AWS State, Local, and Education Learning Days

Chicago

aws Learning Days
State, Local, and Education

Building and governing your cloud environment

Archit Malpure (he/him)

Solutions Architect
AWS
malpurea@amazon.com

Travis Berkley (he/him)

Sr. Solutions Architect
AWS
travberk@amazon.com

aws Learning Days
State, Local, and Education

Why do we need a strong cloud governance

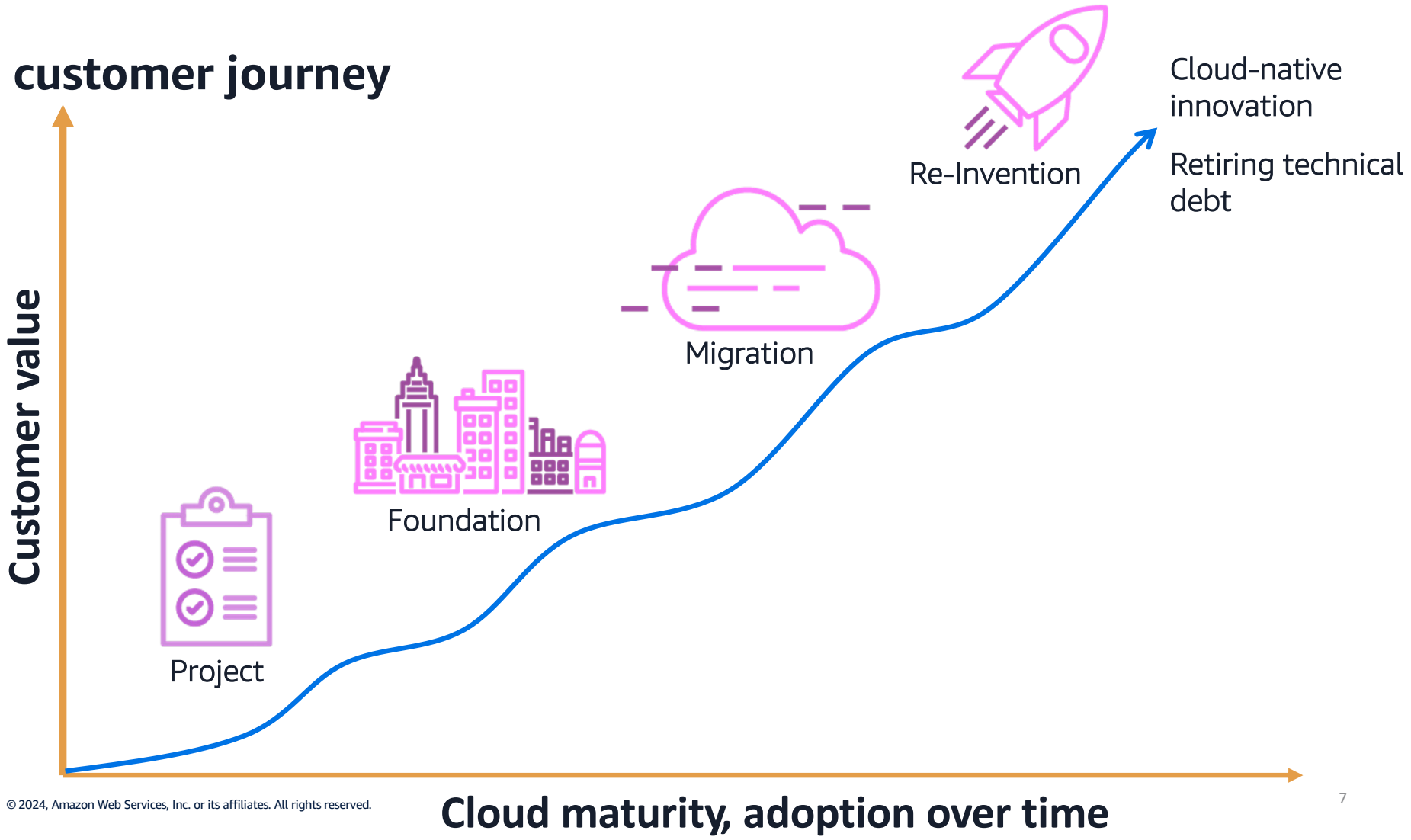
What we will cover today

- **Overview of cloud governance**
- **The customer journey**
- **Cloud governance best practices**
  Controls, identity, security, network, observability, cloud financial management
- **Q&A**

