Migration to LTE /SAE for a world connected

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LTE Business Development
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Nokia Siemens Networks

Migration to LTE /SAE for a world connected

- Demand ?
- Opportunity ?
- Feasibility ?

Our market vision 2015 – the World connected
A big opportunity for everyone

Applications predominantly in internet

Multitude of business models

Broadband everywhere

But there are big challenges for our customers

- Increasing traffic
- Stagnating revenues
- Cost pressure
  - Network complexity
  - Service provisioning
  - increasing transport bottleneck
  - Spectrum cost

Business

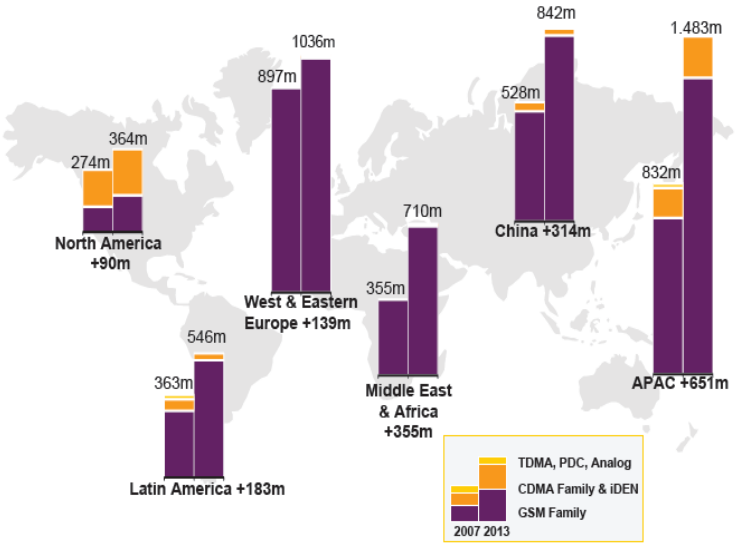
Continuous traffic and Subscriber growth

Nokia Siemens Networks

1 **Continuous subscriber growth (2007-2013)**

2 **Video viewing & exchange, Web 2.0 applications**

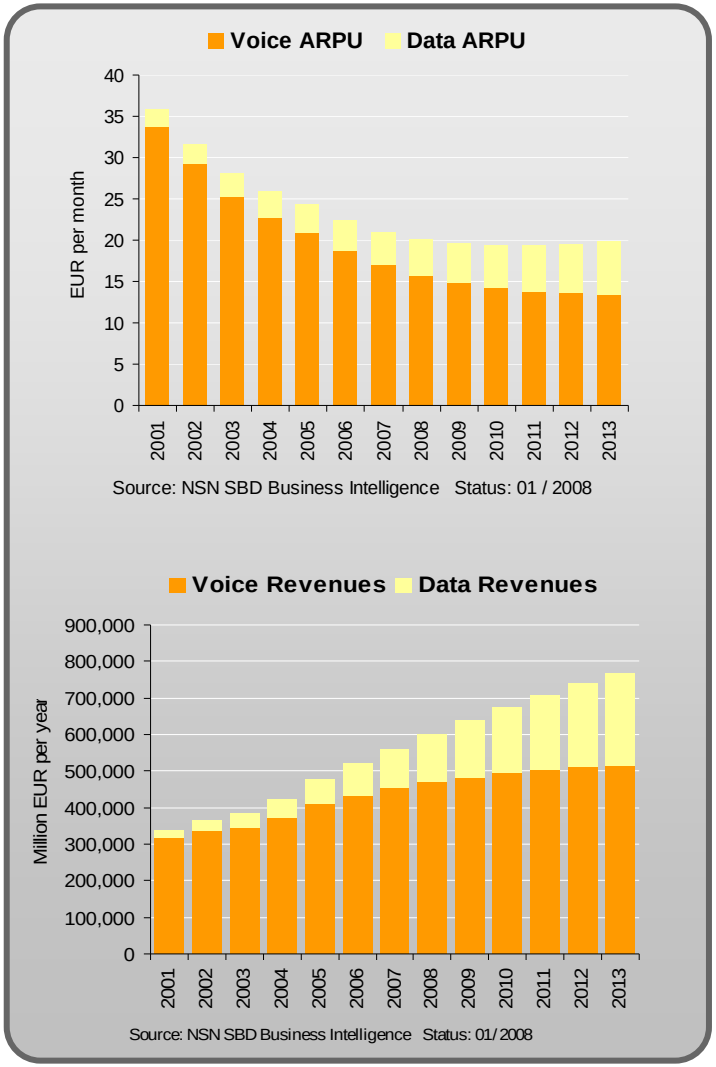
3 **transparent rates for service bundles**

