

Microservices intro and Azure cloud technologies to implement it

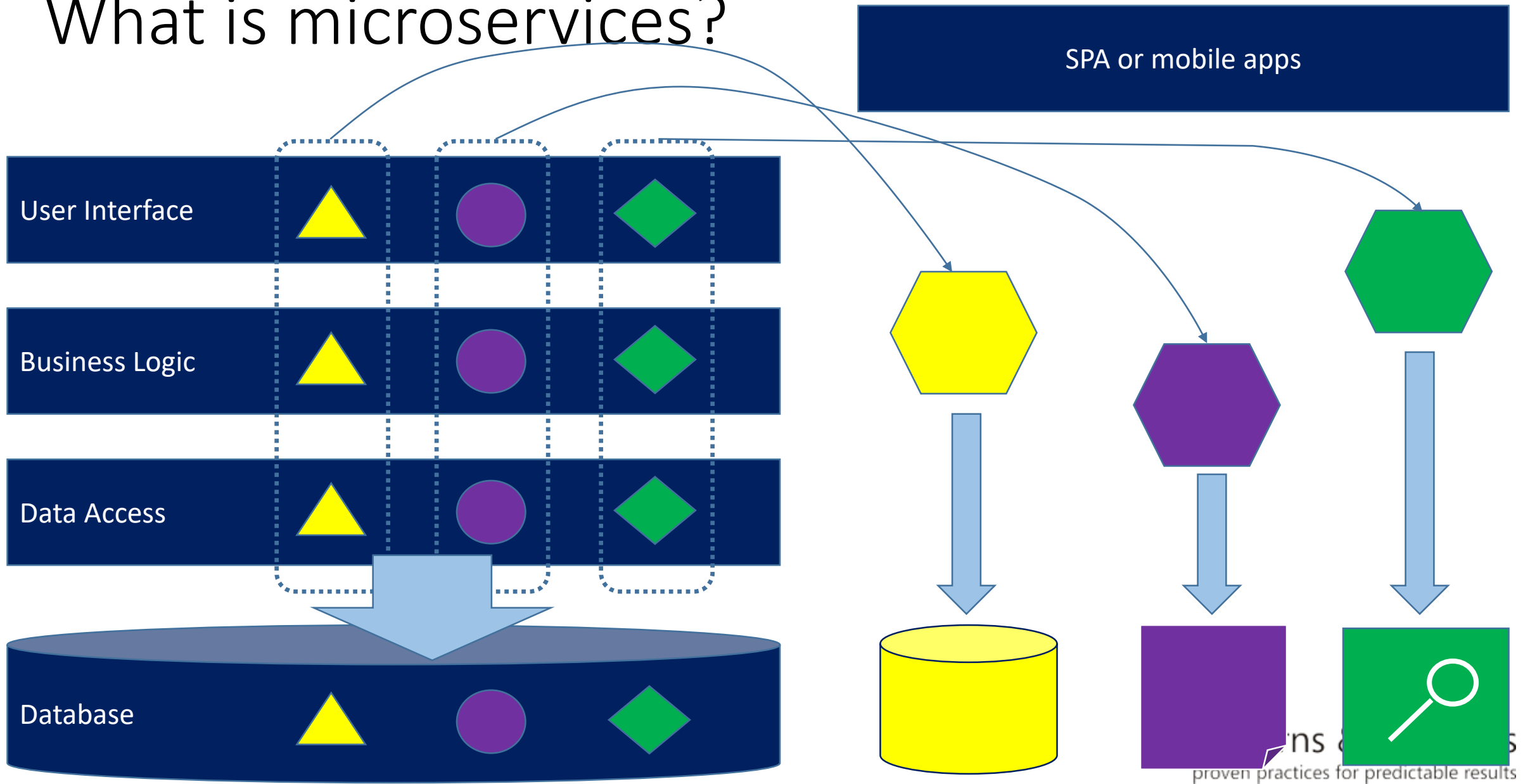
Stas Pavlov, Microsoft

What is microservices?

