AWS State, Local, and Education Learning Days

Washington, DC

11:30am – 12:30pm

200
level

Cloud architectural patterns:

Master Cloud Architecture: Build Secure, Scalable Solutions with AWS Best Practices and Enterprise-Grade Design Strategies.

aws Learning Days
State, Local, and Education

Cloud architectural patterns:

Platform and application best practices

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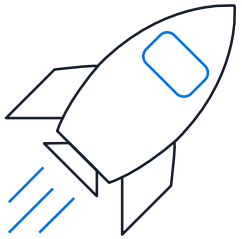
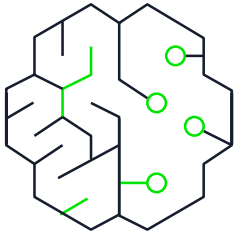
aws Learning Days
State, Local, and Education

Why Cloud Architecture Matters



Build and deploy faster

Lower or mitigate risks



Make informed decisions

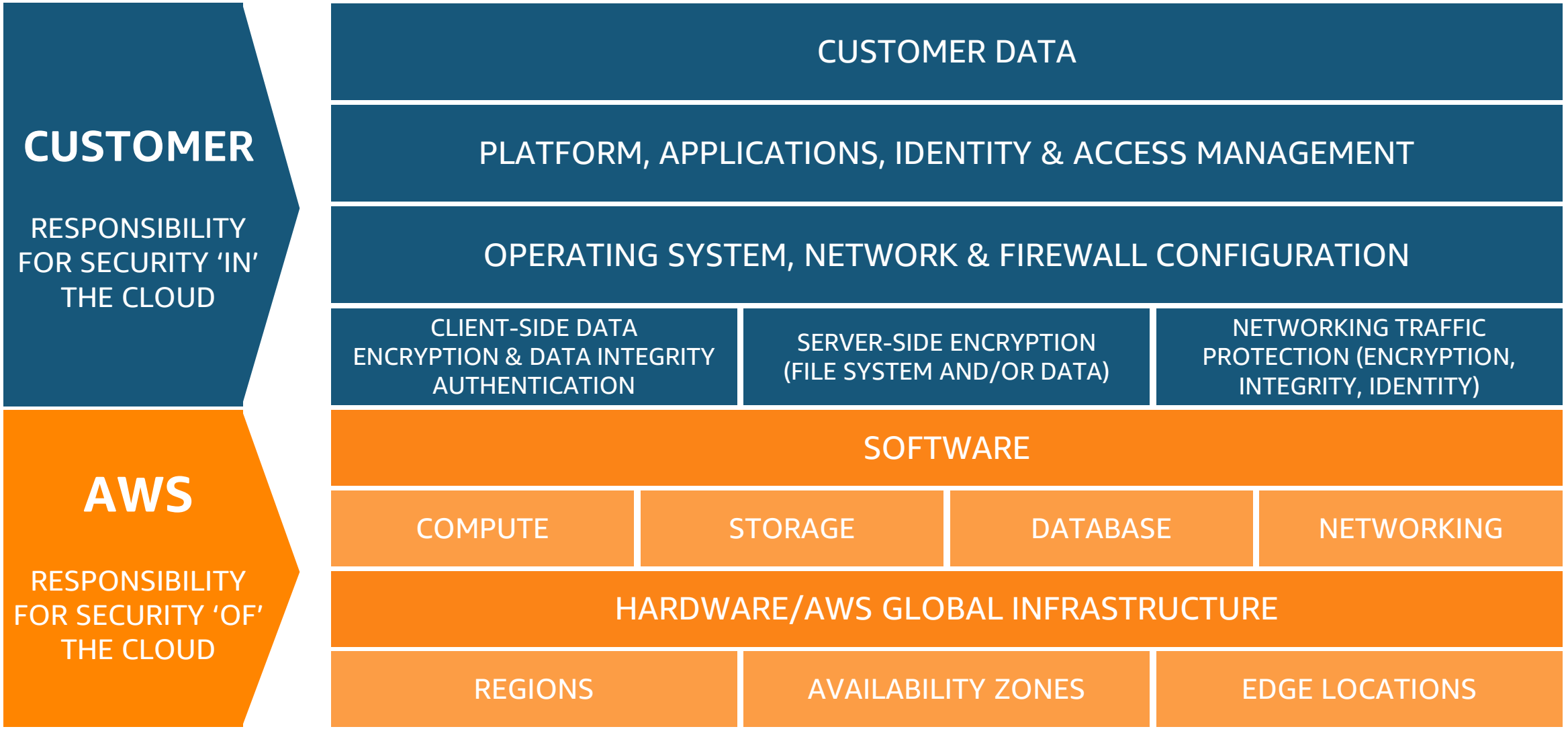
Also -

“Everything fails, all the time.”

Werner Vogels

CTO, Amazon.com

AWS Shared Responsibility Model



The Situation

Meet Bob – Our new Junior developer, and taco enthusiast.

