accenture
consulting | technology | outsourcing
Mobile World Congress 2012
Always On.
Always Connected.
Being everywhere can help your business go anywhere.
High performance. Delivered.
Mobility Trends that Will Define the Next Decade
Lars Kamp

Thank you for organizing #bobmwc!

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Today's topics

Platform Proliferation

Cloud Cornucopia

App Avalanche

Commodity Computing

Architecture Approaches

Fast Forward

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Platform Proliferation

More and more mobile devices

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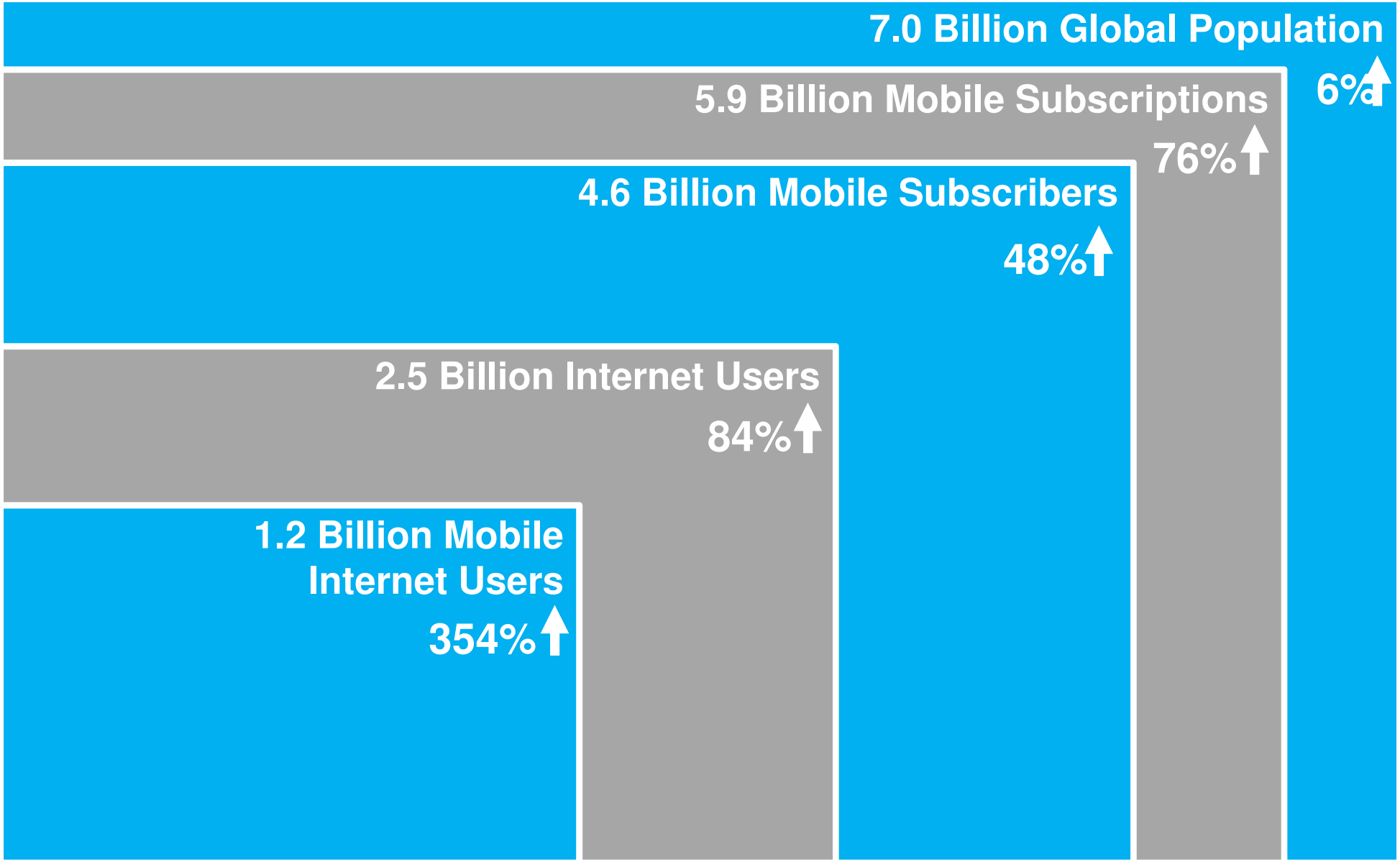
The Digital World in 2012: Growth since 2007



Source: United Nations, ITU, Gartner, Portio Research, Accenture analysis.

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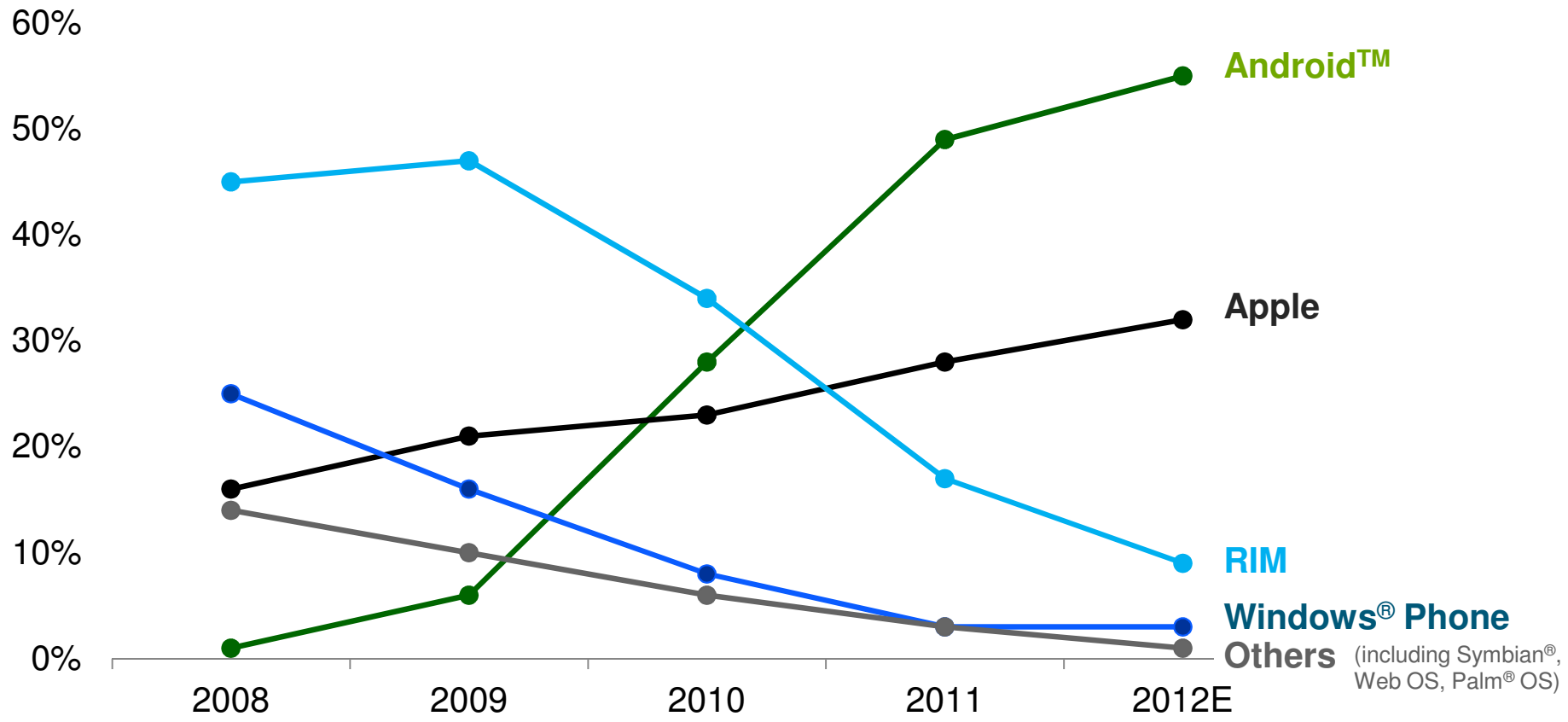
Smartphones: A two-horse race with potential for 3rd

Share of Global Mobile Installed Base of Smartphone OS



Source: Gartner.

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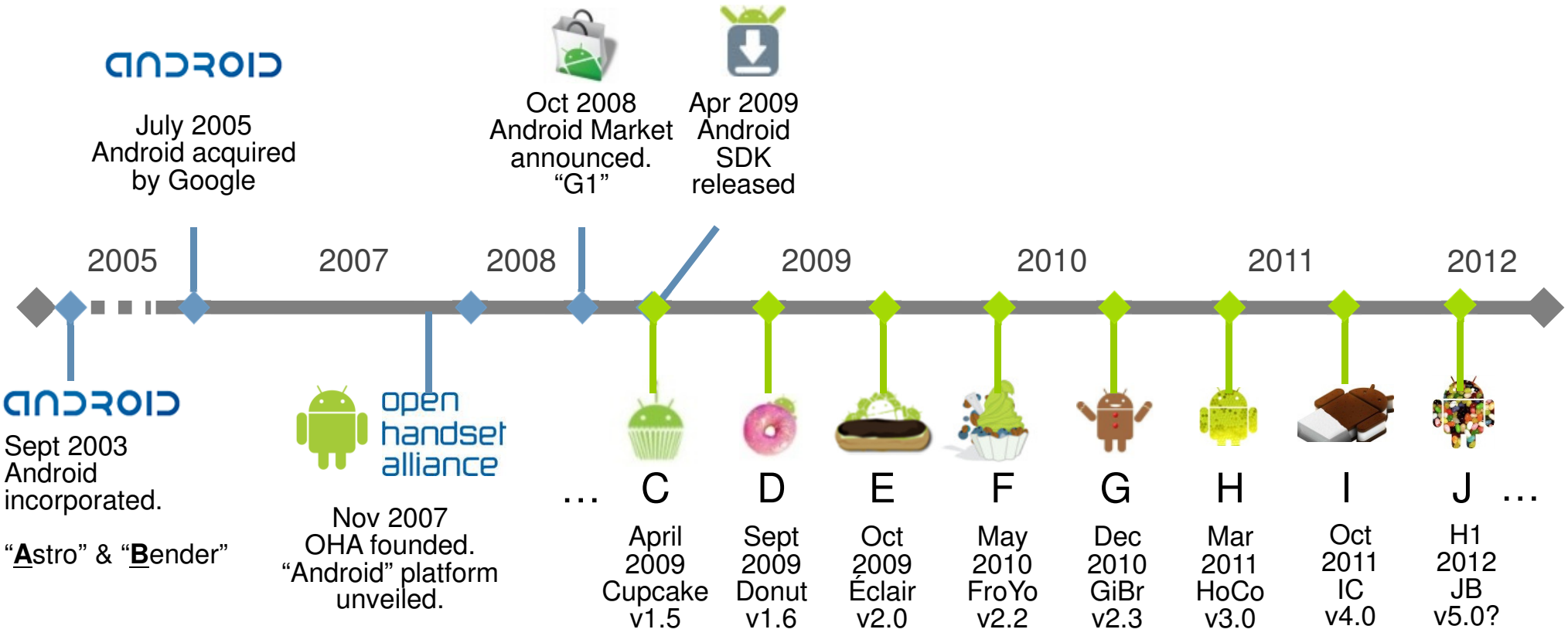
Android iterating 2x per year …

One major dessert every six months

History of Android



Source: Google; Chart created and compiled by Accenture, 2012.

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… with rapid ecosystem adoption

One OEM and SemiCo at a time

Android Release	C	D	E	F	G	H	I	J
	April 2009 Cupcake v1.5	Sept 2009 Donut v1.6	Oct 2009 Éclair v2.0	May 2010 FroYo v2.2	Dec 2010 GiBr v2.3	Mar 2011 HoCo v3.0	Oct 2011 IceCrm v4.0	H1 2012 JB v5.0?
"Hero" Device	*HTC Dream*	*Samsung Behold II*	*Motorola Droid*	*HTC Nexus One*	*Samsung Nexus S*	*Motorola Xoom*	*Samsung Galaxy Nexus*	? ?
Chip	Qualcomm MSM7201A 528MHz	Qualcomm MSM7201A 528MHz	TI OMAP 3430 600 MHz	Qualcomm QSD8250 998MHz	Intrinsity S5PC110 1,000MHz	NVIDIA Tegra 2 250 1,000MHz	TI OMAP 4460 1,200MHz	?

Source: pdadb.net; Chart created and compiled by Accenture, 2012.

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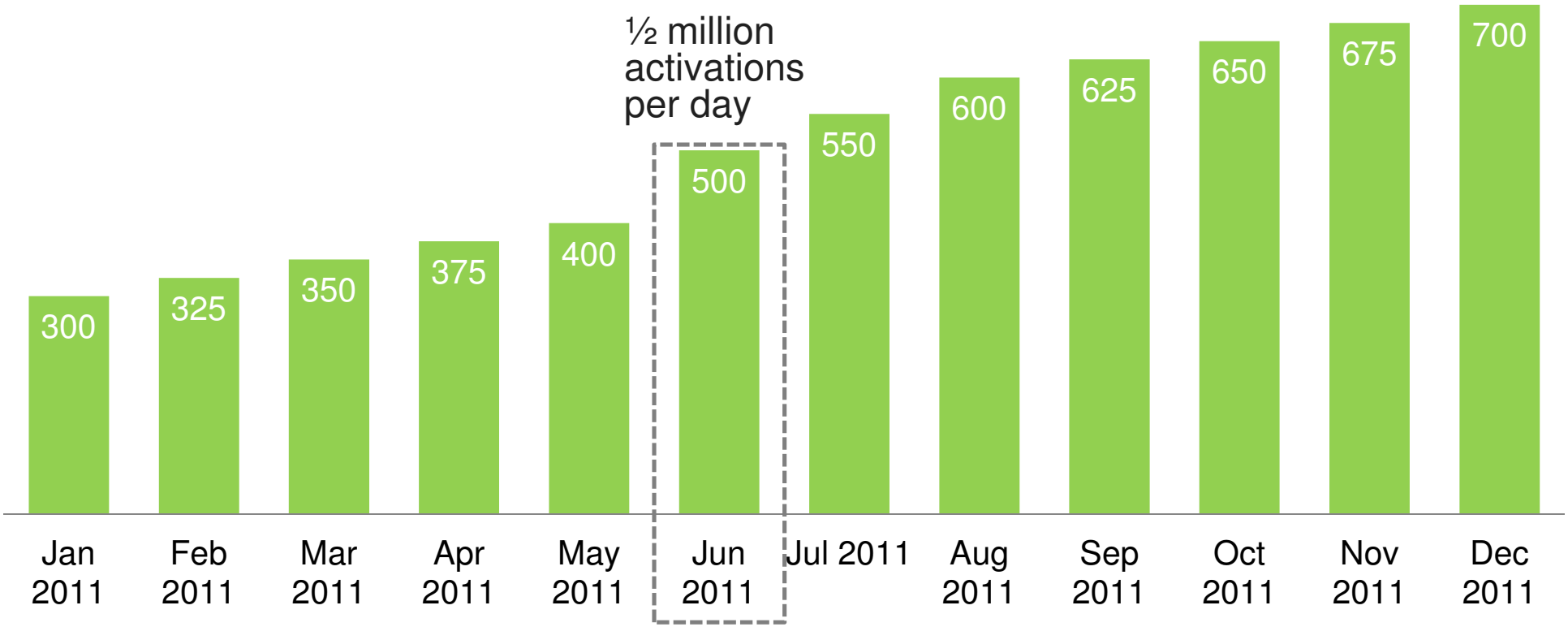
Google's mobile business: towards 1m activations / day

Monthly AndroidTM Device Activations 2011, Thousands per day



Source: Androinica, Engadget, Google, IDC, TechCrunch, Accenture analysis.

