



Analyzing the Business of Enterprise IT Innovation

An analyst perspective on cloud and e-Infrastructure

John Barr, Research Director HPC

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An analyst perspective on cloud and e-Infrastructure

The 451 Group

Cloud Introduction

Cloud Market Overview

Cloudy issues for e-Infrastructure

- HPC in the Cloud

- Applications

- Private Clouds

- Storage

- Security

Conclusions



- Unique combination of research, analysis & data
- Published syndicated research on emerging markets
- Daily qualitative & quantitative insight
- Analyst advisory, support
- Global events
- Go-to-market support

CloudScape – Service Overview

- Interdisciplinary approach – 451 Research & Tier 1
- A comprehensive, coherent conceptual framework, the Cloud Codex
- Cloud marketplace surveillance and analysis – vendors, service providers
- Market sizing, surveys
- End users: best practices, vendor selection, peer events
- Actionable advice to improve opportunity for success
- Supported by TheInfoPro and ChangeWave



Early-Adopter Program

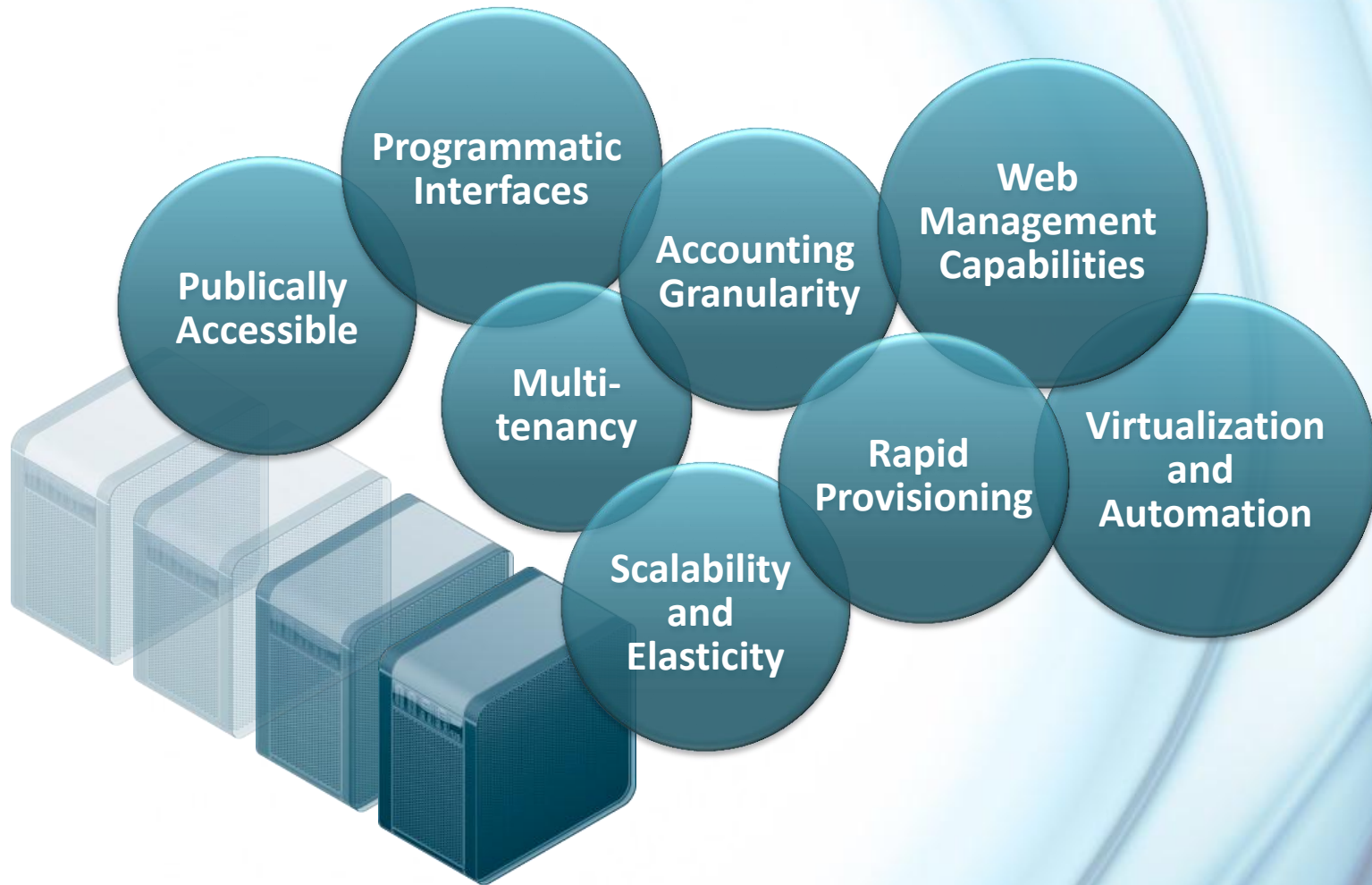
- 12 years working with early adopters and innovators
- Cloud is a logical endpoint
- Shining a light on the arc of adoption
- 250+ enterprises have participated across many verticals



