

# INTERNET TRENDS 2014 – CODE CONFERENCE

Mary Meeker

May 28, 2014

[kpcb.com/InternetTrends](http://kpcb.com/InternetTrends)

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# Outline

- 1) Key Internet Trends**
- 2) Status Update – Tech Stocks / Education / Healthcare**
- 3) Re-Imagining Continues**
- 4) Screen + Video Growth = Still Early Innings**
- 5) China's Epic Share Gains**
- 6) Public Company Trends**
- 7) One More Thing(s)...**
- 8) Ran Outta Time Thoughts / Appendix**

# KEY INTERNET TRENDS

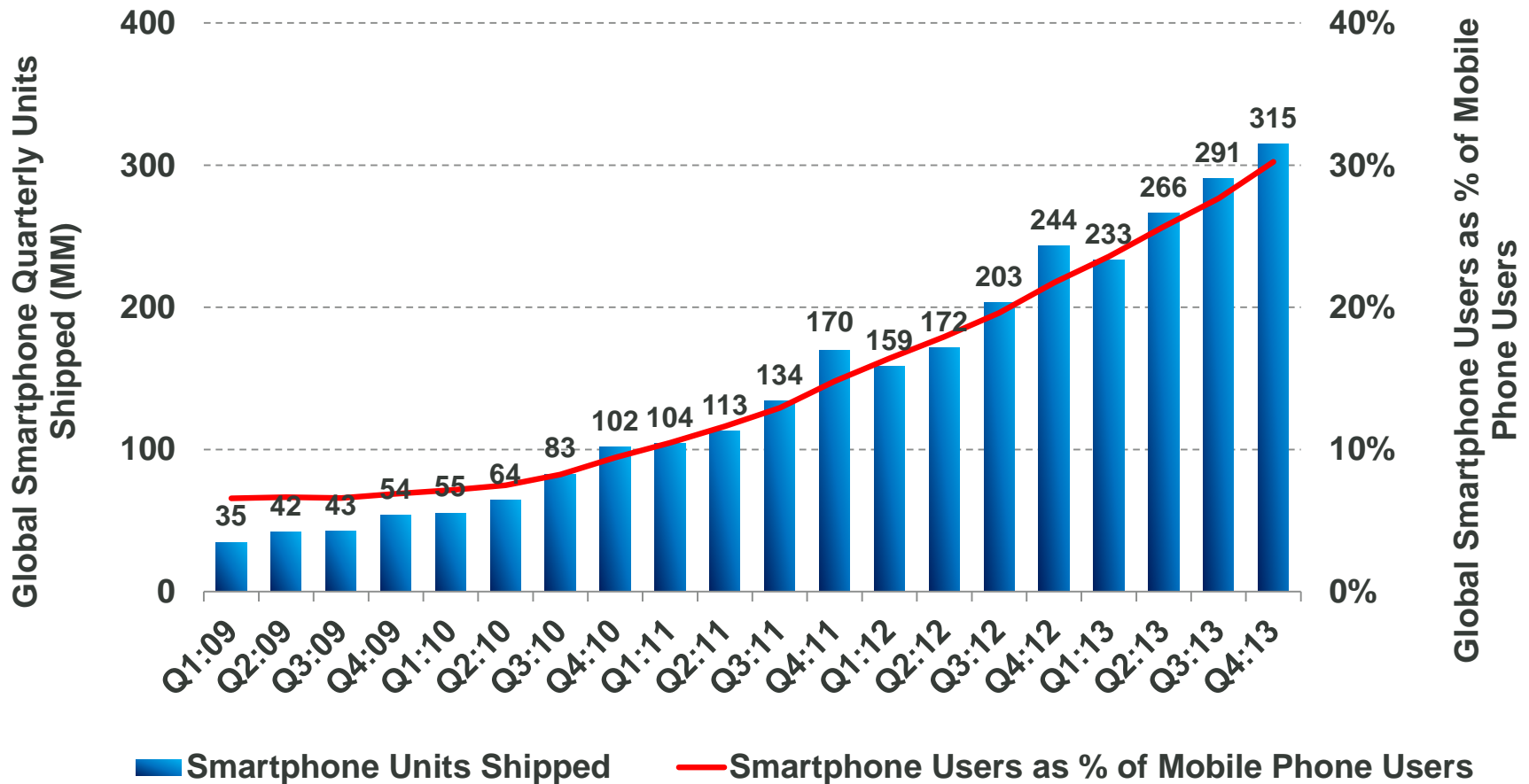
# High-Level User / Usage Trends\*

- **Internet Users**  
<10% Y/Y growth & slowing...fastest growth in more difficult to monetize developing markets like India / Indonesia / Nigeria
- **Smartphone Subscribers**  
+20% strong growth though slowing...fastest growth in underpenetrated markets like China / India / Brazil / Indonesia
- **Tablets**  
+52% early stage rapid unit growth
- **Mobile Data Traffic**  
+81% accelerating growth...video = strong driver

*Mobile Usage Growth =  
Very Strong*

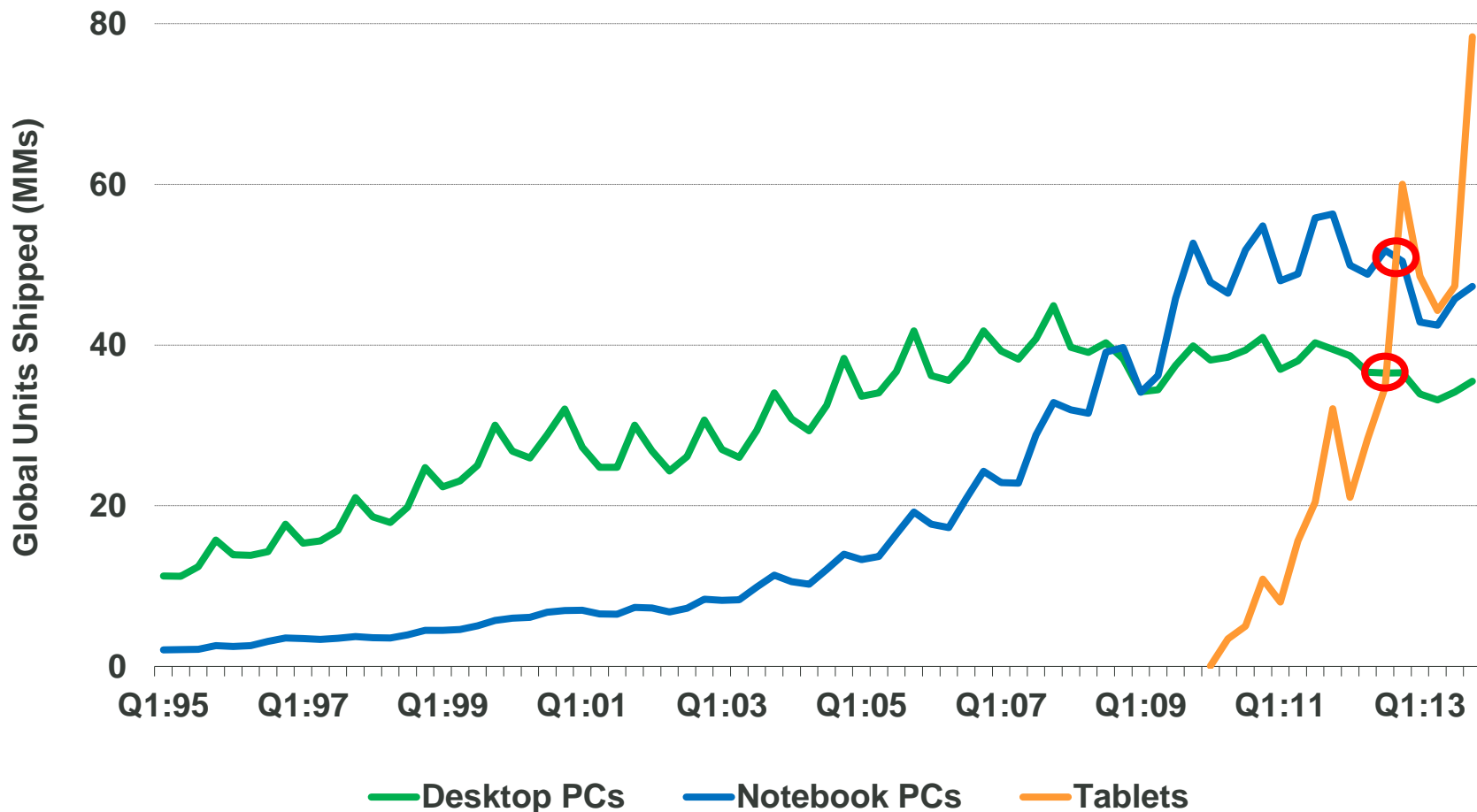
# Smartphone Users = Still Lots of Upside... @ 30% of 5.2B Mobile Phone User Base

## Global Smartphone Quarterly Unit Shipments & Smartphone Users as % of Mobile Phone Users, 2009 – 2013



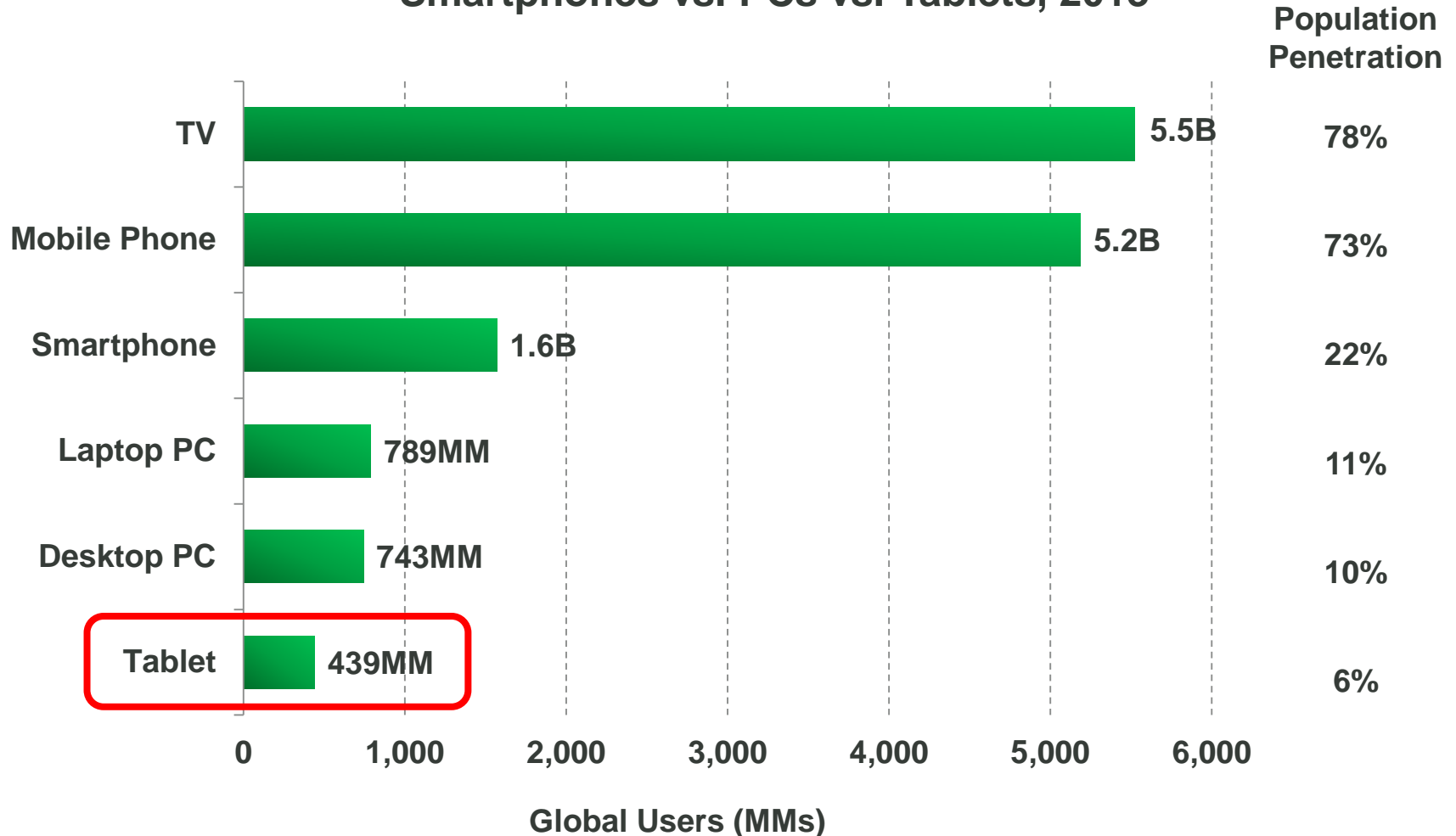
# Tablet Units = Growing Faster Than PCs Ever Did... +52%, 2013

## Global PC (Desktop / Notebook) and Tablet Shipments by Quarter Q1:95 – Q4:13



# Tablet Users = Loads of Growth Ahead... @ 56% of Laptops / 28% of Smartphones / 8% of TVs

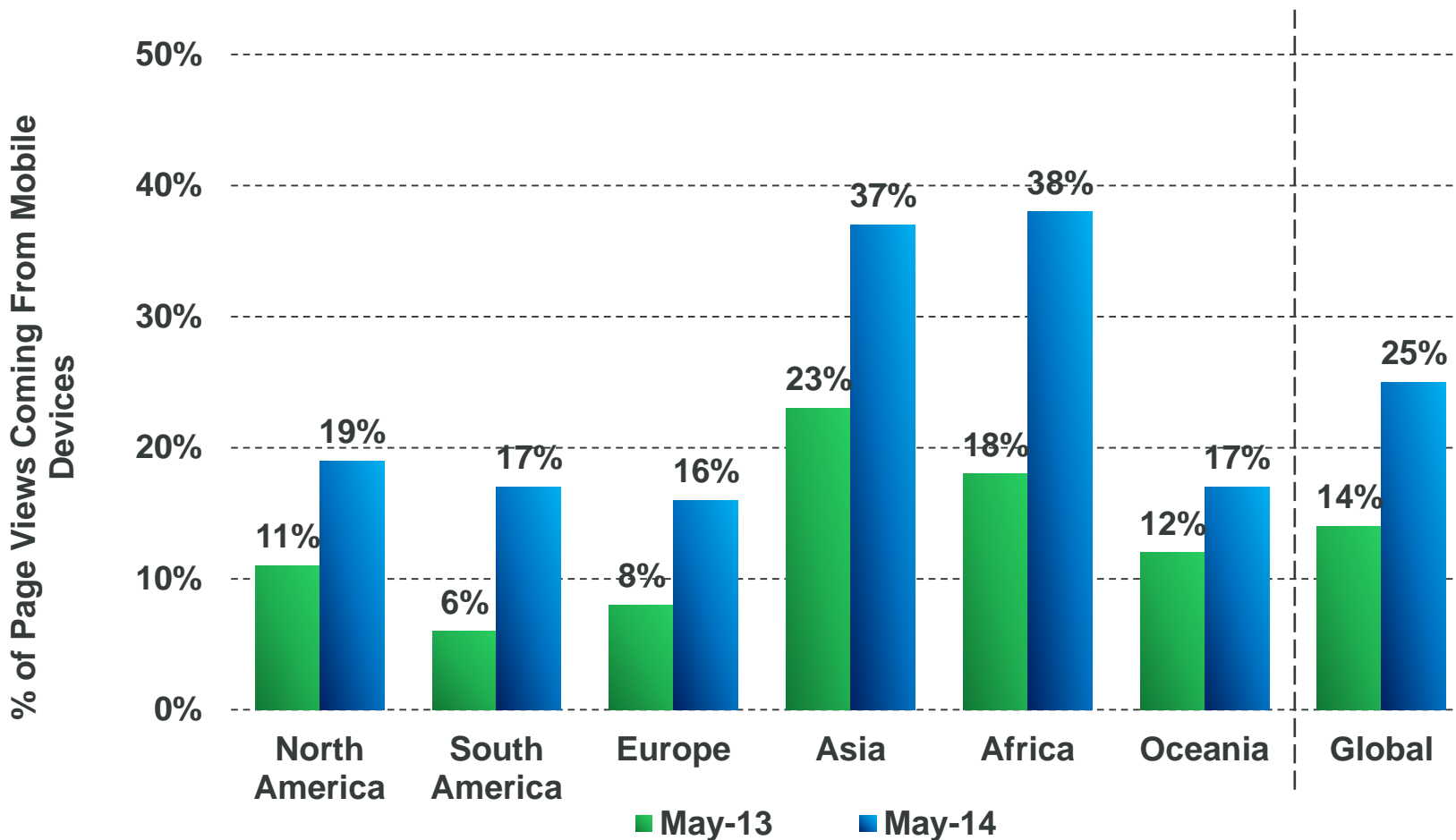
**Global Users of TVs vs. Mobile Phones vs. Smartphones vs. PCs vs. Tablets, 2013**





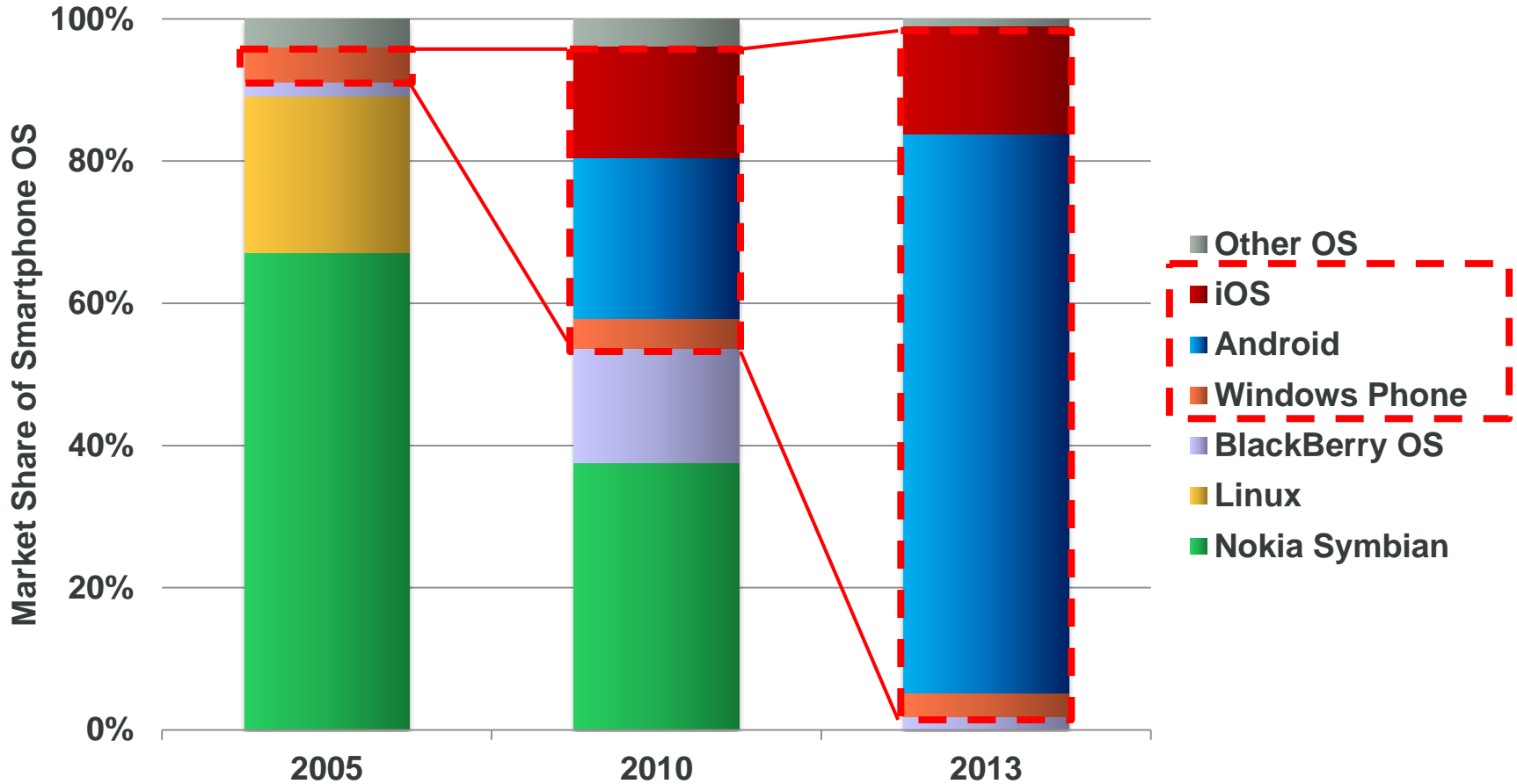
# Mobile Usage = Continues to Rise Rapidly... @ 25% of Total Web Usage vs. 14% Y/Y

## Mobile Usage as % of Web Usage, by Region, 5/14



# Global Smartphone Operating Systems 'Made in USA'... 97% Share from 5% Eight Years Ago

## Global Smartphone Operating System Market Share (by Units Shipped), 2005 vs. 2010 vs. 2013

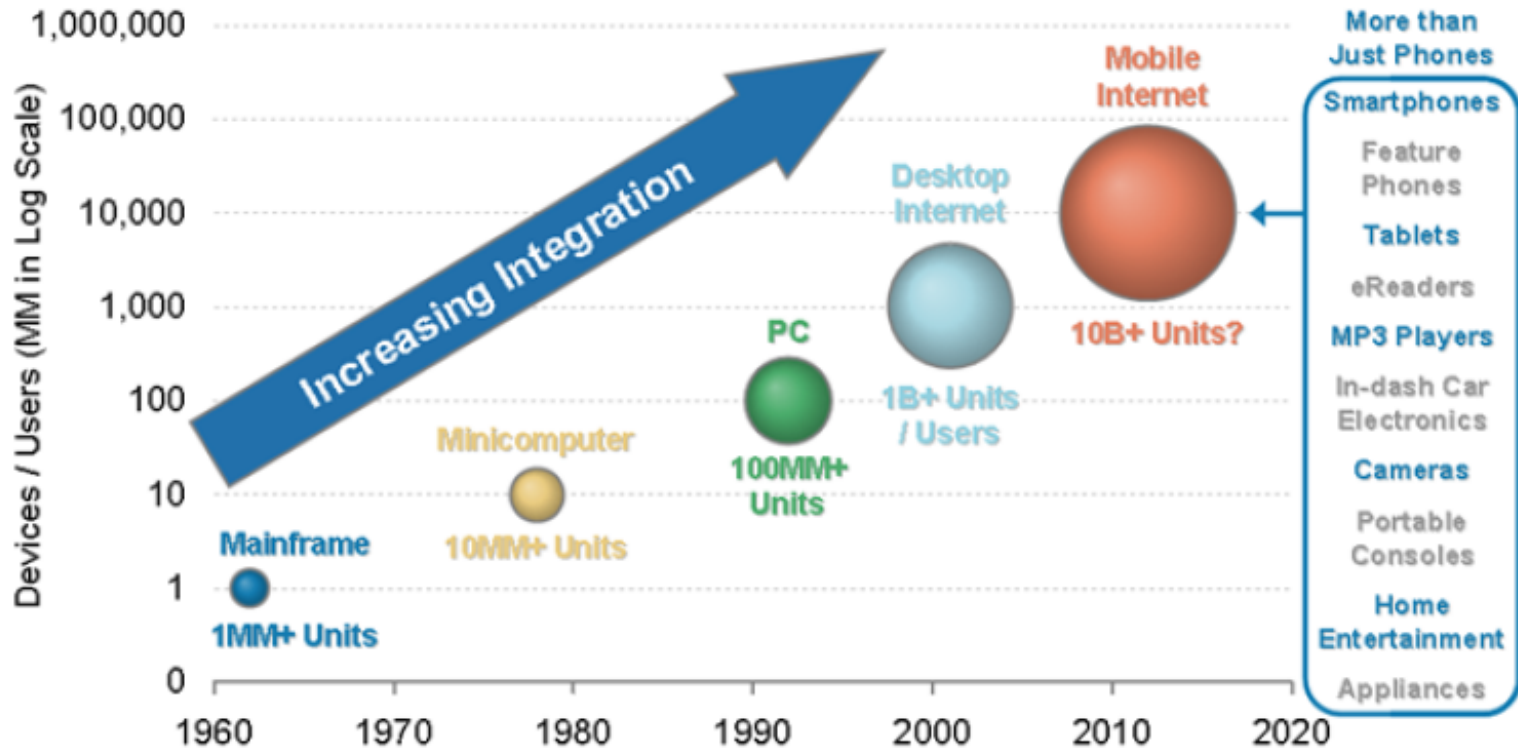


# Each New Computing Cycle = 10x > Installed Base than Previous Cycle

Exhibit 29

**Each new computing cycle typically generates around 10x the installed base of the previous cycle**

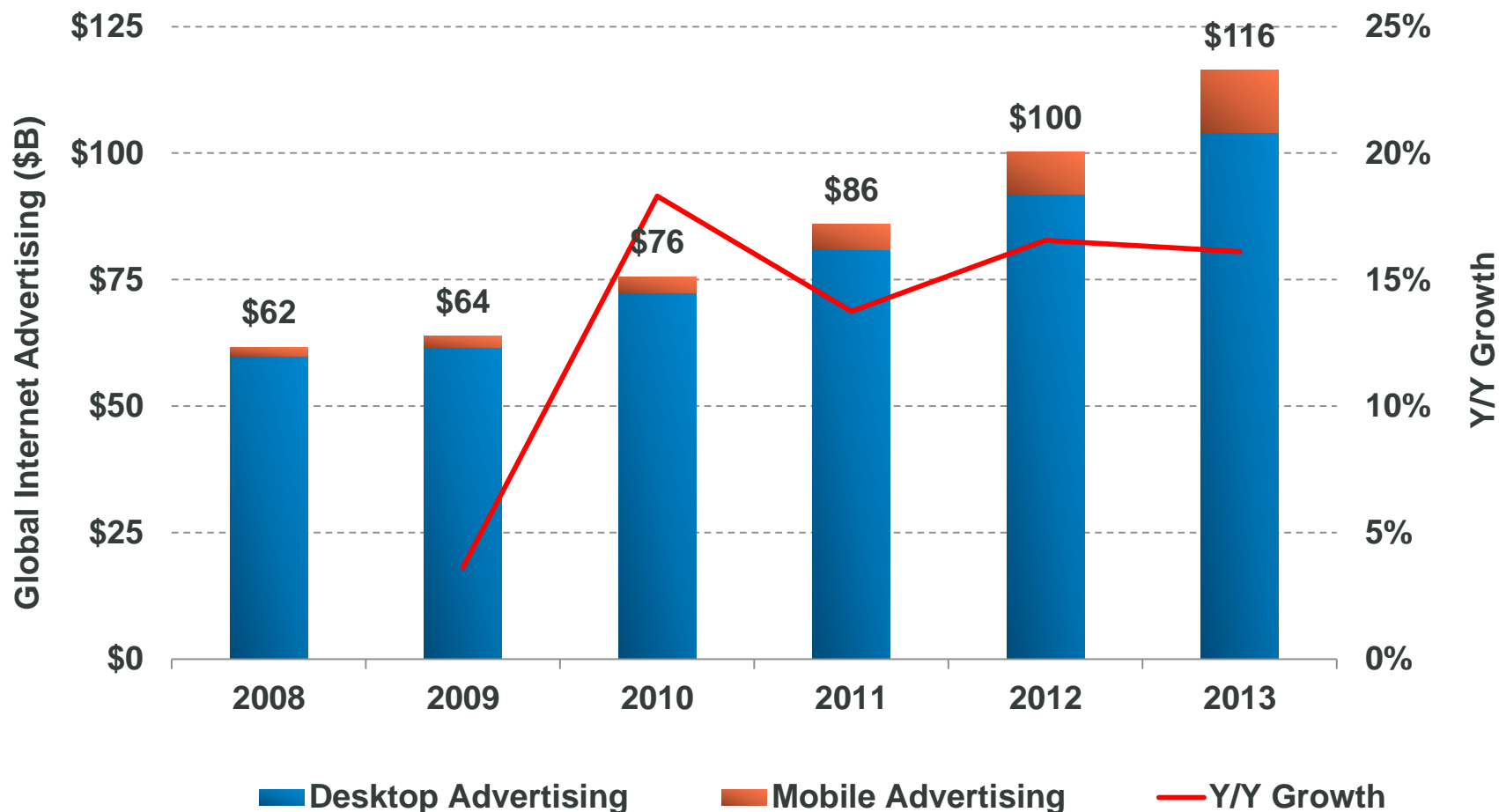
Devices or users in millions; logarithmic scale



*Advertising / Monetization =  
Mobile Especially Compelling*

# Internet Advertising = Remains Strong... +16%...Mobile +47% to 11% of Total

## Global Internet Advertising, 2008 – 2013



# ARPU Upside for Facebook + Twitter...

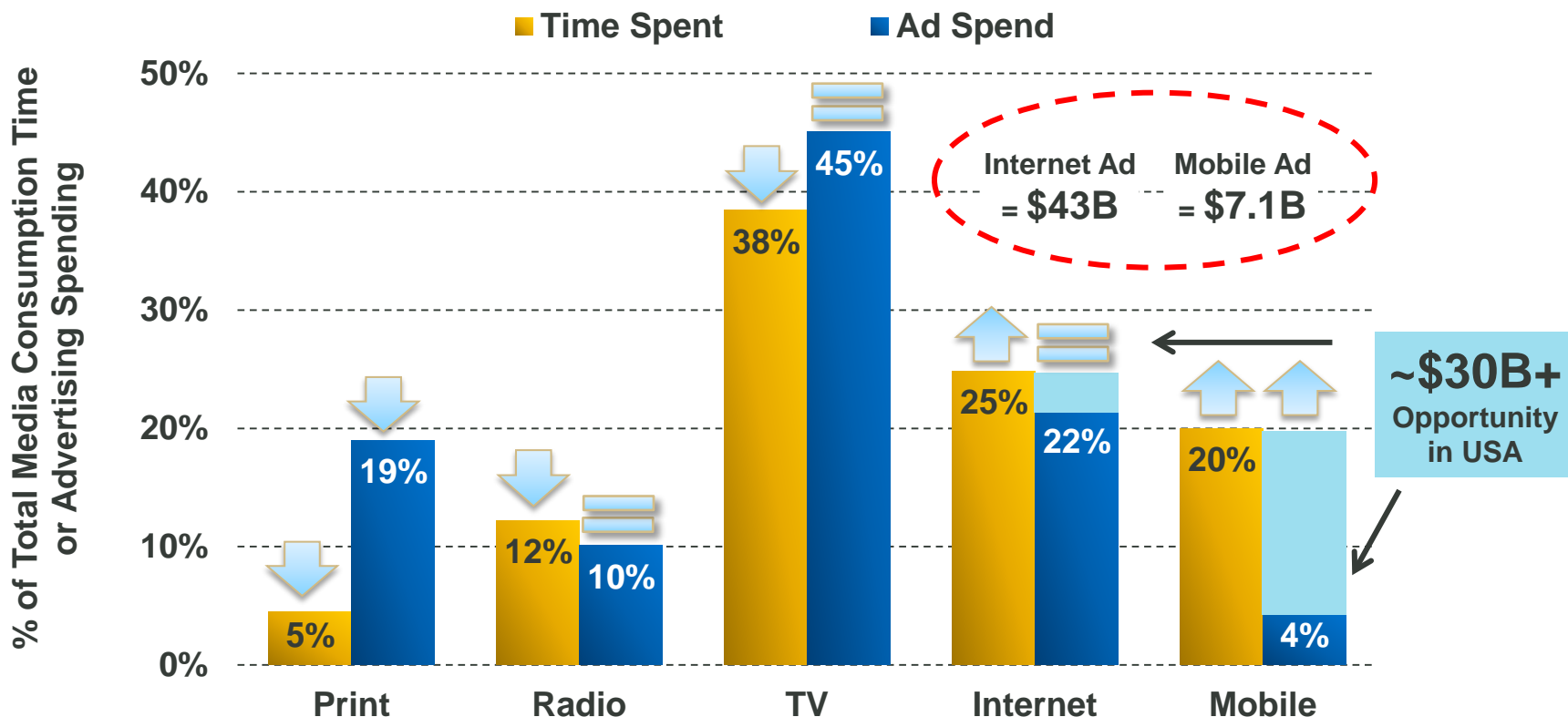
## Google ARPU = 6x Facebook...Facebook = 2x Twitter

### Annualized Ad ARPU (\$) & Mobile % of MAU

Annualized Ad ARPU (\$)	Q1:12	Q2:12	Q3:12	Q4:12	Q1:13	Q2:13	Q3:13	Q4:13	Q1:14
<b>Google (\$)</b>	<b>\$37</b>	<b>\$37</b>	<b>\$38</b>	<b>\$43</b>	<b>\$42</b>	<b>\$41</b>	<b>\$41</b>	<b>\$46</b>	<b>\$45</b>
<i>Y/Y Growth</i>	9%	6%	6%	14%	14%	11%	10%	8%	8%
<b>Facebook (\$)</b>	<b>\$4.00</b>	<b>\$4.28</b>	<b>\$4.43</b>	<b>\$5.15</b>	<b>\$4.60</b>	<b>\$5.65</b>	<b>\$6.14</b>	<b>\$7.76</b>	<b>\$7.24</b>
<i>Y/Y Growth</i>	1%	(2%)	7%	12%	15%	32%	39%	51%	57%
<i>Mobile % of MAU</i>	54%	57%	60%	64%	68%	71%	74%	77%	79%
<b>Twitter (\$)</b>	<b>\$1.29</b>	<b>\$1.50</b>	<b>\$1.64</b>	<b>\$2.15</b>	<b>\$1.97</b>	<b>\$2.22</b>	<b>\$2.65</b>	<b>\$3.65</b>	<b>\$3.55</b>
<i>Y/Y Growth</i>	90%	134%	108%	93%	52%	48%	61%	69%	80%
<i>Mobile % of MAU</i>	--	--	--	--	--	75%	76%	76%	78%

