

Lenovo NetApp与AWS强强联手

“云端”畅享简单快捷的数据管理

— Cloud Volumes ONTAP解密

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Agenda 内容纲要

- 云文件服务产品的差距
- Cloud Volumes ONTAP概览
- Cloud Volumes ONTAP应用场景
- Cloud Volumes ONTAP底层技术与部署架构
- Cloud Volumes ONTAP案例分享
- Cloud Volumes ONTAP更多资料

云文件服务产品存在差距

关键NAS功能

- 多协议支持
- 性能
- 可用性
- 可扩展性
- 数据管理
 - 数据克隆
 - 快照副本
 - 备份
 - 数据容灾



原生云服务集成

- 以服务方式提供
- APIs



多云自由选择

- 随心所欲地使用你想用的云
- 摆脱如下羁绊：
 - 供应商锁定
 - IT资源孤岛



Cloud Volumes ONTAP概览

- Cloud Volumes ONTAP是一个全功能的ONTAP版本
- 运行于AWS的原生环境
- 使用原生云存储资源 (EBS)和计算资源 (EC2)
 - 推荐的EC2实例:
 - c4.4xlarge、c4.8xlarge、c5d.4xlarge*、c5d.9xlarge*、m4.xlarge、m4.2xlarge、m4.4xlarge、m5.xlarge、m5.2xlarge、m5.4xlarge、r4.xlarge、r4.2xlarge、r5.xlarge、r5.2xlarge、r5d.2xlarge
 - 采用 FabricPool 将数据分层到 S3
- 遵从云优先战略



Cloud Volumes ONTAP概览

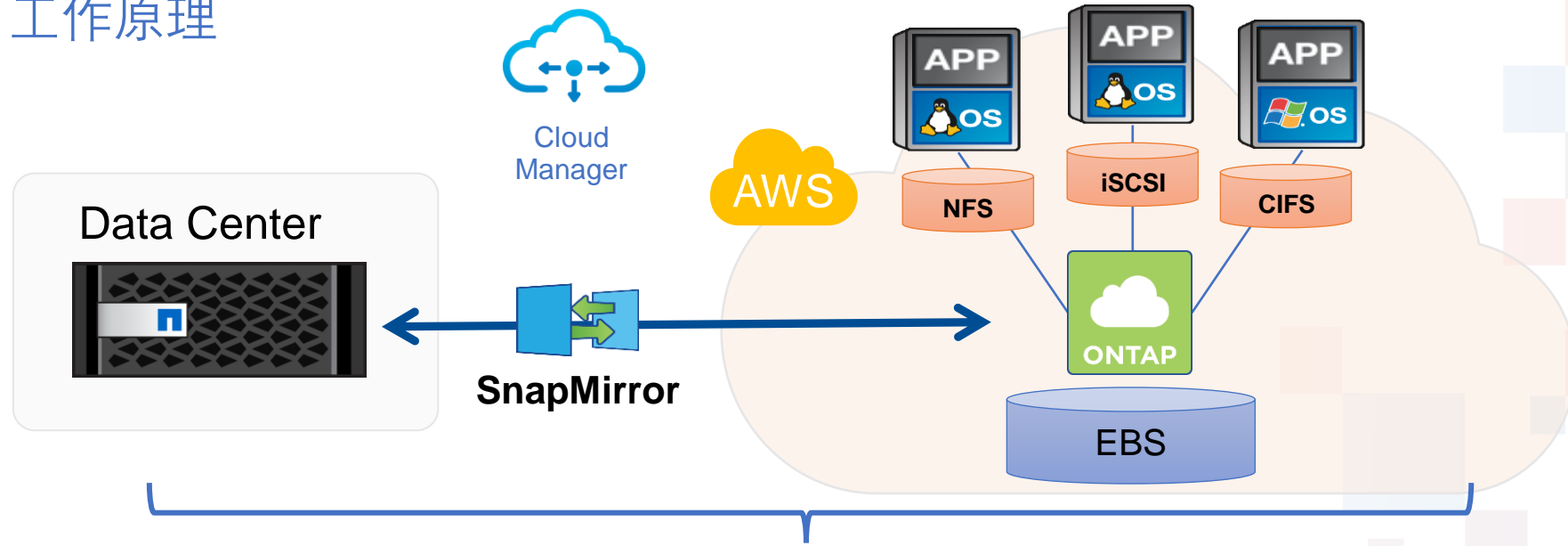
自2014年起，NetApp提供其第一代NetApp® ONTAP® 软件的云版本

- ONTAP软件在 AWS marketplace上发布
- 为云端应用提供高可用存储系统
- 原生支持多种提高存储效率技术和数据复制技术
- 采用BYOL模式
- 通过GUI和API，易于部署和操作



NetApp Cloud Volumes ONTAP for AWS

工作原理



特有的存储效率和功能

- NetApp® Snapshot® copies
- Deduplication
- Compression
- NetApp SnapMirror®/ NetApp SnapVault®
- NetApp FlexClone® volumes
- NFS/CIFS/iSCSI

Cloud Manager
在自有数据中心或云端对云存储进行管理和监控

NetApp® OnCommand® 管理套件

System Manager Unified Manager Workflow Automation Insight

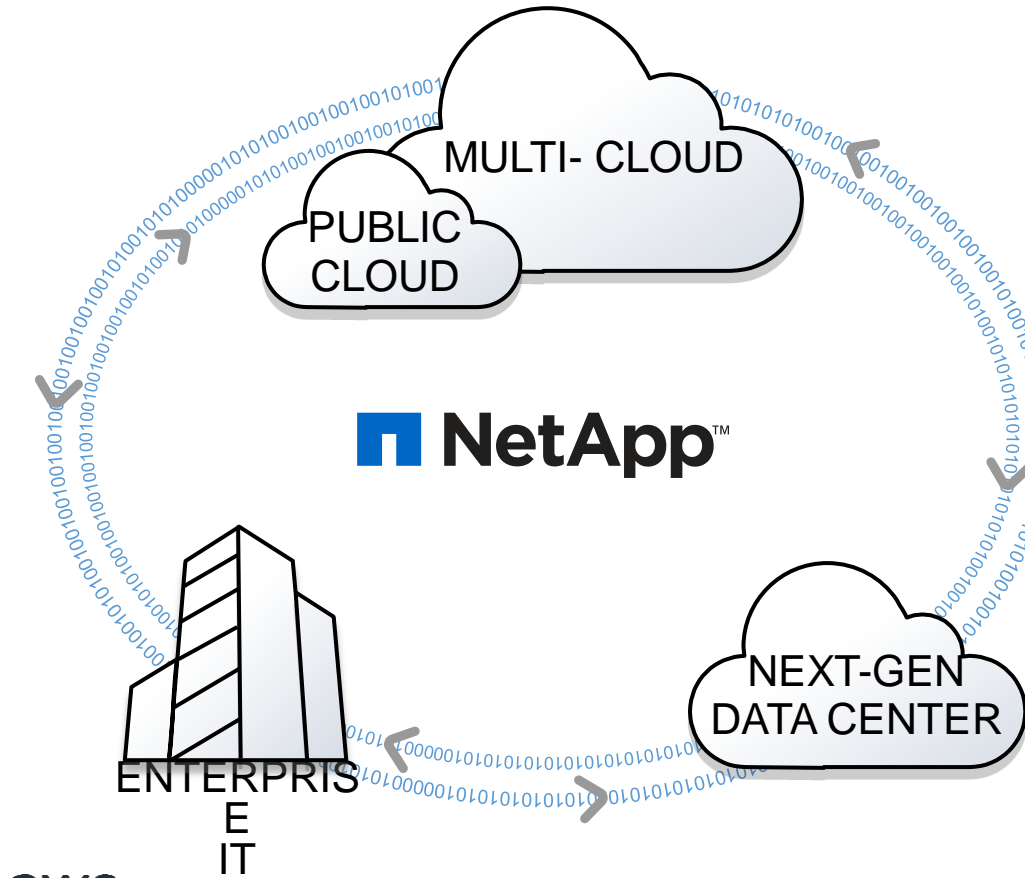


Cloud Volumes ONTAP 应用场景



Cloud Volumes ONTAP – 应用场景

基于云激发创新原动力



- 生产负载上云、云端文件共享
- 数据保护 - 云容灾和云备份
- 快速的DevOps & Dev / Test



生产负载上云

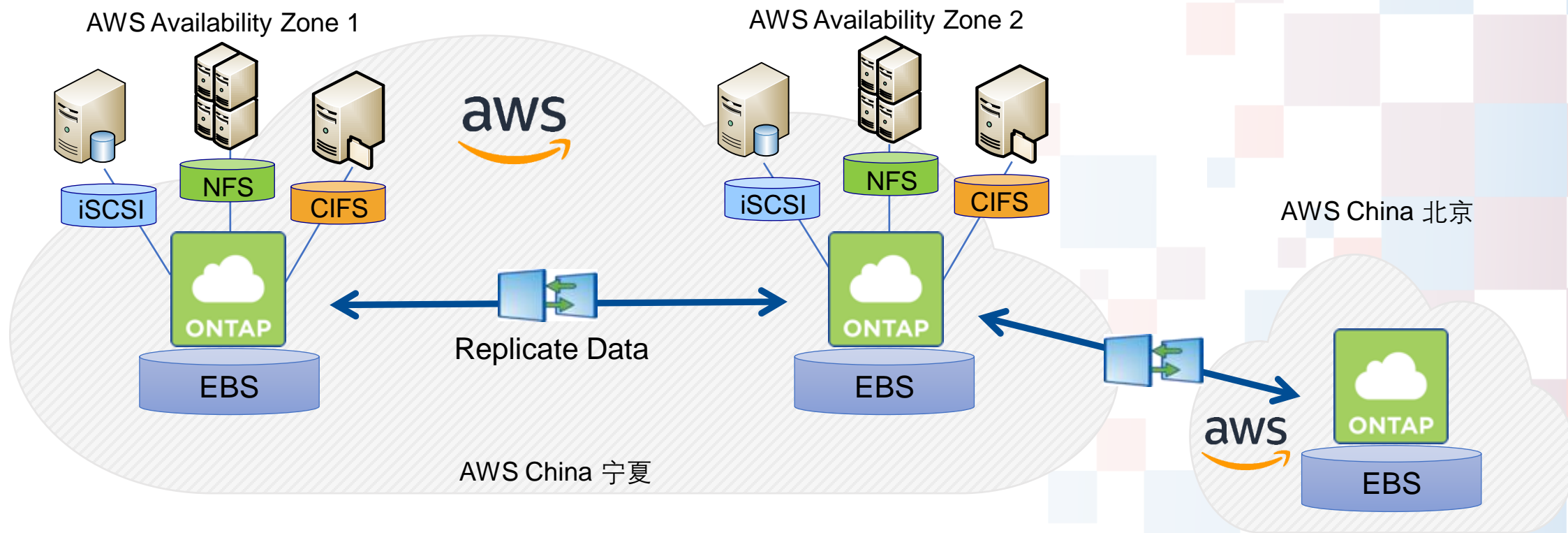
- 将业务应用和关键任务迁移到云
 - Web应用, 数据库等
- 将现有应用平滑移至云而无需重新构建
- 实现云转型的客户可以获得巨大的收益
 - 敏捷
 - 更快推向市场
 - 无需采购硬件
 - 从资本支出 (CapEx) 转为运营支出 (OpEx)



典型架构

多区域应用覆盖

- 在AWS上可以部署基于数据复制而构成的CVO跨AZ的数据层高可用环境
- 跨Region在宁夏区运行, 在北京区做DR
- 与数据中心存储相同的数据管理方式



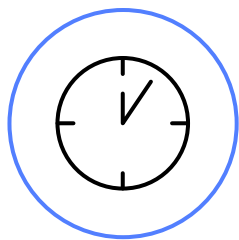
云端文件共享

- 用公有云资源替换或扩展云下NAS共享，并随着业务发展弹性增长
- 利用NetApp领先的NAS功能
 - 存储效率
 - 加密
 - Snapshot副本
- 防止勒索软件损害云端数据
- 云端数据WORM (Write-once, Read-many)
 - 满足监管需要和企业内部规定



