter servers 2 A	pplications (3	3) Resource mapping	(4) Recurrence	5 Review			×
9		172.21.166.155		2	G	172.21.166.190	1		
٠		D nimDemoSrc			C	P) nimDemüDest			1
¢									
0		🔿 Virtual machines 🔹 Resource groups		Selected resou	rce groups to replicate.				
4		Q Search resource groups		Selected reso	urce group (1)				
		DemoNF50303RG		OF ON SLEPY		101			
		L							
		[	Previous	Net					

(i) 资源组允许使用拖放功能设置引导顺序。它可用于轻松修改恢复过程中VM的启动顺序。

资源组中的每个虚拟机将根据顺序依次启动。两个资源组并行启动。

(;)

以下屏幕截图显示了一个选项、用于根据组织要求筛选虚拟机或特定数据存储库(如果事先未创建资源组)。

INN	rtApp BlueXP		(19,65095	Account mesogra	*	vertapace *	Connector ~	0	٠	?	8
	Add replication plan	@ «Center servers	Applications 3 Re	source mapping	(4) Recurrence	(b) Review					×
٥			Applica	tions	in tenderate						
			ter me standard of the source	Contrast and Low sector	a representation						
¢		(6) 172.21.106.155 nimülamaları		-3			172.21.166.190 http://www.com/				
.0						~					
4		Virtusi mechinas      Resource groups.      Dataștore Al datastoleș	neph Air Darlamberra	Selected VMs to 4 Selected VMs (0 ResourceGroup) Select VMs	replicate. 0 to replicate.		-				
			Previous	100							

选择资源组后、创建故障转移映射。在此步骤中、指定源环境中的资源与目标之间的映射方式。其中包括计算资源、虚拟网络。IP自定义、前处理脚本和后处理脚本、启动延迟、应用程序一致性等。有关详细信息,请参见" 创建复制计划"。

n Ne	tApp BlueXP		Q BlueXP Search	) Account ~ nimogisa	Workspace ~	Connector GISABXPConn	۰ 🗢	0	8
8	Add replication plan	✓ vCenter service	vers 🕑 Applications	3 Resource mapping	(4) Recurrence	5 Review			×
a		Use same mappings for fa	lover and test mappings						
•		Fallover mappings	Test majorings						
¢			NEW REAL						
0		Compute resources				100			
-		Source cluster		Target cluster					
		vVCSA8-Cluster01		wid	d04-Cluster01 ~				
		Virtual networks				^			
		Source virtual LAN		Target segment	Ē.				
		VM_3420		VM	N_3422 ~				
			Previous	Net					

**(i)** 

默认情况下、测试和故障转移操作会使用相同的映射参数。要为测试环境设置不同的映射、请在 取消选中相应复选框后选择Test Mapping选项、如下所示:

Add replication plan	🕑 vCenter si	ervens 🕑 Ap	plications	Resource m	apping (4) Recurre	nce (5) Review		
	Virtual machines						~	
	IP address type	Target IP		1				
	Static	* Same a	source 👻					
	Use the same cred	entials for Same of for all VI Difference	es source int from source					
	٩			1				
	Source VM	CPUs	RAM		Boot delay(mins between 0 and 10)	Create application consistent replicas		
	DemoNFSDS03RG							
	NFS_DemoA_VM01	2	4	68 -	0	] <u> </u>		
	NFS_DemaA_VM02	2	4	G8 ~	0	0		
		-	Previous		(inter-			

完成资源映射后、单击"Next"(下一步)。

n Net	App BlueXP		Q BueXP See	rch Account ~ nimogisa	Workspace ~~ nimspace	Connector GISABXPConn	ی 🍓	0 8
10	Add replication plan	VCenter serv	ers 🕜 Applications	3 Resource mapping	(4) Becurrence	<ol> <li>Review</li> </ol>		×
•		172.21.166.165 nimDemoSirc			(8	172.21.166.190 himDemoDest	]	
Þ		L					1	
9		Use same mappings for fa	lover and test mappings					
4		Failover mappings	Test mappings					
		Compute resources.	Mapped			~		
		Virtual networks	O Mapped			~		
		Virtual machines	O Mapped			~~		
			Previo	vs Next				

选择重复类型。简而言之、请选择迁移(使用故障转移进行一次性迁移)或重复连续复制选项。在此逐步介绍中、 已选择"复件"选项。

TING	tApp BlueXP		Q. BlueXP Search	Account 🐃 🛛 Workspace nimopisa nimspace	Connector GISAEXPConn	۰ ک	08
	Add replication plan	⊘ vCenter servers. ⊘	Applications 🕜 Res	ource mapping 🕜 Recurrence	e (5) Roview		×
a							
٠		(a) 172.21.166.185	-		(a) 172.21.166.190		
Ŷ					<u> </u>		
0							
*		Migrate spolicz toto	Algrate tion data one time than to to target.	Replicate spinate spinate equivalent data to seen to	the barged -		
			Previous	Next			

完成后,查看创建的映射,然后单击\*Add pland\*。



复制计划中可以包含来自不同卷和SVM的VM。根据虚拟机的放置方式(是位于同一个卷上、还是位于同一个SVM中的不同卷、以及位于不同SVM上的不同卷)、BlueXP 灾难恢复会创建一致性组快照。

III Ne	tApp BlueXP		Q BueXP Search Account ~	Workspace Connector GISABXPConn	<b>1</b> 0 0 0 0	
8	Add replication plan	VCenter servers	Applications     O Resource mapping	Recurrence     Review	د	×
9						
٠		172.21.166.155 nimberiotic		() 172.21.196.190 rimOemaDest		
¢			wepticate.	<u> </u>		
8		Plan details	Fallover mapping	Virtual mochines	1	
4						
		Plan.name	DemoNFSDS03RP			
		Recurrence	Replicate		1	
			Frevious Add plan			

III Ne	tApp BlueXP				NueXP.Seurch nim	overt 🐃   Wor oglas inte	kapace 🎽	Connector Connector	•	
	Oisaster r	ecovery Da	shboard Sites	Replication pla	ns Resource group	Job monitoring		Free trial (5	i days left) - View de	talls [~
9	1	plans		10	_			Q 🗾	Add	
•		Man (* 1	Compliance check	Plen Matura 👘 🗧	Protected After (1)	Лексонск разора — 2	Recurrence ::	/ Fallower site		
		DemoNFSDSD3RP	Healthy	🕝 Ready	rimDemoSirc	DemoNFSD503RG	Replicate	rimDemoDest		
4										
5 N										- 12 - 13

BlueXP DRaaS由以下工作流组成:

- •测试故障转移(包括定期自动模拟)
- 清理故障转移测试
- 故障转移
- 故障恢复

## 测试故障转移

BlueXP DRaaS中的测试故障转移是一个操作过程、可使VMware管理员在不中断生产环境的情况下全面验证其恢复计划。

T Ne	etApp BlueXP	Q BueXP Search Account " Workspace " Connector Idda 🛠 📀 😌
8	Disaster recovery     Dashboard     Sites	Replication plans         Resource groups         Job monitoring         Free trial (S1 days left) - View details         -
	1 plans	Q. Middl
e	Plan - Compliance check	Plen status 2 Protected site 2 Resource groups 2 Recurrence 2 Fellower site 2
0	DemoNFSDS03RP @ Healthy	Ready nimDemoSrc DemoNFSD503RG Replicate nimDemoDest     View plan details
4		Run compliance check
		Test fallower Chean log fallower hest
		Feit over
		Edit schedules
		Take snapshot now Disable
		Funda
		Delete

