

The background features a vibrant blue gradient with subtle, wavy horizontal lines. In the bottom right corner, there are abstract, flowing shapes in shades of purple, pink, and orange, creating a dynamic and modern aesthetic.

# aws SUMMIT

INDIA | MAY 25, 2023

ISV006

# Modernization at scale: Building for the world

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# Agenda

- Why SaaS companies are modernizing?
- Modernization Journey
- Benefits
- Customer success stories

# A rock and a hard place

SAAS GROWTH AND CHALLENGES

Scale & Potential

**\$700B+**

Market in 2030



Developers Supply

**40M to 85.2M**

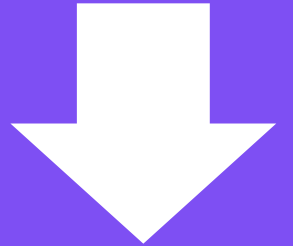
Shortage of developers today and by 2030.



Cost Pressures

**26%**

Cost cuts for  
SaaS companies

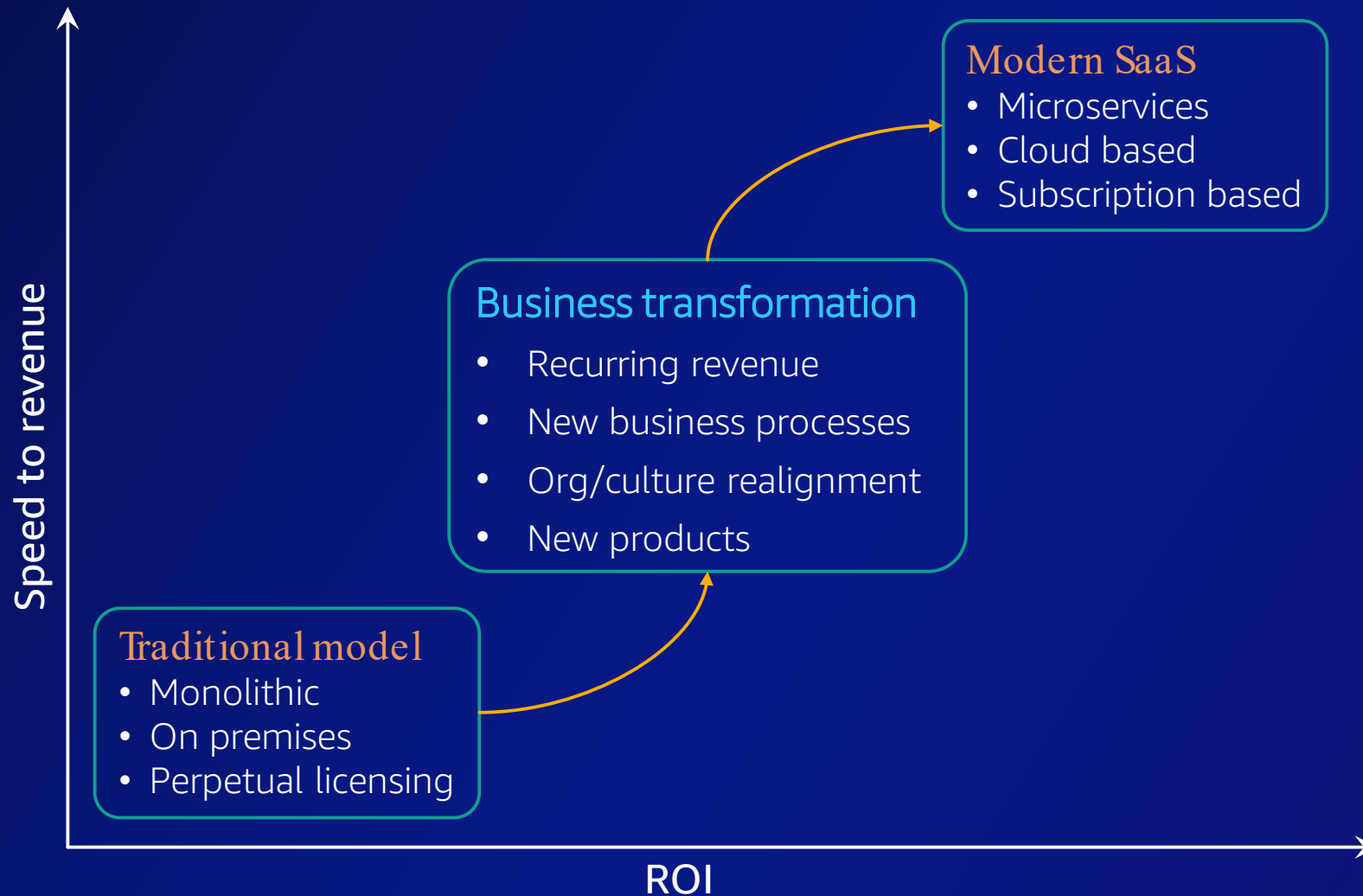


Sources: IDC, "[Worldwide Public Cloud Services Revenues](#)"; Phillips, CodeSubmit, "[Is There a Shortage of Developers?](#)"; the US Labor Department; OpenView "[SaaS Benchmarks 2022](#)"; Townshend and Poyar



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# Modernization, fundamental step towards SaaS



80%

Customers looking to adopt SaaS version of their applications

245%

Growth in SaaS and cloud software revenue 2021–2026

# Modernization fly wheel

Modernization resulting in rapid product deployment, flexibility to customize, innovate faster, improved people productivity

Agility

Cloud native microservices, purpose built services and infrastructure

Modernize

Products & Features

Frequent releases, enhanced features, new market requirement coverage. People focus on high value deliverable

Growth leading to increased revenue, cost efficiency at scale leads to improved profits. Reinvest into technology & process modernization

Revenue & Profit

Modernization drives scale, growth and efficiency

Customer experience

Better products & services results in improved customer experience & satisfaction

Customer acquisitions

Improved customer satisfaction leads to new customer acquisitions, market expansion



