The Rise of Big Data and the Internet

Judy Bahary, SVP, comScore Inc.

Some Big Data Nuggets

- 92% of the world's data was created in just the past two years
- Today's smartphone would have been most powerful computer in the world in 1985
- 120 million people in the U.S. now own smartphones, up 30 million in just the past year
- For $600 you can buy a disk that can store all of the world's music
- 120 billion pieces of data are added to Facebook every month
- 72 hours of video are added to YouTube every minute
- Google records 2 million searches every second
- Every second something is bought on eBay via a mobile device

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Topics for Discussion

- The Role of Big Data in:
  - comScore Data Collection
  - The Multi-Platform Shift
  - e-Commerce
  - Digital Advertising

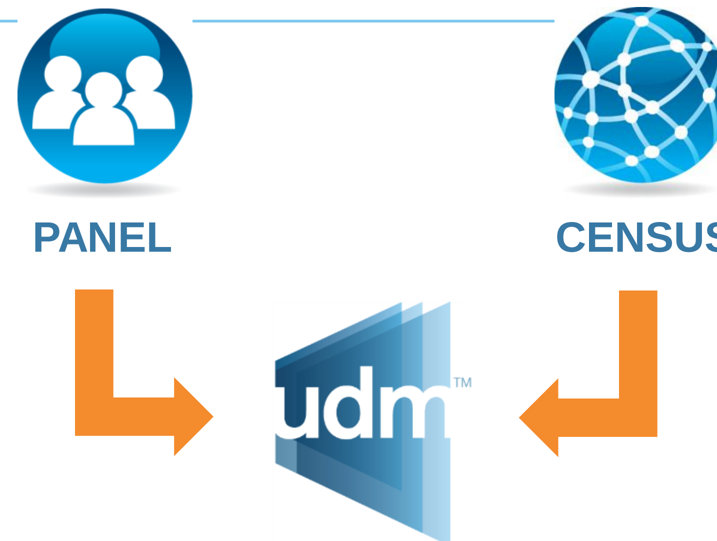
comScore Big Data

1.4 Trillion Digital Interactions Captured per Month

Data sourced from comScore's global panel of 2 million Internet users

2 Million Person Panel
360° View of Person Behavior

PERSON-Centric Panel with WEBSITE-Census Measurement



Unified Digital Measurement™ (UDM)

Patent-Pending Methodology

1 Million Domains Participating

Adopted by 90% of Top 100 U.S. Media Properties

Plus 5 Million TV Set Top Boxes for 3-Screen Measurement

comScore Big Data Stats

- 3.9 billion panel records per day; 115 billion panel records per month
- 560 million full HTML pages processed per day
- 45.3 billion tag records per day (currently peak at 2.4 billion per hour)
- 1.3 trillion tag records per month
- 15 TB new data per day compressed, 25 TB raw
- 14 petabytes of data online
- 15 billion observed distinct cookies per month
- 16 million distinct observed domain names; 75 million host names observed in the panel in one month
- Data Warehouse – 1.8 trillion rows of data in 14,168 tables (145TB)
- 2.900 Mbps bandwidth (95th percentile)
- 300,000 reports delivered on peak days (70 reports per second)

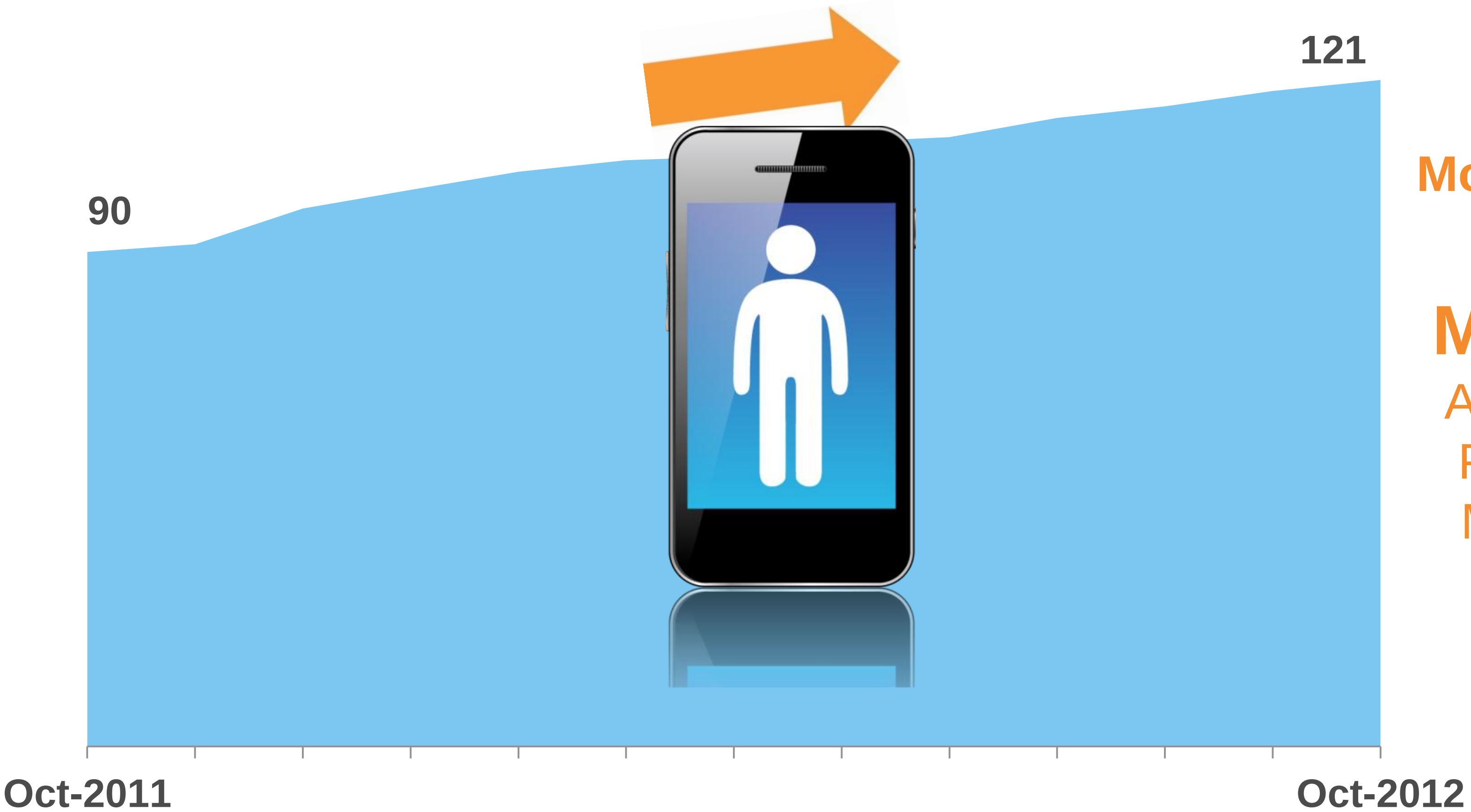
The Multi-Platform Shift

Where Computers, Smartphones and Tablets Intersect

Smartphone Takeover in 2012

Smartphone penetration surges past 50% of mobile users

120+ Million Smartphone Subscribers



More Than

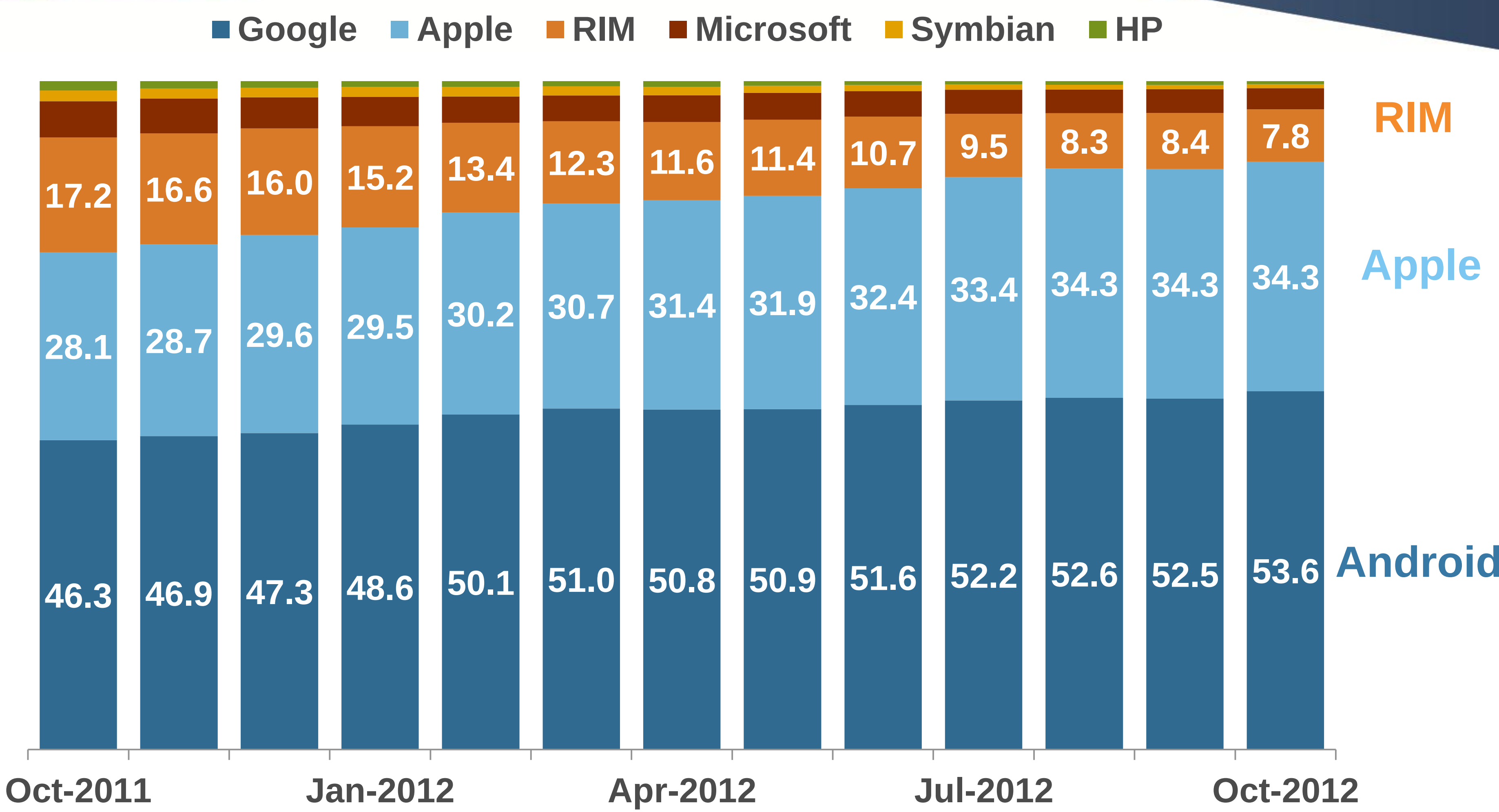
30 Million

Added in Past 12 Months

Source: comScore MobiLens, U.S.