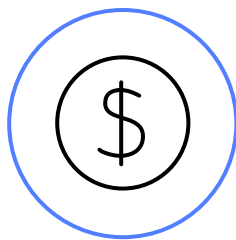
AWS Marketplace

一个甄选的数字化产品目录，帮助您更容易
查找，购买和部署运行在AWS上的软件产品



方便快捷

只需点击几次，或者使用一键式部署选项，即可在短短几分钟内找到最合适的软件。AWS Marketplace中收录的软件均可在AWS上直接运行。



即用即付

根据用量自由选择支付选项完成付款，较长时间使用或定制化需求可以获得相应折扣。AWS会将AWS Marketplace上产生的所有费用汇总成一份账单。

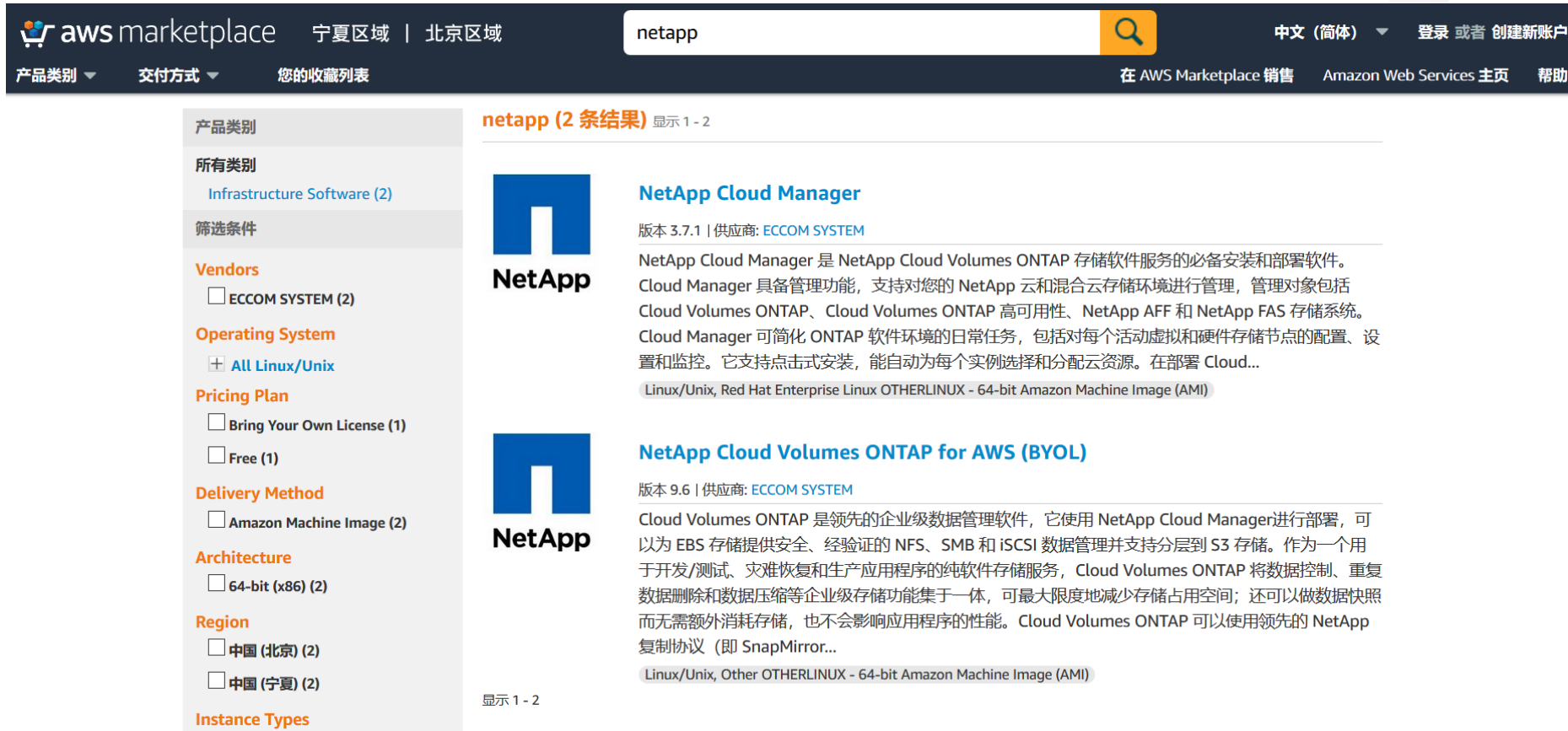


可靠安全认证

AWS Marketplace中收录的所有软件均经过严格审查，并将持续接受漏洞检测。



Cloud Volume ONTAP已上线AWS Marketplace China



The screenshot shows the AWS Marketplace interface for the search term 'netapp'. The search results are filtered to show 2 items. The first item is 'NetApp Cloud Manager', version 3.7.1, provided by ECCOM SYSTEM. The second item is 'NetApp Cloud Volumes ONTAP for AWS (BYOL)', version 9.6, also provided by ECCOM SYSTEM. The interface includes a sidebar with filters for product categories, vendors, operating systems, pricing plans, delivery methods, architectures, regions, and instance types. The search results are displayed in a list format with product logos and descriptions.

aws marketplace 宁夏区域 | 北京区域 netapp 中文(简体) 登录 或者 创建新账户

产品类别 交付方式 您的收藏列表 在 AWS Marketplace 销售 Amazon Web Services 主页 帮助

netapp (2 条结果) 显示 1 - 2

NetApp Cloud Manager
版本 3.7.1 | 供应商: ECCOM SYSTEM
NetApp Cloud Manager 是 NetApp Cloud Volumes ONTAP 存储软件服务的必备安装和部署软件。Cloud Manager 具备管理功能, 支持对您的 NetApp 云和混合云存储环境进行管理, 管理对象包括 Cloud Volumes ONTAP、Cloud Volumes ONTAP 高可用性、NetApp AFF 和 NetApp FAS 存储系统。Cloud Manager 可简化 ONTAP 软件环境的日常任务, 包括对每个活动虚拟和硬件存储节点的配置、设置和监控。它支持点击式安装, 能自动为每个实例选择和分配云资源。在部署 Cloud...
Linux/Unix, Red Hat Enterprise Linux OTHERLINUX - 64-bit Amazon Machine Image (AMI)

NetApp Cloud Volumes ONTAP for AWS (BYOL)
版本 9.6 | 供应商: ECCOM SYSTEM
Cloud Volumes ONTAP 是领先的企业级数据管理软件, 它使用 NetApp Cloud Manager进行部署, 可以为 EBS 存储提供安全、经验证的 NFS、SMB 和 iSCSI 数据管理并支持分层到 S3 存储。作为一个用于开发/测试、灾难恢复和生产应用程序的纯软件存储服务, Cloud Volumes ONTAP 将数据控制、重复数据删除和数据压缩等企业级存储功能集于一体, 可最大限度地减少存储占用空间; 还可以做数据快照而无需额外消耗存储, 也不会影响应用程序的性能。Cloud Volumes ONTAP 可以使用领先的 NetApp 复制协议 (即 SnapMirror...
Linux/Unix, Other OTHERLINUX - 64-bit Amazon Machine Image (AMI)

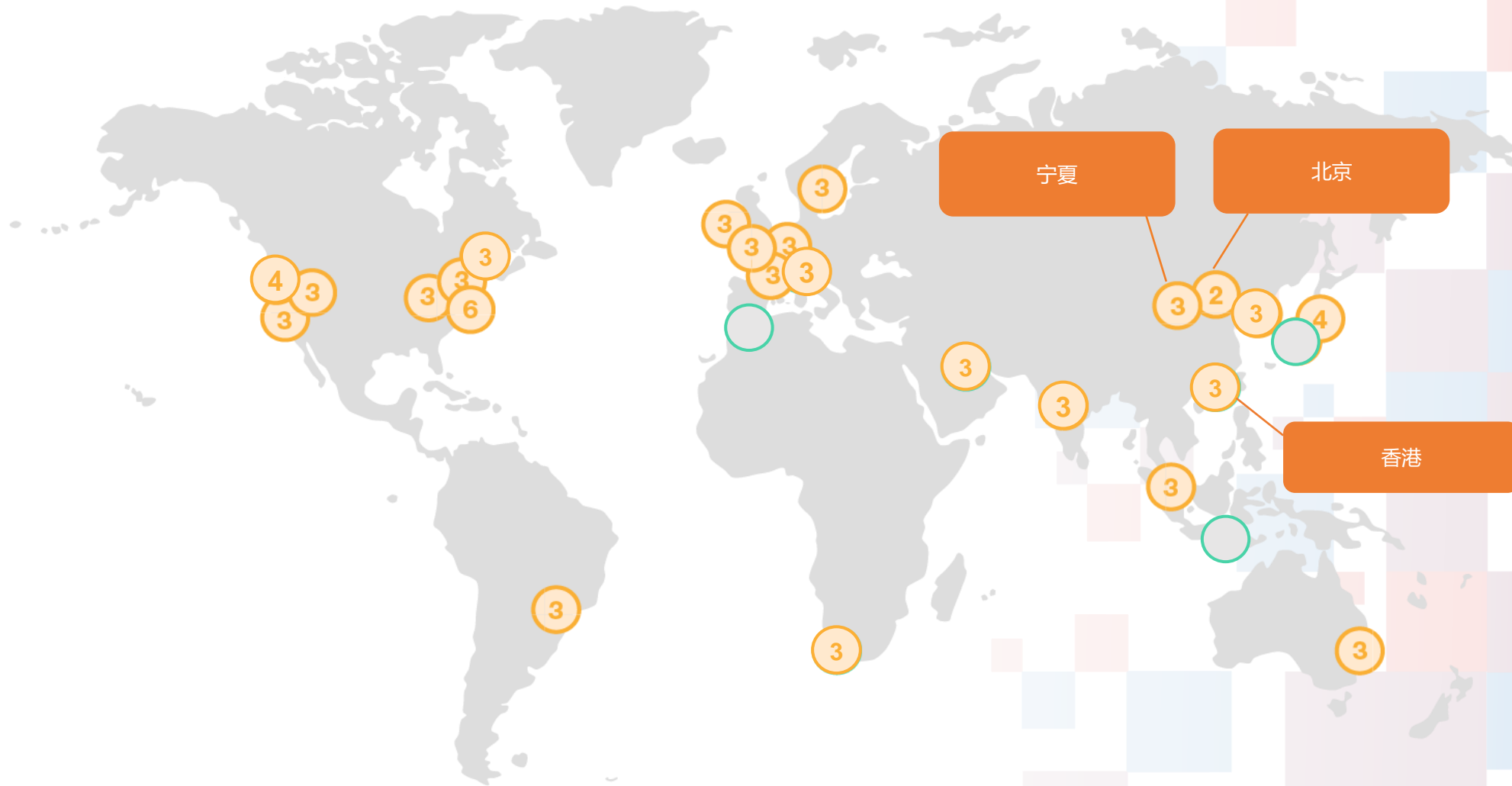
显示 1 - 2



<https://awsmarketplace.amazonaws.cn/marketplace/search/results?x=0&y=0&searchTerms=netapp&locale=zh>



AWS全球基础设施



稳健全面安全的云平台

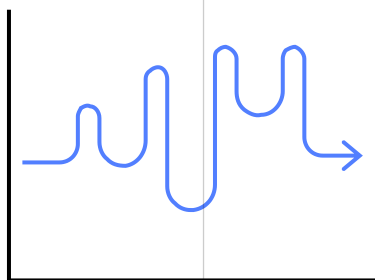
<p>ANALYTICS</p> <p>ANALYTICS DATA EXCHANGE DATA LAKE DATA PIPELINES DATA WAREHOUSE ELASTICSEARCH</p> <p>STREAMING ETL HADOOP/SPARK INTERACTIVE SQL QUERIES VISUALIZATIONS</p>	<p>COMPUTE</p> <p>COMPUTE AUTO SCALING BATCH JOBS EVENT-DRIVEN SERVERLESS COMPUTING INSTANCE TYPES MANAGED VIRTUAL PRIVATE SERVERS MANAGED REPOSITORY FOR SERVERLESS APPS RUN & MANAGE WEB APPS SERVERLESS COMPUTE VIRTUAL SERVERS</p> <p>CONTAINERS CONTAINER SERVICE MANAGED KUBERNETES STORE & RETRIEVE DOCKER IMAGES</p>	<p>END USER COMPUTING</p> <p>APP STREAMING DESKTOP COMPUTING</p> <p>MOBILE ACCESS STORAGE & COLLABORATION</p>	<p>MACHINE LEARNING</p> <p>ML FRAMEWORKS DEEP LEARNING AMIS & CONTAINERS HARDWARE ACCELERATION ML AT THE EDGE TENSORFLOW, PYTORCH, MXNET</p> <p>SAGEMAKER AUTOMATIC MODEL TUNING DATA LABELING HOSTED NOTEBOOKS ML MARKETPLACE MODEL HOSTING MODEL OPTIMIZATION MODEL TRAINING PRE-BUILT ALGORITHMS TOPIC MODELING DEEP LEARNING MODELS REINFORCEMENT LEARNING SPOT INSTANCES REAL-TIME PREDICTIONS</p> <p>AI SERVICES CHATBOTS ENTITY EXTRACTION FACE ANALYTICS FACE SEARCH FORECASTING IMAGE LABELING NATURAL LANGUAGE PROCESSING PERSONALIZATION & RECOMMENDATION SENTIMENT ANALYSIS SPEECH TRANSCRIPTION TEXT & DATA EXTRACTION TEXT TO SPEECH TRANSLATION VIDEO & IMAGE ANALYSIS CONTENT MODERATION</p>	<p>MEDIA SERVICES</p> <p>LIVE VIDEO TRANSPORT MEDIA STORAGE TRANSCODING VIDEO ORIGINATOR & PACKAGING</p> <p>VIDEO PERSONALIZATION & MONETIZATION VIDEO PROCESSING & DELIVERY VIDEO STREAMING ANALYSIS</p>	<p>SATELLITE</p> <p>SATELLITE OPERATIONS</p>
<p>AR + VR</p> <p>AR/VR EXPERIENCES</p>	<p>DATABASE</p> <p>REALTIONAL DATABASES HIGH-PERFORMANCE RELATIONAL DATABASE BUILT FOR THE CLOUD MANAGED MARIADB MANAGED MYSQL MANAGED ORACLE MANAGED POSTGRESQL MANAGED SQL SERVER</p> <p>PURPOSE-BUILT DATABASES DOCUMENT DATABASE GRAPH DATABASE IN-MEMORY CACHING KEY-VALUE STORE DATABASE LEDGER DATABASE TIME SERIES DATABASE</p>	<p>HYBRID ARCHITECTURE</p> <p>AWS SERVICES ON PREMISES DATA INTEGRATION INTEGRATED DEVICES & EDGE SYSTEMS INTEGRATED IDENTITY & ACCESS</p> <p>INTEGRATED NETWORKING INTEGRATED RESOURCE & DEPLOYMENT MANAGEMENT VMWARE CLOUD ON AWS</p>	<p>MANAGEMENT & GOVERNANCE</p> <p>ACTIVITY & API USAGE TRACKING CHATBOT CONFIGURATION TRACKING GOVERNANCE INVENTORY TRACKING LICENSE MANAGER MANAGE POLICIES MANAGE RESOURCES</p> <p>MONITORING PROVISIONING RESOURCE TEMPLATES SECURITY RECOMMENDATIONS SERVER MANAGEMENT SERVICE CATALOG SYSTEMS MANAGER</p>	<p>MIGRATION & TRANSFER</p> <p>APPLICATION MIGRATION DATABASE MIGRATION EXABYTE-SCALE MIGRATION ONLINE DATA TRANSFER SCHEMA CONVERSION SERVER MIGRATION TRANSFER FOR SFTP</p>	<p>SECURITY, IDENTITY, & COMPLIANCE</p> <p>ACCESS CONTROL ASSESSMENT & REPORTING CONFIGURATION COMPLIANCE DATA PROTECTION DDOS PROTECTION IDENTITY MANAGEMENT KEY MANAGEMENT & STORAGE MONITORING & LOGGING RESOURCE MANAGEMENT THREAT DETECTION WEB APPLICATION FIREWALL</p>
<p>AWS COST MANAGEMENT</p> <p>ANALYZE AWS COSTS COST & USAGE BUDGETS COST & USAGE REPORTS RESERVED INSTANCES REPORTING</p>	<p>DEVELOPER TOOLS</p> <p>ANALYZE & DEBUG APPLICATION LIFECYCLE MANAGEMENT AUTHORING BUILD & TEST CONTAINERS DEVOPS RESOURCE MANAGEMENT ONE-CLICK APP DEVELOPMENT PATCHING PIPELINE ORCHESTRATION RESOURCE TEMPLATES TRIGGERS</p>	<p>GAME TECH</p> <p>CROSS-PLATFORM 3D GAME ENGINE GAME SERVER HOSTING</p>	<p>MARKETPLACE</p> <p>ANALYTICS DATA PRODUCTS DATABASES DEVOPS IOT</p> <p>MACHINE LEARNING NETWORKING OPERATING SYSTEMS SECURITY STORAGE</p>	<p>MOBILE</p> <p>API GATEWAY DEVELOPMENT FRAMEWORK IDENTITY MOBILE ANALYTICS</p> <p>MOBILE APP TESTING SINGLE INTEGRATED CONSOLE SYNC TARGETED PUSH NOTIFICATIONS</p>	<p>STORAGE</p> <p>ARCHIVE STORAGE BACKUP & RESTORE BLOCK STORAGE DATA TRANSFER EDGE PROCESSING & COMPUTING FILE STORAGE HIGH-PERFORMANCE FILE SYSTEM HYBRID CLOUD STORAGE OBJECT STORAGE WINDOWS FILE SYSTEM</p>
<p>APPLICATION INTEGRATION</p> <p>EMAIL MESSAGE BROKER QUEUEING & NOTIFICATIONS</p> <p>SEARCH TRANSCODING WORKFLOW</p>	<p>INTERNET OF THINGS (IOT)</p> <p>RULES ENGINE DEVICE ANALYTICS DEVICE GATEWAY DEVICE SDK DEVICE SHADOWS EVENT DETECTION & RESPONSE LOCAL COMPUTE LOCAL DATA COLLECTION MANAGEMENT & SECURITY MICROCONTROLLER OPERATING SYSTEM REGISTRY VISUAL APPLICATIONS DEVELOPMENT</p>	<p>INFRASTRUCTURE</p> <p>AVAILABILITY ZONES CUSTOM HARDWARE DATA CENTER INFRASTRUCTURE GLOBAL NETWORK BACKBONE POINTS OF PRESENCE POWER INFRASTRUCTURE REGIONS</p>	<p>NETWORKING & CONTENT DELIVERY</p> <p>APPLICATION DELIVERY DEDICATED NETWORK CONNECTION DOMAIN NAME SYSTEM LOAD BALANCING MONITOR APIs MONITOR MICROSERVICES NETWORK TOPOLOGY NETWORKING HUB PRIVATE CONNECTION TO APPS SCALE VPC & ACCOUNT CONNECTIONS SERVICE DISCOVERY VIRTUAL PRIVATE CLOUD</p>	<p>ROBOTICS</p> <p>CLOUD ROBOTICS</p>	<p>CUSTOMER ENABLEMENT</p> <p>ACCOUNT MANAGEMENT DASHBOARD PERSONALIZATION ENTERPRISE SUPPORT EXPERTS MARKETPLACE OPTIMIZATION GUIDANCE PARTNER ECOSYSTEMS PROFESSIONAL SERVICES SECURITY & BILLING REPORTS SOLUTIONS MANAGEMENT TRAINING & CERTIFICATION</p>
<p>BUSINESS APPLICATIONS</p> <p>EMAIL & CALENDARING ONLINE MEETINGS SHARING & COLLABORATION</p> <p>UNIFIED COMMUNICATIONS VOICE-ENABLED WORKPLACE</p>	<p>BLOCKCHAIN</p> <p>BLOCKCHAIN TEMPLATES LEDGER DATABASE MANAGED BLOCKCHAIN</p>	<p>CUSTOMER ENGAGEMENT</p> <p>CONTACT CENTER EMAIL TARGETING USER ENGAGEMENT ACROSS CHANNELS</p>	<p>MANAGEMENT & GOVERNANCE</p> <p>ACTIVITY & API USAGE TRACKING CHATBOT CONFIGURATION TRACKING GOVERNANCE INVENTORY TRACKING LICENSE MANAGER MANAGE POLICIES MANAGE RESOURCES</p> <p>MONITORING PROVISIONING RESOURCE TEMPLATES SECURITY RECOMMENDATIONS SERVER MANAGEMENT SERVICE CATALOG SYSTEMS MANAGER</p>	<p>ROBOTICS</p> <p>CLOUD ROBOTICS</p>	<p>CUSTOMER ENABLEMENT</p> <p>ACCOUNT MANAGEMENT DASHBOARD PERSONALIZATION ENTERPRISE SUPPORT EXPERTS MARKETPLACE OPTIMIZATION GUIDANCE PARTNER ECOSYSTEMS PROFESSIONAL SERVICES SECURITY & BILLING REPORTS SOLUTIONS MANAGEMENT TRAINING & CERTIFICATION</p>



