

IT Career Seminar

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MICC Convention 2015

What Happens in an Internet Minute?



And Future Growth is Staggering



Some of the Top Strategic Technology Trends for 2015 and beyond

- Mobile Broadband
- IoT/M2M/Smart Machines
- Big Data & Analytics
- Cloud/ Cloud Computing
- Security

Mobile Broadband Evolution



EVOLUTION OF 1G TO 5G TECHNOLOGY



1G
1981



2G
1992



3G
2001



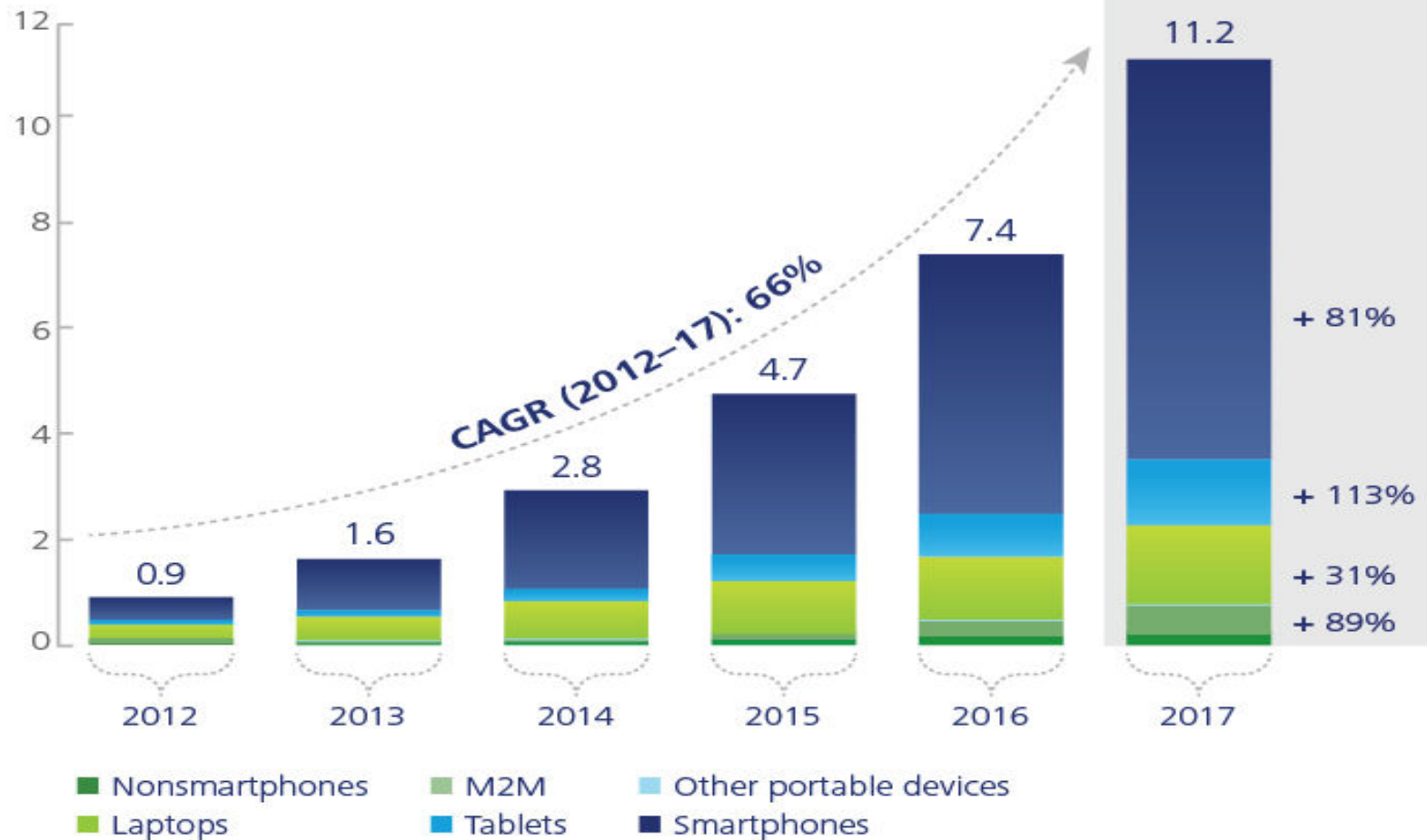
4G
2011



5G
2020

Mobile Broadband Growth

Global mobile traffic (in EB per month)



Source: Cisco Systems, Cisco visual networking index: Global mobile data traffic forecast update, 2012-2017, 2013.

IoT/M2M/Smart Machines



THE INTERNET OF THINGS

PREPARED BY
GOLDMAN SACHS
GLOBAL INVESTMENT RESEARCH



WHAT IS THE INTERNET OF THINGS?

The Internet of Things connects devices such as everyday consumer objects and industrial equipment onto the network, enabling information gathering and management of these devices via software to increase efficiency, enable new services, or achieve other health, safety, or environmental benefits.

