

# Inside the Cloud

## The Supporting Architecture of Cloud Computing

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Virtualisation Cloud Computing = SaaS

Fad Paradigm Shift

Technical Architecture

SaaS = Cloud Computing Infrastructure

Commercial Model



<http://www.flickr.com/photos/imittbo/2429675509/>

1

## Offsite

Accessing offsite IT resources in a data centre that's not your own. You don't buy the underlying infrastructure, someone else does

2

## Virtual

You assemble software stacks, infrastructure capabilities and business services and manage them through abstraction layers from the underlying implementation

3

## On Demand

Use the resources you need, when you need them. Scale up and down as required

4

## Subscription

Only pay for what you use. Whether month-by-month or pay-per-mile

5

## Shared

To achieve the best economies of scale, the requirements of many organisations are delivered from the same underlying capability

6

## Simple

Removing the barriers to entry by providing easy ways to access and configure resources extremely quickly

7

## Web Based

Centralised and distributed, interconnected and unrestrained by geography.

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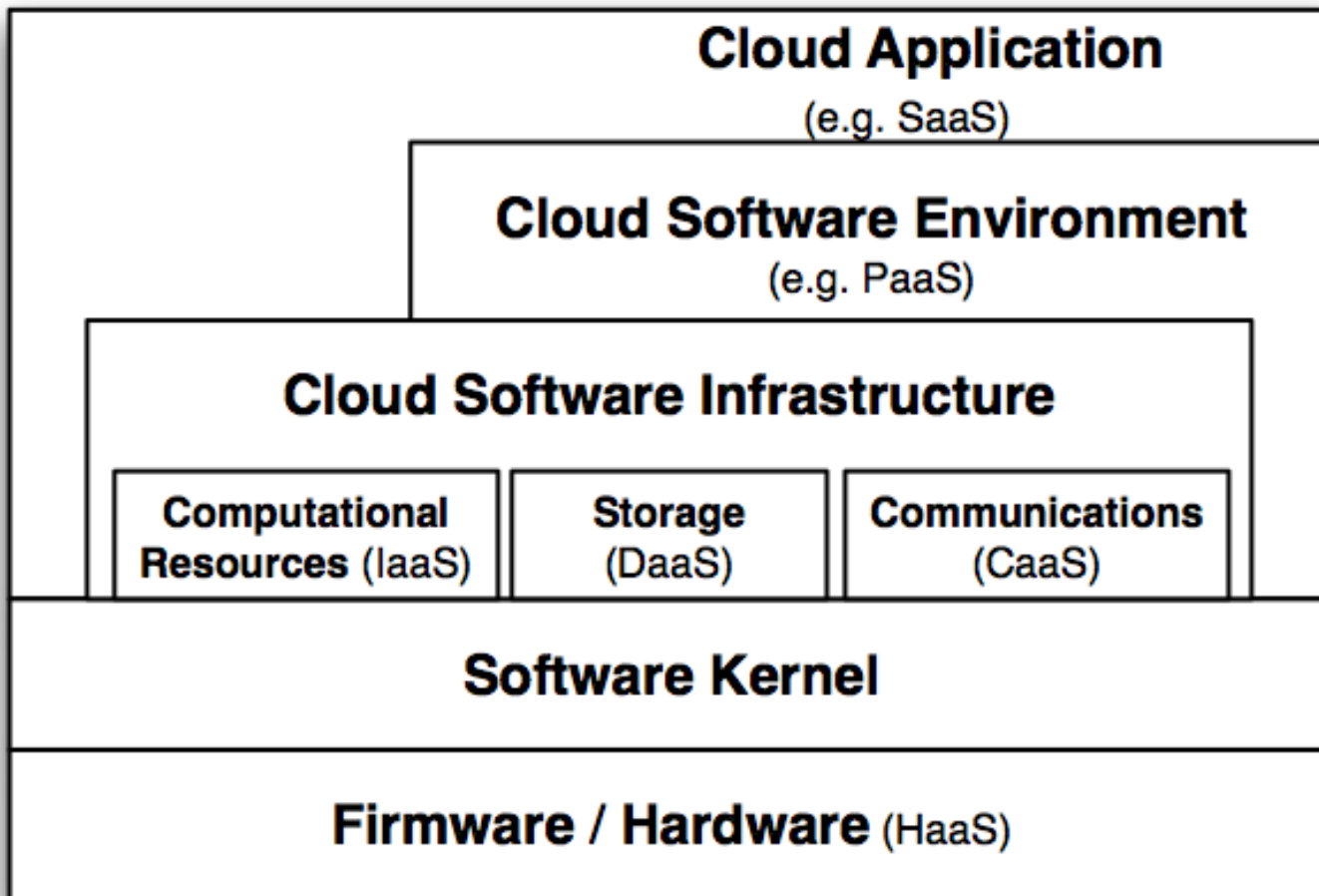
7

