



THE INTERNET IN 2015

View from a global Tier1

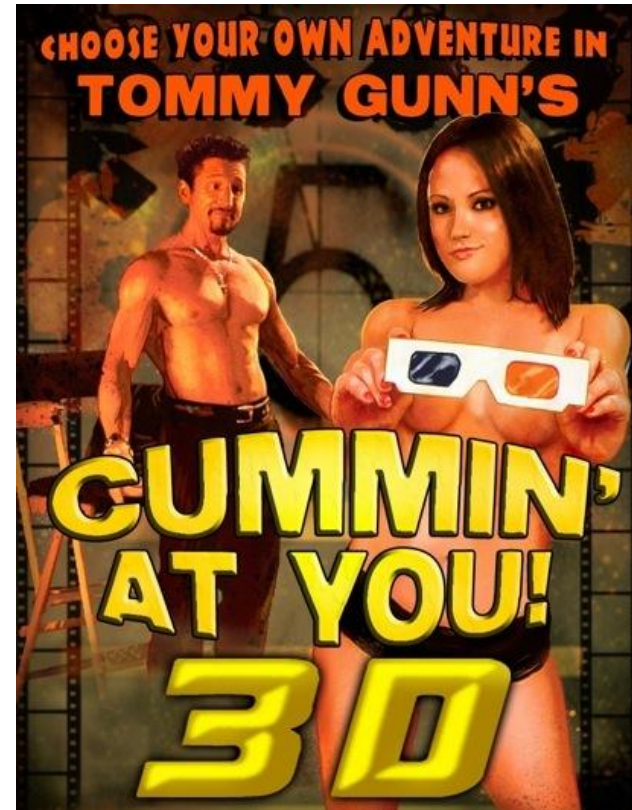
(...and what does it mean for you)

Bart van der Sloot, Director Carrier Services

Roland Vrijheid, Sales Manager Carrier Services



This is not about...



Presentation Overview

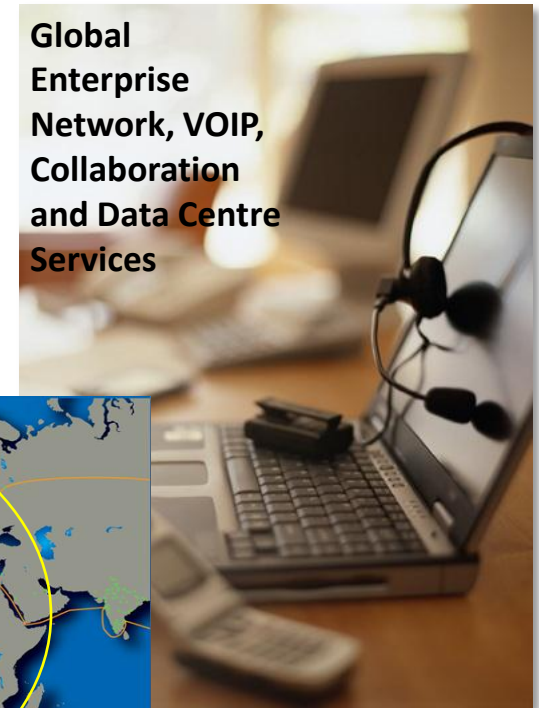
- Global Crossing – who we are and what we do
- How the Internet evolved in the last 10 years
- The Internet in 2015: what do we expect & how do we prepare
- Impact on end-users and service providers
- Conclusions

GLOBAL CROSSING

WHO WE ARE AND WHAT WE DO



Global Crossing at a Glance



Unparalleled global sub-sea & terrestrial network
Core Network self built / self operated / fully owned
Team of over 5000 professionals in North America, Latin America and Europe

- Landing Points
- Core Network Reach
- Metro Networks
- Data Centers
- Global Crossing Operated Network
- Leased Capacity/IRU on Other Network



New countries
 Bratislava, Slovakia, Sitel
 Bucharest, Romania NXDATA-1
 Sofia, Bulgaria, Teleport/Data Centre
 Kiev, Ukraine, NewTelco

AC-1®

AC-2

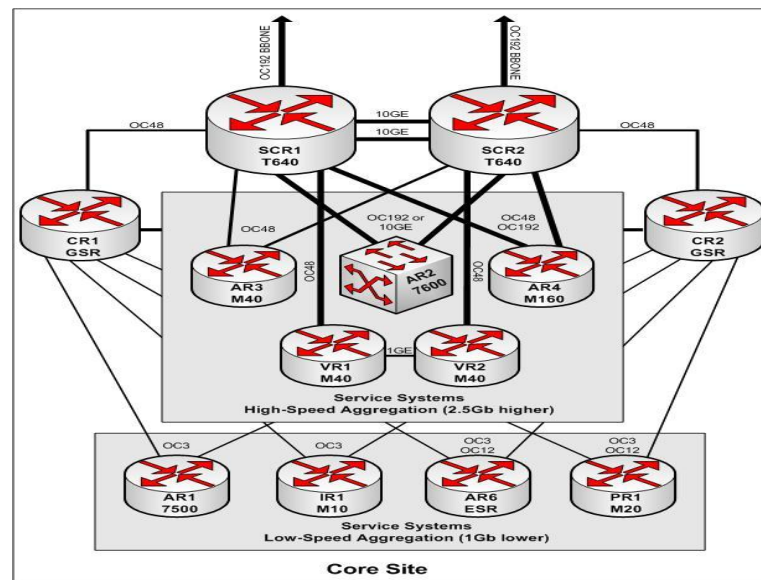
AC-1®

Sea-Me-We-4

Tier 1 Internet Backbone with extensive global private and public peering reaching 100% of the Internet

Direct connectivity into top Internet destinations

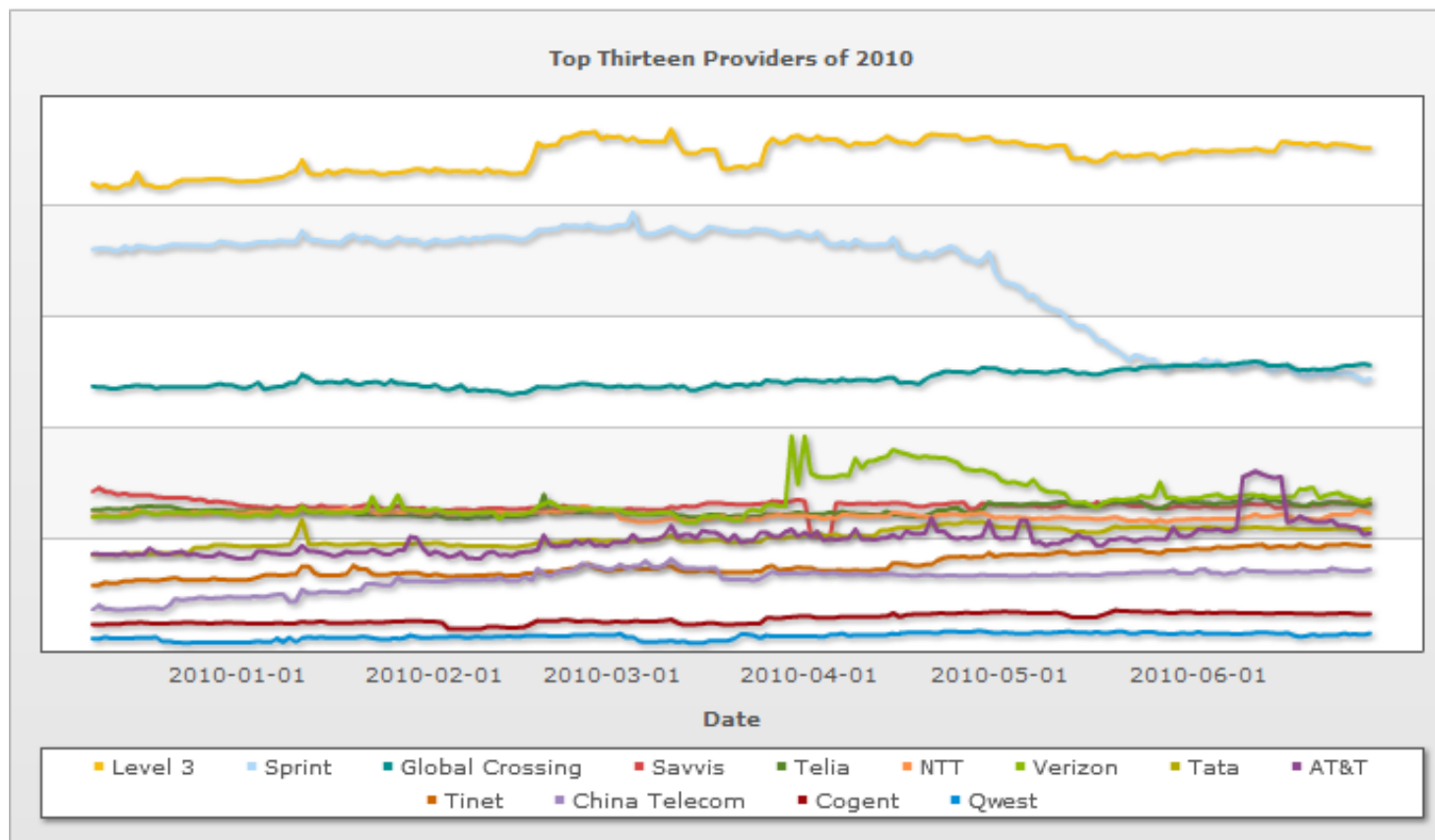
- Redundant and shortest path network design, minimizing latency and packet loss
- Over 3.5 Tbps peering capacity
- Strong focus on network security and keeping malicious traffic off the network
- First to deploy native IPv6 globally (2006)
- BGP Automation (RADB)
- One seamless global IP network (AS#3549) with end-to-end control
- Warsaw IP Node in PLIX-DC (LIM building)