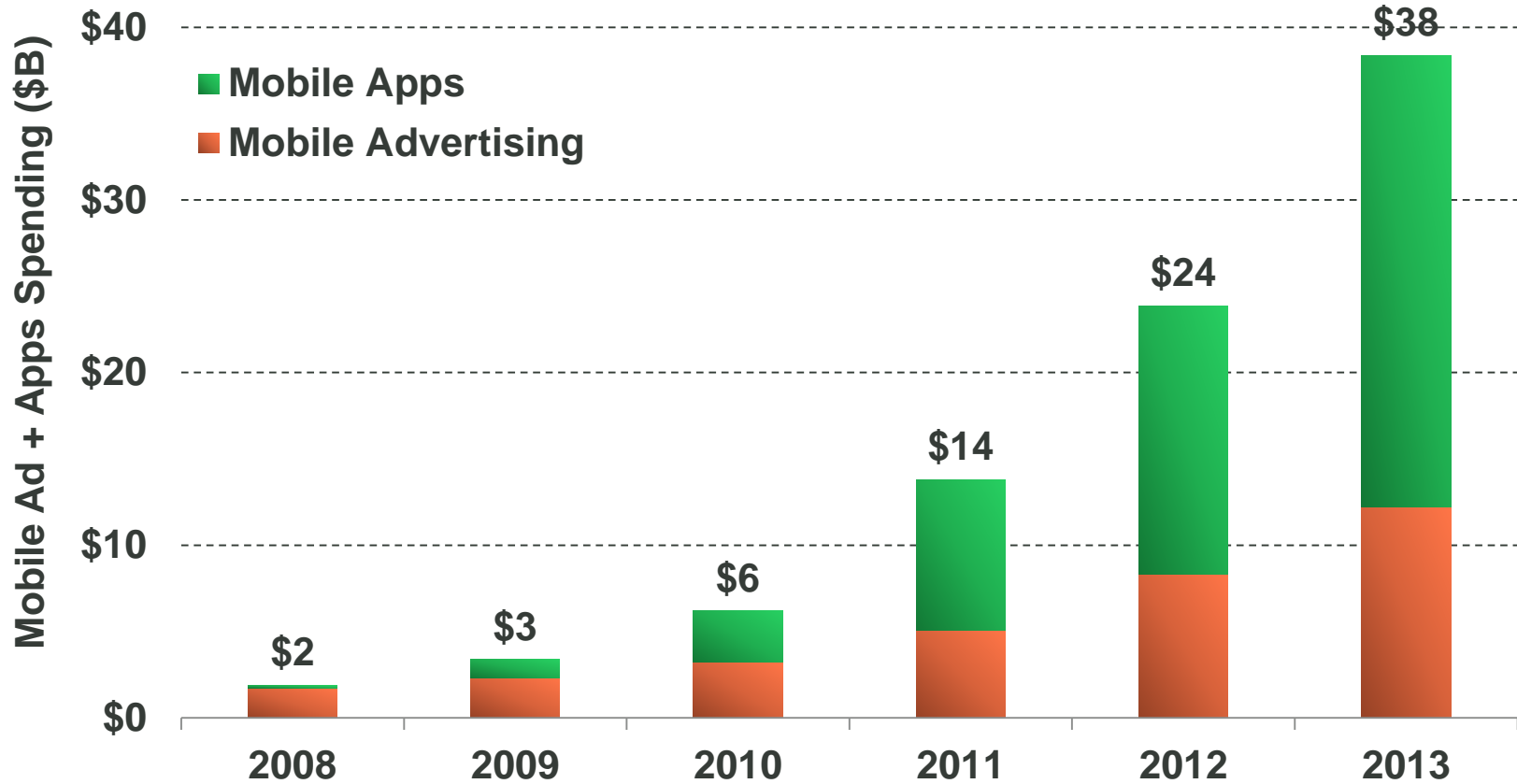
# Remain Optimistic About Mobile Ad Spend Growth... Print Remains Way Over-Indexed

**% of Time Spent in Media vs. % of Advertising Spending, USA 2013**



# Mobile App Revenue = Still Trumps Mobile Ad Revenue... @ 68% of Mobile Monetization

## Global Mobile App + Advertising Revenue, 2008 – 2013





# *Cyber Threats Intensifying...*

# Cybersecurity Trends – Kevin Mandia (Mandiant / FireEye)

- 1) # of Active Threat Groups Rising Rapidly = 300 (+4x since 2011) per Mandiant tracking**
- 2) Increased Nation-State Activities\***
- 3) Vulnerable Systems Placed on Internet Compromised in <15 Minutes\*\***
- 4) +95% of Networks Compromised in Some Way**
- 5) As Mobile Platforms Grow, Directed Attacks Will Rise**

# **STATUS UPDATE – TECH STOCKS / EDUCATION / HEALTHCARE**

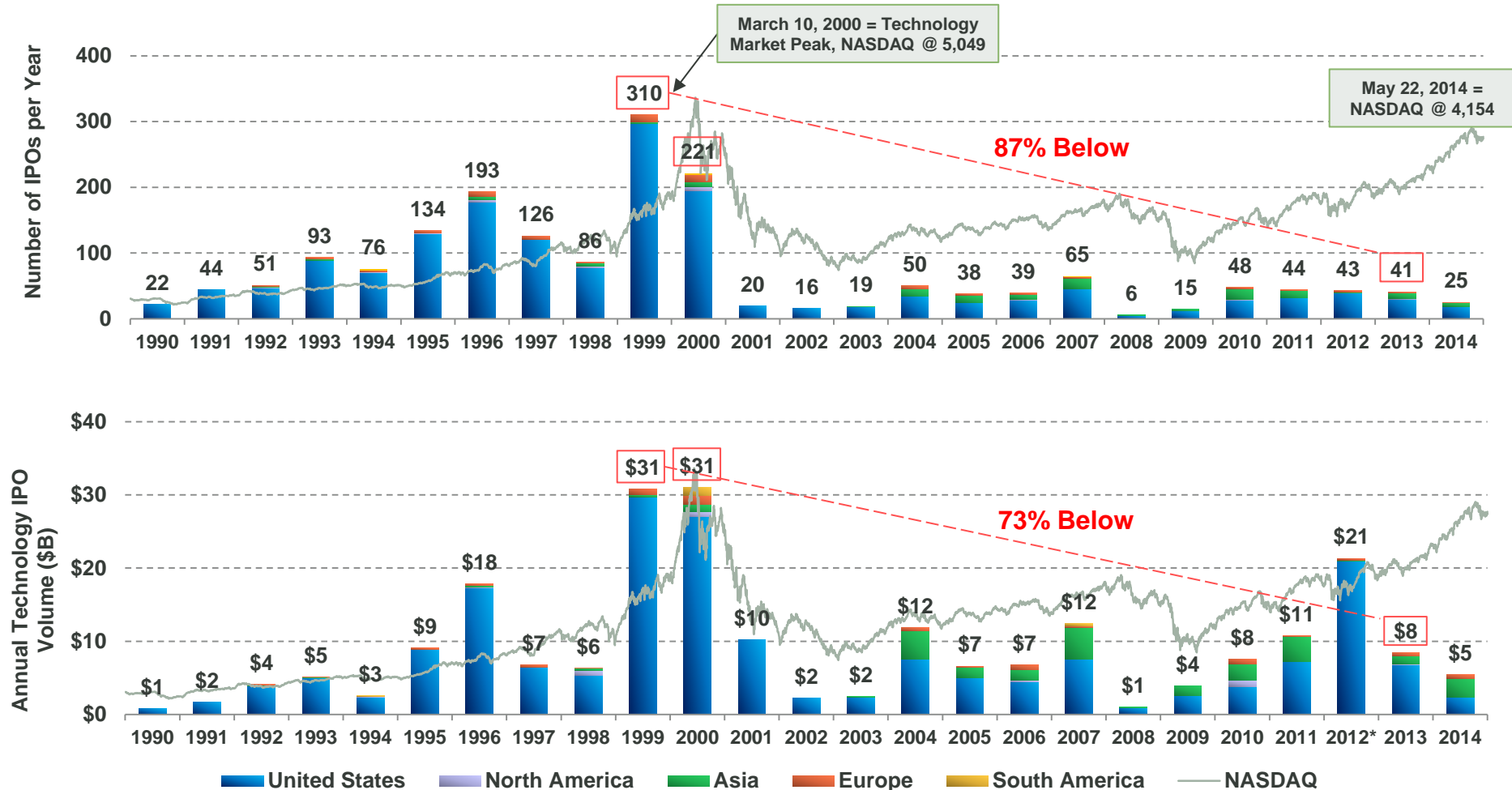
*Technology Company  
Valuation Excess?*

*Some? Yes...*

*But, Let's Look @ Patterns...*

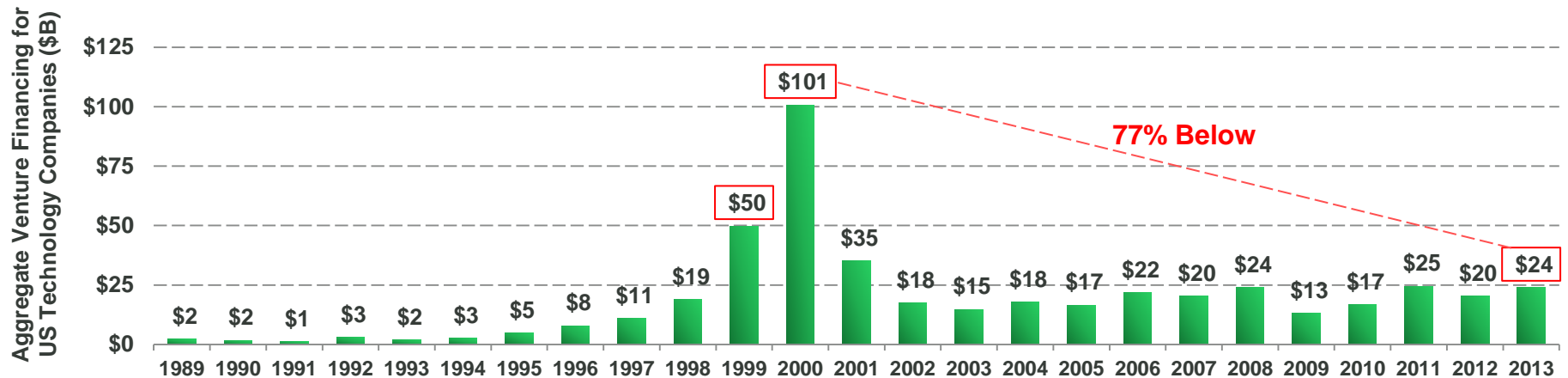
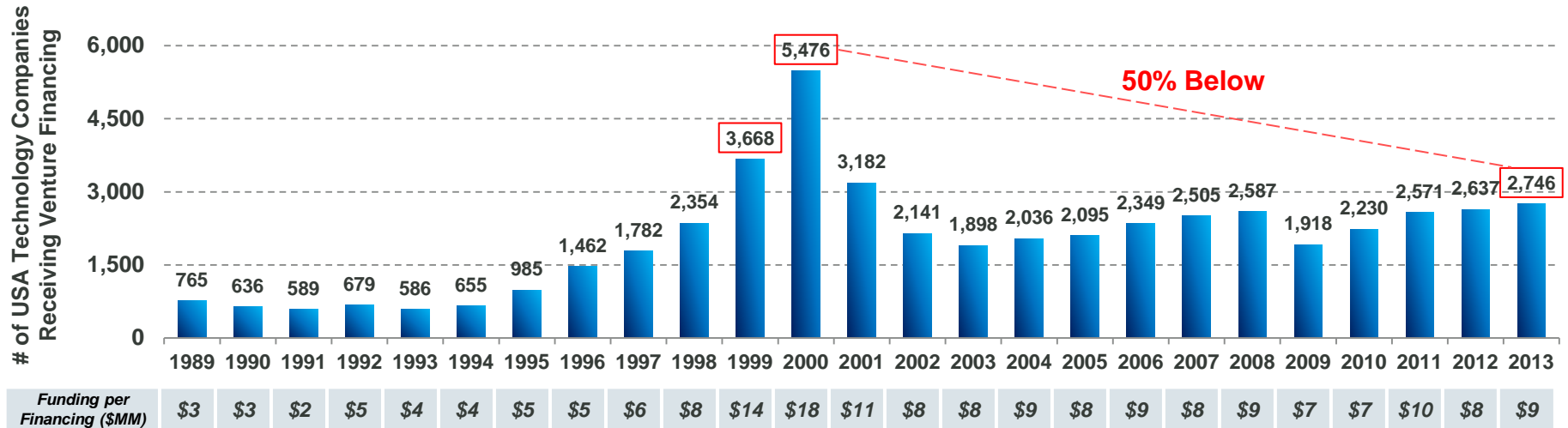
# 2013 Technology IPOs = \$ Volume 73% Below 1999 Peak Level... NASDAQ 18% Below March 2000 Peak

## Global Technology IPO Issuance, 1990 – 2014YTD



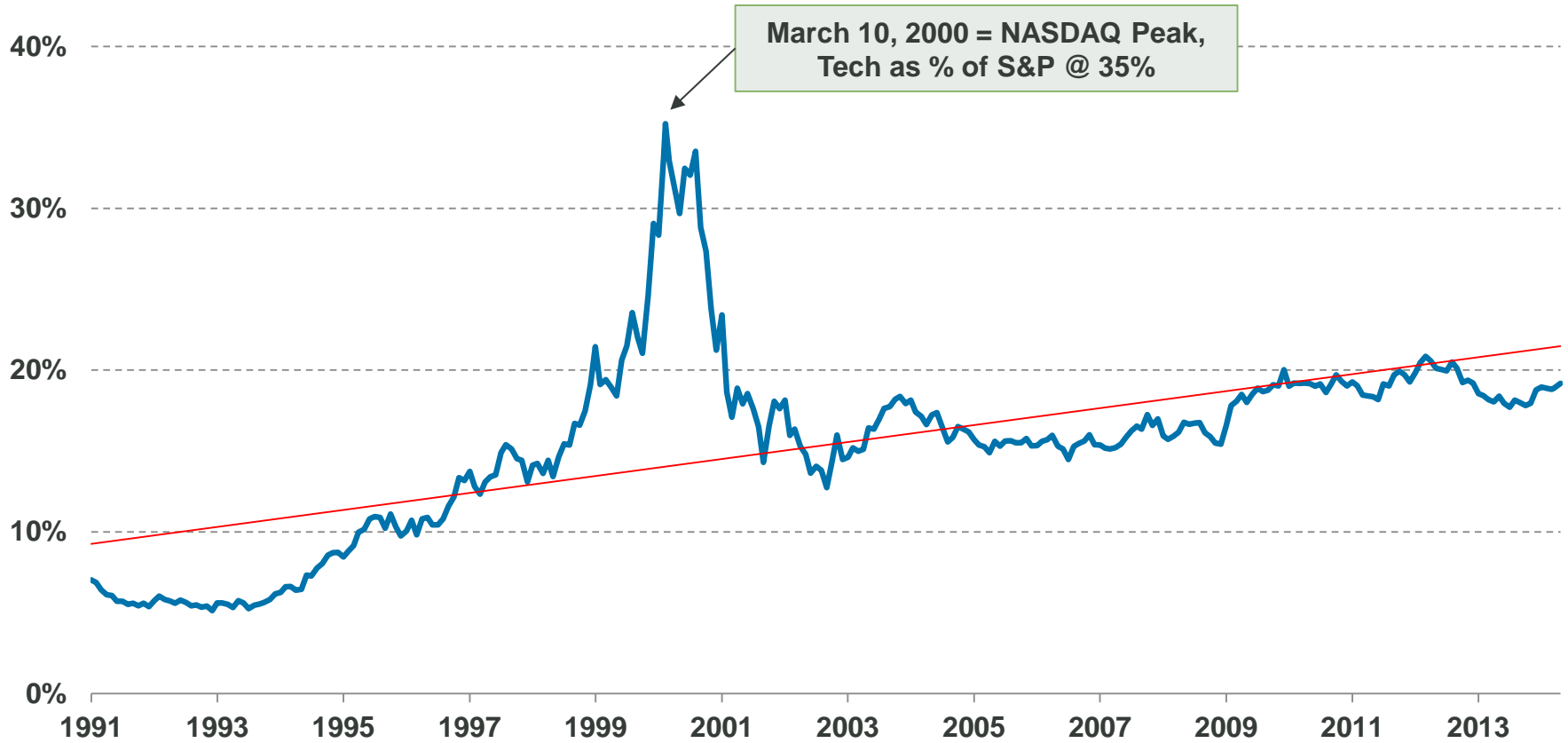
# 2013 Venture Financings = \$ Volume 77% Below 2000 Peak Level

## USA Technology Venture Capital Financing, 1989 – 2013



# Tech Companies @ 19% of S&P500 Value = Well Below 35% March, 2000 Peak Level

## Technology Company Market Value as % of S&P500, 1991 – 2014YTD



*Education =  
May Be @ Inflection Point*



# Education Realities = Facts – USA...

**Education is Important** – Getting education right is crucial for future success

## **Education is Expensive**

- **Secondary School Costs** – USA ranks 4<sup>th</sup> globally in expenditure per student among 34 OECD countries\*
- **Higher Education Costs** – 71% of 4-year college grads = \$30K average student loan debt. All in, this \$1T+ exceeds credit card & auto loan debt

## **Education Results Often Subpar**

- **Public Schools** – Rank 27<sup>th</sup> globally in math / 20<sup>th</sup> in science / 17<sup>th</sup> in reading
- **College Job Prep** – 1/3 of four-year college graduates feel their education did not prepare them well for employment

# ...Education Realities = Reasons for Optimism...

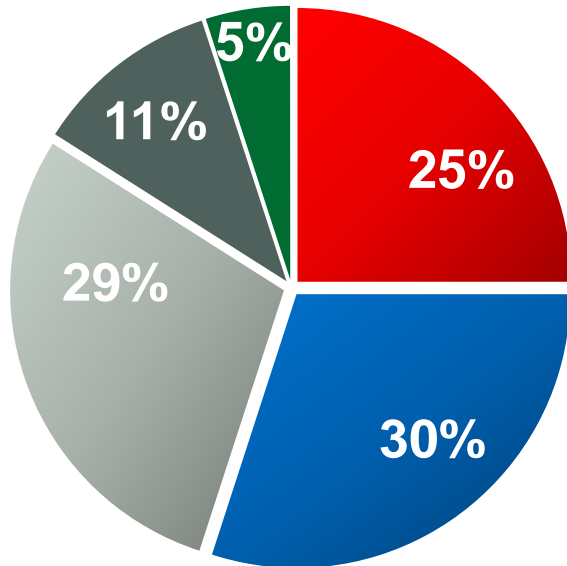
- **People Care About Education** – 8 in 10 Americans say education issue is extremely / very important to them
- **Personalized Education Ramping** – People learn in different ways and Internet offers many options – on own terms and at low cost – to many, with real-time feedback
- **Distribution Expanding & Education Start Up Costs Declining** – Direct to consumer / teacher allows education products to receive rapid mass adoption...productization / distribution costs falling

# ...Education Realities = Green Shoots Data

- **Graduation Rates Rising** – 81% of high school freshman graduated in 2012, up from 74% five years ago
- **Language Learning Easier / Fun** – 25MM+ people (+14x Y/Y) use Duolingo app to learn new language
- **Communication Easier** – 12MM+ teachers / students / parents (+15x Y/Y) use Remind101 to send 500MM+ messages
- **Behavior Feedback Easier** – 35MM+ teachers / students / parents using ClassDojo to help improve student behavior through real-time feedback
- **Online Courses Can Help Learning Process (for Teachers + Students)**
  - 430MM+ views (+69% Y/Y) on Khan Academy YouTube channel, 10MM MAUs
  - 65MM+ courses (+59% Y/Y) from iTunes U Open University downloaded
  - 7MM+ students (+ >2x Y/Y) enrolled in Coursera courses

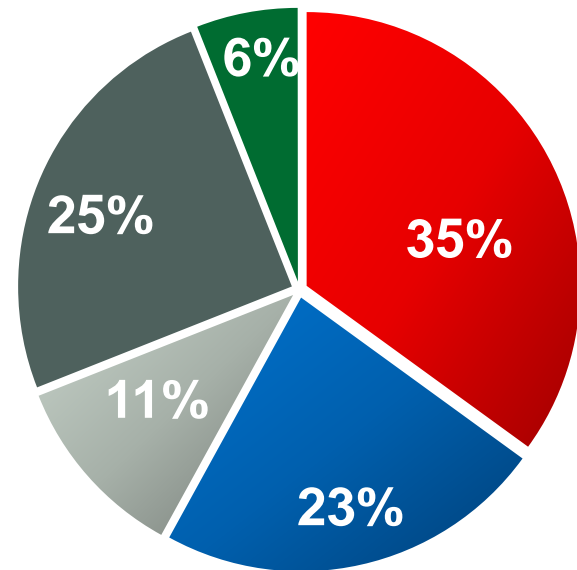
# Online Education = It's a Global Thing

**Duolingo (25MM Users)**  
Traffic Distribution, 4/14



- North America
- Europe
- Latin America
- Asia
- Africa / Oceania

**Coursera (7MM Users)**  
Student Distribution, 3/14



- North America
- Europe
- Latin America
- Asia
- Africa / Oceania

*Healthcare =  
May Be @ Inflection Point*

# Healthcare Realities = Facts – USA...

- **Costs Up to 17% of GDP** – @ \$2.8T in 2012, +2x as percent of GDP in 35 years
- **Waste = 27% of Spend** – \$765B of healthcare spend estimated from excess costs: \$210B = unnecessary services; \$190B = excess administrative; \$55B = missed prevention opportunities; \$310B = inefficient delivery of care / fraud / inflated prices (2009)
- **Employers Carry Big Burden** – \$620B spend by employers for 150MM Americans (2014E)...costs up 28% vs. 5 years ago...67% CFOs indicate healthcare costs = leading economic concern
- **Individual Costs Rising** – >25% of family income likely to go to healthcare spending in 2015E vs. 18% in 2005...top 5% healthcare consumers (most with multiple chronic illnesses) spent 50% of healthcare dollars (2009)...>50% of personal bankruptcies driven by healthcare costs
- **Chronic Conditions = +75% of Spend** – Most costly = cancer / diabetes / heart disease / hypertension / stroke...1 in 2 Americans has at least 1 chronic condition, 1 in 4 has 2+...32% of Americans obese in 2008, up from 15% in 1990
- **Behavior = Root Cause of Many Health Problems** – Health risk behaviors cause chronic diseases. 52% of adults did not meet recommendations of physical activity (2011)...50% of those with chronic conditions not compliant with taking medicine to manage disease = \$100B on avoidable hospitalizations (2010)

# ...Healthcare Realities = Reasons for Optimism...

- **Digital Technology Enables Change** – Healthcare system has relied on antiquated systems
- **Government Enabled Change Pushes Technology**
  - *HITECH Act* – \$35B administered by Office of the National Coordinator for Electronic Health Records (EHR) + health information technology in 2013...penalties exist for non-compliance
  - *Affordable Care Act* – Coverage expansion in works
- **Consumerization of Healthcare** – Majority (52%) of consumers want to access tools / websites rankings for quality / satisfaction / patients reviews of doctors + hospitals

# ...Healthcare Realities = Green Shoots Data

- **Digitization of Healthcare Happening**
  - *Providers Using Fully Functioning EHR* – 84% of Hospitals / Academic / Institutional practices...51% (& rising) of office-based practices
  - *Consumers Happy to Communicate via Email* – 62% for healthcare concerns
  - *Digital Health Venture Investments Rising* – +39% Y/Y to \$1.9B (2013, USA)
- **Quality Over Quantity Incentives Being Implemented**
  - *Payers Incentivized to Engage Patients / Improve Care / Outcomes / Reduce Costs*
  - *Providers Shifting to Value-Based from Fee-for-Service Payments*
  - *Employers Lowering Costs by Offering Services to Improve Engagement / Choices / Care* – 46% of employers will enact participatory / outcomes based incentives (like weight loss / cholesterol levels)... By 2015, 60% will offer price transparency tools from health plans
- **Patient Engagement Rising & Yielding Results**
  - *Redbrick Health* – employer engagement platform = 4:1 ROI savings per participant
  - *Teladoc* – employer focused telemedicine platform = \$798 savings per consultation vs. office visit & ER over 30 days
  - *Mango Health* – adherence app = 84% Statin adherence vs. 52% market average
  - *WellDoc* – chronic disease platform = diabetes app prescription with reimbursement



# RE-IMAGINING CONTINUES

*Re-Imagining  
Messaging / Communications*

# A Tweet – David Sacks (Yammer CEO / Founder)



**David Sacks**

@DavidSacks

Both WhatsApp and Secret represent the ascendency of the phone book over the friend graph. It's back to the future.

↩ Reply ↻ Retweet ★ Favorite ⋮ More

3:17 PM - 19 Feb 2014

# Global OTT (Over-the-Top) Messaging Services = >1B Users in <5 Years...

## Global Messaging Ecosystem – Select Players, 2013



**WhatsApp (USA), 4+ Years**

MAUs = **400MM**, +100% Y/Y  
Messages / Day = **50B**, +178% Y/Y



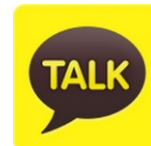
**Tencent WeChat (China), 3+ Years**

MAUs = **355MM**, +125% Y/Y



**Line (Japan), 2+ Years**

MAUs = **280MM**  
Messages / Day = **10B**  
Revenue = **\$388MM**, +5x Y/Y (Q4:13)



**KakaoTalk (Korea), 3+ Years**

Messages / Day = **5.2B**, +24% Y/Y  
Revenue = **\$203MM**, +4xY/Y



**Snapchat (USA), 2+ Years**

Messages / Day = **1.2B**

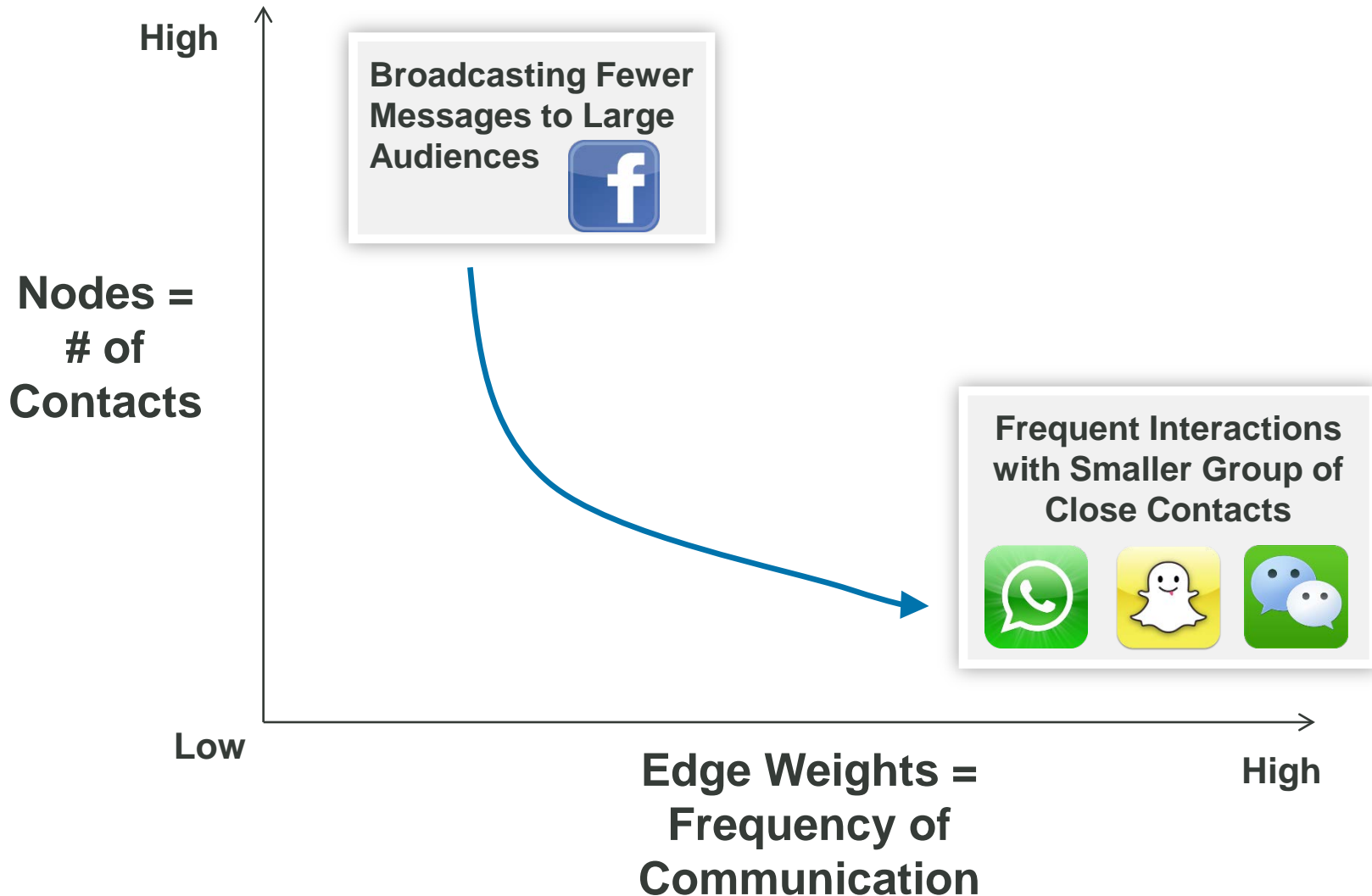


**Viber (Israel), 3+ Years**

MAUs = **100MM**

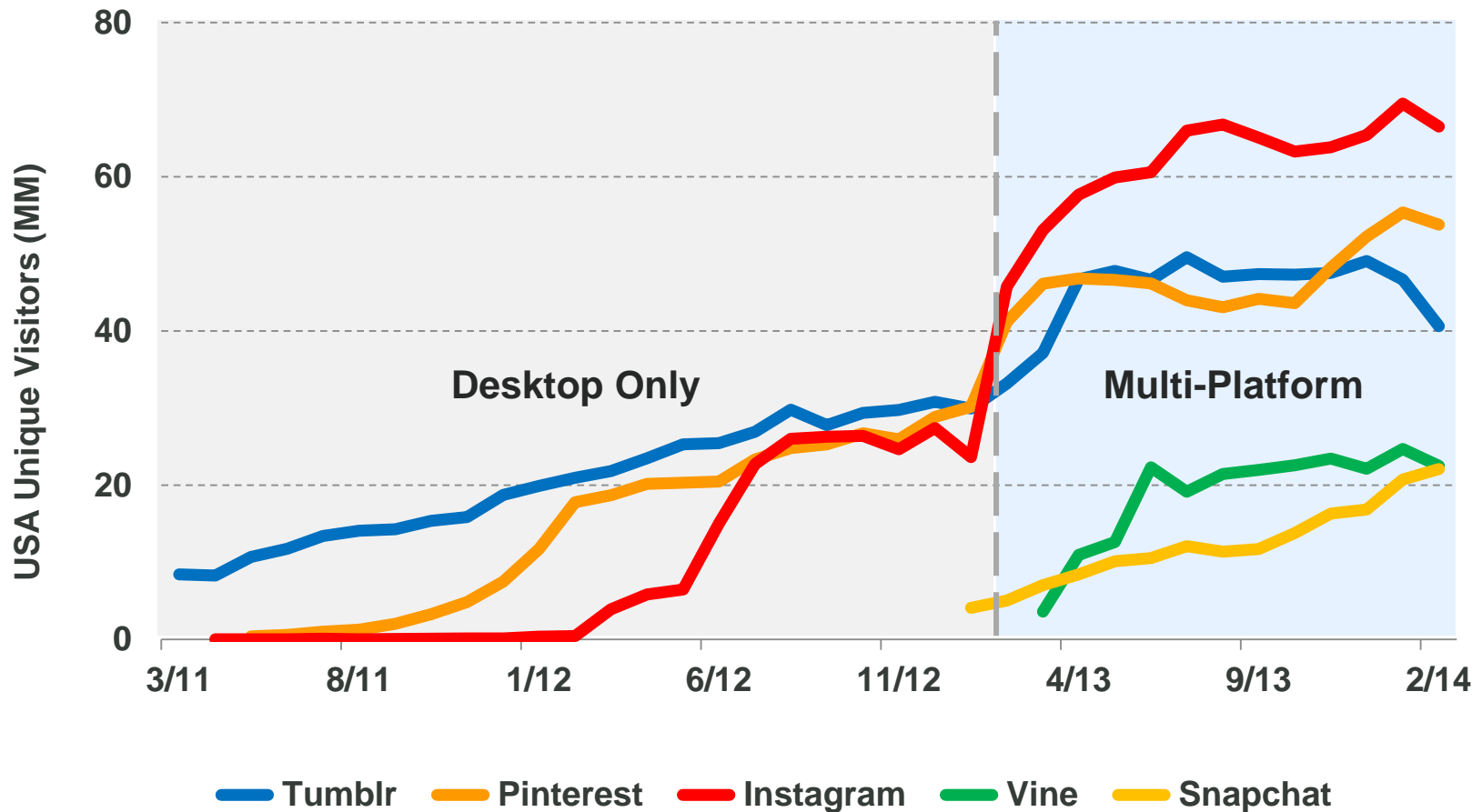
# Evolution of Messaging → New Social Graphs...