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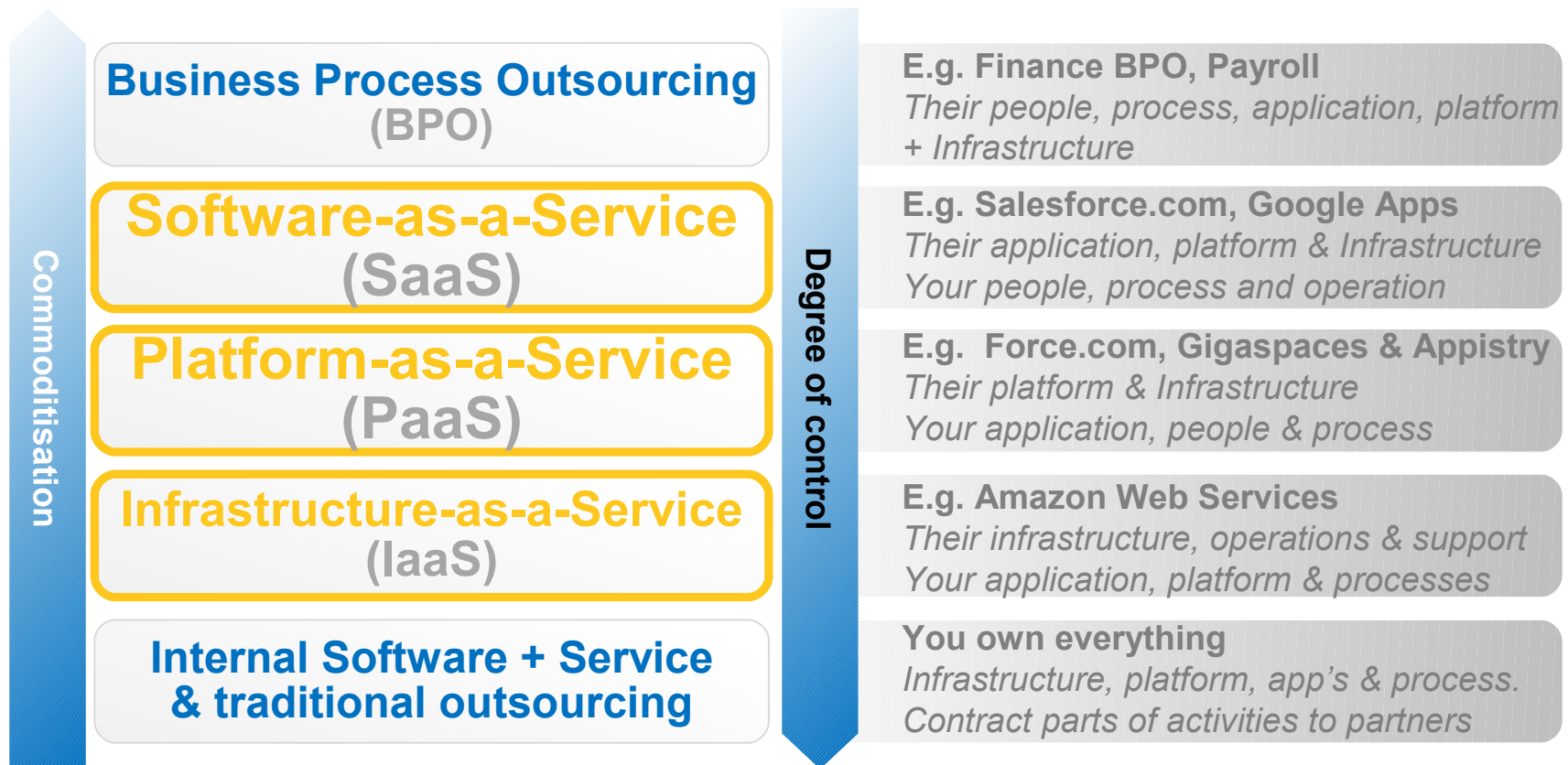
**Result:**  
**Whole lot of \*aaS -**  
**Cloud = Anything-as-a-Service**

