

AWS  
re:Invent

**API308**

# Monolith to serverless SaaS: Migrating to multi-tenant architecture

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Principal Partner Solutions Architect  
Amazon Web Services

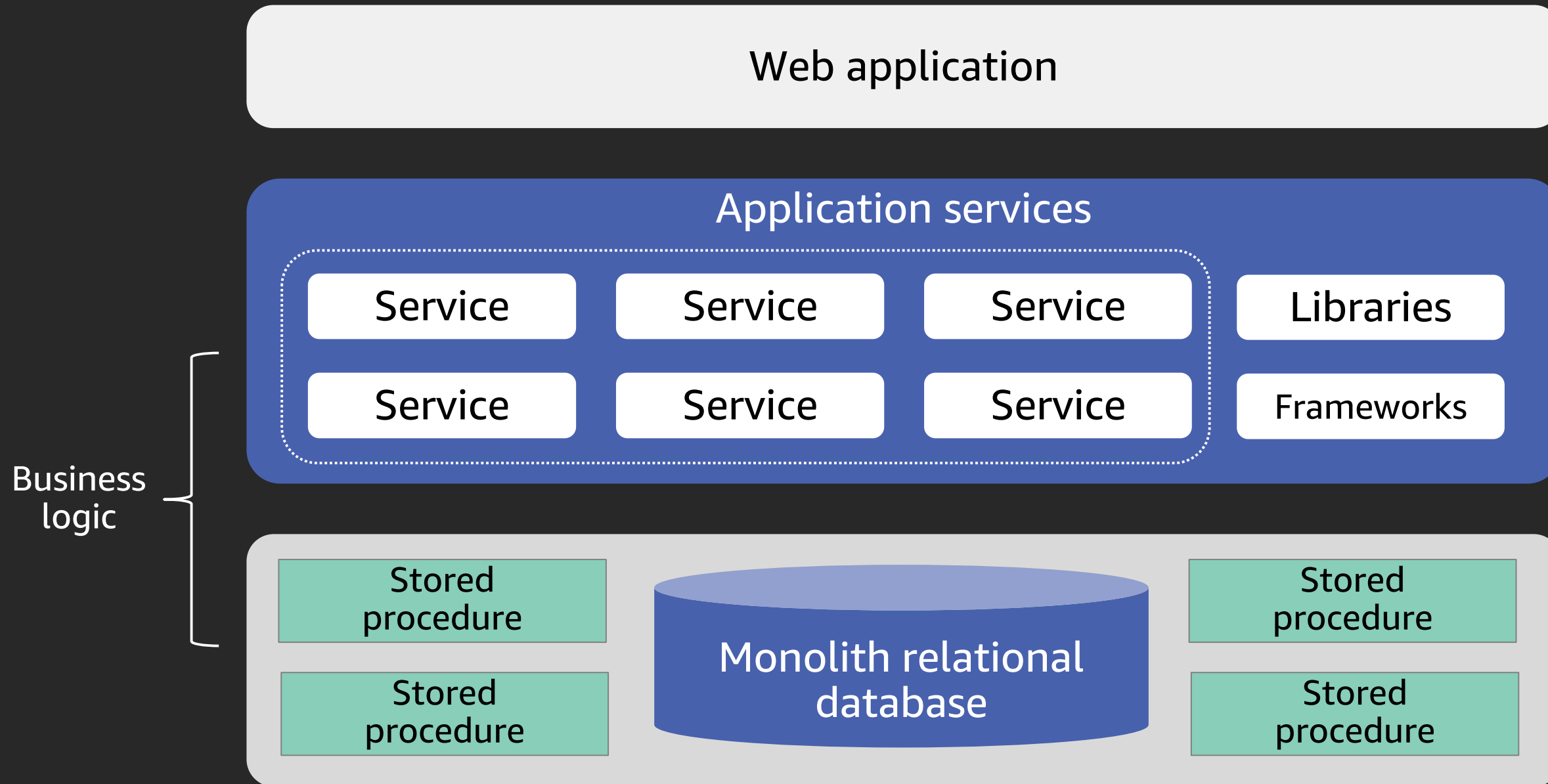