BlueXP DRaaS可以在测试故障转移操作中选择快照作为可选功能。通过此功能、VMware管理员可以验证环境中最近所做的任何更改是否已复制到目标站点、从而在测试期间是否存在。此类更改包括对VM子操作系统的修补程序

	Q: BlueXP Search Account ~ Workspace ~ Connector nimogias nimopias GISABXPConn	č   🍖 🕈 🥹 😆
<ul> <li>Disaster recovery</li> </ul>	Test failover: DemoNFSDS03RP	rial (ST days left) - View details 🛛 🕘
e 1 plans Part Demoty/ESCISCIBIN	<ul> <li>Warning: This test will create 5 VMs in the site nimDemoDest. The test won't affect the site nimDemoSrc.</li> <li>Snapshot copy for volume recovery          <ul> <li>Take snapshot now</li></ul></li></ul>	Add .
	Steepshot name       C       Resource group       C         DemoNFSDS03RP_DemoNFSDS03RG_8-16-202       DemoNFSDS03RG       C       C         Enter Test failover to confirm       Test failover       C       C         Test failover       C       C       C	

当VMware管理员运行测试故障转移操作时、BlueXP DRaaS会自动执行以下任务:

- 触发SnapMirror关系、以便使用近期在生产站点所做的任何更改来更新目标站点上的存储。
- 在灾难恢复存储阵列上创建FlexVol卷的NetApp FlexClone卷。
- •将FlexClone卷中的NFS数据存储库连接到灾难恢复站点的ESXi主机。
- 将VM网络适配器连接到映射期间指定的测试网络。
- •按照灾难恢复站点上为网络定义的方式重新配置VM子操作系统网络设置。
- •执行复制计划中存储的任何自定义命令。
- 按照复制计划中定义的顺序启动VM。

() () () () ()	<ul> <li>C Second Control of Control of</li></ul>	Src_NFS	_DS03   3 Actio	ns Permissions Files Hos	o. ves		C			ocat v – G	9	9.
Image: Summa     Summa       Image: Summa     Summa <t< th=""><th>eta#s</th><th>Type Hoots Vatuat machines VM templates Server Folder Location</th><th>5473.3 2 3 172.21366.566 7/src_3476_0503_TE37 0s.07/mt5/valumes/b00 -le6873694/</th><th>II Iocia</th><th>Capacity and U Last-underest at 654.2 Storage 28.78 GB Last</th><th>sage M</th><th>Image: Image: Image:</th><th>8</th></t<>		eta#s	Type Hoots Vatuat machines VM templates Server Folder Location	5473.3 2 3 172.21366.566 7/src_3476_0503_TE37 0s.07/mt5/valumes/b00 -le6873694/	II Iocia	Capacity and U Last-underest at 654.2 Storage 28.78 GB Last	sage M	Image:	8			
						VIEW STATE REFER	EH.					
Task Hame T	Target.	r Status		Details <b>T</b>	istatur	7	Gueund Fer	r Start Time	+ +	Completion Time	•	Se
Reconfigure virtual máchin	@ MES Demok VMC	2 Ø Com	rowhed		HMCDCL	0CAU/Administrator	3 mg	06/16/2024,	6.53.59 A	05/16/2024, 65	3.59 A	10
Degister What machine	pater What mechan Bt addd-DCDI 😔 Completed			59500		6 115	08/16/2024. M	65258 A	08/16/2024.6-5	3.59 A	X	
Depoter virtual machine	1000-M04284.0001	90	weled		System		2.85	05/15/2024. M	6.53.58 A	06/16/2024, 6/5 M	3.59 A	no
Degister virtual machine	PB JASSO 4-DCD1	8 000	pieted	Degistering Virtual Machine o in deillination head	595280		2 ms	06/10/2024/	63349 <i>N</i> . (	Viteriorana, es	4.00 A	W.

## 清理故障转移测试操作

清理故障转移测试操作会在复制计划测试完成后进行、并且VMware管理员会对清理提示做出响应。

III Ne	tApp BlueXP	Q BlueXP Search Account nimogica	✓ Workspace ✓ mmspace	Connector 🖌 💧 🍖 🌩 📀 😂
	Disaster recovery Dashboard Sites	Replication plans Resource groups	Jab monitoring	Free trial (51 days left) - View details 📔 -
9	1 plans			Q. Add
e	Plan Correliance check	Plen status 2 Protected site 2 Re	source proops 🗧 🛛 Recurrence 🗧	Fallover site
0	DemoNFSD503RP @Healthy	Test fallover nimDemoSrc De	moNFSDS03RG Replicate	vimDemoDest
4				Run compliance check
				Clean up failover test
				Fad back
				Edit schedules
				Disable
				Inable
				Delete

#### 此操作会将虚拟机(VM)和复制计划的状态重置为就绪状态。

当VMware管理员执行恢复操作时、BlueXP DRaaS将完成以下过程:

- 1. 它会关闭FlexClone副本中用于测试的每个已恢复VM的电源。
- 2. 它会删除测试期间用于显示已恢复VM的FlexClone卷。

### 计划内迁移和故障转移

BlueXP DRaaS具有两种执行实际故障转移的方法:计划内迁移和故障转移。第一种方法是计划内迁移、该方法 将虚拟机关闭和存储复制同步纳入到该过程中、以恢复或有效地将虚拟机移动到目标站点。计划内迁移需要访问 源站点。第二种方法是故障转移、这是计划内/计划外故障转移、其中VM将从上次能够完成的存储复制间隔在目 标站点上恢复。根据解决方案中设计的RPO、在灾难恢复场景中可能会出现一定程度的数据丢失。

III Ne	tApp BlueXP	(4	BlueXP Search Acco	sent 🐃 🛛 Workspace gisa rimspace	Connector   🍋 🌣 😗 😆
	Disaster recovery	shboard Sites Replication p	lans Resource groups	Job monitoring	Free trial (51 days left) - View details 📔 -
ų	1 plans				Q. Add
•	Plan (181)	Compliance sheet Plan status	Protected site	Resource proups 👔 👘 Recu	mene () follower alter ()
0	Demon#SDS03RP	Healthy Ready	nimDemoSrc	DemoNFSDS03RG Repl	cate rimDemoDest
4					Run compliance check Test fallover Clean set fallover test
					Fail over
					Fed back Edit schedules Take snapshot now Disable Disable Delete

当VMware管理员执行故障转移操作时、BlueXP DRaaS会自动执行以下任务:

- 中断并故障转移NetApp SnapMirror关系。
- 将复制的NFS数据存储库连接到灾难恢复站点的ESXi主机。
- 将VM网络适配器连接到相应的目标站点网络。
- •按照为目标站点上的网络定义的方式重新配置VM子操作系统网络设置。
- •执行复制计划中存储的所有自定义命令(如果有)。
- 按照复制计划中定义的顺序启动VM。