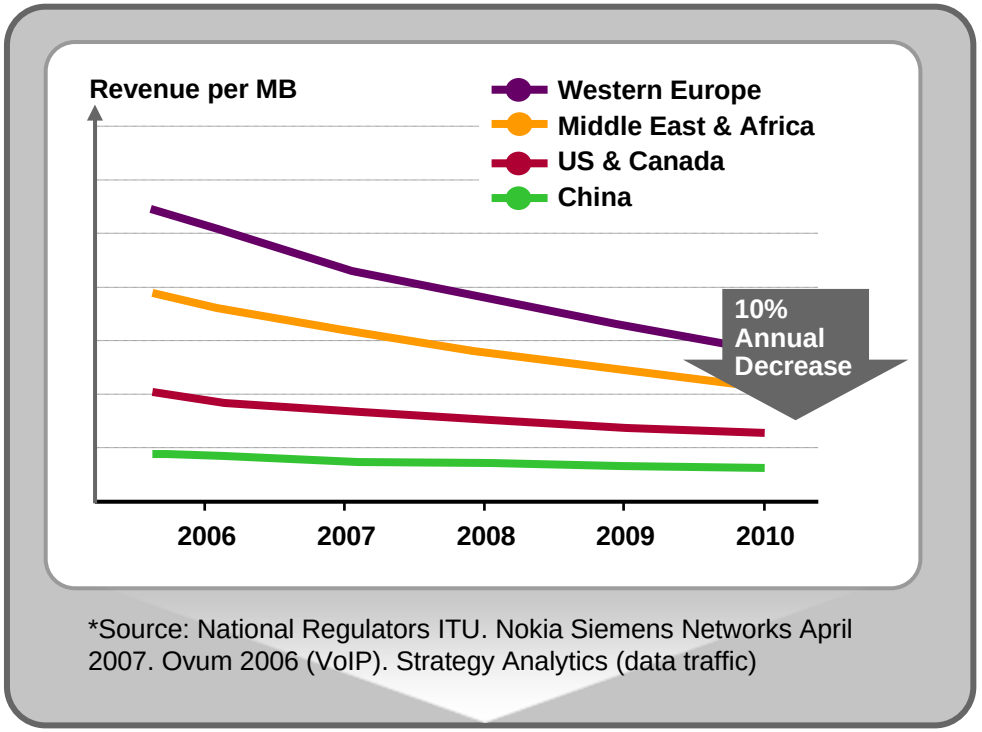


"It was reported in 2007 that YouTube consumed as much capacity as the entire internet in 2000"

