



# Digital Transformation: The Shift To Cloud First

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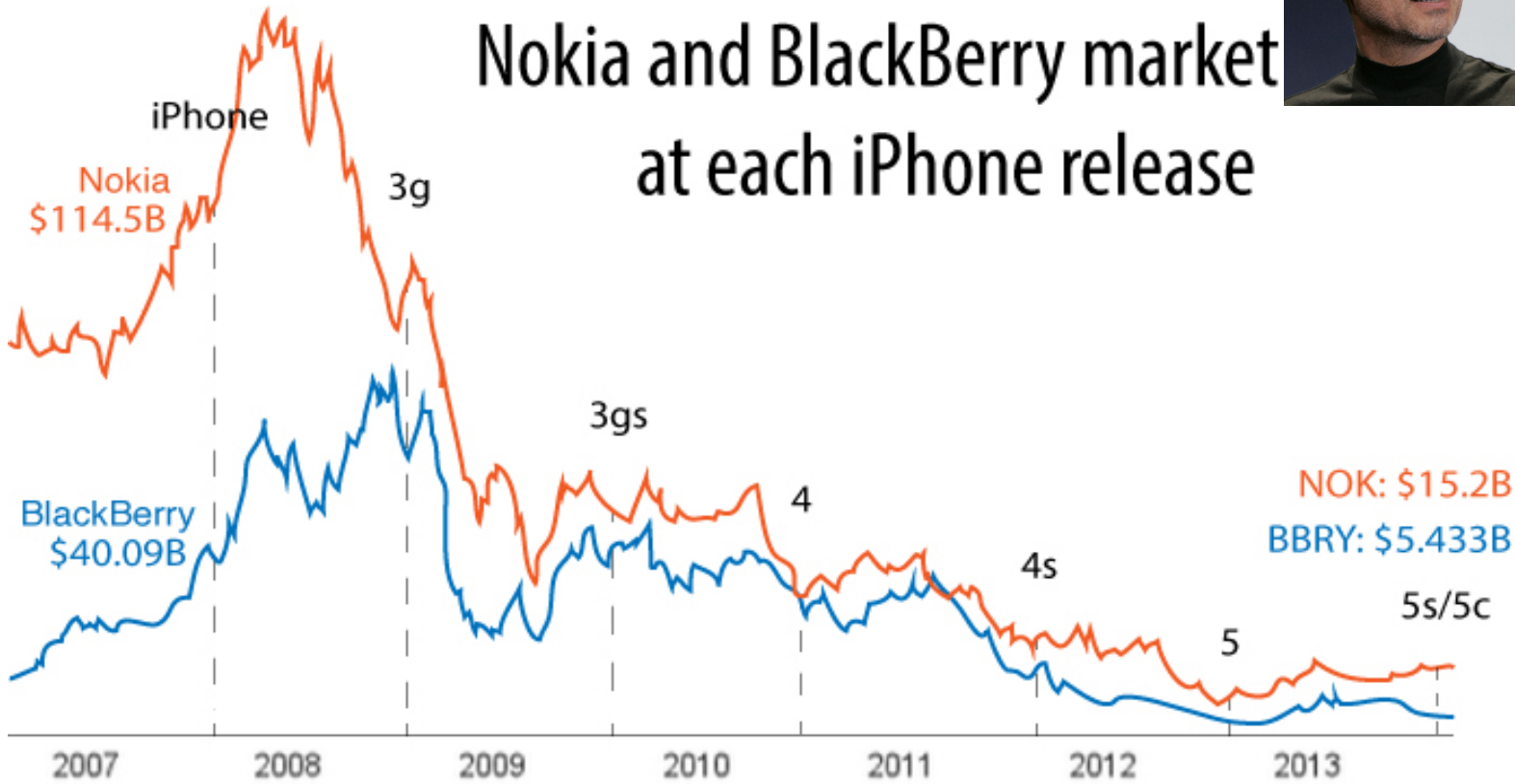
Principal Product Manager

