Cloud for Large Enterprise — Where to Start

Terry Wise
Director, Business Development
Amazon Web Services

amazon web services™

Amazon

amazon.com

Retail Business

- Tens of millions of active customer accounts
- Seven countries: US, UK, Germany, Japan, France, Canada, China

amazon.com

Seller Business

- Sell on Amazon websites
- Use Amazon technology for your own retail website
- Leverage Amazon's massive fulfillment center network

amazon web services™

Developers & IT Professionals

- On-demand compute and storage infrastructure for hosting IT solutions
- Over 540,000 registered developers

amazon web services™

Reality

Your Idea → **Undifferentiated "Heavy Lifting"** → **Successful Product**

amazon web services™

Heavy Lifting = Price of Admission

Contract negotiation

Server hosting

Bandwidth management

Purchase decisions

Moving facilities

Scaling and managing physical growth

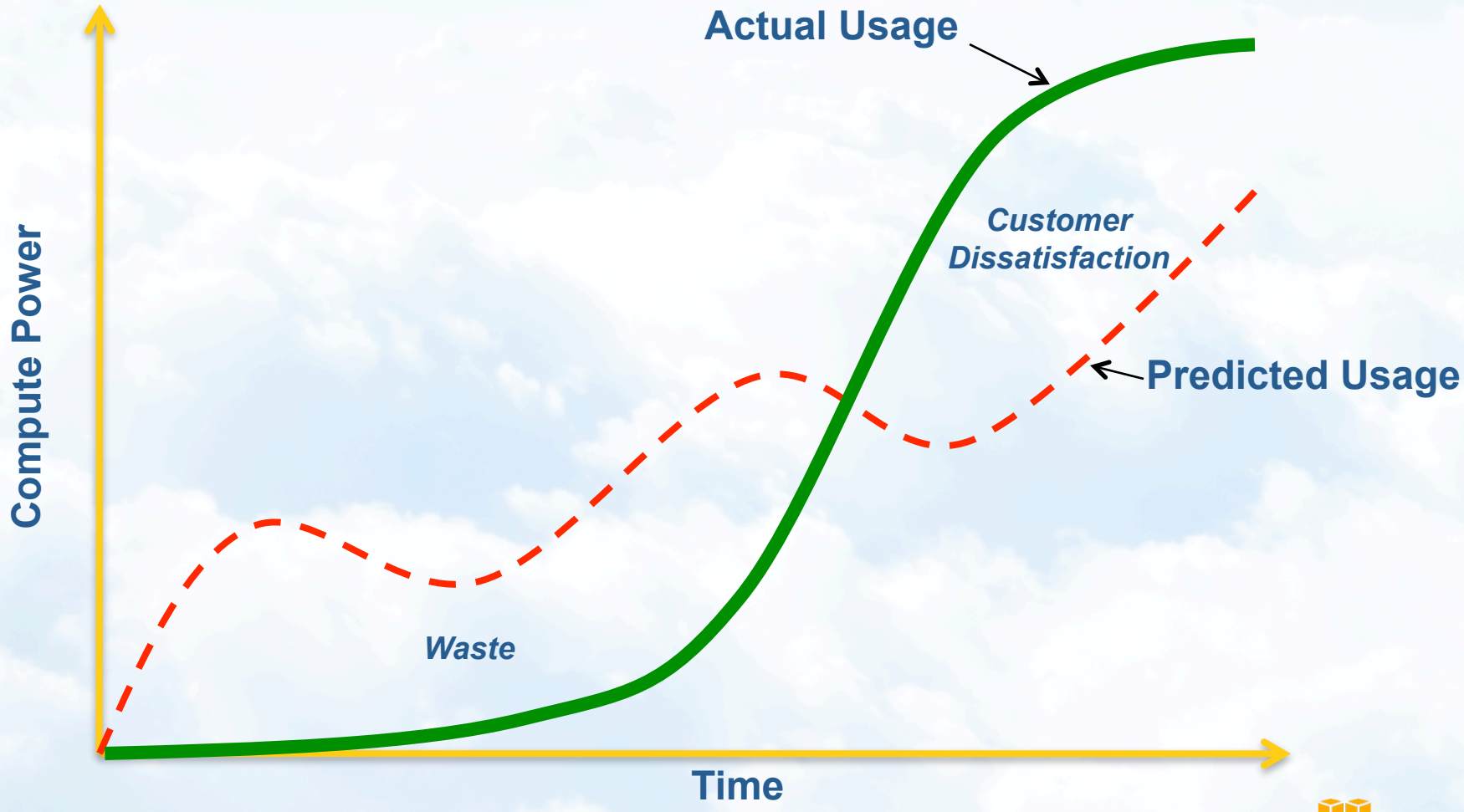
Heterogeneous hardware

Legacy software

Coordinating large teams

amazon web services™

Predicting Infrastructure Needs



amazon web services™

Amazon Web Services (AWS)

- Amazon Elastic Compute Cloud
  - Starting at $.10/Hr
- Amazon Simple Storage Service
  - Starting at $.15/GB/Month
- Amazon Simple Queue Service
  - Messaging in the Cloud
- Elastic Map Reduce
  - Hosted Hadoop Framework
- Amazon CloudFront
  - Content Delivery
- Amazon Mechanical Turk
  - People as a Service
- AWS Premium Support
  - 24x7 Global Support
- Amazon SimpleDB
  - Queryable Attribute Store