# Cloud Ontology



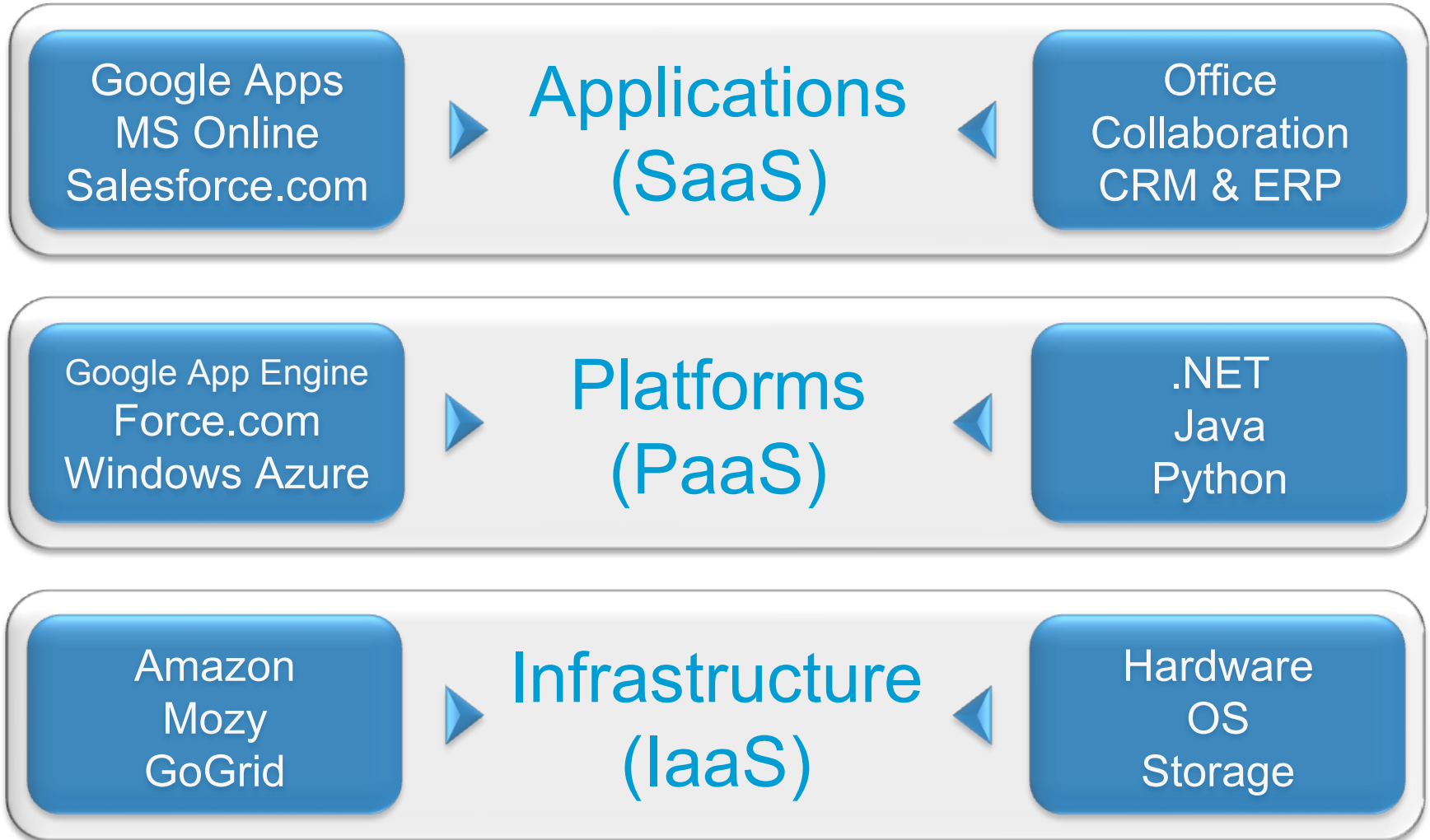
Toward a Unified Ontology of Cloud Computing, L. Youseff, M. Butrico, and D. Da Silva, UCSB, November 2008