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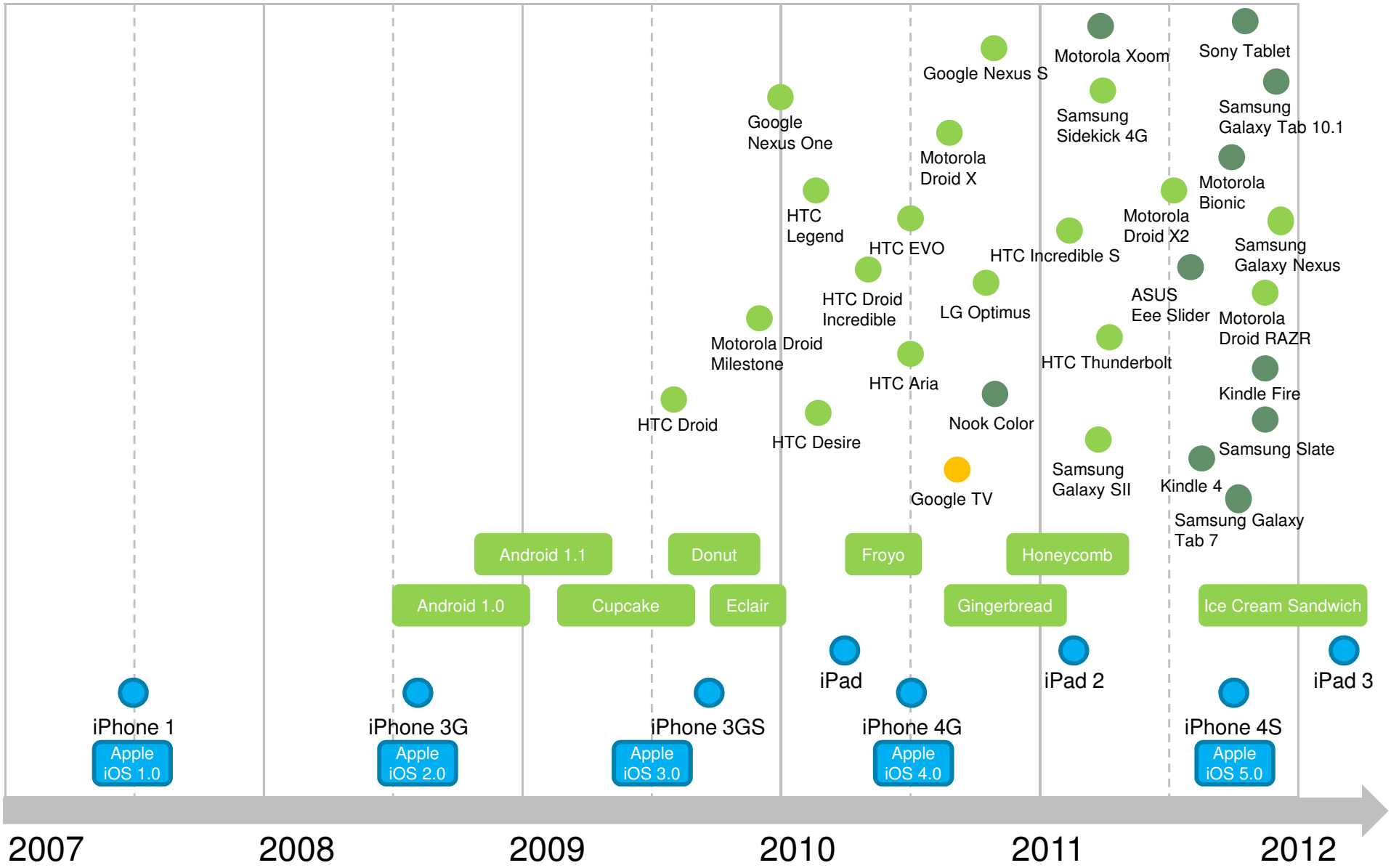
Platform proliferation

Explosion of OS versions and device flavors



Source: Jeff Haynie / Appcelerator.

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Cloud Cornucopia

Abundance of computing power in the cloud

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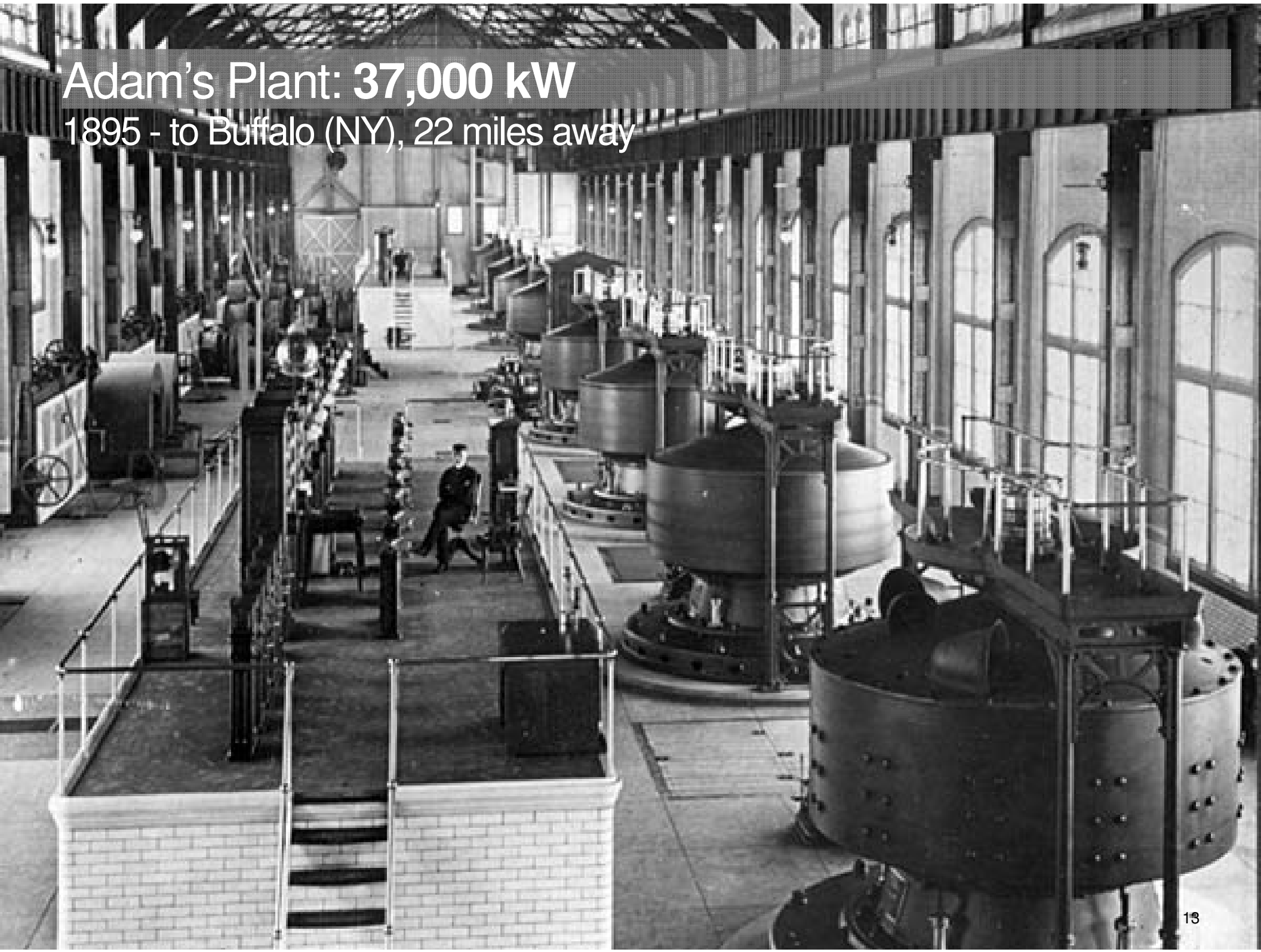
Burden Water Wheel: **370 kW**

1851 - to Burden Iron Works Plant in Troy (NY), 60ft away

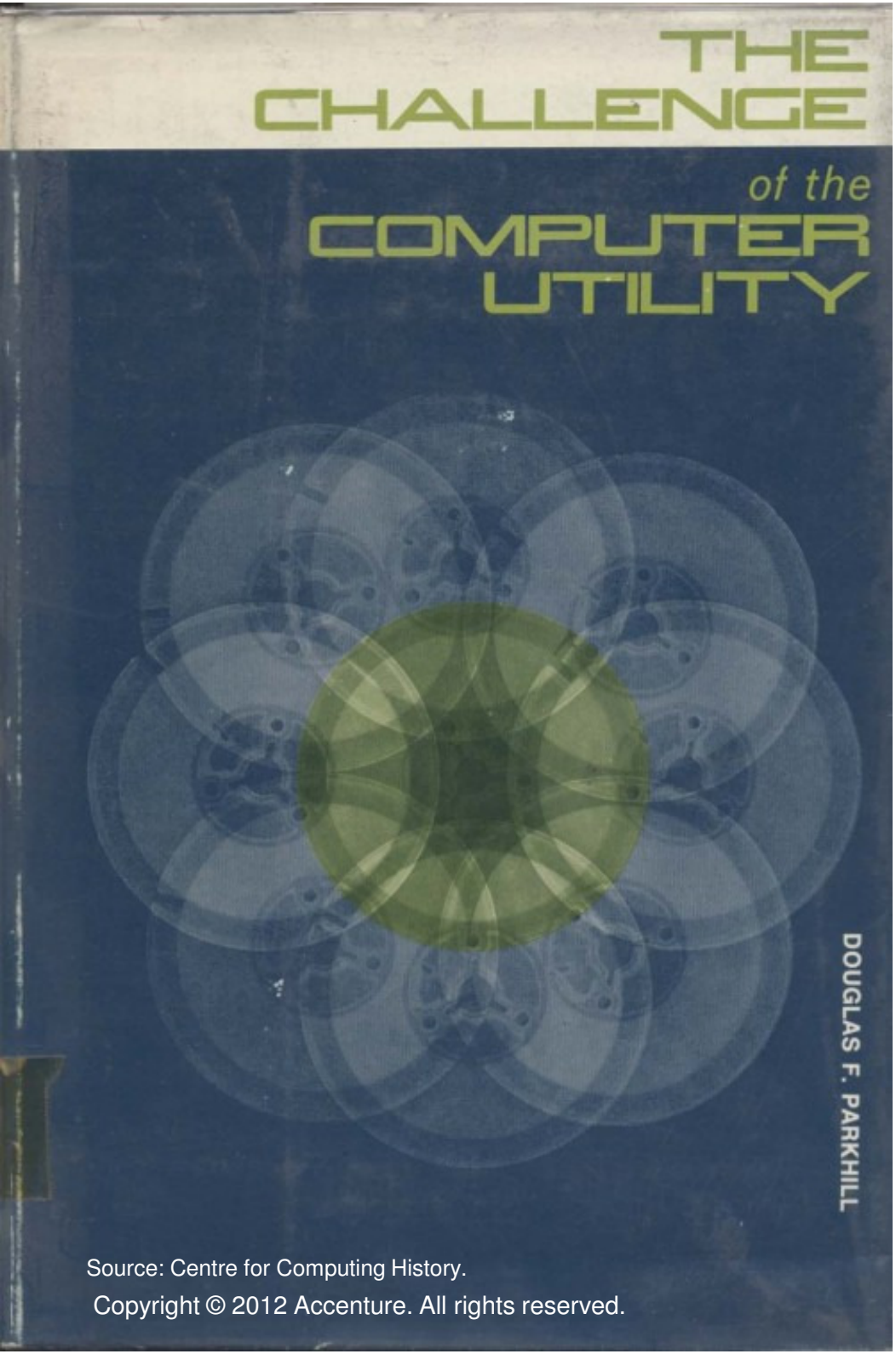
Source; Smithsonian, Nicholas Carr.



Adam's Plant: **37,000 kW**

1895 - to Buffalo (NY), 22 miles away

Times Square
CHEVROLET
News Corporation
REUTERS
NASDAQ
Panasonic
FIRST TIME
YAHOO!
ERNST & YOUNG



Source: Centre for Computing History.