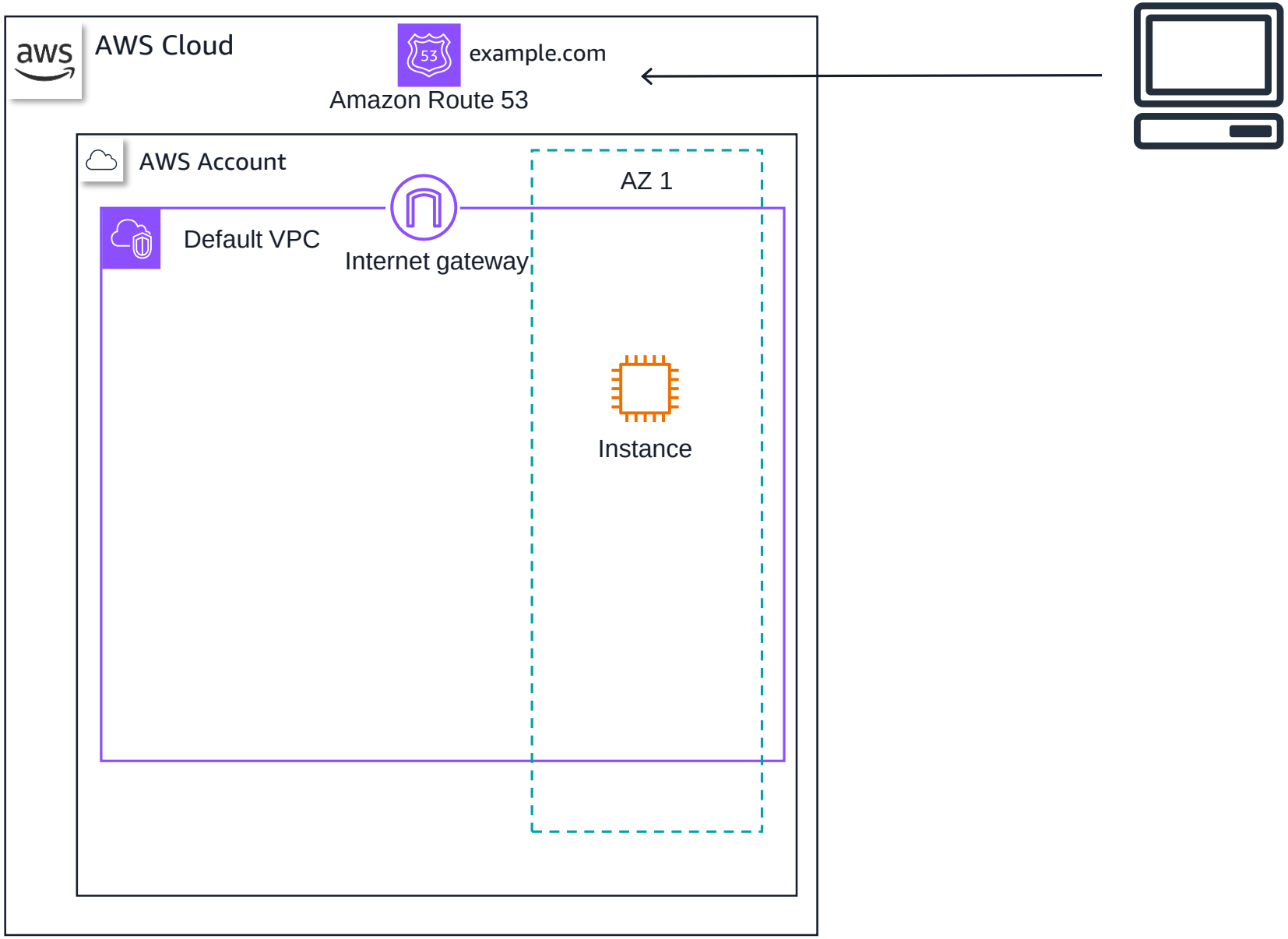
Bob just joined the team three months ago, fresh out of college. When he's not dreaming about finding the perfect taco truck, he's eager to prove himself as a developer. His manager just gave him his first solo project: deploying a WordPress site for a major government service that's expected to go viral once citizens discover how much time it will save them.

The conversation went something like this:
Manager: "Bob, can you get this WordPress site up in AWS for the client?"
Bob (confidently): "No problem! I've built WordPress sites on my laptop before!"

Bob gets to work. Here's what he did:

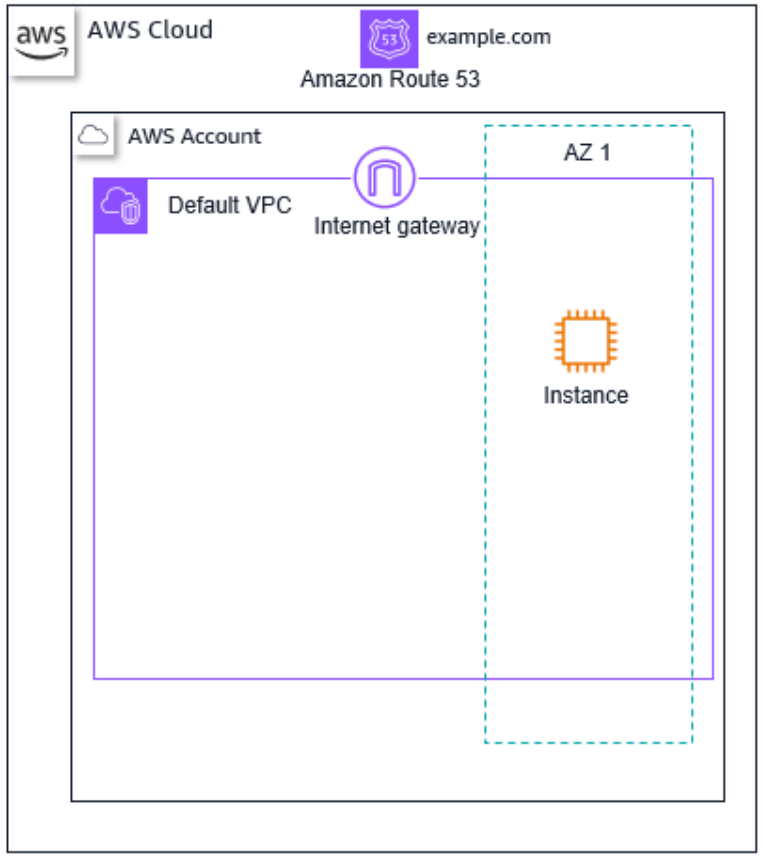
- Launched a single t2.micro EC2 instance in the default VPC
- Installed Apache, MySQL, and PHP directly on the instance
- Opened port 80 and 22 to 0.0.0.0/0 in the security group
- Proudly told his manager "It's live!" while heading out for his celebratory taco lunch

