

Broadband Access

Fast and reliable wireline broadband connections

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Market trends



Trend 1

New web based services drive bandwidth

Need for **connectivity**



Trend 2

Operators reduce complexity of managing multiple networks

Need for increased **efficiency**

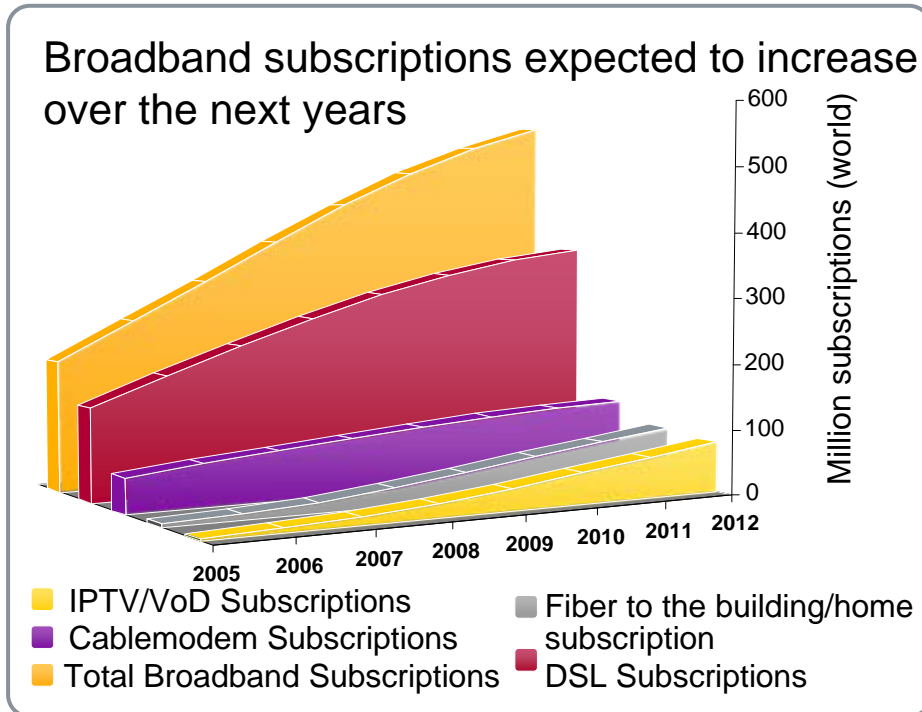


Trend 3

Mobile operators provide wireline high-speed connections

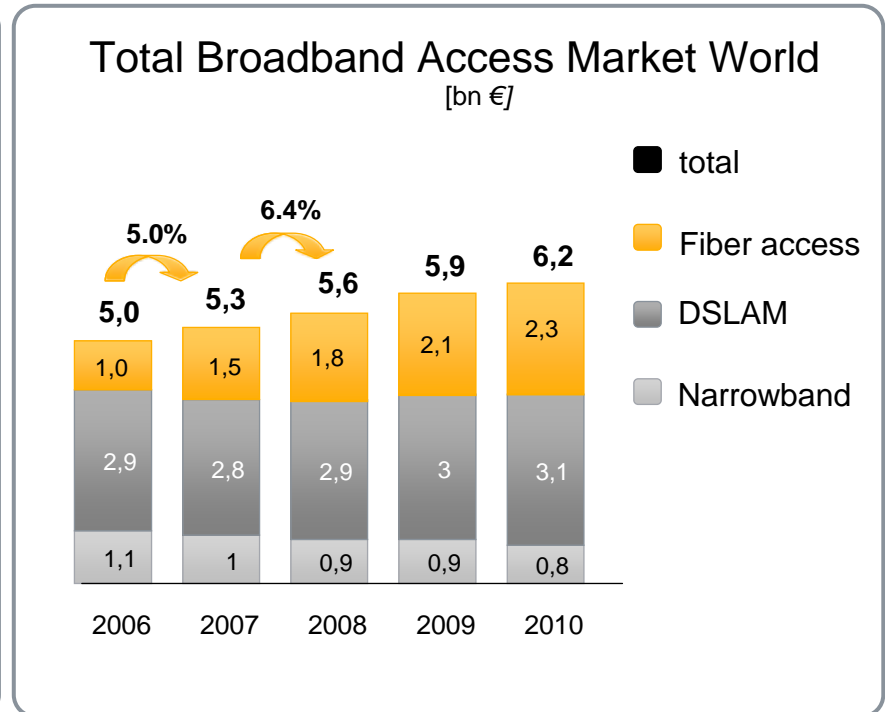
Need for **revenue growth**

Demand for fixed broadband expected to increase over the next years



Source: external analyst forecasts

