

AWS State, Local, and Education Learning Days

New York City

Cloud Foundations

10:15am – 11:15am

100
level

Migration and modernization with AWS: lessons learned and best practices

Learn insights on AWS tools and services, and modernizing applications during migration

11:30am – 12:30pm

200
level

Foundational best practices to strengthen your cloud journey

Foundational cloud principles to ensure secure, reliable, compliant, and operationally excellent AWS environment

1:30pm – 3:00pm

200
level

AWS Foundations hands-on workshop

Customize your AWS learning with interactive technical workshops and personalized lab experiences.

3:15pm – 4:15pm

300
level

Designing modern applications in AWS

Unlock serverless potential: reduce costs, boost scalability, and enhance security with cloud-native architectures





Migration and Modernization with AWS

Lessons Learned and Best Practices

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Voice of the Customer

Scan this QR Code with your phone



meni.com | use code **4585 2699**

Making the case for migration

WHAT'S IN THE WAY?



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Understand your compelling “why?”



Delivery speed improvement



Time-driven data center exit



Acquisition of another business



Divestiture of a line of business



Reduce technical debt



Cost reduction



Moving to multi-tenancy SaaS



Licensing cost reduction



Enabling gen AI solutions



Removing undifferentiated lifting



Security improvements



Availability improvements



Moving to data-driven business



Changing contact center technology



Moving to data as a product



Durability improvements



Sustainability improvements



Move to compete globally



Scalability improvements



All of the above!!

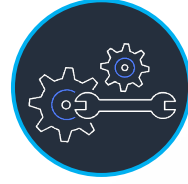
Blockers for cloud value realization



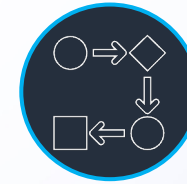
Lack of visible & active sponsorship



Siloed Workflows between orgs



Architectural Entanglement



Undefined operating model



Analysis Paralysis



Talent and skills gaps



Misaligned teams



Unrealistic goals

AWS deploys proven mechanisms, developed over hundreds of customer engagements, to unblock and accelerate cloud journey

Quick wins

ESTABLISH "LIGHTHOUSE" WORKLOAD

High value: focus on relatively small but important project

Representative: avoid "one-off" projects so results will resonate across the organization

