AWS Partner Network Storage Solutions: Disaster Recovery

Disaster Recovery (DR) solutions enable customers to recover from a situation where assets critical to their business operations are inaccessible. AWS Partner Network (APN) Partners offer solutions that utilize Amazon Web Services (AWS) to enable recovery strategies focused on recovery time objective (RTO) and recovery point objective (RPO) requirements.

Disaster Recovery Challenges

At the heart of DR is defining minimally required business resources and overcoming technical challenges to deliver them all the time, no matter what. Scoping DR capabilities in the cloud for on-premises resources means understanding service margins for availability. The technology can encompass continuous data replication, machine or application backups, and n-way data source synchronization. Factors to consider when making your cloud-based DR plan:

- **RPO and RTO requirements, per workload:** Business stakeholders care about wall-clock workload recovery time, not just data restoration recovery time. Potential opportunity costs through loss of business and damage to reputation are also considerations for how downtime is scoped, and are not always quantifiable. Many workloads are business critical, but the effort and infrastructure to support mission critical services creates a single standard for recovery often applied to non-mission critical workloads.
- **Managing cost:** Traditional DR technologies duplicate data sets and resources at warm standby locations. Secondary site investments become equal to primary site investments and business overhead associated with equipment procurement, installation, and maintenance creates friction for project deployment and infrastructure updates. Additionally, DR infrastructure is not typically incorporated as a compute or storage tier for supporting active workloads, so utilization across all sites is low.
- **Application dependencies:** Rarely are applications free of external dependencies. Most stateful applications have upstream connection handling logic and downstream data persistence. Most stateless applications have highly fluid and scalable external state stores and downstream data persistence. Both types of dependencies require resource mapping and orchestration as part of DR processes before failing over can be as simple as flipping a switch. Without proper planning, applications may not run properly, data may be incomplete or corrupt, and the end result could create more problems than it solved. Relationships between application components can change over time, adding to the complexity of maintaining fidelity of dependencies.

For more information on Disaster Recovery AWS Storage Competency Partners, visit the AWS Storage Competency page.

Disaster Recovery Challenges (cont'd)

- **Ongoing DR planning:** Many incumbent DR solutions are a one-way trip or fail to enforce process with technology. Even with the right solution, DR is not a set-it-and-forget-it subject. Plans require frequent testing and updating as workloads grow and evolve.

AWS for Disaster Recovery

Customers with primary workloads outside of AWS can enable faster disaster recovery of critical systems to the AWS Cloud without incurring the infrastructure expense of a second physical site. Customers with primary workloads already running in the AWS Cloud can use the global presence of AWS to enable verifiable and predictable failover to other regions. Popular DR architectures include cold, warm, and hot environments for increasingly critical systems requirements. There are several AWS storage offerings which map well to stratified business requirements.

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- **Backup and Restore:** By using AWS as an integral element of any data protection strategy, Amazon Simple Storage Service (Amazon S3) can help customers quickly restore workloads to Amazon Elastic Compute Cloud (Amazon EC2). This is a cold DR architecture and typically has lengthy a RTO while being cost effectivity and durable.
- **Pilot Light:** A minimally viable infrastructure is always running in the cloud and can be quickly grown if the need arises. This is a typical approach taken for scenarios in which a great or moderate delay can be tolerated while waiting for resource availability. Replication is often the only running component, with no other infrastructure set up for use.
- **Warm Standby:** A scaled-down version of a fully functional environment is always running in the cloud. A warm standby solution extends pilot light preparation by reducing the amount of resources not yet provisioned. Recovery time is further decreased because essential architectural components are always running.
- **Multi-Site:** As the name suggests, a hot standby solution running in multiple locations, such as AWS and on-premises. This is sometimes an active-active configuration, and employed data replication methods are determined by workload RPO. Various replication technologies may be used at many software infrastructure stack layers. It is common to see synchronous or minimally asynchronous policies in place to account for latency related to physical distance, with a fully automated site selection procedure.

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AWS Storage Competency Consulting Partners

AWS Storage Competency Consulting Partners possess deep domain and consulting expertise to help enterprises adopt and deploy complex storage solutions in one or more core storage categories, including DR. These APN Partners have demonstrated success fully implementing storage solutions and projects on AWS, and are familiar with existing AWS Storage Competency Technology Partner solutions on AWS. For more information on AWS Storage Competency Consulting Partners, please visit https://aws.amazon.com/backup-recovery/partner-solutions/#Consulting_Partners

Benefits of AWS Storage Competency Partners for Disaster Recovery

With AWS and APN partner solutions, your infrastructure can be flexible. Scaling can be done on an as-needed, pay-as-you-go basis. In real recovery scenarios, you need to retain agility while still having access to solutions designed with security, reliability, and speed in mind. Having no infrastructure commitments helps you continually optimize resources, both during steady-state and during a real recovery event, for significant cost savings.

Reduced Total Cost of Ownership (TCO): Leveraging AWS for on-demand infrastructure is one thing, but automated provisioning is required to make cost reduction a reality. Stop paying for dedicated assets in an on-premises environment. Lower capital expenditure and match your operational costs to your real, orchestrated usage of an on-demand infrastructure.

Accelerated Restoration: AWS has a variety of storage services and tiers, from cold storage to NVMe flash, acknowledging there is no such thing as one-size-fits-all. For meeting compliance deadlines, recovery often requires higher performance solutions to avoid fines. APN Partner solutions that continuously update recovery environments provide near-zero RPO and reduced RTO.

Understand Dependencies: AWS Application Discovery Service collects information on server hostnames, IP addresses, MAC addresses, and resource allocation and utilization details of key resources that can be used to size AWS resources. Agents also record inbound and outbound network activity for each server, helping understand dependencies across servers. Much of this work is automated with APN Partner solutions.

Plans That Grow With You: As your primary environment grows, APN Technology Partner solutions grow with you. Every plan needs regular execution, a concept built into APN Partner DR solutions. Updating DR plans, managing the minimal infrastructure needed to keep your failover site prepared, and testing target DR systems are all a button away. Never again worry about procedural binders having been updated.

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