

Signature
Series



Gartner® SYMPOSIUM ITXPO® 2013



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The Top 10 Strategic Technology Trends for 2014

David Mitchell Smith

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Key Issues

1. What technology trends will have the biggest potential for significant enterprise impact over the next three years?
2. Which technologies or trends will drive significant change or disruption?
3. Are there changes or tipping points occurring now or over the next three years that make the technology newly strategic or applicable to a wider market?

Top 10 Strategic Technology Trends for 2014:

Converging Forces

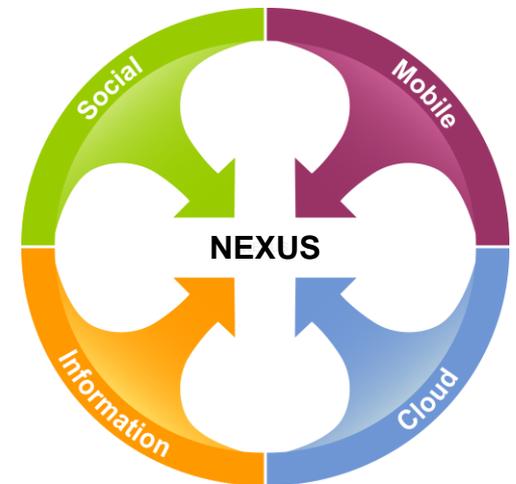
Mobile Device Diversity & Management
Mobile Apps & Applications
The Internet of Everything
Hybrid Cloud & IT as Service Broker

Derivative Impact

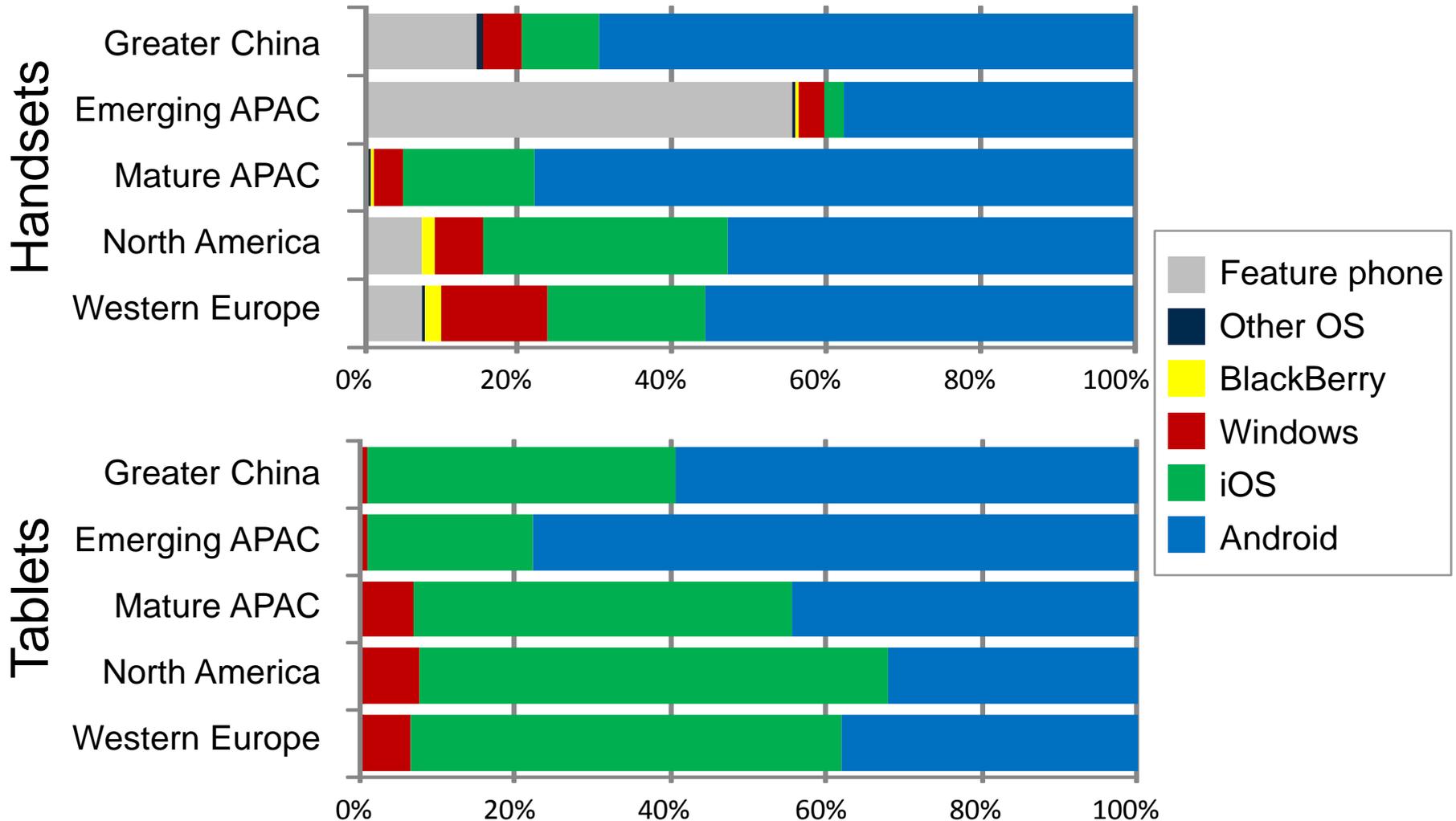
Cloud/Client Architecture
The Era of Personal Cloud
Software Defined Anything
Web-Scale IT

