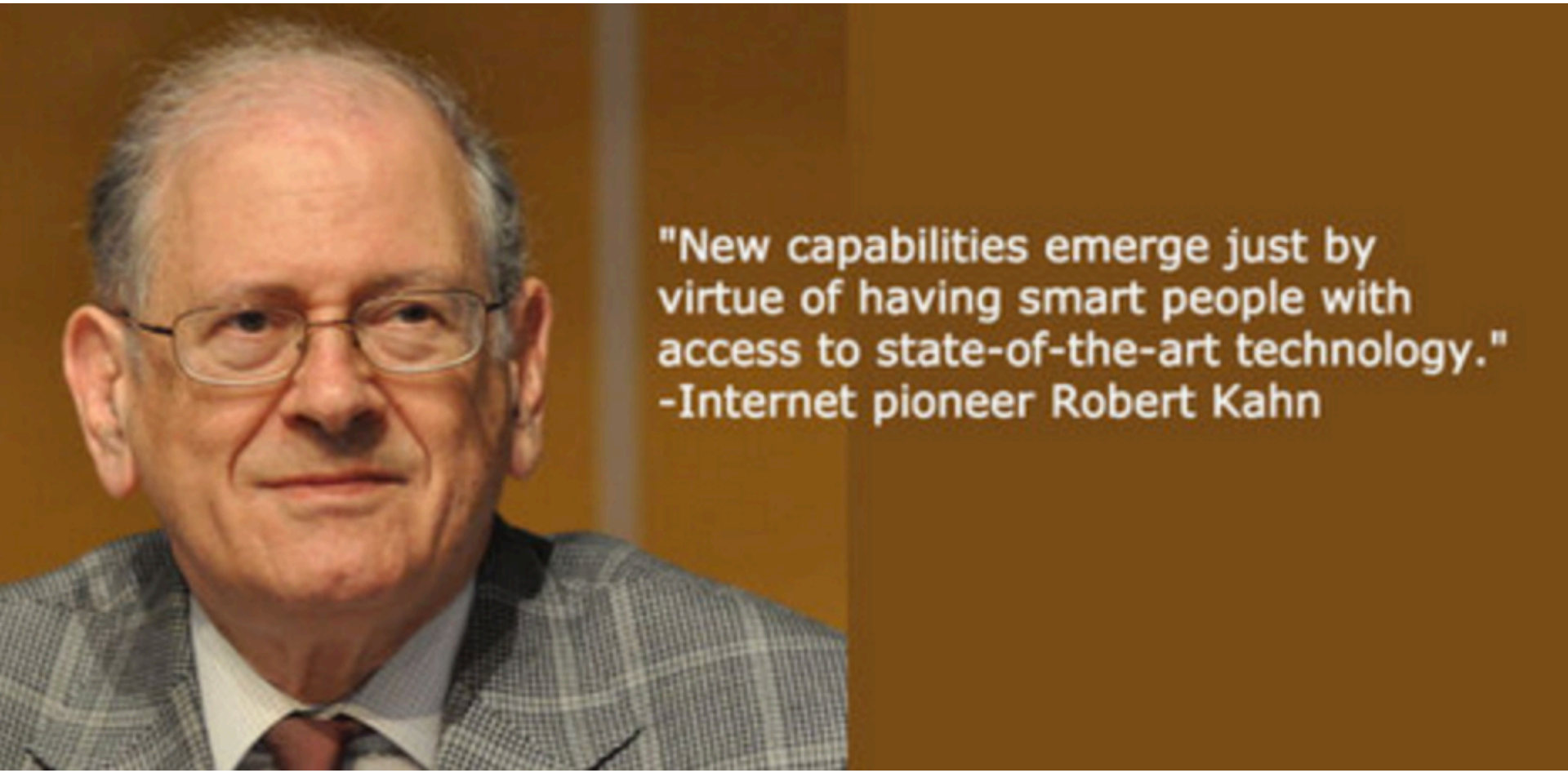
APID- Papua New Guinea

- Facts and Trends

"The Internet is for Everyone"