CONNECTED HOMES

- Smart Thermostats
- Smart Appliances
- HVAC Systems
- Security
- Smart Lighting
- Entertainment Systems

WEARABLES

- Fitness Bands
- Smart Watches
- Smart Glasses
- Action Cameras

INDUSTRIAL INTERNET

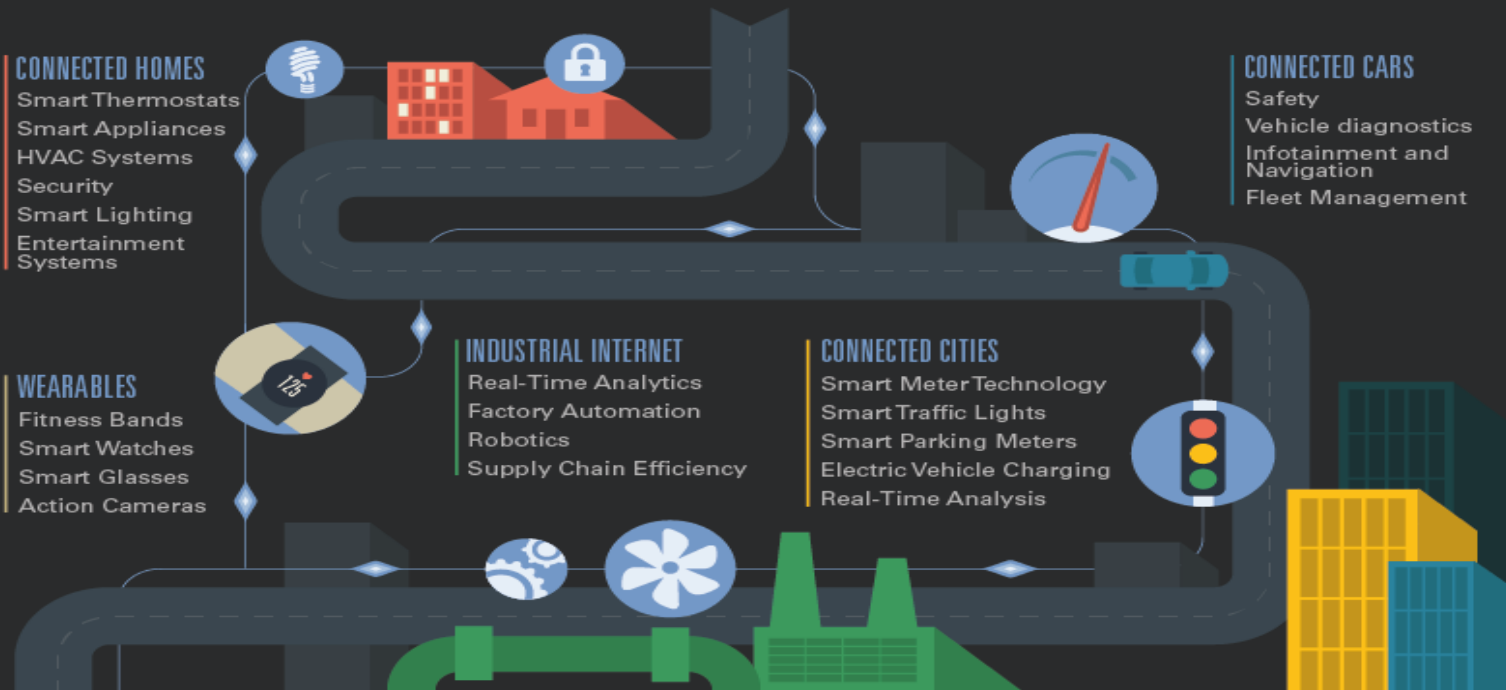
- Real-Time Analytics
- Factory Automation
- Robotics
- Supply Chain Efficiency

CONNECTED CITIES

- Smart Meter Technology
- Smart Traffic Lights
- Smart Parking Meters
- Electric Vehicle Charging
- Real-Time Analysis

CONNECTED CARS

- Safety
- Vehicle diagnostics
- Infotainment and Navigation
- Fleet Management



IoT Drivers

HOW DID WE GET HERE?

With key obstacles gone, the cost of connectivity has declined at the same time that new ways to analyze mountains of data have developed.

COST OF SENSORS

\$1.30 → **.60**
AVG. COST
over the past 10 years.

COST OF BANDWIDTH

↓ 40x
over the past 10 years.

COST OF PROCESSING

↓ 60x
over the past 10 years.



SMARTPHONES

Smartphones are now becoming the personal gateway to the IoT.



WI-FI

With Wi-Fi coverage now ubiquitous, wireless connectivity is available for free or at a very low cost.