Future Disruption

Smart Machines
3D Printing



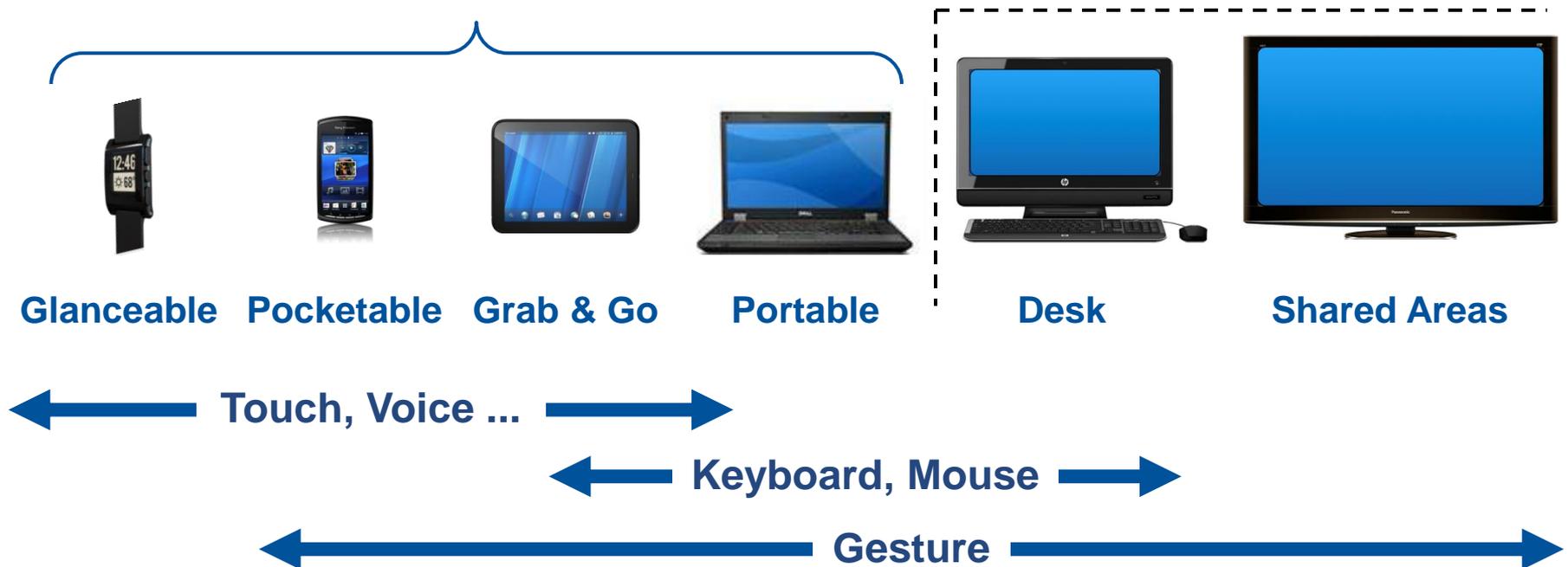
No Single Vendor Will Dominate There's Space for Three Leaders



Gartner, Forecast for Device Shipments by Operating System, Worldwide, 2Q13

Mobile Device Diversity

- Many form factors, screen sizes, interaction styles, platforms, architectures
- > 100 mobile application development tools, > 60 MDM tools
- Management and security challenges driven by BYOD and BYOA
- New working practices, opportunities, organizational structures, skills
- Tactics are the new strategy



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Managing Mobile Diversity

The Rise of Enterprise Mobile Platforms

Enterprise mobile platforms are key strategic solutions encompassing mobile applications, integration, management, and security



- Removes complexity from mobile decisions
- Protects enterprise from mobile device wars
- Drives reuse and faster mobile adoption

Enterprise Mobile Platform

- Cloud-delivered
- Social-enabled
- Multichannel
- Device-aware
- Device-agnostic

Device vendors like Apple and Google will not be the most strategic mobile platform in the workplace

Enterprise Mobile Platforms

Broad solution portfolios put these discrete markets at risk:

- Mobile Device Management (MDM)
- Legacy Mobile Enterprise Application Platforms (MEAP)
- Security Containers
- Enterprise File Sync & Share
- Cloud Mobile Back-end Services

Emerging leaders



...with more joining soon

Invest tactically in best-of-breed solutions with <2 years payback. Select strategic vendors by 2016.

Mobile Apps and Applications

- Richer UI models
 - Voice, Video & more
- Microsoft, Google and Apple will battle for leadership
 - “Modern” UI & “Apps” vs. “Applications”
 - Contextual, connected, multi-device
- Multichannel applications
 - Store, Sync and Share
 - Cross-Platform Applications
- Development challenges
 - New design skills
 - Responsive Design
 - Native apps vs. HTML5



