

Microservices

@Steve_Upton

Spotlight on...

- Technologies
- Practices
- Architectures

NETFLIX

Netflix Scale

81 million+ members in 190+ countries (3 AWS regions, 9 availability zones)

125 million hours of viewing per day (4 billion hours per month)

1/3 of US downstream traffic

500+ microservices

100s to 1000s of productions deploys per day

Goal of 99.99% availability

1200 engineers

Netflix Principles

Buy vs. Build

Services should be Stateless

Scale Out vs. Scale Up

Redundancy and Isolation for Resiliency

Automate destructive testing

Apache Cassandra

Moved from traditional RDBMS (Oracle)

Scalable NoSQL

Available and Partition Tolerant

Tunable consistency (per read/write)



Apache Cassandra

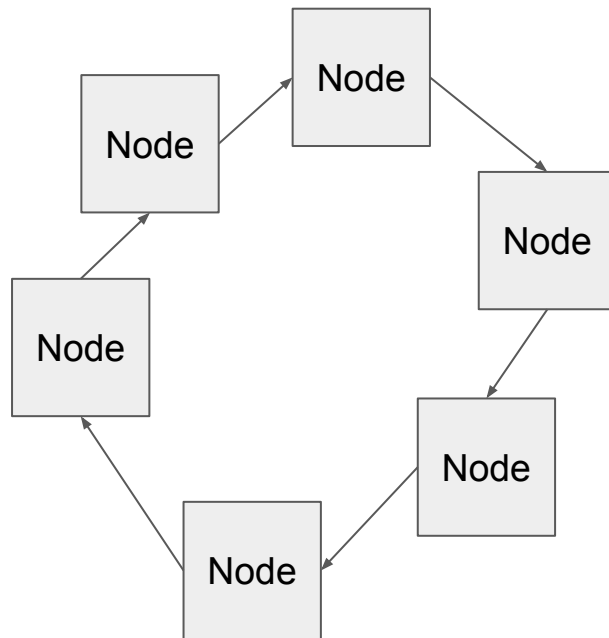
Moved from traditional RDBMS (Oracle)

Scalable NoSQL

Available and Partition Tolerant

Tunable consistency (per read/write)

Gossip based



NGINX

NGINX

NGINX

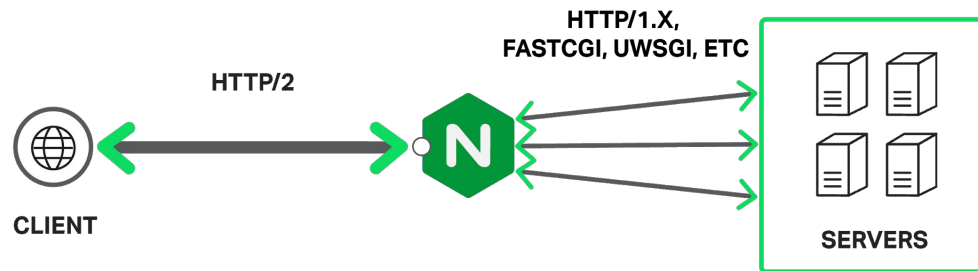
It's a web server...

A large, stylized green logo of the word "NGINX". The letters are bold and blocky, with a unique design where the 'G' and 'i' are connected, and the 'N' and 'G' have a shared vertical stroke. The 'X' is formed by two intersecting diagonal lines.

NGINX

It's a web server...

... and a reverse proxy

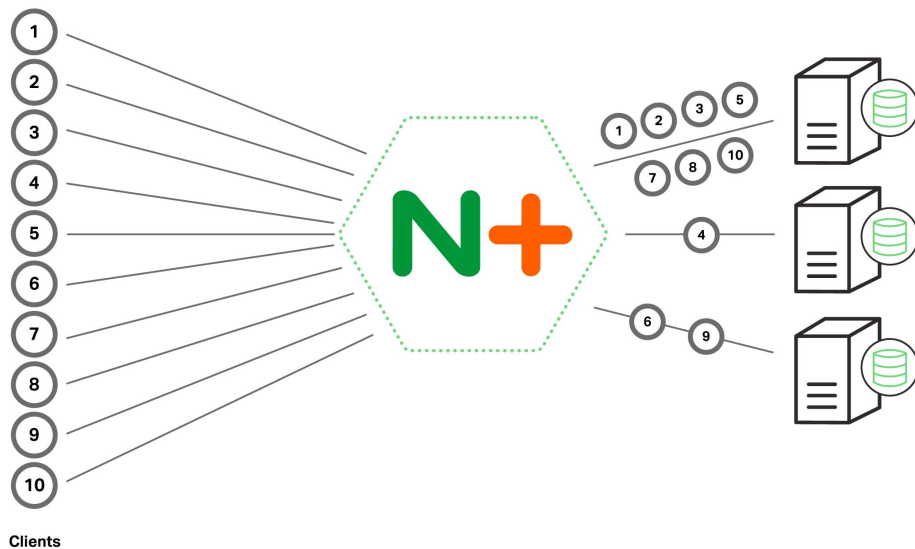


NGINX

It's a web server...

