

Liquid Net

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Fluid Experiences on Liquid Networks

Business and Network strategies for the Post-Broadband Era

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Networks



Fluid thinking

There are two kinds of Formula One drivers:



Finns



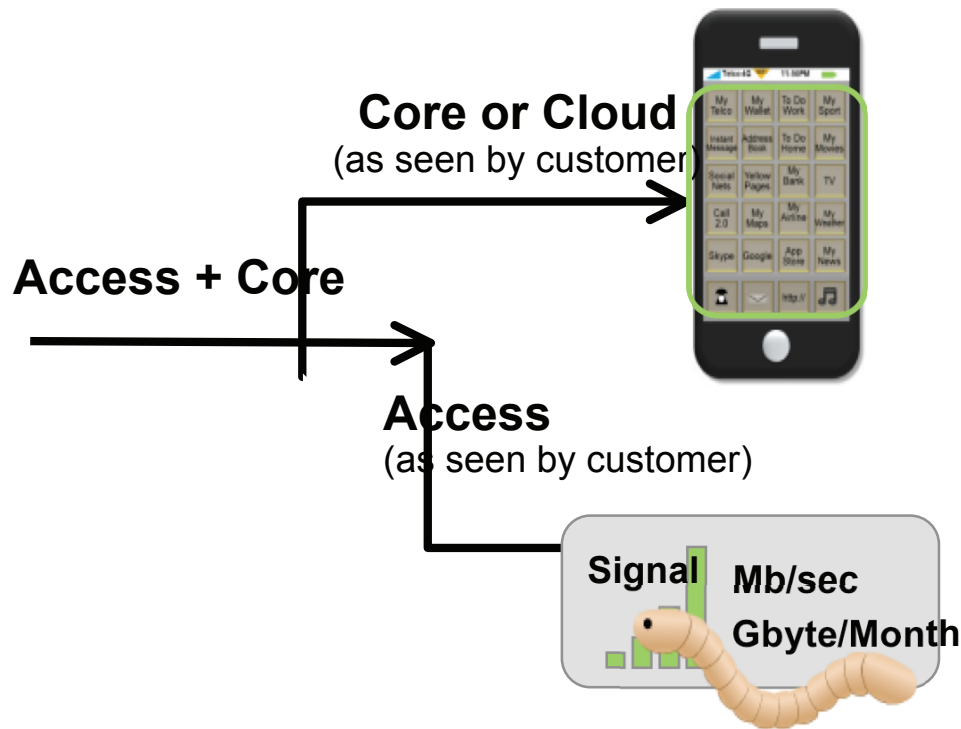
...and other guys.



What Changes in the Broadband Era ?

Pre-Broadband

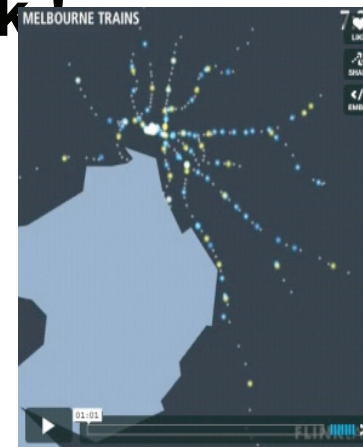
Post Broadband



2010/11



2011/12: Worms ate my Network!





“Revenue share?
I’ve never heard of that
movie”.
“Traffic?
Yeah we have that one
for you, ... lots of it”

Not what CEO of Netflix, Reed Hastings, actually said. Just what an operator might hear.

Blockbuster had revenue of more than \$5 billion and nearly 6,000 stores when Netflix was founded in 1998. Blockbuster is now bankrupt while Netflix has more than 20 million subscribers.

How are network operators coping?

