Integrating Risk-Adverse, Multi-Cloud Architectures

Multi-Cloud Architecture
WHITEPAPER

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Helping You Keep Pace with Technology Innovation

AximCloud
Cloud Solutions for Business

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INTRODUCTION

About AximCloud

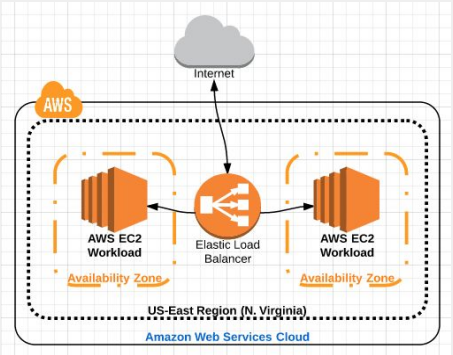
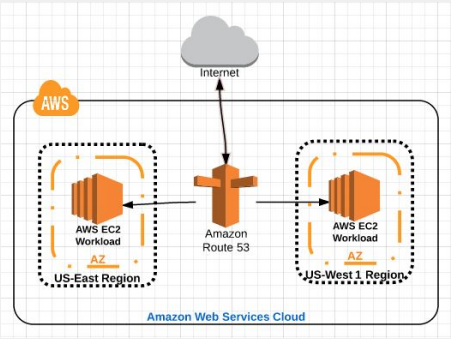
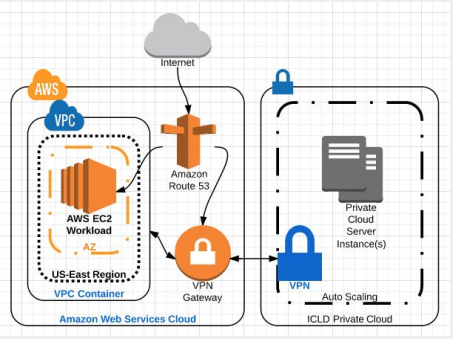
As the Cloud computing landscape continues to expand, it has become even more critical to have a partner that understands how to maximize the benefits of Cloud infrastructure. **AximCloud** provides end to end Cloud services including:

- Analysis and documentation of your current infrastructure
- Provisioning and operational workflow automation services
- Architecture, deployment and support of **High Availability** requirements
- Fully managed infrastructure and application services

What is a Multi-Cloud Architecture?

Multi-Cloud architecture is accomplished by employing two or more Cloud services to maximize both availability and data protection. Risk mitigation is achieved as a result removing single points of failure associated with localized outages in a single Cloud environment due to a failure in hardware, software, or infrastructure. A multi-Cloud strategy can also improve the overall performance of your organization's work streams by maintaining a vendor agnostic environment as well as being able to harness different platforms to answer the diverse requirements of modern day customers and applications.

Architecting Cloud Infrastructure for the highest availability can be accomplished across a continuum of solution options ranging from distributing your infrastructure and workflow footprints across:

(a) Multi-Availability zones in a single AWS Region	(b) Multi-Region AWS Deployment	(c) Multi-Cloud Infrastructure providers
		

Benefits of Multi-Cloud Deployments

Multi-Cloud architected solutions require some additional management tools and configuration, however, can allow your organization to realize the following benefits that arise from distributing your workloads across multiple Cloud Infrastructure providers:

- **Improved Availability and Performance.** The hardware, software and infrastructure redundancy necessary to optimize fault tolerance, improve availability and maximize performance;

- The ability to distribute work stream loads from different customers and affiliates through the most appropriate and/or highest performing components of your datacenter;

- **Cloud Security and Compliance.** The option use a Public Cloud to expose resources to consumers over the public Internet and a Private Cloud to provide services to a subset of user with additional or specialized security and/or compliance requirements;

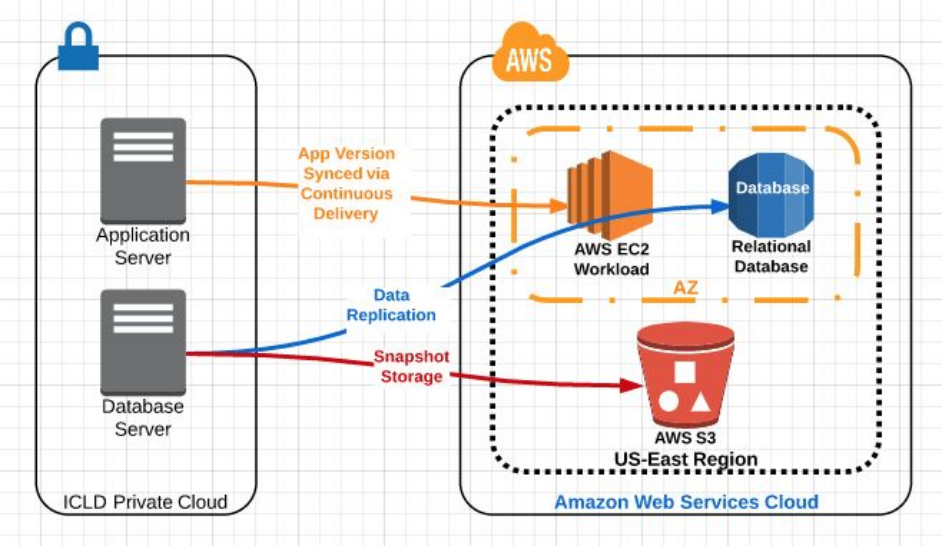
- **Best-of-Breed Features from Cloud Providers.** The ability to route work stream loads to Clouds which are better suited for a particular task;

