

2010-4-28

Security Level:

# TD-LTE/FDD LTE加速移动宽 带时代的到来

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## 华为技术有限公司

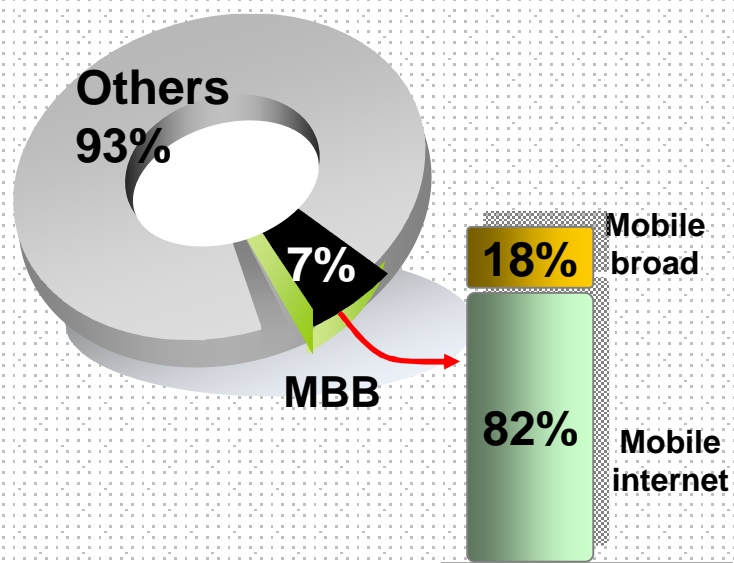
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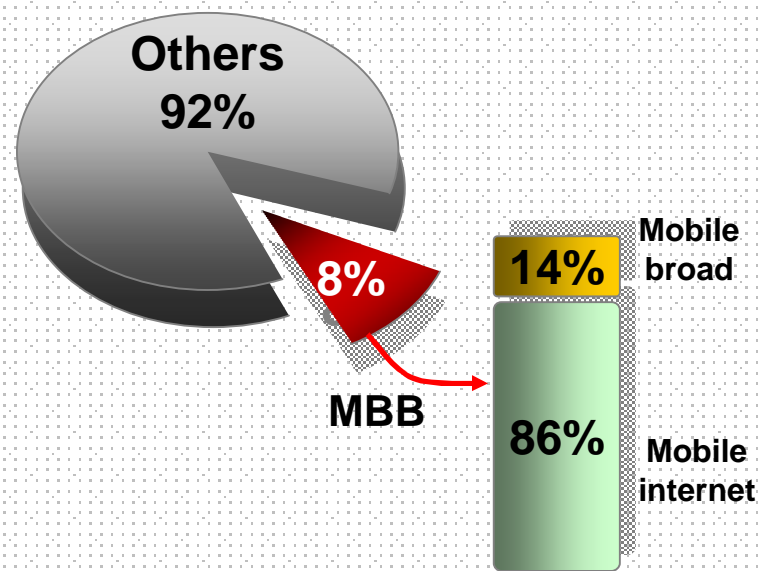
# 移动宽带的今天：刚刚起步

## 2009年移动宽带用户组成情况



Source: Infoma

## 2009年移动宽带业务收入情况

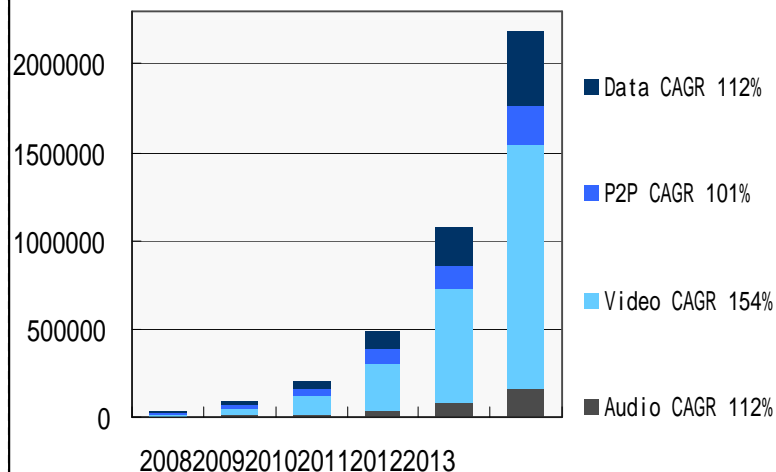


Source: Infoma

- n 移动宽带用户包括：HSPA用户、EV-DO/Rev A users
- n **Mobile Internet:** Intelligent terminals/Smartphones
- n **Mobile Broad:** Portables/PCs