... and a reverse proxy

... load balancer

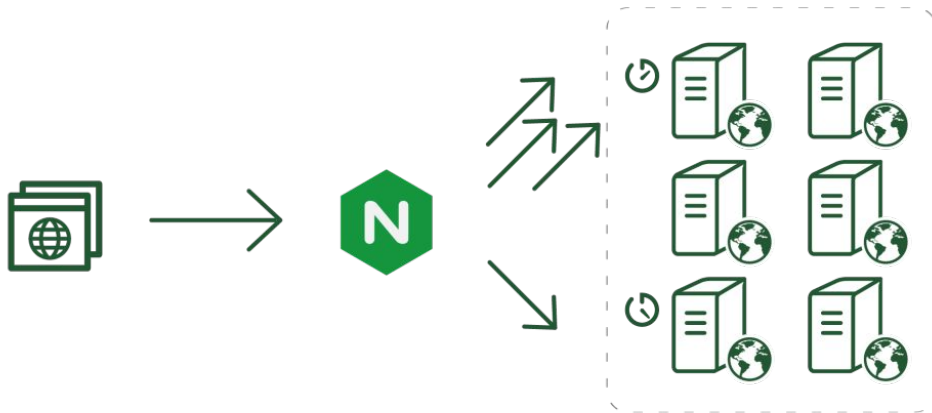


NGINX

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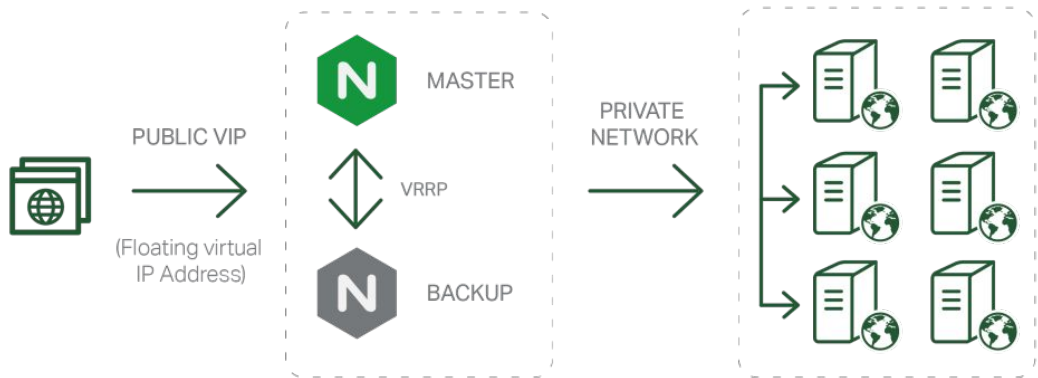
NGINX

It's a web server...

... and a reverse proxy

... load balancer

... provides high-availability



NGINX

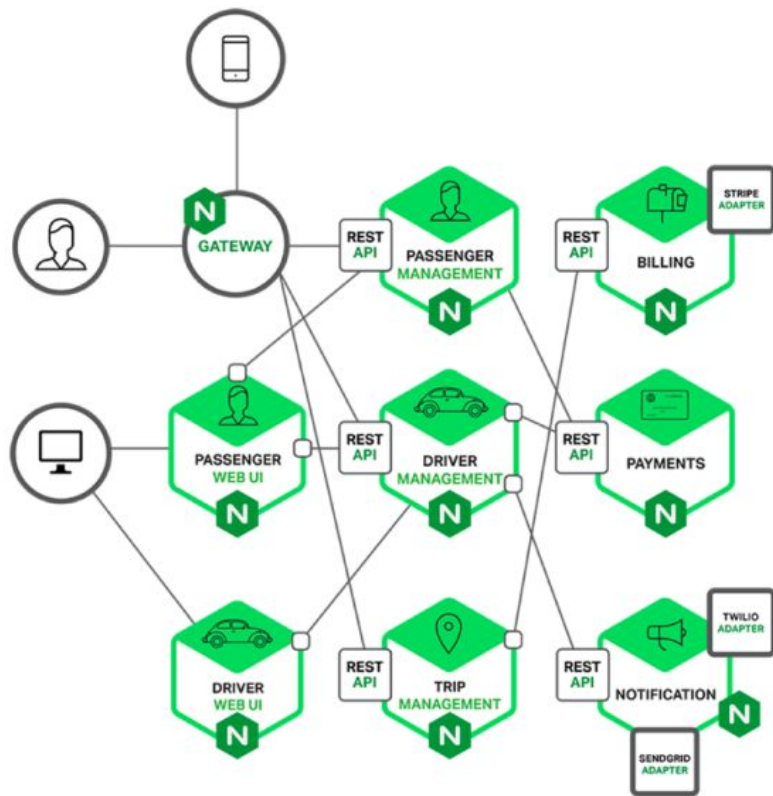
It's a web server...

