Microservices Architectures

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Evolution

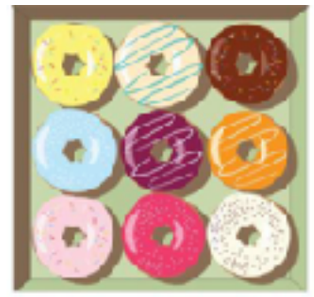
With monolithic, tightly coupled applications, all changes must be pushed at once, making continuous deployment impossible.

Traditional SOA allows you to make changes to individual pieces. But each piece must be carefully altered to fit into the overall design.

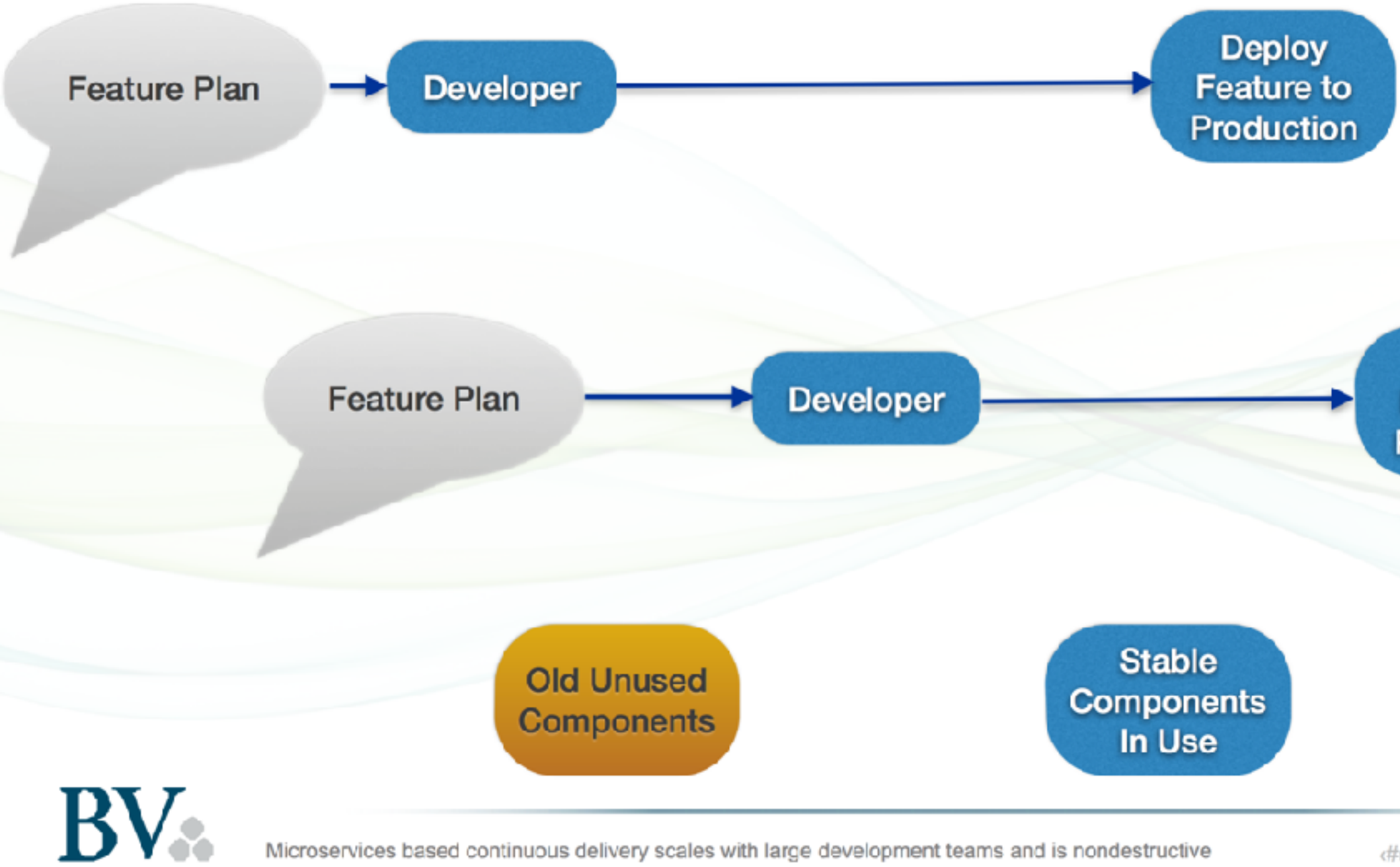
With a microservices architecture, developers create, maintain and improve new services independently, linking info through a shared data API.