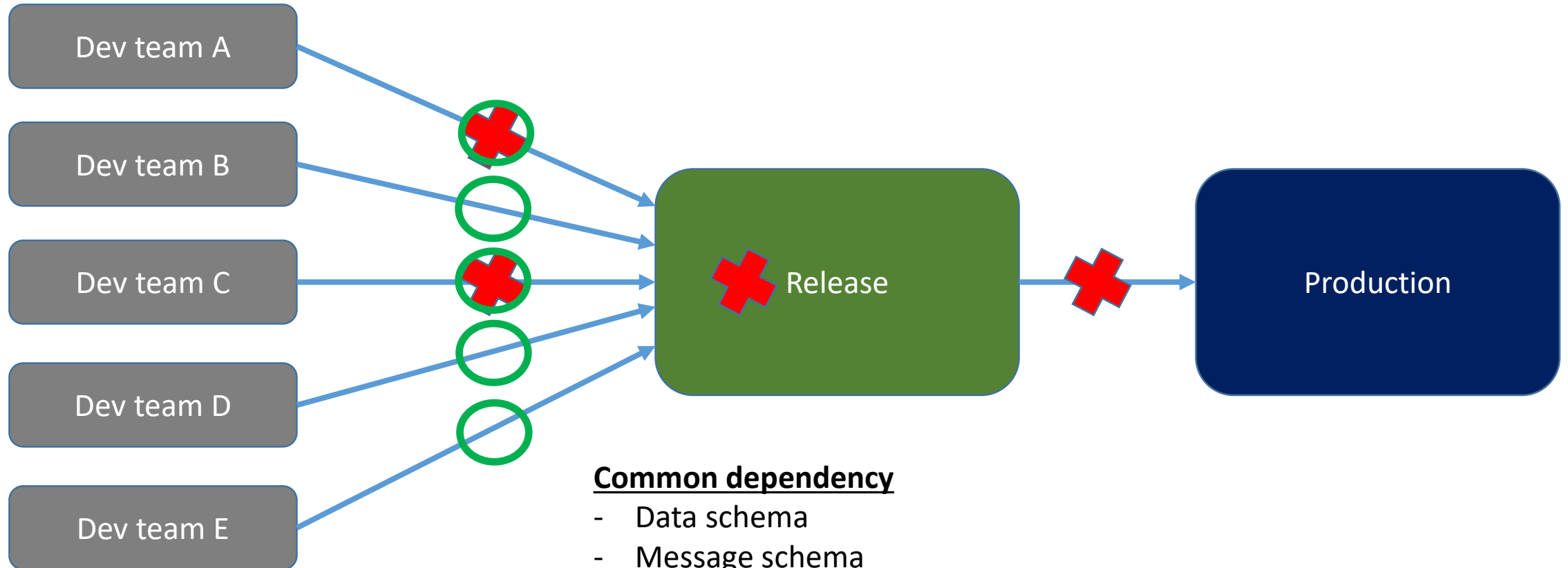
~~Small independent services that work together,~~
~~mediated by context~~
business domain

- ~~Sam Newman~~ -

What is microservices?



