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Executing a large-scale migration & modernization

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AWS



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Agenda

- Business drivers to migrate and modernize
- Phases of migration
- Tools to accelerate migration
- Migration acceleration program



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Others have gone before; you have got this!



Nationwide



airbnb

slack

robinhood

Goldman Sachs

SIEMENS

HALLIBURTON

Disney

NOVARTIS

HOYA



DOW JONES

Newsweek

Nintendo

Expedia



bp

FOX



MISAWA

HEARST

Kellogg's



News Corp

JWT



bankinter

vodafone

Commonwealth Bank

NET docomo



NETFLIX

htc



The Weather Company

TATA MOTORS

JP X

The New York Times

NIPPON EXPRESS

Intuit

Pfizer



COMCAST



AUTODESK

NOKIA

Schneider Electric



IMS Health



NASDAQ OMX

NIPPON TV

TOSHIBA



EA



HBO



Turner

QANTAS

mlb.com

Capital One

SHARP



FINANCIAL TIMES

Johnson & Johnson Merck

Nordstrom



The Coca-Cola Company



talanx

BMW



CONDÉ NAST



Time Inc.

ThermoFisher Scientific



RYANAIR

KOREAN AIR

Hilton

Shell

Alcatel-Lucent



Discovery Communications

LIONSGATE

The Washington Post



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Lessons learned: Vision phase



Understand and agree on your compelling “why?”

Be aware of analysis paralysis

Provide path for upskilling and bring the team along

Dedicated CCoE with all technical skills

Momentum and blockage removal is key!

Single-threaded senior leader

Biggest lesson learned: Cross-business sponsorship is absolutely crucial



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Understand and agree on your compelling “why?”





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LIVE NATION

LIVE NATION

Game-changing 17-month journey

58%

total cost savings – 18%
immediate and another
40% after optimizations

50%

reduction in traditional
IT operations tasks

99.999%

application availability –up
from 99.9%

10x

increase in
innovation pipeline

“Go faster than what
is comfortable.”

Michael Rapino
CEO, Live Nation

“ . . . when you know you have the
ability to quickly deprovision, it
makes you bolder to say yes and
try new things.”

Jake Burns
(former) VP of Cloud Services, Live Nation



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Average realized benefits



31%

Cost savings over
comparable infrastructure



62%

More efficient IT
infrastructure staff



75%

Increase in agility in
delivering new features



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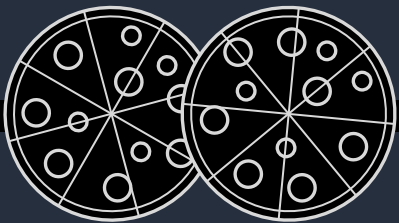
“Single threaded leader who represents the entire business”



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Cloud Center of Excellence (CCoE)



Infrastructure engineers



Security engineering



Developers



Operations



Database



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Be aware of analysis paralysis: Use Migration Evaluator

BUILD A DATA-DRIVEN BUSINESS CASE FOR AWS



Accelerate decision-making for migration to AWS at no cost

We enable business and IT leaders to:



Discover compute and storage inventory without agents



Determine the most cost-effective path to cloud in hours



Maximize Microsoft licenses for even bigger savings



Make sound AWS planning and migration decisions



Align stakeholders on the next step in their migration journey



Get insights from AWS experts



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Migration Evaluator deliverables

Quick insights



Formerly TSO Logic



Quick Insights

Generated: 5/6/2021

Right sizing workloads on AWS would result in an estimated annual cost of **\$32,730,786 USD** * for Amazon Elastic Cloud Compute (EC2) and Elastic Block Storage (EBS).

Leveraging your usage patterns this is a projected

30% savings ** over directly matching the current 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.

Repurchasing non-optimized operating system licensing would add an additional **\$5,752,877 USD** * to the projected costs.

If you would like to learn more about migrating workloads to AWS including software license optimization and replacing 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 1/8/2021 to 1/9/2021.

Servers

- 813 virtual machines
- 138 physical servers

Storage

- 2847 TB of attached block storage

Licensing

- 951 servers (Linux: 5, Windows: 927, RHHEL: 14, SUSE: 5)
- 859 servers running SQL Server (Standard: 142, Enterprise: 158, Developer: 24, Express: 15)

Utilization

- 4.11% peak CPU utilization***
- 54.7% peak memory utilization***



* Projected AWS costs based on public standard reserved - no upfront - 1 year Instance Savings Plan (USD pricing for Amazon EC2 and Amazon EBS) running on us-east virginia with bring your own SQL Server licenses.
** 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 not complimentary!

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Directional business case

Data Insights

Overview of the percentage of time servers were used, environment insights & licensing details.