Traditional Release Plan

Image source: http://www.infoq.com/presentations/migration-cloud-microservices



Continuous Delivery



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Benefits

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Challenges

Wheel of Doom

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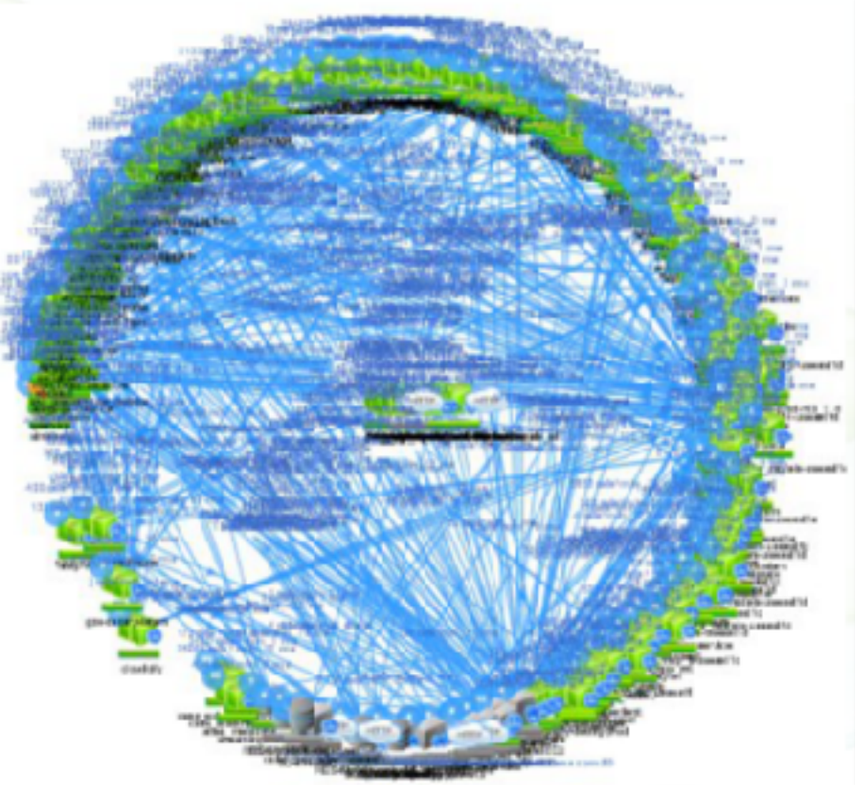
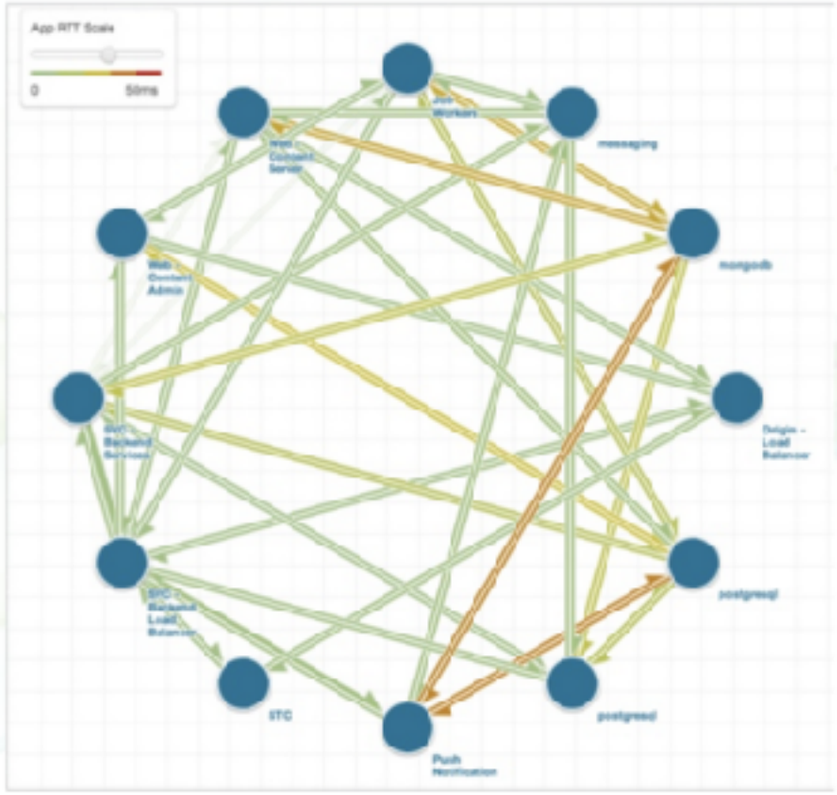
“Death Star” Architecture Diagrams



Netflix



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Twitter

BV

As visualized by Appdynamics, Boundary.com and Twitter internal tools

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Deployments per day

- Flickr: 10
- Etsy: 50
- Netflix: 100
- HubSpot: 300
- Amazon: 7800
- Twitter: 7200

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Microservices enables delivering business value at full speed

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How to get there?