amazon web services™

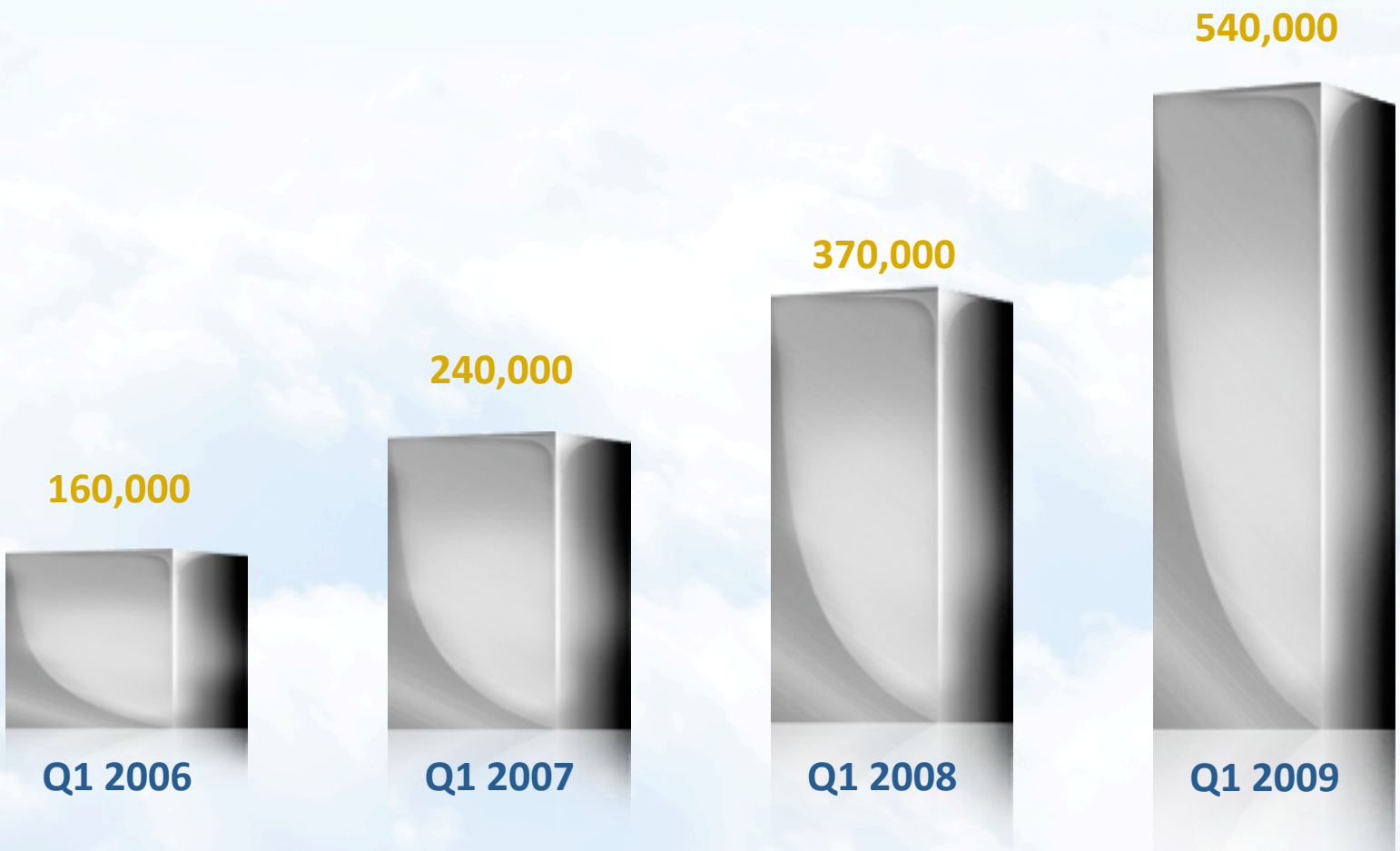
Cloud Computing Attributes

- Abstract Resources
  Focus on your needs, not on hardware specs.
- On-demand Provisioning
  Get what you need, exactly when you need it.
- Elastic Scale
  Cloud is conceptually made of infinite capacity. Scale up and down as needed.
- No Up-front Hardware Investment
  Costs are in direct proportion to actual usage.
- Loosely Coupled
  Pick and choose the components you need. One does not require others.
- Software Agnostic/Web Services API
  Linux, Windows, Database, App Server, Security, etc.
- Utility Consumption and Pricing
  Only pay for what you use. Pay by the hour or month. No Contracts.

amazon web services™

AWS – “The Open Cloud”

AWS Customer Momentum



Unique Registered Developer Accounts

amazon web services™

Amazon S3 Momentum

Peak Requests:
80,000+
per second

Total Objects Stored in Amazon S3

amazon web services™

Many Uses for AWS

- Elastic Computing
- Media Distribution
- Scalable Web Sites
- Business Continuity (Backup/Recovery)
- Record Retention and Management
- Financial Applications
- High-Performance Computing
- Software Development/Testing

amazon web services™

Enterprise Accolades

"Amazon EC2 had given us the ability to easily spin-up tailored computing environments that can quickly and cost effectively process tremendous amounts of research data. This is a huge step forward in maximizing our results relative to IT spend, and now that Amazon EC2 runs Windows and SQL Server we have even greater flexibility in the kinds of applications we can build in the AWS cloud."

"Autodesk is the industry leader in design innovation technology. Traditionally, our software products for managing, analyzing and rendering CAD data are built for the Windows operating system. However, new web-based applications require large scale processing of CAD data and we've made EC2 our environment of choice for data processing…"

Harvard Medical School Case Study: Biomedical Informatics

Harvard Lab Uses Amazon Web Services and Oracle to Build Simulations in Record Time

The Laboratory for Personalized Medicine (LPM), of the Center for Biomedical Informatics at Harvard Medical School, run by Dr. Peter Tonellato, took the power of Oracle and the flexibility of Amazon Web Services (AWS) to develop innovative genetic testing models in record time. "The combination of Oracle and AWS allowed us to focus our time and energy on simulation development, rather than technology, to get results quickly," said Tonellato. "Without the benefits of AWS, we certainly would not be as far along as we are."

Tonellato needed to find an efficient way to manipulate many avatars, sometimes as many as 100 million at a time. "In addition to being able to handle enormous amounts of data," he said, "I wanted to devise system where postdoctoral researchers can scope a genetic risk situation, determine the appropriate simulation and analysis to create the avatars, and then quickly build web applications to run the simulations, rather than spend their time troubleshooting computing technology."