# A Balance of Control and Standardisation

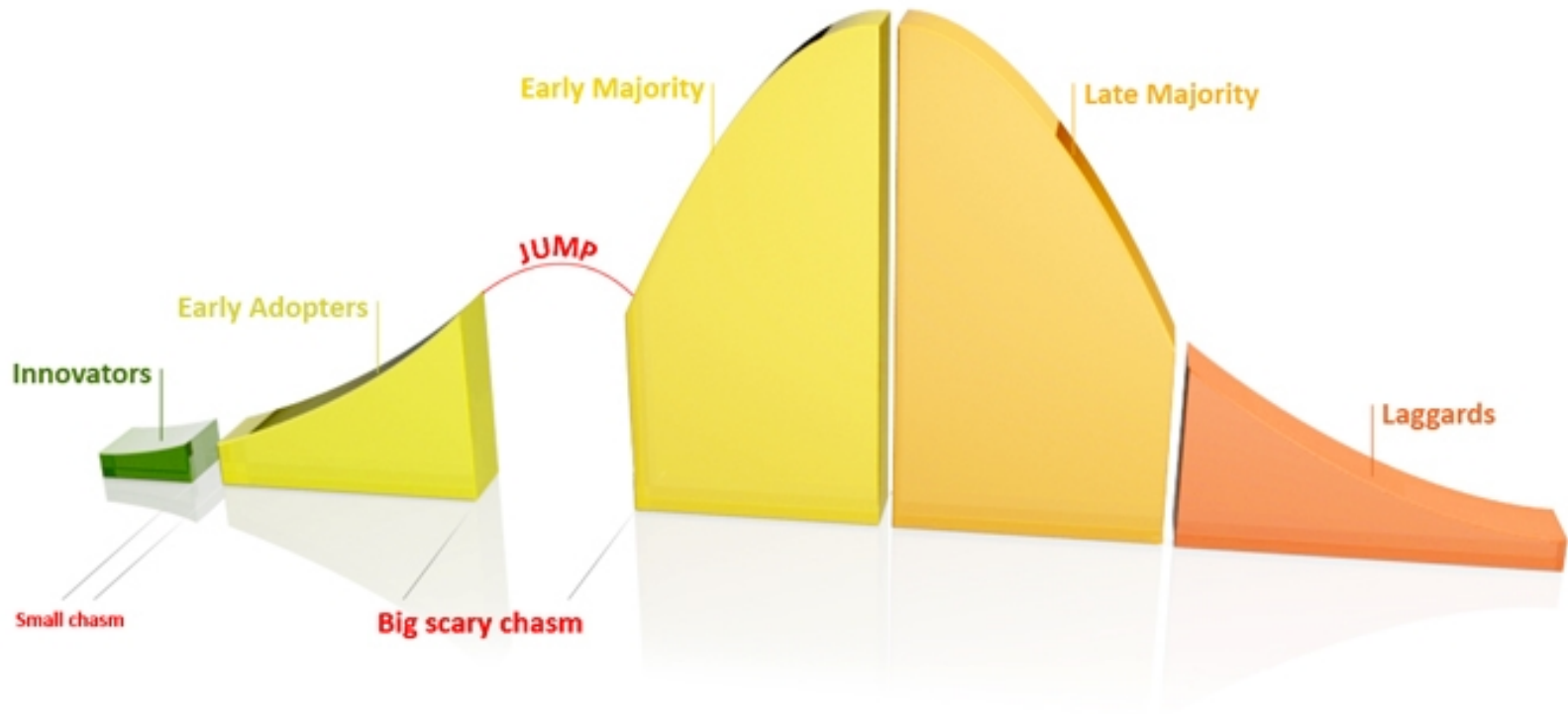


