AWS re:Invent

ARC371-P

SaaS migration: Real-world patterns and strategies

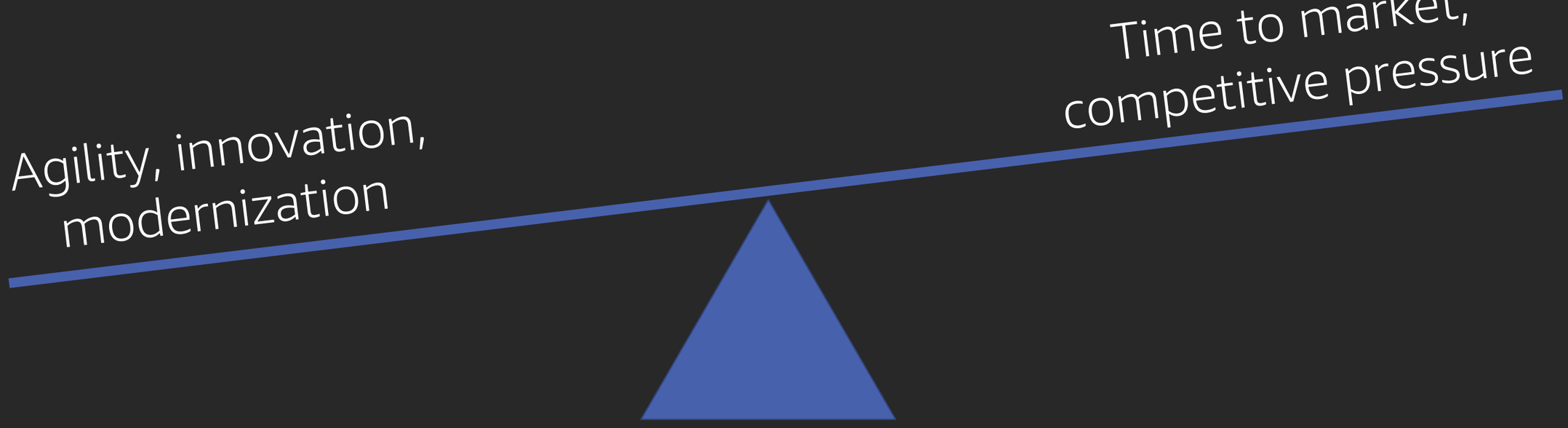
Tod Golding
Principal Partner Solutions Architect
AWS SaaS Factory

AWS re:Invent

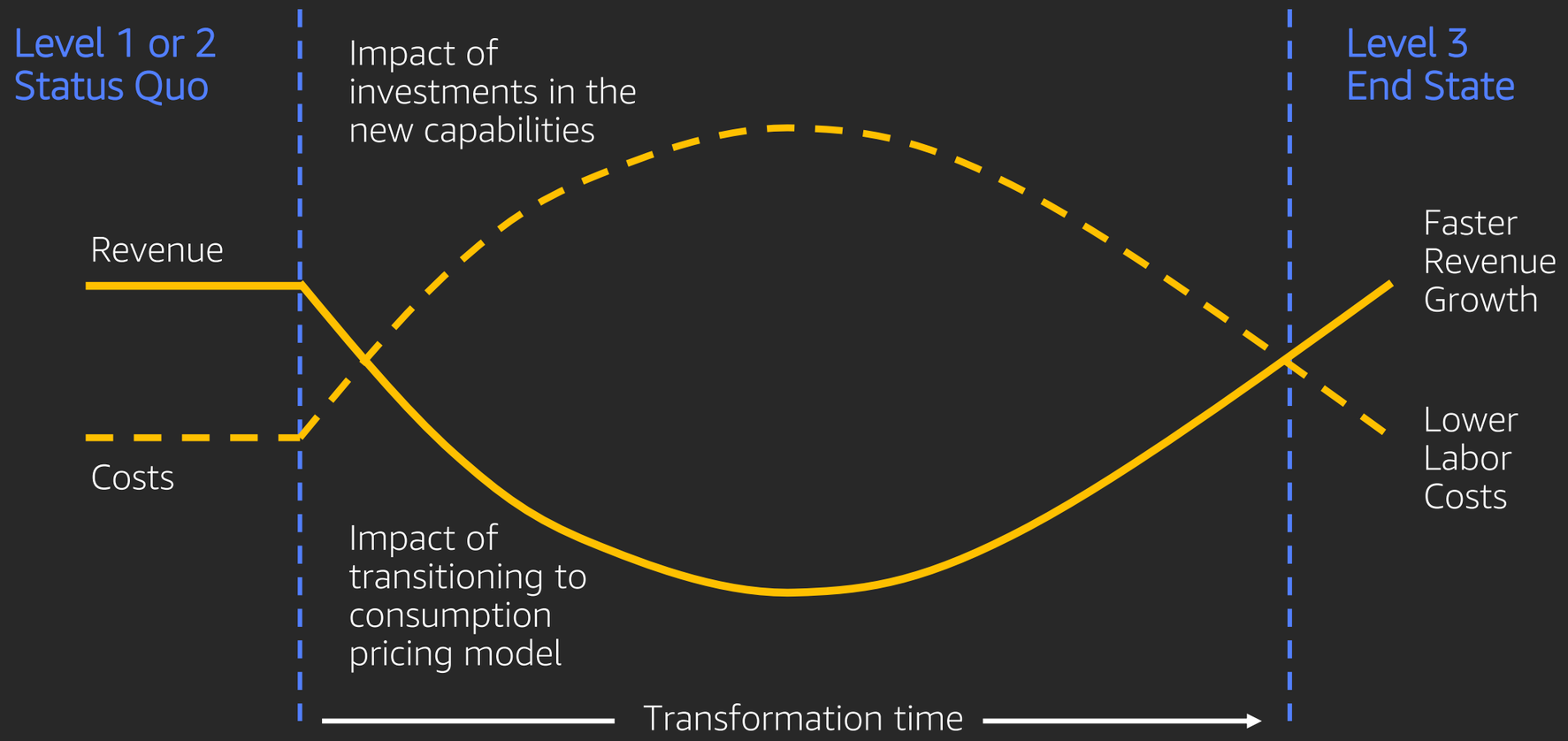
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aws

The migration challenge

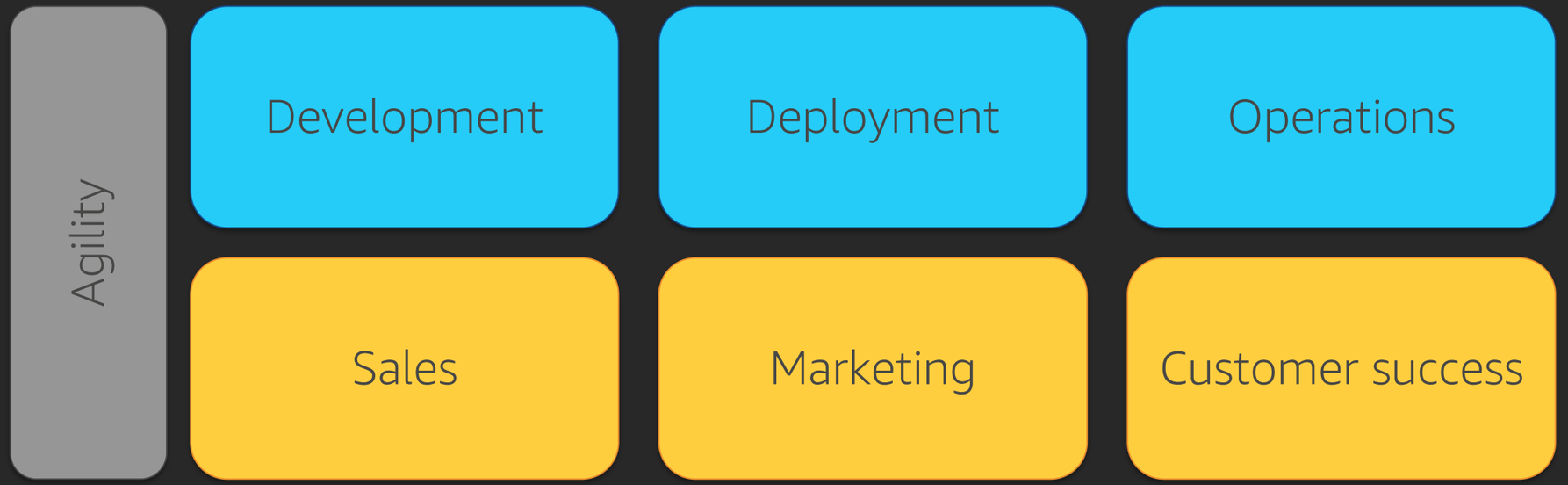


What kind of fish do you want to be?



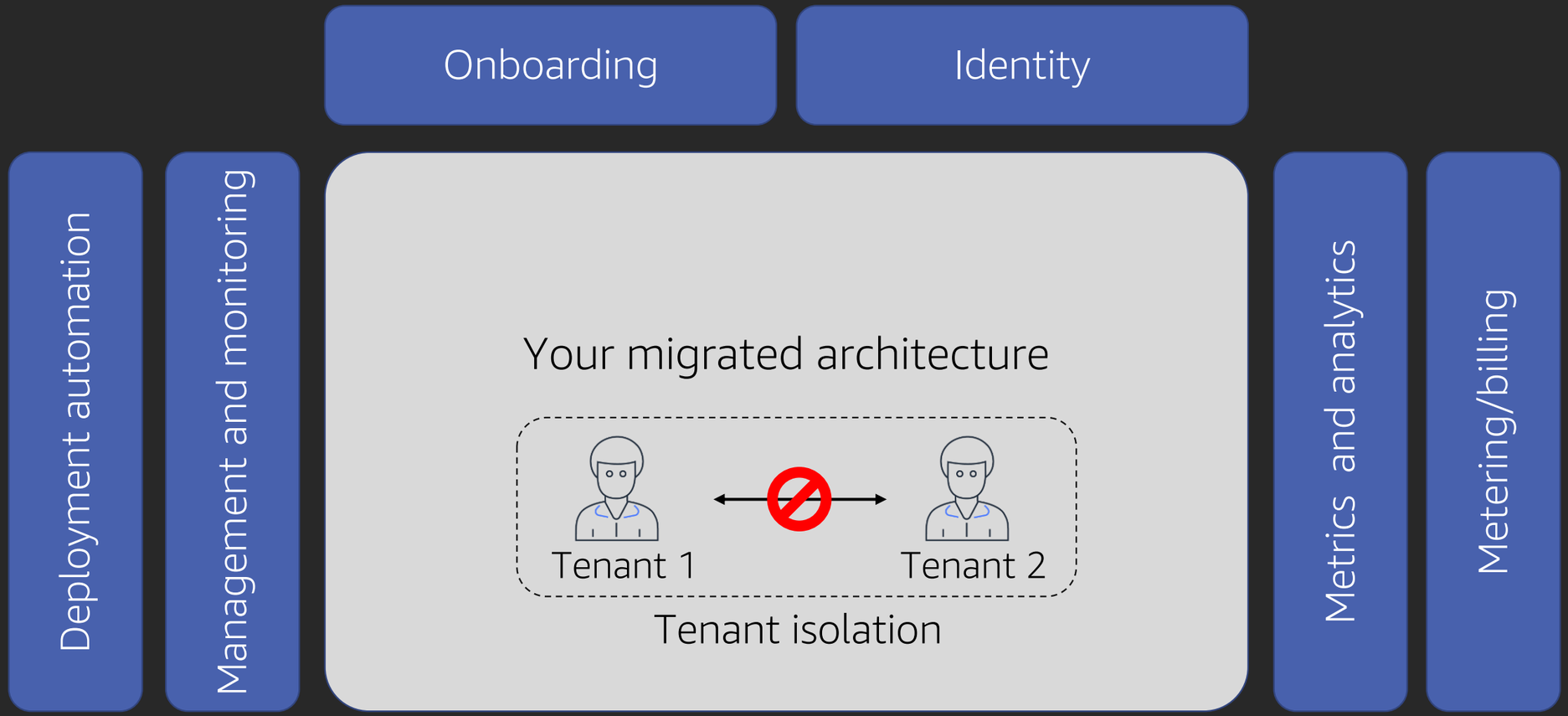
Source: Technology-as-a-Service 2016 (TSIA)