Let's pinch ourselves



CloudScape Codex: 8 Cloud Attributes

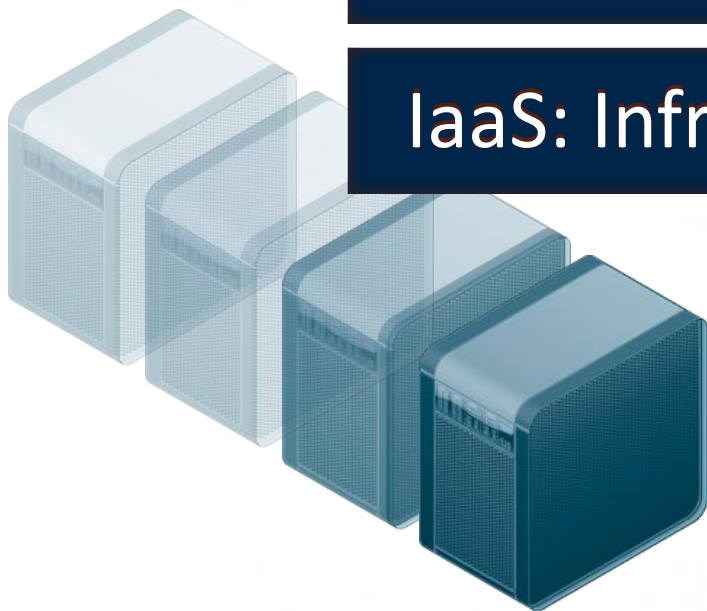


3 Delivery Models

SaaS: Software as a Service

PaaS: Platform as a Service

IaaS: Infrastructure as a Service



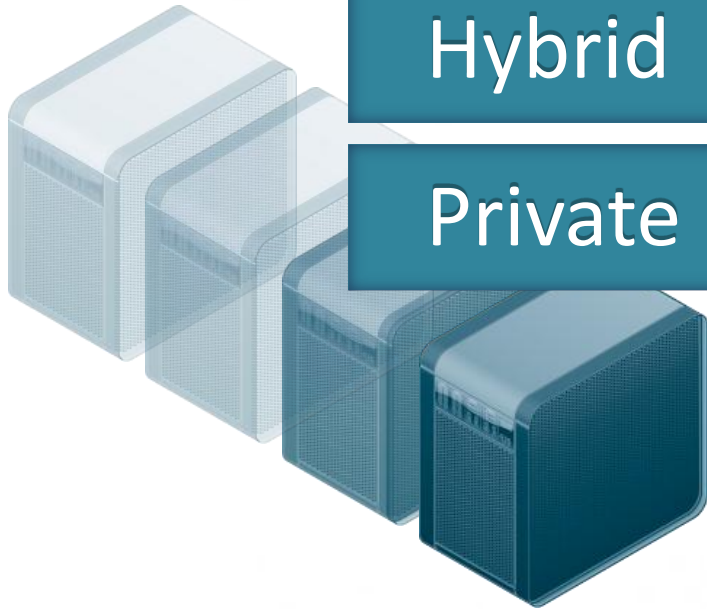
Multiple Deployment Models

Public

Community/partner

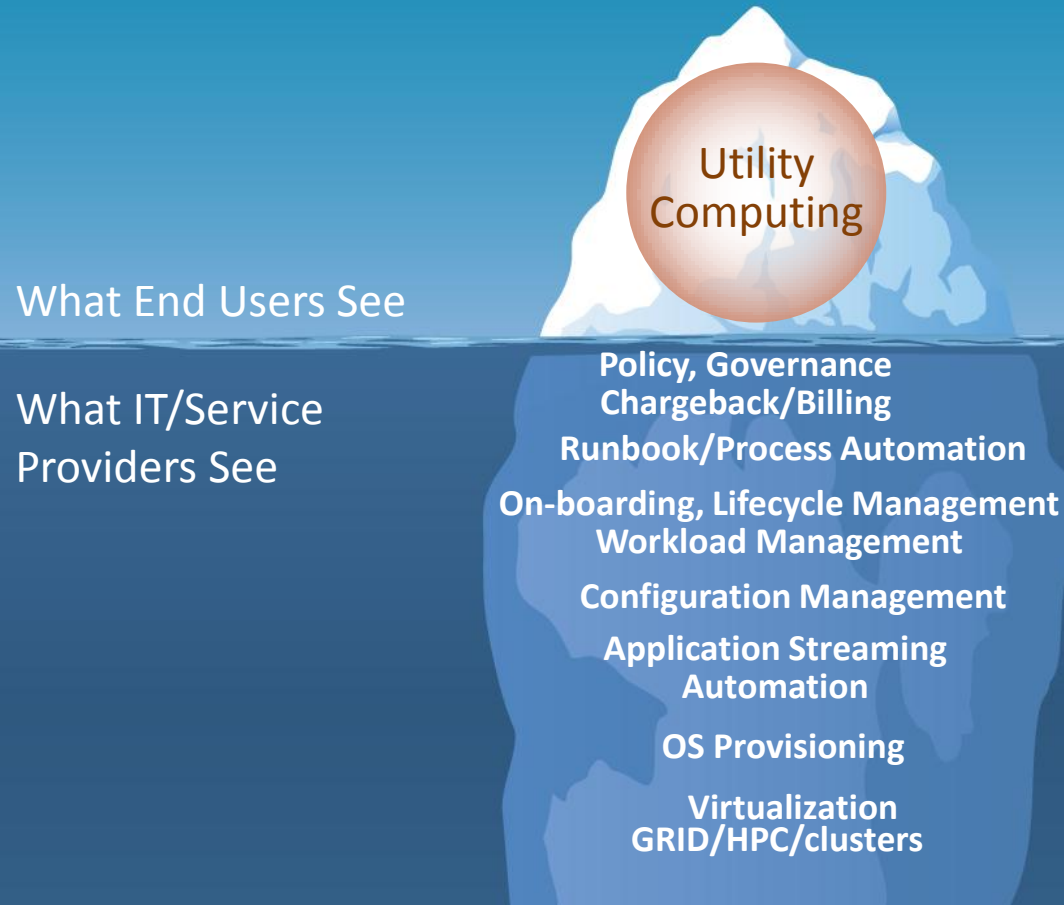
Hybrid

Private



Cloud computing is IT as a Service

THE CLOUD





Cloud Market Overview