Measurable: use metrics to show measurable results of outcomes



Putting the right teams together

BUILDING THE FOUNDATION



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Leadership support

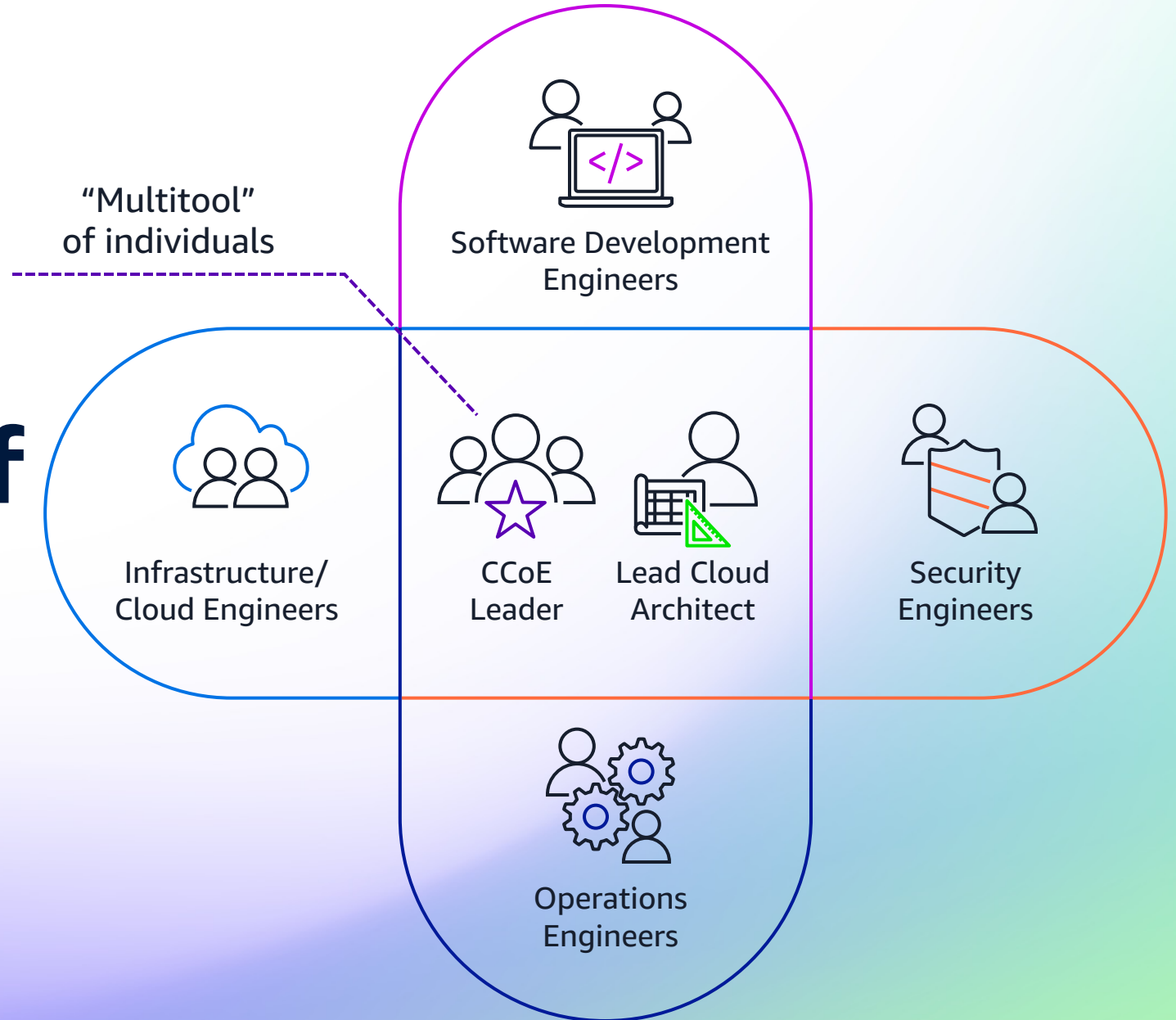
KEY FOR ORGANIZATION SUCCESS

- Define and communicate **vision** and business strategy
- Be aggressive with goal setting and drive **top down**
- Mandate the move to **cloud-native** architectures org wide





Cloud Center of Excellence (CCoE)



Cloud operating model

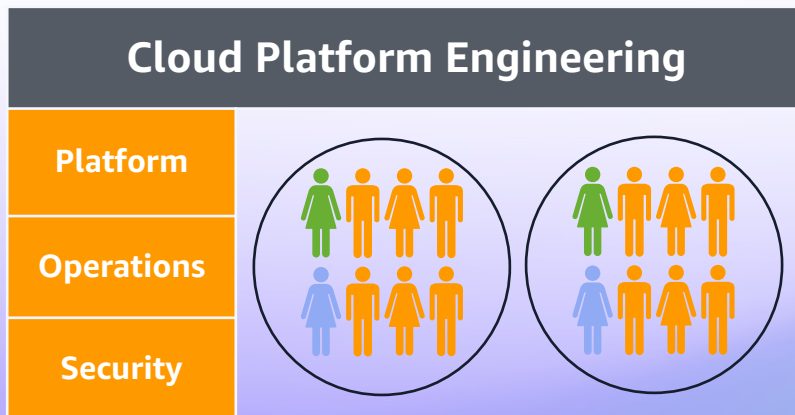
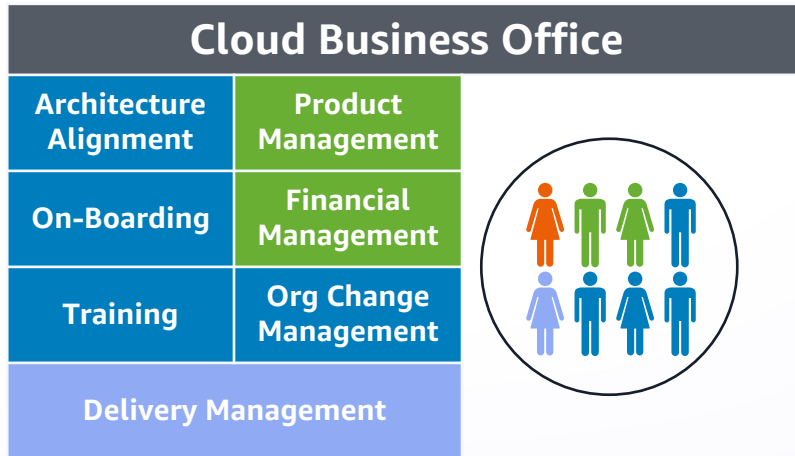
Cloud foundation team

(0-6 months)