🗧 vSphere Client	Q. Search in all								CA	Administrator@HM	CDC.LC	сац. ~	Θ	@~
<ul> <li>C Stropping Stropping</li></ul>		Contraction	NFS_DS03 E A Monitor Configure Type Hoets Varbust macrones Varbust macrones Varbust macrones Server Folder Location	1	s Permissions Files Hosts NPS 3 2 5 172.21366.566 7/Inc_NPS_0505_CP stu///wnt/resumes/alt518 Sac45356		VMs Capacity and Usage Last updates at 7-04 AM Storage 43.06 08 54.94 08 umst 100 08 cap VIEW STATS BEFREEDA			ka de de tree		0		
✓ Recent Tasks Alle	ems					_	_	TRWSTATS PEPER	n Contrad	11111111111				_
Task Hame Y	Target	٣	Status	Ŧ	Details T	and of	lation	,	For Y	Start Time	+ +	Completion	firse .	· ·
Power On virtual thachine	@ Mrs. Dend	VM02	Completed		Rowering on the new Virtual Machine	Her	KCDC.	LOCALVAdministrator	4 ms.	08/16/2024, 7:04 M	107 A	06/16/202 M	4, 70413	A
Power On virtual machine	@ MES. Damo	NM05	Completing		Powering on the new Virtual Machine	in	CDC	LOCALMomentator	3 ms	08/16/2024, 7:04 M	107 A	08/16/202 M	4,7,0412	A
Power On virtual machine	(# .NES.Demo	K SONGA	O Completed			Hb	(CDC)	LOCAL\Administrator	2.06	06/16/2024, 1:04 M. Activ	ate W	osne/202 M	4,7040	7 A
Power On virtual machine	A NES Denis	VM03	(C) Comparind		Fowering on the new Virtual	140	Actor:	LOCALMedininistrator	2 mil	08/16/2034 104	OL R	06/95/202	1041	AM .
A REAL PROPERTY AND A REAL	And Designed in the second		ALC: YES		SPORTER AND IN THE READ BOOK AND	-	-	and the second second	2 EURos	A DECEMBER OF STREET, ST	-	001104510	1122	

## 故障恢复

故障恢复是一个可选过程、用于在恢复后还原源站点和目标站点的原始配置。

II NetA	pp Bk	eXP		٩	BlueXP/Search	Account 👻 🛛 We nimopias 👘 nim	srkapace 🎽	Connector ~   GISABXPCann	<b>40</b> 🌣 🕐	8
8	Ois	aster recovery D	shboard Sites	Replication pla	ans Resource gro	ups Job monitoring		Free trial (S	1 days left) - View details	-1
9		1 clans						Q	Add	
•							_			
¢		(140) (A)	Crimpliance Check	Parh status 2	Protected atte	Mesource groups [	Recurrence C	Failoser side		
0		DemoNFSDS03RP	Healthy	Falled over	nimDemoSrc	DemoNFSDS03RG	Replicate	nimDemoDest		
4								View plan det	alls ce check	
								Textfallorer		
								Dean og fallo Fall over	HT 121	
								Feil back		
								Edit scheduler		
								Take snapshot	t now	
								Disable		
								Druthia		
								Delete		
s										

VMware管理员可以在准备将服务还原到原始源站点时配置并运行故障恢复过程。

注: BlueXP DRaaS会在反转复制方向之前将所有更改复制(重新同步)回原始源虚拟机。此过程从已完成故障转移到目标的关系开始、涉及以下步骤:

- •关闭和取消注册目标站点上的虚拟机和卷将被卸载。
- •中断初始源上的SnapMirror关系将中断、以使其变为读/写状态。
- 重新同步SnapMirror关系以反转复制。
- 在源上挂载卷、启动并注册源虚拟机。

有关访问和配置BlueXP DRaaS的详细信息,请参见"了解适用于VMware的BlueXP 灾难恢复"。

### 监控和信息板

在BlueXP 或ONTAP命令行界面中、您可以监控相应数据存储库卷的复制运行状况、并可通过作业监控功能跟 踪故障转移或测试故障转移的状态。

II NetA	PP BlueXP			Q. BlueXP Search Account ~	Workspace ~	Connector ~   GISABXPCinn	🍖 🌣 📀
e (	Oisaster recovery Date	hboard Sites	Replicatio	in plans Resource groups Job mon	itoring	Free trial (50	days left) - View details
,	26515 jobs						Q
	<b>10</b> (¢.)	) Seener : 1	Workford (	Name 2	Cathernine: D	Endtime : C	
Ð	🗇 d923e607-b2=2-401	③ In pra	Backup	Backup job for Replication Plan.DemoNF	08/16/2024, 04:5		Cancel job?
1	@ 3549cc9c-aa4e-45e	Succe	Backup	Initialize Backup of DemoNFSDS03RP for	08/16/2024, 04:5	68/16/2024, 04:5	
	5cb01bcc-9ee6-4a1	Succe	Backup	Backup job for Replication Plan.DemoNF	08/16/2024, 04:4	08/16/2024, 04:5	
	218044d4-4be2-46t	Succe	Compliance	Compliance check for Replication Plan: D	08/16/2024, 04:4	08/16/2024, 04:4	
	🗇 398bc6a3-ata8-48d	Succe	Compliance	Initialize Compliance of DemoNFSD503R	08/16/2024, 04:4	08/16/2024, 04:4	
	977dbed8-6177-459;	Succe	Backup	Backup job for Replication Plan:DemoNF	06/16/2024, 04:4	08/16/2024, 04:4	
	C bifc016e-ca3a-409d	Succe_	Backup	Initialize Backup of DemoNFSDS03RP for	08/16/2024, 04:4	08/16/2024, 04:4	
	C) cde759a8-ebet-498	Succe.	Backup	Backup job for Replication Plan.DemoNF	08/16/2024, 04:3	08/16/2024, 04:4	



如果作业当前正在进行中或已排队、而您希望将其停止、则可以选择将其取消。

借助BlueXP 灾难恢复信息板、可以信心十足地评估灾难恢复站点和复制计划的状态。这样、管理员便可快速确 定运行正常、断开连接或降级的站点和计划。

NetAp	BlueXP     Disaster recovery	Dashboard Sites Re;	Q BlueXP Search	Account mimograa	g Eree trial (50 days left) - View details
	Sites (2)	× •	Replication plan	n (1)	Activity
	Running	Down Heaue	Ready View repli	Failed	Backup job for Replication Plan.DemoNPSDS0389  Image      Wilaitze Backup of DemoNPSDS03RP     tor every 5 minutes     4 mage      Wilaiting DR Idense compliance check     film age
	Constant Preserver	rce groups 5 Pros	ted VMs	130 Unprotected VMs	Backup job for Replication     Plan DemoN#SOS038P     6 m aps     winistize Backup of DemoN#SOS03RP     for every 5 minutes     0 m aps     View atl jobs
	S I Falove	rs 1 Palitacks	Rest falovers	O Migrations	

这是一款功能强大的解决方案、可用于处理定制和自定义的灾难恢复计划。发生灾难并决定激活灾难恢复站点 时、只需单击按钮、即可按计划故障转移或故障转移的形式完成故障转移。

要了解有关此过程的详细信息,请随时观看详细的演示视频或使用"解决方案模拟器"。

# 使用BlueXP DRaaS对VMFS数据存储库执行灾难恢复

使用块级复制从生产站点到灾难恢复站点进行灾难恢复是一种具有故障恢复能力且经济高效的方法、可以保护工作负载免受站点中断和数据损坏事件(如勒索软件攻击)的影响。通过NetApp SnapMirror复制、可以将使用VMFS数据存储库运行内部ONTAP系统的VMware 工作负载复制到VMware所在的指定恢复数据中心中的另一个ONTAP存储系统

本节介绍如何配置BlueXP DRaaS、以便为内部VMware VM设置灾难恢复、并将灾难恢复设置到另一个指定站 点。在此设置过程中、BlueXP 帐户BlueXP Connector是在BlueXP 工作空间中添加的ONTAP阵列、用于实现 从VMware vCenter到ONTAP存储的通信。此外、本文档还详细介绍了如何在站点之间配置复制以及如何设置和 测试恢复计划。最后一节介绍了如何执行完整站点故障转移以及如何在主站点恢复并联机购买后进行故障恢复。