## Edges = Potentially More Value than Nodes...



# Evolution of Communications → Image + Video Sharing Rising Rapidly

'Visual Web' Social Networks: Unique Visitors Trend, USA, 3/11 – 2/14

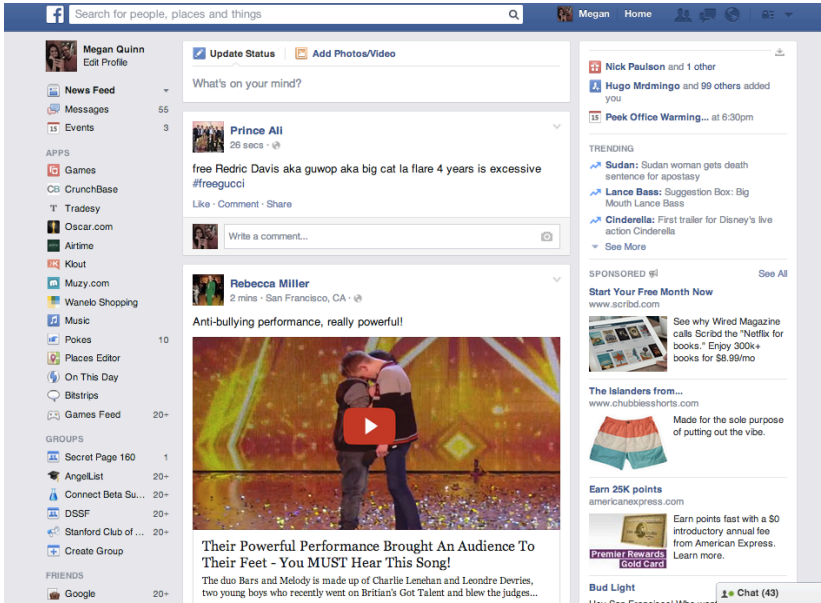


# *Re-Imagining Apps*

# Evolution of Apps → Internet Unbundling...

*First, multi-purpose web apps...*

*...then, multi-purpose mobile apps...*



*...now, single-purpose = 'there's an app for that...'*





# Evolution of Apps → Internet Unbundling = Rise Of Invisible App

*...now some apps are disappearing altogether...*



**Foursquare Swarm**



**Runkeeper Breeze**



**Dark Sky**



**WUT**

*We're entering the age of apps as service layers.*

*These are apps you have on your phone but only open when you know they explicitly have something to say to you.*

*They aren't for 'idle browsing,' they're purpose-built & informed by contextual signals like hardware sensors, location, history of use & predictive computation.*

– Matthew Panzarino, *TechCrunch*, 5/15/14

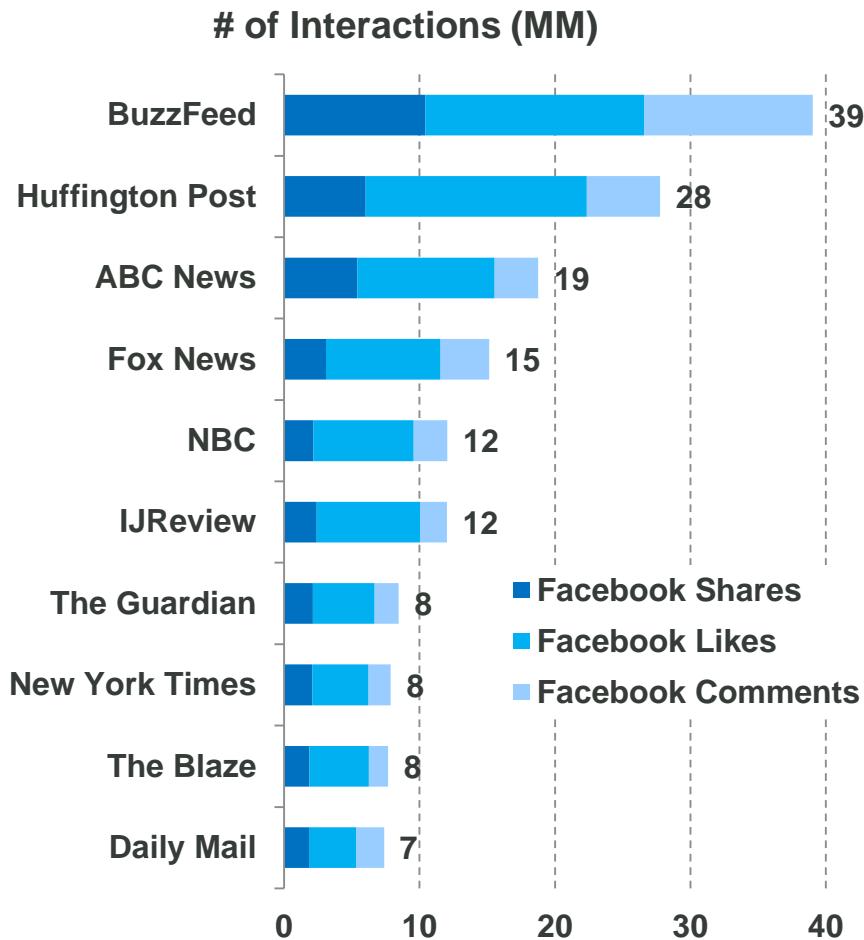
*Re-Imagining  
Distribution Channels  
& Content*

# Social *Distribution* Leaders = Facebook / Pinterest / Twitter...

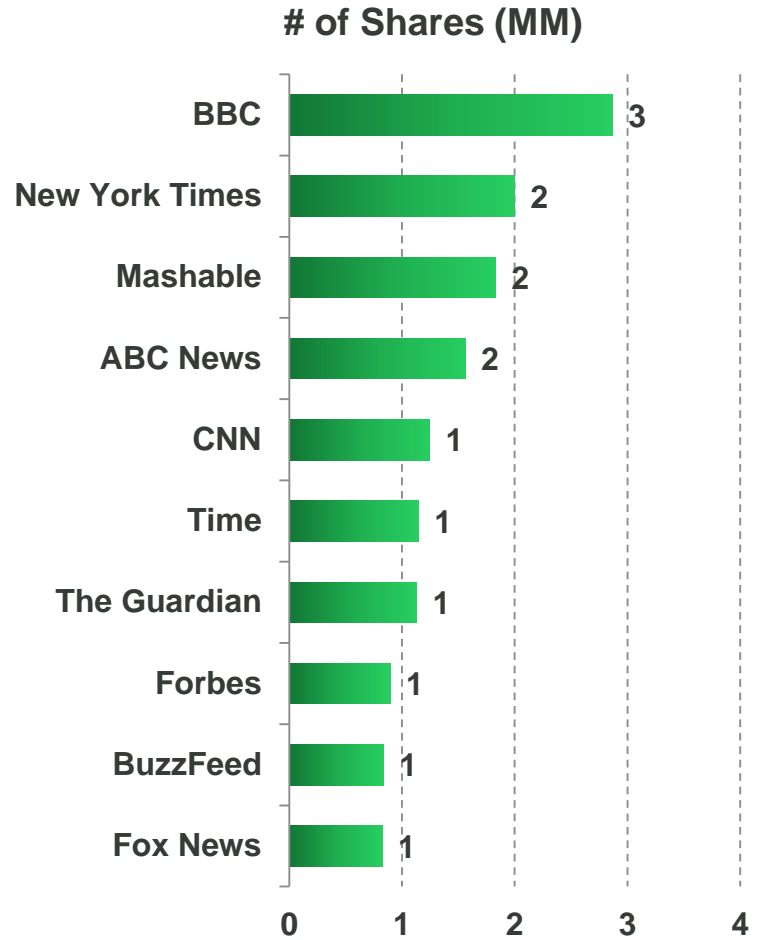
- **Social Media Traffic Referral Leaders =** Facebook / Pinterest / Twitter with estimated 21%, 7%, 1% of global referrals, per Shareaholic, 3/14.
- **Social Distribution Happens Quickly =** Average article reaches *half* total social referrals in 6.5 hours on Twitter, 9 hours on Facebook, per SimpleReach, 5/14.

# Social News Content Leaders = BuzzFeed / Huffington Post / ABC News...

## Top Facebook News Publishers, 4/14



## Top Twitter News Publishers, 4/14



# Re-Imagining Content + Content Delivery = BuzzFeed...

## Lists / Quizzes / Explainers / Breaking / Video / Mobile

### BuzzFeed

130MM+ Unique Visitors +3x Y/Y (5/14)  
>50% Mobile, >75% Social, >50% age 18-34



15 Things You Didn't Know  
Your iPhone Could Do  
**17MM+ views**



What State Do You Actually  
Belong In?  
**40MM+ views**



Why I Bought A House In  
Detroit For \$500  
**1.5MM+ views**



Photoshopping Real Women  
Into Cover Models  
**13MM+ video views**

*Re-Imagining  
Day-to-Day Activities*

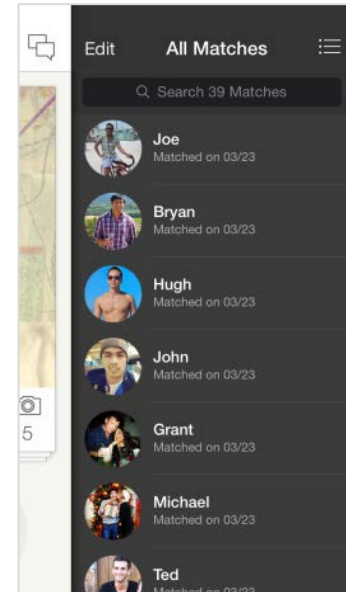
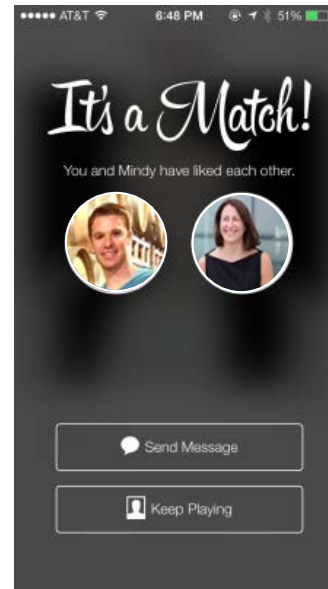
# Re-Imagining How People Meet

**~70K Bars /  
Nightclubs, USA**



## Tinder

800MM Swipes per day, +21x Y/Y  
11MM Matches per day, +21x Y/Y



# Re-Imagining Local Services / Reputation = Leverage + Efficiency



**6MM Guest Stays**  
**550K Listings, +83% Y/Y**

**11x Ratio Guest Stays / Listings**

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**Alibaba**



**231MM Buyers, +44% Y/Y**  
**8MM Sellers**

**29x Ratio**  
**\$31K / Year Avg to Alibaba's China  
Retail Marketplace Sellers**

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**39MM Meal Orders, +74% Y/Y**  
**29K Restaurants, +3X Y/Y**

**1,367x Ratio**  
**\$35K / Year Avg to Restaurants**



# Re-Imagining Grocery Shopping

>47% of Online Transactions Use 'Free-Shipping,' vs. 35% Five Years Ago...  
**Same-Day Local Delivery = Next Big Thing...**



Instacart

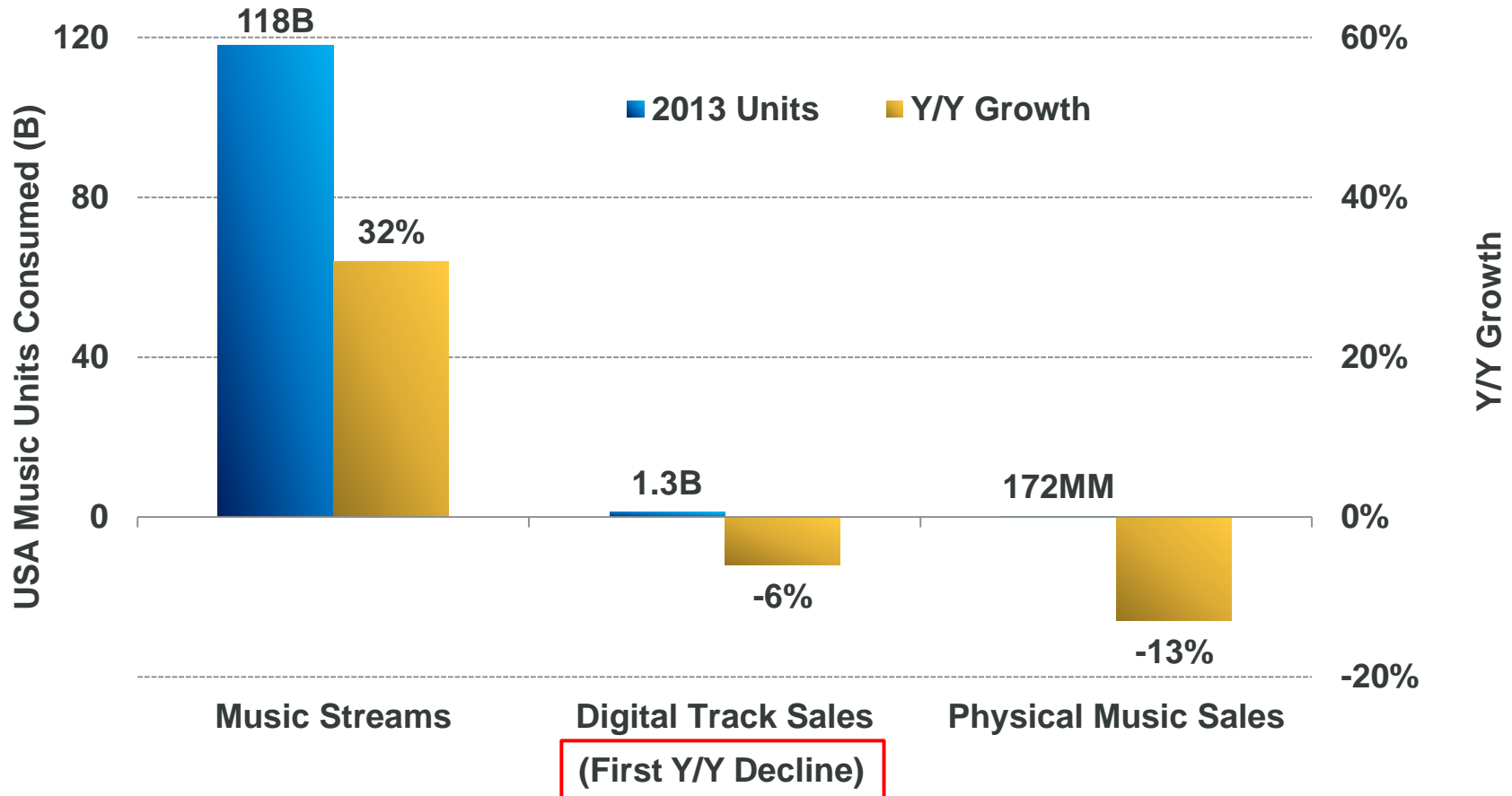


Amazon Fresh



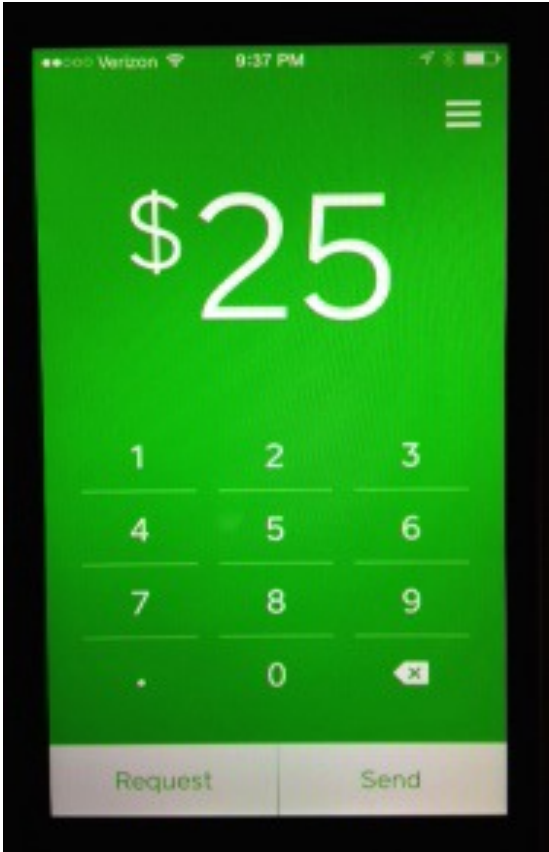
# Re-Imagining Media (Music) Consumption = Streaming +32%, Digital Track Sales -6%

## USA Music Consumption, 2013



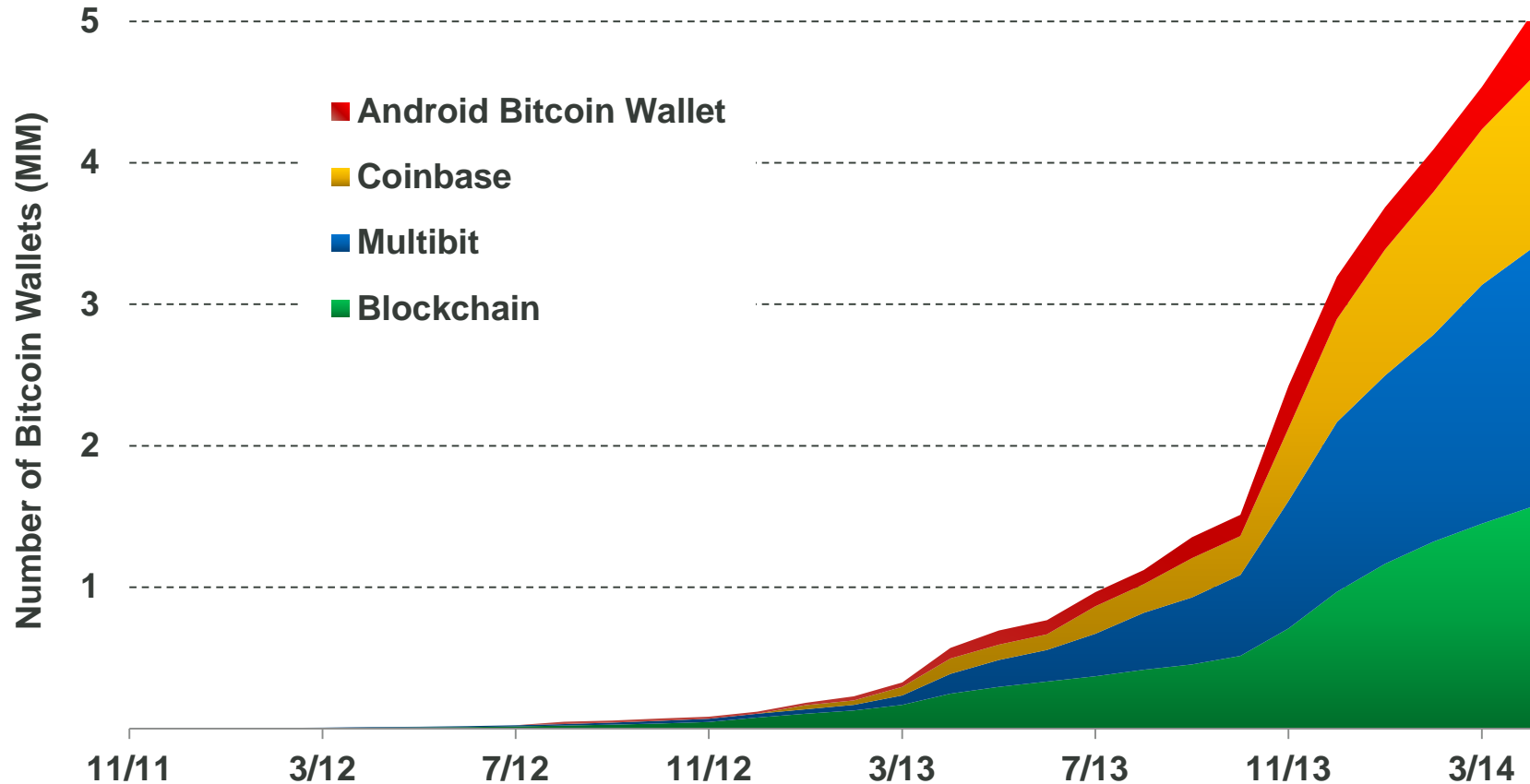
# *Re-Imagining Money*

# Re-Imagining Money



# Fact that ~5MM Bitcoin Wallets (+8x Y/Y) Exist Proves Extraordinary Interest in Cryptocurrencies

## Number of Bitcoin Wallets by Wallet Provider, 4/14



***Re-Imagining  
an  
Industry Vertical***

# Internet Trifecta = Critical Mass of Content + Community + Commerce...

## 1) **Content** =

Provided by Consumers + Pros

## 2) **Community** =

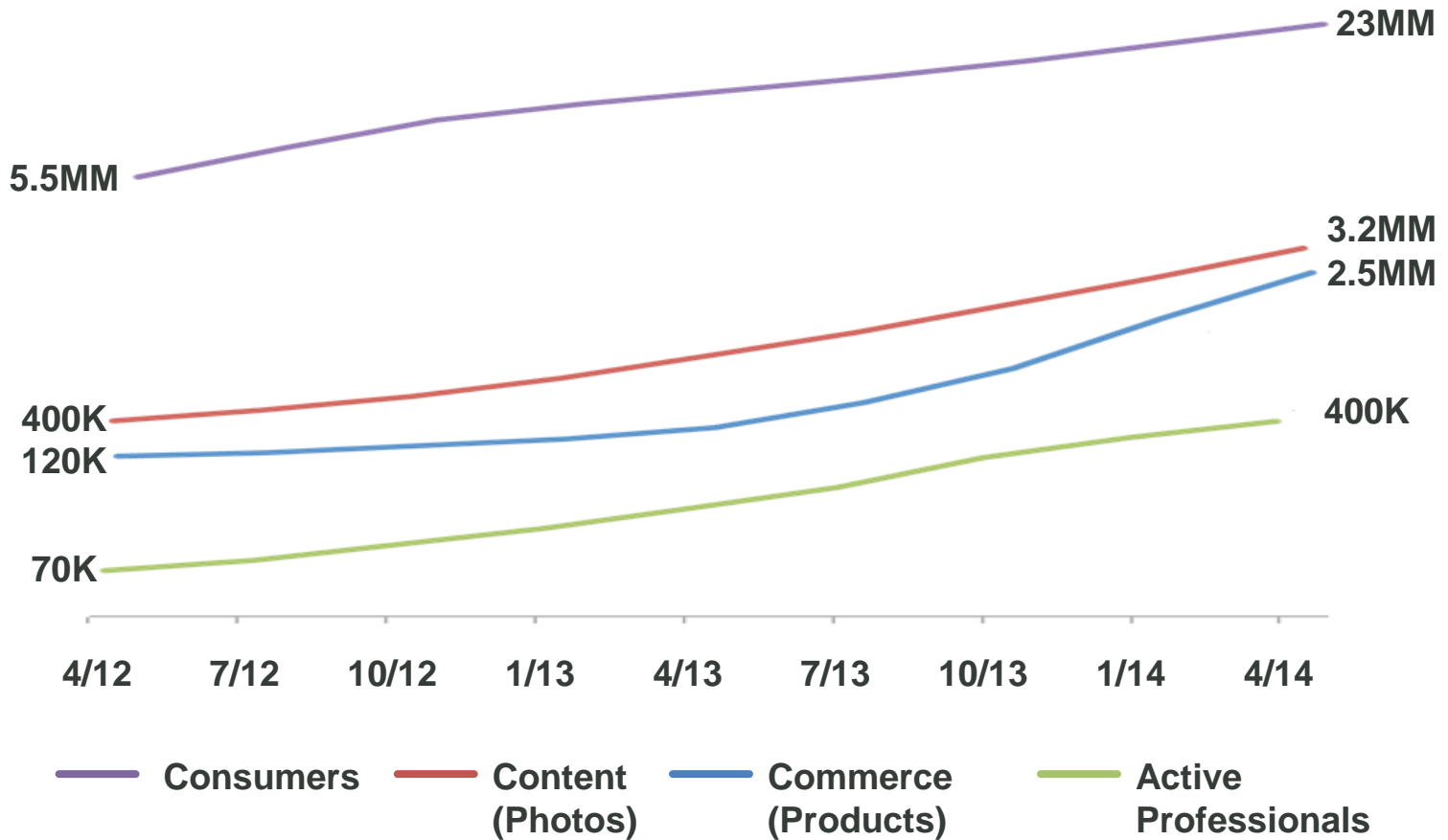
Context & Connectivity Created by & for Users

## 3) **Commerce** =

Products Tagged & Ingested for Seamless Purchase

# ...Internet Trifecta = Critical Mass of Content + Community + Commerce...

Houzz – Content (Photos) / Community (Professionals + Consumers) / Commerce (Products), 4/12 – 4/14





# ...Houzz = Ecosystem for Home Renovation & Design

## Content



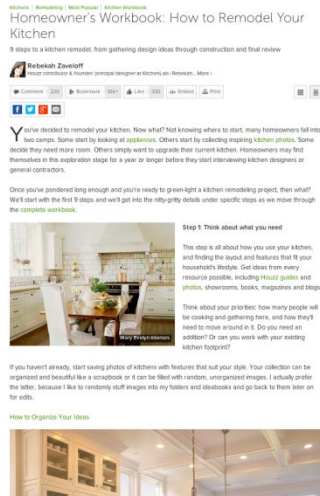
### Inspiration - Photos

~3MM (+230% Y/Y)  
World's largest photo database



### Editorial - Guides / Articles

10K (+143%)  
'Wikipedia' of home design

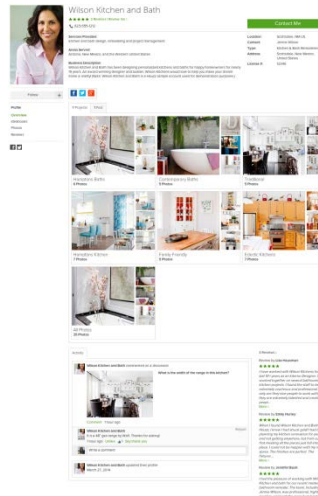


## Community



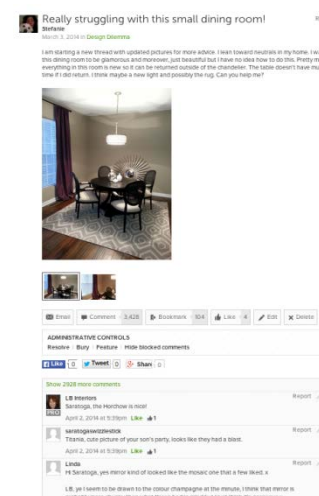
### Services – Professionals

400K (+198%)  
Portfolios & reviews



### Discussions

800K (+225%)  
Pro & homeowner support / advice

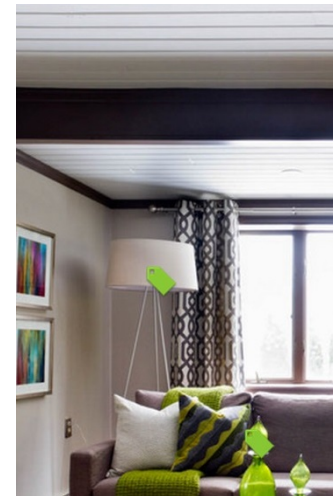


## Commerce



### Products

2.5MM (+590%)  
Discover & purchase



***Biggest  
Re-Imagination of All =***

***People Enabled With  
Mobile Devices + Sensors  
Uploading Troves of  
Findable & Sharable Data***

# More Data + More Transparency = More Patterns & More Complexity

## Transparency

Instant sharing / communication of many things has potential to make world better / safer place but potential impact to personal privacy will remain on-going challenge...

## Patterns

Mining rising volume of data has potential to yield patterns that help solve basic / previously unsolvable problems but create new challenges related to individual rights...

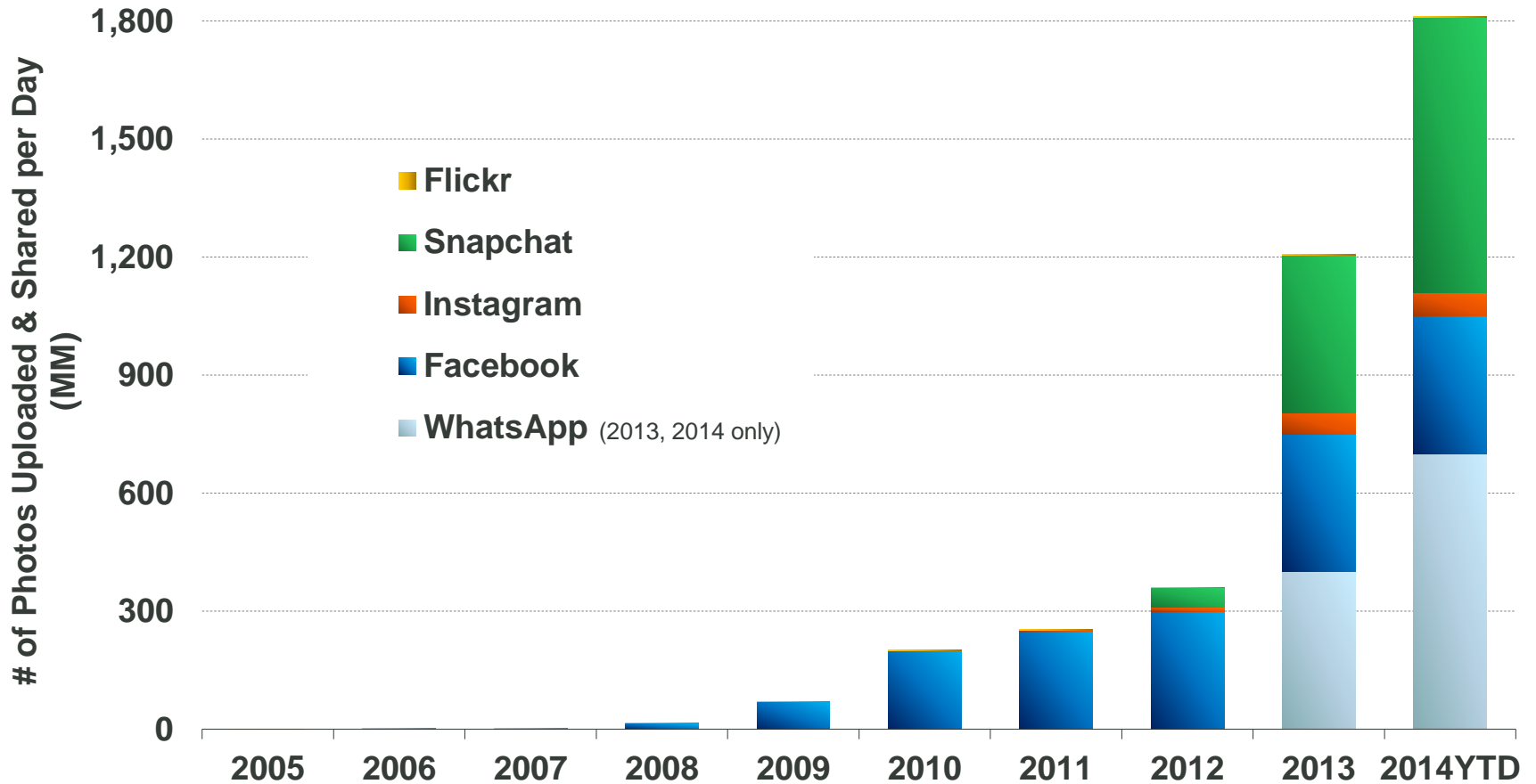
# Big Data Trends

- 1) Uploadable / Findable / Sharable / Real-Time Data Rising Rapidly
- 2) Sensor Use Rising Rapidly
- 3) Processing Costs Falling Rapidly...While The Cloud Rises
- 4) Beautiful New User Interfaces – Aided by Data-Generating Consumers – Helping Make Data Usable / Useful...
- 5) Data Mining / Analytics Tools Improving & Helping Find Patterns
- 6) Early Emergence of Data / Pattern-Driven Problem Solving

*Uploadable / Sharable / Findable  
Real-Time Data Rising Rapidly*

# Photos Alone = 1.8B+ Uploaded & Shared Per Day... Growth Remains Robust as New Real-Time Platforms Emerge

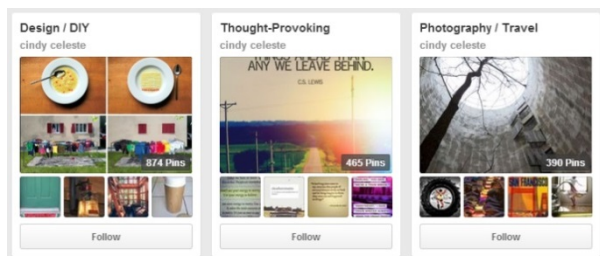
## Daily Number of Photos Uploaded & Shared on Select Platforms, 2005 – 2014YTD



# Uploadable / Sharable / Findable – Mojo Update

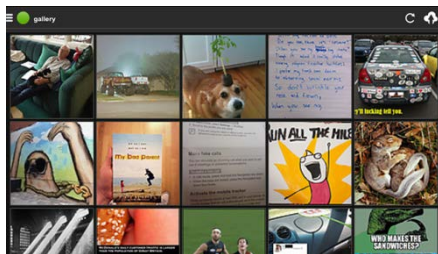
## Pinterest

- 750MM+ cumulative Boards (4/14)
- 30B+ cumulative Pins
- +50% Pin growth vs. 10/13



## IMGUR

- 130MM MAUs (3/14)
- 3B page views per month
- 1.5MM images uploaded & 1.3B images viewed per day



## Fitbit

- 47B → 2.4T steps (2011 → 2013)... Distance = Earth to Saturn



## MyFitnessPal

- 65MM registered users (+50% Y/Y, 5/14)
- 100MM+ pounds lost by users since inception



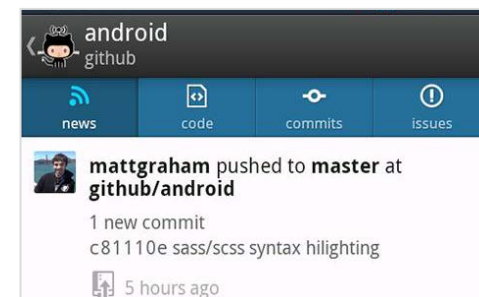
## Eventbrite

- \$1B gross ticket sales in 2013 (+60% Y/Y)
- 58MM tickets sold (+61% Y/Y)
- 1MM events in 187 countries



## Github

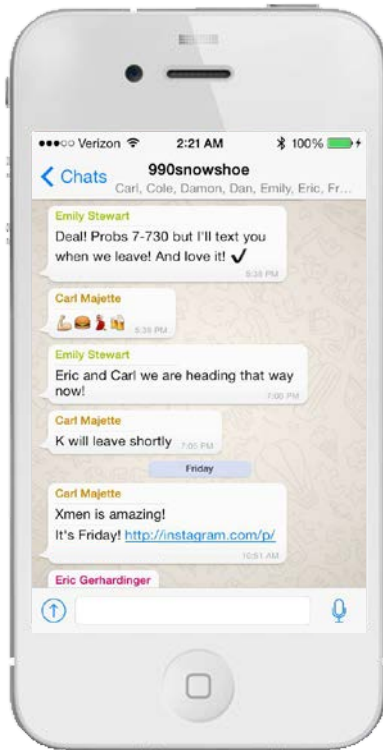
- 13MM repositories in 2013 (+100% Y/Y)
- 10K users added per weekday



# Uploadable / Sharable / Not Findable\* – Mojo Update

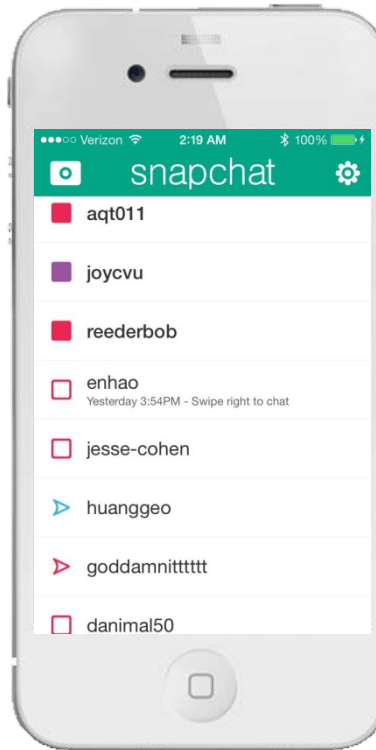
## WhatsApp

- 50B messages sent per day (2/14)
- 700MM photos per day (4/14)
- 100MM videos per day



## Snapchat

- 700MM+ snaps shared per day (4/14)
- 500MM stories viewed per day



## Tinder

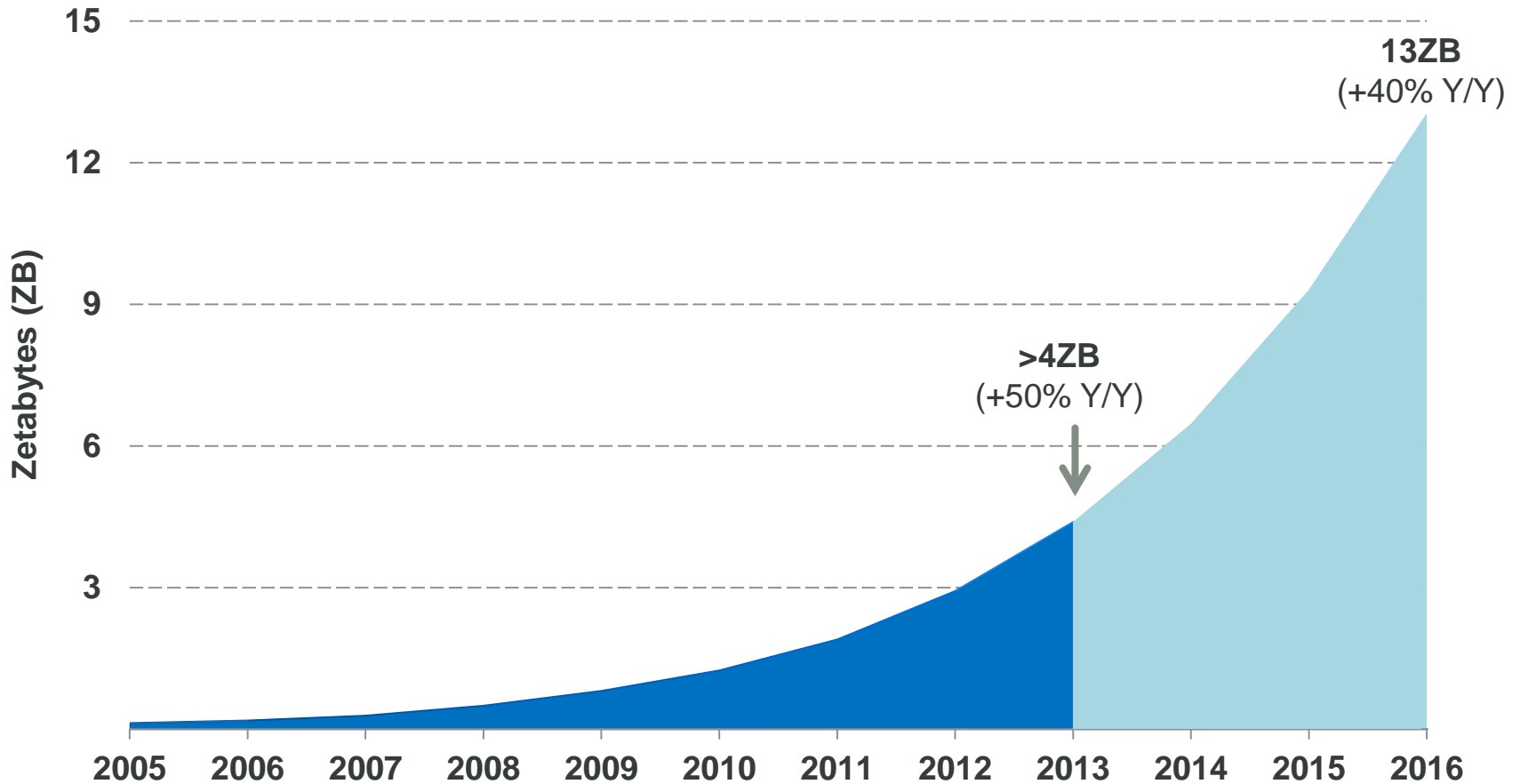
- 800MM swipes per day (+21x Y/Y, 5/14)
- 11MM matches per day (+21x Y/Y)





# 'Digital Universe' Information Growth = Robust... +50%, 2013

2/3rd's of Digital Universe Content = Consumed / Created by Consumers  
...Video Watching, Social Media Usage, Image Sharing...