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The Internet of Everything



Internet of People

1.11B people on Facebook, Mar 2013



Internet of Things

25B things by 2020

<http://www>

Internet of Information

30T web pages in Google index, 2013



Internet of Places

3B Foursquare check ins, Jan 2013

... if it makes sense commercially, socially, and personally

Focus on the Usage Models to Uncover Value

Manage

Optimize utilization

Monetize

Pay-per-use

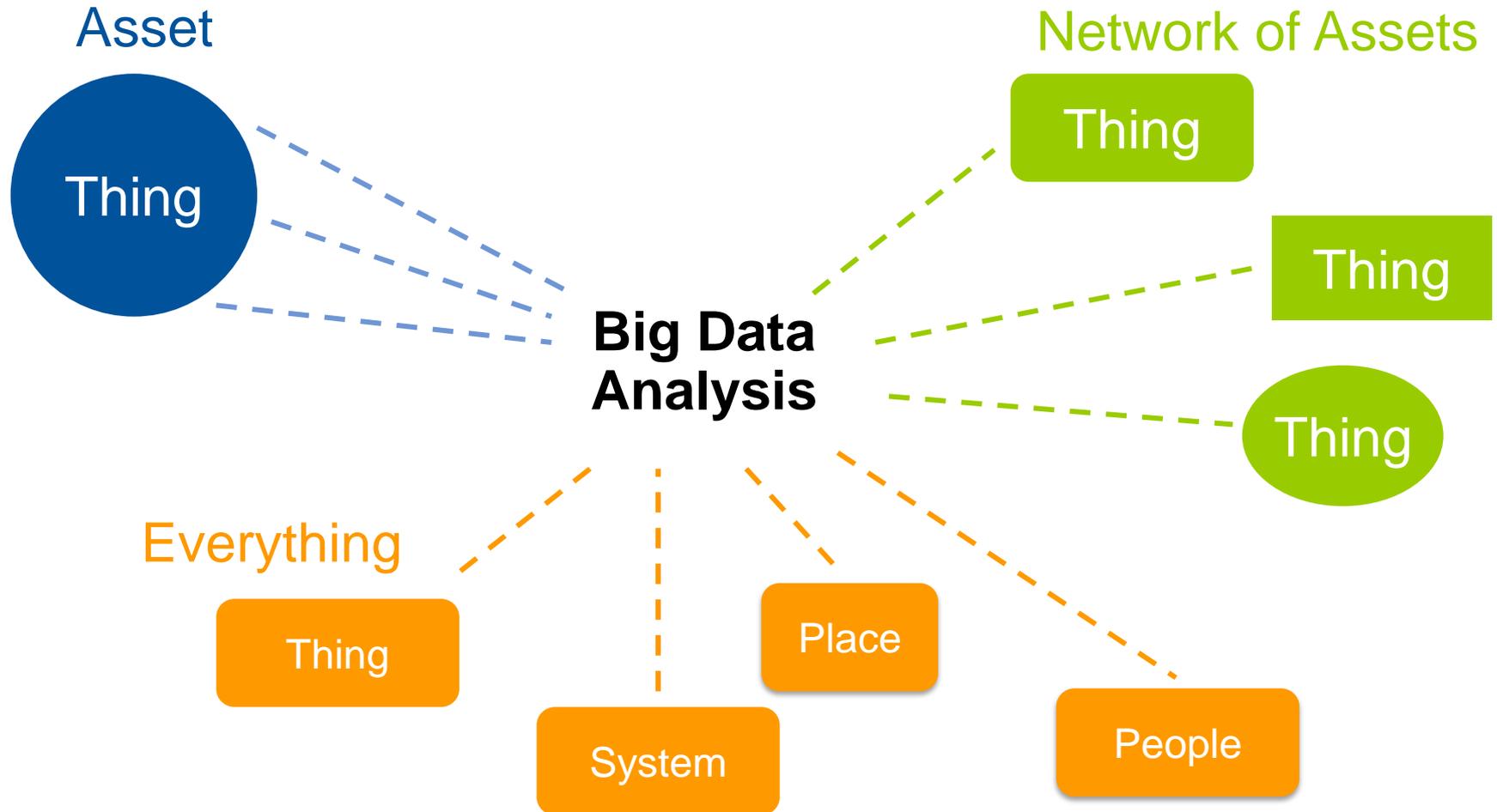
Operate

Remote operation

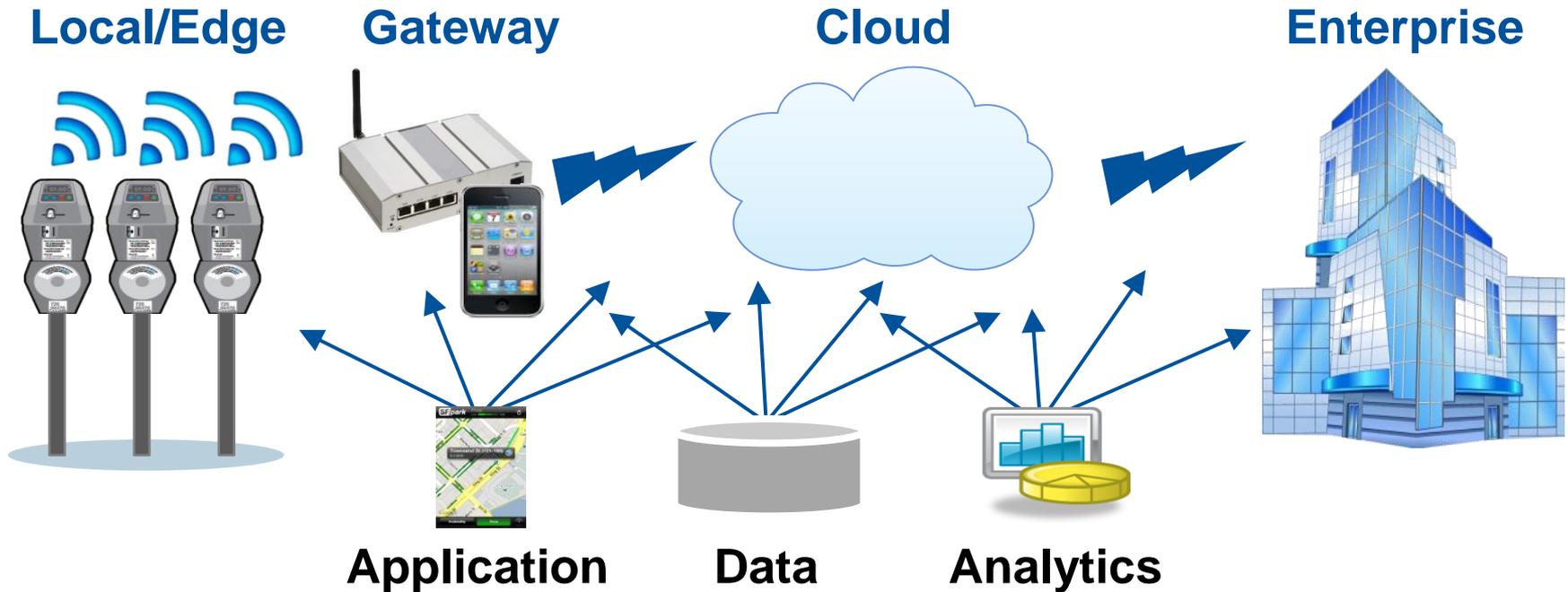
Extend

Provide digital services & content

The “Information of Things” Unlocks Value



Architecture Matters



Application logic, data, and analytics can be placed anywhere

Hybrid Cloud — Combining Services

Static Composition

Designed so that services are always used together in the same manner

- Complementary capabilities/data.
- Most common current approach

Deployment Composition

Composed each time the service is provisioned/used

- Based on policies, capacity availability, current pricing.
- Viable with strict parameters and planning

Event Composition

Recomposed based on a planned or one-time event

- Based on expected capacity or capability needs (e.g., disaster recovery)
- Emerging approach