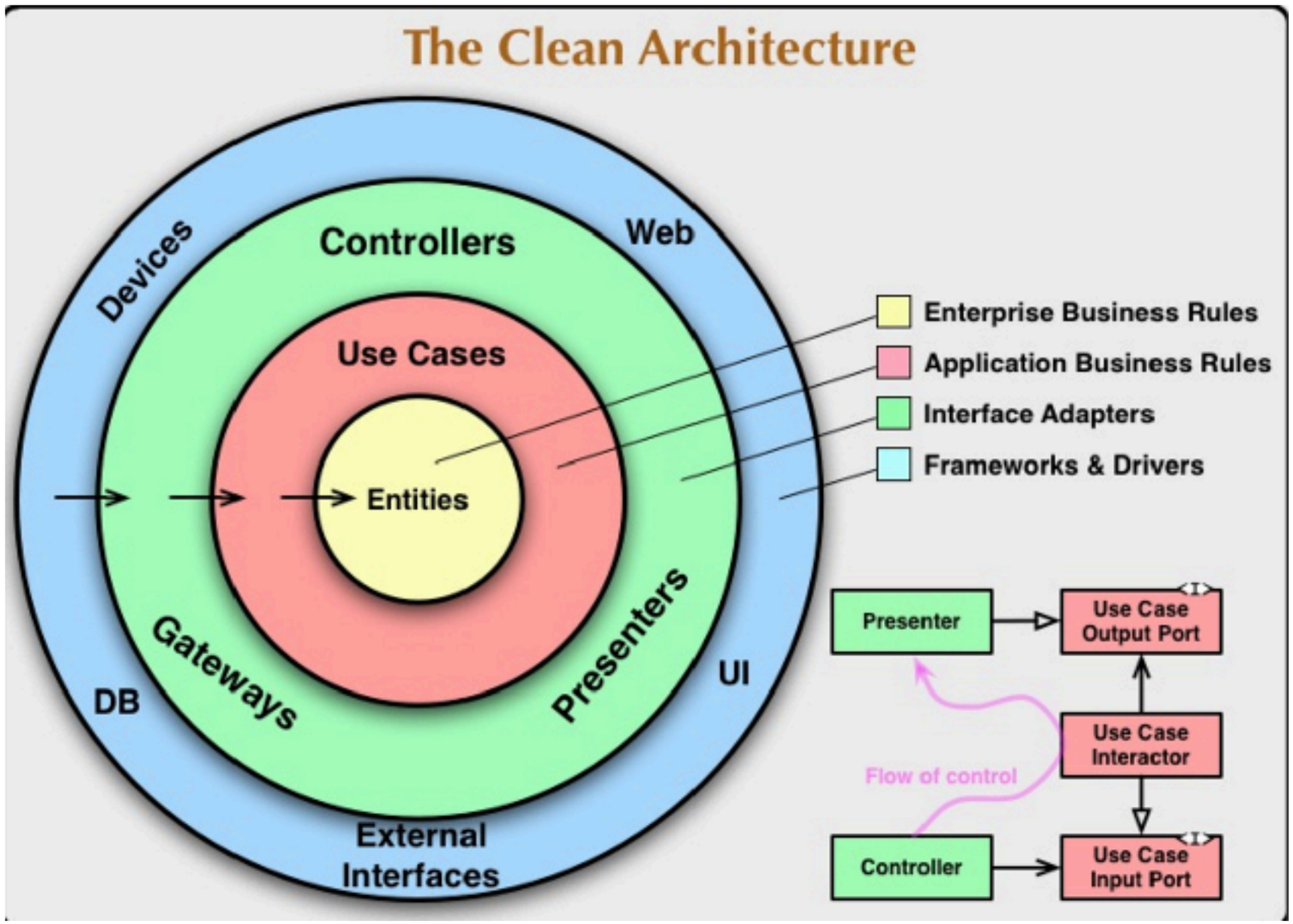
Start as a monolithic

Following some architectural principles:

- Independent of Frameworks
- Testeable
- Independent of UI
- Independent of Database
- Independent of any external agency