# The migration challenge

Agility, innovation,  
modernization

Time to market,  
competitive pressure

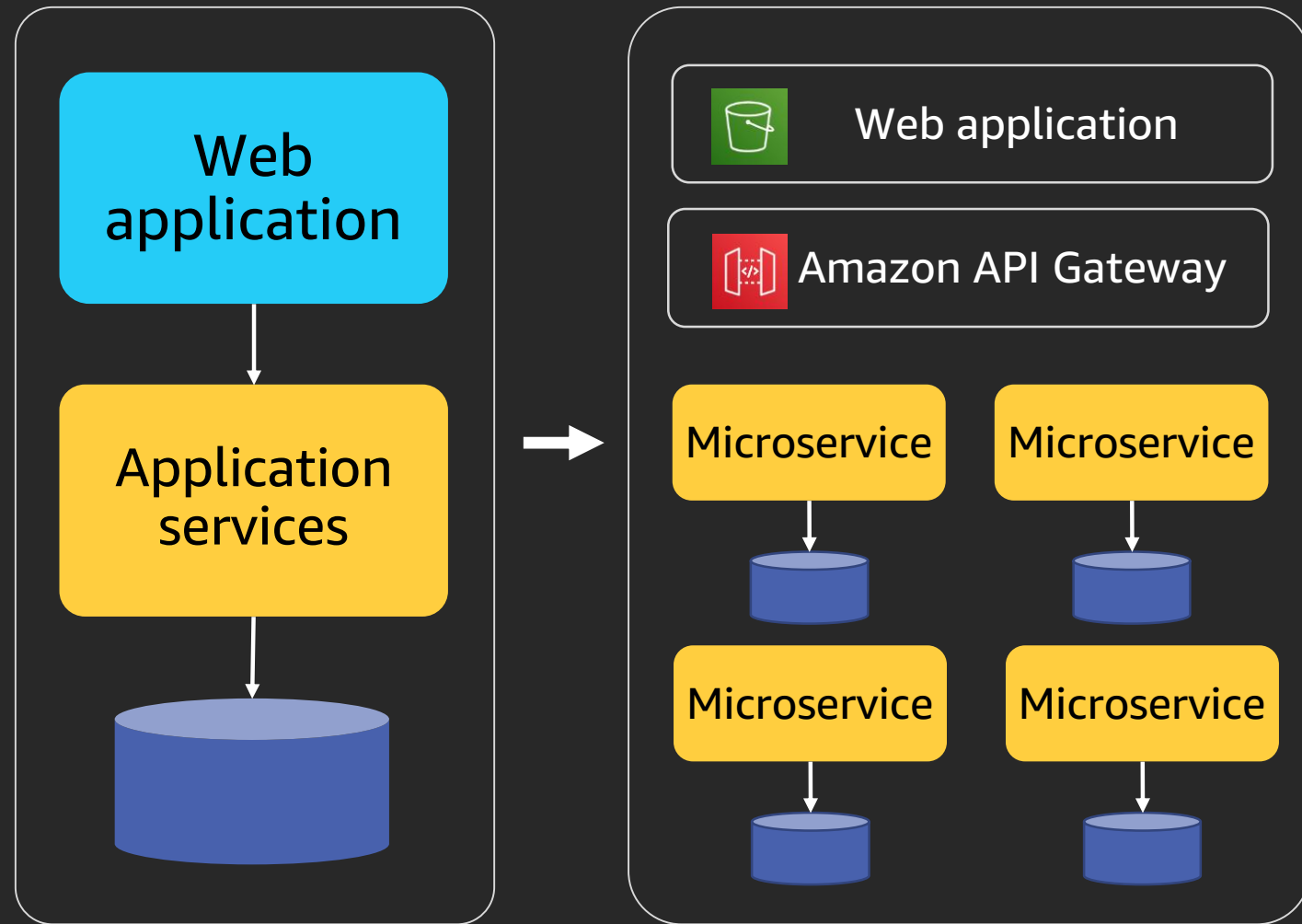


# An often challenging starting point

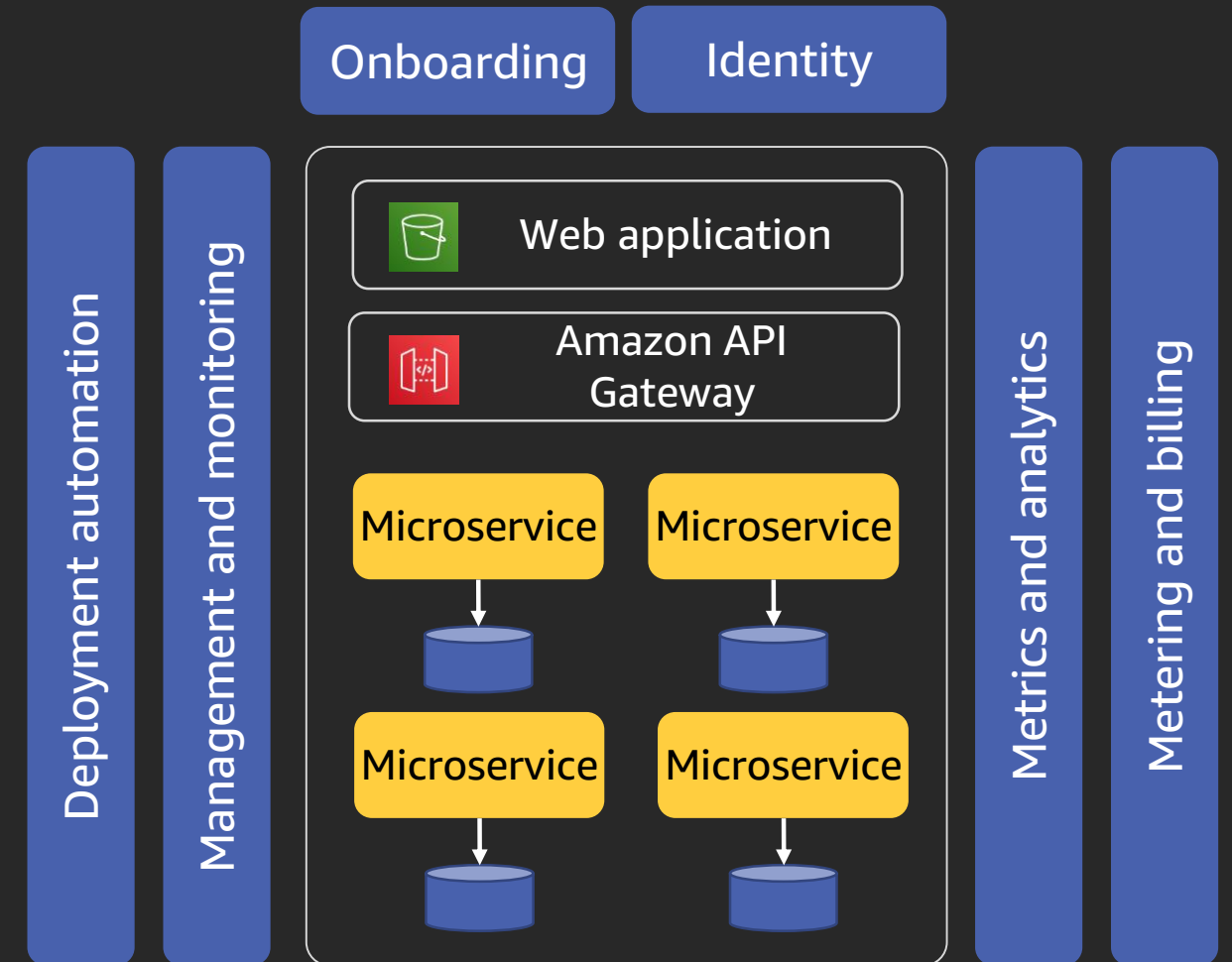