SolidFire / NetApp

# Disruptive Technology



## Nokia and BlackBerry market at each iPhone release



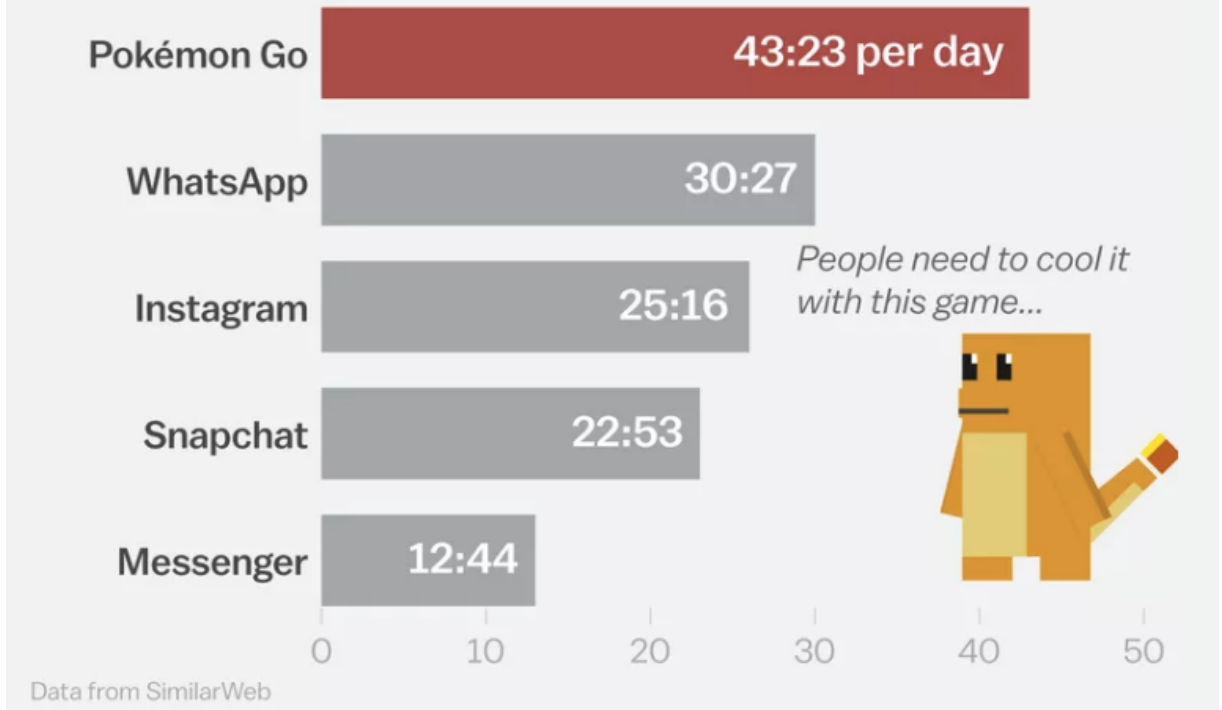


Pokémon Go

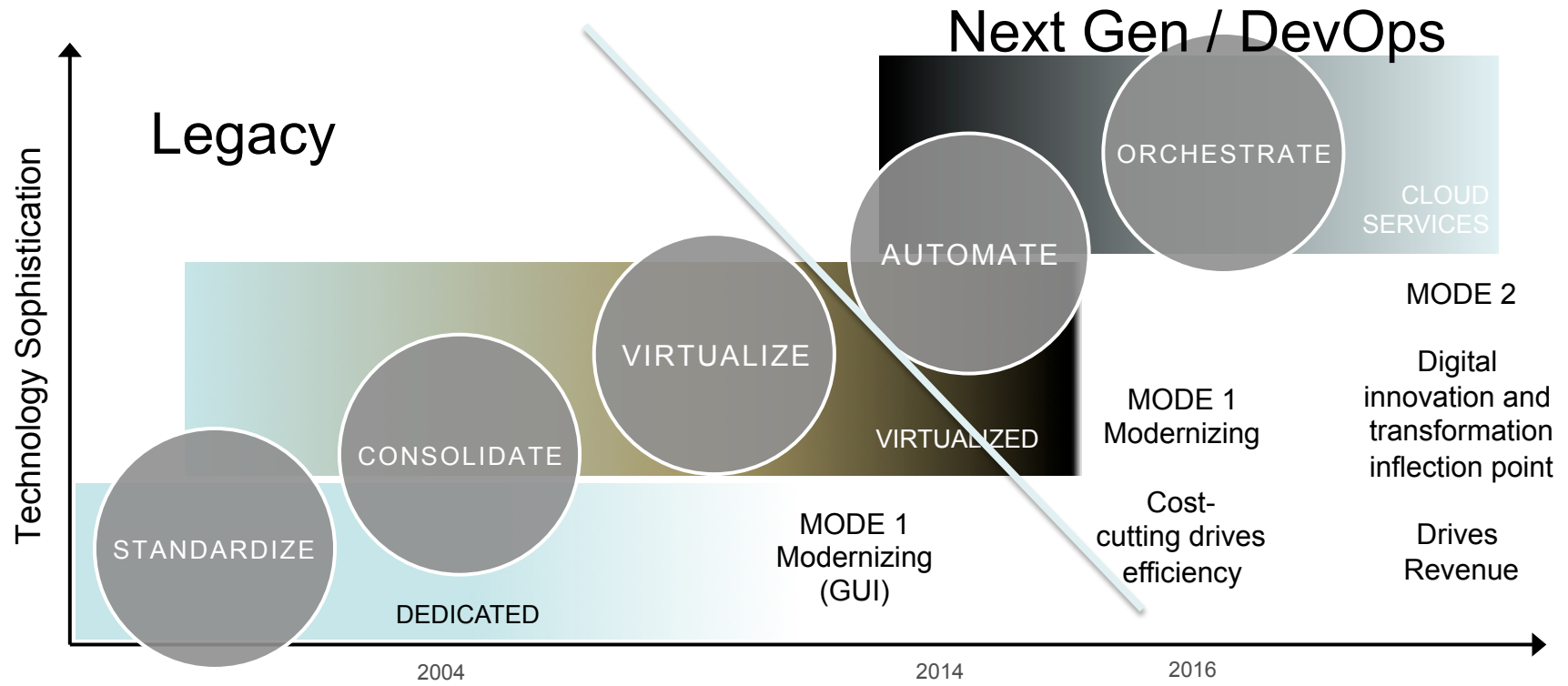
4.5M in revenue on the first day,  
35M in revenue in the first 2 weeks.  
75M downloads in first 3 weeks.