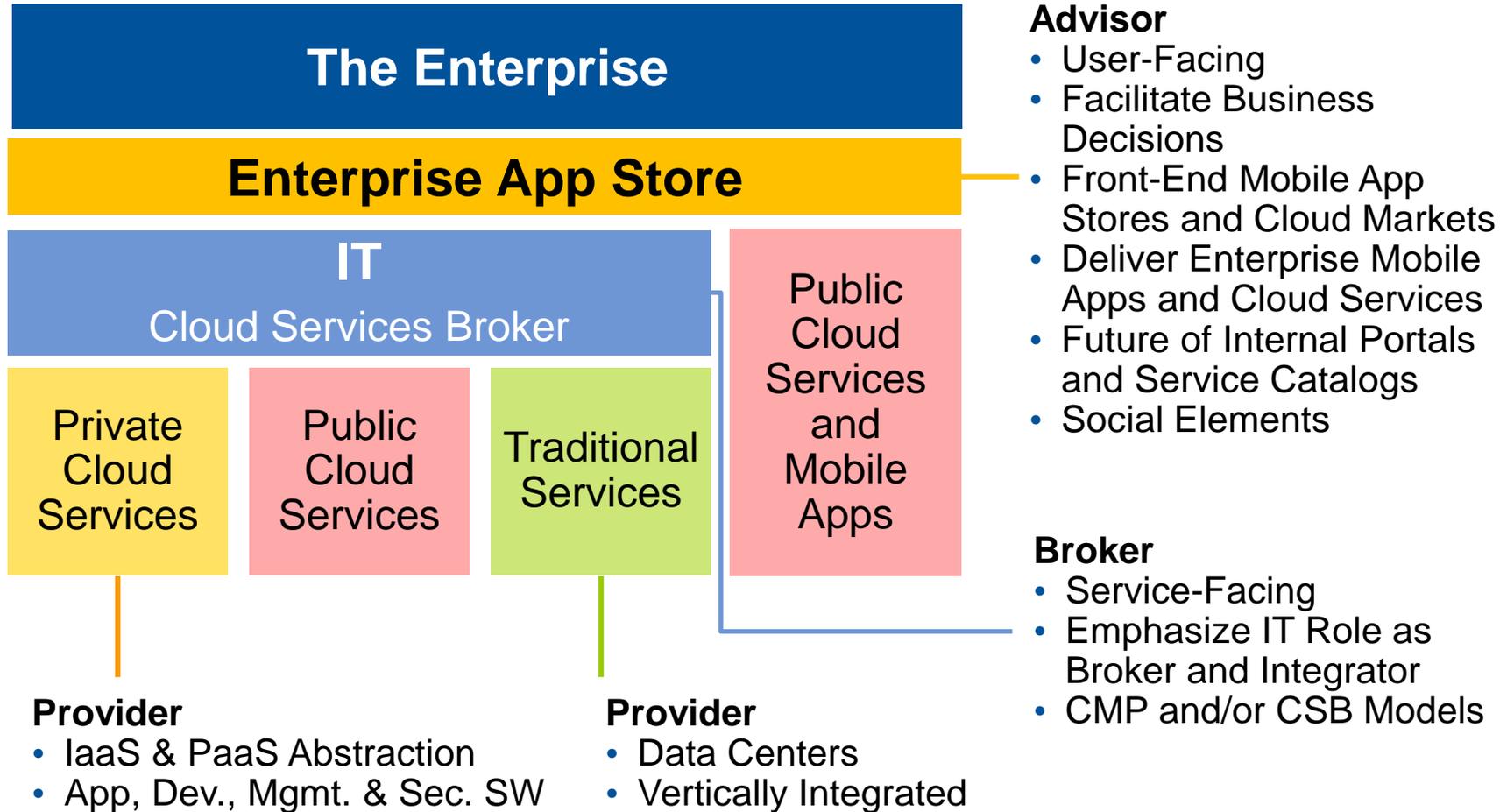
Dynamic Composition

Recomposed dynamically during runtime

- Based on policy and dynamically-changing capacity or capability needs, pricing
- Bleeding edge approach but evolving

Hybrid IT — IT As Advisor, Broker and Provider

Hybrid IT



Cloud/Client Architecture

- The cloud is the control point and system of record
- Applications span multiple client devices
- The application is in the cloud ... apps expose capabilities on the client
- The experience flows to where you are and what you are doing in context
- Mobile containers drive a new security approach
- Applications will use multiple client endpoints simultaneously

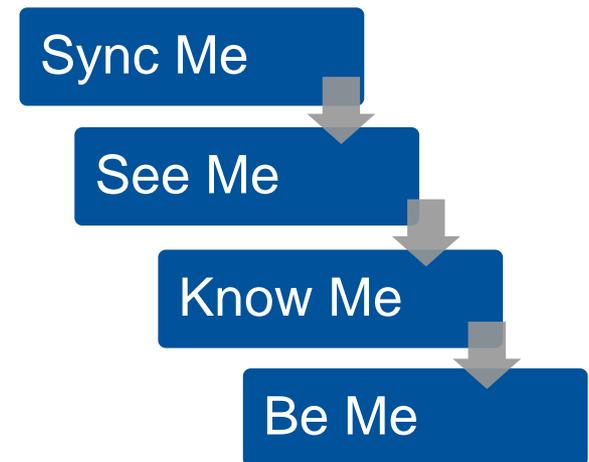
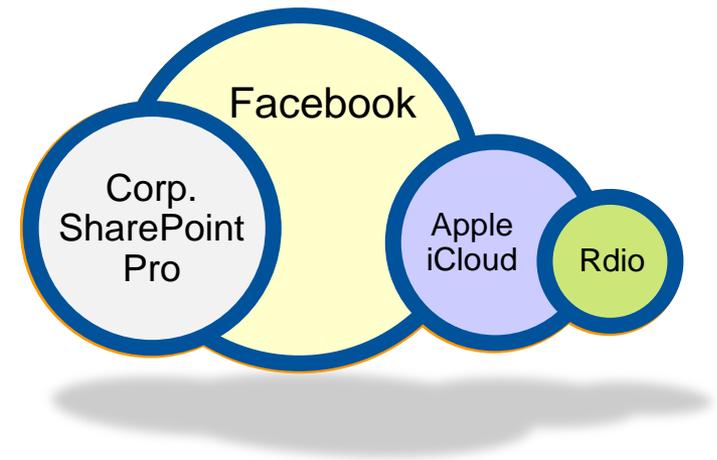