# Modern SaaS Architecture considerations

Agility

Identity and  
onboarding

Data partitioning

Metrics and  
analytics

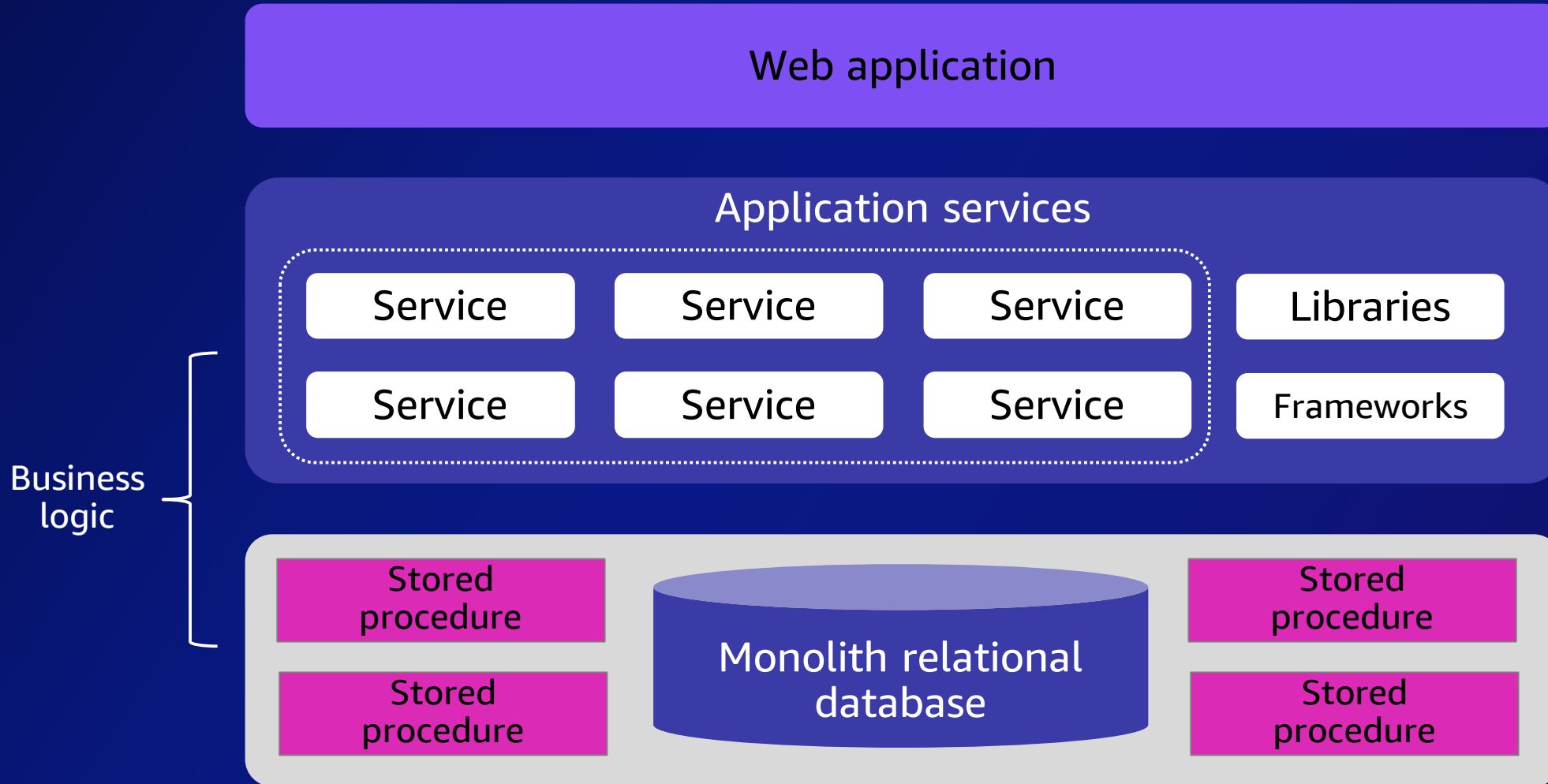
Tenant isolation

Tiering strategy

Noisy neighbor

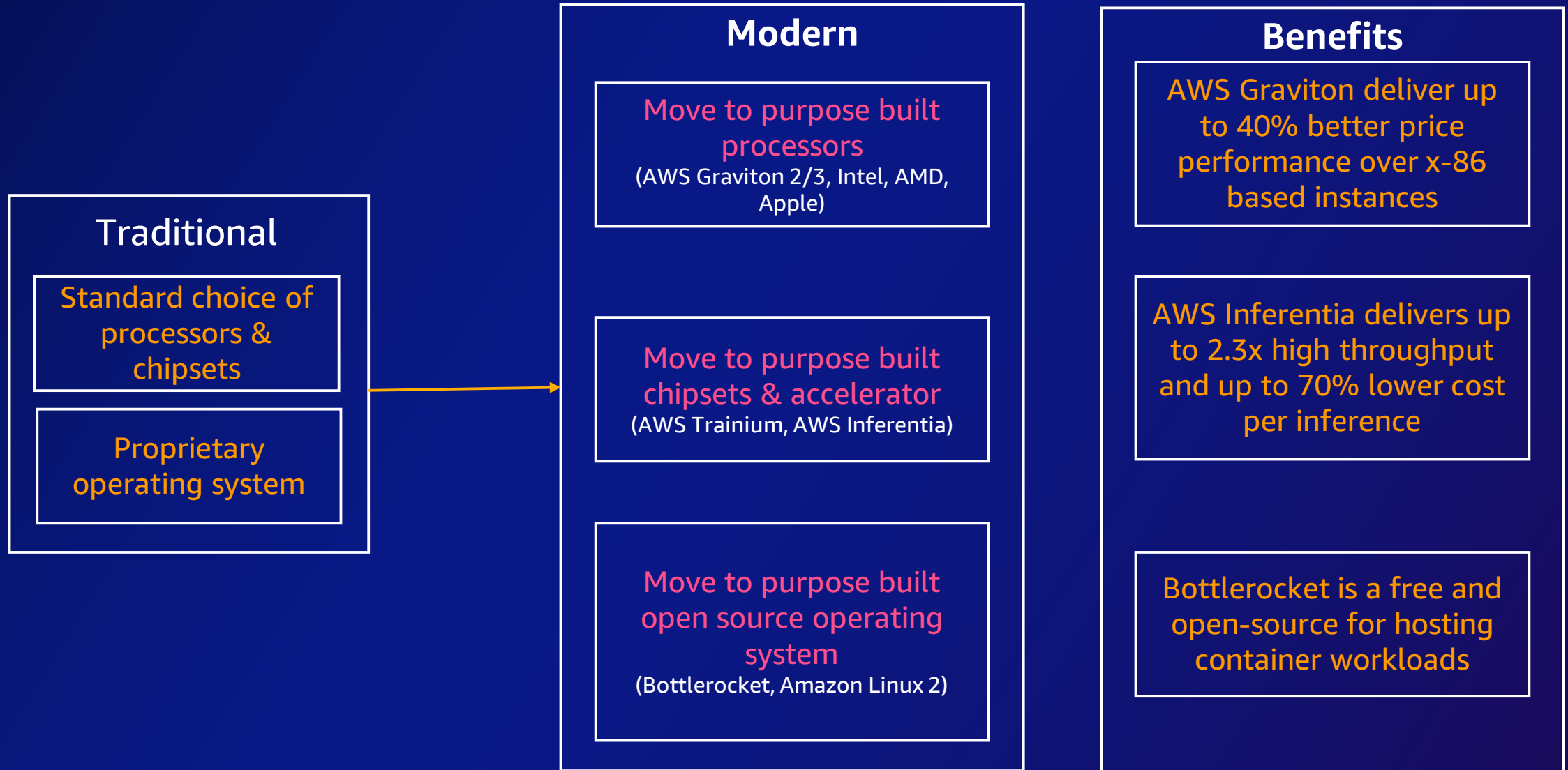
Cost per tenant

# Traditional architecture

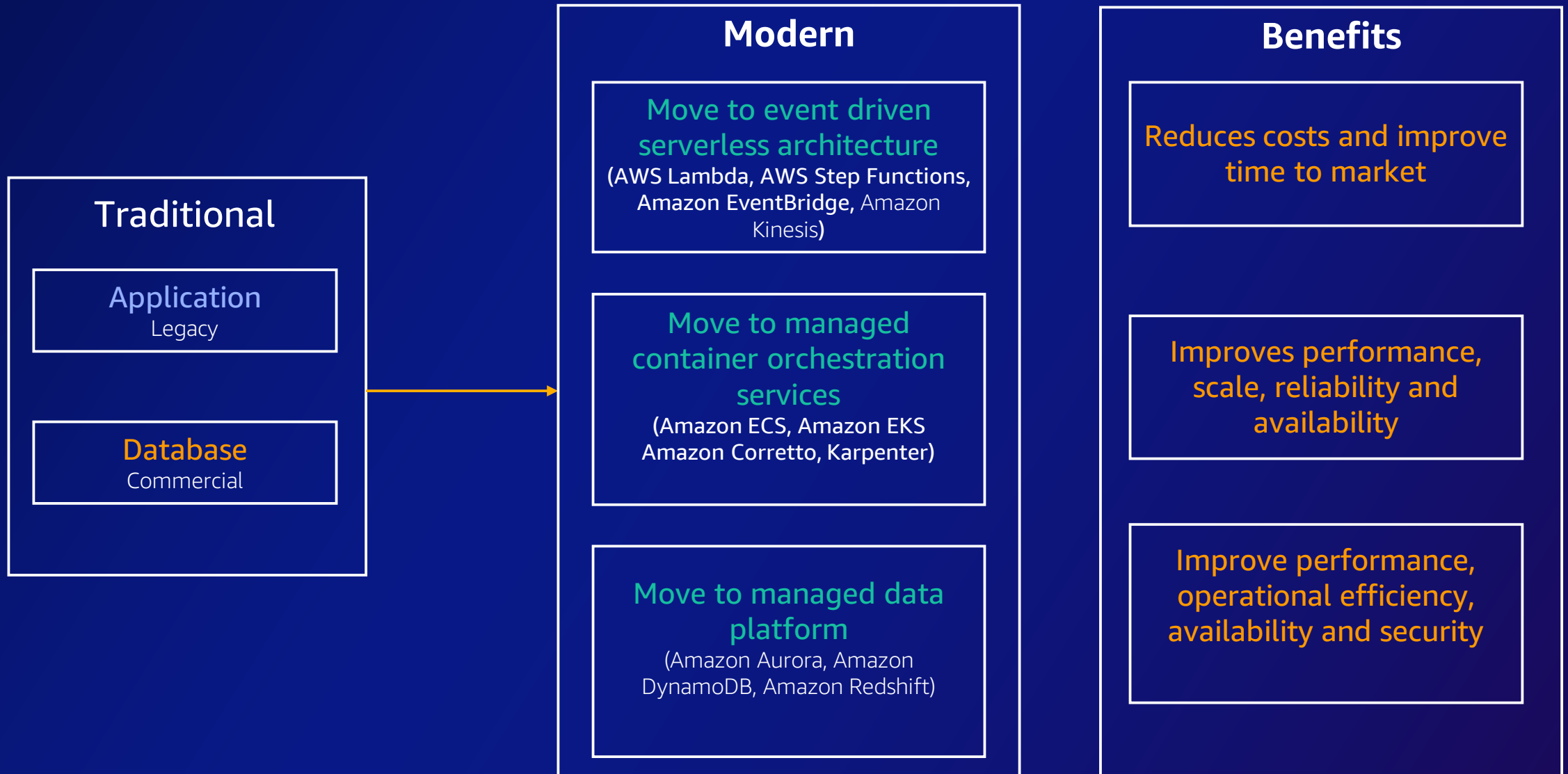




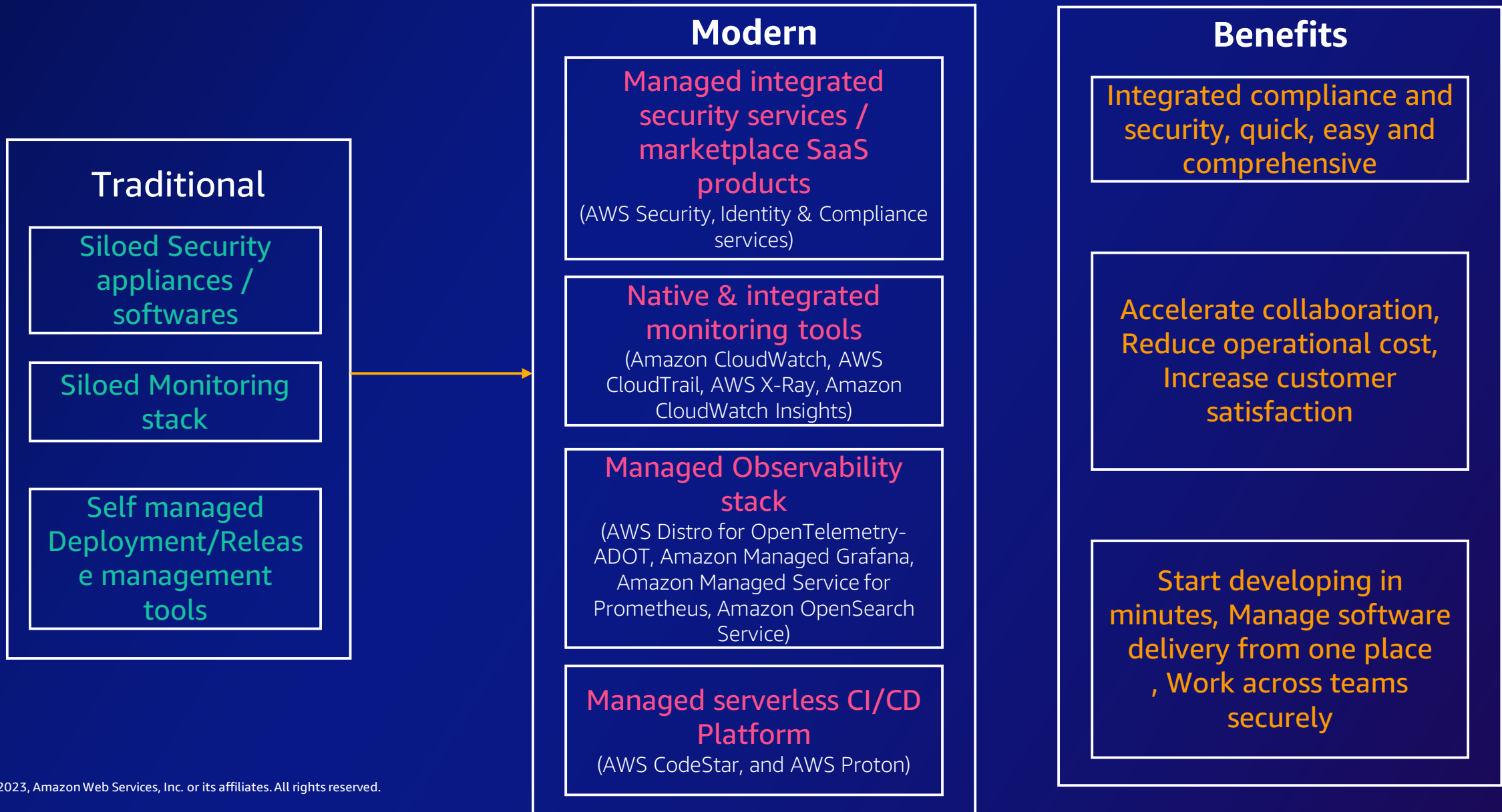