Cloud as-a-Service categories

Cloud Computing

Infrastructure
as a Service

Platform as a Service

Software as a Service

Compute-
as-a-Service

Stand Alone
Cloud Storage

PaaS from SaaS

Stand-Alone
PaaS

Application
Lifecycle
Management-
as-a-Service

IT Management-
as-a-Service

Online Backup

Archiving

ERP

CRM

Content and
Collaboration

Pre-Production/
Testing

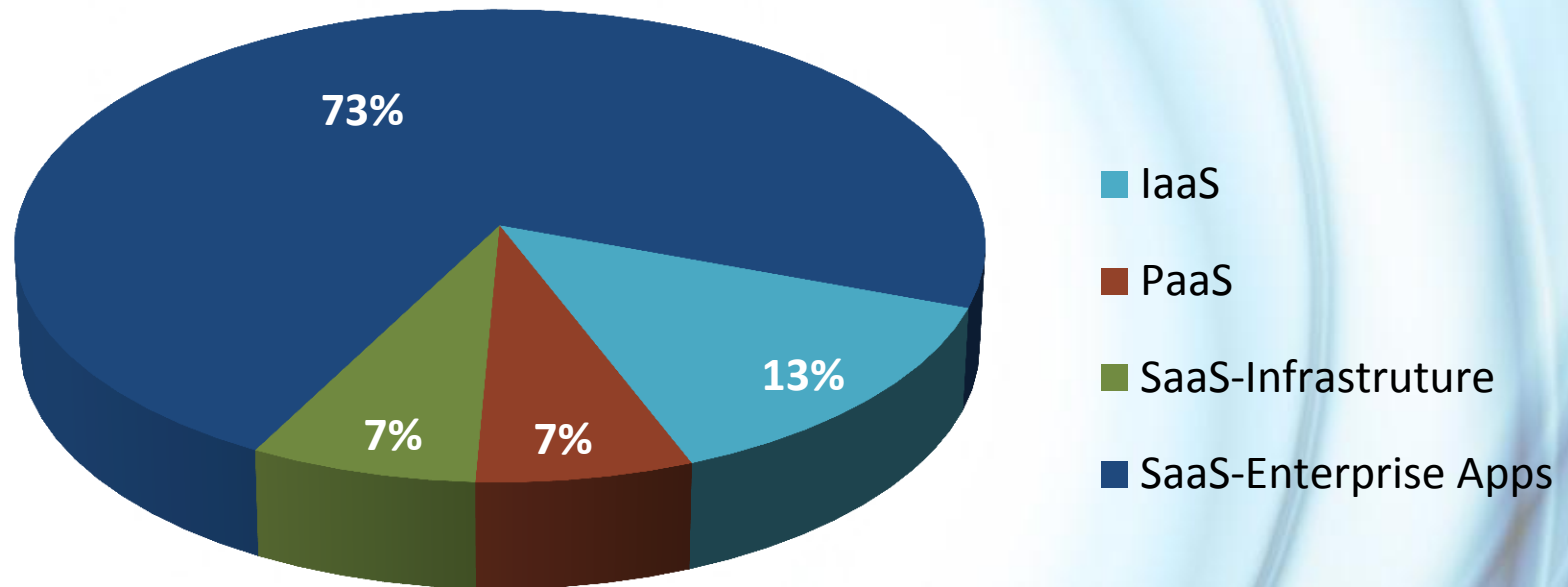
Integration-as-
a-Service

Problem