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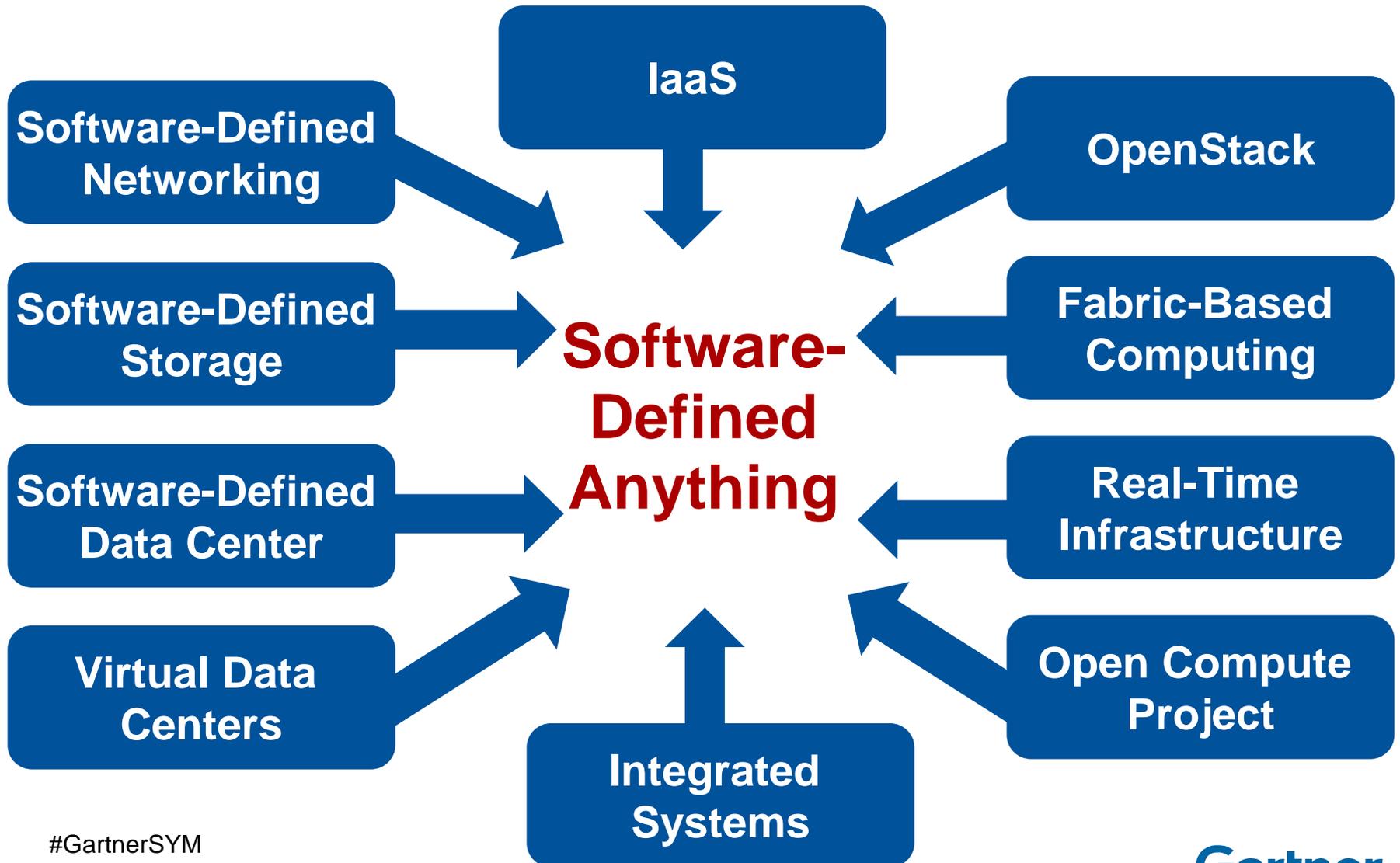
The Human Perspective — The Rise of the Personal Cloud

- Center of each user's personal digital ecosystem
- Unique collection of services for each user
- Assembled and evolved by each user
- Glue connecting the devices and services they choose to use daily
- Shift in the balance of power