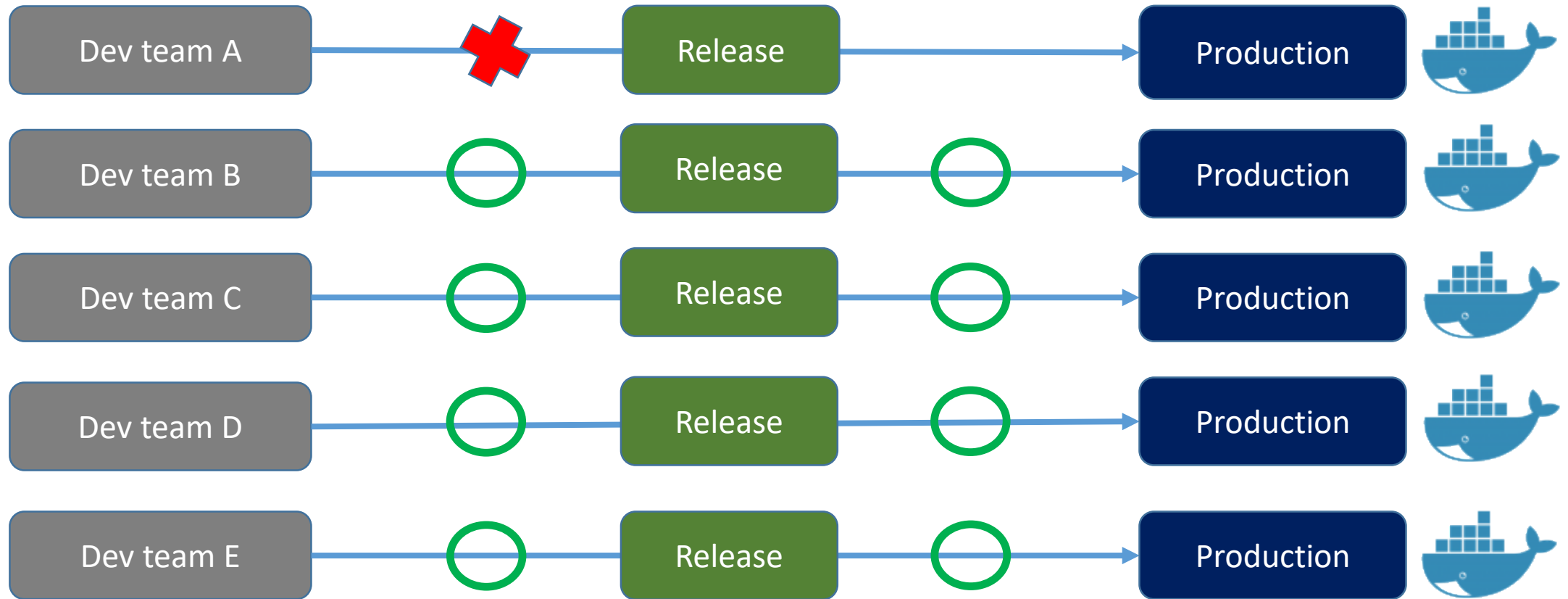
Why microservices? Why not monolith?



Common dependency

- Data schema
- Message schema
- Leaking service internals via API
- Framework/Library version
- Shared component

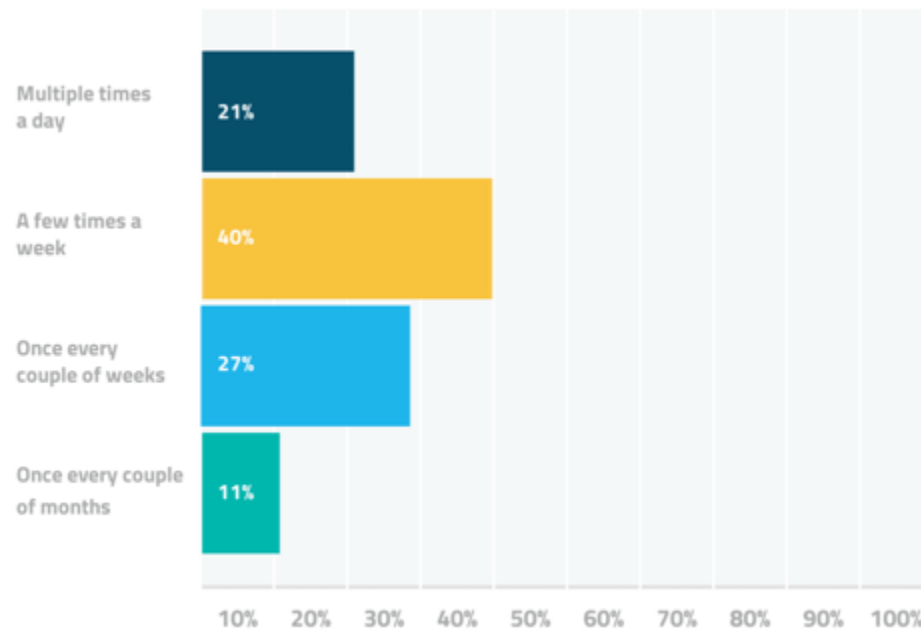
Why microservices? Why not monolith?