### People use Pokémon Go more per day than other apps

*This only looks at Android users as of July 8, 2016.*

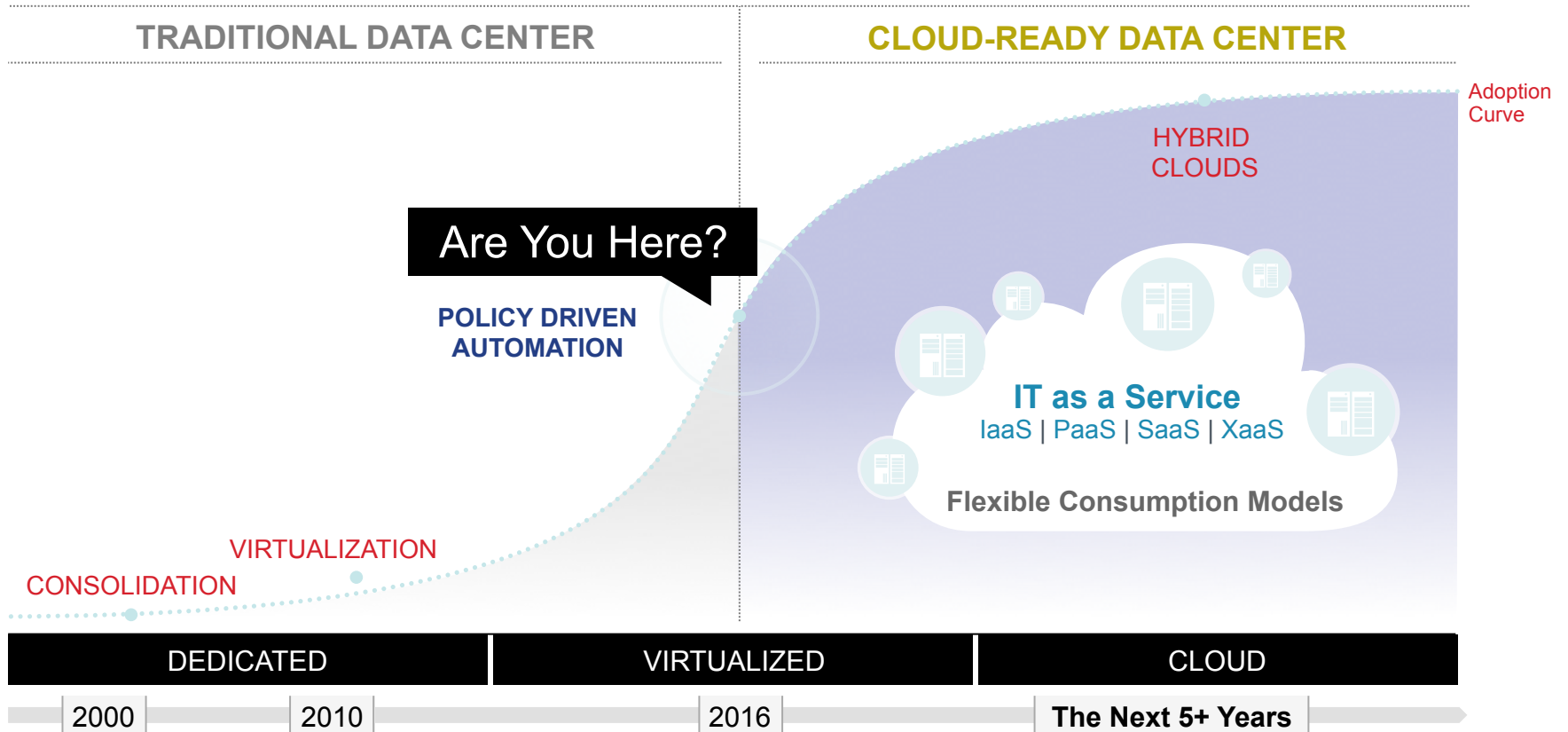


Digital innovation is up hill climb for IT





# Are You At The Turning Point?





# Different Toolsets For Digital Apps

Gartner  
Mode 1/2  
(IDC 2<sup>nd</sup>  
Platform)



Social – Mobile – Analytics - Cloud

Mode 2  
(3<sup>rd</sup> Platform)



By  
**2020,**  
**ONE-THIRD**  
of all data will live in or  
pass through the **CLOUD**



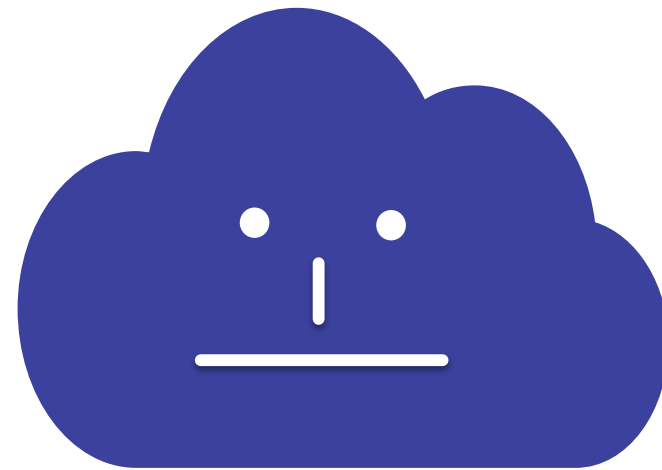
CLOUD



ON-PREMISE



HYBRID



**This is no cloud**  
It's just someone else's  
computer



# Transition To Cloud Computing Is Upon Us

## What is Cloud Computing?

IT resources and services that are abstracted from the underlying infrastructure and provided "On-Demand" and "At Scale" in a multi-tenant environment.



### IT transition has begun:

- Simplicity
- Self-service
- Choice



## What Does This Mean To IT?

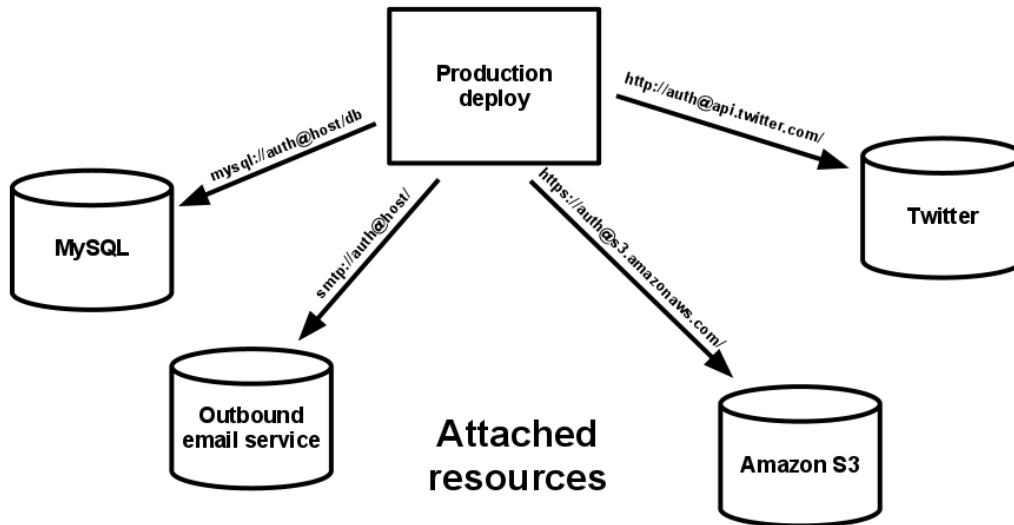
- Everything Needs To Go Virtual (Desktops, Apps, Servers, Storage)
- Any Device, Any Location, Any Time
- **Infinite Scalability** (Compute, Network, Storage)