Management

Systems Network
Monitoring & Mgmt

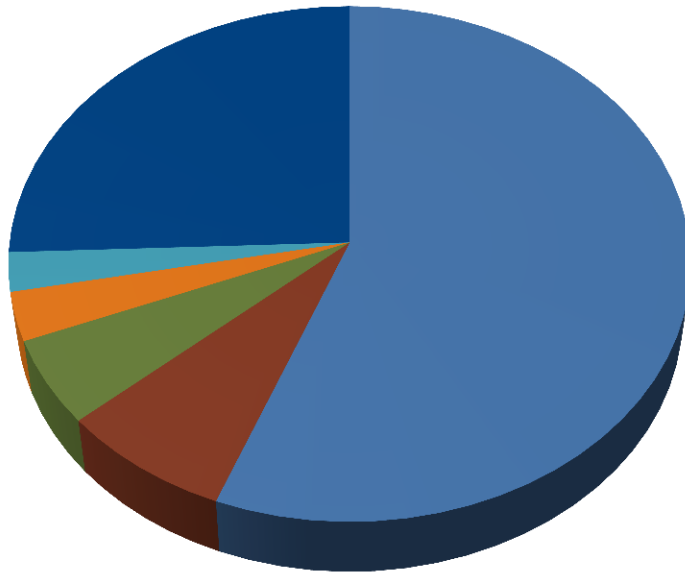
Resource Utilization,
Capacity Planning &
Billing

Estimated 2012 Cloud Revenue Breakdown, Including SaaS



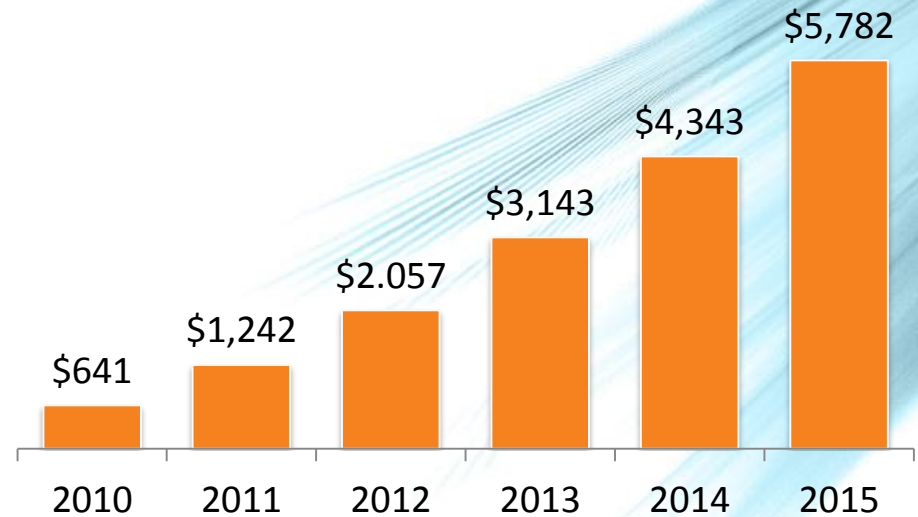
Source: 451 Research Market Monitor (Data Cut 3/28/12)

IaaS Market Overview (\$m)



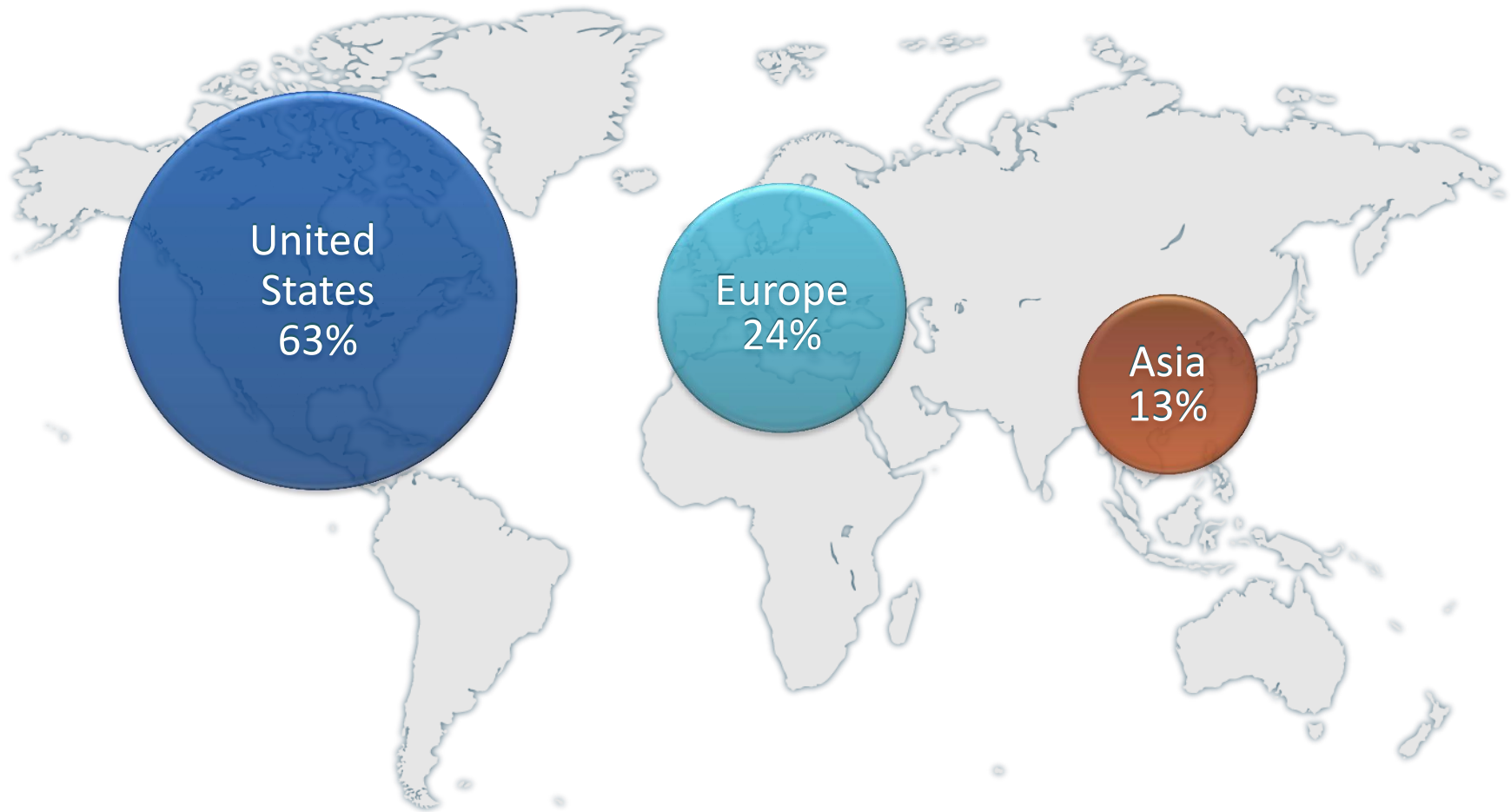
- Amazon
- Rackspace
- Verizon Business
- Joyent
- SoftLayer Technologies
- Others