... and a reverse proxy

... load balancer

... provides high-availability

... gateway for microservices



Vizceral

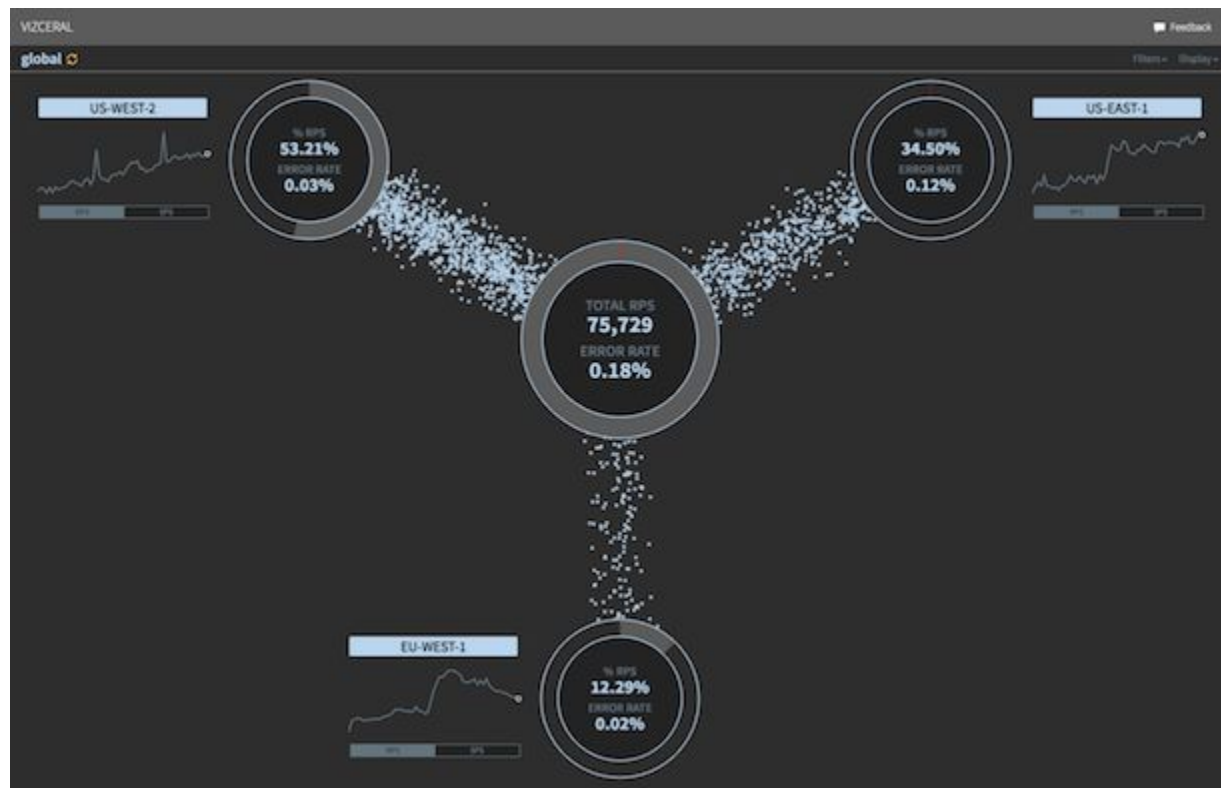
“Operational visibility”

