

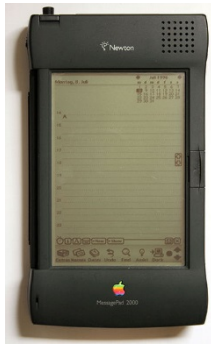
PaaS and the Newton: *One of These Things is Just Like the Other*

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The views expressed and opinions in this talk are solely those of the presenter and do not represent those of EMC.

Story of the Apple Newton

“The **Newton platform** is a personal digital assistant developed by Apple Inc.. Development of the Newton platform started in 1987 and officially ended on February 27, 1998....”



http://en.wikipedia.org/wiki/Apple_Newton

Platform-as-a-Service

Infrastructure-as-a-Service

Applications

Operations

Platform-as-a-Service

will surpass
consumer

adoption of

Infrastructure-as-a-Service

Applications

Operations

Platform-as-a-Service

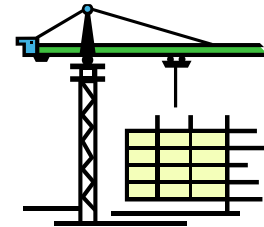
will surpass
consumer

adoption of

Infrastructure-as-a-Service

because

Applications += \$\$\$



but

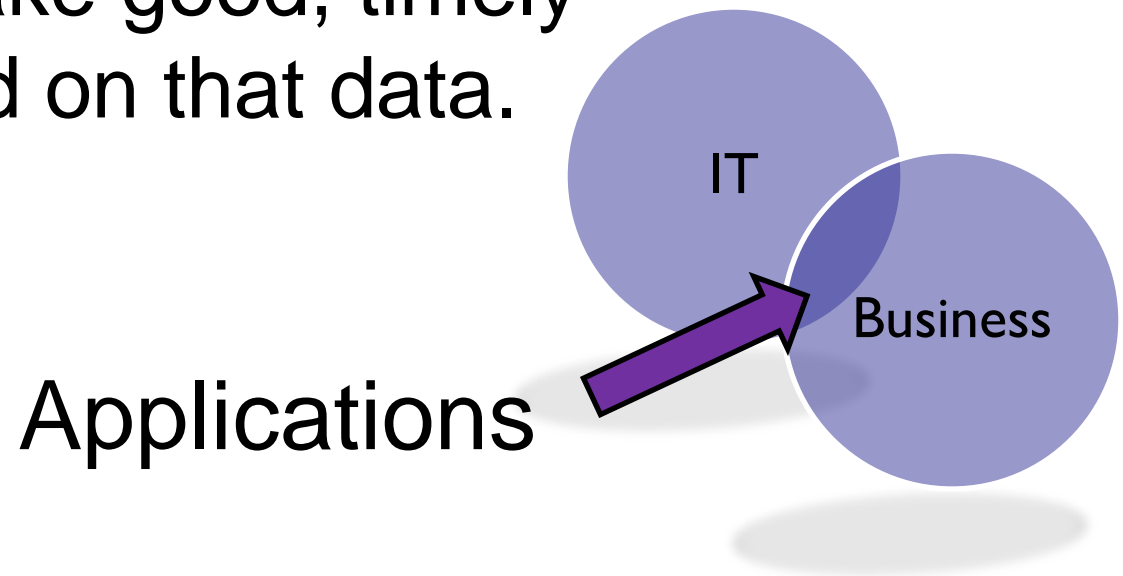


~~Operations -= \$\$\$~~



Computing is fundamentally about data and transformations on that data.

Business success is largely based on the ability to make good, timely decisions based on that data.