Cloud computing proved to be the answer to Tonellato's dilemma. "I evaluated several alternatives but found nothing as flexible and robust as Amazon Web Services," he said. Having built datacenters previously, Tonellato could not afford the time he knew would be required to set up servers and then write code. Instead, he decided to conduct a test to see how fast his team could put together a series of custom Amazon Machine Images (AMIs) that would reflect the optimal development environment for researchers' web applications. With many years' experience working with Oracle, he asked the company for help. On June 6th, Oracle sent Tonellato their private Linux AMIs to use with his data modeling and by June 16th, Tonellato's team finished customizing the Oracle Linux AMIs. Two weeks after that, the team had their first web application up and running. Tonellato's "test" was an enormous success—the combination of Oracle and AWS allowed him to create a system his researchers could use without getting bogged down with IT concerns.

ORACLE

"The AWS solution is stable, robust, flexible and low cost. It has everything to recommend it."

amazon web services™

TC3 Case Study: Health Claims Processing

- 30M Claims
- $530k Savings
- 70% Cost Reduction
- 1/3 The Time

eWEEK.COM **Article from 10/1/2008**

For TC3 Health, a health care claims processing and cost containment company, the cloud payoff was well worth the risk. TC3 needed extra capacity when a customer asked to have a large number of claims checked for accuracy.

"We had 30 million claims dumped in our lap. We were overloaded," said Paul Horvath, CTO at TC3 Health.

Using TC3's standard processing approach would have cost $750,000. Instead, TC3 tapped AWS for additional capacity, at a total cost of $220,000, including a fee paid to RightScale, a company that customizes Amazon.com's cloud services for clients.

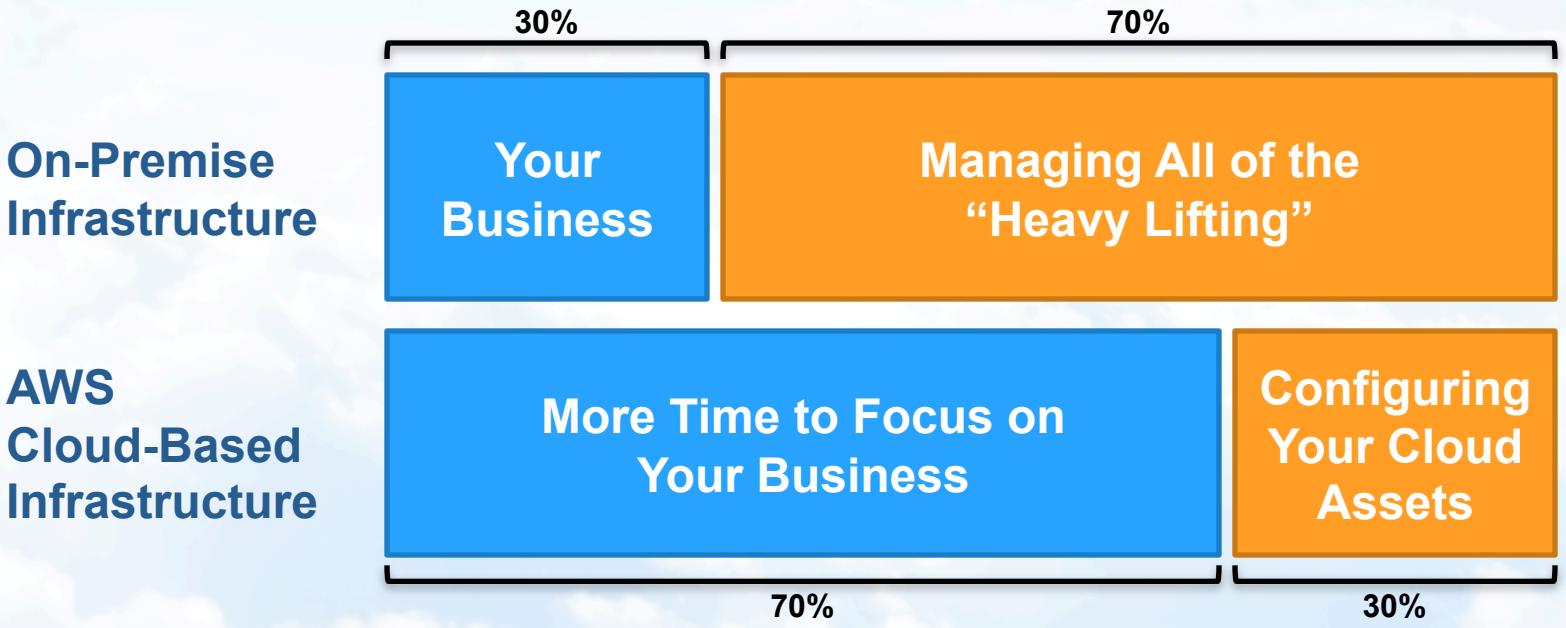
"I pay by credit card," said Horvath. "The cost ranges from a few hundred to several thousand per month."