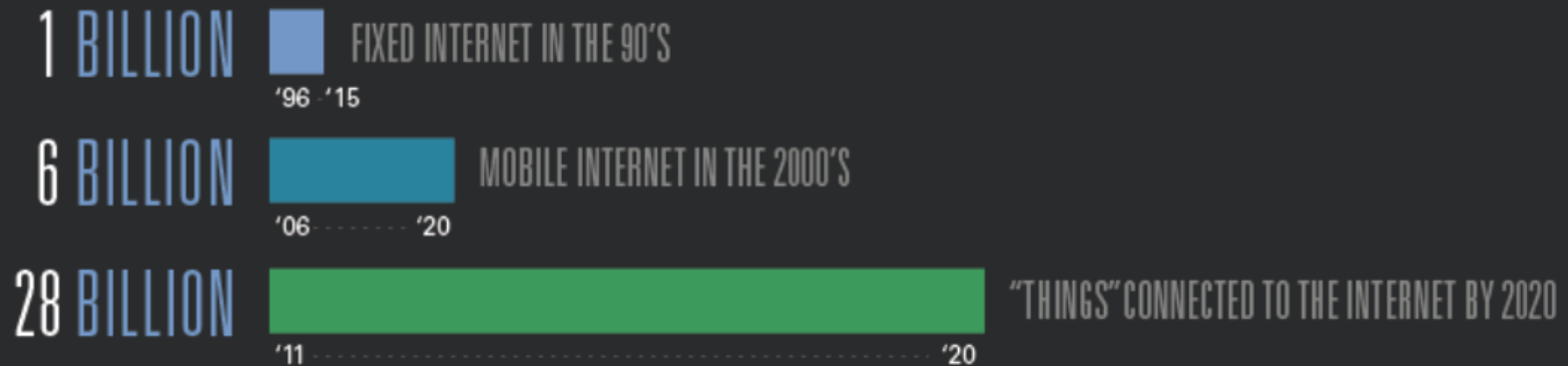
IoT Connected Devices

WHAT IS THE FUTURE?

The Internet of Things (IoT) is emerging as the third wave in the development of the Internet. Personal lives, workplace productivity and consumption will all change. Plus there will be a string of new businesses, from those that will expand the Internet "pipes", to those that will analyze the reams of data, to those that will make new things we haven't even thought of yet.