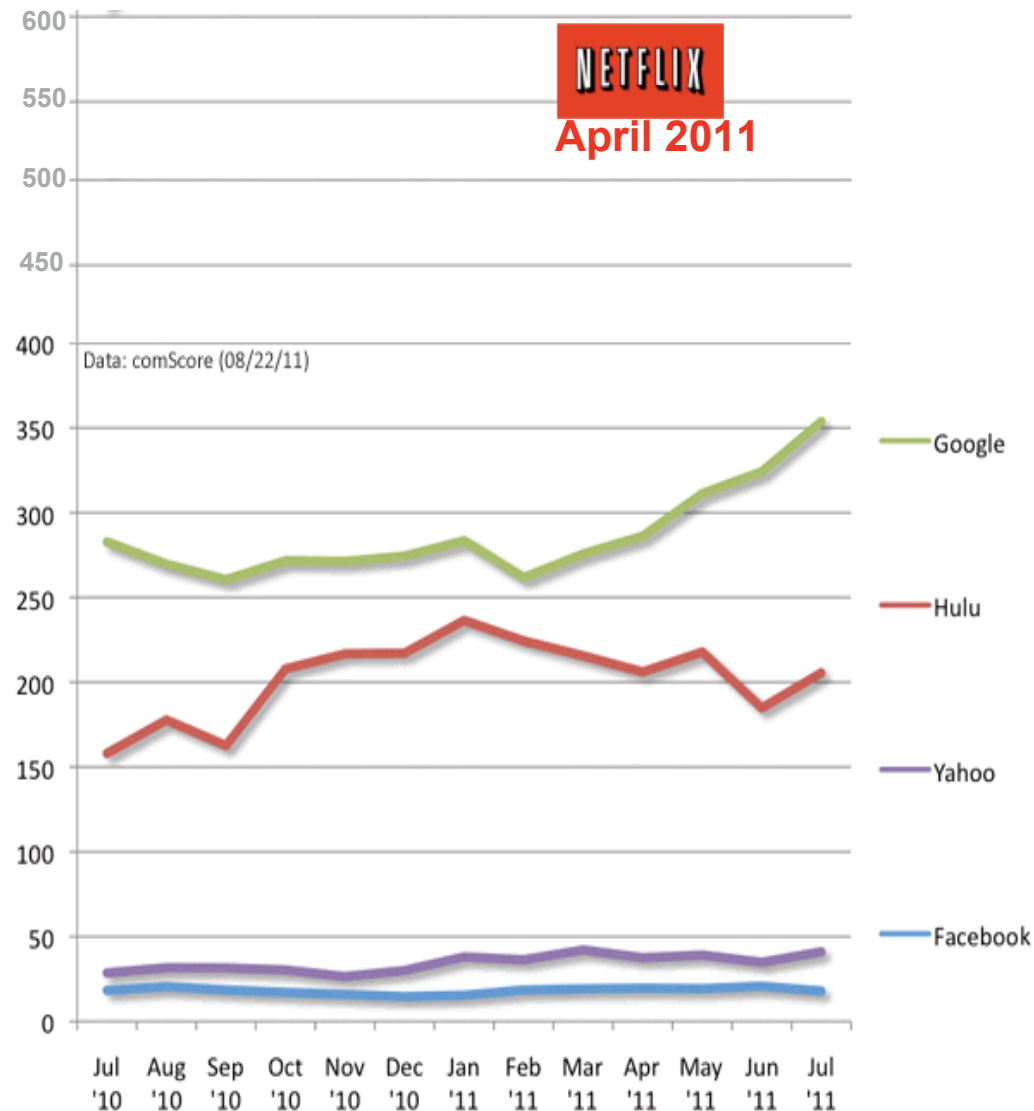


Netflix generates far more traffic in USA than any other online video site



US online video:
Average minutes
watched per
viewer

Netflix viewers
consumed an
average of
almost 10 hours
of video per
month in
April 2011



Sources:
Blog.streamingmedia.com,
April 2011;
Business Insider, August
2011

What do customers expect?

- One passenger on the train picks up reading a book from one device to the next – opening automatically at the same page synchronised via networks.
- Yet another finds the movie that they started watching on the media player and large screen TV at home can be finished on a tablet on the bus.
- Another carries on a long conversation as the phone shifts from cellular to Wi-Fi at work.



Customers expect fluid experiences as they move from place to place and network to network

Great devices. Great Apps. Great network experience.



Devices



Applications

Network 3
WiFi at
Work



Network 1
Mobile



Network 2
Fixed



Predicting what's coming?

Since we're no longer in charge of controlling what growth happens when and where, it would be lovely to have a way to look into the future that could tell us what's coming next.

... or do we already have one?