*Sensor Use  
Rising Rapidly*

# Sensors = Big / Broad Business, Rapid Growth, Rising Proliferation *IN* Devices...

## Apple

**iPhone (2007)**  
**3 Sensors**



**iPhone 5s (2013)**  
**5 Sensors**



- Accelerometer / proximity / ambient light

- 3-axis gyro / fingerprint / accelerometer / proximity / ambient light

## Samsung

**Galaxy S (2010)**  
**3 Sensors**



**Galaxy S5 (2014)**  
**10 Sensors**

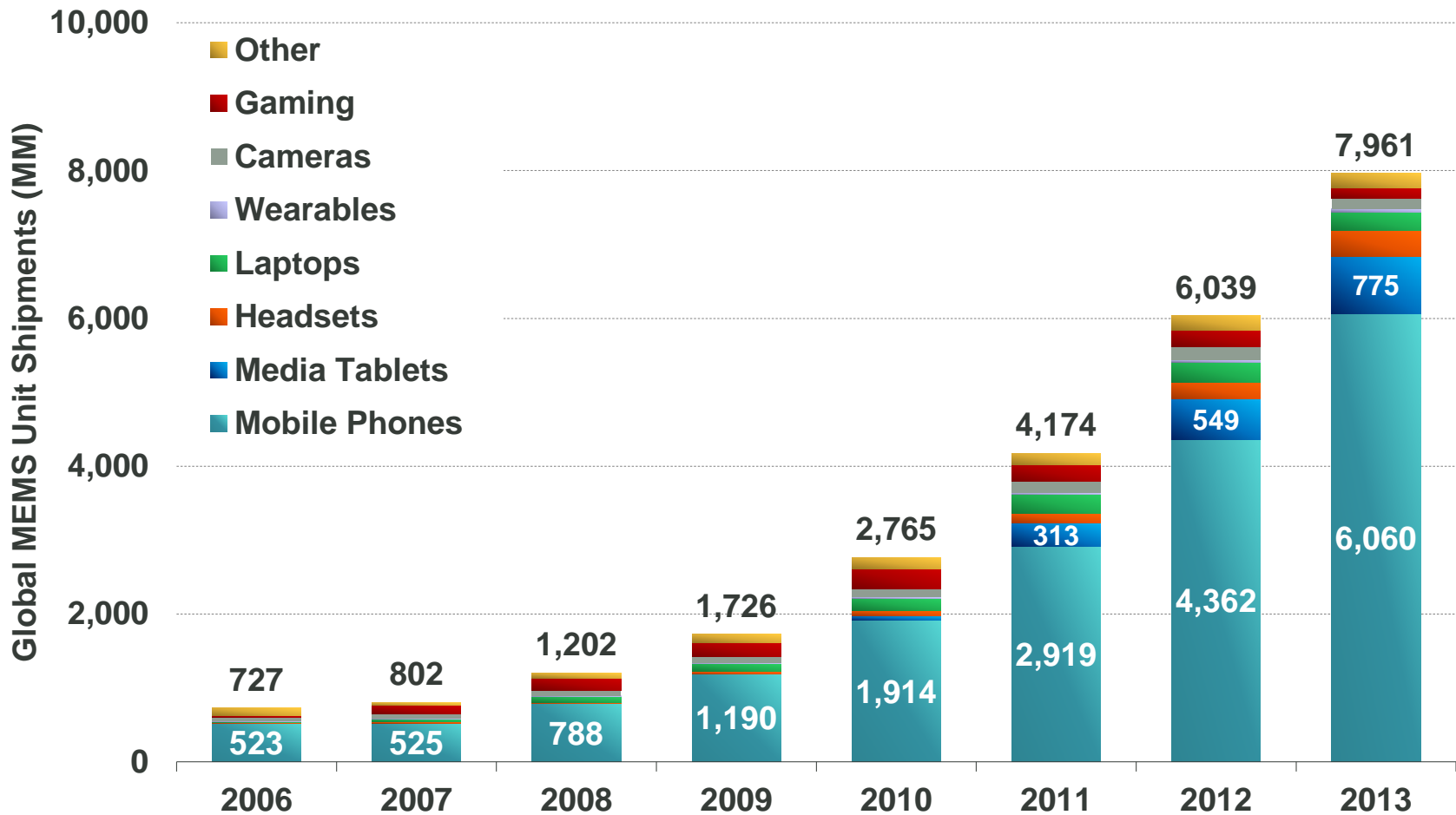


- Accelerometer / proximity / compass

- Gyro / fingerprint / barometer / hall (recognizes whether cover is open/closed) / RGB ambient light / gesture / heart rate / accelerometer / proximity / compass

# ...Sensors = Big / Broad Business (+32% Y/Y to 8B) Rising Proliferation OF Devices

Global MEMS Unit Shipments by Consumer Electronics Device, 2006 – 2013

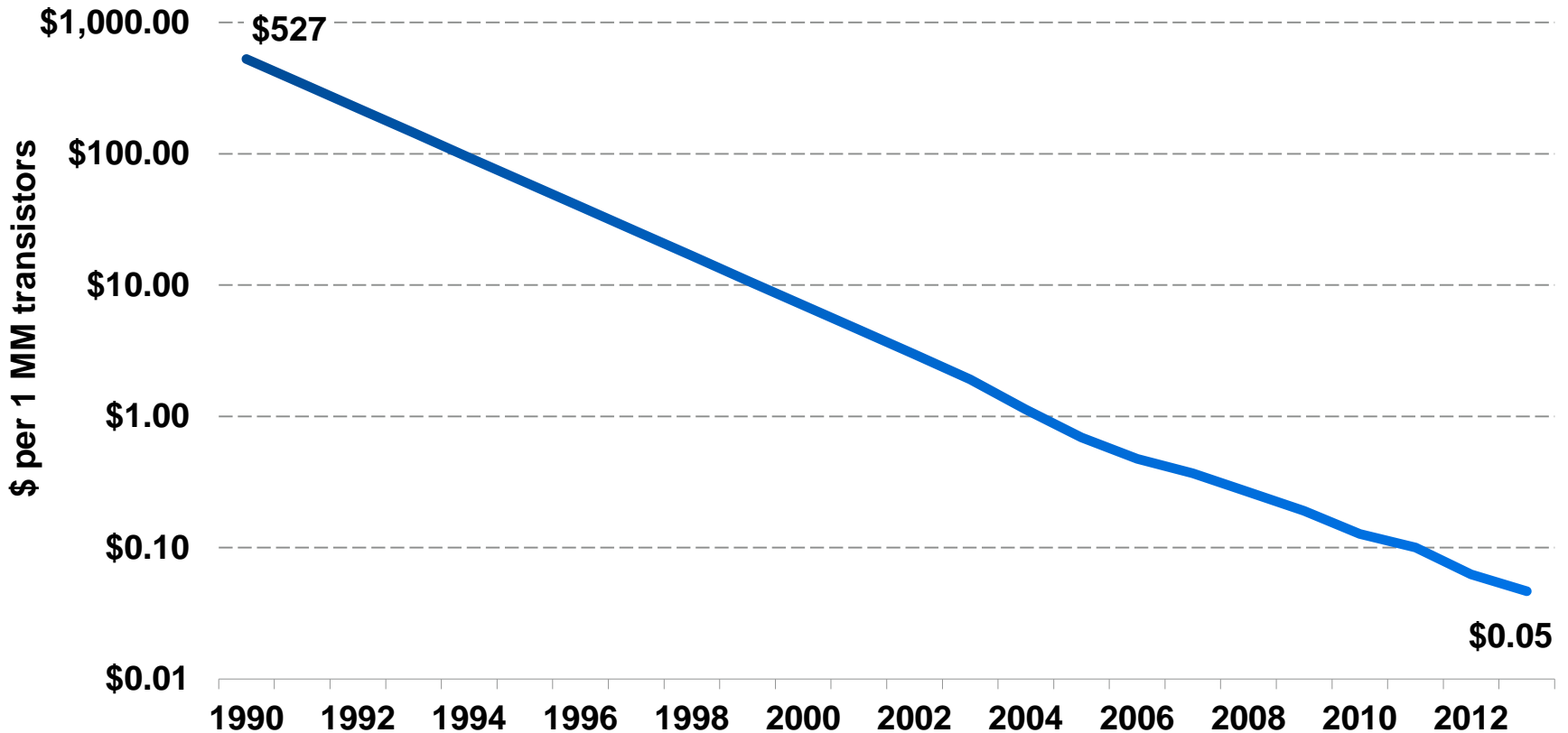


*Processing Costs Falling Rapidly...  
While The Cloud + Accessibility Rise*

# Compute Costs Declining = 33% Annually, 1990-2013...

*Decreasing cost / performance curve enables computational power @ core of digital infrastructure...*

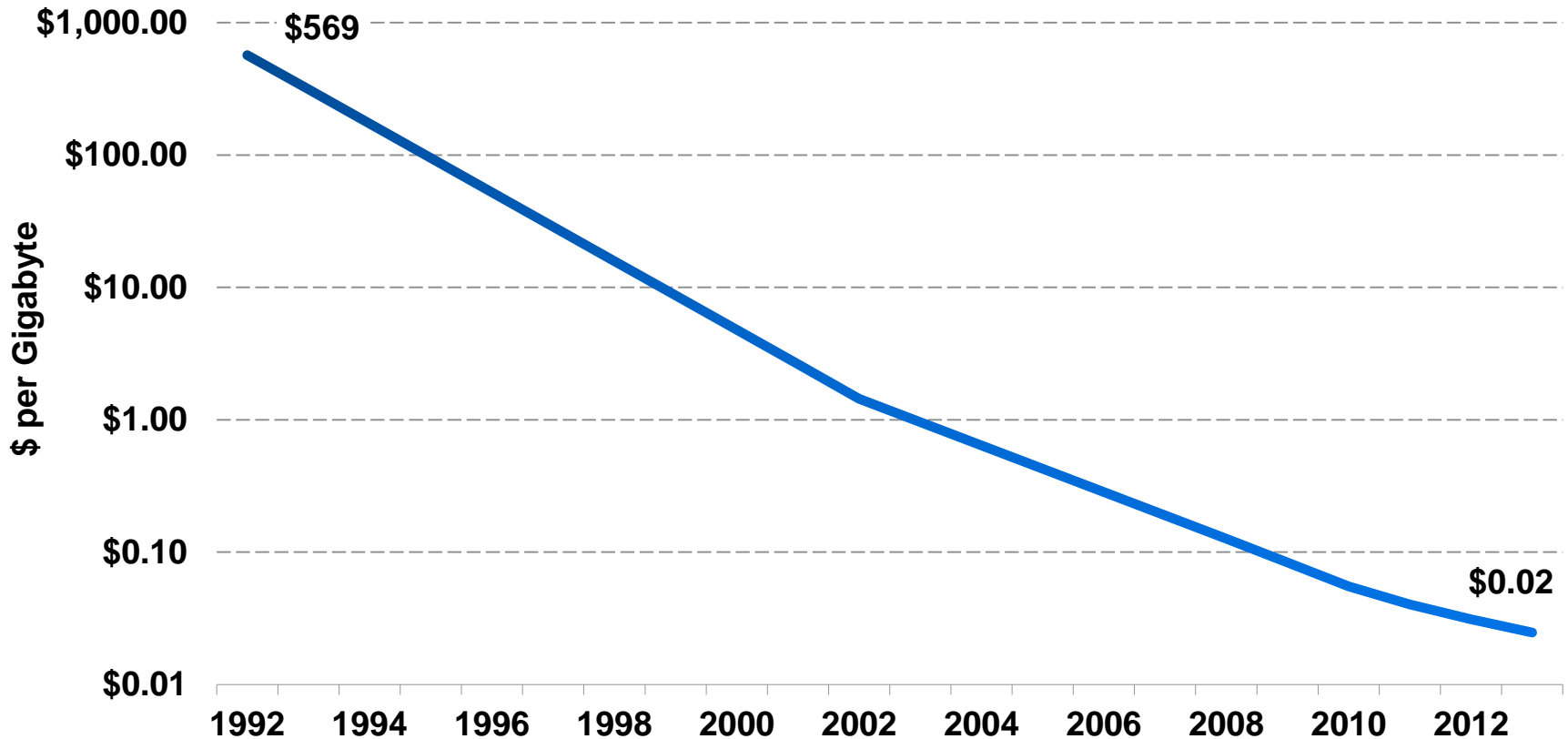
## Global Compute Cost Trends



# ...Storage Costs Declining = 38% Annually, 1992-2013...

*Decreasing cost / performance of digital storage enables creation of more / richer digital information...*

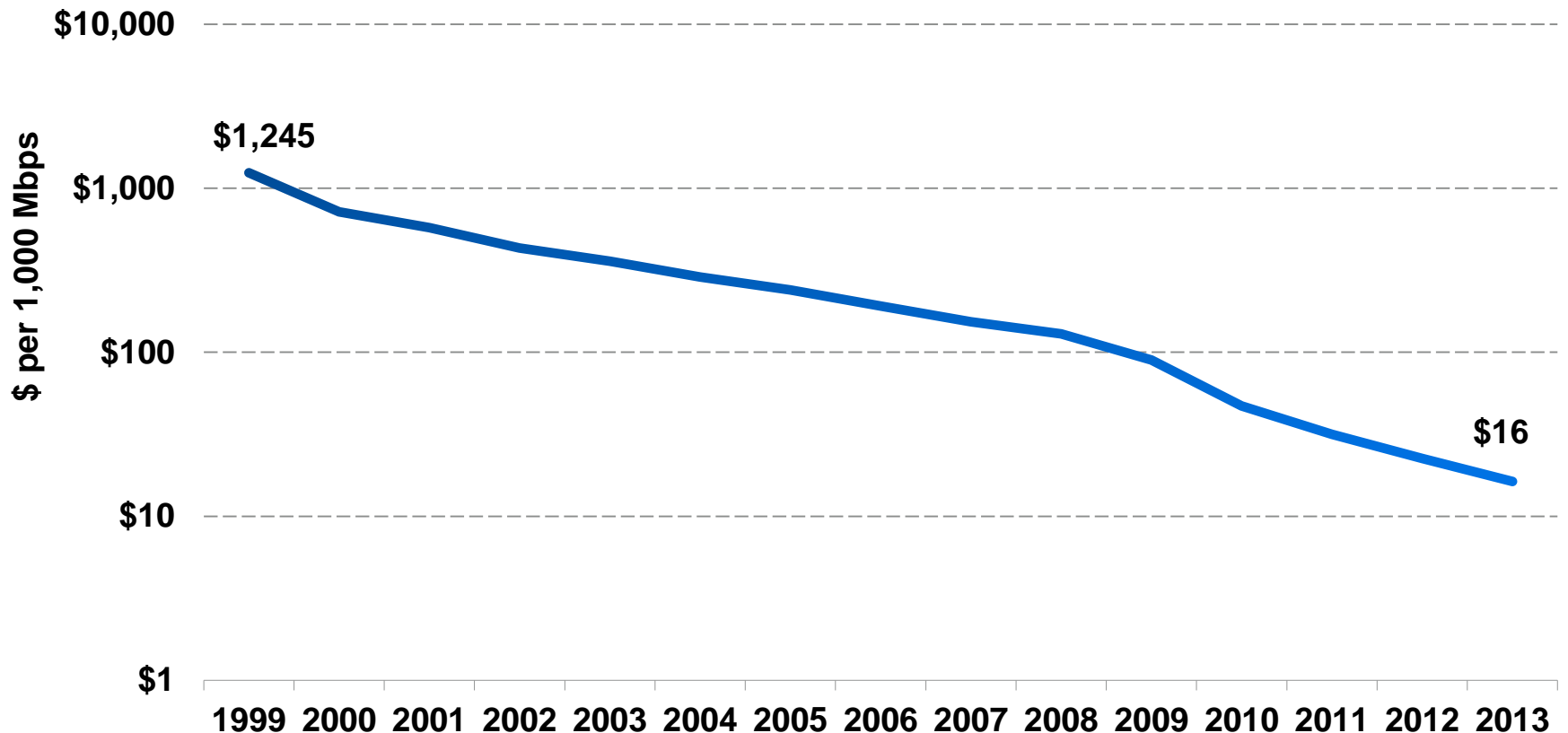
## Global Storage Cost Trends



# ...Bandwidth Costs Declining = 27% Annually, 1999-2013...

*Declining cost / performance of bandwidth enables faster collection & transfer of data to facilitate richer connections / interactions...*

## Global Bandwidth Cost Trends

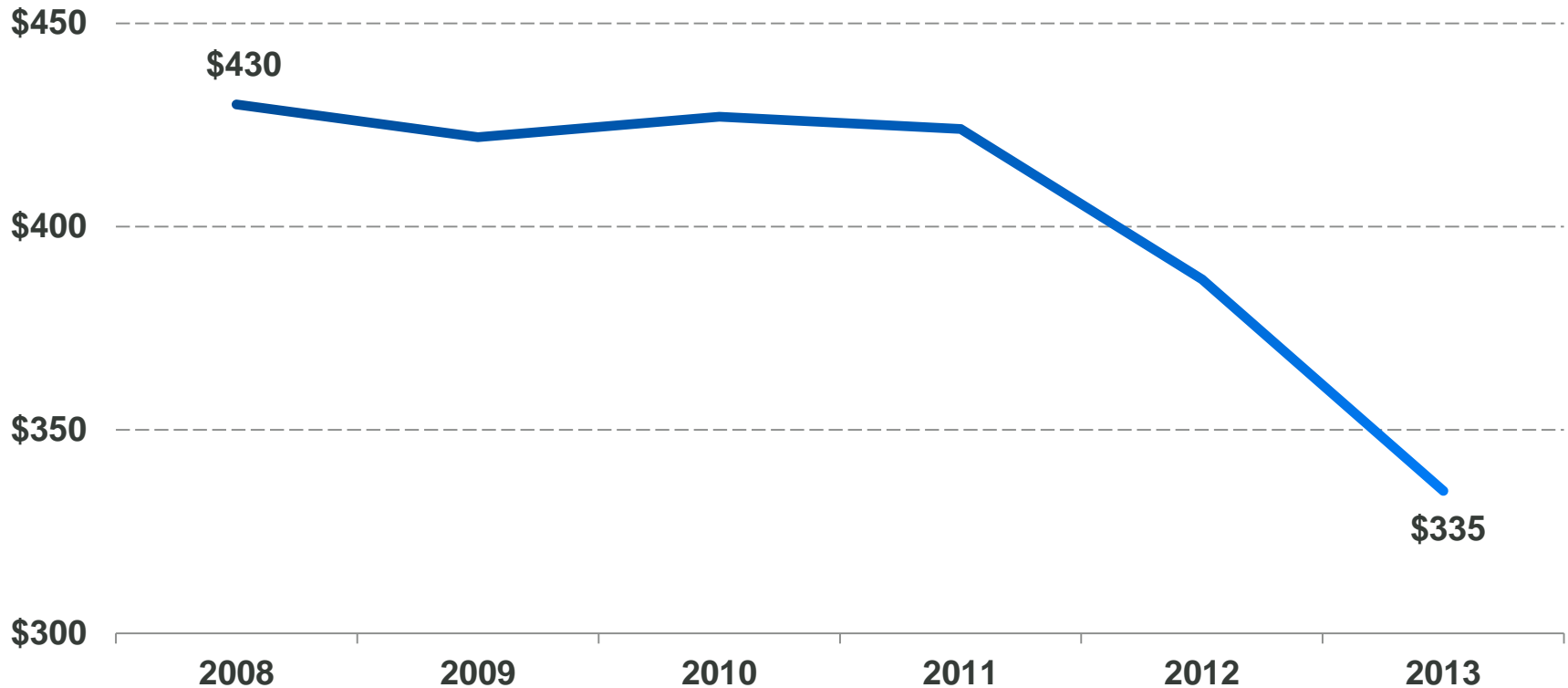




# ...Smartphone Costs Declining = 5% Annually, 2008-2013

*Smartphone prices continue to decline,  
increasing availability to masses...*

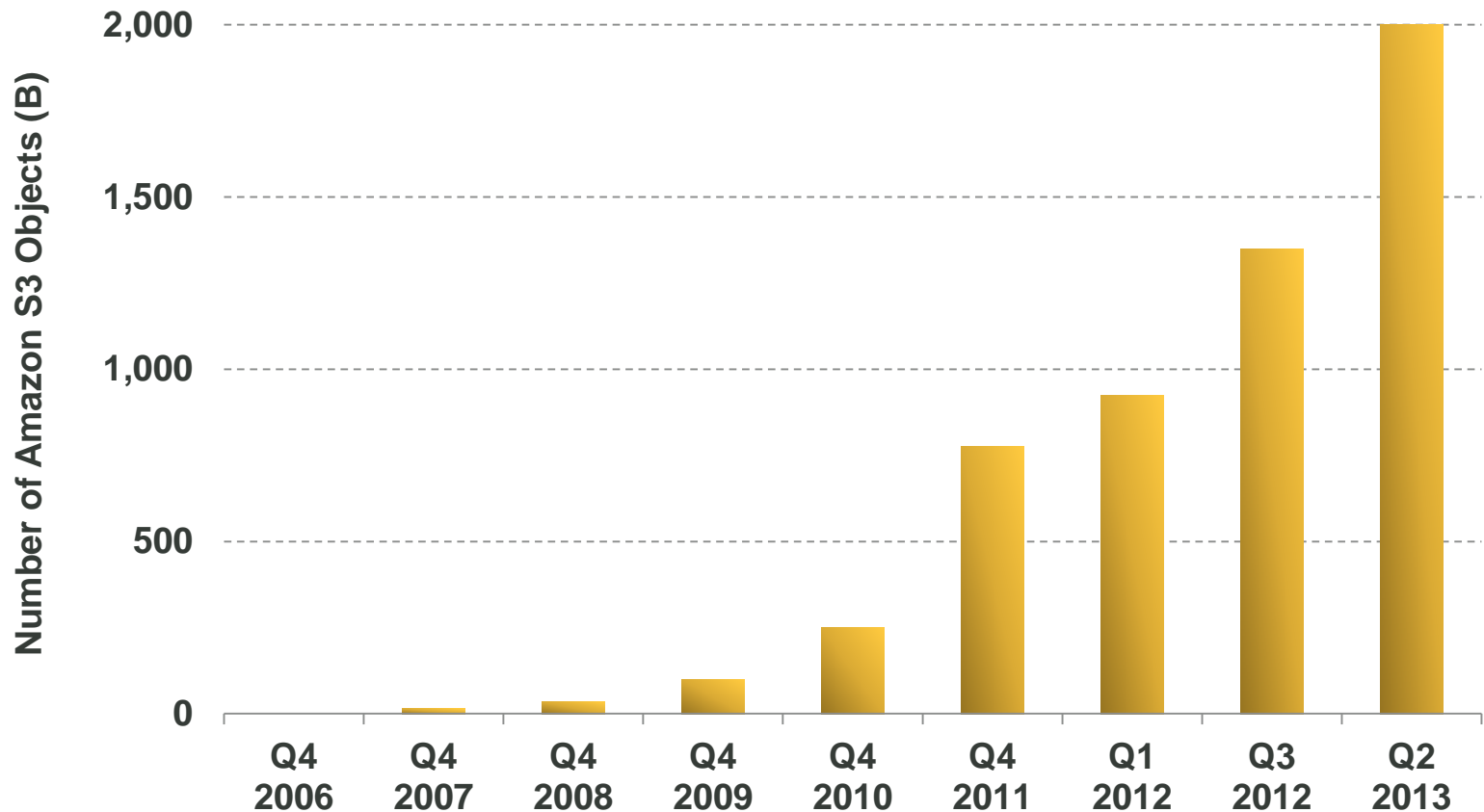
## Average Global Smartphone Pricing Trends



# ...While The Cloud Rises

## Amazon Web Services (AWS) Leading Cloud Charge...

### Objects Stored in Amazon S3\* (B)



*Beautiful New User Interfaces*  
– *Aided by Data-Generating Consumers* –  
*Helping Make Data Usable / Useful...*

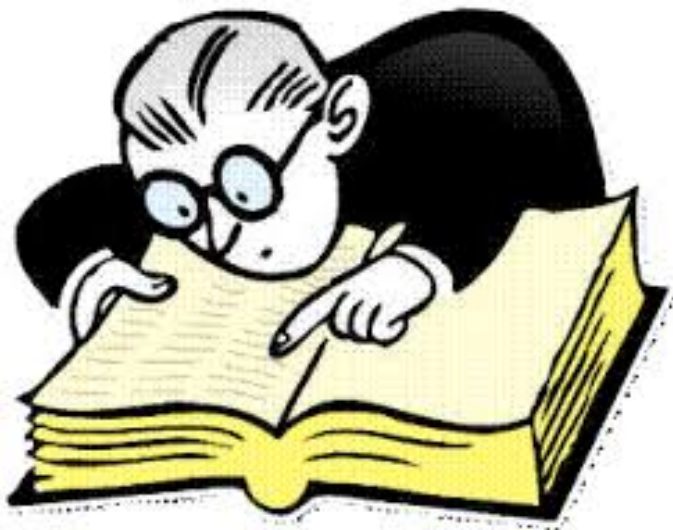
# *...Challenging Non-Cloud Business Models*

*Startups – Often Helped by Crowdsourcing –  
Often Don't Have Same Challenges with  
Error-Prone Legacy Data*

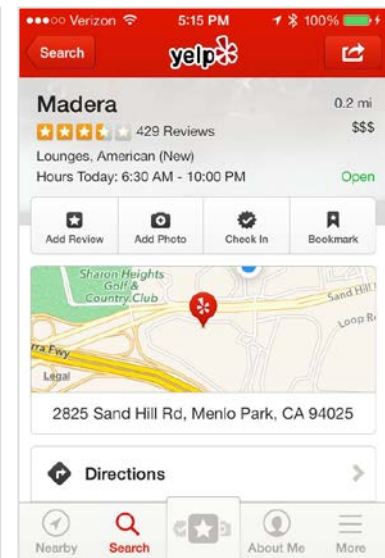
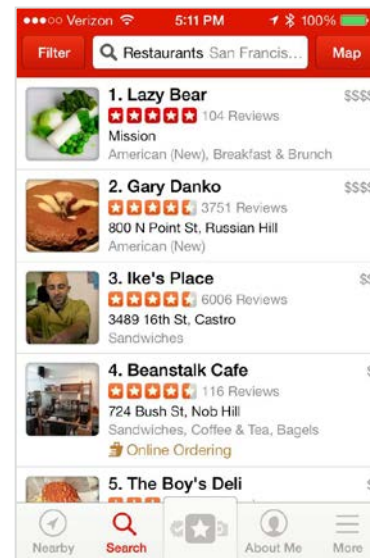
*New Companies  
– With New Data from New Device Types –  
Doing Old Things in New Ways &  
Growing Super Fast*