- Amazon's market to lose
- 2011-2015 CAGR: 47%

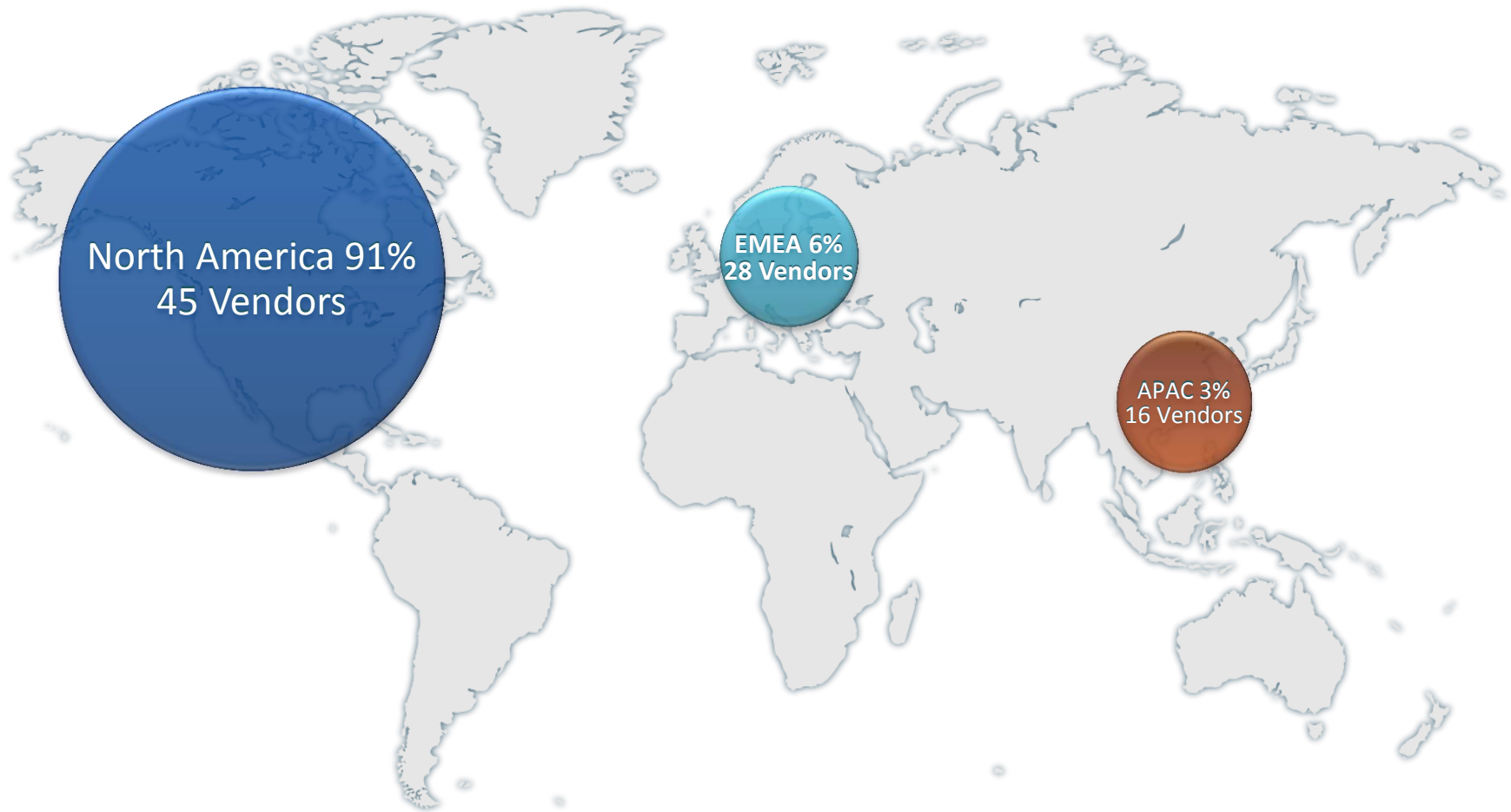


Source: 451 Research Market Monitor (Data Cut 3/28/12)