# Two key aspects of migration

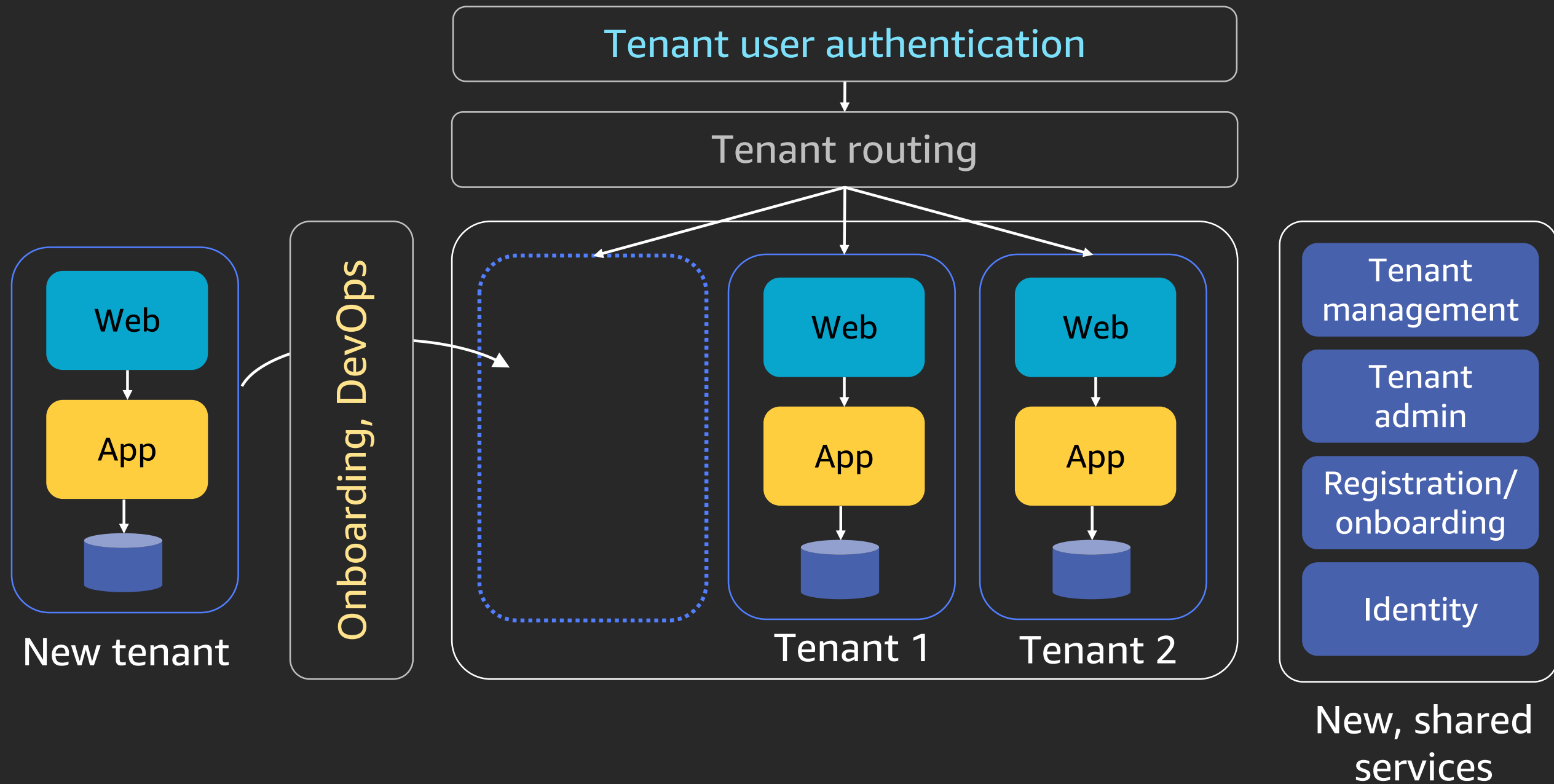
## Technical modernization



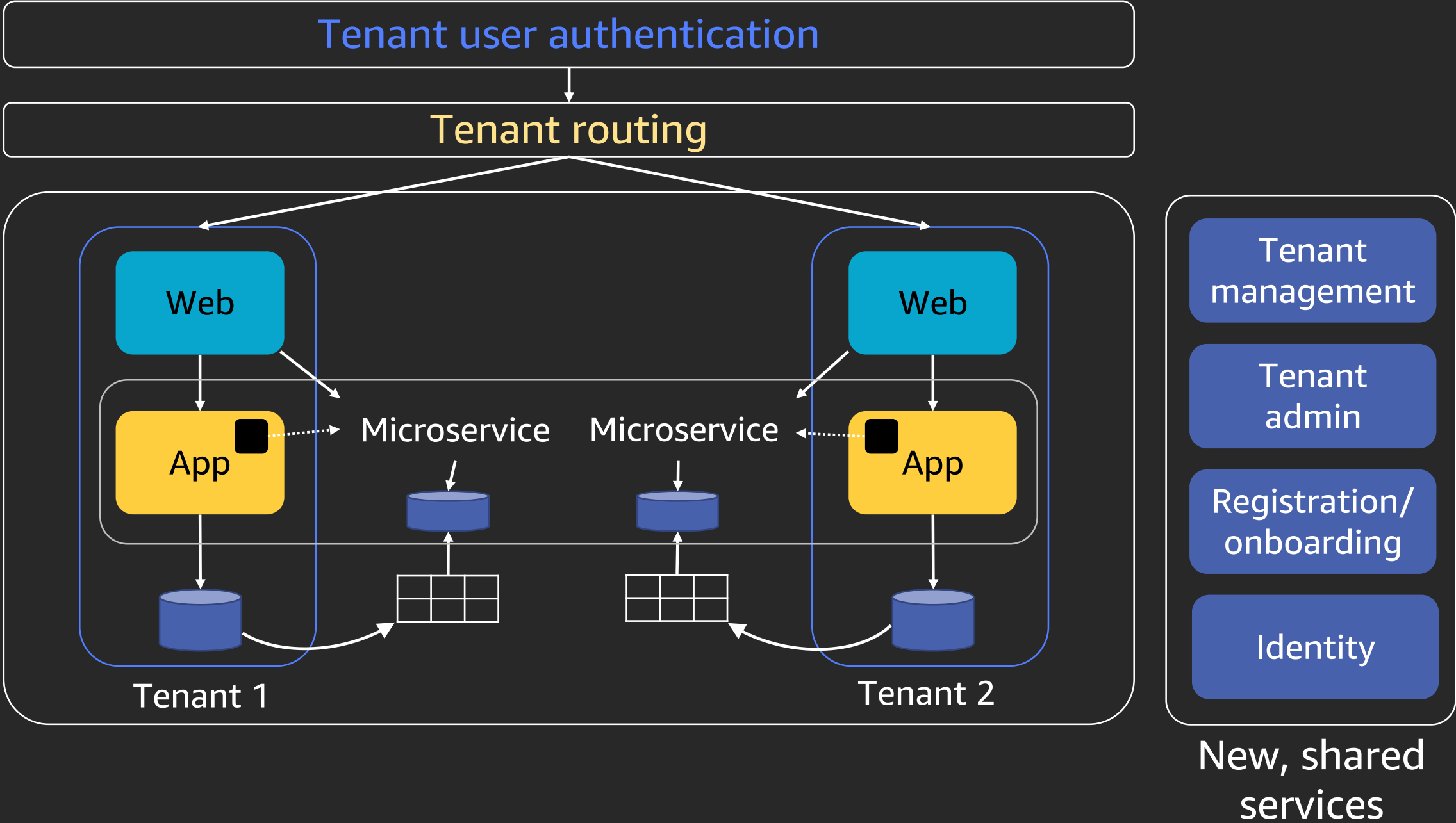
## Agility and operational efficiency



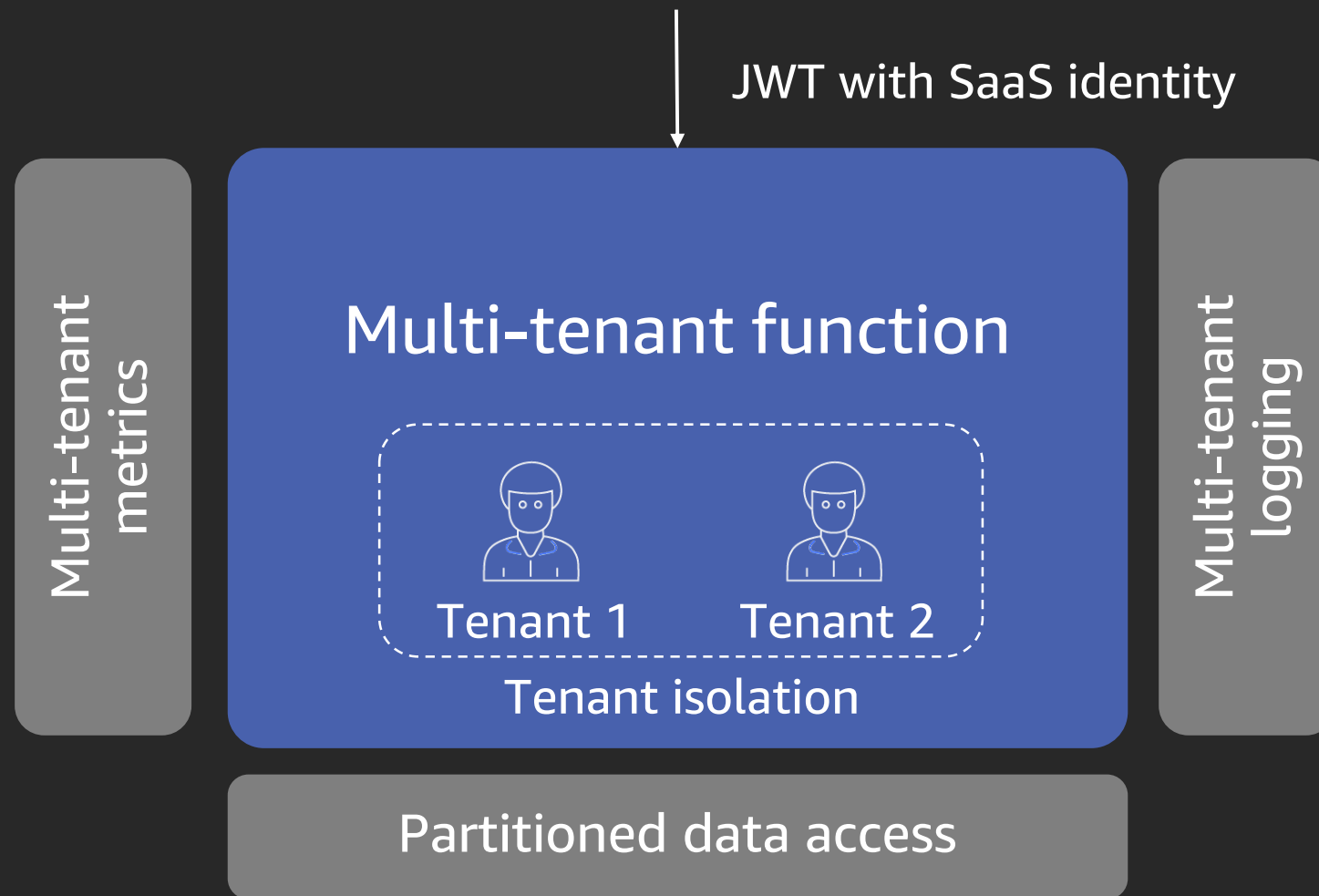
# Where to start: Building a SaaS foundation



