



Net Neutrality: view from over the top

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UKNOF
London, January 2012

What are we talking about?

- **Net Neutrality, aka network neutrality; we say ‘open Internet’**
- **end-to-end nature of the Internet means that:**
 - companies that own the broadband pipes should not be able to configure their networks in a way that plays favorites
 - allowing them, for example, to transmit their own apps and services at faster speeds or exclude competing services and apps, or to charge Internet content and application companies a fee for similar delivery
 - users rather than network providers determine what information and content they view, what services and applications they use, and freedom of distribution and freedom of information exist.

How it is expressed in EU law

“End-users should be able to decide what content they want to send and receive, and which services, applications, hardware and software they want to use for such purposes, without prejudice to the need to preserve the integrity and security of networks and services.”

Recital 28, EC Citizens' Rights Directive 2009

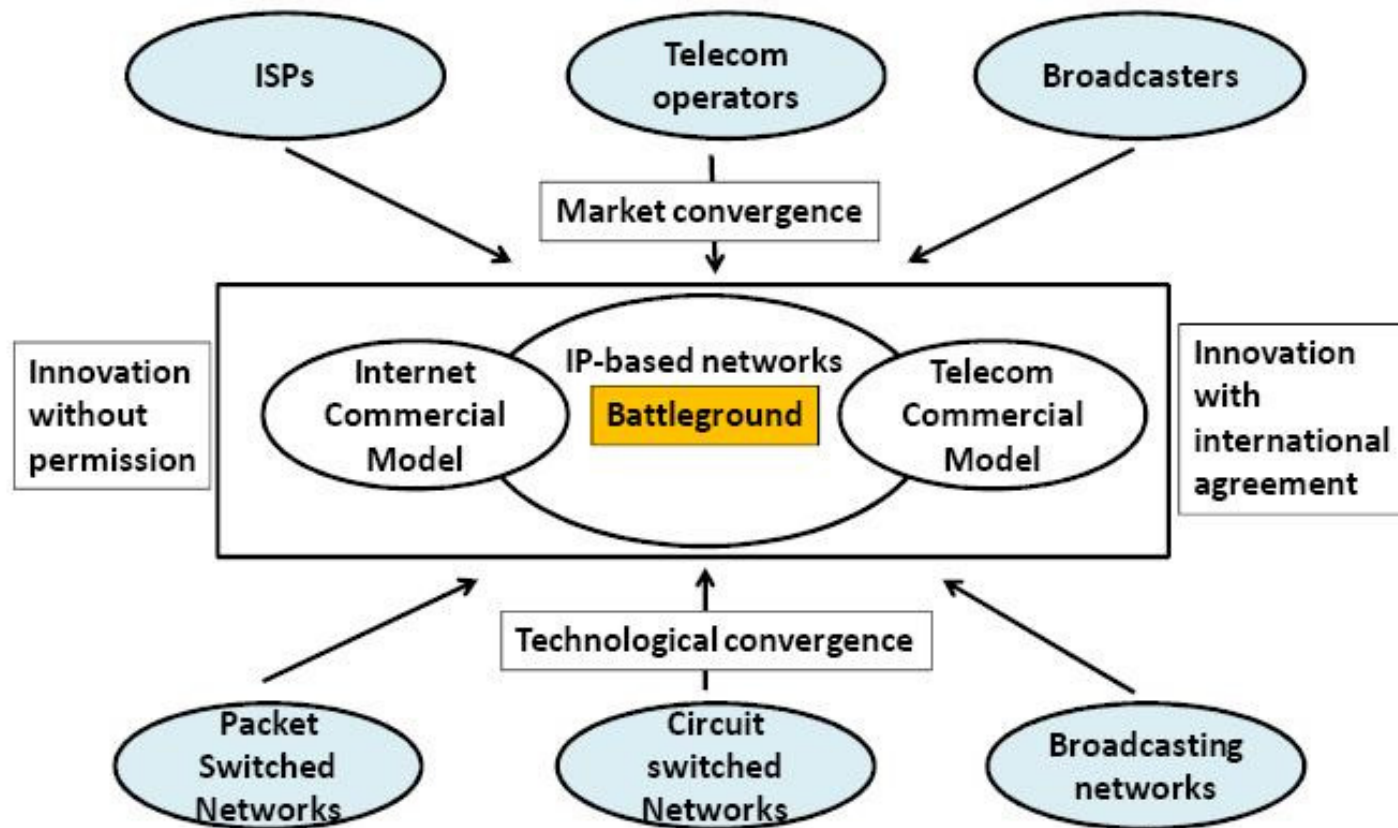


But (why) should we worry?



*“First it can’t possibly work, and if it did,
damned if we are going to allow the
creation of a competitor to ourselves.”*

Some see the future of the Internet as a battle



Source: J. Horrocks, "NGN and Convergence Models, Myths, and Muddle", OECD NGN Foresight Forum, 3 October 2006. See: http://www.oecd.org/document/12/0,3343,en_2649_34223_37392780_1_1_1_1,00.html.

And their tools are improving

Table 1. Sample of applications that can be monitored, controlled and prioritised

Peer-to-Peer	Voice over IP	Multimedia	Gaming	Messaging
Aimster	CiscoCTI	Abacast	Asheron's Call	AOL (IM, Talk, Image, File, ISP)
Apple-iTunes	Clarent	Motion Video using	Battle.net	iChat
AudioGalaxy	CUSEeMe	DIGStream	Diablo II	ICQ