Cloud governance

is the set of rules, practices, and reports that help you align your cloud use to your business objectives

The customer journey



How to prepare a cloud ready environment


Retire/retain


Re-purchase


Re-platform
(lift, tinker ,and shift)


Re-host
(lift and shift)


Re-factor/re-architect
(transform and modernize)

Cloud ready environments

Migration ready * Scale ready * Optimized and efficient

Interoperable management and governance functions


Controls and guardrails


Network connectivity

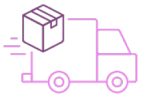

Identity management


Security operations


Service mgmt (ITSM)


Observability


Cloud financial management


Sourcing and distribution

AWS Well-Architected Pillars

Operational excellence | Security | Reliability | Performance efficiency | Cost optimization

Cloud governance best practices

Best practice
01
Controls and guardrails

Use accounts as **building blocks**

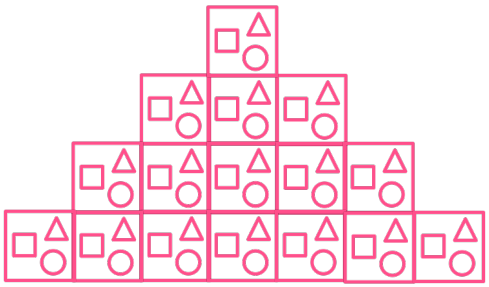
Use accounts as building blocks

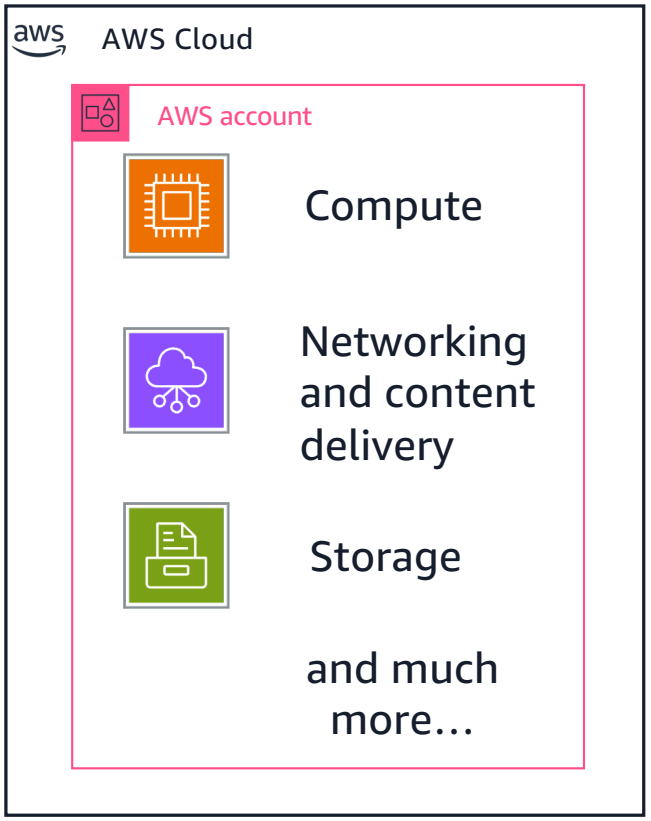
- Controls and guardrails best practice | 01