20 June, 2014 | Port Moresby I Papua New Guinea

Duangthip Chomprang (chomprang@isoc.org)
Asia-Pacific Regional Bureau

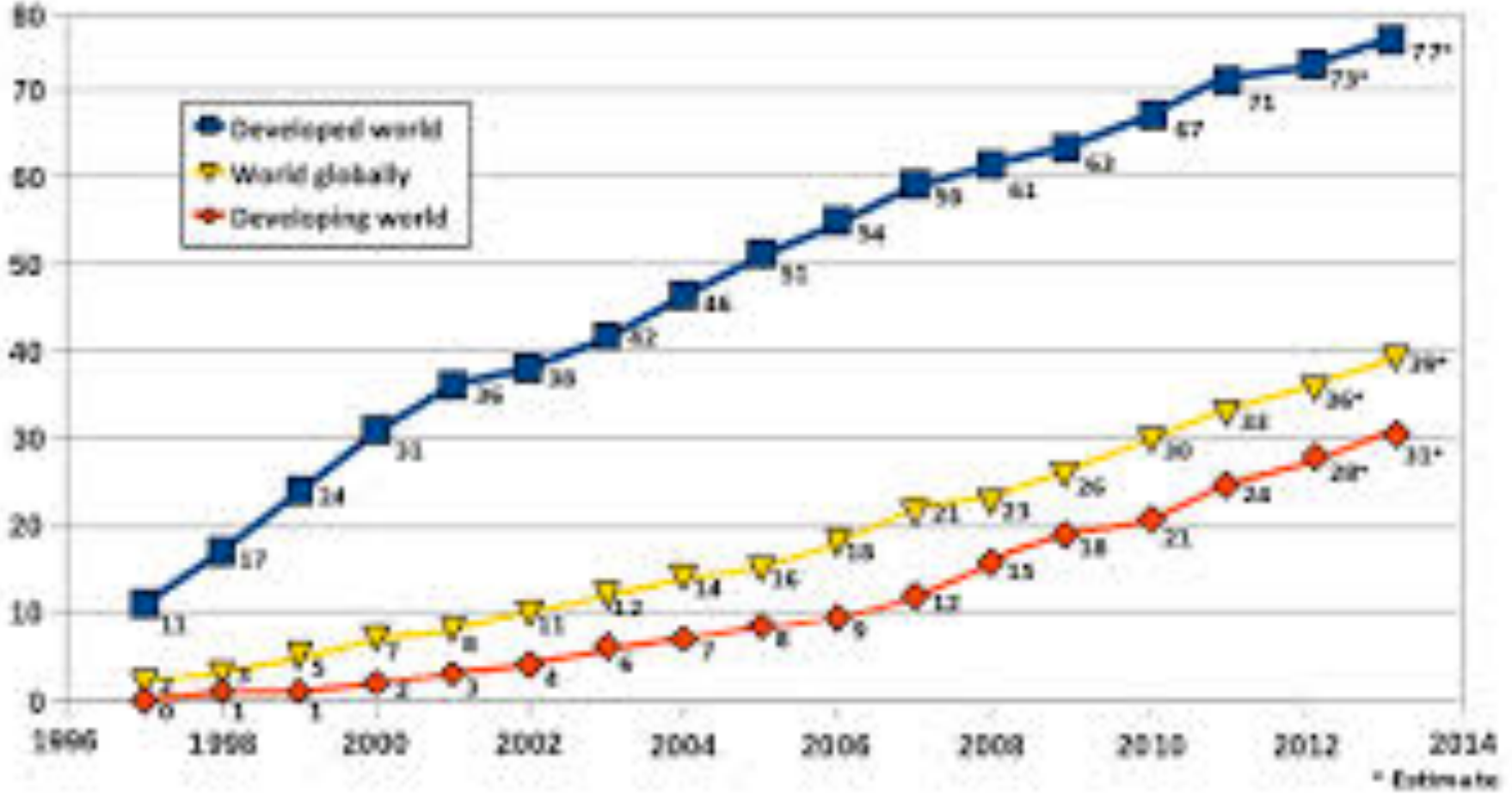


Internet Society™

Food for Thought

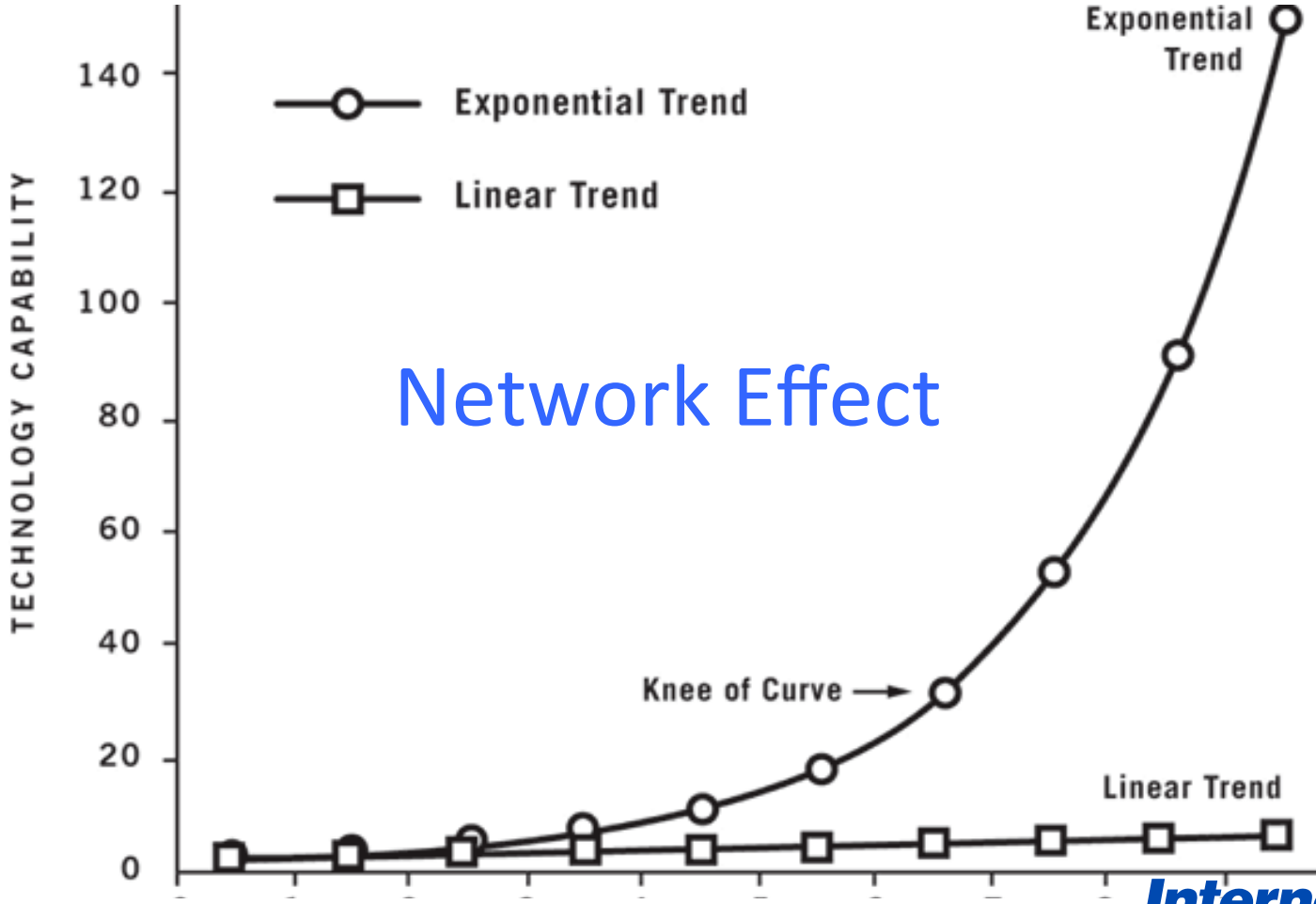
- Does knowledge precedes technology or the opposite?

Internet Growth Trend 1996-2014



Source: ITU

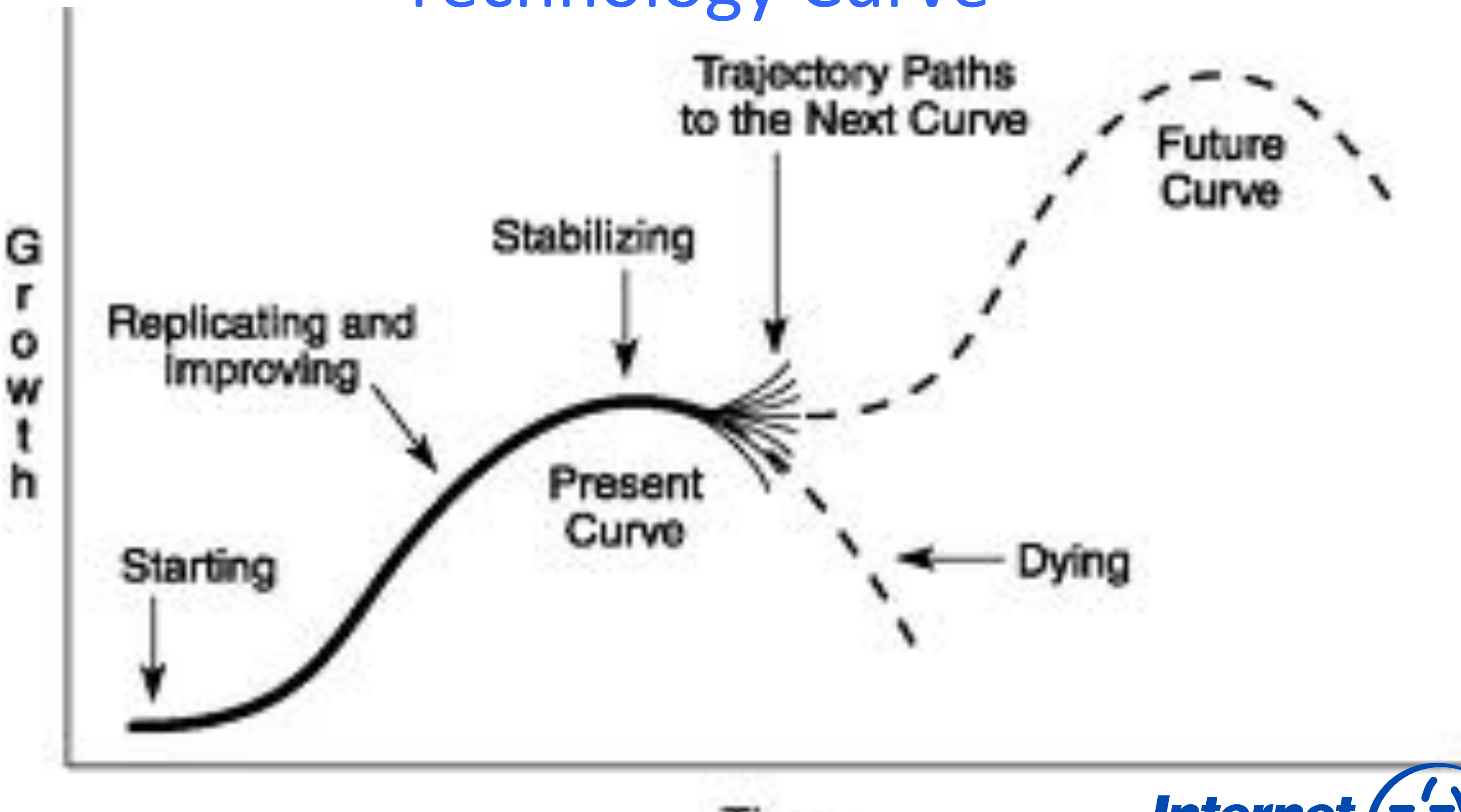
Linear vs. Exponential Curve



Internet Society™

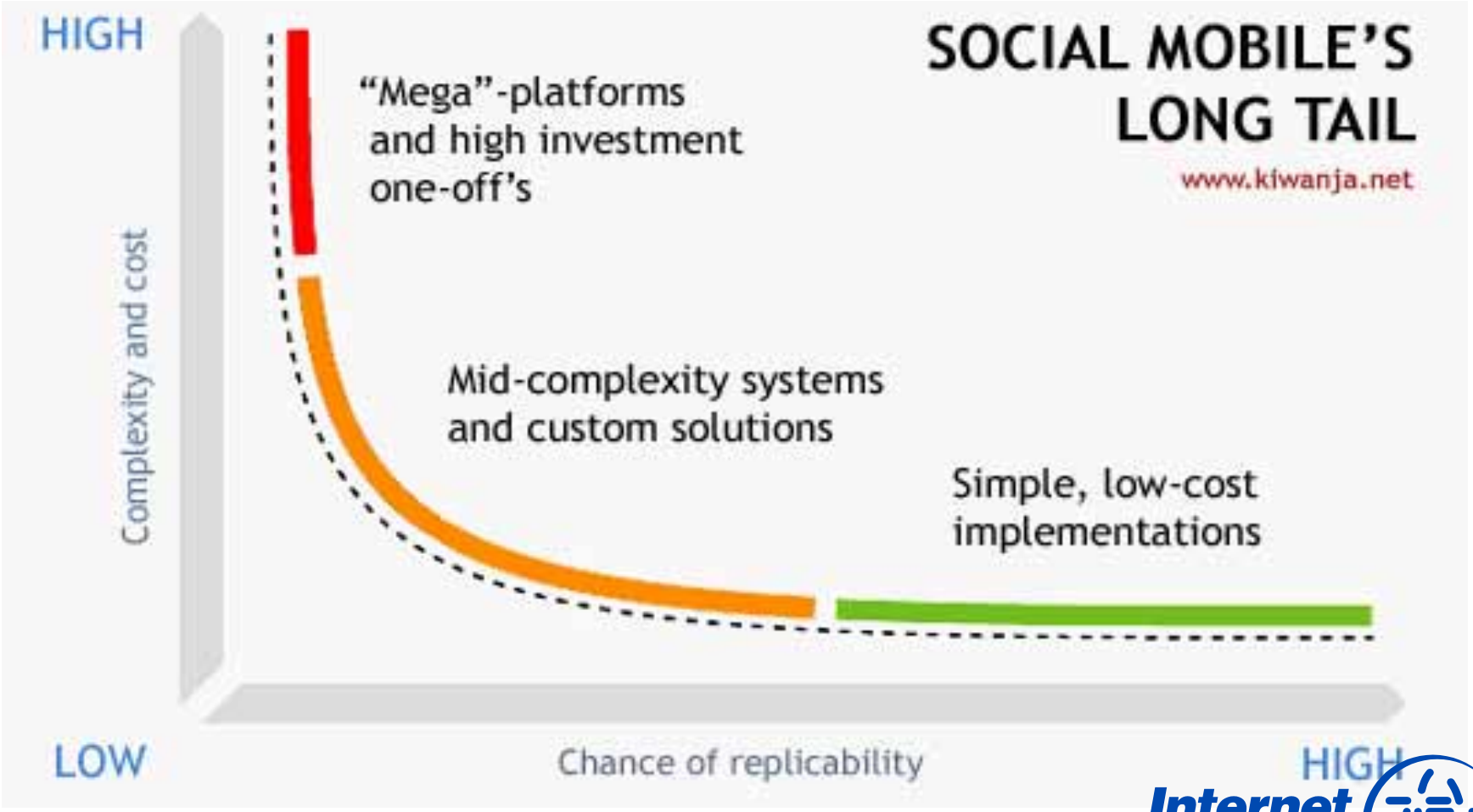
S- Curve – Linear Extension

Technology Curve



Example of a Long Tail

Social Innovation Effect



Internet Society™

Technology Facts

- Technology changes is not additive but systemic (ecosystem). It is disruptive and dynamic nature.
- Technology advantages and disadvantages are not evenly distributed.
- The Internet's full potential has yet to be realised by mankind.