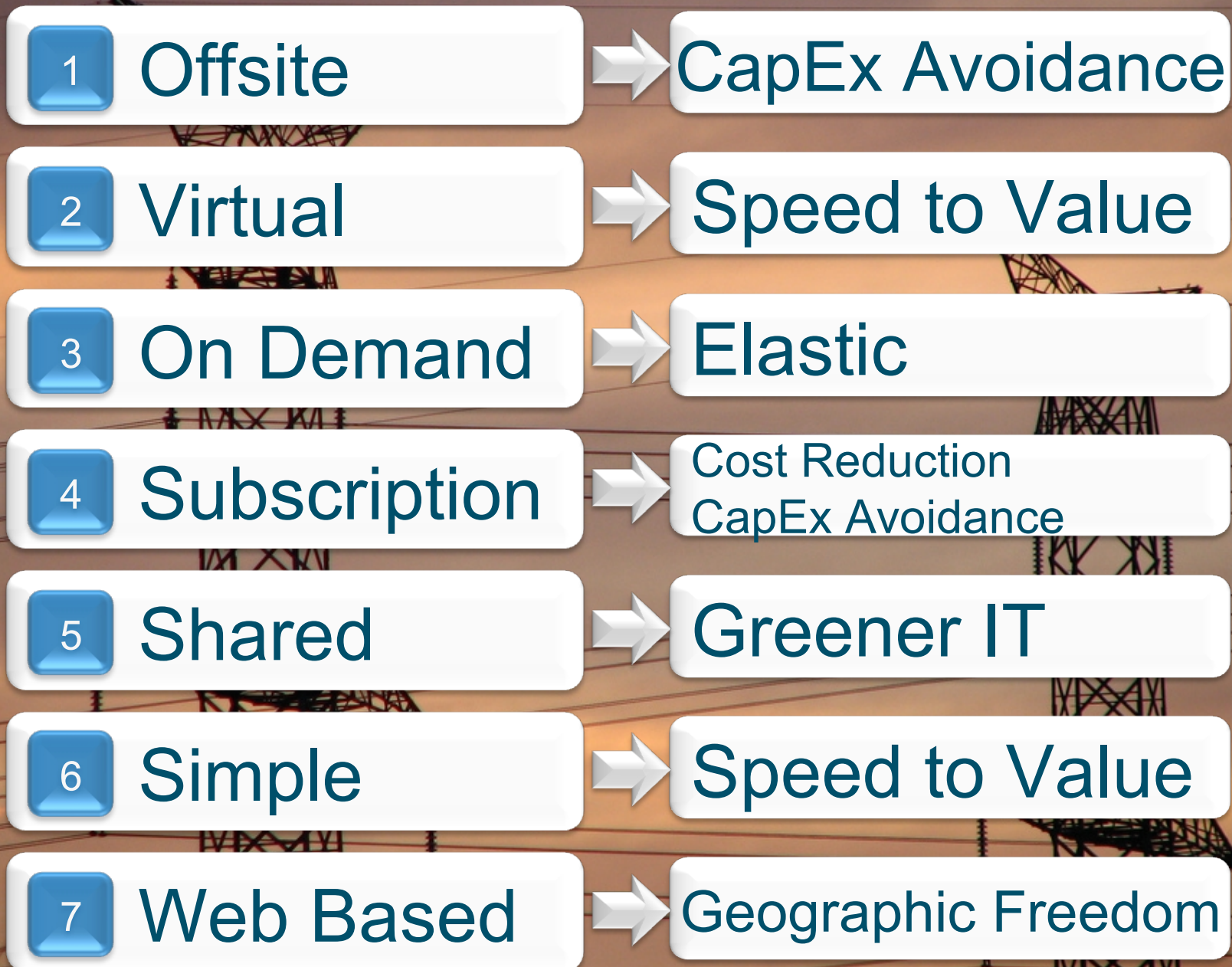


# The Three Layer Cloud Stack

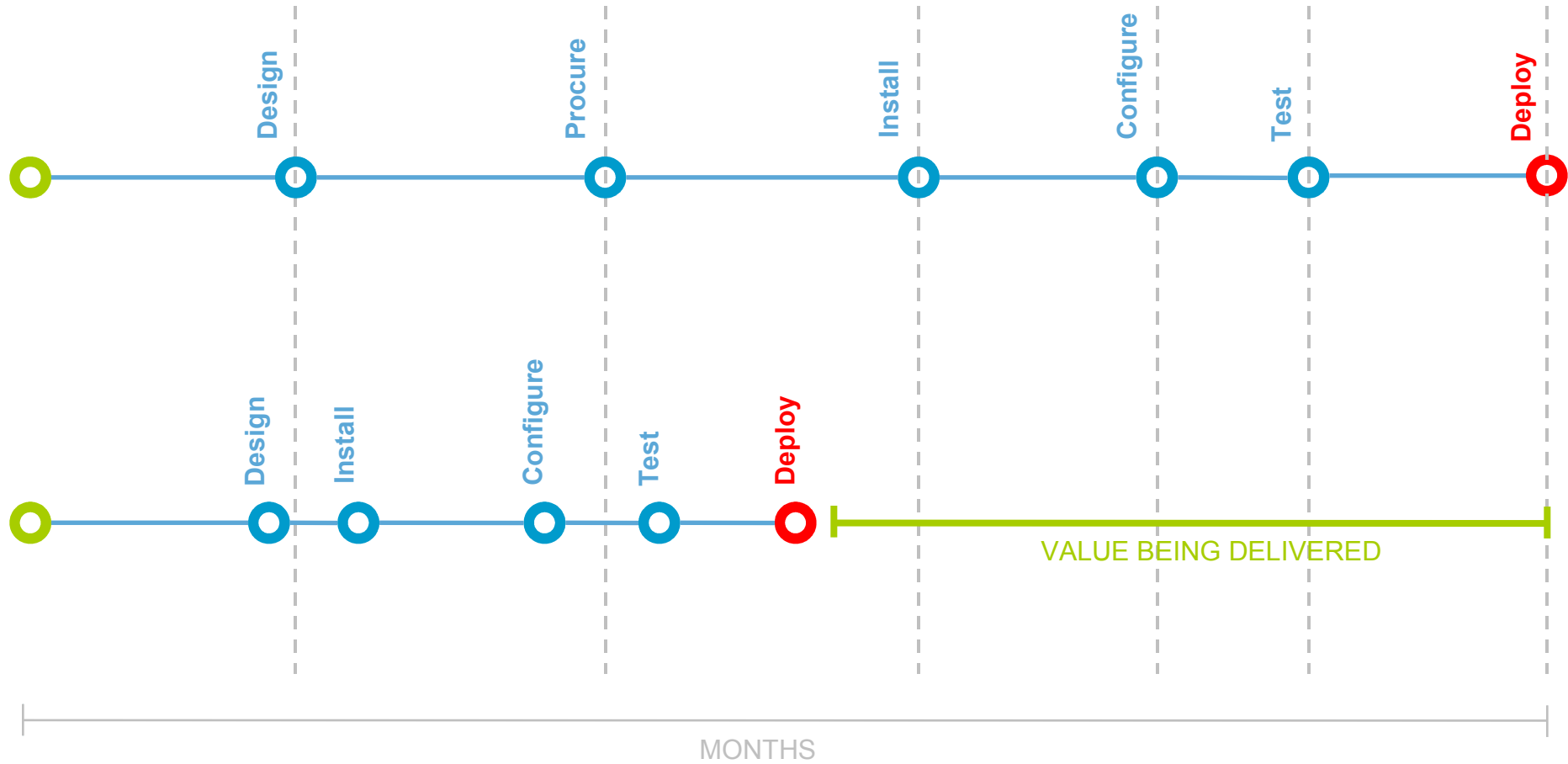