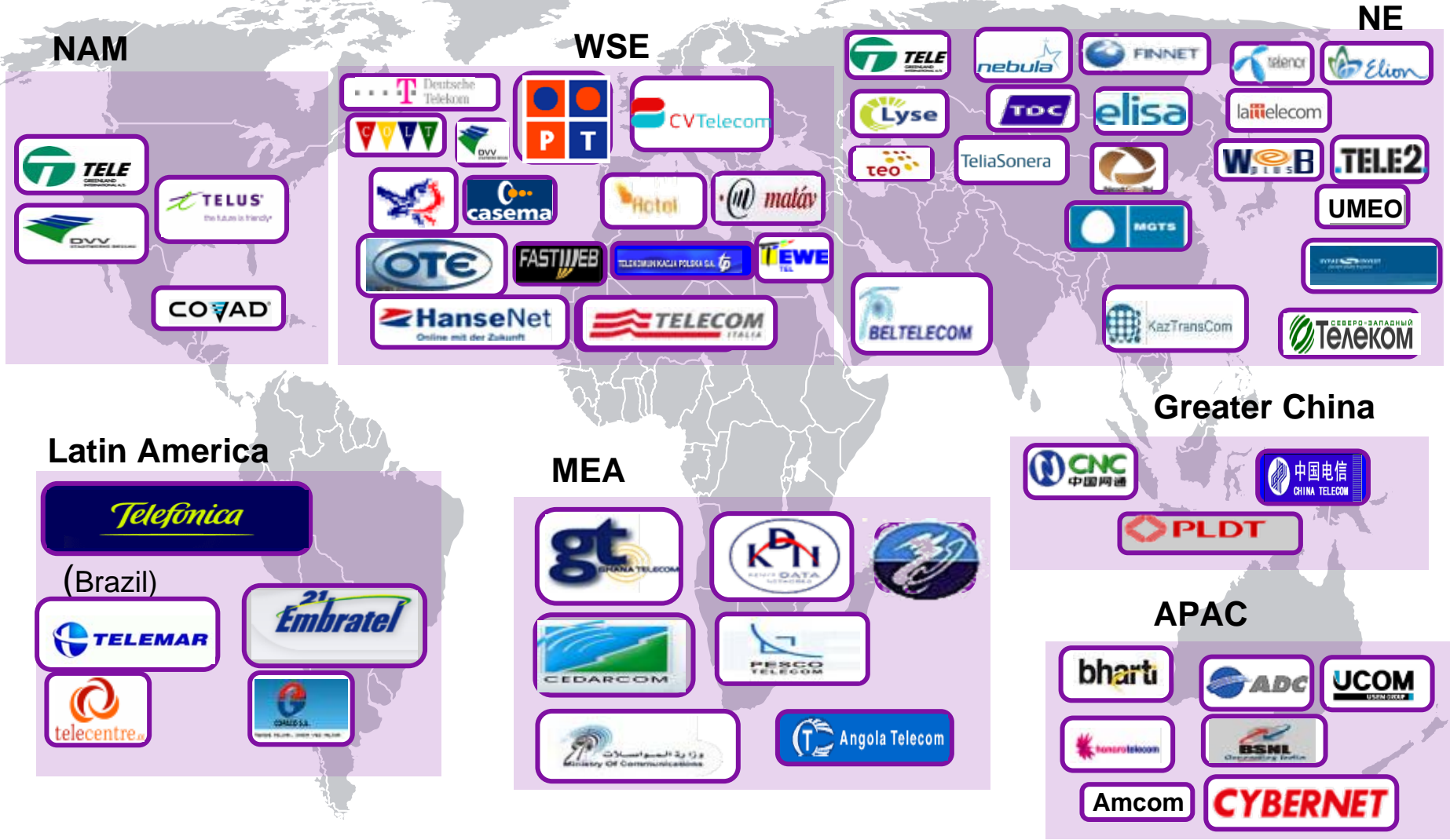
- In the year 2012, more than 500 million Broadband subscribers worldwide are expected
- Most subscribers expected to use a DSL connection
- Fiber access subscription is expected to grow in line with IPTV subscription



Source: external analyst forecasts

- DSL is the dominant broadband market and expected to remain
- Driven by high bandwidth demand, fiber based access revenue is expected to double in the next 10 years
- Narrowband revenue expected to decrease

Nokia Siemens Networks is best positioned in this market: More than 31 million DSL ports shipments!