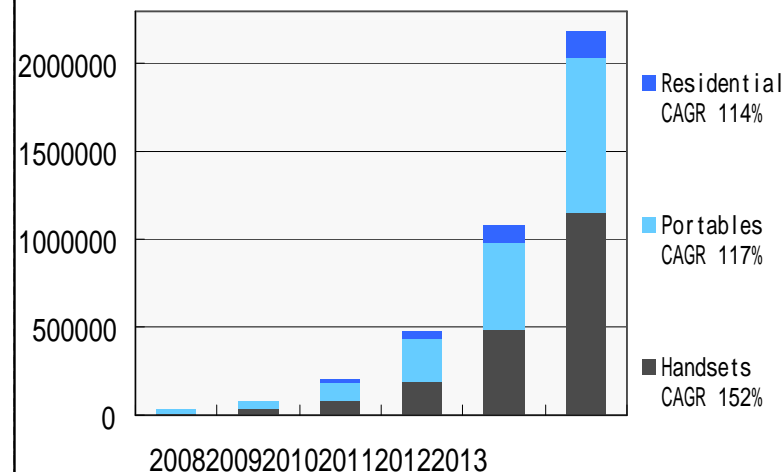
# 移动宽带的明天：爆炸增长

移动数据流量增长情况（按应用，TB/month）



- 视频成为移动数据业务流量增长的主要贡献者
- 移动博客、移动SNS将成为新的增长热点应用

移动数据流量增长情况（按终端类型，TB/month）



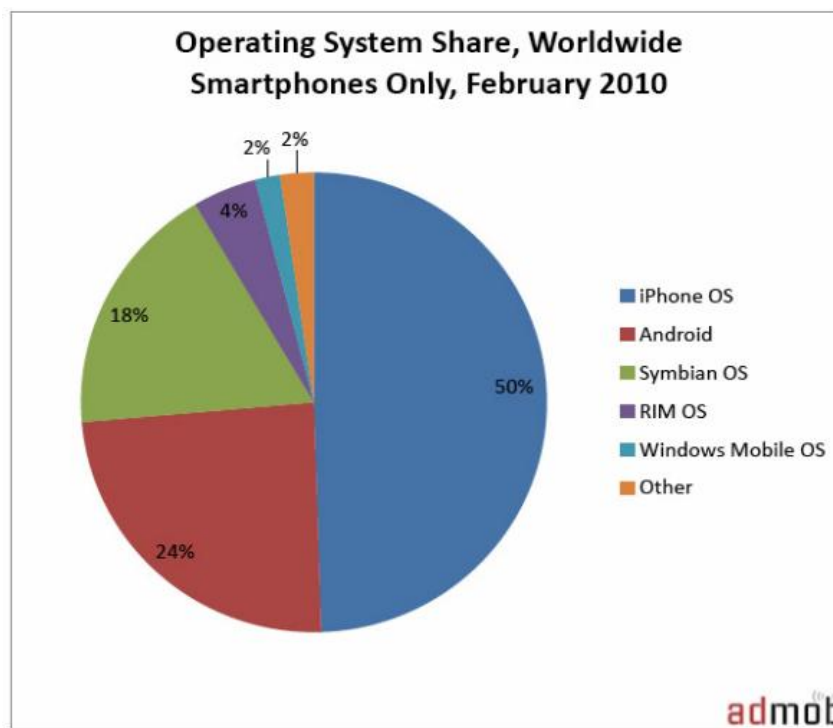
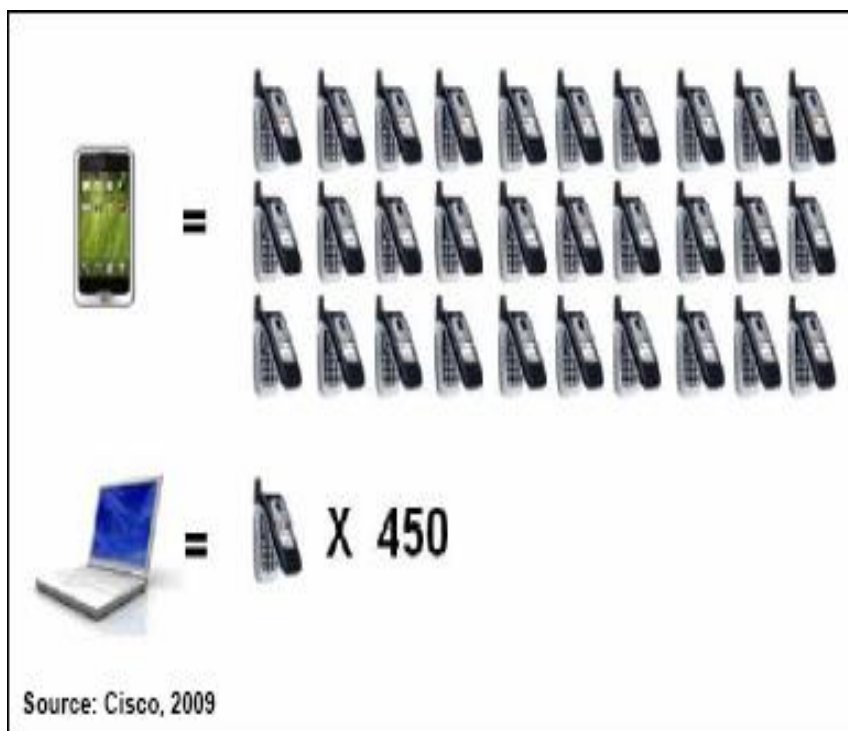
- 手机和便携式终端（上网本、电子书等）占据了绝大部分移动数据业务流量
- 由于体验越来越好，用户越来越习惯通过手机接入互联网

