

## Generating Growth in Europe

– How the ICT Sector is the Solution

- WORKSOPS
- STRATEGIC REPORTS
  - ANALYSIS
  - WHITE PAPERS
  - RESEARCH NOTES

## Generating Growth in Europe – How the ICT Sector is the Solution

By Roslyn Layton, Ph.D. Fellow and Vice President, Strand Consult

June 4, 2013

### Neelie Kroes and the Dream of the Common Digital Market in the EU

Europe has been in a prolonged recession, and worse yet, has fallen behind the USA in the internet sector. Neelie Kroes, Vice President for the Digital Agenda of the EU is attempting to make the region more competitive through a series of incentives, reforms and investment to promote a digital single market.<sup>1</sup> Meantime the USA is booming with private investment in internet infrastructure. Kroes is keen to mention that in America “high speed networks [100 Mbps] now pass more than 80 percent of homes; a figure that quadrupled in three years”<sup>2</sup>. The corresponding figure for Europe is just 2%. “Though the public sector can help, the real heavy lifting must be done by private investment,”<sup>3</sup> says Kroes.

Indeed Kroes wishes that European firms would invest in the internet the way Americans do. Accordingly to the *Wall Street Journal* and Infonetics, a research firm, American carriers invest at a rate of approximately \$70 billion annually<sup>4</sup>, more than \$1.2 trillion in infrastructure since 1996. America’s rollout of LTE mobile networks is second to none<sup>5</sup>, and the country has made more purchases of fiber optic cable than all of Europe combined.<sup>6</sup>

Furthermore American web companies dominate Europe—and the world. In a measure of the top 25 internet companies, only two are from Europe, and while Europe comprises 11% of the world’s population, it has less than 2% of the market value of internet companies globally<sup>7</sup>. Eight of the top 10 internet websites are American. In practice Europeans spend more time on the localized versions of Google, Facebook and YouTube than the top 20 local websites of their respective countries. LinkedIn has managed to disrupt the local European job indexes, and Amazon and Ebay are reinventing retail. In spite of many government-funded attempts, Europe has not succeeded to create the global powerhouses for search engines, social networking, or online video. Europe also has plenty of room to improve in network innovation. The leading innovators in cloud computing and content delivery networks are also American.

---

<sup>1</sup> [http://europa.eu/rapid/press-release\\_SPEECH-12-294\\_en.htm](http://europa.eu/rapid/press-release_SPEECH-12-294_en.htm)

<sup>2</sup> Neelie Kroes, “Connecting Europe: Fast Broadband for All,” Press Release, *EUROPA Press Releases*, October 16, 2012, [http://europa.eu/rapid/press-release\\_SPEECH-12-731\\_en.htm](http://europa.eu/rapid/press-release_SPEECH-12-731_en.htm). This number is also noted in the third “International Broadband Data Report” from the Federal Communications Commission of the USA <http://www.fcc.gov/reports/international-broadband-data-report-third> of August 21, 2013.

<sup>3</sup> Neelie Kroes, “Enhancing the Broadband Investment Environment,” Press Release, *EUROPA Press Releases*, December 7, 2012, [http://europa.eu/rapid/press-release\\_MEMO-12-554\\_en.htm](http://europa.eu/rapid/press-release_MEMO-12-554_en.htm).

<sup>4</sup> Service Provider Capex, Revenue, and Capex by Equipment Type Biannual Market Size and Forecasts – 1<sup>st</sup> Edition 2012, Infonetics Research, Inc.

<sup>5</sup> <http://www.fcc.gov/reports/international-broadband-data-report-third>

<sup>6</sup> CRU International Ltd, *CRU Monitor: Optical Fibre and Fibre Optic Cable* (London, September 2012), <http://www.crugroup.com>.

<sup>7</sup> <http://www.kpcb.com/insights/2013-internet-trends>

To be sure, the fact that the United States is a single market certainly allows American companies to grow domestically before they internationalize. Kroes wants to give European companies this same advantage by attracting American-style investment and innovation to the internet marketplace in Europe. Central to her agenda is the plan to rollout a digital single market to help European firms get economies of scale and avoid country-to-country limitations. Within this context, the European Parliament is holding a debate in Brussels on 4 June co-hosted MEP Marietje Schaake (ALDE) and MEP Sabine Verheyen (EPP), where Kroes will likely address these issues. Notably, the debate will be co-hosted by the NGO Access who has been engaged in a project alleging “network discrimination” in Europe.