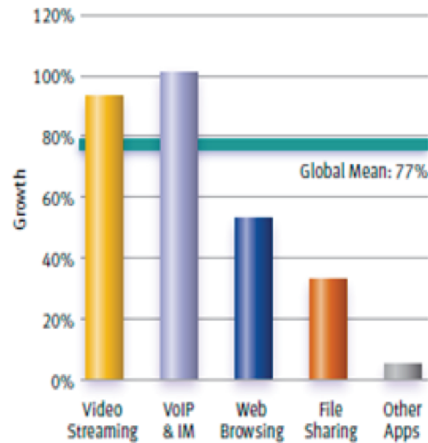


2020

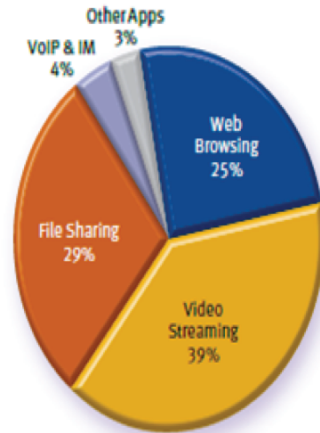


Fixed and Mobile worlds are looking pretty similar

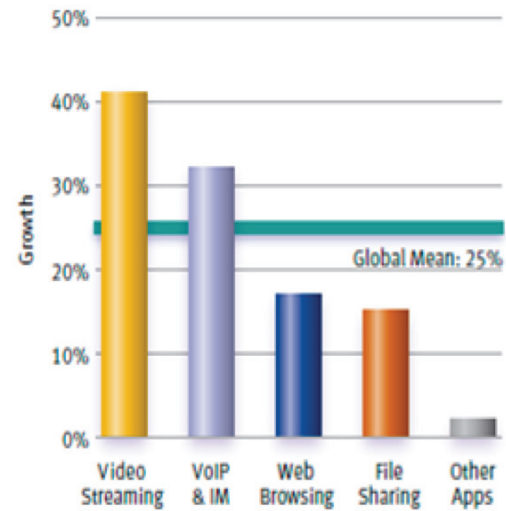
Bandwidth & Application Growth & Breakdown