OS INSTANCE CLASSIFICATION

100% 0%

Seamlessly Migrate with VMware Cloud™ on AWS

Reduce migration effort from months to weeks

With **VMware Cloud on AWS**, you can seamlessly extend, migrate, and manage your VMware workloads using AWS' global infrastructure, while keeping the same VMware tools, processes, and governance across your on-premises and cloud environments. There is no new hardware to deploy, no refactoring, and no retraining or skill acquisition needed. You can leverage your existing investments and achieve better scalability, flexibility, and agility. According to a 2021 IDC study, VMware Cloud on AWS customers achieve a 64% reduction in total cost of operations and can expect:

3 YR Standard RI/Instance Savings Plan (Windows Server Included, SQL Server BYOL)

AWS Modeling Parameters

Location:	US East (N. Virginia)
Instances:	<ul style="list-style-type: none">3 YearStandard ReservedAll Upfront payment
Modeling:	<ul style="list-style-type: none">Right SizingWindows licenses included
Licensing:	<ul style="list-style-type: none">BYOL SQL Server @ \$3500/core (Ent) and \$1100/core (Std)
Currency:	USD annually
Savings Plan Rate Estimate:	\$161.39 Commit / Hour

Right Sized	Upfront	Monthly
1,229 Matched to Compute Instances	\$4,241,241.00	\$0.00
371,442 GB Matched	\$0.00	\$28,613.12
316 Cores of BYOL MS SQL Enterprise	---	\$86,900.00
180 Cores of BYOL MS SQL Standard	---	\$16,500.00
180 Cores disabled	---	---

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While this doesn't take into account the cost of change, migration tools, and services, the intent of our software is to provide a directional business case based on your actual data.



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Migration Readiness Assessment (MRA): Build and align on a plan for change

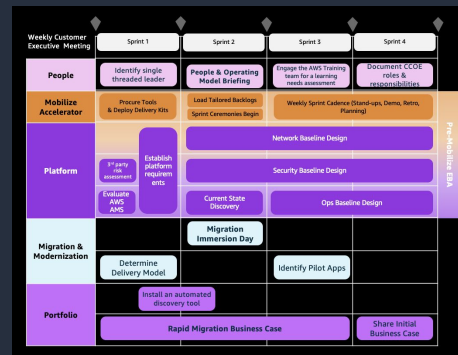
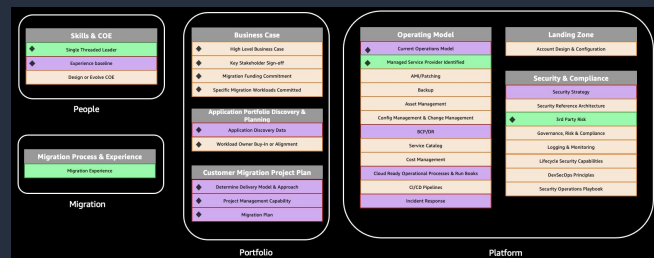
Know where your people are starting to accelerate your journey

Diagnose migration readiness
and build a case for change

1-day workshop to align
and identify readiness gaps
for a large-scale migration

Deliver an action plan proposal
to close the gaps (e.g.,
accelerators, a mobilize project
plan by ProServe/partner)

Business s capabilit y- focused	Business
	Value realization
	People
Technic al capabilit y- focused	Roles and readiness
	Governance
	Prioritization and control
	Platform
	Applications and infrastructure
	Security
	Risk and compliance
	Operations
	Hybrid and dynamic





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Lessons learned: Assess and mobilize phase