Kroes has some significant challenges to achieve the vision of a digital single market, which includes harmonized roaming prices and copyright. One challenge is the tax regime in Europe where each country is different. Taxes on internet services can be as high as 25% in some countries, and spectrum prices vary as well. In Hungary the government levied a tax on telecom operators to raise revenue to cover losses from the financial crisis<sup>8</sup>. A single market also clears the way for companies to merge, something that national competition authorities have fought against, but in the big picture, allows Europe to stand a better chance against American competition. The process of change is painful, and some nations in Europe will likely fight the EU because a single digital market may mean short term pain, but it should lead to substantial long term gain.

Another issue for debate is network neutrality, which if allowed, could pose a challenge to Europe’s economic future and internet innovation. Some fear and misunderstand what an internet without net neutrality would mean, but a simple review of the current state of the art of internet economics and network engineering can clarify why this is the wrong policy.

### **Today’s Internet is a Diverse, Dynamic and Evolving Architecture**

Net neutrality is the idea that all traffic on the internet should be treated equally. It is predicated on the “end-to-end principle” and the ARPANET from 1981 before there even was an internet. The evolution from that time is a network that is almost unrecognizable today. Today’s internet is characterized by diversity and dynamism with new actors, architectures and relationships never imagined at the time of its launch.

With the launch of the commercial internet, ISPs peered traffic with backbones. As the number of content providers, the amount of content, and the number of users with different types of devices explodes, this archetypal relationship can be expensive and slow. ISPs find that they can peer traffic with each other, called secondary peering, as a means to quickly and cheaply deliver data to end users. They no longer need to rely on the backbone exclusively. For this reason and other intelligent network innovations, the end-to-end principle is obsolete today. Furthermore the many kinds of devices and diverse networks on the internet today can’t rely on a single grade of service. The technical requirements to ensure a good experience, from simple web browsing to watching a film online, are vastly different.

---

<sup>8</sup> <http://www.reuters.com/article/email/idUSL6N0ATA8J20130124>

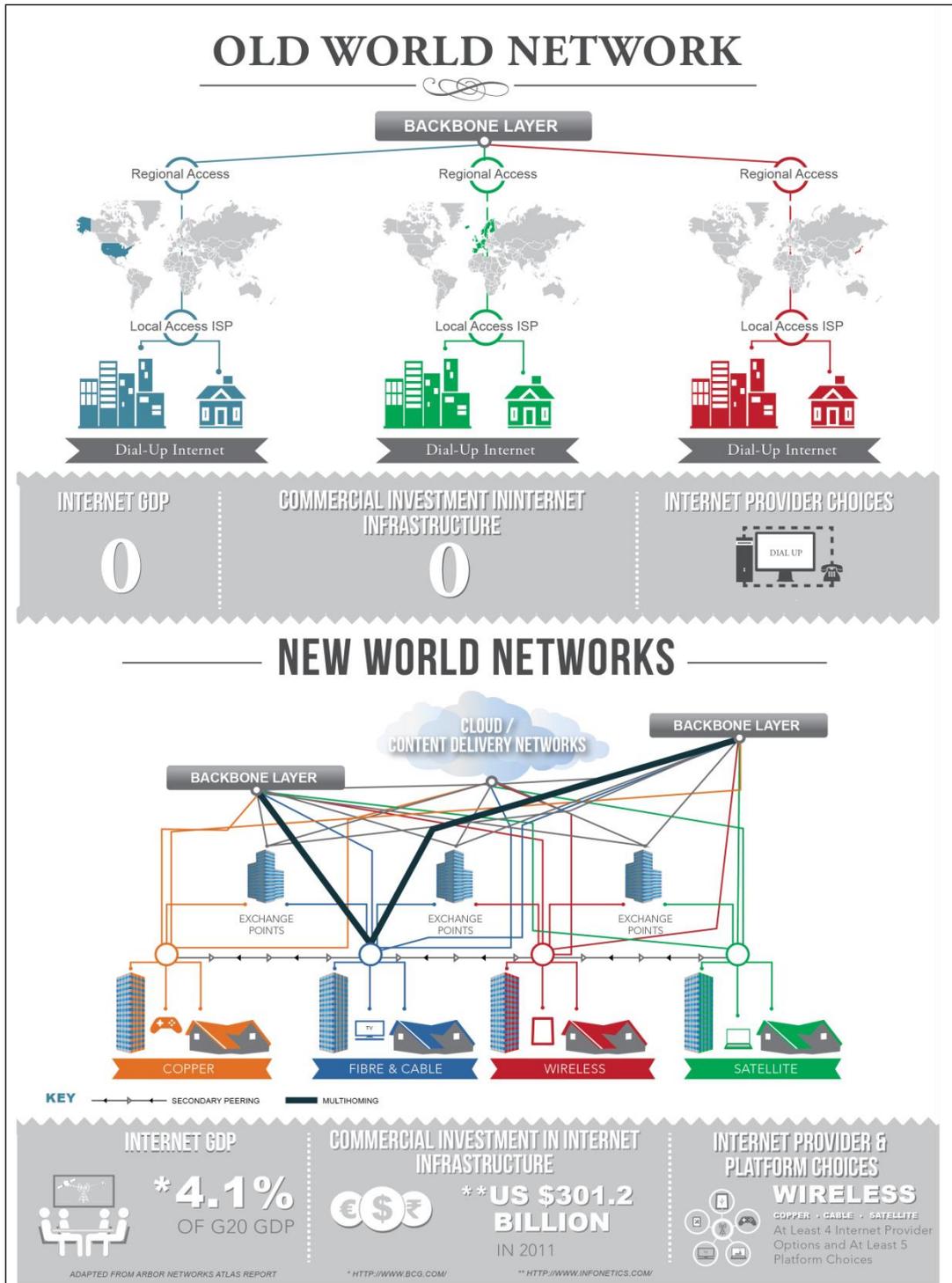
Without any government intervention, a global federation of content delivery networks (CDNs) has evolved to speed traffic on the internet. According to Akamai's quarterly State of the Internet Report<sup>9</sup>, CDNs deliver one-third of the traffic on the internet, and without them, the explosion of online video consumption would be impossible. What was a problem for online video providers before—delay—has become a business opportunity. Netflix, which accounts for 30% of internet traffic in the USA, has created its own CDN, storing content in caches around the world. When a user wants a film, the request is made to the nearest cache. If we keep the net neutrality rules, the request would need to go to Netflix headquarters in California rather than the nearby cache.