# Re-Imagining User Interfaces – Finding a Local Business

## Yellow Pages



## Yelp

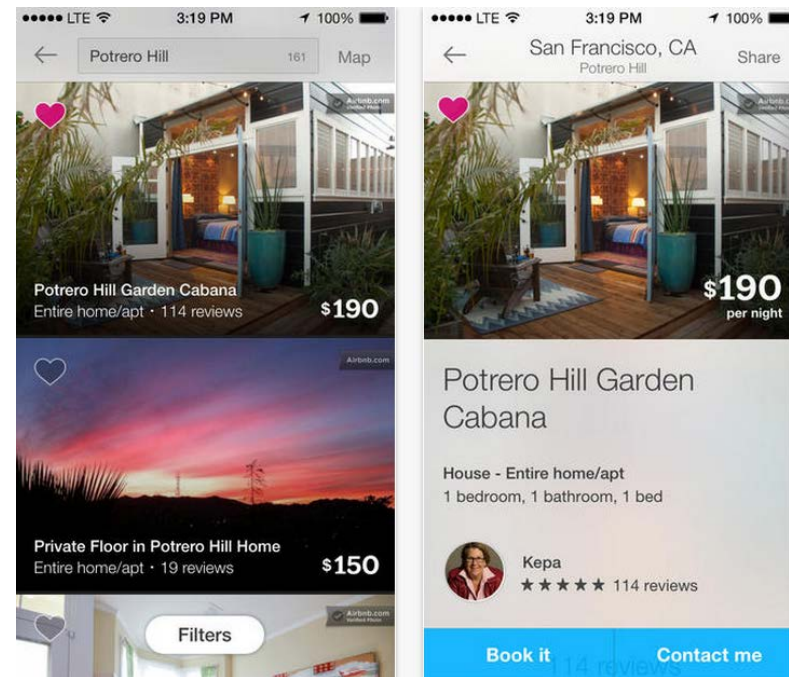


# Re-Imagining User Interfaces – Finding a Place to Stay

## Booking Hotel Room



## Airbnb

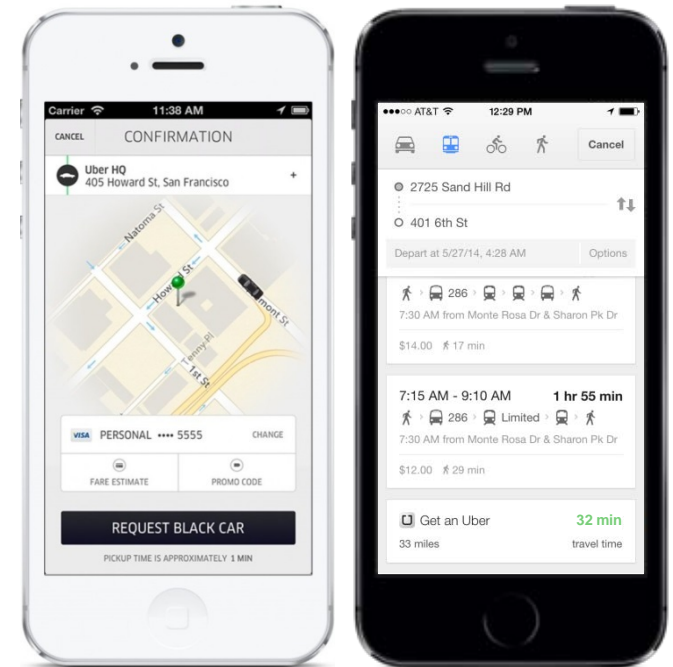


# Re-Imagining User Interfaces – Organized Logistics / People Moving

## Hailing Cab



## Uber

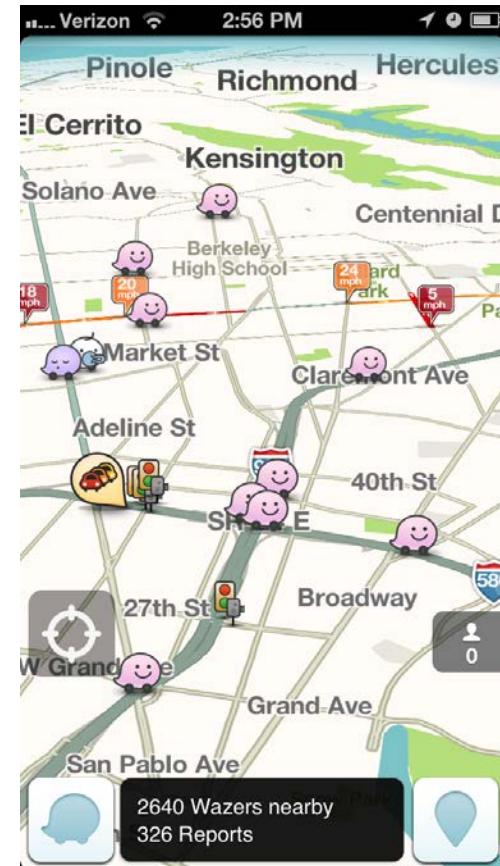


# Re-Imagining User Interfaces – Managing Traffic With Crowdsourcing

## Driving in Traffic



## Waze



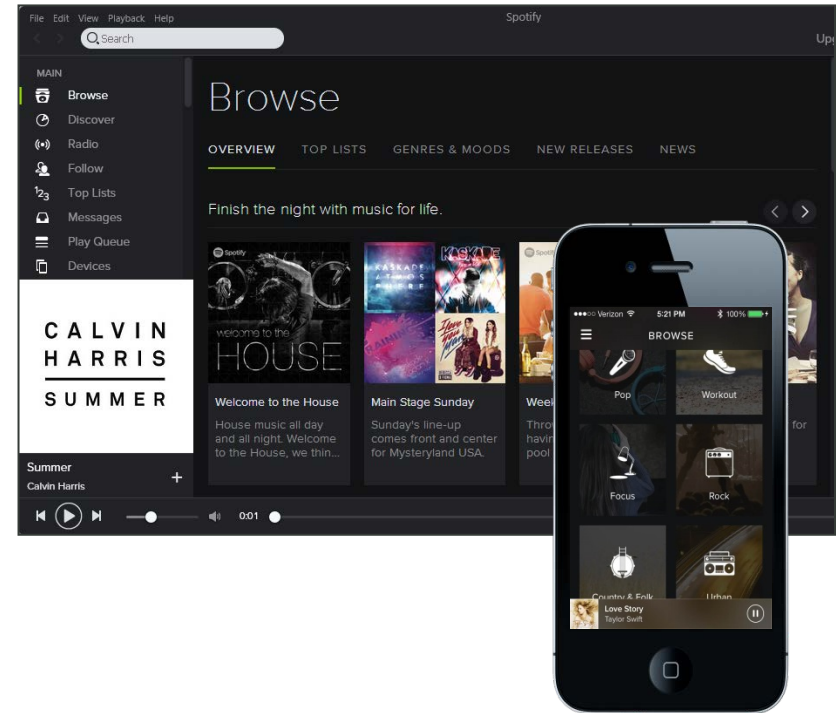


# Re-Imagining User Interfaces – Finding Music

## Satellite Radio



## Spotify



# Re-Imagining User Interfaces – Finding Video With Voice

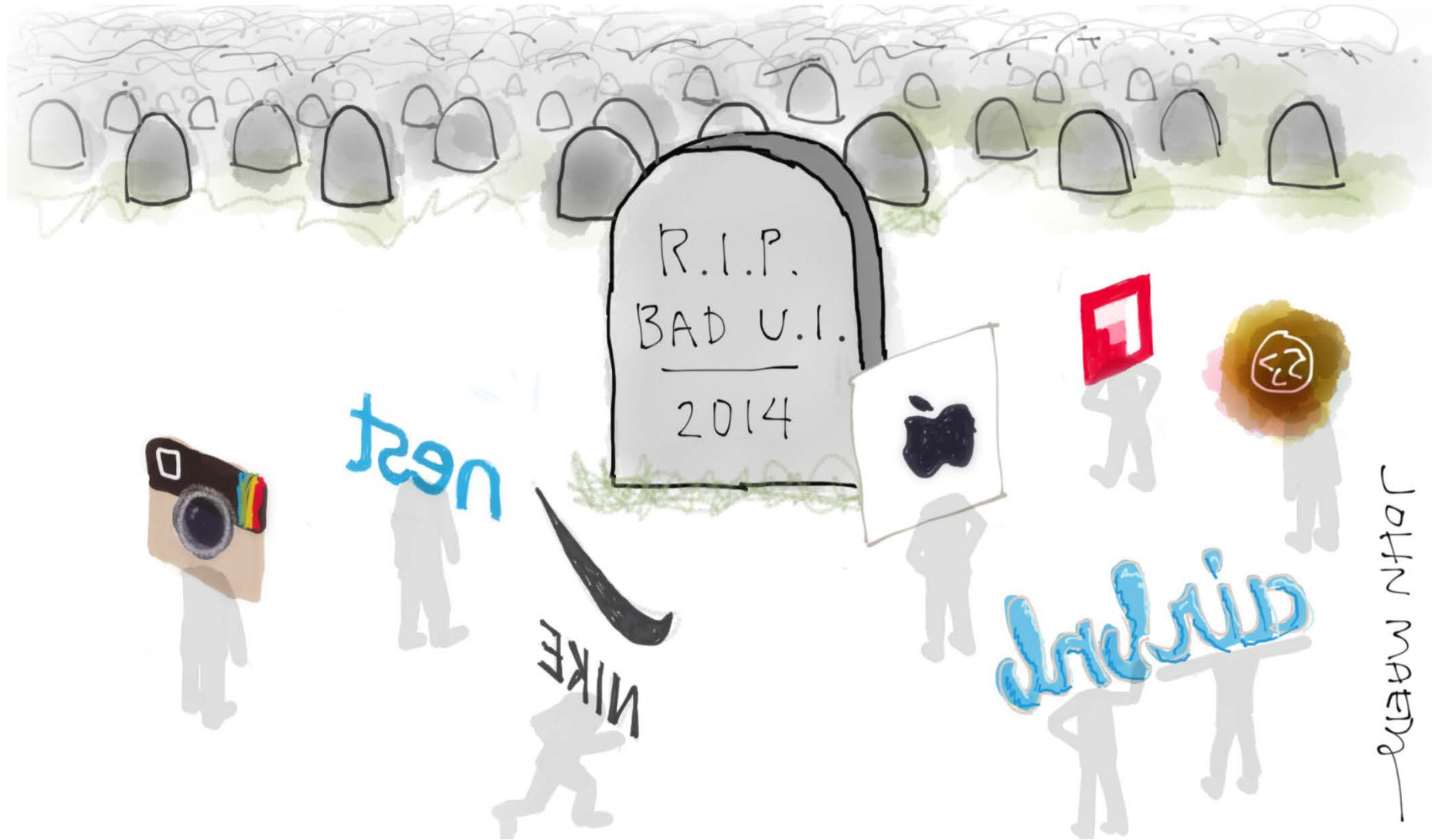
## TV Remote Control



## Amazon Fire TV



# R.I.P. Bad User Interfaces



JOHN MAEDA

*Data Mining / Analytics Tools*  
*Improving & Helping Find Patterns*

# 34% (& Rising) of Data in 'Digital Universe' = Useful but Only 7% Tagged...1% Analyzed

## **Significant Portion (34%) of IDC Digital Universe Data = Useful –**

Derived from embedded systems / data processing / social media / photos / sounds...

## **Small Portion (7%) Data = Tagged –**

Fastest growing segment of valuable data comes from Internet of Things (IoT) – billions of sensors / intelligence systems capturing / sending data, increasingly in real-time...

## **Immaterial Portion (1%) Data = Analyzed –**

Newer tech companies are making it easier to understand / make use of increasing amount of data...

# Data Mining / Analytics Tools that Mine / Organize Data = Playing Catch Up to Demand & Growing Fast

## Jawbone

### Health Wearable

- 100MM nights of sleep logged = 27K years
- 50B activity data points crunched per week
- 1MM personalized insights per week



## Dropcam

### Home Monitoring

- ~100B video frames processed per hour
- +300% Y/Y revenue growth, 2013



## Netflix

### Media Personalization / Discovery

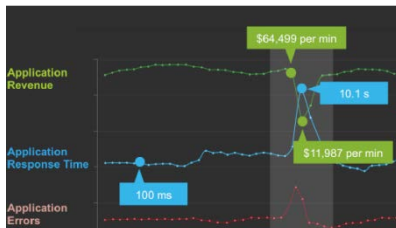
- Terabytes of user data analyzed to generate personalized media recommendations
- 44MM subscribers (+25% Y/Y, 2013)



## AppDynamics

### App Performance Monitoring

- 500B Web / mobile transactions instrumented / tracked
- 1.4MM hours saved waiting on apps
- 1,200 enterprise customers



## SnapLogic

### Cloud Integration / Data Transmission

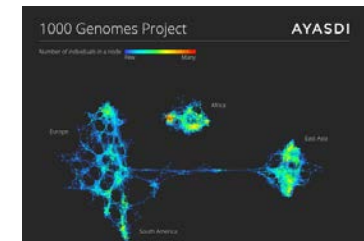
- 500MM+ machine / device scans integrated per day
- 160+ data / cloud connectors on SnapStore
- +128% Y/Y subscription revenue, 2013



## Ayasdi

### Automated Insight Discovery

- Auto extracts business insights from datasets with 1MM+ features
- 120K hours saved of manual data analysis in 2013
- +451% Y/Y bookings growth, 2013



*Early Emergence of  
Data / Pattern-Driven  
Problem Solving*

# Big Data = Being Used to Solve Big Problems

## Google Voice Search

### Voice Recognition

- Uses neural nets to reduce speech recognition errors by 25%
- Used by 1/6 of Google's U.S. mobile users



## Nest

### Energy

- 2B+ Kilowatt hours (kWh) of energy saved since 2011\*
- Reduces heating / cooling costs up to 20%...an estimated annual savings of \$173 per thermostat



## Zephyr Health

### Healthcare & Life Sciences

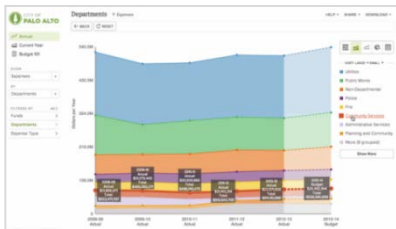
- Hundreds of millions healthcare data points ingested / organized (+192% Q/Q, Q3:13)
- 3,500+ independent life sciences sources used daily (+159% Q/Q & accelerating), spanning all major disease areas
- +111% Y/Y contracted revenue growth, 2013



## OpenGov

### Government Financials

- Compiles data of 37K US governments
- Real-time queries across millions of rows of transactions
- Adding new paying government customer every 4 days (& accelerating)



## Automatic

### Connected Car

- Collects / analyzes hundreds of millions of data points daily
- Provides personalized feedback to drivers, saving up to 30% in fuel costs
- Discovered driving over 70 MPH saves <5% time, but wastes \$550 gas / year



## Wealthfront

### Investment Management

- +4.6% return vs. average mutual fund\*\*
- 200K risk questionnaires completed
- 650K free trades, saving clients \$5MM+
- 10K+ clients
- \$800MM+ AUM, +700% since 1/13

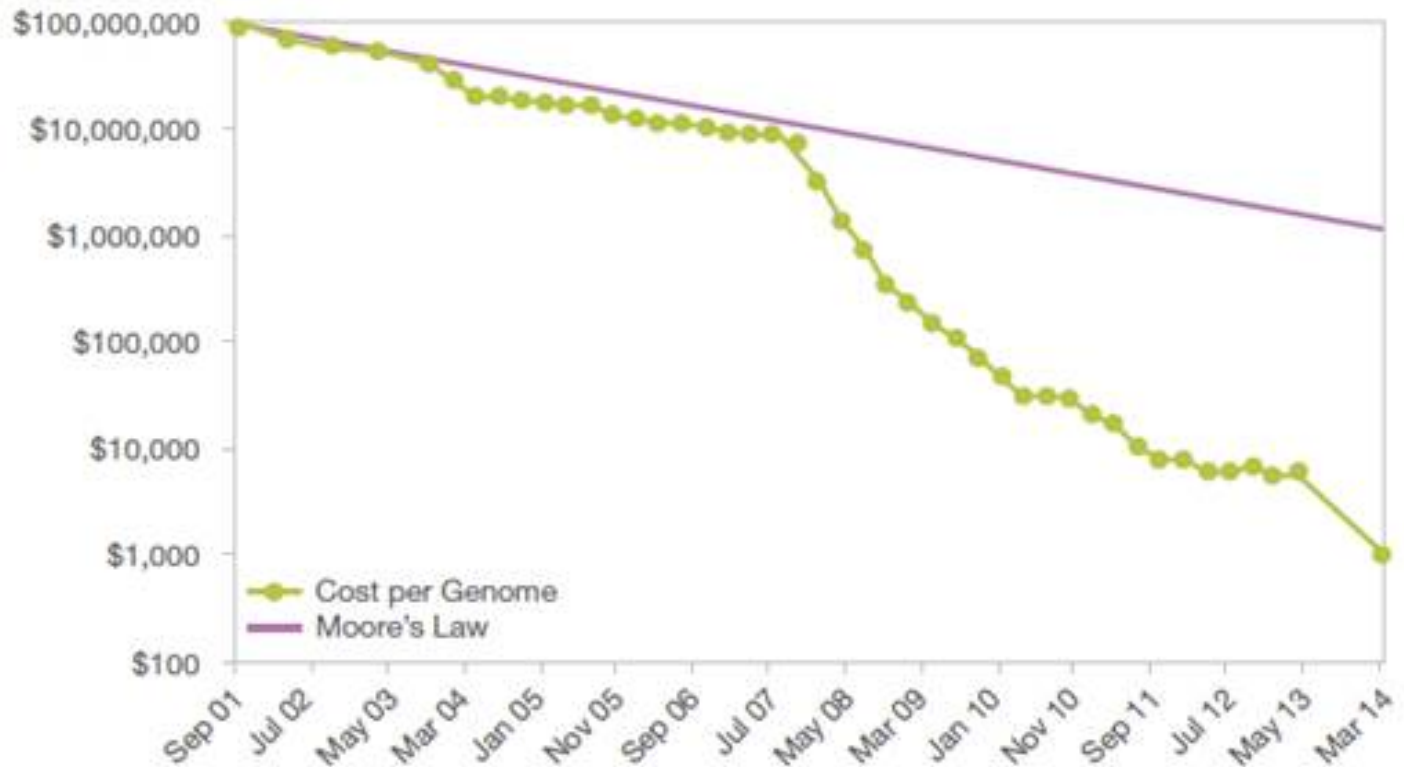




# Cost / Time to Sequence Genome Down to \$1,000 / 24 Hours – Treasure Trove of Patterns Will Rise Rapidly

*Accurate diagnosis is foundation for choosing right treatments for patients & clinical lab tests provide critical information health care providers use in ~70% of decisions\**

*Genetic & genomic testing can be at heart of a new paradigm of [precision] medicine that is evidence-based & rooted in quantitative science\*\**



***Biggest  
Re-Imagination of All =***

***People Enabled With  
Mobile Devices + Sensors  
Uploading Troves of  
Findable & Sharable Data =***

***Still Early & Evolving Rapidly***

**SCREEN + VIDEO GROWTH =  
STILL EARLY INNINGS**

# Future of TV – Reed Hastings (Netflix CEO / Founder)

- 1) *Screens Proliferating*
- 2) *[Traditional] Remote Controls Disappearing*
- 3) *Apps Replacing Channels*
- 4) *Internet TV Replacing Linear TV*

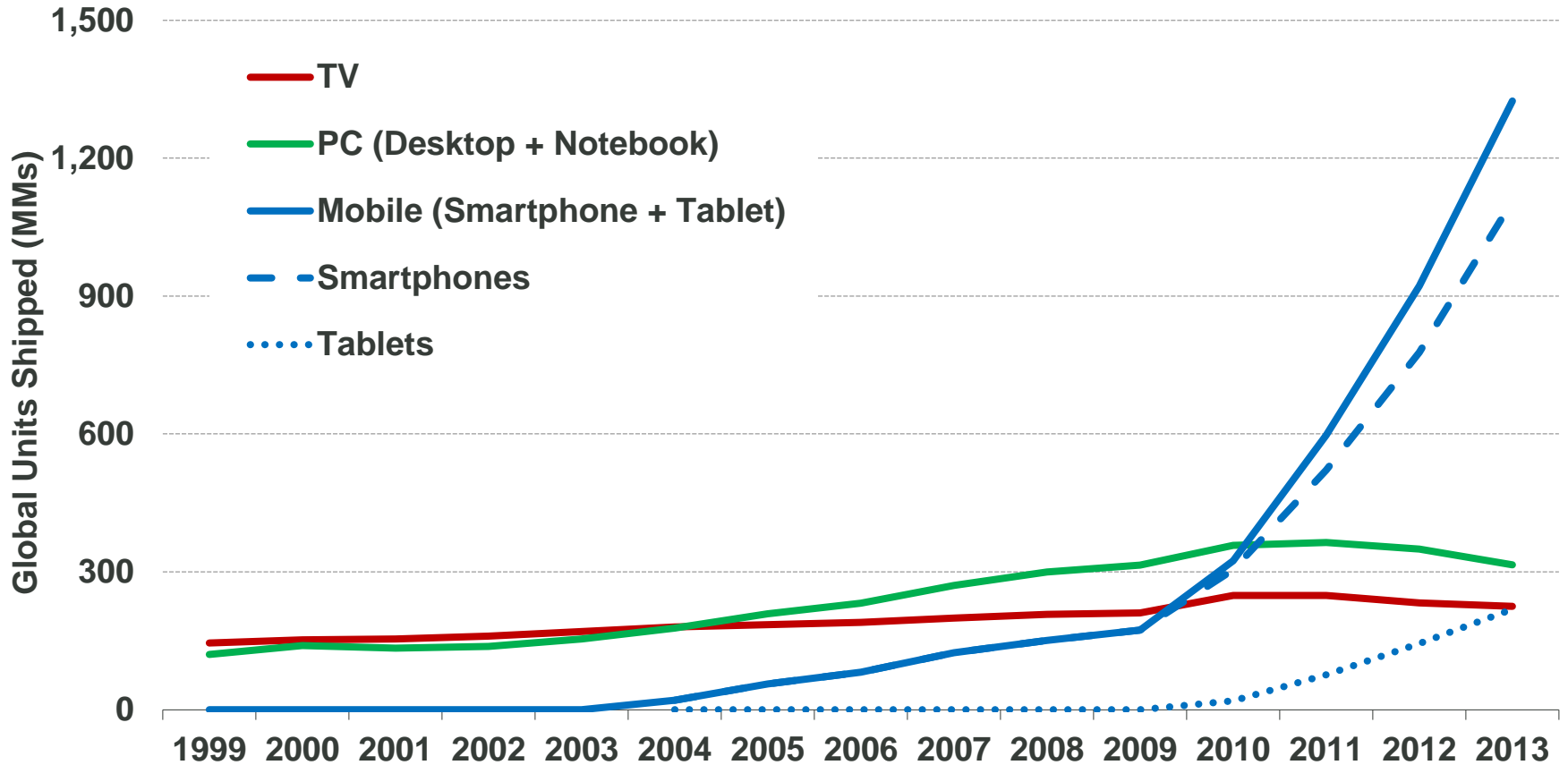
# *Screens Proliferating*

# Screens Today = You Screen...I Screen...We All Screen



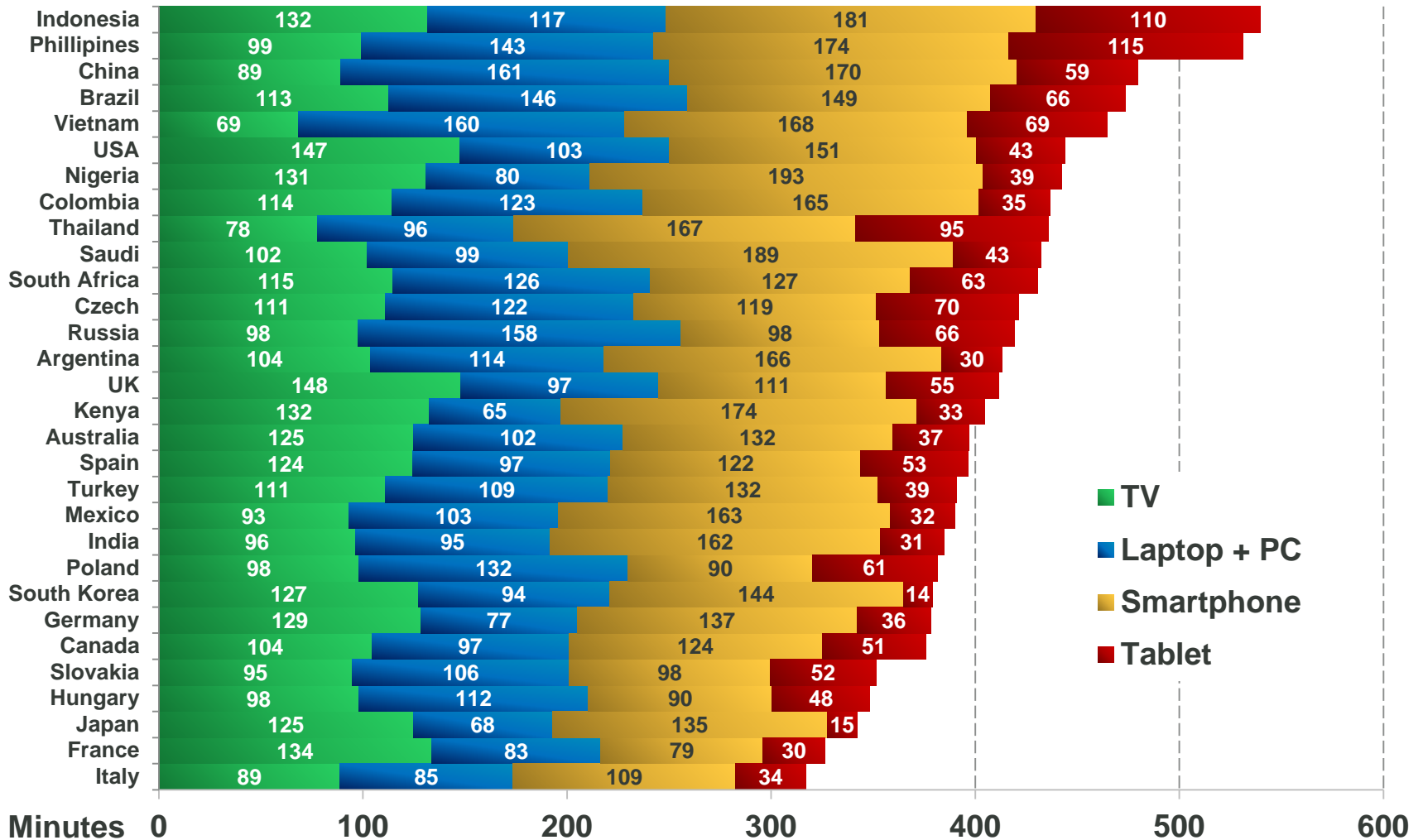
# Mobile (Smartphone + Tablet) Shipments = 4-5x Unit Volume of TV & PC...Just 10 Years Since Inception

## Global TV vs. PC (Desktop + Notebook) vs. Mobile (Smartphone + Tablet) Shipments, 1999 – 2013



# Smartphones = Most Viewed / Used Medium in Many Countries, 2014

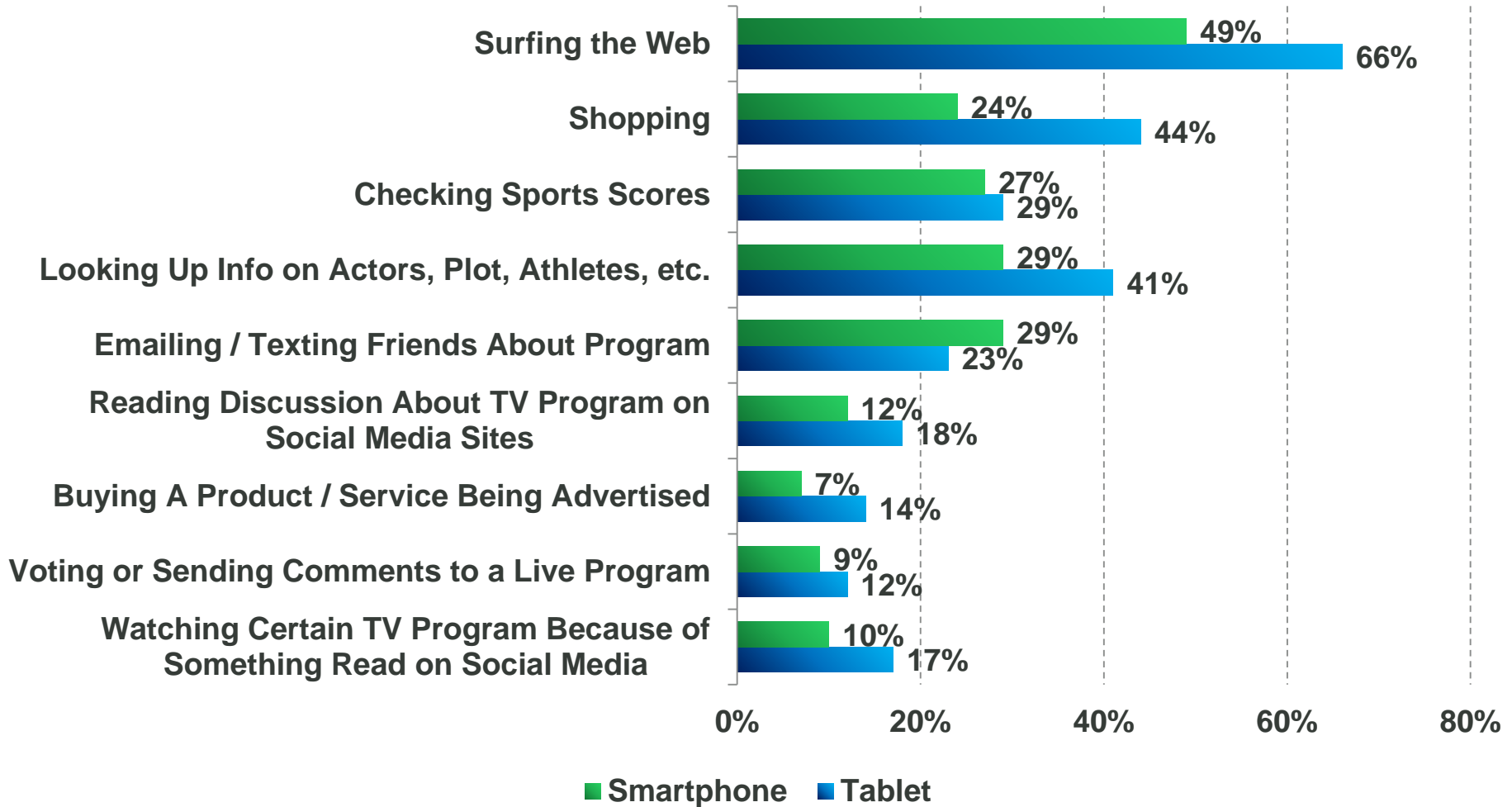
## Daily Distribution of Screen Minutes Across Countries (Mins)





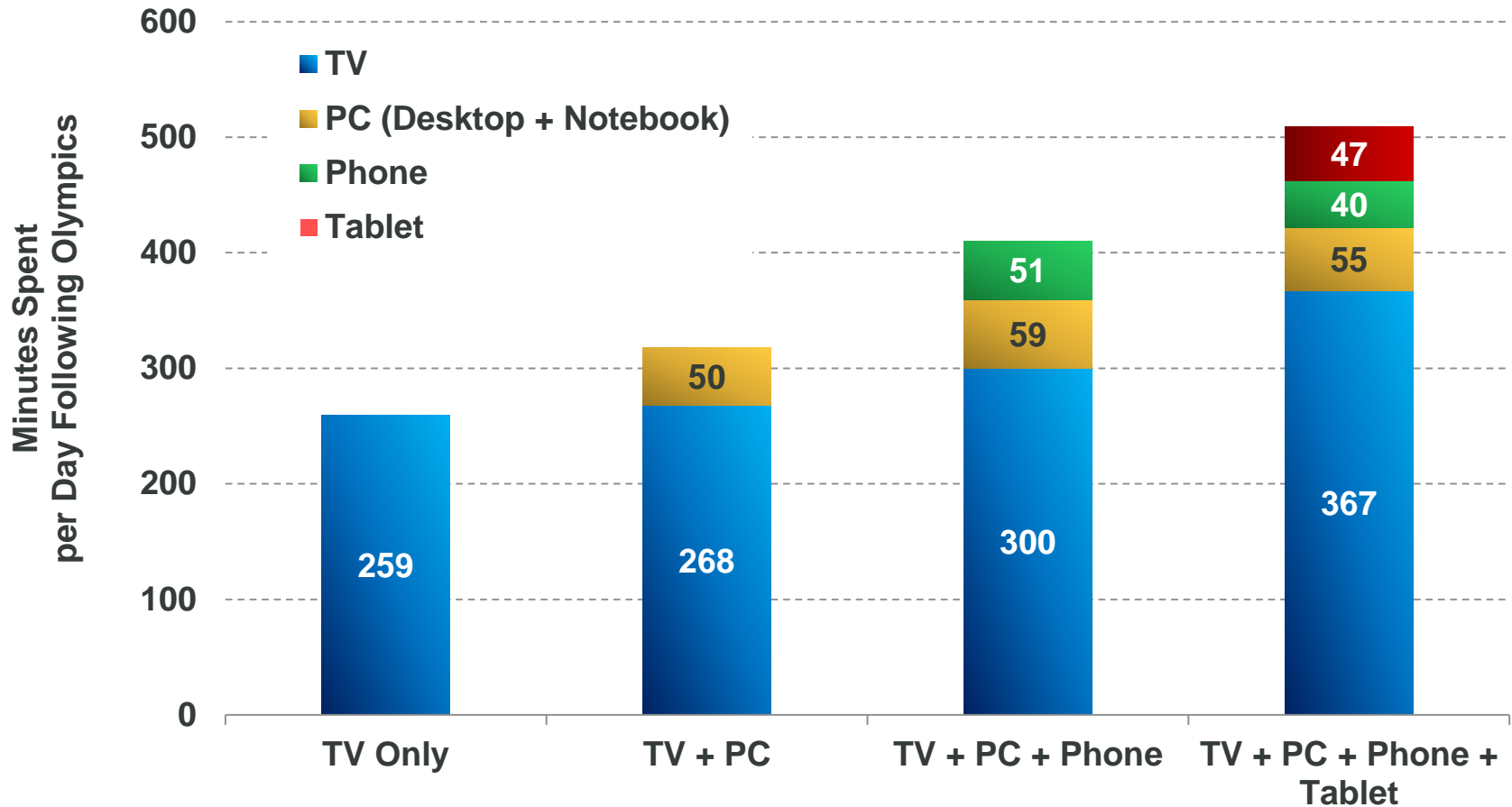
# Mobile Owners (84%) Use Devices While Watching TV... ~2x Higher Over 2 Years

## What Connected Device Owners are Doing While Watching TV, USA



# Media Engagement Rises With Screen Usage = 2x Higher for 4 Screen Users vs. Solo TV During Olympics

## Average Minutes per Day Following the Olympics, by Device, 2012 Olympics Fans



# More Screens = Consumers Get *More* Content in *Less* Time?

**5 Hours of  
TV Screen Media**

=

**4 Hours of Content +  
1 Hour of Commercials**

**vs.**

**5 Hours of  
Multiple Screen Media**

*Smartphone (35%) + TV (27%) +  
PC (26%) + Tablet (12%)*

=

**>5 Hours of Content?**

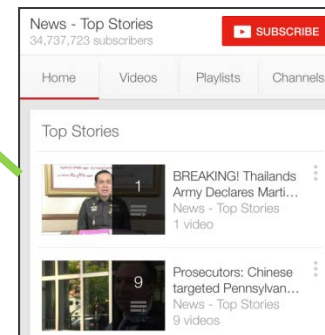
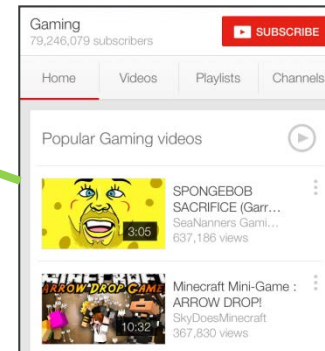
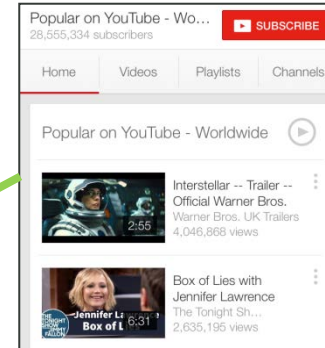
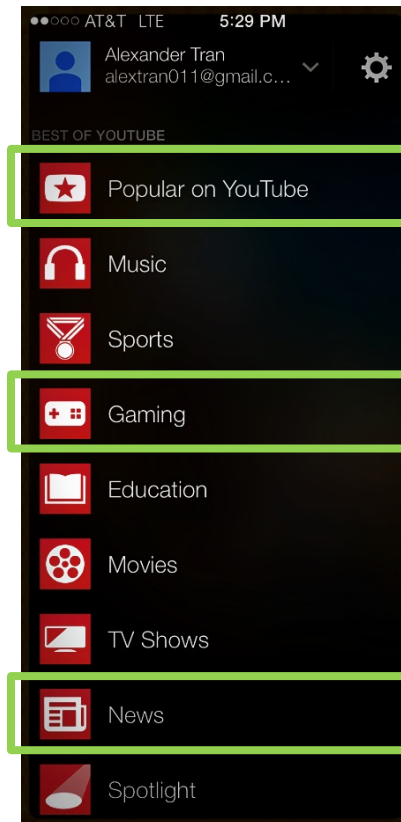
# ***[Traditional] Remote Controls Disappearing***

# Re-Imagining Remote Controls = The 'Now' = A New IP-Enabled Search Engine

Then...