# Infra and OS modernization



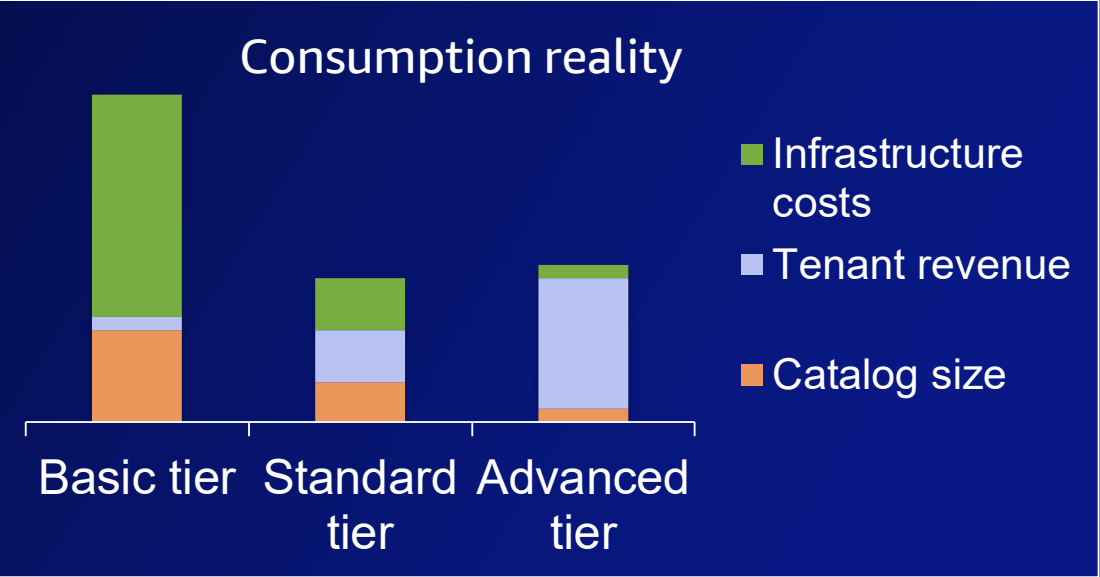
# Workload modernization



# DevSecOps modernization



# Cost attribution model



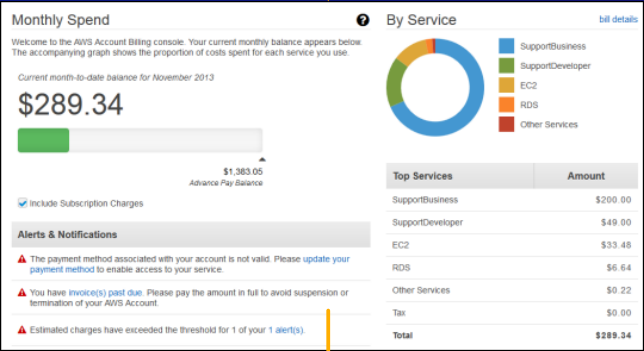
```
{
  TenantId: 93902
  Tier: Advanced
  ExecutionTime: 4ms
  Dimension: Frequency
  ResourceId: <id>
}
```

Multi-tenant  
microservice

Event  
ingestion &  