使用集成在NetApp BlueXP 控制台中的BlueXP 灾难恢复服务、客户可以发现其内部VMware vCenter以 及ONTAP存储、创建资源组、创建灾难恢复计划、将其与资源组关联以及测试或执行故障转移和故障恢 复。SnapMirror提供存储级别的块复制功能、可通过增量更改使两个站点保持最新、从而实现长达5分钟的 RPO。此外、还可以定期模拟灾难恢复过程、而不会影响生产和复制的数据存储库、也不会产生额外的存储成 本。BlueXP 灾难恢复可利用ONTAP的FlexClone技术从灾难恢复站点上最后复制的Snapshot创建节省空间 的VMFS数据存储库副本。灾难恢复测试完成后、客户只需删除测试环境、同样不会对实际复制的生产资源产生 任何影响。如果需要(计划内或计划外)执行实际故障转移、只需单击几下鼠标、BlueXP 灾难恢复服务就会编排 自动启动指定灾难恢复站点上受保护虚拟机所需的所有步骤。该服务还会根据需要反转与主站点的SnapMirror关 系、并将所做的任何更改从二级站点复制到主站点、以便执行故障恢复操作。与其他众所周知的替代品相比,所 有这些都只需很少的成本即可实现。



## 入门

要开始使用BlueXP 灾难恢复、请使用BlueXP 控制台、然后访问该服务。

- 1. 登录到BlueXP。
- 2. 从BlueXP 左侧导航栏中、选择"Protection (保护)">" Disaster Recovery (灾难恢复)"。
- 3. 此时将显示BlueXP 灾难恢复信息板。

		Q. Bueld Search Account *	Workspace * Connector * Ao O O
A Storage	very Dashboard Sites Replication plans	Resource groups Job monitoring	Free trial (55 days left) - View details 4 (1)
🕈 Health			
Protection	s (2)	Replication plans (T)	Activity
Backup and recovery	)2 ⊗0 ▲0 utmino traus	⊘1 ⊙2 feedy Failed	Backup job for Replication Plan DemoRP004     M s app
Disaster recovery 0	Dashboard		<ul> <li>Initialize Backup of DemoRP004 for every 5 minutes 3 minutes</li> </ul>
Replication 0	Replication plane	View plans	Itackup job for Replication Plan RPVWFS03     If = app
Rensonware protection (	Resource groups 21	117	<ul> <li>Initiative Backup of RPVMFS03 for every 5 minutes 3 m app</li> </ul>
Covernance	Job monitoring Protected VMs	Unprotected Vives	<ul> <li>Backup job for Replication Plan RPNF5001</li> <li>so m age</li> </ul>
Mobility	Item resource groups View protected VMs	View unprotected VMs	View all jobs
🔹 Extensiona			
	Felovers 1 Felovers	2     Test fallowers     0     Migrations	

在配置灾难恢复计划之前、请确保满足以下前提条件:

- BlueXP 连接器已在NetApp BlueXP 中设置。此连接器应部署在AWS VPC中。
- BlueXP 连接器实例可连接到源和目标vCenter及存储系统。
- 在BlueXP 中添加了托管VMware VMFS数据存储库的内部NetApp存储系统。
- •使用DNS名称时、应进行DNS解析。否则、请使用vCenter的IP地址。
- •已为基于VMFS的指定数据存储库卷配置SnapMirror复制。

在源站点和目标站点之间建立连接后、继续执行配置步骤、该步骤大约需要3到5分钟。



NetApp建议将BlueXP Connector部署在灾难恢复站点或第三个站点中、以便BlueXP Connector 可以在实际中断或自然灾害期间通过网络与源和目标资源进行通信。

T No	tApp BlueXP	Q BuexP Se	arch Account ~	Workspace 🐣 Connector 🎽 👆 🍖 🌣 🥝 😫
0 0 B	Oisaster recovery     Dat     Stee (2)     O2	shboard Sites Replication plans Replication 00 20	lesource groups Job monitoria t plans (2)	Activity
•	View sites  View sites  2  Resource group  View resource group	oups 16 Protected VMs View protected VMs	rplans           Ilip           Unprotected VMs           View unprotected VMs	Initialize Backup of DemoRPVMFS03 for every 10 minutes 7 is apr Discovery of resources in host 172 21:166:190 it is apr Failback of resources using the replaced prime for the former of the former
	Relitovers	1     Failbacks     1     Test tall	overs O Migrations	

编写本文档时、我们将对内部到内部VMFS数据存储库提供技术预览支持。基于FC和iSCSI协议的VMFS数据存储库均支持此功能。

#### BlueXP 灾难恢复配置

准备灾难恢复的第一步是发现内部vCenter和存储资源并将其添加到BlueXP 灾难恢复中。



(i)

确保已将ONTAP存储系统添加到画布中的工作环境中。打开BlueXP 控制台并从左侧导航栏中选择\*保护>灾难恢复\*。选择\*发现vCenter服务器\*或使用顶部菜单、选择\*站点>添加>添加vCenter \*。

II NetAp	PP BlueXP Q BlueXP Search Nincopias Workspace nincopias	🐃 🔤 Connector 🎽 🍓 🏟 🥝 🔒
* (	Disaster recovery Deshboard Siles Replication plans Resource groups Job monitoring	Free trial (55 days left) - View details ] +
•	2 ates Add site	Q /Add;
•	A site is a collection of vCenter servers, either on-premises or in the cloud.	Senn
	aimDemoDe T22 31 1993	•
	Add	Cancel

## 添加以下平台:

• 来源。内部vCenter。

NetApp	BlueXP	Q. BlueXP Search	Account ~   Workspace ~   nimogisk nimopoce	GISABLEPCenn
* 0	Disaster recovery Dashb	and Sites Replication plans Resou	rox groups	Free trial (55 days left) - View details   +
	2 size	Add vCenter server		Add
с 9	mimDemoSrc	Enter connection details for the vCenter server Site nimDemoSrc *	that is accessible from the BlueXP Connector. BlueXP Connector GISABXPConn *	() Sem
4	aimberroDe	vCenter IP address 172.21.166.155		0
	172.23.308.9 () Taging	vCenter user name administrator@hmcdc.local	vCenter password	Sama (1)
		Car ware befor subjected car concurses (C)	Add Cancel	

• 目的地。VMC SDDC vCenter。

III Ne	tApp BlueXP	Q BlueXP Search	Account ~   Workspace ~   nimopisa nimopoce ~	Connector 🖌 🛔 🍖 🌣 🤗 😆
	Oisaster recovery Daskberger	and Sites Replication plans Resol	rox groups	Free trial (55 days left) - View details  +
٣	2	Add vCenter server		1000
٠	2 800			
Ŷ	nimDemoSec	Enter connection details for the vCenter serve	r that is accessible from the BlueXP Connector.	۲
0	172,23,306.3	Site	BlueXP Connector	Senn
4	Comer			U
		vCenter IP address	1	
	nimDemoDe			0
	172.21.506.5	vCenter user name	vCenter password	Senn
	(C) instate			
		2 Use self-signed certificates		
			Add Cancel	

添加完vCenter后、将触发自动发现。

#### 在源站点和目标站点之间配置存储复制

SnapMirror利用ONTAP快照管理从一个位置到另一个位置的数据传输。最初、基于源卷快照的完整副本会复制 到目标卷以执行基线同步。当源上发生数据更改时、系统会创建一个新快照并将其与基线快照进行比较。然后、 发现发生更改的块将复制到目标、新的快照将成为当前基线快照或最新的通用快照。这样、可以重复执行此过 程、并将增量更新发送到目标。