...Now



*As Smartphones Eclipsed  
Feature Phones...*

*Smart TV Adapters + Smart TVs =  
Game Changers for  
Internet-Enablement of  
Screens (Big & Small)*

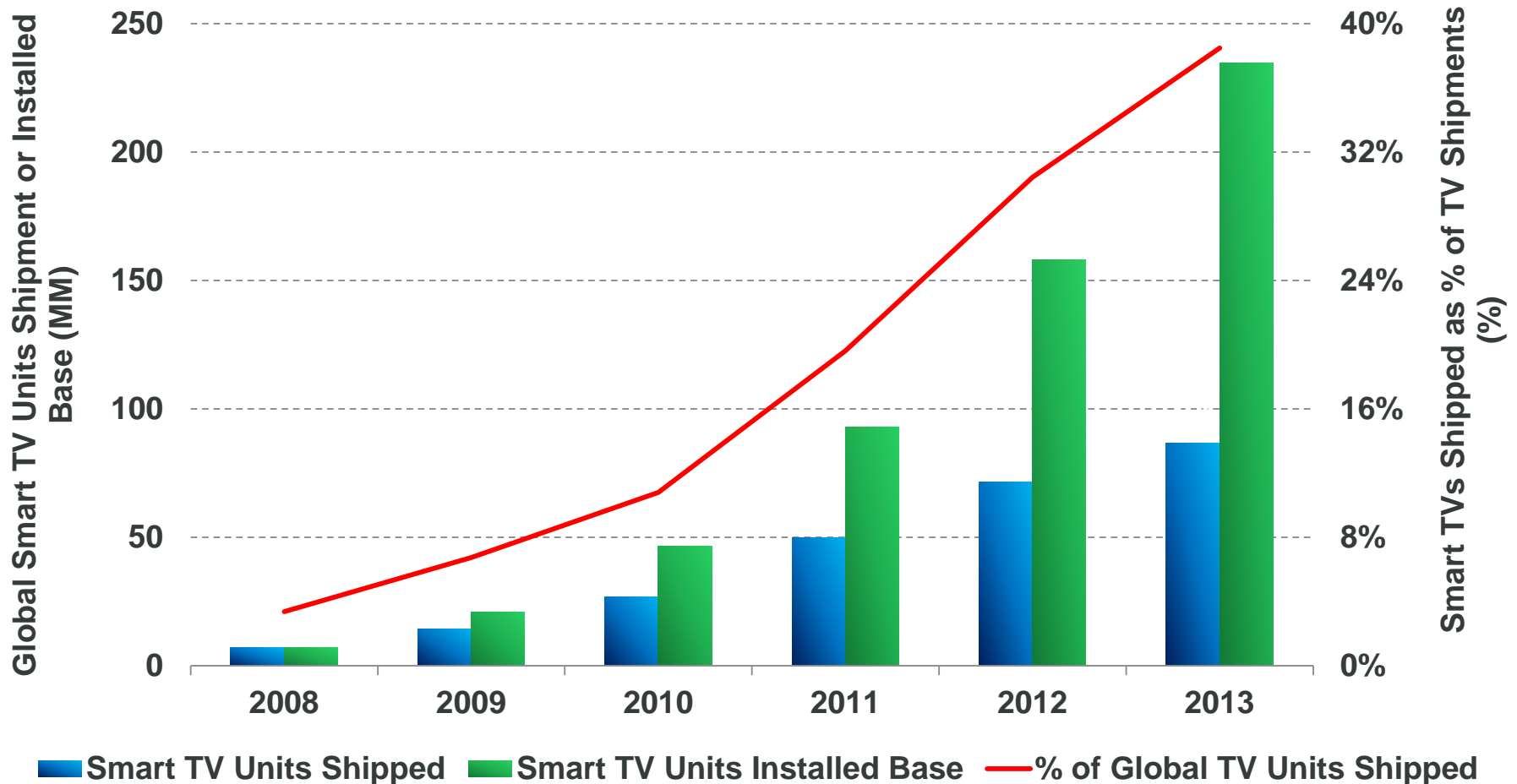
# Smart TV Adapters = Tens of Millions of Users

## Google Chromecast + Amazon Fire TV Raise Bar

	Company / Product	Launch Date
New	Amazon Fire TV	4/14
	Google Chromecast	7/13
	Roku	5/08
	Apple TV	1/07
Old	Nintendo Wii Nintendo Wii U	12/06
	Sony PlayStation 3 Sony PlayStation 4	11/06
	Microsoft Xbox 360 Microsoft Xbox One	11/05

# Smart TV Shipments = Rising % of TVs Shipped... 39% = 2013...Still <10% Installed Base

## Smart TV Units Shipped, Installed Base, & Shipment Mix 2008 – 2013, Global





# ***Apps Replacing Channels***

# Linear TV Channels Increasingly = On-Demand Apps

## ESPN

- 34MM (52%) ESPN digital users access ESPN just on smartphones / tablets = 48% of time spent on ESPN digital properties, 4/14



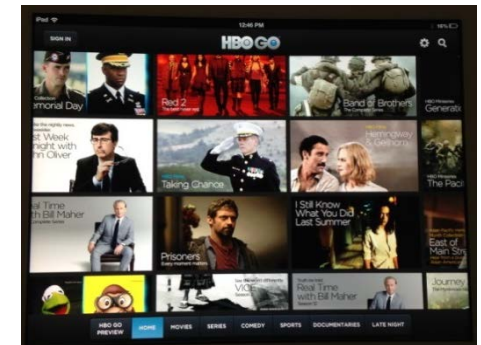
## BBC

- 234MM requests for TV programs on iPlayer in 2/14, +21% Y/Y
- 46% of requests from mobile / tablet vs. 35% Y/Y



## HBO

- 1,000+ hours of video content



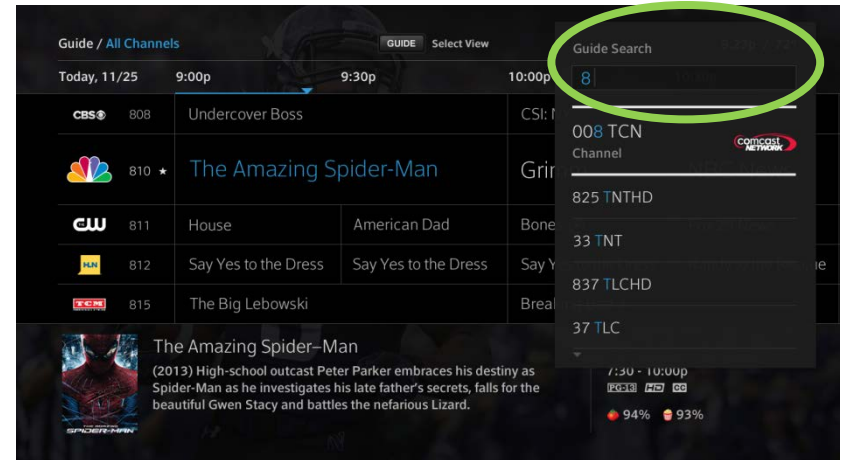
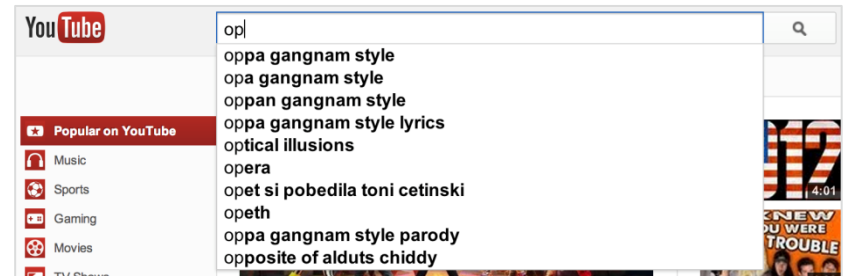
# Internet = Evolved from Directory to Search / Apps...

# TV = Evolving from Directory to Apps / Search

## TV Guide

## YouTube - Search Bar Comcast - X1 Guide

Tonight's Highlights		PRIME TIME		Tuesday 9/18			
Channel	8:00pm-7:00pm	8:30pm-7:30pm	9:00pm-8:00pm	9:30pm-8:30pm	10:00pm-9:00pm	10:30pm-9:30pm	
GSN	Minute to Win It <b>NEW</b>	Minute to Win It <b>NEW</b>	Minute to Win It <b>NEW</b>	Minute to Win It <b>NEW</b>	Minute to Win It <b>NEW</b>	Minute to Win It <b>NEW</b>	
Hallmark HD	Little House on the Prairie: Part 1 of two <b>NEW</b>	Little House on the Prairie: Conclusion <b>NEW</b>	Little House on the Prairie: Conclusion <b>NEW</b>	Real Sports With Bryant Gumbel: A profile of Earvin "Magic" Johnson <b>NEW</b>	Frasier <b>NEW</b>	Frasier <b>NEW</b>	
HBO Family	MOVIE (7:00) Star Trek Gen. Patrick Stewart.	MOVIE *** Harry Potter and the Sorcerer's Stone (2001): Lad enrolls in wizard school.	MOVIE *** Harry Potter and the Sorcerer's Stone (2001): Lad enrolls in wizard school.	Boardwalk Empire: Nucky's New Year's resolution at the end of 1922 <b>NEW</b>	Boardwalk Empire: Nucky's New Year's resolution at the end of 1922 <b>NEW</b>	Boardwalk Empire: Nucky's New Year's resolution at the end of 1922 <b>NEW</b>	
HBO2	MOVIE Love and Other Drugs (2010): A free-spirited young woman (Anne Hathaway) falls for a pharmaceutical salesman (Jake Gyllenhaal). R	MOVIE Dinner for Schmucks (2010): In order to get a promotion, Tim (Paul Rudd) takes a miscalculation to his boss's dinner party. PG-13	Real Time With Bill Maher <b>NEW</b>	Real Time With Bill Maher <b>NEW</b>	Real Time With Bill Maher <b>NEW</b>	Real Time With Bill Maher <b>NEW</b>	
History	Love It or List It: A family need more space. <b>NEW</b>	Pawn Stars: An 18th-century musket. <b>NEW</b>	War I helmet. <b>NEW</b>	Property V. <b>NEW</b>	Property Virginia <b>NEW</b>	To Be Announced	
HLN	Nancy Grace <b>NEW</b>	Nancy Grace <b>NEW</b>	Nancy Grace <b>NEW</b>	Nancy Grace <b>NEW</b>	Nancy Grace <b>NEW</b>	Nancy Grace <b>NEW</b>	
IFC	MOVIE *** Fight Club (1999): Brad Pitt and Edward Norton star in David Fincher's violent social satire about a brutal club whose members relieve their frustrations by beating each other to a pulp. MPAA: Helena Bonham Carter, Robert: Meat Loaf Adley, Angel Face: Jared Leto. <b>NEW</b>	Dateline on ID: Part 1 of 2. <b>NEW</b>	Dateline on ID: Part 1 of 2. <b>NEW</b>	Dateline on ID: Part 1 of 2. <b>NEW</b>	Dateline on ID: Part 1 of 2. <b>NEW</b>	Dateline on ID: Part 1 of 2. <b>NEW</b>	
Inves. Disc.	Dance Moms: A national title competition in Beverly Hills takes place. <b>NEW</b>	Dance Moms: Part 1 of 2. A reunion between Abby and the moms to discuss the season. <b>NEW</b>	Dance Moms: Part 1 of 2. A reunion between Abby and the moms to discuss the season. <b>NEW</b>	Dance Moms: Part 1 of 2. A reunion between Abby and the moms to discuss the season. <b>NEW</b>	Dance Moms: Part 1 of 2. A reunion between Abby and the moms to discuss the season. <b>NEW</b>	Dance Moms: Part 1 of 2. A reunion between Abby and the moms to discuss the season. <b>NEW</b>	
Lifetime	MOVIE Murder in the Hamptons (2005): An engrossing account of the death of Ted Ammon (David Sutchiff), a millionaire who was found murdered just as he was finalizing an ugly divorce. <b>NEW</b>	MOVIE *** The Matrix Reloaded (2003): Neo (Keanu Reeves) continues to battle evil machines. Gravitational action powers the second chapter of the trilogy. Carrie-Anne Moss. <b>NEW</b>	MOVIE Living in Fear (2001): A wife hears disturbing news about her new husband. <b>NEW</b>	The Last Word With Lawrence O'Donnell <b>NEW</b>	Teen Mom <b>NEW</b>	Hard Time <b>NEW</b>	Hard Time <b>NEW</b>
LMN	MOVIE (7:00) *** 28 Days Later (2002): Zombified London. <b>NEW</b>	The Ed Show <b>NEW</b>	Teen Mom <b>NEW</b>	Hard Time <b>NEW</b>	Hard Time <b>NEW</b>	Hard Time <b>NEW</b>	
More Max	MOVIE (7:00) *** 28 Days Later (2002): Zombified London. <b>NEW</b>	Clash/Calmans: Black calman are examined. <b>NEW</b>	International League Baseball Playoff: Playoff action. <b>NEW</b>	Victorious <b>NEW</b>	My Wife and Kids <b>NEW</b>	My Wife and Kids <b>NEW</b>	
MSNBC	The Ed Show <b>NEW</b>	Teen Mom <b>NEW</b>	Hard Time <b>NEW</b>	Hard Time <b>NEW</b>	Hard Time <b>NEW</b>	Hard Time <b>NEW</b>	
MTV	Clash/Calmans: Black calman are examined. <b>NEW</b>	International League Baseball Playoff: Playoff action. <b>NEW</b>	Victorious <b>NEW</b>	My Wife and Kids <b>NEW</b>	My Wife and Kids <b>NEW</b>	My Wife and Kids <b>NEW</b>	
National Geographic	Clash/Calmans: Black calman are examined. <b>NEW</b>	International League Baseball Playoff: Playoff action. <b>NEW</b>	Victorious <b>NEW</b>	My Wife and Kids <b>NEW</b>	My Wife and Kids <b>NEW</b>	My Wife and Kids <b>NEW</b>	
NatGeoWild	Clash/Calmans: Black calman are examined. <b>NEW</b>	International League Baseball Playoff: Playoff action. <b>NEW</b>	Victorious <b>NEW</b>	My Wife and Kids <b>NEW</b>	My Wife and Kids <b>NEW</b>	My Wife and Kids <b>NEW</b>	
NBC Sports	Clash/Calmans: Black calman are examined. <b>NEW</b>	International League Baseball Playoff: Playoff action. <b>NEW</b>	Victorious <b>NEW</b>	My Wife and Kids <b>NEW</b>	My Wife and Kids <b>NEW</b>	My Wife and Kids <b>NEW</b>	
Nickelodeon	Clash/Calmans: Black calman are examined. <b>NEW</b>	International League Baseball Playoff: Playoff action. <b>NEW</b>	Victorious <b>NEW</b>	My Wife and Kids <b>NEW</b>	My Wife and Kids <b>NEW</b>	My Wife and Kids <b>NEW</b>	
OWN	Clash/Calmans: Black calman are examined. <b>NEW</b>	International League Baseball Playoff: Playoff action. <b>NEW</b>	Victorious <b>NEW</b>	My Wife and Kids <b>NEW</b>	My Wife and Kids <b>NEW</b>	My Wife and Kids <b>NEW</b>	
Oxygen	Clash/Calmans: Black calman are examined. <b>NEW</b>	International League Baseball Playoff: Playoff action. <b>NEW</b>	Victorious <b>NEW</b>	My Wife and Kids <b>NEW</b>	My Wife and Kids <b>NEW</b>	My Wife and Kids <b>NEW</b>	
Science	Clash/Calmans: Black calman are examined. <b>NEW</b>	International League Baseball Playoff: Playoff action. <b>NEW</b>	Victorious <b>NEW</b>	My Wife and Kids <b>NEW</b>	My Wife and Kids <b>NEW</b>	My Wife and Kids <b>NEW</b>	
Showtime	Clash/Calmans: Black calman are examined. <b>NEW</b>	International League Baseball Playoff: Playoff action. <b>NEW</b>	Victorious <b>NEW</b>	My Wife and Kids <b>NEW</b>	My Wife and Kids <b>NEW</b>	My Wife and Kids <b>NEW</b>	
Showtime 2	Clash/Calmans: Black calman are examined. <b>NEW</b>	International League Baseball Playoff: Playoff action. <b>NEW</b>	Victorious <b>NEW</b>	My Wife and Kids <b>NEW</b>	My Wife and Kids <b>NEW</b>	My Wife and Kids <b>NEW</b>	
SoapNet	Clash/Calmans: Black calman are examined. <b>NEW</b>	International League Baseball Playoff: Playoff action. <b>NEW</b>	Victorious <b>NEW</b>	My Wife and Kids <b>NEW</b>	My Wife and Kids <b>NEW</b>	My Wife and Kids <b>NEW</b>	
Speed	Clash/Calmans: Black calman are examined. <b>NEW</b>	International League Baseball Playoff: Playoff action. <b>NEW</b>	Victorious <b>NEW</b>	My Wife and Kids <b>NEW</b>	My Wife and Kids <b>NEW</b>	My Wife and Kids <b>NEW</b>	
Spoke	Clash/Calmans: Black calman are examined. <b>NEW</b>	International League Baseball Playoff: Playoff action. <b>NEW</b>	Victorious <b>NEW</b>	My Wife and Kids <b>NEW</b>	My Wife and Kids <b>NEW</b>	My Wife and Kids <b>NEW</b>	
Starz	Clash/Calmans: Black calman are examined. <b>NEW</b>	International League Baseball Playoff: Playoff action. <b>NEW</b>	Victorious <b>NEW</b>	My Wife and Kids <b>NEW</b>	My Wife and Kids <b>NEW</b>	My Wife and Kids <b>NEW</b>	
Style	Clash/Calmans: Black calman are examined. <b>NEW</b>	International League Baseball Playoff: Playoff action. <b>NEW</b>	Victorious <b>NEW</b>	My Wife and Kids <b>NEW</b>	My Wife and Kids <b>NEW</b>	My Wife and Kids <b>NEW</b>	
Sundance	Clash/Calmans: Black calman are examined. <b>NEW</b>	International League Baseball Playoff: Playoff action. <b>NEW</b>	Victorious <b>NEW</b>	My Wife and Kids <b>NEW</b>	My Wife and Kids <b>NEW</b>	My Wife and Kids <b>NEW</b>	
Syfy	Clash/Calmans: Black calman are examined. <b>NEW</b>	International League Baseball Playoff: Playoff action. <b>NEW</b>	Victorious <b>NEW</b>	My Wife and Kids <b>NEW</b>	My Wife and Kids <b>NEW</b>	My Wife and Kids <b>NEW</b>	
TBS	Clash/Calmans: Black calman are examined. <b>NEW</b>	International League Baseball Playoff: Playoff action. <b>NEW</b>	Victorious <b>NEW</b>	My Wife and Kids <b>NEW</b>	My Wife and Kids <b>NEW</b>	My Wife and Kids <b>NEW</b>	
TCM	Clash/Calmans: Black calman are examined. <b>NEW</b>	International League Baseball Playoff: Playoff action. <b>NEW</b>	Victorious <b>NEW</b>	My Wife and Kids <b>NEW</b>	My Wife and Kids <b>NEW</b>	My Wife and Kids <b>NEW</b>	
TLC	Clash/Calmans: Black calman are examined. <b>NEW</b>	International League Baseball Playoff: Playoff action. <b>NEW</b>	Victorious <b>NEW</b>	My Wife and Kids <b>NEW</b>	My Wife and Kids <b>NEW</b>	My Wife and Kids <b>NEW</b>	
TMC	Clash/Calmans: Black calman are examined. <b>NEW</b>	International League Baseball Playoff: Playoff action. <b>NEW</b>	Victorious <b>NEW</b>	My Wife and Kids <b>NEW</b>	My Wife and Kids <b>NEW</b>	My Wife and Kids <b>NEW</b>	
TNT	Clash/Calmans: Black calman are examined. <b>NEW</b>	International League Baseball Playoff: Playoff action. <b>NEW</b>	Victorious <b>NEW</b>	My Wife and Kids <b>NEW</b>	My Wife and Kids <b>NEW</b>	My Wife and Kids <b>NEW</b>	
Travel	Clash/Calmans: Black calman are examined. <b>NEW</b>	International League Baseball Playoff: Playoff action. <b>NEW</b>	Victorious <b>NEW</b>	My Wife and Kids <b>NEW</b>	My Wife and Kids <b>NEW</b>	My Wife and Kids <b>NEW</b>	
TruTV	Clash/Calmans: Black calman are examined. <b>NEW</b>	International League Baseball Playoff: Playoff action. <b>NEW</b>	Victorious <b>NEW</b>	My Wife and Kids <b>NEW</b>	My Wife and Kids <b>NEW</b>	My Wife and Kids <b>NEW</b>	
TV Guide	Clash/Calmans: Black calman are examined. <b>NEW</b>	International League Baseball Playoff: Playoff action. <b>NEW</b>	Victorious <b>NEW</b>	My Wife and Kids <b>NEW</b>	My Wife and Kids <b>NEW</b>	My Wife and Kids <b>NEW</b>	
TV Land	Clash/Calmans: Black calman are examined. <b>NEW</b>	International League Baseball Playoff: Playoff action. <b>NEW</b>	Victorious <b>NEW</b>	My Wife and Kids <b>NEW</b>	My Wife and Kids <b>NEW</b>	My Wife and Kids <b>NEW</b>	
USA	Clash/Calmans: Black calman are examined. <b>NEW</b>	International League Baseball Playoff: Playoff action. <b>NEW</b>	Victorious <b>NEW</b>	My Wife and Kids <b>NEW</b>	My Wife and Kids <b>NEW</b>	My Wife and Kids <b>NEW</b>	
VH1	Clash/Calmans: Black calman are examined. <b>NEW</b>	International League Baseball Playoff: Playoff action. <b>NEW</b>	Victorious <b>NEW</b>	My Wife and Kids <b>NEW</b>	My Wife and Kids <b>NEW</b>	My Wife and Kids <b>NEW</b>	
WE tv	Clash/Calmans: Black calman are examined. <b>NEW</b>	International League Baseball Playoff: Playoff action. <b>NEW</b>	Victorious <b>NEW</b>	My Wife and Kids <b>NEW</b>	My Wife and Kids <b>NEW</b>	My Wife and Kids <b>NEW</b>	




*There's a Bevy of  
New Channels on  
Premier Distribution Network  
YouTube...*

*Of Which 40% (& Rising)  
# of Users Are Mobile*

# YouTube Channels = Huge Reach + Growth


Channel	Subscribers (MM)	Y/Y Growth (%)
Music	85	166%
Gaming	79	165%
Sports	78	164%
News	35	213%
Popular	28	133%
Spotlight	22	342%
Movies	18	195%
TV Shows	12	106%
Education	10	--

### Music




**Demi Lovato - Let It Go (from "Frozen") [Official]**  
by DemiLovatoVEVO ✓  
151,068,172 views

### Gaming




**Minecraft: Diamonds Are Forever**  
by CorridorDigital ✓  
7,486,601 views  
| CC

### Sports




**Top 10 Reign on Plays of the Playoffs: First Round**  
by NBA ✓ 114,323 views

### News




**National Climate Assessment cites loomin...**  
by News - Top Stories  
3 videos

### Popular




**Official Extended Trailer | GOTHAM | FOX...**  
by FOX ✓ 1,898,217 views

### Spotlight




**Elon Musk: The Rocket Scientist Model for 'Iron...**  
by TIME ✓ 6,854 views

### Movies




**Frozen (2013)**  
by DisneyMoviesOnDemand  
\$4.99 | CC

### TV Shows



**Modern Family**  
3 k subscribers

### Education



**3D Scanning at the Smithsonian**  
by Smithsonian ✓ 66,457 views  
| CC

*Consumers Love Video –  
Long-Form & More / More  
Short-Form*

# Every New Medium → New Stars...YouTube Top Videos = 6 - 26MM Subs...Top 10 Video Average Duration = ~7 Minutes

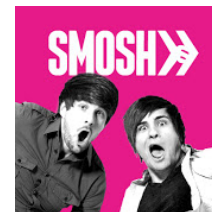
**Video Game Commentator  
PewDiePie**

26MM+ subscribers,  
+230% Y/Y



**Comedy Duo  
Smosh**

17MM+ subscribers,  
+81% Y/Y



**Spanish Comedian  
HolaSoyGerman**

17MM+ subscribers,  
+157% Y/Y



**Comedian  
nigahiga**

12MM+ subscribers,  
+50% Y/Y



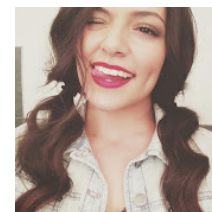
**Make-Up Artist  
Michelle Phan**

6MM+ subscribers,  
+70% Y/Y



**Style and Beauty Blogger  
Bethany Mota**

6MM+ subscribers,  
+180% Y/Y



# Consumers Loving Best Ads = The Art of Short-Form

#1 = Nike Football  
@ 49MM+ Views



#2 = Dove: Patches  
@ 20MM+ Views



#3 = Evian Spider Man  
@ 16MM+ Views



#4 = Castrol Footkhana  
@ 14MM+ Views



#5 = “Unsung Hero” (Thai Life)  
@ 12MM+ Views





# Ads the Digital Way...

## Google TrueView = Game-Changer

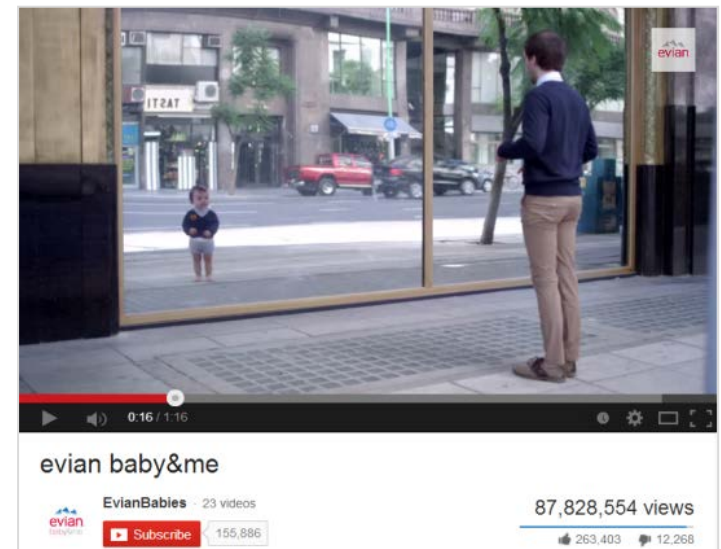
### ***YouTube's TrueView Ads = 'Cost-per View' Video Marketing***

*AdWords Dynamically Places Video Ad Content  
on Google / YouTube Users Can Skip*

- **Ads = Great Content** – Transformation potential from commercials users want to skip to short-form content users choose to watch
- **Advertisers Win** – Better results as only pay for users who are engaged & watch video...improves direct click-through options with consumers
- **Data** – As YouTube collects data on how users engage with ads, it continues to improve the user experience and advertiser ROI



***Evian Baby & Me = Most Watched  
YouTube Ad Of 2013 = 87MM+ views***



# *Fans Trump Audiences – Alex Carloss (YouTube)*

*An audience tunes in when they're told to,  
a fanbase chooses when and what to watch...*

*...An audience changes the channel  
when their show is over...*

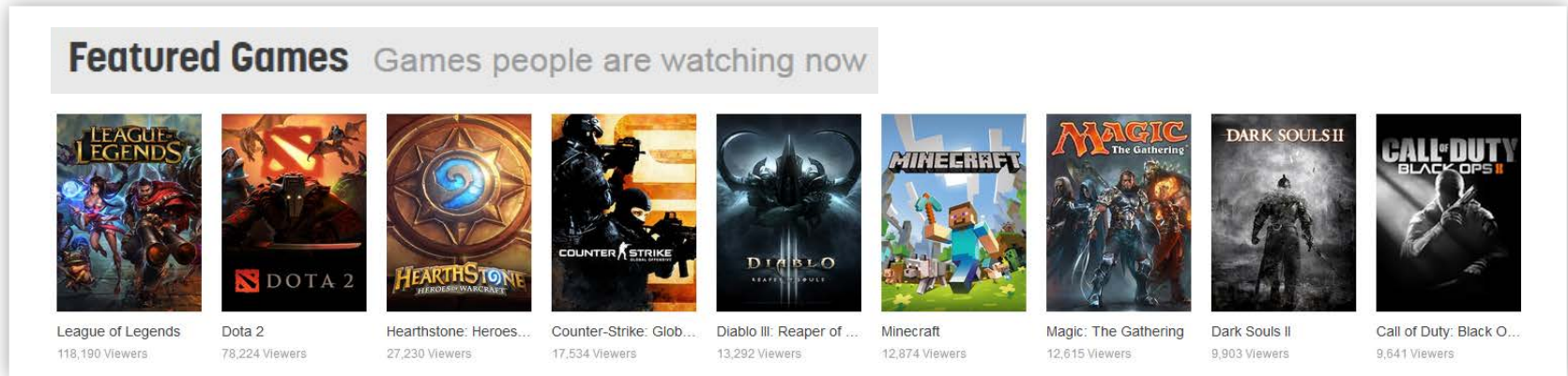
*...A fanbase shares, comments, curates, creates...*

# *Consumers Voting for Social Video / TV*

# New Genre(s) of Video = 'Spectator Gaming'\* – Players → Players / Active Spectators

## Twitch

45MM MAUs (12/13) vs. 8MM Three Years Ago (7/11)  
12B Minutes Watched / Month, +2x Y/Y  
900K Broadcasters / Month, +3x Y/Y



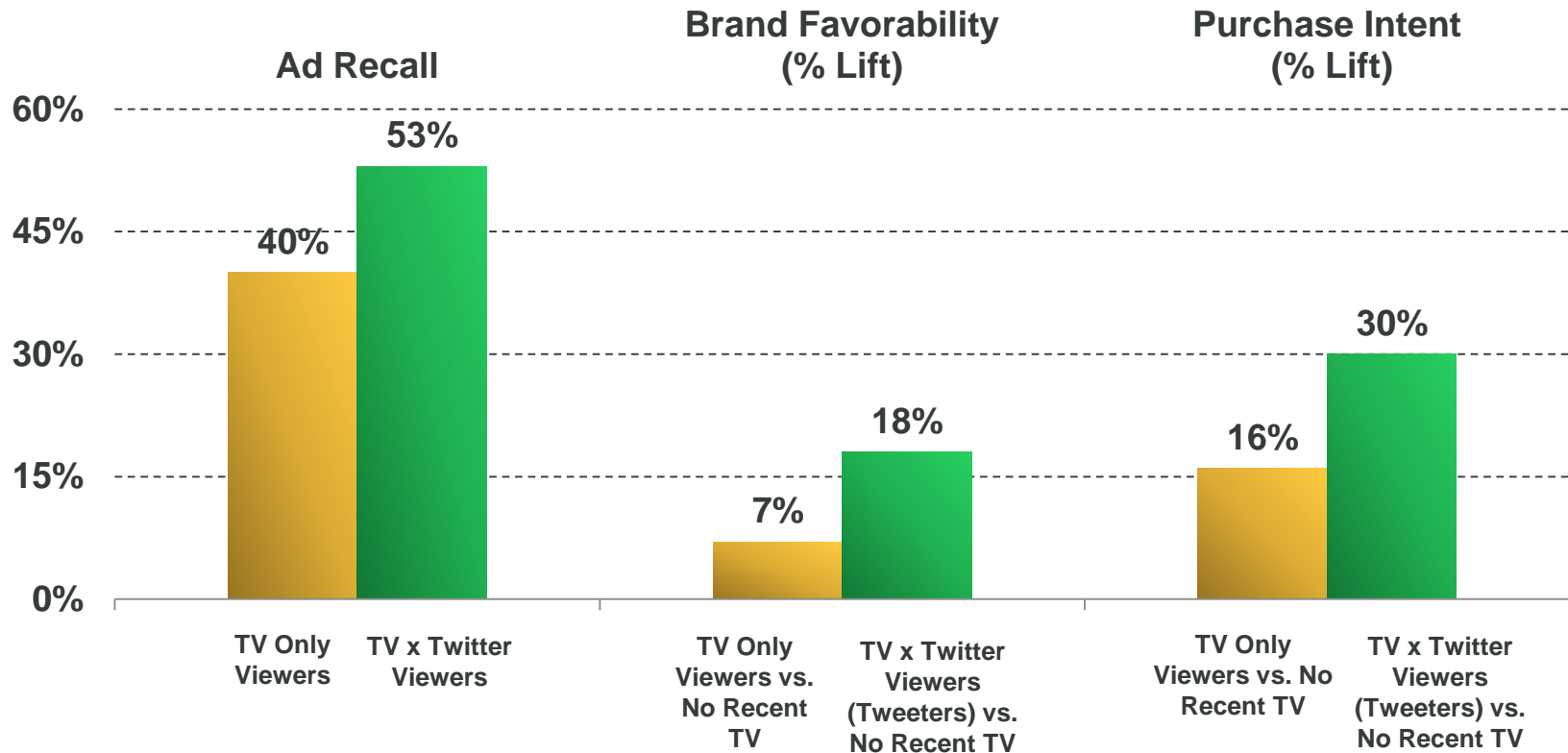
## Twitch = Top Live Video Streaming Site by Volume, USA, 4/14

Rank	Site	Volume (%)
1	Twitch	44%
2	WWE	18%
3	Ustream	11%
4	MLB.com	7%
5	ESPN	6%

*Social TV =  
Can Provide Advertiser Lift*

# TV + Twitter = Boosts Ad Impact

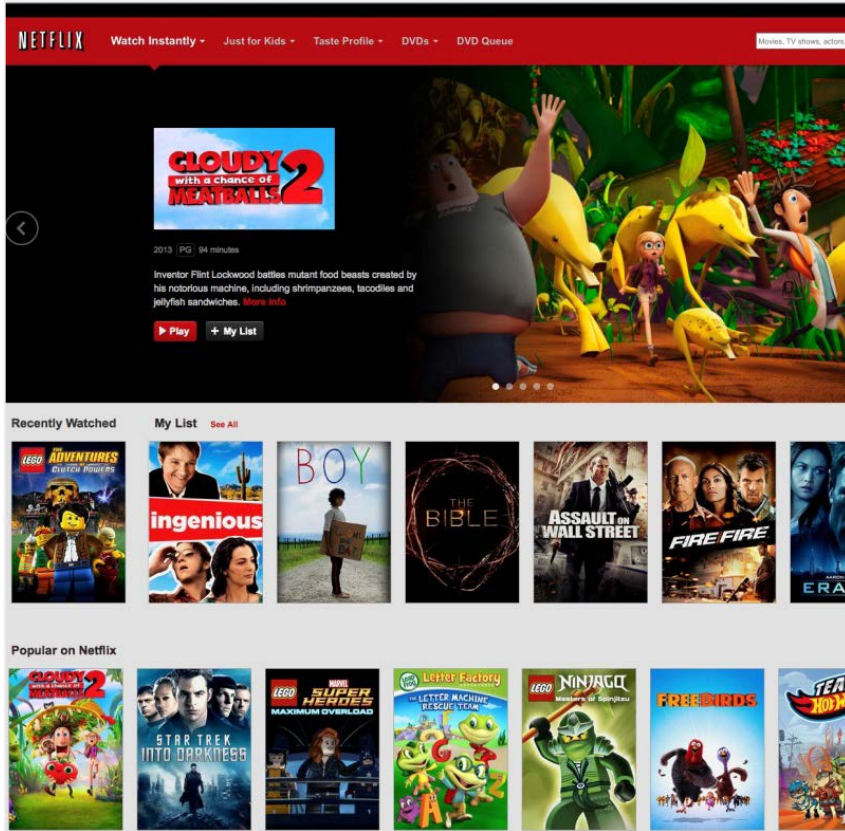
## Impact of TV Ads on Viewers – TV with Twitter vs. TV without Twitter



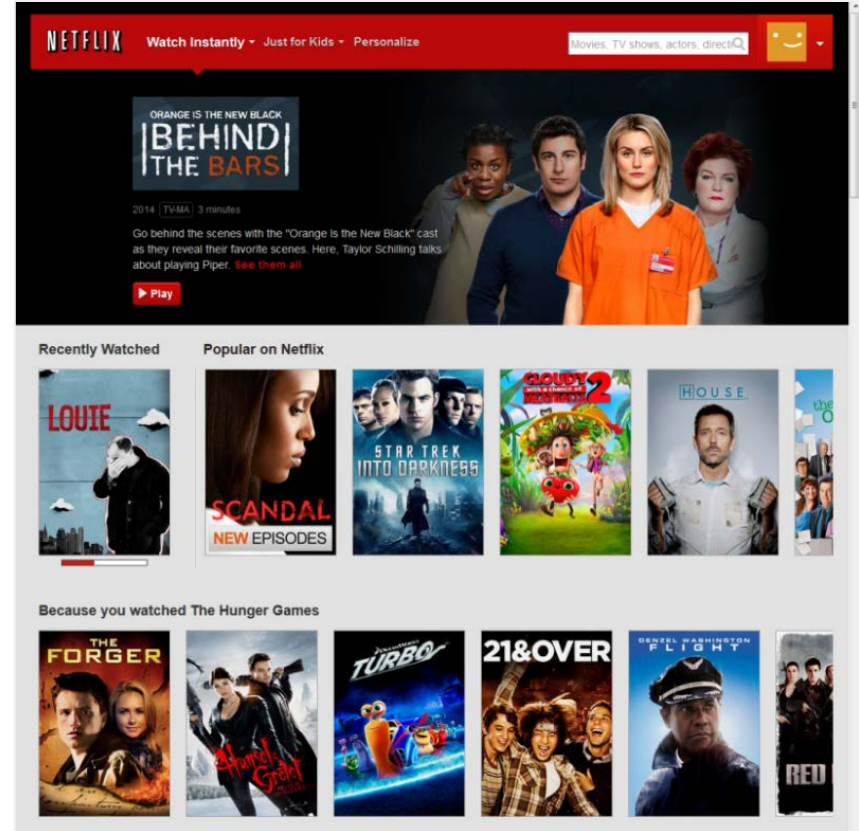
# *Consumers Voting for Personalization*