89 IaaS vendors – 2012 revenue geo breakdown



89 IaaS vendors – 2012 revenue by headquarters




Top 15 Cloud Computing providers in Europe

PROVIDER	2010	2011	2012	2013	2014
Amazon	\$51.7	\$122.6	\$242.0	\$424.6	\$649.7
Colt Technology Services Group	\$6.3	\$13.1	\$19.9	\$26.5	\$34.1
Verizon Business	\$1.0	\$11.8	\$28.0	\$51.4	\$81.5
Orange Business Services	\$5.5	\$10.3	\$15.5	\$20.6	\$25.7
iomart Group	\$3.4	\$6.1	\$9.2	\$12.8	\$16.6
UK2 Group	\$2.9	\$4.2	\$5.6	\$6.9	\$8.3
Arsys	\$3.9	\$4.0	\$4.2	\$4.4	\$4.5
ElasticHosts	\$2.4	\$4.0	\$5.7	\$7.4	\$9.1
Host Europe	\$1.6	\$3.9	\$4.9	\$5.9	\$6.9
CenturyLink (Savvis)	\$2.1	\$3.8	\$6.3	\$10.7	\$16.5
Rackspace	\$0.0	\$3.0	\$6.8	\$13.7	\$25.0
British Telecom (BT Group)	\$0.7	\$2.0	\$3.5	\$5.0	\$6.6
intergenia	\$0.1	\$2.0	\$2.4	\$2.5	\$2.6
Attenda	\$0.7	\$1.5	\$3.1	\$4.3	\$6.0
NTT*	\$0.4	\$1.5	\$3.6	\$6.8	\$11.4

Regional CloudScape

- Many public clouds now up and running in Europe
- Local champions emerging
- Telcos still dominate Euro IT landscape.
- Focus on private clouds
- EU revising legislation
- Patriot Act used as geo-political marketing device
- Vendors seeking pan-Europe and per country models
- Asia-Pac clouds coming on stream
- Emerging markets: China, India, Brazil
- Governments: the cloud's unlikely champions



Cloudy issues for e-Infrastructure

HPC in the Cloud (from 2010)

Trend

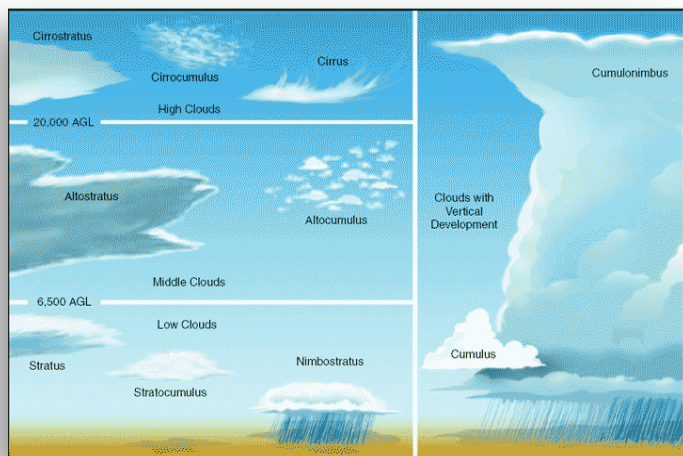
- Amazon
- Google
- Microsoft
- Telco
- ISP

Forecast

- HPC is all about Optimization
- Cloud is all about Abstraction and Virtualization