More than a technical migration

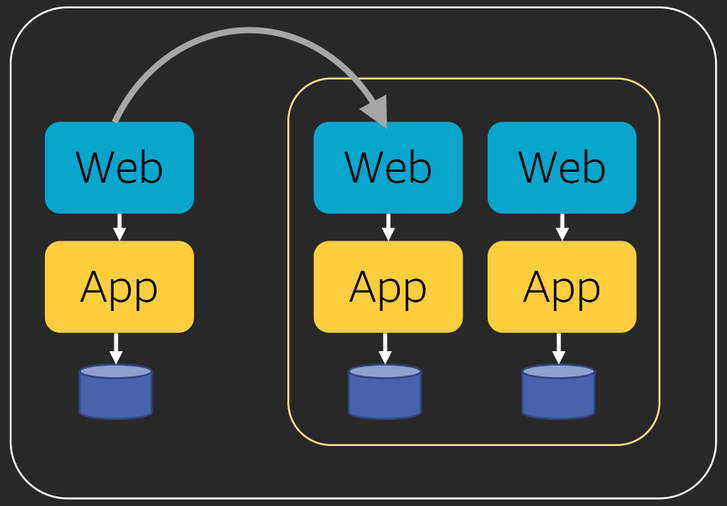


I'm an architect: should I care?