Make no mistake. CDNs emerged because of a profit motive. They exist inside ISPs nodes, on backbones, at peering points, and other locations. Content providers pay to speed their content so they beat their competitors. Internet users have a better experience as a result. The founders of the ARPANET, the progenitor of today's internet, did not predict the CDNs, but in the same spirit as the internet's founders, creative and enterprising engineers and entrepreneurs are dreaming up new solutions for today's challenges. Many net neutrality supporters idealize the ARPANET the way aficionados love their classic cars. But if we leave the internet to the net neutrality supporters, their internet will be a Model T.

---

<sup>9</sup> <http://www.akamai.com/stateoftheinternet/>

## The Evolution of Internet Architecture – Why Government Needs to Modernize its Approach to This Dynamic Network Landscape



This diagram gives an overview of the evolution of early internet architecture to what is available to today. The Old World had a static architecture: backbones, access providers, and users who had to connect to the internet by dial-up on their telephone wires. Fast forward almost twenty years later: In the New World, the internet generates 4.1% of the gross

domestic product of the G20 nations, \$2.3 trillion. Access has evolved from dial-up to dozens of new choices in both providers and platforms. The global commercial investment to provide this infrastructure development is over \$300 billion annually.

### **ISPs Want to Provide Services their Customers Want**

Net neutrality supporters claim that ISPs want to block and slow traffic as a means to earn revenue or otherwise promote some services above others. In December 2012 the Body of European Regulators of Electronic Communications (BEREC) reported “BEREC’s traffic management investigation found that application-specific restrictions of this kind are not widespread in Europe, except for some specific practices, mainly on mobile networks”.<sup>10</sup>

The situation with mobile networks can be explained a simple way. With wire line networks, each subscriber has a wire to the internet which enables high throughput. On the other hand, with mobile networks and Wi-Fi, users on a given standard are competing for the same airwaves, so to speak. Many of the complaints about slow connections are with users on 3G networks and older smartphones that don’t support the spectrum and standards. It’s not that networks owners are trying to degrade the experience of their users, but they face limitations with the physical properties of mobile technology. As users upgrade to LTE, a technology which compresses data much better than 3G, these problems in user experience disappear. In the USA, many carriers offer LTE at the same price as 3G to spur adoption.

In general, there is no sustainable business model in doing something that harms customers. It’s not profit maximizing, and it can’t be justified to shareholders. Those ISPs that have tried it don’t get away with it. Angry customers named and shamed those firms, and professional ISPs don’t engage in these practices. Furthermore having at least two providers in any market ensures their good behaviour. Customers can and do switch providers.

