AWS re:Invent

NOV. 29 – DEC. 3, 2021 | LAS VEGAS, NV

CMP319

Architect for highly available applications with AWS Outposts

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Agenda

Introduction

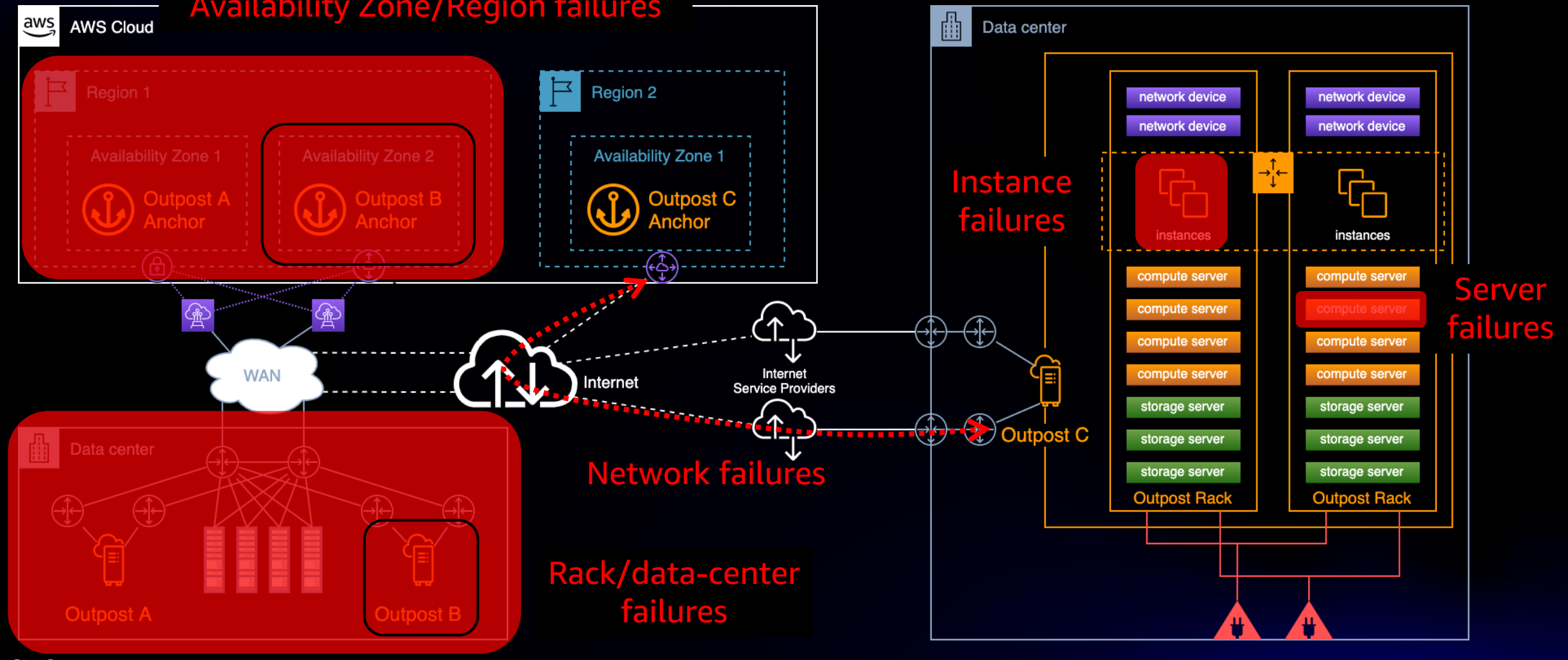
- Improving the availability of an individual Outposts deployment
- Designing multi-Outpost HA/DR application architectures

Discussion and whiteboarding

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What could possibly go wrong?

"Failures are a given and everything will eventually fail over time … "
Werner Vogels, CTO, Amazon



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Whiteboard a highly available single Outpost deployment

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Expand single Outpost deployment whiteboard to include multiple Outposts

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Wrapping up

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Failure modes, redundancies, and crossover mechanisms

Failure modes	Redundancies	Mechanisms

Network
- Service provider
- Customer
- Outposts
	- Network devices
	- Links
	- Outposts managed internal redundancy
		- Layer 3 (L3) protocols
		  - Border Gateway Protocol (BGP)
		- Layer 2 (L2) protocols
		  - Link aggregation groups (LAG)

Instances
- Application
- Operating system (OS)
	- Distributed workloads
	  - Auto Scaling groups
	  - Application clusters
	- CloudEndure Disaster Recovery
		- Load balancers
		  - Application Load Balancer (ALB)
		- Amazon Route 53
		- CloudEndure Disaster Recovery

Hosts (servers) - Compute hosts - Storage hosts	- N+M compute pools - Managed storage services - Data backup and replication	- Instance crossover mechanisms - Amazon EC2 instance auto recovery
Data Center - Outpost - Rack	- Multi-Outpost deployments - Multi-rack Outposts deployments - Large N+M compute pools	- Instance crossover mechanisms - Route 53

AWS
- Region
- Availability Zone (AZ)
	- Multi-Outpost deployments
	  - Anchored to multiple Regions
	  - Anchored to multiple AZs
		- Route 53

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AWS Outposts High Availability Design and Architecture Considerations whitepaper



https://d1.awsstatic.com/whitepapers/aws-outposts-high-availability-design-and-architecture-considerations.pdf

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Additional resources

Outposts-specific

- AWS Outposts – User Guide
- Architecting for DR on AWS Outposts with CloudEndure Blog
- Configuring an Application Load Balancer on AWS Outposts

General

- Hybrid Networking Lens – AWS Well-Architected Framework
- Reliability Pillar – AWS Well-Architected Framework

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Next steps

- ❑ Download and review the whitepaper and service documentation
- ❑ Improve the availability of your AWS Outposts deployments by
  - Think in terms of failure modes
  - Create redundancies
  - Select, implement, and test your crossover mechanisms
- ❑ Design, deploy, and test your disaster recovery plans

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Thank you!

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