Vendors and IT organizations must align to this next stage of consumerization



The Journey to Programmable Everything



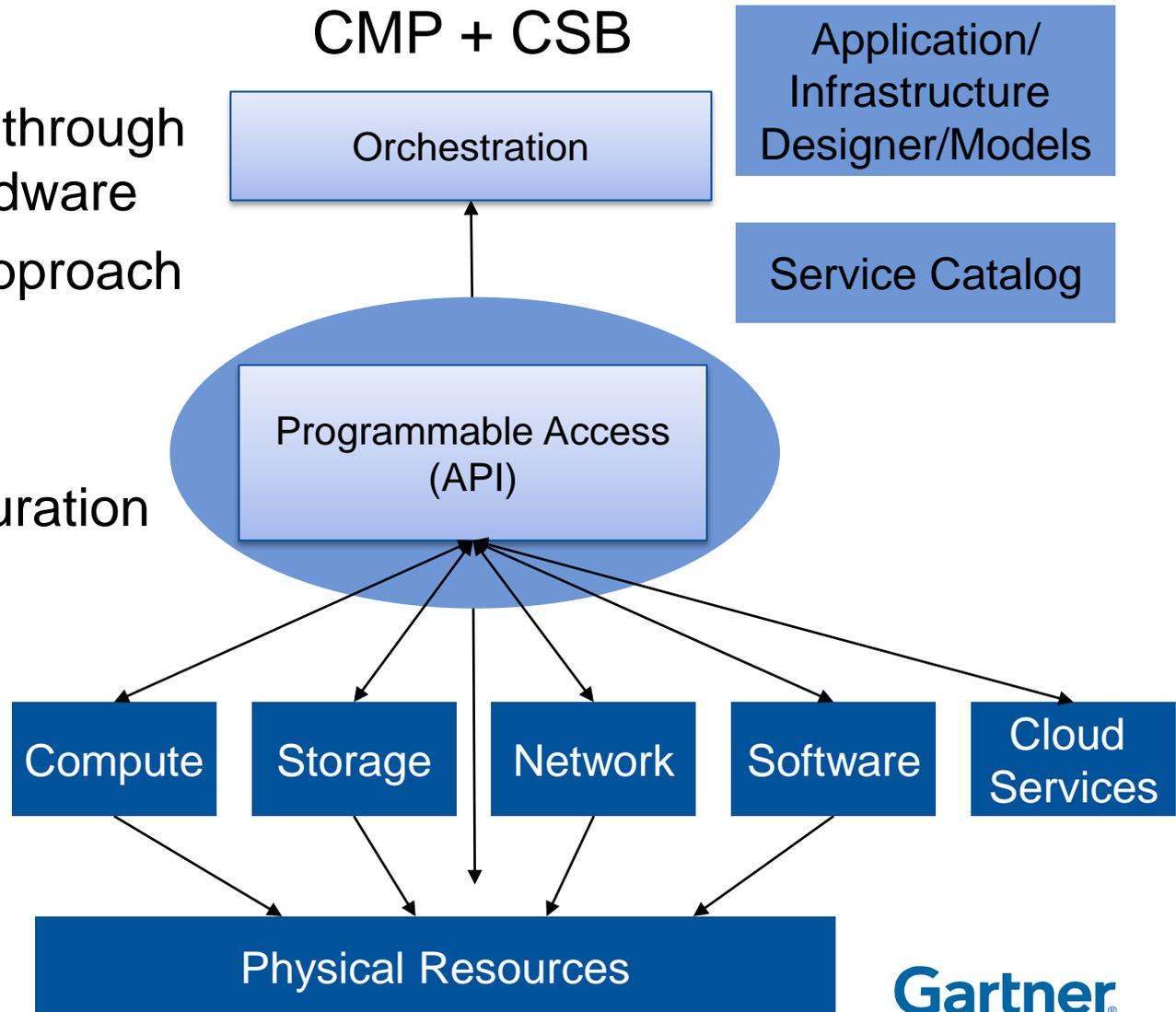
Software-Defined Anything

Characteristics:

- Function defined through software, not hardware
- A policy-based approach

Benefits:

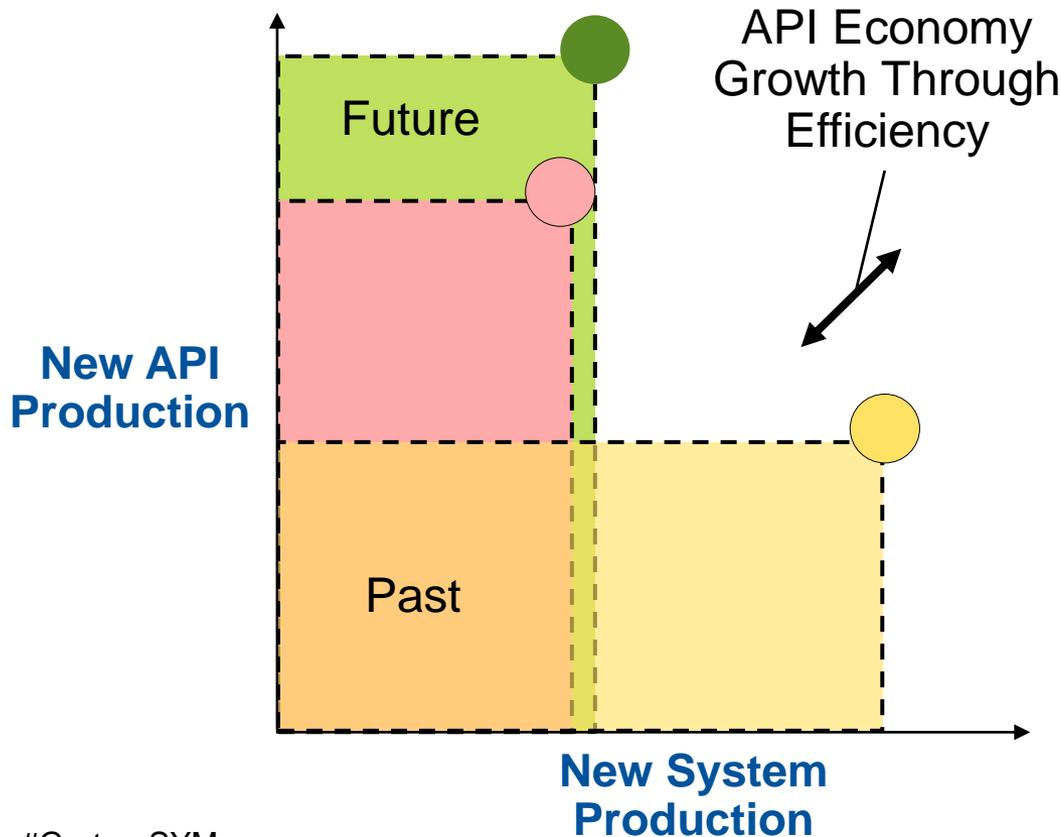
- Standardization
- Faster (re)configuration
- Higher agility
- Higher utilization



The API Economy

Your Consumption of APIs
Is Growing — FAST!

Did You Know —
You Already Live in an
API Economy?



- You Tweet?
- You Register?
- You Check-in?
- You Deposit?
- You Pay?
- You Post?
- You "Candy Crush"?

Web-Scale IT: A Result of the Cloud Provider "Singularity"

Web-scale IT is a pattern of global-class computing that delivers the capabilities of large cloud services providers to the enterprise.

You, too, can "run with the big dogs."

The Etsy logo is displayed within an orange rectangular box. The word "Etsy" is written in a white, serif font.

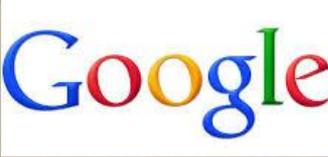
Etsy

The Facebook logo is displayed within a blue rectangular box with a white border. The word "facebook" is written in a white, lowercase, sans-serif font.

facebook

The Amazon Web Services logo is displayed within a white rectangular box. It features the Amazon logo (a stack of orange cubes) to the left of the text "amazon web services" in a black, lowercase, sans-serif font.

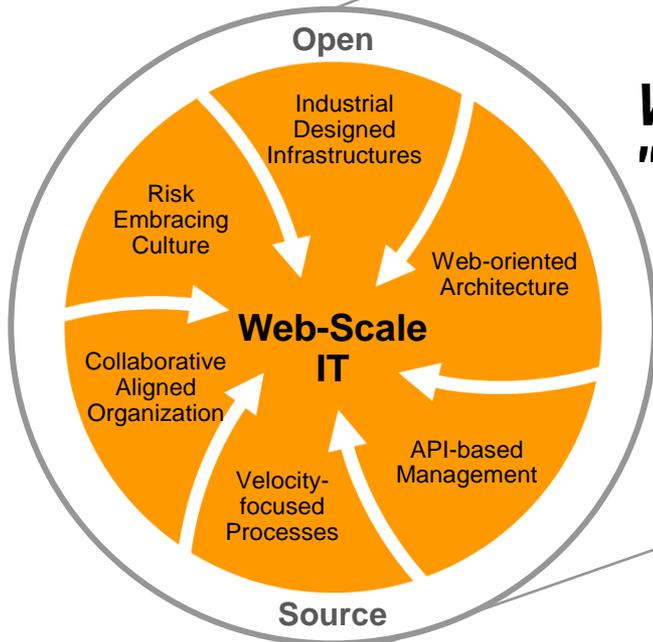
amazon
web services

The Google logo is displayed within a white rectangular box. The word "Google" is written in its characteristic multi-colored, sans-serif font.