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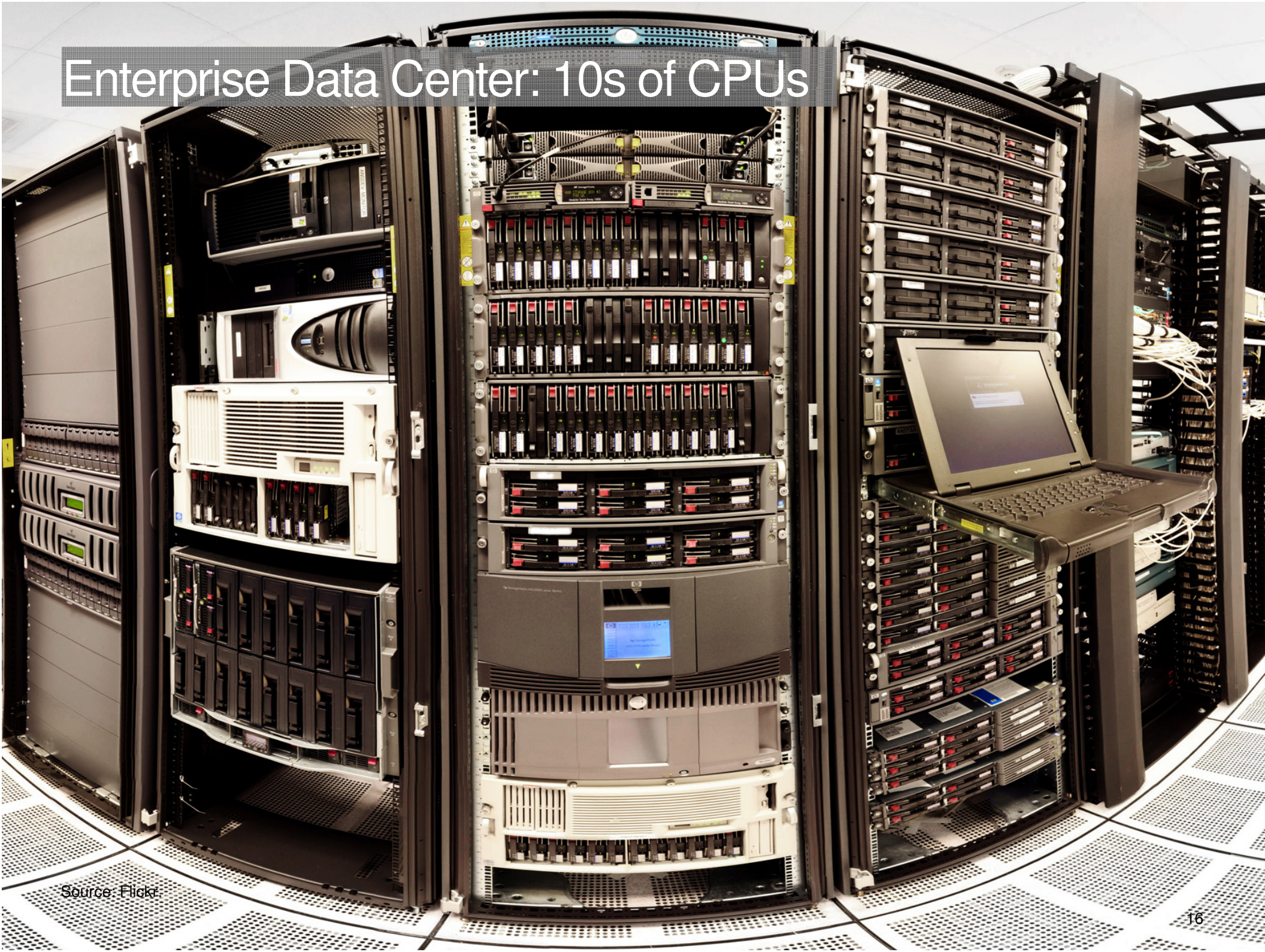
”In addition to making raw computer power available in a convenient economical form, a computer utility would be concerned with almost any service or function which could in some way be related to the processing, storage, collection and distribution of information.”

The Challenge of the Computer Utility, 1966

Enterprise Data Center: 10s of CPUs



Source: Flickr.

Facebook Data Center: 100,000s of CPUs

Source: Facebook

Multi-$B investments into data centers

Massive, “off-deck” geo-distributed computing power

Facebook

Prineville, OR USA

Yahoo

Lockport , NY USA

Google

The Dalles, OR USA

Apple

Maiden, NC USA

Amazon

Morrow, OR USA

Microsoft

Dublin, Ireland

Source: Data Center Knowledge; Accenture analysis, 2012.

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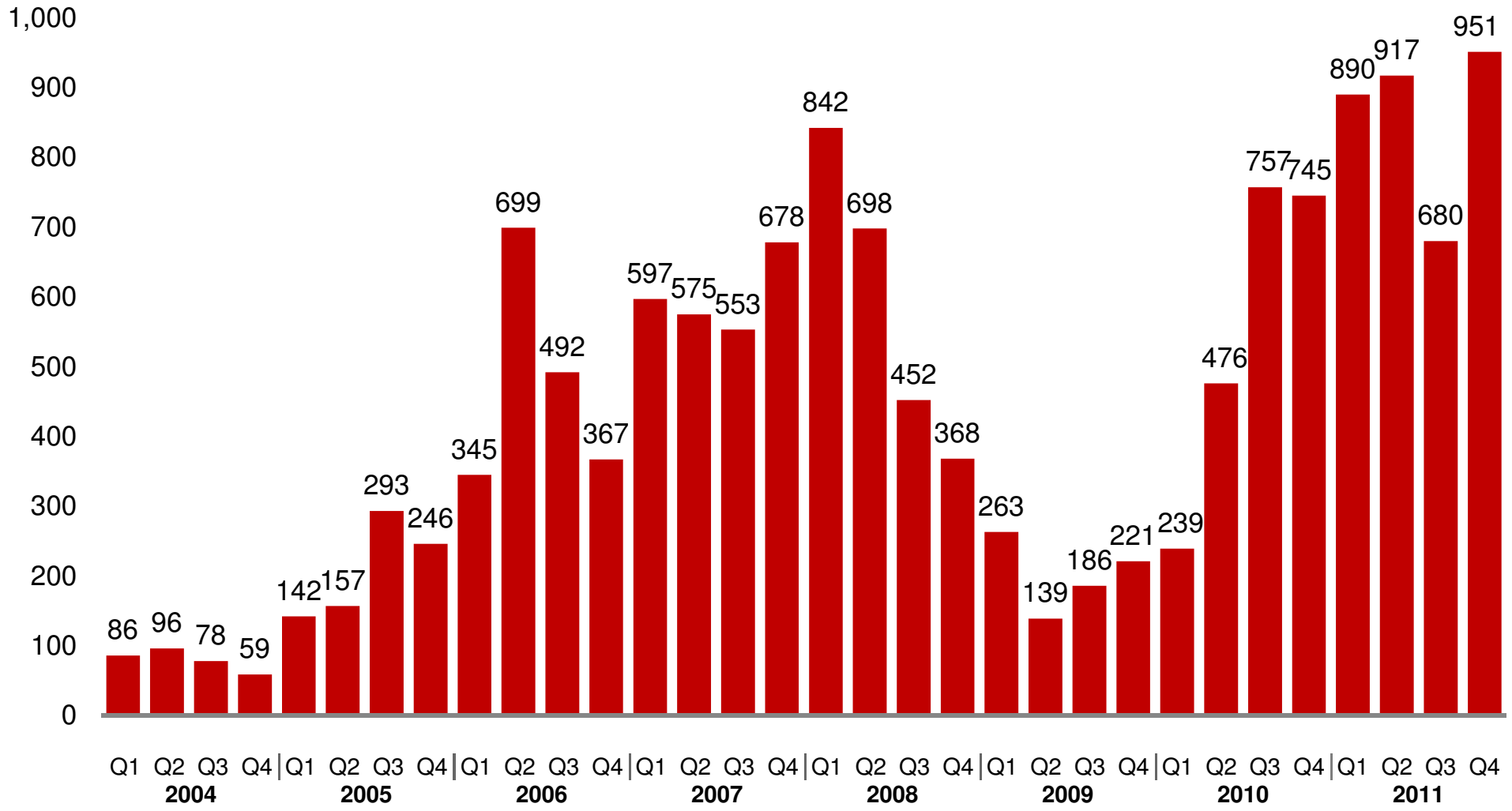
Google's major Capex in Cloud build-out

Google Inc. Quarterly Capex, Q1 2004 – Q2 2011, Million USD



Source: Google SEC filings, Accenture analysis.

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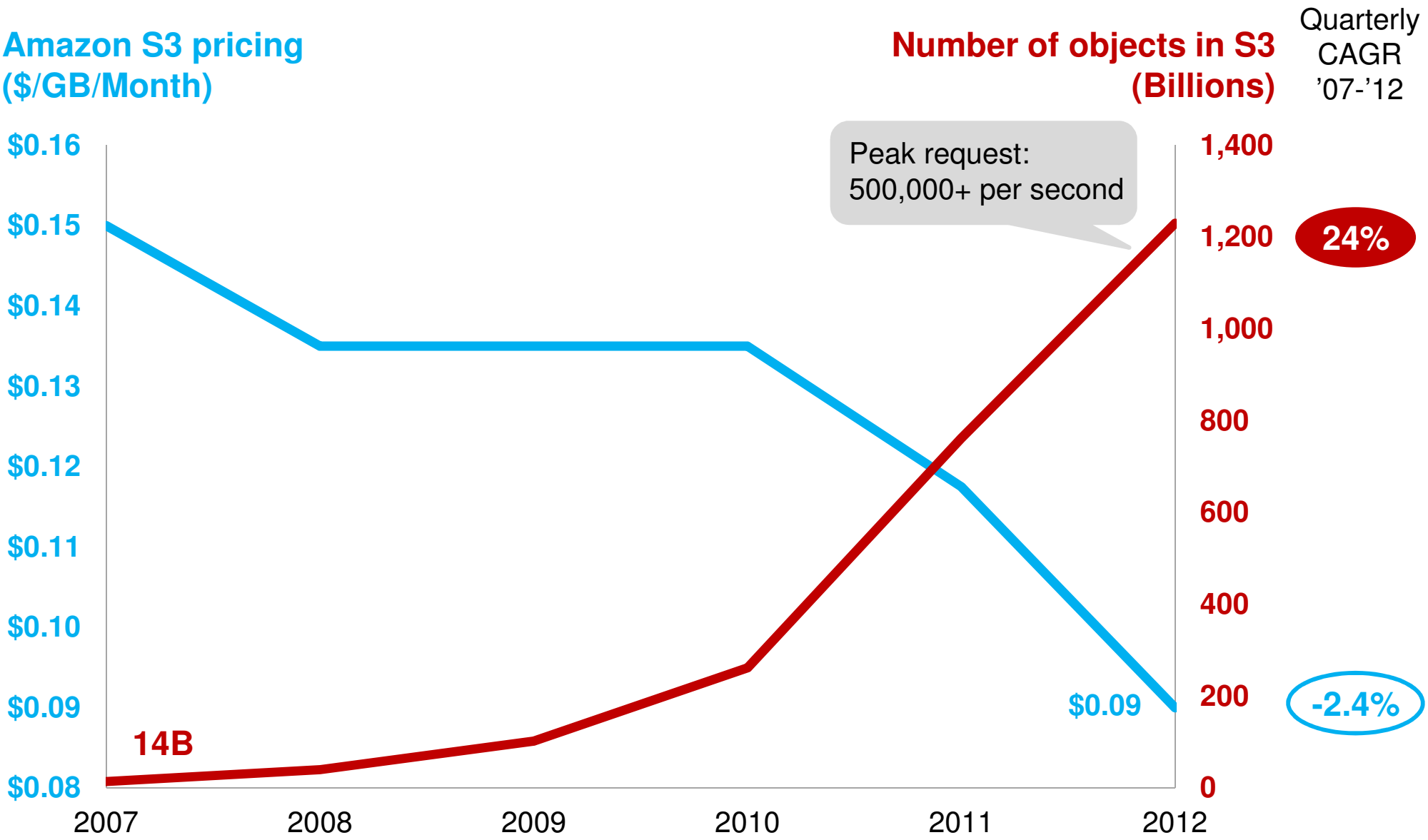
Exponential growth in the cloud

Amazon.com S3 pricing vs. objects stored, 2007-2012



Source: Amazon AWS Blog, University of Washington; Chart created and compiled by Accenture, 2012.