- Renesys reports Global Crossing as 2nd most connected backbone Tier 1 ISP, globally
- Knodes Index reports Global Crossing as 3rd fewest hop count* Tier 1 ISP, globally

* Implies shorter distances and greater reliability

Top 13 Providers of 2010



“The rankings are a rather crude measure of *size*, as they are based entirely on the quantity of IP space ultimately transited by each provider. However, it's the ranking *trends* that are more revealing than any absolute number” (source: Renesys 2010)

HOW THE INTERNET EVOLVED IN THE LAST 10 YEARS



How did the web evolve in the last 10 years

- Have a look at websites like Yahoo, CNN

The screenshot shows the classic Yahoo! homepage layout. At the top, there are navigation icons for 'What's New', 'Check Email', 'Personalize', and 'Help', followed by the large 'YAHOO!' logo. Below the logo, there are links for 'Yahoo! Mail' (free email for life) and 'Yahoo! Auctions' (coins, cards, stamps). A search bar is prominently displayed with a 'Search' button and a link to 'advanced search'. A horizontal menu lists various services: Shopping, Auctions, Yellow Pages, People Search, Maps, Travel, Classifieds, Personals, Games, Chat, Clubs, Mail, Calendar, Messenger, Companion, My Yahoo!, News, Sports, Weather, TV, and Stock Quotes. The main content area is divided into several sections: 'Yahoo! Shopping' (Thousands of stores, Millions of products) with sub-sections for Departments (Apparel, Bath/Beauty, Computers, Electronics, Flowers, Food/Drink, Music, Video/DVD), Stores (Sports Authority, Gap, Eddie Bauer, Macy's), and Products (Digital cameras, Pokemon, MP3 players, DVD players); 'Arts & Humanities' (Literature, Photography...); 'Business & Economy' (Companies, Finance, Jobs...); 'Computers & Internet' (Internet, WWW, Software, Games...); 'Education' (College and University, K-12...); 'Entertainment' (Cool Links, Movies, Humor, Music...); 'Government' (Elections, Military, Law, Taxes...); 'Health' (Medicine, Diseases, Drugs, Fitness...); 'News & Media' (Full Coverage, Newspapers, TV...); 'Recreation & Sports' (Sports, Travel, Autos, Outdoors...); 'Reference' (Libraries, Dictionaries, Quotations...); 'Regional' (Countries, Regions, US States...); 'Science' (Animals, Astronomy, Engineering...); 'Social Science' (Archaeology, Economics, Languages...); 'Society & Culture' (People, Environment, Religion...); 'In the News' (Scores killed in Nigerian riots, Austria's Haider resigns as party leader, Floods trap thousands in Mozambique); 'Marketplace' (Y! Auctions - Peanuts, Pokemon, computers, Free 56K Internet Access, Yahoo! Bill Pay - free 3-month trial); and 'Inside Yahoo!' (Yahoo! GeoCities - build your free home page, Play free Fantasy Soccer, Yahoo! Clubs - create your own, Y! Greetings - free greeting cards). At the bottom, there are links for 'World Yahoo!' (Europe: Denmark, France, Germany, Italy, Norway, Spain, Sweden, UK & Ireland; Pacific Rim: Asia, Australia & NZ, China, Chinese, HK, Japan, Korea, Singapore, Taiwan; Americas: Brazil, Canada, Mexico, Spanish) and 'Yahoo! Get Local' (LA, NYC, SF Bay, Chicago, more...). A zip code input field and 'Enter Zip Code' button are also present. The footer includes 'Yahoo! prefers VISA'.

How did the web evolve in the last 10 years

- Have a look at websites like Yahoo, CNN
 - Broader sites due to broader screens with higher resolution
 - More interaction and integration with social websites

The screenshot shows the Yahoo! homepage as of October 8, 2010. The layout is a classic grid-based design. At the top, there's a navigation bar with links for Web, Images, Video, Local, Shopping, and More. Below this is the Yahoo! logo and a search bar. The main content area is divided into several sections:

- YAHOO! SITES:** A vertical sidebar on the left with icons and links to various services like Mail, Autos, Dating, Finance, Games, Groups, Horoscopes, HotJobs, Maps, Messenger, Movies, Music, omg!, Shopping, Sports, Travel, Updates, and Weather.
- TODAY - October 08, 2010:** A large featured article titled "15 times not to use your credit card" with a sub-headline "Charging some purchases could hurt your credit score or sock you with steep fees. Learn the midnight rule »". It includes a list of "Keys to credit scores" and "Triple your online savings fees." and a "Credit counseling" link.
- TRENDING NOW:** A list of 10 trending items, including Kim Kardashian, Christina Ricci, China UFO, Lily Allen, NHL Tickets, Kirstie Alley, 50 Cent, Flu Vaccines, Home Loans, and Danube River.
- Yahoo! Finance - Maximize Your Money:** A section with two sub-sections: "Secure Your Nest Egg" and "Be Financially Fit", each with a small image of a woman.
- Latest video picks:** A section featuring a video thumbnail titled "Chargers fans go undercover in Raider territory" with a "Go to Video" button.
- NEWS:** A section with a "NEWS" tab and sub-tabs for "WORLD", "LOCAL", and "FINANCE". It lists several news items, such as "Analysts say U.S. economy creating jobs, but not enough" and "Search for missing American tourists intensifies in Mexico".
- Markets:** A section showing market data, including "Dow: 10,949.00 -0.17%" and a "Get Quotes" button.

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myCNN | Video | Audio | [Headline News Brief](#) | [Free E-mail](#) | [Feedback](#) | CNN TV, Radio Networks

August 15, 2000 -- Updated 12:52 a.m. EDT, 0452 GMT

BREAKING NEWS Six cars of a Burlington Northern Santa Fe freight train have derailed in Montana, forcing evacuation of up to 400 people, a railway official reports. Three of the tanker cars contained a hazardous material, the official says. No leaks have been reported.

Clinton says Democrats hold keys to bright future

Saying the Democratic Party holds the keys to "progress and prosperity," President Clinton made the case for the election of his protegee, Vice President Al Gore, in an emotional address to the party convention Monday night.

"Are we going to keep this progress and prosperity going? Yes we are," Clinton told

DEMOCRATIC LIVE Convention Video

Watch interview with Hillary Clinton and other [video highlights](#). Live coverage begins at 4:30 p.m. EDT

In Other News:

- [Bad weather hampers Russian submarine rescue](#) 🗣️
- [Tropical Storm Beryl bears down on Texas-Mexico border](#) 🗣️
- [North and South Korea prepare for first family reunions since 1985](#)
- [China noncommittal on Arafat's timetable for Palestinian state](#) 🗣️

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 - Much more visual
 - Pictures
 - Video

The screenshot shows the CNN website homepage as of October 8, 2010. The layout is a multi-column grid. At the top, there is a red navigation bar with the CNN logo and various edition links (INTERNATIONAL, U.S., MEXICO, ARABIC). Below the navigation bar, the main content area is divided into several sections:

- Breaking news:** A large image of Liu Xiaobo with the headline "Chinese dissident wins Nobel Peace Prize".
- Driller eyes rescue of Chilean miners:** A large image of a drilling rig with the headline "Driller eyes rescue of Chilean miners".
- Top stories:** A list of headlines including "Victim: Right not to extradite Polanski", "U.N. delegation backs key Sudan vote", and "U.S. 2010 deficit: \$1.3 trillion".
- Highlights:** A section with three video thumbnails: "Soyuz rocket heads to space station", "Block party goes green in New York", and "Alaska to Argentina on a bamboo bike".
- Friends' Activity:** A section showing social media activity, including "UFO's eyeing our nuclear weapons? - CNN Video" and "Toxic sludge from Hungary reaches Danube".