Impossible to understand everything

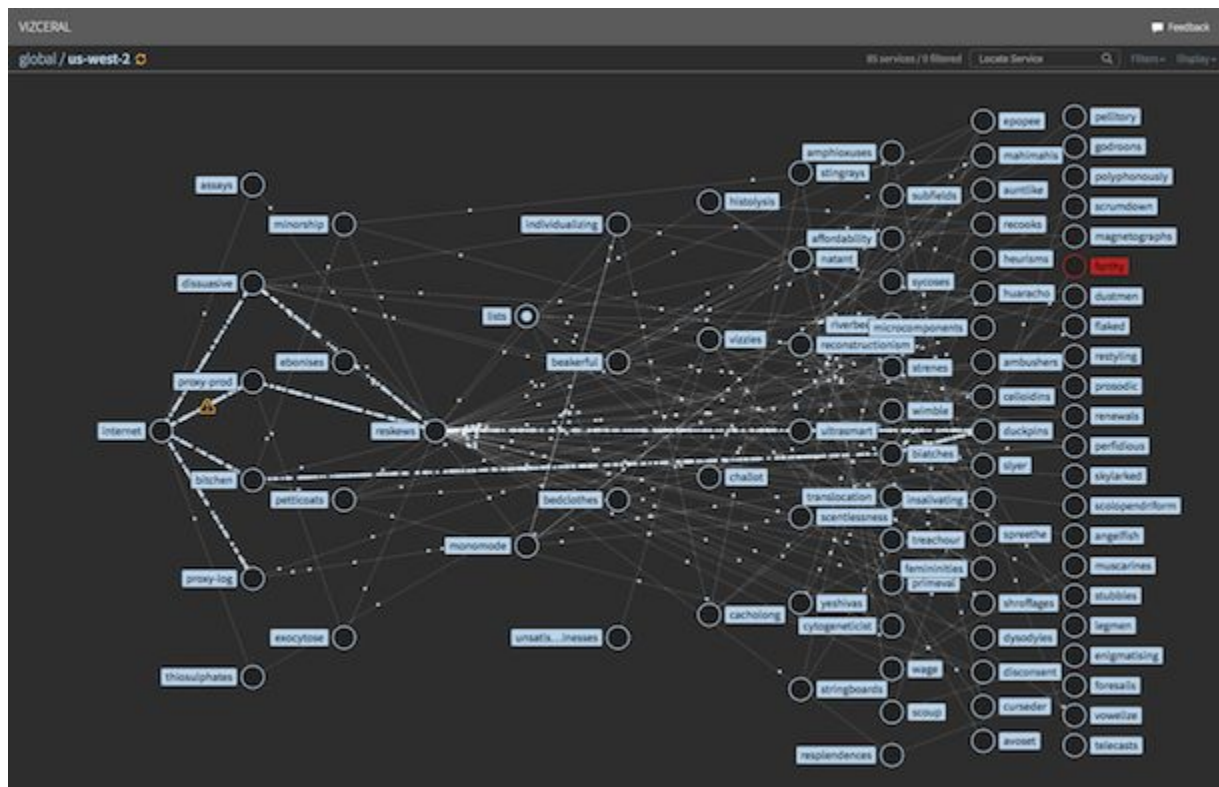
Need to visualise the important



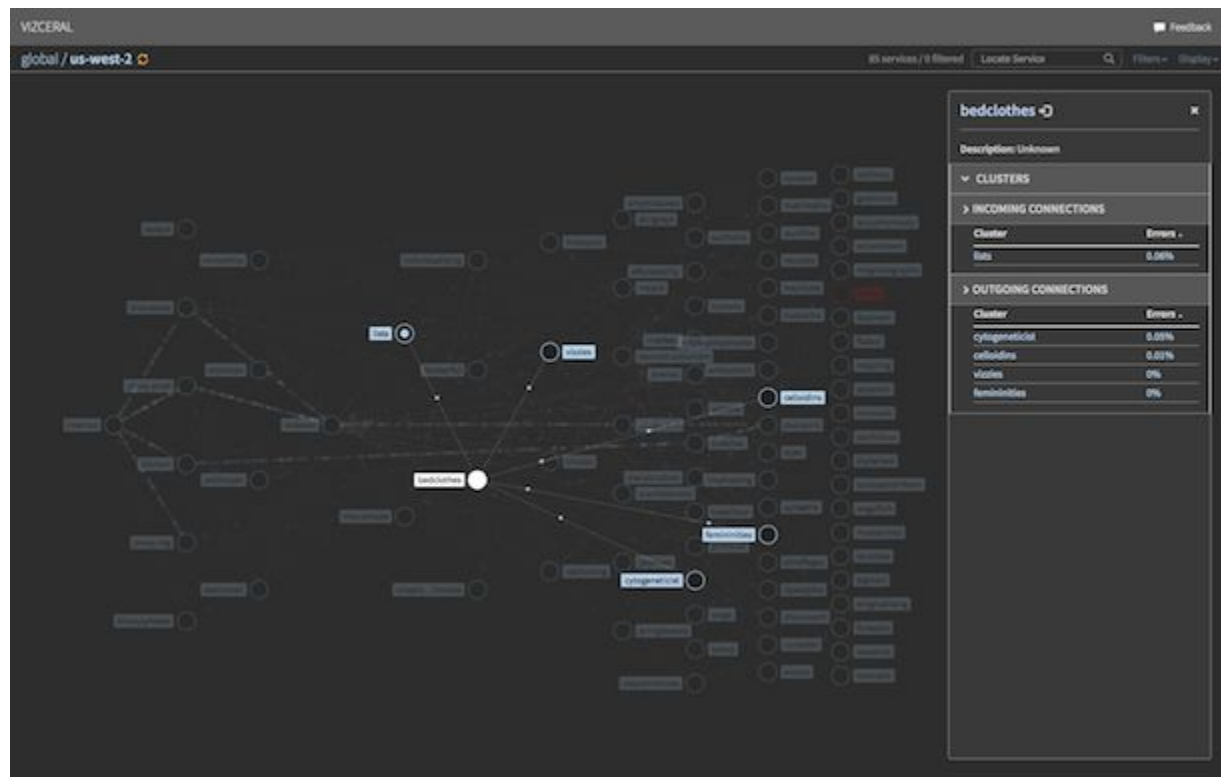
Vizceral



Vizceral



Vizceral



Vizceral



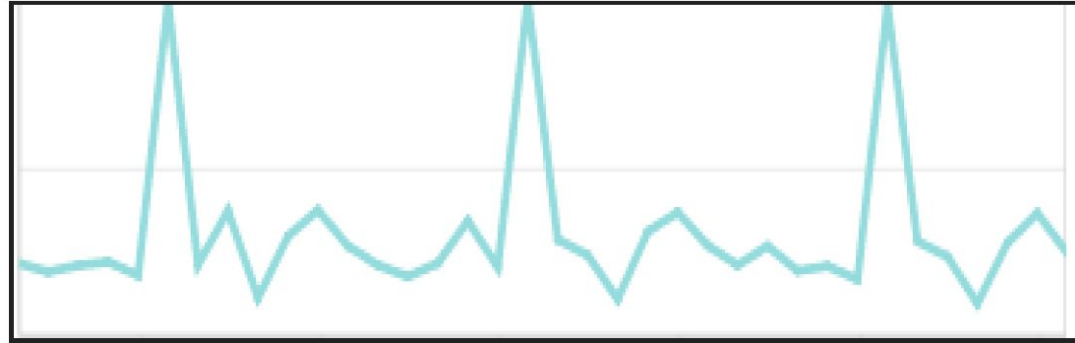
GILT

Gilt

Premium Flash Sales

Sales go live 12:00 daily

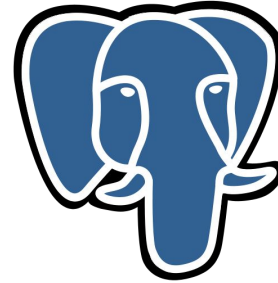
Massive load spikes



Gilt 2007