aggregation

## Resource-level consumption

Tenant	ResourceId	Allocation
19393	arn:aws:s3:::my_bucket/tenant19393	11%
19393	arn:aws:rds:us-west-1:111:db:mydb	4%
84719	arn:aws:s3:::my_bucket/tenant84719	8%
84719	arn:aws:rds:us-west-1:111:db:mydb	12%



Infrastructure  
costs

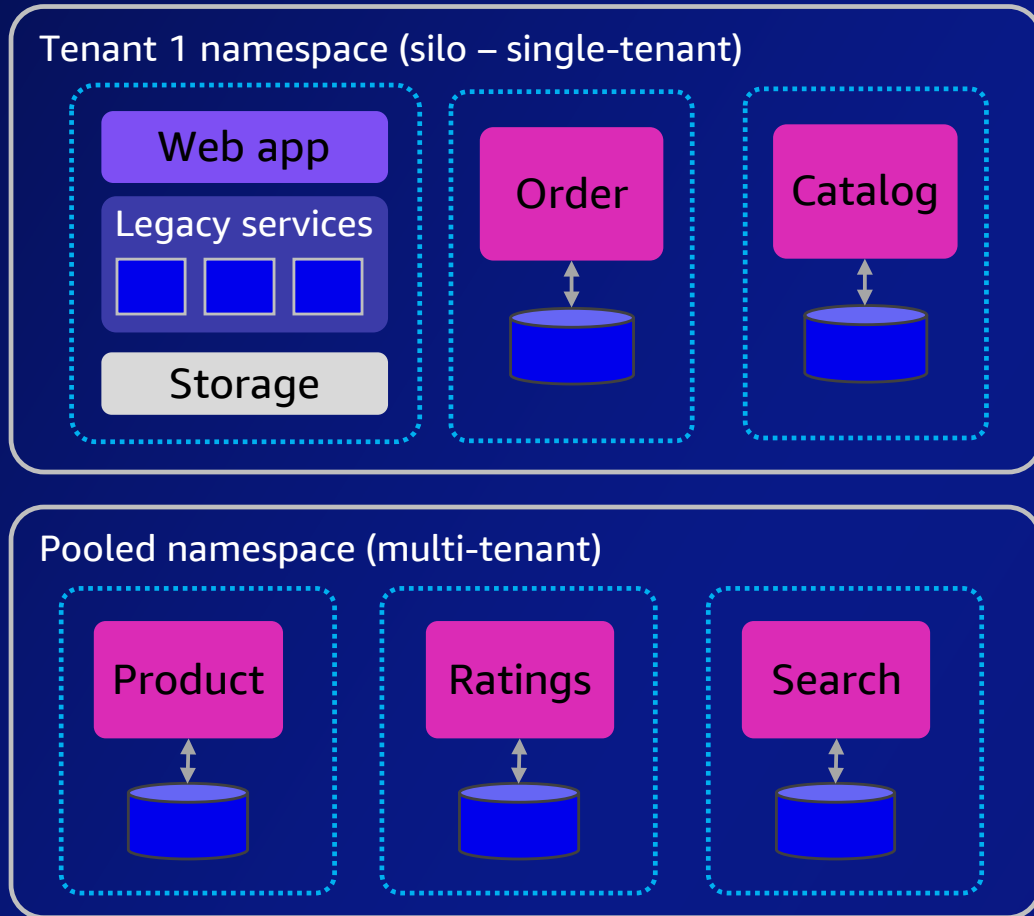
Tenant 84719 cost = \$156.12  
Tenant 19393 cost = \$133.22