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- Social media got big/huge

The screenshot shows the CNN International website interface from October 8, 2010. The top navigation bar includes links for 'Home', 'Video', 'World', 'U.S.', 'Africa', 'Asia', 'Europe', 'Latin America', 'Middle East', 'Business', 'World Sport', 'Entertainment', 'Tech', 'Travel', and 'iReport'. The main content area is divided into several sections:

- Breaking news:** A large image of Liu Xiaobo with the headline "Chinese dissident wins Nobel Peace Prize". Below it, a short paragraph states: "The 2010 Nobel Peace Prize is awarded to Liu Xiaobo, a leading Chinese dissident who is serving an 11-year prison term for 'for inciting subversion of state power.' FULL STORY".
- Driller eyes rescue of Chilean miners:** A large image of a drilling rig with the headline "Driller eyes rescue of Chilean miners". Below it, a short paragraph states: "Brandon Fisher has drilled oil, gas and water holes -- and the foundation for the Trump Tower in Chicago, Illinois. But he says this pales in comparison to the difficulties of rescuing 33 trapped miners in Chile. FULL STORY".
- Top stories:** A list of headlines including "Victim: Right not to extradite Polanski", "U.N. delegation backs key Sudan vote", "U.S. 2010 deficit: \$1.3 trillion", "Tsvangirai rejects Mugabe appointees", "French burqa ban clears final hurdle", "Russia to repay Iran for missile deal", "Fort Hood shooter refuses to cooperate", "UAE reverses plan to ban BlackBerry", "Pentagon blasted over contractors", "Toxic red sludge reaches River Danube", "Missing U.S. man's wife fights doubters", and "Guest sues over hotel cross-dresser".
- HIGHLIGHTS:** A grid of video thumbnails with titles like "Soyuz rocket heads to space station", "Block party goes green in New York", "Alaska to Argentina on a bamboo bike", "Hollywood and UK fashion: A love affair", "Sisters fight terror after dad's murder", and "30 years, 30 events, countless stories".
- Friends' Activity:** A section titled "Hi there! Log in | sign up" showing "View more friends' activity | What's this?" with two items: "UFO's eyeing our nuclear weapons? - CNN Video" (12,234 people shared this) and "'I like it' campaign on Facebook goes viral" (10,143 people shared this).
- Facebook social plugin:** A section titled "Facebook social plugin" with "MOST POPULAR", "WEATHER", and "MARKETS" options.

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- Social media got big/huge
 - Facebook 2004
 - Youtube 2005
 - Twitter 2006



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- Social media got big/huge and much richer

The image displays three screenshots of popular web platforms from the early 2010s. At the top is a Facebook profile for 'Global Crossing, Ltd.', showing a navigation bar with links for 'Home', 'Info', 'RSS/Blog', 'YouTube', 'Careers', and 'Contact us...'. The main content area features a 'Think Ahead' section and several news articles, including one about 'Global Crossing's Sweet Spot: Fortune 500 to Fortune 2000 companies'. Below this is a YouTube homepage with a search bar and a 'Join the largest worldwide video-sharing community!' banner. It lists 'Catch Up on the Latest TV' with video thumbnails for 'Tisha Gotard: Season from Tisha Gotard' and 'Freshly Squeezed from Freshly Squeezed'. A 'Recommended for You' section is also visible. At the bottom is a Twitter homepage with a search bar and a 'New to Twitter?' section. It features a 'Top Tweets' section with tweets from users like 'kellanlutz' and 'Wale', and a 'See who's here' section with a grid of profile pictures.

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- Social media got big/huge and much richer
- The Web went mobile



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- The Web went mobile devices got bigger and faster



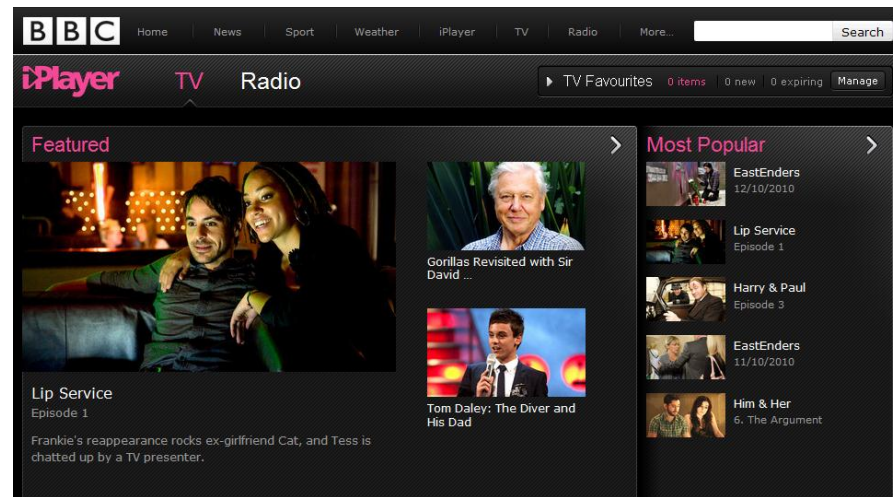
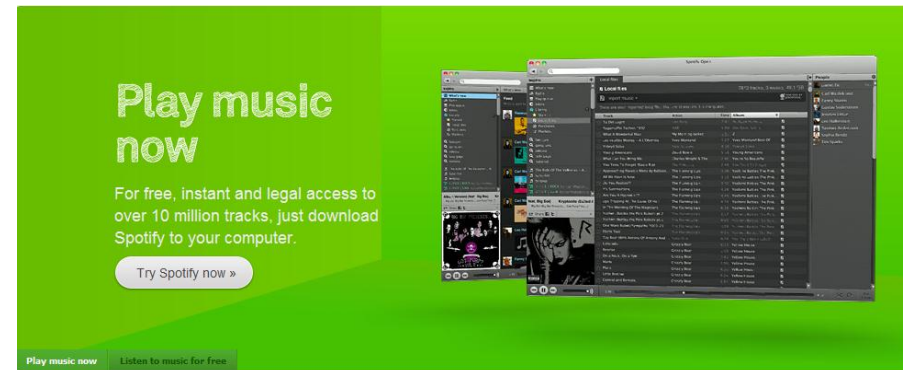
BlackBerry 7250



v · d · e		Mobile telephony standards
0G (radio telephones)		MTS · MTA · MTB · MTC · IMTS · MTD · AMTS · OLT · Autoradiopuhelin
1G	AMPS family	AMPS · TACS · ETACS
	Other	NMT · Hicap · Mobitex · DataTAC
2G	GSM/3GPP family	GSM · CSD
	3GPP2 family	CdmaOne (IS-95)
	AMPS family	D-AMPS (IS-54 and IS-136)
	Other	CDPD · IDEN · PDC · PHS
2G transitional (2.5G, 2.75G)	GSM/3GPP family	HSCSD · GPRS · EDGE/EGPRS
	3GPP2 family	CDMA2000 1xRTT (IS-2000)
	Other	WIDEN
3G (IMT-2000)	3GPP family	UMTS (UTRAN) · WCDMA-FDD · WCDMA-TDD · UTRA-TDD LCR (TD-SCDMA)
	3GPP2 family	CDMA2000 1xEV-DO (IS-856)
3G transitional (3.5G, 3.75G, 3.9G)	3GPP family	HSDPA · HSUPA · HSPA+ · LTE (E-UTRA)
	3GPP2 family	EV-DO Rev. A · EV-DO Rev. B
	Other	Mobile WiMAX (IEEE 802.16e-2005) · Flash-OFDM · IEEE 802.20
4G (IMT-Advanced)	3GPP family	LTE Advanced
	WiMAX family	IEEE 802.16m
5G	unconfirmed	unconfirmed

How did the Web evolve in the last 10 years

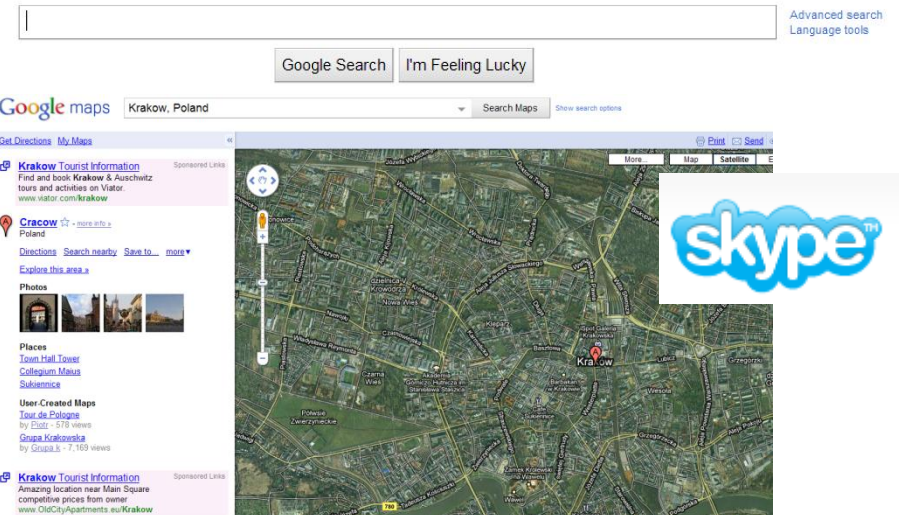
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- The Web went mobile devices got bigger and faster
- Media and content went online



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And many, many more changes



How did the Web evolve in the last 10 years

Cybercrime

- Spam
- DoS Attacks
 - Blackmail
 - Botnets
- Fraud and identity theft
 - Phishing



Dear valued customer of TrustedBank,

We have received notice that you have recently attempted to withdraw the following amount from your checking account while in another country: \$135.25.