Account limits
Quotas

Security
Natural boundaries, isolation

Compliance/ business processes
Billing, custom requirements



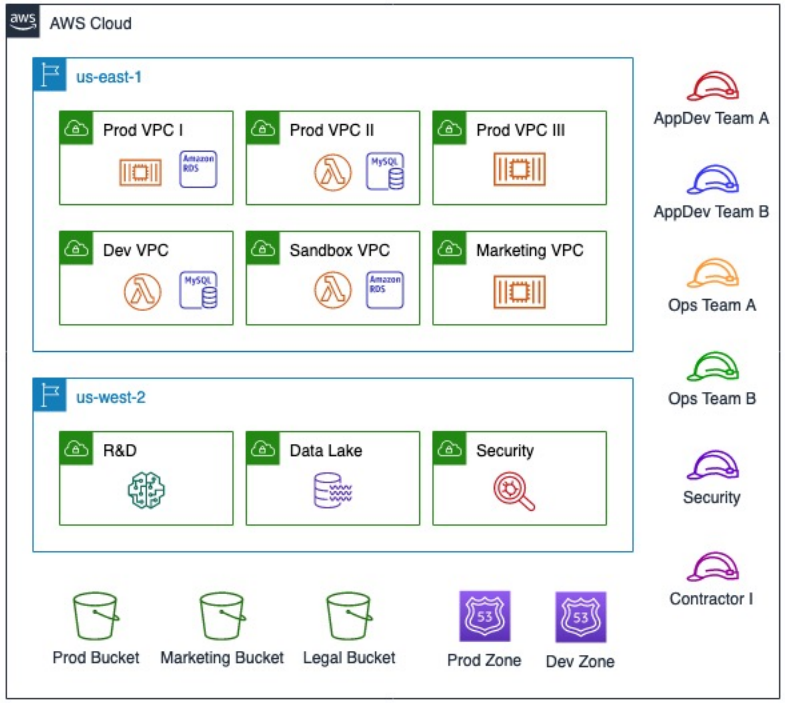


Why use multiple AWS accounts?

when single account is no longer scalable for your business

Non prod may impact prod workload

Complex policy due to variety of services in use



Risk of elevated permissions and cross workload access

Complex billing structure and operational support

Multi-Account

AWS Control Tower: A self-service solution to automate the setup of new AWS multi-account environments

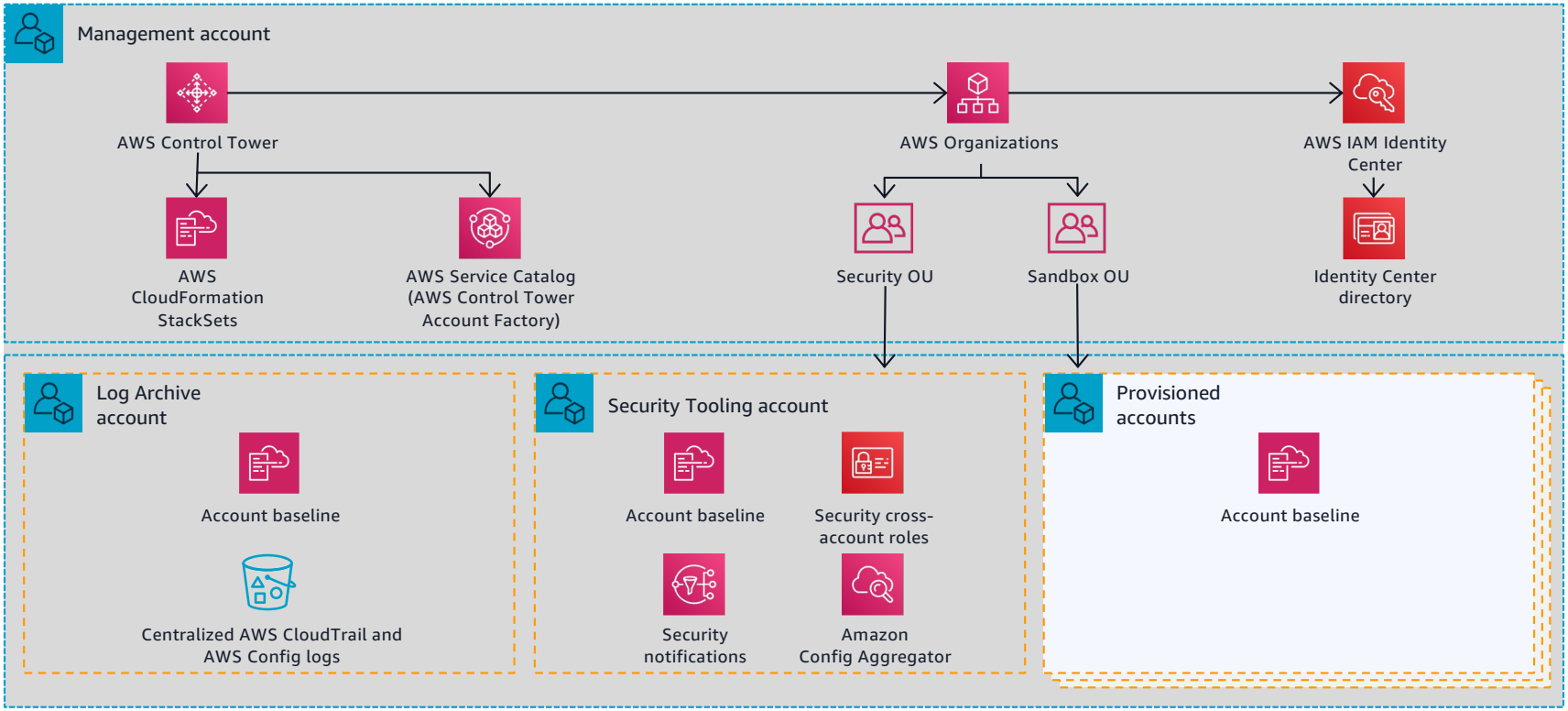
Managed-service version of multi-account environment