# Making the gradual cutover



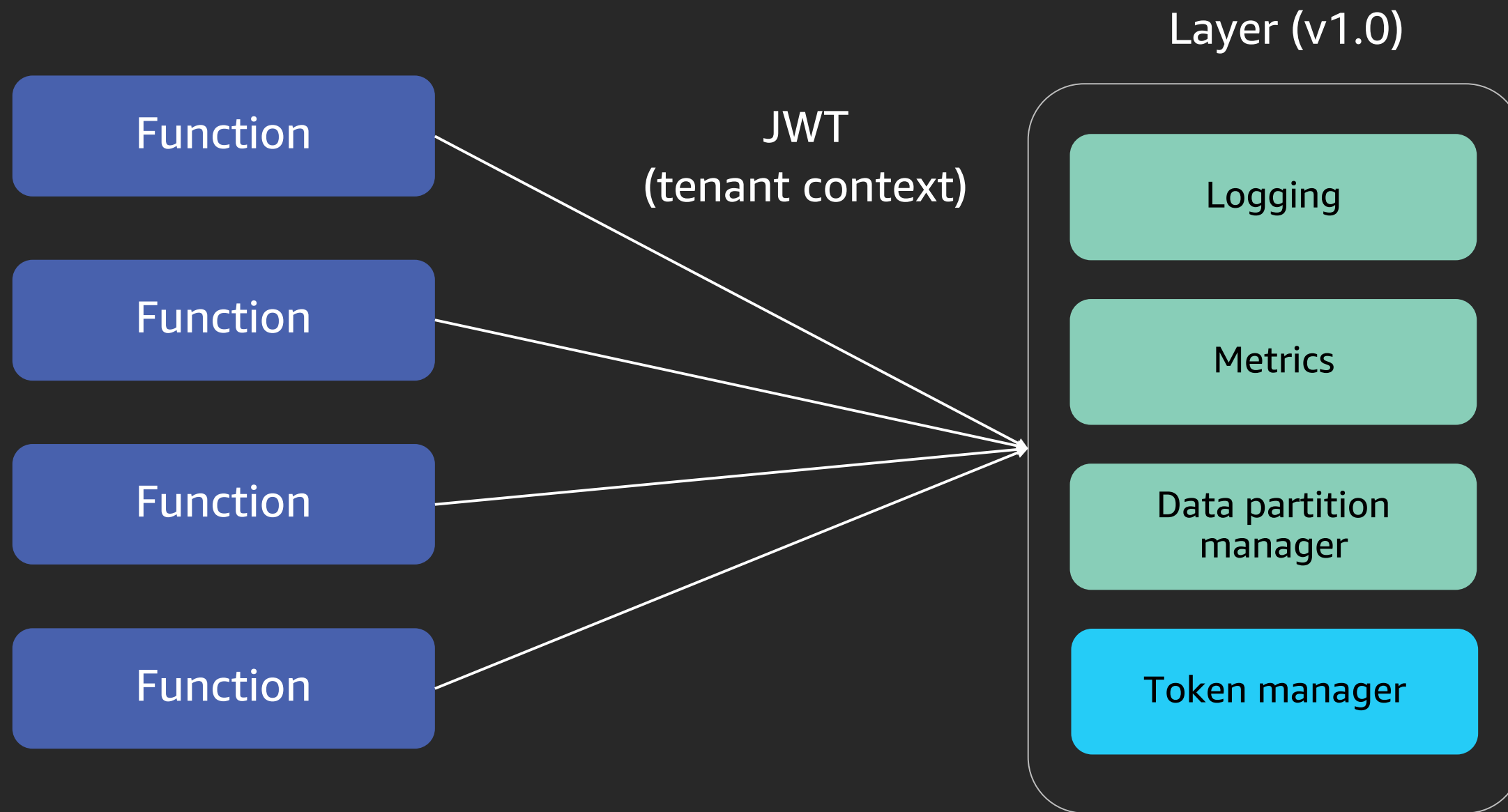
# No shortcuts for new microservices



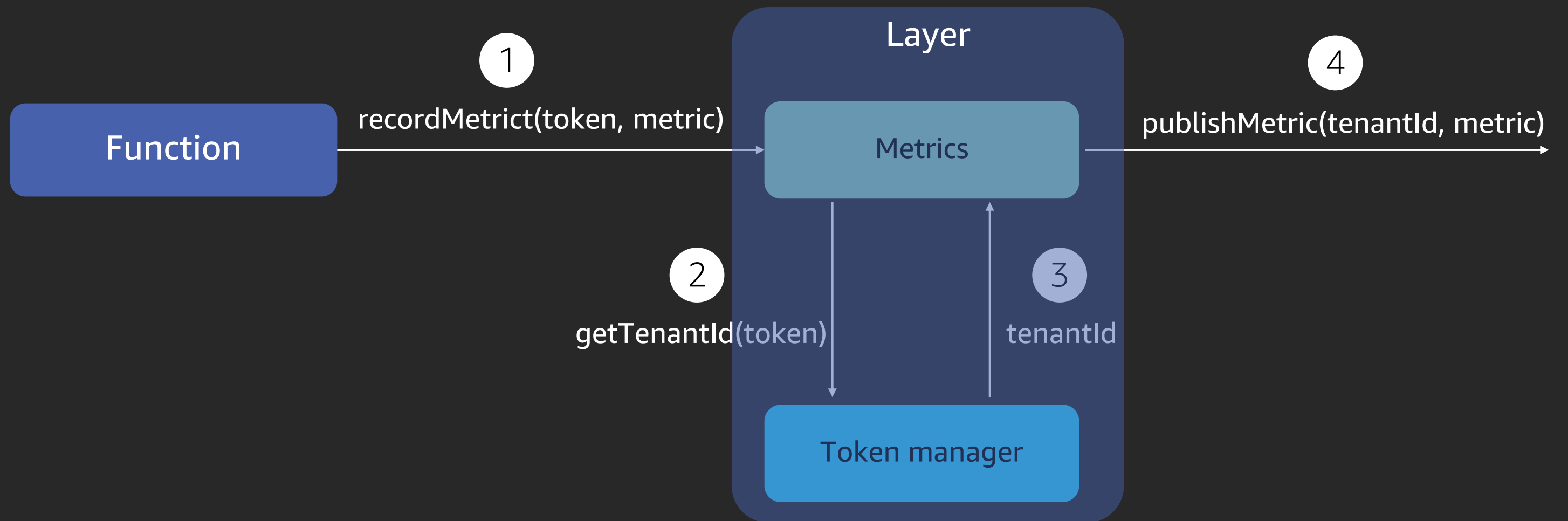
Build your services as if they were functioning in a fully multi-tenant environment



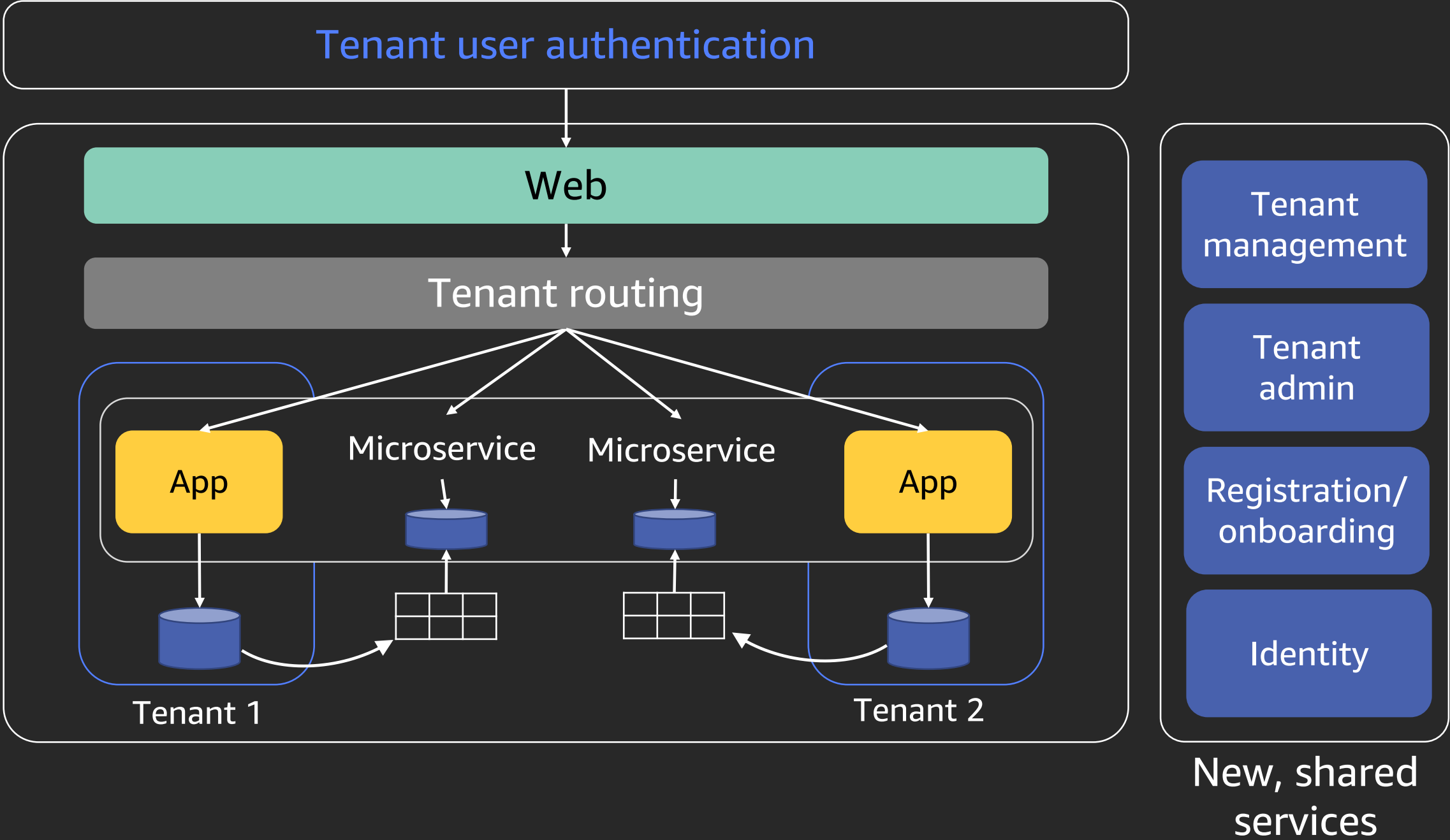
# Using layers to unify multi-tenant concepts