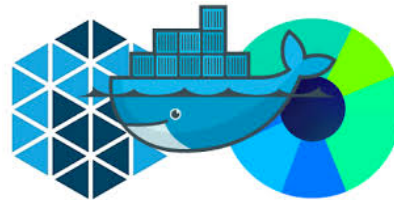


# Data Services in 12 Factor Apps – IV 'Backing Services'

Lessons from The Phoenix Project



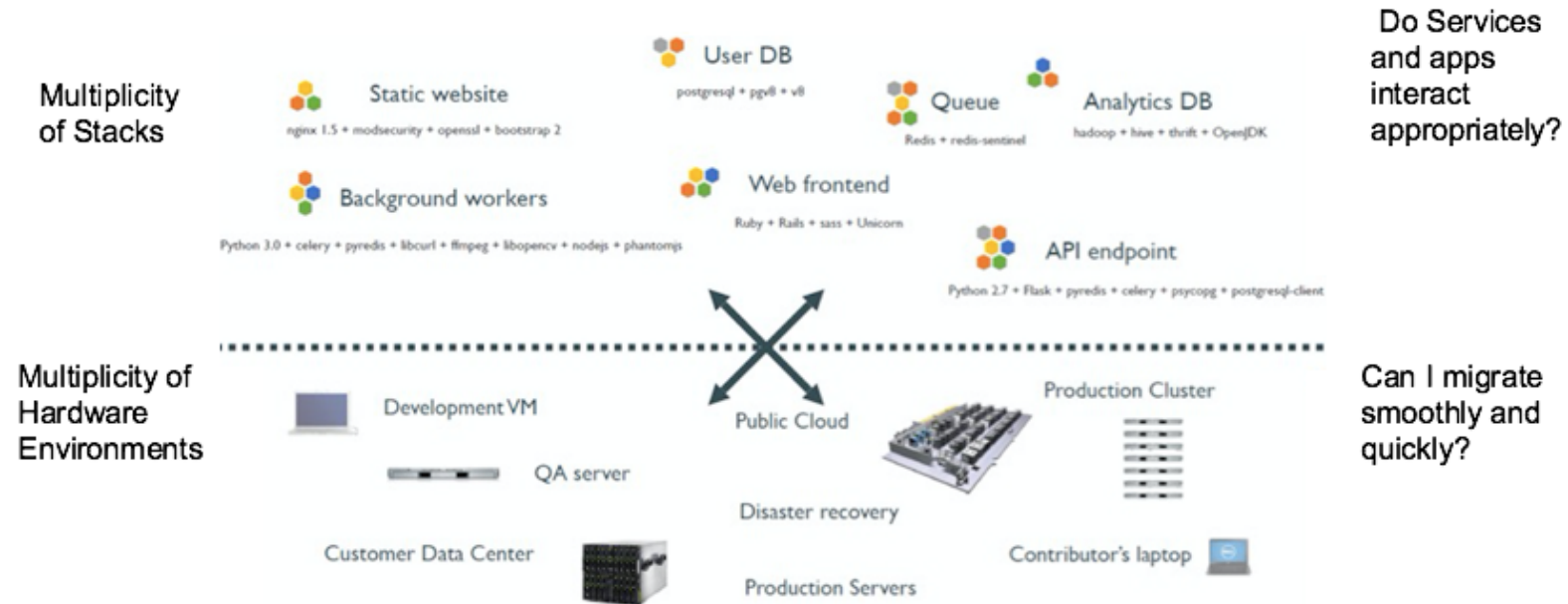
Attached resources



```
1 {
2   "container": {
3     "type": "DOCKER",
4     "docker": {
5       "image": "mongo",
6       "network": "BRIDGE",
7       "portMappings": [
8         {
9           "containerPort": 27017,
10          "servicePort": 27018
11        },
12        {
13          "containerPort": 28017,
14          "servicePort": 28018
15        }
16      ],
17      "parameters": [
18        {
19          "key": "volume",
20          "value": "/mnt/mongodb_clone:/data/db"
21        }
22      ]
23    },
24  },
25  "id": "mongodbclone",
26  "cmd": "mongod --rest --httpinterface --smallfiles",
27  "instances": 1,
28  "cpus": 0.5,
29  "mem": 128
30 }
```