Ruby on Rails

Postgres

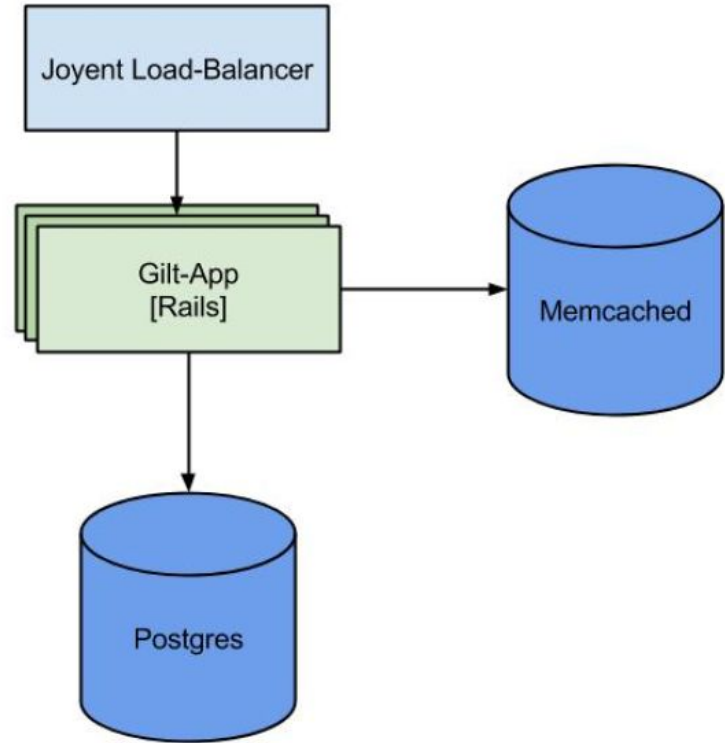


PostgreSQL

Gilt 2007

Ruby on Rails

Postgres



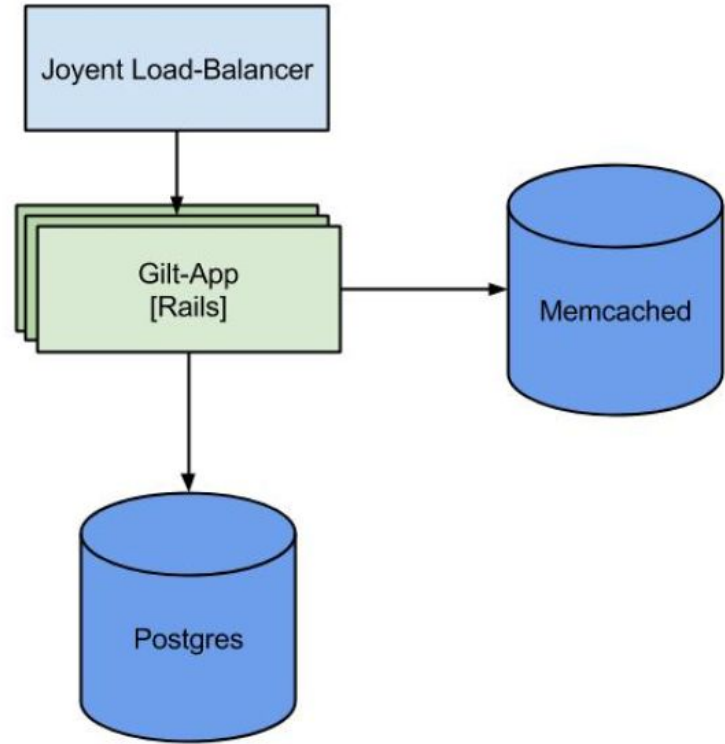
Gilt 2007

Ruby on Rails

Postgres

1000s of Ruby processes needed

Postgres overloaded



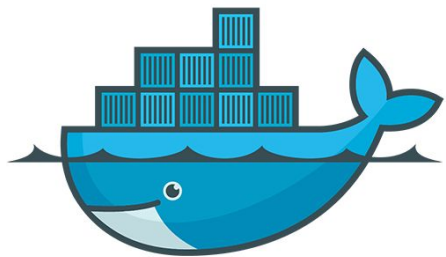
Gilt 2015

Scala



Play Framework

Docker



docker

Elastic Beanstalk



300 services