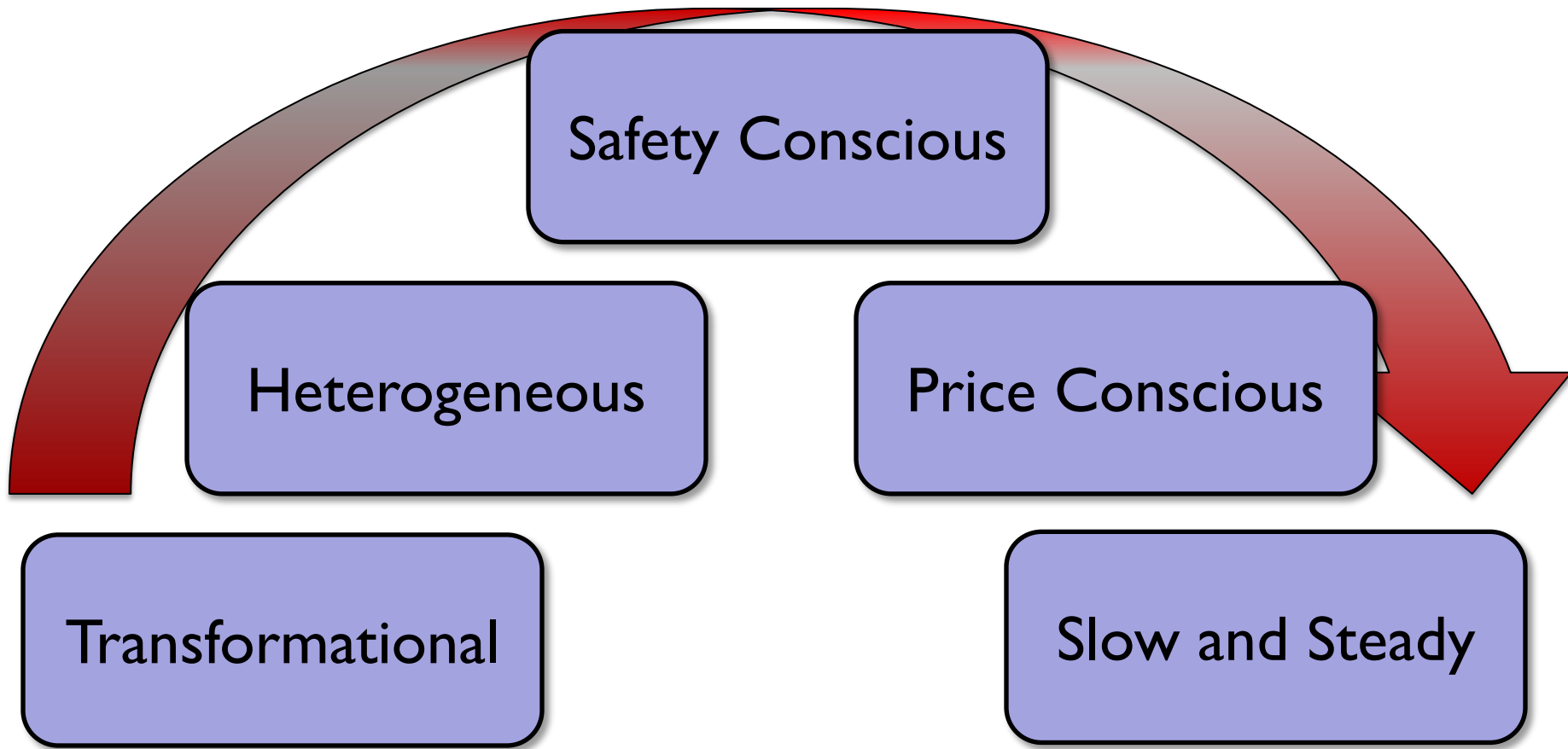


“Operational Effectiveness is not Strategy”