Bit Torrent	Dialpad	MPEG (Audio, Video)	Doom	IRC
Blubster	H.323	Multi-cast NetShow	EverQuest	Lotus IM
DirectConnect	I-Phone	NetMeeting	Half-Life	MSN
EarthStation V	iChat	Ogg over HTTP	Kali	Messenger
EDonkey	MCK Commun.	QuickTime	LucasArts (Jedi)	Windows-POPUP
Emule	Megaco	RadioNetscape	MSN Zone	Yahoo!
Gnutella	Micom VIP	Real (Audio, Video)	Mythic	Messenger
Grokster	MGCP	RTP	Quake I, II, & III	
Groove	Net2Phone	RTSP	SonyOnline	
Hopster	RTP	SHOUTcast	Tribes I, II	
Hotline	RTCP	Streamworks	Unreal	
iMesh	SIP	VideoFrame	Warcraft III	
Limewire	Skinny (SCCP)	WebEx	WorldofWarcraft	
KaZaA	Skype	WinampStream	XboxLive	
KaZaA Lite	T.120	WinMedia	Yahoo! Games	
Morpheus	VDOPhone			
Napster	Vonage			
Napigator				
+ 50 others				

Source: Packeteer at <http://www.packeteer.com/resources/prod-sol/ApplicationDiscovery.pdf>

(Source: OECD: INTERNET TRAFFIC PRIORITISATION: AN OVERVIEW (DSTI/ICCP/TISP(2006)4/FINAL)

Internet usage restrictions are widespread in Europe



ALL mobile operators in Sweden, France or the Netherlands forbid or surcharge VoIP use

Transparency won't serve any purpose as switching ISP is not common, and more than half of Swedish people don't know that they can switch, or how to (PTS 2010)

What do you mean, “Internet”?



Go to www.t-mobile.co.uk, then click to get to: <http://www.t-mobile.co.uk/shop/pay-monthly/deals/> then scroll to bottom of the page to click on the link to 'legal stuff' you want to know:, which takes you to: <http://www.t-mobile.co.uk/shop/terms-and-conditions/pay-monthly-deals/>

The legal stuff you need to know - Mozilla Firefox

Go to a Web Site

This plan comes with a fair use policy of 500 MB a calendar month. We'll monitor how much you send and receive each calendar month so that we can protect our network for all our customers. If you use more than your fair use policy amount, we won't charge you any more, but we may restrict how you can use internet on your phone.