DEVICES CONNECTED TO THE INTERNET

Source: IDC



Big Data – Big Insights

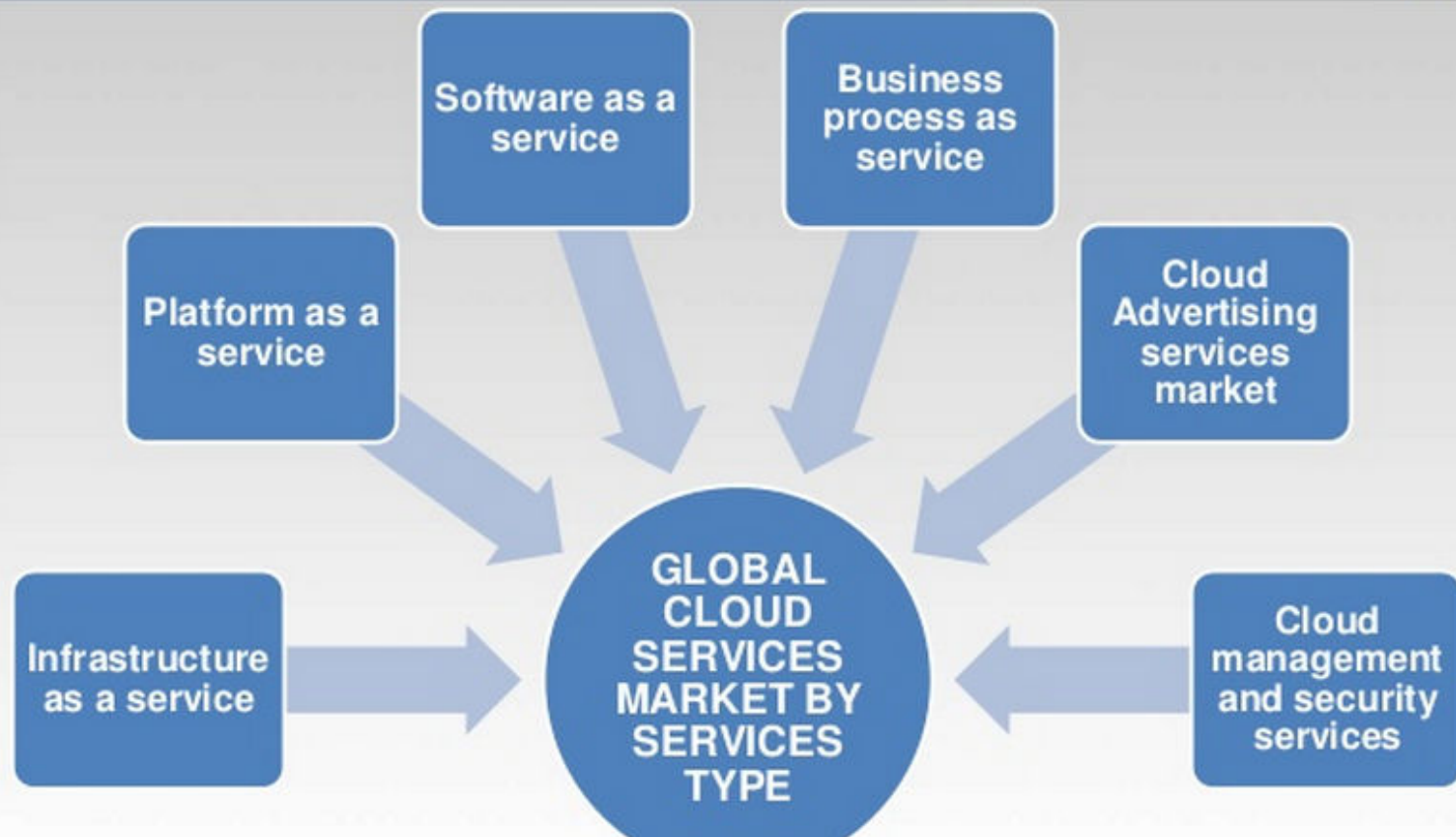


Big Data Landscape



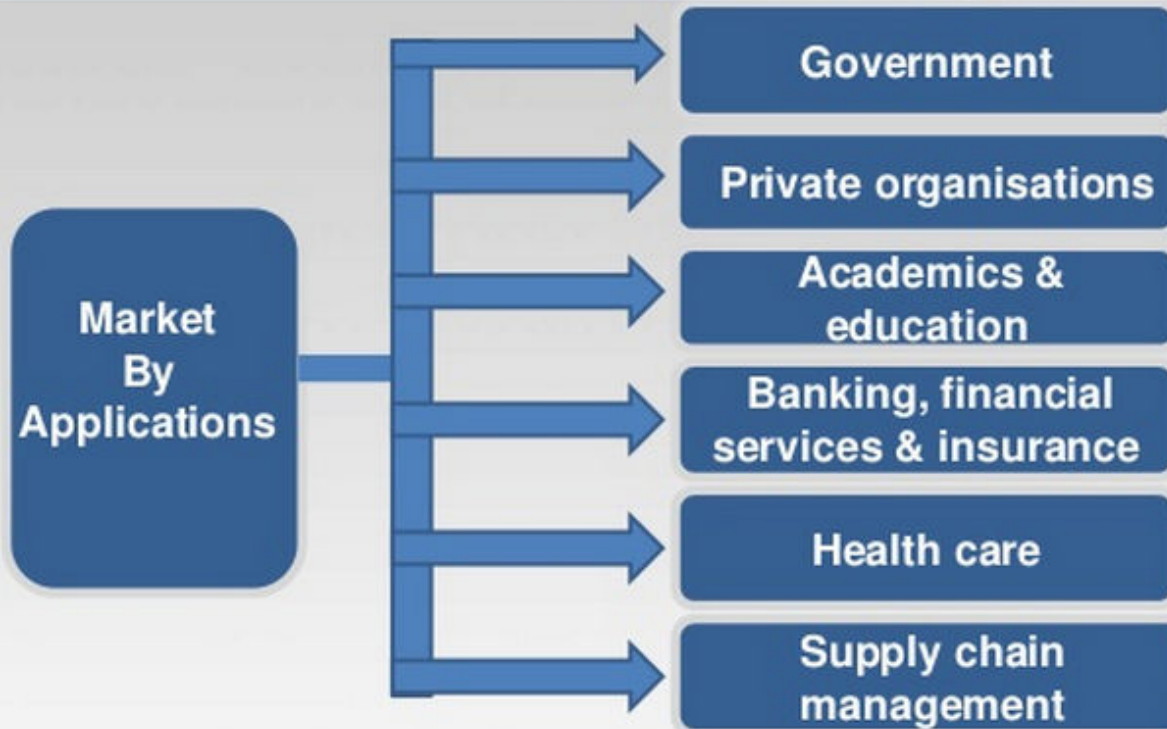
Cloud Computing

GLOBAL CLOUD SERVICES MARKET BY SERVICES TYPE

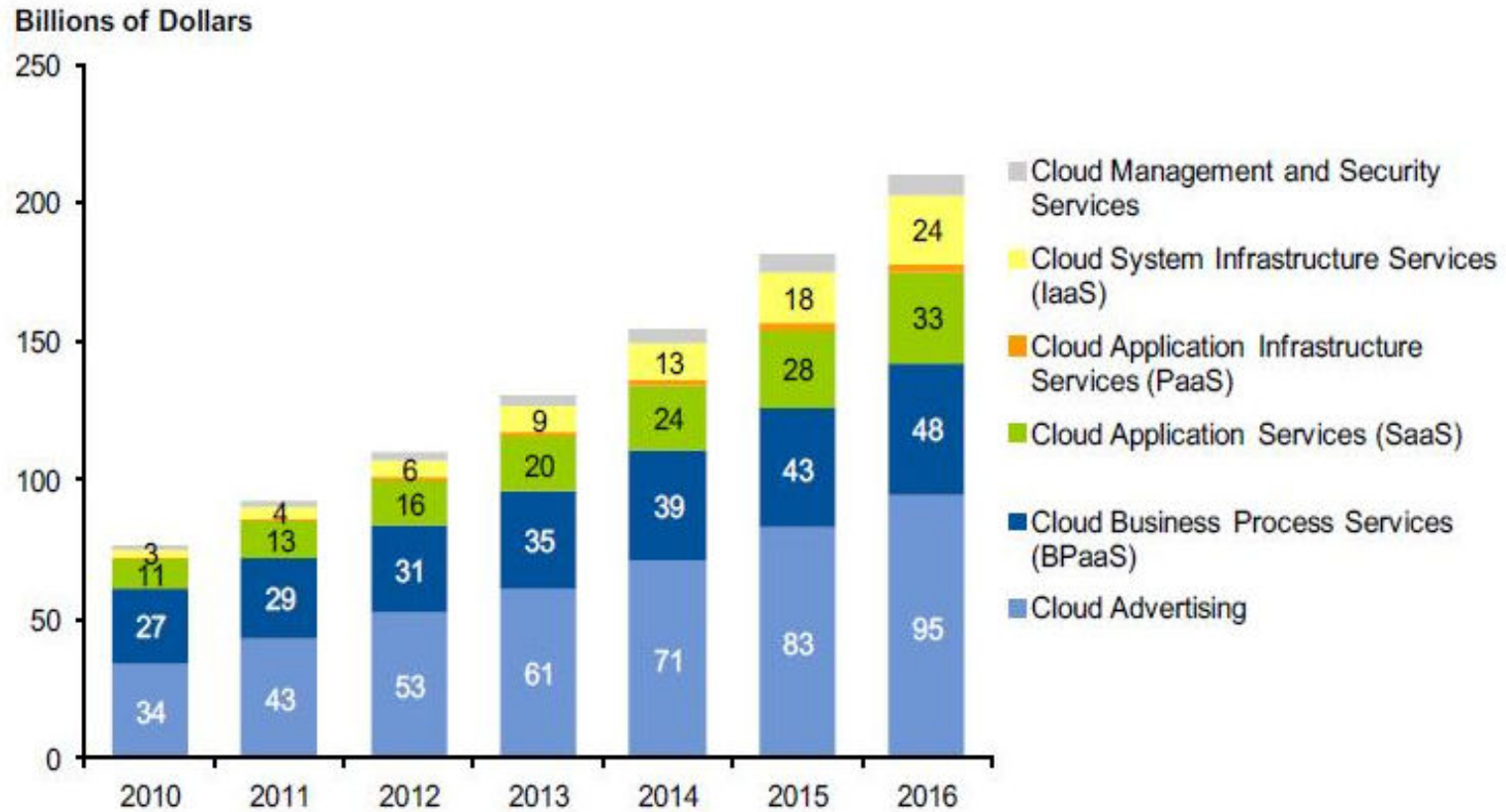


Cloud Computing

GLOBAL CLOUD SERVICES MARKET BY APPLICATIONS



Public Cloud Service Market by Segment, 2010-2016



Source: Gartner (February 2013)