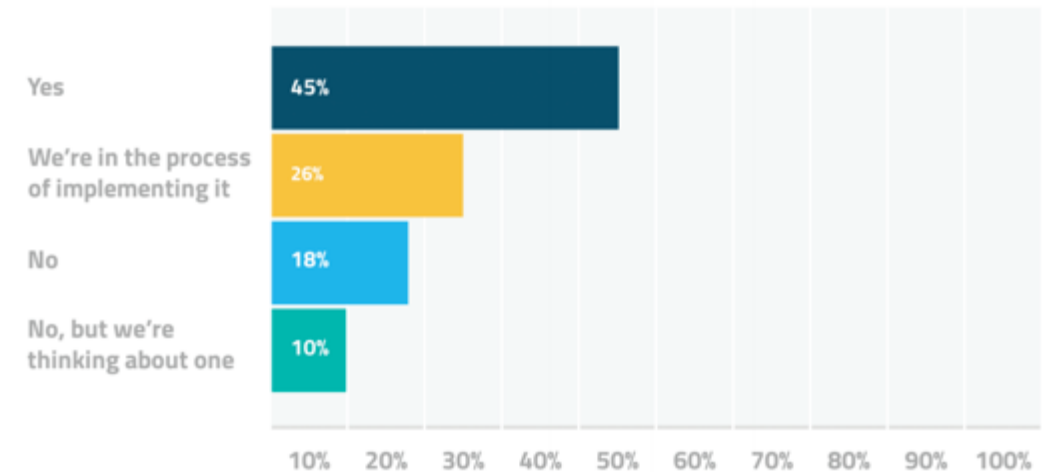
Integration, E2E test?

DevOps practices

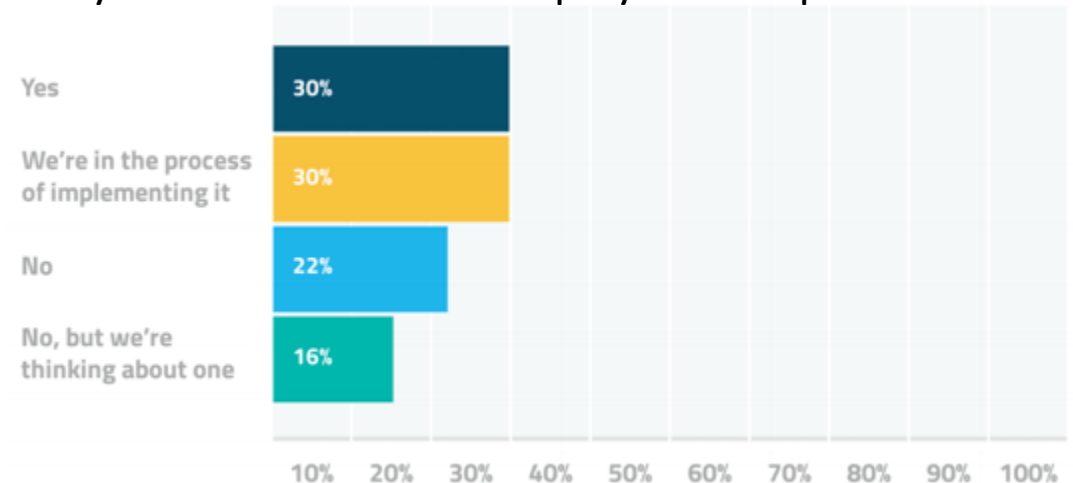
How frequently do you deploy code?



Do you have continuous integration in place?



Do you have continuous deployment in place?