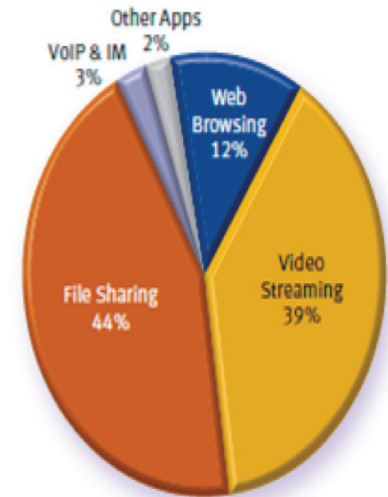
Growth in mobile data usage, H1/11



Mobile data usage broken down by top applications, H1/11

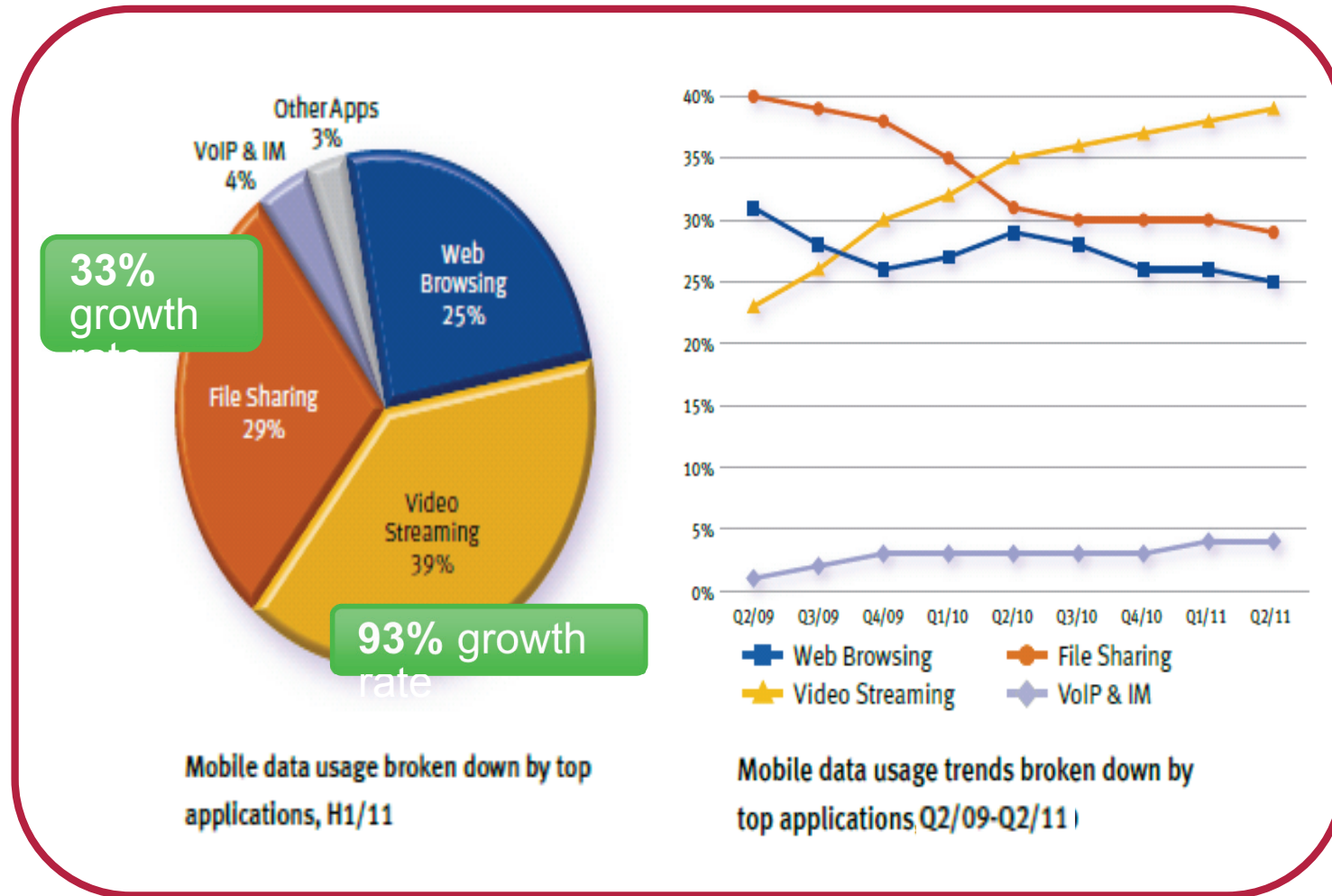


Growth in fixed data usage, H1/11



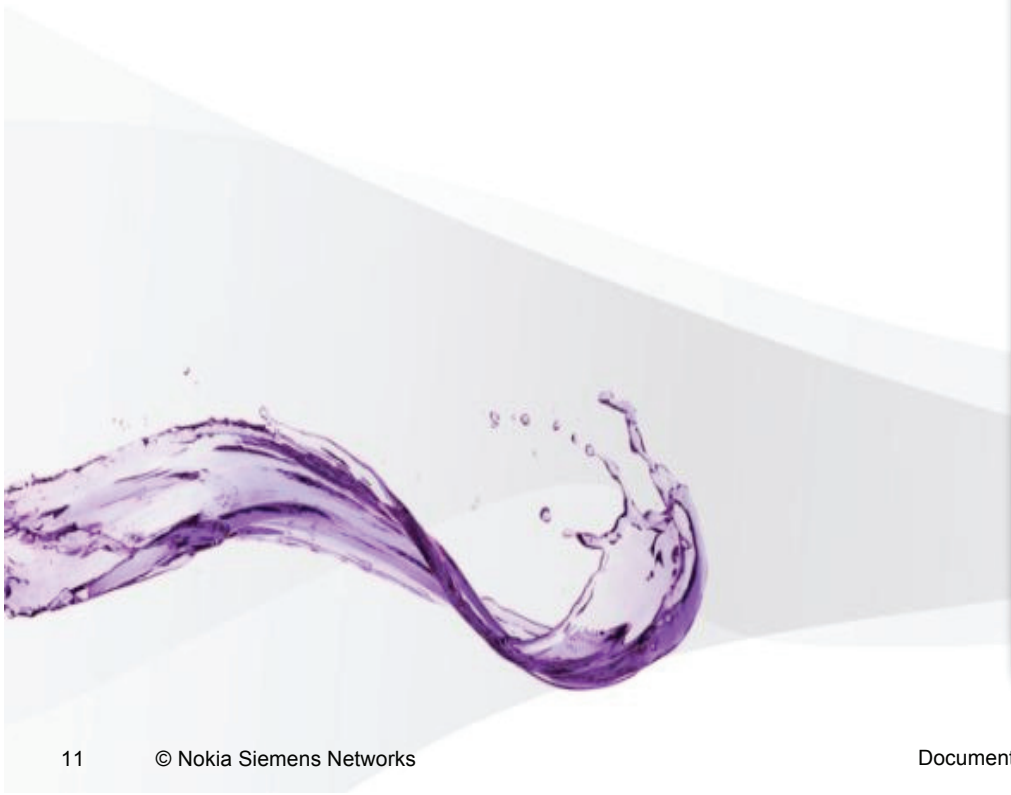
Fixed data usage broken down by top applications, H1/11