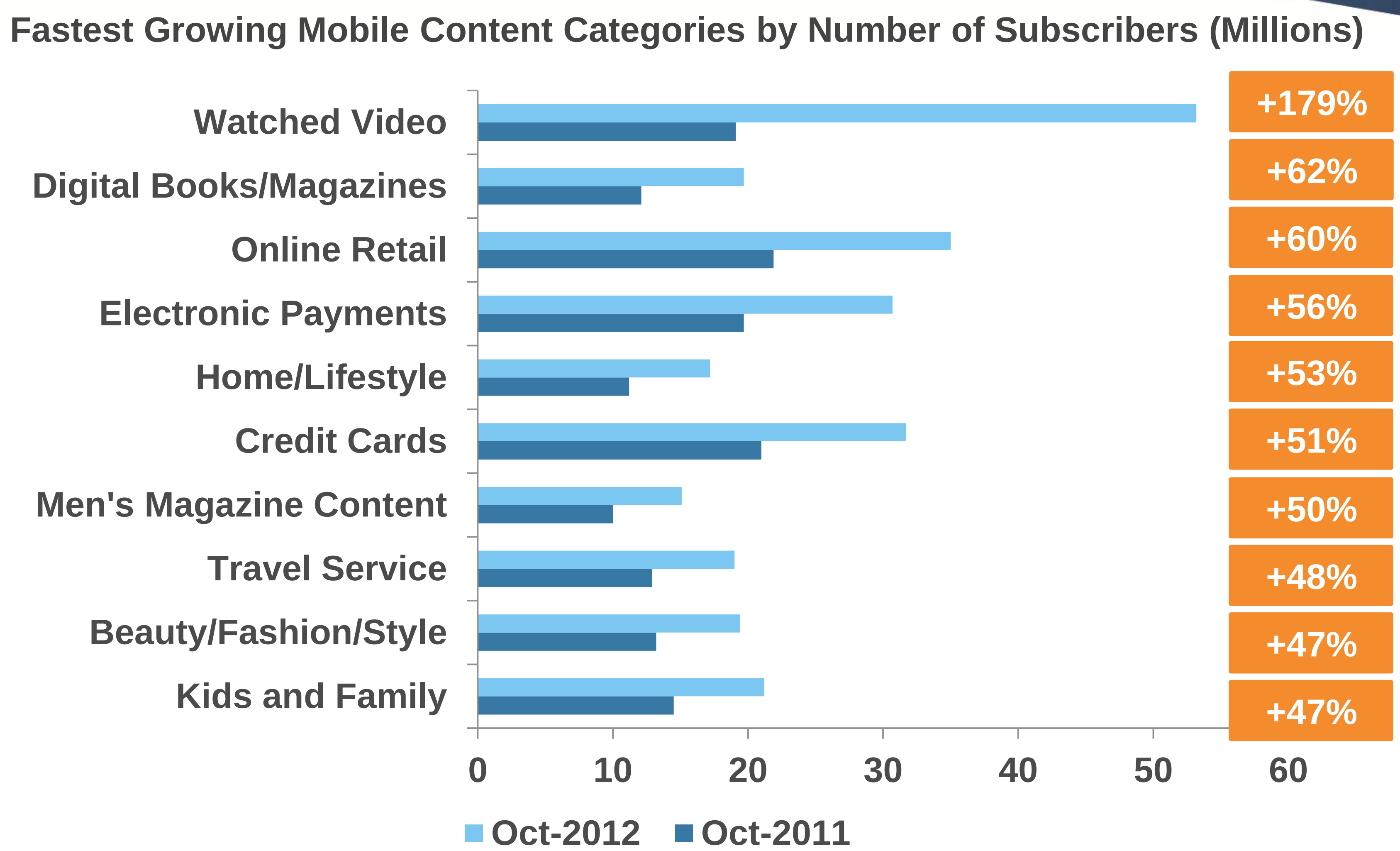
Smartphone Platform Wars

While RIM Declines, Android & Apple Command 88% of the Market



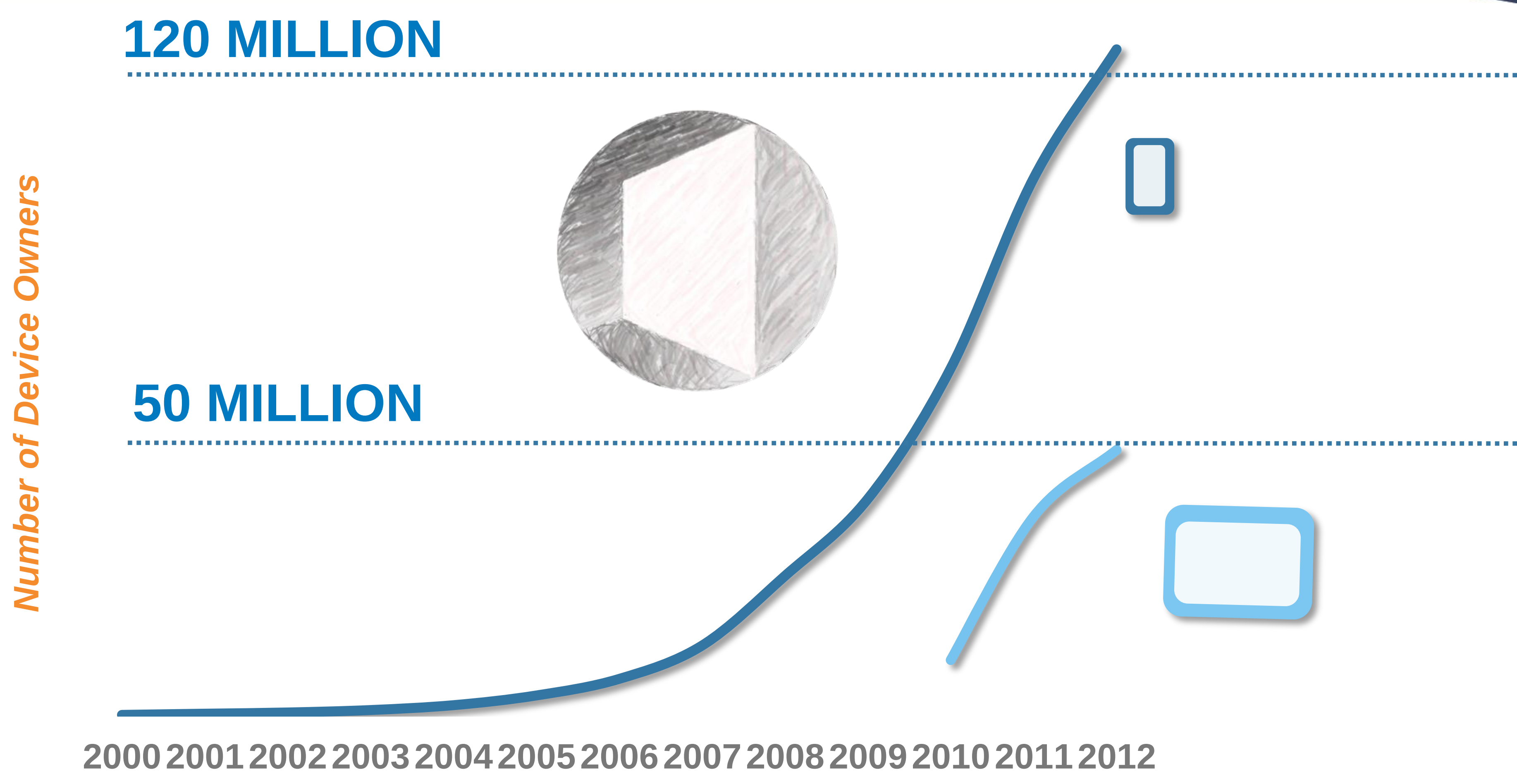
Source: comScore MobiLens, U.S.

Watching Video on Mobile Phone Leads as Fastest-Growing Mobile Category. Online Retail and Electronic Payments Surging



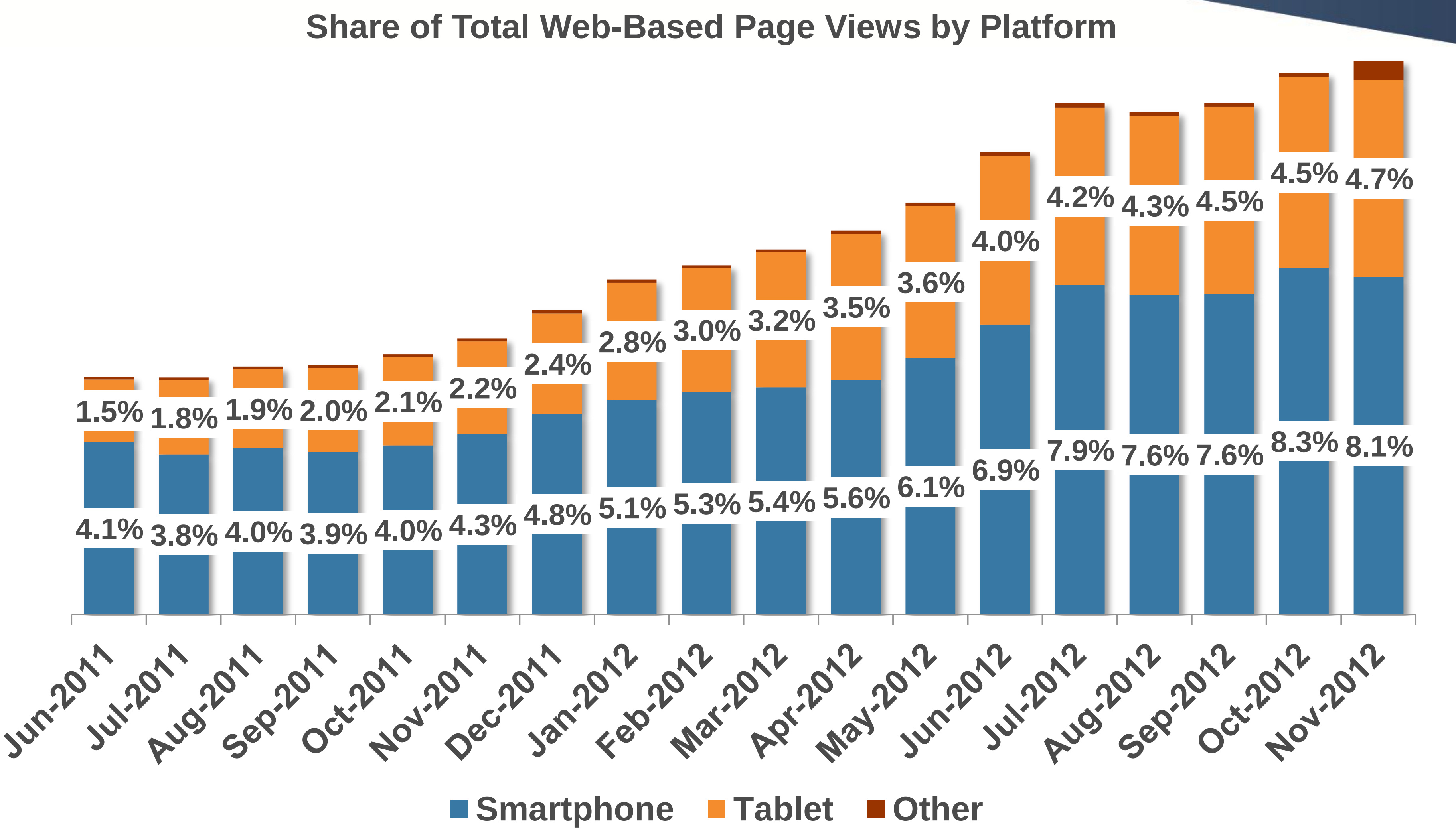
Source: comScore MobiLens, U.S.