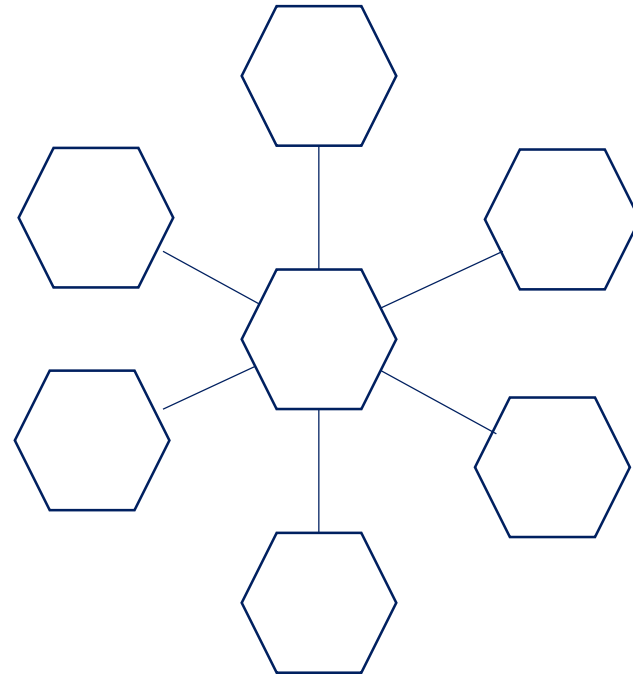
Source: 2016 DevOps pulse

microservices – case studies



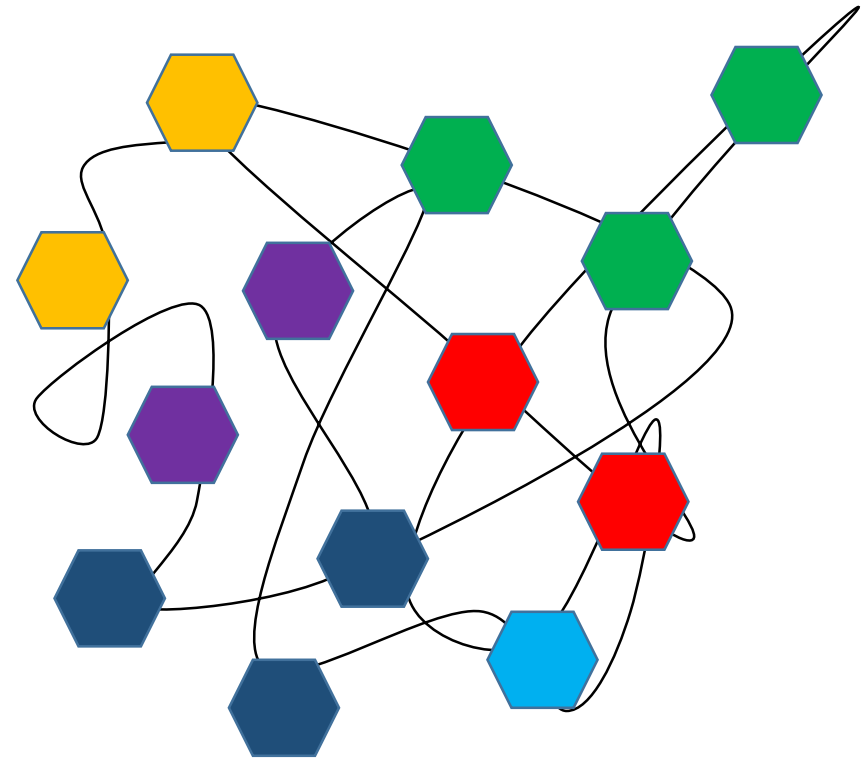
microservices - Benefits

- **Continuous innovation**
- Independent deployments
- Technology diversity
- Small focused team
- Separate scalability/availability
- Fault isolation



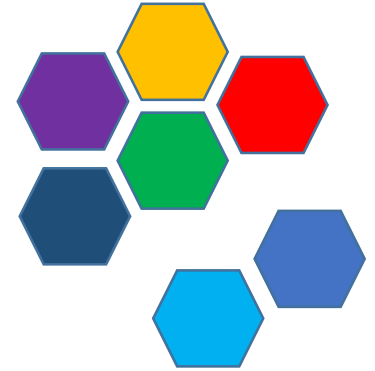
microservices - Challenges

- Complexity
- Network congestion
- Data integrity/consistency
- Integration and versioning
- Testing
- Reliability
- Service discovery and routing
- Monitoring and logging