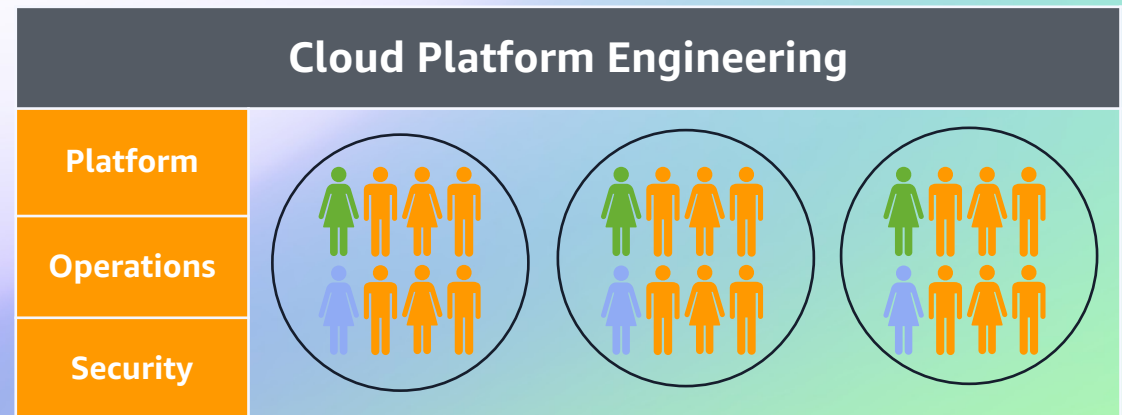
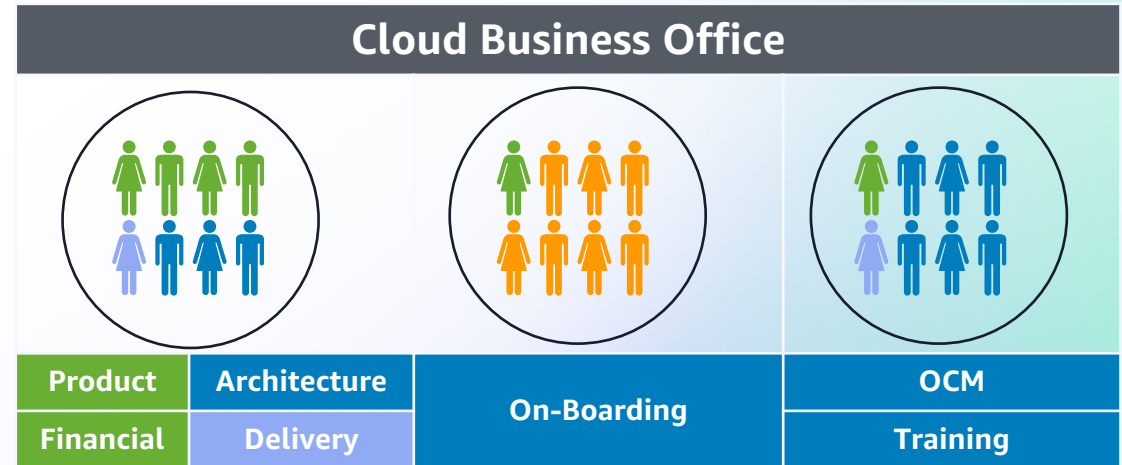
Initial cloud enablement engine

(6-12 months)



Cloud enablement engine @ scale

(12+ months)



Migration Strategies

SETTING UP FOR SUCCESS



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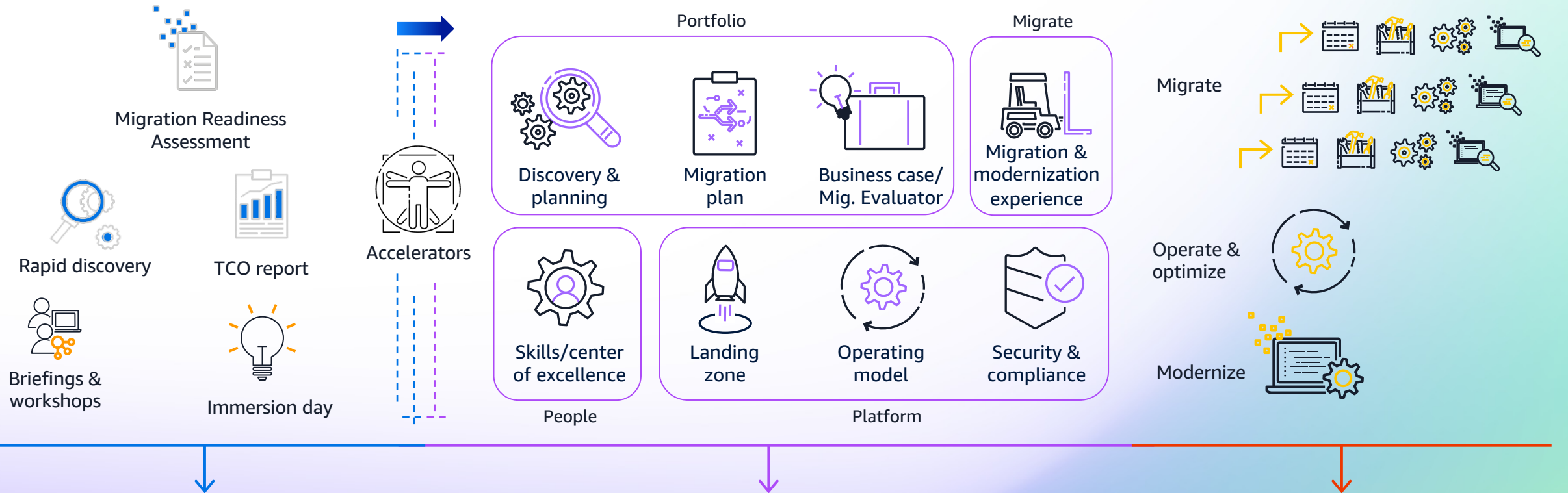