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App Avalanche

Appification of everything

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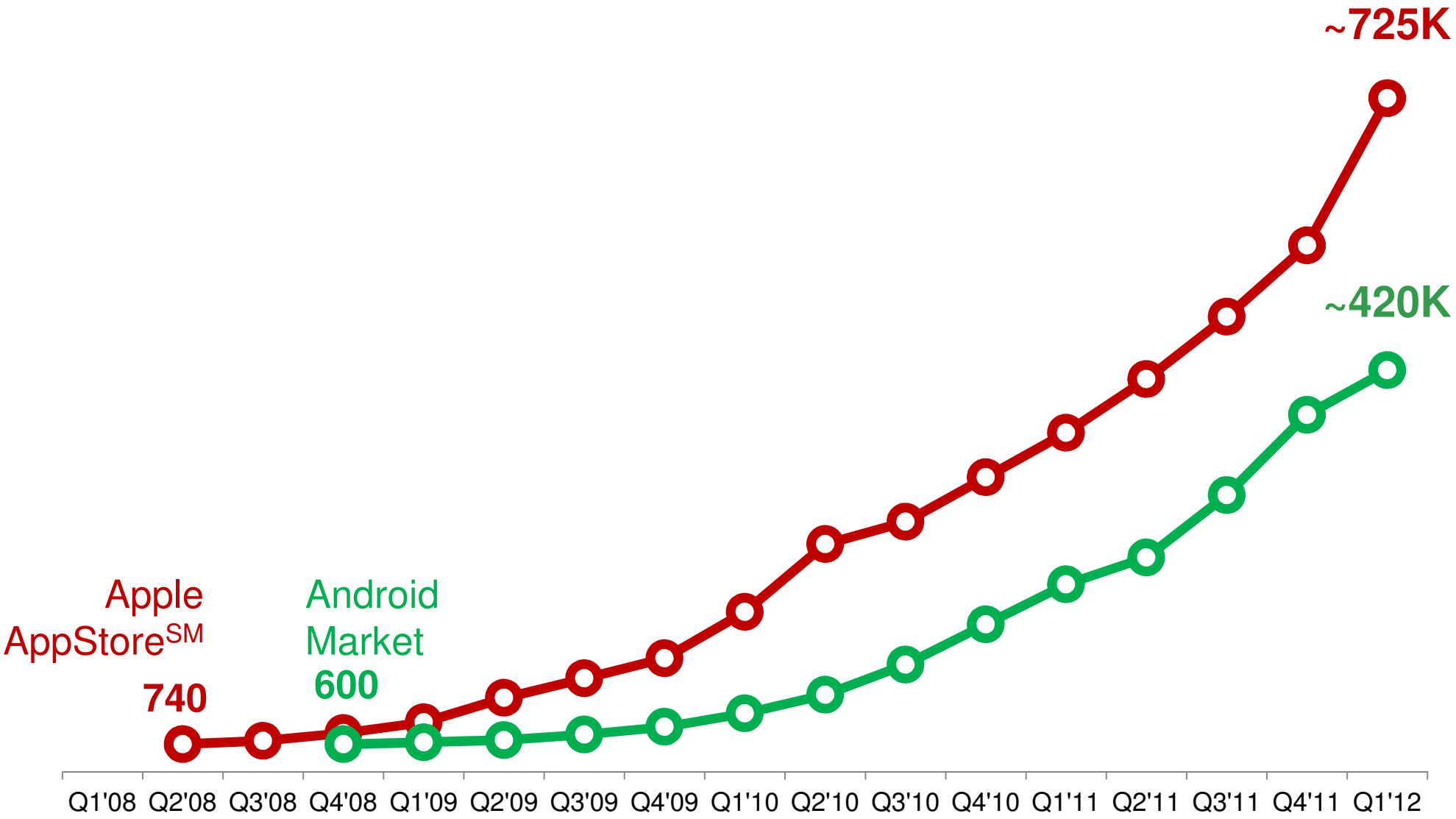
The App Store economy

Catalog size Apple AppStore℠ & Android Market, by quarter



Source: Apple, Google, Xyologic; Chart created and compiled by Accenture, 2012.

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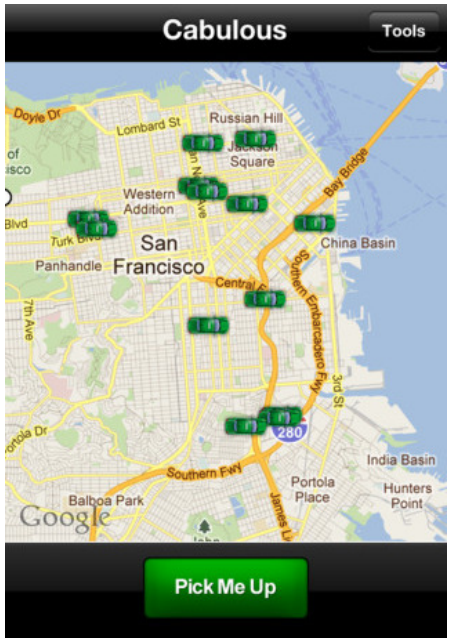
“Appification” of people, things, machines, real estate

Software replacing everything

People
Cabulous



replacing Dispatchers

Things
Mercedes-Benz mbrace

replacing Keys

Machines
Chase Mobile

replacing ATMs

Real Estate
Cherry

replacing your Corner Car Wash

Source: iPhone screenshots; Accenture analysis, 2012.

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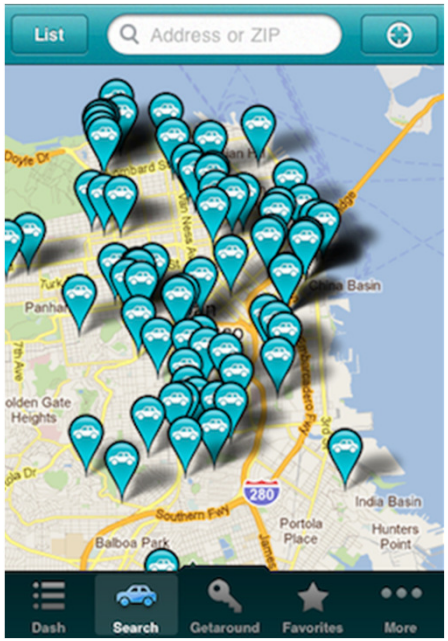
Mobile applications + Cloud = Consumerization

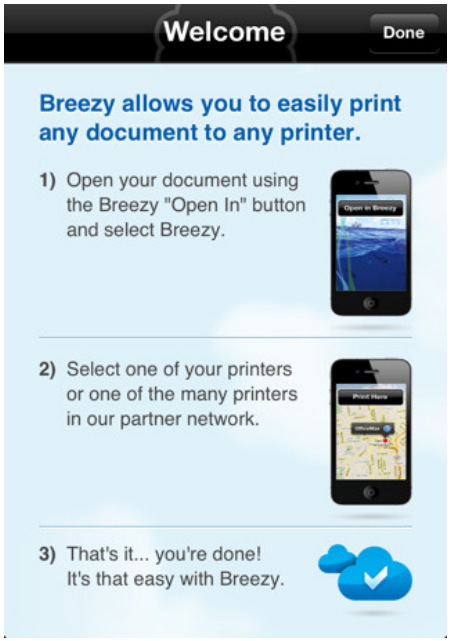
Software disrupting incumbent business models across the board

Transport
RelayRides



Cars

Office IT
Breezy

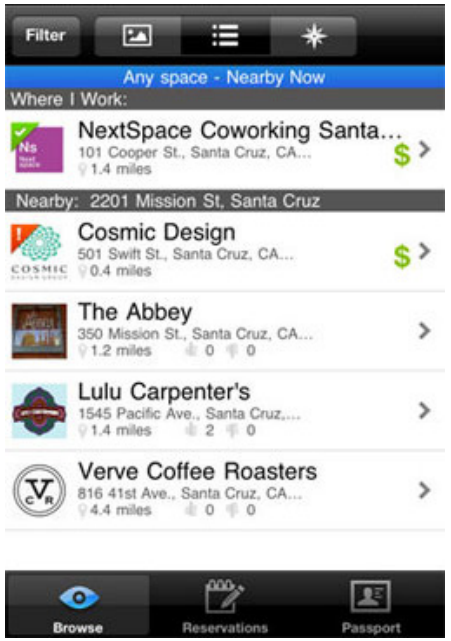


Printers

Finance
Square

Payments

Real Estate
LiquidSpace



Office space

Source: iPhone screenshots; Accenture analysis, 2012.

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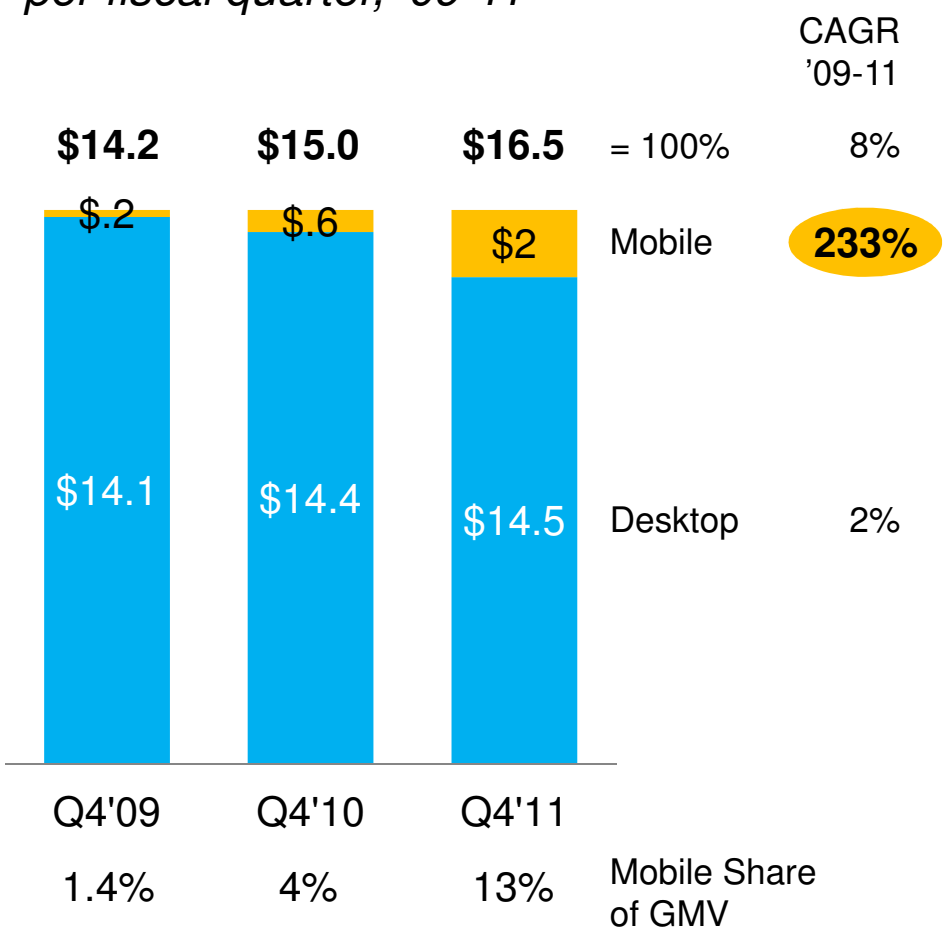
eBay: Transformation to a mobility company

Accelerating volume growth for eBay's mobile apps.

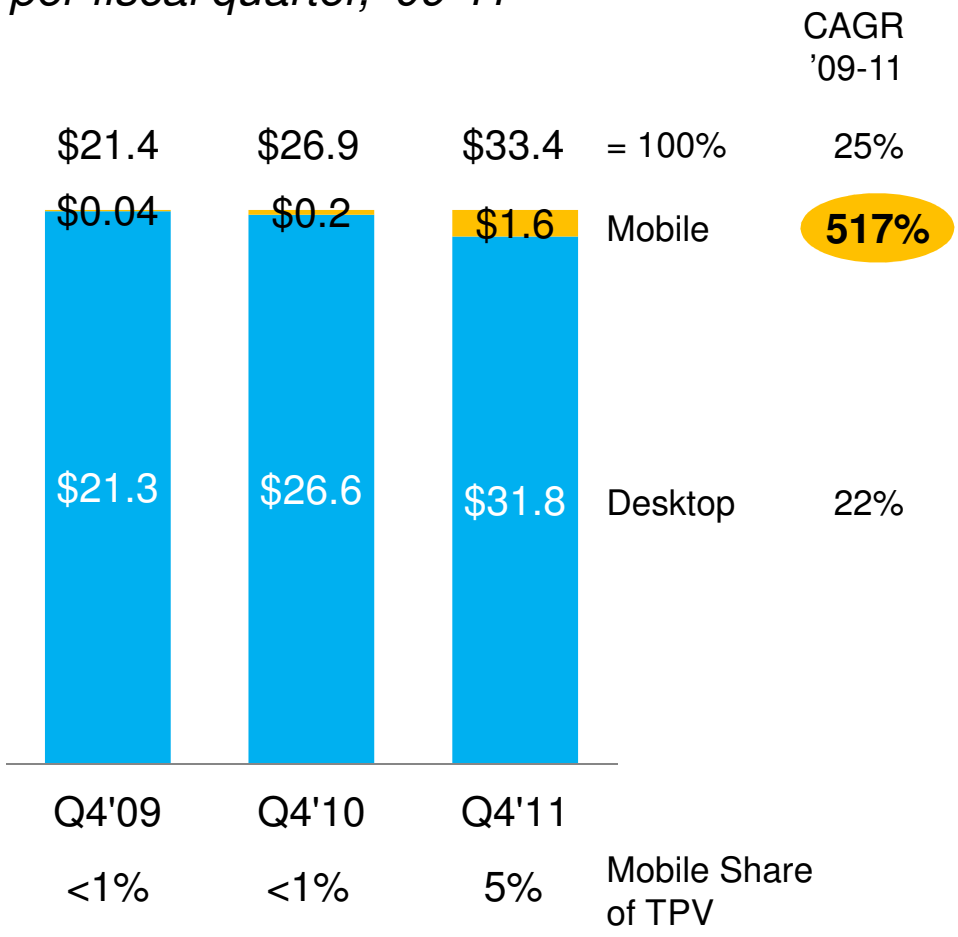
eBay Marketplaces GMV (US$B)

per fiscal quarter, '09-11



PayPal TPV (US$B)

per fiscal quarter, '09-11



Source: eBay SEC filings & earning calls; Chart created and compiled by Accenture, 2012.
GMV = "Gross Merchandise Value"; TPV = "Net Total Payment Volume".