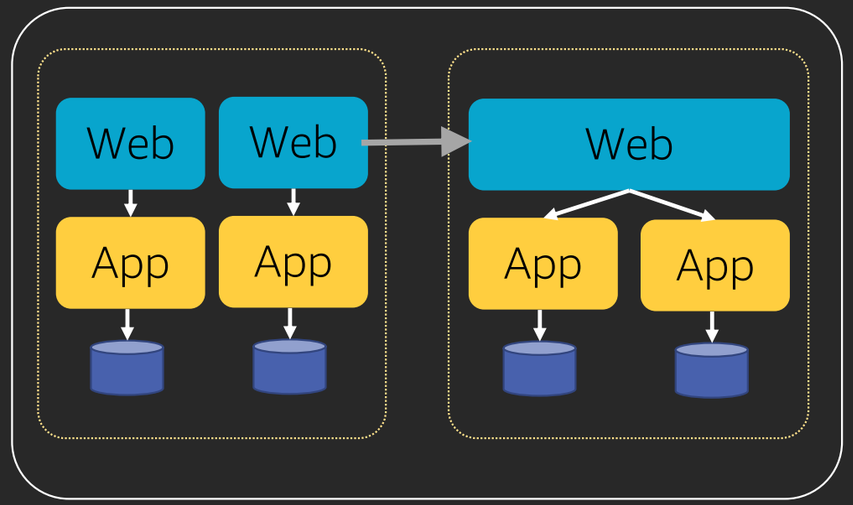
Many architectures, one mindset



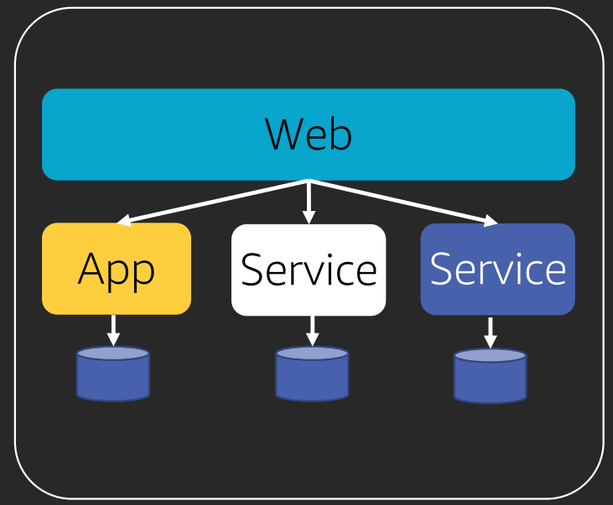
Common migration models



Silo lift and shift

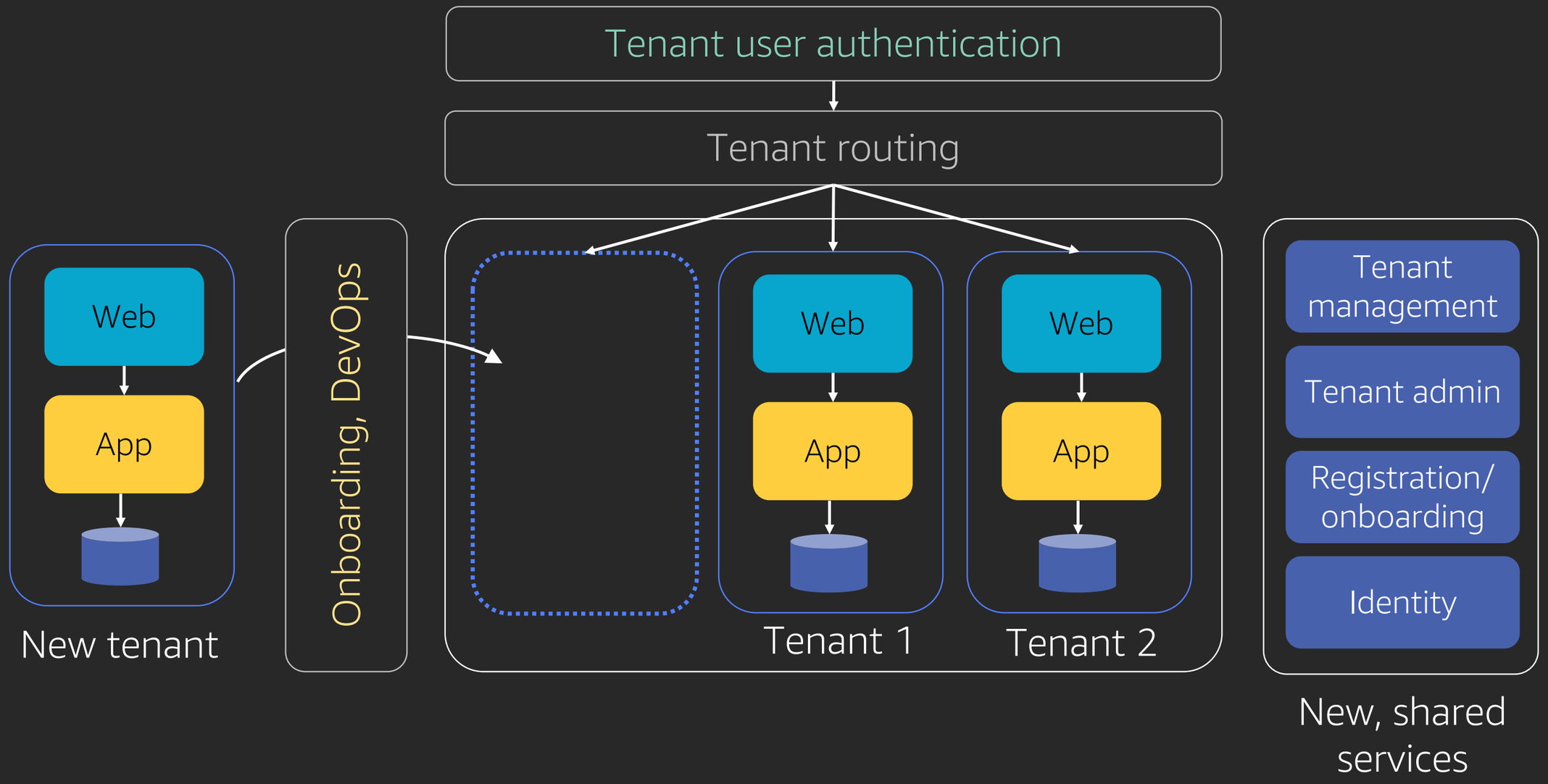


Layered

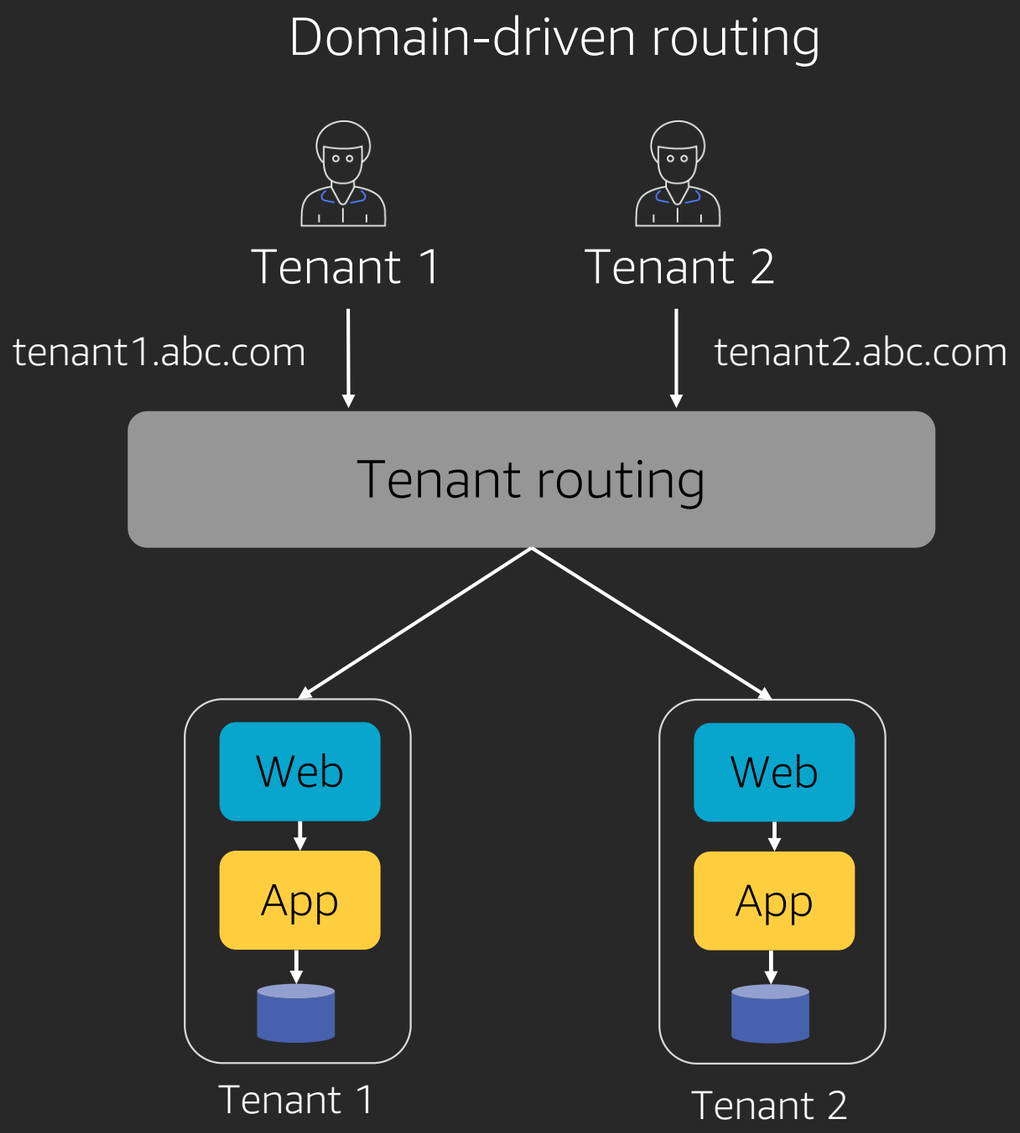


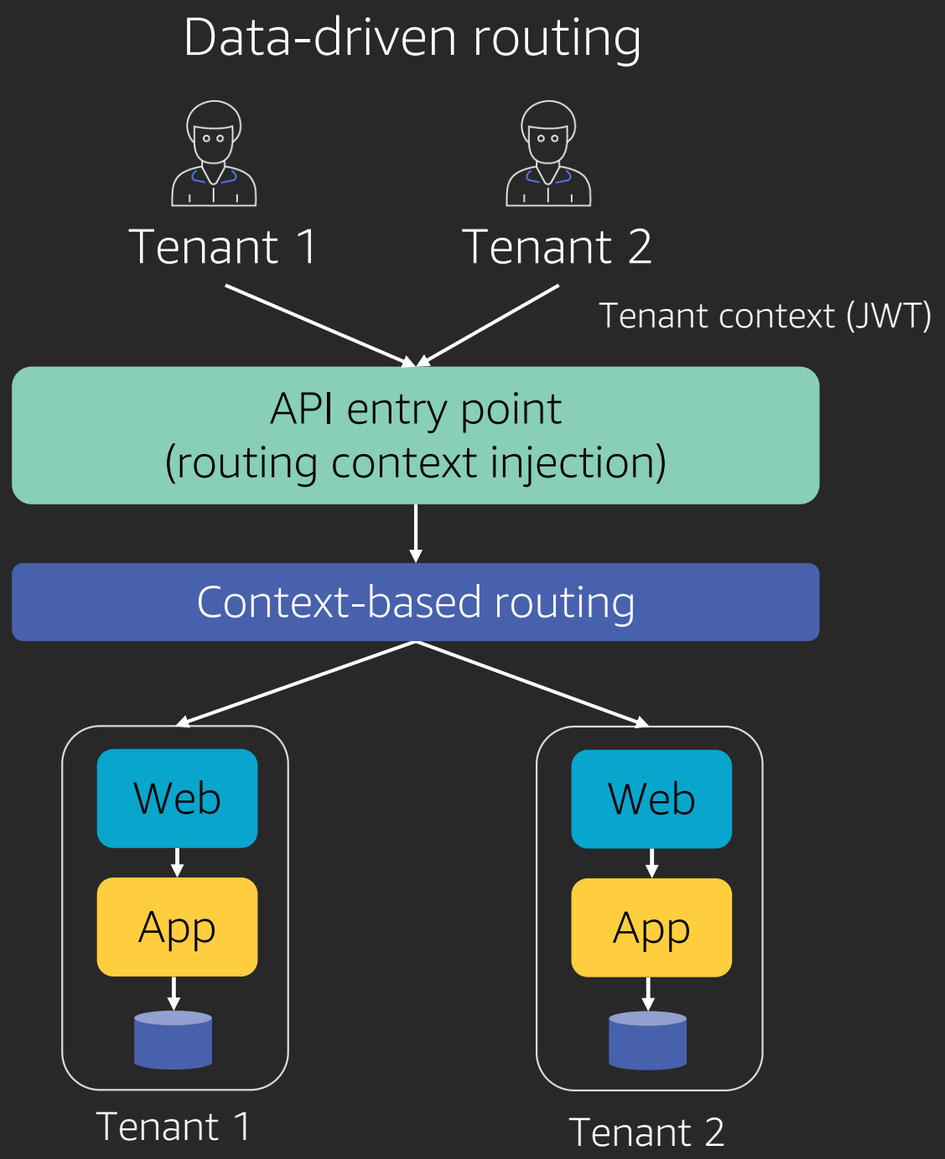
Service-by-service