Cloud Computing

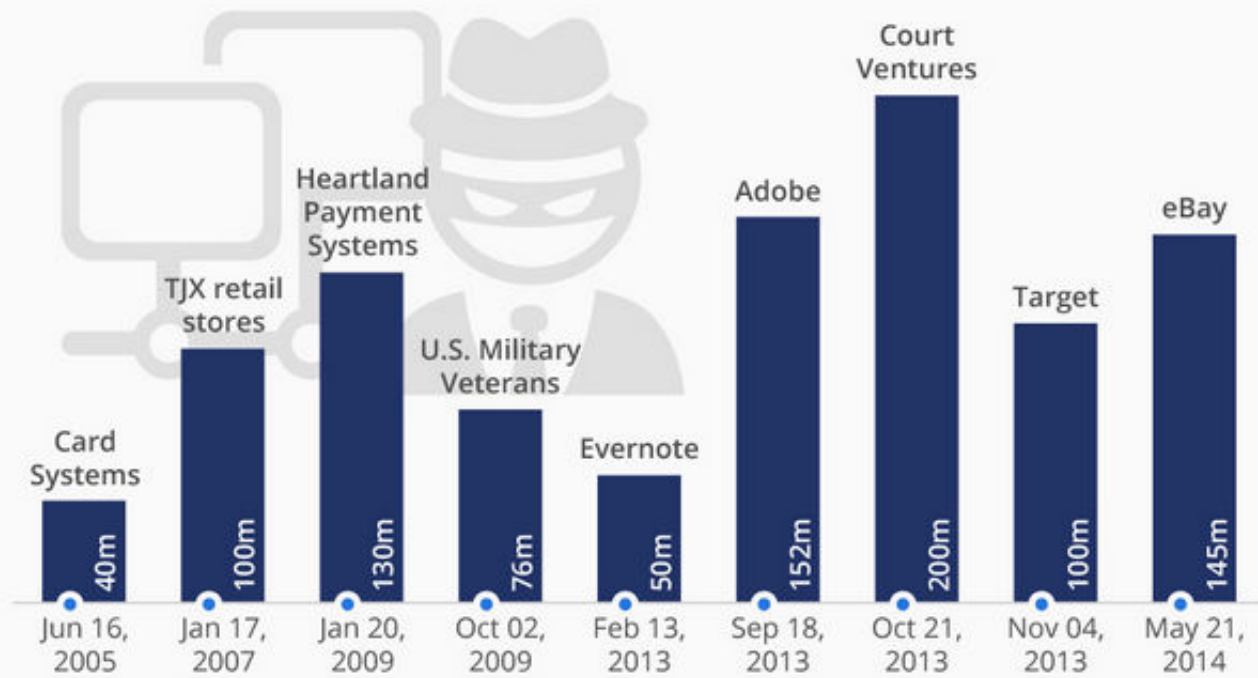
Top Market Players of Cloud Services Market

- Amazon web services
- AKAMAI TECHNOLOGIES
- CISCO SYSTEMS
- GOOGLE INCORPORATION
- INTERNATIONAL BUSINESS MACHINE (IBM)
- HEWLETT PACKARD (HP)
- DELL
- MICROSOFT CORPORATION
- VM WARE
- YAHOO INCORPORATION

Cyber Security

The Largest Data Breaches in U.S. History

Data breaches in the United States (in million records)