Designing microservices

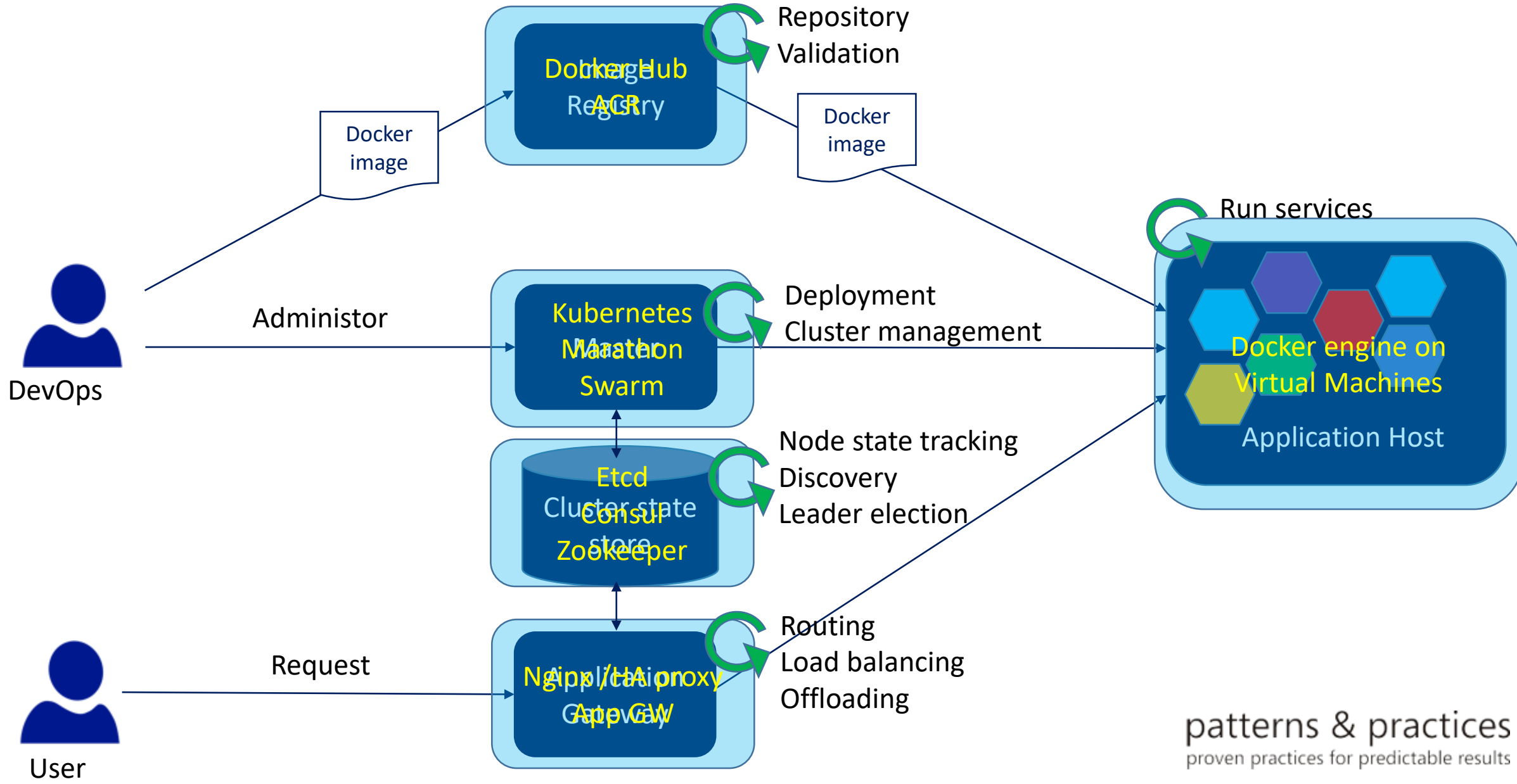
- Service boundary
 - Granularity
- Gateway
 - Offloading, Aggregation, Routing
- Inter service communication
 - Sync/Async, Protocol/Serialization, Messaging
- Data management
 - Integrity/Consistency
- Distributed transactions
 - Dealing with partial failure
- Monitoring
 - Sidecar, Distributed tracing



Options to implement microservices on Azure

- Service Fabric
- Azure Container Service (ACS)
- Azure Functions
- Docker EE
- Docker on Virtual Machine
- App Service (WebApp, WebJob)
- Windows Containers on Virtual Machine
- ACE (Azure Container Engine) – open source part of ACS

Container and orchestration



Summary

- microservices is not something running on containers
- Choose microservices for continuous innovation
- Independent deployment is the key
- Incrementally migrate from monolith to MSA
- Use a few hosting options on Azure