Role of Microservices in BiModal IT

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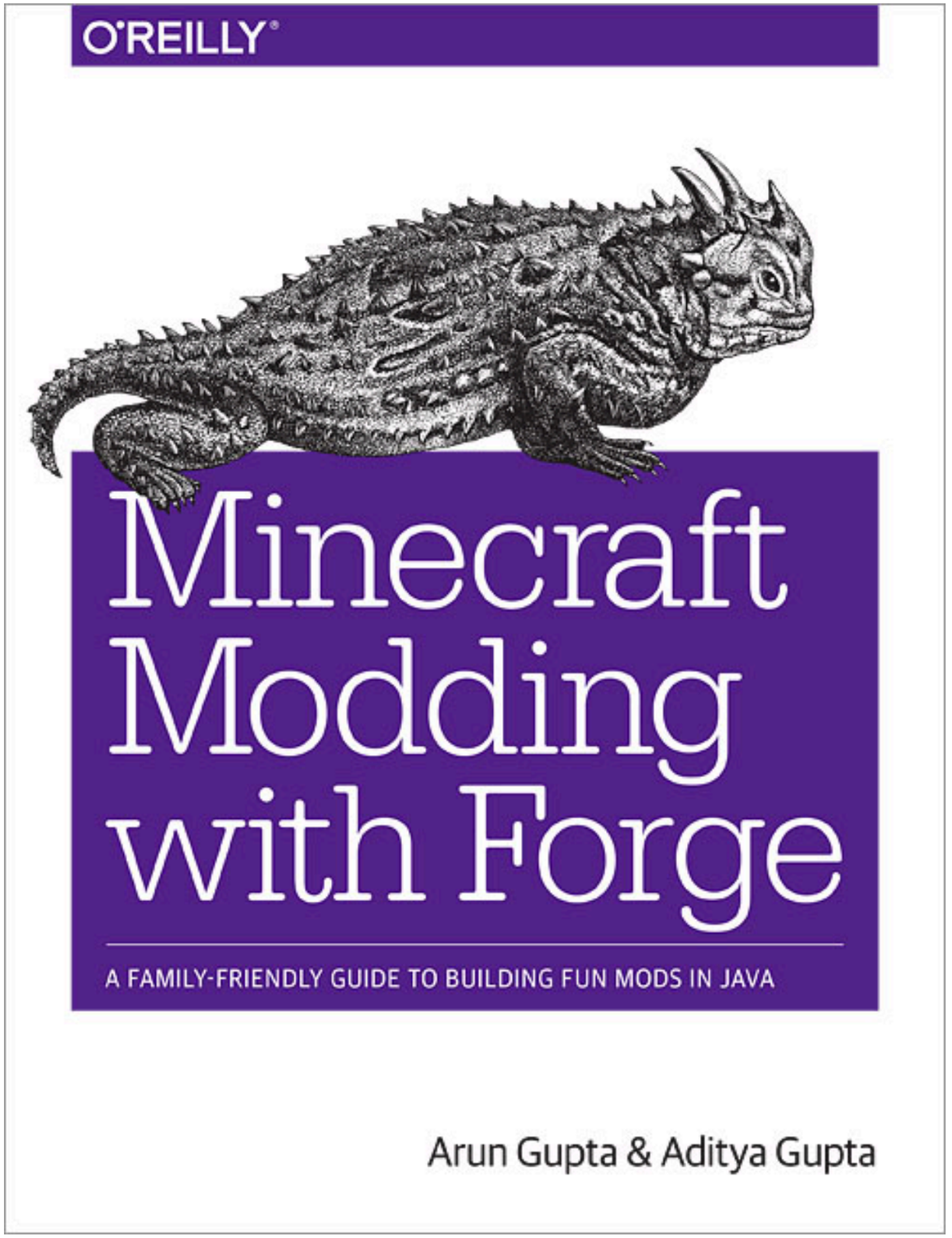

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BiModal IT

Mode 1 is traditional, emphasizing predictability, accuracy, stability

Mode 2 is exploratory, emphasizing agility and speed

Mode 2

- Trial and error
- Fail-fast and recover
- Minimum viable product
- Early feedback
- Iterate often

BiModal is NOT

- Dividing into two teams
- Just Agile development
- An IT capability
- Organization chart change
- Shadow IT

Gartner

Deeply Different, Both Essential

Think Marathon Runner

Mode1		Mode 2
Reliability	**Goal**	Agility
Price for performance	**Value**	Revenue, brand, customer experience
Waterfall, V-model, high-ceremony IID	**Approach**	Agile, Kanban, low-ceremony IID
Plan-driven, approval-based	**Governance**	Empirical, continuous, process-based
Enterprise suppliers, long-term deals	**Sourcing**	Small, new vendors, short-term deals
Good at conventional process, projects	**Talent**	Good at new and uncertain projects
IT-centric, removed from customer	**Culture**	Business-centric, close to customer
Long (months)	**Cycle Times**	Short (days, weeks)