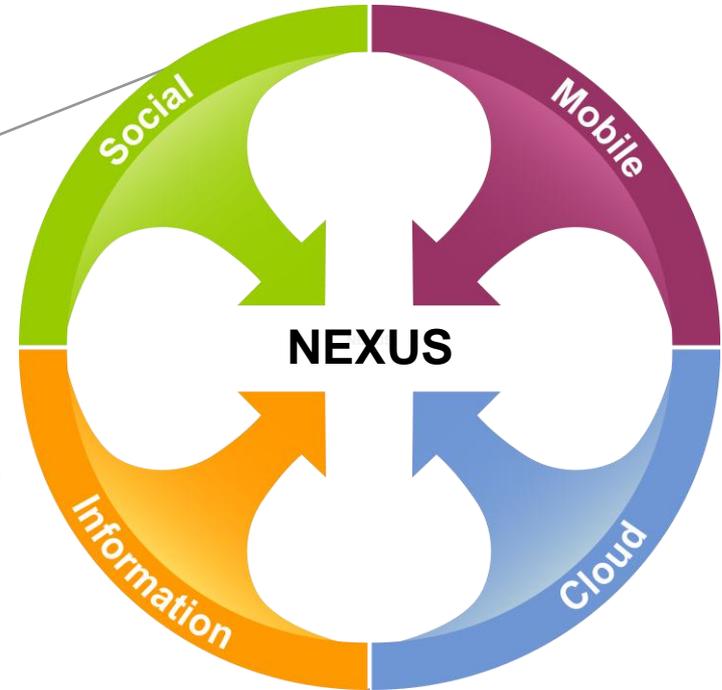
Google

Web-Scale IT Implementation: Need to Rethink the Entire IT Value Chain

What's In: Open Source, DIY, Resiliency, Services, DevOps, Sharing, Learning, Scale Out, New Age Vendors



Web-scale IT "powers" the Nexus



What's Out: Proprietary, Turnkey, Complexity, GUIs, ITIL, Heroes, Rules, Scale Up, Old-School Vendors

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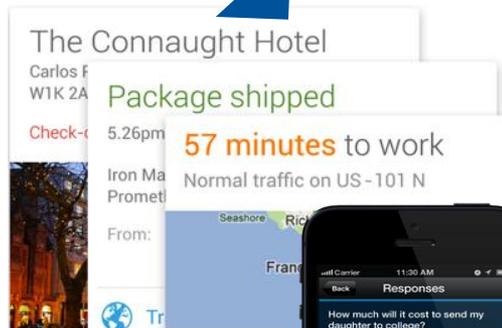
The Rise of Smart Machines

Content Explosion

(Big data, IT/OT, IoT and the Internet)

New Hardware

(Cores, memory and interconnects)



Network Scale

(10¹¹ interconnected nodes)



Algorithms

(Such as deep learning, NLP, meaning extraction and context awareness)