# Moore - Crossing the Chasm



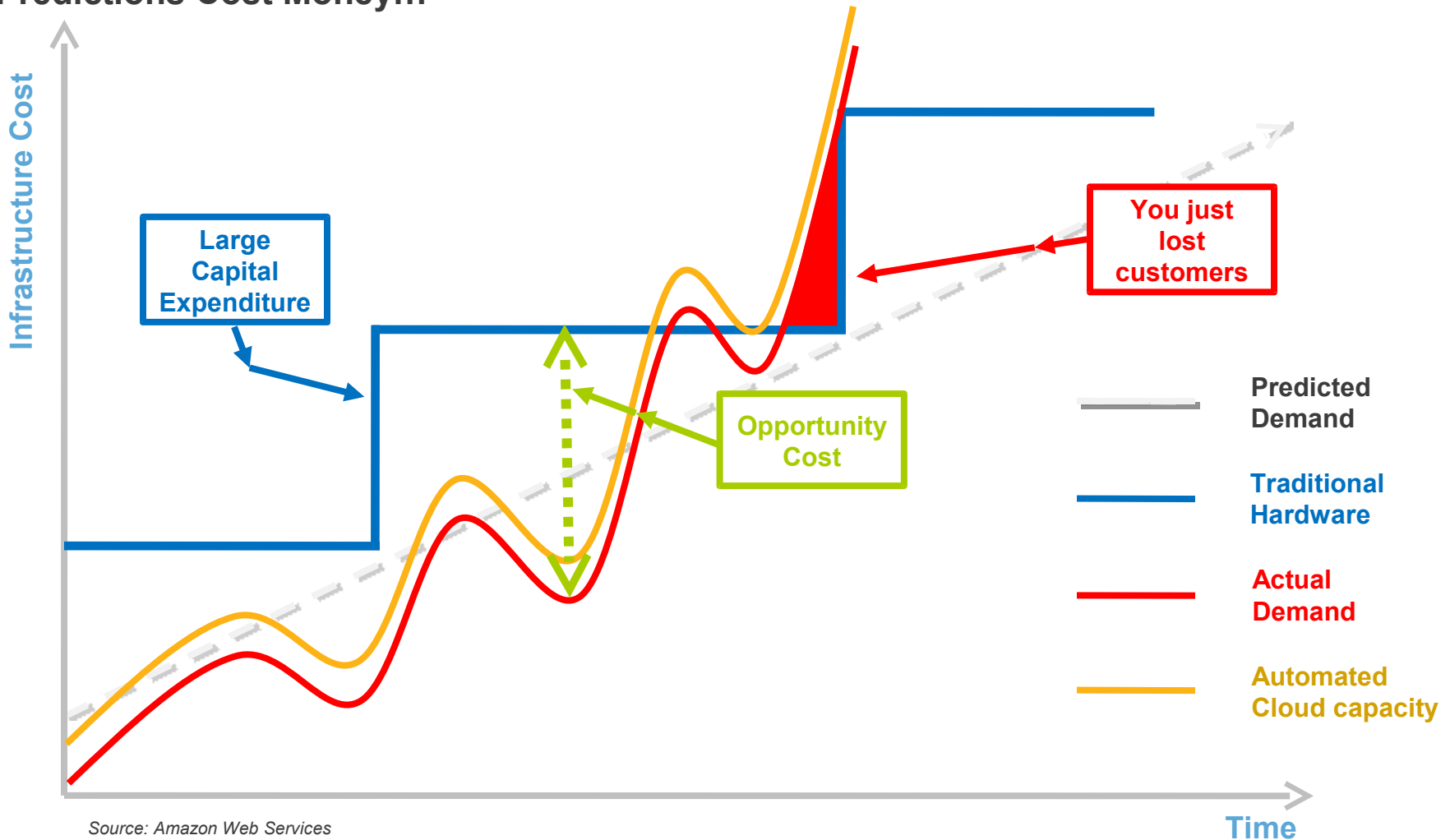


# The Cloud Accelerates Speed to Value



# The Complex Science Of Capacity Planning Is Simplified

Predictions Cost Money...