We Now Live in the Post-PC Paradigm:
Tablets already used by 48 million U.S. owners, a level it took smartphones nearly 10 years to reach



Source: comScore MobiLens & TabLens U.S

More than 13% of Web Traffic Now Comes from Smartphones and Tablets… and it's Doubled in a Year!



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Source: comScore Device Essentials, U.S.

The Billion Dollar Research Lab

On behalf of NBC, comScore measured how consumers were using multiple platforms to view Olympic content

Billion Dollar Lab Headlines

- ❑ TV is Still King
- ❑ Alternative screens are additive

  Not a *"zero sum game"*

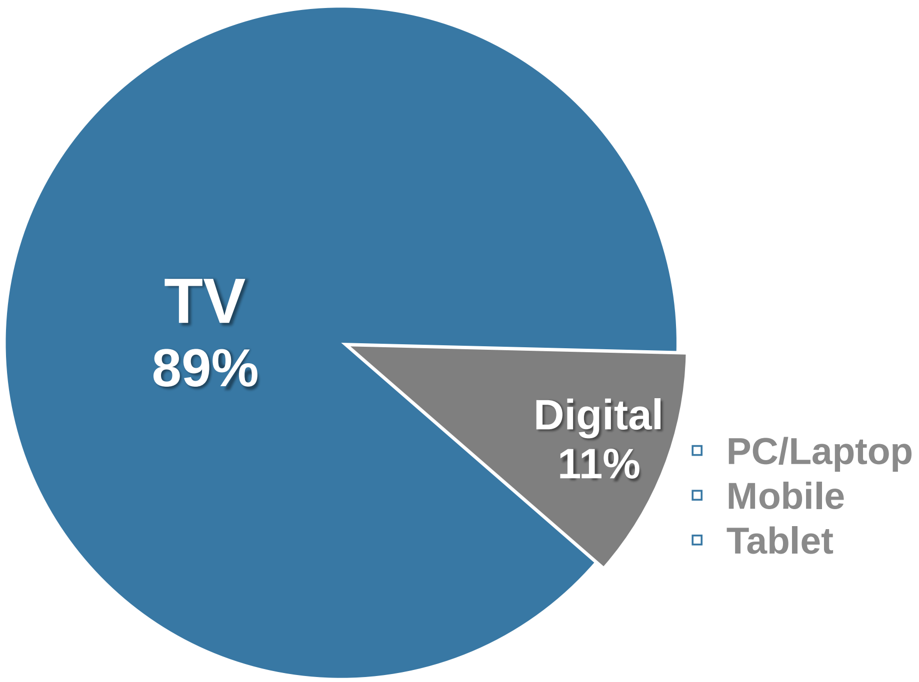
- ❑ Digital complements TV
- ❑ Social Media amplifies event and engages viewers
- ❑ Cross Platform and Simultaneous Use

  "The New Normal"

Source: comScore Custom Analysis for NBC

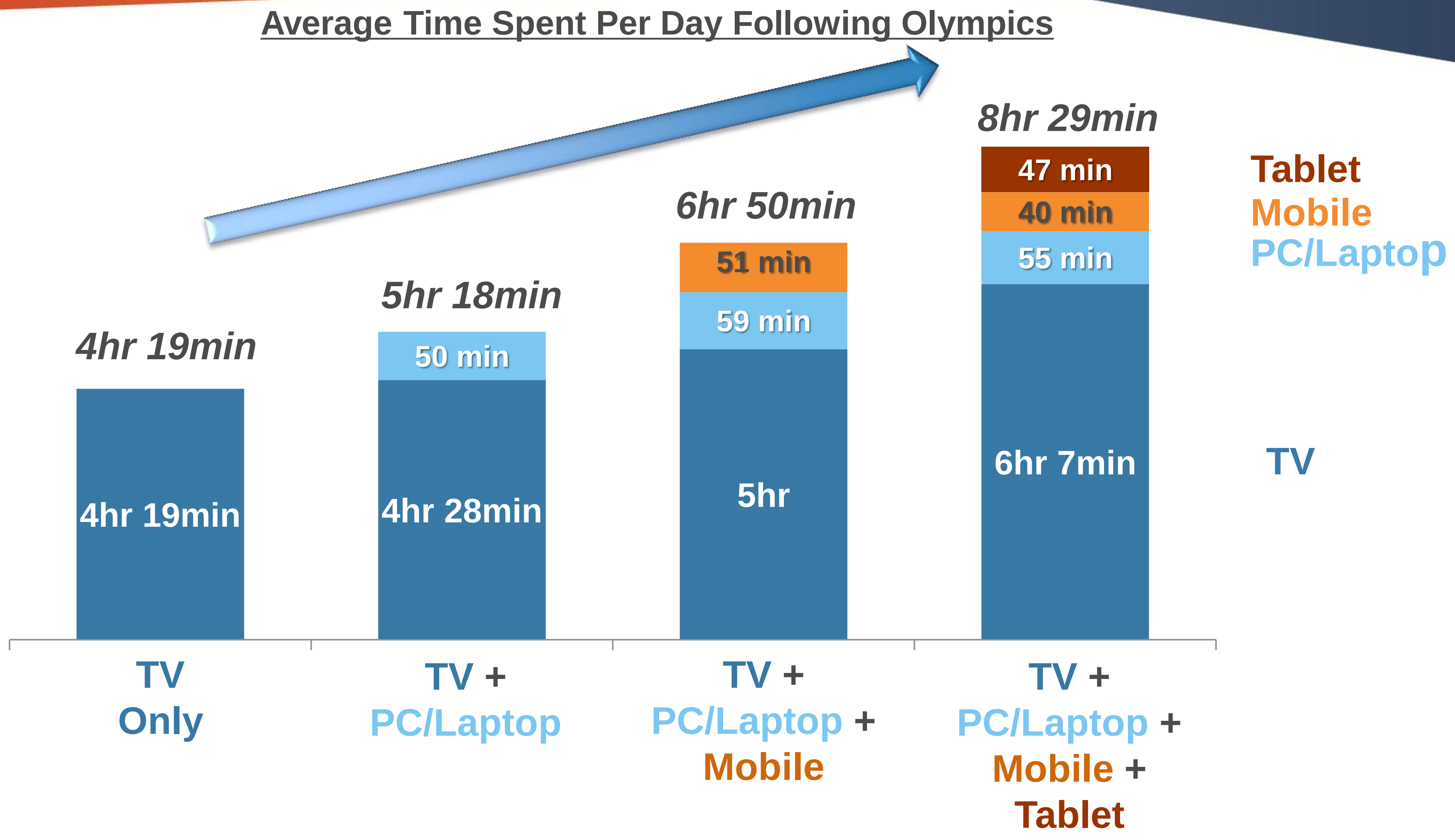
Olympic Consumption by Platform

Percent Time Spent



Source: comScore Custom Analysis for NBC

More Screens = More Time Spent on Media in Total



Source: comScore Custom Analysis for NBC

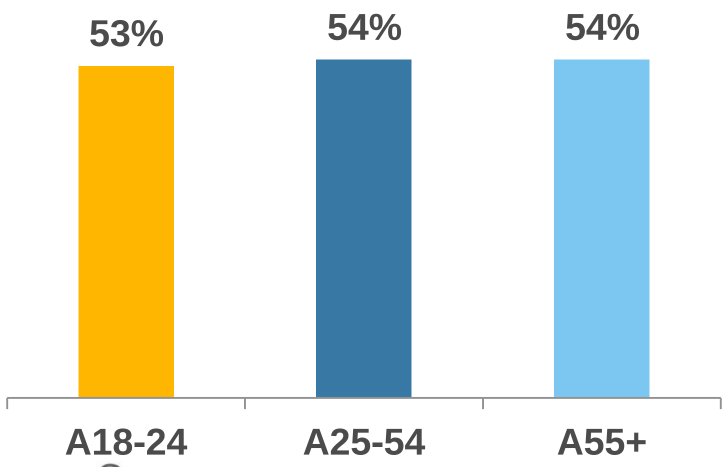
Simultaneous Viewing

"Watching Olympics on TV and consuming Olympic content on other screens"

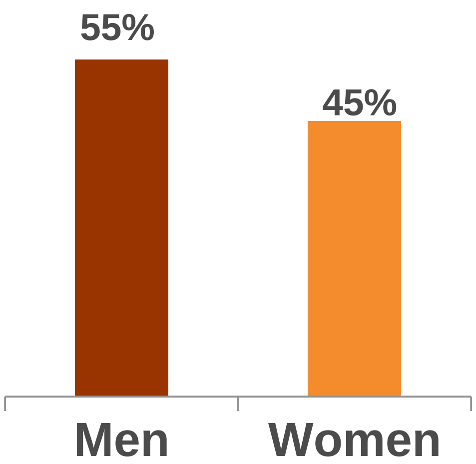
- **54% who used TV & 1 or more other platforms were Simultaneous Viewers**
  - **25% of time spent watching Olympics on TV was *accompanied by use of another screen***