建立SnapMirror关系后、目标卷将处于联机只读状态、因此仍可访问。SnapMirror适用于物理存储块、而不是文件或其他逻辑级别。这意味着、目标卷是源卷的相同副本、包括快照、卷设置等。如果源卷正在使用ONTAP空间效率功能、例如数据压缩和重复数据删除、则复制的卷将保留这些优化。

中断SnapMirror关系会使目标卷处于可写状态、当使用SnapMirror将数据同步到灾难恢复环境时、通常会使用此 关系来执行故障转移。SnapMirror非常成熟、可以将故障转移站点上发生更改的数据高效地重新同步回主系统、 以备稍后恢复联机、然后重新建立初始SnapMirror关系。

#### 如何针对VMware灾难恢复进行设置

对于任何给定应用程序、创建SnapMirror复制的过程都保持不变。此过程可以手动执行、也可以自动执行。最简 单的方法是利用BlueXP 配置SnapMirror复制、方法是将环境中的源ONTAP系统简单地拖放到目标上、以触发 向导来完成其余过程。

R NetApp BlueXP	Commetter Account * Workspace * Commetter   . Commetter @IABERTComm
Canvas My working environments My estate	🖽 Go to Tabular View
Add Working Environment	C Enable Services () () () () () () () () () () () () ()
e •:	On-Premises ONTAP SERVICES Backup and 65,34 cm (1) Protocted Data
y Intargets, Sre Di-Preninses (DirTah Enable this service (R) Volume satisfies	
Replication     Copy & sync     NITAP915_127     On Phoneses O4704P	Citereffication • Off • Off
9.39TB County	Replication 1     Santouring Tarmet

如果满足以下两个条件、BlueXP DRaaS还可以实现相同的自动化:

- 源集群和目标集群具有对等关系。
- 源SVM和目标SVM具有对等关系。

letApp BlueXP	C Buste Salation Initiation Distance OstanceConv A C 2	
Add replication plan	🖉 vCenter servers 🖉 Applications 🧕 Resource mapping 😩 Recurrence 🚯 Review	
	Source cluster Target cluster	
	vVCSA8-Cluster01 *	
	Virtual networks 💮 Mapped	
	Virtual machines 🖉 Mapped	
	Datastores	
	RPO for all datastores in minutes () Retention count for all datastores	
	30 Neglind	
	Source datastore Target datastore	
	Src_NFS_DS01 (svm_NFS:Src_NFS_Vol01) Src_NFS_DS01 (svm_nim_rhs/Src_NFS_DS01_cp) Transfer achedule(RPO) : ;	
	Design in the second seco	



如果已通过命令行界面为卷配置SnapMirror关系、则BlueXP DRaaS将接管该关系并继续执行其 余工作流操作。



除了上述方法之外、还可以通过ONTAP命令行界面或System Manager创建SnapMirror复制。无论使用SnapMirror同步数据所采用的方法如何、BlueXP DRaaS都会编排工作流、以实现无缝高效的灾难恢复操作。

## BlueXP 灾难恢复可以为您做什么?

添加源站点和目标站点后、BlueXP 灾难恢复将执行自动深度发现、并显示VM以及关联的元数据。BlueXP 灾难恢复还会自动检测VM使用的网络和端口组并将其填充。

y .		inepication plans	intraduce Broops	soo monitoring	-see that to	A make relief - wrone defaulte
	2 sites				۹ 🗖	Add
	nimDemoSrc					1
	172,21,196,155	72 W/k	13 Detectores	1 Nessarce groups	GISABXPConn Connector	1
	nimDemoDest					1
	172.21.166.190	61 Vitis	3 Outastures	0 Resource prodes	GISABXPConn Cannecter	•
	L					

添加站点后、可以将VM分组到资源组中。通过BlueXP 灾难恢复资源组、您可以将一组相关VM分组到逻辑组中、这些逻辑组包含其启动顺序以及恢复后可以执行的启动延迟。要开始创建资源组,请导航到\*Resource Groups\*并单击\*Create New Resource Group\*。

Net/	App BlueXP	Q: BueXP Search nim	opise Workspace ~   opise nimspace	Connector GISABXPConn	• • •
	Disaster recovery Dashboard Sites	Replication plans Resource groups	s Job-monitoring	Free trial (83 day	s left) - View details   +
a	2 resource groups	-		Q	Add ()
•	Resource proup	2 Dource site	Source vicenter		R.
¢	DemoR001	nimDemoSes	172.21.166.156		
0	DemoRGVMF503	nimDemoSrc	172.21.168.158		
	Added the re	source group .		×	

也可以在创建复制计划时创建资源组。

在创建资源组期间、可以使用简单的拖放机制来定义或修改VM的启动顺序。

NetApp BlueXP	Q BuettP See	reh Account ~   Workspace ~ nimogisii nimopace	GISAEXPConn
Oisaster recovery Dim			Their trial (B3 days luft) - View details 🔰 -
	Add resource group		
1 невылак роцак			Q. (A60)
·	Name	vCenter	1 1 1 K
·	DemoRGVMFS03	172,21,166,155 *	
DemoRGOT			1. <b>***</b>
0	Select virtual machines		
4	Q incal	Selected VMs (5)	
	SCSLDemoVM01	idCSI_DemoVM01 X	
	SCSI_DemoVM03	iSCSI_DemoVM03 X	
	Z /SCSI_DemoVM02	ISCSI_DemoVM05 X	
	SCSI_DemoVM04		
	ISCSI_DemoVM05	ISCSI_DemoVM04 X	
		Use drag and drop trens to modify the bool order	
		100 M	
		Add Canol	4

创建资源组后、下一步是创建执行蓝图或计划、以便在发生灾难时恢复虚拟机和应用程序。如前提条件中所述、可以事先配置SnapMirror复制、也可以使用创建复制计划期间指定的RPO和保留计数来配置DRaaS。

(i)

NetApp BlueXP     O Cartvas My working environments	Q. BueXP Search Account " Workspace mirrogise " Intropose My estate	Connector CISAEXPConn C So to Tabular View
*     Add Working Environment       *     NTAP       On-P     2.011       Con-Replication     Con-Replication	Polo_Sec transes ONTAP 18 obr	Working Environments         Image: State of the sta
NTAPOIS_Destin On-Promises ONTAP 120178 Caperity	Amazon 53 4 Buchells aws P26_5/27 Terminese ONTAP Tel Contactor	
Case	* • •	