Think Sprinter

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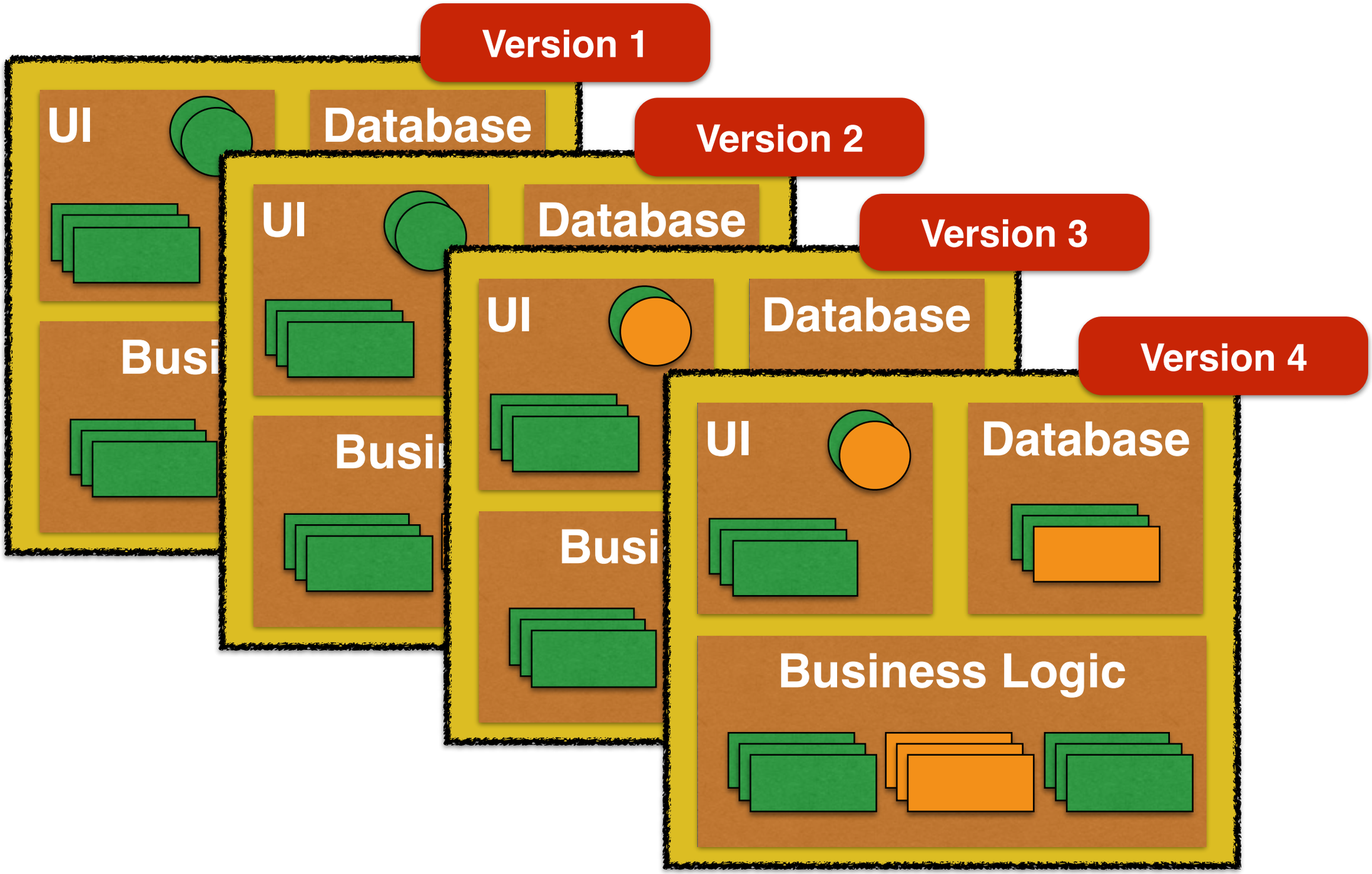
Mode 1 Application



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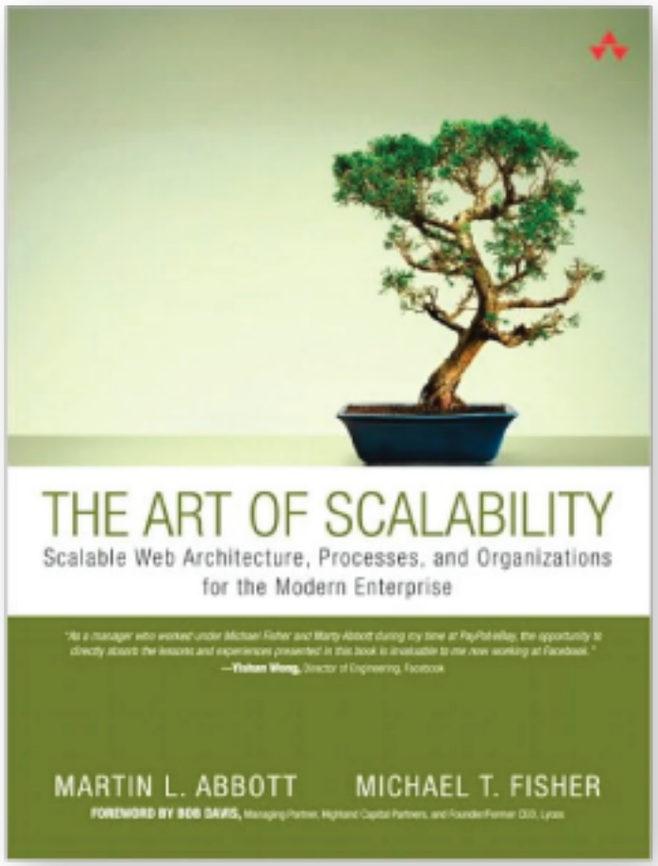
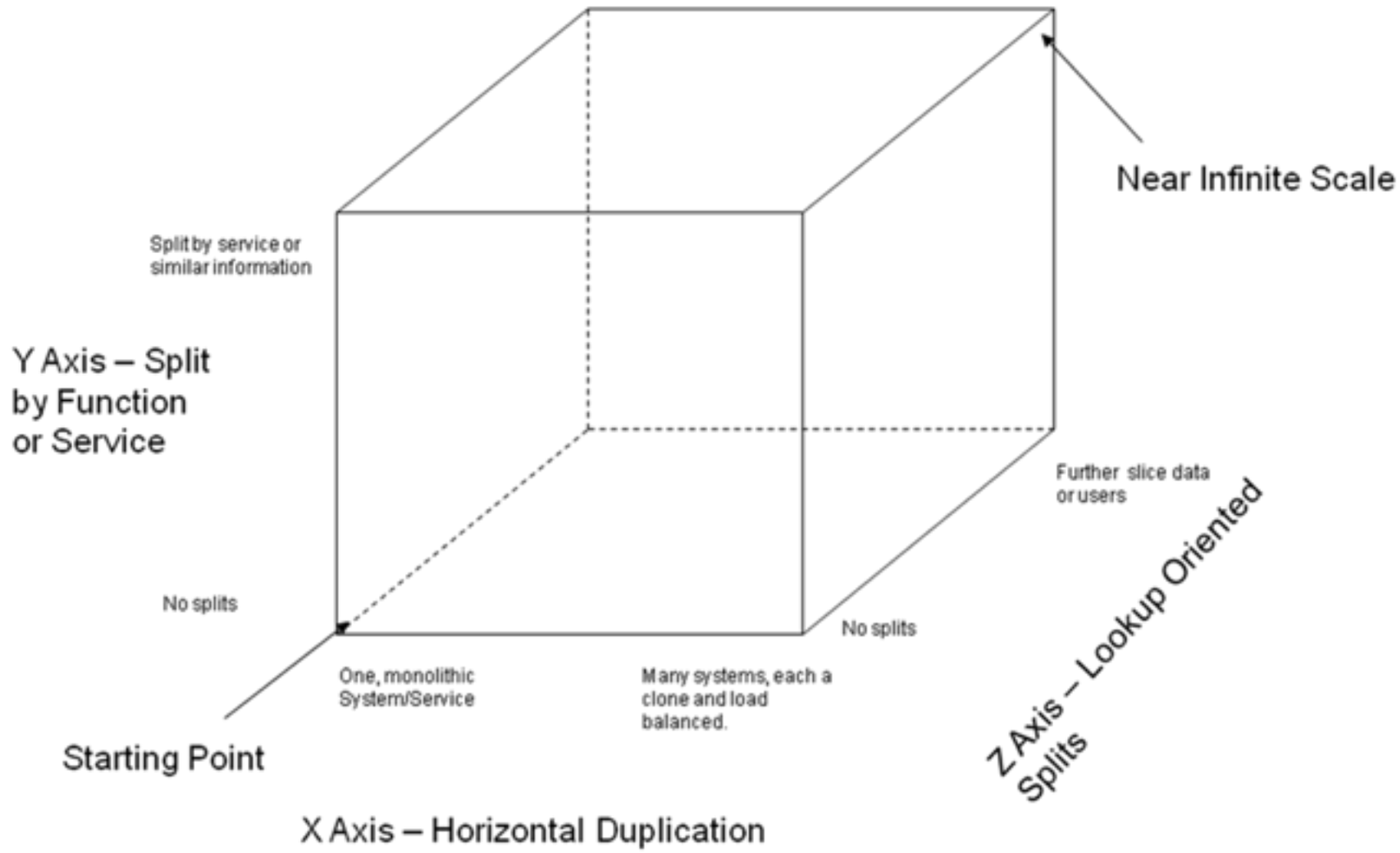
Disadvantages of Mode 1 Application