Silo lift and shift migration

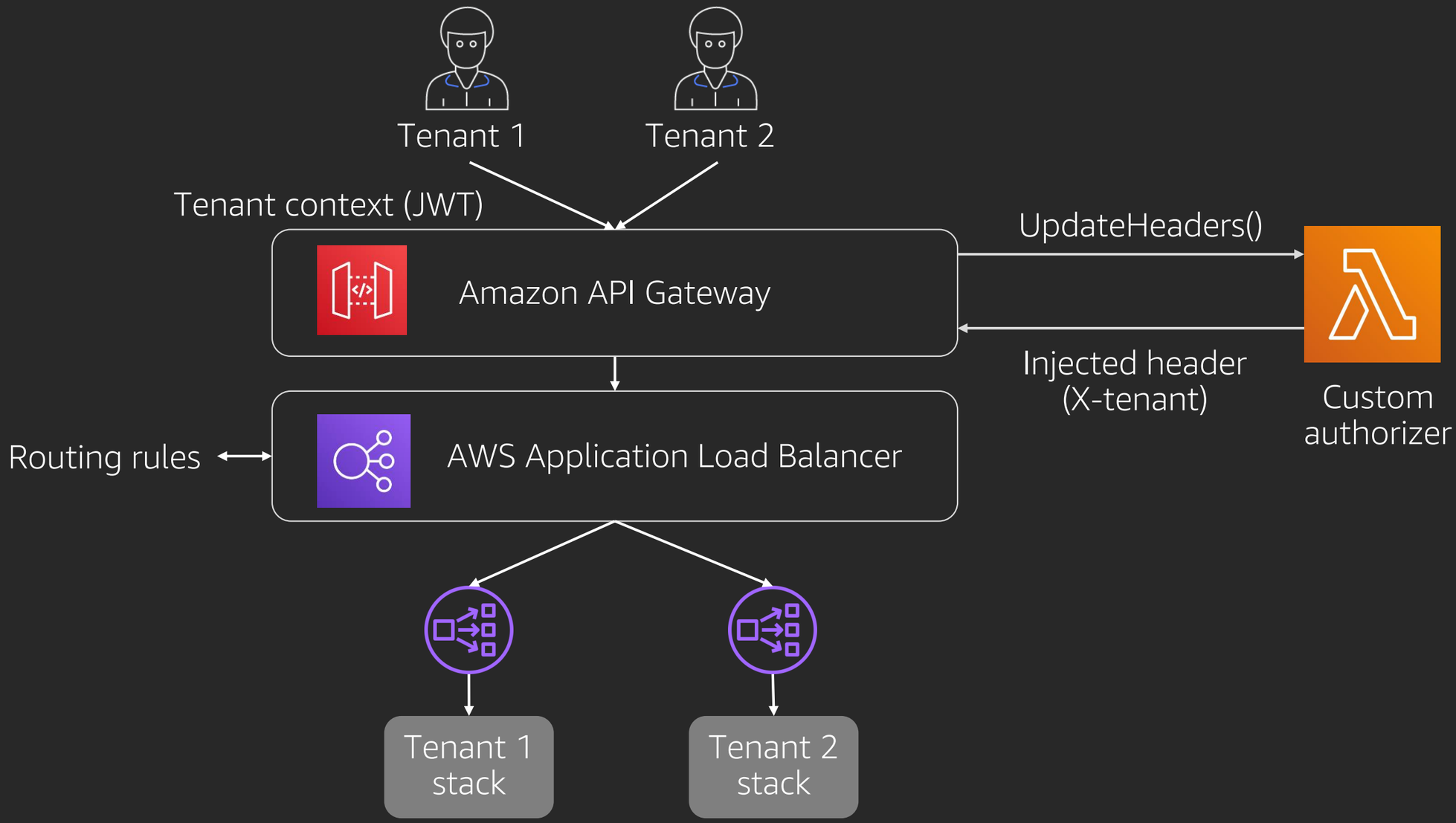


Tenant routing techniques

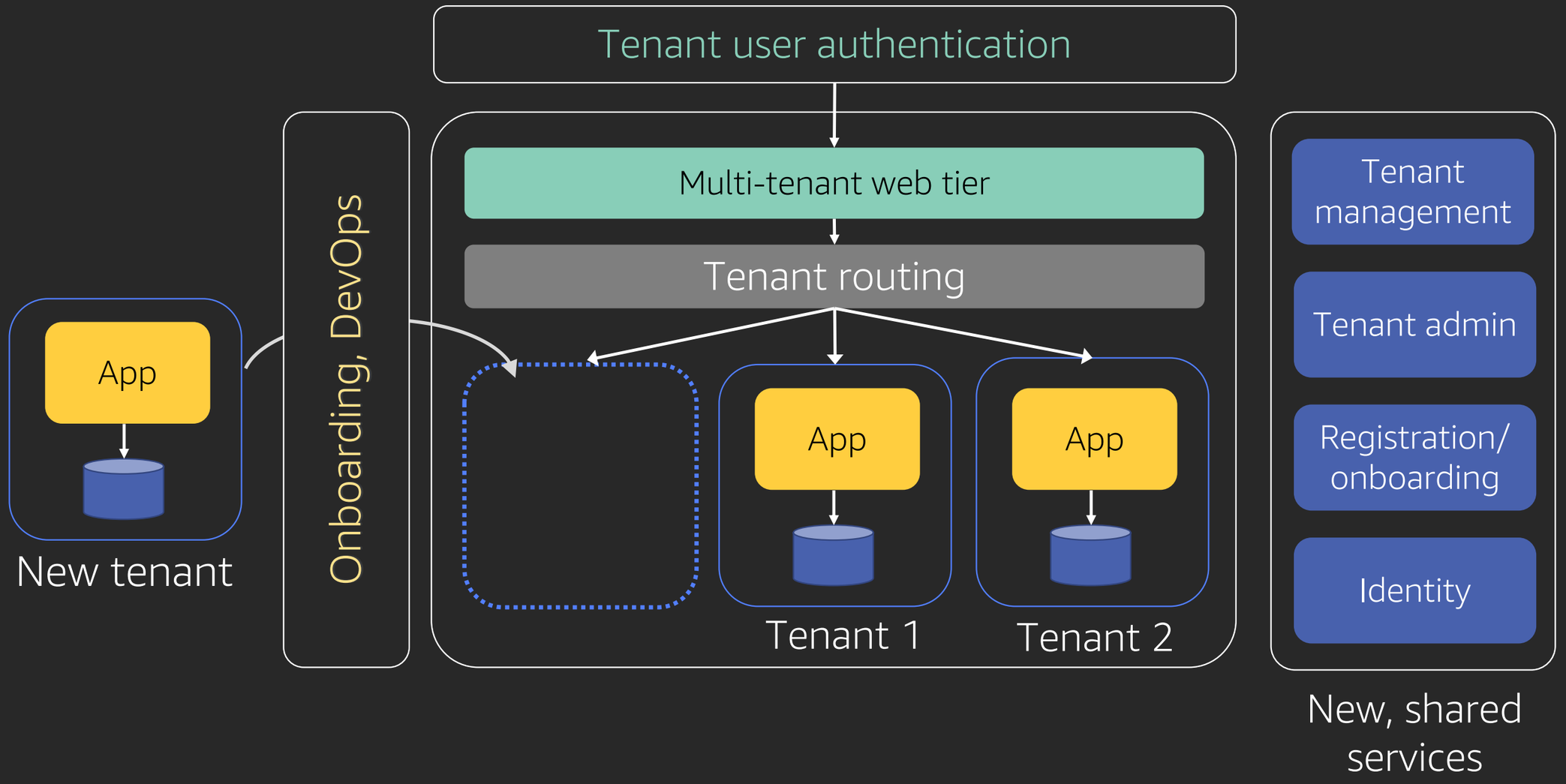




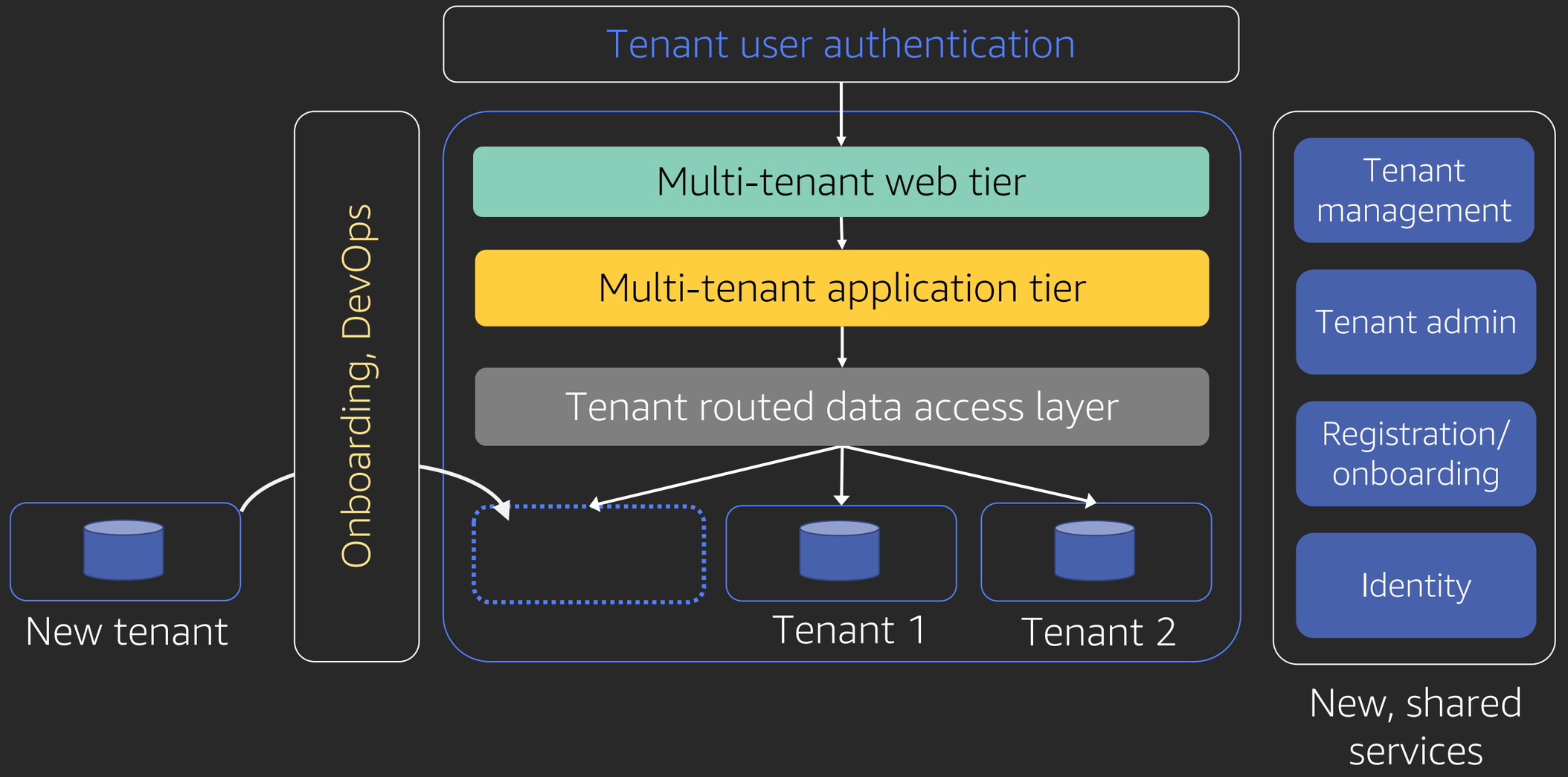
Routing with AWS Application Load Balancer



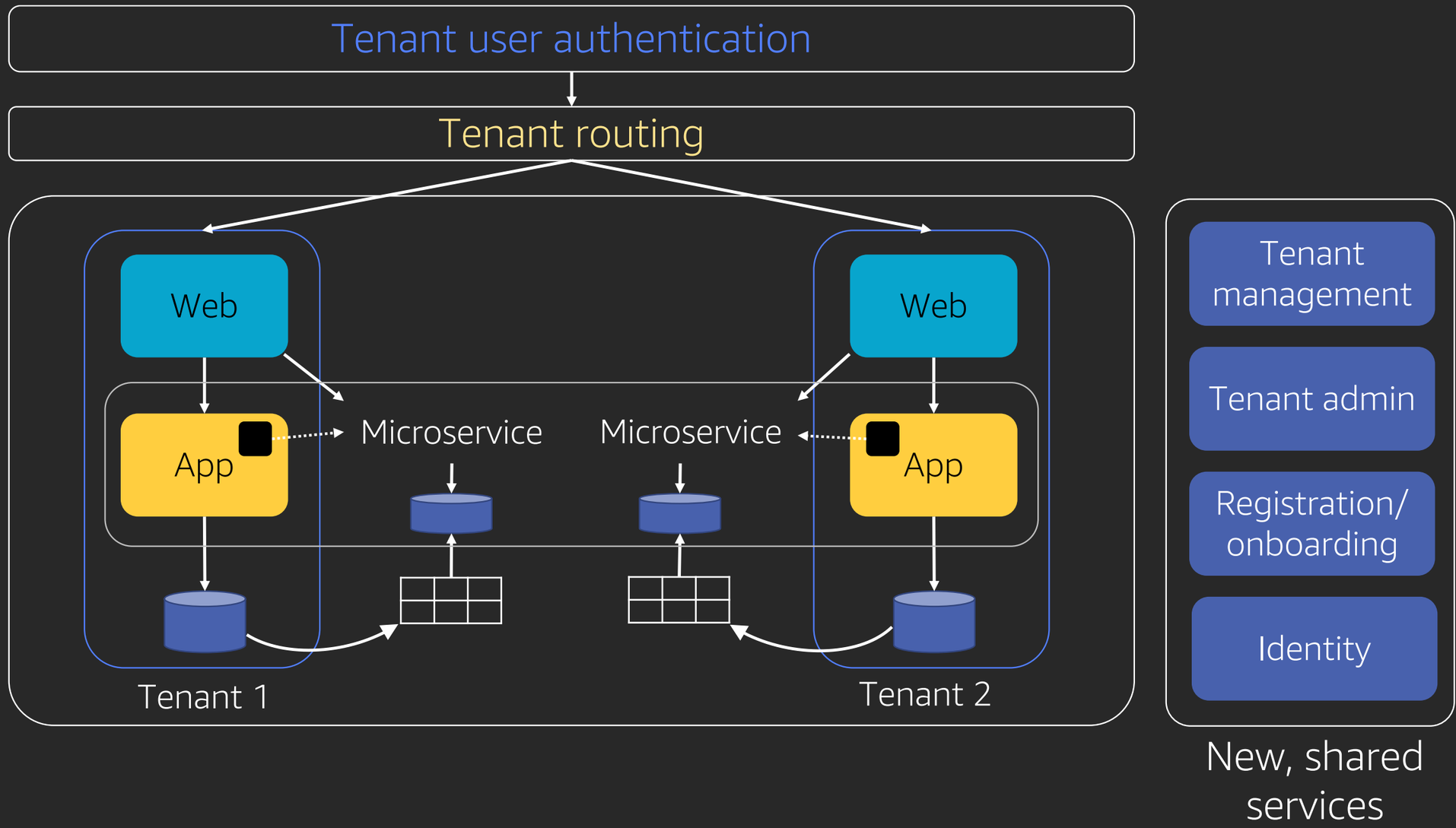
Layered migration (phase 1)