# Netflix = Personalization...

## A Father of Two



## A Female Millennial

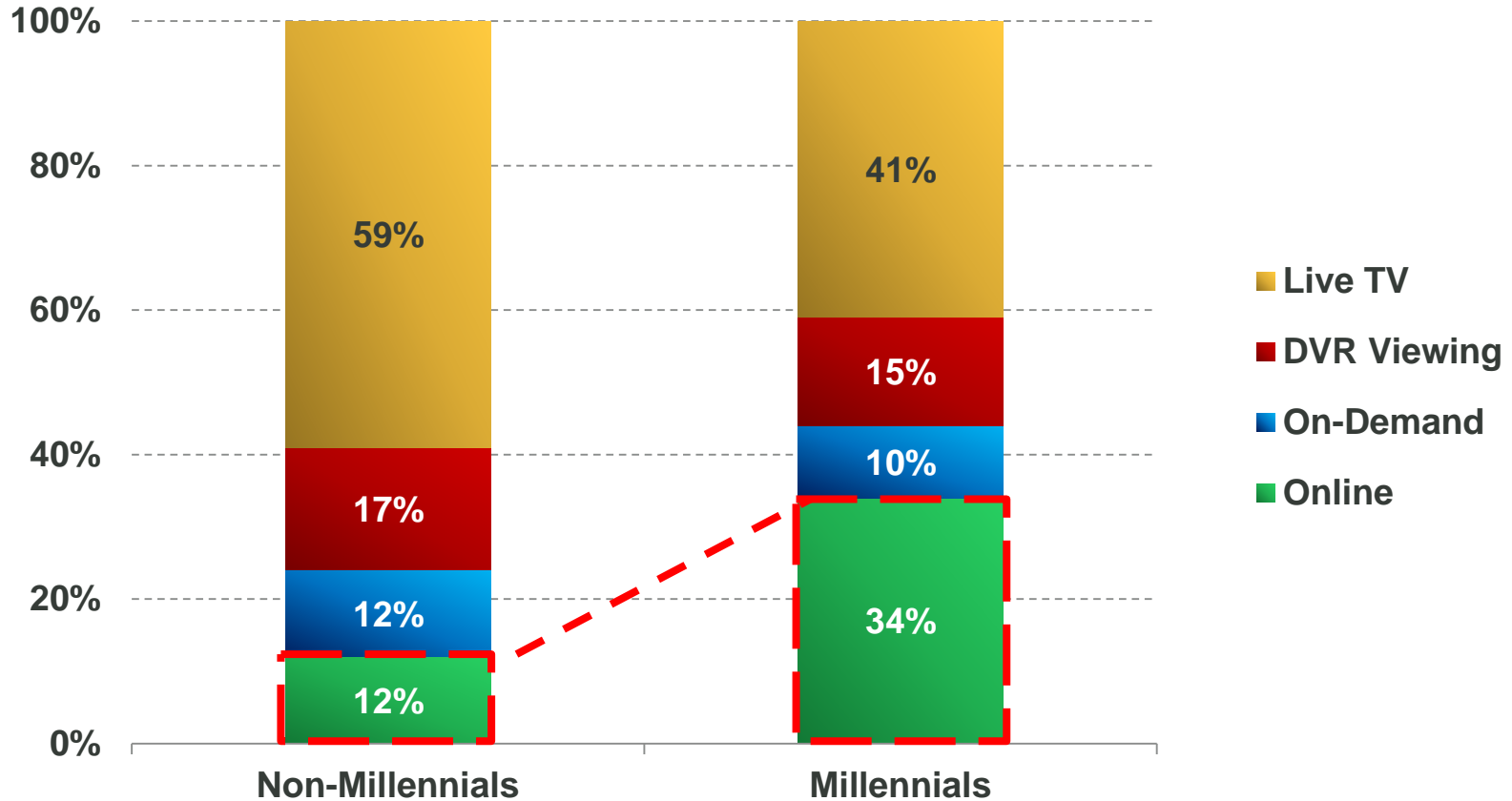




# *Younger Consumers Voting for On-Demand Video*

# Millennials = 34% of TV Time Online, ~3x > Non-Millennials

## Distribution of Total TV Time Millennials vs. Non-Millennials, USA



***Internet TV Replacing Linear TV –***

***Early Stages of TV Golden Age With  
Epic***

***Content Creation / Consumption /  
Curation / Distribution***

# Consumers Increasingly Expect to Watch TV Content... On Own Terms

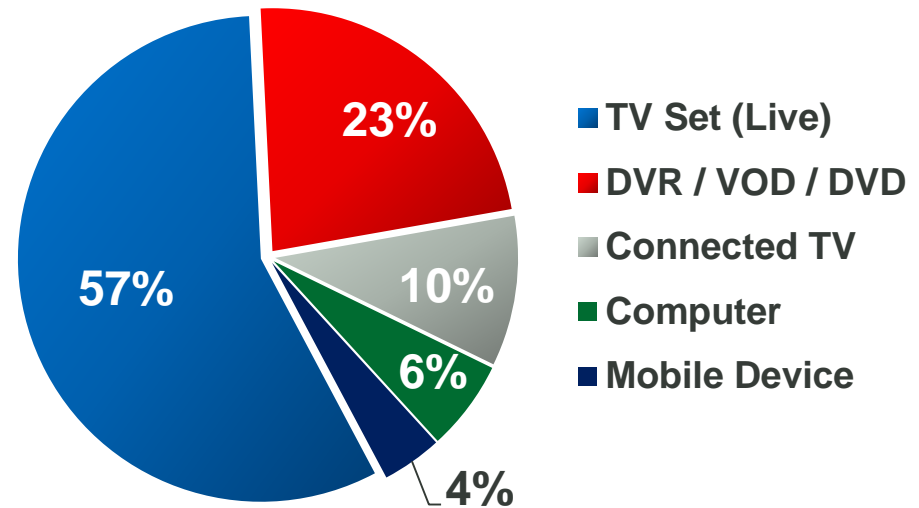
## Device Share of TV Content, USA, 1/14

Circa 1950

TV Set (Live) =  
100% of viewing

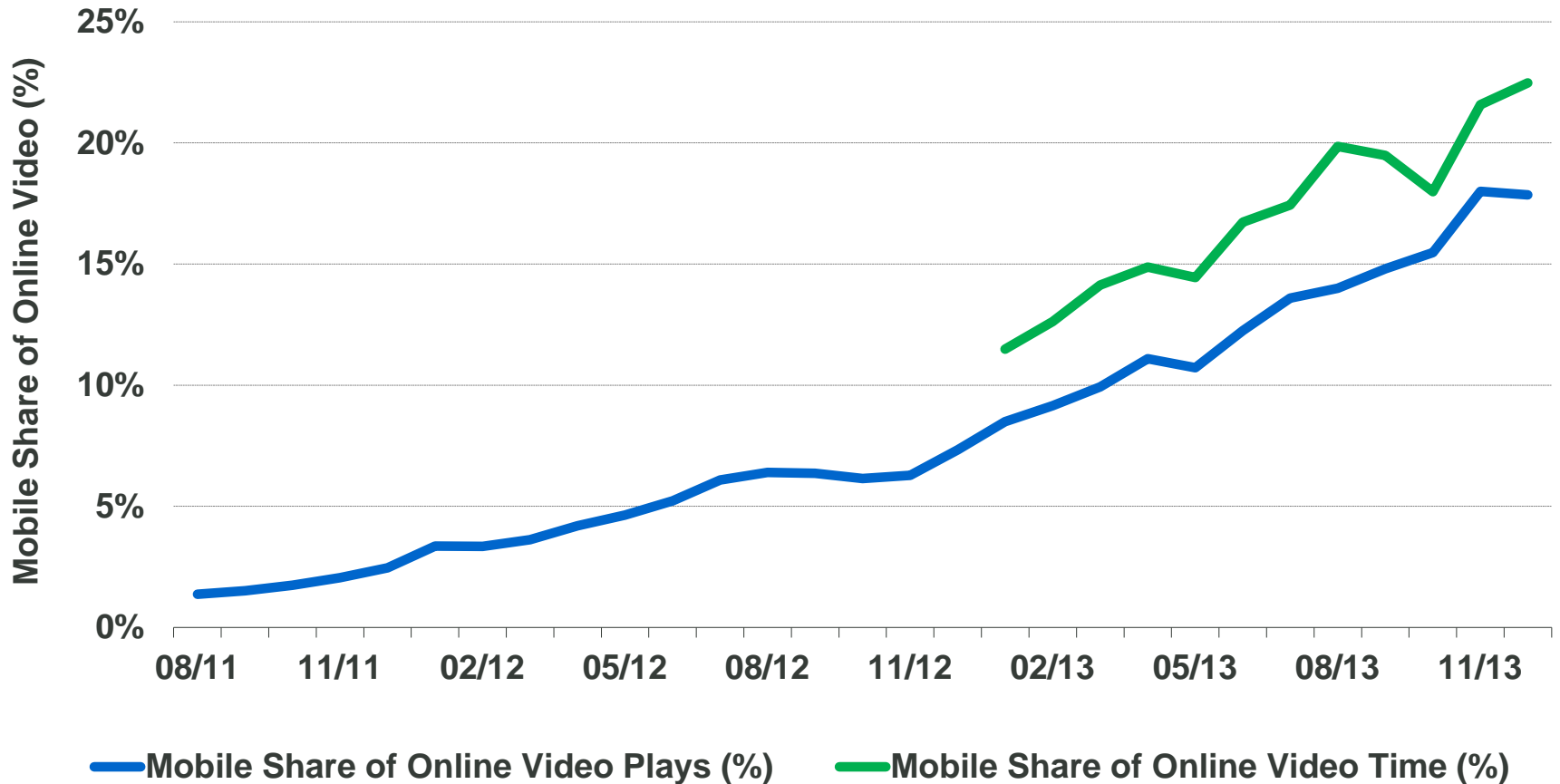


Circa 2014



# Mobile = More & More Video Consumption... 22% (+2x Y/Y) of Online Video Time Spent

Mobile Share of Online Video Plays and Time, 8/11 – 12/13, Global



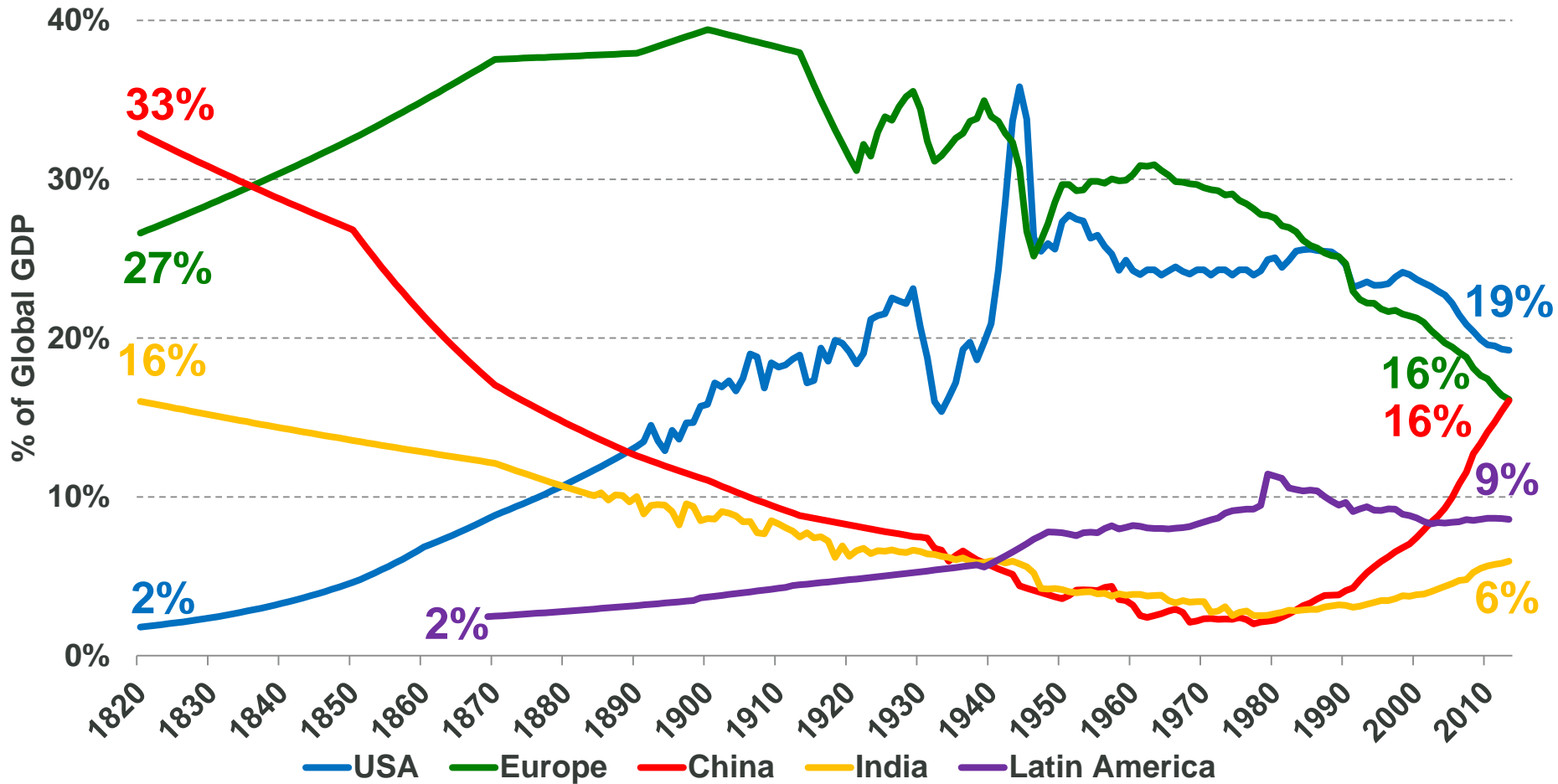
# Future of TV – Reed Hastings (Netflix CEO / Founder)

- 1) *Screens Proliferating*
- 2) *[Traditional] Remote Controls Disappearing*
- 3) *Apps Replacing Channels*
- 4) *Internet TV Replacing Linear TV*

# CHINA'S EPIC SHARE GAINS

# Global GDP = China Rise Continues

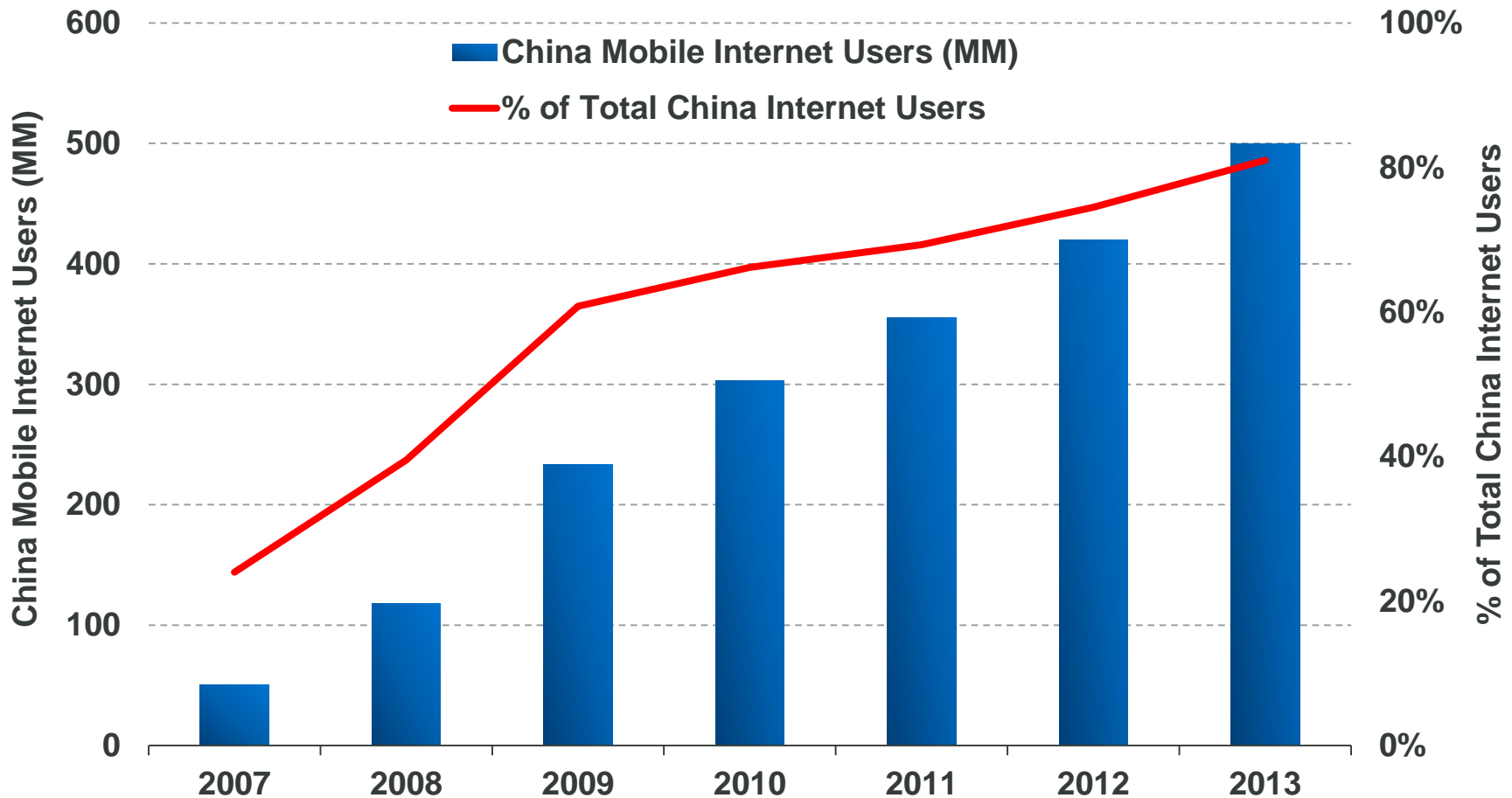
## Percent of Global GDP, 1820 – 2013, USA vs. Europe vs. China vs. India vs. Latin America





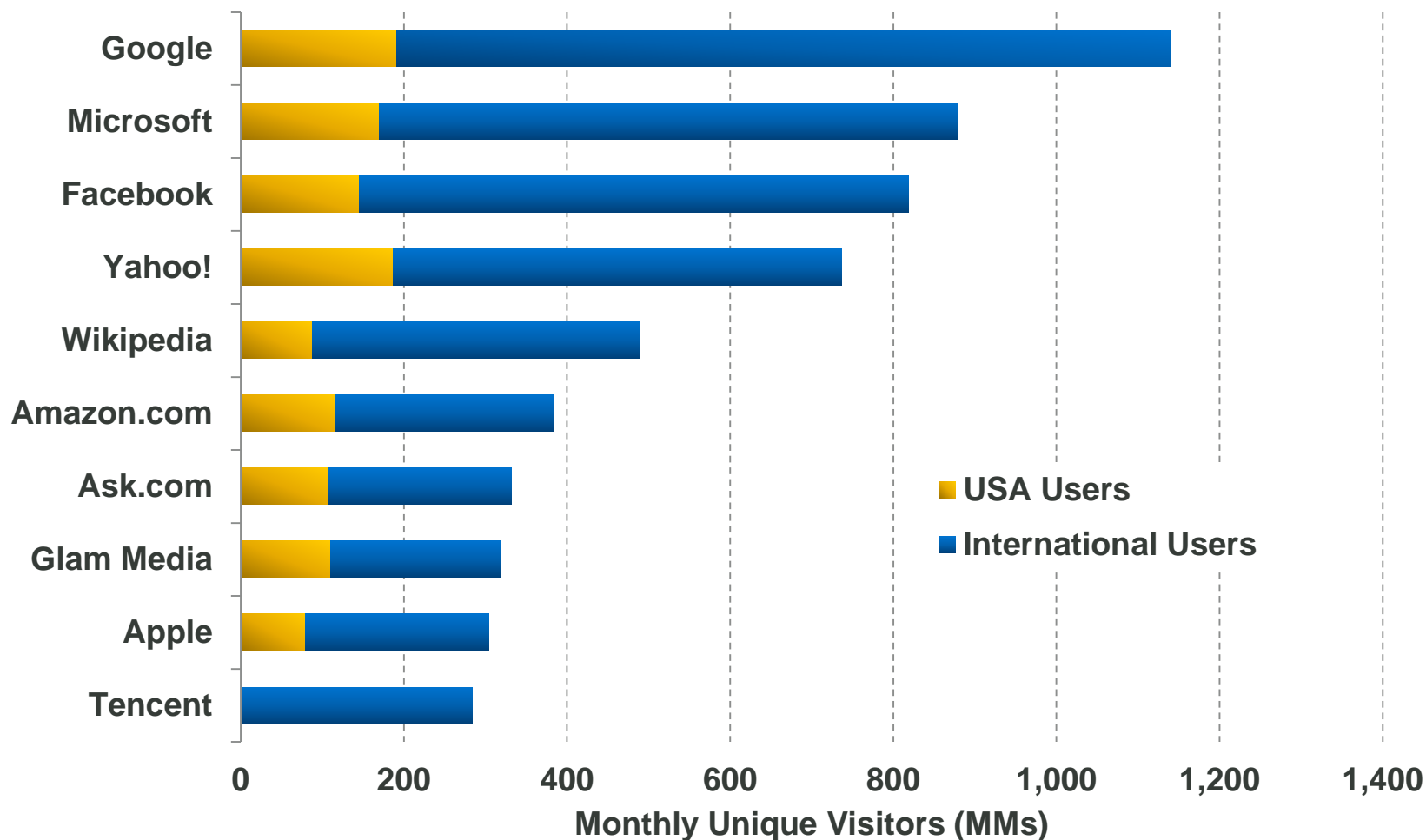
# 500MM (80%) of China Internet Users = Mobile... More Critical Mass than Any Place in World

## China Mobile Internet Users as % of Total Internet Users, 2007 – 2013



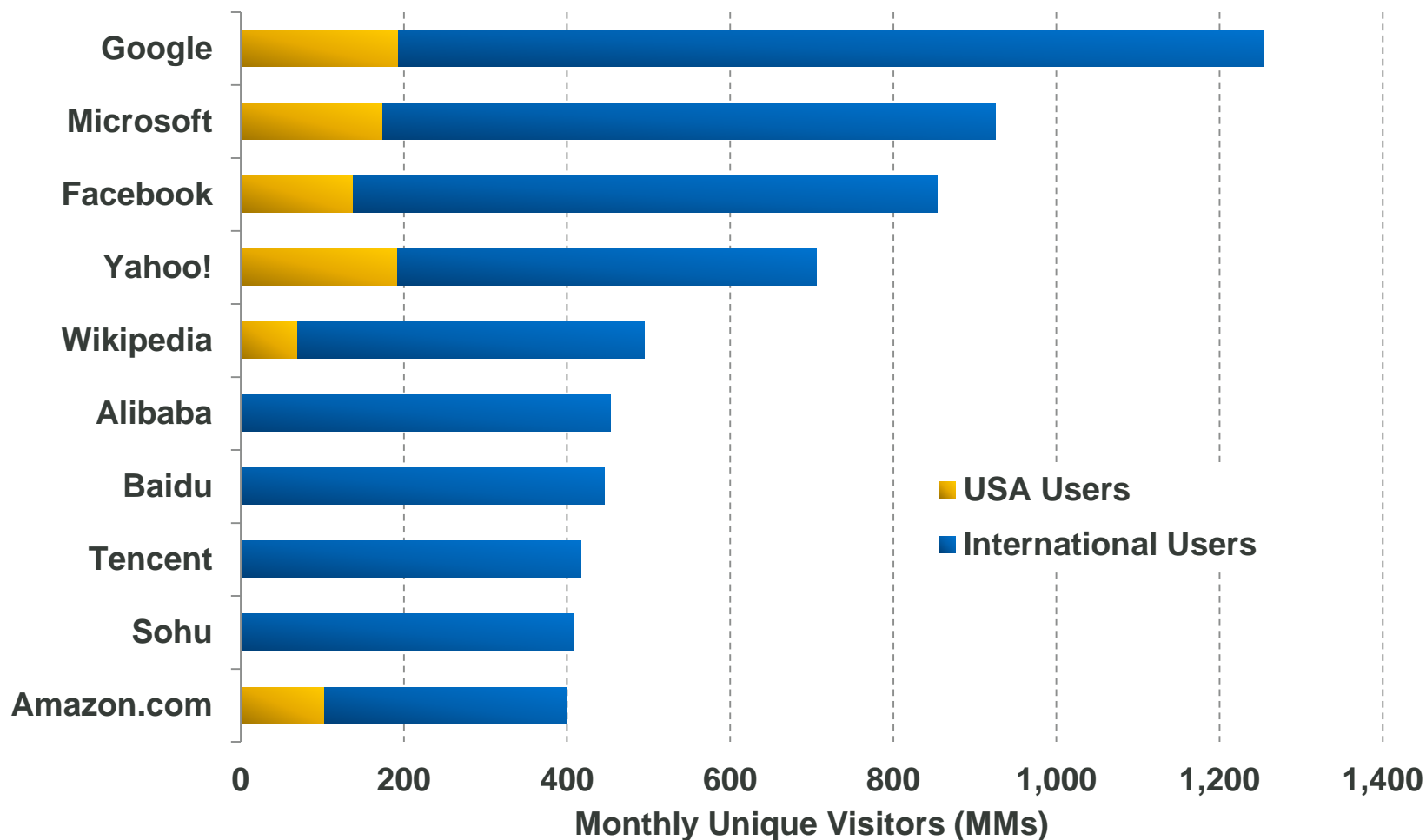
# 1/13 – 9 of Top 10 Global Internet Properties ‘Made in USA’... 79% of Their Users Outside America

## Top 10 Internet Properties by Global Monthly Unique Visitors, 1/13



# 3/14 – 6 of Top 10 Global Internet Properties ‘Made in USA’ ... >86% of Their Users Outside America...China Rising Fast

## Top 10 Internet Properties by Global Monthly Unique Visitors, 3/14



# *China = Mobile Commerce Innovation Leader*

Source: Liang Wu, Hillhouse Capital\*

\*Disclaimer – The information provided in the following slides is for informational and illustrative purposes only. No representation or warranty, express or implied, is given and no responsibility or liability is accepted by any person with respect to the accuracy, reliability, correctness or completeness of this information or its contents or any oral or written communication in connection with it. A business relationship, arrangement, or contract by or among any of the businesses described herein may not exist at all and should not be implied or assumed from the information provided. The information provided herein by Hillhouse Capital does not constitute an offer to sell or a solicitation of an offer to buy, and may not be relied upon in connection with the purchase or sale of, any security or interest offered, sponsored, or managed by Hillhouse Capital or its affiliates.

# Tencent WeChat = 400MM Mobile Active Chat Users... Increasingly Using Payments + Commerce

## WeChat 'My Bank Card' Page



Manage money / invest in money market funds via WeChat Payment



Order taxi - powered by Didi - pay via WeChat Payment



New Year Lucky Money – fun / social game to incentivize users to link bank cards to WeChat Payment...  
5MM users used on Chinese New Year Eve, 2014

Find restaurants / daily group buy deals - powered by Dianping - pay via WeChat Payment



# Tencent WeChat Services = Virtual Assistant

## WeChat Service Accounts = Interactive Accounts with Communication / CRM / Ordering Capability

### Personal Banker

China Merchant Bank allows customers to check & repay balances and ask live questions via WeChat



### Shopping Assistant

Mogujie / Meilishuo (fashion discovery & shopping sites) give customers tailored suggestions via WeChat



### Private Chef

Hahajing (a chain deli restaurant) allows customers to order & deliver food via WeChat



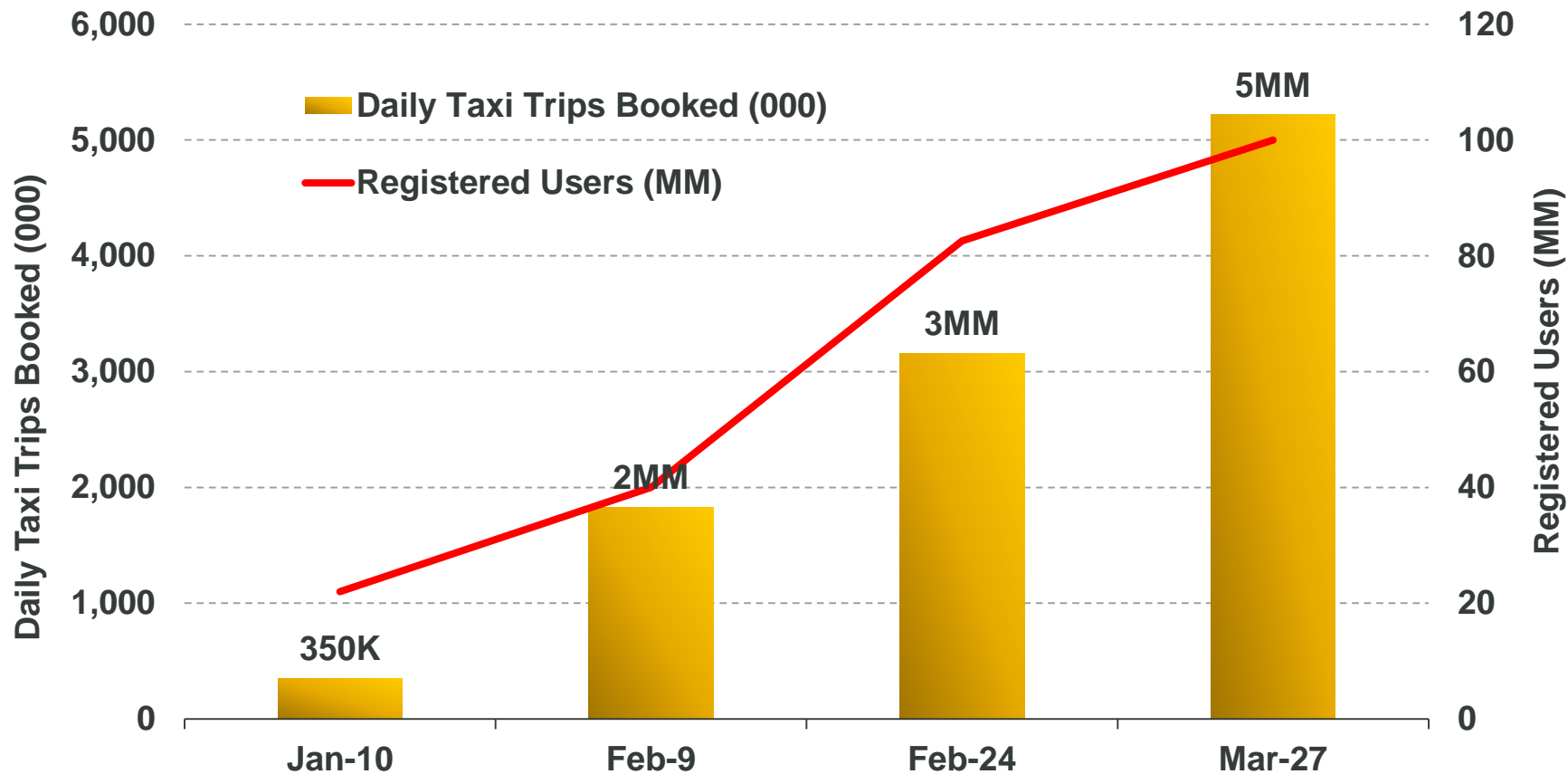
### Grocery Getter

Xiaonongnv (a grocery delivery startup) prepares fresh groceries & delivers to your address via WeChat



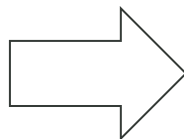
# Didi Taxi – 100MM+ Users = 5MM+ Daily Rides, +15x in 77 Days... Driven by WeChat Payment Integration & Subsidy\*

## Didi Taxi, Daily Taxi Trips Booked, 1/10/2014 – 3/27/2014



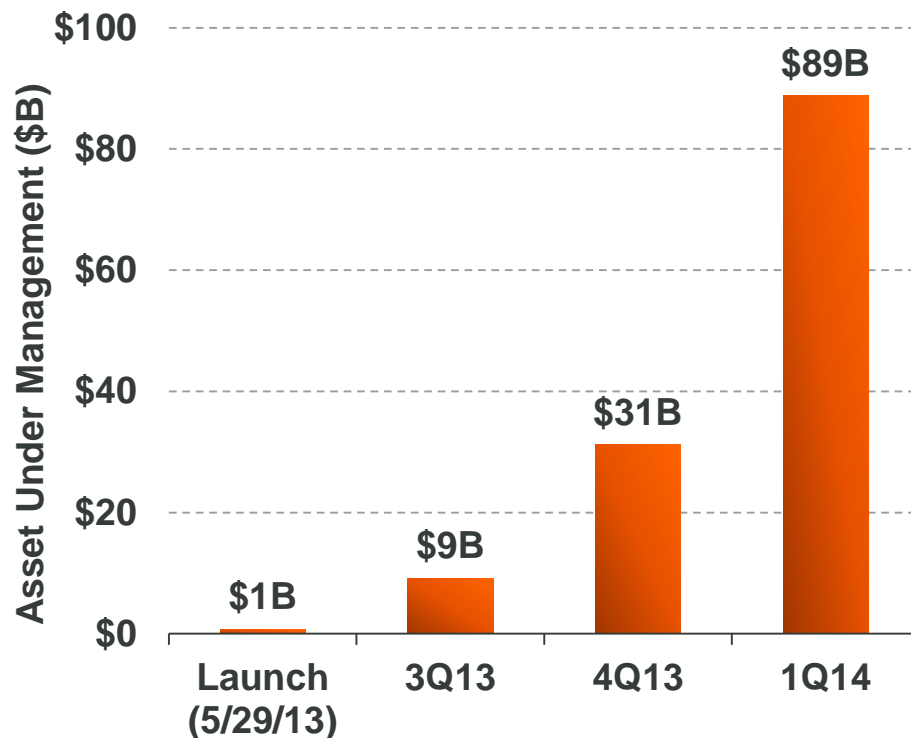
# Alipay Yu'E Bao – Mobile Money Market Fund Launch... Drove \$89B AUM\* in 10 Months

- Simple, fun-to-use mobile product
- Built on top of Alipay – the most popular online payment platform in China with 160MM+ accounts.
- Technology enables same-day settlement.