Internet Society™

Internet Scale (Facts)

- 1 Exabyte of data travels on the Internet daily
- 0.5 mln users comes on-line everyday (first time)
- "Put differently, the ICT revolution can be seen as a large and long-lasting positive supply shock, causing higher and possibly also more stable economic growth without extra inflation" (Houben & Kakes, 2002).

- Internet access (10%) is a major contributor to the economy, every 10% growth in access constitutes 1% growth in new businesses (Telenor BCG Report).

Internet Society™

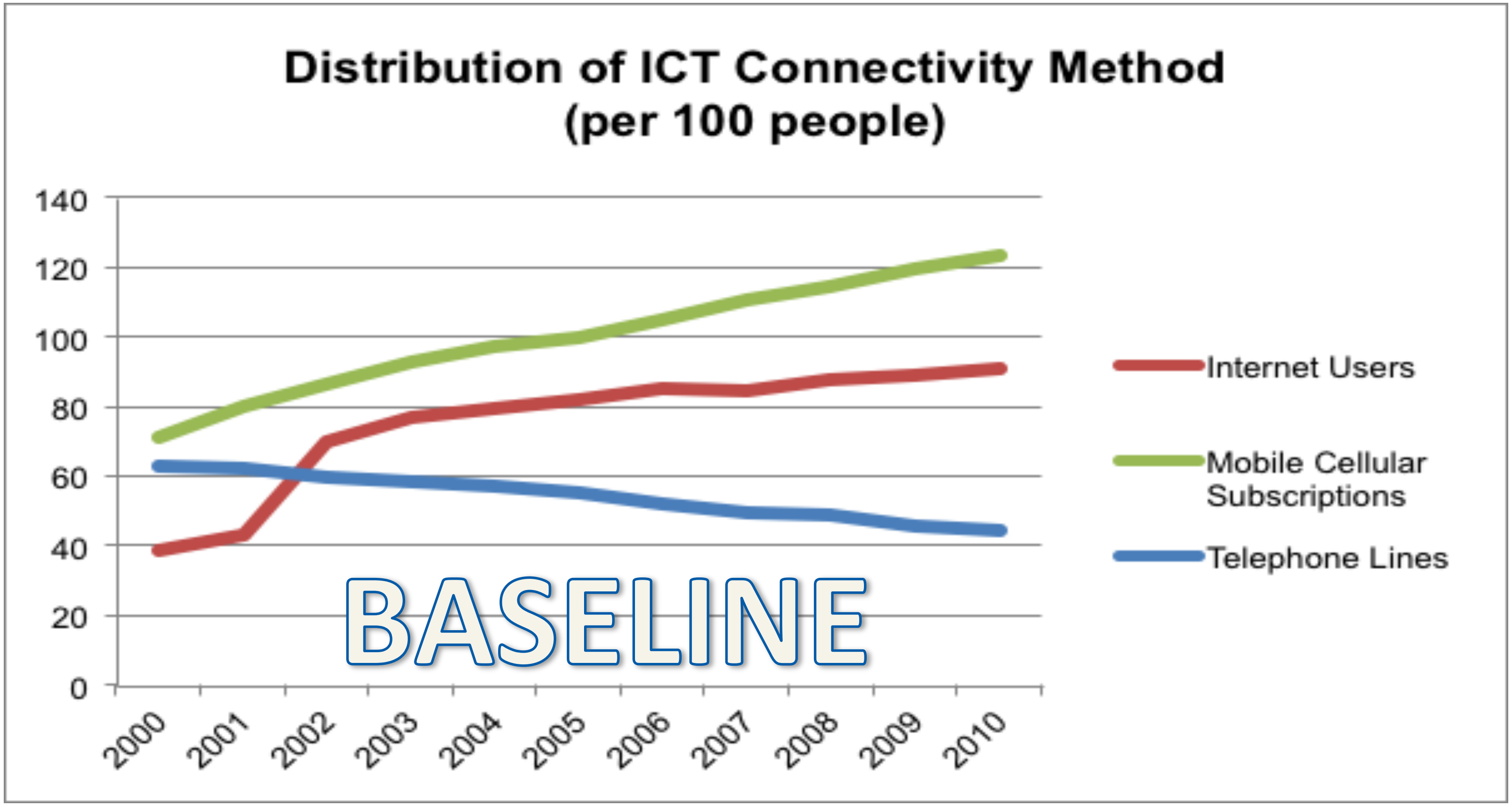
Internet & Growth Facts…..

- Recent studies show a direct correlation between Internet penetration and GDP Growth….with a lagging factor between 2-3 years. i.e. Internet growth precedes… economic growth and performance !

  Findings : ……..that a 10% increase in per capita GDP is associated with a 21.5% increase in the number of Internet users per capita!" (Andres, Cuberes, Diouf, & Serebrinsky, 2010)