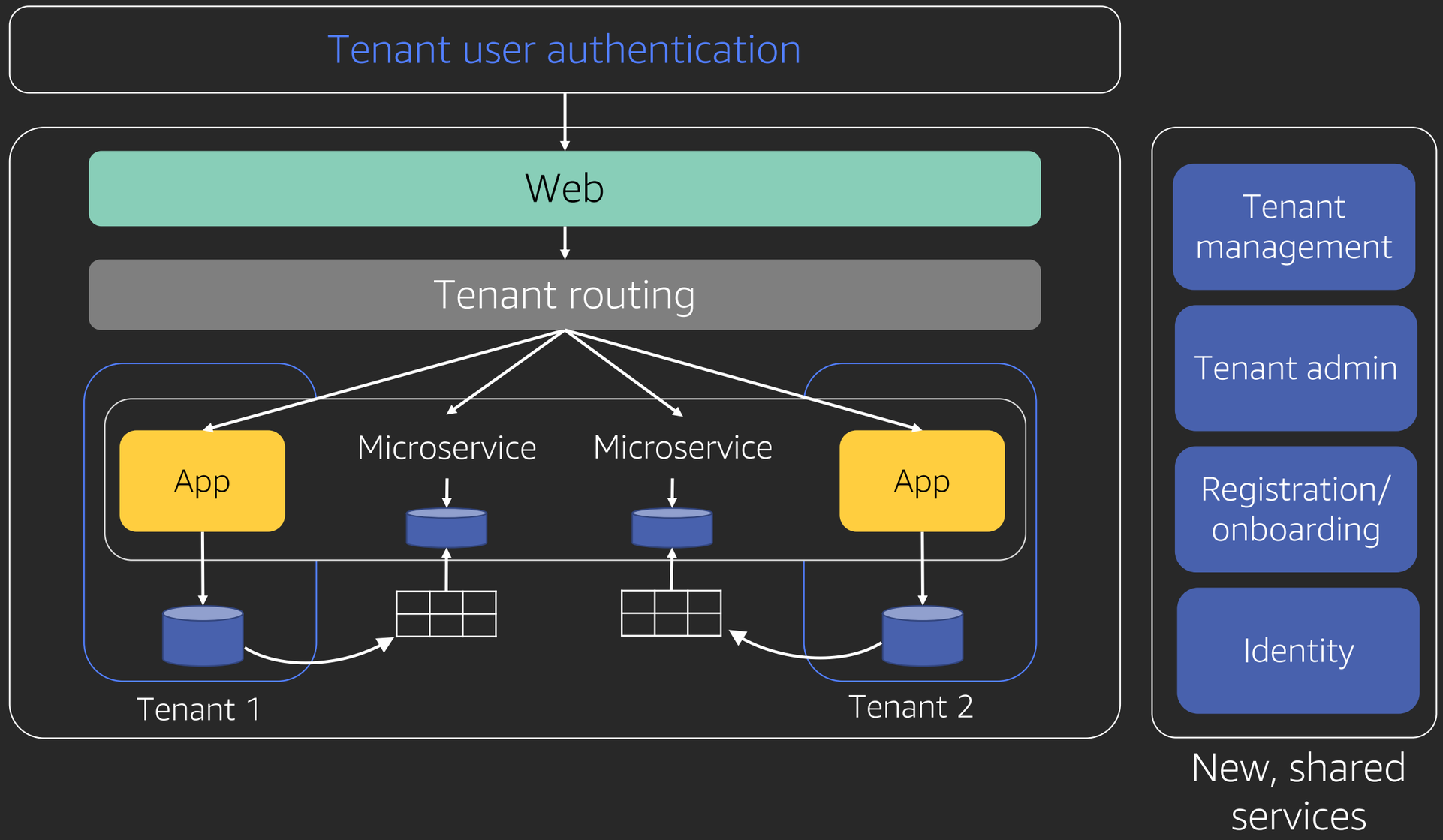
Layered migration (phase 2)



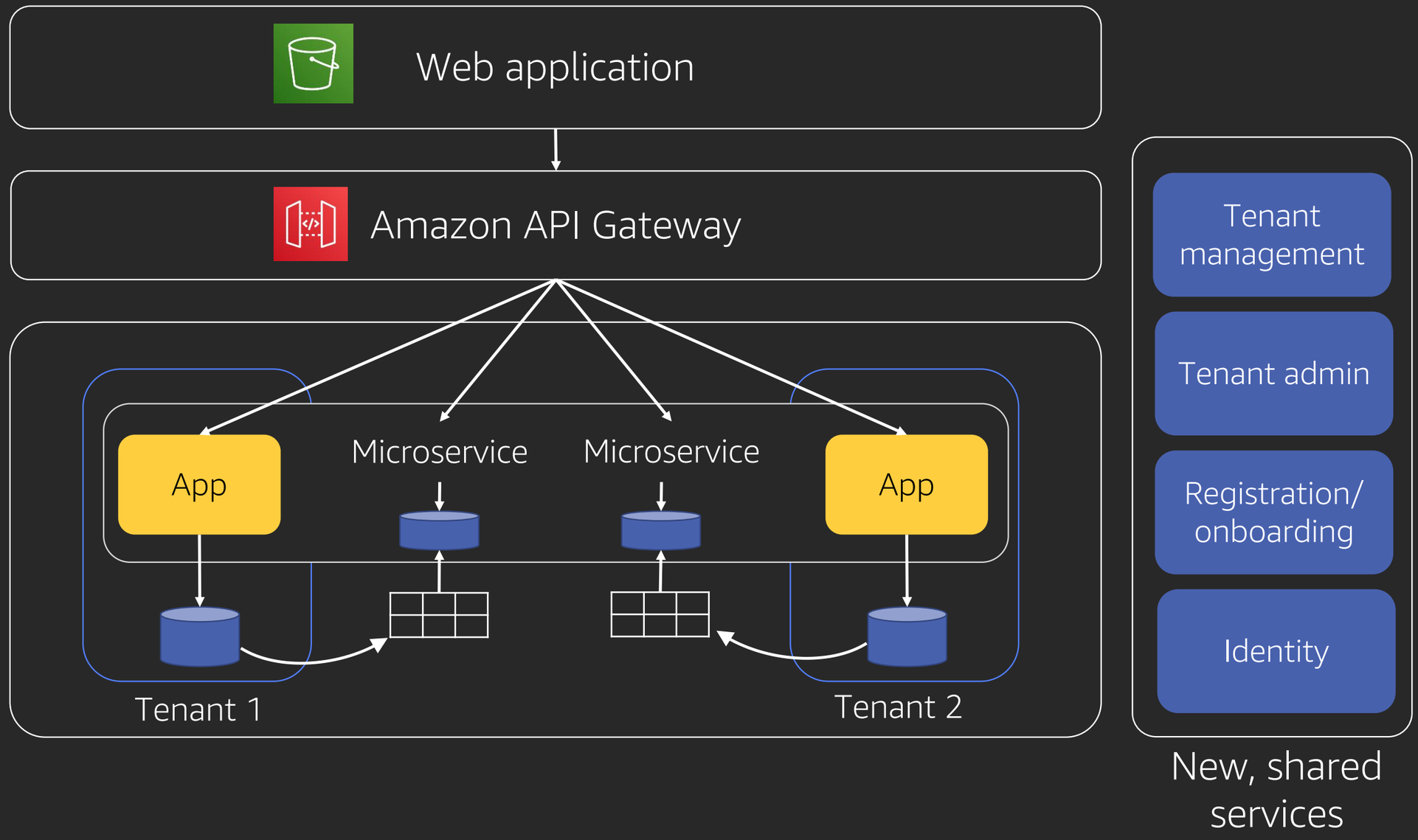
Service-by-service migration



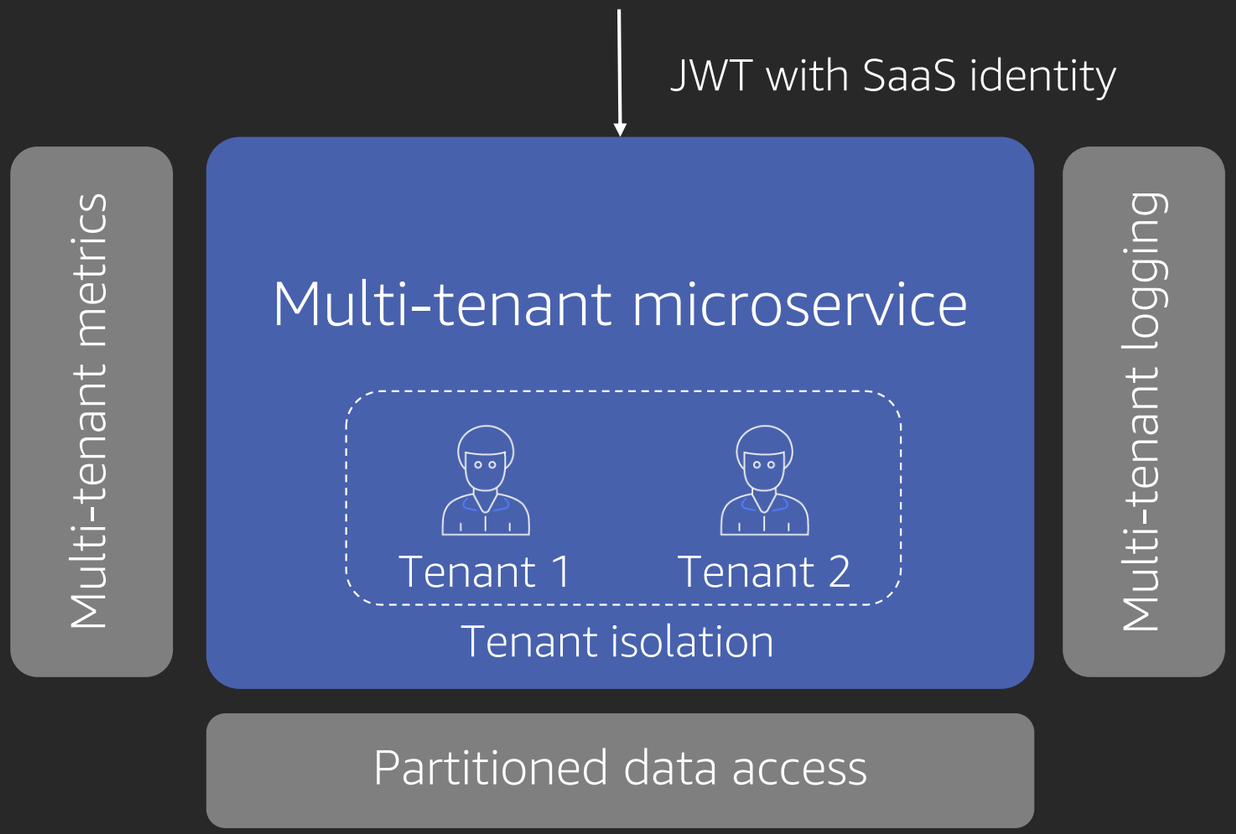
Service-by-service migration (variation 1)



Service-by-service migration (variation 2)