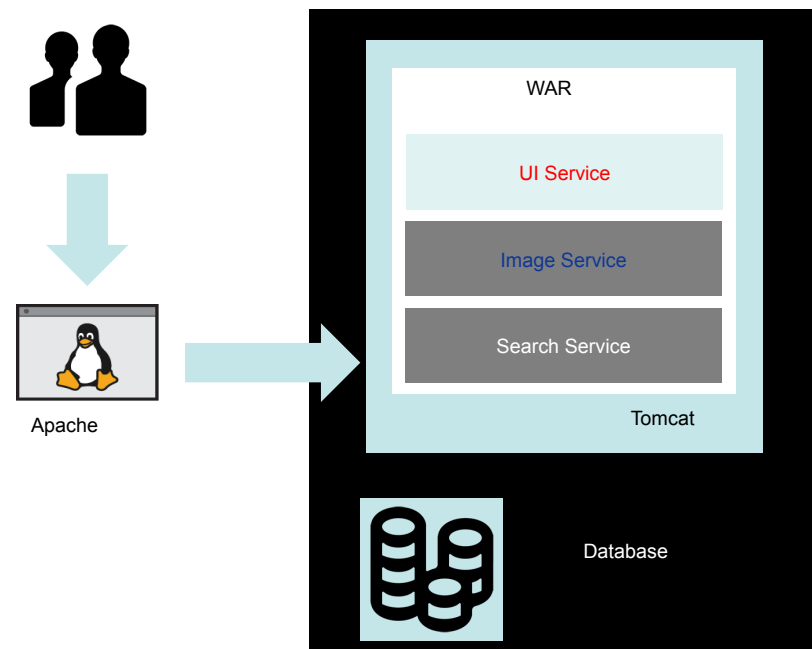
# The Struggle Is Real





# Monolithic Development

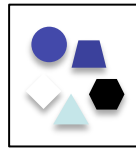
- Monolithic applications
  - Hard to update - single massive code base
  - Single dimension of scalability
- Waterfall development practices
  - Static, linear phases
    - Requirements
    - Analysis
    - Design
    - Code
    - Test
    - Deploy



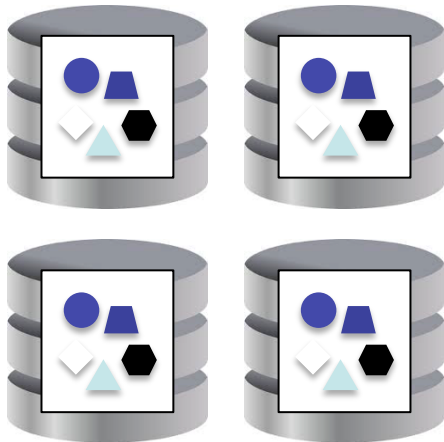


# Monolithic vs Microservices

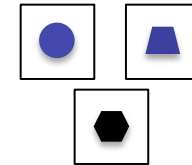
Monolithic = all functionality in single process



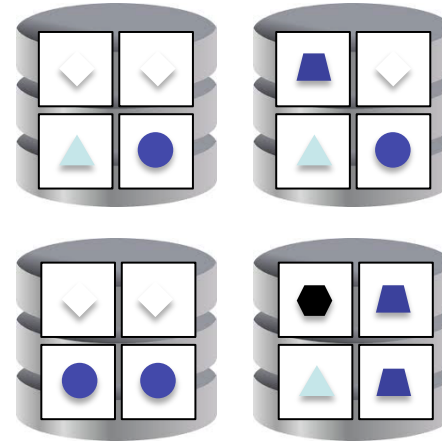
Scales by replicating monolith to multiple servers



Microservices = each element of functionality in separate processes



Scales by replicating each service across multiple servers



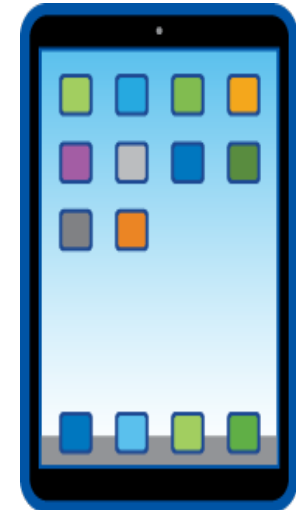
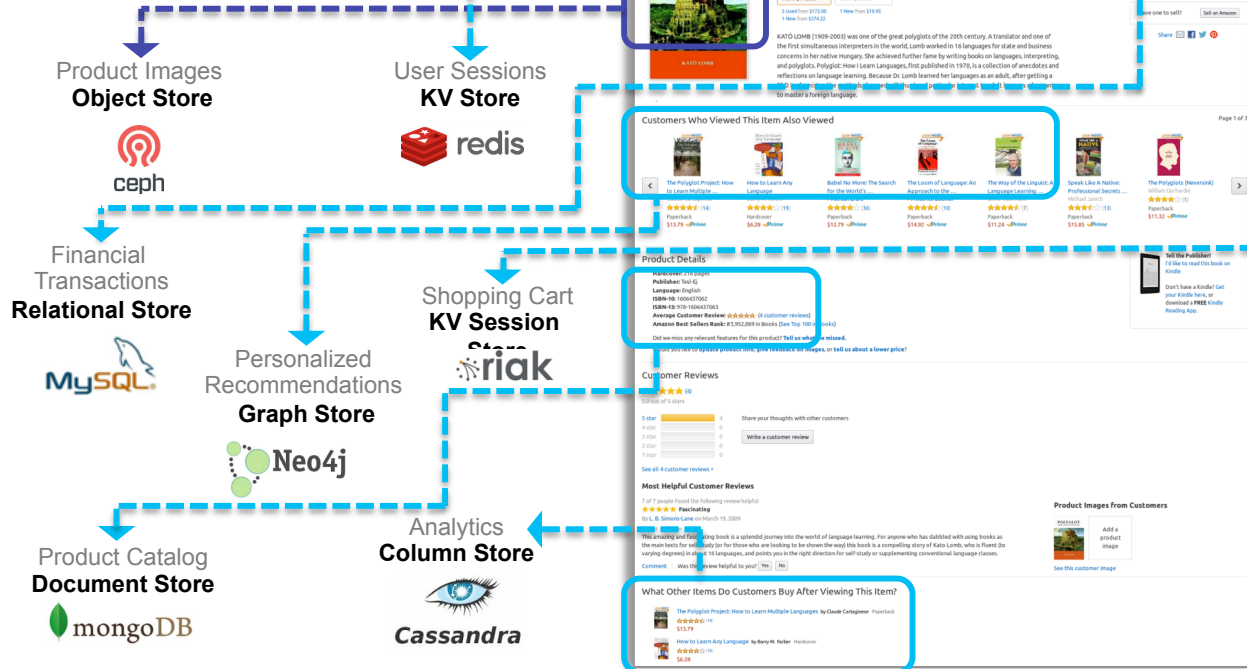


