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English

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TITLE: Forecasting Fixed and Mobile Data Traffic: Cisco's Visual Networking Index



Forecasting Fixed and Mobile Data Traffic: Cisco's Visual Networking Index

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Cisco Visual Networking Index (VNI) Global Forecast Update 2011-2016

6th
Anniversary

Cisco® VNI Forecast research is an ongoing initiative to predict global traffic growth. This study focuses on consumer and business mobile data traffic and its key drivers.

Global Forecast
Data



Global Speed Data
Sample Size > 1M



Source: Cisco VNI Global Data Traffic Forecast, 2011-2016

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Establishing the Zettabyte Era

By 2016, global IP traffic will reach an annual run rate of 1.3 zettabytes per year

What is a zettabyte?

- One trillion gigabytes
- Approximately 10^{21} (1,000,000,000,000,000,000 bytes)

1.3 Zettabytes is equal to:

- 10X More than all IP traffic generated in 2008 (121 exabytes)
- 38 Million DVDs per hour



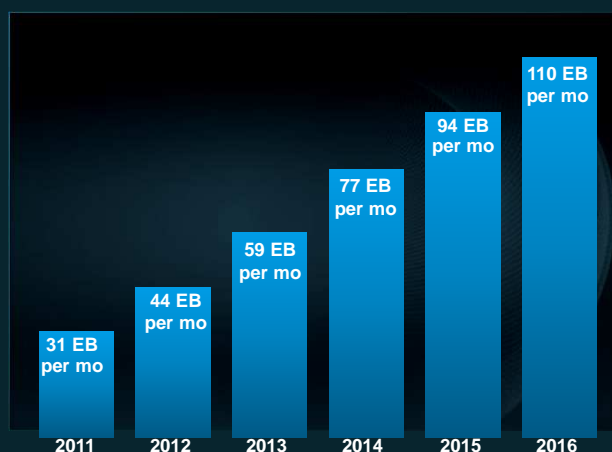
Source: Cisco VNI Global Forecast, 2011–2016

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Establishing the Zettabyte Era

Global IP Traffic Will Increase 4X From 2011 - 2016



By region and major country;

Fixed Internet vs. Mobile data vs. Manage IP;

Devices;

Consumer vs. Business;

Application sub-segment;

Video sub-segments

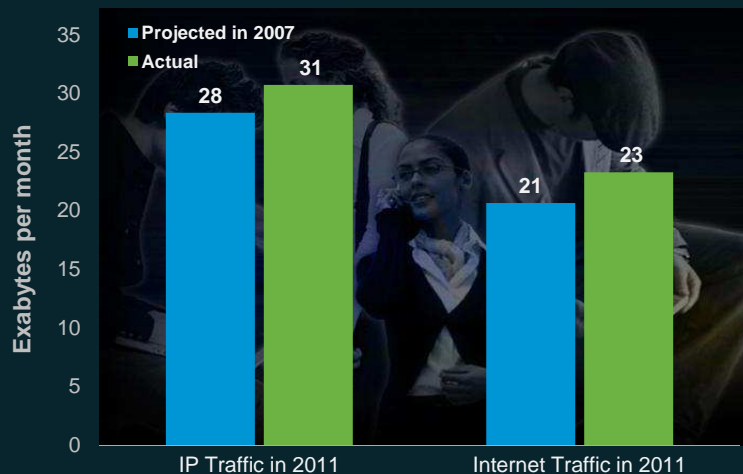
Source: Cisco VNI Global Forecast, 2011–2016

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VNI Projections and Actuals (Global)