Video streaming is taking over from file sharing



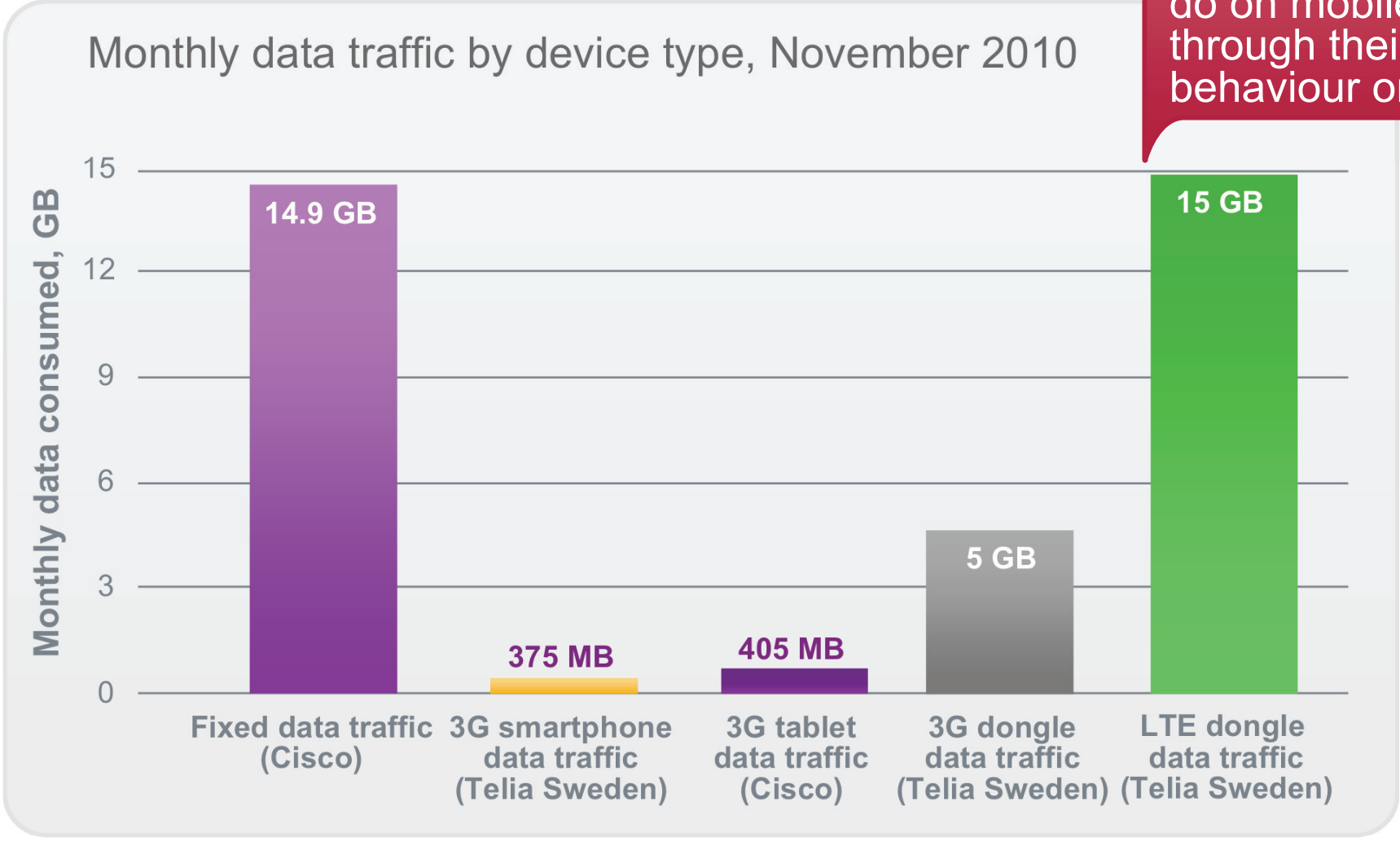
Sources: Allot, Cisco, 2011

Irony? Or Sign of the future?