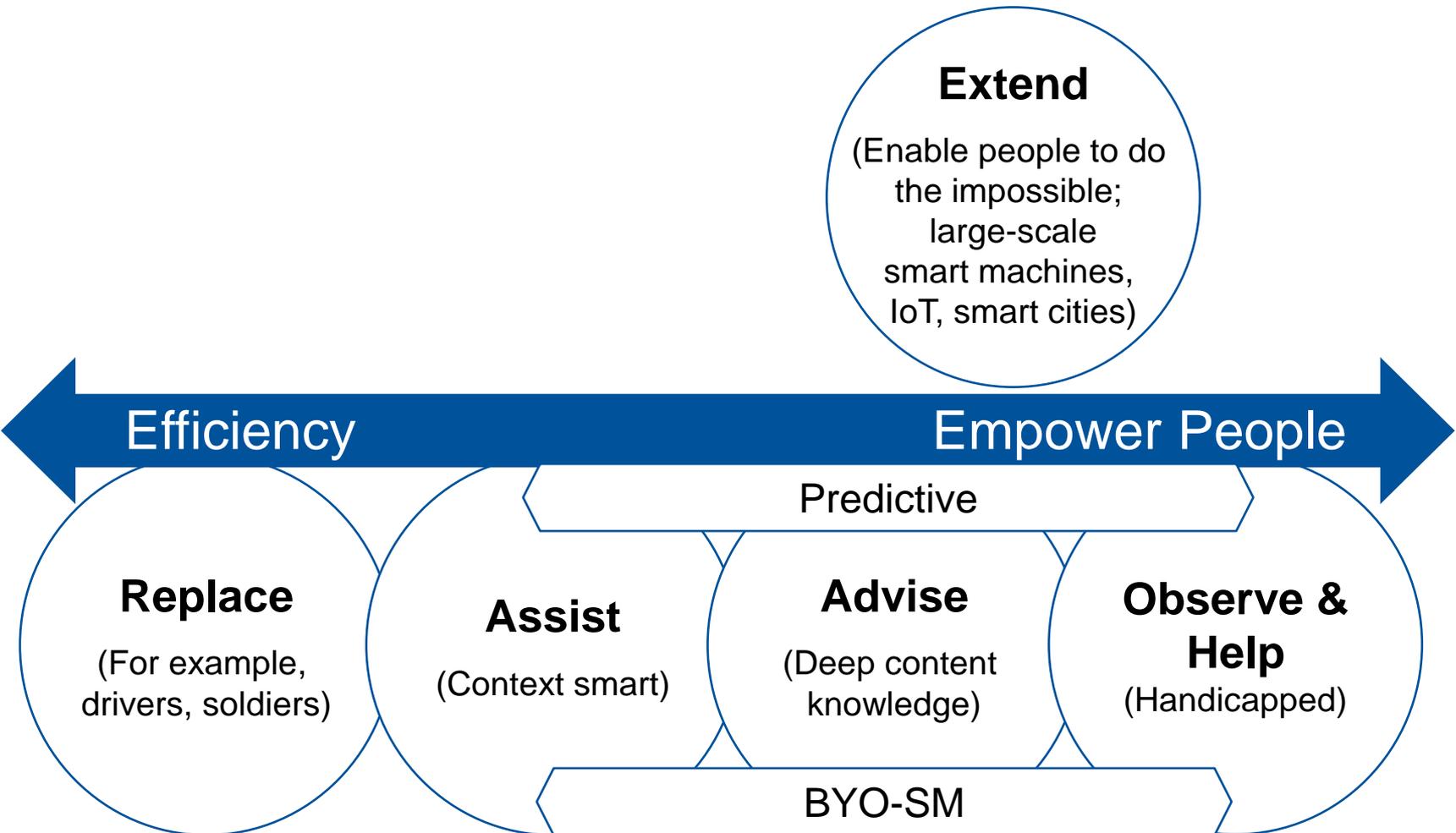


Smart Machine Categories

- Movers
 - Autonomous vehicles
- Doers
 - Machine-focused helpers
 - Robots, Networks of Industrial Machines
- Sages
 - Linguistically smart Information-based helpers
 - personal assistants, smart advisors



Smart Machines Impact People



Oversimplification: Efficiency vs. Empowerment

3D Printing Opportunities

Why Enterprises Care

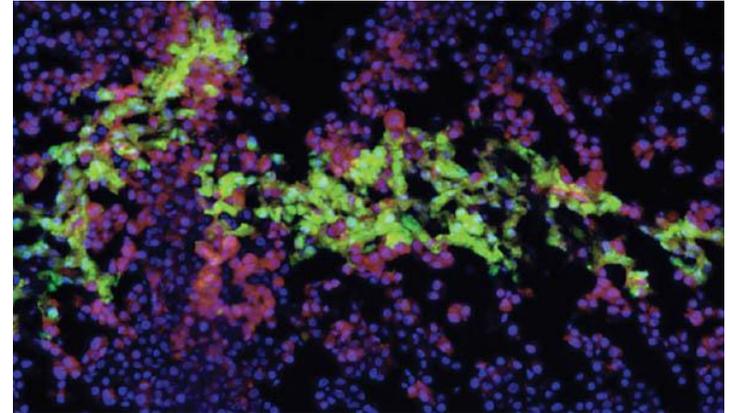
- Rapid, iterative prototypes and models; short-run manufacturing; new product opportunities

Why Technology Providers Care

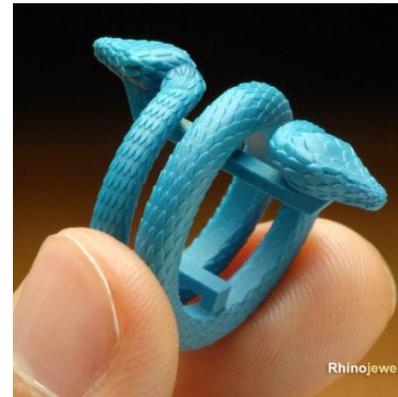
- 82% CAGR to \$5.7 billion in 2017
- A growing new ecosystem

Inhibitors

- Overhyped use cases
- Need to adapt business models
- Technologies, materials, actual build cost
- Intellectual property rights, copyrights



Cross-section of bioprinted human liver tissue
2013 Cool Vendor Organovo



Stratasys/SolidScape
example



3D Systems
Zprinter example

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The Bottom Line

- The Nexus of Forces continues to drive change and create new opportunities.
- *Mobile*-centric trends and technologies increasingly define the client environment and the core end-user app and experience.
- *Cloud* is becoming a mainstream computing style and delivery option with hybrid cloud, cloud brokerage, and new delivery, management and security options accelerating adoption.
- *Cloud and Mobile* combine to drive new application architectures and a new user experience called "personal cloud."
- *Information and Social* elements are deeply embedded into all of the strategic trends.
- *The Nexus* forces create demand for advanced programmable infrastructure and services that can execute at Web scale and support new client/cloud app models and the personal cloud.

Recommended Gartner Research

- [BYOD Doesn't Have to Be All or Nothing: Match Smartphone, Tablet and PC Rollouts to Organizational Readiness and Employee Demand](#)
Leslie Fiering (G00247169)
- [The Mobile Imperative: Mobile Application Strategies and Architectures](#)
David Mitchell Smith (G00251010)
- [The Information of Things: Why Big Data Will Drive the Value in the Internet of Things](#) Hung LeHong (G00249066)
- [Decision Point for Selecting a Mobile Application Architecture](#)
Kirk Knoernschild and others (G00234823)
- [Cool Vendors in 3D Printing, 2013](#) Pete Basiliere, et al (G00250450)
- [The Disruptive Era of Smart Machines Is Upon Us](#) (G00257743)
- [The Internet of Everything](#)
Mark Raskino and Hung LeHong (G00234337)
- [Emerging Technology Analysis: OpenFlow and Software-Defined Networking for CSPs](#)
Akshay K. Sharma (G00233227)

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Recommended Gartner Research

- [Gartner's Top Predictions for IT Organizations and Users, 2013 and Beyond: Balancing Economics, Risk, Opportunity and Innovation](#)
Daryl C. Plummer and others (G00238808)
- [Digitalizing the Business](#) Mark P. McDonald and Andy Rowsell-Jones (G00233511)
- [Maverick* Research: Judgment Day, or Why We Should Let Machines Automate Decision Making](#) Nigel Rayner (G00219673)
- [Hype Cycle for Human-Computer Interaction, 2013](#) Adib Carl Ghubril and Steve Prentice (G00252515)
- [Technology Overview: Quantified Self](#) Mike Gotta (G00254148)
- [The Disruptive Era of Smart Machines Is Upon Us](#) (G00257743)
- [Hype Cycle for Data and Collaboration Security, 2013](#) Jay Heiser (G00239713)
- [Hype Cycle for the Internet of Things, 2013](#) Hung Lehong (G00252763)
- [Overcome the Four Inhibitors of Data-Driven Marketing](#)
Andrew Frank (G00239753)
- [Cool Vendors in 3D Printing, 2013](#) Pete Basiliere, et al (G00250450)
- [Emerging Technology Analysis: 3D Printing](#) Pete Basiliere (G00237313)

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