Amazon EC2 计价模式

按需 OD

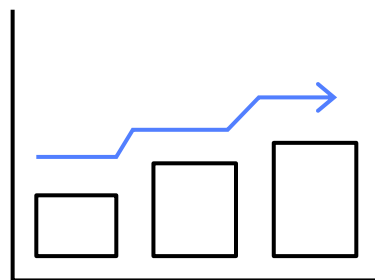
最小粒度按照秒付费
没有长期承诺。
用于应付突发工作量和特定需求



突发业务
不确定的需求

预留实例 RI

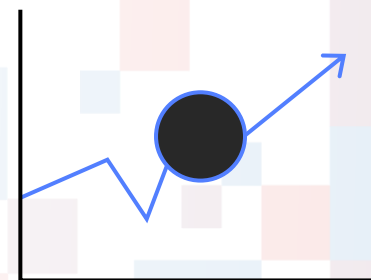
1 或 3 年使用承诺
大幅度折扣



长期固定

Spot 实例

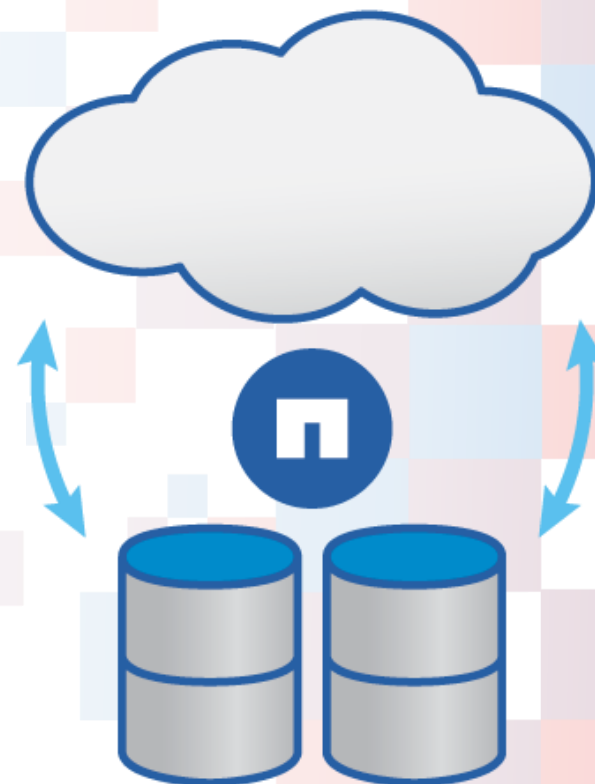
EC2 未使用的容量
高达 90% 折扣



能应对中断

云容灾和云备份

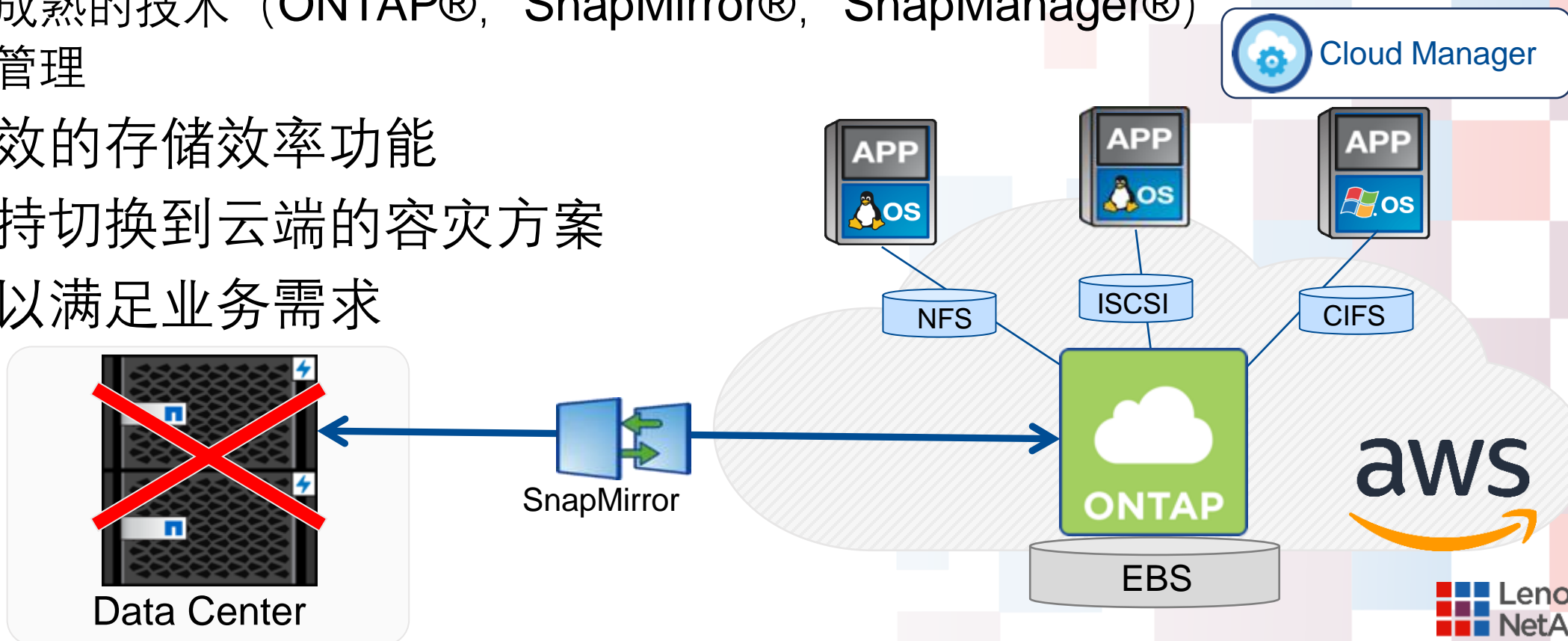
- 转向云容灾/云备份代替运维灾备数据中心
- 公共云对各种规模的客户云容灾和云备份都能有效节约成本
- 通常是客户迈向云的第一步，低风险。
 - 云容灾/云备份通常是客户首次使用CVO的用例



典型架构

Cloud Volumes ONTAP云容灾解决方案

- 与本地存储完全集成
 - 利用成熟的技术 (ONTAP®, SnapMirror®, SnapManager®)
 - 易于管理
- 经济高效的存储效率功能
- 旨在支持切换到云端的容灾方案
- 可扩展以满足业务需求