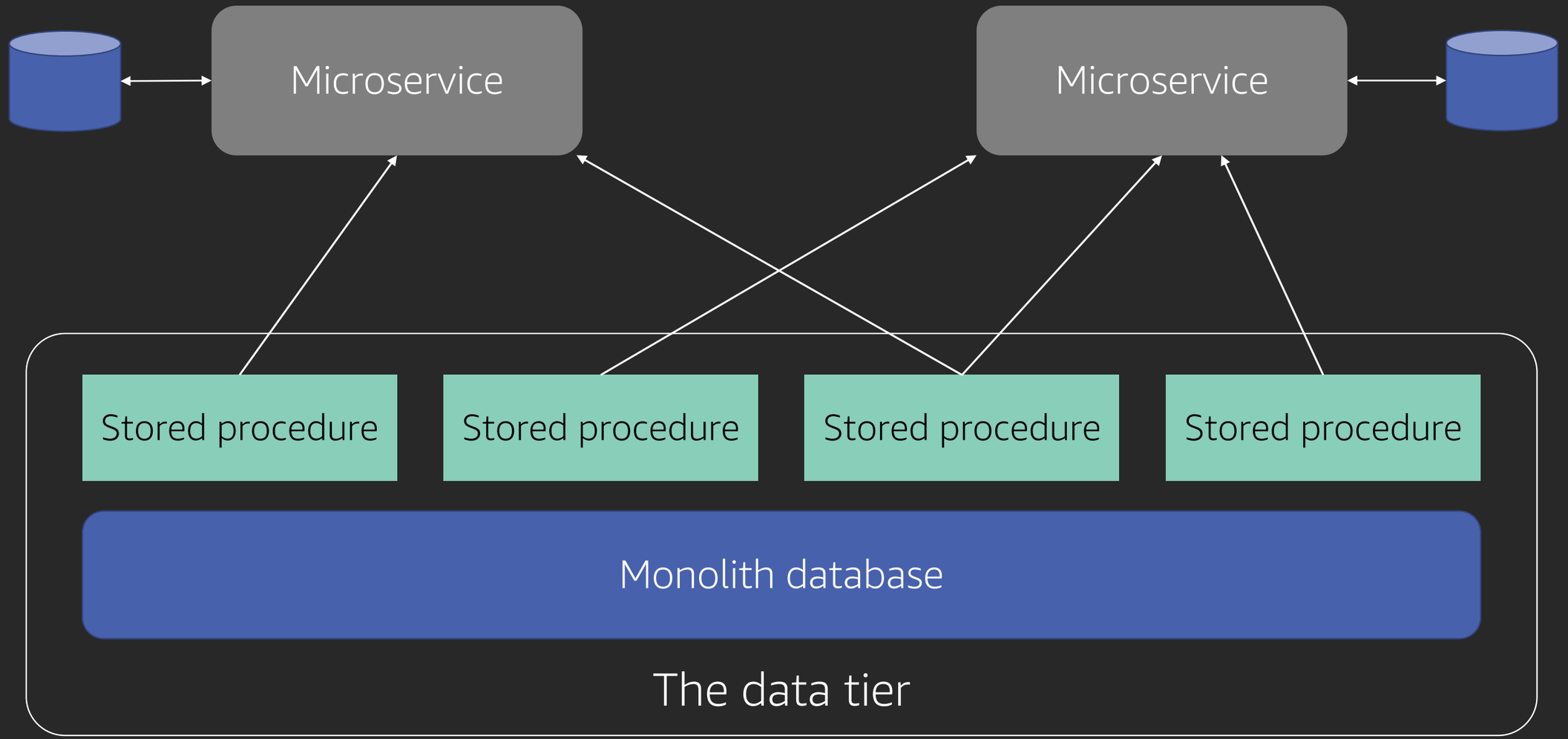


No shortcuts for new microservices

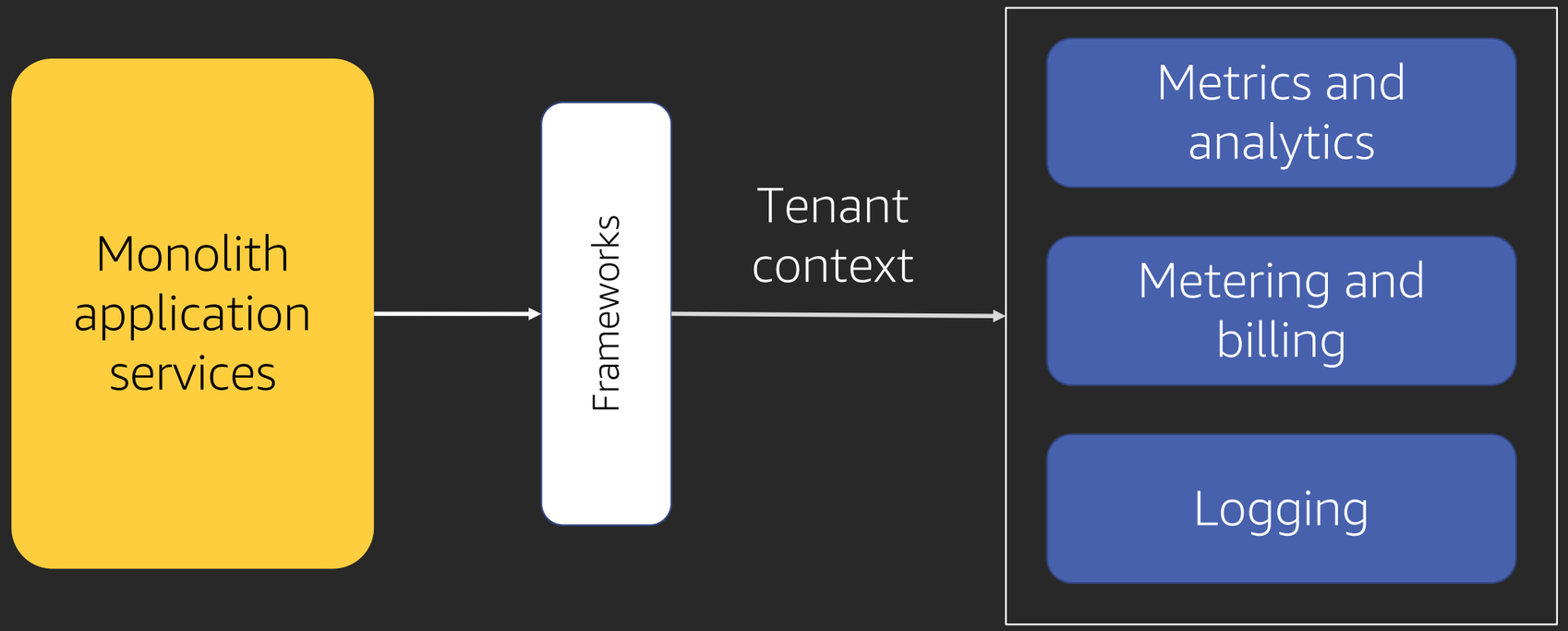


Build your services as if they were functioning in a fully multi-tenant environment

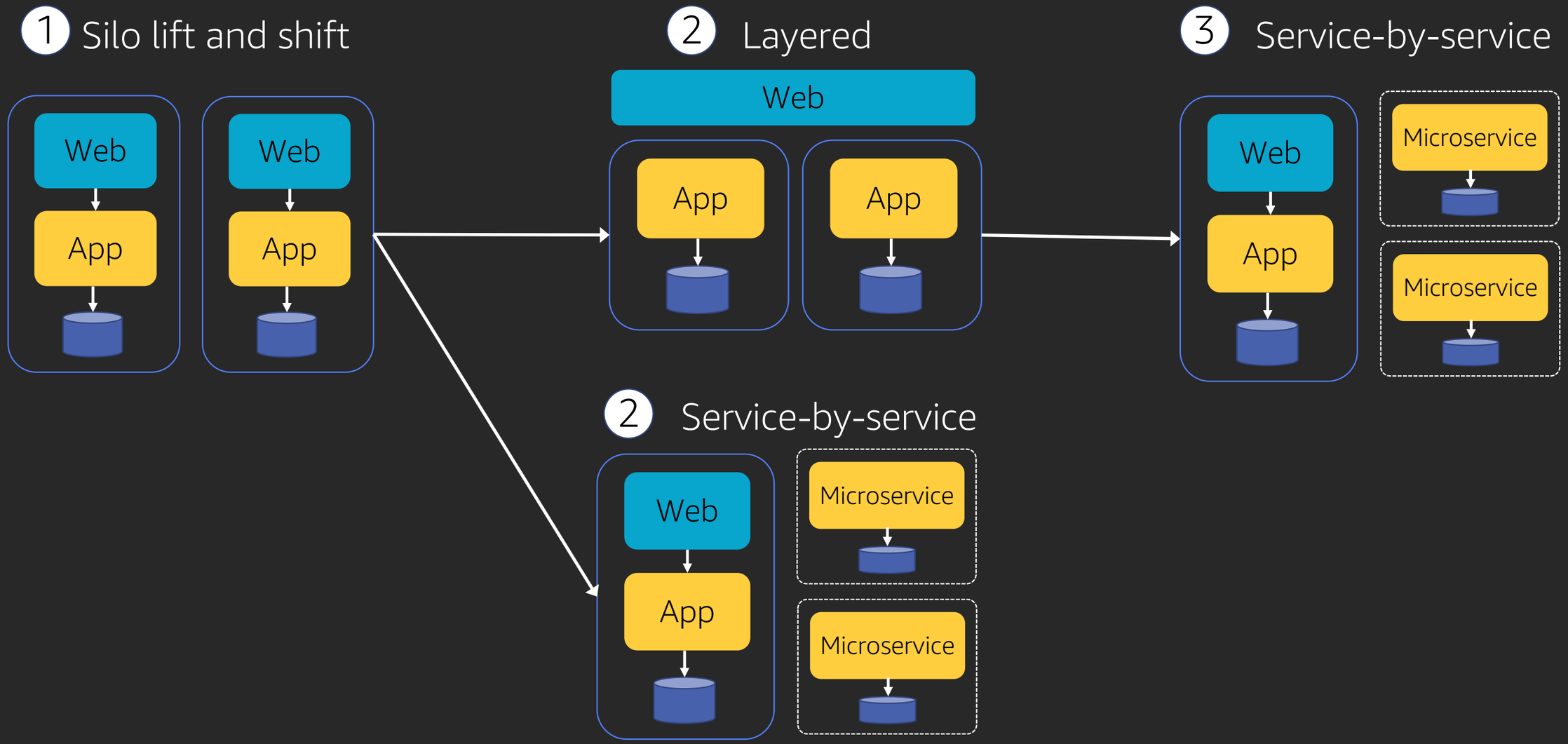
The service-by-service challenge: Stored procedures