Sources: Bloomberg, Privacy Rights Clearinghouse, Breach Level Index

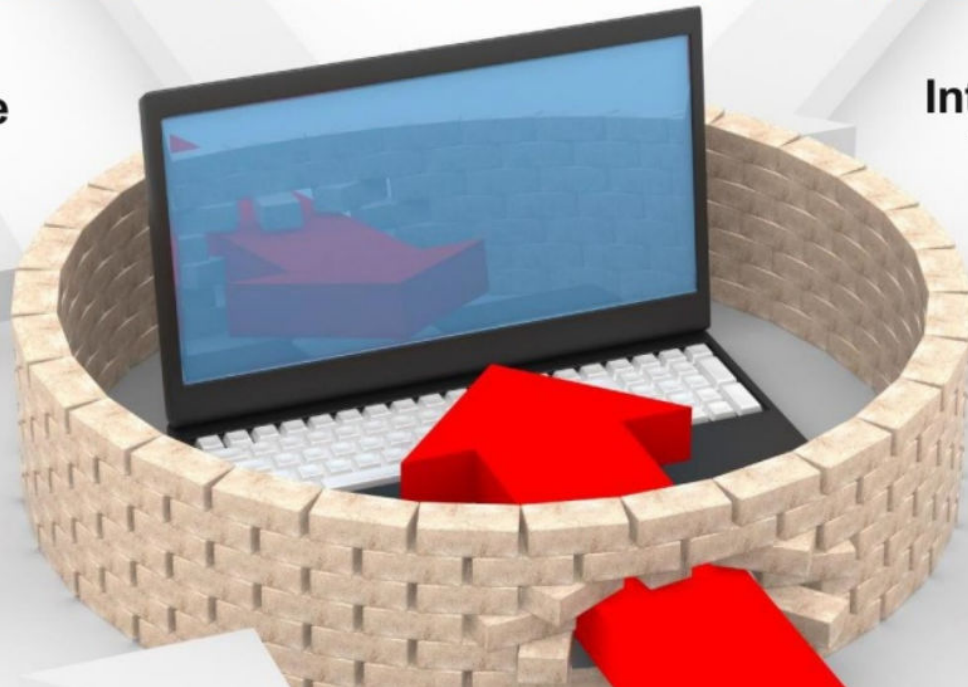
Security

Security Myth: Perimeter Defense Will Protect My Applications

Mobile

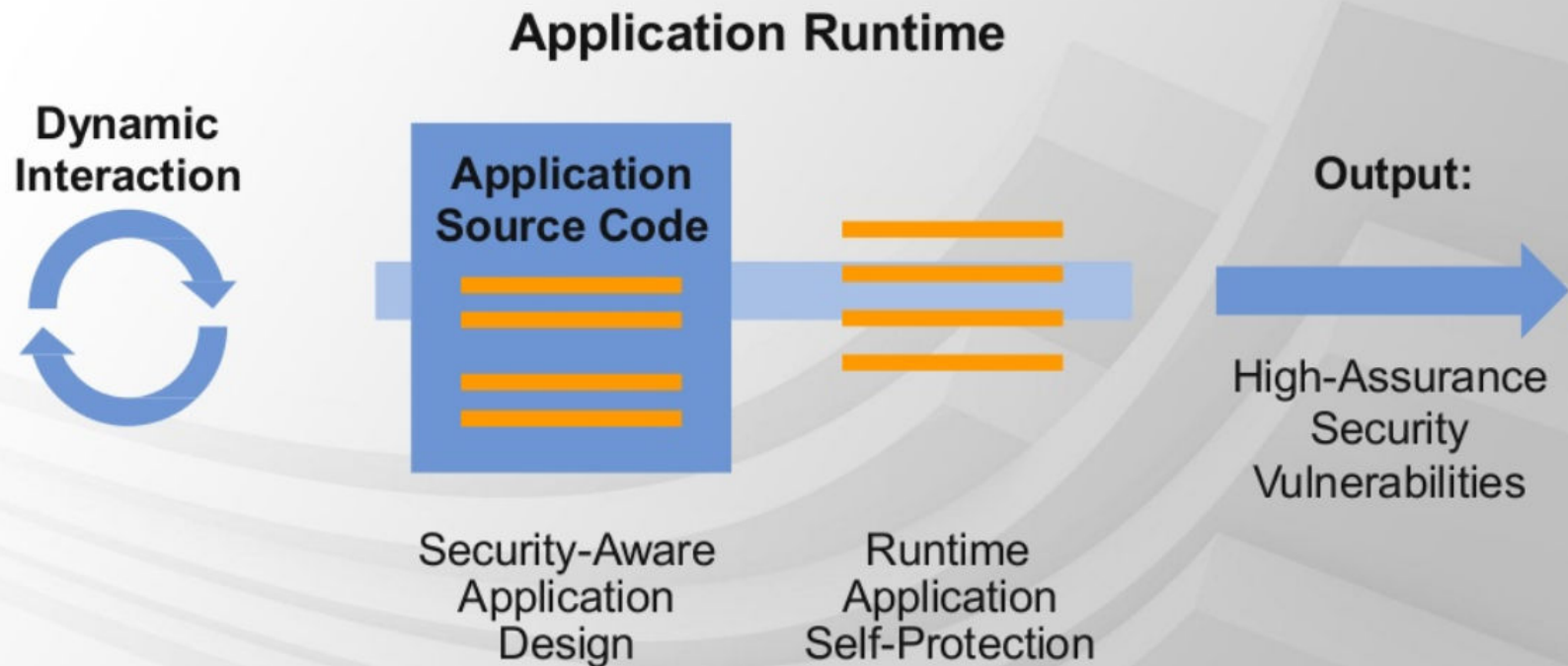
Internet of
Things

Insider
Attacks



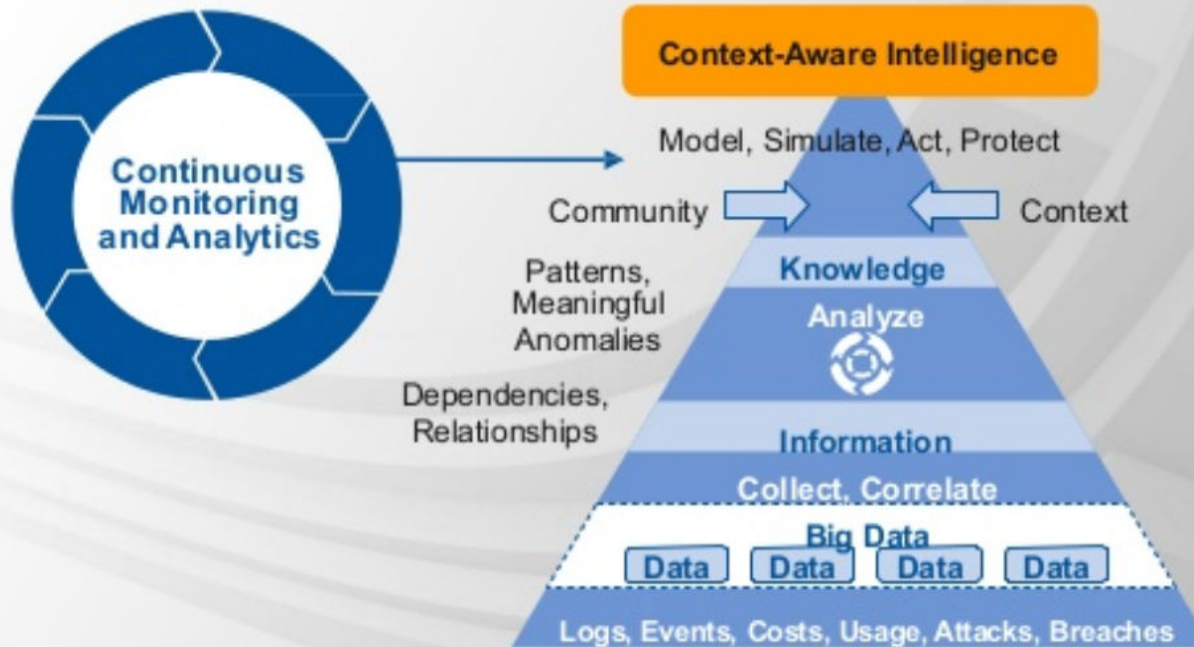
Security Paradigm

Enable Applications to Protect Themselves