Actual Growth Has Been Within 10% of Projected Growth

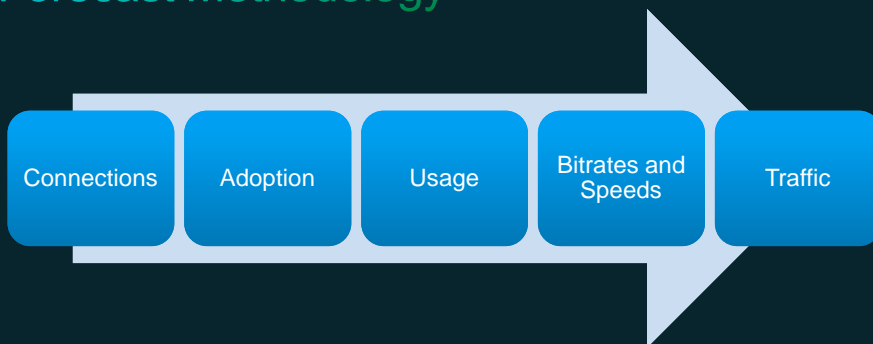


Source: Cisco VNI Global Forecast, 2011–2016

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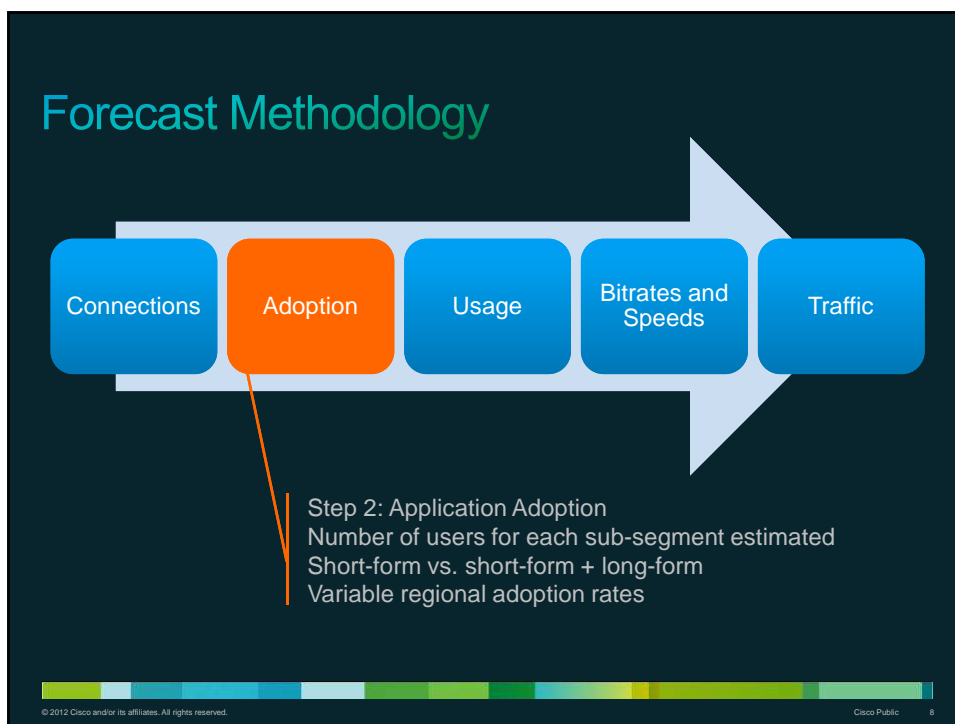
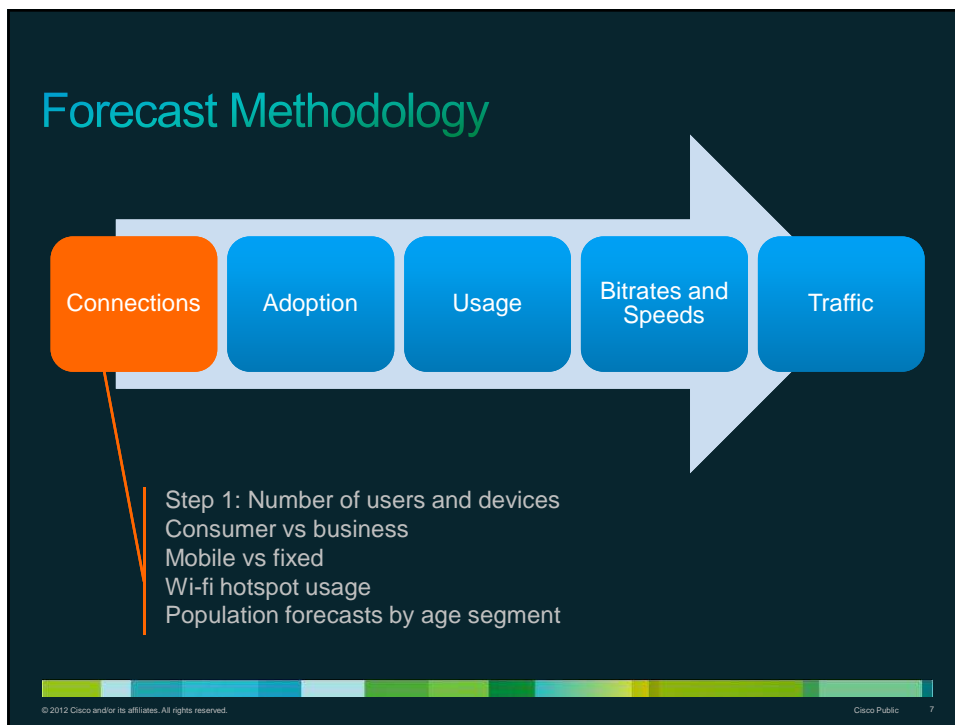
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Forecast Methodology