合规数据
地理空间与月球图像
分析
呼叫中心记录
数据湖
个人视频录像

DNA 序列
CDN 源文件
视频监控
媒体资产

地图数据
日志文件

气象与环境研究



物联网传感器

医疗影像记录

数字资产保护
媒体原文件

移动应用

地震模拟数据

医药研究数据

机器学习训练数据

银行交易数据

持久数据备份

网站托管

用户上传内容

油气数据

自动驾驶数据



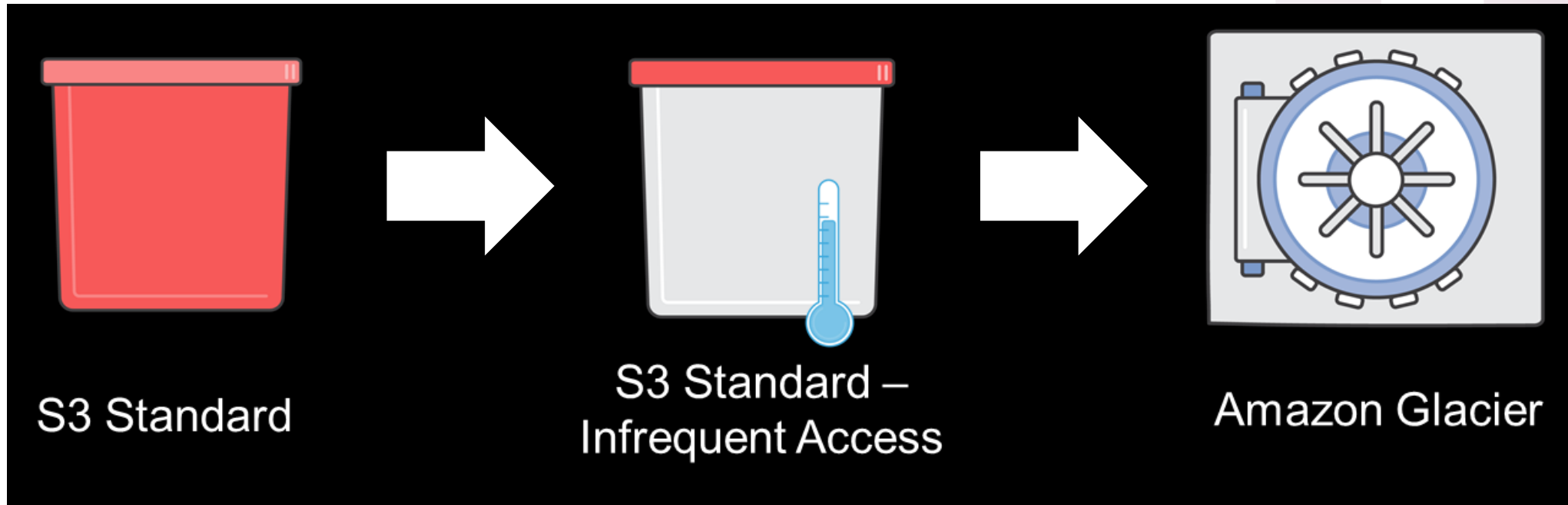
Amazon S3 分级存储 与 自动生命周期管理



Lifecycle Policies

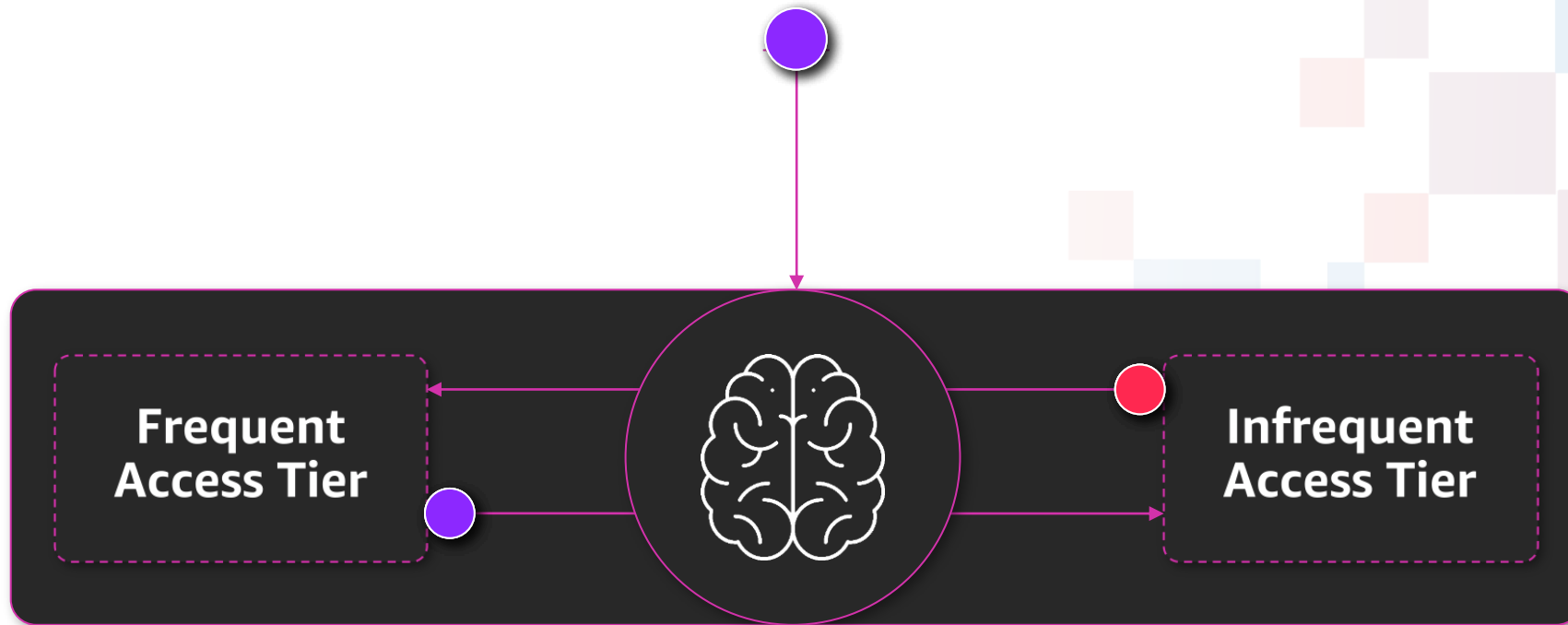
Amazon S3生命周期策略，实现数据自动分层，降低存储类别、归档、或删除，从而大幅降低存储成本。

- AWS云端可启动数据生命周期管理，备份副本可自动归档在更廉价存储中；亦或保留指定天数后自动删除，从而大幅度优化存储成本。

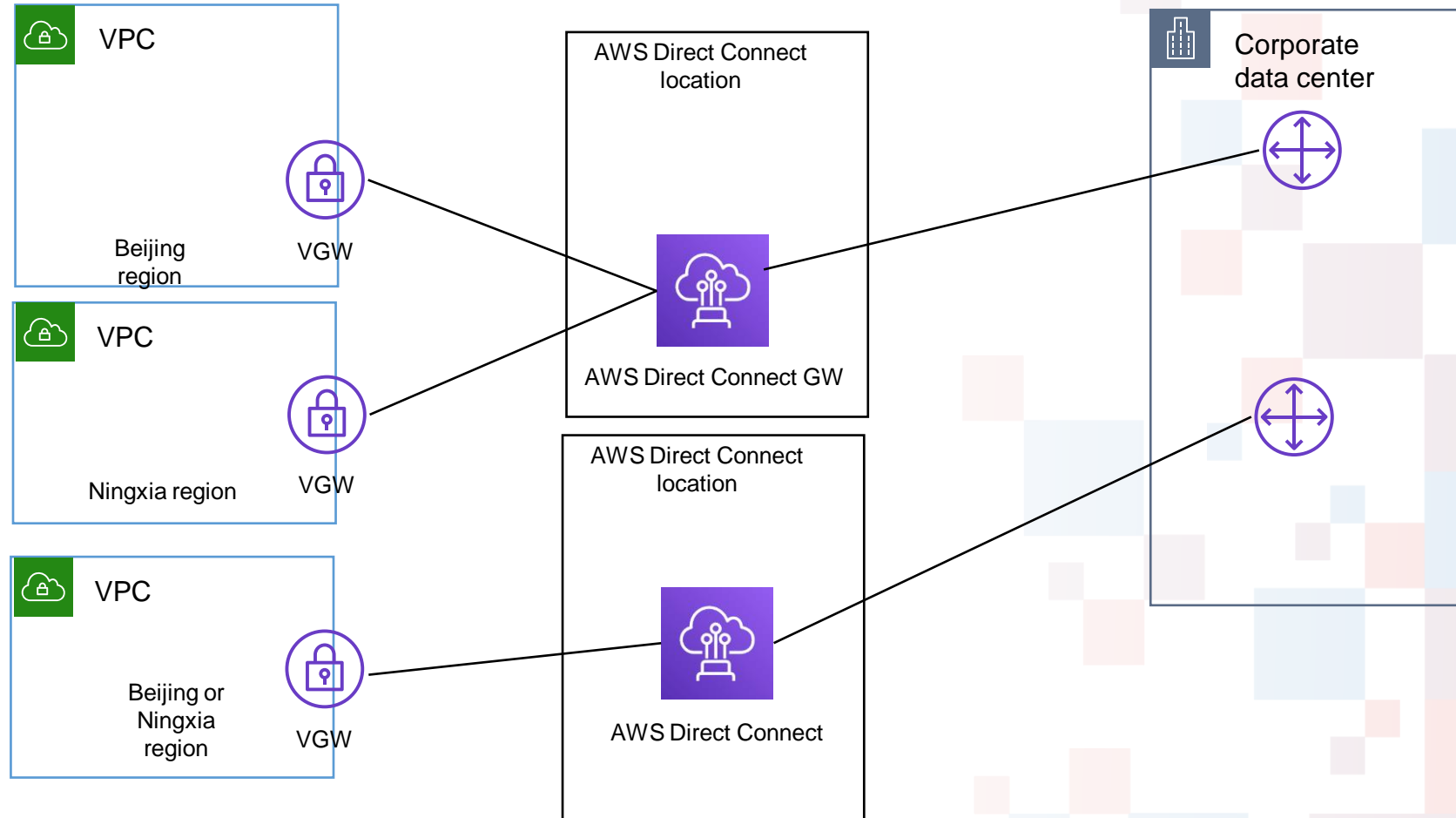


Amazon S3 Intelligent-Tiering

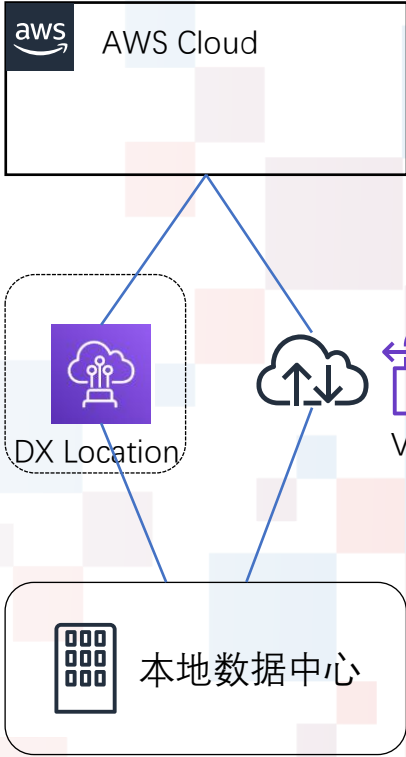
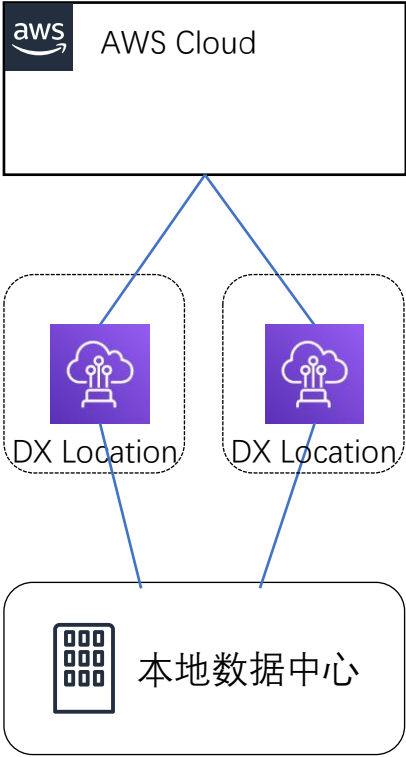
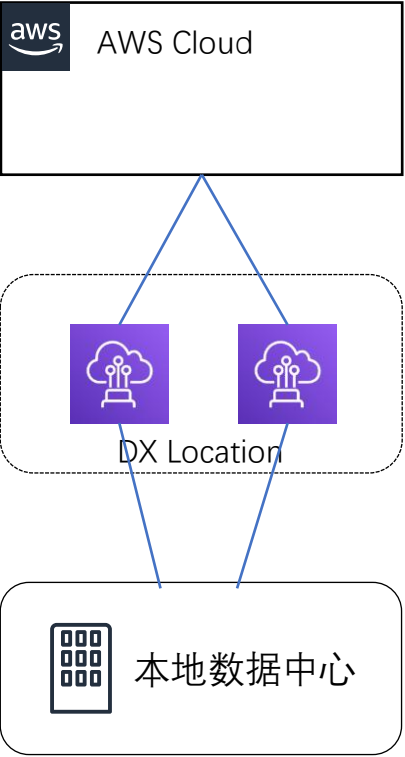
Automatic cost optimization with no performance impact and no operational overhead



Direct connect and Direct Connect Gateway



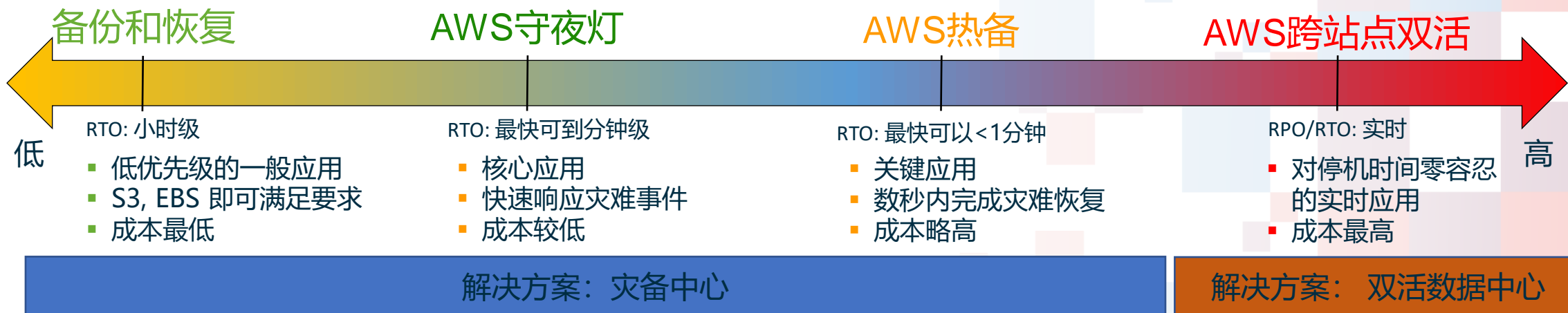
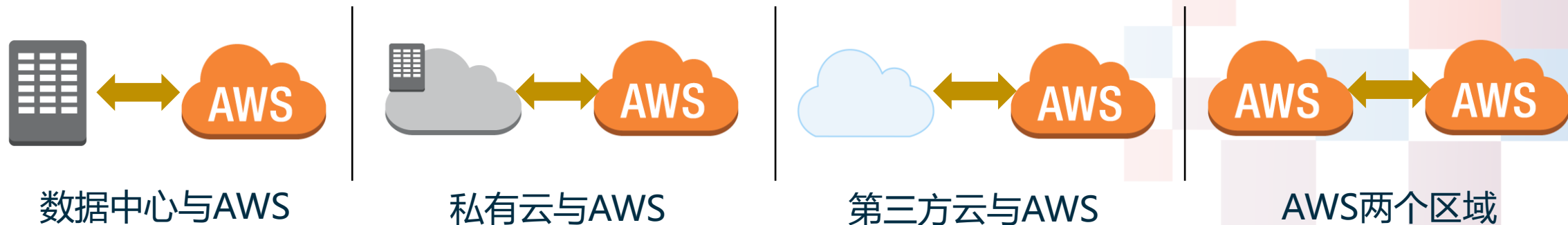
Direct Connect的冗余设计