Bob’s Architecture



Pillars of the AWS well-architected framework

Bobs Bad Day

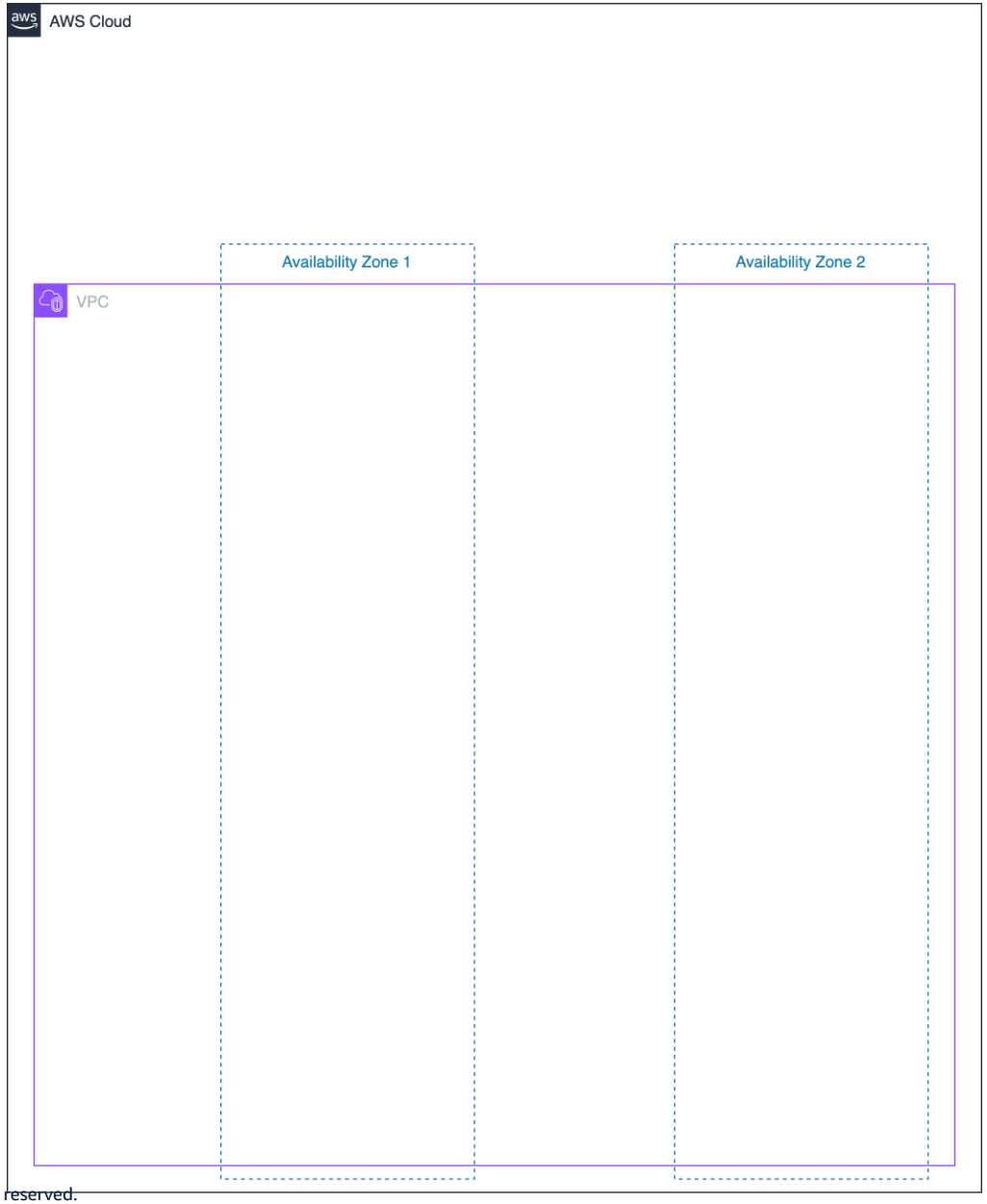


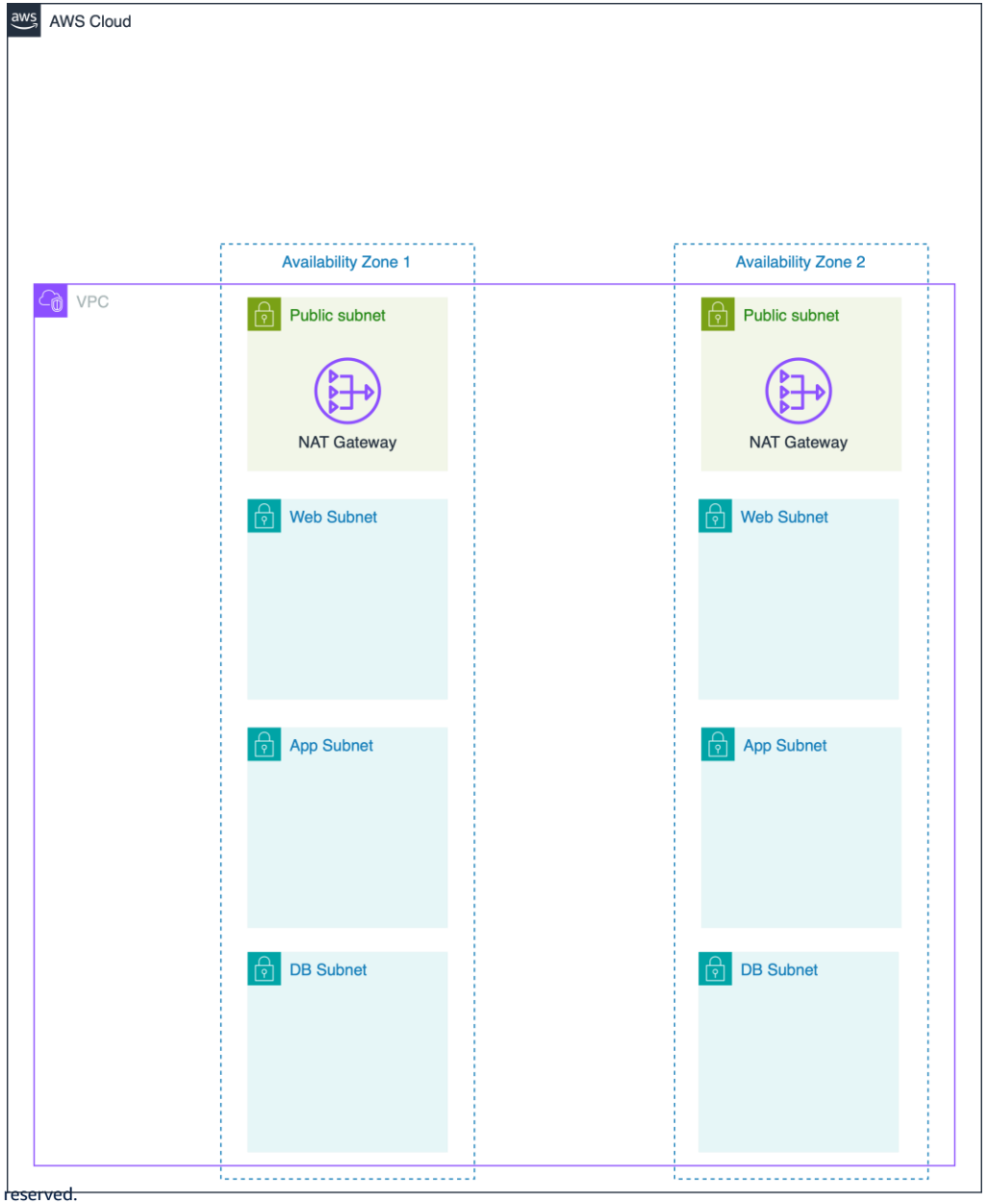
Security

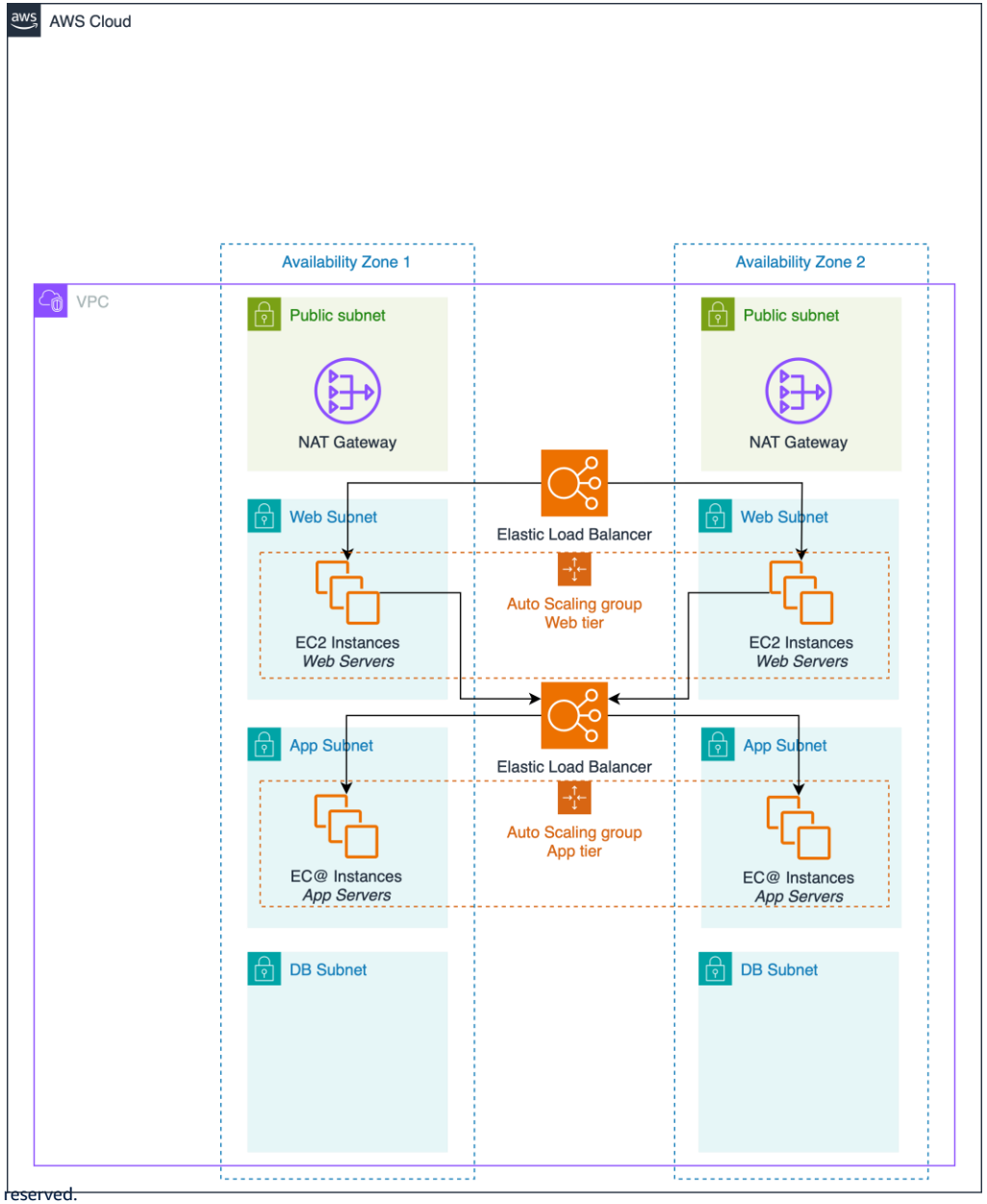
Reliability

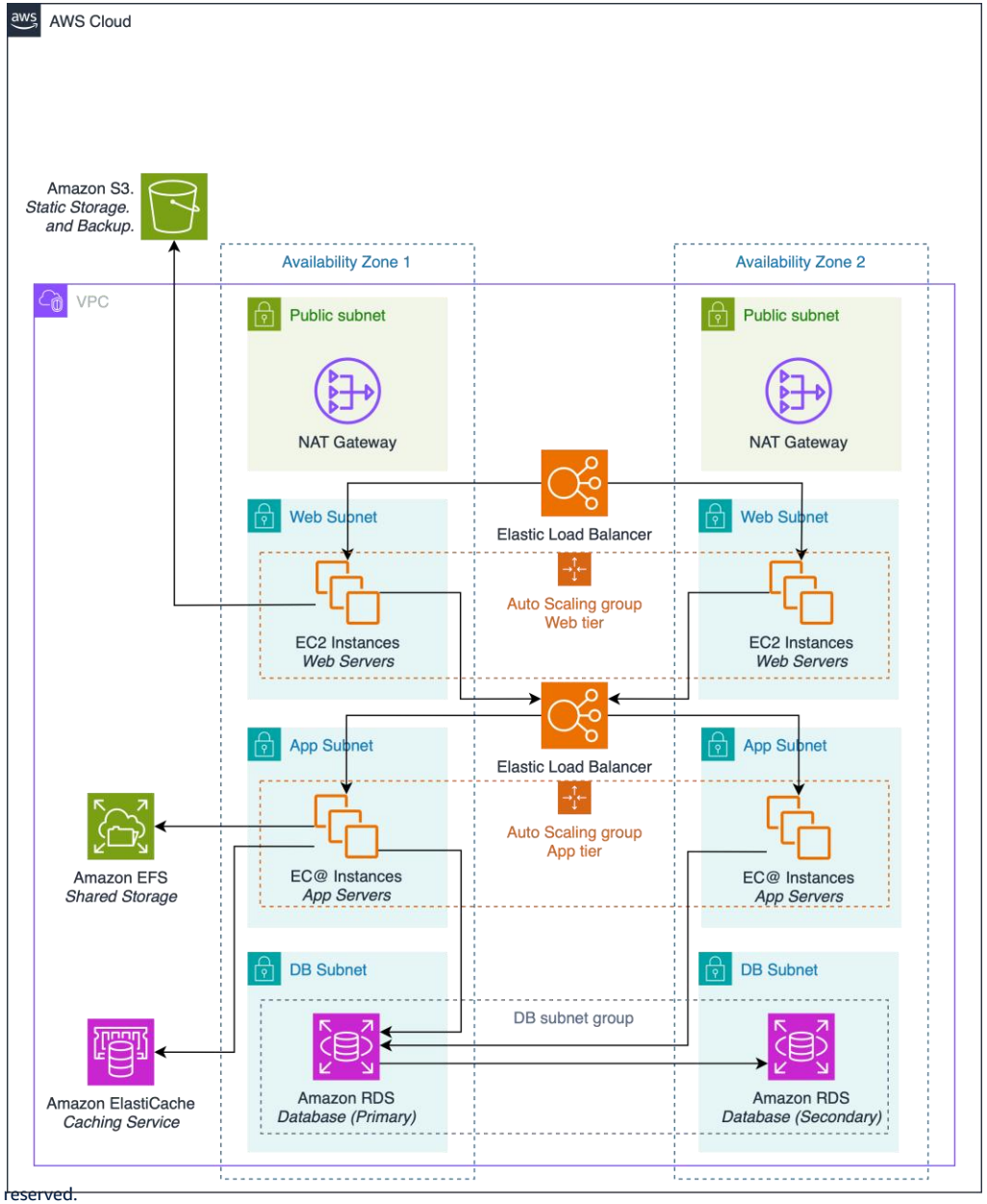
Operational Excellence

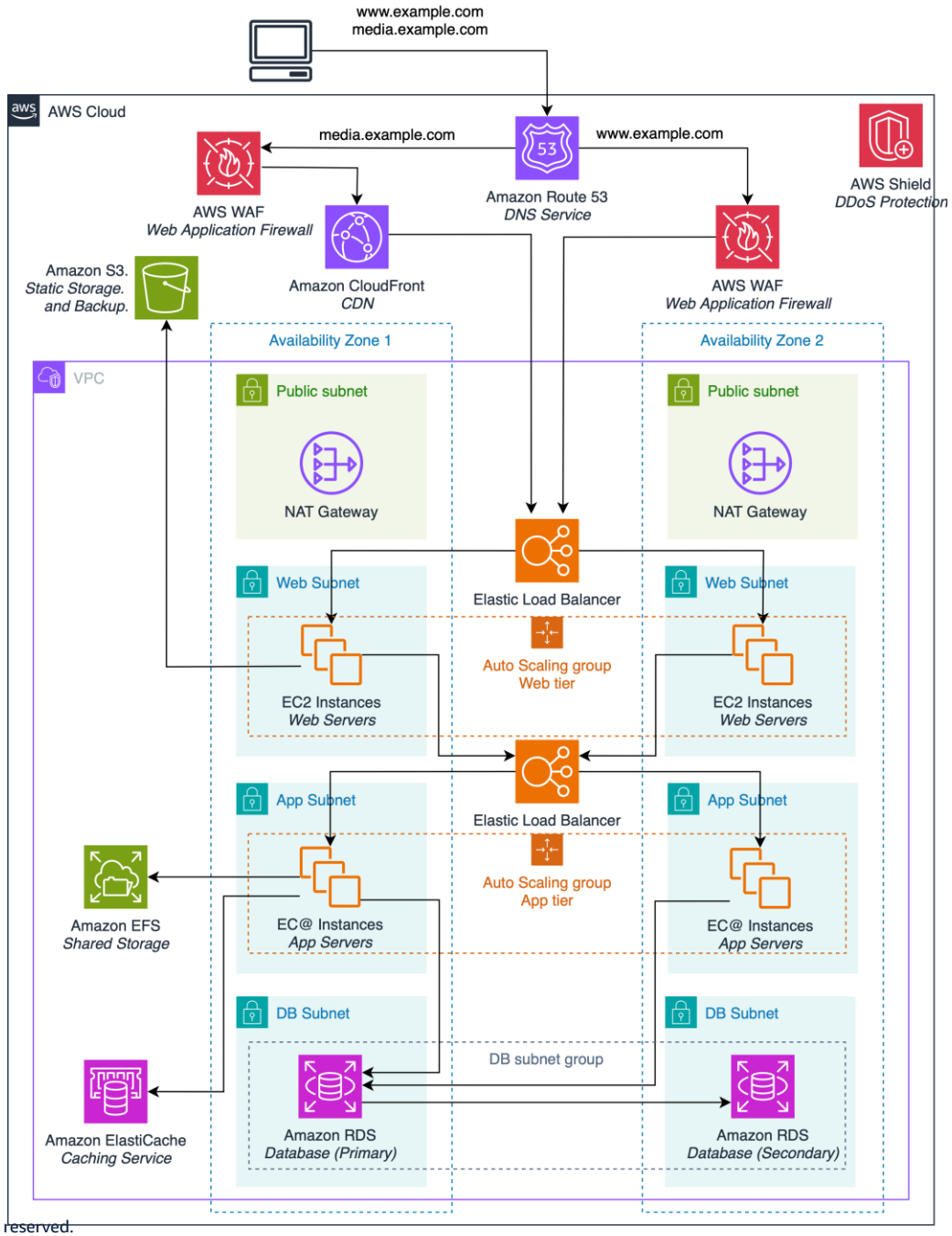
Performance Efficiency / Cost Optimization











Security – Top design principles

- Implement a strong identity foundation
- Maintain traceability
- Apply security at all layers
- Automate security best practices
- Protect data in transit and at rest
- Keep people away from data
- Prepare for security events

AWS Security Services

Identity and access management

AWS Identity and Access Management (IAM)

AWS Single Sign-On

AWS Organizations

AWS Directory Service

Amazon Cognito

AWS Resource Access Manager

Detective controls

AWS Security Hub

Amazon GuardDuty

Amazon Inspector

Amazon CloudWatch

AWS Config

AWS CloudTrail

VPC Flow Logs

AWS IoT Device Defender

AWS Security Lake

Amazon GuardDuty

Infrastructure protection

Network Edge Protection

AWS Firewall Manager

AWS Network Firewall

AWS Shield Advanced

AWS WAF

Amazon Route 53 DNS Firewall

AWS Verified Access

Amazon VPC

AWS PrivateLink

AWS Systems Manager

Data protection

Amazon Macie

AWS Key Management Service (KMS)

AWS CloudHSM

AWS Certificate Manager

AWS Secrets Manager

AWS VPN

Server-Side Encryption

*AWS Clean Rooms (Preview)