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Forecast Methodology

Step 3: Minutes of Use (MOU)
 Estimated for each application sub-segment
 Minute-per-subscriber baseline for applications
 Cisco Connected Life Market Watch
 comScore Video Metrix (PC-based MOU)

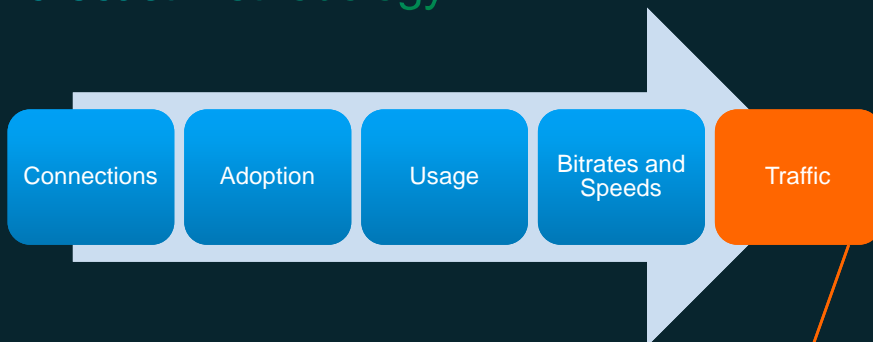
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Forecast Methodology

Step 4: Bitrates
 Kilobyte (KB) applied to MOU of each application sub-segment
 Regional & Country average broadband speeds forecasted
 Representative Bitrate established; increases with bb speed
 Local bitrates: ave bb speed, digital screen sizes, devices

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Forecast Methodology



Step 5: Rollup & Traffic Migration Assessment
 Bitrates, MOU, and users aggregated for average monthly traffic
 Reconcile Internet, managed IP and mobile segments

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Sources of Statistical Data

National Statistical Agencies	→	Various e.g. ACMA (Australia), MIC (Japan), Ofcom (UK), MIIT/ CNII (China), CRTC (Canada), Anatel (Brazil), and others
Cisco Direct Data Collection	→	Global Internet Speed Tests Connected Life Market Watch survey
Third Party Measurement & Analysts	→	Informa, IDC, Frost & Sullivan, Gartner, Ovum, and others comScore, Nielson, Ookla, Arbitron, and others
VNI Usage program	→	Service Provider customers' data: Aggregate volume and traffic type

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Challenges/ Opportunities

- Challenges:
 - Point of Measurement:
 - End users; point of peering; long-haul?
 - Domestic traffic (CDNs; local cache at IXPs)
 - Data:
 - Accuracy
 - Common definitions

- Opportunities:
 - Aggregation - data/ results from domestic SPs (subs; peak traffic)
 - Definition – e.g. broadband
 - Measurement - granular data on subs; speeds; devices
 - Assess – technology, application, content

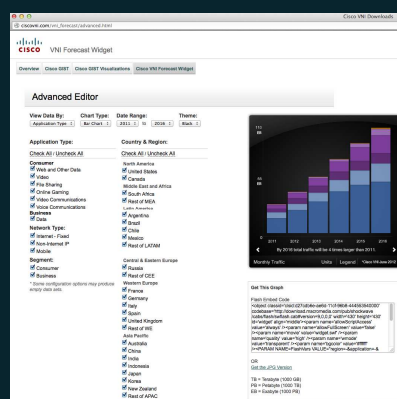
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Cisco VNI Web Sites

IP Traffic Forecast: <http://www.cisco.com/go/vni>

- Press Releases
- White Papers / FAQs
- Cisco VNI Web-based Tools / Free Apps



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