A hint what's coming along with LTE

Users are telling us every day about what they want to do on mobile through their behaviour on fixed



Sources: gigaom.com, November 2010; and Cisco, 2011.



How analysts are seeing Fixed + Mobile

The Yankee Group: Connected Consumers' Hierarchy of Needs, August 2011

“**Make mobile central**. Mobility will be at the heart of almost all future advances in connected experiences - all the way up and down the pyramid. Consumers will assess connected experiences and providers based first and foremost on how well they work in a mobile environment. Consequently, all players must think of **mobile as the starting point** rather than an afterthought or an inconvenient add-on.”

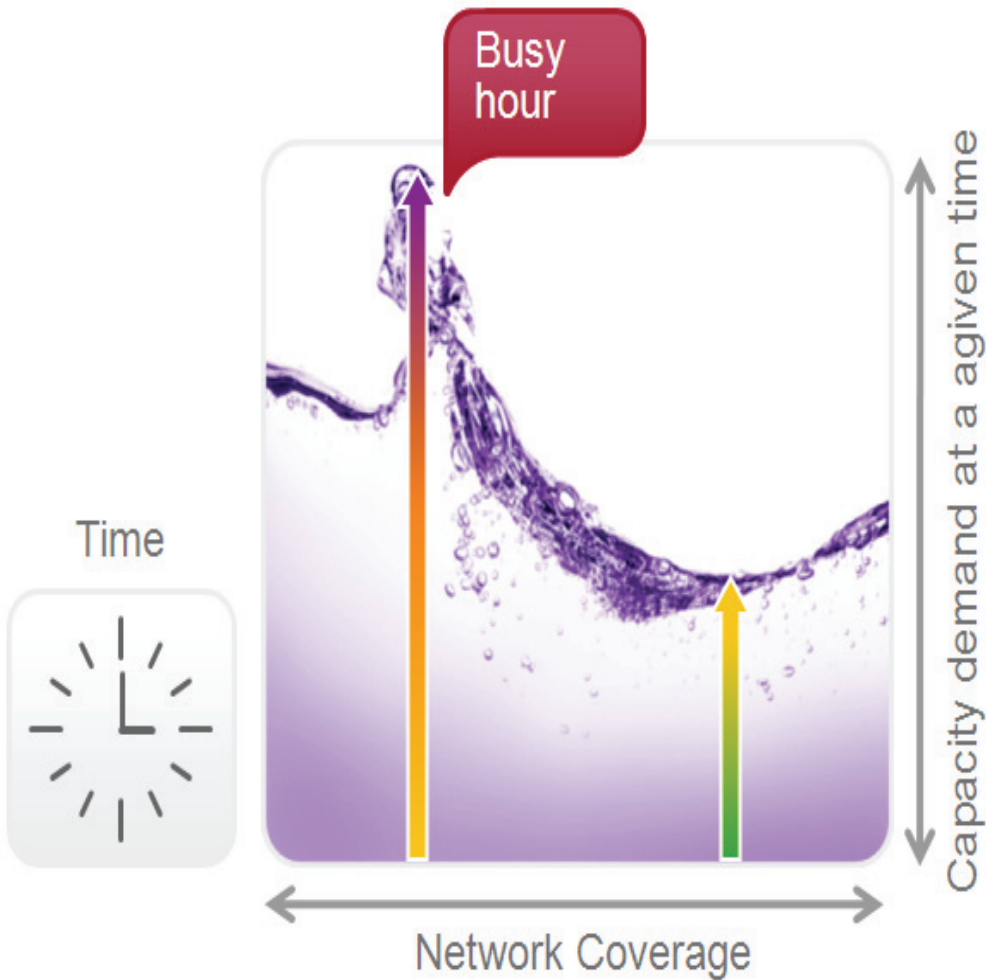
Ovum: “The Future of Broadband: Fixed - Mobile Convergence. 2010”

...broadband across fixed and/or mobile is increasingly regarded as **the fourth utility**. ...There will come a time when **a user just buys “broadband”** and does not care how it is delivered. However, the user will expect it to have a mobile element to it and at this point, **fixed only players will be at a severe disadvantage.**”