■ NetApp	BlueXP		Q. BueXP Sear	th Account ~	Workspace ninspace	Connector GISABXPCe	"~   👆 🌣 🧿	8
	Replication							
a	6 Volume	Relationships	495.27 GiB Replicated Capacity	0 Currently Transfer	rring	6 Healthy	S O Failed	
•								
Ŷ	Volume Relationships	(6)					a C	
	Health Status 🕈	Source Volume	C   Target Volume	🗧   Total Transfer Time 🗘	Status T	Mirror State	:   Last Successfu	
*	0	DRad5_arc NTAP915_Src	DRas5_src_copy NTAP915_Destn	5 seconds	ide	snapmirrored	Jul 15, 2024, 8:05:05 28:41 M8	
	©	Src_NFS_D503 NTAP915_Src	Src_NFS_DSD3_CP NTAP915_Death	13 seconds	ide	snapmirrored	Jul 15, 2024, 8:07:13 183,41 Mill	
	Ø	Src_NFS_DS04 NTAP915_Src	Src_NFS_DS04_CP NTAP915_Destn	6 seconds	ide	snapmirrored	Jul 15, 2024, 8:05:06 183.38 MiB	
	Ø	Src_NFS_Vol01 NTAP915_Src	Src_NFS_DS01_cp NTAP915_Destri	14 seconds	idle	snapmirrored	Jui 15, 2024, 8-43-22 546.23 MB	
	Ø	Src.JSCSI_DS01 NTAP915_Src	Src_JSCSI_DS01_cp NTAP915_Destri	20 seconds	idie	snapmirrored	Jul 12, 2024, 4:24:34 22:35 Miß	ļ
	0	Sre_ISCSI_DS03 NTAP915_Src	Src_ISCSI_DS03_CP NTAP915_Deatn	6 seconds	idle	snapmirrored	Jui 15, 2024, 8-05-06 254.89 MB	

通过从下拉列表中选择源和目标vCenter平台来配置复制计划、然后选择要包含在该计划中的资源组、并分组应 用程序的还原和启动方式以及集群和网络的映射。要定义恢复计划,请导航到\*复制计划\*选项卡,然后单击\*添 加计划\*。

首先、选择源vCenter、然后选择目标vCenter。

<b>M</b> N6	etApp BlueXP		Q BlackP Sean	ah Account Minogisa	Workspace ~ nimspace	Connector GISABXPConn	<b>4</b> 0 🔅	00
	Add replication plan	() vCenter servers	Applications	3 Resource mapping	(4) Recurrence	3 Review		×
ø		s pa						
		Replication plan name DemoRPVMES03						
Ŷ		A second design of the second second						
0								
-:		Gelect a source vCenter where you	r data exists, to repl	icate to the selected target	vCenter,			
			1					
				Ratificate	1	1		
		Source vCenter	-	Far	elect a target vCenter	-		
		172.21.166.155	<u> </u>		72.21.166.155			
					imDemoSit:			
			Cance	1	72.21.166.190 imDemoDest			
			10					

下一步是选择现有资源组。如果未创建任何资源组、则该向导会根据恢复目标帮助对所需的虚拟机进行分组(基本上是创建功能资源组)。这还有助于定义应如何还原应用程序虚拟机的操作顺序。

<b>III</b> No	tApp BlueXP	Q BueXP Search Account " Workspace " Connector " GISABXPConn	۰ ک	9 (	8
4 D • Q • 4	Add replication plan	vCenter servers: P12.21.168.165 umDemoSize       Virtual machines Resource groups Selected resource groups to replicate. S			×
a:		Previous			

资源组允许使用拖放功能设置引导顺序。它可用于轻松修改恢复过程中VM的启动顺序。

资源组中的每个虚拟机将根据顺序依次启动。两个资源组并行启动。

以下屏幕截图显示了一个选项、用于根据组织要求筛选虚拟机或特定数据存储库(如果事先未创建资源组)。

 $(\mathbf{i})$ 

(i)

mine	tApp BlueXP		( Q Band S	etta Account remogra	* Workspace * rimspace	Connector ~ OtSABXPConn	•	٠	0	8
	Add replication plan	eCenter servers      set	Applications 3 Re Applications 3 Re Applications on the source in ingeneration of the source in the source in ingeneration of the source in the source in the source in ingeneration of the source in the source	Interception Interceptions Center that you want to re- selected VMs to rep Selected VMs to rep	replicate.	172.21.166.190 vicinDemaDed		0	0	<b>0</b> ×
		50, Dentrif/M01	Freedout	Heet						

选择资源组后、创建故障转移映射。在此步骤中、指定源环境中的资源与目标之间的映射方式。其中包括计算资 源、虚拟网络。IP自定义、前处理脚本和后处理脚本、启动延迟、应用程序一致性等。有关详细信息,请参见" 创建复制计划"。

Add replication plan	e	VCenter servers	Applications	0-	esource mapping	Recurrence (5) Re	view			2
	Virtual machines							^		
	iP address type	Target IP								
	Static	* Same as s	ource -							
	Use the same or	edentials for all VMs								
	Use the same sp	ript for all VMs								
	۹		_							
	Source VM	CPUs	RAM		Boot delay(mins between 0 and 10)	Create application consistent replicas	Scripts			
	DemoR001									
	5Q_DemoVM	2	34	ciiti ~	0	0	None 🥜			
	\$0_DemoVM01	2	4	Gi8 ~	0	D	None 🖉			
	50_DemoVM02	2	4	68 ~	0		None 🥏			
	1		- Pro	100	Next					



默认情况下、测试和故障转移操作会使用相同的映射参数。要对测试环境应用不同的映射、请在 取消选中相应复选框后选择Test Mapping选项、如下所示:

	Add replication plan	Subertar servers	Applications	Resource mapping     (4)	) Recurrence (B)	Review	×
۵	Replication plan 3 Add plan						
			Re	source mapping			
¢			Specify how resource	ces map from the source to the large	et.		
6	(a) "	1.21.166.155 DemoSrc	-			(a) 172.21.166.190 mmDemoGest	
<						<u> </u>	
	E Use same Fallover mac	mappings for failower and test mapp ppings Test mappings	singe				

## 完成资源映射后、单击"Next"(下一步)。

<b>III</b> Ne	etApp BlueXP		Q BueXP See	ah Account " ninopisa	Workspace ~	Connector ~ GISABXPConn	۰ 🍋	?	8
	Add replication plan	VCenter serv	ers 🕜 Applications	3 Resource mapping	(4) Recurrence (	5) Review			×
9					~	C 1772 211 1245 1040	1		
٠		nimDemoStc		3	(đ	nimDemoDest			
Ŷ							4		
0		Use same mappings for fa	over and test mappings						
*		Failover mappings	Test mappings						
		Compute resources.	Mapped			~			
		Virtual networks	Mapped			$\sim$			
		Virtual machines	Mapped			~~			
:			Previou	s Next					

选择重复类型。简而言之、请选择迁移(使用故障转移进行一次性迁移)或重复连续复制选项。在此逐步介绍中、 已选择"复件"选项。

miNe	tApp BlueXP		Q. BueXP Search	Account ~	Workspace ~ nimspace	Connector ~ GISAEXPConn	۵ 🕹	<b>8</b>
	Add replication plan	O vCenter servers	Applications	Resource mapping	Recurrence	5 Review		×
a								
٠		(a) 172.21.166.155			(a	172.21.166.190		
Ŷ								
0								
•								
		Migrate	application data one time to source to target.	om Pepticate appli	cation data to keep the target data with the source.			
			C Service		-			
			Previous	Next	-			

完成后、查看创建的映射、然后单击Add Plan。

TIN	etApp BlueXP		Q: BlueXP Search Account ~	Workspace ~ Connector ~ nimspace GISABXPConn	🎝 🌣 🥹 🖯
	Add replication plan	VCenter servers	Applications	Recurrence     Review	×
9					
٠		() 172.21.166.155 nimDamofer		(a) 172.21.166.190	
Ŷ			Repitate		
0		Plan details	Fallover mapping	Victual mochines	1
-:					
		Plan, name	DemoRPVMFS03		
		Recurrence	Replicate		ļ
			Previous Add plan		