Portfolio assessment will be continual

Business priorities will change; expect it

Full application team inclusion from the start is crucial

Shortlist tooling early – do not underestimate security approvals

AWS Control Tower plays a significant role in migrations

Shortlist migration partners

Establish management and governance early

The way you operate today will not be the same in the cloud

Biggest lesson learned: Understand and allow for dependencies



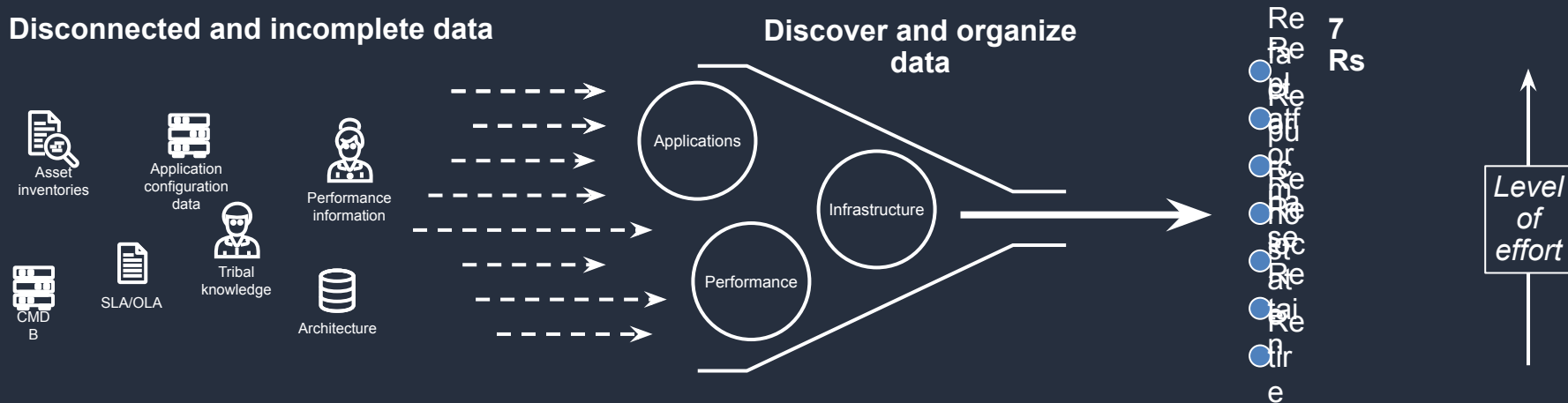
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Portfolio assessment will be continual

Disconnected and incomplete data

Discover and organize data

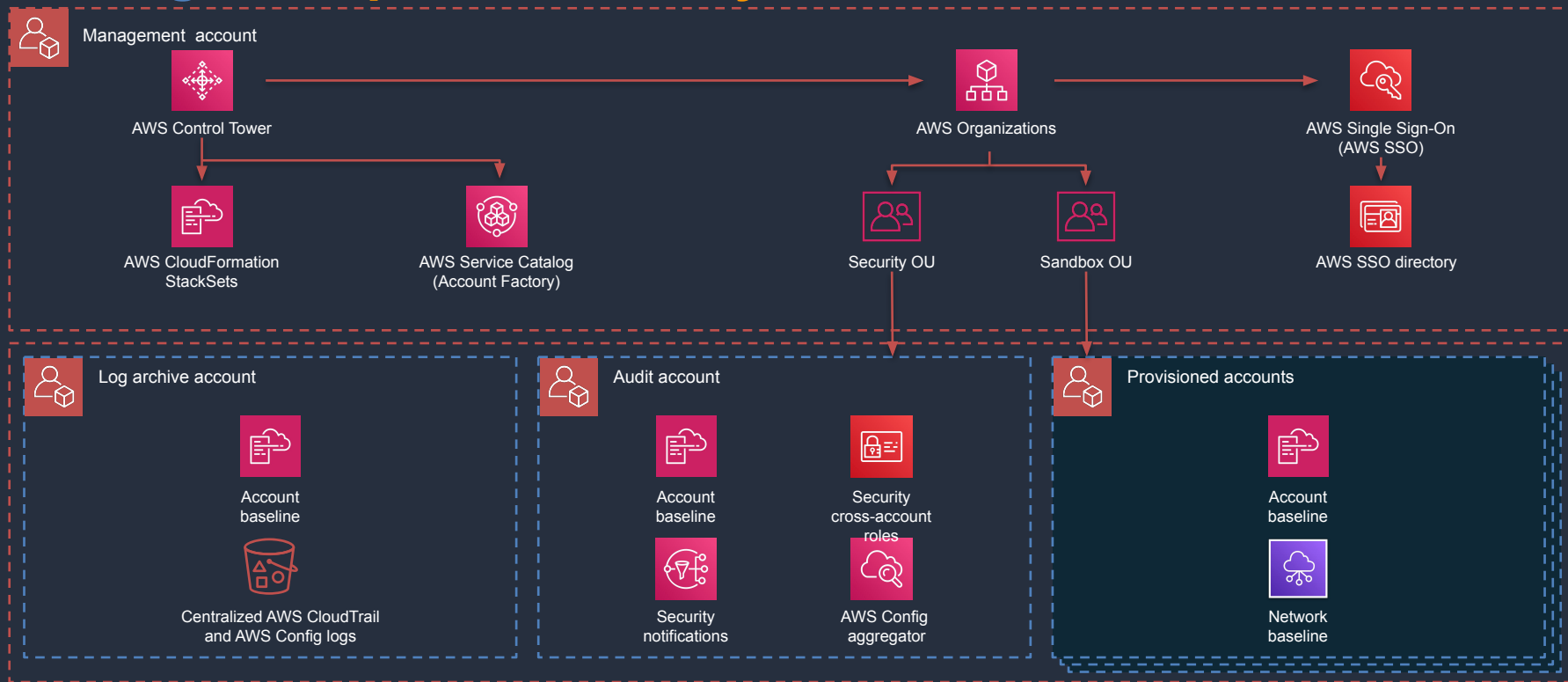




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Landing Zone provisioned by AWS Control Tower