Incident response

Amazon Detective

Amazon EventBridge

AWS Backup

AWS Security Hub

AWS Elastic Disaster Recovery

Privacy and Compliance

AWS Artifact

AWS Audit Manager

Amazon CloudWatch

AWS CloudTrail

AWS Config

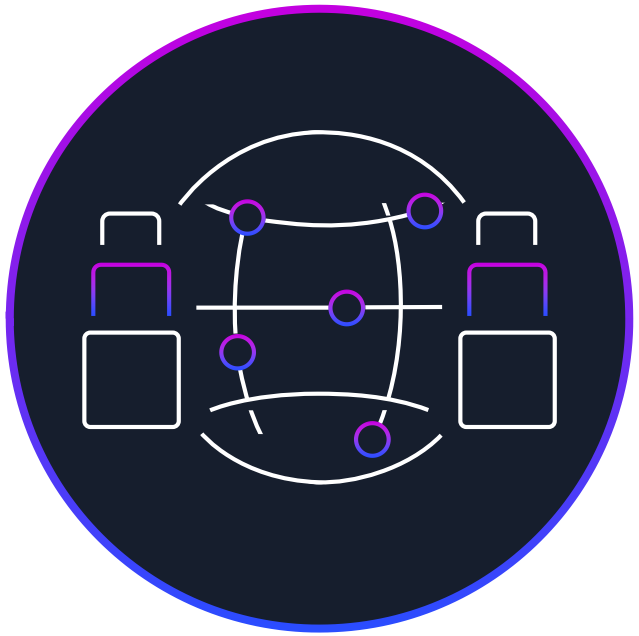
AWS Security Hub

AWS Systems Manager

AWS Verified Permissions

AWS Wickr

Reliability – Top design principles



- Automatically recover from failure
- Test recovery procedures
- Scale horizontally to increase aggregate workload availability
- Stop guessing capacity
- Manage change through automation

Operational Excellence

- Perform operations as code
- Make frequent, small, reversible changes
- Refine operation procedures frequently
- Anticipate failure
- Learn from all operational failures
- Use managed services

Performance efficiency & cost optimization

- Democratize advanced technologies
- Go global in minutes
- Use serverless architectures
- Experiment more often
- Consider mechanical sympathy

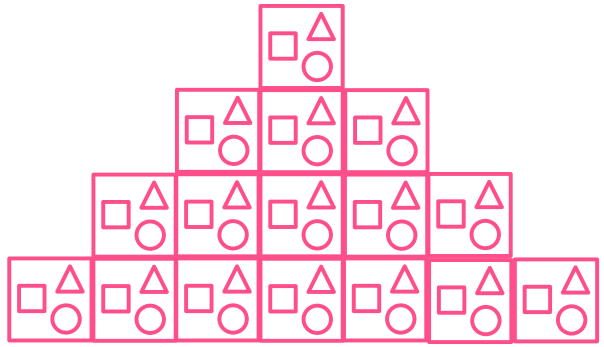
…but how do you scale this?