移动数据业务预测：--CAGR=110%: 2009=1X, 2013=15X, 2016=100X, 2020=2000X

# 智能化终端“推波助澜”

上网本、智能手机等成为流量杀手

iPhone成为占用流量最多的智能手机



智能终端的发展加速移动互联网流量的爆炸式增长

# 如何应对信息爆炸时代的来临：LTE



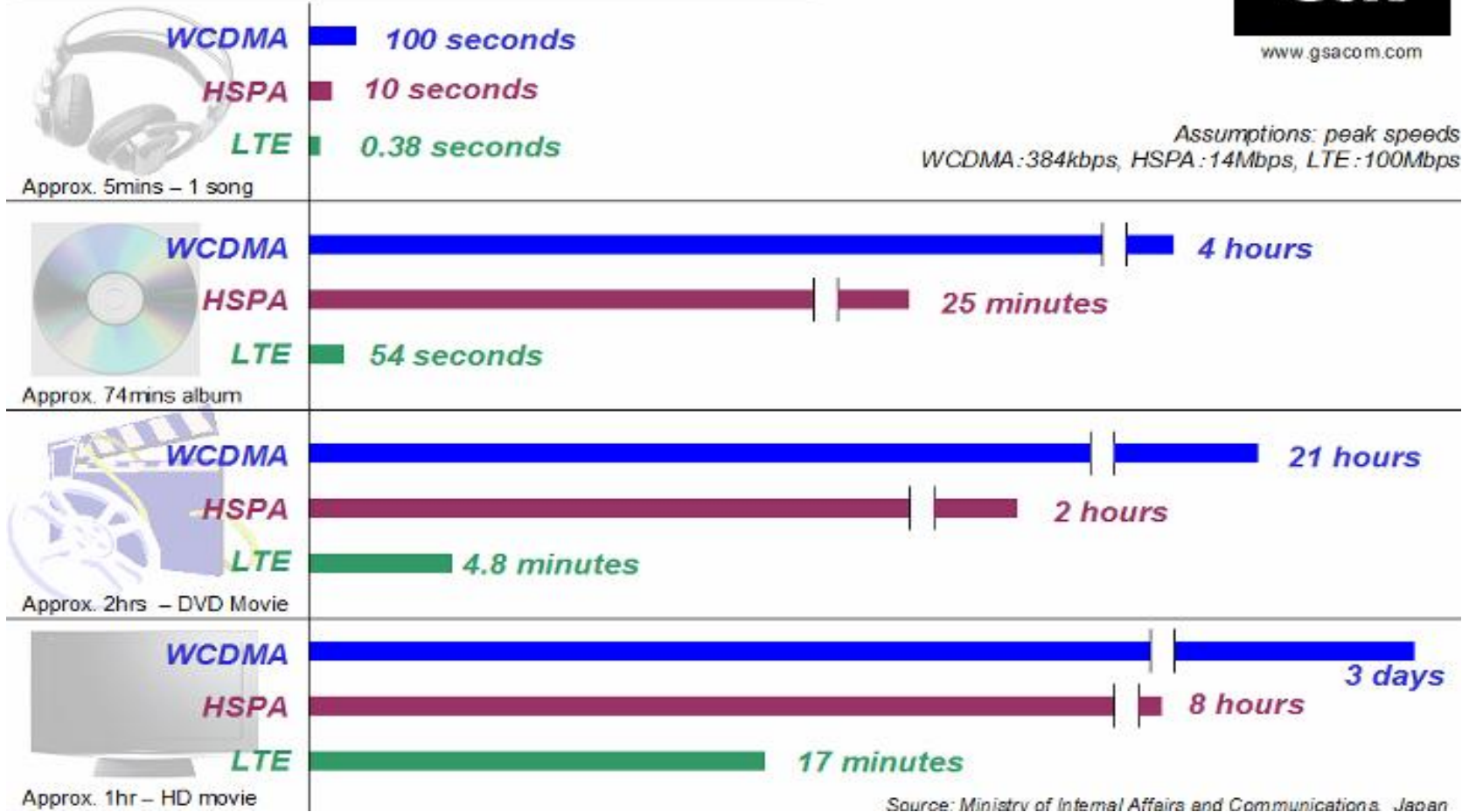
## 性能



n 更大的带宽，+更高的频谱效率=> 更高吞吐量

# LTE带来良好的用户体验

## Application download times



# LTE已成为绝大多数运营商的选择

## 64 LTE network commitments in 31 countries

Up to 22 LTE commercial network launches expected by end 2010  
(39 or more LTE networks expected to be in service by end 2012)



www.gsacom.com



- Aircell
- AT&T Mobility
- Bell Canada
- CenturyTel
- Commnet Wireless
- Cox
- MetroPCS
- Rogers Wireless
- T-Mobile
- Telus
- Verizon Wireless
- VIVO