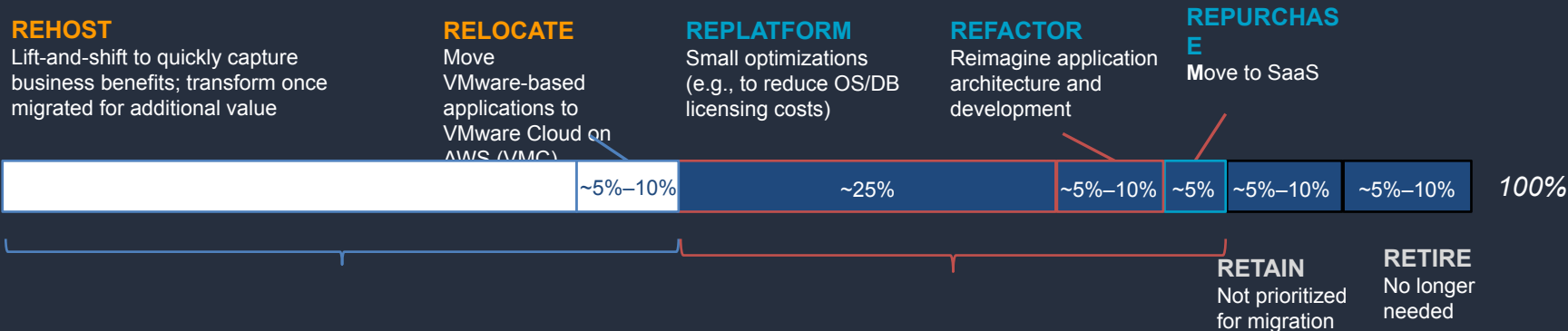
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Portfolio assessment will be continual

AVERAGE CUSTOMER ENVIRONMENT, BY MIGRATION PATTERN

(based on AWS experience)



Full spectrum of patterns is important for transformation – but up to ~50% of typical environment can be *rapidly migrated*, freeing time and budget to focus on modernization



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AWS MGN: A lift-and-shift solution (Rehost)

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



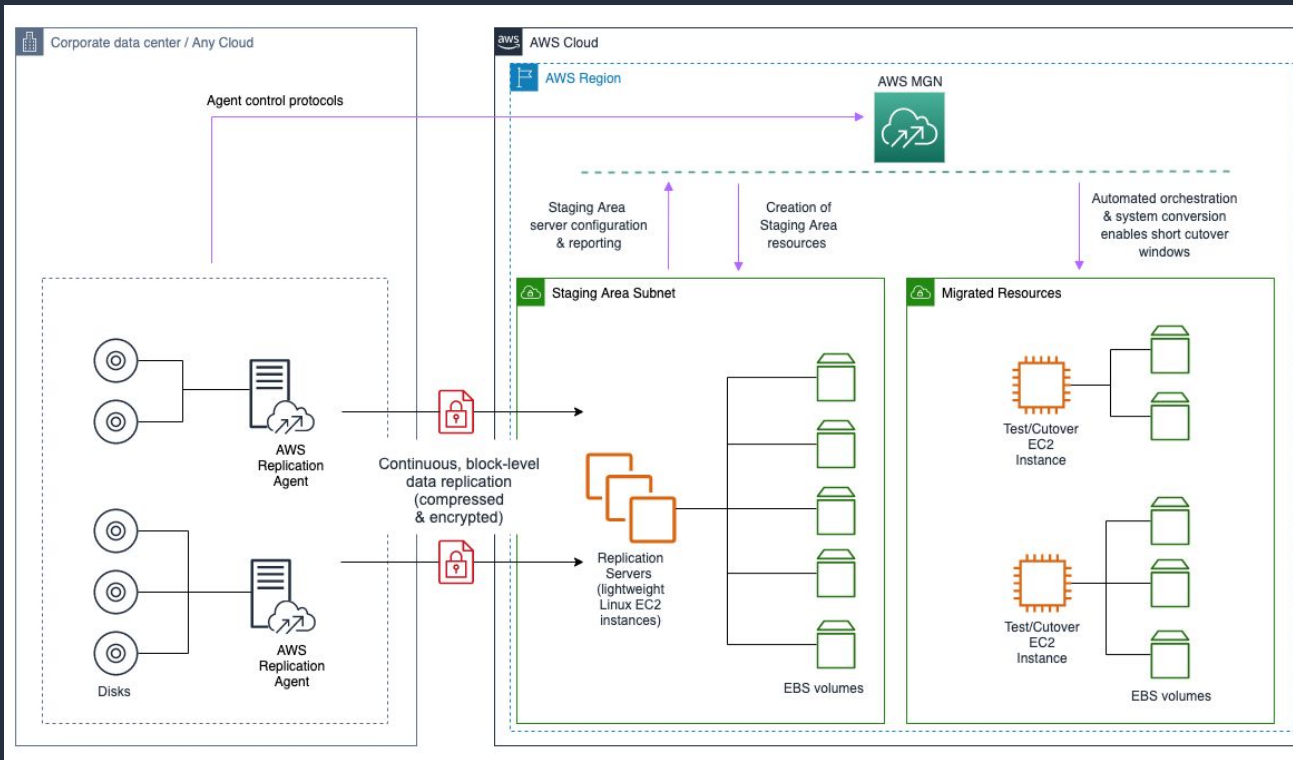
Easily plugs into migration
factories and cloud COEs