# Next-Gen data(base) processing

Web

Mobile

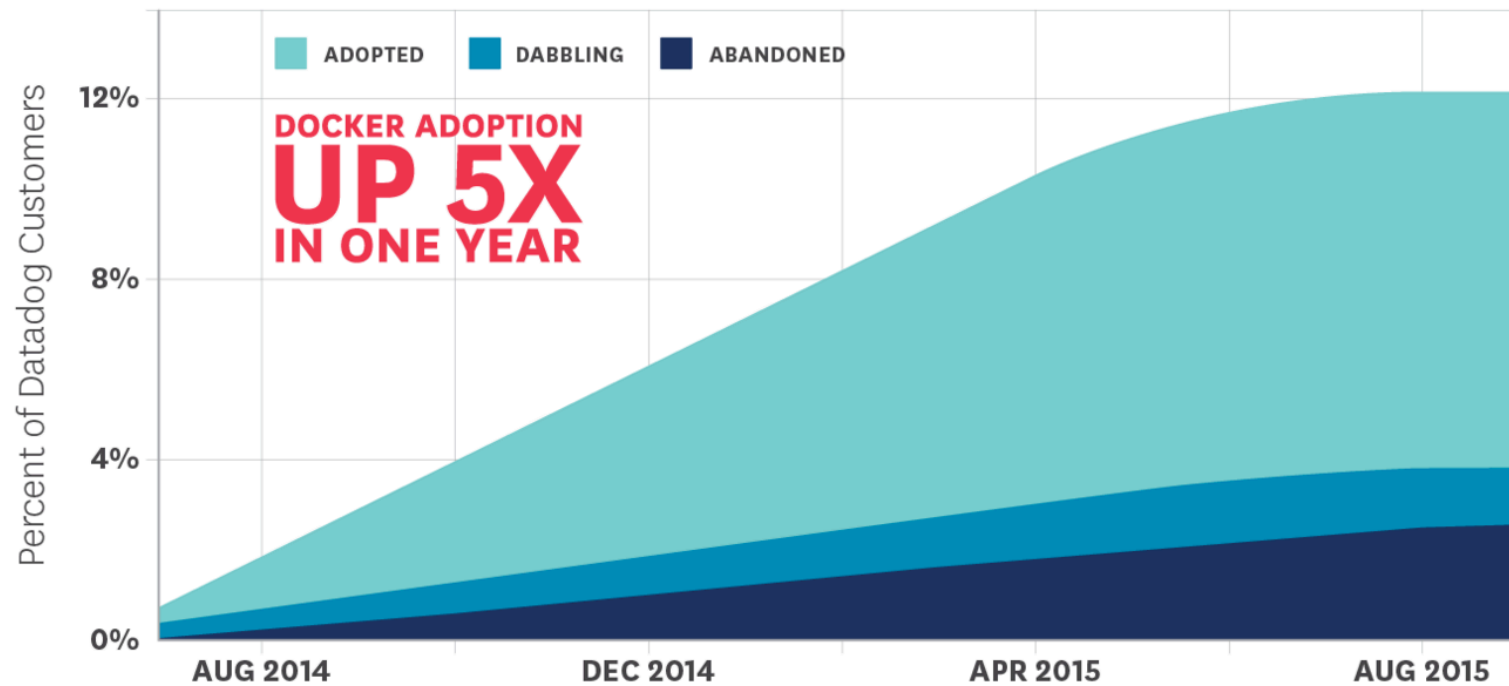
Next Gen DC view of the Cloud





# Containers Rising Popularity

## Docker Adoption Behavior



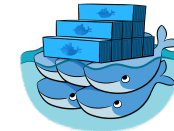
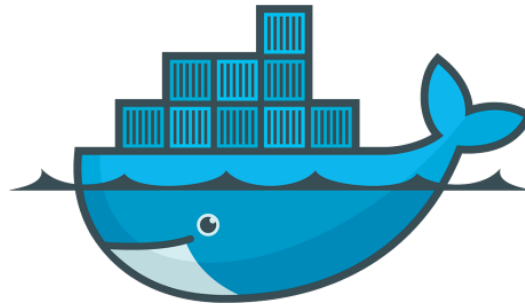
Source: Datadog