Nokia, Nokia Connecting People and Ovi are trademarks or registered trademarks of Nokia Corporation. Specifications are subject to change without notice. The availability of particular products and services may vary by region. Operation times may vary depending on radio access technology used, operator network configuration and usage. Operations, services and some features may be dependent on the network and/or SIM card as well as on the compatibility of the devices used and the content formats supported. Some services are subject to a separate charge.

Internet on your phone - £1.02 a day

If you are a pay monthly customer who doesn't have internet on your phone included in your plan or added to your account as a booster, a day pass costs up to £1.021 a day. We'll automatically charge 0.75p per KB each day (midnight to midnight) when you use internet on your phone until you hit £1.021 a day and then we won't charge you any more.

You'll need a compatible phone and internet coverage, check it at t-mobile.co.uk/streetcheck. Remember that you can only use internet on your phone in the UK and you can't use your phone as a modem or use internet on your phone for peer to peer file sharing or making internet phone calls.

This plan comes with a fair use policy of 500MB a calendar month (40MB a day for customers who joined before 1 Feb 2011). We'll monitor how much you send and receive each calendar month so that we can protect our network for all our customers. If you use more than your fair use policy amount, we won't charge you any more, but we may restrict how you can use internet on your phone.

Truly unlimited internet

Join us instore, online or over the phone on a 24 month pay monthly plan costing at least £25 a month and you'll get unlimited internet on your phone included in your plan at no extra cost. ~~This price assumes that you pay by direct debit and have online billing. You'll have to promise to stay with us for 24 months and pass our standard credit check.~~

Truly unlimited means use as many MB/GB as you like, but you can't use your phone as a modem (tethering), for peer to peer file sharing or for making internet phone calls.

If you choose a BlackBerry, you'll need to choose a plan costing at least £25 a month and then add your BlackBerry bundle on to that at an extra £3.10 a month.

You'll need internet coverage, check it at t-mobile.co.uk/streetcheck. Remember that you can only use internet on your phone in the UK and you can't use your phone as a modem (tethering) or use internet on your phone for peer to peer file sharing or making internet phone calls.

Your monthly payment is for your inclusive minutes and texts from the UK to the customers of UK mobile networks and numbers starting with 01, 02 & 03 at any time. This doesn't cover Jersey, Guernsey and the Isle of Man. You will lose your unlimited data when you renew or upgrade and you may lose it if you move plan.

You'll also get a flexible booster included as part of your plan. You can choose one flexible booster at a time from our current range and it applies from when you make your choice. You can change it once every 30 days, counting from the last time that you changed it. To change your choice of booster, just send us a text with the code of your new choice. We'll send you a text when you

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19/09/2011

"Truly unlimited means use as many MB/GB as you like, but you can't use your phone as a modem (tethering), for peer to peer file sharing or for making internet phone calls."