TC3 has six different server configurations on AWS, ranging in cost from 10 cents per hour per server to 80 cents per hour per server.

With regard to security and confidentiality, Horvath said, confidential information is stripped out of the forms before they're processed on AWS, and data is encrypted while being fed into and retrieved from AWS servers. Although Horvath does not know the exact location of the servers, he said he understands that they are in the United States.

Although some mainstream businesses such as TC3 are reaping the benefits of commercial cloud services, the principal cloud beneficiaries so far have been small companies that can't afford extensive IT operations and IT staff—the same companies that were targeted by the ASPs of a decade ago. In many cases, cloud-computing startups are serving other startups.

The AWS Cloud



The AWS cloud provides reliable and dependable on-demand infrastructure that frees time and expense for you to focus on innovating for your business.

amazon web services™

Capgemini
CONSULTING.TECHNOLOGY.OUTSOURCING

Together. Free your energies.

Cloud Computing for Large Enterprises
Where to Start?

Andrew Gough

Simon Plant

April 16, 2009

Thank You For Joining Us Today

Simon Plant
Product Lead, Cloud Center of Excellence
simon.plant@capgemini.com

Andrew Gough
Outsourcing New Markets Team
andrew.gough@capgemini.com

Chad Lawler
Infrastructure Lead, Cloud Center of Excellence
chad.lawler@capgemini.com

Stuart Riley
Security expert, Cloud Center of Excellence
stuart.riley@capgemini.com