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How AWS MGN works

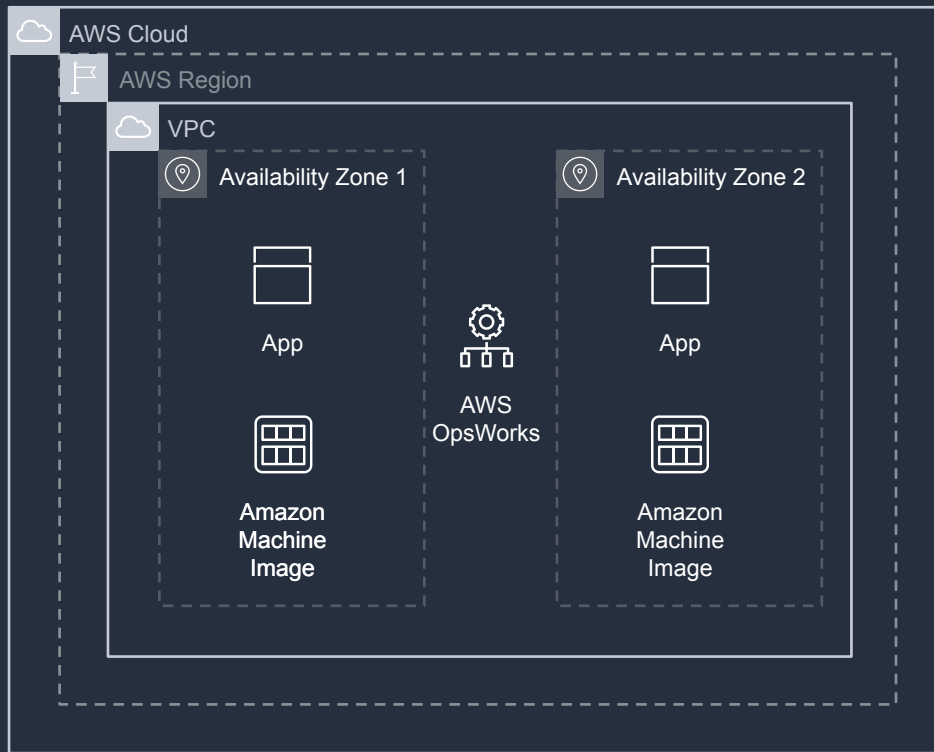
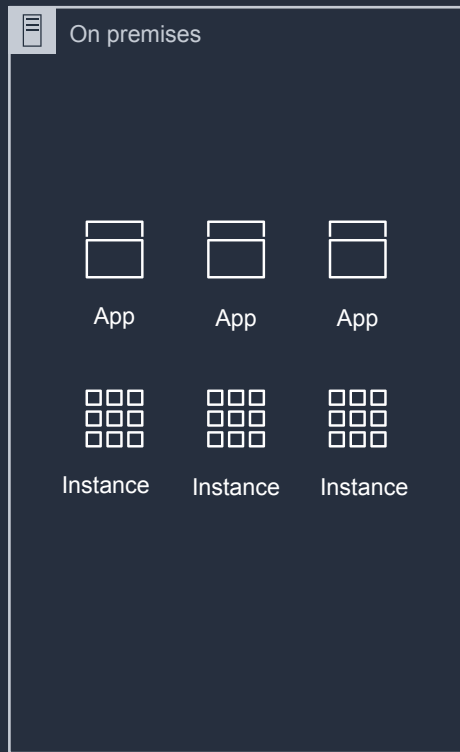