 TELCO ADSL Your email. Your world wide web. Your imagination.		\$29.95 <small>Includes 500 MB of free transfers to non-peering websites at full speed. Limited to 128 kbps thereafter.</small>
Google YAHOO! SEARCH WORDPRESS.COM flickr Blogger bing YouTube Broadcast Yourself™ Ask  WIKIPEDIA The Free Encyclopedia		+ \$5 pathfinder <small>Includes a massive extra 1000 MB a month for non-peering and non-selected websites. Limited to 256 kbps thereafter.</small>
Bai 百度 Яндекc Найдётся всё WEB.DE BBC india times news.com.au Includes the top 200 services from over 30 countries.		+ \$5 international
digg The New York Times THE WALL STREET JOURNAL. Los Angeles Times THE HUFFINGTON POST msnbc FOX NEWS Channel News Freak? Get your fix. Includes free online access to your local news site.		+ \$5 news
YouTube + Broadcast Yourself™ Joost hulu tv.com™ NETFLIX ESPN Includes free Hulu subscription. Enjoy exclusive content from your favourite networks.		+ \$10 hollywood <small>\$15 after September</small>
twitter facebook AOL bebo msn myspace.com a place for friends YAHOO! friendster. All social networks. All your friends. Includes all your dating sites.		+ \$0 the social <small>Just \$5 after three months</small>
last.fm Pandora Spotify napster. Rhapsody emusic Listen to your favourite music. Includes three months of emusic.		+ \$10 the beat
amazon.com™ Overstock.com newegg.com skype PayPal™ ebay Save money. Shop online. All your favourite things, secure and fast. Includes Internet Banking from over 20 financial institutions.		+ \$5 marketplace <small>Access to services not pictured here may incur additional costs.</small>
STEAM EA ELECTRONIC ARTS™ WORLD OF WARCRAFT realArcade FULL TILT POKER GAMETAP Gamer? We hear you. Unwind, relax and play hard.		+ \$5 playground
Recharge Your full-speed quota wasn't enough? A massive 2000 MB for access to your company's VPN at full speed. For accessing your friends' non-peering websites at full speed. For getting your emails faster and the included limit didn't cut it. Or if you're a web designer and need some extra buffer. Whether it be the world wide web, VPN or email, we have you covered.		+ \$5 recharge

Is this the
future of
the
Internet?



So what's to be done?

How the inventor of the WWW put it



*Yes, regulation to keep the Internet open is regulation.
And mostly, the Internet thrives on lack of regulation.*

*But some basic values have to be preserved. For
example, the market system depends on the rule that
you can't photocopy money. Democracy depends on
freedom of speech.*

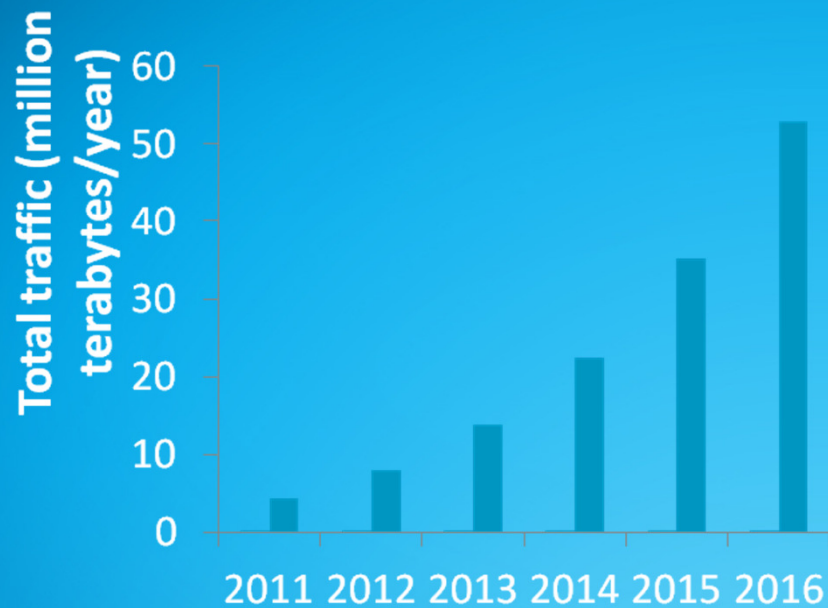
***Freedom of connection, with any application, to any party, is the
fundamental social basis of the Internet, and, now, the society based
on it.***

***[...] protect net neutrality, so I can continue to innovate in the Internet
space. I want to see the explosion of innovations happening out there
on the Web, so diverse and so exciting, continue unabated.***

[Sir Tim Berners Lee's second blog entr.m4v mp4](#)

Traffic growth is a reality – but not a bad thing

Global mobile data traffic volume,
2011-2016



1. LTE
2. Wi-Fi
3. Spectrum
4. Small cells
5. Pricing strategy
6. Optimisation & compression

A few myths about net neutrality

Myth 1: Demand is bad

- Demand is good since it reflects end-user value and supports revenue growth and network investment.

