AWS re:Invent

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Pattern-based migrations to AWS

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Agenda

Introduction to pattern-based migration

Recap of AWS migration framework

How pattern-based migration works

Case study: How Lifeline migrated to AWS

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Introduction – What is a pattern?

- An abstraction that prescribes a design solution to a specific, well-bounded system
- A correlation of various systems at an abstract level that have common design or deployment
- A repeatable and predictable reference to the current system with some uniqueness

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Why consider a pattern-based migration approach?



Efficient

Shorten process of trial and error



Predictable

Apply known solutions for common problems



Repeatable

Certify solution by companies' corporate security and governance organizations



Scalable

Create once and reuse many, consistently

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How does pattern-based migration work?

Application architecture analysis

Break down your application into functional tiers, such as frontend, middleware, and database

Functionality and application tier analysis

- Identify how each functional tier is implemented/deployed
- Map functional tiers to technology stack

Target state definition

- Document each pattern with all design aspects (deployment, security, operations, etc.)
- Categorize each technology stack to migration strategy (rebuild, rearchitect, replatform, refactor, and repurchase)
- Align each assessed application to a pattern based on abstract level current architecture

Solution and delivery asset creation

- Once applications are mapped to patterns, migration teams will capture any minor modifications, or at a minimum, copy solution and delivery assets that exist
- In parallel, build team can get started on developing deployment artifacts for each identified pattern

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Approach for migrating patterns

Pattern 1	Pattern 2	Pattern 3	Pattern 4
Vendor-provided installable (COTS)	JBoss/web legacy applications	New web applications (Spring Boot/cloud)	Open-source, supporting applications (appliances)

- **How will you build the target environment?**
  Infrastructure and applications
- **What tools will be used for deployment**?
- **What security controls would be implemented and how?**
  Depending on data protection
- **How will you monitor and support the environment post-transition?**
- **How will you ensure redundancy and business contingency for the target state environment?**
  Depending on the business impact analysis score of the application
- **What exceptions are allowed for deviating from the pattern assets?**
  Version-specific patterns and acceptable exception of using an older version

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Recap of AWS migration framework

Assess


Rapid discovery


TCO report


Migration Readiness Assessment


Briefings & workshops

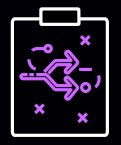

Immersion Day

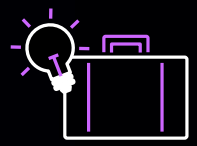

Accelerators

Mobilize

Portfolio


Discovery & planning


Migration plan


Business case/ Migration Evaluator

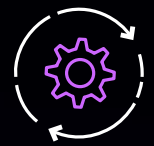
Migrate


Migration & modernization experience


Skills/Center of Excellence

People

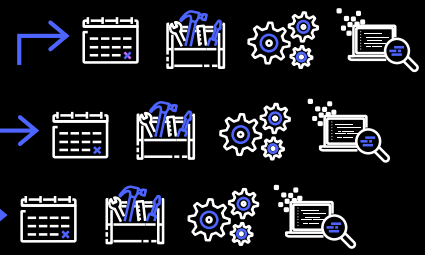

Landing zone

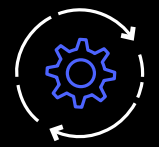

Operating model

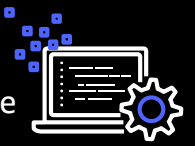

Security & compliance

Platform

Migrate & modernize


Migrate


Operate & optimize


Modernize

Create a case for change

Build readiness through experiences

Accelerate transformation at scale

Using a proven framework greatly increases your odds of success and speed to market

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Activities for pattern-based migration approach

	Pattern-based approach
Assess	• Identify most commonly used application patterns and map applications to each pattern • Application dependency mapping, migration strategy, and wave planning
Mobilize	• Create centralized build team to build solution and delivery assets; enable “tiger” teams and training
Migrate & modernize	• Fine-tune existing solution/delivery assets to incorporate application-specific uniqueness • Modernize and/or migrate by using existing solution assets; update asset repository

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Advantages of pattern-based migrations

- Solution and delivery assets created and approved once and can be reused for consistency
- Accelerated migration, repeated use of all corporate-approved solution assets
- On-the-job training and scaling for quick team enablement
- First step to modernize and build consistent cloud environments

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Voice of the customer

Jeff Richard, Chief Information Officer, Lifeline



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About Lifeline



For almost 50 years, Lifeline has been the leader in personal emergency response services in the home and in senior living communities. With a focus on serving the needs of our most vulnerable populations, today's Lifeline delivers comprehensive senior population health solutions through emergency response services, medication management, predictive analytics, and digital engagement. Our products and services meet the needs of a diverse set of stakeholders, from seniors to caregivers, payers, and providers, ultimately driving improved enrollment, patient compliance, and quality outcomes.