- **SimViewer Profile:**

Age



Gender

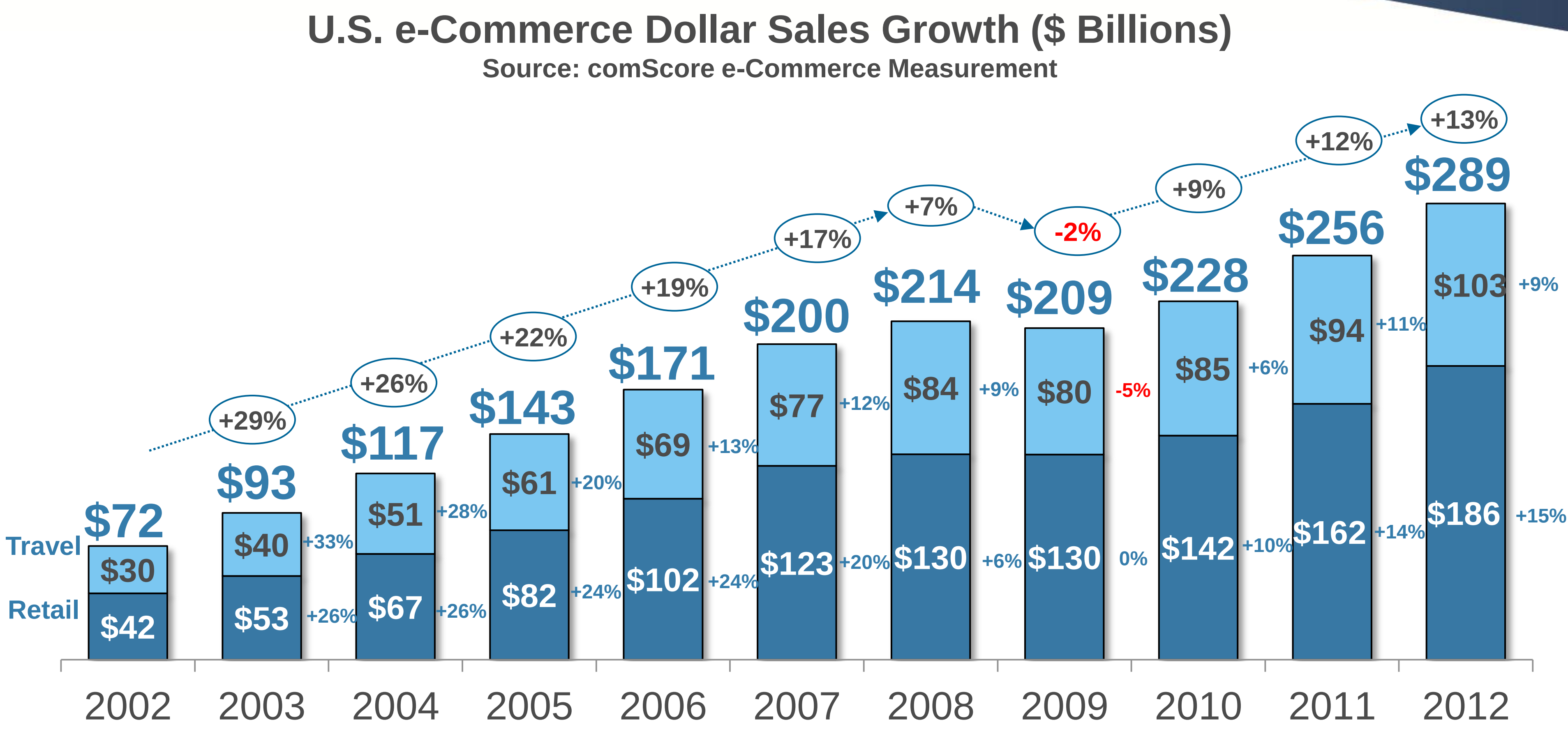


Source: comScore Single Source Multi-Platform Study

e-Commerce

A Channel Shift Accelerates

e-Commerce spending is up +13% Y/Y, posting $289 billion in sales in 2012. Retail e-commerce growing faster than Travel



$186 Billion was Spent on Online Retail in 2012, with the channel shift increasing rapidly

+15% vs. year ago

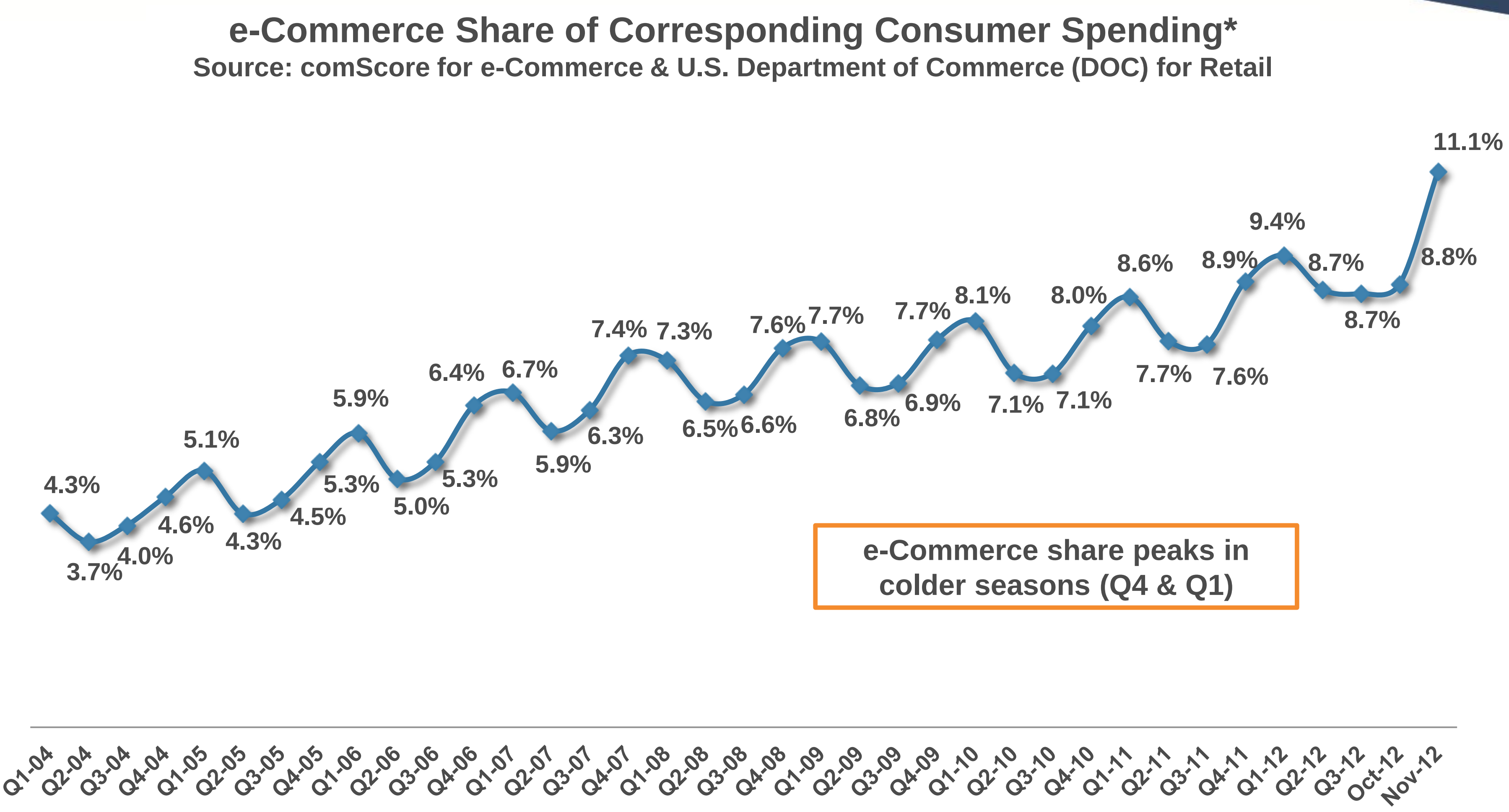
$186B

Retail (non-travel)

5X Faster than Spending Growth Offline

Source: comScore e-Commerce Measurement 2012

1 in Every 10 Discretionary Dollars Now Spent Online



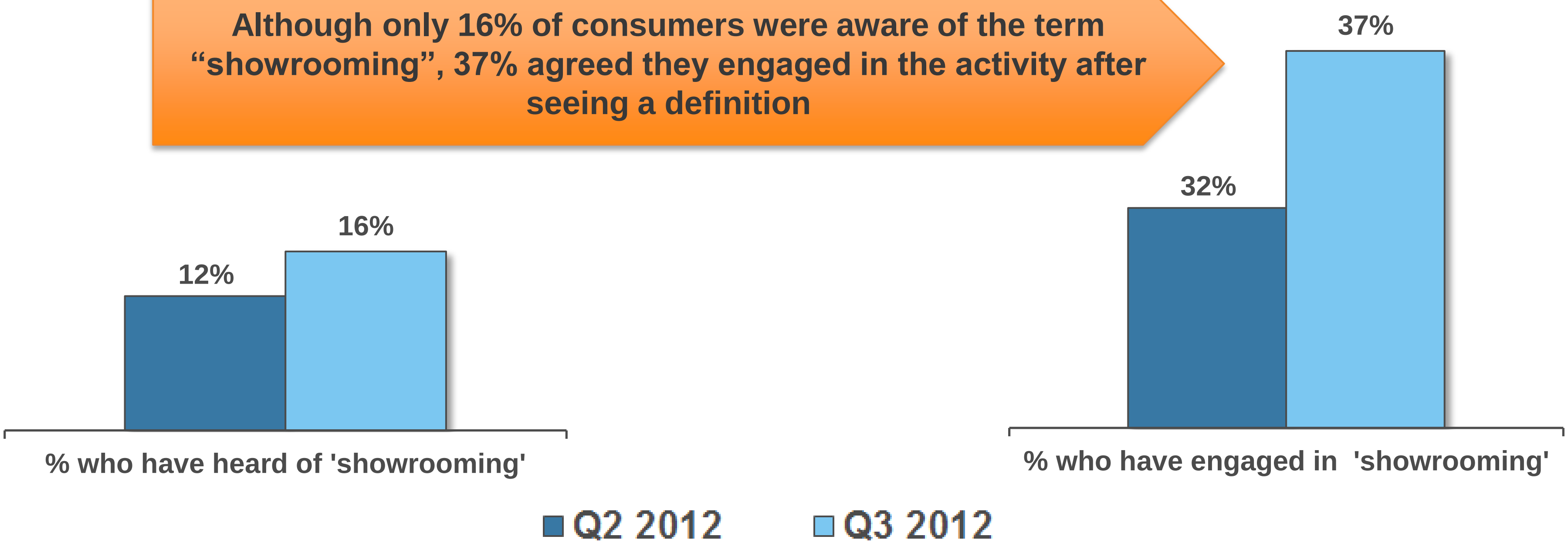
**Note: e-Commerce share is shown as a percent of DOC's Total Retail Sales excluding Food Service & Drinking, Food & Bev. Stores, Motor Vehicles & Parts, Gasoline Stations and Health & Personal Care Stores.*

SHOWROOMING: Nearly 4 in 10 consumers engaged in the activity, with 70% saying they did so to check prices

"Showrooming" – verb.