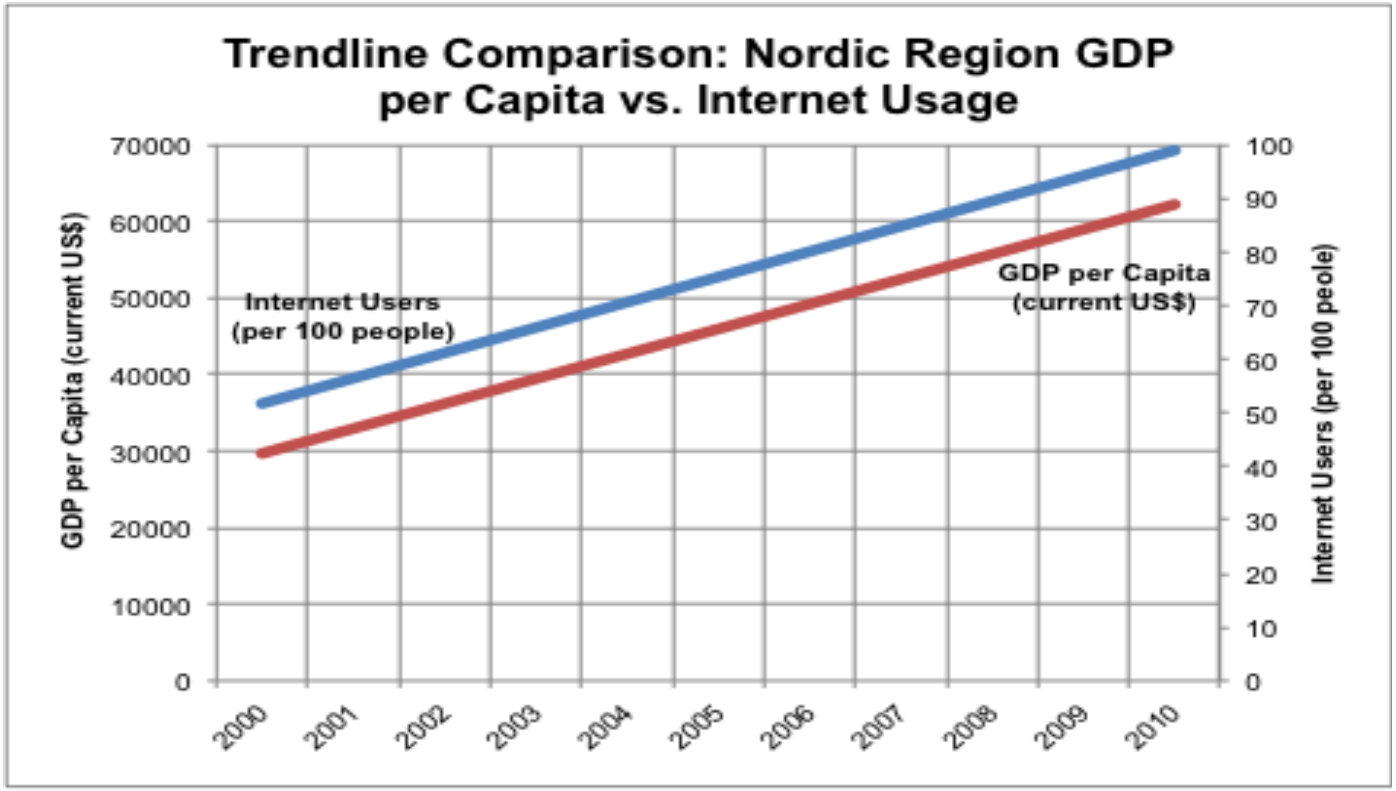
Internet Society™

ICT Connectivity By Technology



Internet Society™

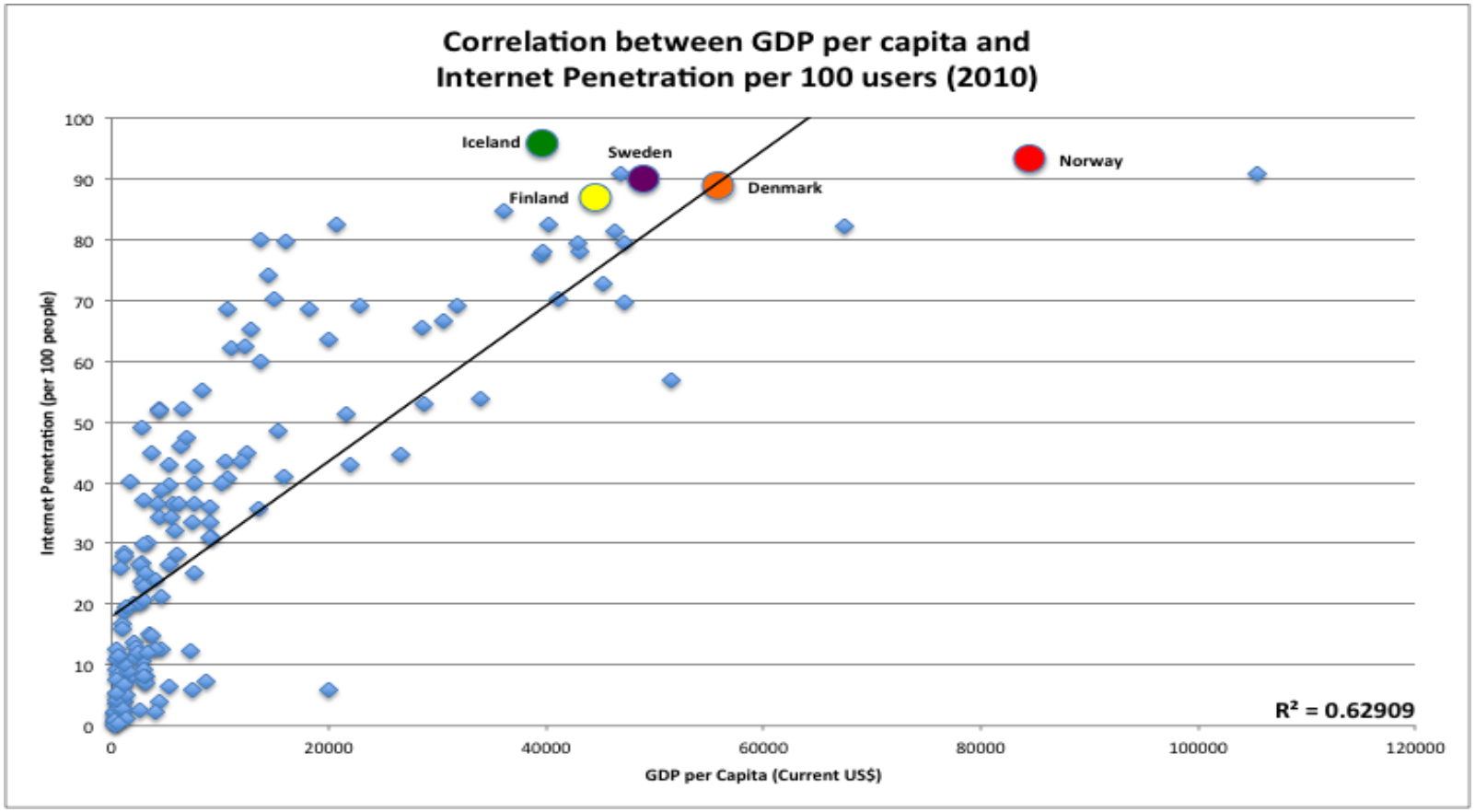
Internet Usage is Proxy to GDP Growth!



Source: Andres, L., Cuberes, D., Diouf, M., & Serebrinsky, T. (2010). The diffusion of the Internet: A cross-country analysis. Telecommunications Policy, 34 (5-6), 323-340.

Source: 'Internet Penetration and its correlation to GDP: An analysis of Nordic countries (Amiri, Reif, 2013)

GDP Growth and Internet Penetration

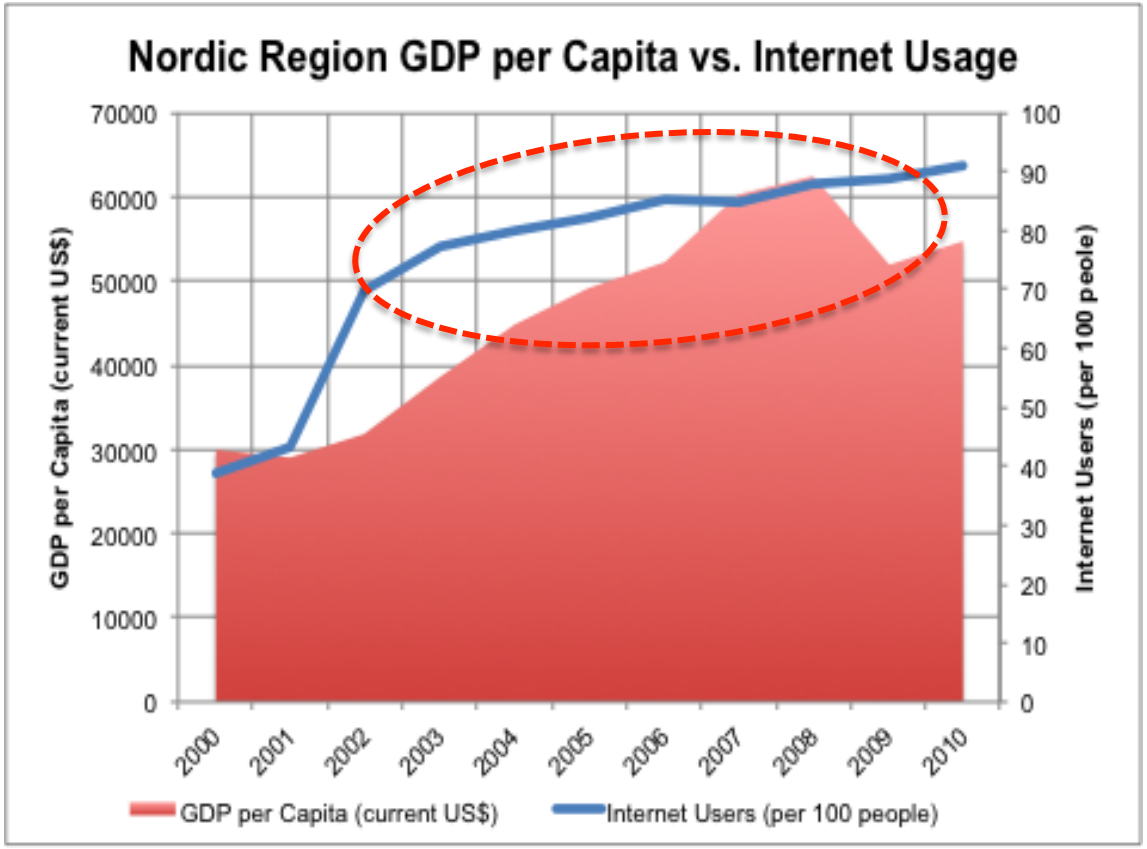


Source: World Bank 2011 (168 economies)

Source: Andres, L., Cuberes, D., Diouf, M., & Serebrinsky, T. (2010). The diffusion of the Internet: A cross-country analysis. Telecommunications Policy, 34 (5-6), 323-340.

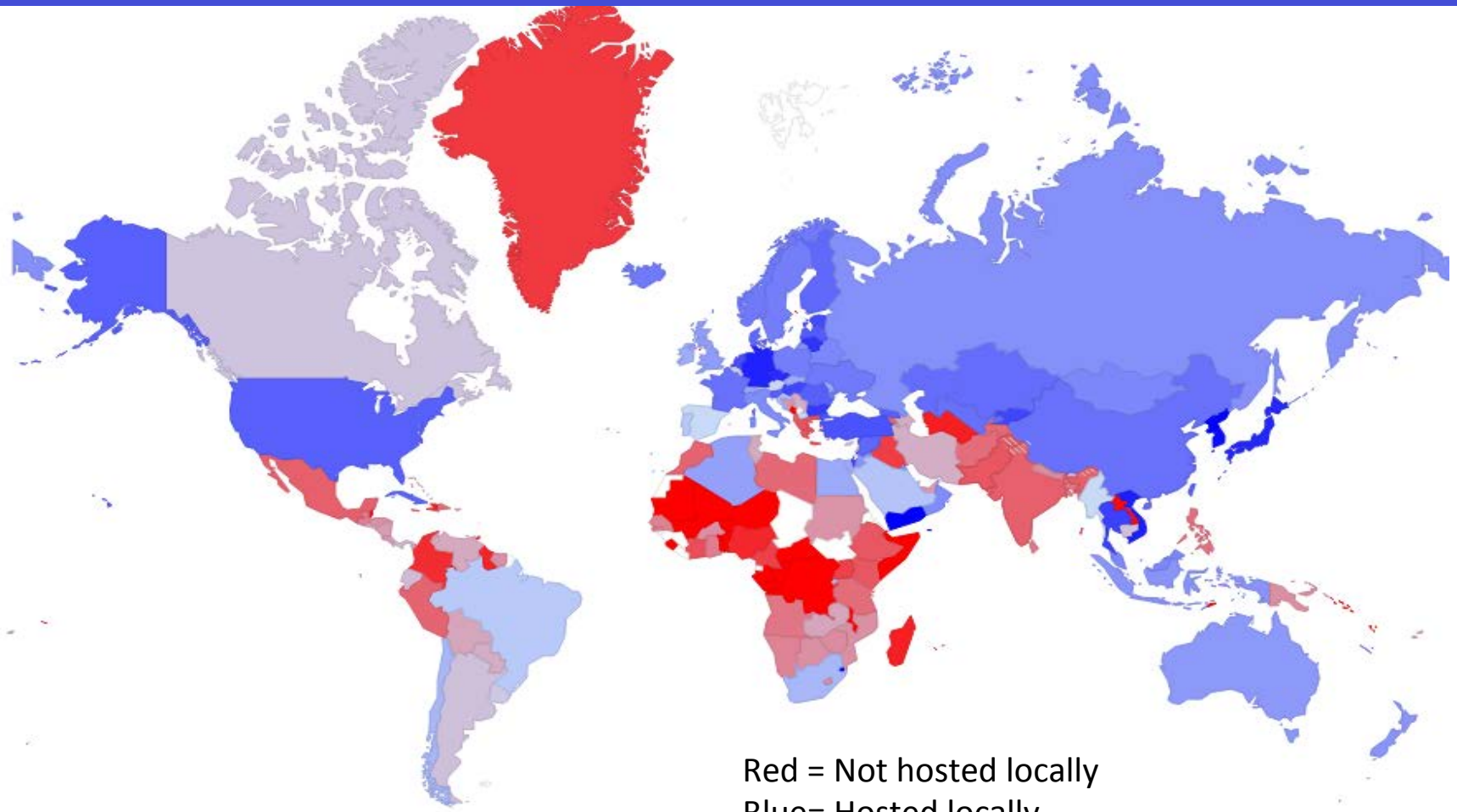
Internet Society™

Internet Penetration Precedes GDP Growth!