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Business challenges



Business headquarters lease expiration and data center boat anchor



Large capital expense forecast due to server refresh cycle



Business risk related to moving thousands of servers



Business need to increase speed to innovate and modernize

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Solution



Prescriptive and repeatable migration approach



Modernization plan for managed database services



Expanded AWS Cloud skills base



Plan for technical debt retirement and architecture simplification

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Leading workload selection

SELECTING THE RIGHT PATTERN MAKES ALL THE DIFFERENCE



- Lifeline USA and Canada have unique & dedicated application stacks
  - Canada primarily COTS vs. USA Bespoke

- USA & Canada have similarities
  - Products and telephony (POTS and cellular) integrations
  - Similar business and service models
  - VMware backbone
  - Hybrid deployment architecture

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Data migration pattern



Amazon Relational Database Service (Amazon RDS)

Before migration

- On-premises database deployment – mostly Oracle
- Legacy Solaris servers – M3K, M5K, T5
- Legacy Oracle versions – 90% were Oracle 11g

After migration

- 54% reduction in CPUs deployed
- 68% of CPUs deployed to Amazon RDS
- 66% of Solaris servers decommissioned
- Upgraded 90% of 11g servers to 19c on Amazon RDS; remaining 10% on 12c

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Migration readiness: Lessons learned

Balance between workload complexity and diversity of stacks

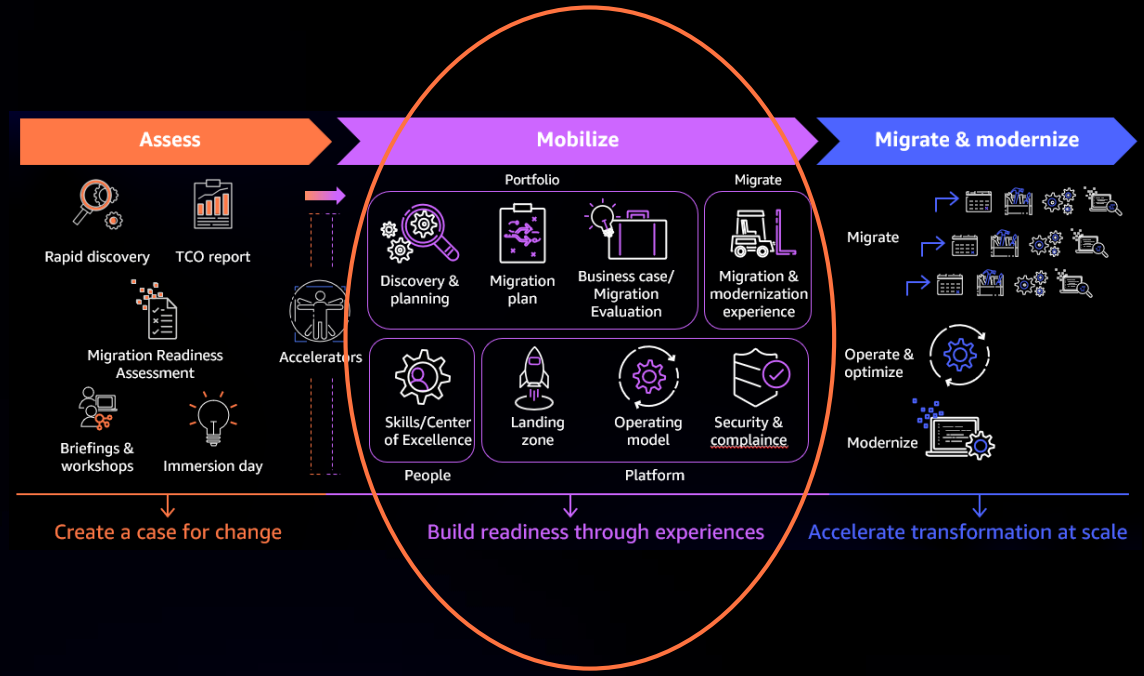
Engage your critical application suppliers

Understand your supplier support for AWS early

Be willing to bend on decisions; don't force a break decision

Running on the cloud is a continuous journey; workload migrations are only the start

Become a cloud finances expert; there are endless opportunities to optimize



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Results summary

"The upfront work during mobilize was a 'measure-twice, cut-once' approach that enabled us to rapidly gain confidence and accelerate with each subsequent migration wave. The pattern-driven workload migration approach helped us address unknowns and complexities in a repeatable way. We've simplified our operating environment with services like Oracle RDS, VMware Cloud on AWS, and Amazon FSx. We standardized on fewer operating stacks, migrated off legacy technologies, and decommissioned 200+ servers.

Running on AWS has enabled us to more rapidly respond to new business demands while being highly secure, regulatory complaint, and very cost-effective. Gone are the days of large CapEx investments and endless server refresh cycles."

Jeff Richard, Chief Information Officer, Lifeline

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Thank you!

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