- \$0 → \$89B asset under management in 10 months
- Top 3 global money market fund by assets under management (AUM)

**Alipay Yu'E Bao Assets Under Management, 5/13 to C1:14**





# PUBLIC COMPANY TRENDS

# Global Internet Public Market Leaders = Apple / Google / Facebook / Amazon / Tencent...

Rank	Company	Region	2014 Market Value (\$B)	2013 Revenue (\$MM)
1	Apple	USA	\$529	\$173,992
2	Google	USA	377	59,825
3	Facebook	USA	157	7,872
4	Amazon	USA	144	74,452
5	Tencent	China	132	9,983
6	eBay	USA	66	16,047
7	Priceline	USA	63	6,793
8	Baidu	China	59	5,276
9	Yahoo!	USA	35	4,680
10	Salesforce.com	USA	33	4,071
11	JD.com	China	29	11,454
12	Yahoo! Japan	Japan	25	3,641
13	Netflix	USA	24	4,375
14	Naver	Korea	23	2,190
15	LinkedIn	USA	19	1,529
16	Twitter	USA	18	665
17	Rakuten	Japan	16	4,932
18	Liberty Interactive	USA	14	11,252
19	TripAdvisor	USA	13	945
20	Qihoo 360	China	11	671
<b>Total</b>			<b>\$1,787</b>	<b>\$404,644</b>

# ...Global Internet Leaders = Intense M&A + Investment Activity

Company / Market Cap (\$B)	Volume, 2012-2014YTD (\$B)	Select Transactions, 2012-2014YTD					
Google \$377B	\$6B (M&A)	DeepMind	\$400MM (1/14)	Nest	\$3B (1/14)	Waze	\$1B (6/13)
	\$3B* (Investments)	Cloudera	\$160MM* (3/14)	DocuSign	\$100MM* (3/14)	Uber	\$258MM (8/13)
Facebook \$157B	\$24B (M&A)	Oculus	\$2B (3/14)	WhatsApp	\$19B+ (2/14)	Instagram	\$1B (4/12)
Tencent \$132B	\$7B* (Investments)	JD.com	\$3B (3/14)	CJ Games	\$500MM (3/14)	Activision Blizzard	\$429MM (7/13)
Alibaba TBD	\$5B (M&A)	ChinaVision	\$800MM (3/14)	AutoNavi	\$1B+ (2/14)		
	\$5B* (Investments)	Youku Tudou	\$1B (4/14)	Weibo	\$1B (4/13)		

**ONE MORE THING(S)...**

*From One Extreme  
To the Other...*

# Live Streaming = Oculus Rift-Enabled Drones?



# Re-Imagining Global Access to Internet? ☹️



# Thanks...

## **KPCB Partners**

Especially Alex Tran / Cindy Cheng / Alex Kurland who helped take spurts of ideas and turn them into something we hope is presentable / understandable...

## **Participants in Evolution of Internet Connectivity**

From creators to consumers who keep us on our toes 24x7...

## **Walt & Kara**

For continuing to do what you do so well...



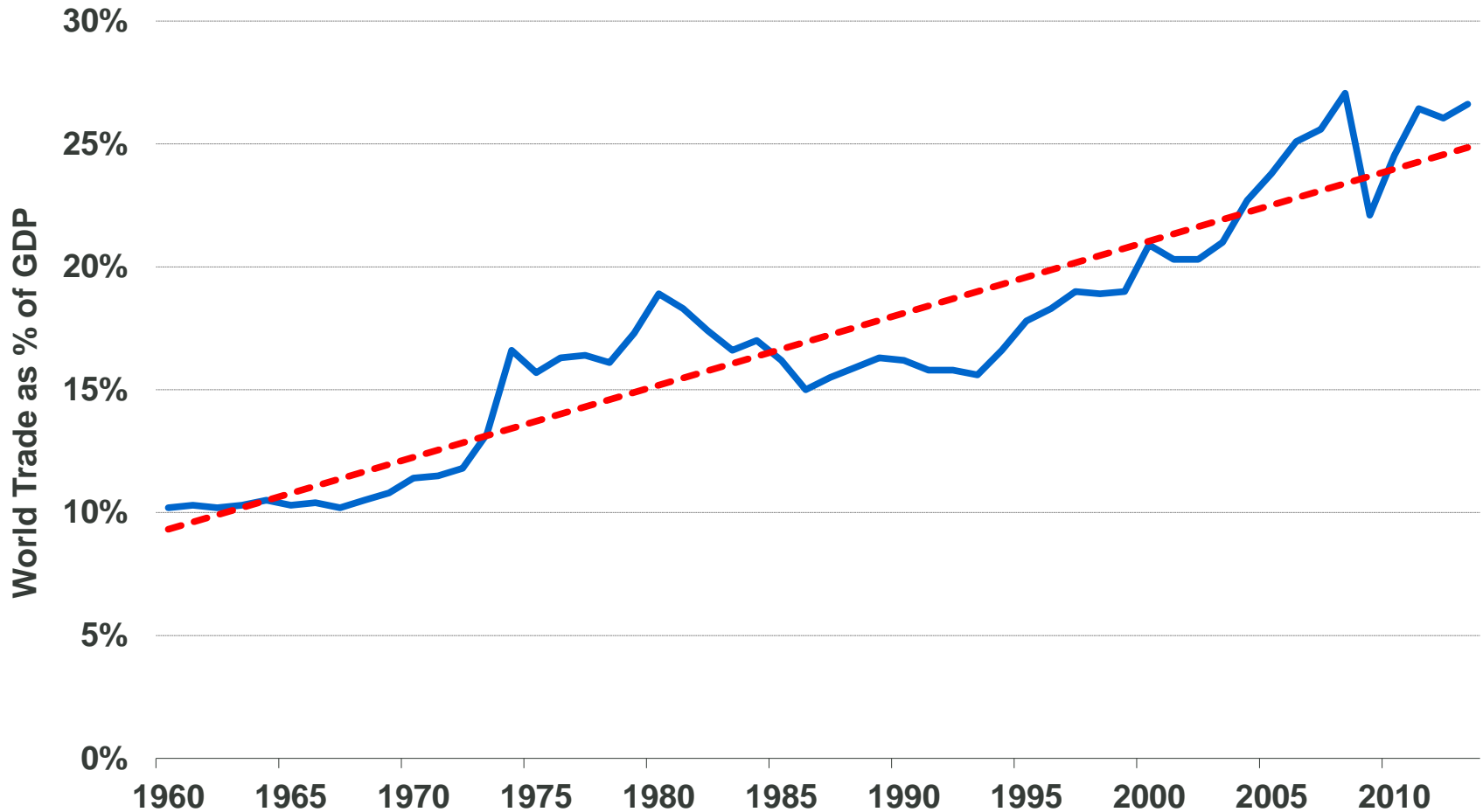
# RAN OUTTA TIME THOUGHTS / APPENDIX

# IMMIGRATION UPDATE

REPORT: <http://www.kpcb.com/file/kpcb-immigration-in-america-the-shortage-of-high-skilled-workers>

# Global Economies / People = Increasingly Connected / Co-Dependent

## World Trade as % of World GDP, 1960 - 2013



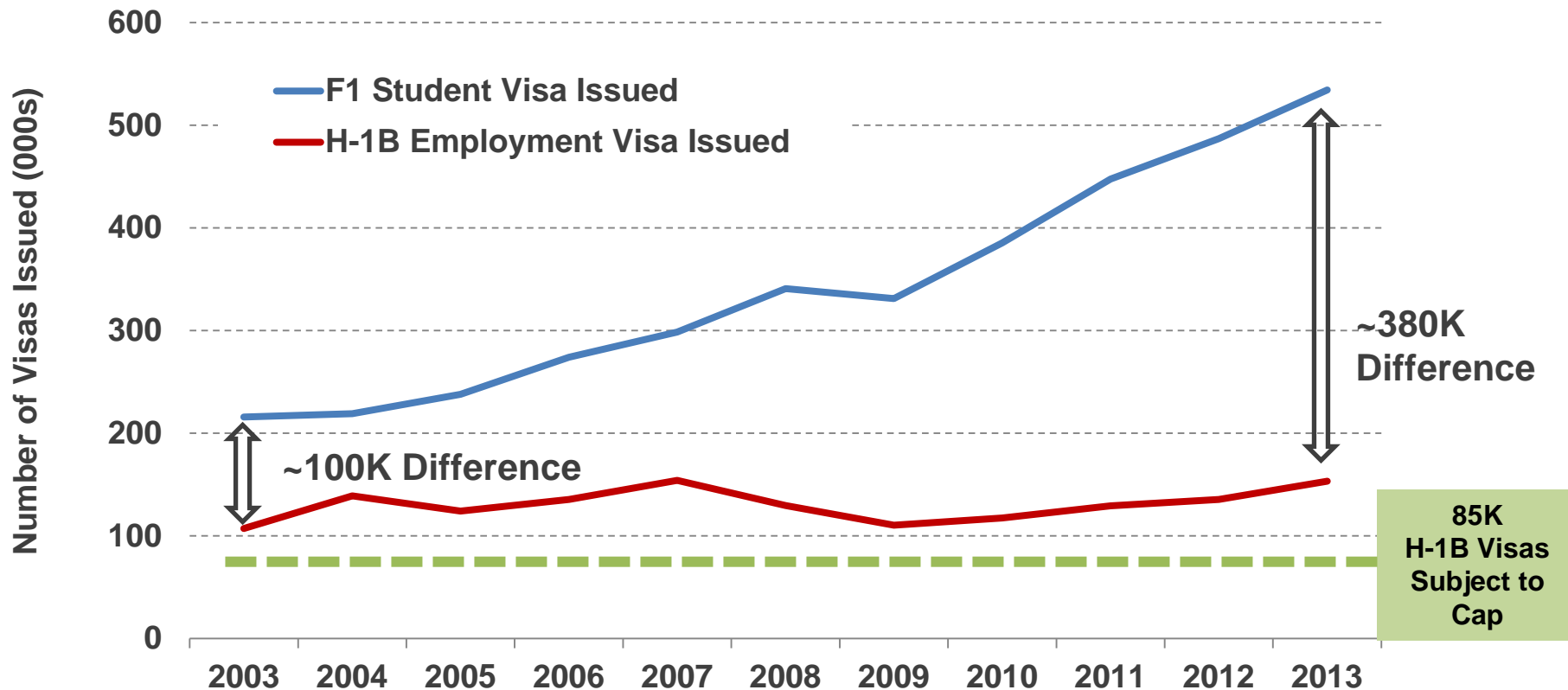
# 60% of Top 25 Tech Companies Founded by 1st and 2nd Generation Americans = 1.2MM Employees, 2013

## Founders / Co-Founders of Top 25 USA Public Tech Companies, Ranked by Market Capitalization

Rank	Company	Mkt Cap (\$MM)	LTM Rev (\$MM)	Employees	1st or 2nd Gen Immigrant Founder / Co-Founder	Generation
1	Apple	\$529,000	\$176,035	80,300	Steve Jobs	2nd-Gen, Syria
2	Google	376,536	62,294	47,756	Sergey Brin	1st-Gen, Russia
3	Microsoft	331,408	83,347	99,000	--	--
4	IBM	188,205	98,827	431,212	Herman Hollerith	2nd-Gen, Germany
5	Oracle	187,942	37,902	120,000	Larry Ellison / Bob Miner	2nd-Gen, Russia / 2nd-Gen, Iran
6	Facebook	157,448	8,916	6,337	Eduardo Saverin	1st-Gen, Brazil
7	Amazon.com	143,683	78,123	117,300	Jeff Bezos	2nd-Gen, Cuba
8	Qualcomm	134,827	25,712	31,000	Andrew Viterbi	1st-Gen, Italy
9	Intel	130,867	52,892	107,600	-- *	--
10	Cisco	125,608	47,202	75,049	--	--
11	eBay	65,927	16,561	33,500	Pierre Omidyar	1st-Gen, France
12	Hewlett-Packard	63,903	111,820	317,500	William Hewlett	--
13	Priceline	62,767	7,133	9,500	Jay Walker	--
14	EMC	54,458	23,314	63,900	Roger Marino	2nd-Gen, Italy
15	Texas Instruments	49,920	12,303	32,209	Cecil Green / J. Erik Jonsson	1st-Gen, UK / 2nd-Gen, Sweden
16	VMware	41,549	5,376	14,300	Edouard Bugnion	1st-Gen, Switzerland
17	Automatic Data Processing	38,014	11,958	60,000	Henry Taub	2nd-Gen, Poland
18	Yahoo!	35,258	4,673	12,200	Jerry Yang	1st-Gen, Taiwan
19	salesforce.com	32,783	4,405	13,300	--	--
20	Adobe Systems	32,004	4,047	11,847	--	--
21	Cognizant Technology	29,583	9,245	171,400	Francisco D'souza / Kumar Mahadeva	1st-Gen, India** / 1st-Gen, Sri Lanka
22	Micron	29,253	13,310	30,900	--	--
23	Netflix	24,120	4,621	2,327	--	--
24	Intuit	22,595	4,426	8,000	--	--
25	Sandisk	21,325	6,341	5,459	Eli Harari	1st-Gen, Israel
<b>Total Founded by 1st or 2nd Gen Immigrants</b>		<b>\$2,053,676</b>	<b>\$577,580</b>	<b>1,226,873</b>		

# USA Sending More Qualified Foreign Students Home Post Graduation – 3.5x Rise in Student & Employment Visa Issuance Gap Over Decade

## Number of Student Visas (F1) vs. Employment (H-1B) Visas Issued per Year, 1992 – 2013



# USA, INC. UPDATE

REPORT: [http://www.kpcb.com/usainc/USA\\_Inc.pdf](http://www.kpcb.com/usainc/USA_Inc.pdf)

VIDEO: <http://www.kpcb.com/insights/2011-usa-inc-video>

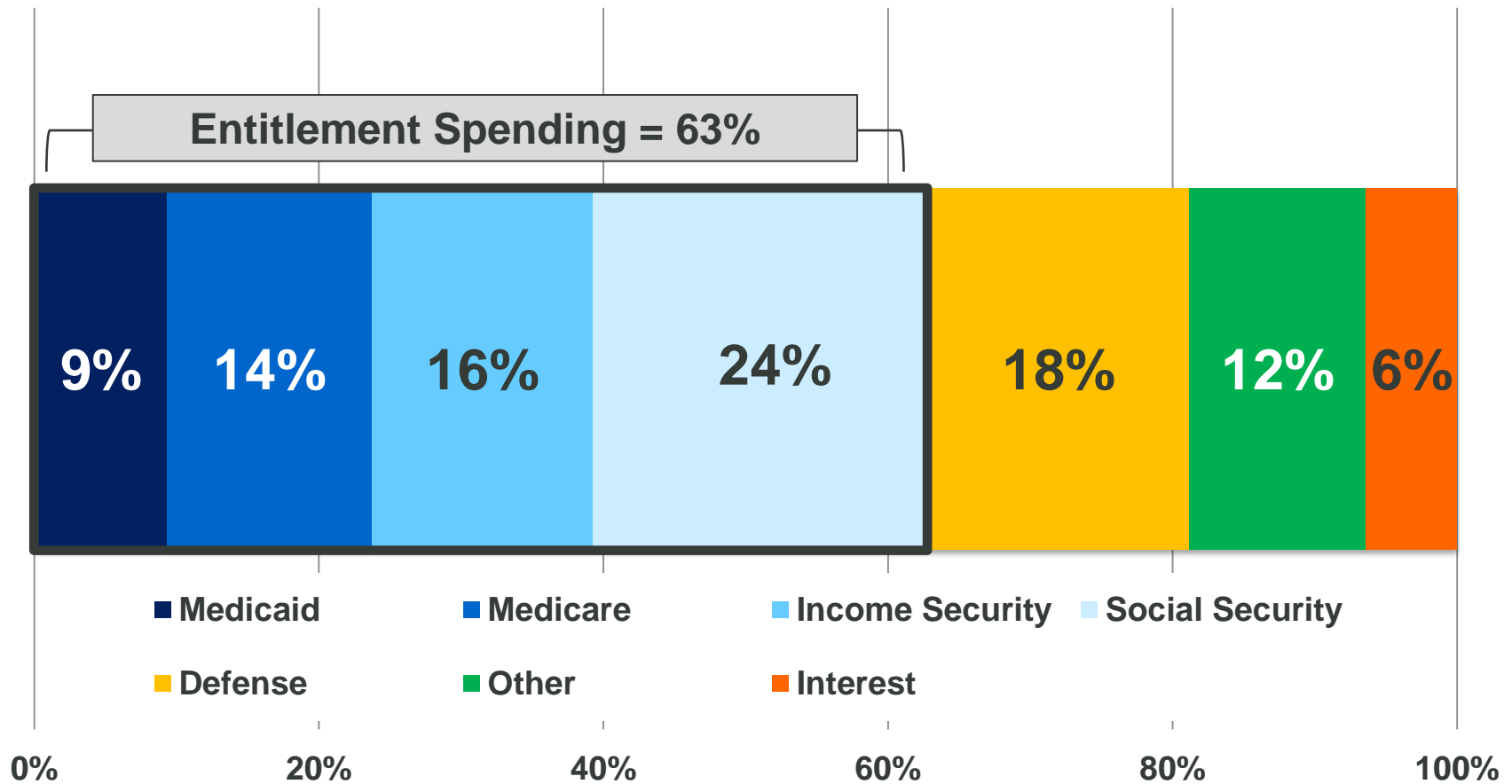
# USA Inc. Income Statement, F2013 – Revenue (Taxes) +13%...Expenses -2%...-24% Net Margin

## USA Inc. Profit & Loss Statement, F1998 / F2003 / F2008 / F2013

	F1998	F2003	F2008	F2013	Comments
<b>Revenue (\$B)</b>	<b>\$1,722</b>	<b>\$1,783</b>	<b>\$2,524</b>	<b>\$2,775</b>	<b>On average, revenue grew 3% Y/Y over the past 15 years</b>
<b>Y/Y Growth</b>	<b>9%</b>	<b>-4%</b>	<b>-2%</b>	<b>13%</b>	
Individual Income Taxes*	\$829	\$794	\$1,146	\$1,316	Largest driver of revenue
<i>% of Revenue</i>	48%	45%	45%	47%	
Social Insurance Taxes	\$572	\$713	\$900	\$948	Payroll tax on Social Security & Medicare
<i>% of Revenue</i>	33%	40%	36%	34%	
Corporate Income Taxes*	\$189	\$132	\$304	\$274	Fluctuates significantly with economic conditions
<i>% of Revenue</i>	11%	7%	12%	10%	
Other	\$133	\$144	\$174	\$237	Includes estate & gift taxes / duties & fees; relatively stable
<i>% of Revenue</i>	8%	8%	7%	9%	
<b>Expense (\$B)</b>	<b>\$1,652</b>	<b>\$2,160</b>	<b>\$2,983</b>	<b>\$3,455</b>	<b>On average, expense grew 5% Y/Y over the past 15 years</b>
<b>Y/Y Growth</b>	<b>3%</b>	<b>7%</b>	<b>9%</b>	<b>-2%</b>	
Entitlement / Mandatory	\$870	\$1,168	\$1,582	\$2,049	Significant increase owing to aging population and rising healthcare costs
<i>% of Expense</i>	53%	54%	53%	59%	
Non-Defense Discretionary	\$273	\$434	\$518	\$551	Includes education / law enforcement / transportation / general government
<i>% of Expense</i>	17%	20%	17%	16%	
"One-Time" Items	--	--	\$14	--	Includes discretionary spending on TARP, GSEs, and economic stimulus
<i>% of Expense</i>	--	--	0%	--	
Defense	\$268	\$405	\$616	\$633	Significant increase owing to on-going War on Terror
<i>% of Expense</i>	16%	19%	21%	18%	
Net Interest on Public Debt	\$241	\$153	\$253	\$221	Decreased owing to historic low interest rates
<i>% of Expense</i>	15%	7%	8%	6%	
<b>Surplus / Deficit (\$B)</b>	<b>\$69</b>	<b>-\$377</b>	<b>-\$459</b>	<b>-\$680</b>	<b>USA Inc. median net margin between 1998 &amp; 2013 = -16%</b>
<b>Net Margin (%)</b>	<b>4%</b>	<b>-21%</b>	<b>-18%</b>	<b>-24%</b>	

# Where Your Tax Dollars Go – Entitlements as % of Government Spending = 63% vs. 59% Y/Y

**% of USA Federal Government Spending, 2013**

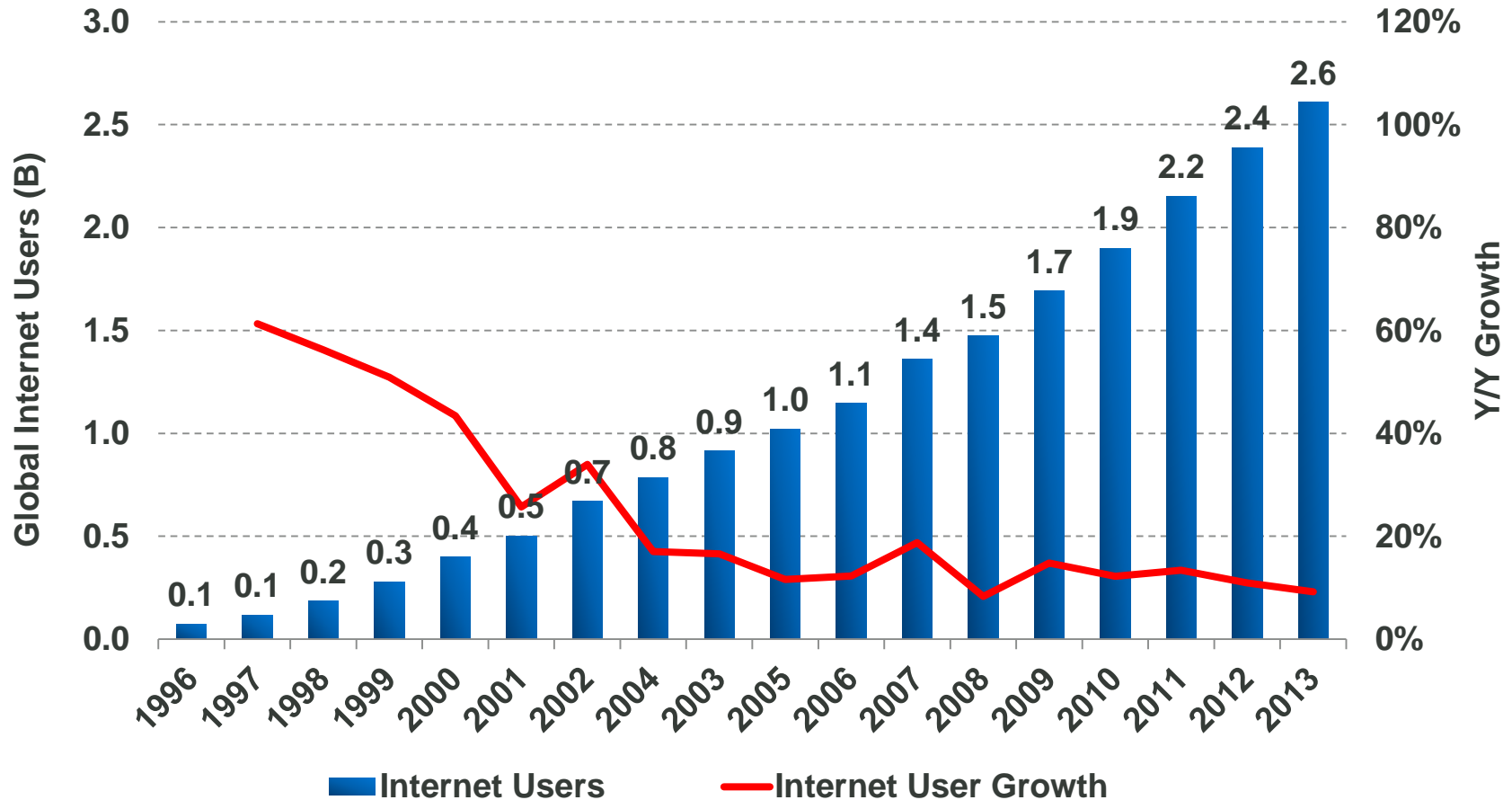




# ...KEY INTERNET TRENDS

# Internet User Growth = +9% in 2013 vs. +11% in 2012 = Solid, But Slowing

## Global Internet Users, 1996 – 2013 (B)



# Established 'Big' Internet Markets (China / USA / Japan / Brazil / Russia) = +7% Growth in 2013 vs. 8% Y/Y = Slowing, Past / Near 50% Penetration

## Countries with Internet Penetration >45%, 2013

Rank	Country	2013 Internet Users (MMs)	2013 Internet User Growth	2012 Internet User Growth	Population Penetration	Total Population (MMs)
1	China	618	10%	10%	46%	1,350
2	USA	263	2	2	83	316
3	Japan	101	0	1	79	127
4	Brazil	100	12	12	50	201
5	Russia	76	9	14	53	143
6	Germany	68	1	1	84	81
7	United Kingdom	55	1	3	87	63
8	France	55	5	4	83	66
9	Iran	45	16	19	56	80
10	South Korea	41	1	0	84	49
11	Turkey	36	6	9	45	81
12	Italy	36	2	6	58	61
13	Spain	34	7	3	72	47
14	Canada	30	5	4	87	35
15	Poland	25	0	4	65	38
<b>Top 15</b>		<b>1,583</b>	<b>6%</b>	<b>7%</b>	<b>58%</b>	<b>2,739</b>
<b>World</b>		<b>2,609</b>	<b>9%</b>	<b>11%</b>	<b>37%</b>	<b>7,098</b>

# 'Big' Internet Markets (India / Indonesia / Nigeria / Mexico / Philippines) = +20% Growth in 2013 = Strong, Material Penetration Upside

## Countries with Internet Penetration ≤45%

Rank	Country	2013 Internet Users (MMs)	2013 Internet User Growth	2012 Internet User Growth	Population Penetration	Total Population (MMs)
1	India	154	27%	36%	13%	1,221
2	Indonesia	71	13	15	28	251
3	Nigeria	57	19	21	33	173
4	Mexico	46	11	14	38	119
5	Philippines	38	27	18	36	106
6	Egypt	38	13	29	44	85
7	Vietnam	37	14	16	39	92
8	South Africa	20	20	41	41	49
9	Pakistan	19	12	14	10	193
10	Thailand	18	12	6	27	67
11	Ukraine	15	17	22	34	45
12	Kenya	14	17	105	32	44
13	Venezuela	13	11	9	44	28
14	Peru	11	7	5	38	30
15	Uzbekistan	10	22	52	37	29
<b>Top 15</b>		<b>560</b>	<b>18%</b>	<b>24%</b>	<b>22%</b>	<b>2,532</b>
<b>World</b>		<b>2,609</b>	<b>9%</b>	<b>11%</b>	<b>37%</b>	<b>7,098</b>

# Established 'Big' Smartphone Markets (USA / Japan / UK / Germany / Korea) = +17% Growth in 2013 = Slowing, Well Past 50% Penetration

## Markets with >45% Penetration

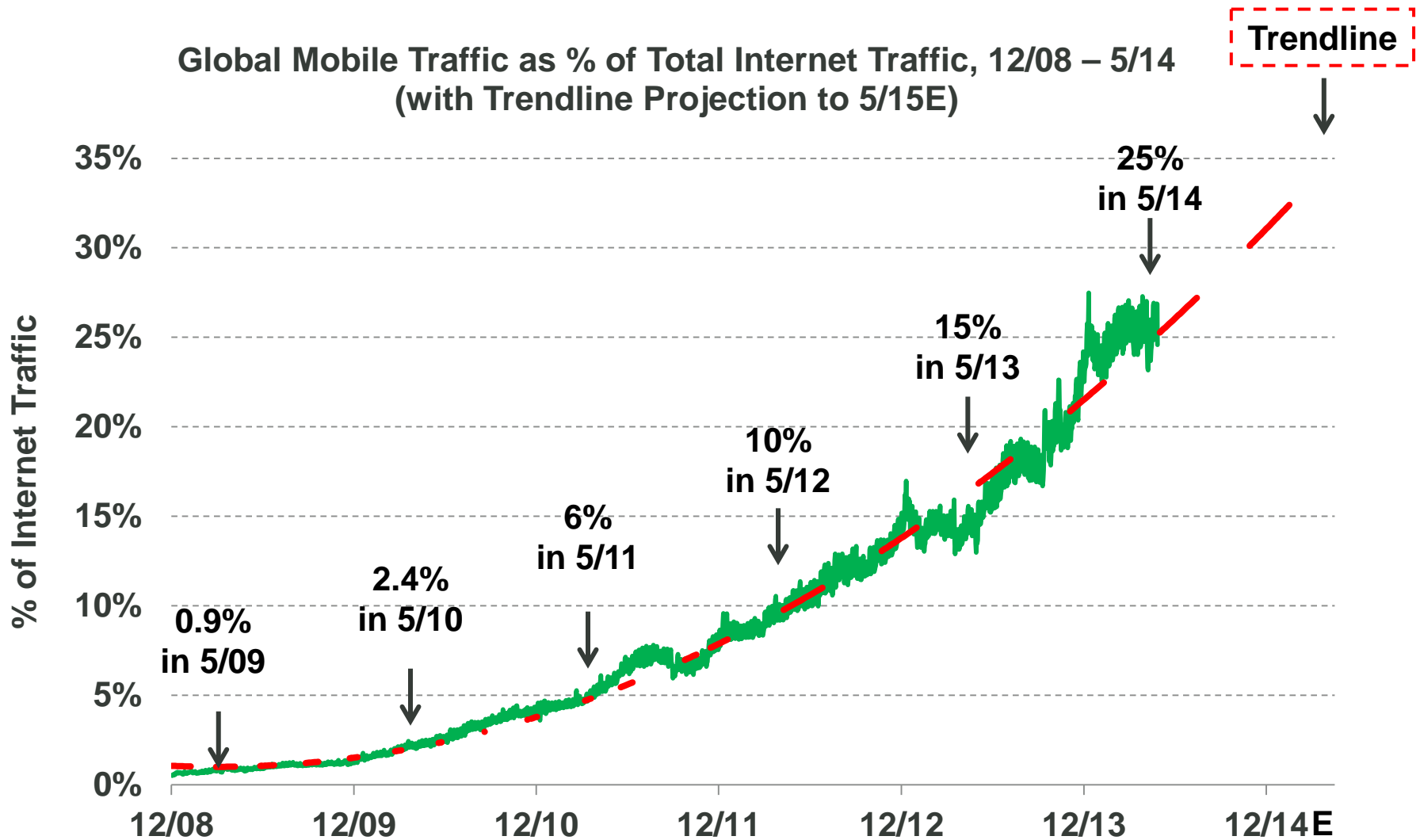
Rank	Country	2013 Smartphone Subs (MMs)	2013 Smartphone Sub Growth	Population Penetration	Total Population (MMs)	2014E Smartphone Sub Growth
1	USA	188	21%	59%	316	12%
2	Japan	99	5	78	127	5
3	UK	43	18	68	63	12
4	Germany	40	34	49	81	31
5	Korea	38	18	79	49	5
6	France	33	29	50	66	21
7	Saudi Arabia	30	20	110	27	15
8	Poland	22	29	57	38	24
9	Australia	19	20	85	22	12
10	Canada	18	21	53	35	15
11	Malaysia	16	23	54	30	21
12	Netherlands	12	18	69	17	13
13	Taiwan	11	23	49	23	27
14	Sweden	9	10	94	10	4
15	UAE	9	20	160	5	14
Top 15		588	19%	65%	910	13%
World		1,786	28%	25%	7,098	24%

# Developing 'Big' Smartphone Markets (China / India / Brazil / Indonesia / Russia) = +32% Growth in 2013 = Strong, Material Penetration Upside Remains

## Markets with ≤45% Penetration

Rank	Country	2013 Smartphone Subs (MMs)	2013 Smartphone Sub Growth	Population Penetration	Total Population (MMs)	2014E Smartphone Sub Growth
1	China	422	26%	31%	1,350	19%
2	India	117	55	10	1,221	45
3	Brazil	72	38	36	201	30
4	Indonesia	48	42	19	251	36
5	Russia	46	30	33	143	27
6	Mexico	22	49	19	119	39
7	Egypt	21	41	25	85	36
8	Italy	21	33	34	61	41
9	Spain	21	20	44	47	17
10	Philippines	20	43	19	106	36
11	Nigeria	20	43	12	173	39
12	South Africa	20	32	41	49	27
13	Thailand	18	27	27	67	24
14	Turkey	18	32	22	81	28
15	Argentina	17	40	41	43	34
Top 15		905	33%	23%	3,996	28%
World		1,786	28%	25%	7,098	24%

# Mobile Traffic as % of Global Internet Traffic = Growing >1.5x per Year & Likely to Maintain Trajectory or Accelerate



# ...PUBLIC COMPANY TRENDS



# Financial Philosophy – Michael Marks (Stanford GSB)

- 1) **Three Ways to Get Capital into Company** – Sell stock, borrow money, earn it. Earn it is best!
- 2) **Balance Sheets Matter** – Without a balance sheet, it's hard to understand where a company stands.
- 3) **Great Companies Grow Revenue, Make Profits *and* Invest for Future** – Companies that do just 2 of 3 are signing up for being just 'OK,' not 'great.'
- 4) **Companies Learn to Make Money *or* Not** – Companies that make money generally continue to do so, companies that don't make money generally continue that also. It becomes core to 'culture.'

# Tech Companies = Top 1 or 2 Sector by Market Cap in S&P500 for Nearly 2 Decades

## 20 Years Ago:

Dec 1994 – S&P500 = \$3.2T

Sector	Weight	Largest Companies
CONS. STAPLES	14%	COCA-COLA ALTRIA
CONS. DISC.	13%	MOTORS LIQUIDATION FORD
INDUSTRIALS	13%	GENERAL ELECTRIC 3M
FINANCIALS	11%	AIG FANNIE MAE
TECHNOLOGY	11%	IBM MICROSOFT
HEALTHCARE	10%	MERCK JOHNSON & JOHNSON
ENERGY	9%	EXXON MOBIL
TELECOM	8%	SOUTHWESTERN BELL GTE
MATERIALS	7%	DUPONT DOW CHEMICAL
UTILITIES	4%	SOUTHERN COMPANY DUKE ENERGY

## Peak of NASDAQ:

Mar 2000 – S&P500 = \$11.7T

Sector	Weight	Largest Companies
TECHNOLOGY	35%	MICROSOFT CISCO
FINANCIALS	13%	CITIGROUP AIG
CONS. DISC.	10%	TIME WARNER HOME DEPOT
HEALTHCARE	10%	MERCK PFIZER
INDUSTRIALS	8%	GENERAL ELECTRIC TYCO
TELECOM	7%	SOUTHWESTERN BELL AT&T
CONS. STAPLES	7%	WAL-MART COCA-COLA
ENERGY	5%	EXXON MOBIL CHEVRON
MATERIALS	2%	DUPONT ALCOA
UTILITIES	2%	DUKE ENERGY AES

## Today:

May 2014 – S&P500 = \$17.4T

Sector	Weight	Largest Companies
TECHNOLOGY	19%	APPLE GOOGLE
FINANCIALS	16%	WELLS FARGO JPMORGAN CHASE
HEALTHCARE	13%	JOHNSON & JOHNSON PFIZER
CONS. DISC.	12%	AMAZON.COM WALT DISNEY
INDUSTRIALS	11%	GENERAL ELECTRIC UNITED TECHNOLOGIES
CONS. STAPLES	11%	WAL-MART PROCTOR & GAMBLE
ENERGY	10%	EXXON MOBIL CHEVRON
MATERIALS	3%	DUPONT MONSANTO
UTILITIES	3%	DUKE ENERGY NEXTERA ENERGY
TELECOM	2%	VERIZON AT&T

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