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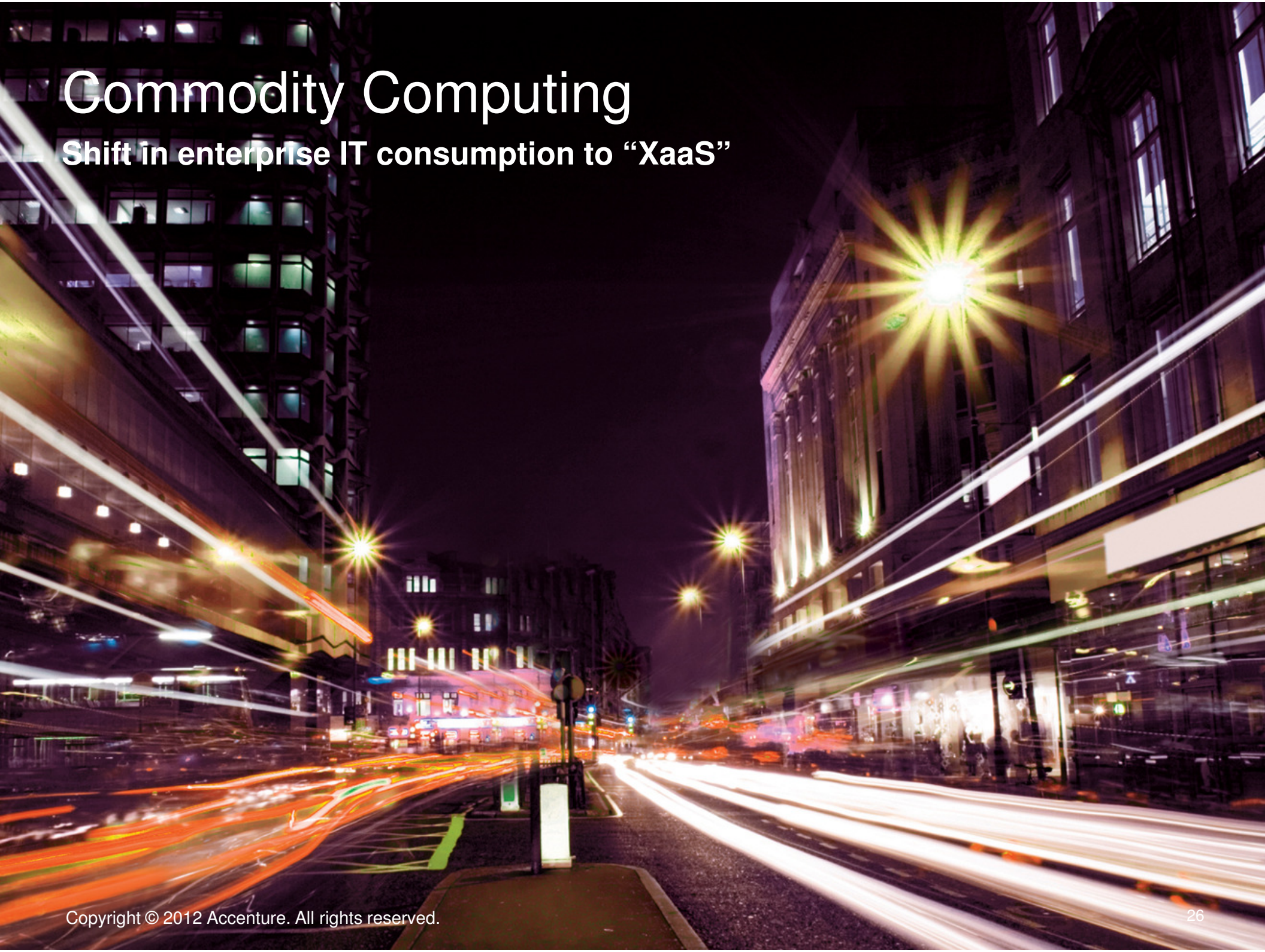
Commodity Computing

Shift in enterprise IT consumption to “XaaS”



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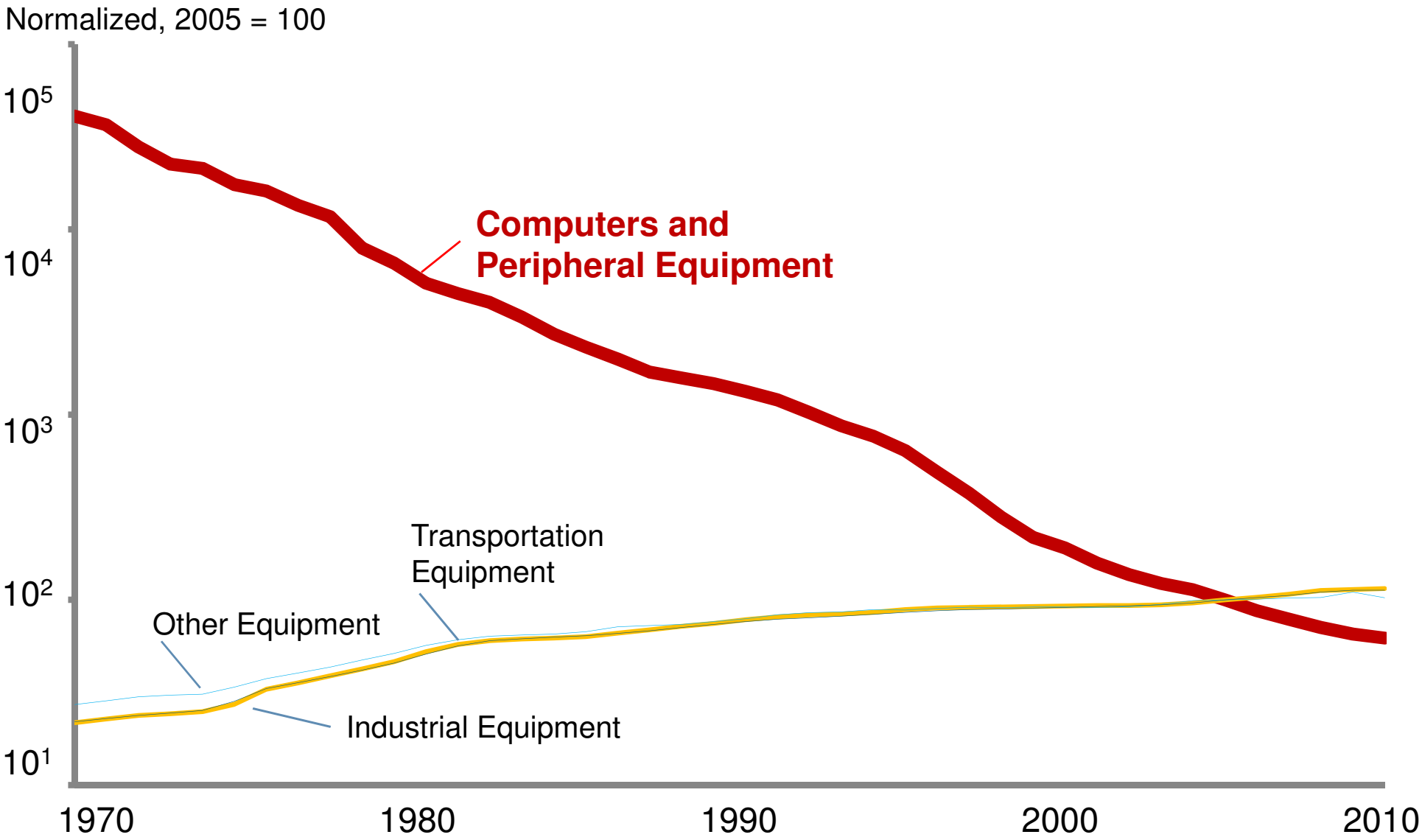
Cost of computing coming down exponentially

US Asset Price Index, 1969 – 2010



Source: BEA, Andrew McAfee; Chart created and compiled by Accenture, 2012.

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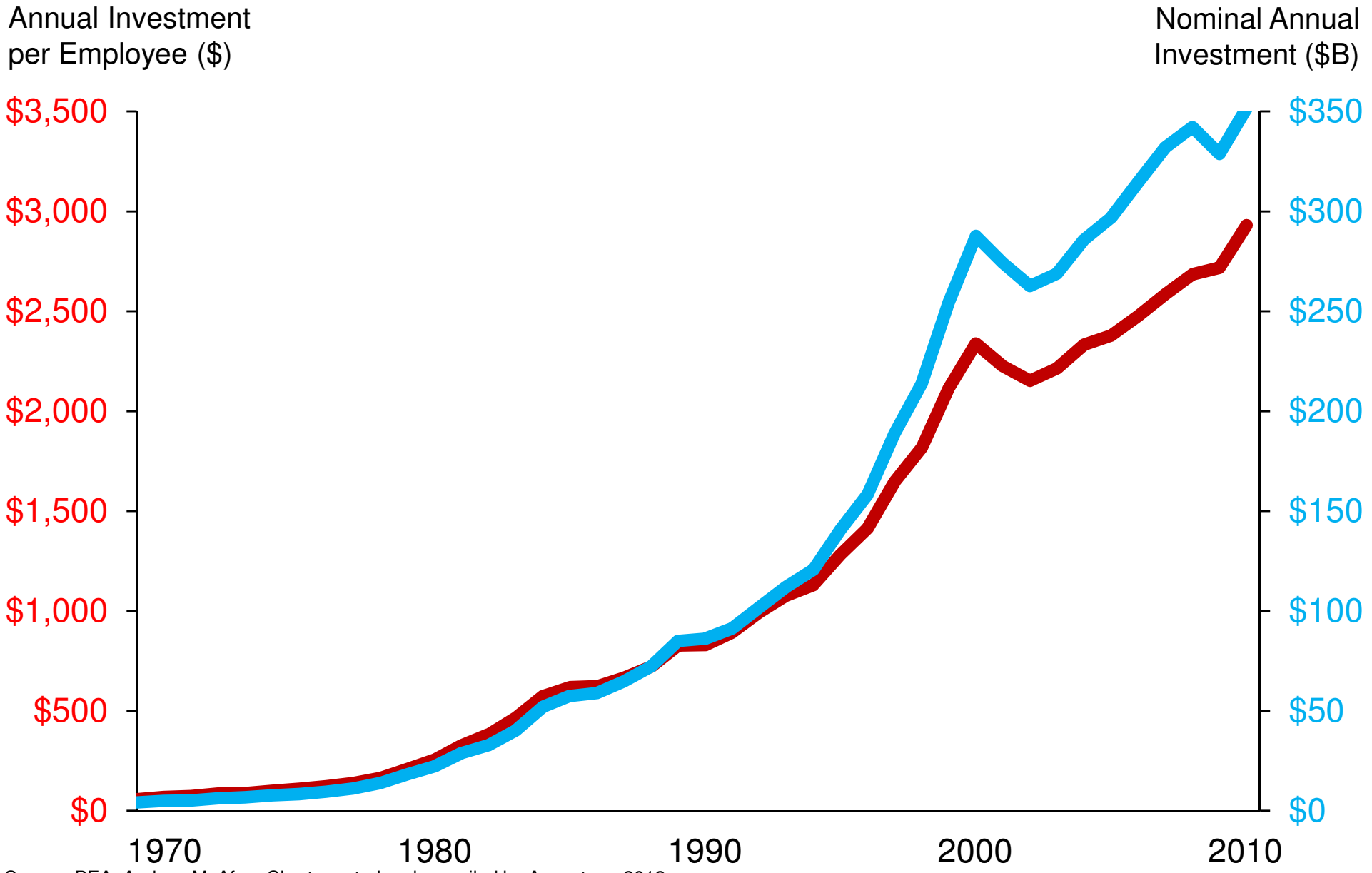
Increasing enterprise IT consumption

US IT Investment, 1969 – 2010



Source: BEA, Andrew McAfee; Chart created and compiled by Accenture, 2012.

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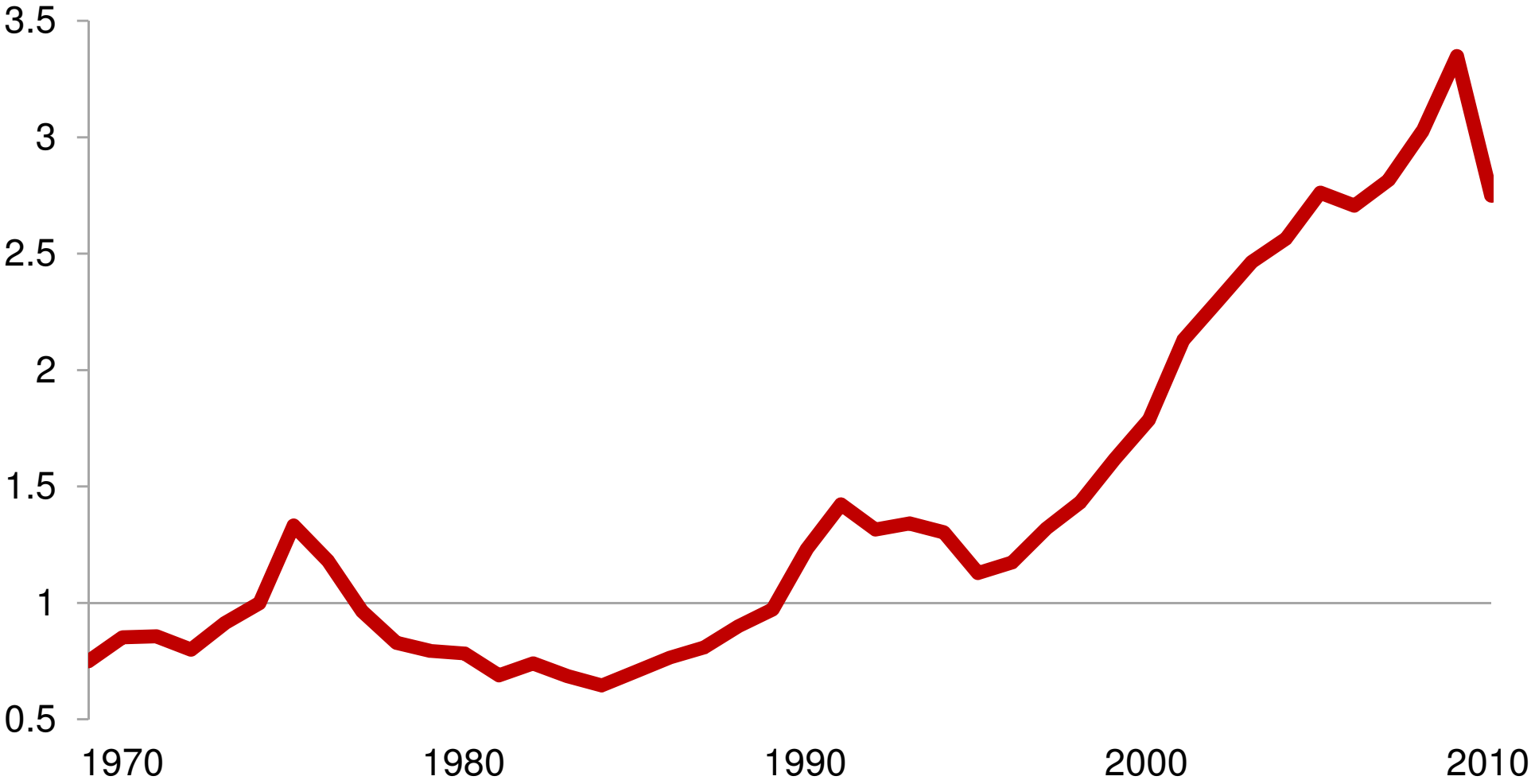
Shift from HW to SW-driven consumption