*Michael Porter, “What is Strategy?”
Harvard Business Review*

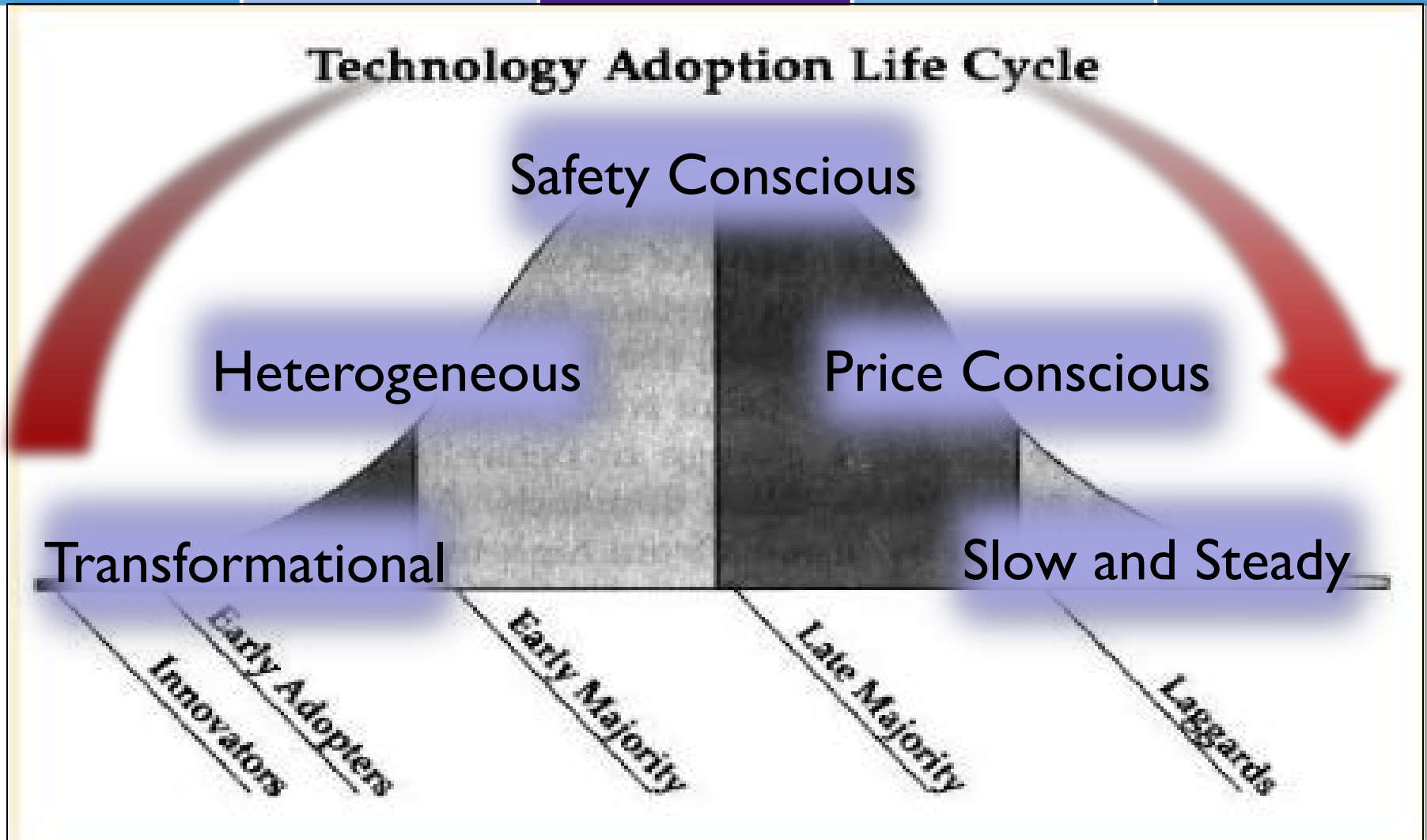
But from a competitive standpoint, the problem with operational effectiveness is that best practices are easily emulated. As all competitors in an industry adopt them, the **productivity frontier** ...shifts outward, lowering costs and improving value at the same time.the more **competitive convergence** you have—that is, the more indistinguishable companies are from one another.