Gilt 2015

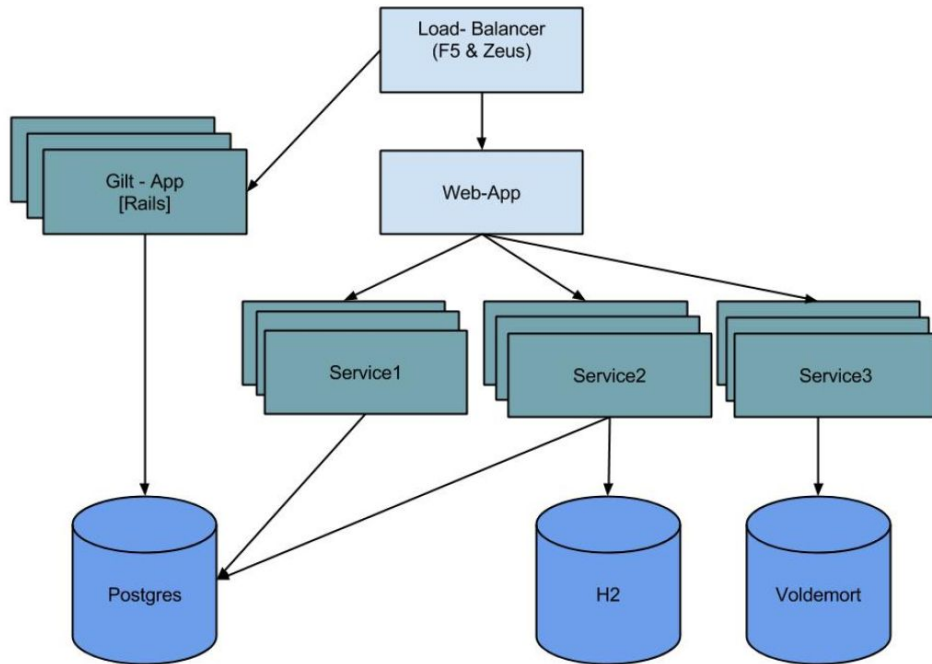
Scala

Play Framework

Docker

Elastic Beanstalk

300 services



Gilt 2015

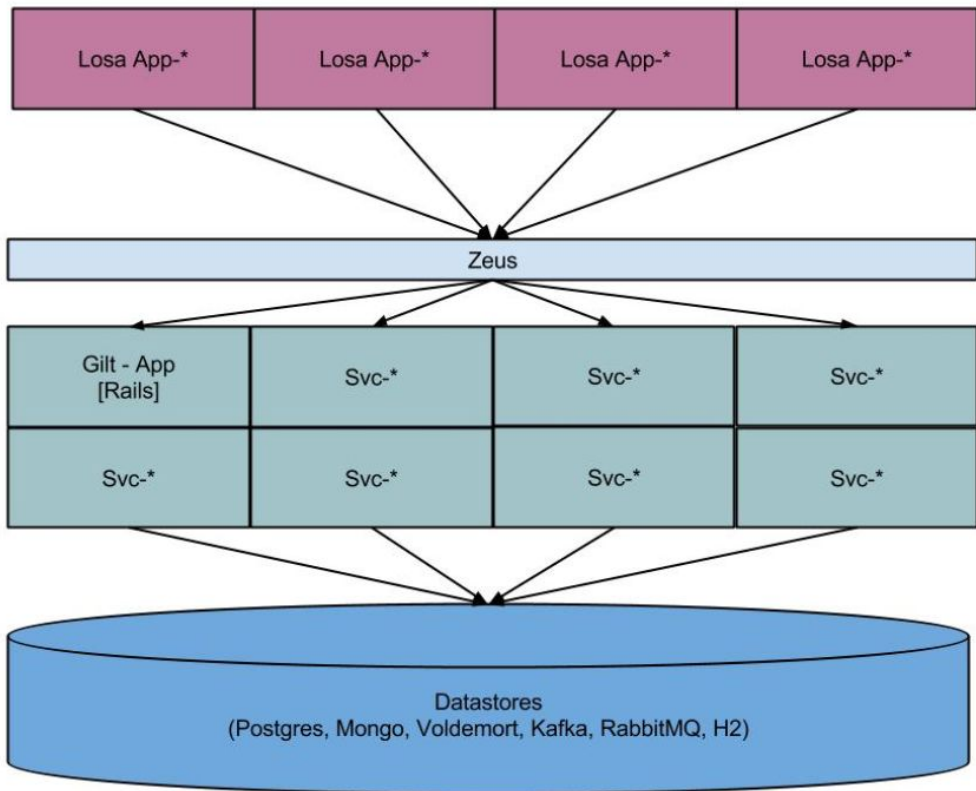
Scala

Play Framework

Docker

Elastic Beanstalk

300 services





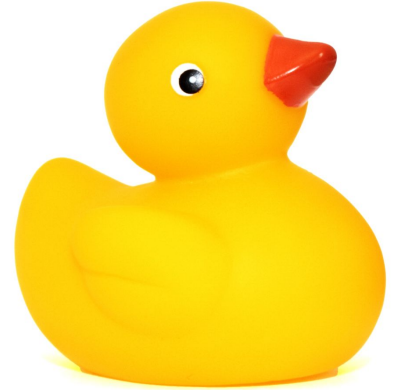
here

HERE - Duck Cloud

You are a “Rubber Duck” farmer

Need to keep track of your ducks