<b>I</b> Ne	tApp Blue	хр		٩	BlueXP Search nin	count ~   Wor rogisa nim	kapace 🐃	Connector ~ GISABXPConn	ی ک	00
	Oisa	ster recovery D	ishboard Sites	Replication pl	ans Resource group	as Job monitoring		Free trial	83 days left) - View	details -
a		2 niana		1				0	Add	
٠			1.2		DEMONITIE A				1 Martine Contraction	
¢		2540 (.C.)	Complence check	Plan status	Protected elle	Resource groupe	Recurrence :	Fallowerste		
9		DemoRPVMF503	Healthy	Ready	nimDemoSrc	DemoRGVMFS03	Replicate	nimDemoDest		
~		RPNFS001	Healthy	Ready	nimDemoSrc	DemoRG01	Replicate	nimDemoDest		
3										

创建复制计划后、可以根据需要选择故障转移选项、test-Failover选项或migrate选项来执行故障转移。BlueXP 灾难恢复可确保每30分钟按照计划执行一次复制过程。在故障转移和测试故障转移选项期间、您可以使用最新的SnapMirror Snapshot副本、也可以从时间点Snapshot副本中选择特定的Snapshot副本(根据SnapMirror的保留策略)。如果发生勒索软件等损坏事件、并且最近的副本已被泄露或加密、则时间点选项非常有用。BlueXP 灾难恢复显示所有可用的恢复点。

TI Ne	tApp BlueXP	Q BueXP Search Account ~ Workspanninges minoges	• ×   )	Connector 🛩 DISABXPConn	* 📣	•	9
4 D • C 0	Disaster recovery p     2 alare     DecomPrise	Failover: DemoRPVMFS03     Warning: Failing over will disrupt client access to the data in nimDemoSirc during the transmit memoPeet DR Site.     Warning: All VMs are powered on.     Snapshot copy for volume recovery      Take snapshot row      Select	ansition to	ou trial (D	ilt dags lieft) - Vie Add 	w details	
4	Revenues	Warning: The corresponding volume will be restored with the selected snapshot copy. A made after this snapshot copy was created will be lost.     Snapshots     Snapshot same     Account group	All the changes	Dest			
		DemoRPVMFS03_DemoRGVMF503_7-30-: DemoRGVMF503      DemoRPVMFS03_DemoRGVMF503_7-30-: DemoRGVMF503      DemoRPVMF503_DemoRGVMF503_7-30-: DemoRGVMF503      DemoRPVMF503_DemoRGVMF503_7-30-: DemoRGVMF503      Force failover #					

要使用复制计划中指定的配置触发故障转移或测试故障转移,请单击\*故障转移\*或\*测试故障转移\*。

TI Net	tApp BlueXI	6			Q BlueXP Search n	scount ~   Wo mogae nm	napace ~	Connector 🖌 👆 🍖 🌣 🌚 🖨
8	Oisaste     Oisaste	er recovery D	ashboard Sites	Replication	plans Resource grou	as Job monitoring		Free trial (68 days left) - View details   -
۵		2 plans		-				Q Add
		Han in	Compliance check	Plan status	Pretacted site	Resource groups	Recurrence :	Falserate 2
¢		DemoRPVMF503	Healthy	@ Ready	nimDemoSrc	DemoRGVMFS03	Replicate	n/mDemoDest.
		RPNF5001	Healthy	Ready	nimDemoSrc	DemoRG01	Replicate	View plan details ni Run compliance check
10,531								Test failover Clean up failoser sea Fail over Fail back Edit schedules Take snapshot now Disable Delete

故障转移或测试故障转移操作期间会发生什么情况?

在测试故障转移操作期间、BlueXP 灾难恢复会使用目标卷的最新Snapshot副本或选定快照在目标ONTAP存储 系统上创建FlexClone卷。

 $(\mathbf{i})$ 

测试故障转移操作会在目标ONTAP存储系统上创建克隆的卷。



运行测试恢复操作不会影响SnapMirror复制。

TI Ne	etApp BlueXP	Q BueXP Search Account ~ Workspace ~	Connector 🐐 🔚 🍖 🌣 😨 😫
-	Disaster recovery Dash	board Siles Replication plans Resource groups Job monitoring	Free tital (BB days left) - View details   -
۵	2		
•	Pan	Test failover: DemoRPVMFS03	
	DecoliPyM/505	OR Test Fallover Update Mirror	dDest
4	RPN#5001	<ul> <li>SnapMirror relationship for volume :svm_ISCSI:Stc_ISCSI_D503</li> <li>Destination volume 'Src_ISCSI_D503_CP': size is less than source volume :'Src_ISCSI_D503': size</li> <li>SnapMirror relationship is healthy for volume :svm_ISCSI:Src_ISCSI_D503</li> <li>Destination storage environment found for volume :svm_ISCSI:Src_ISCSI_D503</li> <li>Destination now option is not selected, primary backup &amp; snapmirror update not performed.</li> <li>DR Test Failover Target Start</li> </ul>	cOest ***
		Run in background	

在此过程中、BlueXP 灾难恢复不会映射原始目标卷。相反、它会从选定的Snapshot创建一个新的FlexClone 卷、并将支持该FlexClone卷的临时数据存储库映射到ESXi主机。

vSphere Client Q	Search in at enviro	kid04-vc01.hmcdc.loc ary Monitor Configure	Cal EACTIONS Permissions Datacenters	Hosts (	& Clusters VMs 1	C &	Administrator@HMCDC	LOCAL 🗸 🤅	) 0 *
WikdO4-VC01 NmcdcLog     WikdO4-DC01     WikdO4-DC01     O4TestBed_D501     ISODump     WikdO4_Dstn_D5		Version: Build: Last Updated: Last Pile-Based Backup:	8.0.2 22385739 May 20, 2024, 3/21 AM Not scheduled	II	Capacity and Us Last coduced at 3:35 AM CPU	age I	n	72:12 GHz free 44 GHz capacity 485:84 GB free	0
		Chusters: Hosta: Virtual Machines:	1 2 61		36.25 G8 used Storage 94.28 G8 used		54	99 GB capacity 3.91 TB free 4 TB capacity	
	Tay	gs II	Custom Attributes			Ш	vCenter Health	ц. Ш	
Y Recent Tasks Alarm	s								
Task Name y Tas	pet a	r Statue Y	Detalo Y	Infator	*	Ourved +	that Time 🚽 🔻	Completion Time	τ In <sup>A</sup>
Awstan VMPS	wkbd04-esx01.hmcd	Completed		HHCDCI	LOCAL\Administrator	2 mi	07/30/2024, 3:22:47:A M	07/30/2024, 3:2 M	2.47.6
Rescan all HBAs	, whid04-ets/01 hmcd Cal	Completed		HMCDC	LOCALIAdministrator	3 ms	07/30/2025/2824714	√ <u>07/09/29</u> 24, 3.2. M	2:47 A mt

	wkld04-vc01	hmcdc.loc <sub>Configure</sub>	al Exctions Permissions Datacenters	Hosts &	Clusters VMs Detestores	Networks Unked vCenter Server Syst	uems ···
IS2 wikid04-we0(hmedclocal     Wikid04-DC01     O4TestBed_D501     SoDump     Sec_iSCSi_D503     wikid04_Dstn_D501	vCenter Details			8	Capacity and Usage Last updated at \$23 AM CPU CPU L39 Gets used Memory	73.44 GHz free 73.44 GHz capacity 485.84 GB free	0
					26.55 Gtl used Storage	515 99 GB capeory 3.95 TB free	
1	Tags	Н	Custom Attributes		9428 50 cand	4 TB capacity vCenter Health	
V Decent Tasks, Alarms							
Task Name y Targel	T Statue	Ŧ	Ostalo T	avbatur :	T Ourved T	Start Time 4 T Completion Time	T =
Register Vetual machine (1) _m00004-DC01		20% ()	Registering Virtual Hactrine o It destination feed	System	20 ms	07/30/2024, 3:23:43 A M	***
Register virtual machine		20% 0	Registering Virtual Machine o In destination hust	System	17 mi	07/30/2024 233436 Windows	