Cost per tenant

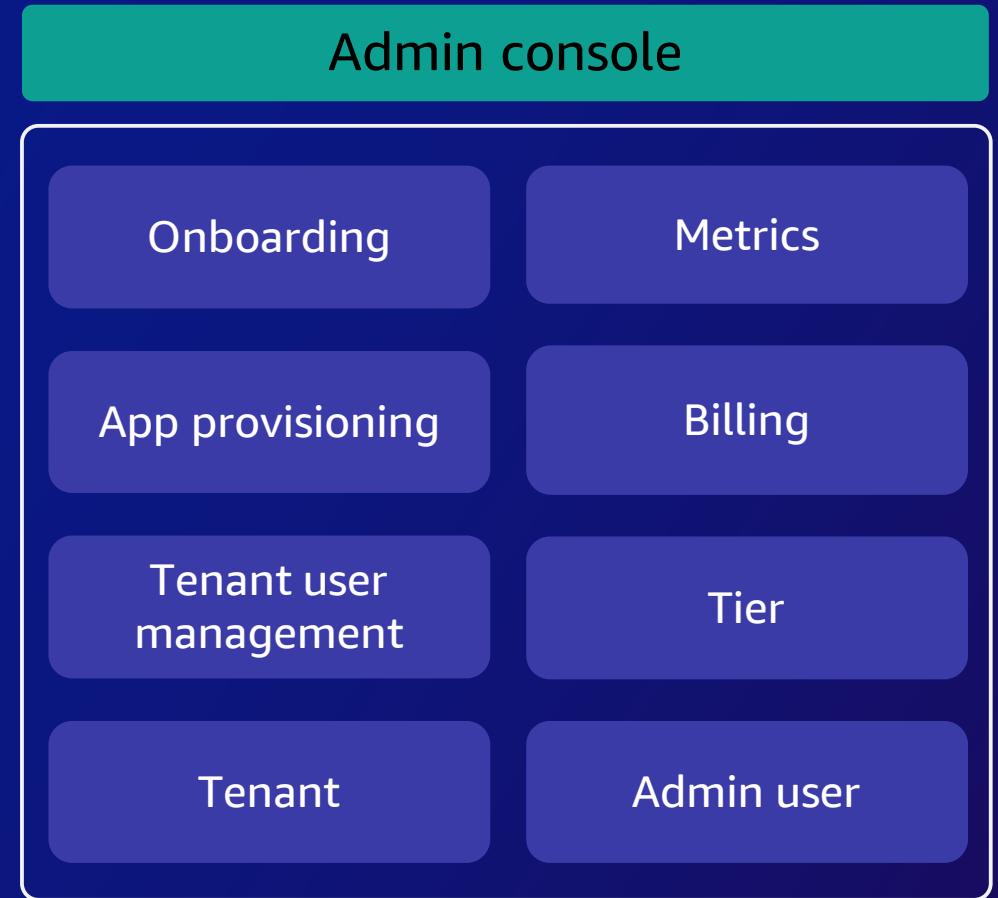


# Deployment at scale

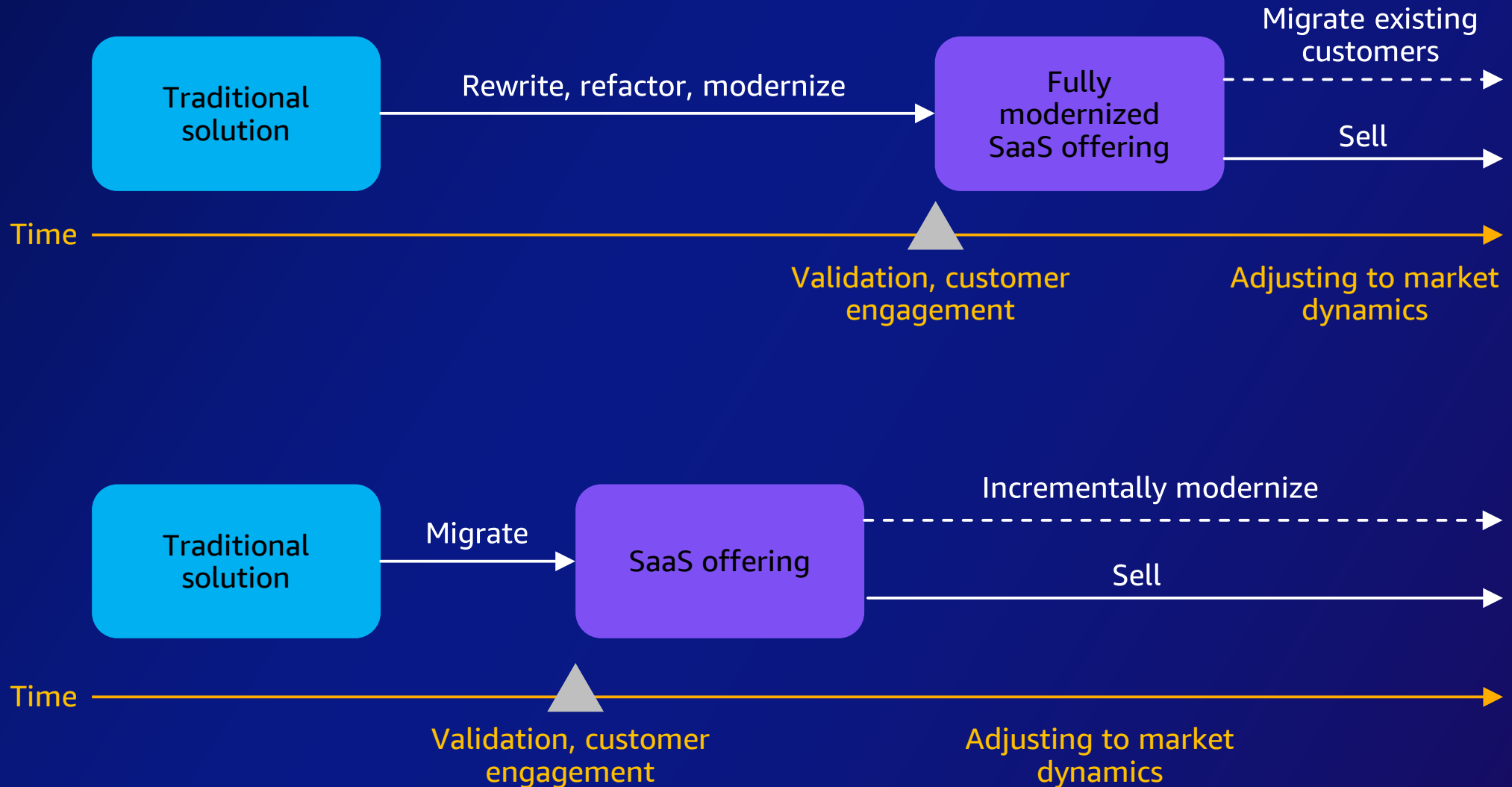
## Application plane



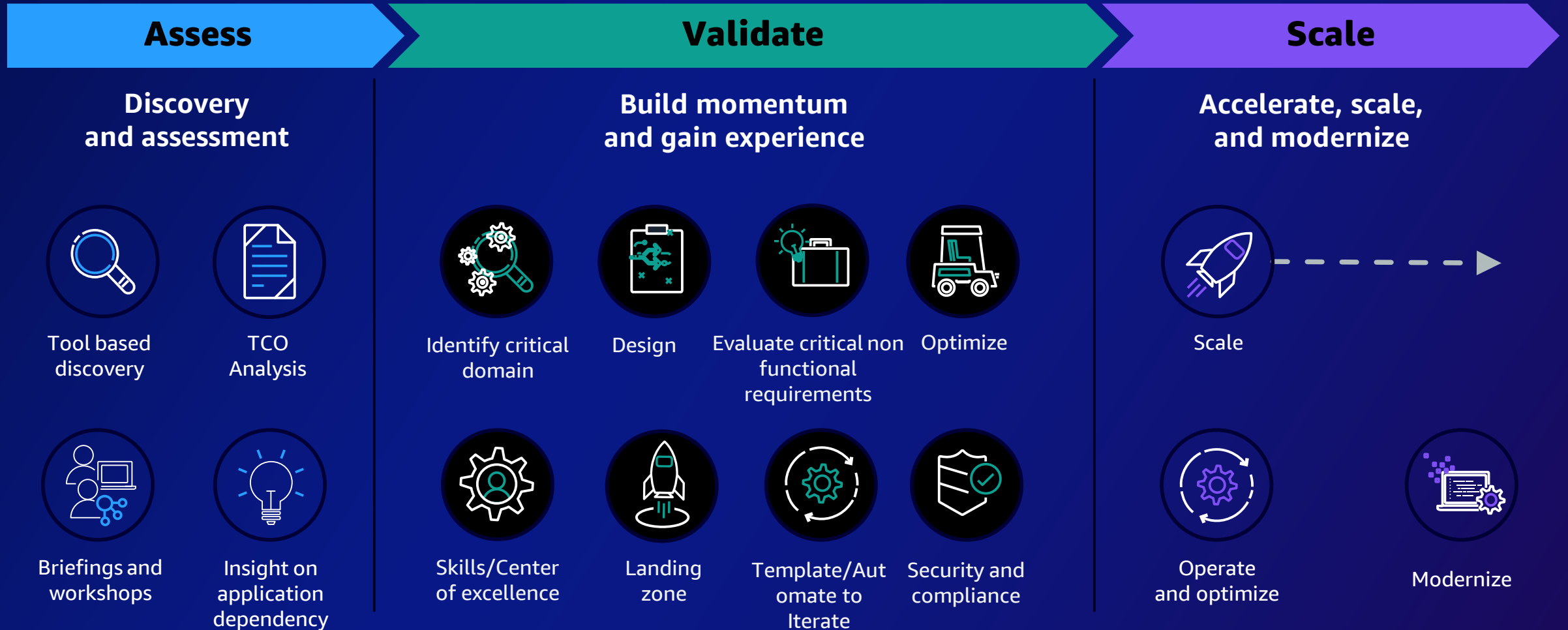
## Control plane



# Modernization journey



# Modernization at scale





# Benefits

## CLIENT EXPERIENCE ROI WITH ENTERPRISE MODERNIZATION WITHIN 36 MONTHS

*We asked a sample of our customers across different industries to share their experience around how they quantified benefits and return on investment (ROI) to measure the business impact of Enterprise Modernization.*

**Source:** The Total Economic Impact of ThoughtWorks Digital Transformation Services (2019)

**“Customers realized an 88% ROI**

**79%** Improved speed-to-market

**10%** Reduced cost of legacy application maintenance

**6%** Reduced cost of new application maintenance

**5%** Accelerated customer onboarding

# Customer success stories

BMC Helix on Amazon Aurora delivers great TCO and faster access to innovations for customers

- Commercial-grade capabilities at open source costs
- Faster release cycles using DevOps CI/CD approach
- Created new opportunities for product innovation



Capillary Modernizes AWS Architecture to Scale 15x While Controlling Costs

- Cost reduction by 30%
- 99.9% service availability
- Cuts deployment time from 50 minutes to 20 minutes
- Accelerates time-to-market with multiple releases per day



FICO Uses AWS Lambda to Innovate Faster, Reduce Costs, and Expand Global Reach

- Unlocks innovation for developers
- Delivers software services in one day instead of several weeks
- Ensures regulatory compliance
- Reduces costs



# Key takeaways

- Think of incremental modernization
- Expect to refactor aspects of your legacy solution and iterate
- Expect the first steps of microservice modernization to be hard
- Templatize and automate to scale modernization

# IBS Software's Modernization Journey



ISV006

# Modernization at scale: Building for the world

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# Agenda

- About IBS Software
- Past state and challenges
- Target state goals and objectives
- Current state
- Modernization journey
- Key business outcomes
- The future

# IBS corporate ethos



## Vision

Redefining the future of travel through technology innovation.



## Mission

Transforming how travel companies operate in a digital world by delivering next-generation products to accelerate growth, drive efficiency and create a differentiated customer experience.