- **Improved Cloud Mobility.** Availability hardening and vendor autonomy by distributing workloads across more than one Cloud Infrastructure provider;

MULTI-CLOUD USE CASES

Multi-Cloud Solutions for Disaster Recovery and Business Continuity

Sample "Backup and Restore - Disaster Recovery" Multi-Cloud Architecture



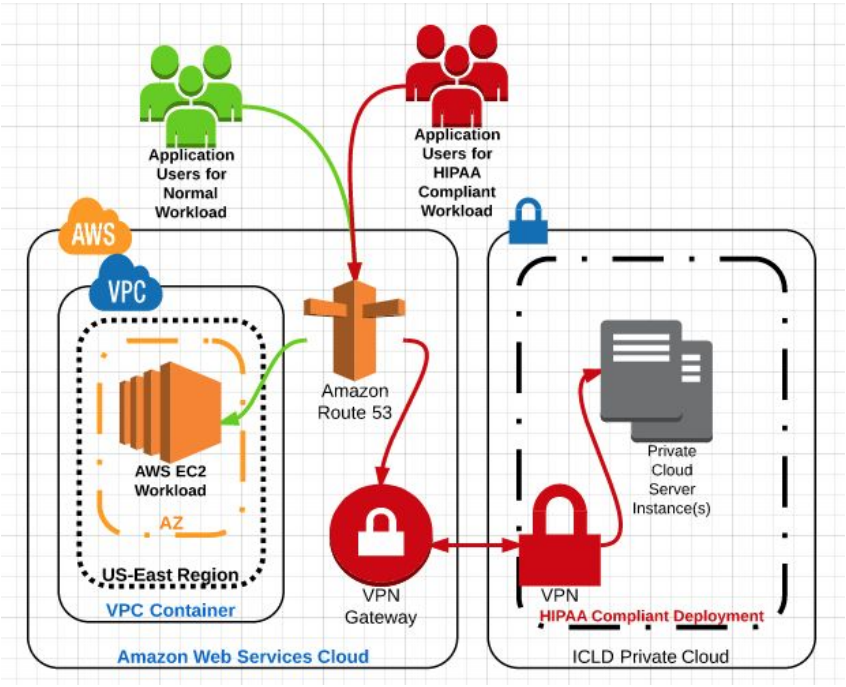
AWS offers a continuum of Disaster Recovery (DR) infrastructure models ranging from (a) least expensive with slightly longer recovery times to (b) more redundant infrastructure with commensurately more expense and lowest or absent recovery times. The sample multi-Cloud Disaster Recovery architecture above depicts a simple "backup and restore" model where applications and data are staged in a Disaster Recovery environment to be employed should there be a primary data center outage. Application server instances can be copied to another Cloud via machine image or via Continuous Delivery methodologies. The model depicted above represents the smallest provisioned footprint with the least cost impact and the highest recovery time. Recovery times can be decreased by employing more replication (blue line above) instead of simply backup and restore snapshots (red line above).

Use Case Benefits

- Faster recovery times as compared to traditional off-site tape backup models
- Inexpensive and relatively simple implementation
- Long term storage snapshots can be matriculated to AWS Glacier for Cold Storage allowing point in time recovery options
- Snapshots, replicated data and continuous deployment instances are staged to serve PROD workloads from DR in the event of an outage

Multi-Cloud Solutions for Compliance (hybrid Public / Private Cloud Deployments)

Sample Multi-Cloud Architecture for Use Case



Workload traffic can be routed to multiple Cloud Infrastructure providers based on one or more of the following metrics:

- Application, user or business rules
- GeoLocation for lowest achievable latency
- Cloud availability based on health check status

Use Case Benefits

- Ability to still leverage low-cost, feature rich Public Cloud services while segregating compliance sensitive workloads to Private Cloud Infrastructure
- Ability to harness the best-of-breed features from each individual Cloud and pair applications with Clouds based on best fit
- Deploying across different Cloud providers offers the advantages of reduced vendor dependency and improved Cloud mobility - allowing realization of best-of-breed features and cost savings

CONCLUSION

While some measure of additional complexity and management overhead will be introduced as a result of a multi-Cloud implementation, the Cloud Mobility and best-of-breed capabilities to be realized far outweighs the challenges presented. As multi-Cloud architectures continue to grow as an adopted best practice, application development and deployment practices will also continue to improve (both in practice and in automation) creating a wider, more fault tolerant logical Cloud data center footprint.

HOW TO CONTACT A CLOUD SPECIALIST

If you would like more information about the Amazon Web Services Public Cloud or multi-Cloud architecture and best practices - please contact us at http://www.aximcloud.com or send your request to:

business-development@aximCloud.com