Internet of Ducks



HERE - Duck Cloud

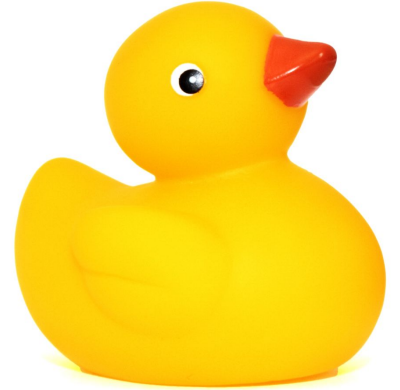
You are a “Rubber Duck” farmer

Need to keep track of your ducks

Internet of Ducks

Where my ducks at?

What are my ducks up to?



HERE - Duck Cloud

MQTT



HERE - Duck Cloud

MQTT

Kafka



HERE - Duck Cloud

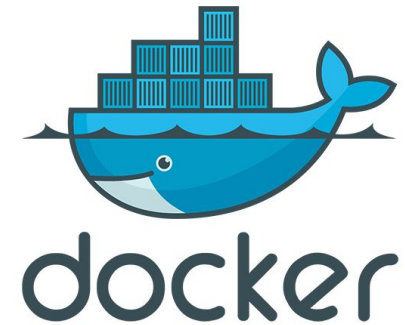
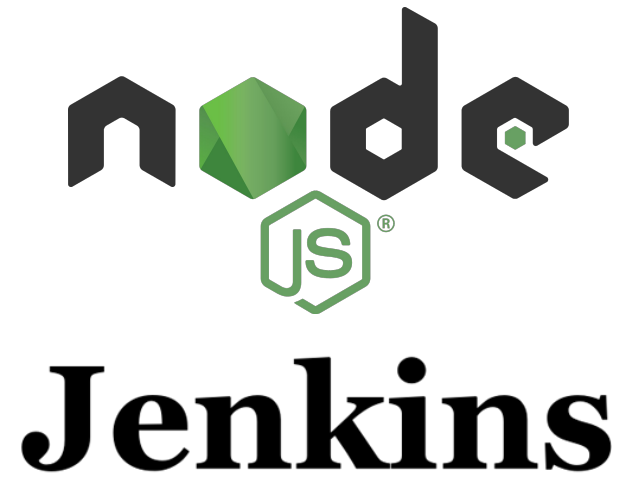
MQTT