Next Generation Security

Big Data Security Analytics at the Heart of Next-Generation Security Platforms



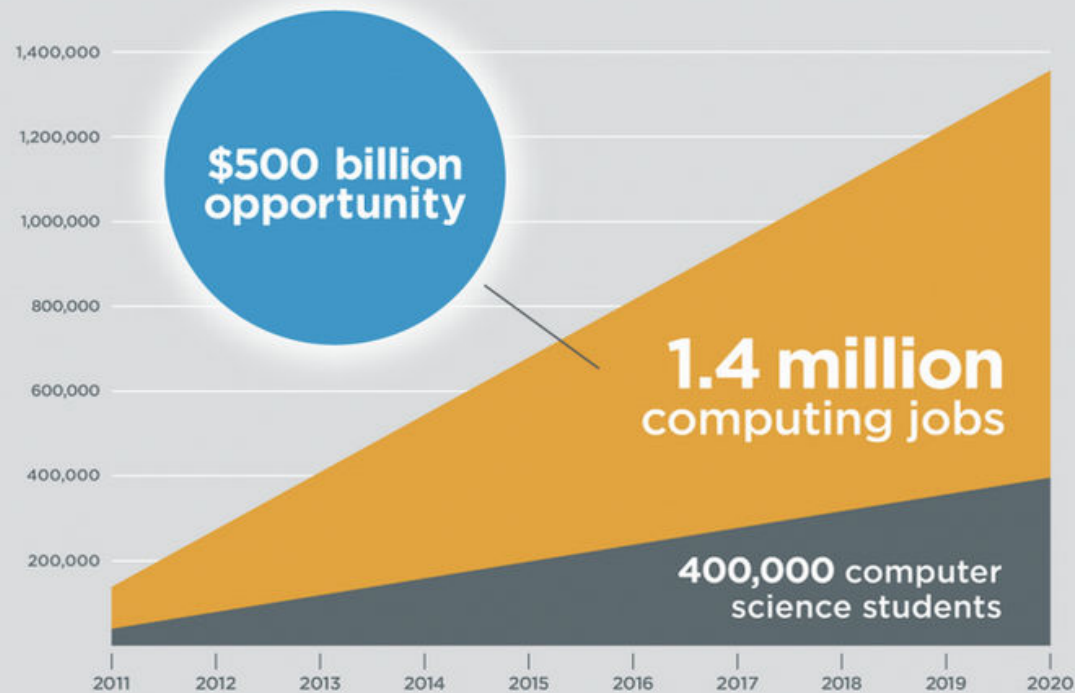
Software-Defined Applications

Software-Defined Applications and Infrastructure: The Future Is Software-Defined



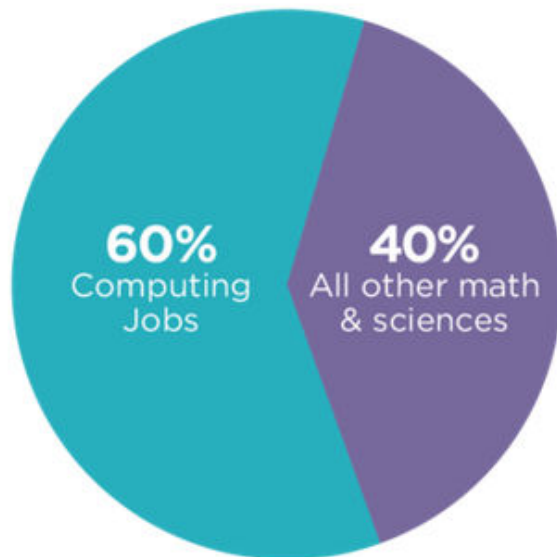
Computer Science: America's Untapped Opportunity