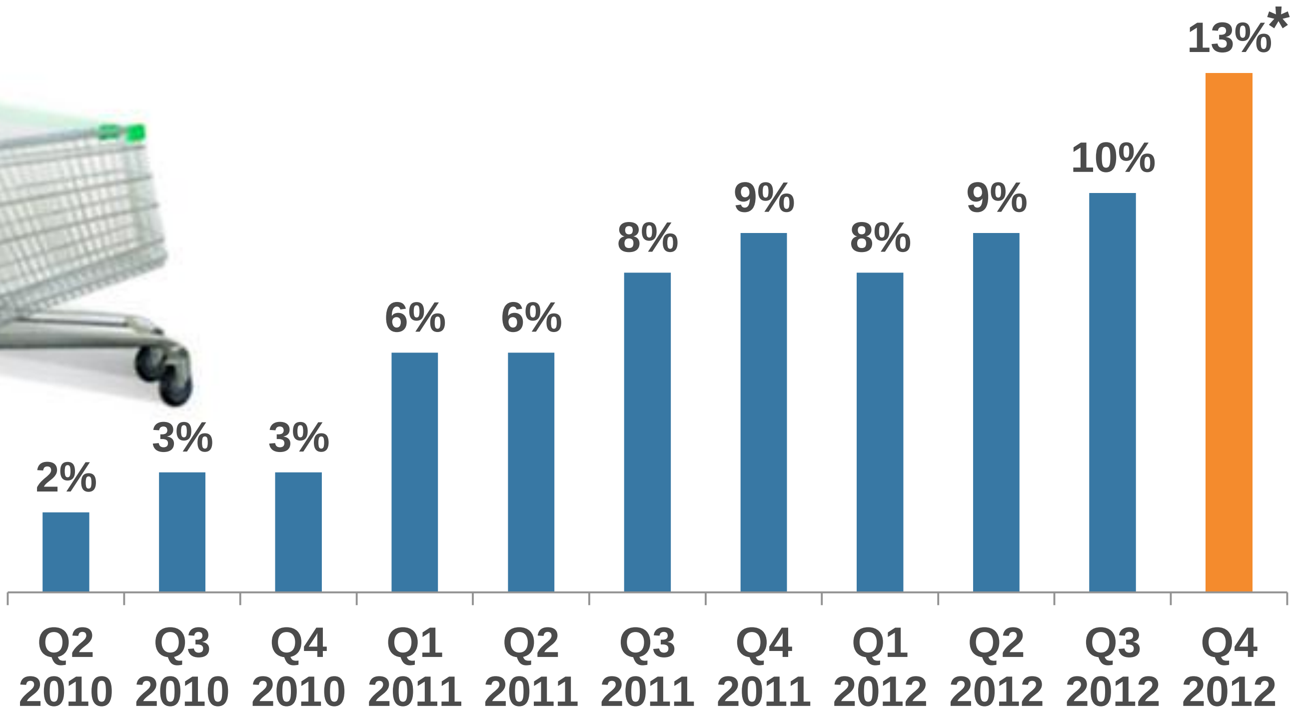
Visiting a brick-and-mortar store to see a product but instead purchasing the product <u>online</u>. Shoppers may intend from the start to purchase the product online, or may decide to purchase online, rather than in-person, <u>after</u> viewing the item at the store.

Although only 16% of consumers were aware of the term "showrooming", 37% agreed they engaged in the activity after seeing a definition



More than 1 in 10 Retail e-Commerce Dollars Are Now Spent Via Mobile Device (i.e. Smartphones and Tablets)

Percentage of Retail e-Commerce Dollars Spent via Mobile Device



*Preliminary estimate

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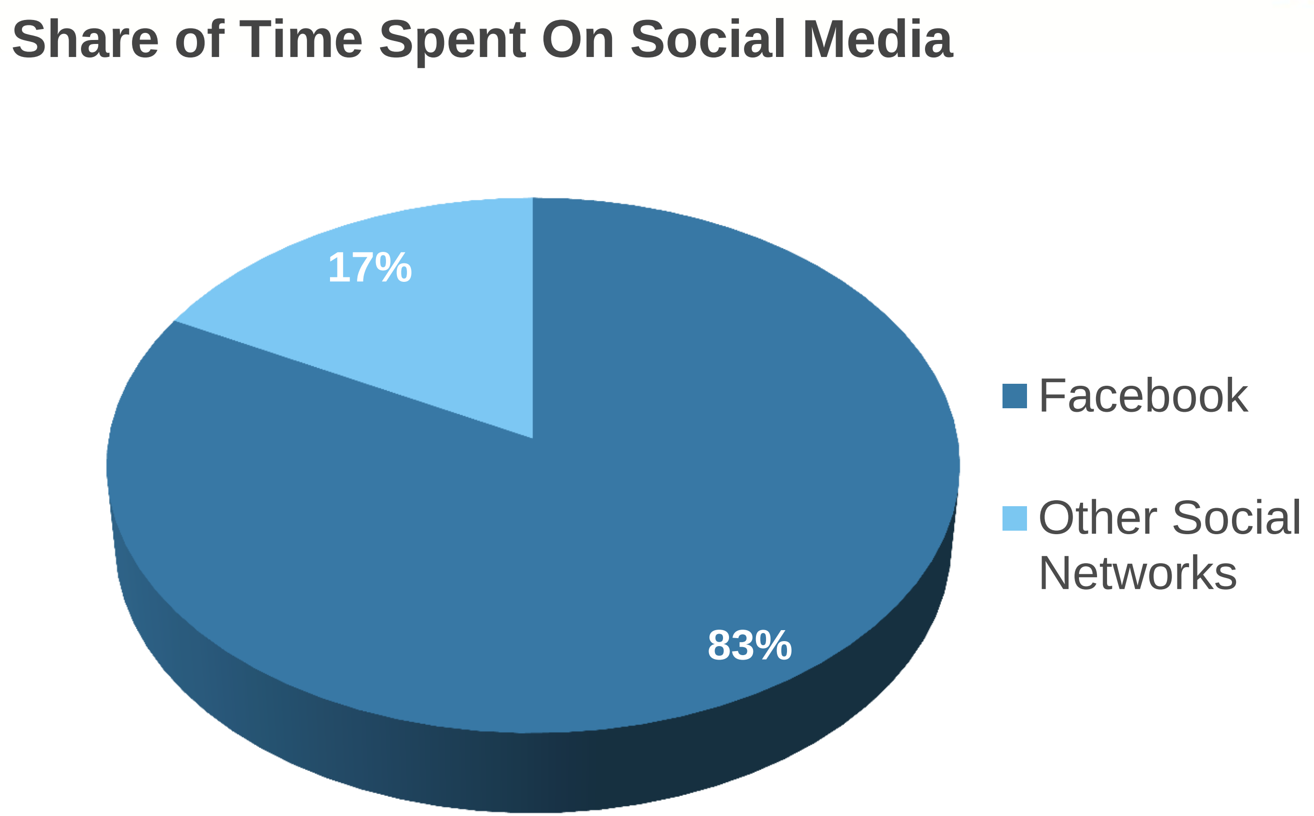
Source: comScore E-Commerce Measurement, U.S.

Social

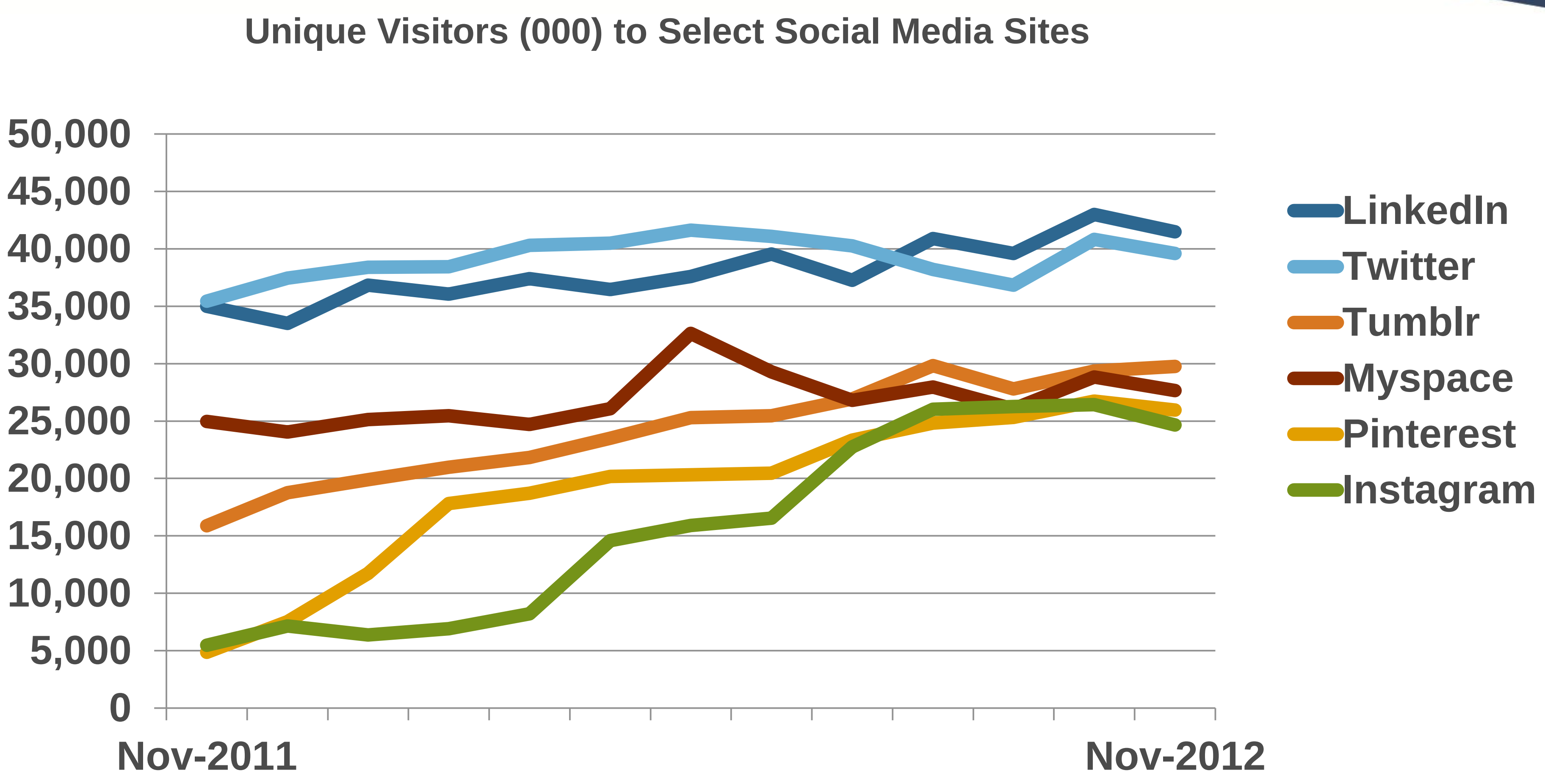
Facebook-led Social Media has Redefined Communication