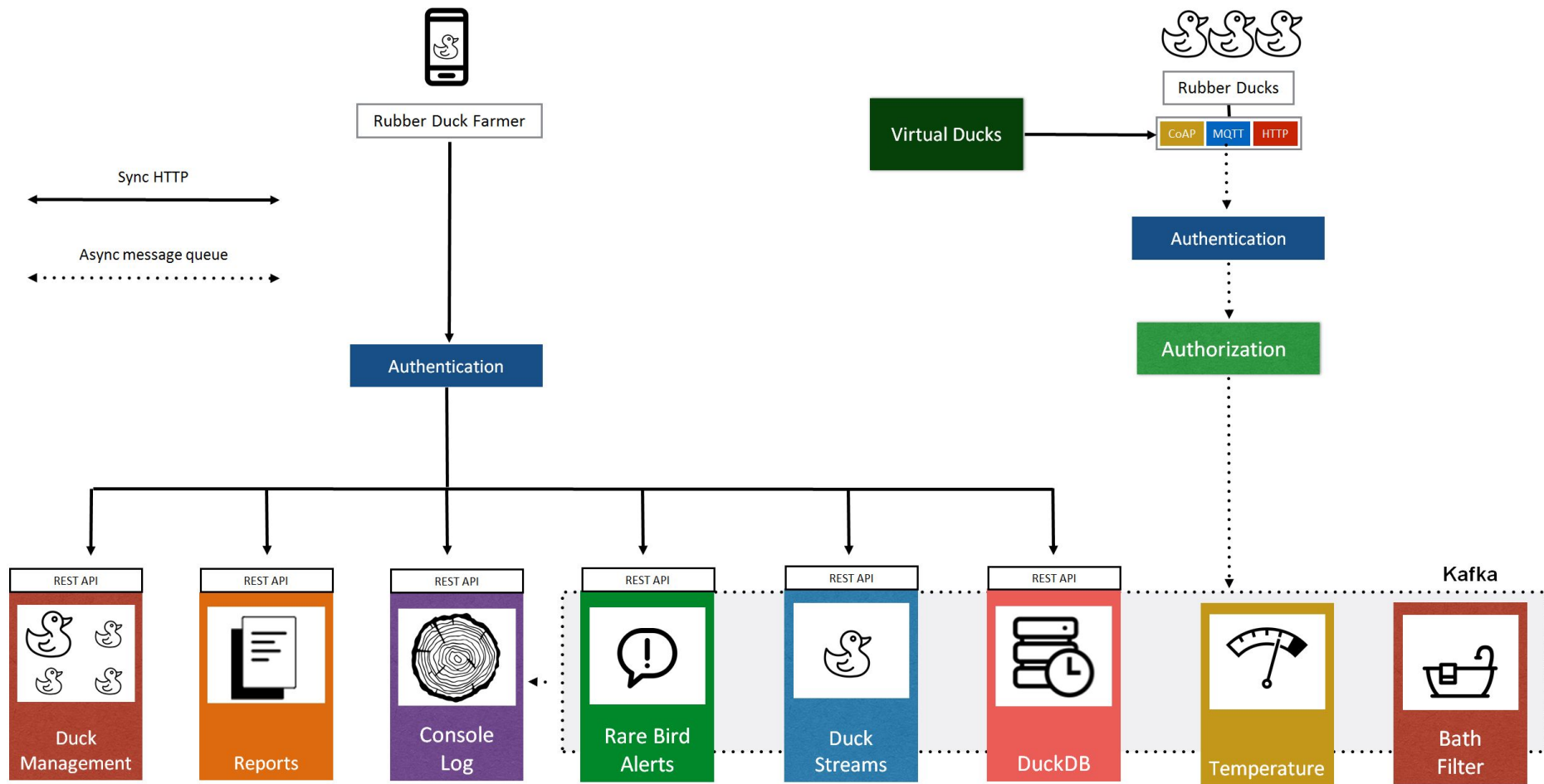
Kafka

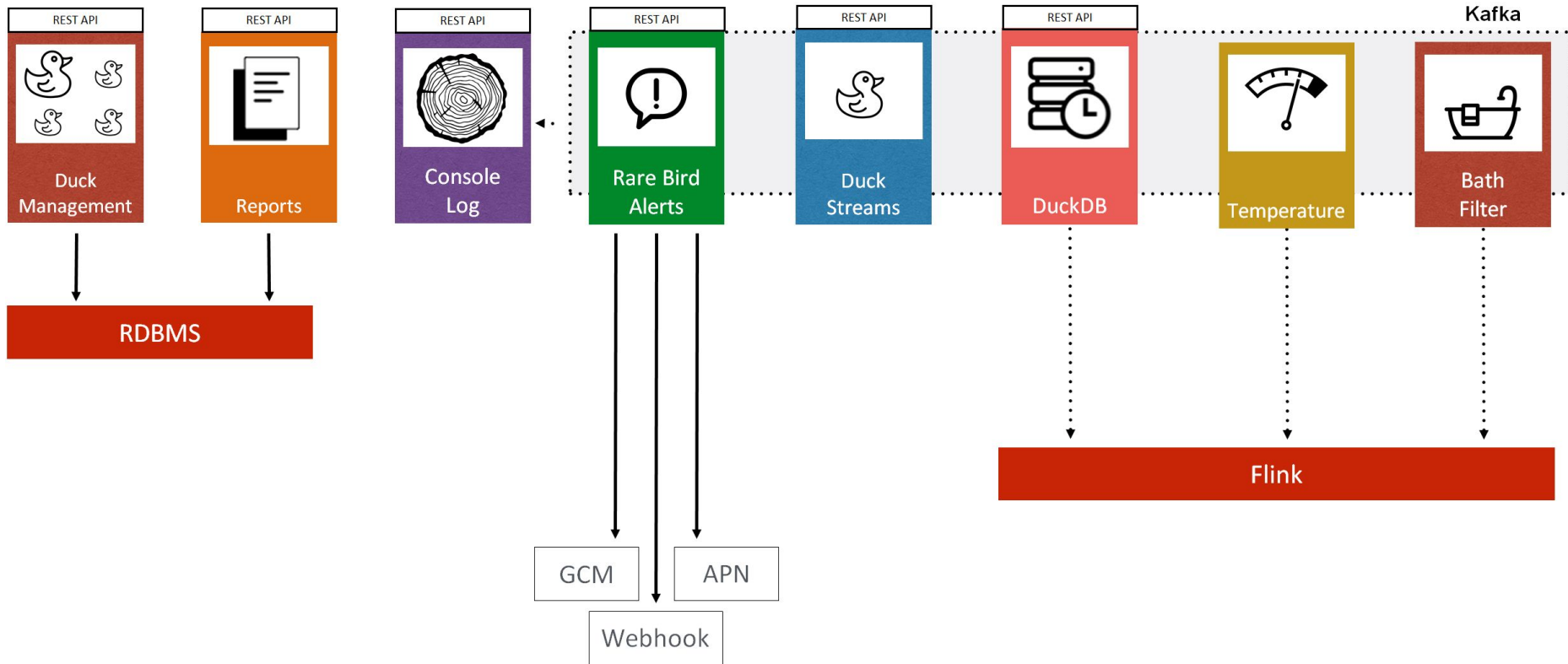
Docker

Jenkins

Flink







Questions?

@Steve_Upton

steveupton.io

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References

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<http://techblog.netflix.com/2016/08/vizceral-open-source.html>

<https://www.nginx.com/blog/choosing-nginx-plus-load-balancing-techniques/>

<https://www.infoq.com/presentations/microservice-arch-gilt>

Image credits

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