Our simple three phase approach

Assess

Mobilize

Migrate & Modernize



Create a case for change

Build readiness through experiences

Accelerate transformation at scale

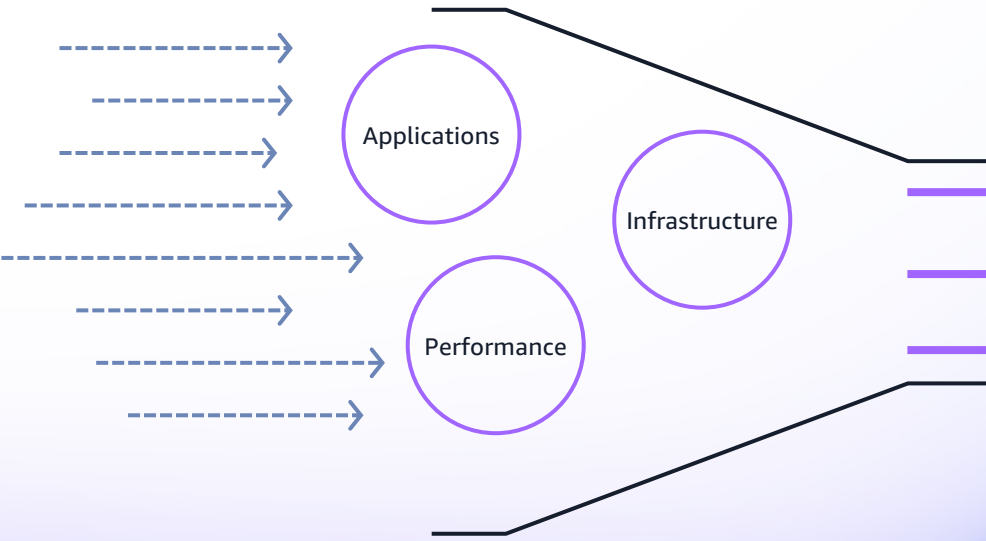
Using a proven framework greatly increases your odds of success

Migration and modernization strategies

Current IT snapshot



Discover & organize data



Strategies for each workload (7Rs)

- Refactor
- Re-platform
- Repurpose
- Rehost
- Relocate
- Retain
- Retire



Strategy decision criteria should be based on both business and technical needs

Migration Tools

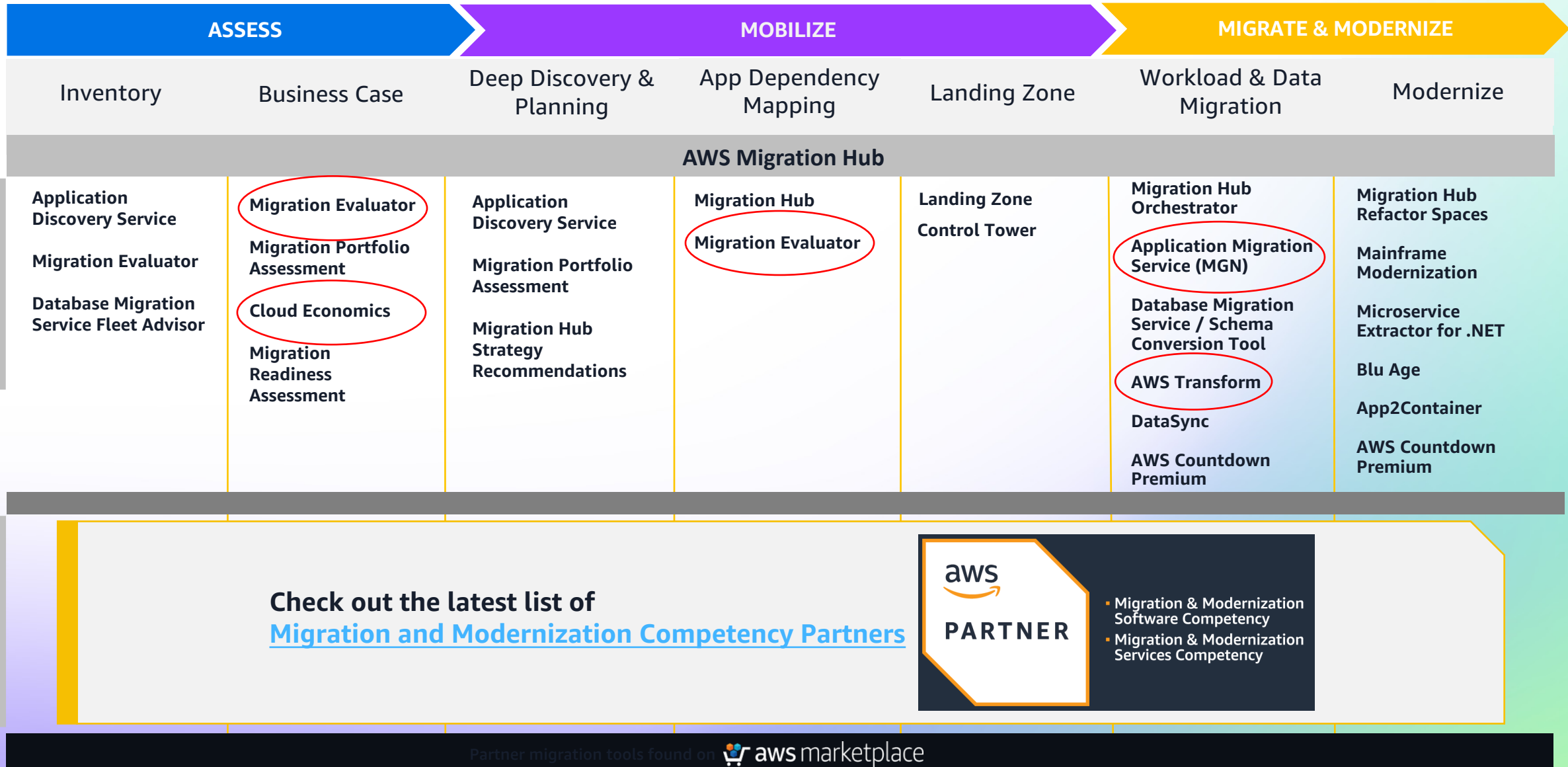
HOW TO BUILD FOR SUCCESS




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Migration & Modernization tools by AWS and Partners