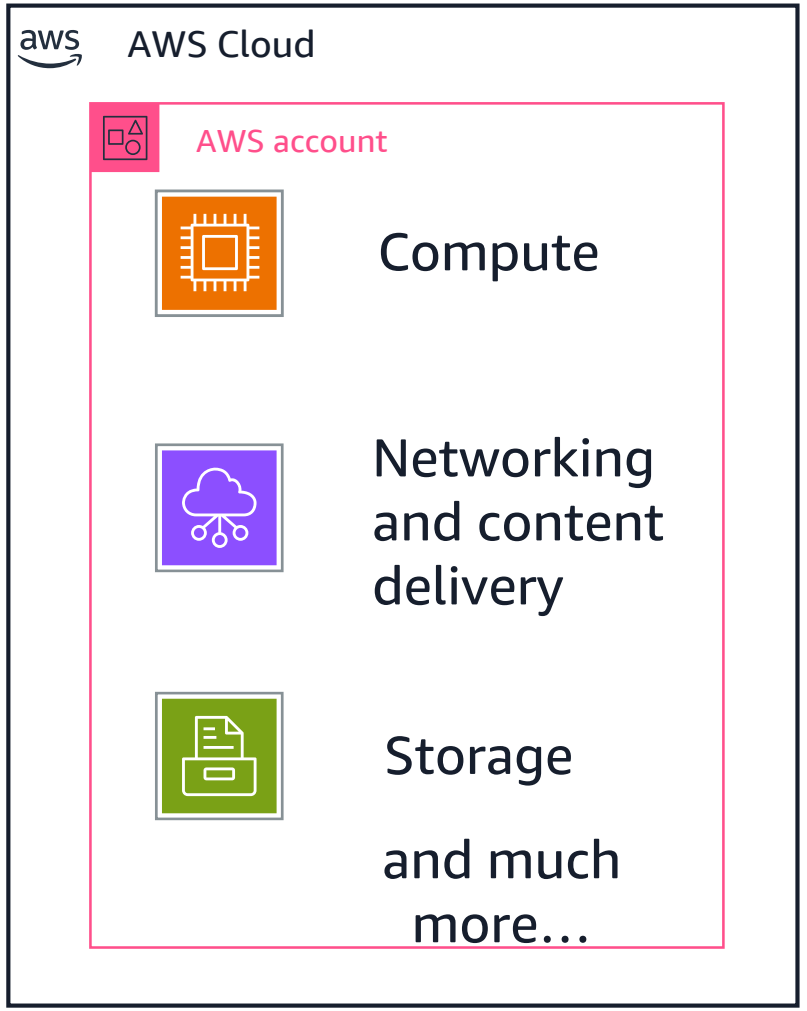
Use accounts as building blocks

Account limits
Quotas

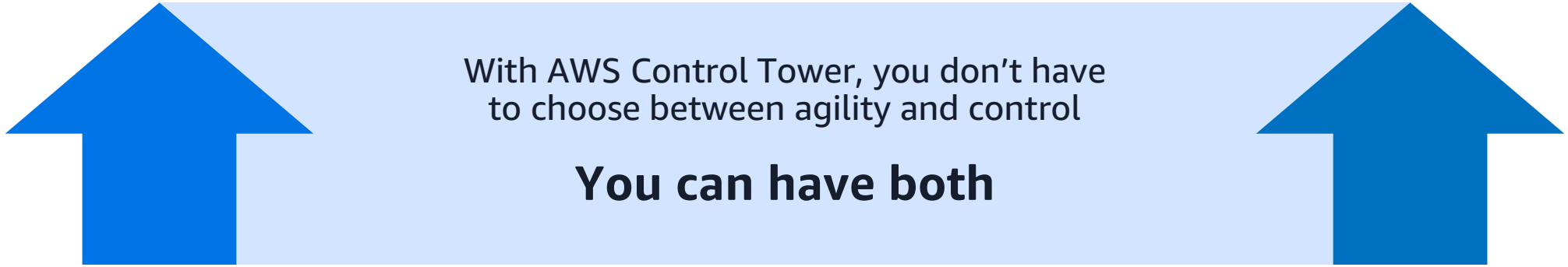
Security
Natural boundaries, isolation

Compliance/ business processes
Billing, custom requirements





Business agility and governance control



Governance

Security

Compliance

Operations

Spend management

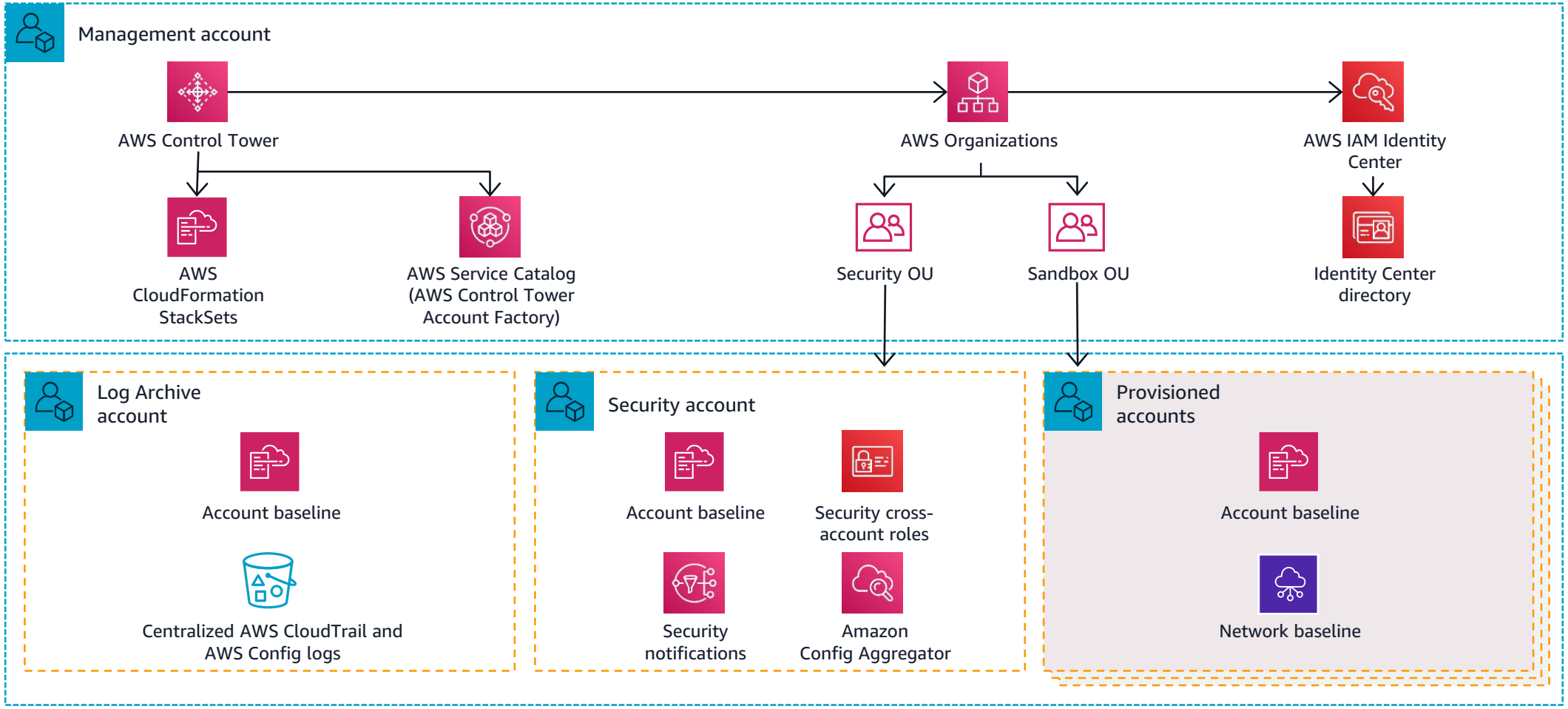
Agility

Self-service access

Experiment fast

Respond quickly to change

Landing zone foundation of AWS Control Tower



Thank you!

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Please complete the survey for this session

Track: Cloud Fundamental

Session: Cloud architectural patterns: Platform and application best practices

Coming up NEXT

1:30pm – 3:00pm

300 level

Cloud Lab Potpourri

Hands-On Cloud Adventure: Customize Your AWS Learning with Interactive Technical Workshops

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