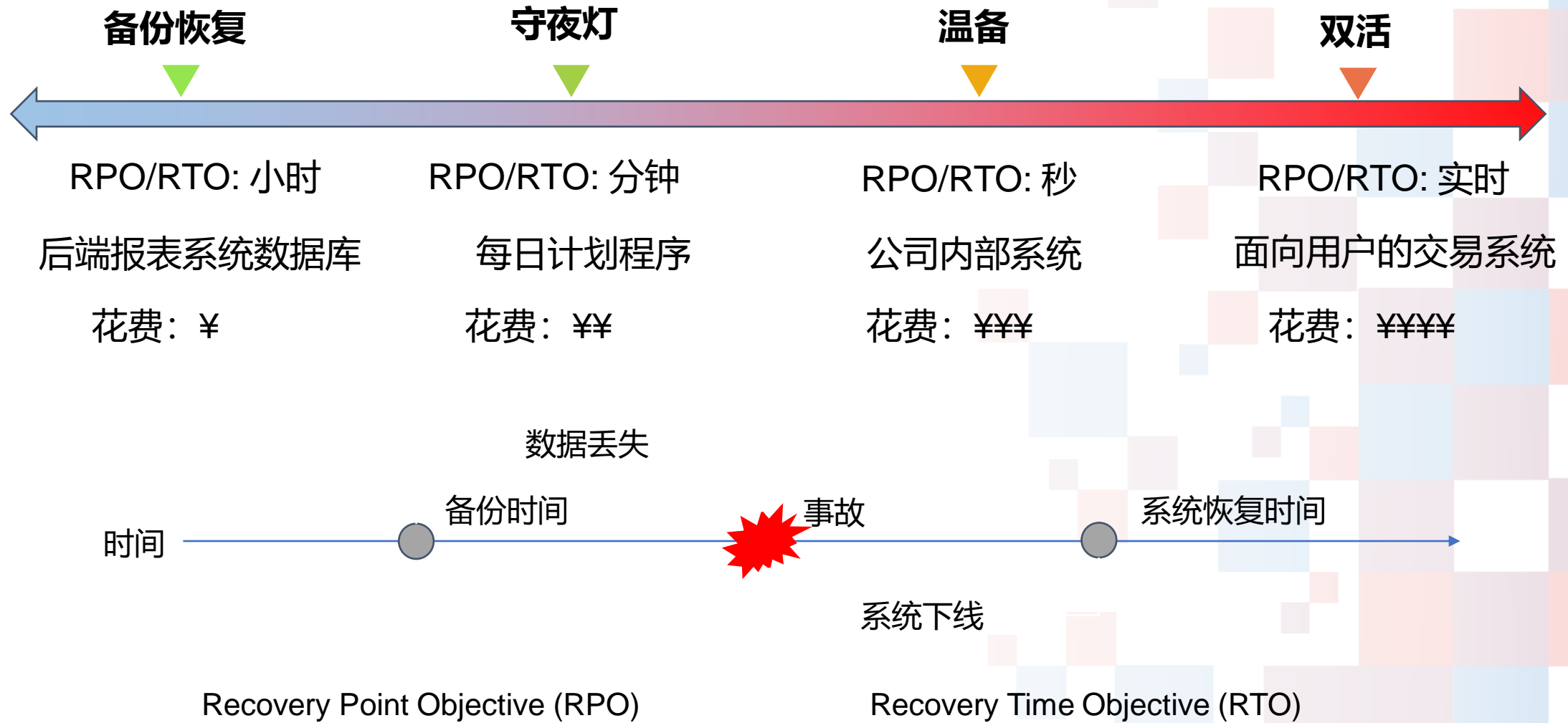
AWS侧默认激活BFD (Bidirectional Forwarding Detection)



AWS混合云业务连续性解决方案

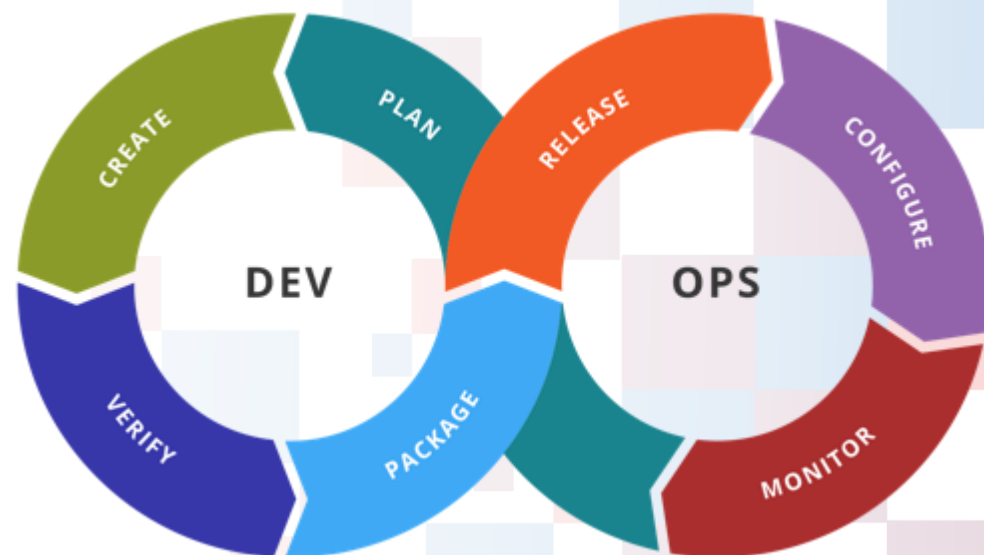


AWS业务连续性和容灾参考架构概述

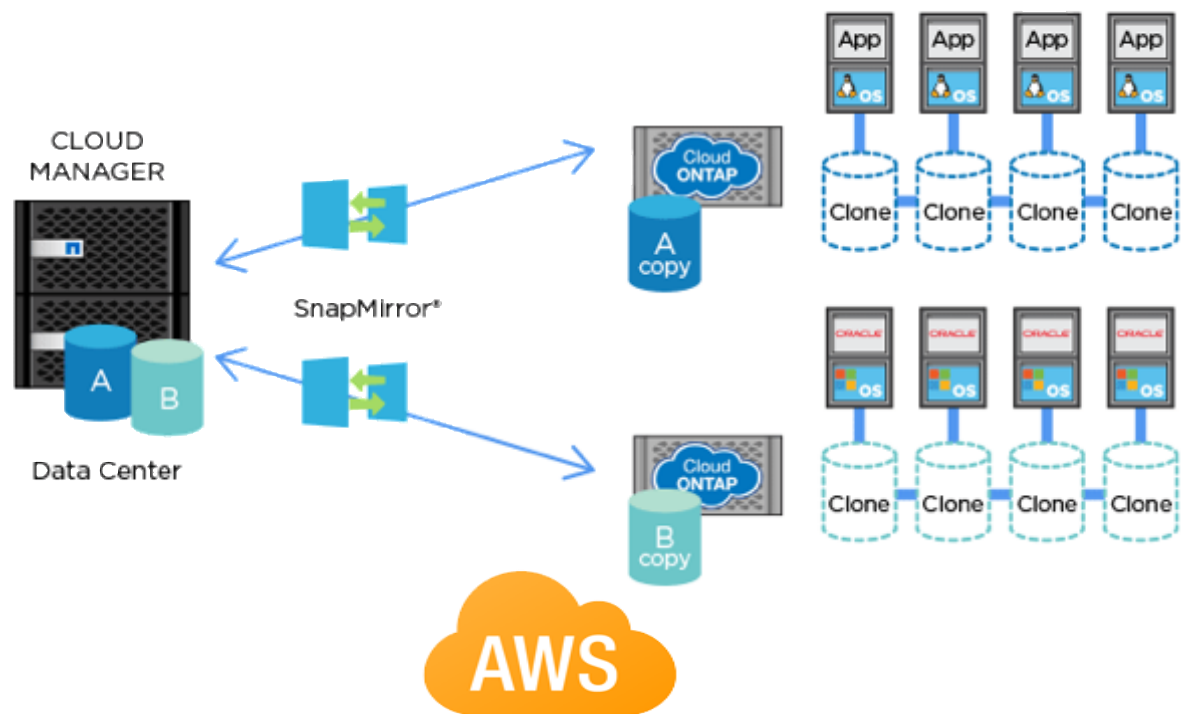


快速DevOps & Dev / Test

- 利用公共云实现“即时”配置功能
- 根据需要启用/关闭资源
- 无需停机等待资源
- 利用具有成本效益的行业领先数据管理功能，如FlexClone, Thin Snapshots等。



典型架构



WITH FLEXCLONE TECHNOLOGY, WIRESTORM CAN CREATE DATASET COPIES FASTER

BEFORE:	AFTER:
20+ hours	<1 minute
Traditional Approach Building physical copies of datasets can take hours.	FlexClone® A clone makes a copy of metadata in just seconds.
	NetApp

- NetApp Cloud Volumes ONTAP代替数据中心存储资源
- FlexClone可以即时创建节省空间的数据副本。方便并行运行多个工作负载和工作阶段

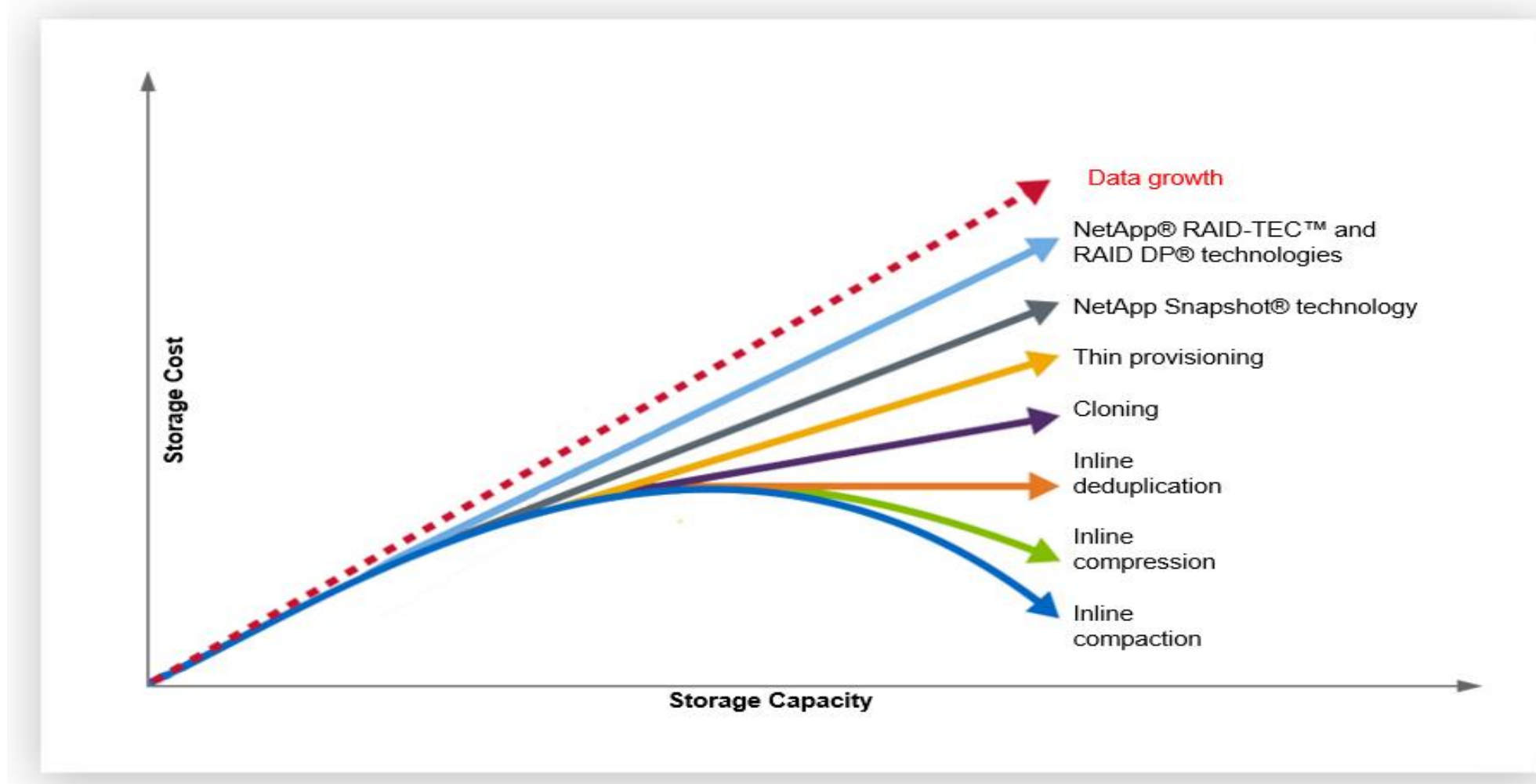


Cloud Volumes ONTAP 底层技术及部署架构



特有的存储效率

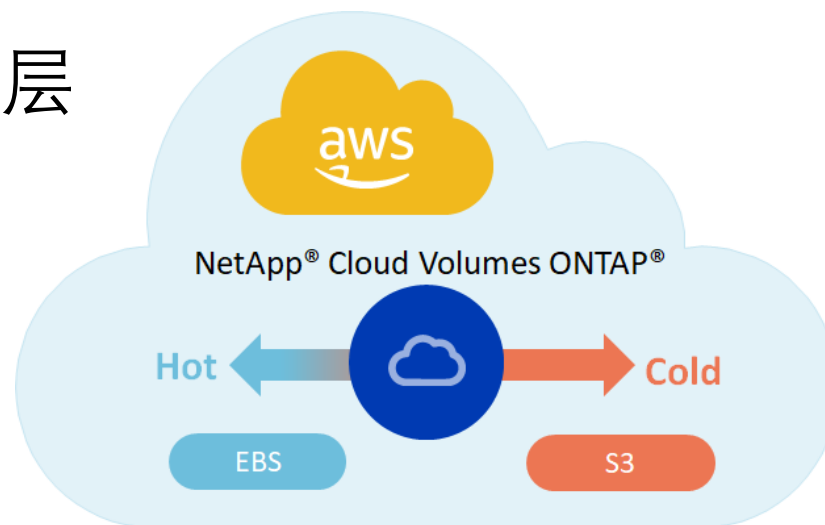
少花钱、多办事



数据分层到对象存储

FabricPool for CVO

- 存储热数据的性能层
 - Amazon EBS
- 存储冷数据的容量层
 - Amazon S3
- 减少EBS使用规模
- 大量节约成本



DR

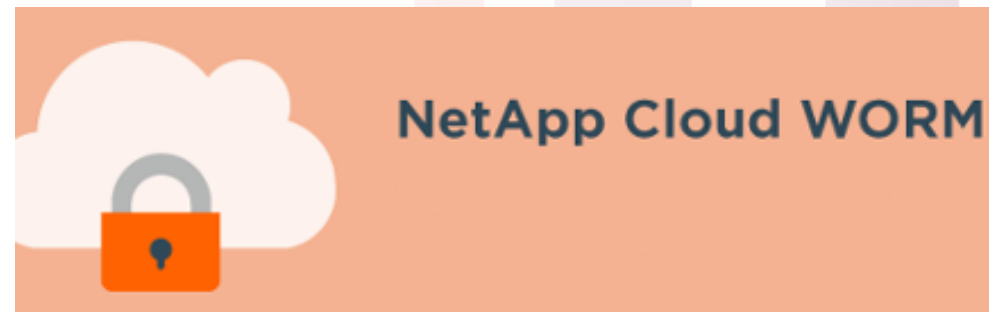
- NetApp® Snapshot™ copies约48小时后进行分层
- Backup: 90%的数据直接进行分层, Metadata 保留在性能层