Deployment of AWS best practice blueprints and controls

Automated account creation based on AWS best practices

Dashboard for monitoring compliance status

Landing zone foundation of AWS Control Tower



Best practice
02
Identity

Apply the principle of least privilege

Managing access permissions to AWS accounts

- Identity best practices

IAM Identity Center

AWS Identity and Access Management (IAM)

AWS Organizations

01 Restrict access to the management account

02 Require MFA for users with elevated access

03 Require human users to use federation with an identity provider to access AWS using temporary credentials

Security Best Practices in IAM

Establish a centralized identity provider for human identities

Federation via
Third-party identity providers

Native identity
(AWS IAM Identity Center)

AWS Account

AWS IAM Identity Center can be used if you have no plans to use a third-party identity provider and need to setup identity federation.

Best practice
03
Network connectivity

Define a **network strategy**

Design your network strategy

- Network connectivity best practice | 03

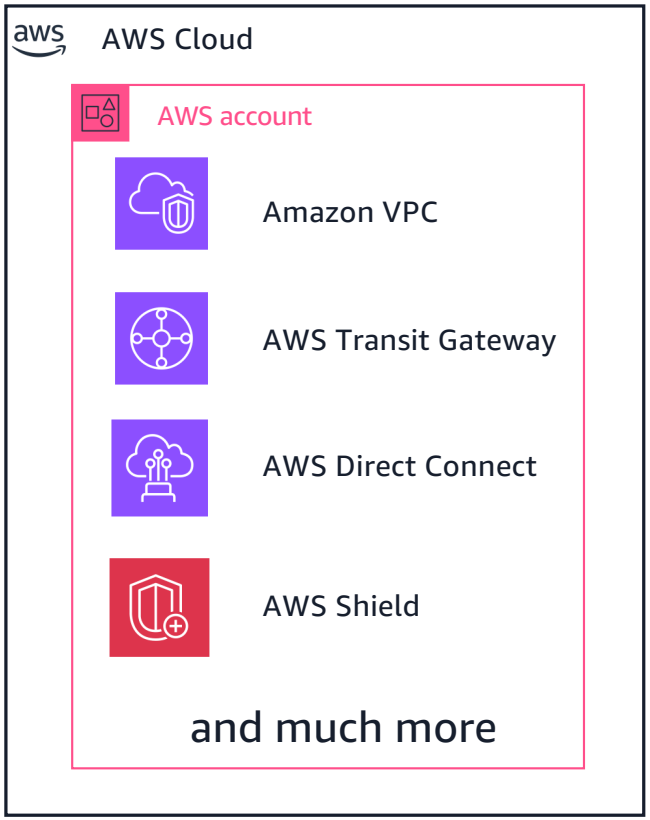
Plan your IP address space
Non-overlap, IPv6, environment