测试故障转移操作完成后、可以使用\*"清理故障转移测试"\*触发清理操作。在此操作期间、BlueXP 灾难恢复会 销毁操作中使用的FlexClone卷。

如果发生实际灾难事件、BlueXP 灾难恢复将执行以下步骤:

1. 中断站点之间的SnapMirror关系。

- 2. 重新签名后挂载VMFS数据存储库卷、以便立即使用。
- 3. 注册VM
- 4. 启动VM

	PP BlueXP	Q BueXP Search Account ~ Workspace ~ Co pimograe rimopice 00	annector 🎽 👍 🌣 🕐 😆
-	Disaster recovery Dauto	ound Sities Replication plans Resource groups Job monitoring	Free trial (68 days left) - View details   -
•	<b>6</b> (1977)		
	Z atarn	Failover: DemoRPVMFS03	
Ŷ	PSM - Sector	✓ DR Failower Target Start	
	DecoliPyW/S03	Breaking SnapMirror relationship for volume - Src_JSCSI_DS03. Using anapshot id 8af61dab- 87cd-42b2-bdee-cbe91e8c9ea2	eGest ***
	RPN#3001	Mounting volume - Src_ISCSE_DS03 - in datastore - Src_ISCSE_DS03	eDest ***
		Registering VM ~ iSCSI_DemoVM03	
		Registering VM - iSCSI_DemoVM04	
		<ul> <li>Registering VM - iSCSL_DemoVM01</li> </ul>	
		Registering VM - ISCSI_DemoVM05	
		<ul> <li>Powering on VM - ISCSL Demol/M03</li> </ul>	
		Close	

主站点启动并运行后、BlueXP 灾难恢复将为SnapMirror启用反向重新同步并启用故障恢复、只需单击一个按钮即可再次执行故障恢复。

T Ne	tApp BlueXP	Q BlueXP Search Account ~   Workspace ~   nimoges immigree	Connector 👋 🎝 😋
	Disaster recovery Das	Noord Siles Replication plans. Resource groups Job monitoring	Prese tital (88 days left) - View details 🔰 -
۵	0		
	Z parm	Failover: DemoRPVMFS03	
Ŷ	Part	Powering off VM - ISCSL_DemoVM02	
	DecoliPvW/S03	Powering off VM - iSCSI_DemoVM04	eOust +++
4	APP#5001	Powering off VM - ISCSI_DemoVM05	eDest +++
		Powering off VM - iSCSL_DemoVM01	
		<ul> <li>Reversing SnapMirror relationship for volume – Src_ISCSI_DS03</li> </ul>	
		OR Failover Control	
		<ul> <li>All resources in this resourcegroup DemoRGVMFS03 are in the same volume</li> </ul>	
		Close	

如果选择了迁移选项、则会将其视为计划内故障转移事件。在这种情况下、还会触发一个额外的步骤、即关闭源

在BlueXP 或ONTAP命令行界面中、您可以监控相应数据存储库卷的复制运行状况、并可通过作业监控功能跟 踪故障转移或测试故障转移的状态。

NetApp B	ueXP		C	R BuexP Search Acc	ogisa 🜱	Workspace ~ nimispace	Connector ~ GISA8XPConn	🍋 🌣 📀
Dis	aster recovery Dasi	board Sites	Replication	plans Resource groups	Job monitori	ng	Free trial (68 day	s left) - View details
,								
6	Last 24 hours 🖤					C	* Last updated: July 30, 20	24, 11:52 AM
>								
<b>0</b>		0		0	0		0	0
	0	Succes	*	In progress	III Queued		Warning .	Faled
	11102 jobs	Status	Workload	1 Martin	3	Statting	1 Indiana 1	4
	🗇 2963d7f3-7eb0-475d	() Success	Discovery	Discovery of resources in h	ost 172.21.166	07/30/2024, 11:52:	07/30/2024, 11:52:	
	() 17eb7c0c-90d8-49b2	Success	DRFailback	Failback of resources using	the replication	07/30/2024, 11:49	07/30/2024, 11:52:	
	() 47115cf2-1e97-48ca-	Success	Discovery	Discovery of resources in h	ost 172.21.166	07/30/2024, 11:43	07/30/2024, 11:44:	
	- Contraction of the second	0						

这是一款功能强大的解决方案、可用于处理定制和自定义的灾难恢复计划。发生灾难并决定激活灾难恢复站点时、只需单击按钮、即可按计划故障转移或故障转移的形式完成故障转移。

要了解有关此过程的详细信息,请随时观看详细的演示视频或使用"解决方案模拟器"。

#### 版权信息

版权所有 © 2024 NetApp, Inc.。保留所有权利。中国印刷。未经版权所有者事先书面许可,本文档中受版权保 护的任何部分不得以任何形式或通过任何手段(图片、电子或机械方式,包括影印、录音、录像或存储在电子检 索系统中)进行复制。

从受版权保护的 NetApp 资料派生的软件受以下许可和免责声明的约束:

本软件由 NetApp 按"原样"提供,不含任何明示或暗示担保,包括但不限于适销性以及针对特定用途的适用性的 隐含担保,特此声明不承担任何责任。在任何情况下,对于因使用本软件而以任何方式造成的任何直接性、间接 性、偶然性、特殊性、惩罚性或后果性损失(包括但不限于购买替代商品或服务;使用、数据或利润方面的损失 ;或者业务中断),无论原因如何以及基于何种责任理论,无论出于合同、严格责任或侵权行为(包括疏忽或其 他行为),NetApp 均不承担责任,即使已被告知存在上述损失的可能性。

NetApp 保留在不另行通知的情况下随时对本文档所述的任何产品进行更改的权利。除非 NetApp 以书面形式明确同意,否则 NetApp 不承担因使用本文档所述产品而产生的任何责任或义务。使用或购买本产品不表示获得 NetApp 的任何专利权、商标权或任何其他知识产权许可。

本手册中描述的产品可能受一项或多项美国专利、外国专利或正在申请的专利的保护。

有限权利说明:政府使用、复制或公开本文档受 DFARS 252.227-7013(2014 年 2 月)和 FAR 52.227-19 (2007 年 12 月)中"技术数据权利 — 非商用"条款第 (b)(3) 条规定的限制条件的约束。

本文档中所含数据与商业产品和/或商业服务(定义见 FAR 2.101)相关,属于 NetApp, Inc. 的专有信息。根据 本协议提供的所有 NetApp 技术数据和计算机软件具有商业性质,并完全由私人出资开发。 美国政府对这些数 据的使用权具有非排他性、全球性、受限且不可撤销的许可,该许可既不可转让,也不可再许可,但仅限在与交 付数据所依据的美国政府合同有关且受合同支持的情况下使用。除本文档规定的情形外,未经 NetApp, Inc. 事先 书面批准,不得使用、披露、复制、修改、操作或显示这些数据。美国政府对国防部的授权仅限于 DFARS 的第 252.227-7015(b)(2014 年 2 月)条款中明确的权利。

商标信息

NetApp、NetApp 标识和 http://www.netapp.com/TM 上所列的商标是 NetApp, Inc. 的商标。其他公司和产品名称可能是其各自所有者的商标。