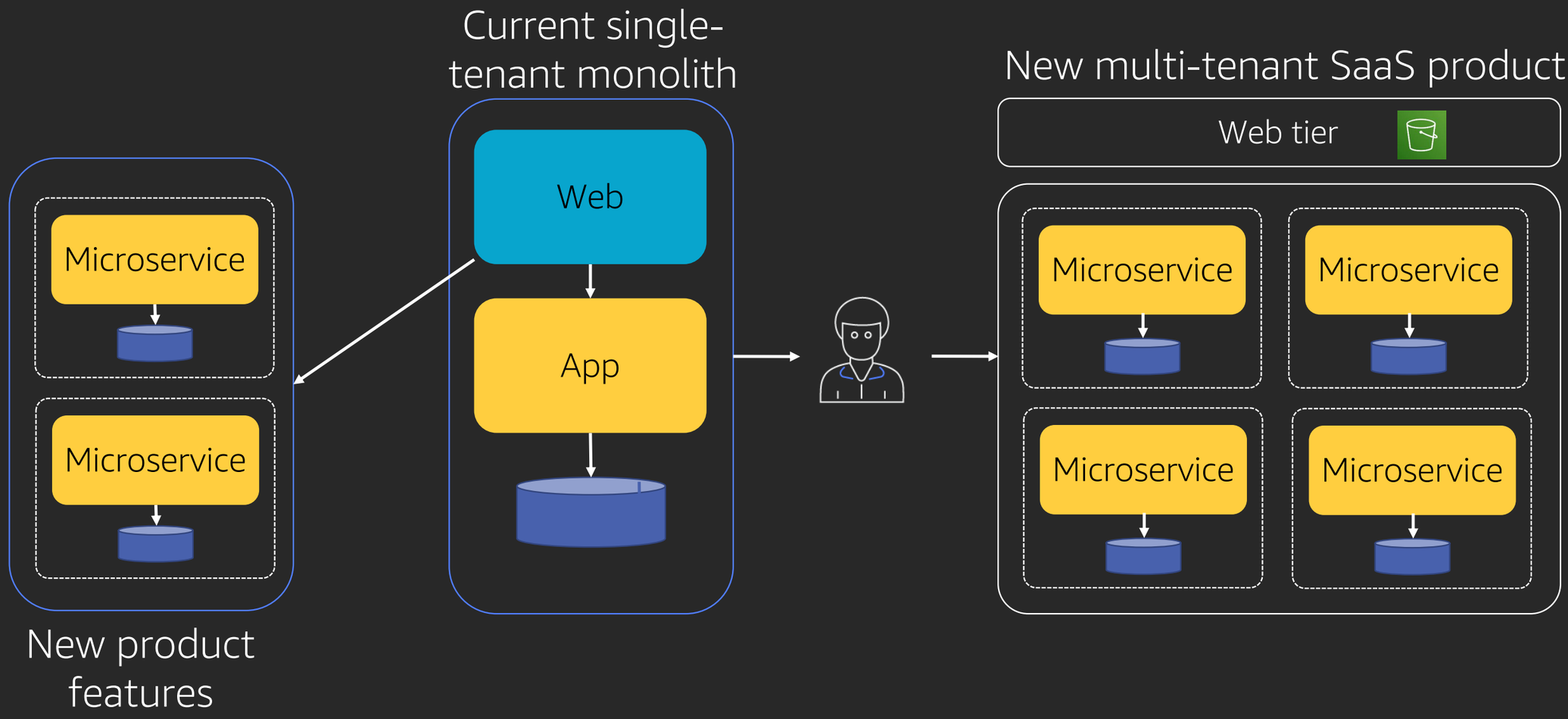
Injecting multi-tenant constructs into legacy code



A phased approach



Parallel migration



Migration model pros and cons

Silo lift and shift

Pros

- Time to market
- Minimally invasive
- Simpler isolation story

Cons

- Agility/innovation
- Cost
- Manageability

Layered

Pros

- Incremental
- Moderately invasive
- Quick successes

Cons

- Time to market
- Manageability
- Cost

Service-by-service

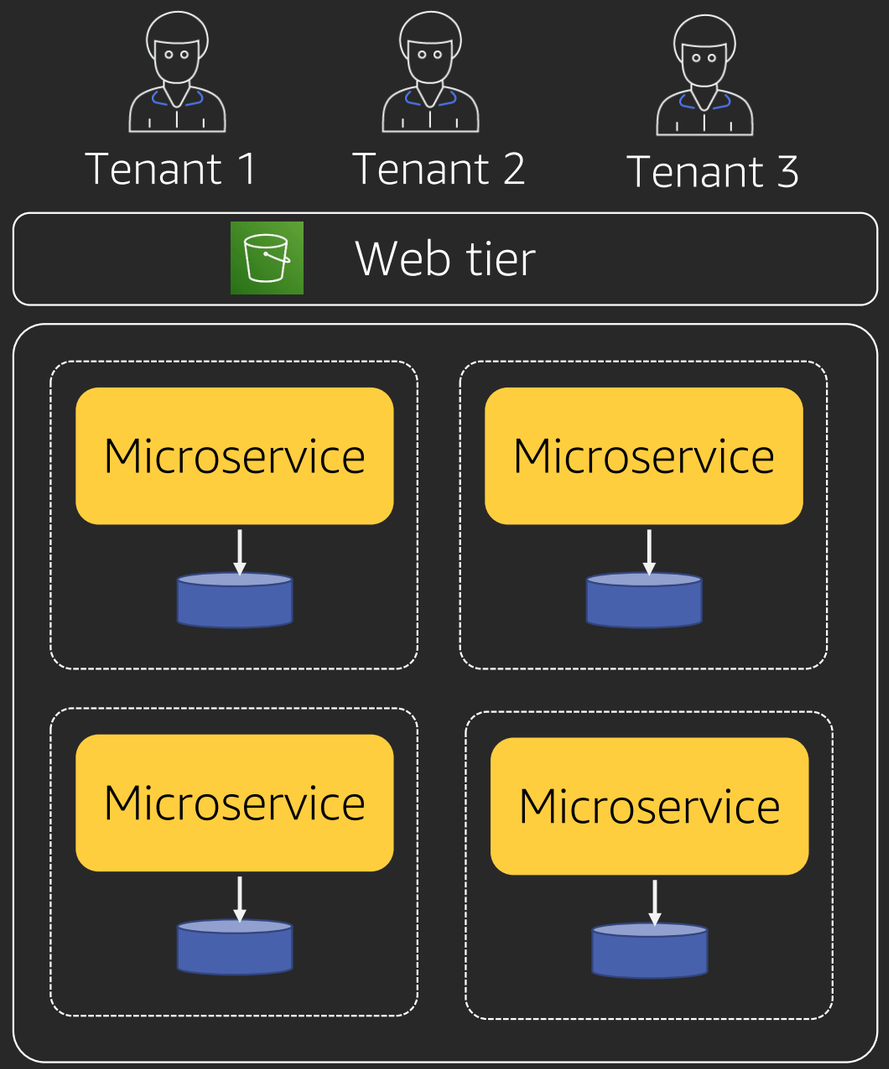
Pros

- Incremental
- Full modernization
- Scale, availability, agility

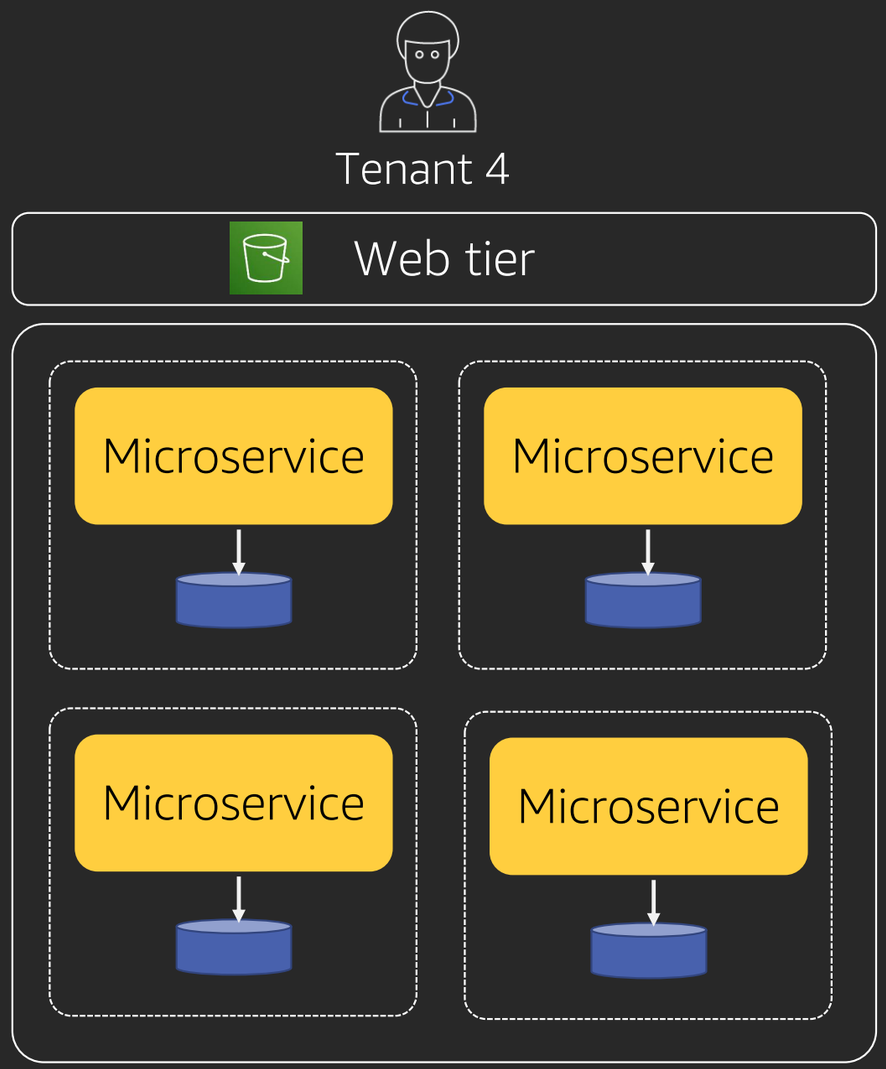
Cons

- Time to market
- Data model migration
- Complexity (invasive)