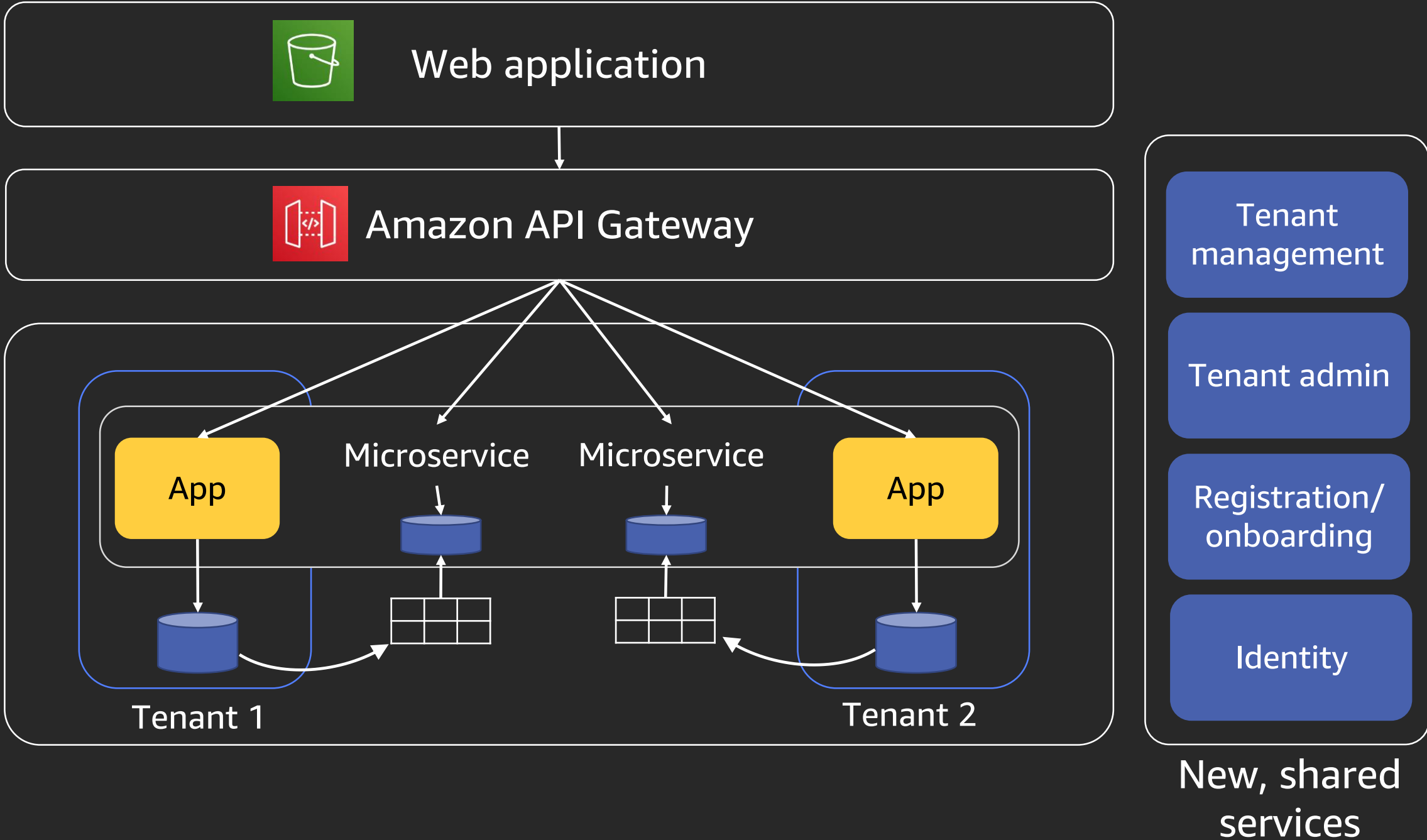
# Metrics example



# Moving to a multi-tenant web tier



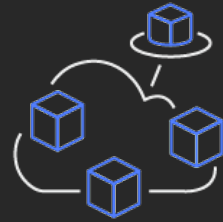
# Moving to a modern web application



# The hard part: Identifying initial services



**Business impact**



**Coupling**  
(business logic/data)

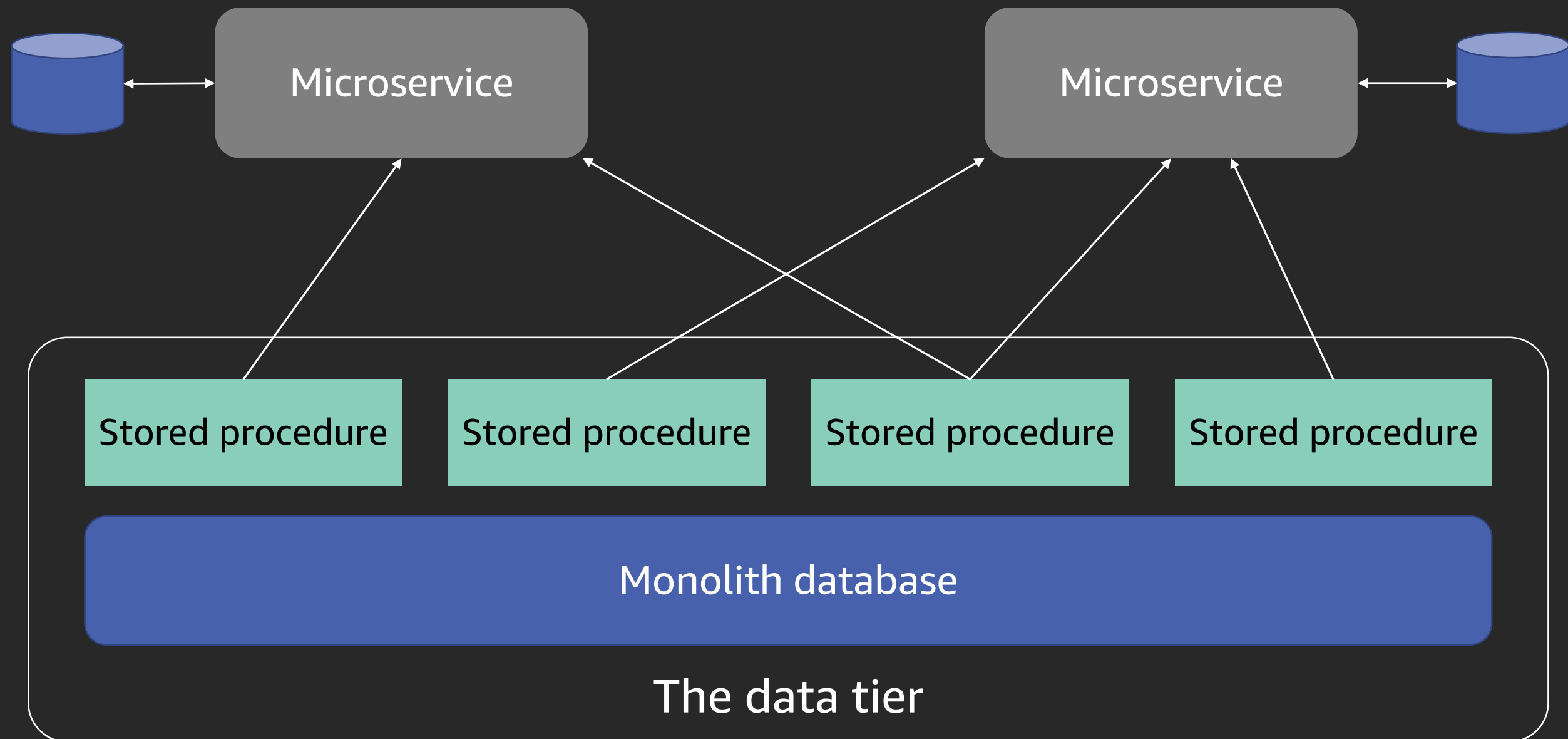