## Core Values



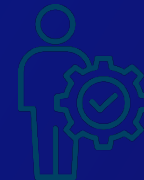
Passion



Precision



Commitment



Integrity



Respect for  
the Individual



# IBS software today



**25+ years of travel industry domain experience**



**4000+ employees**  
**26 nationalities**  
**Operating from 40 cities**  
**41% female employees**

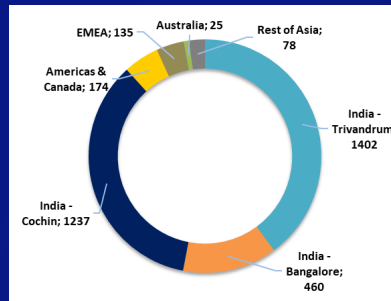


**14/20 Largest Airlines**  
**2/5 Largest Cruise Lines**  
**5/15 Largest Hotel Chains**



**A Blackstone portfolio company**

## OUR 15 GLOBAL OFFICES



# Customer base anchored by marquee players across verticals

## AVIATION



10/14

Largest Airlines



## HOSPITALITY



8/15

Largest Hotel Chains



## TOUR AND CRUISE



5/15

Largest Cruise Lines



Note: Updated as of December 31, 2021. Largest airlines based on equally weighted average of assets, market value, sales and profits, Forbes. Largest chains based on number of properties, World Atlas. Largest cruise lines based on revenue, Cruise Market Watch.

# Our solutions

NEXT-GENERATION TECHNOLOGY PLATFORMS DELIVERING COMPREHENSIVE LEADING EDGE CAPABILITIES

## Passenger Services



Reservations, fares and ticketing

Airport check-in & departure control

Customer loyalty programs

Merchandising and retail

## Airline Operations



Fleet operations

Crew planning and optimization

Crew operations

Maintenance & engineering

## Cargo & Logistics



Sales & commercial Mgt.

Terminal operations & warehouse management

Revenue management

Service quality management



Optimizing workforce & material logistics

## Tour & Cruise



Sales & reservations

Onboard services & Terminal operations

Loyalty program management

Product management & distribution

## Hospitality



Inventory, pricing management

Sales platform

Real-time global marketplace

Demand management & revenue optimization

Modular | High-Availability | Secure | Cloud-Agnostic | Multi-Tenant | Open-Source



Consulting and Digital Transformation



# Past state and challenges

- Some on-premise, custom SaaS deployments with limited data locality options
- A mix of cloud native & multi-layered, monolithic architectures
- Proprietary and commercial tech stacks - Oracle RAC, Microsoft SQL Server, WebLogic, .NET
- Engineered systems and custom infrastructure
- Constrained by manual scaling & availability
- Custom and localised security compliance and strategies
- Custom-built disaster recovery with higher RPO and RTO
- Limited automation with manual intervention



# Target state and Goals

- Improved global market presence and location independence with optimized public cloud deployments
- Minimal planned downtime & better availability
- Meet variable capacity needs with ultimate on-demand scalability
- Better TCO with economies of scale and good visibility
- Increased reliability and agile turnaround
- Vendor independence
- Improved time to market and agility
- Centralized regulatory compliance and standards
- Automated DevSecOps, governance, and better Observability



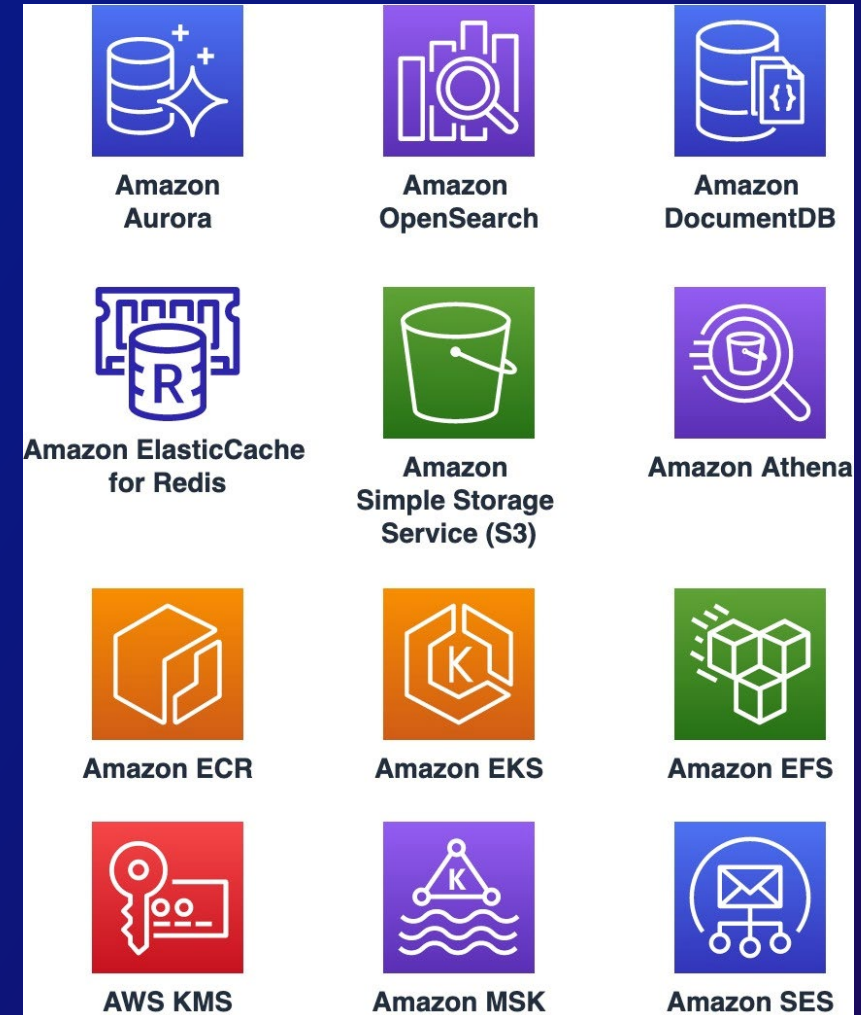
# Current State Architecture and Deployment on AWS

- Fully Cloud Native modular SaaS product services on AWS
- Fault-tolerant architecture with highly available multi-AZ and multi-region deployments
- Fully Open Source(OSS) and Open Standard frameworks
- Automated On-demand Scalability for varying customer volumes
- Polyglot Microservices and MFE-based high-performance frameworks and deployments
- Comprehensive Industry standard regulatory compliance and security: PCI-DSS, GDPR, OWASP, ISO, SOC 1 & 2, AWS Well-Architected & FTR
- Integrated Governance and Monitoring with Amazon CloudWatch and our in-house APMs
- Fully automated progressive delivery-based DevSecOps with Amazon Elastic Kubernetes Services (EKS) and IaC with Terraform, Helm charts, Argo CD and Argo Rollout
- Certified global Disaster Recovery options and BCP solutions with best-in-class RPO and RTO