Internet Innovation Alliance,
Daily Telegraph
May 2008

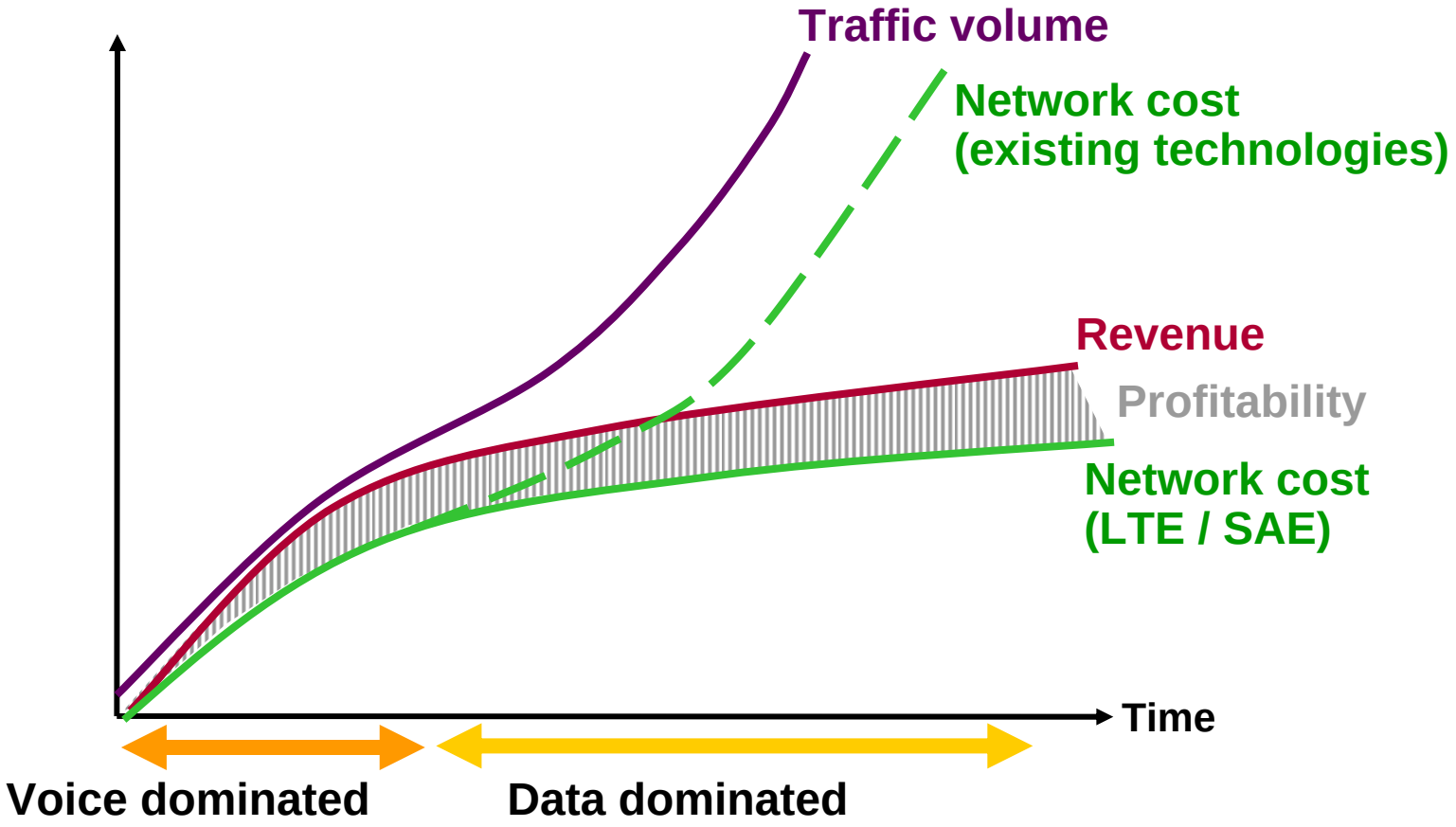
Stagnating voice revenues





- Data ARPU compensates for falling voice ARPU
- (Fair usage) flat rate data tariffs and service bundles cause volumes to go up
- Together with price competition, revenue per data MB falls

The revenue development does not follow the traffic increase and the associated cost



Price per MByte requires low cost/bit technologies to remain profitable

Source: Light Reading (adapted)

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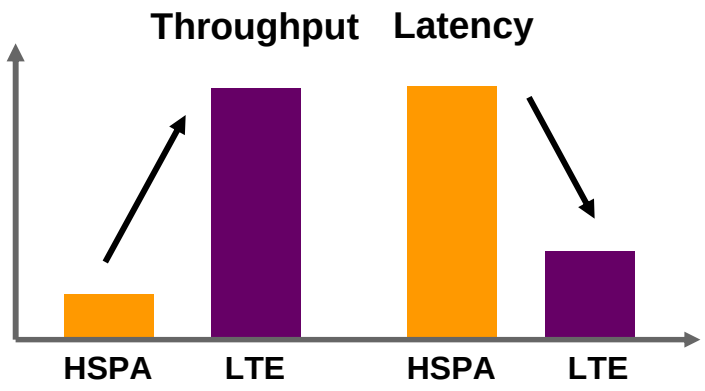
LTE key benefits for operators and end-user

Investment Protection

Re-use of

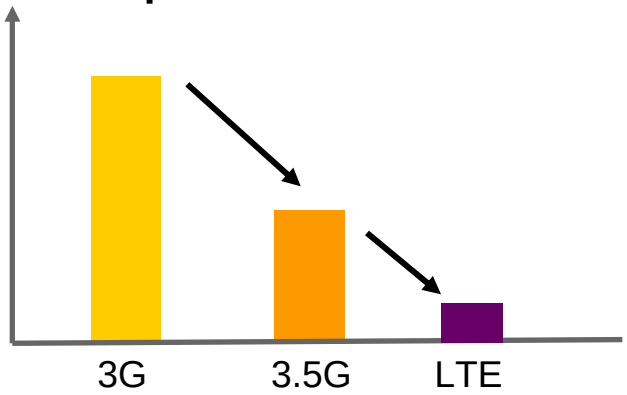
- Sites and infrastructure
- Backhauling
- Frequency bands
- HW via SW Load