Production

- Snapshot copies约48小时后进行分层
- Auto: 冷数据块在31天后进行分层

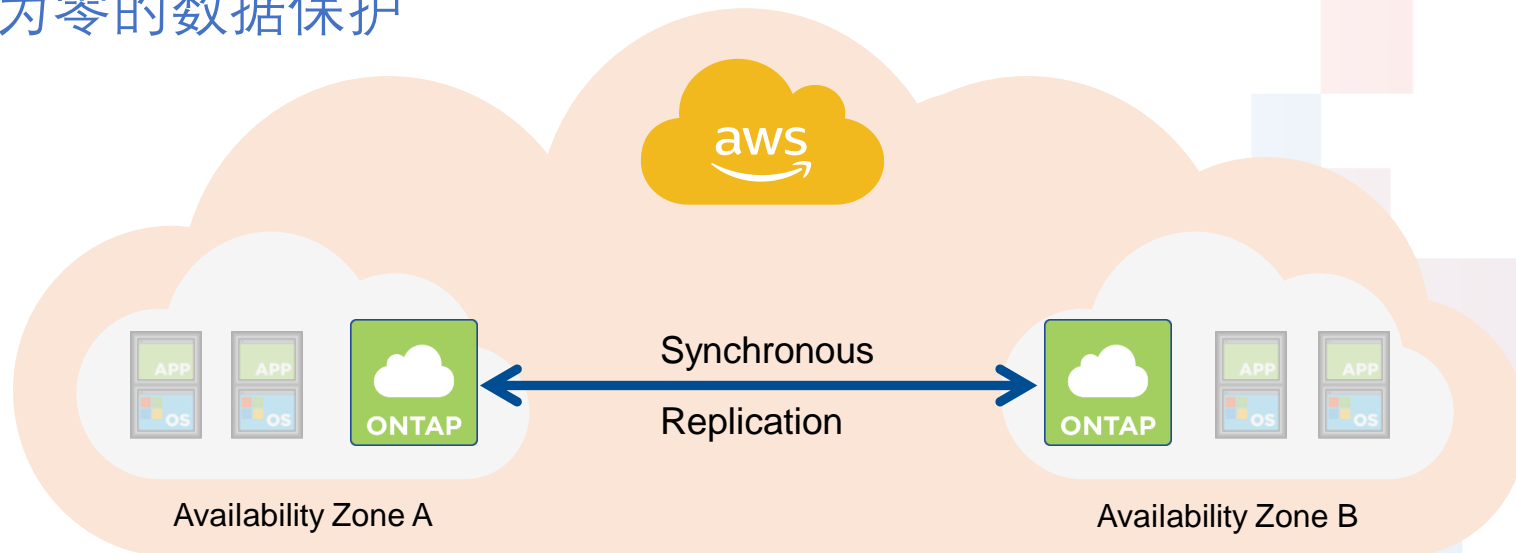
NetApp Cloud WORM

- 在云中实现“NetApp® SnapLock® Enterprise”功能：
 - 赋予卷存储WORM内容的能力，受存储管理员控制并由NetAppONTAP®管控
- 在以下情况下帮助客户：
 - 监管需求
 - 防恶意篡改
 - 内部组织需求



采用同步复制实现高可用

在云端实现RPO为零的数据保护

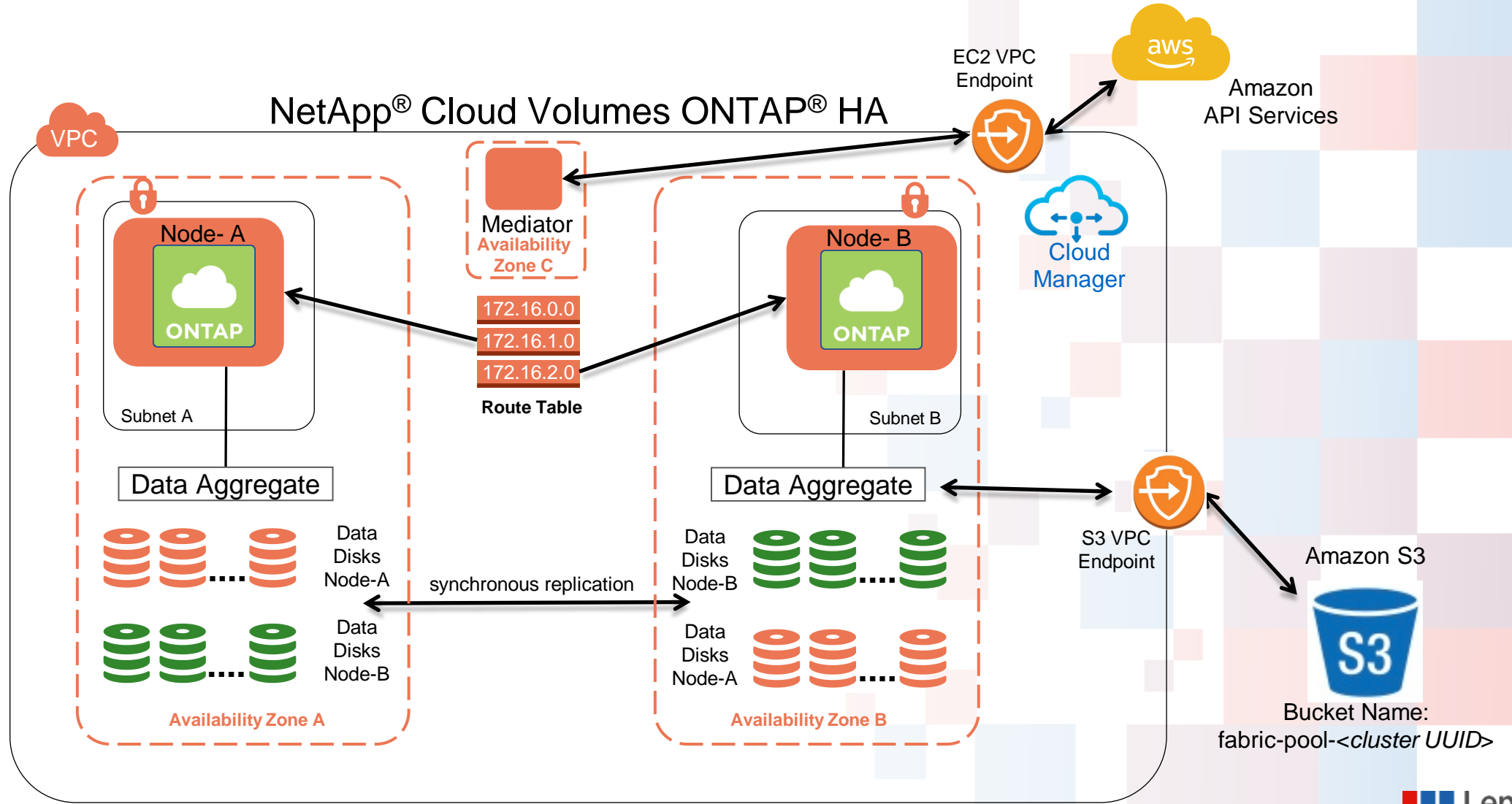


NetApp® Cloud Volumes ONTAP® 具备高可用能力*

- Multi-AZ高可用环境，包括自动failover和 failback
- Multi-AZ同步数据复制，实现RPO=0（无数据丢失），RTO<60s
- 提供无中断运行



NetApp Cloud Volumes ONTAP 高可用架构



安全责任共担模型



AWS的部分安全服务



AWS Security Hub AWS Organizations



AWS Control Tower AWS Trusted Advisor

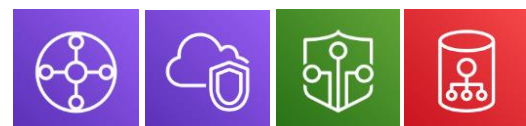
Identify



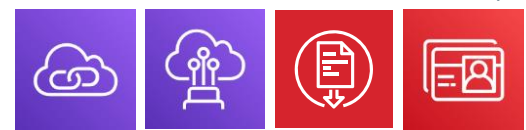
AWS Service Catalog AWS Config



AWS Well-Architected Tool AWS Systems Manager



AWS Transit Gateway Amazon VPC AWS IoT Device Defender Amazon Cloud Directory



Amazon VPC PrivateLink AWS Direct Connect Resource Access Manager AWS Directory Service

Protect



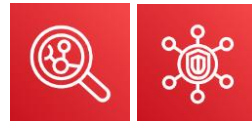
AWS Shield IAM AWS Secrets Manager KMS Amazon Cognito



AWS WAF AWS Firewall Manager AWS Certificate Manager AWS CloudHSM AWS Single Sign-On



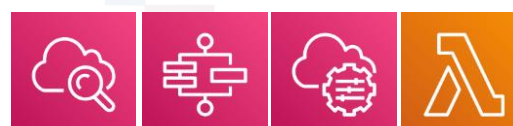
Amazon GuardDuty Amazon Macie



Amazon Inspector AWS Security Hub

Detect

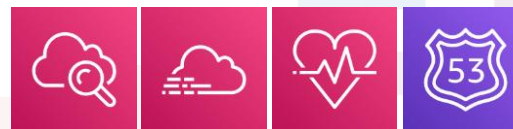
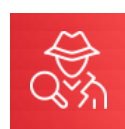
Automate



Amazon CloudWatch AWS Step Functions AWS Systems Manager AWS Lambda

Respond

Investigate



Amazon CloudWatch AWS CloudTrail Personal Health Dashboard Amazon Route 53



AWS OpsWorks



AWS CloudFormation

Recover



Amazon S3 Glacier



Snapshot



Archive

Cloud Volume ONTAP 成功案例分享



Mellanox Technologies



迁移到云以获取数据驱动的解决方案

业务挑战

Mellanox希望将其分散在全球各地的工厂中的数据统一到一个可共享，可扩展且具有较高的成本效益的平台上来，该平台具有高可靠性和无与伦比的支持。

公司概况

一家位于硅谷的跨国计算机网络产品供应商。

解决方案

NetApp® Cloud Volumes ONTAP® 在云端提供对生产环境工作负载、文件共享的支持，并可以在云端构建容灾方案

收益

- 推动成本节省-数据占用的存储空间减少69%
- 将冷数据分层到对象存储，进一步降低了成本
- 仅按使用量付费-可以按需放大和缩小
- 不活动时关闭以节省计算成本

“我们正在寻找一种可以与本地部署集成的云存储解决方案。这就是我们选择NetApp的主要原因。我们考察了一些供应商，并测试了它们的产品。在众多产品中，NetApp提供的方案是最成熟的。它具有竞争对手无法提供的云端功能。”

Mellanox存储团队负责人 Nir Boyarsky

获取更多信息，请阅读相关成功案例：<https://customers.netapp.com/en/mellanox-technologies-cloud-volumes-ontap-case-study/>



Rohit Group

应用场景：生产环境工作负载及容灾方案

业务挑战

- 采用AWS提供的各种服务。
- CIFS文件共享。
- 健壮的容灾方案。

解决方案

- 两个Cloud Volumes ONTAP for AWS实例，其中一个用于支撑生产环境工作负载，另一个用于容灾方案。

收益

- 出色的数据管理和AD集成。
- Cloud Volumes ONTAP的存储效率（例如重复数据删除，压缩和精简配置）增强了AWS体系结构。
- 统一管理界面，用于自动部署多个实例。
- 通过定义复制关系的简单界面完全满足其灾难恢复要求。



云服务提供商：AWS

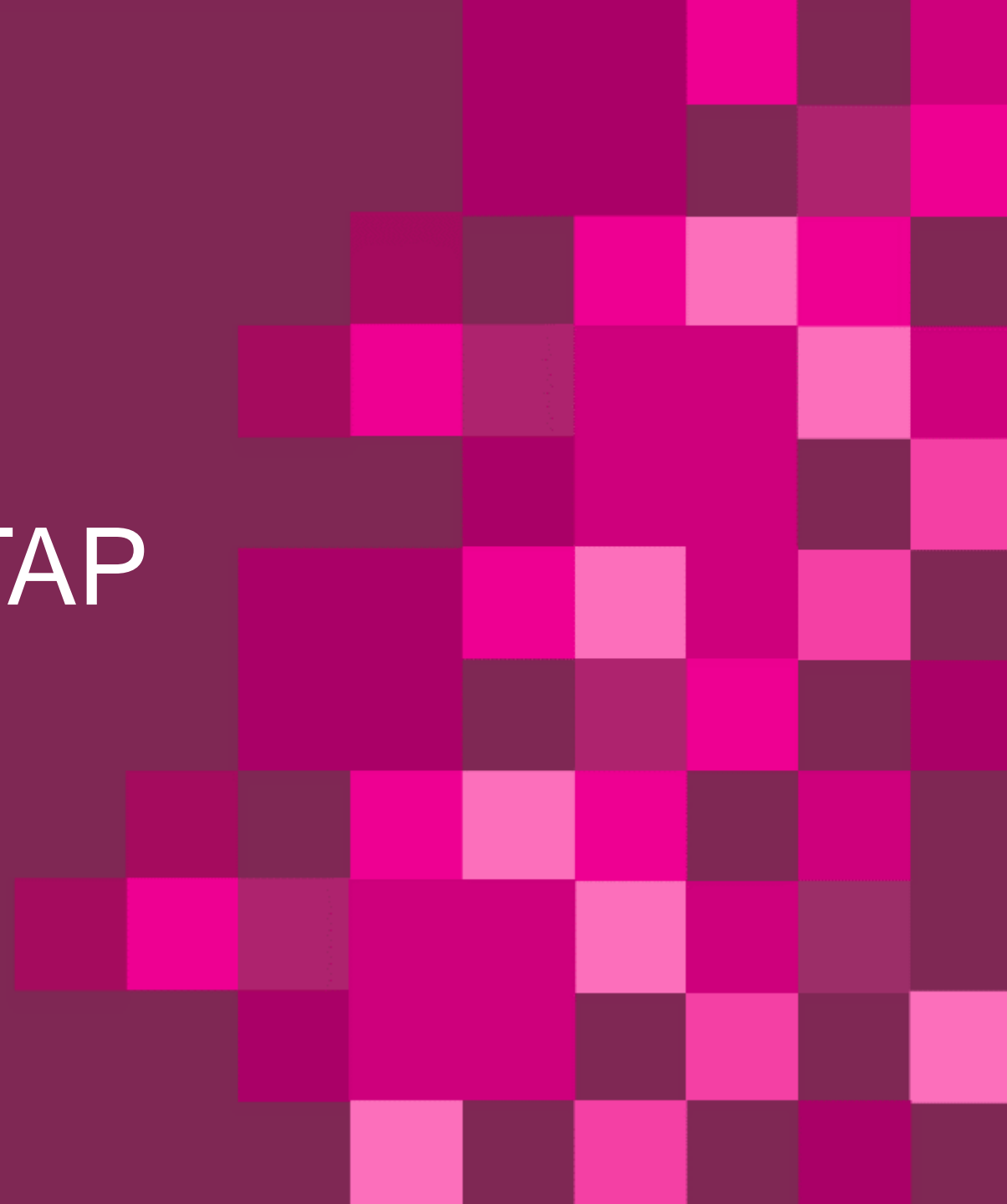
关于Rohit Group

专注于加拿大西部，以优质资本，资产和项目管理服务来开发房地产市场。总部位于艾伯塔省埃德蒙顿。



Cloud Volumes ONTAP

更多资料



更多资料

- 联想凌拓过渡到混合云解决方案:

<https://lenovonetapp.com/products/netapp/cloud-services/netapp-cloud-services-tour.html?code=webinarcvo>



- CVO在AWS Marketplace的部署视频:


https://lenovonetapp.com/products/netapp/cloud-services/video_cvo_aws.html?code=aws_ncst



- Bilibili公众号CVO技术视频: 详情请参看P41-P48.