Agenda For Todays Webinar

Enterprise Cloud Value Triggers

How Cloud Improves Upon Current Utility Computing

Areas of fit and concern for the enterprise

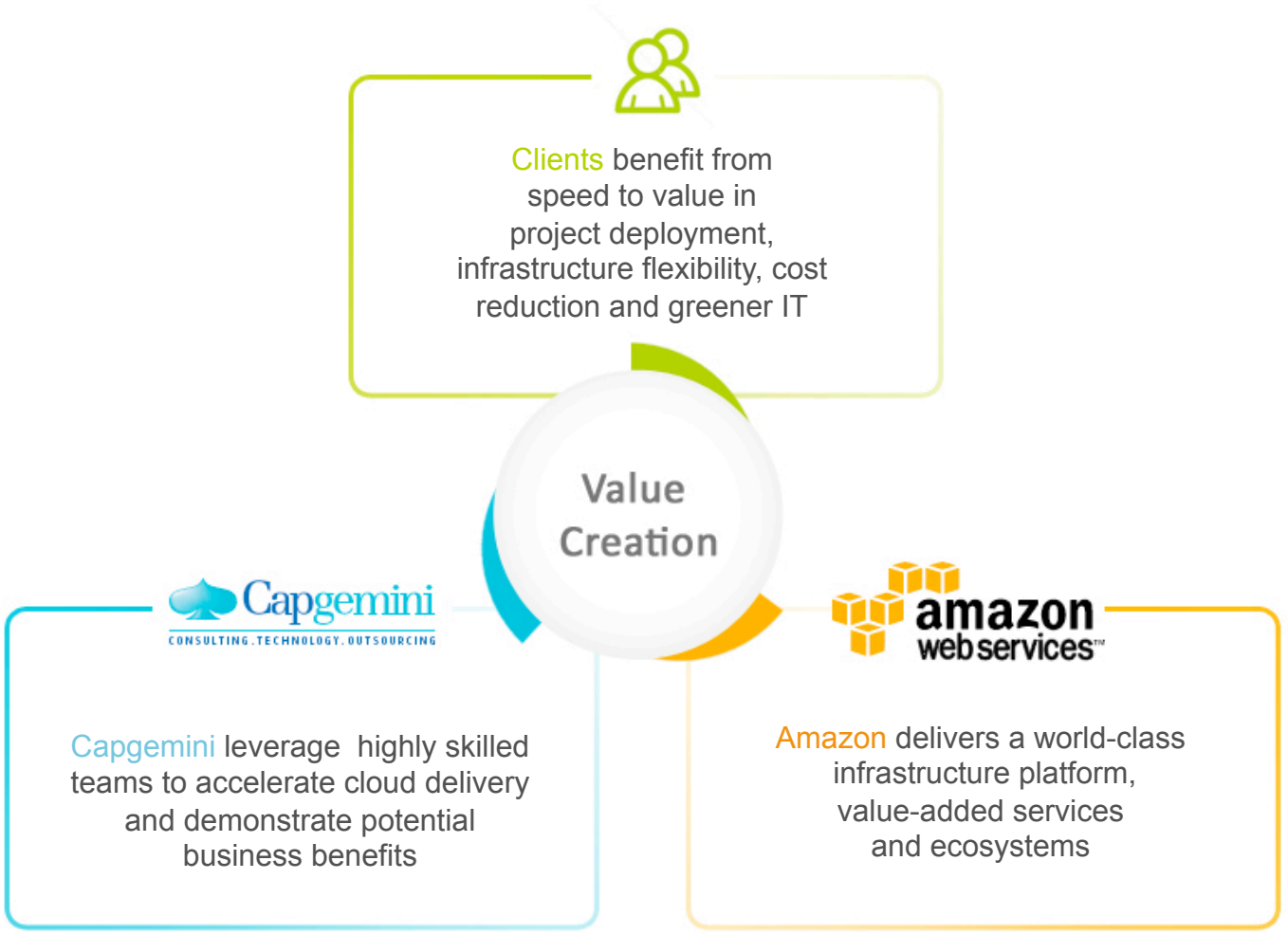
Getting Started – Making Some First Moves in The Cloud

Finding Good Candidates For Cloud Proof of Concepts

Stages of Cloud Platform Adoption Maturity

Question & Answers session

What Does The Enterprise Cloud Partnership Mean?



Moore - Crossing the Chasm

Cloud Improves Upon Virtualization in Several Important Ways

Cost models are different

- Aggregated buying power of the public cloud
- Metered usage model = simple cost allocation – pay only for what's used
- Flexing services off stops costs being incurred