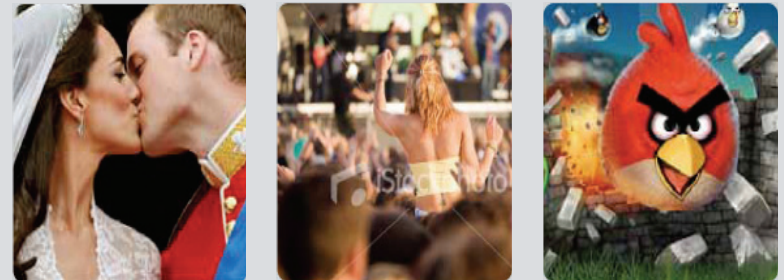


Capacity demand is like a wave in modern networks

Network utilization calls for fluidity

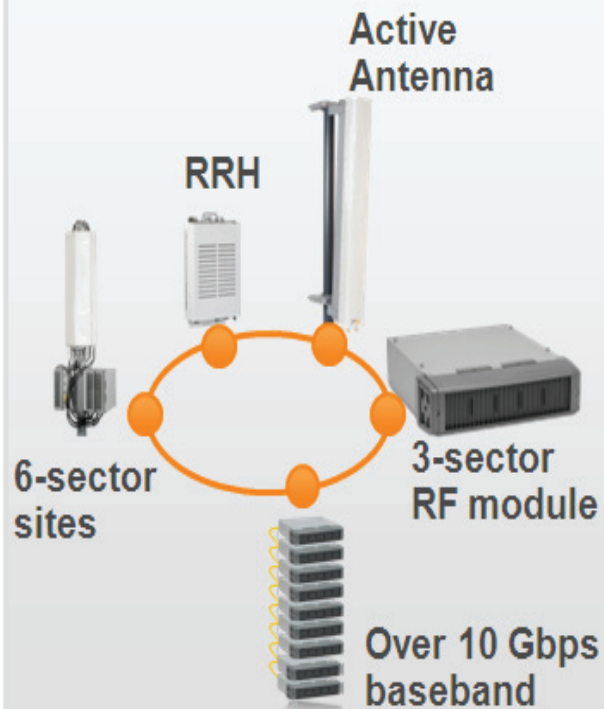


Sudden peaks



Liquid Radio – Key elements

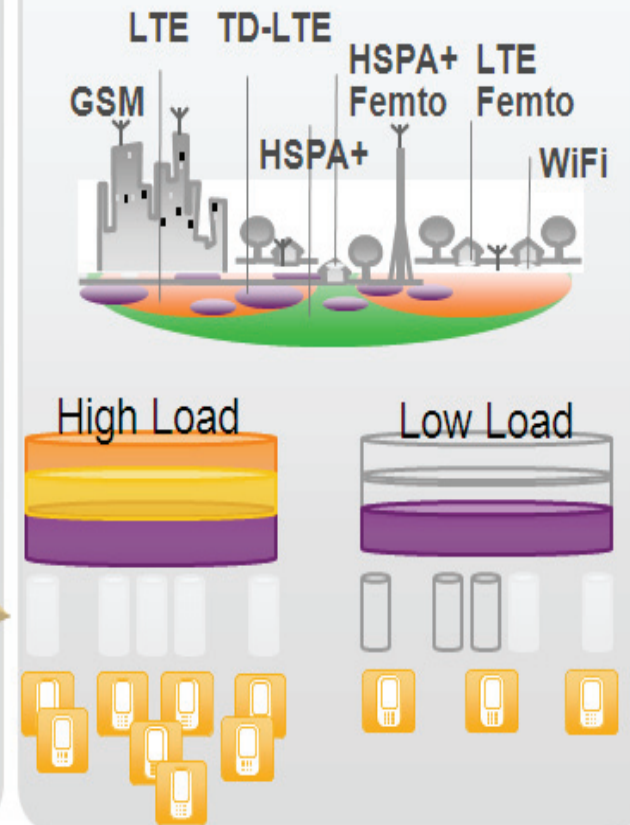
Baseband pooling



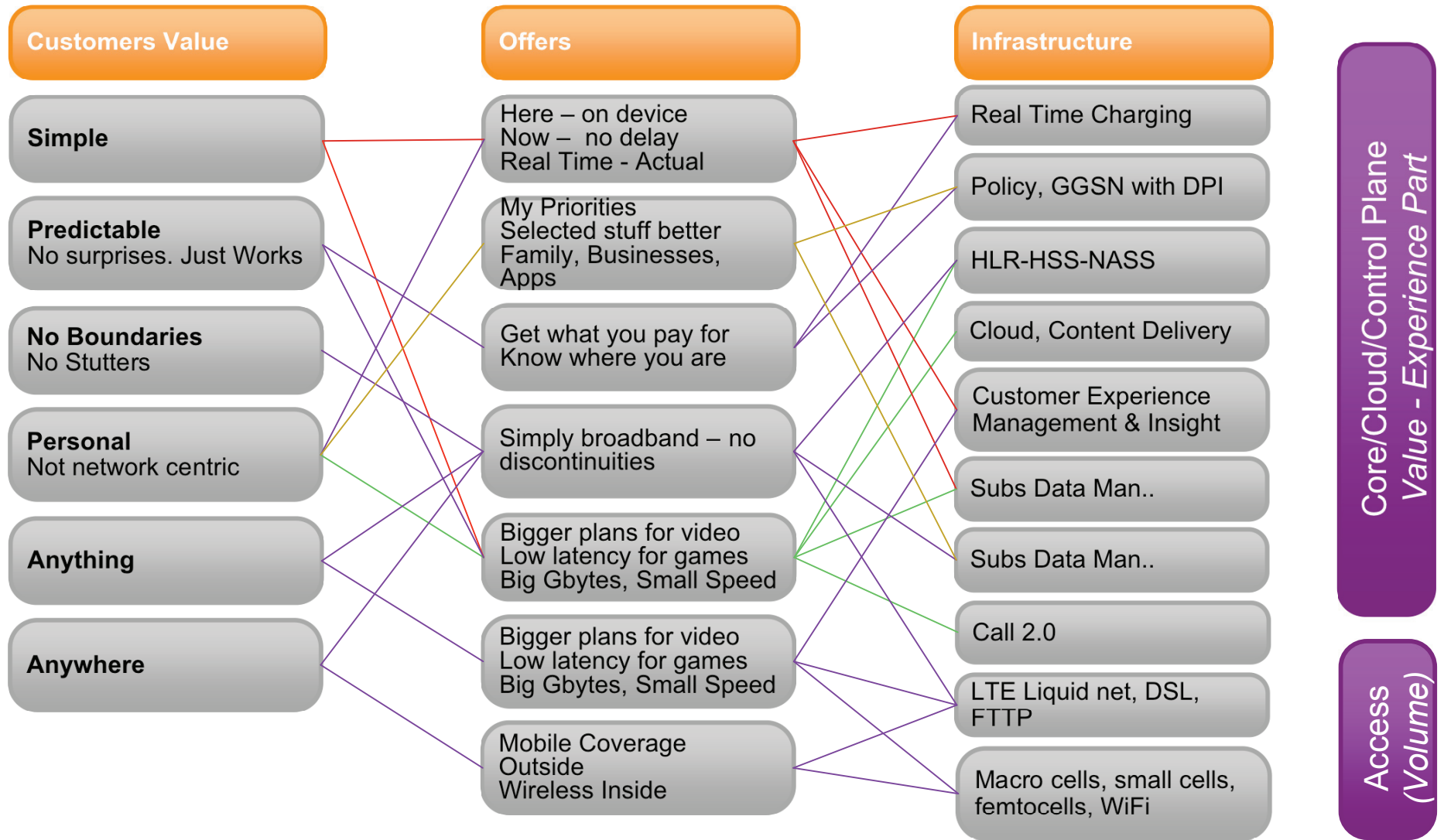
Active Antenna Systems



Unified and SON enabled Heterogeneous Networks



Infrastructure to deliver offers & experiences that customers value



Less integration along value chain, requires greater clarity of architecture and offers

To keep your network safe from “worms”

”As a fixed and mobile player, you need to start thinking fluid experiences across fixed+ mobile, not as different and unrelated. But note that the liquidity of network assets is the hard part – especially on the mobile component.”



To Do in 2011-12:

- 1. Converge fixed and mobile in core**
- 2. Design radio access to be liquid**
- 3. Architect to deliver fluid customer experiences**

**More Fluids at
5pm DRINKS**

THANK YOU