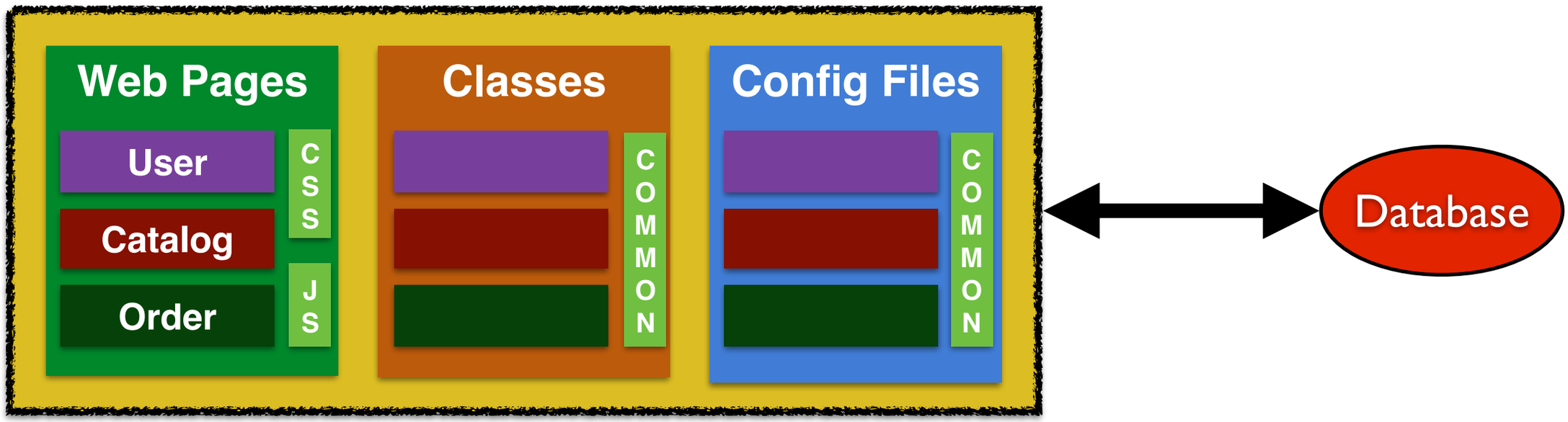
- Difficult to deploy and maintain
- Obstacle to frequent deployments
- Makes it difficult to try out new technologies/ framework