Partner migration tools found on  aws marketplace

Business case with Migration Evaluator

Quick Insights report

Quick Insights
Generated: 11/09/2021

Right sizing workloads on AWS would result in an estimated annual cost of **\$2,332,725 USD** * for Amazon Elastic Cloud Compute (EC2) and Elastic Block Storage (EBS).

Based on your reported CPU and memory utilization, you could realize a **14% savings** ** compared to directly migrating your on-premises servers and storage. With AWS, you have access to more instances in every imaginable shape and size than you'll find elsewhere and we continue to add more so you can always find the right size based on your current needs.

Electing to repurchase non-optimized operating system licensing from AWS would add **\$1,645,310 USD** * to the Amazon EC2 and EBS costs shown above.

If you would like to learn more about migrating workloads to AWS including software license optimization and exploring managed services, please contact your AWS account team or email migration-evaluator@amazon.com.

About this report

The analysis is based on infrastructure, software licenses and utilization discovered from 10/29/2021 to 11/07/2021.

Servers
- 585 virtual machines
- 180 physical servers

Storage
- 874 TB of attached block storage

Utilization
- 62.6% peak CPU utilization***
- 90% peak memory utilization**

Licensing
- 765 servers (Linux: 101, Windows: 562, RHEL: 48, SUSE: 54) - 90% peak memory utilization**
- 105 servers running SQL Server (Standard: 28, Enterprise: 75)

* Projected AWS costs based on public standard reserved - no upfront - 1 year instance Savings Plan USD pricing for Amazon EC2 and Amazon EBS running in US East (N. Virginia) with using your own SQL Server licenses. This report provides an estimate of fees and savings based on certain information you provide. Fee estimates do not include any taxes that might apply. Your actual fees and savings depend on a variety of factors, including your actual usage of AWS services, which may vary from the estimates provided in this report.

** Projected savings based on utilization data available to date compared to a like-for-like match of on-premises CPU and RAM specifications. A longer collection period will improve right sizing confidence.

*** The average CPU utilization value from all servers.

Engagement: separate corp - phase 1

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Directional business case

Migration Business Case
Example Corp.
Migration Evaluator
October 18th 2022

Detailed Assessment Overview

Assumptions & Modeling Details

- Cost Model: 1 & 3 YR NURI
- US-East (N. Virginia)
- Right-Sized
- Zombies removed from Scope
- Licensing Optimized
- No App or Env Groupings Provided

Infrastructure Count

| Infrastructure | Count |
|----------------|-------|
| VMware | 584 |
| Hyper-V | 1 |
| Base Metal | 20 |
| Patent | 605 |

Time In-Use

| Time In-Use | Idle | Use |
|-------------|--------|--------|
| Idle | 41.04% | |
| Use | | 58.96% |

Financial Overview

| | On-Premises Cost Estimate | Option 1 1 YR NURI - LI | Option 2 1 YR NURI - BYOL SQL | Option 3 1 YR NURI - BYOL WS & SQL | Option 4 1 YR NURI - BYOL WS & SQL |
|----------------|---------------------------|----------------------------|----------------------------------|---------------------------------------|---------------------------------------|
| Compute | \$1,831,506 | \$890,765 | \$677,369 | \$520,675 | \$726,525 |
| Storage | \$828,648 | \$374,231 | \$374,231 | \$374,231 | \$374,231 |
| Network | | \$58,758 | \$58,758 | \$58,758 | \$58,758 |
| Annual Total | \$2,660,155 | \$1,323,751 | \$1,110,358 | \$953,664 | \$1,159,515 |
| Annual Savings | | 50% | 58% | 64% | 56% |