**Tenant bottlenecks**  
(noisy neighbor, bulk operations, SLAs)



**Data profile**  
(isolation, footprint, performance)

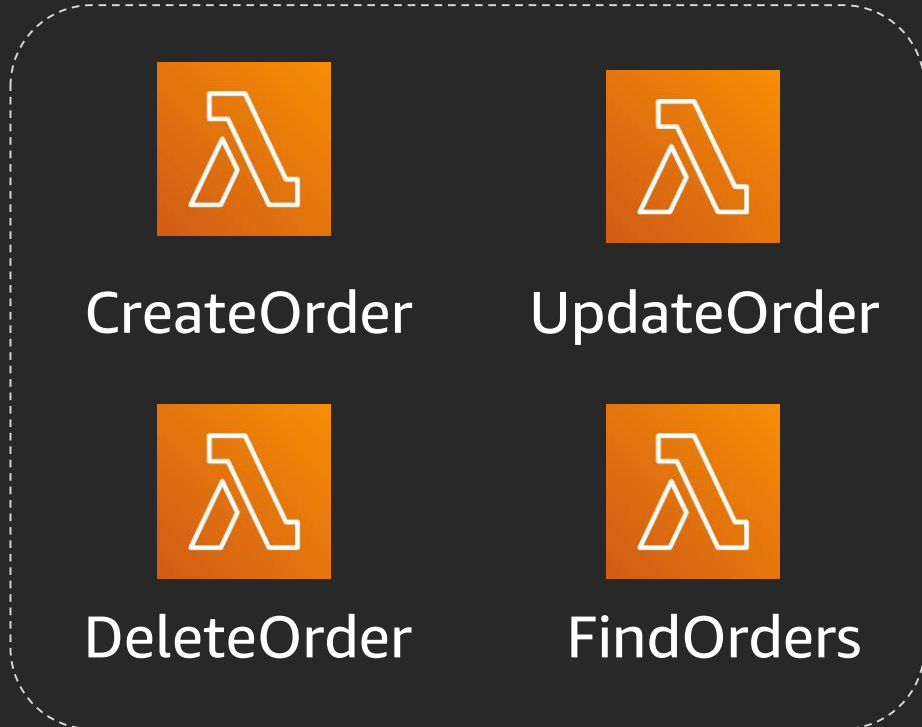
# The service-by-service challenge: Stored procedures



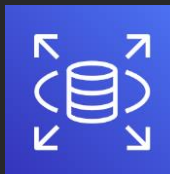
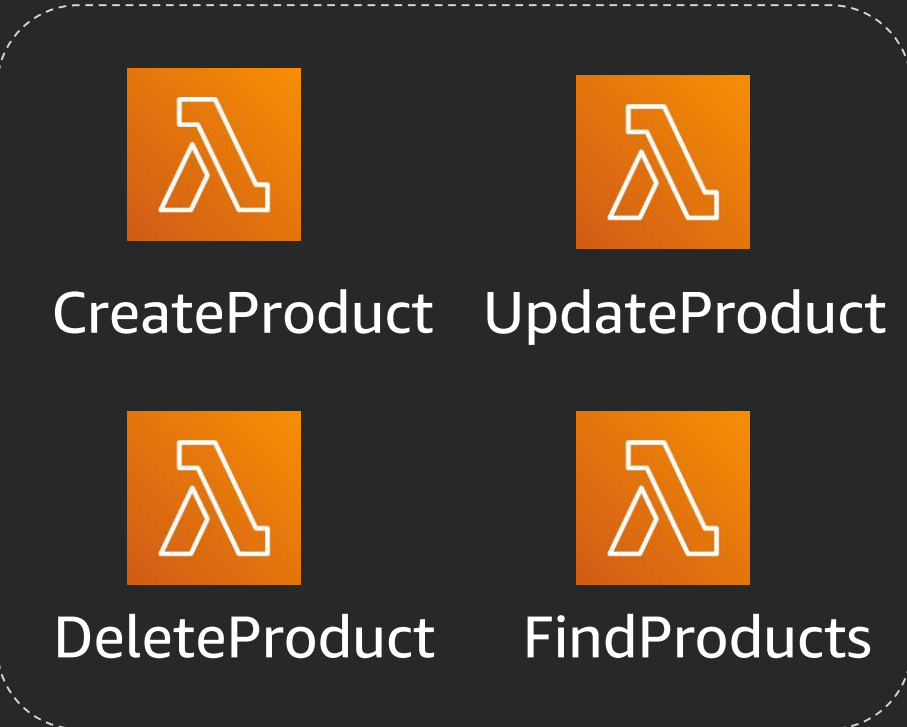
# Functions and microservices