Cloud Adoption Demands

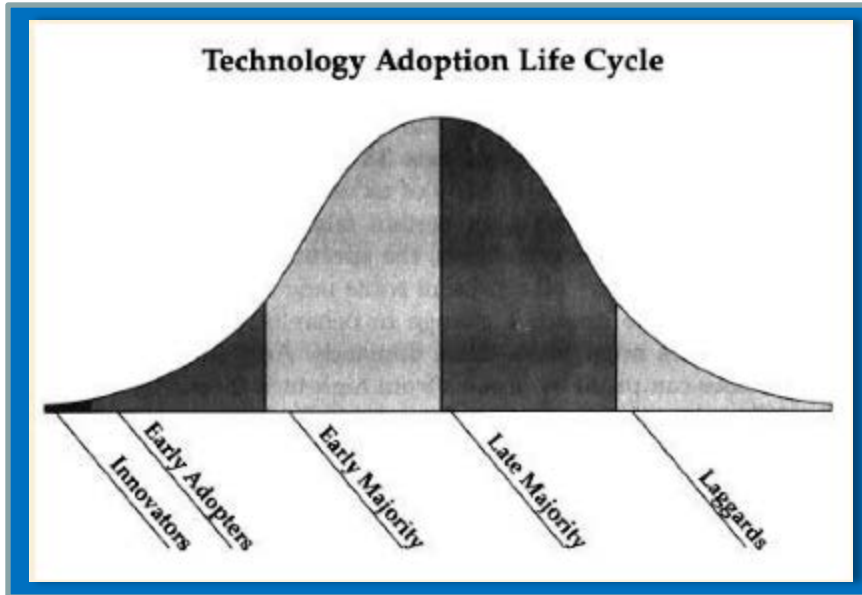


*Source: "The five faces of the cloud",
Bain & Company, 2011*

Cloud Adoption Demands



The Moore things change...



Moore, Geoffrey A. (2009-03-17).
“*Crossing the Chasm: Marketing and Selling High-Tech Products to Mainstream Customers*”

“The early majority share some of the early adopter’s ability to relate to technology, but ultimately they are driven by a strong sense of practicality.
...Because there are so many people in this segment— roughly one-third of the whole adoption life cycle-winning their business is key to any substantial profits and growth.”

Why Platform-as-a-Service?

- ❑ Prediction: PaaS will overtake IaaS in mass as the cloud technology of choice
 - ❑ What is the impact to storage consumption?
- ❑ Reason: Core vs. Context
 - ❑ Business differentiation is more often made by applications (workflows) than infrastructure
- ❑ Danger: As storage engineers, we tend to view the world through infrastructure because that is what we know.

- ❑ Force.com (2008)
 - ❑ Integration with Salesforce.com

- ❑ Google App Engine (2008)
 - ❑ Special app requirements for “Google Scale”

- ❑ Microsoft Azure (2010)
 - ❑ .NET runtime with native Windows code support

Back peddling ???

- Google
 - GAE introduced in 2008
 - Google Compute Engine introduced in 2012

- Microsoft Azure
 - PaaS introduced in 2010
 - “Virtual Machine Role” introduced in 2011

Today, We Live in an IaaS World



Source: Gartner Magic Quadrant for IaaS (2013)

Today, We Live in an IaaS World



□ Amazon

□ ...

Source: Gartner Magic Quadrant for IaaS (2013)

Today, We Live in an IaaS World



- Amazon
- Microsoft
- ...

Source: Gartner Magic Quadrant for IaaS (2013)

Today, We Live in an IaaS World



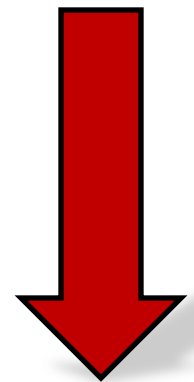
- Amazon
- Microsoft
- Rackspace
- (Google)
- ...