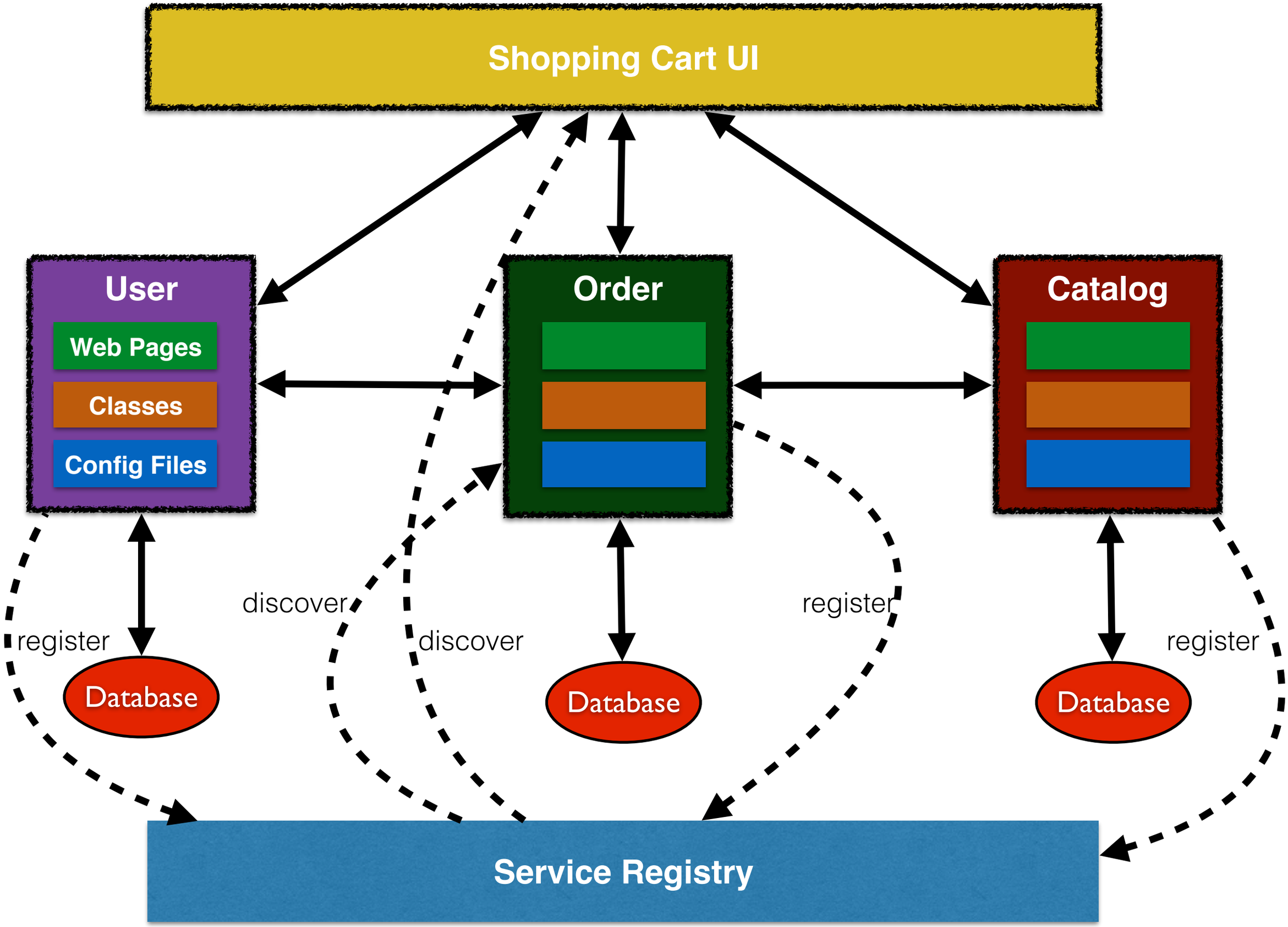




http://akfpartners.com/techblog/2008/05/08/splitting-applications-or-services-for-scale/

Mode 1 Application

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User
Web Pages
Classes
Config Files
Order
Catalog
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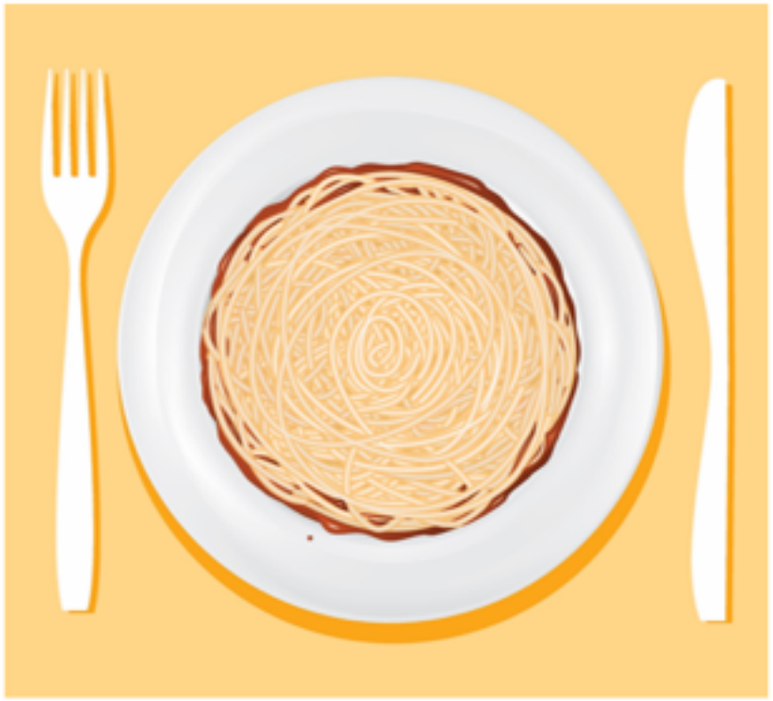
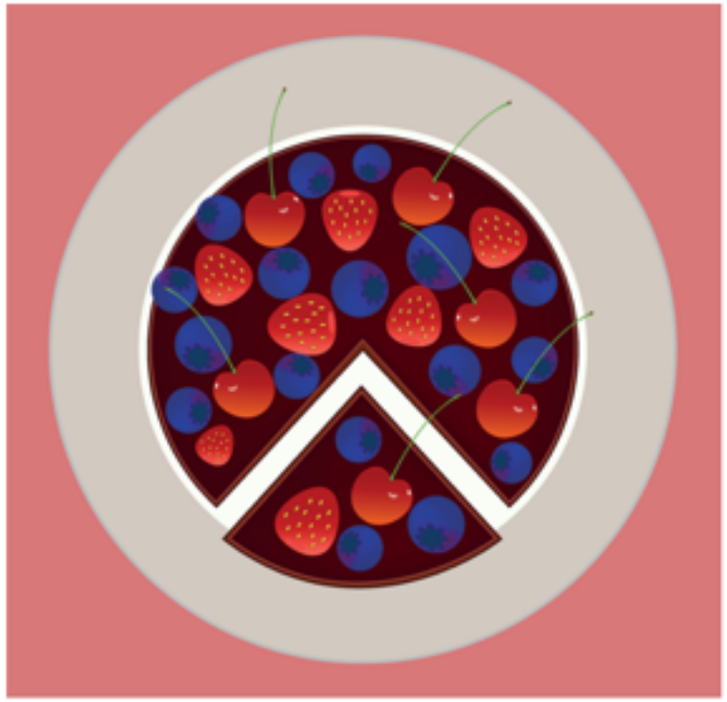


With monolithic, tightly coupled applications, all changes must be pushed at once, making continuous deployment impossible.



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.