- Svyazinvest Russia
- EMT Estonia
- 3 Austria
- 3 Ireland
- Vivacell-MTS Armenia
- Mobilkom Austria
- Orange Austria
- Orange France
- SFR France
- T-Mobile Austria
- T-Mobile Germany
- Telecom Italia
- Telenor Sweden
- TeliaSonera Finland
- DNA Finland
- KPN Netherlands

- Zain Jordan
- Etisalat UAE
- Zain Saudi Arabia
- STC Saudi Arabia
- TeliaSonera Norway
- Elisa Finland
- TMN Portugal
- Vodafone Germany
- Zain Bahrain
- MTS Uzbekistan
- Tele2 Sweden
- TeleNor Norway
- TeliaSonera Sweden
- Vodacom South Africa
- Cell C South Africa



- China Telecom
- China Mobile
- CSL Limited
- Chunghwa Telecom
- eMobile
- KDDI
- KT
- LG Telecom
- NTT DoCoMo
- PCCW
- Piltel
- Hutchison 3, HK
- Smartone-Vodafone
- Softbank Mobile
- SK Telecom
- Telecom New Zealand
- CM Peoples, HK
- StarHub, Singapore
- M1, Singapore
- SingTel
- Telstra

## 64个LTE合同分布于北美, 中东 &非洲, 欧洲, 亚太区域



# 强大的LTE阵营， 高端市场成为首批尝试者



LG、三星等厂商已经推出LTE芯片和第一代终端

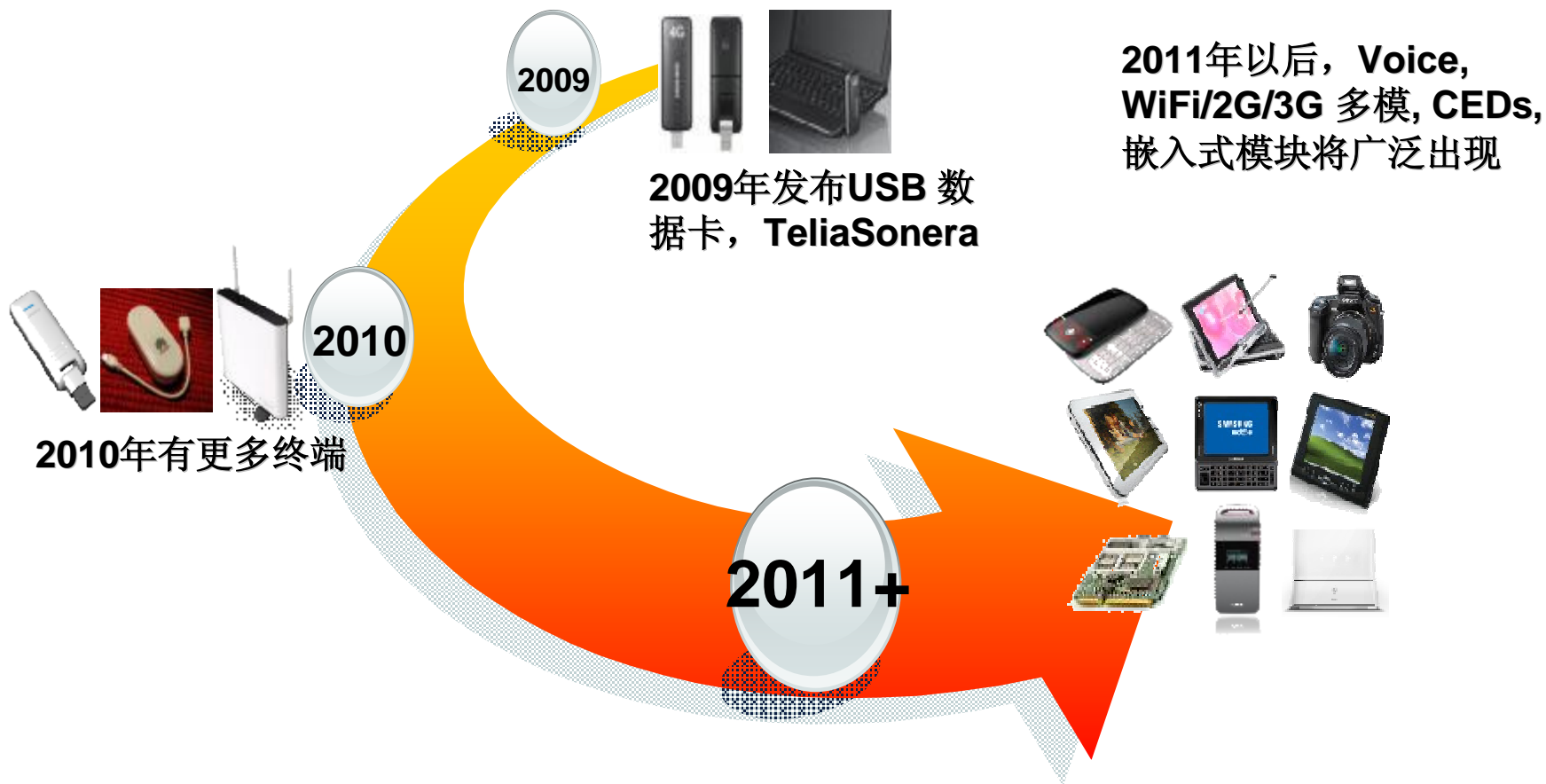


LTE芯片及终端领域的几大关键供应商



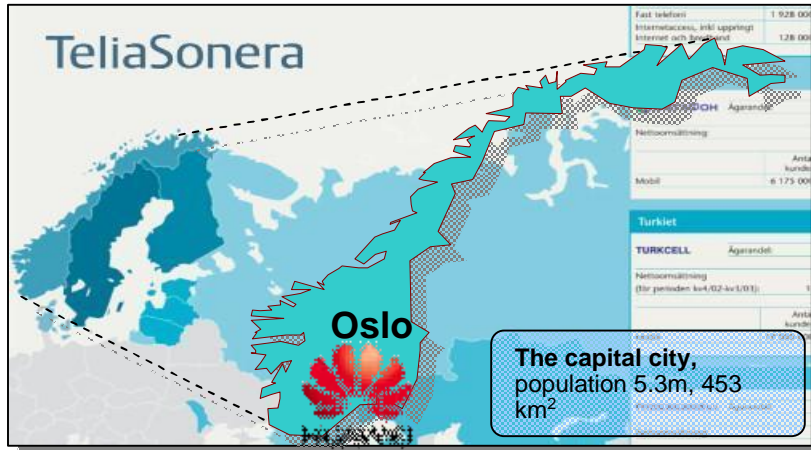
北欧成为全球首批LTE商用市场， 接下来是日本、美国等高端市场

# 终端产业界进展



TeliaSonera于2009年底发布商用网络的同时, 发布USB数据卡