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Replatform applications

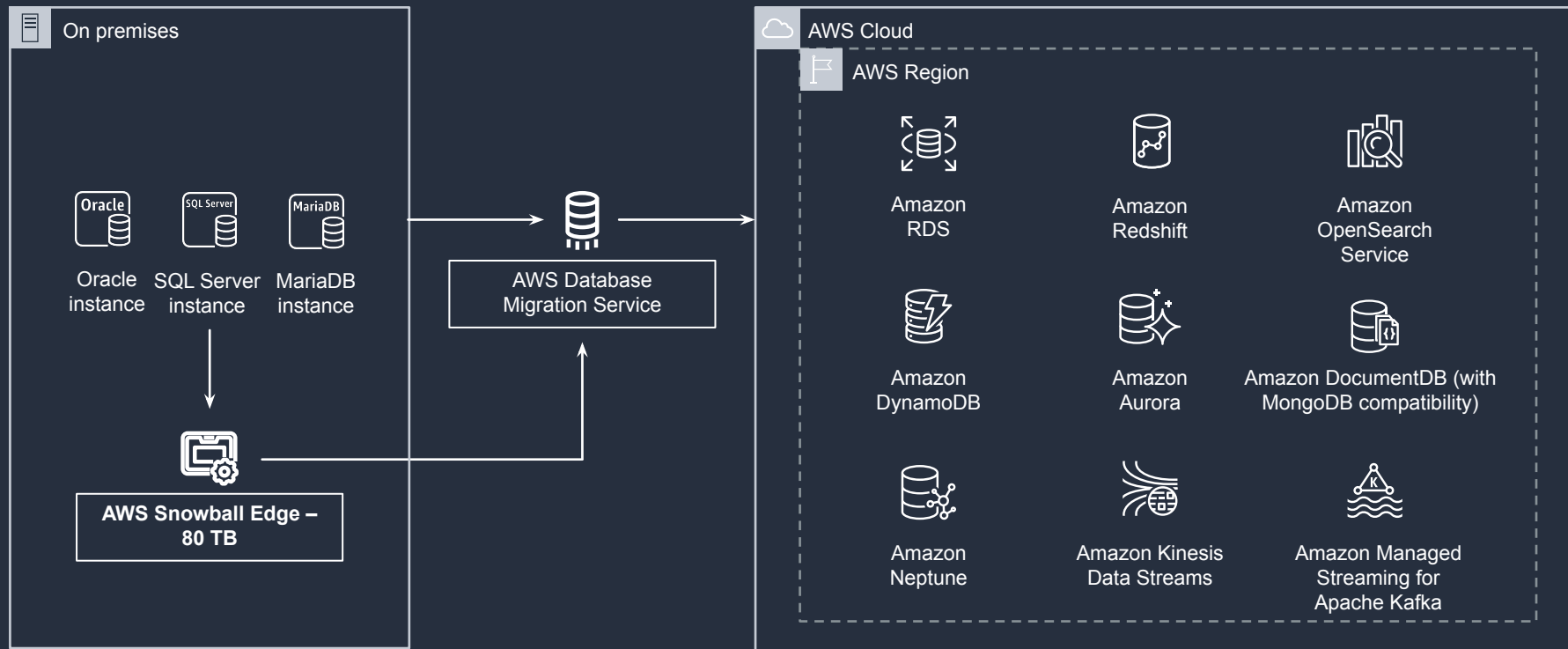




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Replatform databases using DMS





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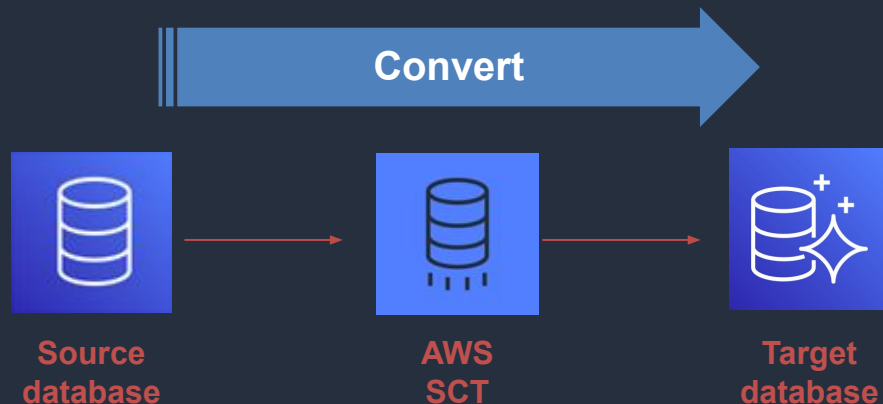
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AWS Schema Conversion Tool (AWS SCT)

These are the sources and targets that DMS support.
I would highly recommend to always check the website as we continuously broadening service scope