Source: Amazon Web Services

# Challenges for Cloud Computing

-  Migrating Existing Applications
-  Integrating with Existing Enterprise Services and Data
-  Managing Risk and Perceived Risk
-  Addressing the Concept of SLAs
-  New Ways of Looking at Total Cost of Ownership
-  Service Management for Cloud Resources
-  Embracing Organisational Change
-  Adapting Licensing Models
-  How to Get Started

# Challenges for Cloud Computing



## Migrating Existing Applications

- The most commonly discussed use case
- The cause of false starts into the cloud
- Some architectural differences
- Some additional benefits
- Pick your targets
- Consider this an opportunity cost

# Challenges for Cloud Computing



## Integrating with Existing Enterprise Services and Data

- Changing organisational boundaries
- New security paradigms
- Identity Management
- Management Platforms
- Web Services
- Mashups – BPM as a Service



# Challenges for Cloud Computing



## Managing Risk and Perceived Risk

- Legal & regulatory compliance
- Resilience – Why do we backup?
- Over-optimistic about current practices?
- Not all requirements are equal
- Old paradigms do not apply
- Jericho Style security

# Challenges for Cloud Computing



## Addressing the Concept of SLAs

- How to trust others with your business?
- What is the real reason to have an SLA?
- Uptime is achieved through architecture
- Compare the written commitment with the actual performance
- What is your current *real* uptime?
- What does this cost you?

# Challenges for Cloud Computing



## New Ways of Looking at Total Cost of Ownership

- Is Cloud computing more expensive?
- How to address sunk investment cost with anything but free?
- Ensure you're comparing apples with apples
- Cloud pricing is Transparent, Fixed, Easy
- Tiered pricing models now appearing
- Don't over provision resources
- Pick the use-cases carefully
- Try it and see

# Challenges for Cloud Computing



## Service Management for Cloud Resources

- Are current tools capable for now?
- Cloud offers new approaches
  - Different challenges
  - Better capabilities
- New toolsets required
- CohesiveFT, RightScale, Splunk, ...
- Open standards initiatives

# Challenges for Cloud Computing



## Embracing Organisational Change

- The benefits are too great to ignore
- How will your organisation adapt?
- Beware the proliferation of shadow IT
- Skill sets are different

# Challenges for Cloud Computing



## Adapting Licensing Models

- Pay-as-you-go hardware requires Pay-as-you-go (or free) software
- Vendors must adapt or customers will go elsewhere
- Some of the best cloud technology is not coming from traditional vendors
- Interoperability remains a key requirement
- PaaS is the ultimate vendor lock-in?
- Open Source is ready for the mass market?

# Challenges for Cloud Computing



## How to Get Started

Flexibility, agility, options, cost-savings

### Study

the Cloud paradigm shift

### Identify and classify

all systems in the IT landscape. Identify candidates.

### Run

low-risk proof of concepts and pilots

### Go Production

with a cluster which will deliver good results

### Explore and Embrace

the new models and architectures

### Develop

a hybrid architecture model and integrate the Cloud

### Invest to save

Create a roadmap to modernize legacy landscapes

Risk, barriers to cloud usage, dependence on legacy IT, data center

# When Is Cloud Computing A Fit For The Enterprise?



Applications & processes have highly variable demand



Internal datacenter capacity limits are being reached



Existing hardware has reached end of serviceable life



Speed of provisioning is constraining business execution



Enterprise Datacenter no longer provides competitive advantage



## Some Final Thoughts...

- Organisational boundaries are changing
  - Old rules don't apply
- Software licensing
  - Rules are changing – adapt or get left behind
- Service Orientation + Cloud
  - It's not one or the other
- Be wary of software and hardware vendors
  - Cloud has implications for all of their business models
- Many way to get started
  - Use cases are so diverse everyone can benefit

# Questions?