If this information is not correct, someone unknown may have access to your account. As a safety measure, please visit our website via the link below to verify your personal information:

<http://www.trustedbank.com/general/cusverifyinfo.asp>

Once you have done this, our fraud department will work to resolve this discrepancy. We are happy you have chosen us to do business with.

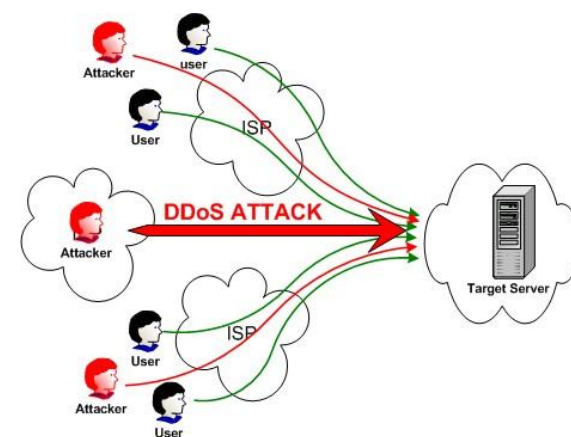
Thank you,
TrustedBank

Member FDIC © 2005 TrustedBank, Inc.

The 10 Worst Spammers

As at 19 October 2010 the world's worst spammers and spam gangs are:

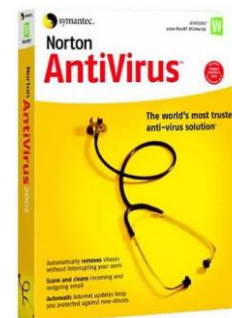
1		Canadian Pharmacy - Ukraine A long time running pharmacy spam operation. They send tens of millions of spams per day using botnet techniques. Probably based in Eastern Europe, Ukraine/Russia. Host spammed web sites on botnets and on bulletproof Chinese web hosting.
2		Leo Kuvayev / BadCow - Russian Federation Russian/American spammer. Does "OEM CD" pirated software spam, copy-cat pharmaceuticals, porn spam, porn payment collection, etc. Spams using virus-created botnets and seems to be involved in virus distribution. Partnered with Vlad - aka "Mr. Green".
3		HerbaKing - India Massive affiliate spam program for snakeoil Body Part Enhancement scams. Also does replica luxury goods, pharma and porn. Spams via botnets, bulletproof hosting offshore and even sometimes uses fast flux hosting.
4		Rove Digital - Estonia Botnets, malware, spam, pharming, DDoS. Inhoster, Cernel, Esthost, Atrivo. What else needs to be said?



How did the Web evolve in the last 10 years

How to protect against security risks?

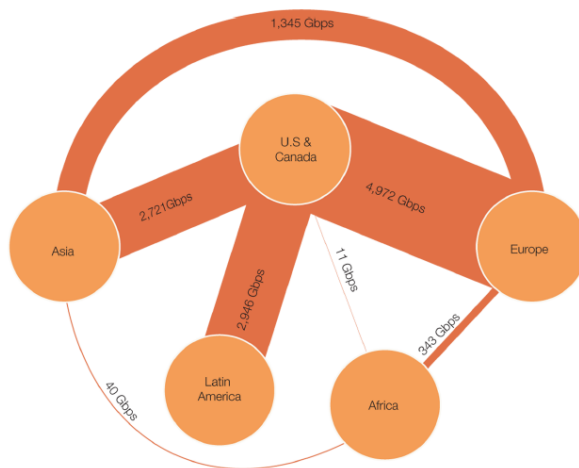
- Virus scan software
- Network analysis tools & blackholing
- In-depth security approach



What did this do to the Internet infrastructure

- Traffic grew tremendously, more than doubling every 2 years, some regions grow even faster.

Interregional Internet Bandwidth, 2010



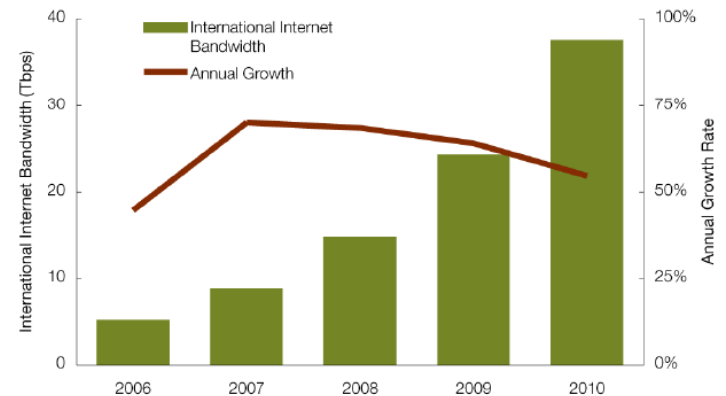
Notes: Data as of mid-2010. Interregional bandwidth below 10 Gbps not depicted.

Source: TeleGeography research

© 2010 PriMetrica, Inc.

FIGURE 1

International Internet Bandwidth Growth, 2006–2010



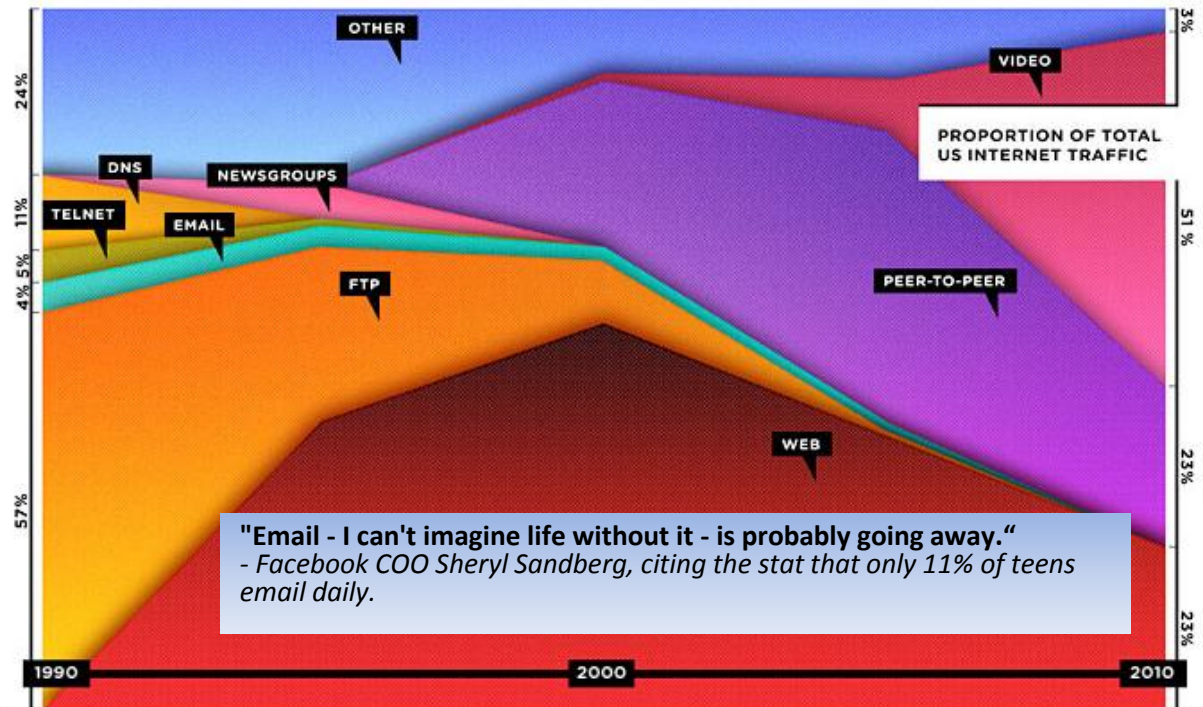
Notes: Data represent Internet bandwidth connected across international borders as of mid-year. Domestic routes are excluded.