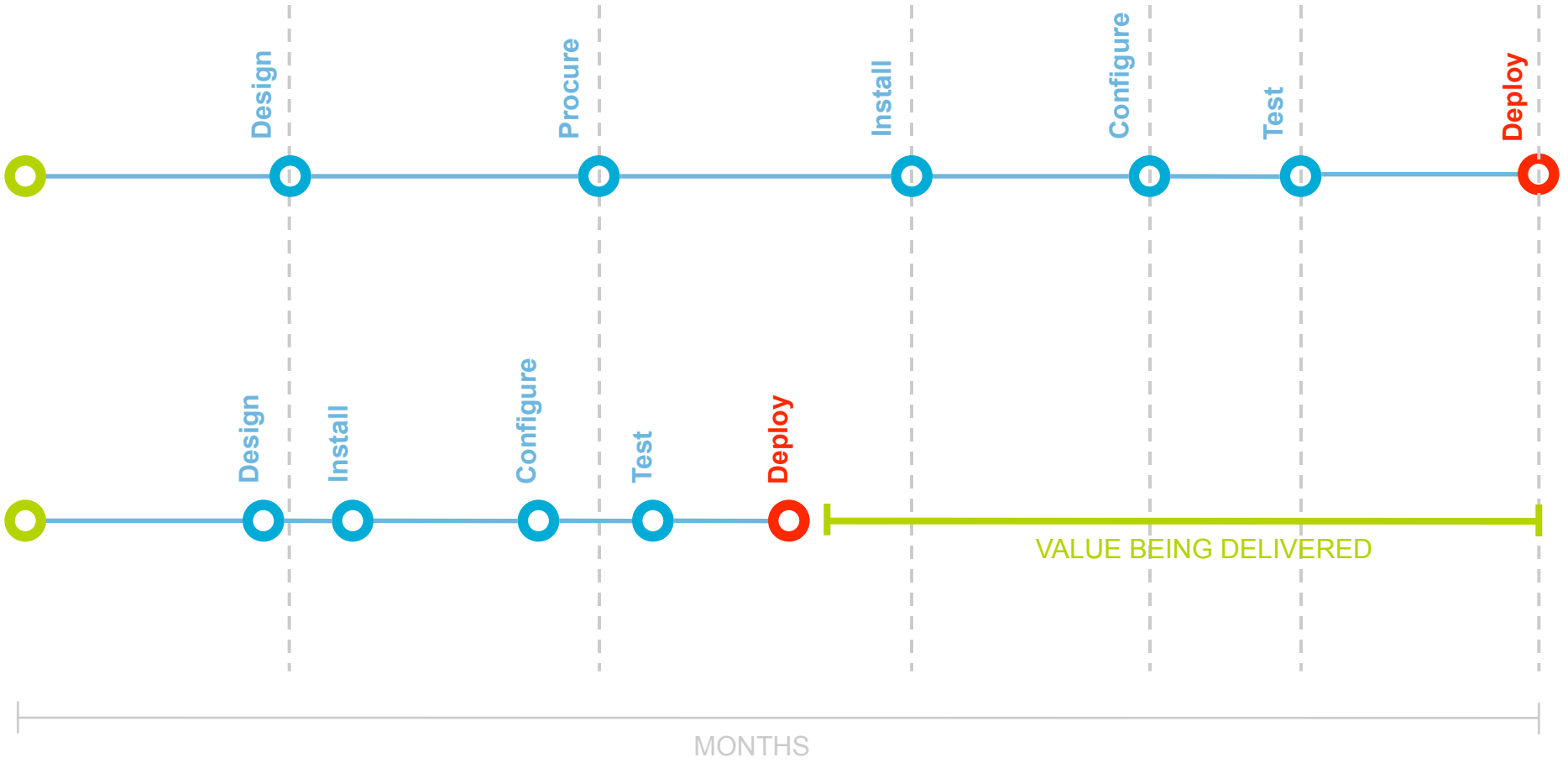
Amazon Web Services - programmable infrastructure automation

- Scriptable, conditions for self healing
- Reduces support effort required,& lowers cost

Service provider delivery model

- Continual platform improvements and enhancements
- World-class configuration 'out of the box'
- Internet battle-hardened

The Cloud Accelerates Speed to Value For Enterprises



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

Where Are Some of The Challenges of Adopting Cloud?