Source: 'Internet Penetration and its correlation to GDP: An analysis of Nordic countries (Amiri, Reif, 2013)

Map of ccTLD hosting (overseas/in country)



Red = Not hosted locally
Blue= Hosted locally

Source: Alexa top 1million sites

Internet Society™

Top 20 ccTLDs vs GDP – recession proof domains?

Country	2012 q4 Domain name rank	2012 GDP rank (IMF)	DN/GDP rank difference	Domain L12M growth	12 /11 GDP growth
Germany	1	4	3	3.69%	-6.67%
Tokelau	2	N/A	N/A	73.96%	N/A
United Kingdom	3	7	4	4.60%	0.10%
China	4	2	-2	73.33%	-8.10%
The Netherlands	5	17	12	6.58%	5.57%
Russia	6	9	3	10.76%	13.05%
EU	7	N/A	N/A	5.95%	N/A
Brazil	8	6	-2	12.77%	-2.72%
Australia	9	12	3	11.99%	3.71%
France	10	5	-5	3.13%	6.79%
Italy	11	8	-3	7.53%	-9.93%
Argentina	12	27	15	10.85%	-7.12%
Poland	13	23	10	4.26%	-8.58%
Canada	14	11	-3	9.70%	1.79%
Switzerland	15	19	4	6.28%	3.83%
USA	16	1	-15	2.20%	-5.74%
India	17	10	-7	13.14%	-9.41%
Spain	18	13	-5	24.17%	6.57%
Colombia	19	33	14	19.15%	11.53%
Belgium	20	22	2	10.40%	-7.35%

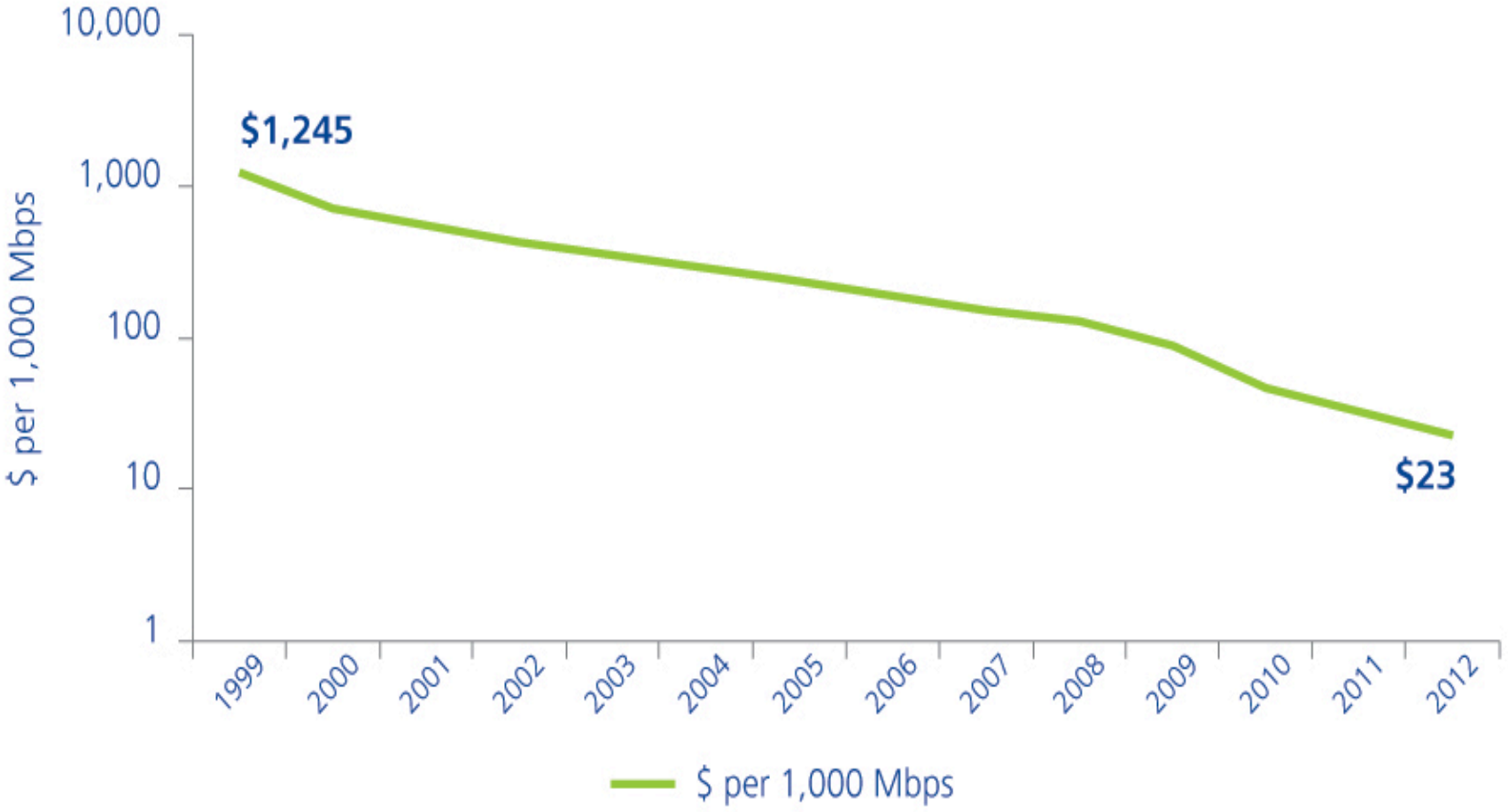
Source: nominet: http://db.nominet.org.uk/node/country-data/

International Voice Traffic Prospect

- End of double digit growth
- Consolidation of industry
- New innovation

Internet Society™

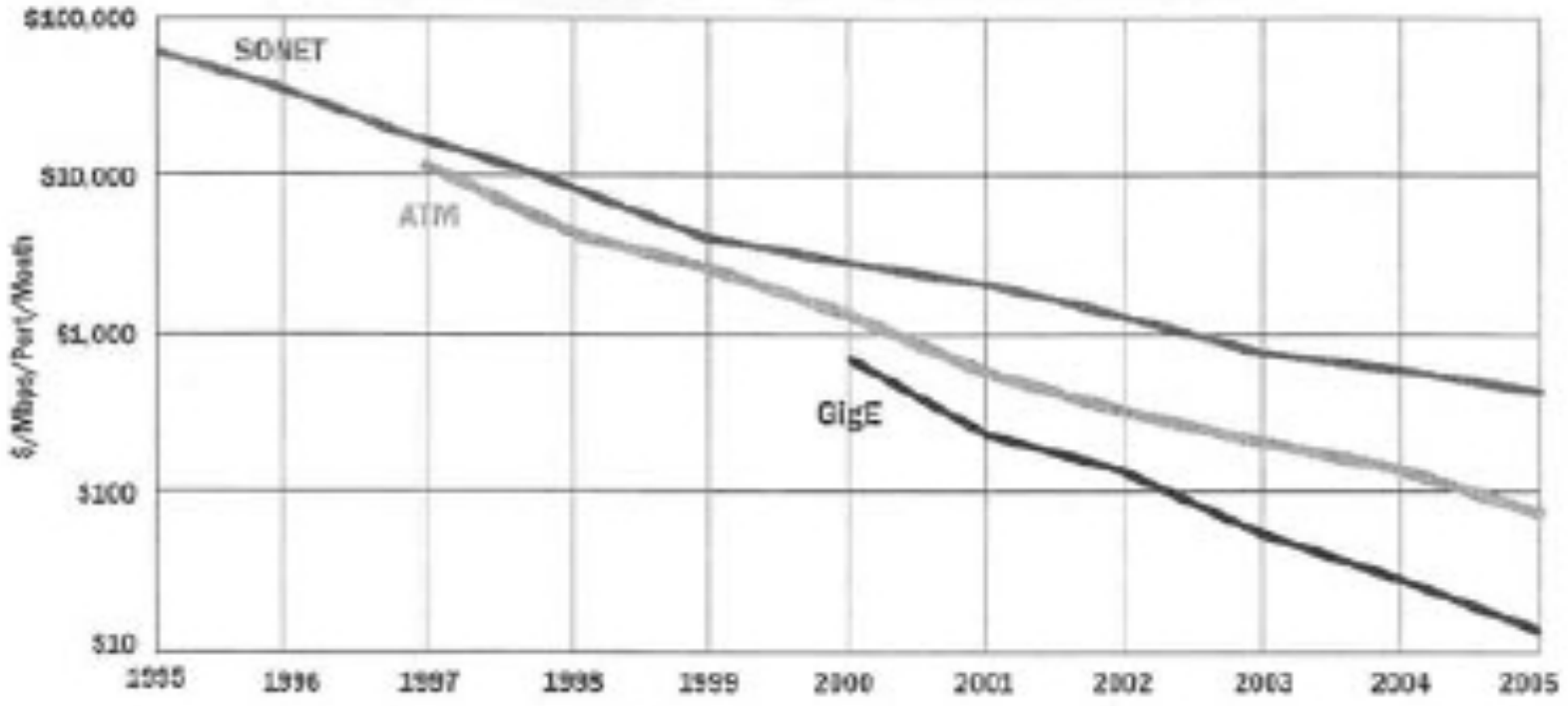
Figure 3. Bandwidth cost-performance (1999–2012)