# 首个FDD LTE网络已经商用 @2009.12



**MOBILE BUSINESS BRIEFING**  
 Friday 26 March 2010 | www.mobilebusinessbriefing.com

**Latest News**

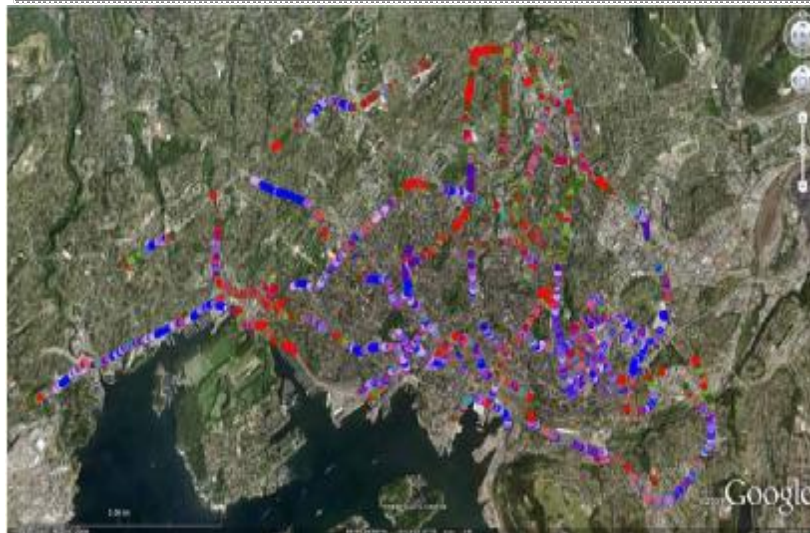
**TeliaSonera's LTE network averages 32.5Mbps download in Oslo**  
 TeliaSonera's commercial LTE network in Stockholm and Oslo is producing average download data rates of 16.8Mbps and 32.1Mbps, respectively, according to a new report from Signals Research Group that is claimed to be "by far the most scientific and exhaustive independent performance analysis ever conducted of an LTE network." The consultancy transferred nearly 180GB of data in tests to reach its findings, virtually all from vehicular or pedestrian mode. Test equipment from Accuver was used, and recorded a number of important KPIs, including peak download speeds in Stockholm of 50Mbps and 95Mbps in Oslo. Read a preview of the report here, if it's worth noting that TeliaSonera's deployment of LTE is at an early stage, and the performance of the network is likely to come under greater strain as the service expands and usage increases.