Features

- Create assessment reports for homogeneous/heterogeneous migrations
- Convert database schema
- Convert data warehouse schema
- Convert embedded application code
- Code browser that highlights places where manual edits are required
- Secure connections to your databases with SSL
- Service substitutions/ETL modernization to AWS Glue
- Migrate data to data warehouses using AWS SCT data extractors
- Optimize schemas in Amazon Redshift

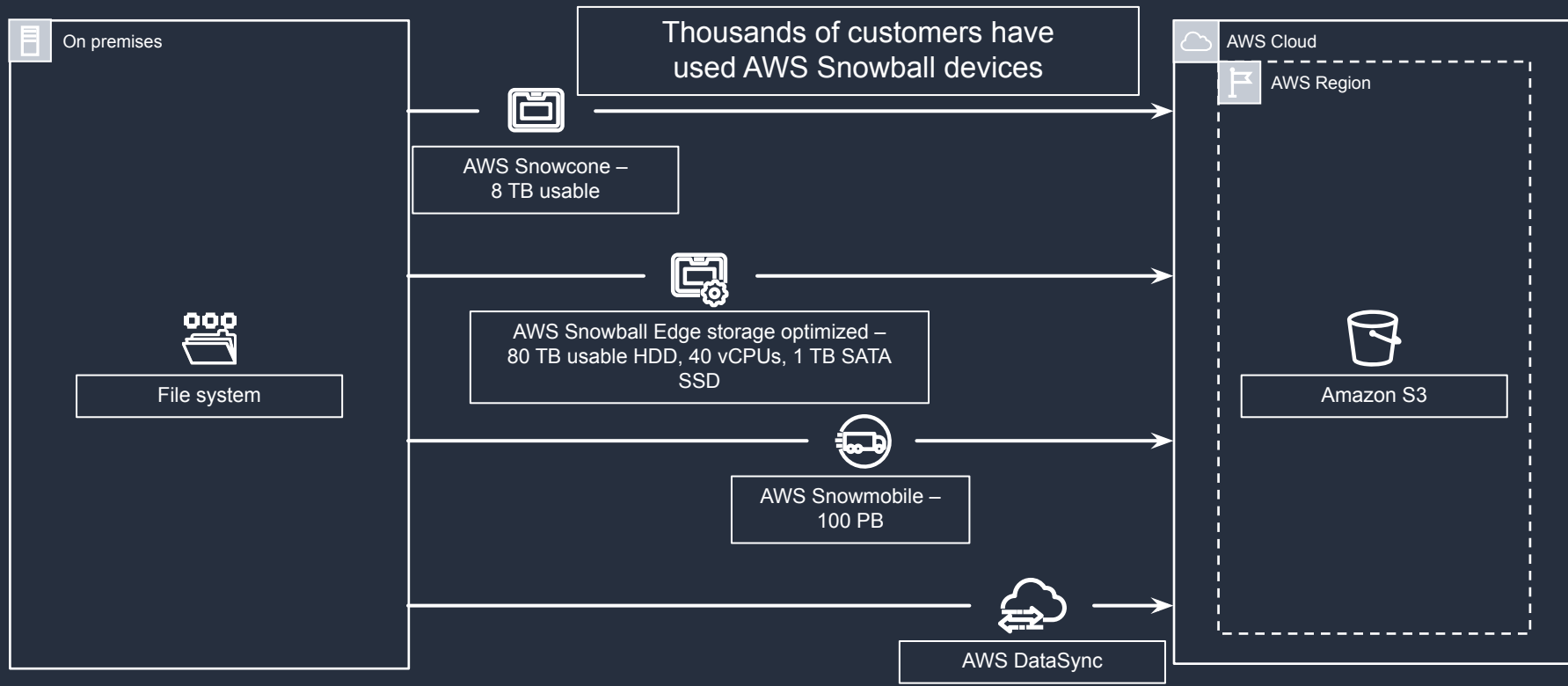




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Moving vast amounts of data





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Samsung migrates 1.1 billion users across three continents from Oracle to Amazon Aurora with AWS Database Migration Service

SAMSUNG

60 ms latency

or less for 90% of the time

44%

reduced monthly database costs

“The scalability of Amazon Aurora is the best benefit
— especially if we focus on the cost.”

