MOBILE BROADBAND TRENDS AND FUTURE EVOLUTION

LUIS MUCHACHO
MBB Customer Solutions
Working with customers in >180 countries

>40% world’s mobile traffic passes through Ericsson equipment

>110K people

~15% of our Net Sales are re-invested in R&D yearly

>2.5B subscribers served by the networks we support

5TH largest SW supplier in the world

>950M subscribers served by the networks we manage
GREATER DEMAND THAN EVER
2013 ECO SYSTEM HIGHLIGHTS

1B
Smartphones shipped in 2013, 38% YoY

1B
mobile Facebook users

100B
APP downloads in 2013

>40%
of YouTube traffic is mobile
(up from 6% only 2 years ago)
LARGER SCREENS ACROSS ALL SEGMENTS

5.6” HD 4k

LTE Carrier aggregation
Will grow in capability not volumes
$600-$1000

5” HD 1080p

LTE, several bands
From $350

5” HD 720p

Mediatek-based – Lenovo, Coolpad...
HSPA 42
$100-$300
9.3B MOBILE SUBSCRIPTIONS 2019

Source: Ericsson (November 2013)

- LTE ~175 million » 2.6B
- HSPA ~1.6 billion » 4.8B

M2M subscriptions not included
7.4B HSPA/LTE SUBS 2019

2.6B LTE, 4.8B HSPA

MBB COVERAGE!

Source: Ericsson mobility report

Accelerate LTE & Expand HSPA
Re-farm GSM spectrum
5.6 BILLION SMARTPHONES IN 2019

<table>
<thead>
<tr>
<th></th>
<th>2013</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>mobile phones</td>
<td>3.3 GB</td>
<td>13 GB</td>
</tr>
<tr>
<td>tablets</td>
<td>1 GB</td>
<td>4.5 GB</td>
</tr>
<tr>
<td>router</td>
<td>0.6 GB</td>
<td>2.2 GB</td>
</tr>
</tbody>
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10X growth in mobile data traffic between 2013 and 2019

Source: Ericsson mobility report
MOBILE APPLICATION TRAFFIC OUTLOOK

Application mobile data traffic volumes by device type

- Mobile PC: 40%
- Tablet: 50%
- Smartphone: 30%

Source: Ericsson (November 2013)

>50% TRAFFIC IN 2019 WILL BE VIDEO

SOCIAL NETWORKS ON SMARTPHONES
VIDEO ON TABLETS & SMARTPHONES
10 HOT CONSUMER TRENDS 2014

What changes can we expect to see in how we use the internet and communicate in 2014 and beyond?

1. APPS CHANGE SOCIETY
   City life will be transformed by 2016

2. YOUR BODY IS THE NEW PASSWORD
   Users prefer fingerprints to passwords

3. THE QUANTIFIED SELF
   40% want to log their physical activities

4. INTERNET EXPECTED EVERYWHERE
   Quality of experience when using internet is falling behind that of voice

5. SMARTPHONES REDUCE THE DIGITAL DIVIDE
   The smartphone is the primary internet device in India and Indonesia

6. ONLINE BENEFITS OUTWEIGH CONCERNS
   People minimize risk by being more cautious online

7. VIDEO ON COMMAND
   38% watch video clips recommended by their friends several times a week

8. MAKING MY DATA VISIBLE
   49% use apps to check their data consumption

9. SENSORS IN DAILY PLACES
   60% believe sensors will be commonplace by the end of 2016

10. PLAY, PAUSE, RESUME ELSEWHERE
    The rise of streaming services allows people to view content on the move

www.ericsson.com/consumerlab
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TIME TO CONTENT
CRITICAL FOR USER EXPERIENCE

After 4 seconds 10% of users abandon online videos.
After 10 seconds 40% of users have given up.

On The Line: Defining user experience

"Just a second please"

For Web browsing:
25% of users abandon after 4 seconds
50% of users give up after 10 seconds
APP COVERAGE

› It’s an app centric world
› User want reliable access for their apps wherever they go in the network
› App coverage requires a true end-to-end approach to design, build and run mobile networks

Music streaming needs >160 Kbps, Video streaming >720 Kbps

“Every app has its own coverage map”

“App Coverage” – the area where my app works as I expect”

Please refer to Ericsson web site:
Real Performance
White paper
FACEBOOK COLLABORATION

› Joint innovation lab

› Joint application and network analytics

› Optimized network & apps for best experience

Reaching out for the next 5B users
"If I hardly ever experience 0.1 Mbps, always get at least 1 Mbps and typically around 10 Mbps, I am a happy customer"
IMPROVING APP COVERAGE:
NW & DEVICE
CAPABILITIES
› Bringing WiFi & cellular together

› Network controlled, clientless

› Superior user experience
ADD SMALL CELLS

› User experience driven

› Addressing site acquisition, spectrum shortage & indoor coverage

› Superior user experience & lowest TCO through coordination – Heterogeneous Networks
INDOOR TECHNOLOGY BREAKTHROUGH

› 2 years of research, 14 patents
› Elegant, dot-shaped design antenna element
› Ultra-compact with flexible mounting.
› Minimalist small cell radio fully integrated with macro mobile networks
› Leverages on existing indoor wiring and outdoor cellular infrastructure. Addresses a wide range of in-building environments
› Provide high-quality access to mobile broadband and voice services indoors, effectively addressing current coverage challenges.
APP COVERAGE

Performance relevant to the end user everywhere

10 Mbps
1 Mbps
0.1 Mbps
>10 Mbps
IN 2020 THERE WILL BE 50 BILLION CONNECTIONS
KEY CHALLENGES FOR >2020

Massive growth in Traffic Volume

“1000x”

Massive growth in Connected Devices

“50 billion devices”

Wide range of Requirements & Characteristics
MBB and New Use Cases

- Data rates
- Latency
- Reliability
- Device energy consumption
- Device cost
- .....
LTE – MAJOR EVOLUTION TRENDS

**New scenarios**
Device-to-Device Communication, MTC, Broadcast, …

**Device Enhancements**
Receiver improvements,…

**Densification**
Local-area access, Heterogeneous deployments, …

**Multi-antenna techniques**
MIMO, CoMP, …

**Spectrum Flexibility**
Carrier Aggregation, New Frequency Bands, …

**Multi-RAT coordination**
WiFi interworking, inter-RAT RRM, …
THE NETWORKED SOCIETY BEYOND SMARTPHONES

See Ericsson White Paper for more info
Network Society vision: When one person connects, their life changes. With everything connected, our world changes…
COVERAGE IS MORE THAN IT USED TO BE