Bilibili – #1 Replicating Data To From the Cloud Using Cloud Manager and Cloud Volumes ONTAP

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2020.9.3	FY20Q2	NetApp	CVO	【视频】 Replicating Data To From the Cloud Using Cloud Manager and Cloud Volumes ONTAP	英语配音 中英文字幕		Bilibili 联想凌拓空中沙龙	URL	

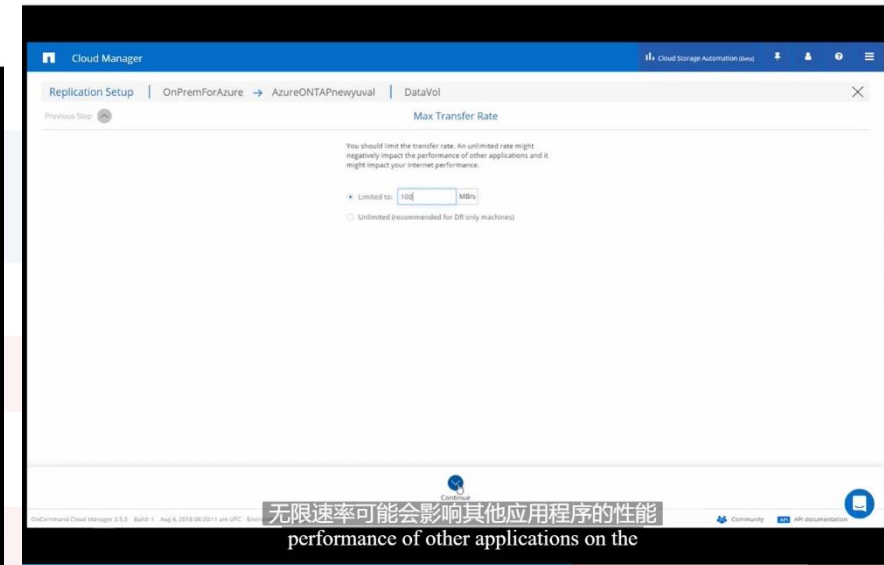
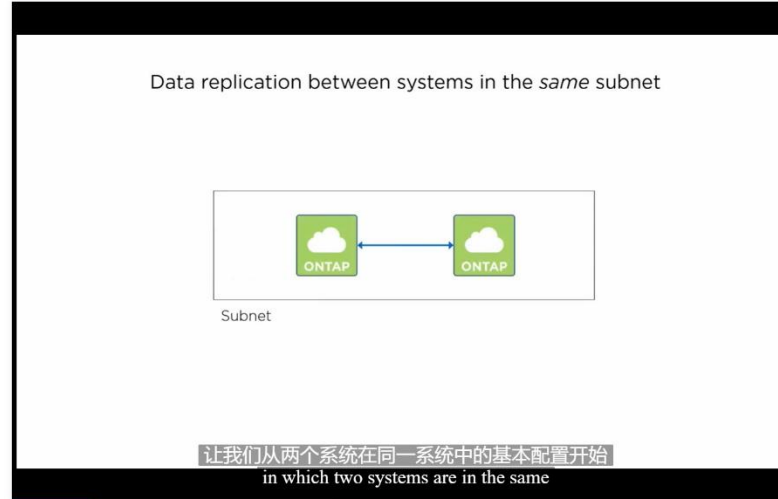
Replicating Data To From the Cloud Using Cloud Manager and Cloud Volumes ONTAP

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Replicating Data To From the Cloud Using Cloud Manager and Cloud Volumes ONTAP

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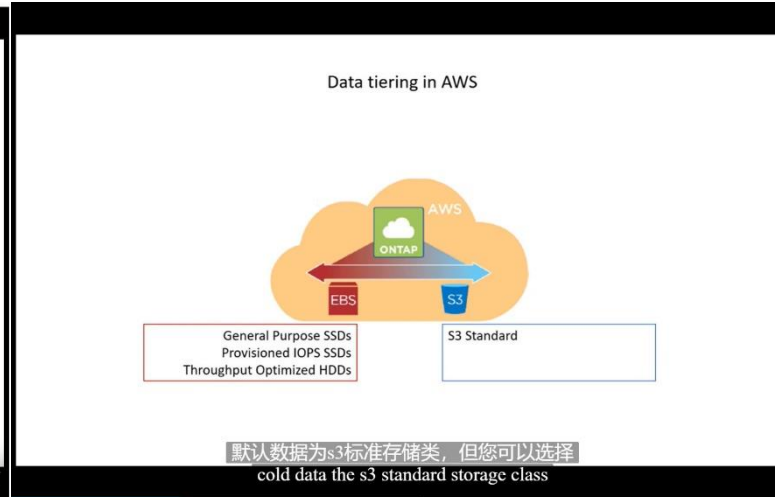
Bilibili – #2 Cloud Volumes ONTAP 分层概览

Publish Date (发布日期)	Publish Quarter (发布季度)	Brand (品牌)	Branding/Product/Industry/Application (品牌、产品行业或应用)	Offer Names (内容名称)	Language (语言)	Format (格式)	Promotion Source (推广平台)	Location (所在位置)	QRCode (二维码)
2020.9.3	FY20Q2	NetApp	CVO	【视频】 Cloud Volumes ONTAP 分层概览	英语配音 中英文字幕		Bilibili 联想凌拓空中沙龙	URL	



Cloud Volumes ONTAP and Cloud Manager
Data Tiering Overview

Cloud Volumes ONTAP 使您可以通过以下方式降低云存储成本
Cloud Volumes ONTAP enables you to

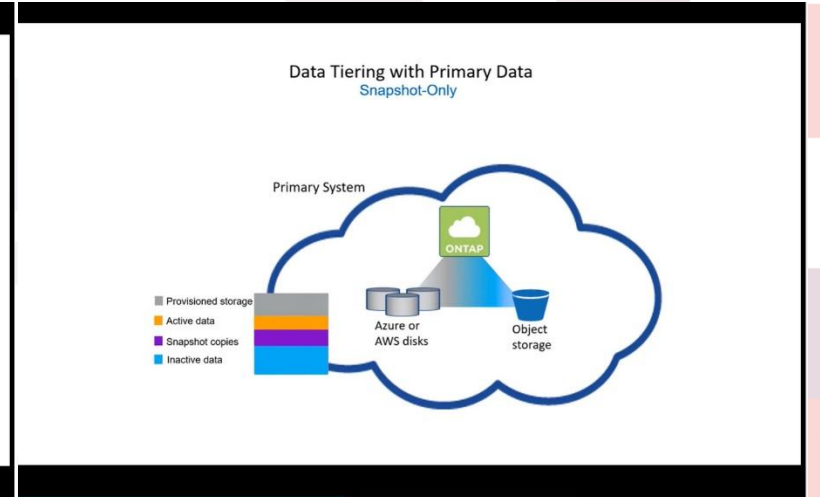


Data tiering in AWS

General Purpose SSDs
Provisioned IOPS SSDs
Throughput Optimized HDDs

S3 Standard

默认数据为s3标准存储类，但您可以选择 cold data the s3 standard storage class



Data Tiering with Primary Data Snapshot-Only



Primary System

Provisioned storage
Active data
Snapshot copies
Inactive data

Azure or AWS disks
Object storage



Bilibili – #3 Using NetApp Support Site Accounts with Cloud Manager and Cloud Volumes ONTAP

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2020.9.3	FY20Q2	NetApp	CVO	【视频】 Using NetApp Support Site Accounts with Cloud Manager and Cloud Volumes ONTAP	英文配音		Bilibili 联想凌拓空中沙龙	URL	

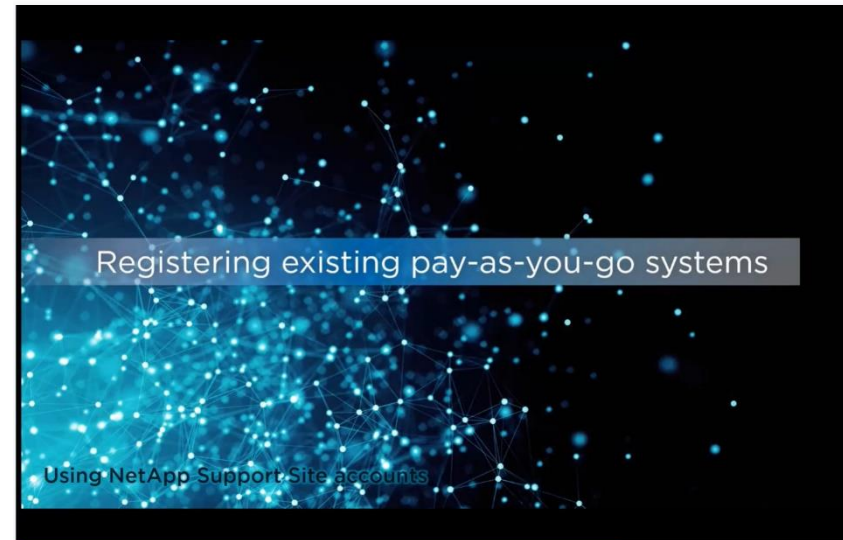
Using NetApp Support Site Accounts with Cloud Manager and Cloud Volumes ONTAP

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Using NetApp Support Site Accounts with Cloud Manager and Cloud Volumes ONTAP

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Bilibili – #4 Using Rest APIs with Federated Access with Cloud Manager

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2020.9.3	FY20Q2	NetApp	CVO	【视频】Using Rest APIs with Federated Access with Cloud Manager	英文配音		Bilibili 联想凌拓空中沙龙	URL	

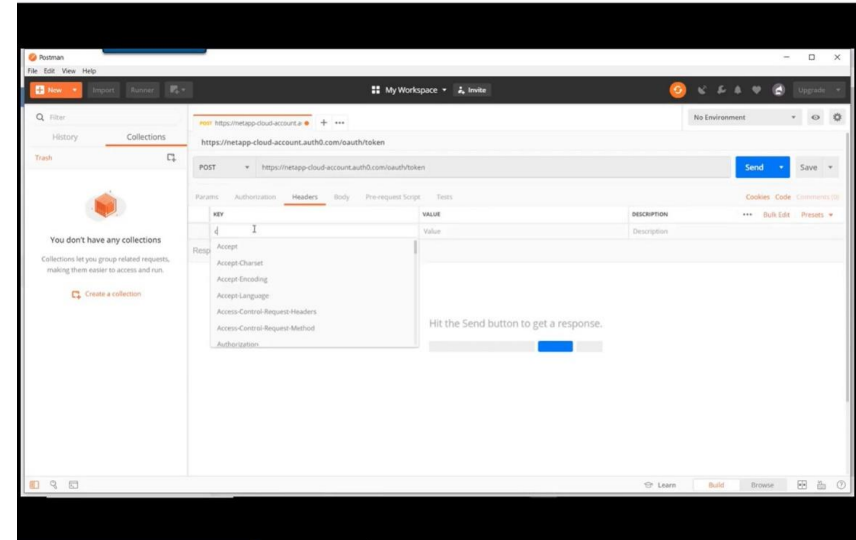
Using Rest APIs with Federated Access with Cloud Manager

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Using Rest APIs with Federated Access with Cloud Manager

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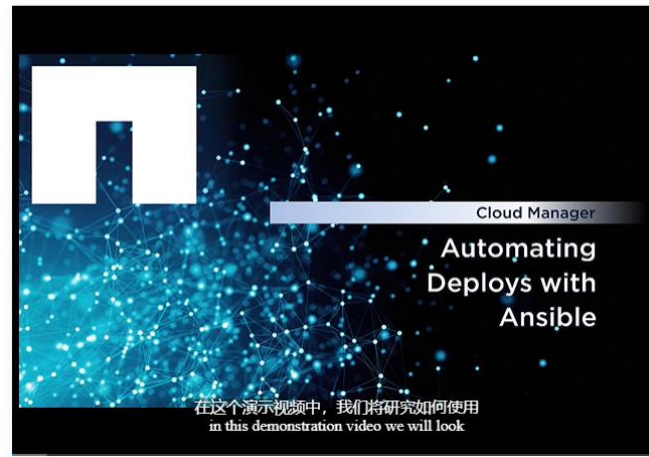
Bilibili – #5 Automating Cloud Manager Deployments With Ansible

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2020.9.3	FY20Q2	NetApp	CVO	【视频】Automating Cloud Manager Deployments With Ansible	英语配音 中英文字幕		Bilibili 联想凌拓空中沙龙	URL	

Automating Cloud Manager Deployments With Ansible

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Automating Cloud Manager Deployments With Ansible