Kanban Solutions @kanbansolutions kanbansolutions.com

http://www.kanbansolutions.com/blog/microservices-architecture-friend-or-foe/

MSA Characteristics

Domain Driven Design

Explicitly Published Interface

Single Responsibility Principle

Lightweight Communication

Independent DURS

Operational Requirements

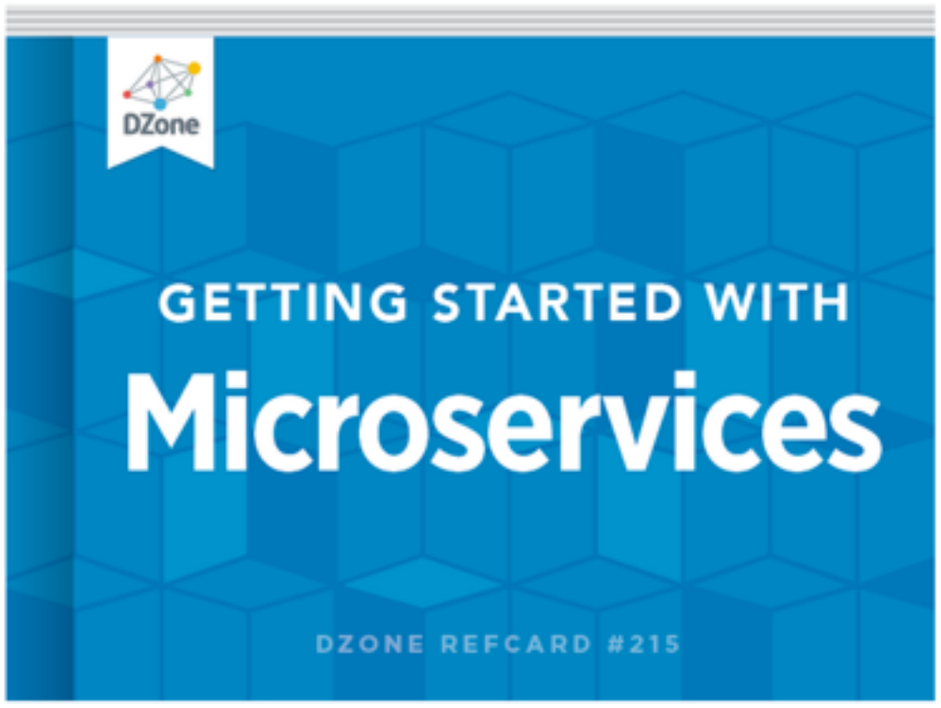
Replication

Discovery

Monitoring

Resiliency

Devops



Refcard #215

Getting Started With Microservices

Design Patterns for Decomposing the Monolith

by Arun Gupta

Still re-deploying your entire application for one small update? Micros
modular updates and increase the speed of application deployments

Free PDF

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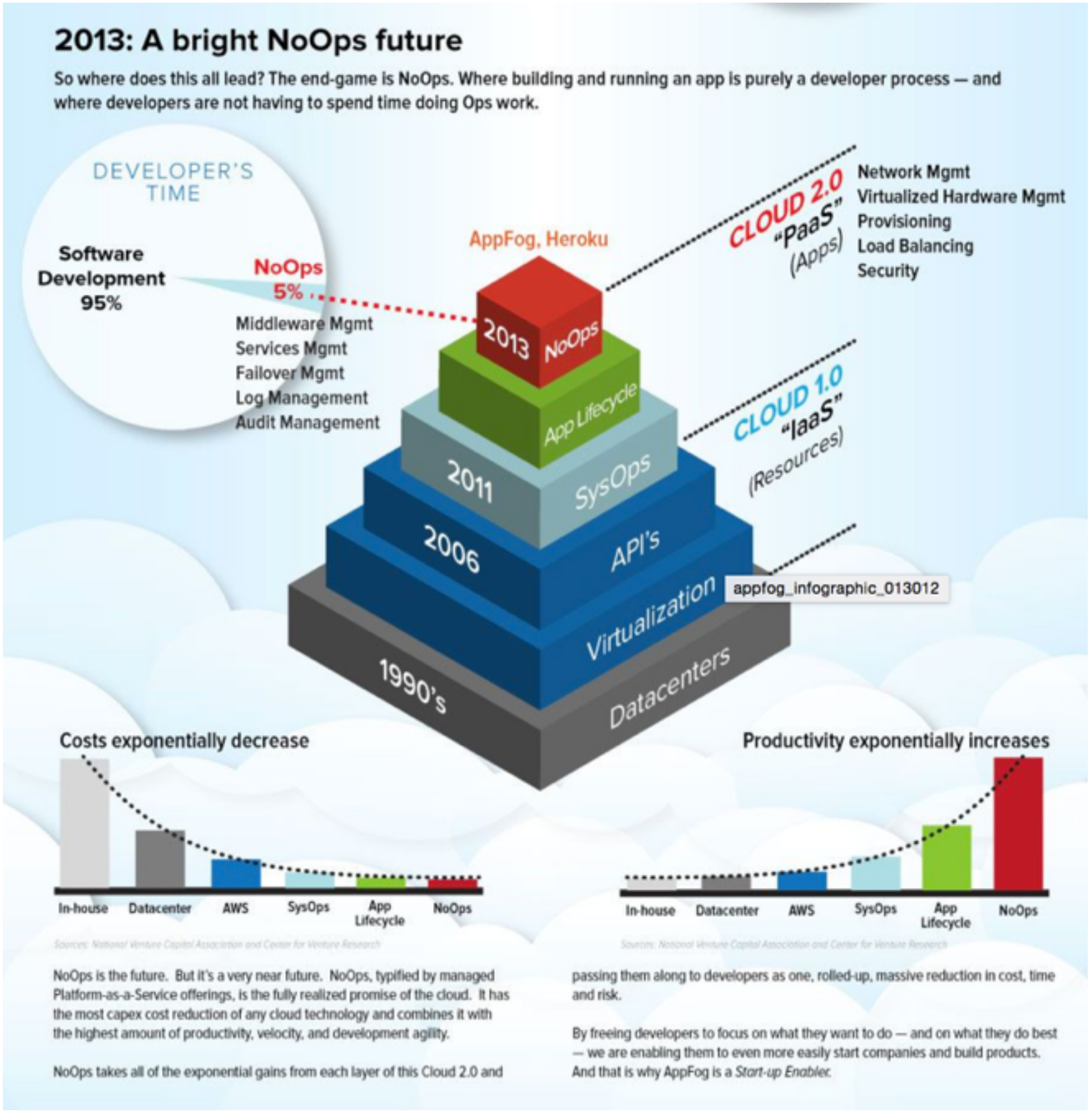
dzone.com/refcardz/getting-started-with-microservices

NoOps

- Service replication (k8s, fabric8, etcd, ZK, …)
- Dependency resolution (Nexus, …)
- Failover (Circuit Breaker)
- Resiliency (Circuit Breaker)
- Service monitoring, alerts and events (New Relic, Log stash, …)