User experience → ARPU



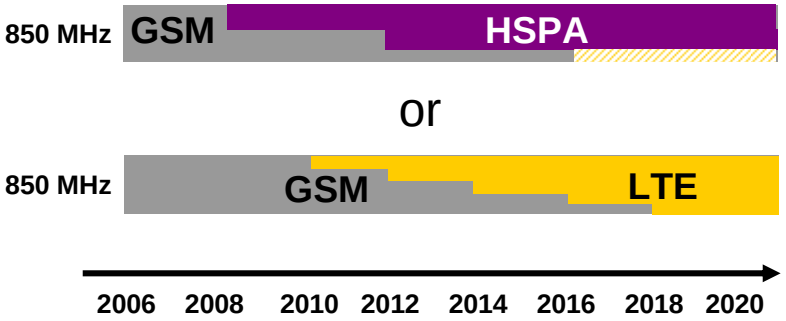
Low Costs

Cost per Mb

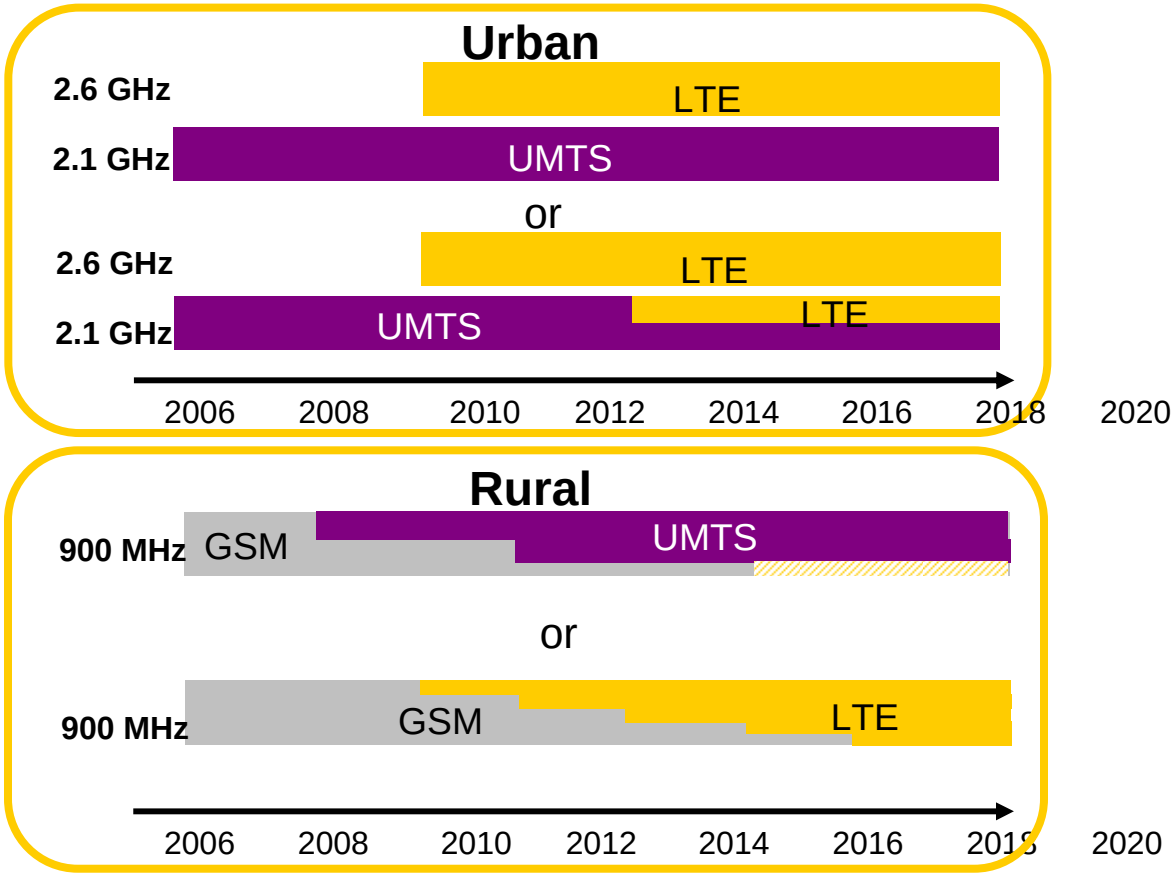


Scalable bandwidth

Optimized spectrum usage, example

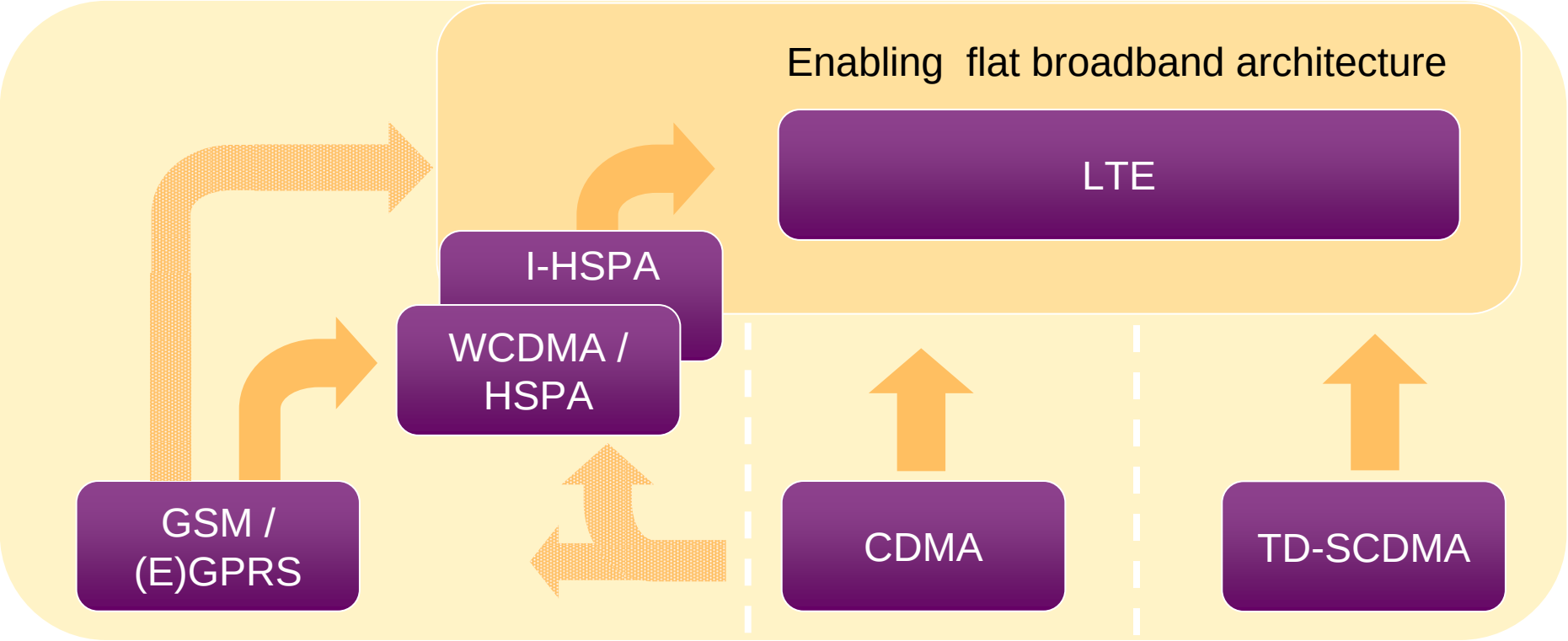


LTE maximizes flexibility of band refarming



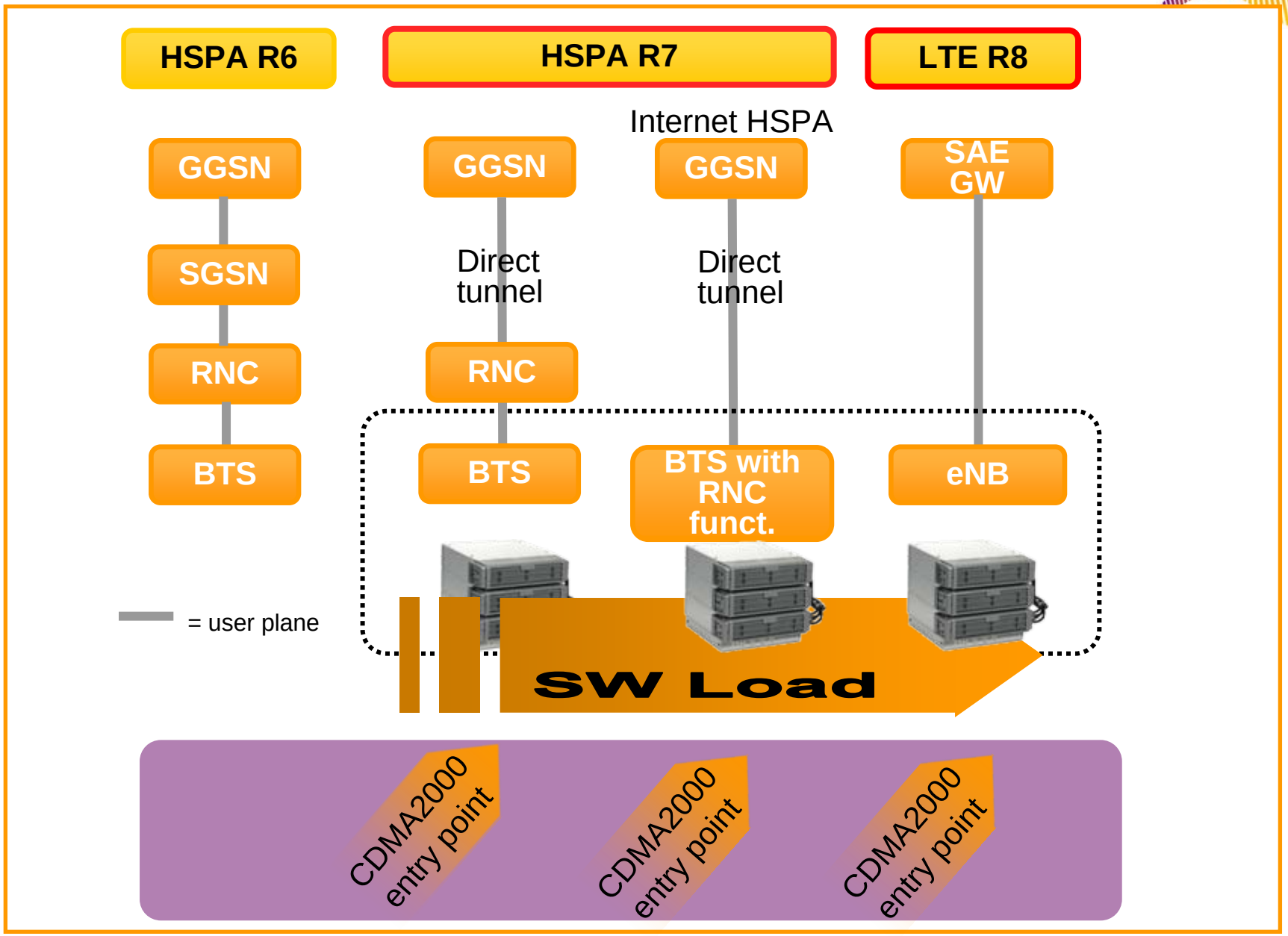
- High spectral efficiency also for smaller bandwidth arrangement
- Cost efficient deployment by usage of lower frequency bands
- Flexible frequency band refarming scenarios

Evolution to LTE - a healthy eco system
Operator migration paths to LTE



3GPP Rel 7 Compliant Flat Architecture: I-HSPA

Flat Architecture improves latency



Old Dreams become reality: Smooth migration via SW load

SW defined Radio (SDR) already since around 20 years in discussion comes now to picture

- Platforms more and more powerful
- Higher layer protocols inherited from previous 3GPP technologies leading to further synergies
- Change of technology in BTS, provided same frequency band
- Concurrent use of one BTS platform for more technologies e.g. WCDMA, LTE

Flexibility in Core

- Concurrent use of Evolved Packet Core (EPC) components for more technologies e.g. WCDMA, LTE

Results in

- Even more flexibility
- Faster rollout
- Less sites visits
- Lower operational costs