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```

Requirement already satisfied: PYTHON in /usr/lib/python2.7/dist-packages (from ansible)
Collecting cryptography (from ansible)
  Downloading https://files.pythonhosted.org/packages/6e/4d/50d98c26c1d67d4493a504c21acba783664ef9f16e4b465f62/cryptography-2.7-cp27-mac-ppc64le-manylinux2014_aarch64.whl (2.9MB)
  Installing collected packages: cryptography
  Successfully installed cryptography-2.7
  Cleaning up...
  Requirements already satisfied: emensal, python, python2, /usr/lib/python2.7/dist-packages (from cryptography-ansible)
  Collecting ipaddress; python_version < "3" (from cryptography-ansible)
  Downloading https://files.pythonhosted.org/packages/1c/08/76/a51011d41388e4d8b181d8d998824f54a4ef4599a31d9951f/ipaddress-1.0.22-py2.py3-none-any.whl
  Collecting ansibleplaybook 21.0 (from cryptography-ansible)
  Downloading https://files.pythonhosted.org/packages/8a/cf/348513f3f1845197f1a561e4b7ad70b4b5e7dc00bf7c086222/ansible-0.24.0-py2.py3-none-any.whl (384kB)
  Collecting emensal; python_version < "3" (from cryptography-ansible)
  Collecting pyparser (from cryptography-ansible)
  Downloading https://files.pythonhosted.org/packages/5b/d1/8e6d8d4b7c4d6d150d6f4ef310088a1712e58f15623080/emansal-1.1.0-py2-none-any.whl
  Installing collected packages: pyparser, cryptography, ansible
  Running setup.py install for pyparser: ... done
  Running setup.py install for ansible: ... done
  Successfully installed ansible-2.8.1 ansible-playbook-2.10.0 cryptography-2.7 emansal-1.1.0 ipaddress-1.0.22 pyparser-2.19
  You are using pip version 8.1.1; however, version 20.1 is available.
  You should consider upgrading via the 'pip install --upgrade pip' command.
[02:58:19] 22-31-32-14 -%$ ansible --version
ansible 2.8.1
  config file = none
  configured module search path = [u'/home/ec2-user/.ansible/plugins/modules', u'/usr/share/ansible/plugins/modules']
  ansible python module location = /usr/lib/python2.7/dist-packages/ansible
  executable location = /usr/bin/ansible
  python version = 2.7.14 (default, May 2 2018, 18:11:14) [GCC 4.8.5 20160321 (Red Hat 4.8.5-11)]
  scp_supported = True
  cpw_supported = True
  view_supported = True
  
```

因此我们当前安装了 ansible - 8.1 并且正在使用 python
ansible - 8.1 and we're using a python

```

TASK [Get ec2_info information] *****
changed: [ec2-user] => [ec2-user] main: {'name': 'None', 'group_device_type': 'None', 'storage_device_name': '/dev/sda1-01 and internal', 'storage_device_mounting': '/dev/sda1', 'status': 'attached', 'volume_id': 'vol-85a4a8d5a3a09e1'}, {'name': 'None', 'group_device_type': 'None', 'storage_device_name': '/dev/sda1-01 and internal', 'storage_device_mounting': '/dev/sda1', 'status': 'attached', 'volume_id': 'vol-85a4a8d5a3a09e1'}, {'name': 'None', 'group_device_type': 'None', 'storage_device_name': '/dev/sda1-01 and internal', 'storage_device_mounting': '/dev/sda1', 'status': 'attached', 'volume_id': 'vol-85a4a8d5a3a09e1'}, {'name': 'None', 'group_device_type': 'None', 'storage_device_name': '/dev/sda1-01 and internal', 'storage_device_mounting': '/dev/sda1', 'status': 'attached', 'volume_id': 'vol-85a4a8d5a3a09e1'}

TASK [Print Auth Domain] *****
msg: "task:local-action: auth0.com"

TASK [Get Token] *****
msg: [{}]

TASK [Get Token & Token_Type] *****
msg: [{}]

TASK [Get Fact] *****
msg: [{}]

TASK [Get EC2 IP] *****
ec2 [ec2-user] => [ec2-user] main: {'name': 'None', 'group_device_type': 'None', 'storage_device_name': '/dev/sda1-01 and internal', 'storage_device_mounting': '/dev/sda1', 'status': 'attached', 'volume_id': 'vol-85a4a8d5a3a09e1'}, {'name': 'None', 'group_device_type': 'None', 'storage_device_name': '/dev/sda1-01 and internal', 'storage_device_mounting': '/dev/sda1', 'status': 'attached', 'volume_id': 'vol-85a4a8d5a3a09e1'}, {'name': 'None', 'group_device_type': 'None', 'storage_device_name': '/dev/sda1-01 and internal', 'storage_device_mounting': '/dev/sda1', 'status': 'attached', 'volume_id': 'vol-85a4a8d5a3a09e1'}, {'name': 'None', 'group_device_type': 'None', 'storage_device_name': '/dev/sda1-01 and internal', 'storage_device_mounting': '/dev/sda1', 'status': 'attached', 'volume_id': 'vol-85a4a8d5a3a09e1'}

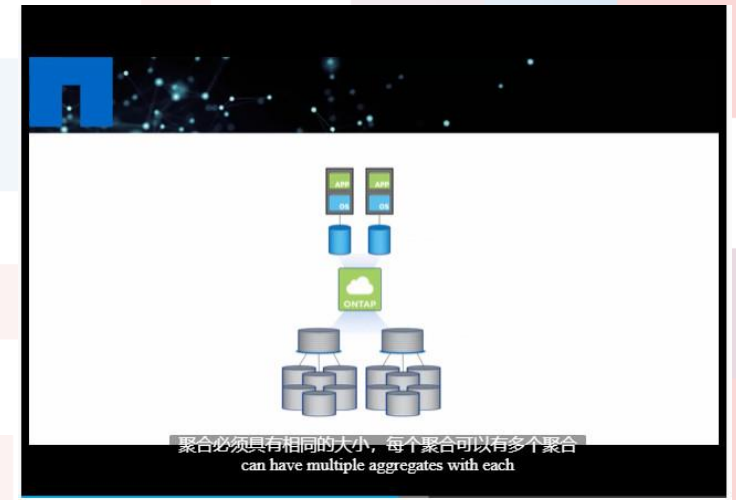
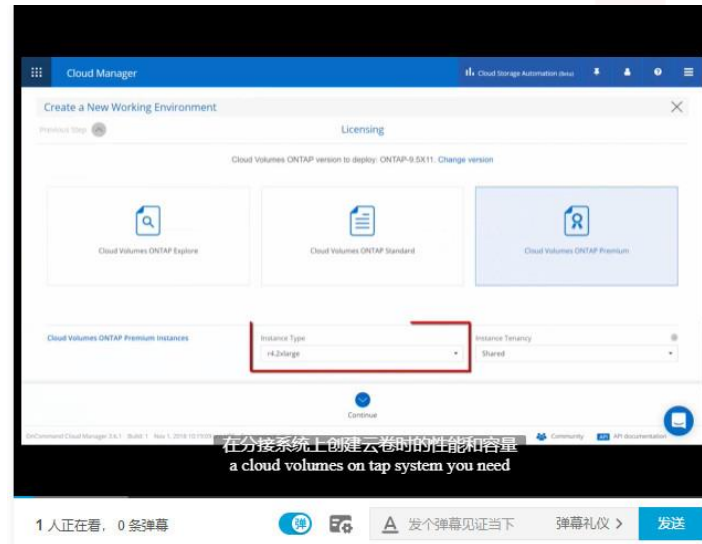
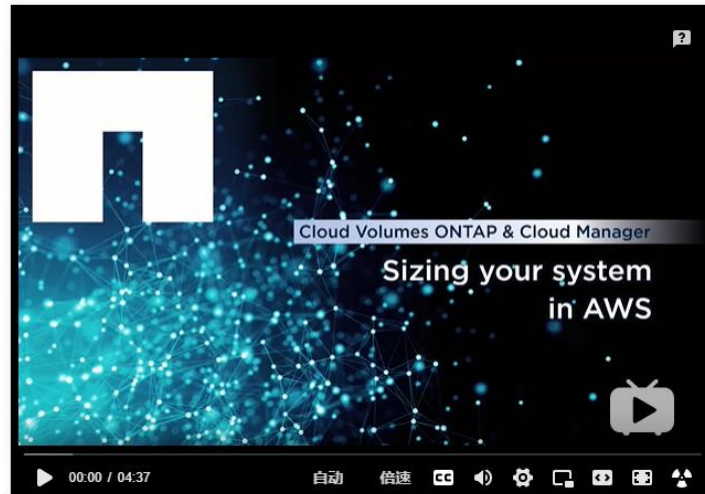
TASK [Register] *****
msg: [{}]
  
```

使用刷新令牌的令牌, 我们检索云管理IP地址
retrieve the cloud manager IP address





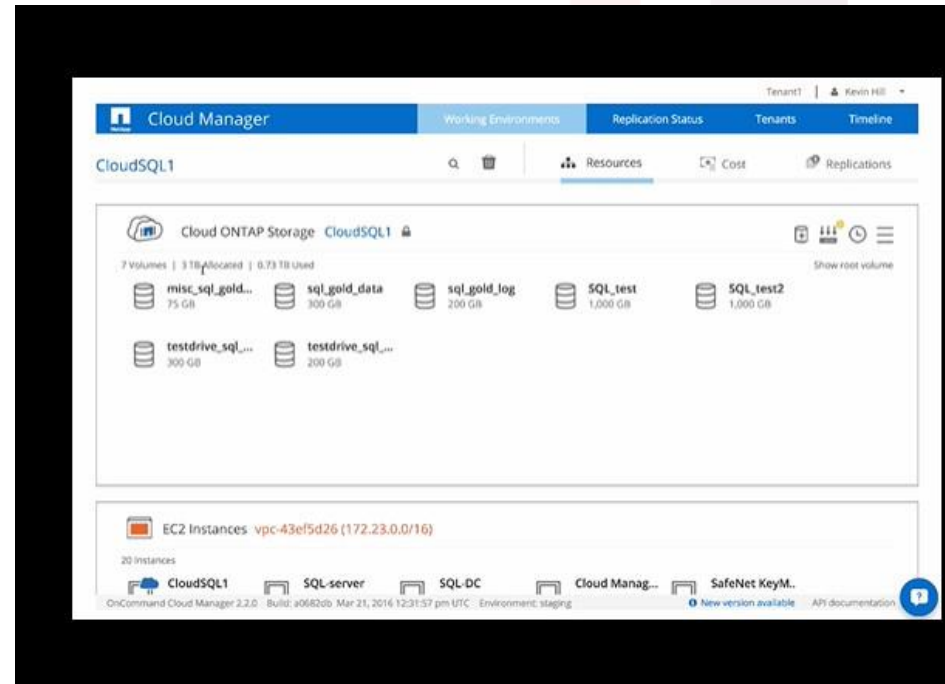
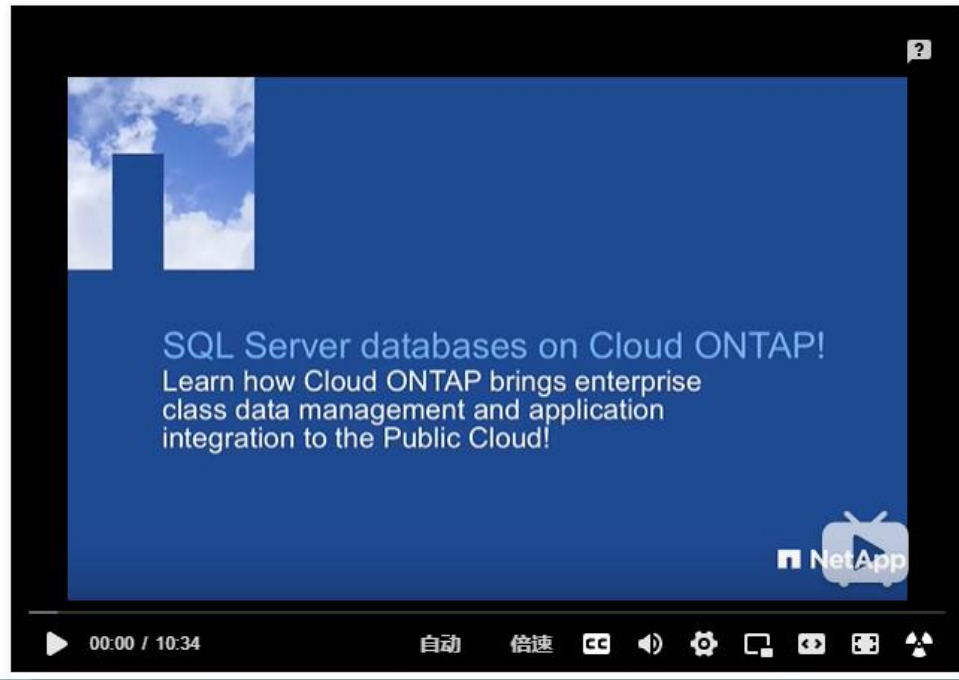
Bilibili – #6 Sizing Your Cloud Volumes ONTAP System in AWS

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2020.9.3	FY20Q2	NetApp	CVO	【视频】Sizing Your Cloud Volumes ONTAP System in AWS	英语配音 中英文字幕		Bilibili 联想凌拓空中沙龙	URL	





Bilibili – #7 Running Microsoft SQL Servers on Cloud Volumes ONTAP in AWS

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2020.9.3	FY20Q2	NetApp	CVO	【视频】Running Microsoft SQL Servers on Cloud Volumes ONTAP in AWS	英语配音 中英文字幕		Bilibili 联想凌拓空中沙龙	URL	



Bilibili – #8 FlexCache with Cloud Volumes ONTAP

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2020.9.3	FY20Q2	NetApp	CVO	【视频】FlexCache with Cloud Volumes ONTAP	英语配音 中英文字幕		Bilibili 联想凌拓空中沙龙	URL	

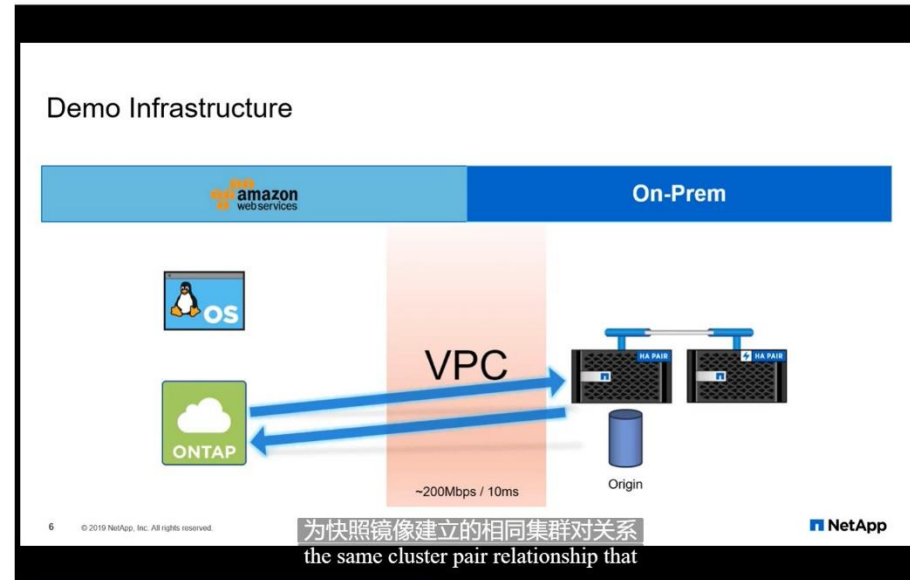
FlexCache with Cloud Volumes ONTAP

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