Far from blocking services such as Spotify, Skype and Netflix, ISPs are bundling them with their offers because that’s what customers want. To be competitive, Nordic ISP TeliaSonera is offering its customers a premium version of Spotify as well as online video streaming service HBO. Nokia works with European carriers to offer smartphones with a state of the art operating system integrated with Skype. Netflix is partnering with Cablevision in the USA to provide its immersive HD video that is even more advanced than Blu-Ray and is looking for European ISP partners to roll out its services.

### **Transparency for All Players Will Go Further to Create a Free, Open, and More Competitive Internet**

The internet is a diverse ecosystem comprised of networks, applications, app stores, operating systems, software platforms, and devices. To ensure a neutral playing field, we

---

<sup>10</sup>[http://berec.europa.eu/files/document\\_register\\_store/2012/12/BoR\\_\(12\)\\_146\\_Summary\\_of\\_BEREC\\_positions\\_on\\_net\\_neutrality2.pdf](http://berec.europa.eu/files/document_register_store/2012/12/BoR_(12)_146_Summary_of_BEREC_positions_on_net_neutrality2.pdf)

should demand uniform disclosures across the board so that users can be informed. Transparency for some players but not others is not transparency.

In its report BEREC found that European consumers were more concerned about interoperability on device platform and freedom of speech violations on websites than with traffic management from their internet provider.<sup>11</sup> Falling on the heels of this report, telecom regulators from 8 European countries have petitioned the EU to make disclosures for smartphones because they found the antennas of new smartphones are not compatible with mobile network standards.<sup>12</sup> Smartphones and tablets by their nature are the world's most discriminatory devices. Device makers decide which content and applications are accessible, which are not, and where they are installed.

The food and drug industries provide nutrition information in a standard format to inform the public. The same can be done with internet goods and services. This kind framework protects consumers while not discouraging innovation. Indeed there is evidence that providing quality information supports innovation.

This transparency may have helped drive competition in the broadband access market. Consider the early days of the internet. American users had but one or two choices of providers for dial-up access on telephone lines. Today they can choose among cable, fiber, satellite and mobile, as well as ultra-fast DSL which is an upgrade to the copper network so that it stays competitive. By contrast, we have just one dominant player for search, one for social networking, one for VoIP, and one for video streaming.

Going into the future, the next phase of the internet is about who controls the ecosystem on the mobile device. While Europeans may have dozens of choices for broadband internet access, they have but three choices for operating system: Apple iOS, Google Android, and Microsoft Windows, all American companies. Furthermore neutrality is unheard of on app stores, where app developers are subject to the whims of the operating system owners. It is precisely in this industry where a single digital market and transparency about practices would position Europe more competitively.

### **Europe's Economic Future Requires a Dynamic New World Internet**

Europe's economic health is far too important to be held back by an outdated notion of the internet. Architecture and traffic need to evolve to fit the needs of the day. Napoleon had famously mandated that all traffic flow first through Paris before anywhere else in France - and in the same way, net neutrality requires that traffic be programmed in a uniform and inefficient manner for the sake of history. Fortunately Neelie Kroes wants to move Europe into the future, and to bring Europe's internet along with it. An ailing Europe needs to embrace innovation and dynamism, and there is no better place to start than with the ICT sector. In less than twenty years, the internet has grown from a novelty for academics into a global social and economic force, comprising 4.1% of gross domestic product or \$2.3

---

<sup>11</sup>[http://berec.europa.eu/files/document\\_register\\_store/2012/12/BoR\\_\(12\)\\_146\\_Summary\\_of\\_BEREC\\_positions\\_on\\_net\\_neutrality2.pdf](http://berec.europa.eu/files/document_register_store/2012/12/BoR_(12)_146_Summary_of_BEREC_positions_on_net_neutrality2.pdf)

<sup>12</sup> <http://www.erhvervsstyrelsen.dk/file/372745/brev-til-kommissionen-om-maerkning-af-mobiltelefoner.pdf>

trillion for the G20 nations. If the internet were a country, it would be the world's 5<sup>th</sup> largest<sup>13</sup>. Allowing entrepreneurs and engineers the freedom to innovate and to provide creative solutions will unleash the market power to help Europe revitalize its economy.

---

<sup>13</sup> The Connected World: The \$4.2 Trillion Opportunity. Boston Consulting Group, 2012. [https://publicaffairs.linx.net/news/wp-content/uploads/2012/03/bcg\\_4trillion\\_opportunity.pdf](https://publicaffairs.linx.net/news/wp-content/uploads/2012/03/bcg_4trillion_opportunity.pdf)