2012

- HPC Clouds
 - Amazon
 - Penguin
 - SGI
 - Cycle



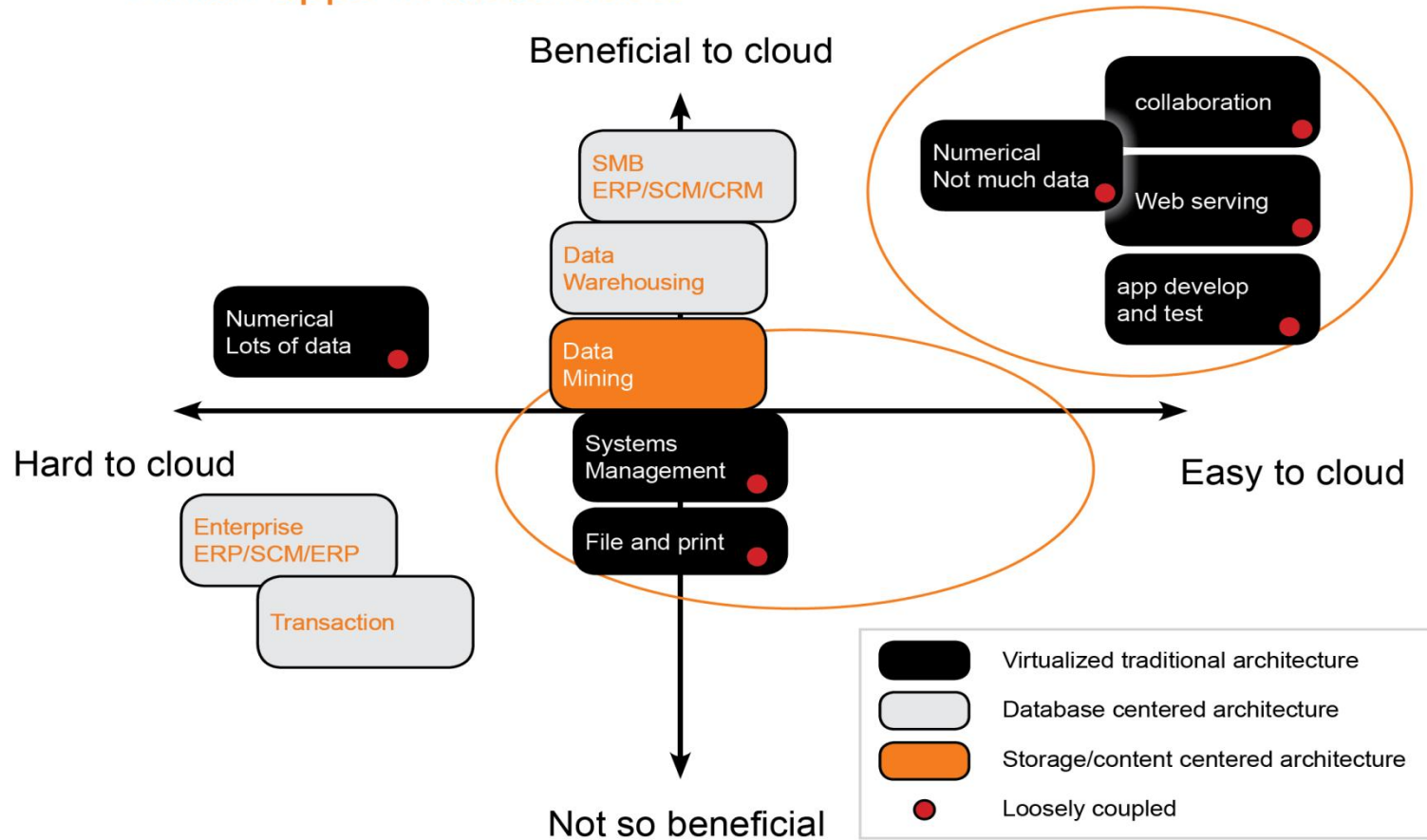
HPC in the Cloud Forecasts (2012)

- HPC in the Cloud will reach maturity
 - More HPC/Cloud vendors
 - HPC SaaS
 - ISV licensing to adapt
 - HPC to reach new (non-HPC savvy) market



Applications in the cloud

Which apps fit cloud best?



Private Cloud Enablement

Imitate
Emulate
Replicate

Turn your own datacenter
into a cloud that works like
Amazon, Rackspace...

Advantages:

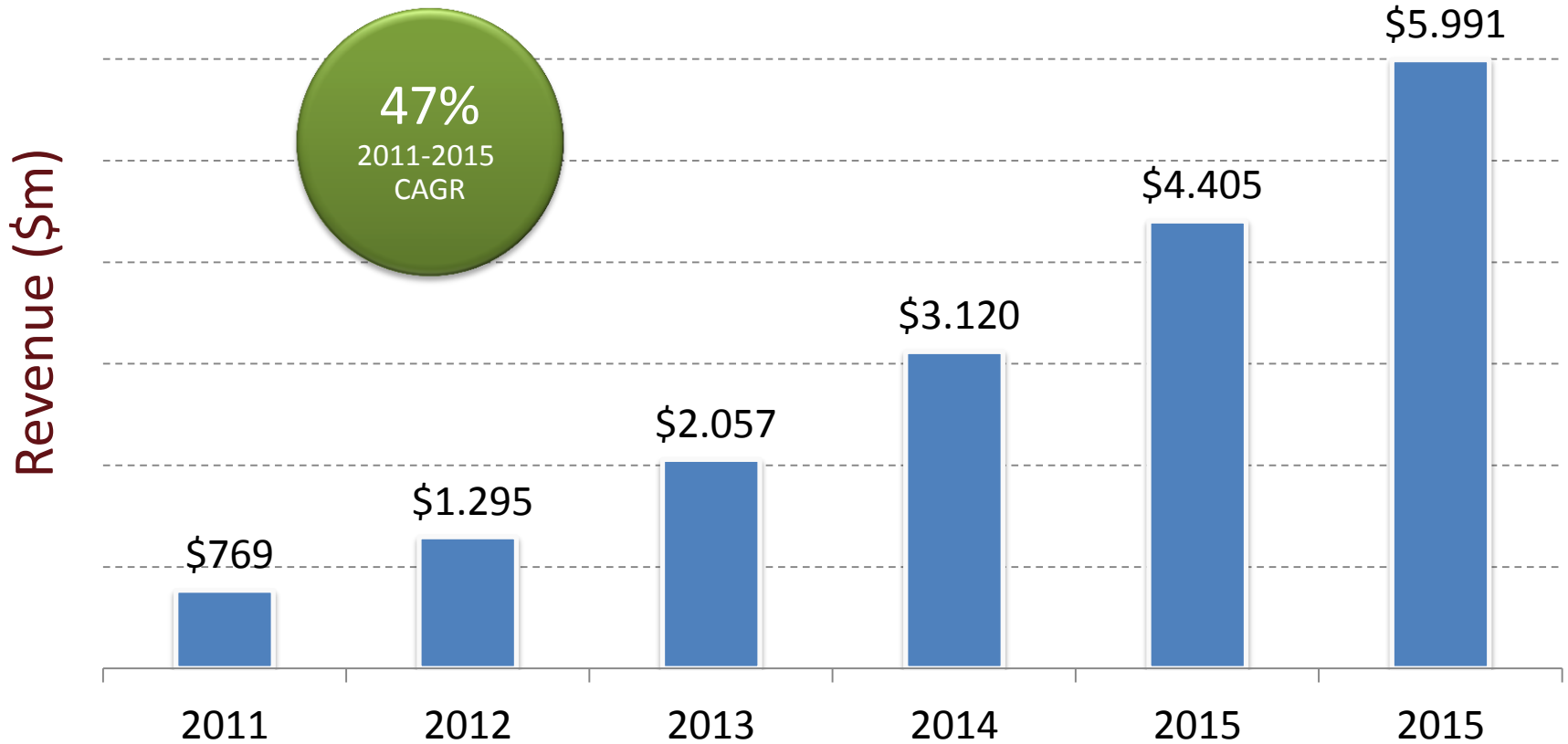
- Security and compliance
- Leveraging existing investment in datacenters
- Powers new IT-as-a-service model inside organizations
- New IT refresh cycle for suppliers!