Salva Jung

Principal Architect and Engineering Manager



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Lessons learned: Database migrations



Migrating off licensed databases is possible

Get the code out of the database

One size does not fit all

Conduct dry runs

Measure performance

Find the right partner

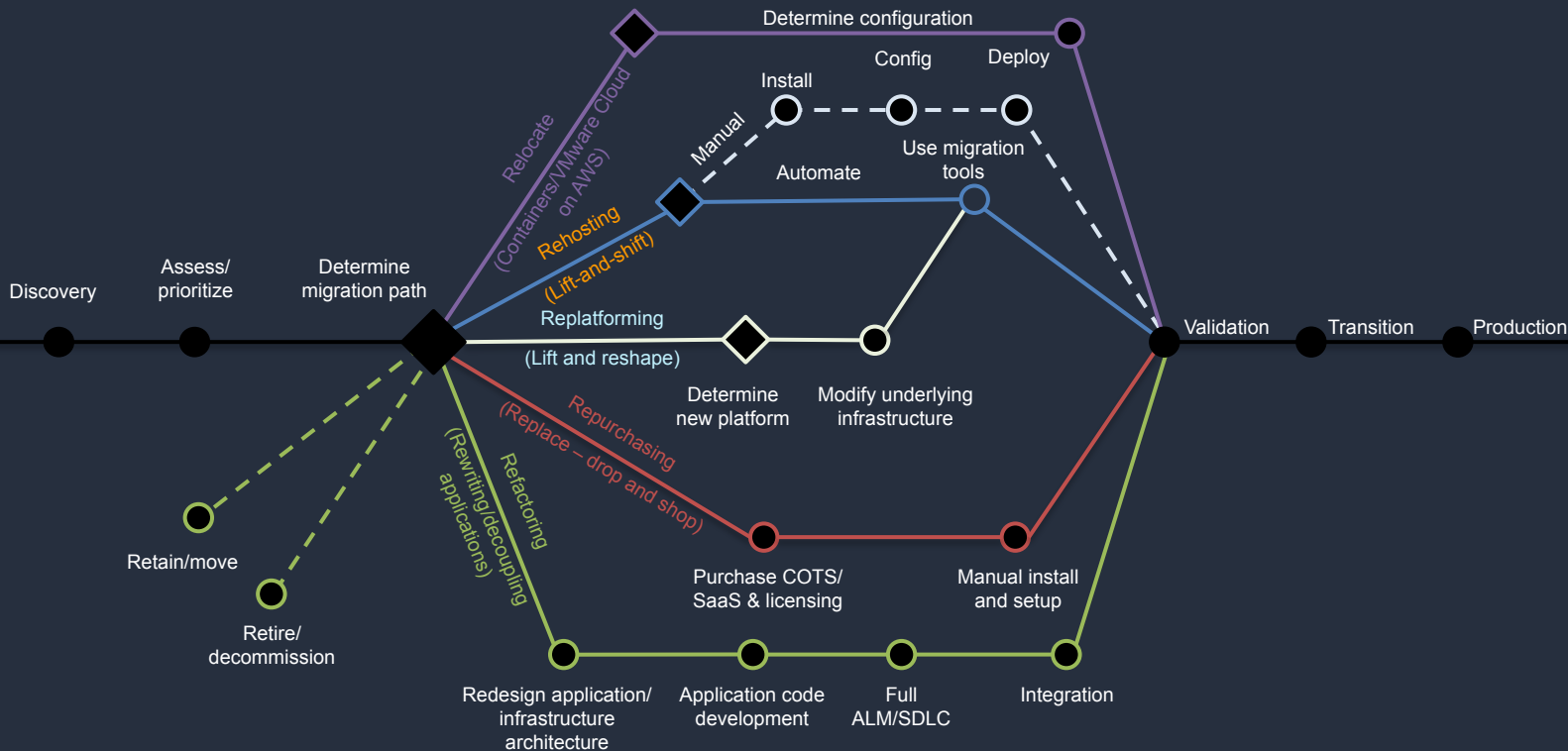
Biggest lesson learned: Implement purpose-built databases



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Use all the strategies as you plan and execute





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Wave planning

Prioritization, strategy,
and dependency
analysis



Compelling events
and available dates



Effort and
resource availability



Create plan

App 1 (Rehost)

App 2 (Replatform)

App 3 (Retire)

App 4 (Refactor)

App 5 (Rehost)

App 6 (Rehost)

App 7 (Refactor)

App 8 (Retain)

App n



Wave
1

2 weeks

Design and build

2 weeks

Transfer and test

1 week

Cutover

1 week

Close

Wave
2

Design and build

Transfer and test

...

Wave
 n

Design and build

...



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Structured approach to drive migration success

Assess

**Discovery
and assessment**



Rapid
discovery



TCO
report

Mobilize

**Build momentum
and gain experience**

Portfolio



Discovery
& planning



Migration
plan



Business case/
Migration Evaluator



Migration
experience

Migrate

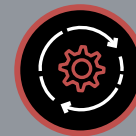
People



Skills/center
of excellence



Landing
zone



Operating
model



Security &
compliance

Platform

Migrate & modernize

**Accelerate, scale,
and modernize**



Scale



Operate &
optimize



Modernize

Briefings &
workshops

Migration
Readiness
Assessment



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Thank you!

See you at the AWS Community Day Pune 2023