Source: TeleGeography research

© 2010 PriMetrica, Inc.

What did this do to the Internet infrastructure

- Traffic grew tremendously, more than doubling every 2 years, some regions grow even faster.
- Traffic type changed from P2P to video



"Email - I can't imagine life without it - is probably going away."
- Facebook COO Sheryl Sandberg, citing the stat that only 11% of teens email daily.

Sources: Cisco estimates based on CAIDA publications, Andrew Odlyzko

What did this do to the Internet infrastructure

- Traffic grew tremendously, more than doubling every 2 years, some regions grow even faster.
- Traffic type changed from P2P to video
- Access networks started deploying NGN networks

21CN – Key milestones

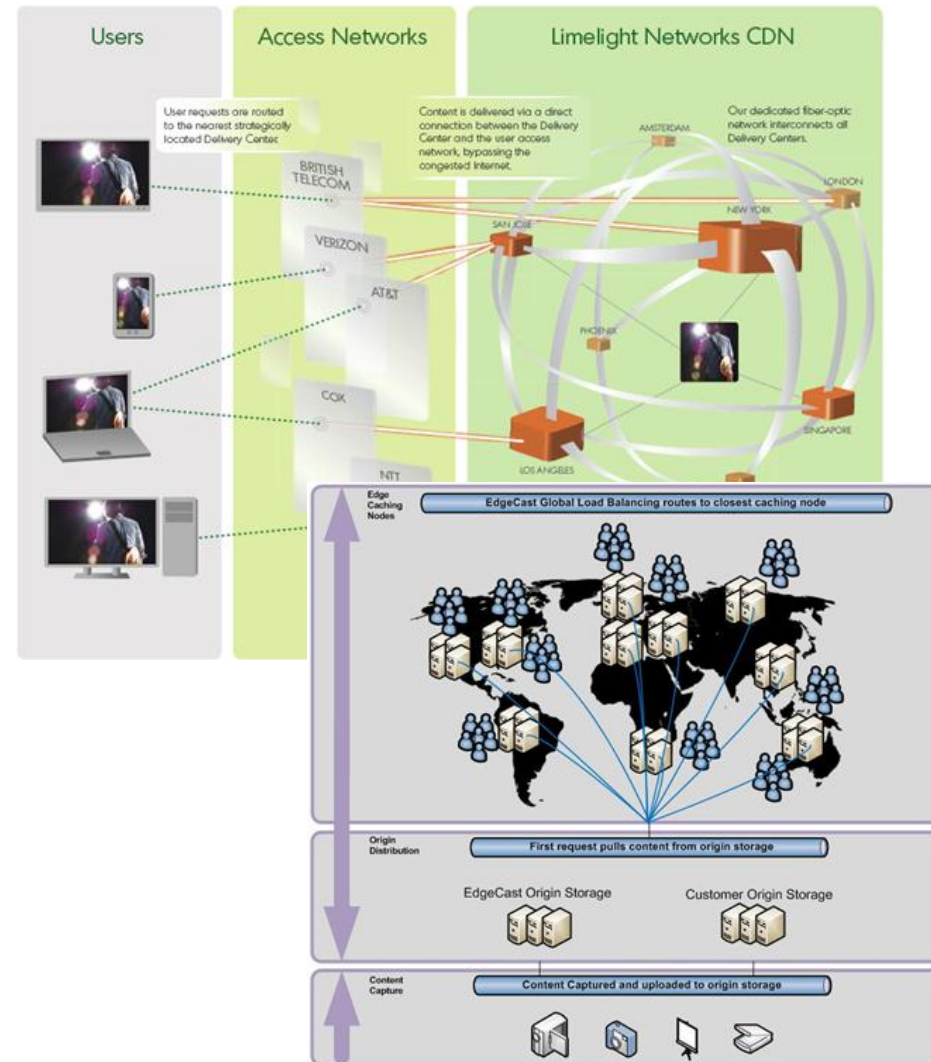


21st Century Network



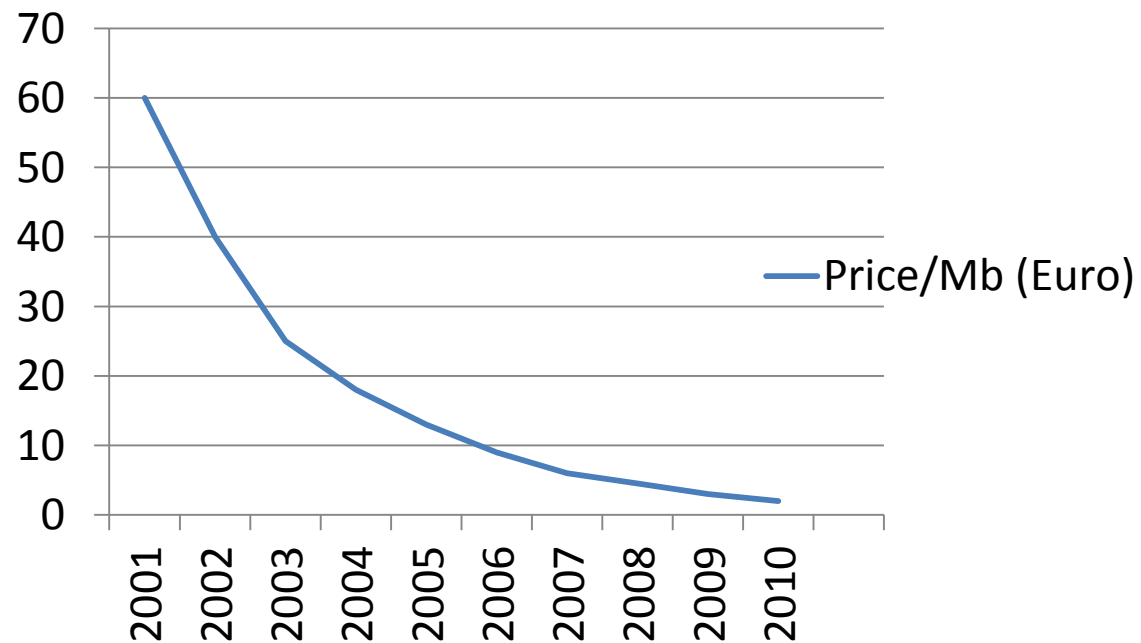
What did this do to the Internet infrastructure

- Traffic grew tremendously, more than doubling every 2 years, some regions grow even faster.
- Traffic type changed from P2P to video
- Access networks started deploying NGN networks
- Decentralization of content - CDN technology needed to support required quality



What did this do to the cost of getting access to the Internet for end-users or content owners

- Shift from “IP Transit only” to a balance between peering and IP Transit.
- Significant decline in IP Transit pricing