1,000,000 more jobs than students by 2020

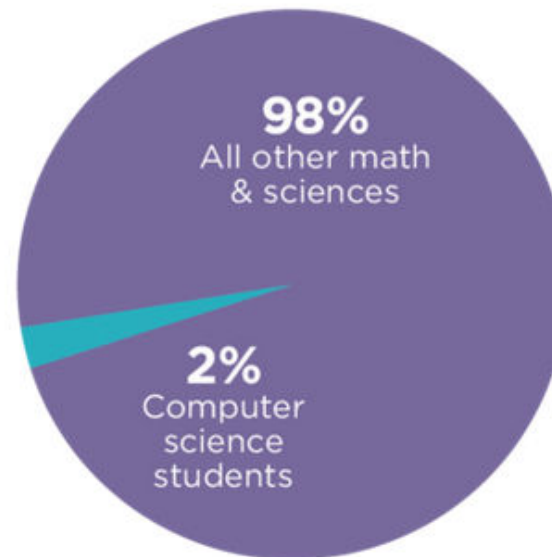


Computer Science: America's Untapped Opportunity

The job/student gap in computer science



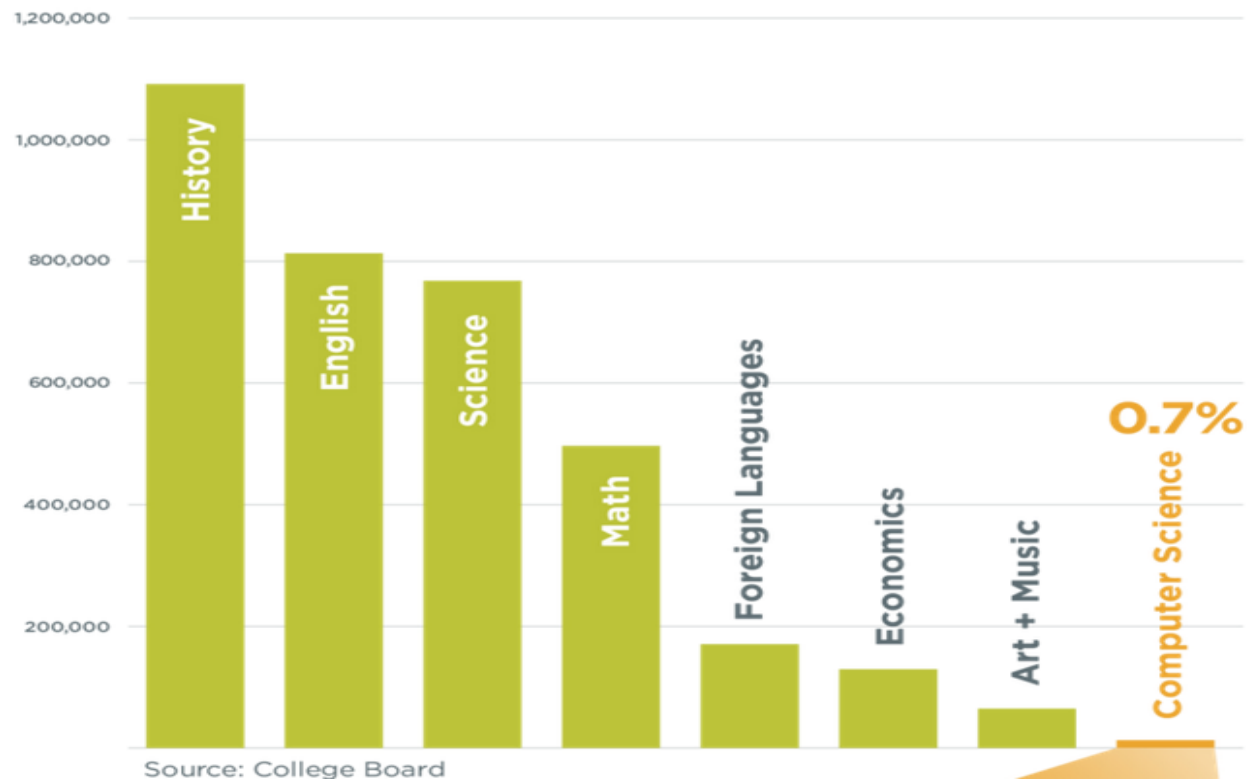
Jobs



Students

Computer Science: America's Untapped Opportunity

2012 High School A.P. Enrollment



Source: College Board

Computer Science: America's Untapped Opportunity

**Learn to Code —
anybody can learn.
Visit Code.org**

Q&A

References:

<http://www.gartner.com>

<http://www.intel.com>

<http://www.forbes.com>

<http://www.cisco.com>

<http://www.goldmansachs.com/>

<http://www.icinsights.com/>

<https://www.abiresearch.com/>

<http://www.marketresearch.com/>

<http://code.org/>