150 Million Americans Average 5.5 Hours per Month on Facebook Using a Computer with a Fixed Internet Connection



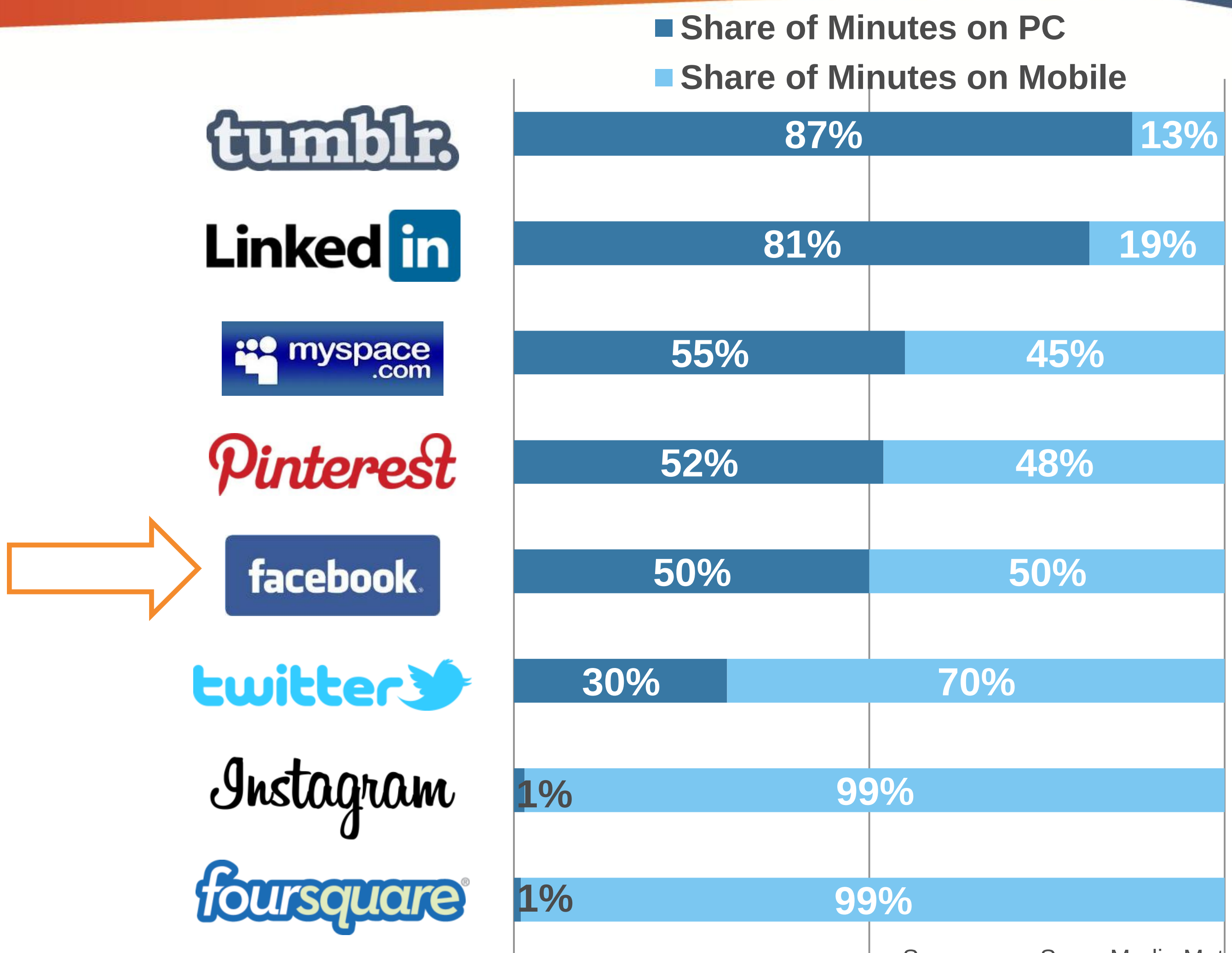
Source: comScore Media Metrix, Nov-2012, U.S.

Social Networking Beyond Facebook



Source: comScore Media Metrix, U.S.

Mobile Devices Represent a Vital Access Platform for Many Social Sites. Virtually All Time Spent on Instagram and Foursquare Comes from mobile Devices. Half of Facebook Time is from Mobile

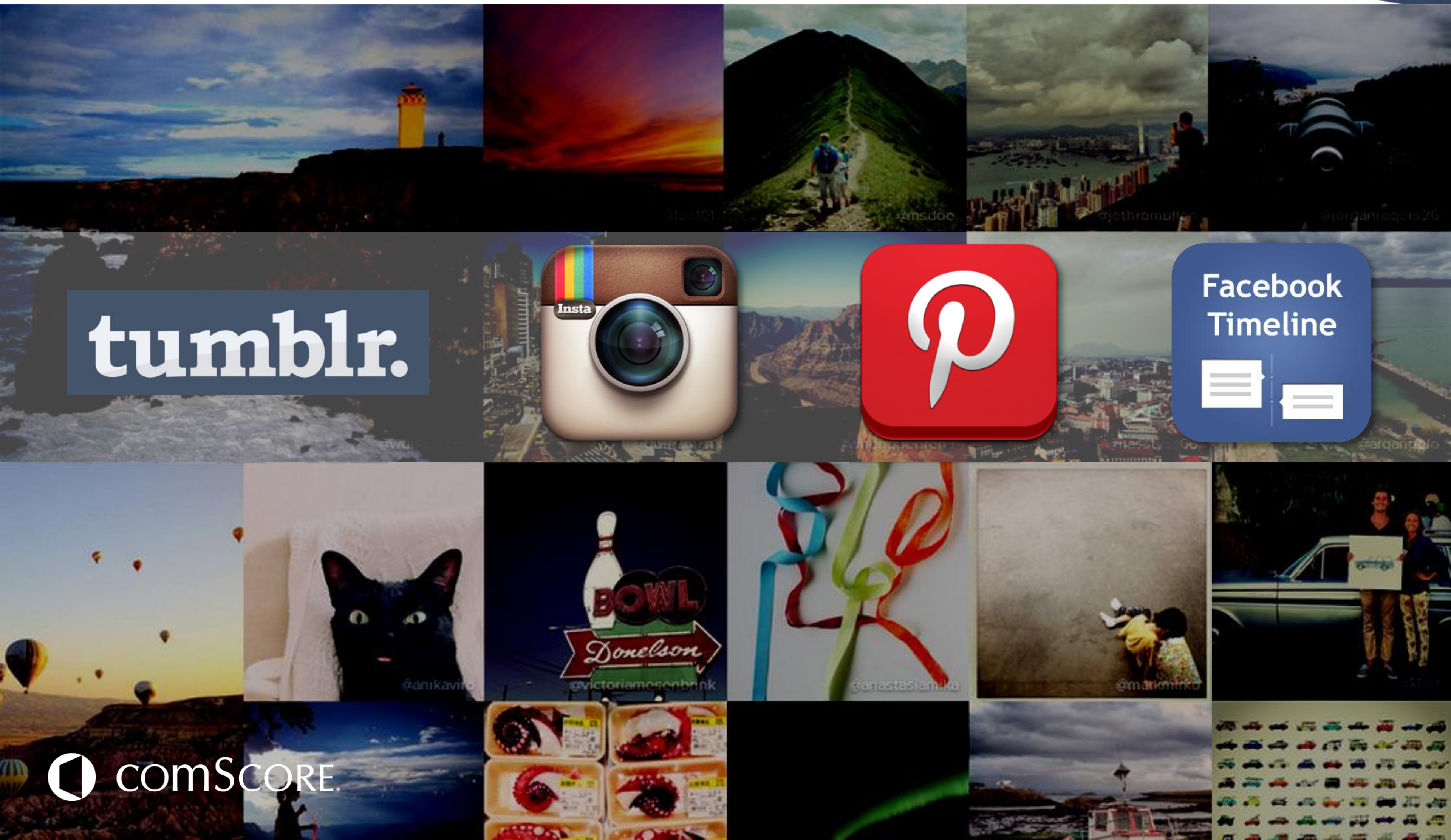


Source: comScore Media Metrix Multi-Platform Beta, Nov-2012, U.S.

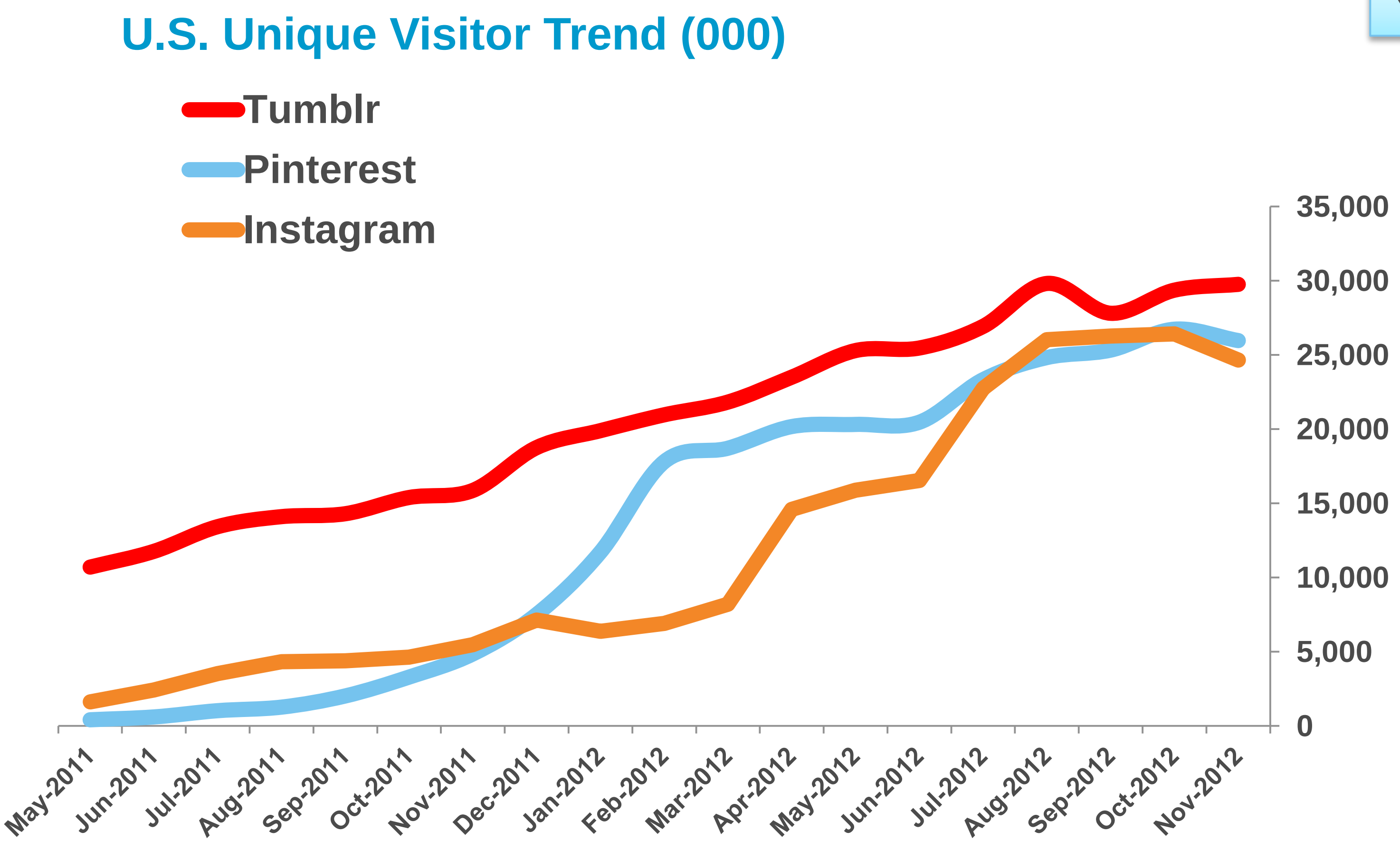
comScore

The data cited above are part of a beta release. As such, they are preliminary and subject to further testing and analysis. These data are not comScore data of record

The Rise of the Visual Web



Tumblr, Pinterest & Instagram Among the Hottest Growth Sites in 2012



Year over Year Growth

tumblr.