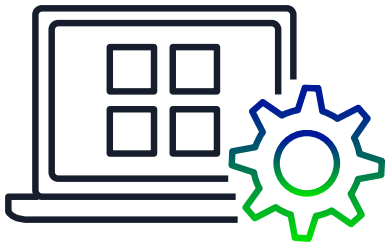
Network Resiliency
Multi-AZ design

Network Monitoring
Network traffic, access

Network Security
Firewall, DDoS, WAF

Network connectivity
On-prem, internet, internal, DNS

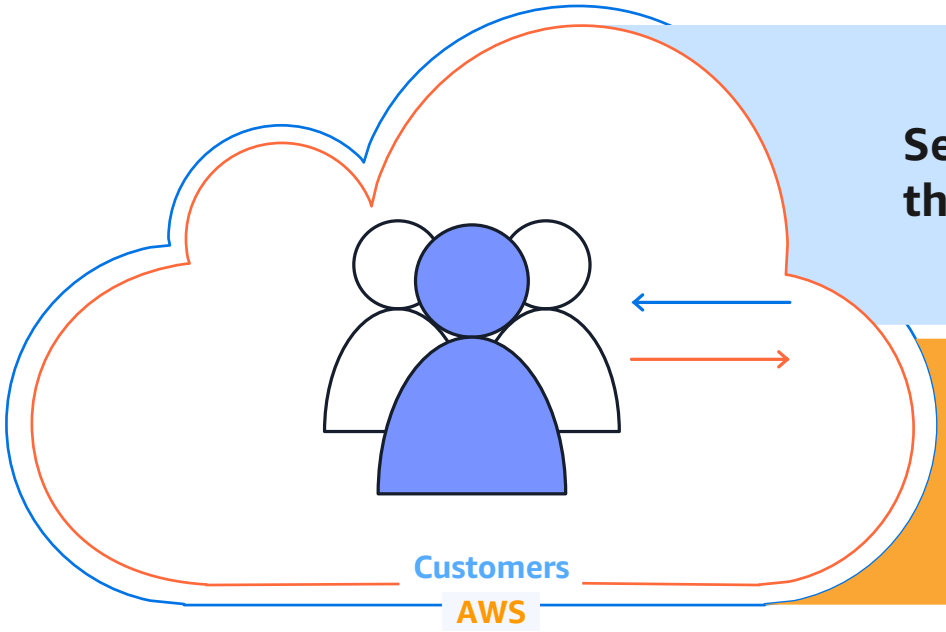




Best practice
04
Security

Align control objectives to a **security framework**

Shared responsibility model



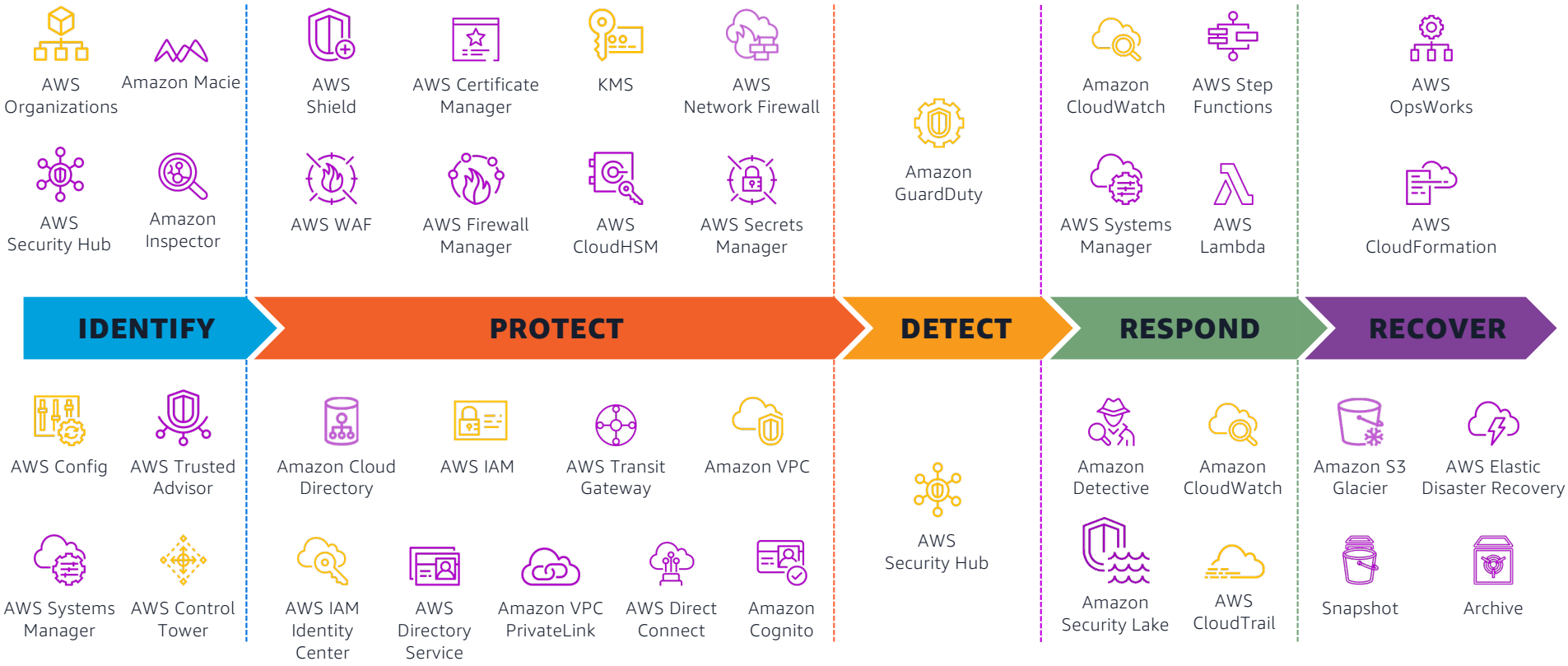
Security IN the cloud

Customer responsibility is determined by the AWS Cloud services a customer selects.

Security OF the cloud

AWS is responsible for protecting the infrastructure that runs all the services offered in the AWS Cloud.

Use AWS services to mitigate threats



What is Amazon GuardDuty?

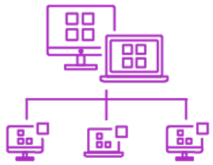
Amazon GuardDuty is a threat detection service that uses **machine learning**, anomaly detection, and **integrated threat intelligence** to identify and prioritize potential threats.

One-step activation