# Container Ecosystem



WEAVERWORKS



apprenda



tutum  
The Container Platform



RANCHEROS

vmware



Google

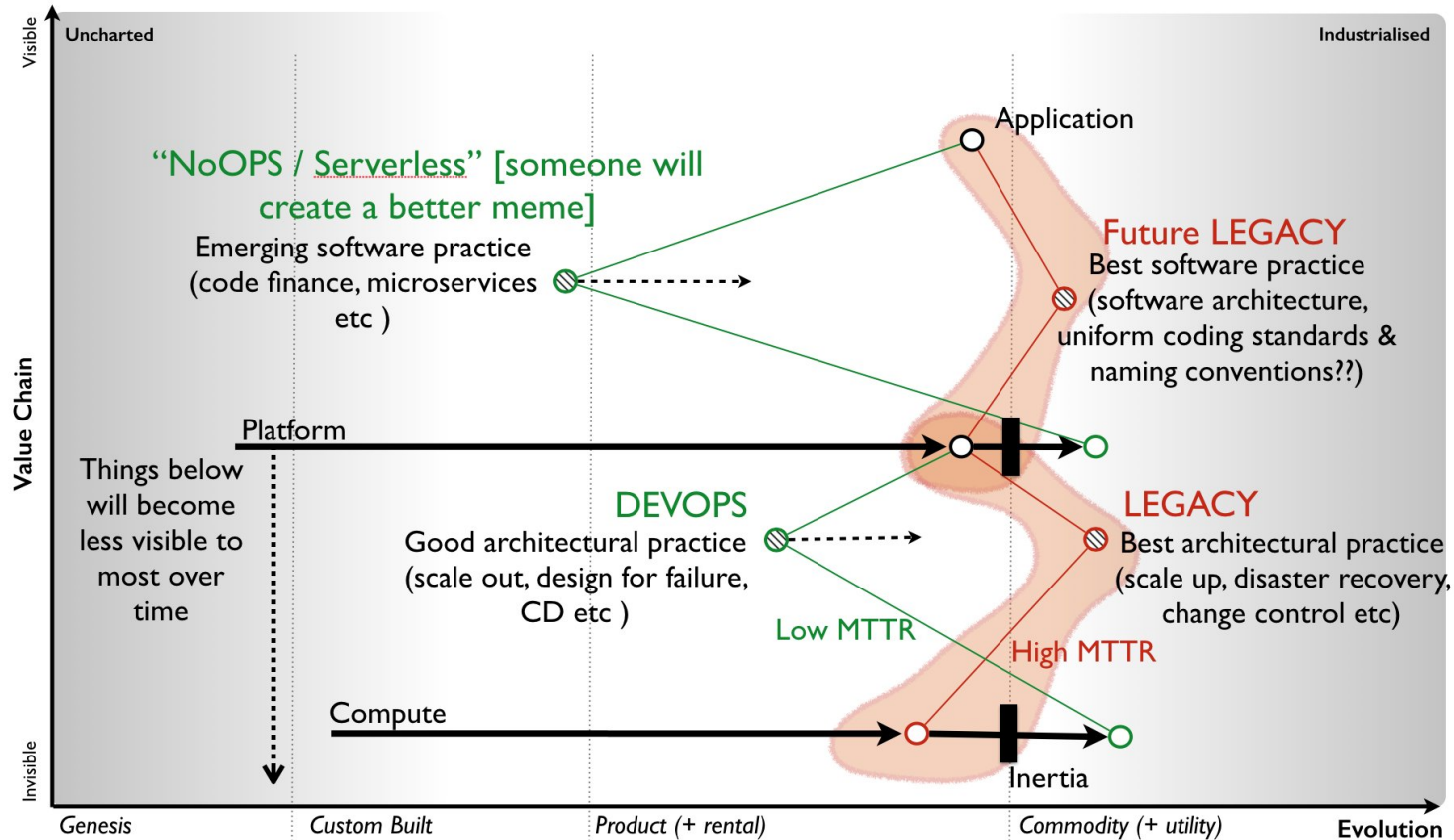


## Got Growth?

	June 2014	June 2015	Growth
<b>Contributors</b>	<b>460</b>	<b>1,300</b>	<b>183%</b>
Projects on GitHub	6,500	40,000	515%
<b>Docker Job Openings (Indeed)</b>	<b>2,500</b>	<b>43,000</b>	<b>1,720%</b>
Dockerized Applications	14,500	150,000	934%
<b>Boot2Docker Downloads</b>	<b>225,000</b>	<b>3,500,000</b>	<b>1,456%</b>
Container Downloads	2,750,000	500,000,000	18,082%



# Serverless? Going Even Further Forward





# The Relevance of Storage



	Disk	Flash	Without Control, How Can QoS Help?
Read Characteristics	<ul style="list-style-type: none"><li>• Awful Random Reads</li><li>• Good Sequential Reads</li></ul>	<ul style="list-style-type: none"><li>• Awesome Random Reads</li><li>• Good Sequential Reads</li></ul>	
Random Reads (IOPs)	<ul style="list-style-type: none"><li>• 150</li></ul>	<ul style="list-style-type: none"><li>• 10,000 +</li></ul>	
Latency (us)	<ul style="list-style-type: none"><li>• 5,000 – 20,000</li></ul>	<ul style="list-style-type: none"><li>• 200 – 500</li></ul>	
Active / Standby Power (w)	<ul style="list-style-type: none"><li>• 15 / 10</li></ul>	<ul style="list-style-type: none"><li>• 5 – 0.05</li></ul>	