Myth 2: Costs are ballooning because of data growth

- Costs are not ballooning because of data growth.

Myth 3: Application providers "cause" traffic

- End users cause traffic via requests for and generation of content

Myth 4: Applications providers free ride

- Application providers do not free ride but invest in infrastructure, purchase network services and have developed bandwidth-efficient applications.

Myth 5: Charging application providers would promote investment

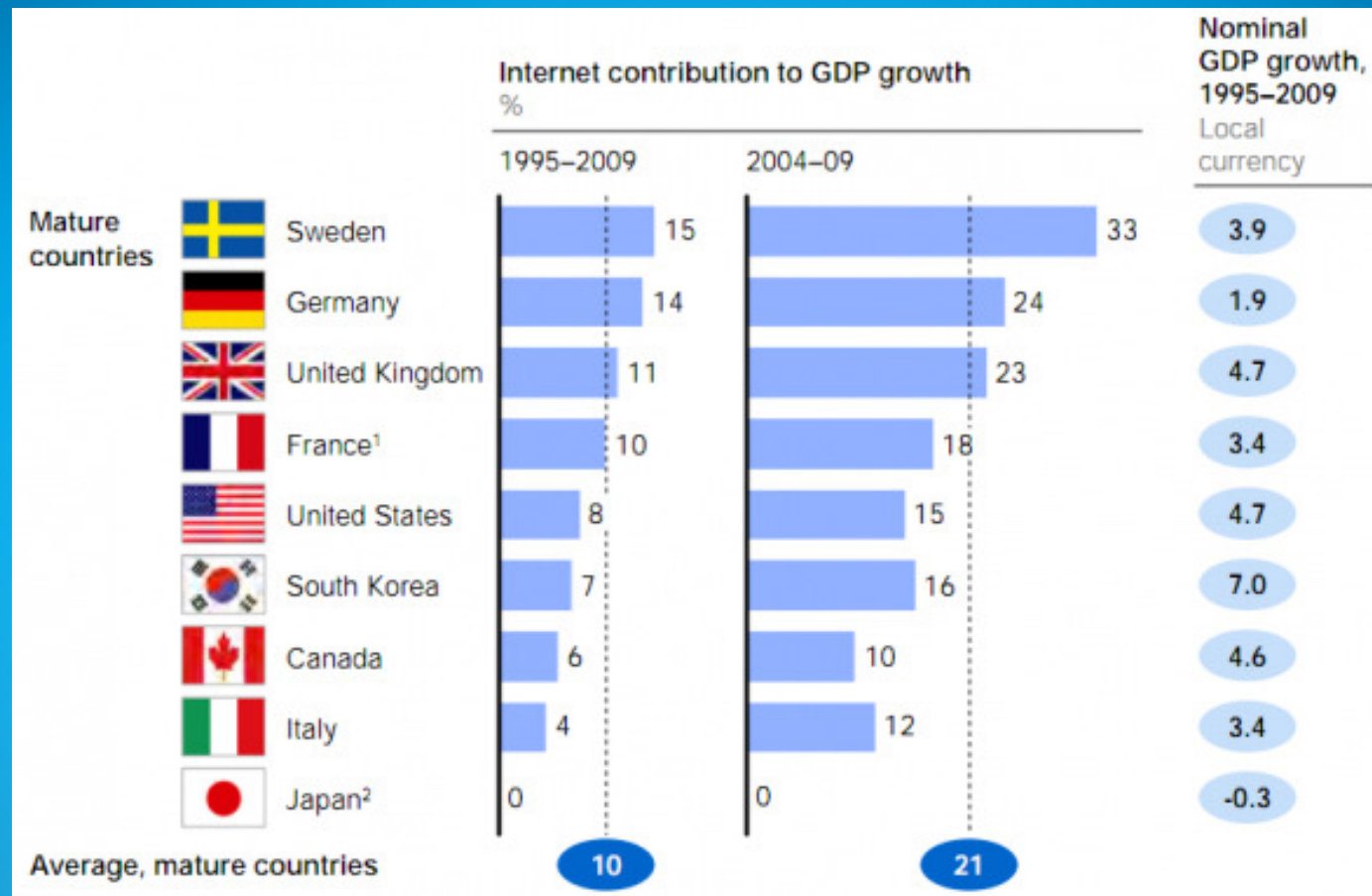
- Any revenues raised would not necessarily be invested and would discourage applications innovation, reducing demand for advanced network access.