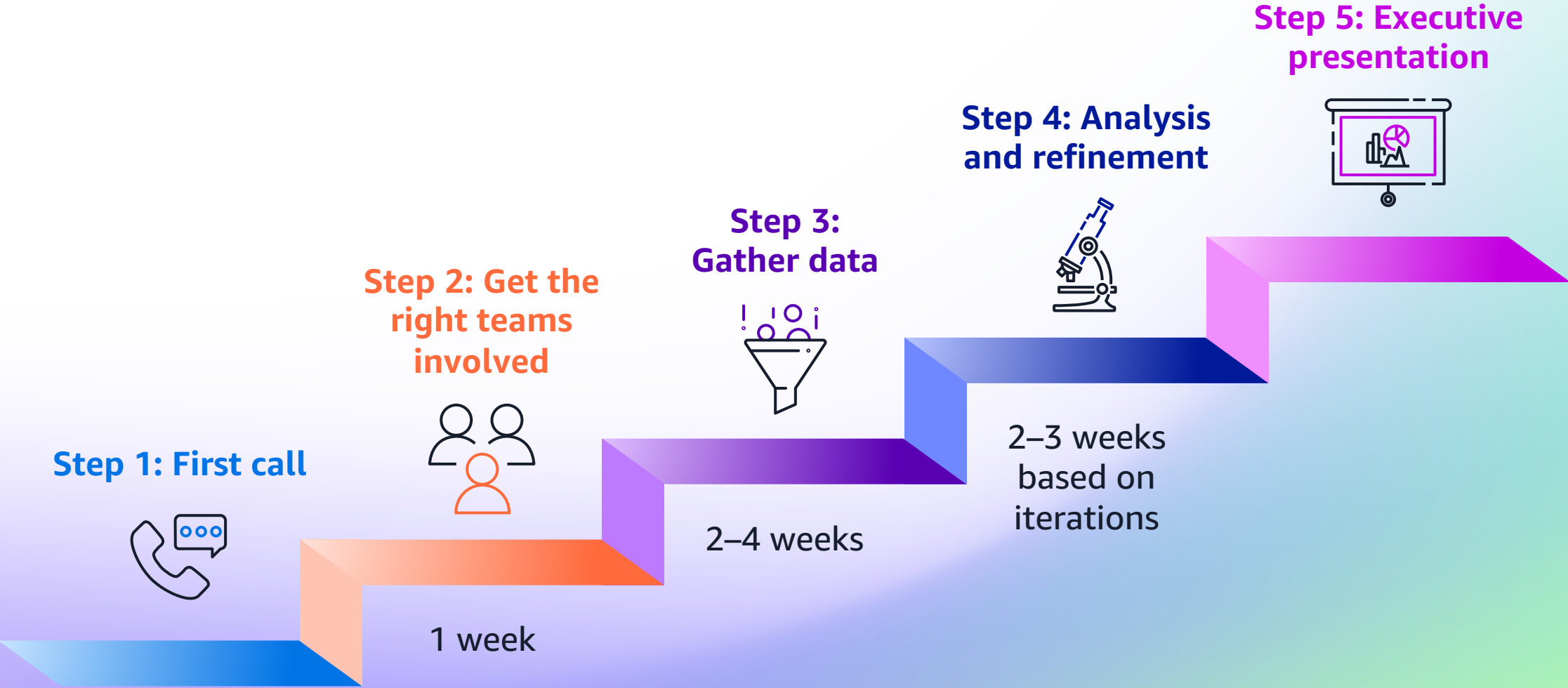
Option 3 Details:

- Modeled to Shared Tenancy
- Reserved Instance (RI) with Windows & SQL Server License Included (L1)
- BYOL SQL Server - Requires Active Software Assurance (SA)
- Modeled to Shared Tenancy
- Reserved Instance (RI) with Windows Server License Included (L1)
- BYOL SQL Server - Requires Active Software Assurance (SA)
- Mixed Tenancy - SQL and Windows Server Modeled to Dedicated Hosts with BYOL when cost effective
- Mixed Tenancy - SQL and Windows Server Modeled to Dedicated Hosts with BYOL when cost effective
- All Reserved Instances (RI)
- All Reserved Instances (RI)

Automated PDF & Excel export
Available within **48 hours** of
data collection

Available **5 days** after data
collection ends (upon request)

The AWS Cloud Economics team can help



AWS Application Migration Service

Simplify, expedite, and reduce the cost of migrating your applications to AWS

Flexible



Migrate from any source



Wide range of OS, application, and database support



Suitable for large-scale migrations

Reliable



Robust, predictable, non-disruptive continuous replication



Short cutover windows with minimal downtime



Highly secure

Highly automated



Minimal skill set required to operate



Easy, non-disruptive tests prior to cutover



Easily plugs into migration factories and cloud COEs

AWS Transform

The first agentic AI service for large-scale migration and modernization



VMware

agent for migrating to Amazon EC2



Mainframe

agent for modernizing IBM z/OS applications



.NET

agent for modernizing Windows-based .NET applications to Linux

clickthrough-demo [Edit](#)

Settings

This is your workspace description. Workspace is a collection of jobs, artifacts, connectors and collaborators. You can chat to AWS Transform about any of these concepts.

Jobs

Artifacts

Create your first transformation job with AWS Transform

You can now create transformation jobs in this workspace. The following will be stored in **N. Virginia (us-east-1)**:

- Your interactions with AWS Transform
- On-premises server configuration and communication data (VMware migration)
- Your code (Mainframe and .NET migration)
- AWS Transform migration recommendations and plans

[Create a job using AWS Transform](#)

To work in a different AWS Region, contact your administrator.

Select **Create job**.

Use AWS Transform



Thanks for choosing End-to-End Migration. Based on your selection, I'll create a job with the following details:

- Job type: VMware migration
- Job name: VMware-to-EC2-Migration-05132025
- Objective: End-to-End Migration
- Description: Perform discovery → Generate wave plan → Generate VPC configuration → Deploy VPC networks → Migrate servers

Does everything look good? I can create the job now, or let me know what changes you'd like to make.



PT Yes



I'll create your VMware migration job with the End-to-End Migration objective.