Continuous monitoring of AWS accounts and resources

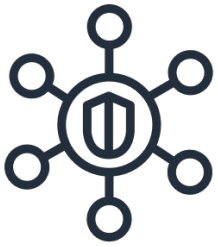
Global coverage with regional results

Detect known and unknown threats

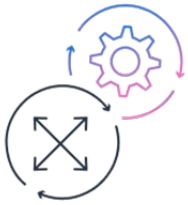


Enterprise-wide consolidation & management

What is AWS Security Hub?



AWS Security Hub is a cloud security posture management service that **continuously** performs security best practice checks and **seamlessly** aggregates security findings from AWS and third-party services and enables automated response.



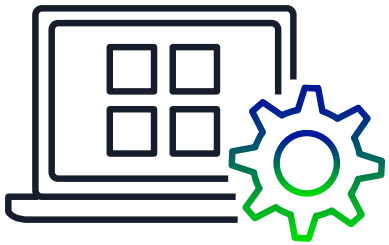
Automated, continuous best practice checks

Consolidated findings across AWS services and partner integrations

Standardized findings format and cross-Region aggregation

Standards aligned to regulatory and industry compliance frameworks

Automated response, remediation, and enrichment actions



Best practice
05
Security

Use controls to **protect security baselines** and identify **misconfigurations**