The findings come at a crucial period for development of next-generation mobile technologies. TeliaSonera became the first commercial operator in the world to launch LTE services at the end of last year - offering a dingdong from Samsung (pictured) - and its network speeds have been closely monitored. The operator itself has not been shy in hyping the technology, claiming "mobile broadband speeds up to a maximum speed of 100Mbps," which are "up to 10 times higher than with Turbo-3G." An early test from Nordic analyst firm Northstream in January stated that

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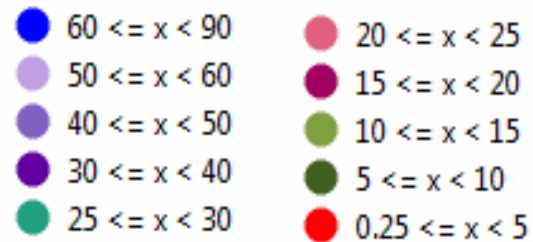
**Blog**  
 Verizon moves Skype in mysterious ways  
 The partnership is intriguing, and involves a big gamble from the number one US operator  
 Read >

**Analysis**  
 Turkcell and Vodafone claim bullish start to 3G in Turkey  
 Turkish 3G subscribers accounted for 50 percent of country total



## Entire Oslo network

Mbps



Source: Signals Research

Oslo 50%区域支持的吞吐量在60-90Mbps之间

# 首个TD-LTE演示网发布 服务2010上海世博会

## 业务展示



轮渡与公交车  
移动视频监控



高清视频监控



移动高清会议



PC高速体验业务：  
VOD\Game\Internet



视频监控中心展示



演示车综合业务展示