Hardware spend moving into XaaS

US IT Investment, 1969 – 2010
SW : HW Ratio



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Shift from HW to SW-driven consumption

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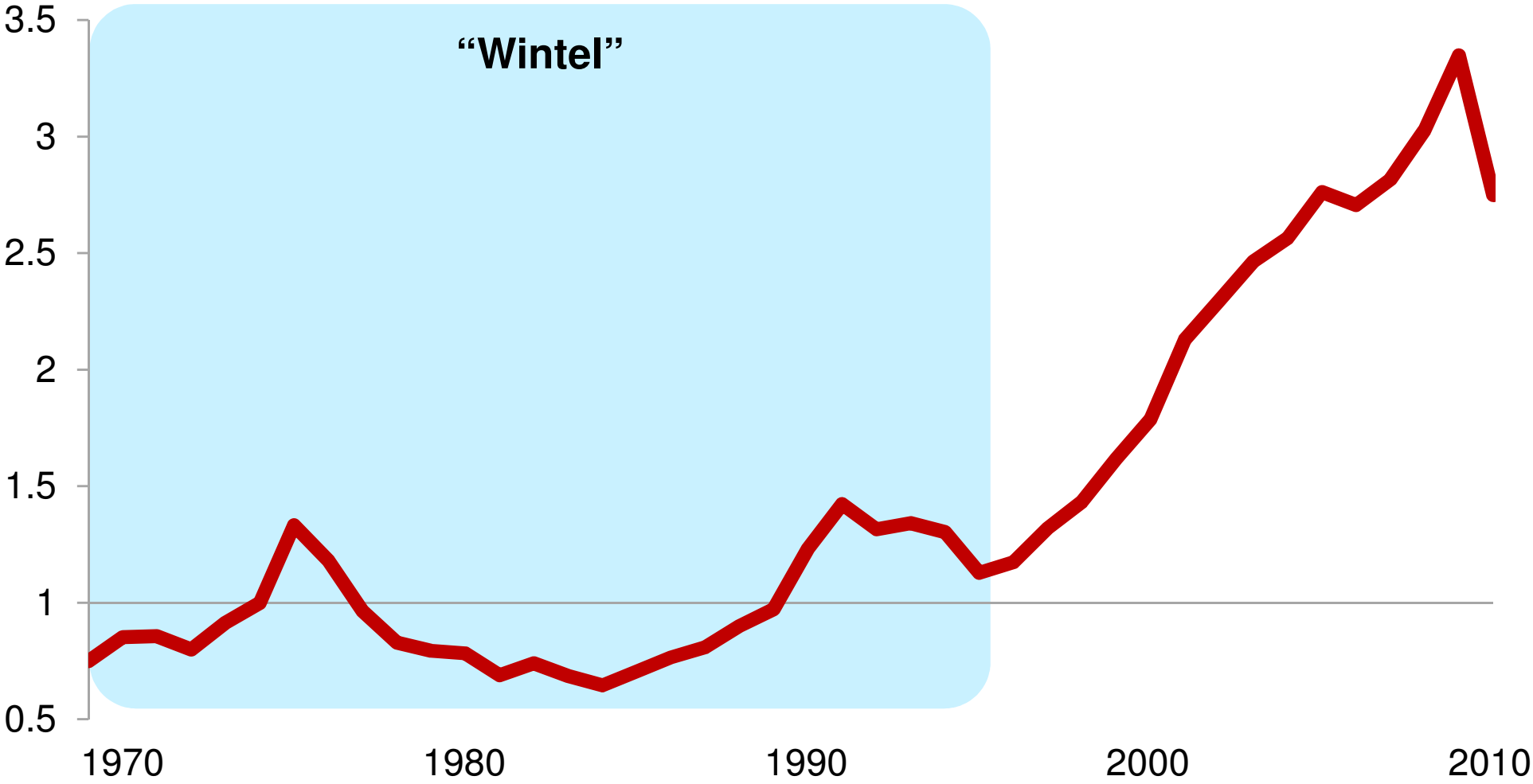
SW : HW Ratio



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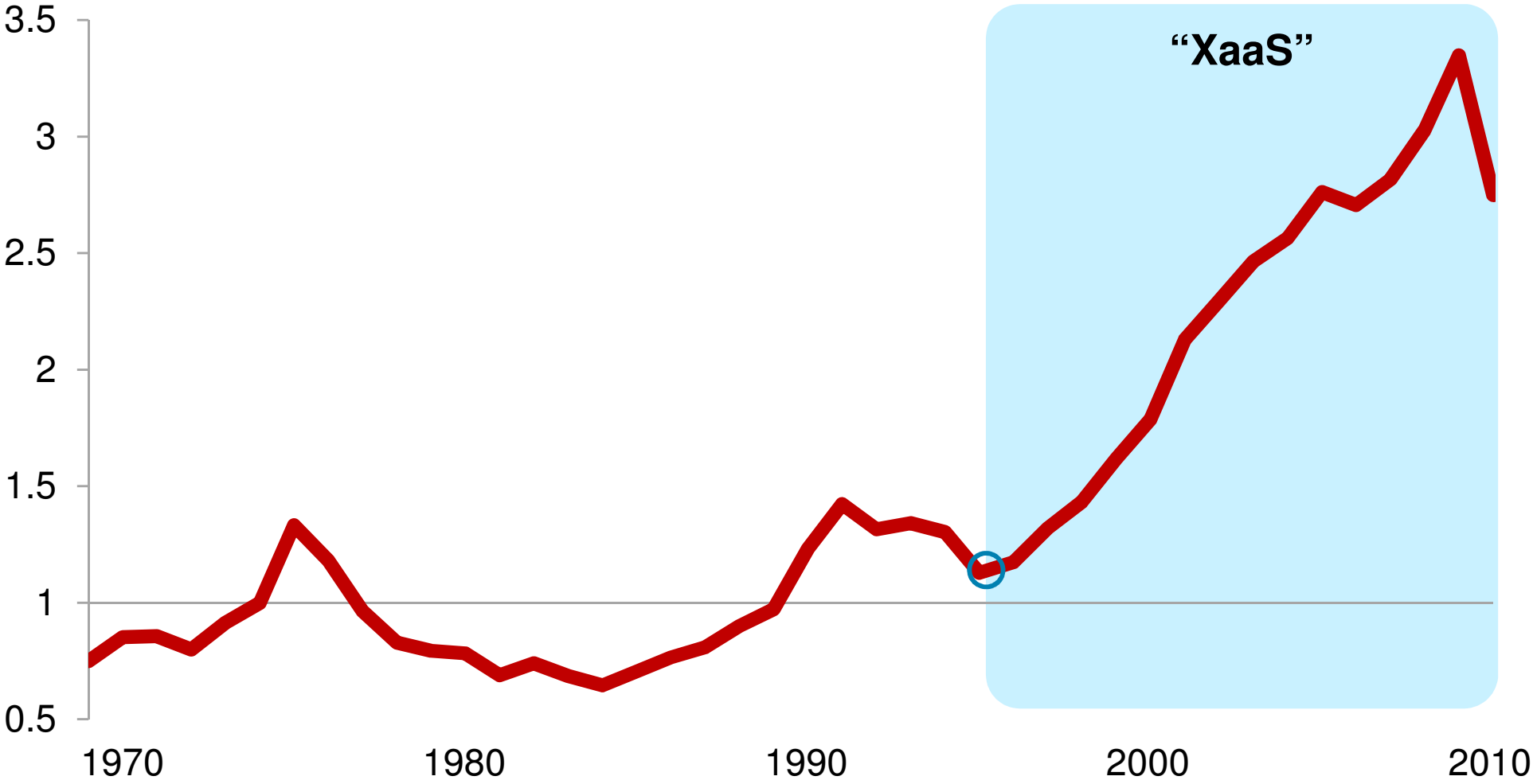
Shift from HW to SW-driven consumption

Hardware spend moving into XaaS

US IT Investment, 1969 – 2010
SW : HW Ratio



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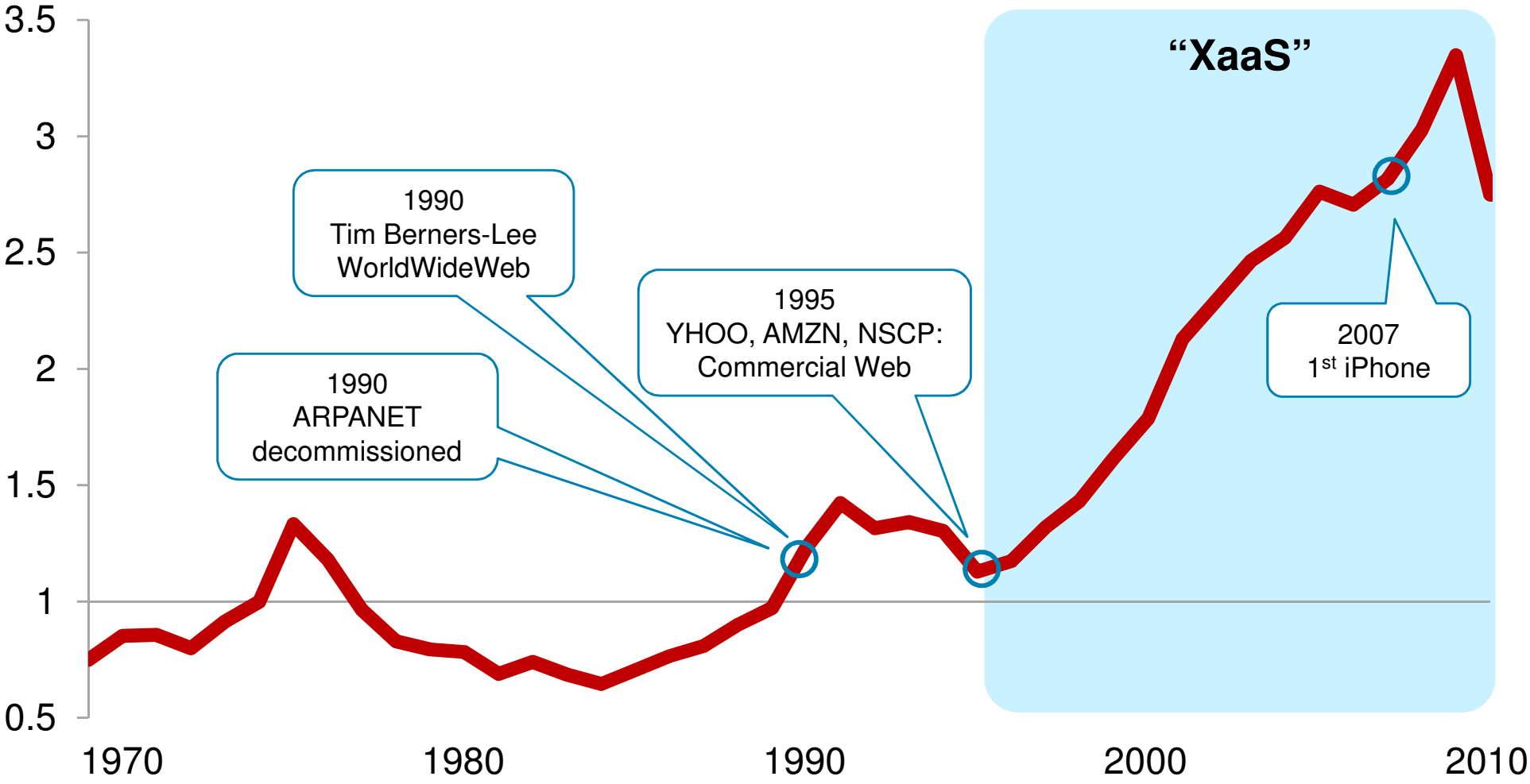
Shift from HW to SW-driven consumption

Hardware spend moving into XaaS

US IT Investment, 1969 – 2010
SW : HW Ratio



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Architecture Approaches

Paradigm shift in the way IT is built

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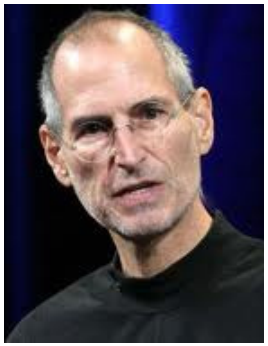
The 3 pillars driving mobility & cloud computing

Operating principles of market leaders

Open Source

*"We regularly **contribute software source code** under open source licenses and have made other technology we developed available under other open licenses, and we **include open source software** in our products."*

Facebook S-1 Filing



Open Standards

*"Though iOS is proprietary, we strongly believe that all standards pertaining to the web should be open. Rather than use Flash, Apple has adopted **HTML5, CSS and JavaScript – all open standards**."*

Steve Jobs

APIs

*"All interfaces must be designed from the ground up to be externalizable. The team must plan and design to **expose the interface to developers in the outside world**. No exceptions. Anyone who doesn't do this will be fired."*