Target pool and support silo

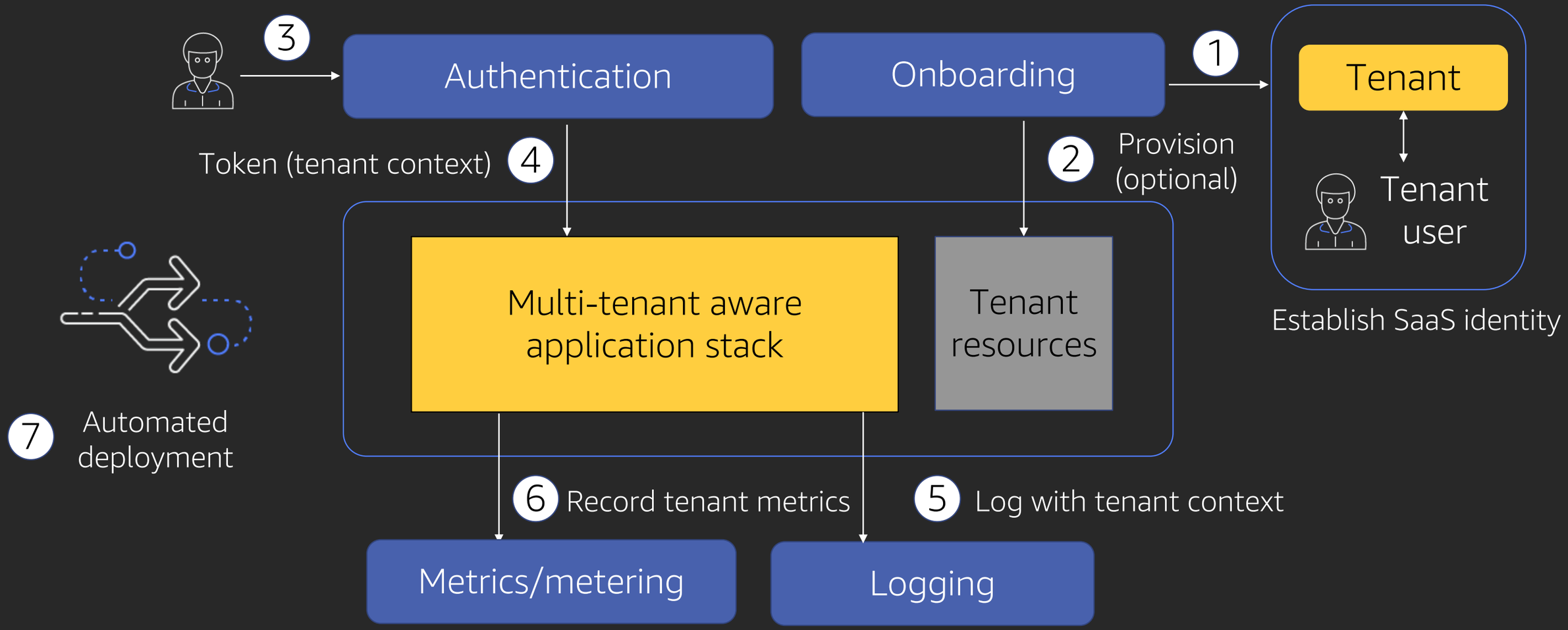


Migrated pooled SaaS environment

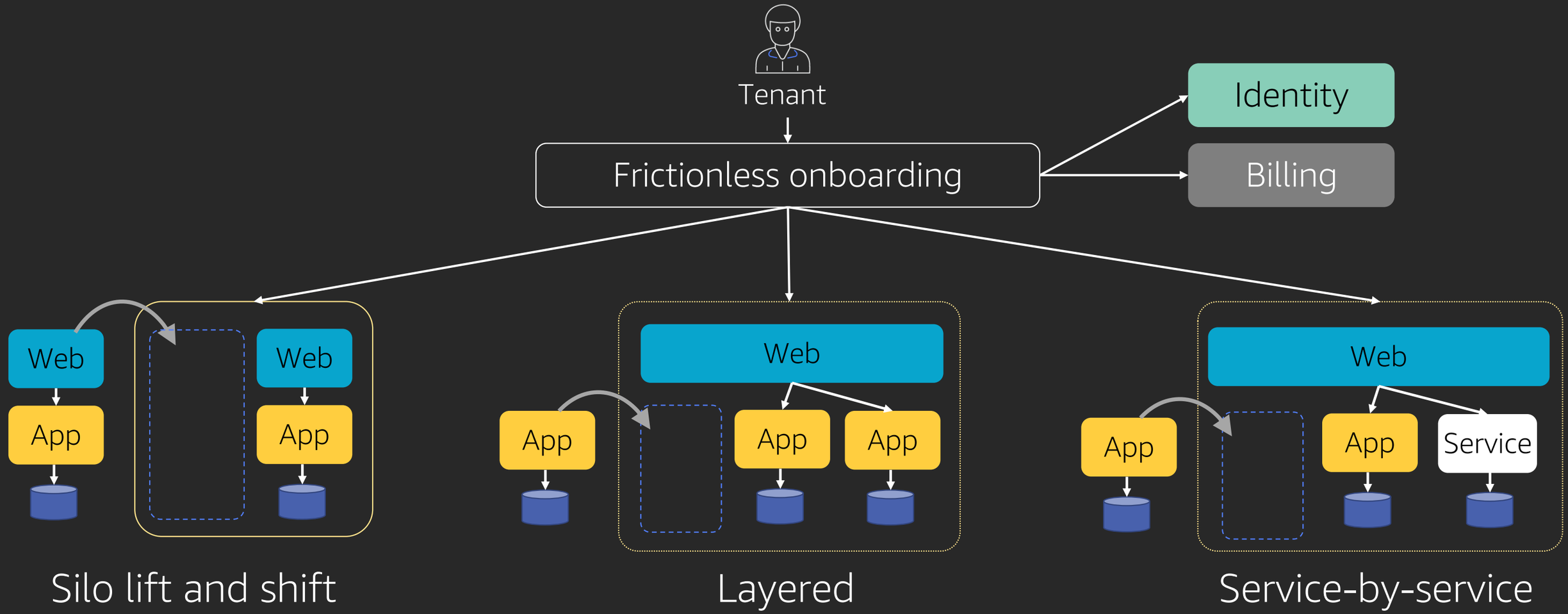


Silo as an instance of pooled environment

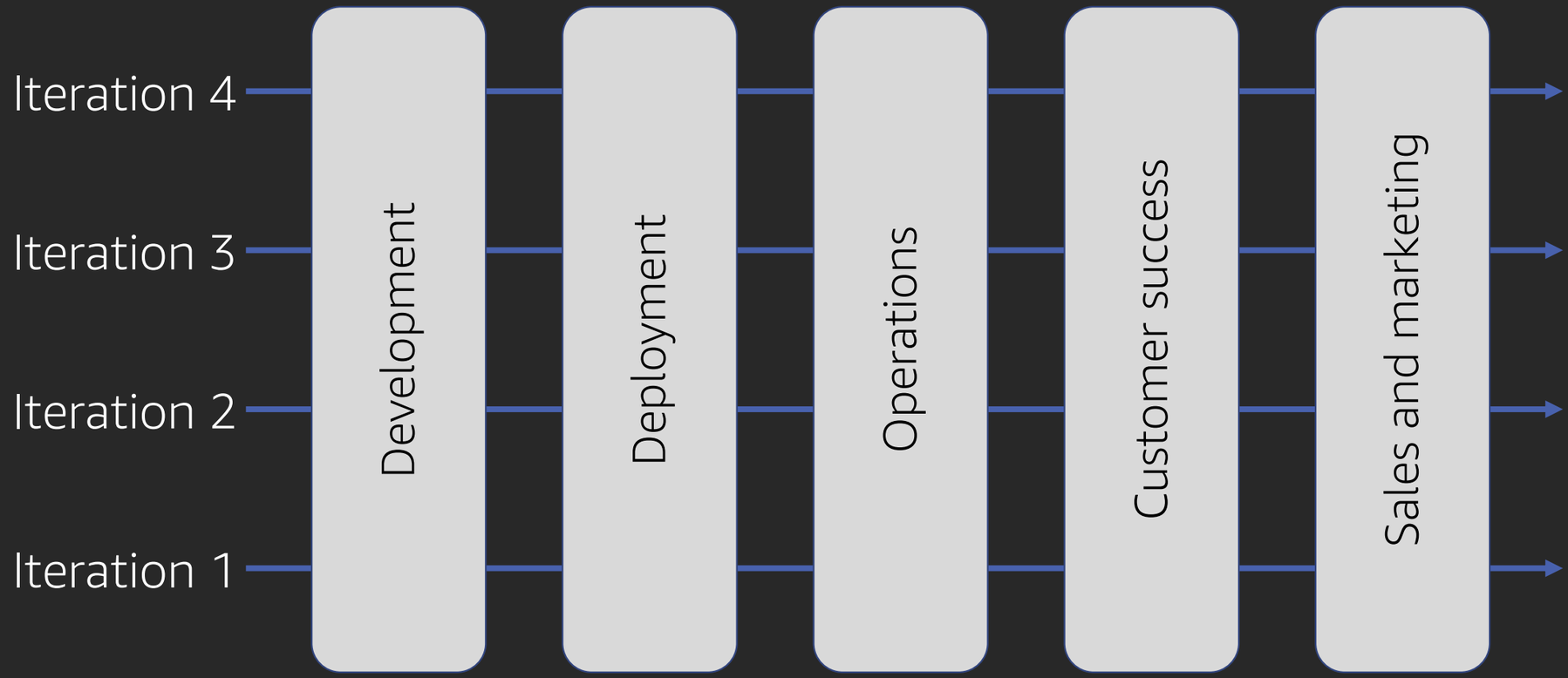
Start with multi-tenancy



Automated onboarding is core to all models



Migrating in parallel

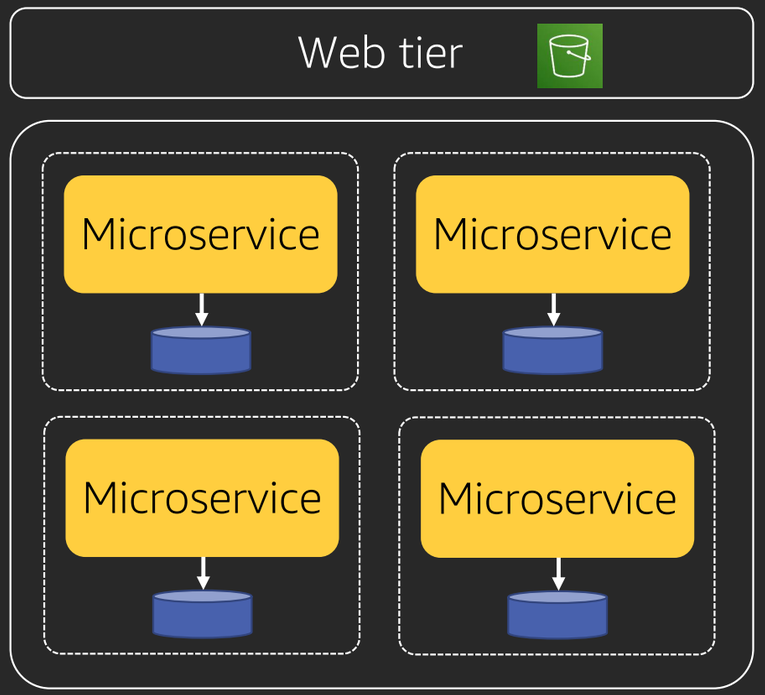


Common pitfalls and challenges

- Assuming you have plenty of time
- Underinvesting in agility
- Underestimating the importance of operational agility
- Not supporting tenant-aware logging and metrics
- Migrating to microservices with monolith databases
- Breaking free from stored procedures
- Not surfacing metrics to key stakeholders
- Focusing on features before multi-tenancy

Technical modernization ≠ SaaS

Modernized multi-tenant stack



+

- Agility
- Innovation
- Responsiveness
- Repeatability
- Zero downtime
- Reduced cycle time
- Cost efficiency
- Manageability

= SaaS

Takeaways

- Focus on SaaS building blocks first
- Make identity and isolation an early priority
- Support multiple tenants on day one
- Don’t defer automated onboarding
- Instrument for metrics—even if you only start with a few
- Tenant-aware management and monitoring should not be an afterthought
- Exercise all the moving parts with each iteration
- Continually ask yourself if you are meeting your agility goals

Thank you!

Tod Golding

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