Struggled with: Cost – Reliability – Density

Raw Flash Performance

Scarce resource only for select workloads

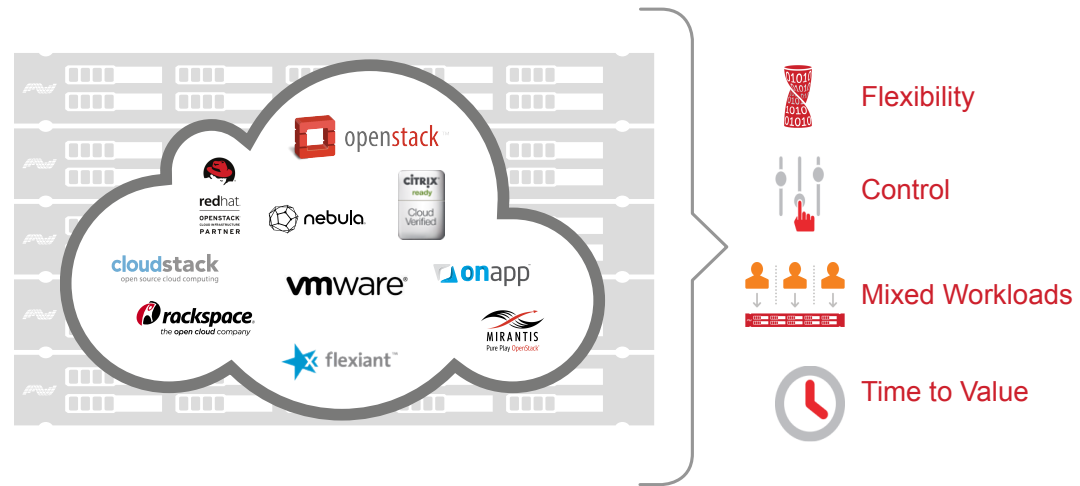


Flash Performance + (QoS) Control

Enabling technology of the Next Generation Data Center



*Native multi-tenant architecture, best-in-class integrations*





# Importance of Orchestration

*Native multi-tenant architecture, best-in-class orchestration integrations*



## Flexibility

- Dynamic resource pools
- Seamless scaling



## Workload Consolidation

- Native multi-tenant design
- Application / tenant isolation



## Control

- Control performance
- **Control cost**



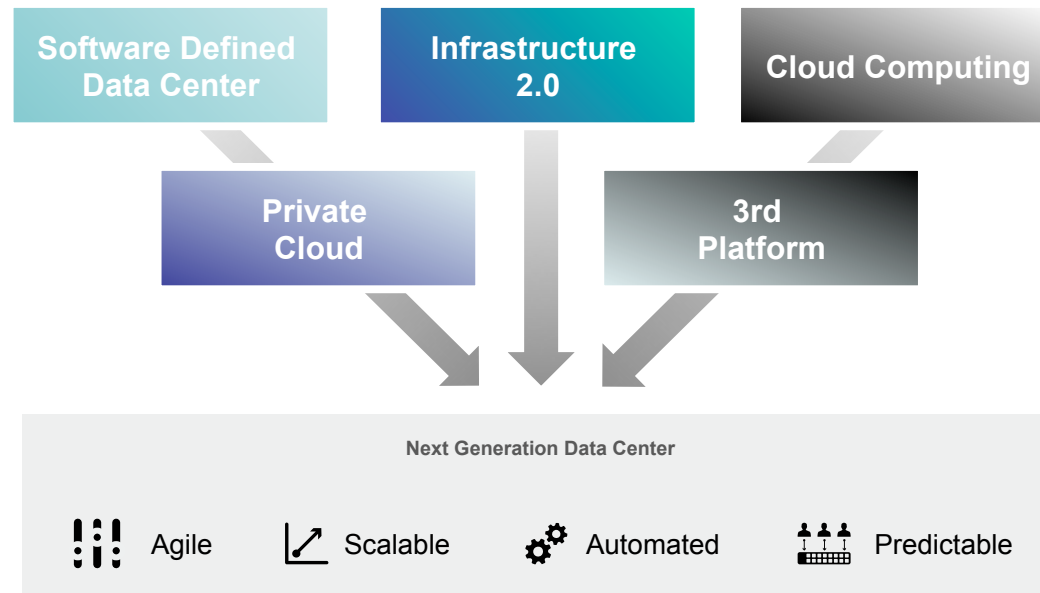
## Time to Value

- Rapid deployment
- Automated management



# Public Cloud Exerts Pressure on IT Teams

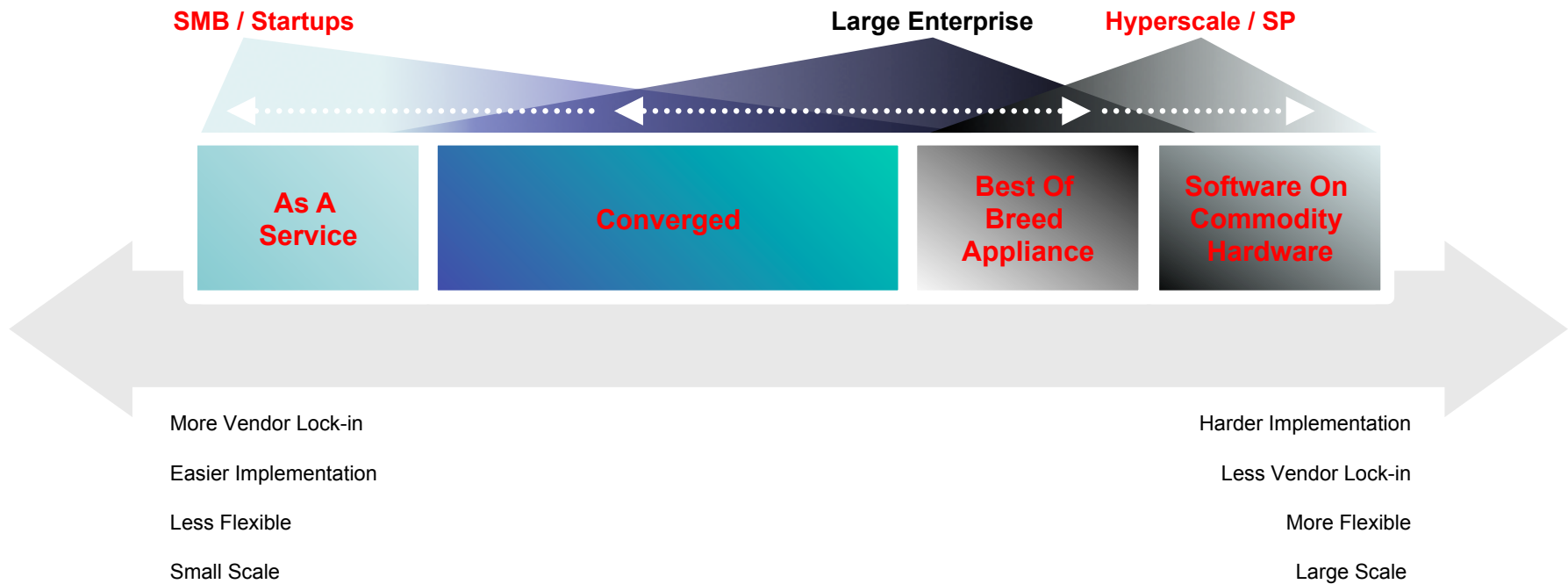
- How do you compete with AWS, Azure, & Google?



Regardless of the name, desired outcomes are the same



# Consumption Models Of Storage Provides Many Choices





# Services, not product addressing today's Digital Opportunities