Jeff Bezos

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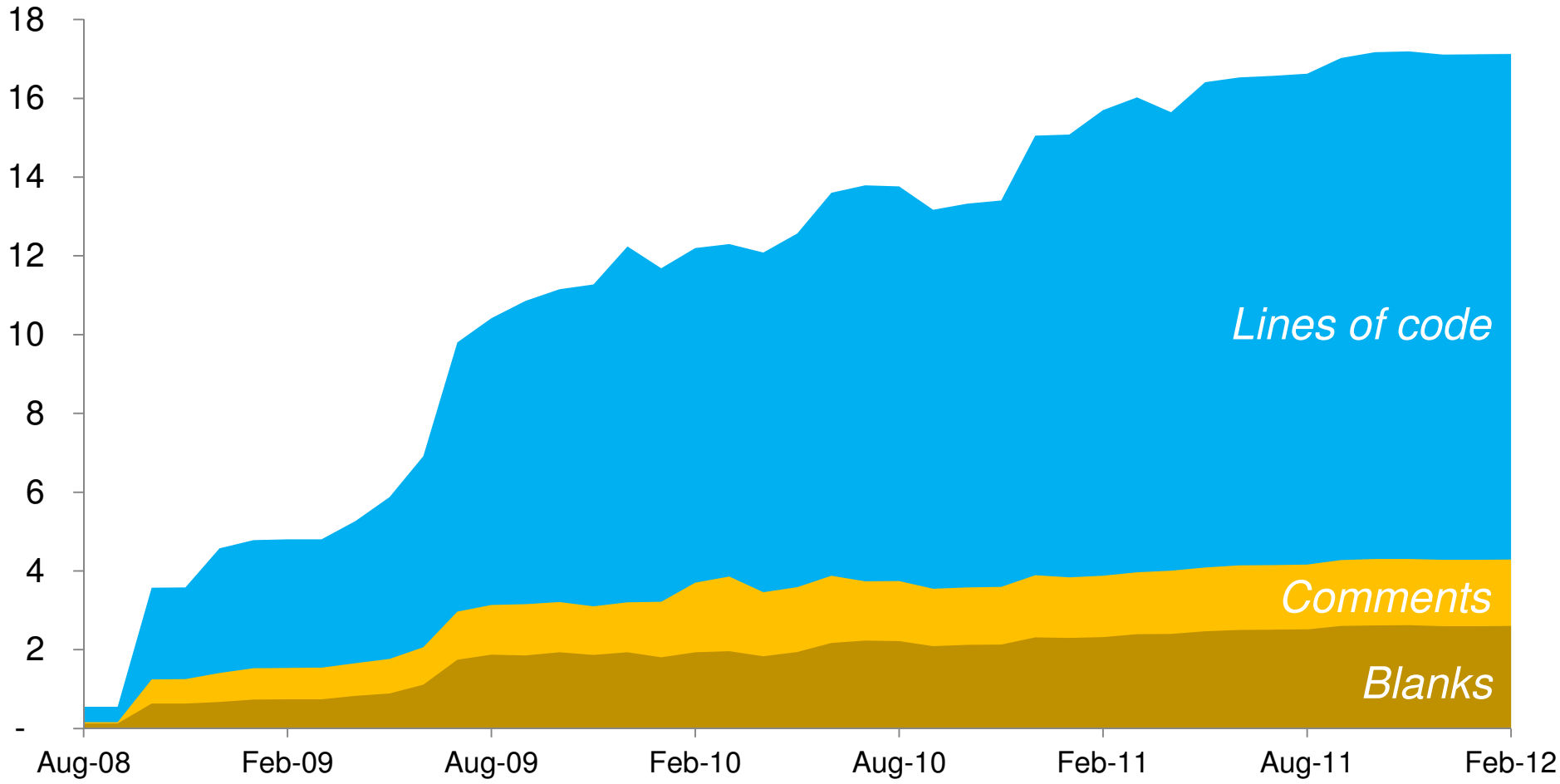
Open Source: Evolution of Android's code base

From 3.6M to 17.1M lines in the code base in 3.5 years



Source: Ohloh.net.

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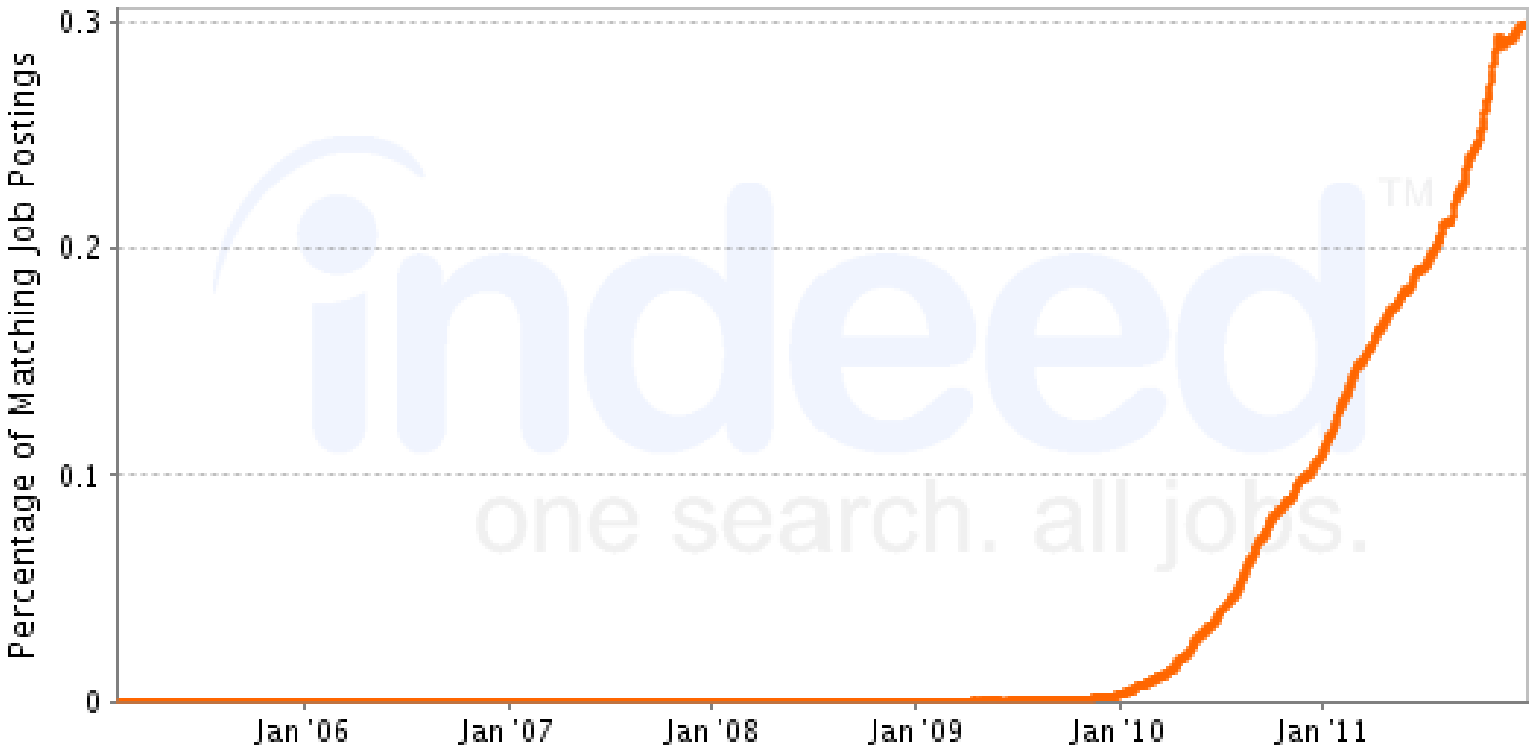
“HTML5” – fastest growing keyword in job postings

Job trends from Indeed.com



1. **HTML5**
2. MongoDB
3. iOS
4. Android
5. Mobile app
6. Puppet
7. Hadoop
8. jQuery
9. PaaS
10. Social Media

Source: Indeed Job Trends.

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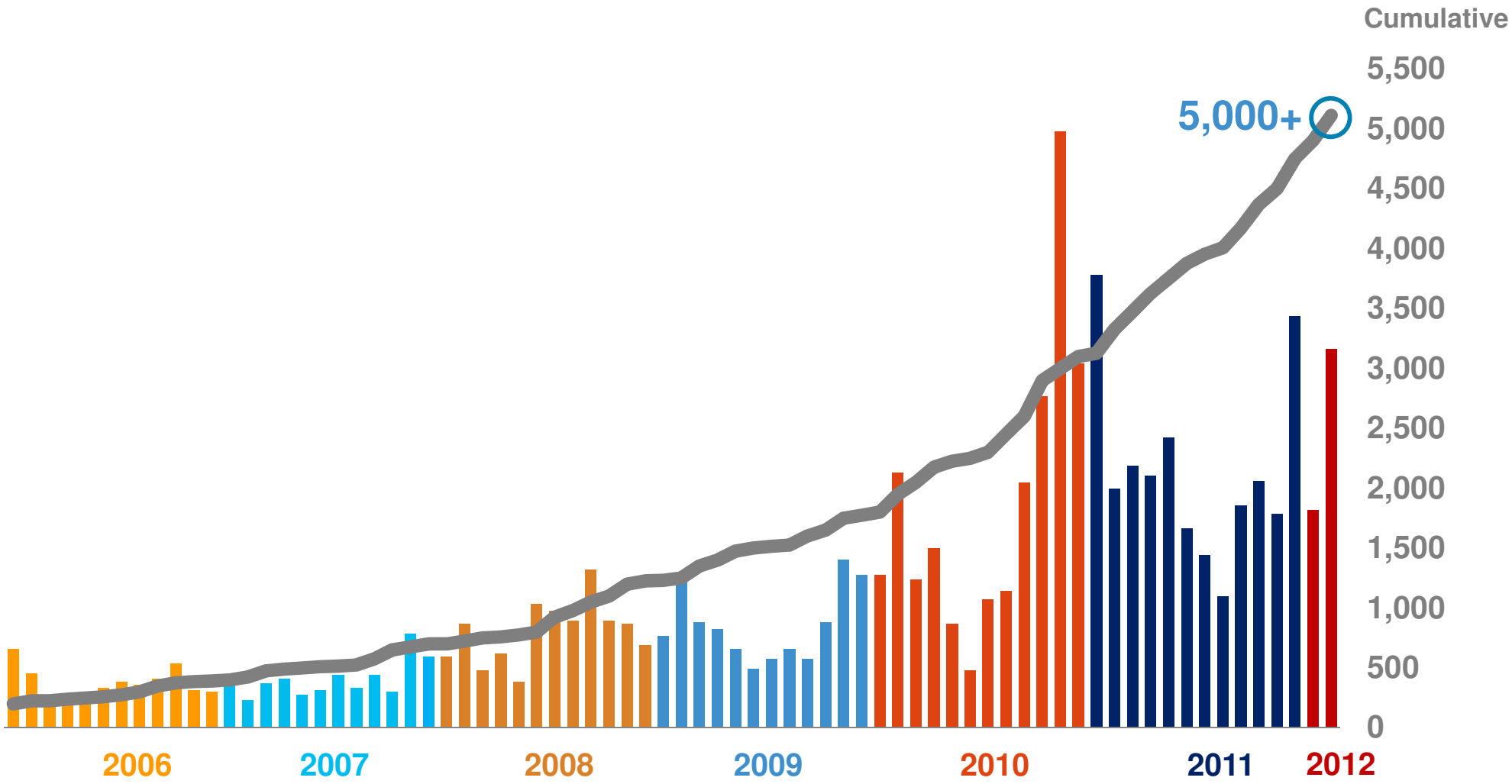
APIs – the new currency

"Programmable Web", number of published APIs per month, 2006-2011



Source: Programmable Web; Chart created and compiled by Accenture, 2012.

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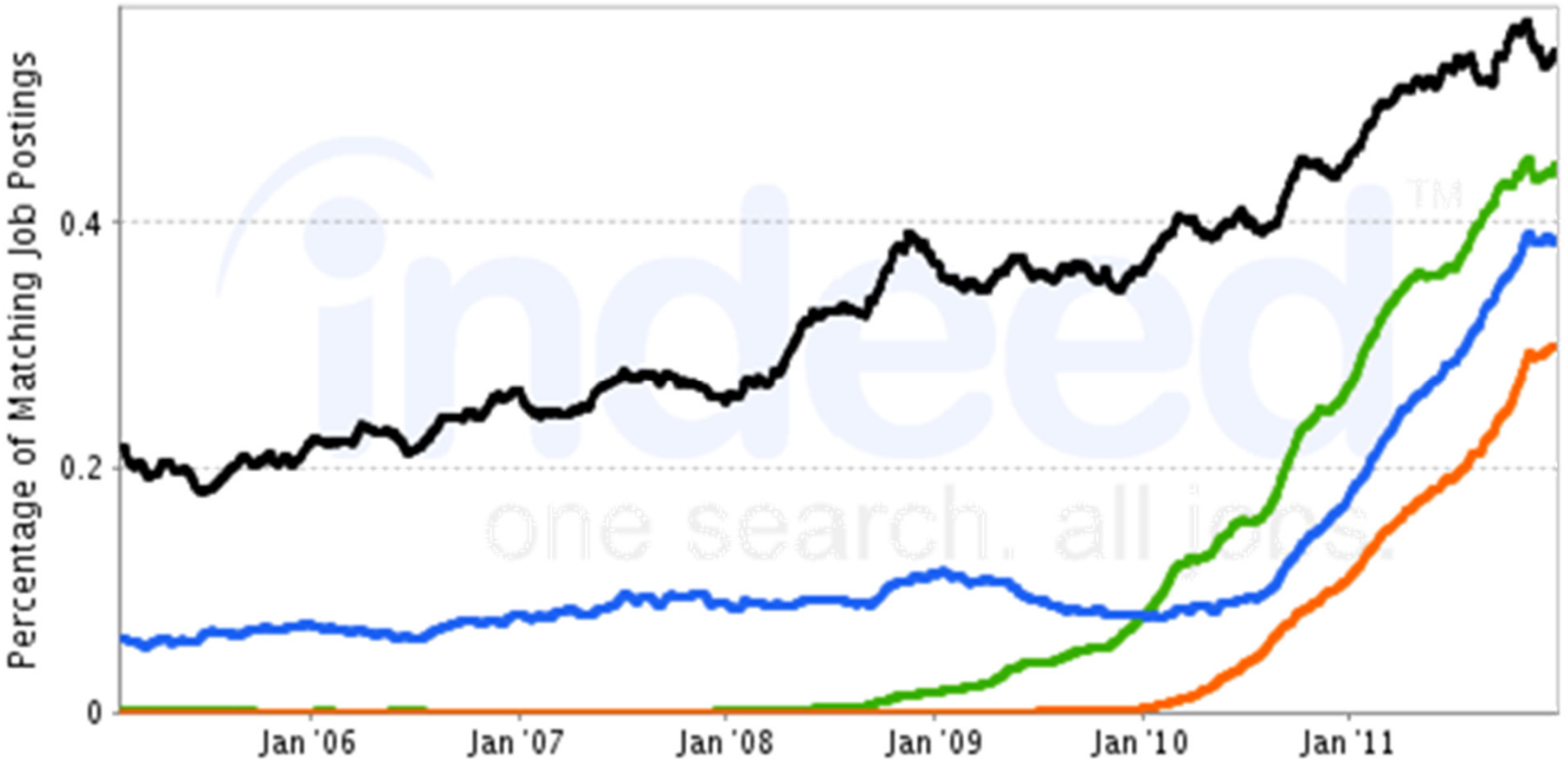
Putting it all together: shift in “hot skills”

Something’s cookin’…



Source: Indeed Job Trends.