# Current State Architecture and Deployment on AWS

Cloud native, serverless & AWS managed services, purpose built databases

- Amazon Aurora PostgreSQL for OLTP
- Amazon ElasticCache for Redis as an In-memory datastore for high-performance flows
- Amazon DocumentDB with MongoDB compatibility for NoSQL workloads
- Amazon Managed Streaming for Apache Kafka (MSK) as the Messaging backbone
- Amazon Elastic Kubernetes Service (EKS) and Amazon Elastic Container Registry (ECR) for container Orchestration and Repo
- Amazon Athena for Query services
- AWS Key Management Service (KMS) for Key management
- Amazon Simple Email Service (SES) for Notifications

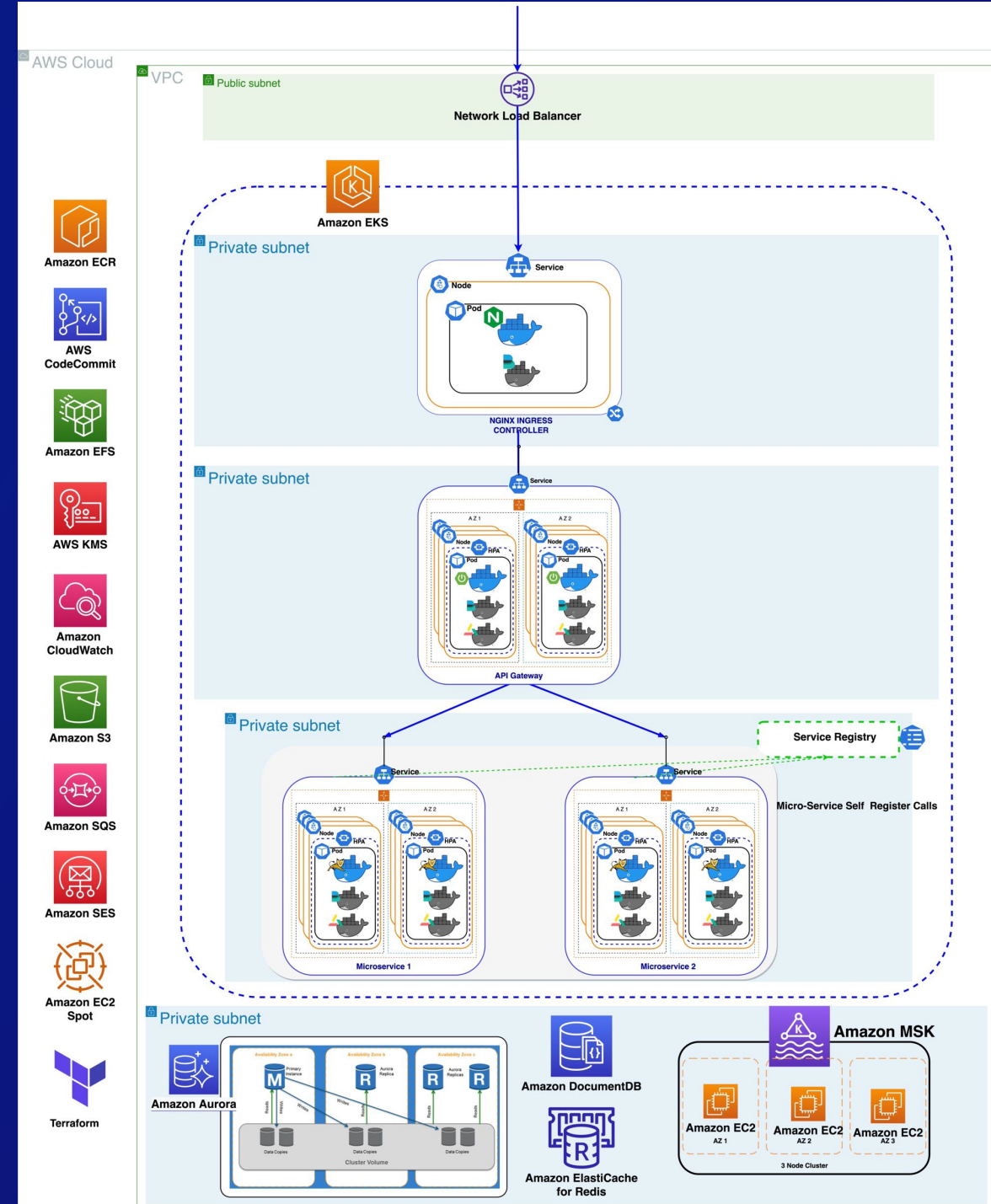




# Current State Architecture

## Amazon Aurora PostgreSQL

- Availability and Durability @ 99.99% with fault-tolerant self-healing storage
- Multi-AZ and global deployments for Disaster Recovery: RPO: near zero and RTO under 5 mins
- Improved Performance (up to 2-3x times) and Scalability with storage auto-scaling
- Fully Managed services with built-in monitoring and governance for better Time to market.
- Inherent security and compliance with network isolation and encryption
- Low latency replicas <1 sec for analytical and reporting workloads



# Modernization journey

- With AWS, we are modernizing one of our products and have plans to scale across other products
  - Multi-code base monolith to a single code base micro-service-based architecture
  - Incremental modernization via the Strangler pattern, anti-corruption layer, and domain-driven design
- Foundational building blocks using AWS Control Tower, AWS Organizations, Systems Manager, and Security Guardrails helped us to achieve governance, monitoring, log Management
- Resiliency improvements through multi-AZ, multi-Region failover exercises, and chaos engineering
- Roadmap transparency and understanding of AWS technical roadmap helps us to innovate and optimize
- AWS cloud is more agile than on-premise, and we leverage emerging technologies & features quickly through our continuous improvement process

# Key business outcomes

- AWS Travel & Hospitality competency partnership helps us to win new business
- AWS Migration Acceleration Program (MAP) helps us to migrate new clients' workloads to the AWS cloud
- Fully automated environment provisioning helps us to onboard our clients faster
- AWS CloudWatch, Trusted Advisor, and Well-Architected Review (WAR) process helps us to control cost, foster automation, check on unused resources, scale as needed, and use minimum on-demand capacity
- AWS Global Infrastructure helps us to expand our business globally. We are operating in 20 AWS regions across 16 countries
- AWS services helped us to increase agility, innovation, and new feature go-to-market
- Improved reliability, performance & RPO/RTO achievements

# The future

- Hospitality Data Lake platform
- Airline retailing using AI/ML for personalization and offer recommendation
- Mature on Multi-tenancy to provide cost effective SaaS solutions
- AWS being part of journey and the partnership is benefiting both

skillbuilder.aws 

**Your time is now**

Build in-demand cloud skills *your way*



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# Thank you!

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