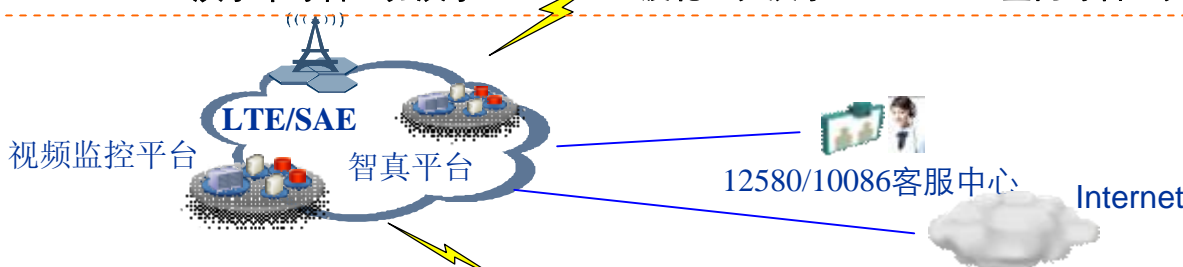


渡轮业务展示



室内综合业务展示

## LTE-SAE 回传



## 前端采集



园区工作用车



公交车



渡船

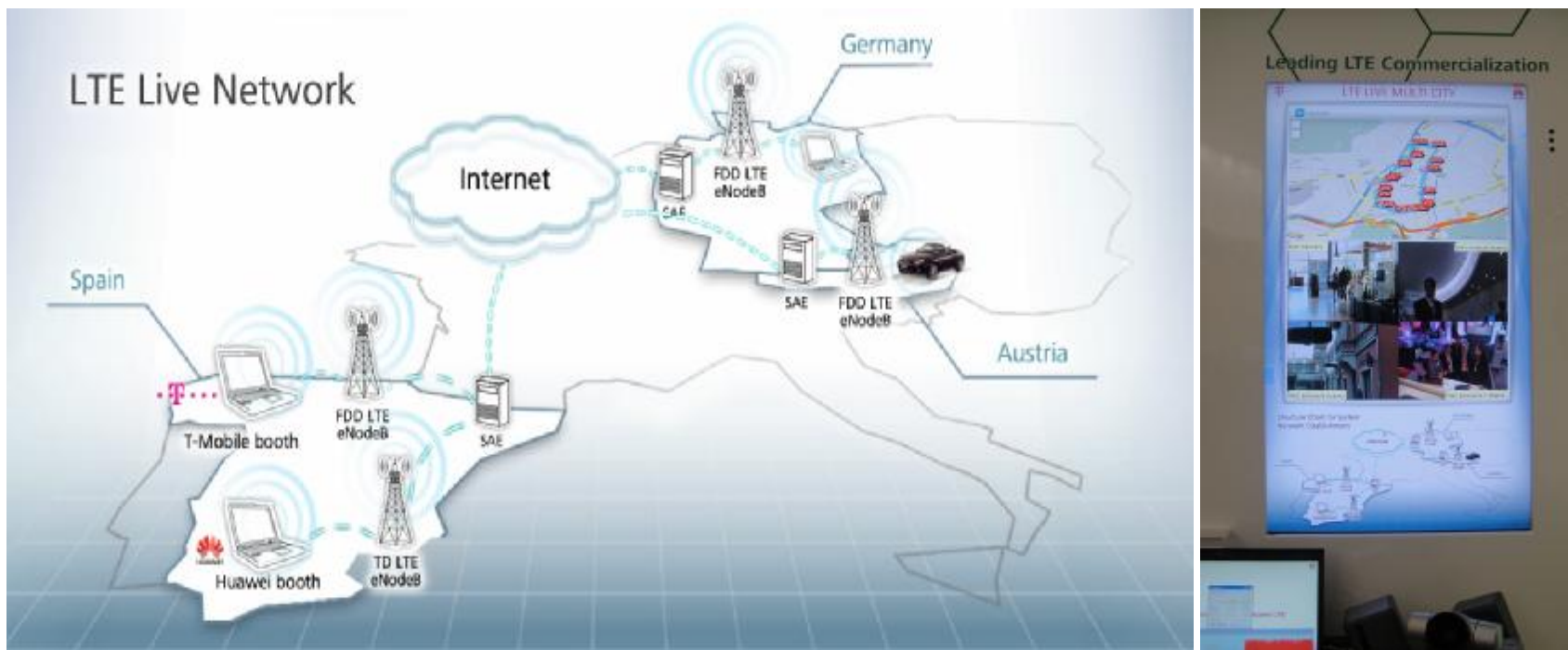


单人携带



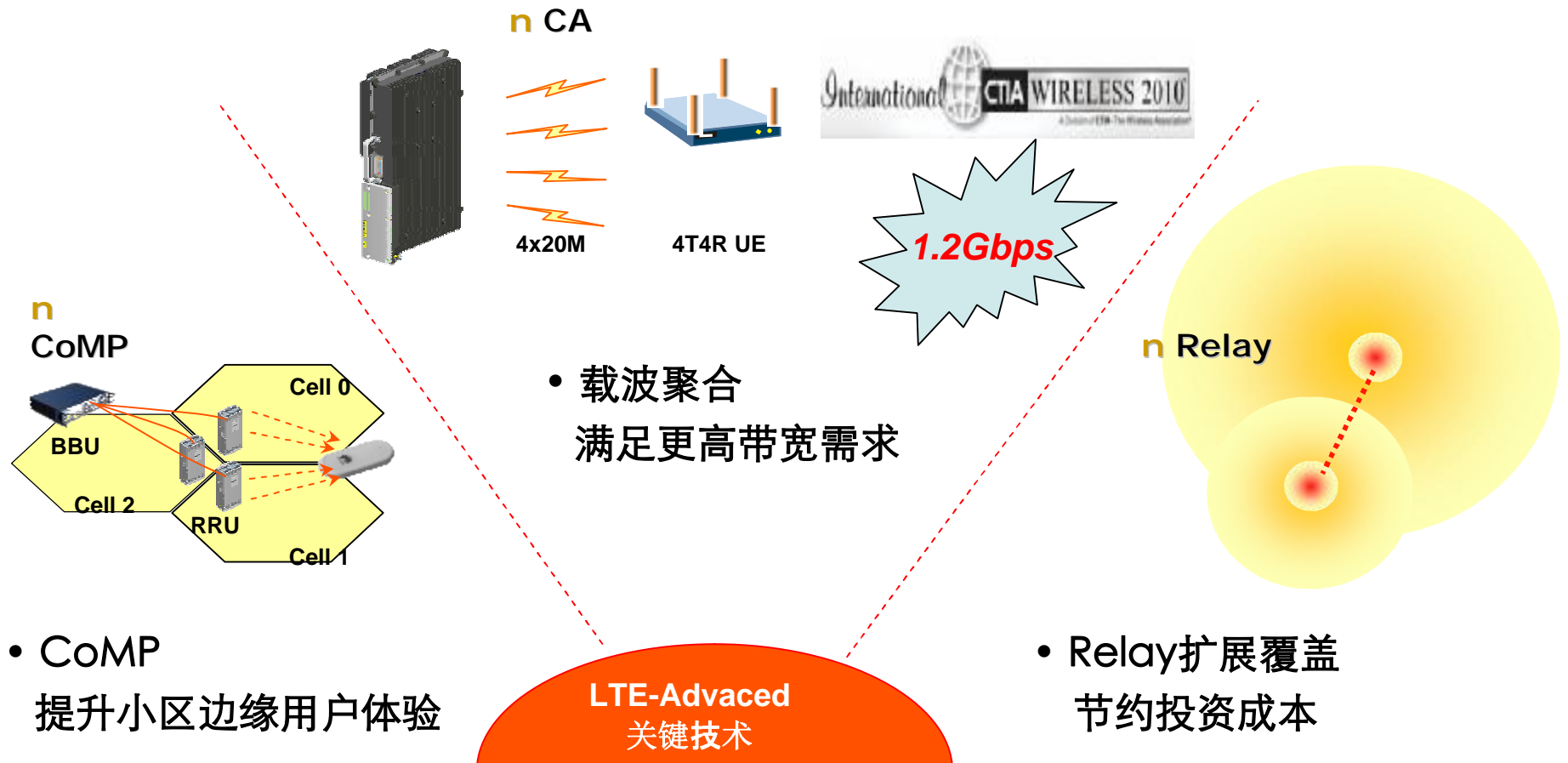
游牧方式定点

# FDD/TD-LTE 技术及产业融合均衡发展



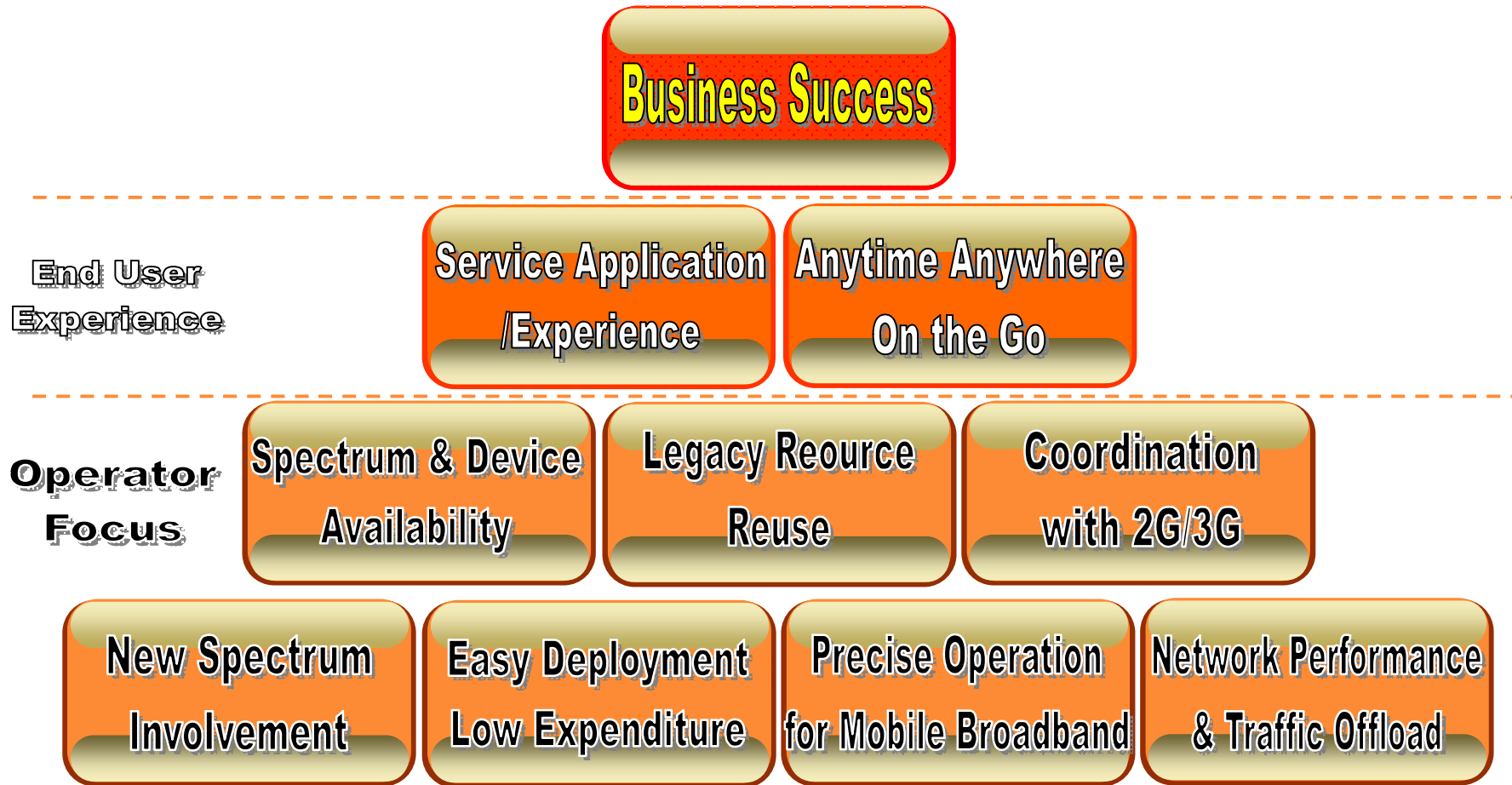
- Ø 基于TDD/FDD LTE无线接入及统一EPC核心网的四方视频互通业务：华为展台、T-Mobile展台、T-Mobile德国、奥地利两地LTE试验网；
- Ø 除高清视频会议外，还展示了对移动目标的高清视频监控等高带宽、低时延业务；
- Ø 融合的TDD/FDD LTE解决方案，促进产业均衡发展；对全球运营商而言，可根据频谱资源情况灵活部署高质量的LTE网络

# LTE 持续演进 关注网络性能



LTE演进将更加关注吞吐量需求进一步提升小区边缘用户性能

# 关于LTE商业成功的思考



# Thank you

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