Source: Gartner Magic Quadrant for IaaS (2013)

Disruption

- ❑ “Surviving Disruption”, HBR, 12/2012
 - ❑ M. Wessel and C. Christensen
- ❑ Barriers to disruption
 - ❑ Momentum (customer inertia)
 - ❑ Current technology (exists today)
 - ❑ Ecosystem (business environment)
 - ❑ New technology (does not current exist)
 - ❑ Business model (cost structure)
- ❑ Technology will catch up

Lowest

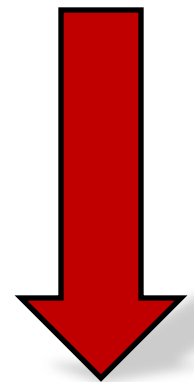


Highest

Disruption

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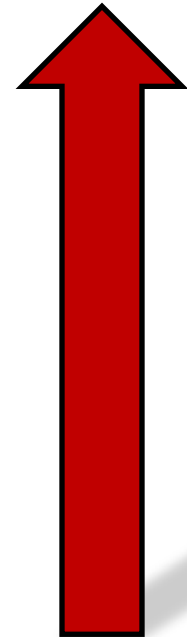


Highest

Vertical Momentum of Virtualization

- ❑ Virtualization requires decoupling components
 - ❑ Hypervisor data stores move file due to ease of management
 - ❑ Storage will moves into software due to ease of deployment
- ❑ PaaS is another layer of virtualization (of the Programming Platform)
 - ❑ Frameworks and runtimes abstract away from the operating system
- ❑ Mature technologies always become a platform

Application
Services



Hardware

SOA is not DOA

```
#include <cloud.h>

// Services define the Interfaces.
// Interfaces define the API.
// API defines the Platform.
// Applications are built on the
// Platform that enables the business
// to keep the lights on!
```

```
PaaS = new SOA( REST, JSON )
```

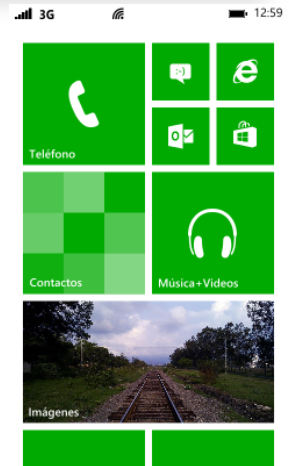
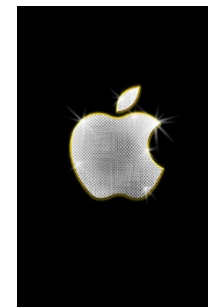
- ❑ Services
 - ❑ RDMS, NoSQL, Email, Message Queues, Storage, Runtime Environment, Auto-Scaling

- ❑ Common vs. Specific Language Runtime
 - ❑ .NET, PHP, Node.js, Python, Ruby, Java

- ❑ Vendors
 - ❑ Cloud Foundry, AppFog, Engine Yard, CloudBees, dotCloud, Heroku, etc...

Platform Wars (Again)

- ❑ Mobile application developers struggle with multiple platforms
 - ❑ iOS vs. Android vs. Windows Phone
- ❑ “Port” UI code to each device
- ❑ Real work done off device and accessed via RESTful interface



