



Worlds First 4G LTE Network!

Stig Ouvrier
TeliaSonera

Our footprint



- Almost 460 million population
- Total number of subscriptions ~ 150 million
 - of which ~49.5 million in the consolidated operations
 - of which ~100.5 in the associated companies

During 90's we had the first revolution



2007, we finally entered the second revolution



Mobile Voice
9 of 10 people



Mobile data
explosion
Mobile behavior
New actors (Apple,
Google...)

We are now entering the third mobile revolution

"Everywhere, Everybody & Everything"



Mobile Voice
9 of 10 people



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Everywhere 100 Mbps IP
Cloud (4G)
Everybody empowers
Open innovation paradigm
Everything is connected –
explosion of connected
devices
Convergence enabling
new service experiences

First in the world with 4G

- Commercial launch on Dec 14, 2009
- Two city networks - Stockholm and Oslo
- Population coverage at launch: 400,000
- First live 4G connections in Denmark, Estonia, Finland and Lithuania.
- Restrictions
 - Current modems/USB dongles, only for 4G
 - Limited number of modems to start with
- Spectrum
 - Aligned availability





Why are TeliaSonera early with 4G

- Mobile data explosion
 - Passed 1 Terabyte* per month in June 2009
- Optimized for data – efficiency
- Frequencies were available – Norway and Sweden
- Technology easier to deploy
- CAPEX for the future
 - Long term investments with scaleable network structure

** 1,000,000,000,000 byte*

Comparison LTE 10 MHz vs HSPA 3.6

Summary of results per usage condition

Northstream™

Indoor, stand still

LTE	Downlink	Uplink	Response time	HSPA 3.6	Downlink	Uplink	Response time
Min	2,32	2,33	24,00	Min	0,97	0,11	126,00
Max	35,71	5,97	35,00	Max	2,89	0,36	321,00
Average	15,72	4,45	28,86	Average	2,15	0,31	149,14
Median	12,73	4,75	28,50	Median	2,22	0,34	138,00

January 2010, indicative LTE 10 MHz performance Category 3 modems vs HSPA 3.6 :

- Response time
- Much higher average and minimum data rates

TeliaSonera – enabler and access provider

- Provide bandwidth that enables innovative services
- Manage the network for best customer experience
- Provide our customers with easy access to wider range of applications
- Facilitate portability of data and applications between devices



4G Roll out 2009 and 2010

Cities

Helsingborg

Örebro

Jönköping

Norrköping

Umeå

Eskilstuna

Södertälje

Karlstad

Växjö

Sundsvall

Luleå

Visby

Gävle

Borås

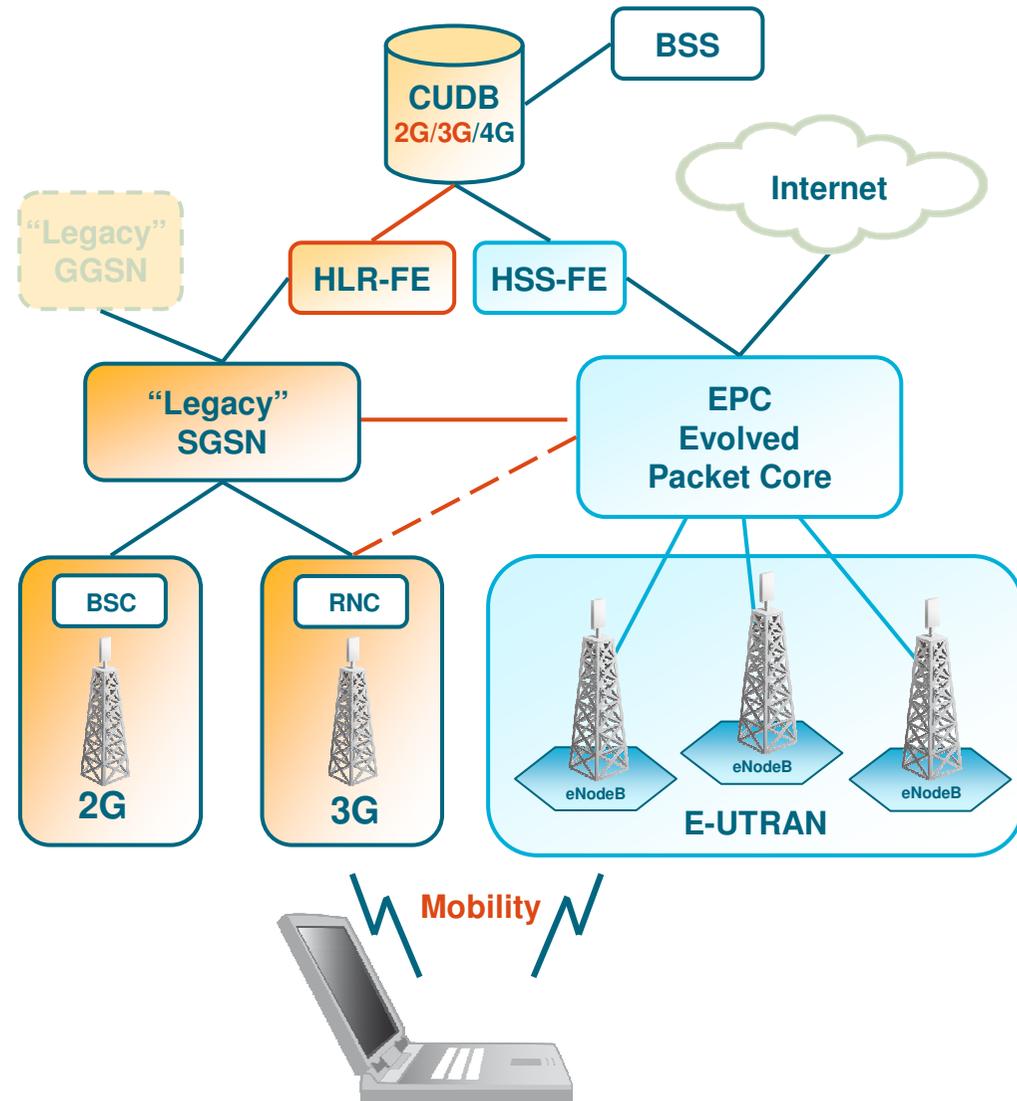
Airports

Ski areas



Target network architecture for roll out

- Single provisioning in to one data base
- Integration with 2G/3G Packet Core
- Multimode modems, 2G/3G/4G
- Idle mode mobility 2G/3G <-> 4G
- Policy Manager for QoS and Fair Usage Policy Management
- One common core network
 - Cross country – international network planning
 - For all packet switched traffic



Frequency situation

- Existing GSM licenses should be renewed to safeguard investments and innovation
- Open tender procedure only if enough new spectrum for additional license, and demand exceeds supply
- Technology neutrality vital for future development
- Regulators should not maximize revenues at the expense of investments in infrastructure



Today		GSM	GSM	UMTS	LTE
Frequency band	400-800 MHz	900 MHz	1.8 GHz	2.1 GHz	2.6 GHz
Future	LTE	GSM UMTS LTE	GSM LTE	UMTS	LTE

Technology helping out in our daily life



Issues for the future

- Fixed-to-mobile migration
- Changed Consumption Behavior
- Simplified infrastructure
- Production costs
- Roaming
- Spectrum

- SDP environment
- Independent access
- API development - 3rd party and application developers
- “All IP” and cloud applications

Spotify and iPhone is driving traffic and revenues



iPhone 3G 



4G

World Premiere

Stockholm | Oslo



Thank you for your attention!