## Logical microservices

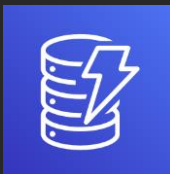
### Order management service



### Catalog service



Amazon RDS

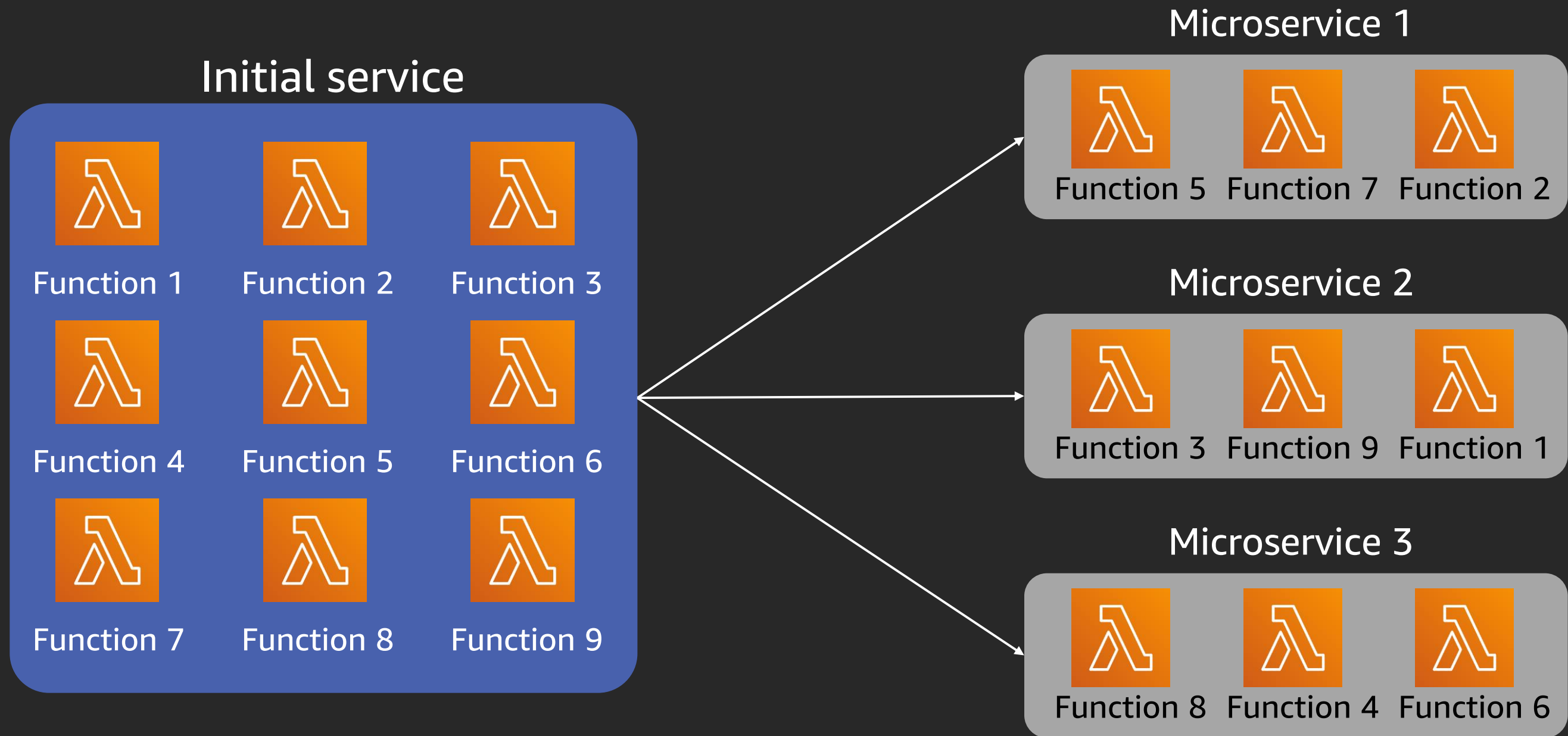


Amazon  
DynamoDB



Amazon S3

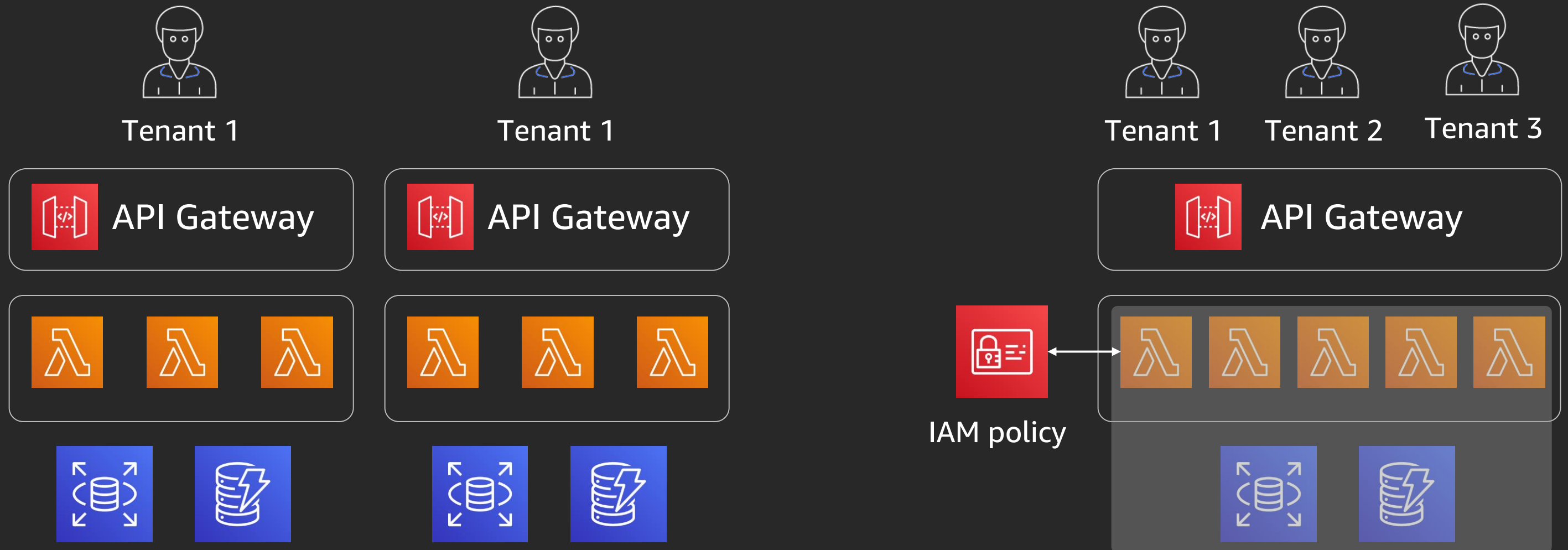
# Starting with coarse-grained services



Let granularity earn its way in based on actual activity/load



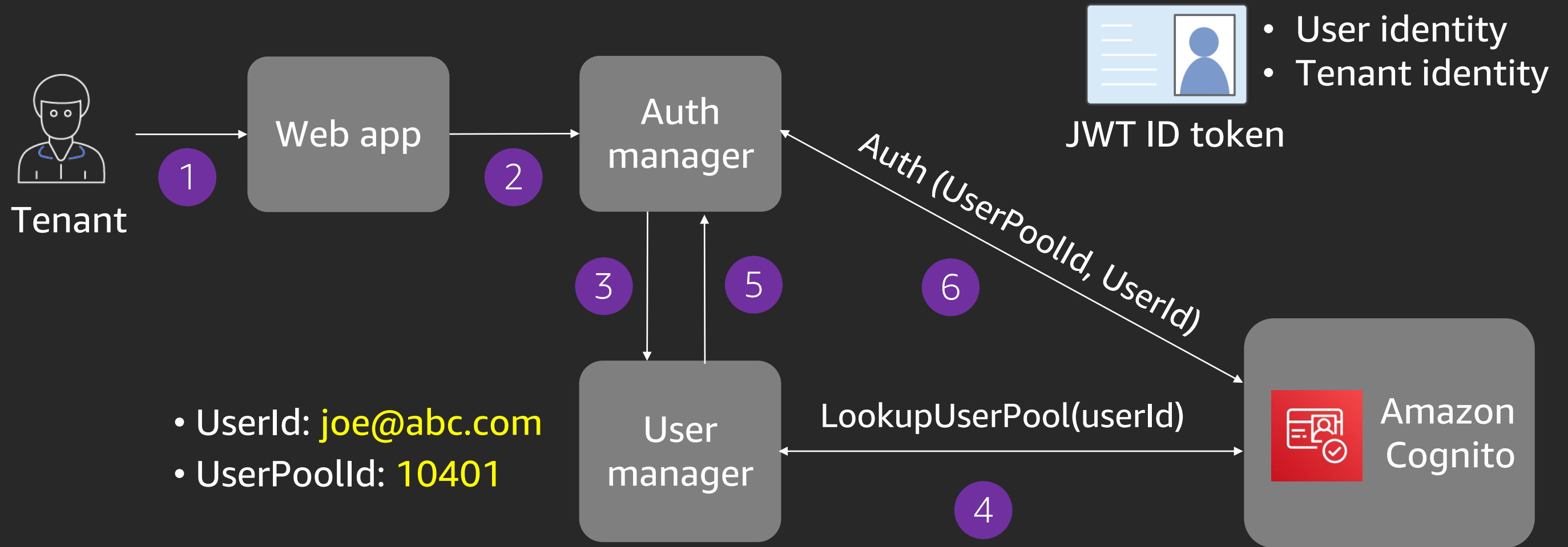
# Implementing isolation in a serverless model



Separate functions for each tenant

Shared functions with policy-based isolation

# Adding tenancy to identity



# Related SaaS sessions



saas factory

## Breakouts

- ARC410 – Serverless SaaS deep dive: Building serverless SaaS on AWS
- ARC210 – Microservices decomposition for SaaS environments
- GPSTEC337 – Architecting multi-tenant PaaS offerings with Amazon EKS

## Chalk talks

- ARC413 – SaaS metrics deep dive: A look inside multi-tenant analytics
- ARC305 – Migrating single-tenant applications to multi-tenant SaaS
- GPSTEC306 – Reinventing your technology product strategy with a SaaS delivery model

# Related SaaS sessions (cont'd)



saas factory

## Workshops

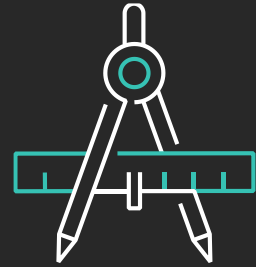
- SVS303 – Monolith to serverless SaaS: A hands-on service decomposition
- ARC308 – Hands-on SaaS: Constructing a multi-tenant solution on AWS

## Builder sessions

- ARC405 – Building multi-tenant-aware SaaS microservices

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# Thank you!

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