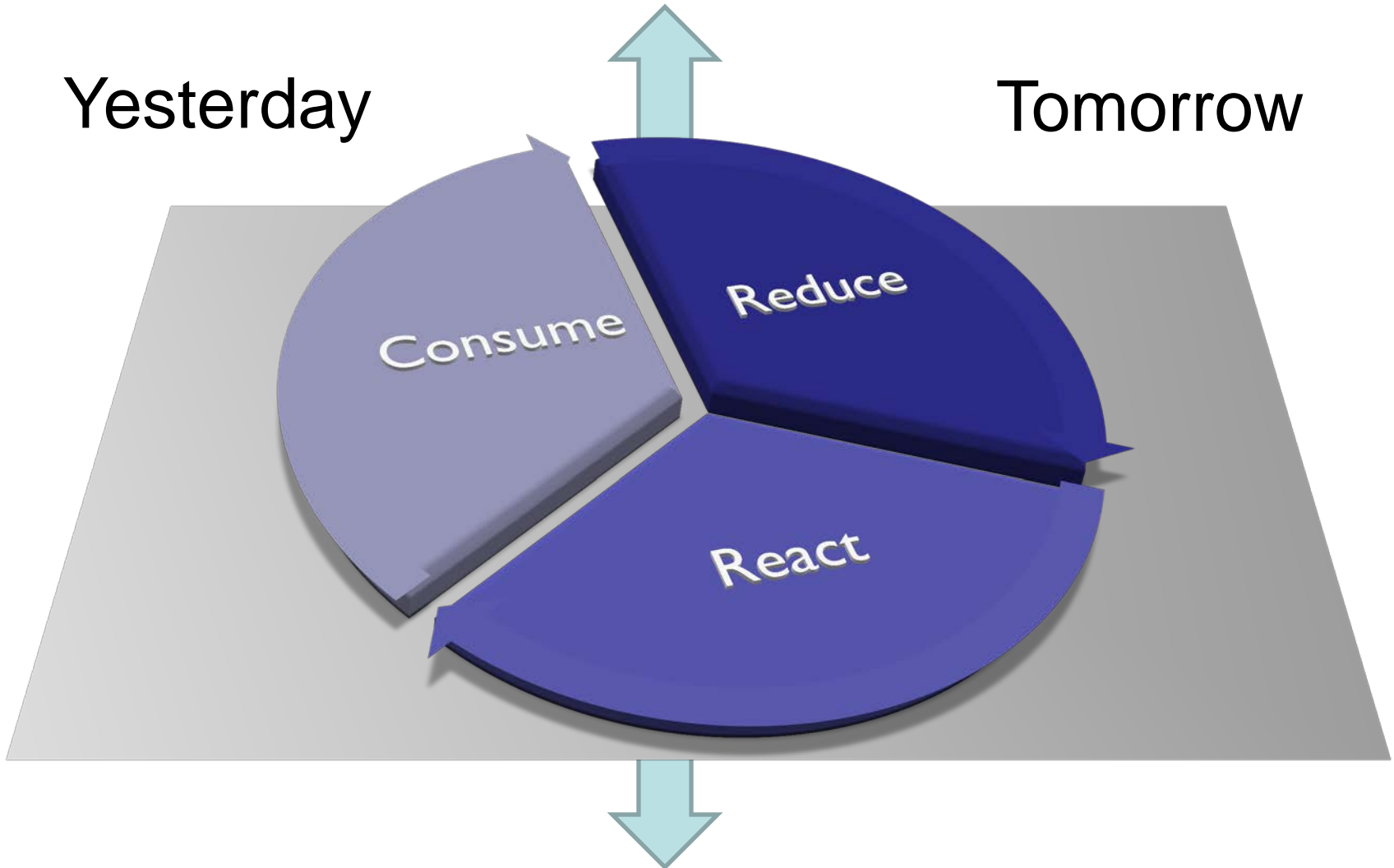
Storage Consumption Model

- ❑ Infrastructure storage continues to use DAS, traditional file protocols (e.g. SMB, NFS), or geo-scale distributed file systems
 - ❑ Storage for NoSQL, RDMS, Mail, Message Queues, Objects

- ❑ REST API to objects
 - ❑ HTTP GET/POST

- ❑ New ones?

What to do?



iPhone – Newton Reloaded

“The **iPhone** is a line of smartphones designed and marketed by Apple Inc. The first generation iPhone was released on June 29, 2007....”



<http://en.wikipedia.org/wiki/Iphone>

“That is the most expensive phone in the world and it doesn’t appeal to business customers, because it doesn’t have a keyboard, which makes it not a very good email machine.”

— *Steve Ballmer*
~~*On the Newton, 1987.*~~
On the iPhone, 2007.

Thank You

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