Control types

Detective

Detect resources that violate your defined security policies

COMPLIANT

NONCOMPLIANT

Preventive

Disallow actions that would lead to violations of your security policies

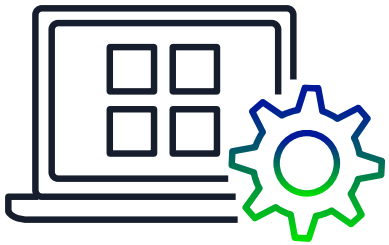
ALWAYS COMPLIANT

Proactive

Scans resources before they are provisioned, blocking provisioning if resources aren't compliant

APPROVED RESOURCES ONLY

ALWAYS COMPLIANT



Best practice
06
Cloud Financial Management

Enable mechanisms for **cost governance**

Build your Cloud Financial Management portfolio

Plan

Plan and Evaluate

Migration Evaluator
AWS Pricing Calculator
AWS Budgets

Run

Manage and Control

Tagging Strategy
Billing Console
AWS Purchase Order Management
AWS Budgets (Actions)
AWS Cost Anomaly Detection

See

Track and Allocate

AWS Cost Explorer
AWS Cost & Usage Reports
AWS Cost Categories
AWS Billing Conductor
AWS Application Cost Profiler

Save

Optimize and Save

Savings Plans
Reserved Instances
Recommendations

Define your tagging strategy

Identify tag requirements

Employ a Cross-Functional Team

Required and Conditionally Required Tags

Use Tags Consistently

Start Small; Less is More

Tagging use cases

AWS Console Organization and Resource Groups

Cost Allocation

Automation

Operations Support

Access Control

Security Risk Management

Tagging schema

Define mandatory tag keys

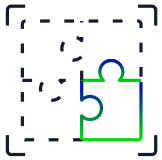
Define acceptable values and tag naming conventions

No personally identifiable information (PII)