The Clean Architecture: https://8thlight.com/blog/uncle-bob/2012/08/13/the-clean-architecture.html

Start as a monolithic



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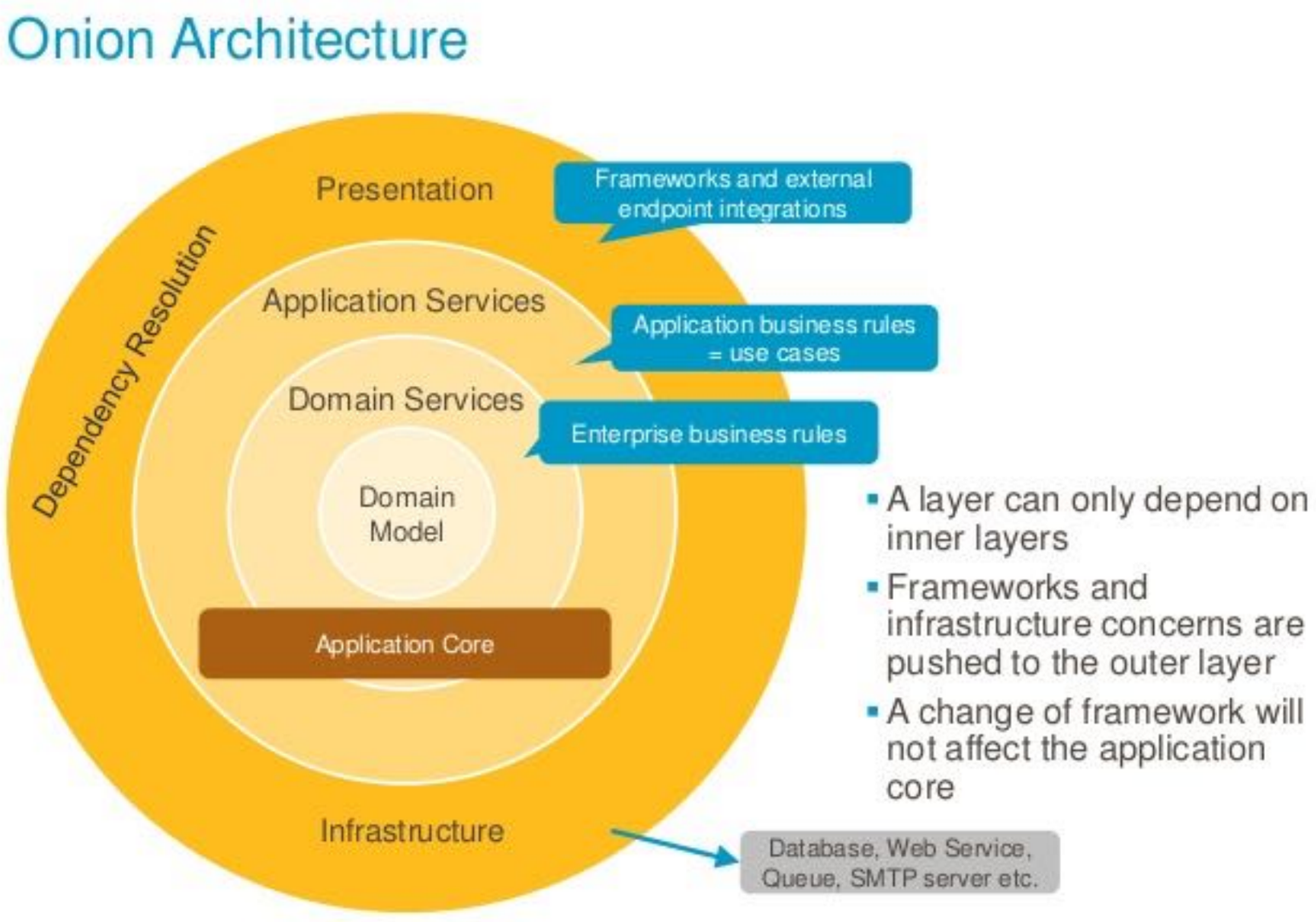

Image source: http://www.codeproject.com/Articles/1064240/Introduction-to-Software-Architecture

Know when to split out

1. User traffic is higher comparatively
2. A specific context changes too often due to business requirements
3. A different team or developer is in charge of a the specific feature

Have a battle plan

1. Scaling
2. Monitoring
3. Deployment
4. Testing

“DevOps”

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“DevOps”

1. Is not Docker
2. Is not Terraform
3. Is not Kubernetes
4. Is not Mesos
5. Is not a team or role

“DevOps”

Is an organizational change in practices and communication to enable agility delivering business value

“DevOps”

1. No more tickets for IT to provision virtual machines
2. No more tickets for IT at all
3. Developers own the application and its virtual infrastructure
4. IT trusts and verifies
5. IT joins product teams and stops being in isolation

Q&A

What is it?