Myth 6: Net neutrality is a solution in search of a problem

- Discrimination against certain types of Internet content, apps and services, is widespread in Europe

The reality: the open Internet is crucial for all of us, including operators

Online content and application providers stimulate demand translating into broadband revenues of €155 billion in Europe in 2010



(source: G8 / McKinsey, 2011)

2.

Innovation in networks

Operators increasingly confident data will grow profitably

Vodafone Europe data revenue is now growing faster than data traffic

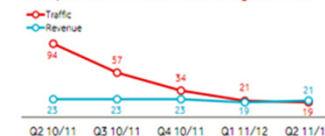
Telenor Norway has seen data revenue growth exceed data traffic for several successive quarters

O2 UK is successfully growing customer lifetime profitability thanks to yield management techniques

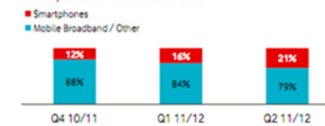
Operators globally seeing an acceleration in smartphone and data adoption

Network: driving data revenue while managing traffic

Europe data traffic and revenue growth (%)

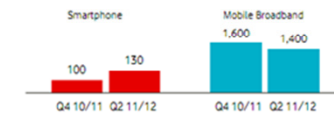


Europe data traffic mix (%)



- Web/Video traffic optimisation in 9 markets; 15-30% volume cuts
- 20-30% reduction in peer to peer traffic in key markets
- Traffic mix moving to smartphones
- Maintaining network strength in Europe: leading data performance in 11 out of 13 markets¹; 3G capacity utilisation stable at 37%²

Europe monthly usage per user (MB)