Source: Leading technology research vendor

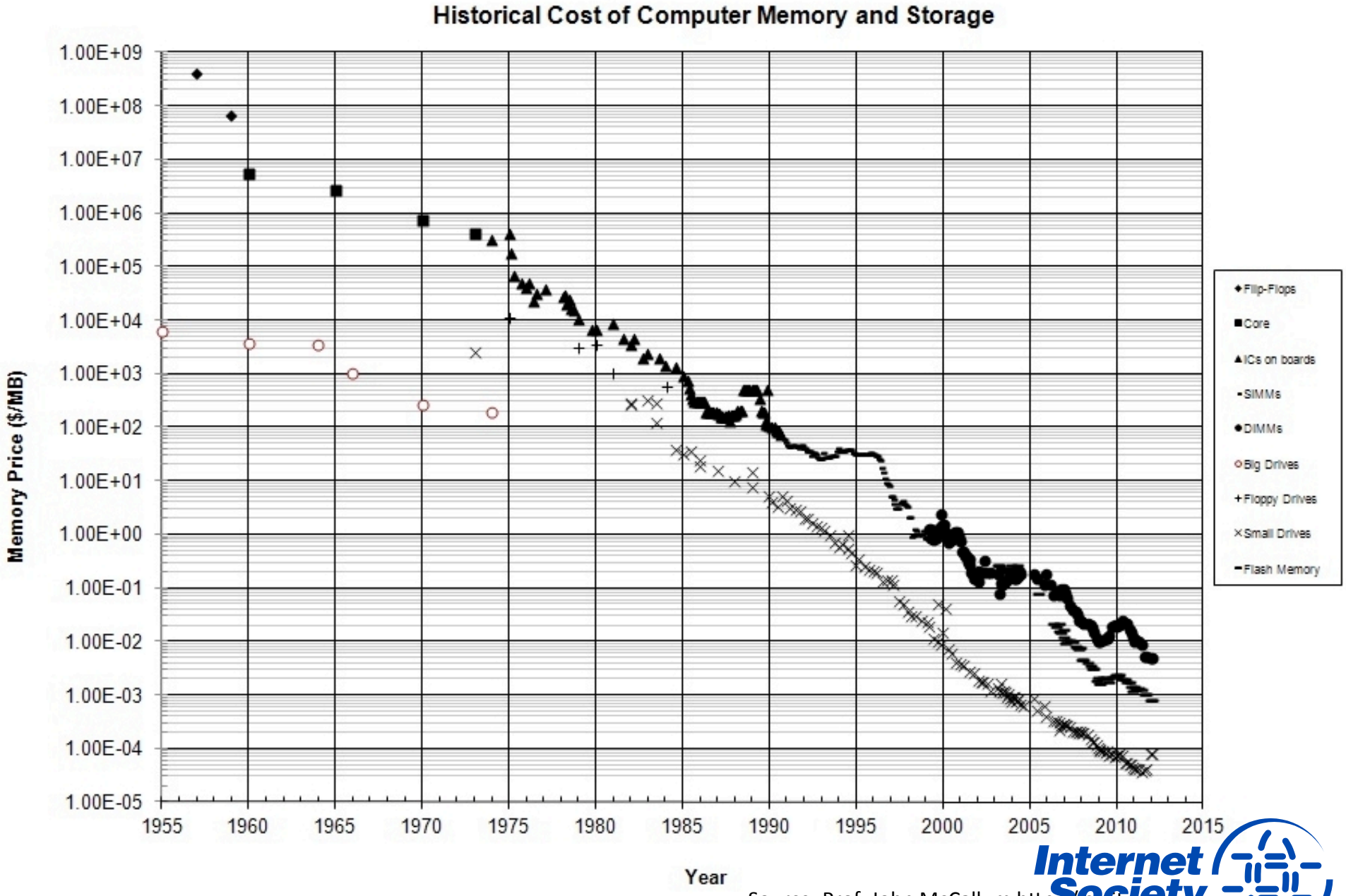
Graphic: Deloitte University Press | DUPress.com