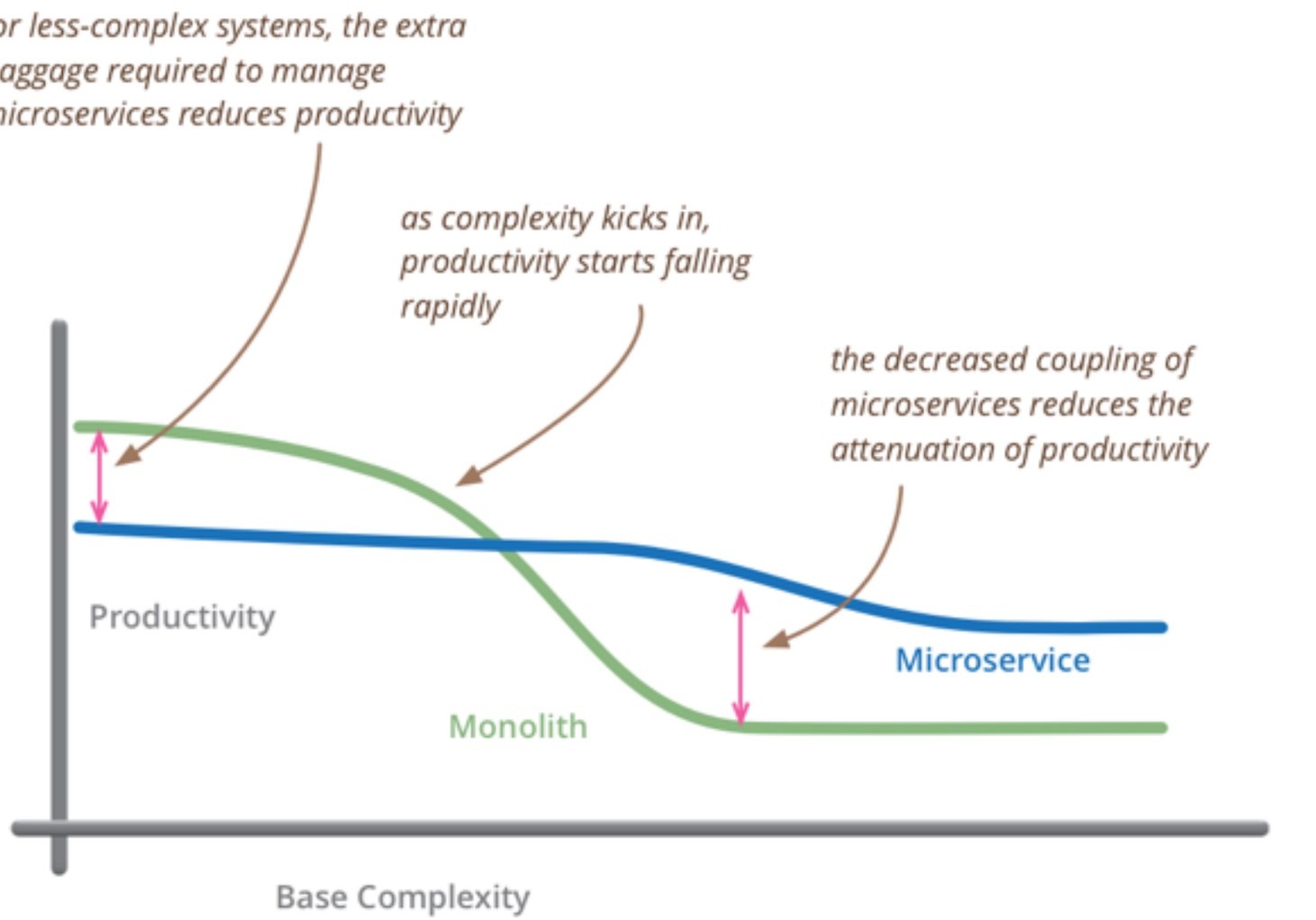


https://gigaom.com/2012/01/31/why-2013-is-the-year-of-noops-for-programmers-infographic/

Drawbacks of microservices

- Additional complexity of distributed systems
- Significant operational complexity, need high-level of automation
- Rollout plan to coordinate deployments
- Slower ROI, to begin with

Microservice Premium



"don't even consider microservices unless you have a system that's too complex to manage as a monolith"

http://martinfowler.com/bliki/MicroservicePremium.html

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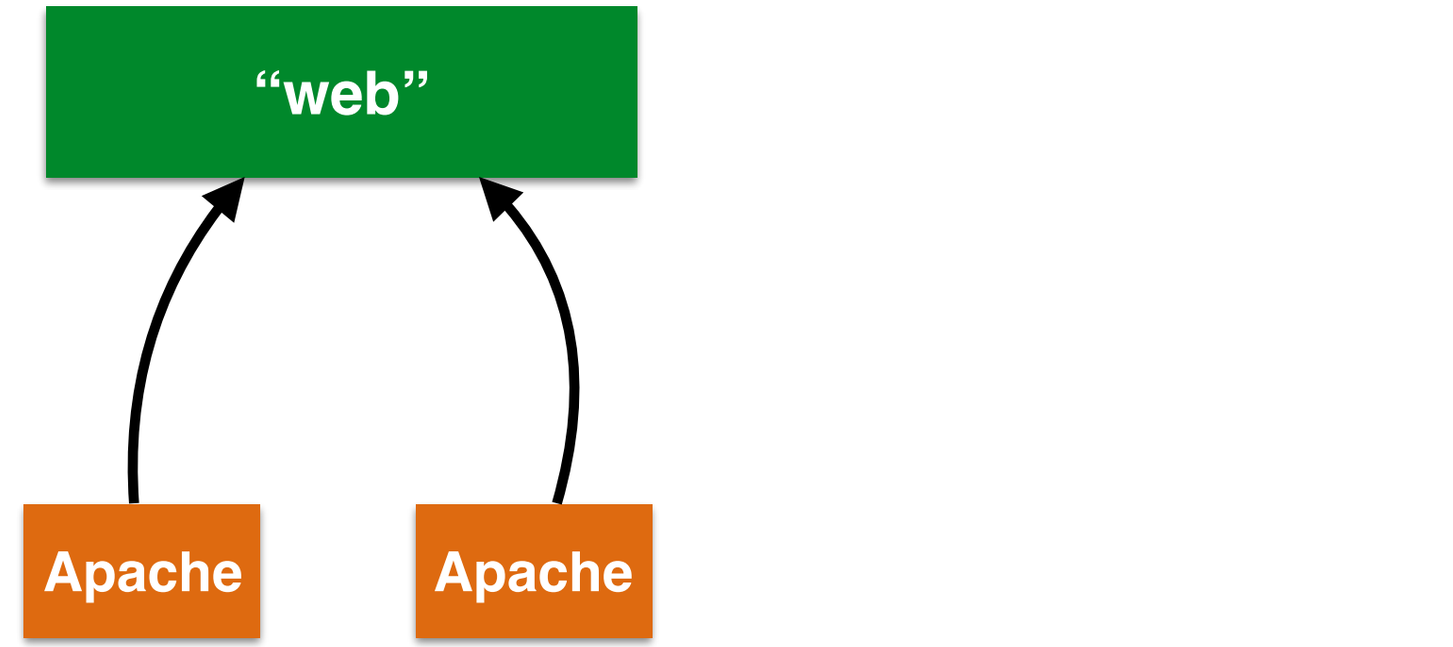
“web”