[Create job](#)

What would you like to transform today?



AWS Transform uses generative AI. You may need to verify responses. See the [AWS Responsible AI Policy](#). AWS Transform processes data across US Regions. See [here](#) for more info. AWS Transform may retain chats to provide and maintain the service.

Enablement

FROM FOUNDATION TO INNOVATION



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Layered Learning

OUR COMPREHENSIVE APPROACH TO ENABLEMENT



Personalized Plans

- **Learning Needs Analysis** for data driven plan creation
 - Customized for each staff member based on role and team requirements
 - Incorporates individual career goals



In-Person or Virtual Immersion Days

- Workshops tailored to team needs or project objectives
- Taught by AWS Solution Architects and subject matter experts
- Access to regional higher ed learning days + seminars



Skill Builder + Lab Access

- Self-Paced courses, Labs, and Digital Classroom access
- Gamified learning with AWS Cloud Quest and Jams
- Full-length AWS certification practice exams

Migration Experience-Based Acceleration (EBA)

A TRANSFORMATION METHODOLOGY USING A HANDS-ON, AGILE, IMMERSIVE APPROACH THAT BUILDS CAPABILITY AND ACCELERATES BUSINESS VALUE

Overarching goals

- 3-5 migrated applications and data to AWS
- Patterns developed to accelerate future migrations
- Experience in operations and security production needs
- Accelerate requirements gathering and decision making on critical path needs for speed and scale
- Streamline and simplify processes to enable production at scale
- Break down siloed workflows and waterfall processes



EBA Stages

3–6 weeks



Executive Alignment & Cloud Readiness

- + Define success criteria
- + Target new capabilities
- + Identify Gaps



Acceleration

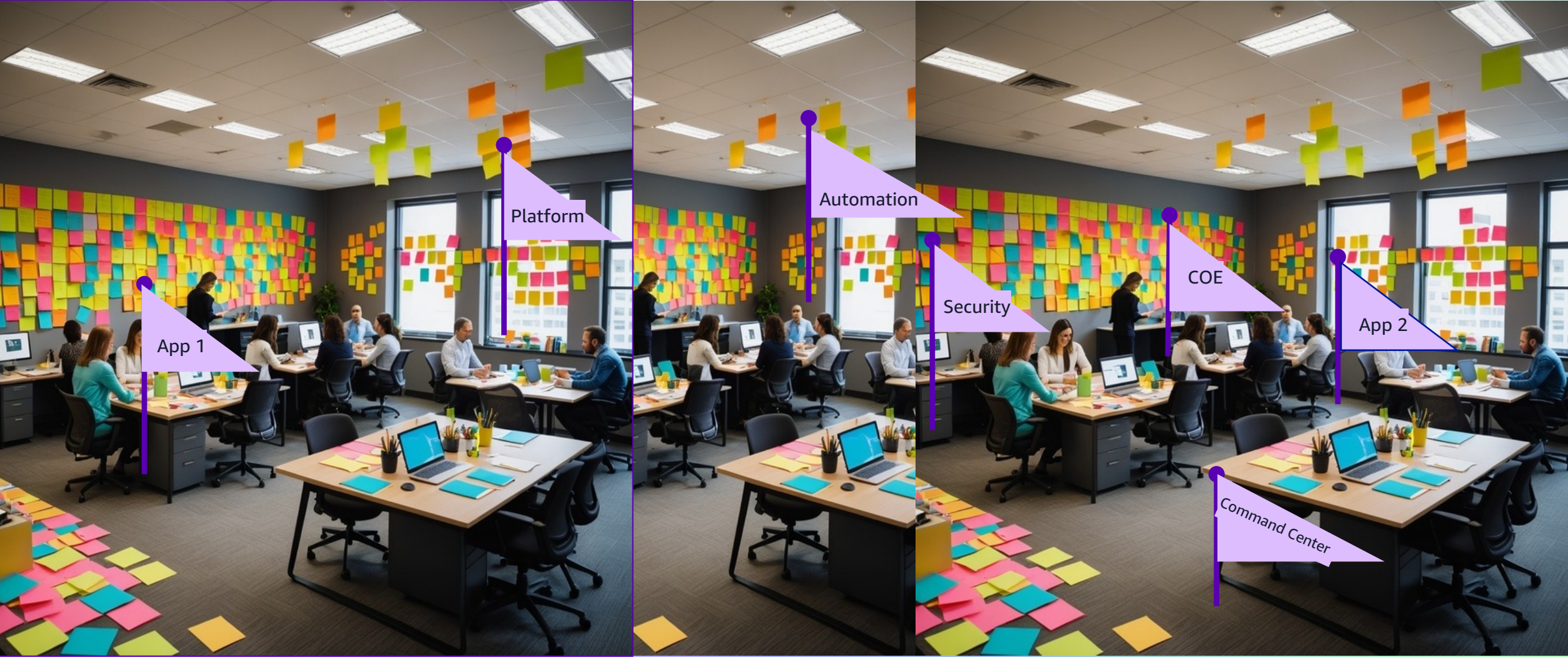
- + Finalize workstreams
- + Complete planning tasks
- + 3-day EBA party



Transform at Scale

- + Validate outcomes
- + Adopt Mechanism
- + Grow Capability for Scale

EBA Party in Action



Lessons Learned

LEARNING FROM SUCCESS, GROWING
FROM CHALLENGES



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University of Newcastle

- Emergency migration of 139 applications to AWS in 9 months due to data center demolition, requiring partnership with AWS, Deloitte, and CSA
- Leveraged AWS services to re-platform 72% and refactor 23% of applications, including NUSTAR student management system serving 39,000 users
- Achieved rapid infrastructure deployment through AWS (from 8 weeks to 6 minutes), implemented high availability with Amazon RDS Multi-AZ, and reduced infrastructure costs by 20%



Lessons Learned

Focus on ...