Decide who can define and create new tag keys

Tag polices

Key takeaways

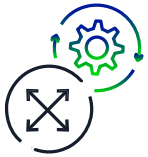


Use accounts as building blocks

Protect security baselines and stop cloud risks

Apply the principle of least privilege

Continuously monitor and test control effectiveness



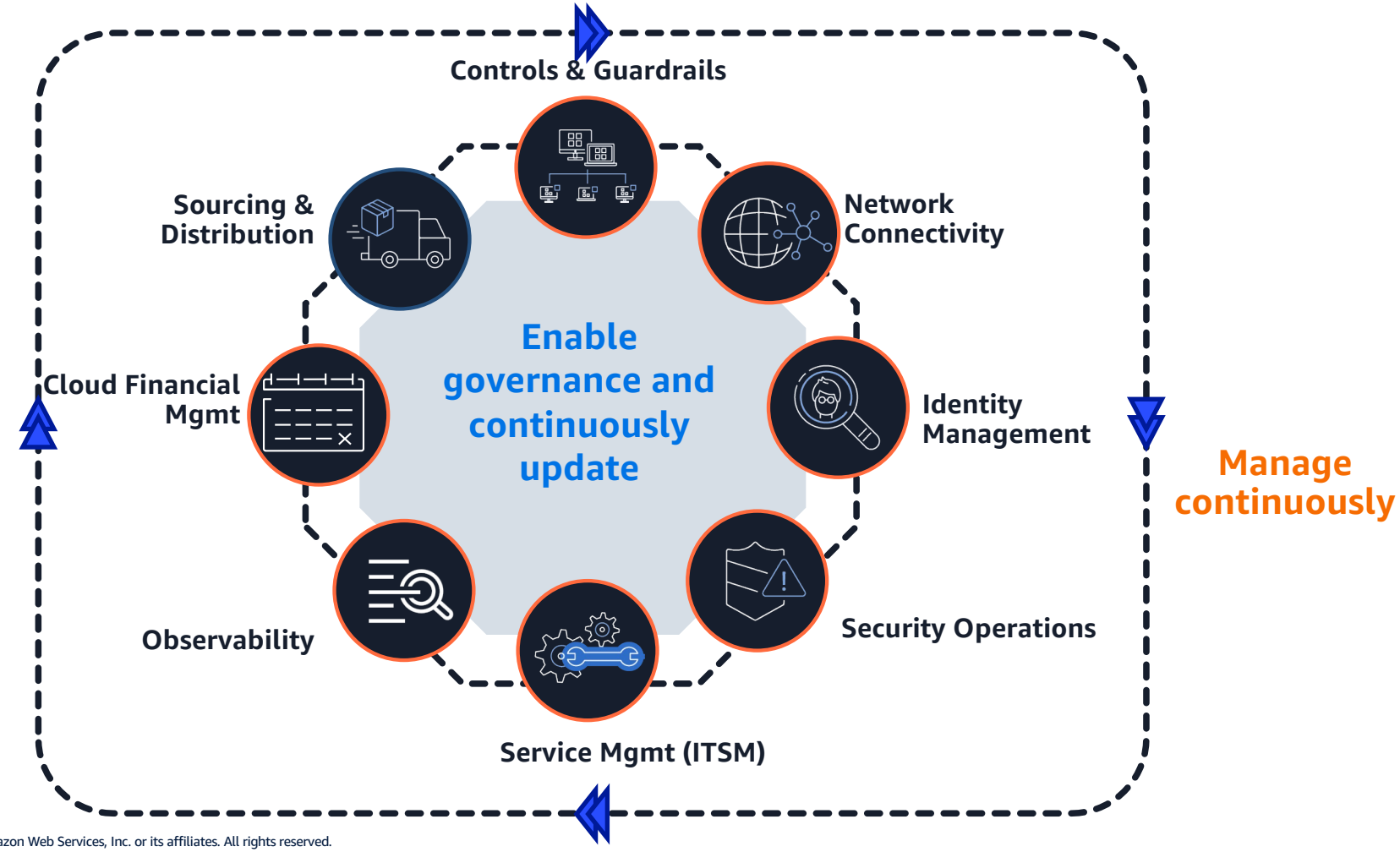
Design your network strategy

Build your cloud financial management portfolio

Align control objectives to a security framework

Define a tagging strategy and enforce tagging

Remember - It is a continuous cycle



Using Innovative Documentation-as-Code Approach for the Georgia Department of Human Services System Security Plan

CHALLENGE

Manual, time-consuming process of creating and updating System Security Plan (SSP) Word/PDF documents to meet federal compliance requirements. They needed a better, more automated approach.

SOLUTION

Collaborated with AWS Professional Services to develop ”documentation-as-code” approach for creating and maintaining the SSP’s. Used logging and monitoring layer on Amazon CloudWatch, which collects and visualizes near-real-time logs, metrics, and event data in to streamline infrastructure and application maintenance. Used AWS CloudTrail to monitor account activity AWS and provide audit trails. Used AWS Config to monitor overall security and configurations of the organization’s resources

OUTCOME

- ✓ Created SSP for the Document Imaging System application within 16 weeks
- ✓ Audit trails of changes to the SSP were improved, with visibility into who made each change, when, and why.
- ✓ The new approach streamlined the process of creating, updating, and tracking changes to the System Security Plans.

Improving mergers and acquisitions using AWS Organizations with Warner Bros. Discovery

WARNER BROS. DISCOVERY

CHALLENGE

In 2022, the company began undergoing its largest merger to date when WarnerMedia and Discovery started to merge into Warner Bros. Discovery (WBD); this process is still ongoing.

SOLUTION

WBD uses the delegated administration capabilities of AWS Organizations to give its teams the capability to centrally manage security services. Additionally, by using AWS CloudTrail and Amazon GuardDuty, WBD benefits from centralized security tooling while adopting governance controls.

OUTCOME

- ✓ 2 months to 2 days reduction time in new account creation
- ✓ Achieved faster time to market
- ✓ Reduction in firewall rule deployment time from days to minutes

Additional resources

Organizing Your AWS Environment Using Multiple Accounts

AWS Services for Security, Identity and Compliance

aws Learning Days
State, Local, and Education

Thank you!

Archit Malpure
Solutions Architect
AWS
malpurea@amazon.com

Travis Berkley
Sr. Solutions Architect
AWS
travberk@amazon.com

Please complete the survey for this session

Building and governing your cloud environment

aws Learning Days
State, Local, and Education