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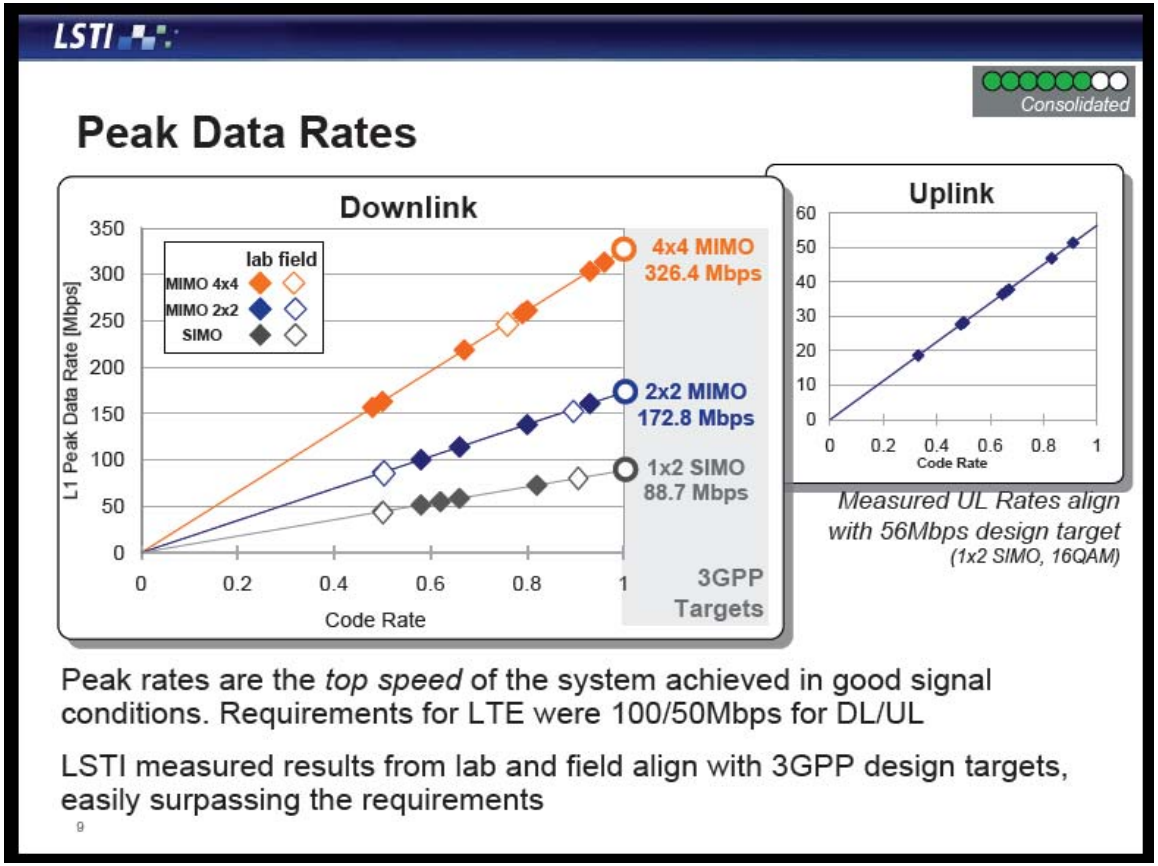
LSTI confirmed performance values in PoC test phase



LSTI initiatives goals/objectives

- drive industrialization of 3GPP LTE/SAE technology
- demonstrate feasibility and capabilities of 3GPP LTE-SAE technology under real world conditions. Indoor & outdoor tests
- accelerate development of 3GPP specification and stimulate LTE/SAE ecosystem

Nokia Siemens Networks multi-user LTE field trial in Berlin

Taking the lead in network migration towards LTE

Nokia Siemens Networks

2008 — **LTE proof of concept & network preparation**

- LTE lab and field tests
- Flexi Multimode BTS (shipping)
- IP / Ethernet transport, direct tunnel

2009 — **LTE/SAE trial**

- End-to-end LTE / SAE support
- Tight co-operation with Nokia devices

2010 — **Commercial launch**

- LTE capable devices
- LTE roll-out for coverage and capacity

2011- — **Operator service migration to LTE/SAE**

- Volume LTE roll-out with full coverage
- Gradual migration of cellular voice services to LTE

Conclusions - Our view on mobile broadband for the next decade

Demand ✓

… 5 B people connected by 2015
.. applications & content in the internet
. experience & costs control

Opportunity ✓

… simple and flat architecture
.. less fragmentation and larger scale
. spectral efficiency and spectrum re-farming

Feasibility ✓

… industry momentum
.. e2e solution for time to market
. Nokia Siemens Network – pioneer & leader

Nokia Siemens Networks

Thank you

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