"It is a service-oriented architecture composed of loosely coupled elements that have bounded contexts."

– Adrian Cockcroft, Netflix, Inc.

Bounded Contexts

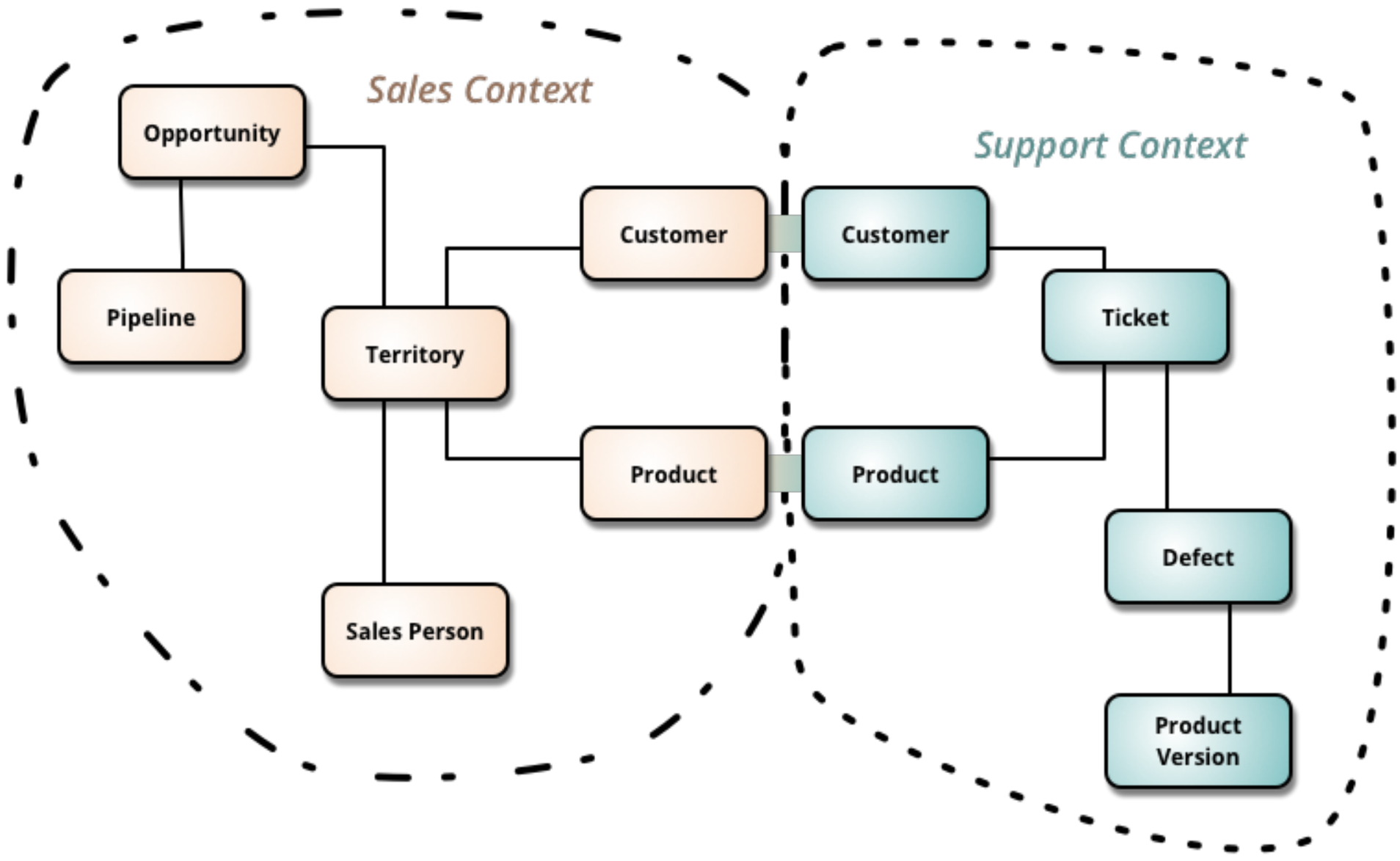

Image Source: http://martinfowler.com/bliki/BoundedContext.html

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