+90%

+430%

+350%

Source: comScore Media Metrix, U.S.

Video

Online Video Viewing Becomes Mainstream

Online Video Attracts an Extremely Large Audience

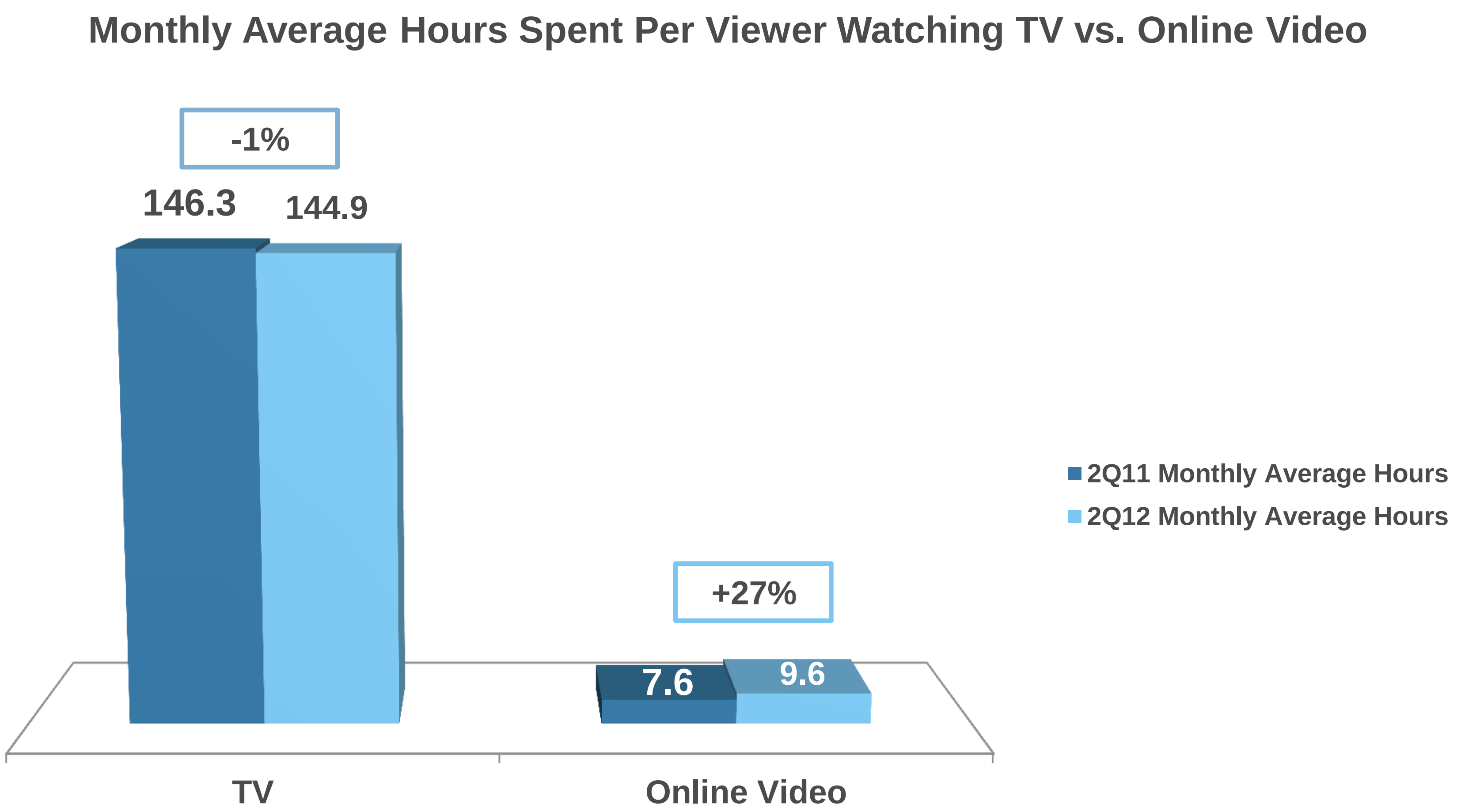
75 Million Daily Viewers

In an average month…

30 Billion Content Videos	**163** Videos per Viewer	**8.5** Hours per Viewer

Source: comScore Video Metrix, Nov-2012, U.S.

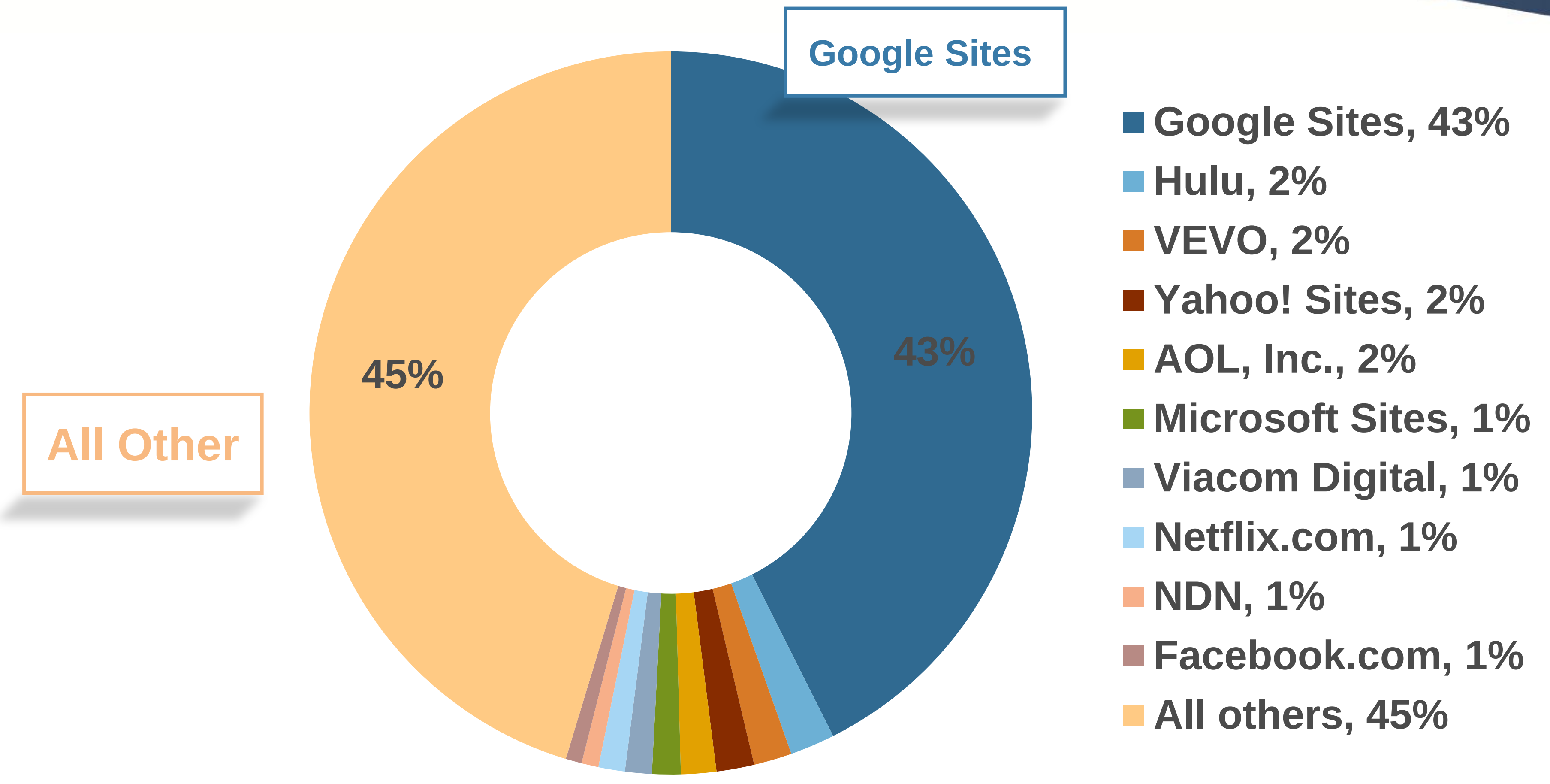
Time Spent Watching Traditional TV is Down Only Marginally, While Online Video is Surging but still Equivalent to Only 7% of TV



SOURCE: TV: Nielsen Cross Platform Report – Q2 2012. Online Video: comScore Video Metrix

Top Video Properties in Dec. 2012

YouTube Drives Lion's Share of Views, With a Fragmented Picture Beyond That …



Share of Content Videos Viewed, Jan-Nov 2012

Source: comScore Video Metrix, Jan-2012 to Nov-2012, U.S.

Digital Advertising

Ad Spending Continues to Shift to Digital

IAB says online ad spend is now larger than newspapers, magazines and radio, and equivalent to nearly half of tv

+15%
vs. year ago

6X Faster Growth than All Media

$36 Billion online ad dollars in 2012

Search +19%

Video +12%

Mobile +95%

Source: IAB, comScore & Kantar Media

Power of Like 2: Key Findings

AMPLIFICATION

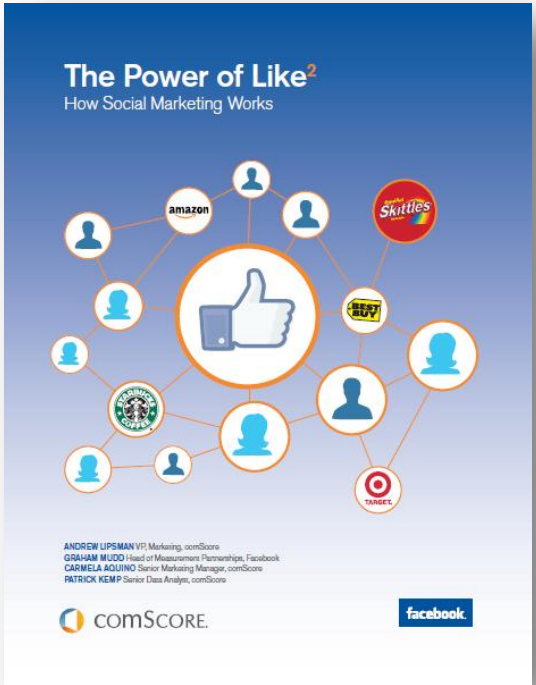
Brands can meaningfully extend Facebook reach through amplification to Friends of Fans and help drive sales

EARNED MEDIA LIFT

The causal effects of earned media exposure can be isolated, and show lifts in purchase behavior