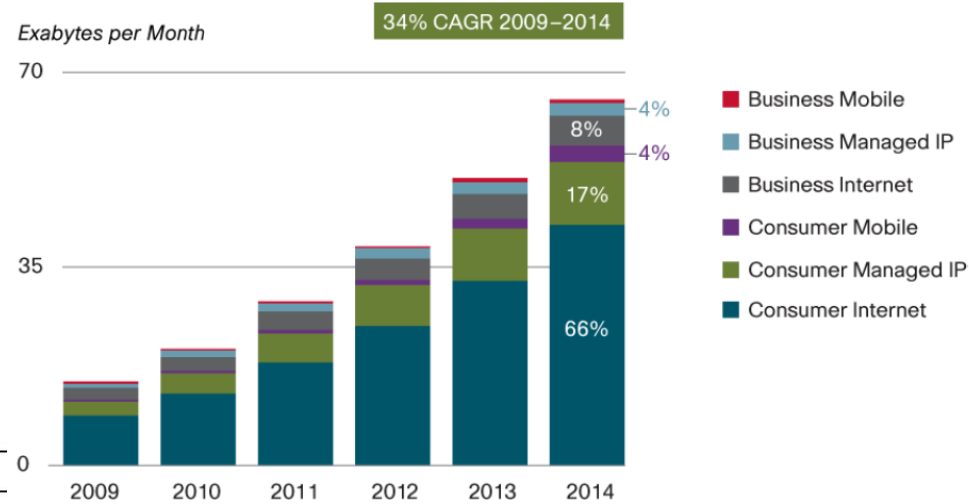
LOOKING FORWARD



Looking forward

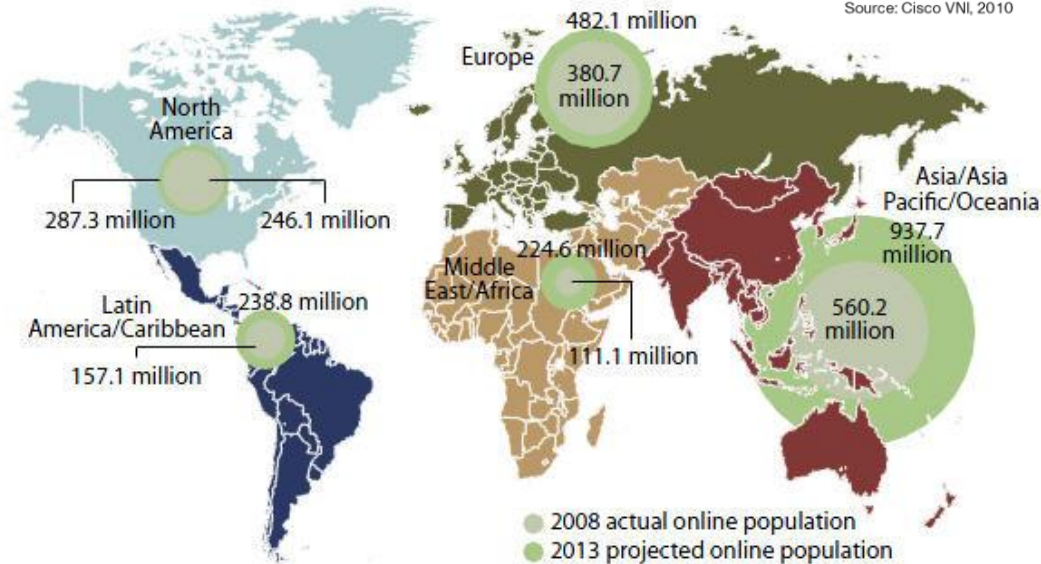
- All studies predict traffic growth will continue

Figure 1. Cisco VNI Forecasts 64 Exabytes per Month of IP Traffic in 2014



Source: Cisco VNI, 2010

Figure 1 Growth Of The Global Internet Population By 2013



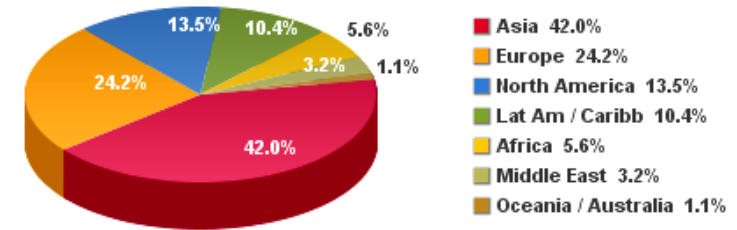
Source: Forrester Research Internet Population Forecast, 4/09 (Global)

Source: Forrester Research, Inc.

Looking forward

- All studies predict traffic growth will continue
- Further broadband penetration around the globe

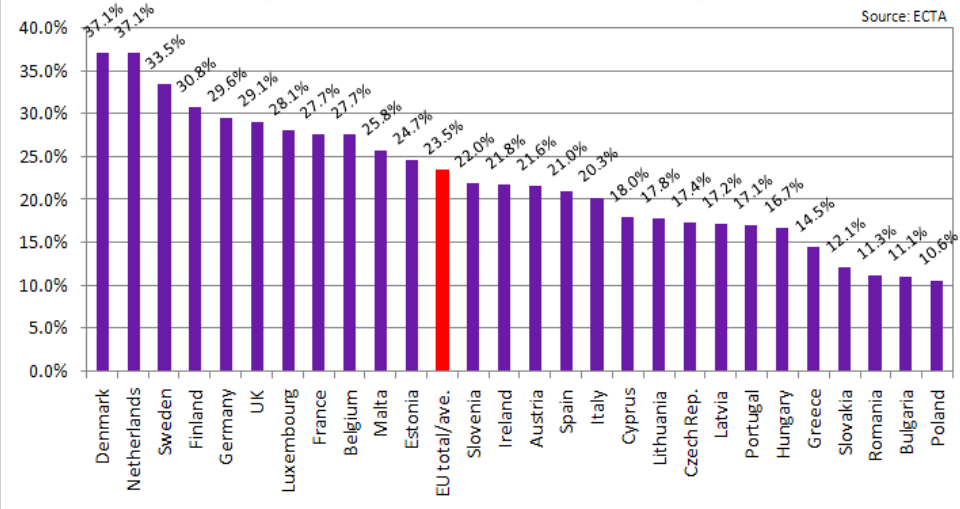
Internet Users in the World Distribution by World Regions - 2010



Source: Internet World Stats - www.internetworldstats.com/stats.htm
 Basis: 1,966,514,816 Internet users on June 30, 2010
 Copyright © 2010, Miniwatts Marketing Group

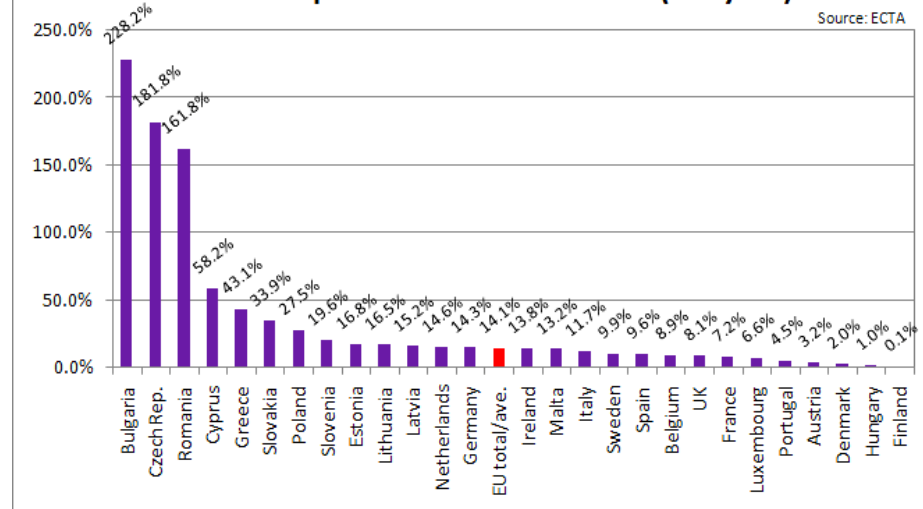
European Broadband Penetration - April 2009

Source: ECTA



European Broadband Growth (full year)

Source: ECTA



Looking forward

- All studies predict traffic growth will continue
- Further broadband penetration around the globe
- New network connected devices



Google TV™

TV MEETS WEB. WEB MEETS TV.

DROID ☺

Google I/O



Get the best of the web right on your TV!

Yahoo TV Widgets let you track local weather, access eBay, display Flickr pictures and see Twitter updates - all on your screen. With a split-screen display, you can do it all without missing a second of your favorite shows. And now, you can also get movies on demand via Blockbuster and Amazon Video on Demand.

The future of TV is here and it's on Samsung HDTVs

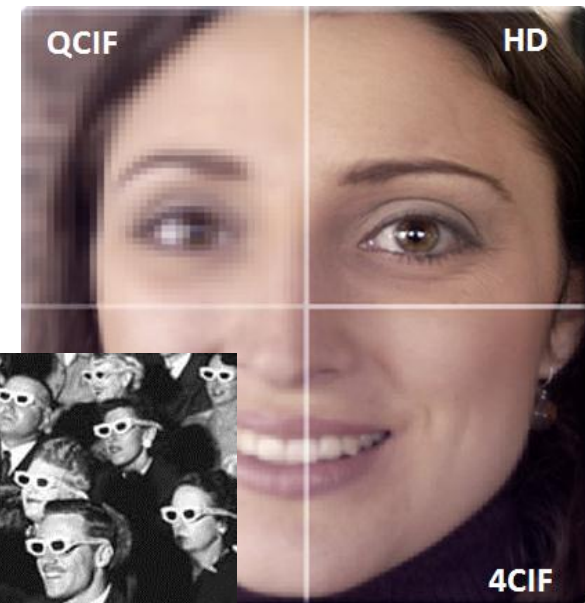


> Play Demo Video



Looking forward

- All studies predict traffic growth will continue
- Further broadband penetration around the globe
- New network connected devices
- Video improves: from HD to 3D to Holographic Tele-presence



Looking forward

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- Video improves: from HD to 3D to Holographic Tele-presence
- New user interfaces / devices



Looking forward

- All studies predict traffic growth will continue
- Further broadband penetration around the globe
- New network connected devices
- Video improves: from HD to 3D to Holographic Tele-presence
- New user interfaces / devices
- More pressure on regulatory

AT&T: no one can stop our "paid prioritization"

By Nate Anderson | Last updated about 15 hours ago

The "paid prioritization" train is leaving the station, and not even the FCC's drive to "reclassify" Internet services as limited common carriers can derail it.