1. September 2010 to July 2011
2. Average busy hour utilisation

New tariffs position us to accelerate penetration and monetisation

Distribution of iPhone + Android Usage



New tariffs

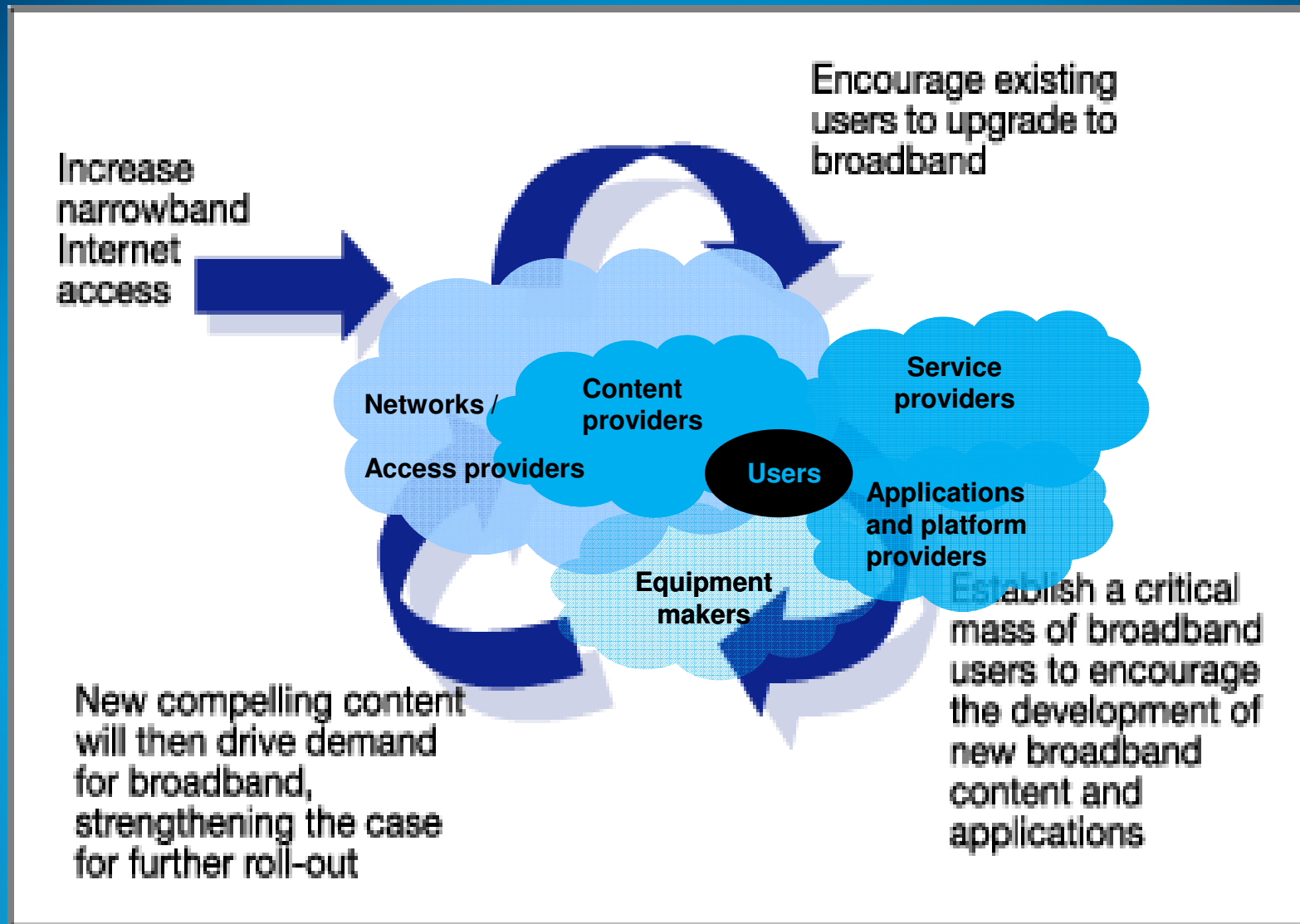
- New tariffs offer "entry level" data to drive penetration, greater flexibility, as well as packages for heavier users
- Lowest data allowance is now at 100MB



Investor Conference
Telefonica

Source: Informa Telecoms & Media

The reality: the Internet value chain is not a battleground, but a symbiotic ecosystem



Moving forward

The application of the EC rules in the UK should:

- uphold clearly the principle that end-users can access the services and applications of their choice on the Internet,
- with no loophole legitimising arbitrary restrictions by operators
- with the authorities having a clear duty and the legal powers to prevent abuse

(whether you do it in law, or self-regulation, matters little – what is key is that open Internet principles are respected in reality)

Next: on 24 January, the 'Broadband Stakeholders' Group' will present a draft UK (industry) code of conduct on net neutrality

What principles should say...

- To ensure open access to the Internet, in order to prevent blocking or charging over the top services
- Offerings for Internet access providers may be differentiated in terms of bandwidth and data limits
- and limited only for purely technical, security of legal reasons
- Doesn't stop ISPs offering other services, e.g. their own VoIP / VoB, as long as that doesn't unduly impact Internet access

(from Article 7.4a, Netherlands Telecommunications Act, June 2011 ;

See also French regulator, Norway, Singapore, US, Canada, Chile, etc. etc. etc.)



Thank you!