PAID MEDIA LIFT

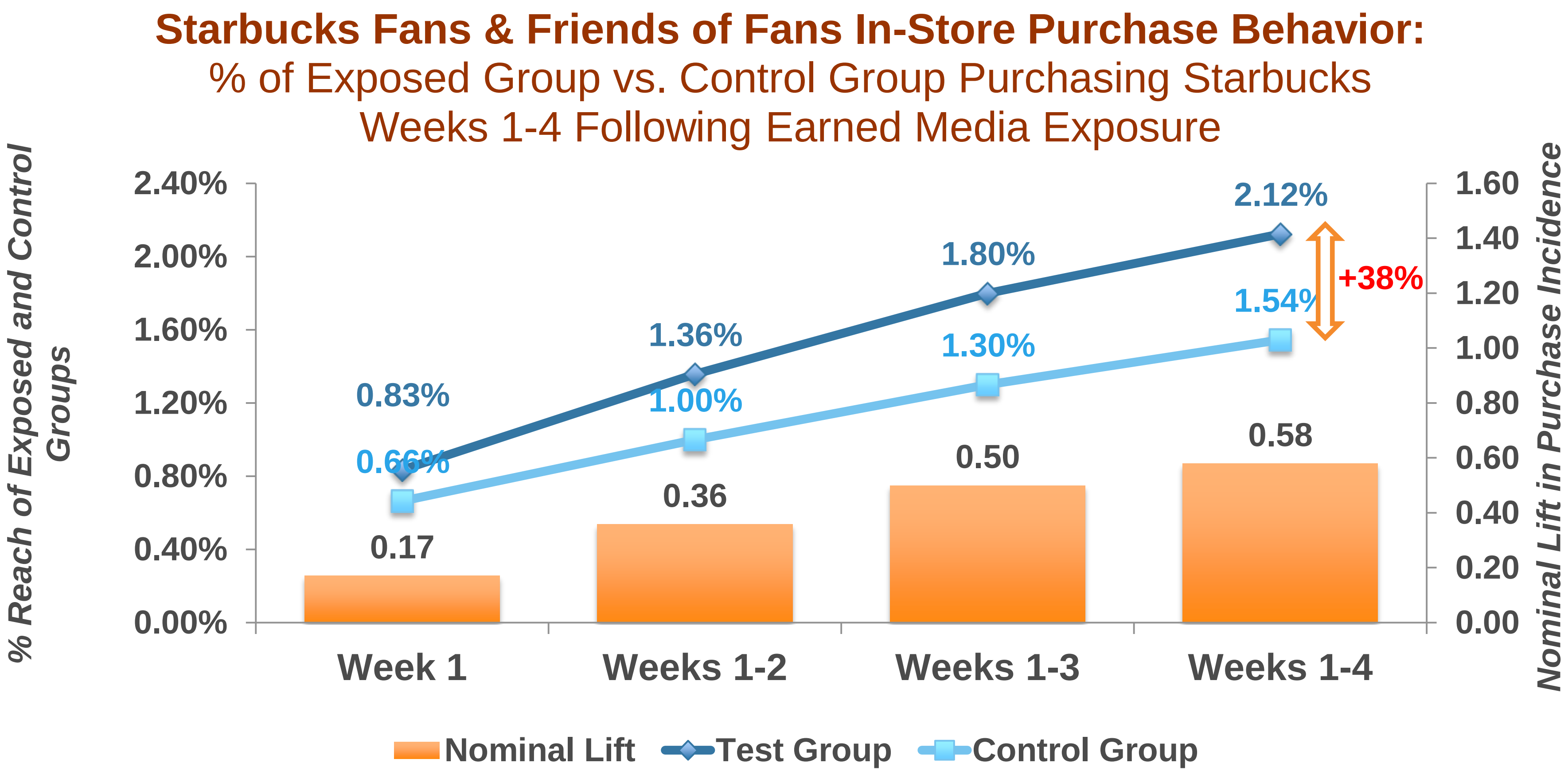
Facebook advertising also shows evidence of driving lifts in purchase behavior



Download full white paper at:
www.comscore.com/like2

Example of Earned Media Lift

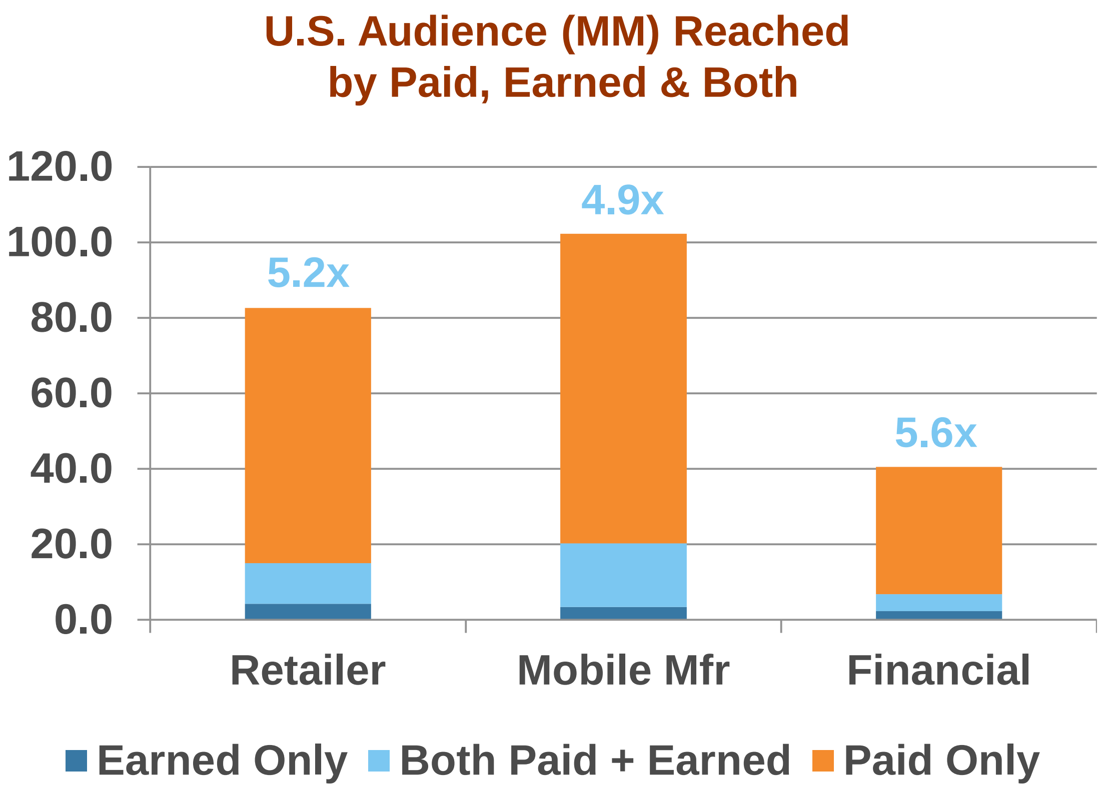
Starbucks earned media impressions drove significant lifts in in-store purchase



Source: comScore Social Lift, U.S., February-March 2012

Paid Media Amplification

Facebook paid ads can help reach a qualified audience at scale



- In cases studied, paid ads amplified reach by 4-6x earned media alone
- In each case, audience reached via paid had significantly higher brand purchase and/or engagement
- Conclusion: paid media can help reach qualified audience at scale

Source: Facebook-comScore Paid Reach Research, June 2012

Arguably the Most Important Digital Advertising Initiative: Making Measurement Make Sense (3MS)

- **Reduce costs of doing business** due to complexity of digital advertising ecosystem
- Improve reporting of **ad exposure**
- Bolster confidence that ads delivered are **actually visible**

comScore Studies:
In-view Rates Need to Be Improved

- **5,000+ studies**
- **160 advertisers / agencies**
- **32 countries**

US

69%
AVERAGE

EU

67%
AVERAGE

Campaign In-view ad rates ranged from:
US 55% to 93% **EU** 64% to 72%

Kellogg's Real-Time Digital Campaign Monitoring Dashboard from comScore

Real-time **Campaign** Optimization **by Publisher** Based on Cost and Effectiveness

- Opportunity to optimize - **Budgets follow performance**
- Multiple publishers, each with high reach potential
- Wide variance in performance observed real-time

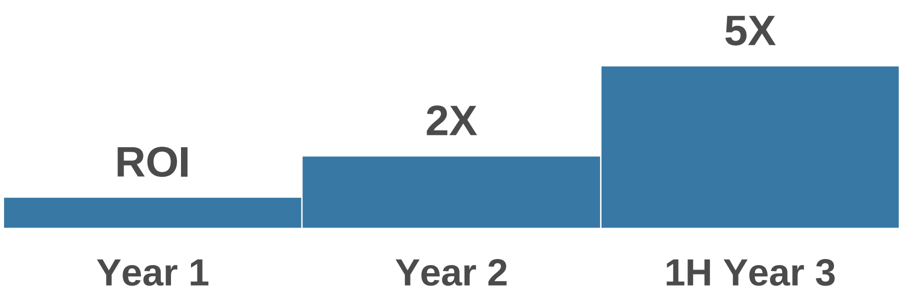
Brand X - Q3/Q4

Media Partner	Avg Frequency	Impressions in Target	Impressions in View	Lift in Awareness	CPM
1	3.5	24.5%	83%	5.74	$2.44
2	3.0	16.9%	91%	0.55	$9.08
3	8.4	23.5%	71%	0	$8.62

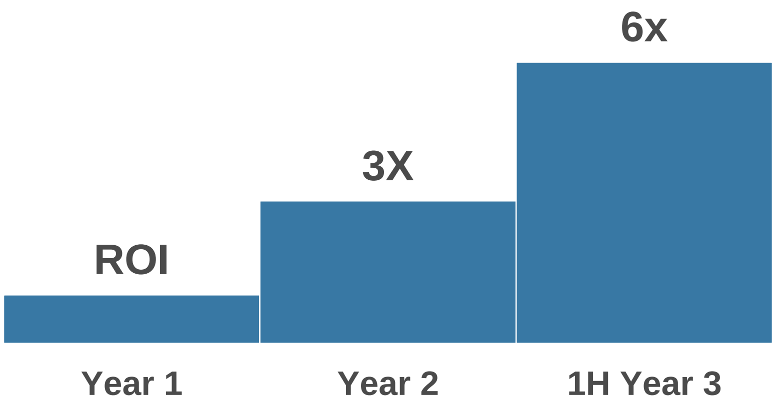
Is Kellogg's Digital Strategy Working?
Absolutely!

Implemented new Digital strategy and analytics in first half of Year 3
ROI results from **their** first two Brand Market Mix Models

Brand 1 ROI



Brand 2 ROI



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Summary: Important Themes in 2013

- ❑ **e-Commerce sales will continue strong growth**
  - Physical stores will be under more pricing pressure because of the channel shift and showrooming
  - Mobile e-commerce will continue to surge
- ❑ **Digital advertising will also continue strong growth**
  - Viewability and audience guarantees will be accepted by more publishers
  - Social, Video and Mobile will continue exceptional growth
  - Retailers will become advertising platforms
  - Ad effectiveness analytics surge
- ❑ **Programmatic ad buying surge will continue but possibly be a drag on revenue growth if it pushes down prices**
  - ❑ Private exchanges will protect publishers' prices for premium content
- ❑ **Multi-platform media plans will grow in importance**
  - Emergence of new measurement systems

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Thank you!
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