Net neutrality advocates, incensed when AT&T's predecessor first suggested the need to charge some Internet companies for "using his pipes free," won't be pleased to hear that AT&T won't let such deals be halted by the FCC. Even if Chairman Genachowski succeeds in bringing ISPs under "Title II"—a prospect that looks increasingly unlikely—AT&T says it will have no effect on its ability to charge companies more for priority Internet access.



BUT THEY SAY WE'LL ALL BE BETTER OFF THIS WAY...

The big phone companies are calling on you to let them control the Internet.
Can we really trust them to protect innovation and consumers?

**PROTECT THE INTERNET
SUPPORT NET NEUTRALITY**

www.itsournet.org  It's Our Net

If the Internet Ain't Dead Yet, It Soon Will Be

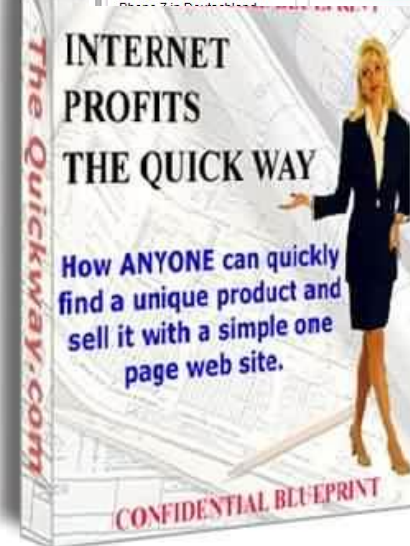
Thu, 09/30/2010 - 10:52 | by [Paul Kouroupas](#)

It appears [Wired](#) may have gotten it right that the Internet is "dead," but for the wrong reasons. Just as the information, communications and technology ("ICT") industries are poised to deliver more mobility, faster speeds, greater control and a whole new range of service options such as software as a service or cloud computing, we see [stories](#) that (1) the Obama administration is going to "try to make it easier to wiretap the Internet" (as the New York Times put it), (2) Congress is considering [legislation](#) that would give the President authority to "shut down" the Internet, (3) countries like India and Saudi Arabia are [requiring](#) Blackberry maker Research in Motion to provide the government access to encrypted communications, and (4) Craigslist is [forced](#) to shut down its adult content section.

Looking forward

- All studies predict traffic growth will continue
- Further broadband penetration around the globe
- New network connected devices
- Video improves: from HD to 3D to Holographic Tele-presence
- New user interfaces/devices
- More pressure on regulatory
- More pressure on content vs. eyeball traffic: who makes the money

The screenshot shows the Telekom website interface. At the top, there is a navigation bar with the Telekom logo and the slogan "Erleben, was verbindet." Below this, there are links for "Kundencenter", "Newsletter", "Kontakt", and "Telekom Shops". A search bar is also present. The main content area features a navigation menu with tabs for "Für Privatkunden", "Für Geschäftskunden", and "Über das Unternehmen". Below the menu, there are sections for "Kundencenter Login", "Online-Shops", "Im Notfall", and "Konzern-News". A prominent promotional banner for "Entertain Comfort" is displayed, featuring a movie poster for "Avatar" and the text "Einfach schärfer fernsehen - mit Entertain in HD!". The banner also mentions "2 Monate mit reduziertem Grundpreis" and "die ersten 2 Monate nur 34,95 €".



Global Crossing consequences

- Expand our network coverage



Global Crossing consequences

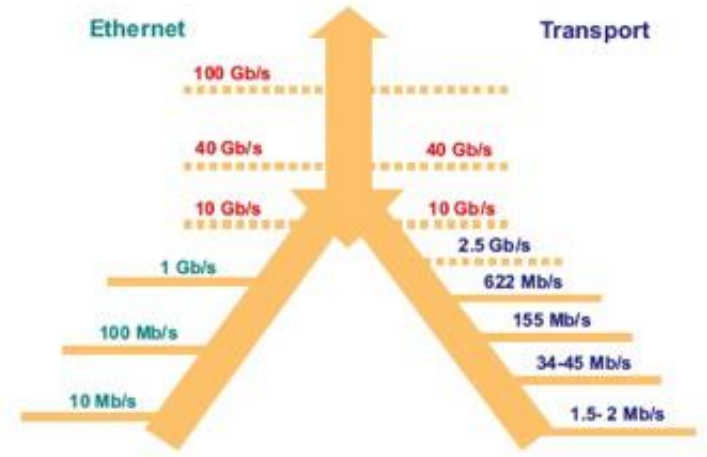
- Expand our network coverage
- Continue to upgrade our network capacity

North America Wavelength Overbuild



Global Crossing consequences

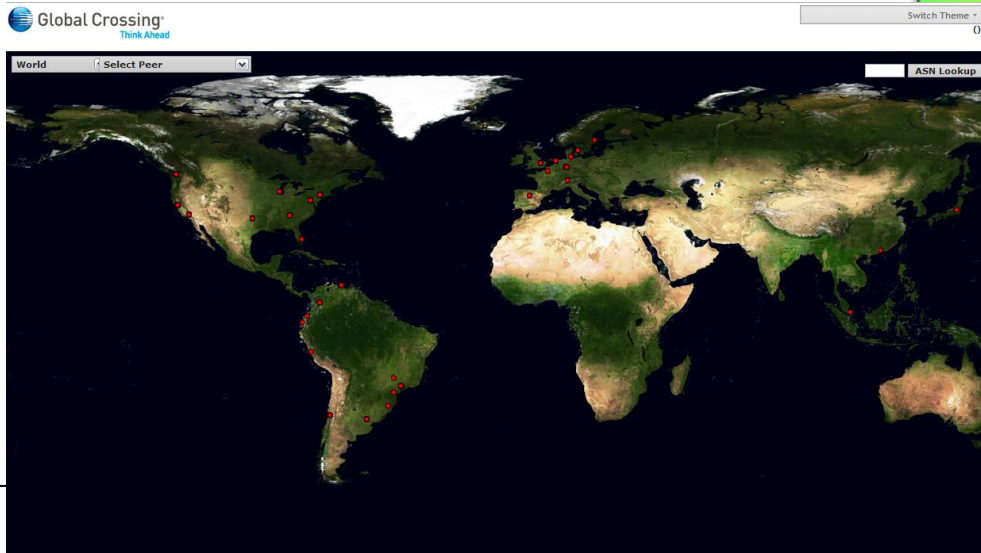
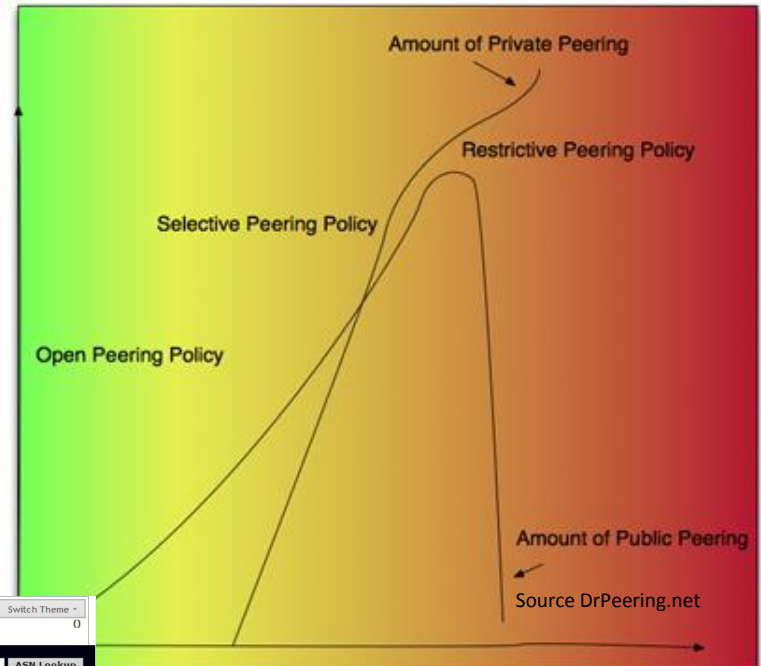
- Expand our network coverage
- Continue to upgrade our network capacity
- Move towards 40GE and 100GE capacity
- Lower cost base



Global Crossing consequences

- Expand our network coverage
- Continue to upgrade our network capacity
- Move towards 40GE and 100GE capacity
- Proactive peering strategy, move away from public peering, enforce global connectivity

Peering Policy Lifecycle



...AND WHAT DOES THIS MEAN FOR YOU?