But

- Private cloud is ring-fenced and finite
- Doesn't reproduce elasticity of hosted cloud

Market Sizing – Cloud Storage

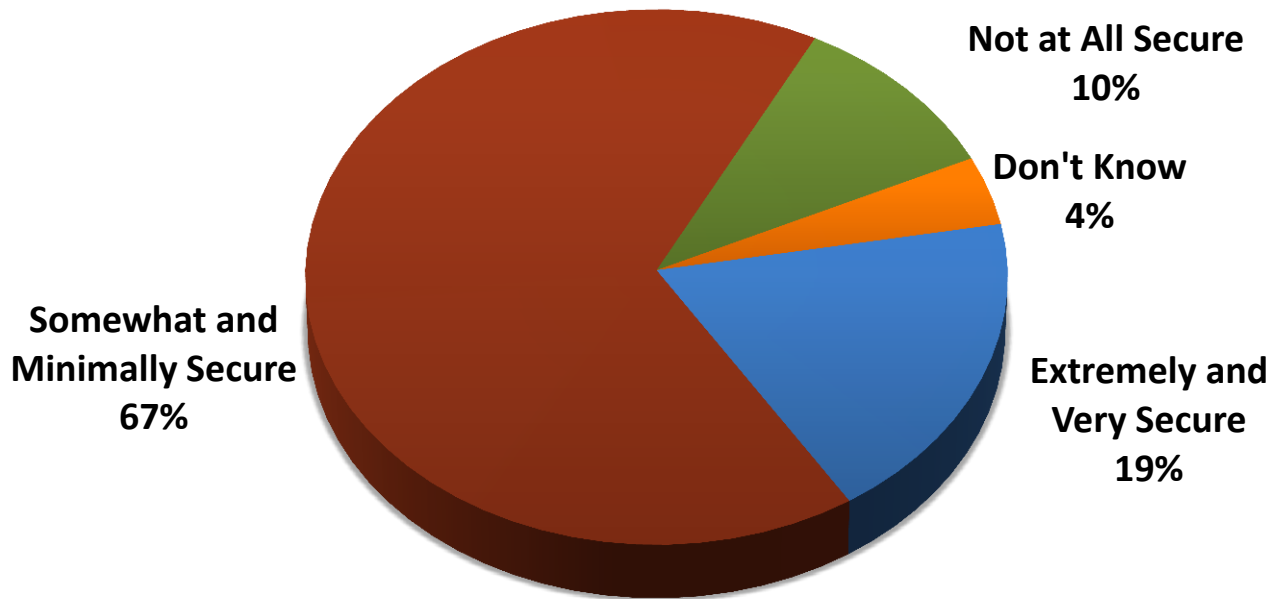
Storage-as-a-Service Total Revenue



Source: 451 Research

Security of Data in the Public Cloud

On the issue of security, please rate how secure data is when using the public cloud computing services available today? *Please use a 1-5 scale where "1" is not at all secure and "5" is extremely secure.*



n=48.

Cloud Computing
Industry Profile - 1H '12

Conclusions

- Is the Cloud ready for serious HPC?
- Is the Cloud ready for the scale of serious HPC?
- Are Applications ready for the Cloud?
- Should the first step be to a Private Cloud?
- It's the data, stupid!

Thank you. Questions? Comments?
John.barr@451research.com



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