“javaee”

“db”

“mq”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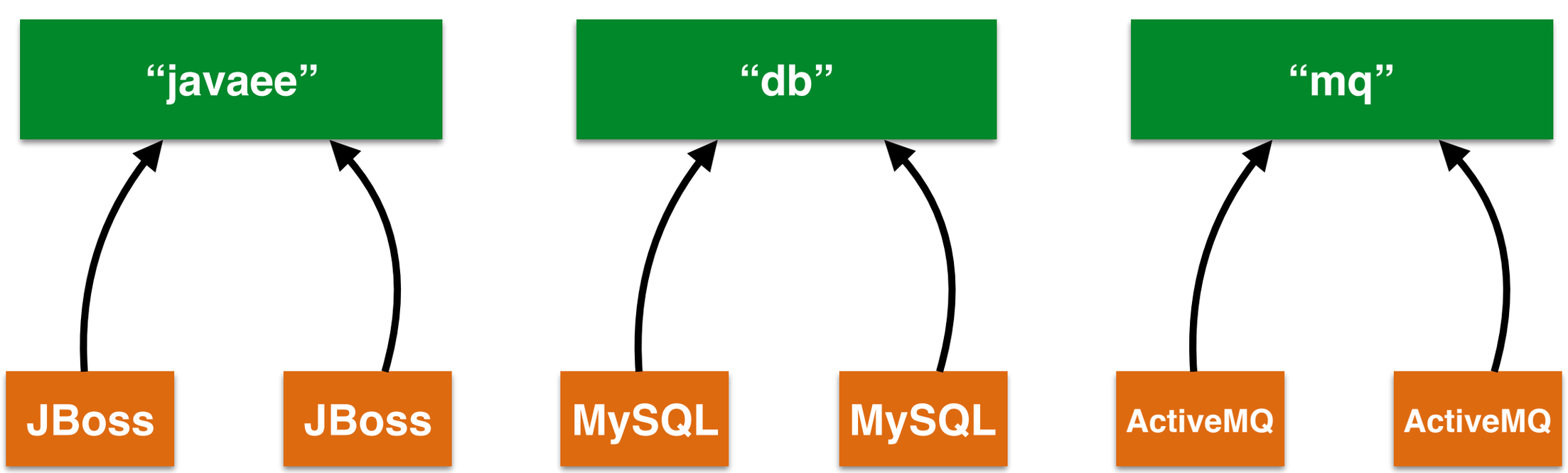
Apache
Apache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“mq”
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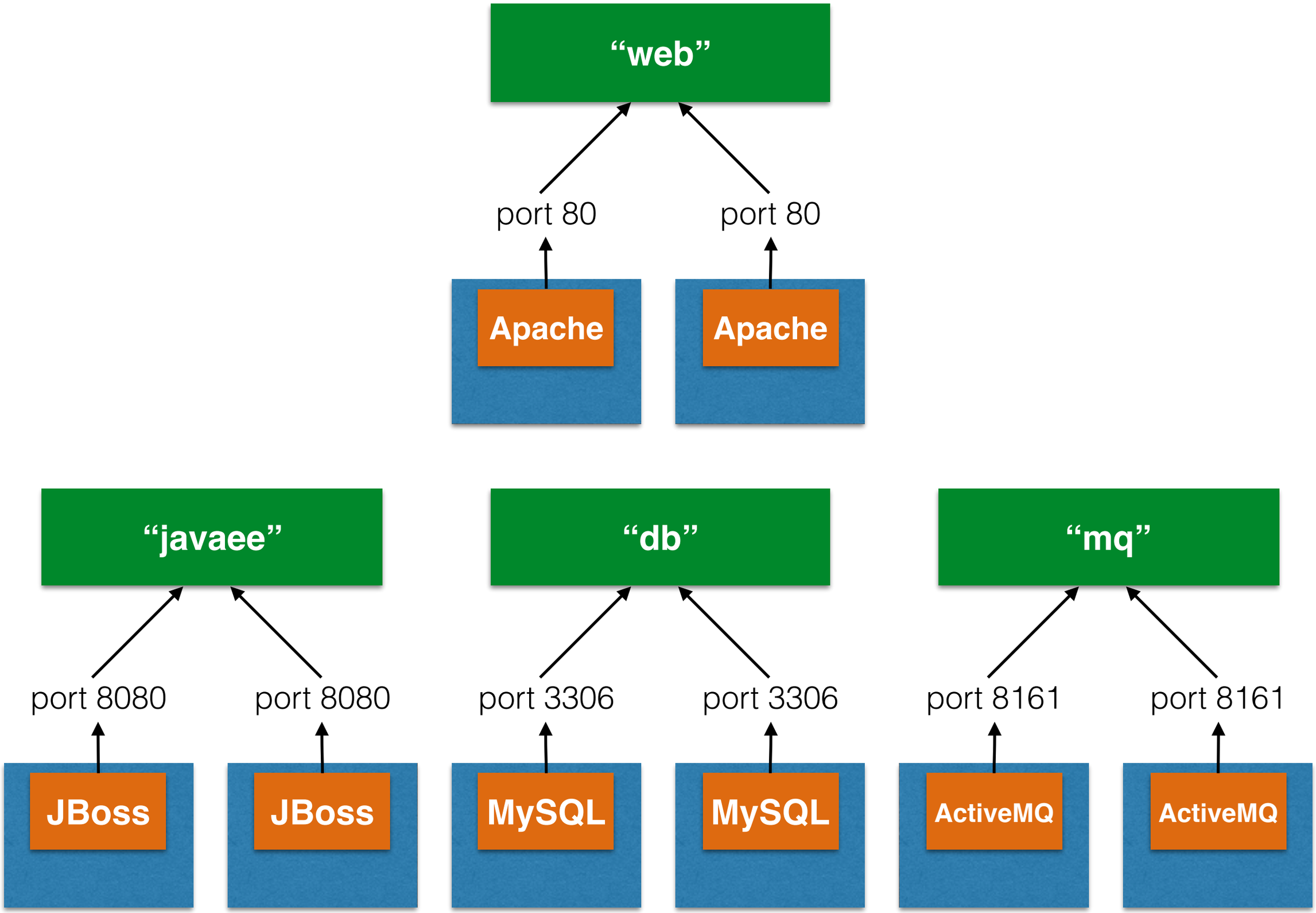
JBoss
MySQL
MySQL
ActiveMQ
ActiveMQ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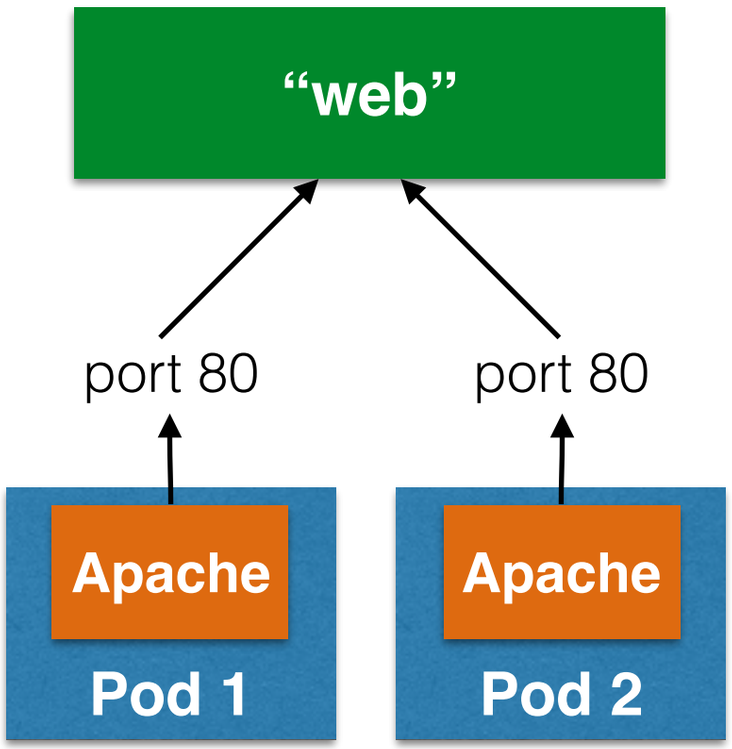
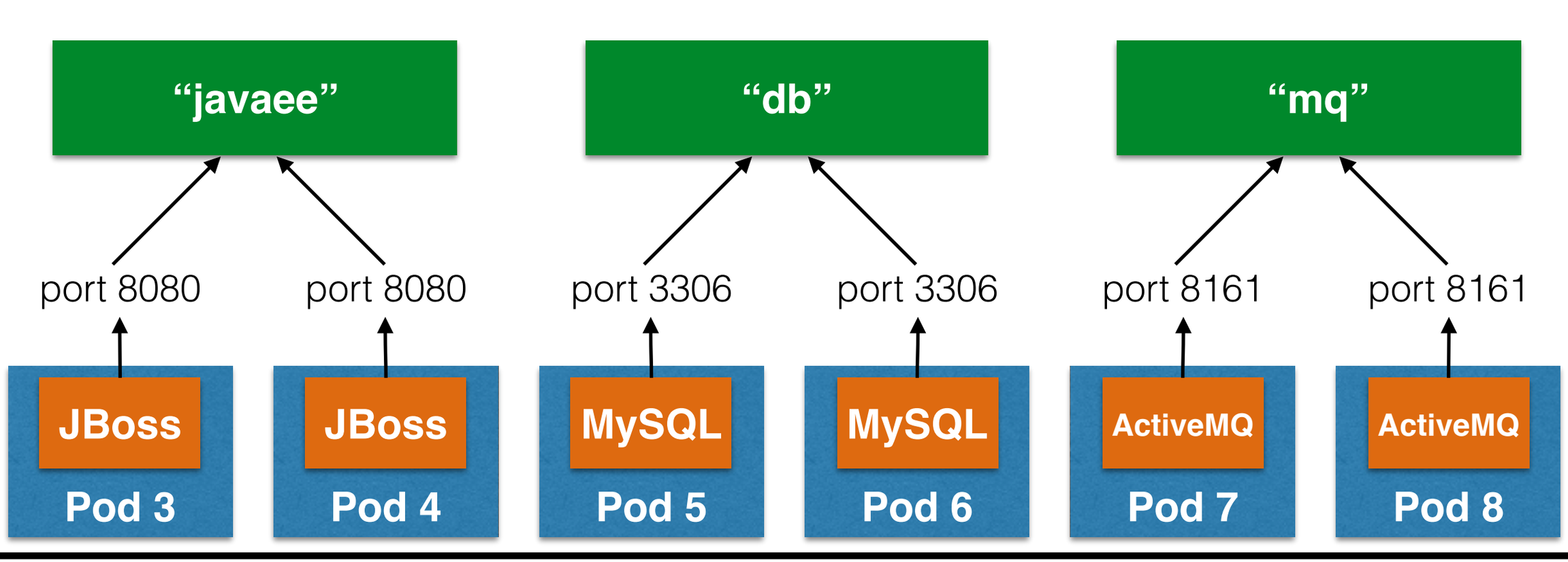
port 80
port 80
Apache
Apache
“javaee”
“db”
“mq”
port 8080
port 8080
port 3306
port 3306
port 8161
port 8161
JBoss
JBoss
MySQL
MySQL
ActiveMQ
ActiveMQ

OpenShift Application





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redhat.

Applications

PaaS

Containers & Orchestration

Container Host

IaaS

xPaaS

RED HAT JBOSS MIDDLEWARE

VERT.X

node

OPENSHIFT

kubernetes

docker

RED HAT ENTERPRISE LINUX ATOMIC HOST

openstack

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