IMPACT ON END-USERS AND SERVICES PROVIDERS



The lucky one: THE END-USER



- New services
- More speed
- Same price
- Or even lower price?



Challenges for the Service Provider: How to cope with traffic growth and new services?

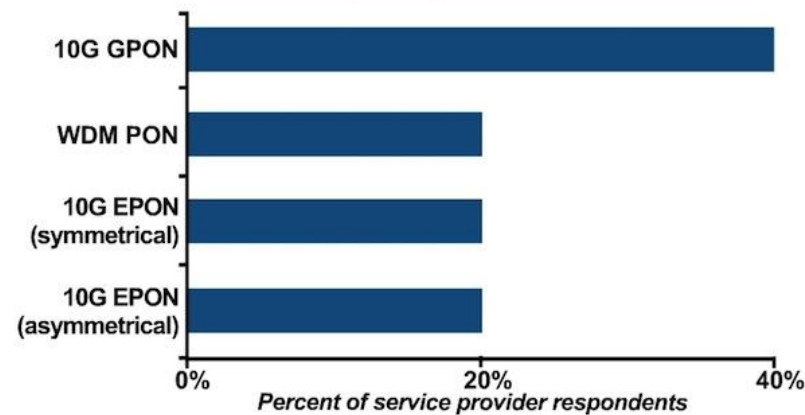
- Where to play in the value chain?
 - Who are my target markets: Residential? Corporates?
 - Just “internet access + email”?
 - Provide additional services and content to end-users?



Challenges for the Service Provider: How to cope with traffic growth and new services?

- Where to play in the value chain?
 - Who are my target markets: Residential? Corporates?
 - Just “internet access + email”?
 - Provide additional services and content to end-users?
- Which access technology?
 - Fixed or mobile?
 - Fiber or copper?
 - Build or buy (wholesale)?
 - Combination of access technologies?

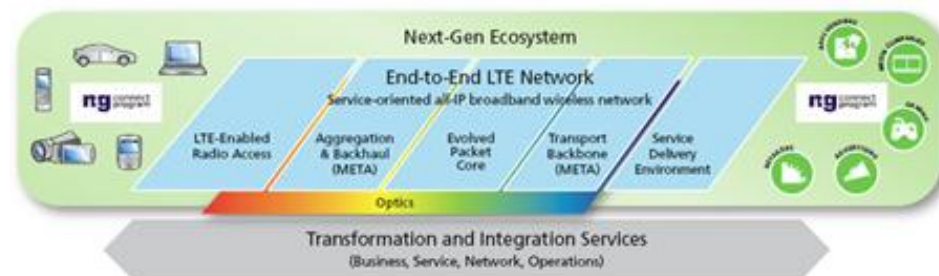
Next generation FTTH technologies being evaluated, trialed, and deployed by service providers



© Infonetics Research, *Next Gen FTTH Deployment Strategies: Global Service Provider Survey*, July 2010

Challenges for the Service Provider: How to cope with traffic growth and new services?

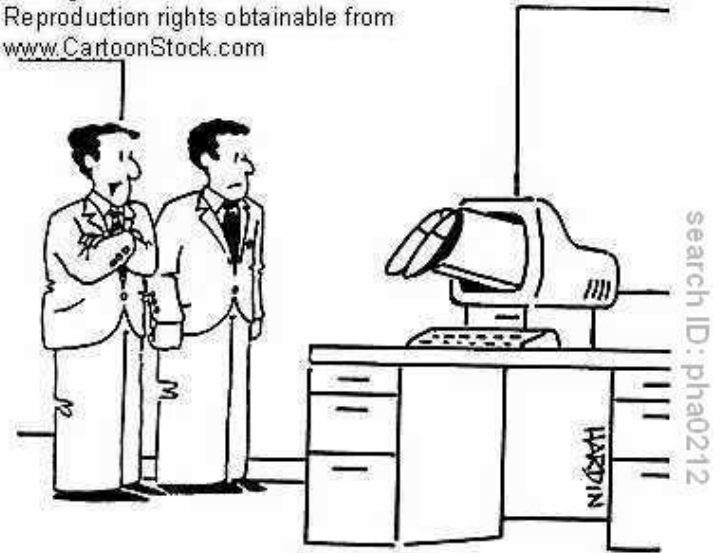
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 - Fiber or copper?
 - Build or buy (wholesale)?
 - Combination of access technologies (fix-mobile conversion)?
- How to balance capex/opex vs revenues?
 - Minimizing investments and staying lean
 - Usage based end-user pricing?
 - Charges for content owners?



Challenges for the Service Provider: How to cope with complex security risks?

- Who protects the end-user?
 - The end-user himself?
 - You? Can you use this as a differentiator?
 - A third party?

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"Everything was fine until he
pressed 'upload'."

KEEP YOUR **KIDS**
SAFE Online



Challenges for the Service Provider: How to cope with complex security risks?

- Who protects the end-user?
 - The end-user himself?
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- Who protects the content?
 - The content owner?
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Challenges for the Service Provider: How to cope with complex security risks?

- Who protects the end-user?
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- Who protects the content?
 - The content owner?
 - You? Can you use this as a differentiator?
 - A third party?

- Who protects YOUR network?
 - You? How?
 - Your network providers?
 - A third party?



Challenges for the Service Provider: How to cope with complex regulatory compliance?

- Ensure your competitiveness
 - Influence EU/regulator to protect your interests
 - Team-up with similar players / associations?



Challenges for the Service Provider: How to cope with complex regulatory compliance?

- Ensure your competitiveness
 - Influence EU/regulator to protect your interests
 - Team-up with similar players / associations?
- Compliance with regulatory requirements
 - Data retention requirements and investments?
 - Wiretap requirements?
 - Investments / build or buy?

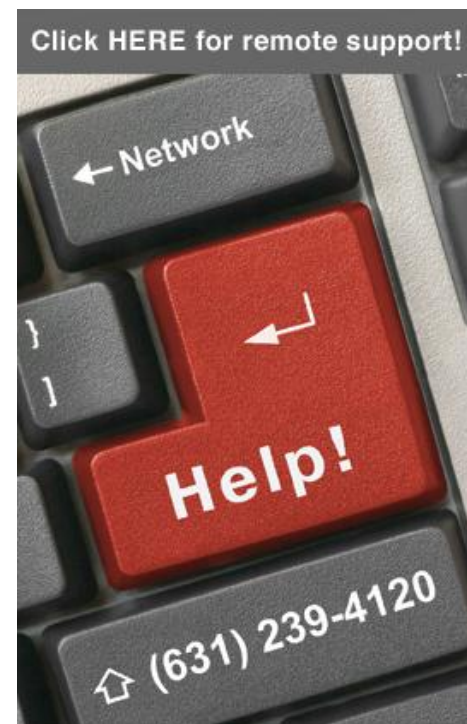


CONCLUSIONS



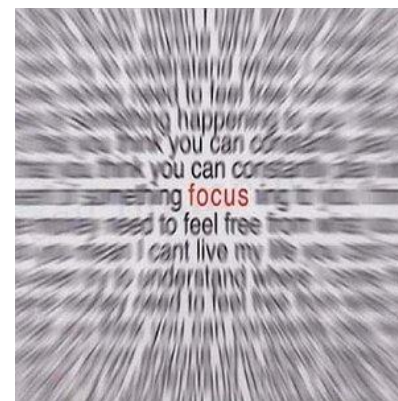
The next 5 years will bring.....

- New services on new devices on higher speeds....
- ...requiring continuous investment in network, technology and headcount...
- ...putting large pressure on cash flow and profitability....



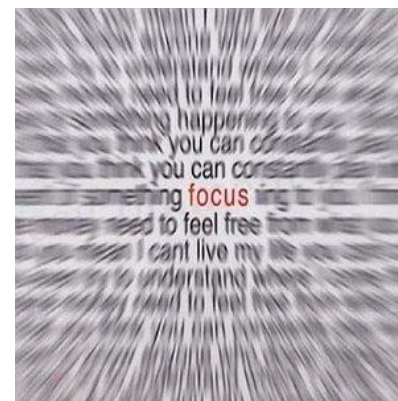
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- ...requiring strategic focus and...



The next 5 years will bring.....

- New services on new devices on higher speeds....
- ...requiring continuous investment in network, technology and headcount...
- ...putting large pressure on cash flow and profitability....
- ...requiring strategic focus and...
- ...suppliers and partners that provide value across all your activities (beyond “the lowest price per Mb....”).



Do you want to know more...

...or interested to join us as Sales Manager?

Visit us at www.globalcrossing.com.

....or contact us at

bart.vandersloot@globalcrossing.com

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....or come to our booth!

THANK YOU