Making applications publicly addressable

Licensing models aren't adapting quickly enough

Increase usage of Internet bandwidth

Interfacing and data volumes

Some architectures require re-working to move to the cloud

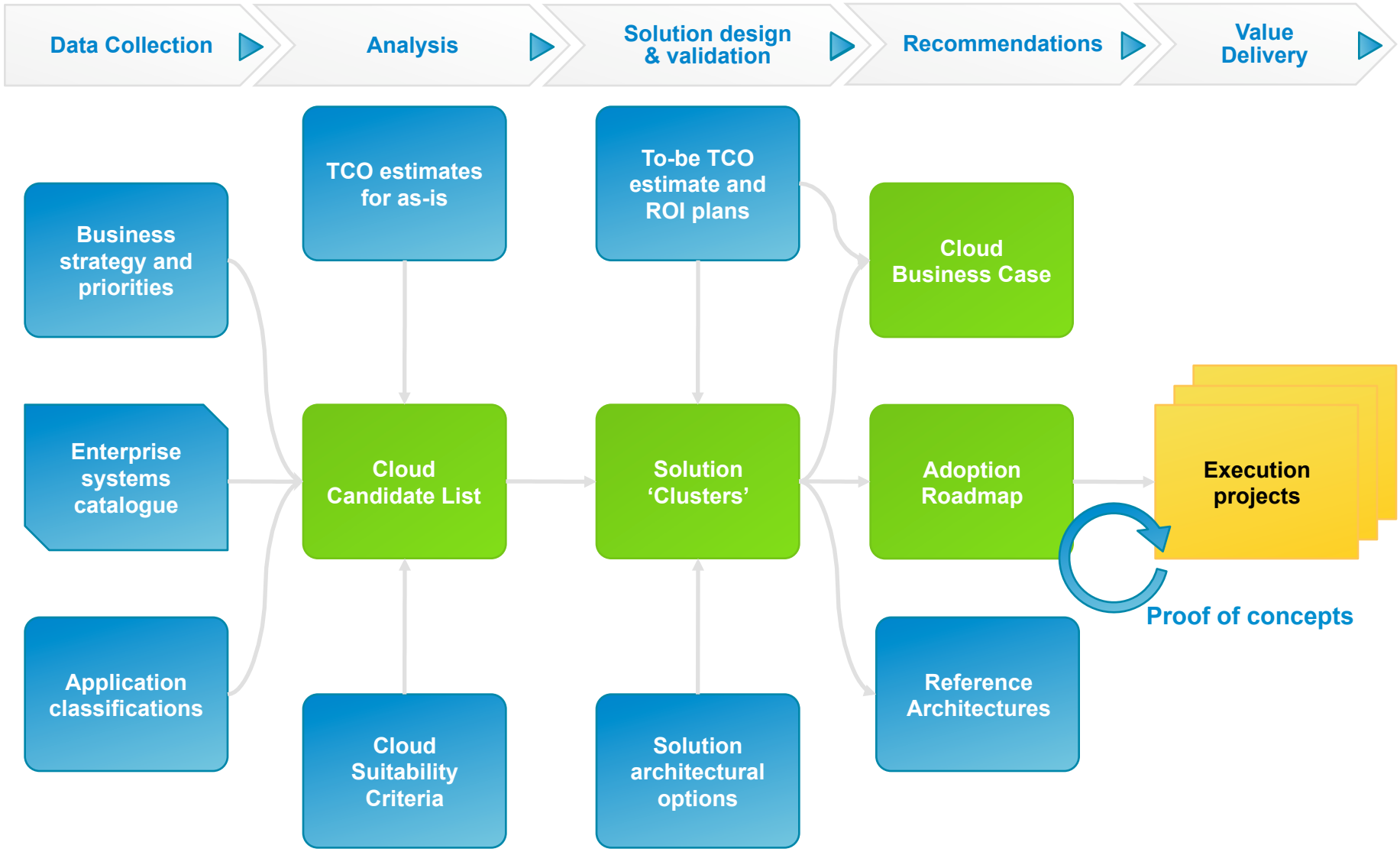
Getting Started – Making Some First Moves in The Cloud

Flexibility, agility, innovation, cost-savings

Study	Run	Go Production	Explore and Embrace	Develop	Invest to save
the Cloud technology shift	low-risk proof of concepts and pilots	with a cluster which will deliver good results	the new models and architectures	a hybrid architecture model and integrate the Cloud	Create a roadmap to modernize legacy landscapes

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

Cloud Migration Methodology & Assessment Logic



Cloud Roadmap and Maturity Model

Management tools integration and sustain knowledge experience

Current Portfolio Sustain Track

Pilots

- Proof of technologies
- Amazon machine image lifecycles
- Monitoring and management

'Forklifting'

- Moving applications without change
- Storage, Back-up & DR

Legacy Modernization

- Re-platforming to the cloud
- Application-grid consolidation JEE
- Enterprise platform-as-a-service

New Developments Track

New application prototyping

- Explore new architectures
- New programming models, API's
- Test out services – SQS, SimpleDB

Production applications

- Loosely-coupled, stateless services
- Elastic capacity
- Self healing infrastructure

Integrated processing

- Collections of services interacting
- Hybrid internal & external
- Location independence

Cloud architecture alignment

Questions & Answers

Q&A feature -

Please submit your questions via the GoToMeeting console!

Thanks For Joining Us Today!