Cost to Deliver Bandwidth over Time



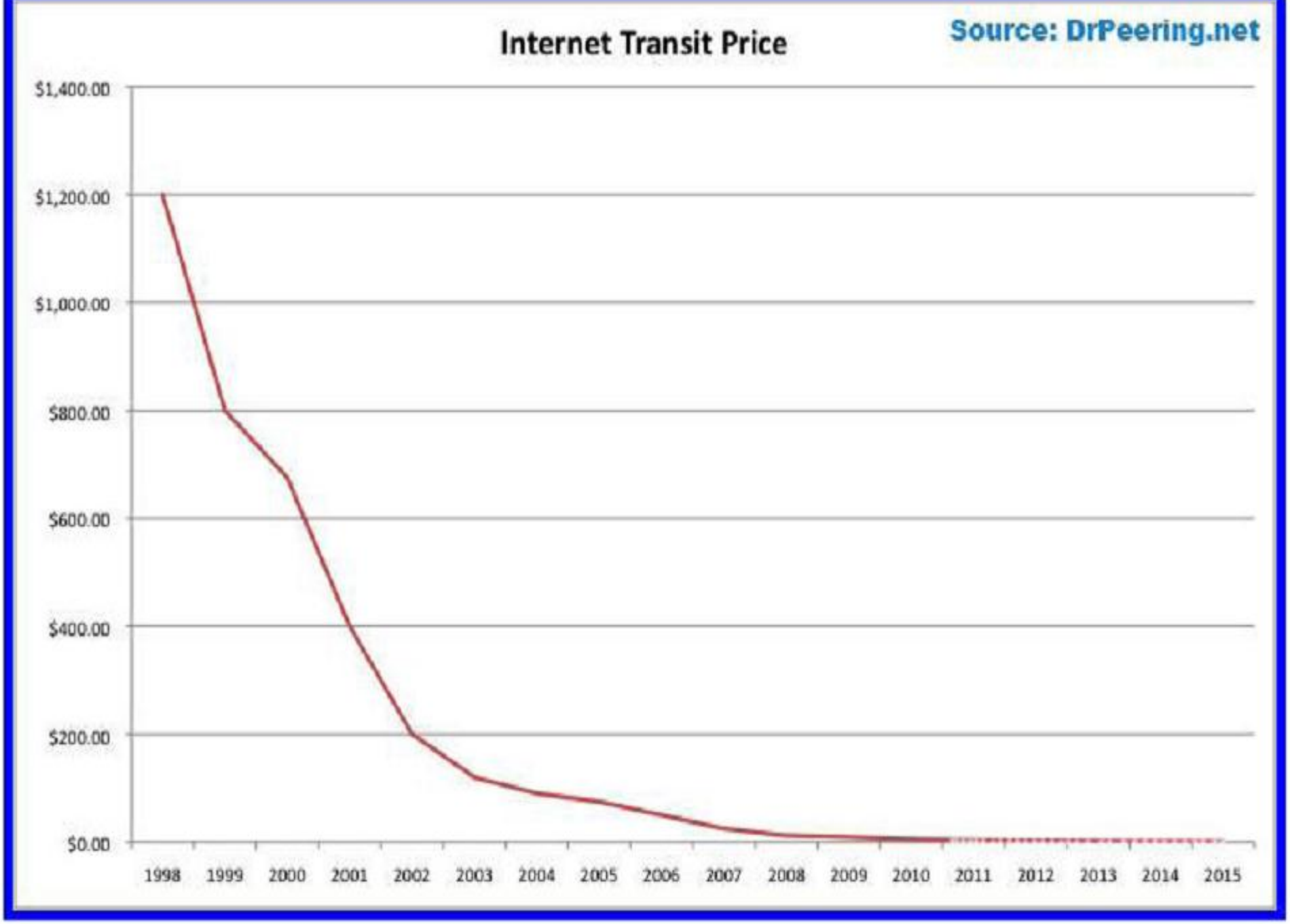
Source Business Communications Review

Internet Society™



Source: Prof. John McCallum http://jcmit.com

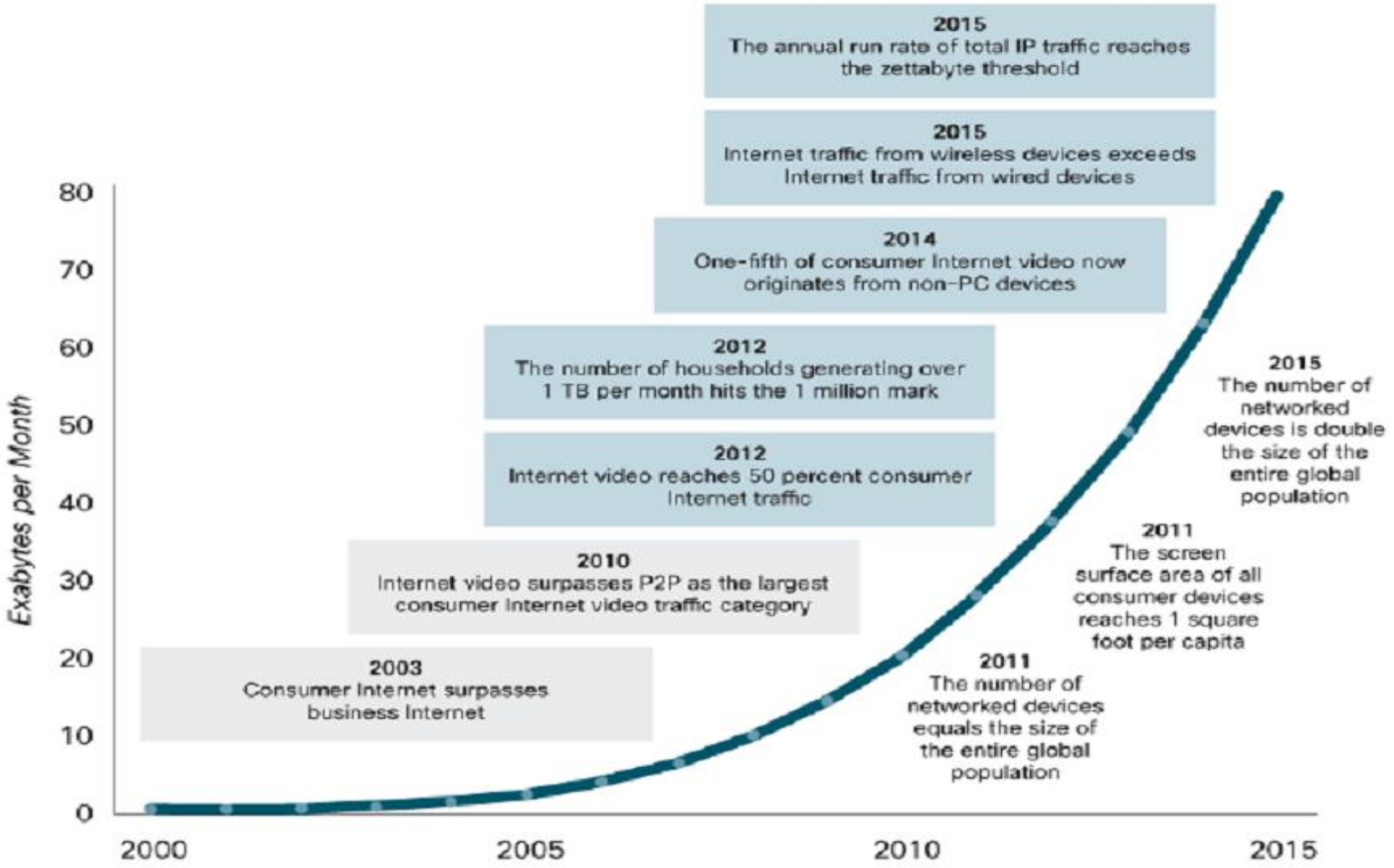
Internet Society™


Internet Transit Price
Source: DrPeering.net
$1,400.00
$1,200.00
$1,000.00
$800.00
$600.00
$400.00
$200.00
$0.00
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015

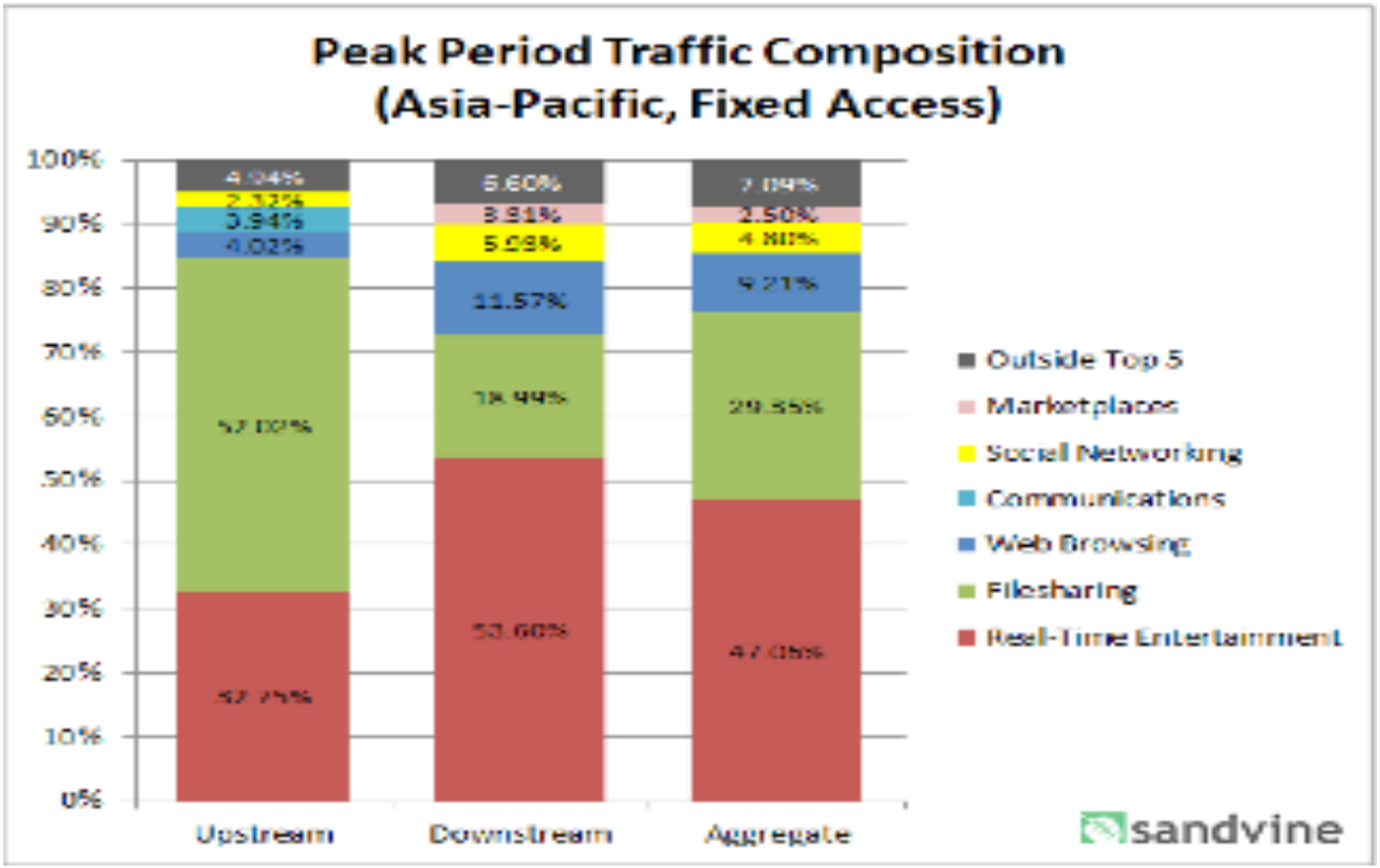
Internet Transit Pricing (1998-2015)			
Source: http://DrPeering.net			
Year	Internet Transit Price		% decline
1998	$1,200.00	per Mbps	
1999	$800.00	per Mbps	33%
2000	$675.00	per Mbps	16%
2001	$400.00	per Mbps	41%
2002	$200.00	per Mbps	50%
2003	$120.00	per Mbps	40%
2004	$90.00	per Mbps	25%
2005	$75.00	per Mbps	17%
2006	$50.00	per Mbps	33%
2007	$25.00	per Mbps	50%
2008	$12.00	per Mbps	52%
2009	$9.00	per Mbps	25%
2010	$5.00	per Mbps	44%
2011	$3.25	per Mbps	35%
2012	$2.34	per Mbps	28%
2013	$1.57	per Mbps	33%
2014	$0.94	per Mbps	40%
2015	$0.63	per Mbps	33%

Figure 3:

Five Traffic Milestones and Three Traffic Generator Milestones by 2015

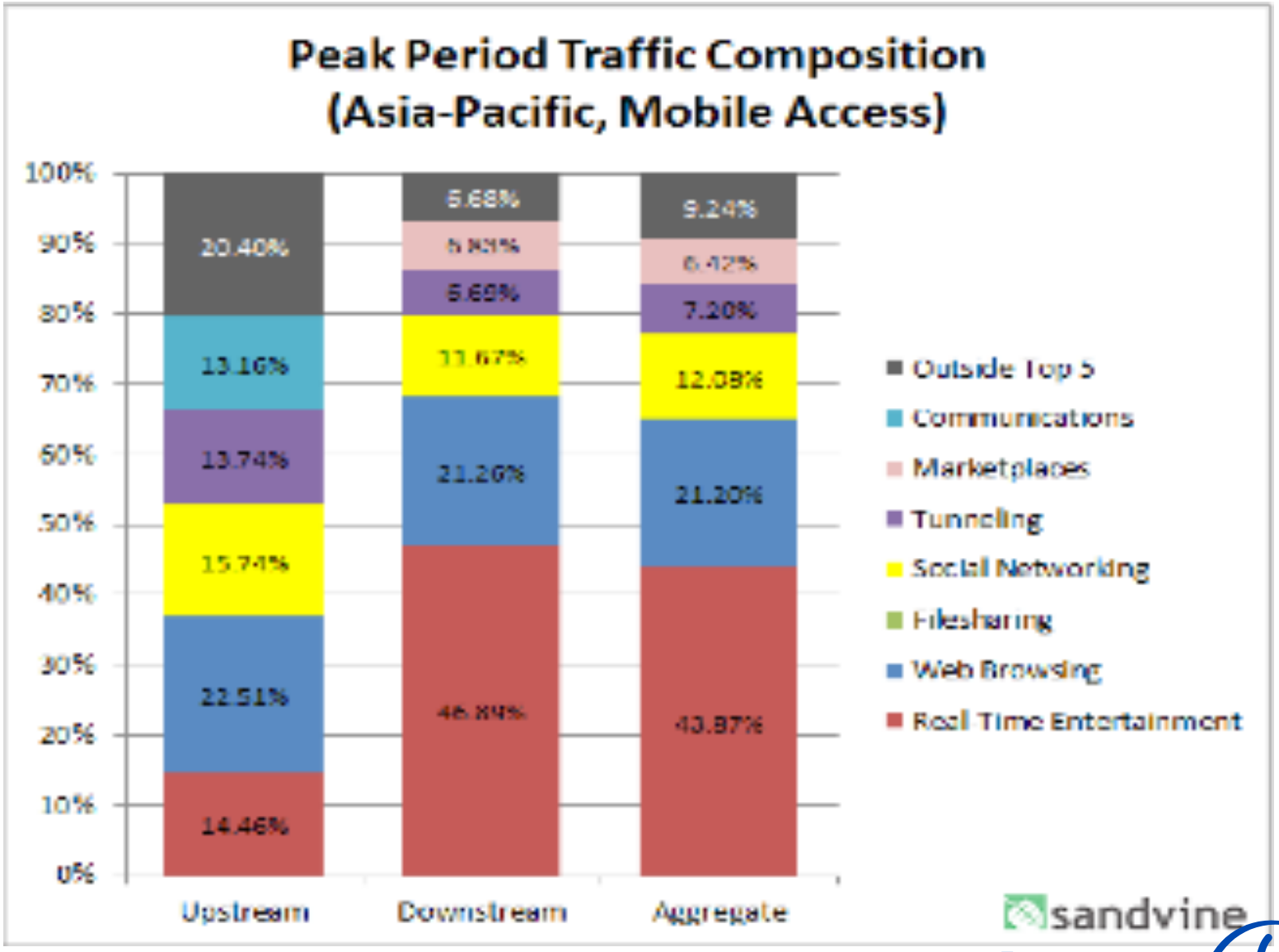


Source: Cisco VNI, 2011



Source: Sandvine Report 2013

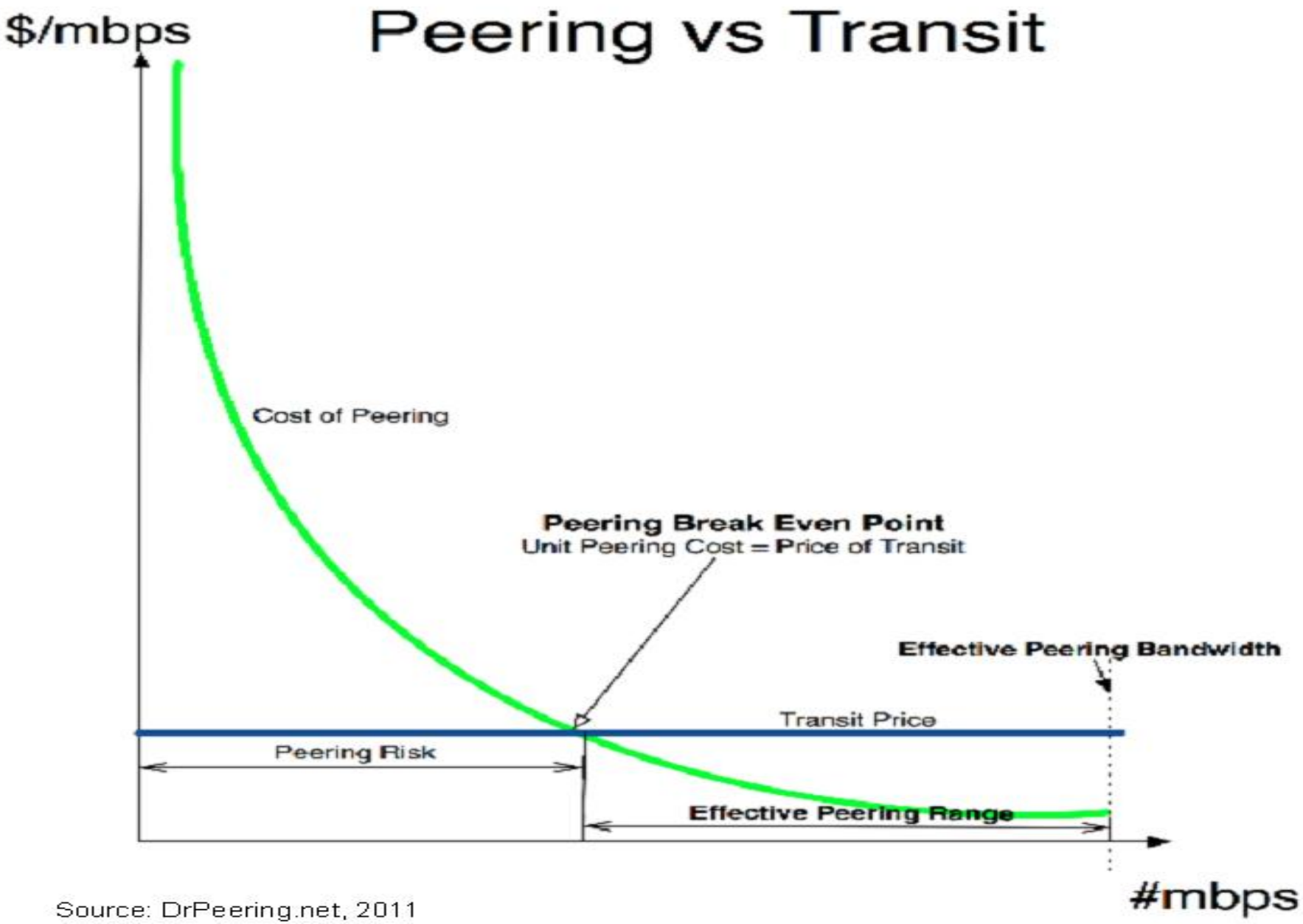
Internet Society



Source: Sandvine Report 2013

Internet Society

Figure 12:



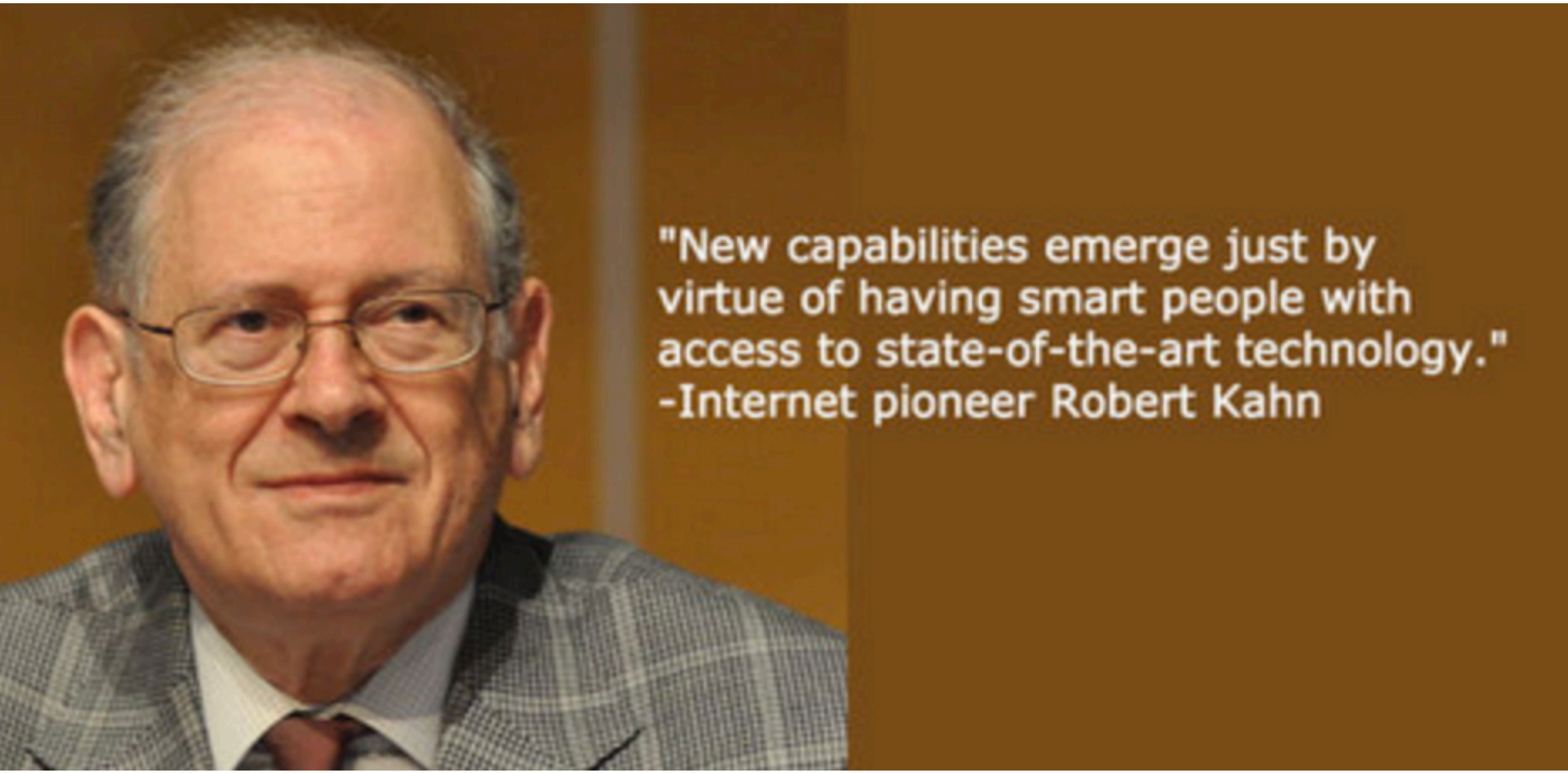
Source: DrPeering.net, 2011

Internet Scale (Facts)

- 1 Exabyte of data travels on the Internet daily
- 0.5 mln users comes on-line everyday (first time)
- "Put differently, the ICT revolution can be seen as a large and long-lasting positive supply shock, causing higher and possibly also more stable economic growth without extra inflation" (Houben & Kakes, 2002).

- Internet access (10%) is a major contributor to the economy, every 10% growth in access constitutes 1% growth in new businesses (Telenor BCG Report).

Internet Society™



Internet Society™