- **Case for change-** consistent executive engagement is critical
- **Discovery** - planning is continual
- **Migration tooling,** tracking, and automation
- **Invest in your workforce** and work the plan
- **Leverage Generative AI Tools** to help boost development productivity

Make assumptions

Try something new

Ask for help





Thank you!

Danielle Beech

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Stephen Aux

Principal Customer Solutions Manager
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Please complete the survey
for this session



Cloud Foundations

Track Cloud Fundamentals
Session: Migration and Modernization with
AWS: Lessons learned and best practices

Up next in this room:

11:30am – 12:30pm

200
level

Foundational best practices to strengthen your cloud journey

Foundational cloud principles to ensure secure, reliable, compliant, and operationally excellent AWS environment



Appendix

Personalized Plans: AWS Learning Needs Analysis (LNA)

IDENTIFY THE RIGHT TRAINING FOR YOUR ORGANIZATION, TEAMS, AND EMPLOYEES

AWS Architect Skills.
Rate your knowledge and skills for Architecting an AWS environment.
Hover for definitions: None Basic Functional Proficient Expert

| | None | Basic | Functional | Proficient | Expert |
|-----------------------------------------|-----------------------|-----------------------|----------------------------------|-----------------------|-----------------------|
| Using AWS Region and Availability Zones | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Multi-account design patterns | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Multi-VPC design patterns | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Configure an Amazon Machine Image (AMI) | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> |



Three step approach

1

Assess current capabilities of employees

2

Analyze and review result

3

Implement company and individual training plans

Skill Builder: AWS Self-Paced Digital Training

AWS DIGITAL TRAINING OFFERS FREE, ON-DEMAND COURSES DEVELOPED BY EXPERTS AT AWS. WITH OUR LEARNING CENTER, AWS SKILL BUILDER, YOU CAN EXPLORE LEARNING PLANS AND 500+ DIGITAL COURSES TO HELP YOU OWN YOUR CAREER AND ACHIEVE YOUR GOALS.

- **Ramp-Up Guide:** Role and AWS service-based content
- **Skill Builder:**
 - Digital learning center optimized for on-demand training
 - Hundreds of free digital training sessions available



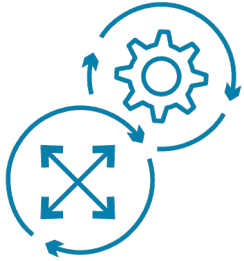
Downloadable Ramp-Up Guides carefully selected to advance skills and knowledge.



AWS experts bring training on many of the newest services.

AWS Database Migration Service (AWS DMS) ^{SA}

SECURELY MIGRATE YOUR DATABASES AND DATA WAREHOUSES TO AWS WITH EASE AND MINIMAL DOWNTIME



Managed Migration

Automated migration service will discover, assess, convert and migrate your database and analytics workloads to AWS

Easy to use with a few clicks to start the process



Breadth of Options

Migrate data to and from most widely used commercial and open-source databases

Supports SQL, NoSQL, text-based and data warehouse targets



High availability

Multi-AZ option; highly resilient and self-healing with continuous replication and monitoring for minimal downtime



Low Cost

Self-service tool

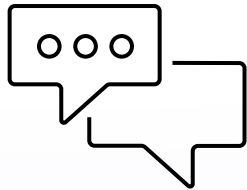
Only pay for compute resources and additional log storage used

Adopt GenAI in your existing Migration & Modernization

Assess



PLANNING & ANALYSIS

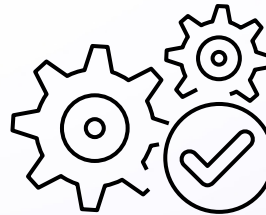


- ✓ Improved decision making
- ✓ Wave planning
- ✓ Early Insights from GenAI like Anti-patterns
- ✓ Building Business Case

Mobilize



AIDED MODERNIZATION

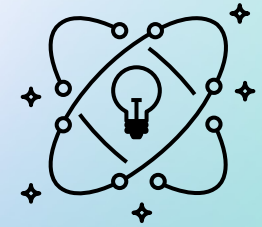


- ✓ Automated Code Documentation
- ✓ Automated Test cases and Test Data generation
- ✓ Landing Zone build & IAC

Migrate & Modernize



FORTIFY OPERATIONS



- ✓ Code build & Generation
- ✓ Version and Framework Upgrades
- ✓ Performance Optimization
- ✓ Troubleshooting & Debugging
- ✓ Cloud Native Build
- ✓ Code refactoring & Tech Debt reduction