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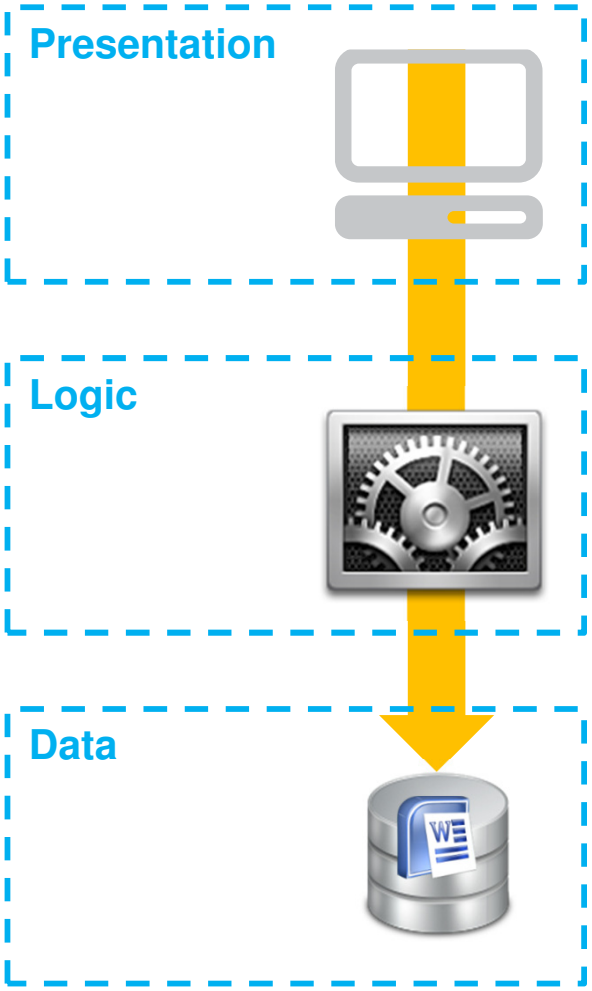
Shift in architecture paradigms

From vertical silos to …

The Past

3-Tier Centralized Web Architecture



The New Reality

App-centric Distributed Cloud Model

Source: Jeff Haynie / Appcelerator, Accenture analysis..

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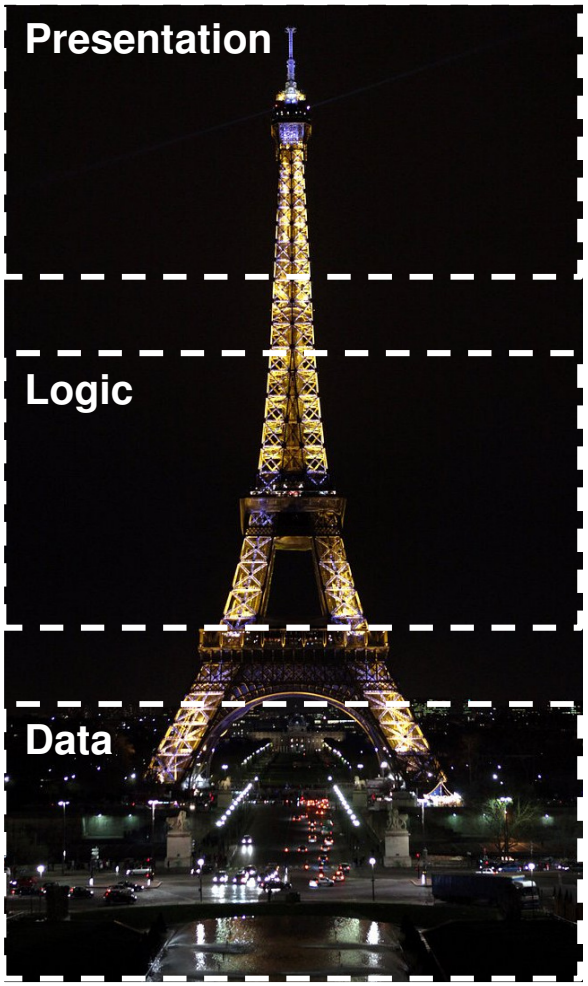
Shift in architecture paradigms

Running a building vs. running a city

The Past

Running a Building

Stove Pipes



The New Reality

Running a City

Platforms

Source: Getty Images.

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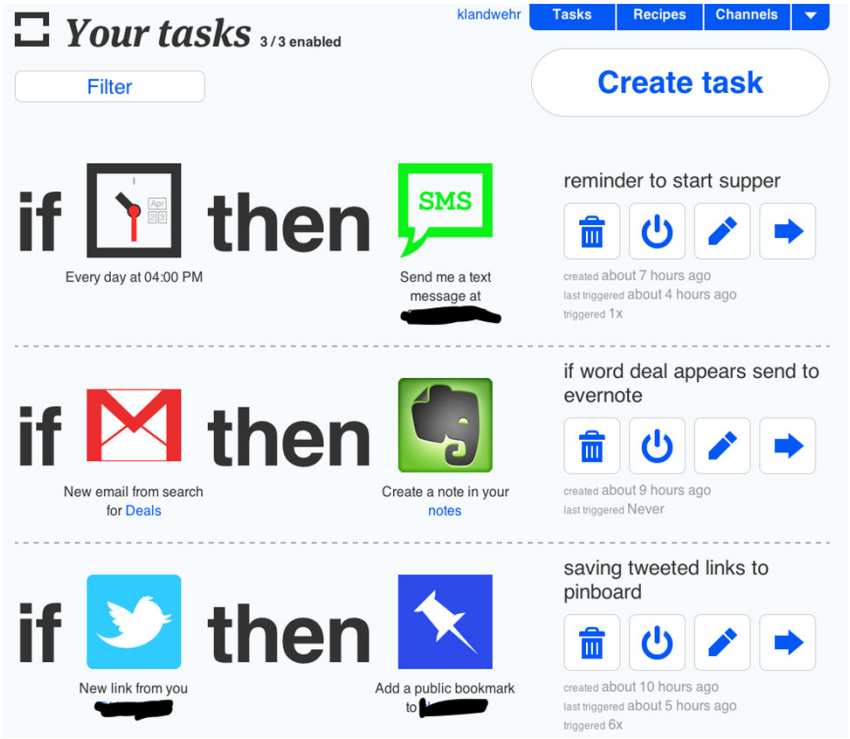
Fast Forward

Apps & connected devices transforming our lives and society

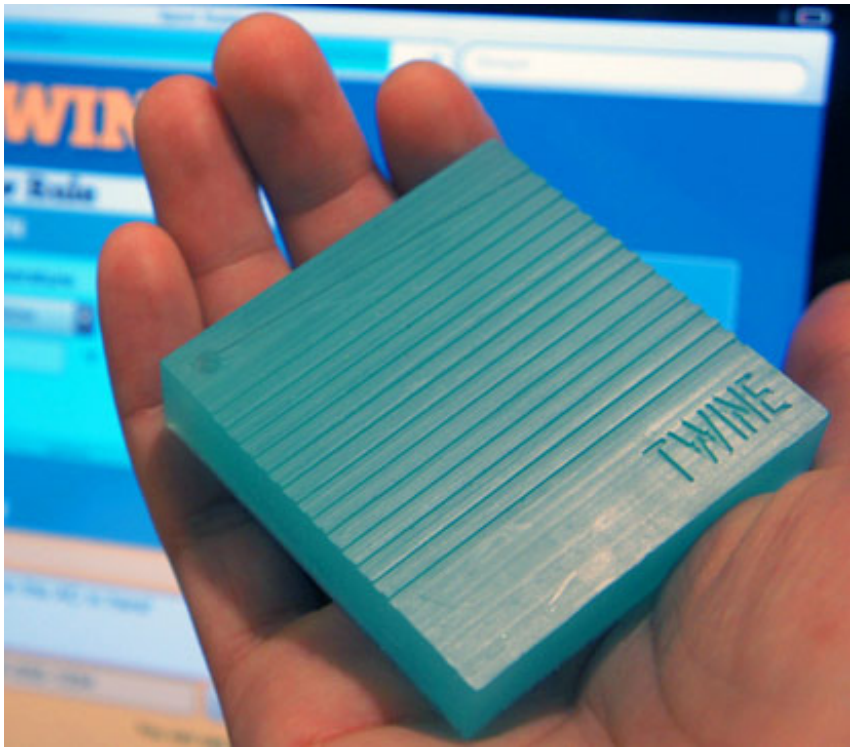
From appification to task-centric instrumentation

Channels, triggers, actions

ifttt



Twine



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ifttt uptake during 2011

Early experiment in instrumentation

Source: ifttt blog.

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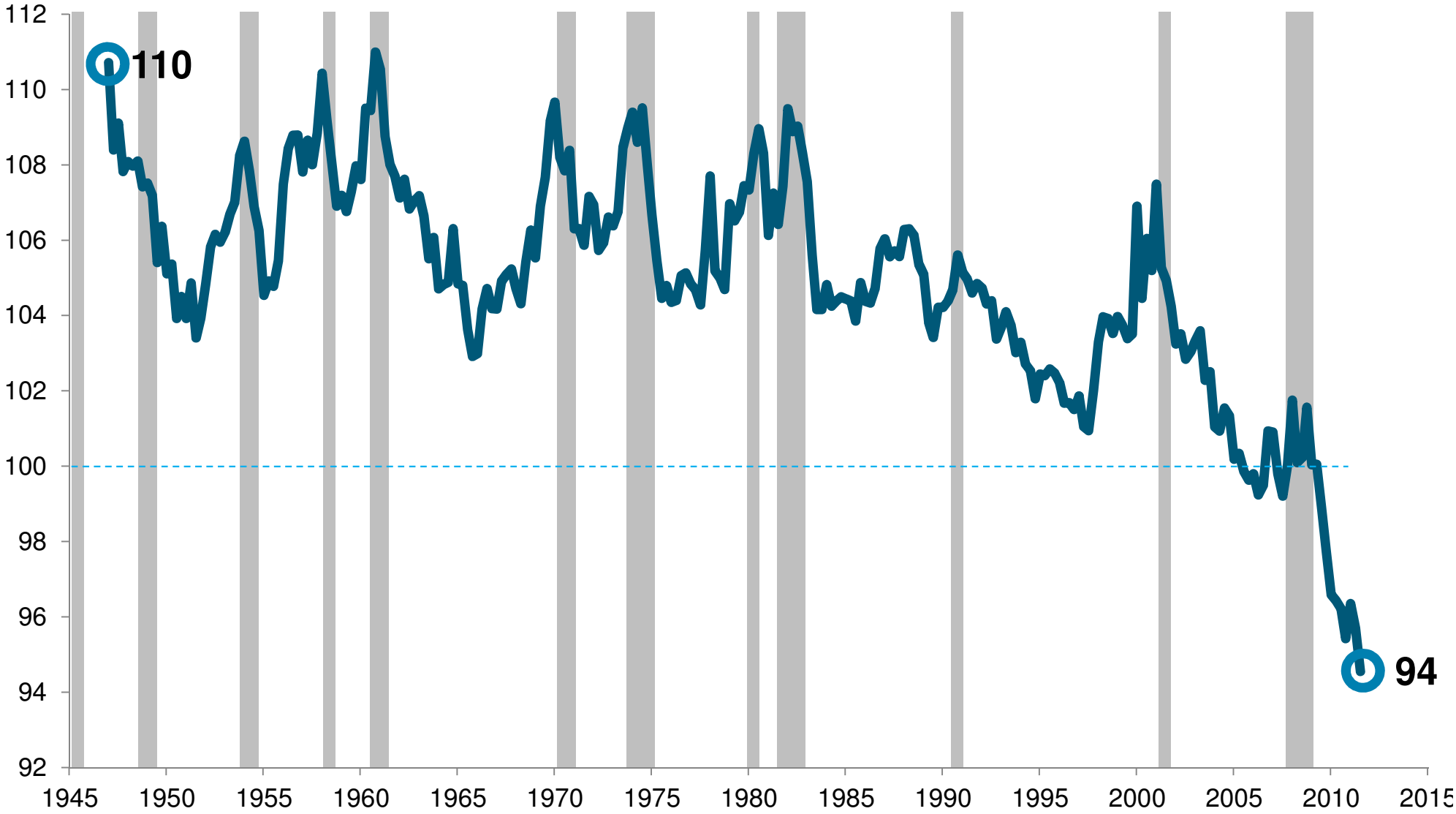
Decreasing share of labor in the age of connected devices

Nonfarm Business Sector: Labor Share (Index 2005 = 100)



Source: U.S. Department of Labor, Federal Reserve Economic Data St. Louis Fed; Andrew McAfee, Accenture analysis. Shaded areas represent recessions.

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consulting | technology | outsourcing

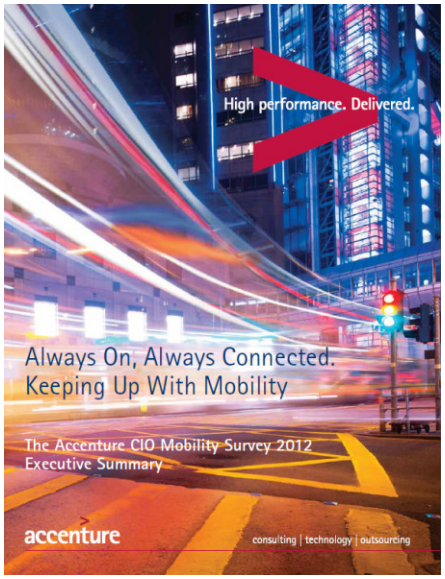
Mobile World Congress 2012

Always On.
Always Connected.

Being everywhere can help your business go anywhere.

High performance. Delivered.

The Accenture CIO Mobility Survey 2012 Executive Summary



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