Presence in over 70
countries worldwide

Solutions for developed
AND new growth markets

Leading in VDSL2
technology

T-Com Germany invests in high-speed access to introduce HDTV to differentiate



Customer challenges

- Fierce competition on German DSL market
- T-Com needed to differentiate to remain competitive, and position themselves as technical leader

T-Com Germany serves some 10 million DSL subscribers.

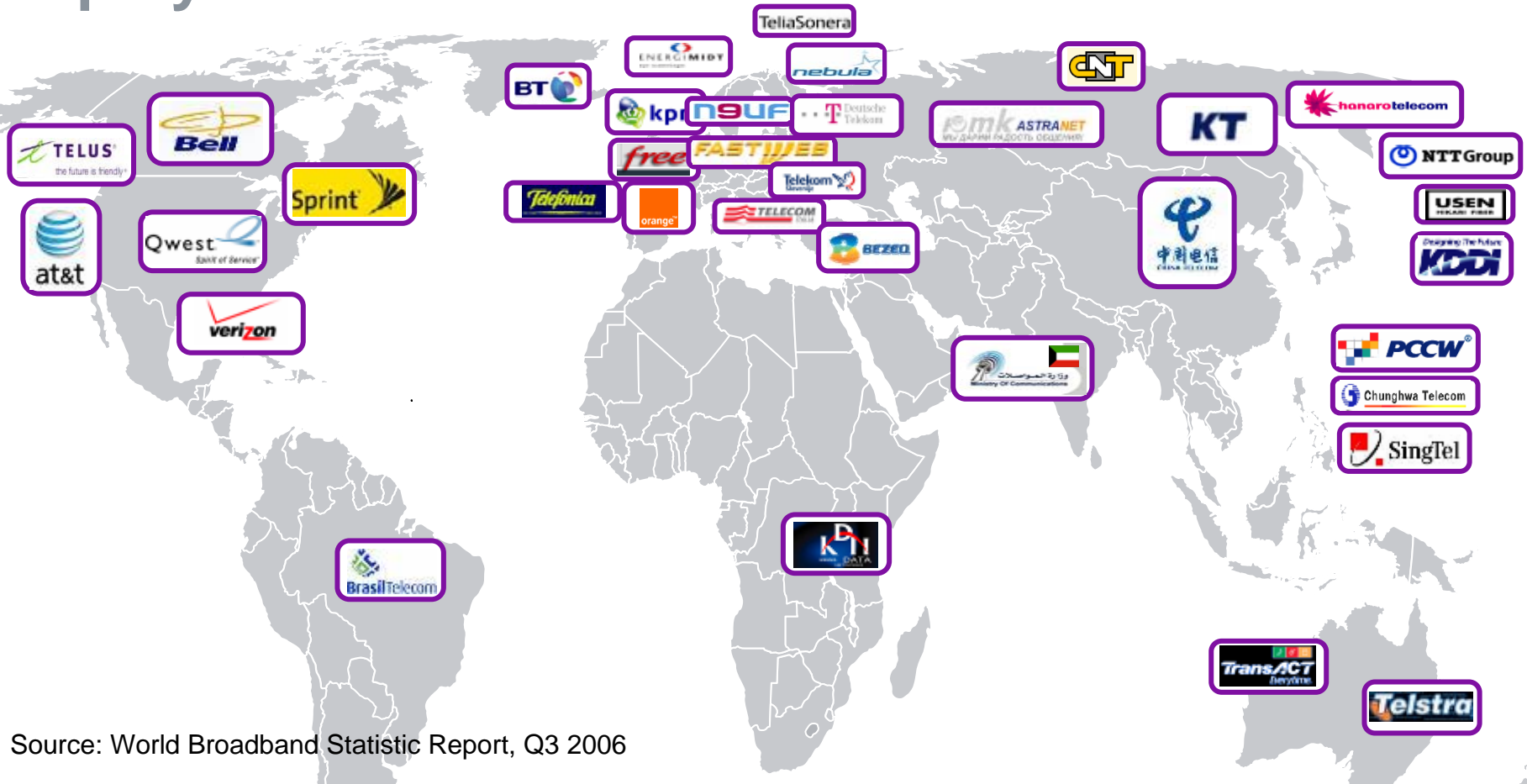
Our solution:

- Complete end-to-end infrastructure for Triple Play ready for HDTV: from subscriber connection to the network core covering 1st mile VDSL2 access, Carrier Ethernet aggregation and Broadband Remote Access Servers in the core.

Benefit for the customer

- High revenues from “T-Home” Triple Play offering
- Significant OPEX savings thanks to seamless migration to one converged Next Generation Network

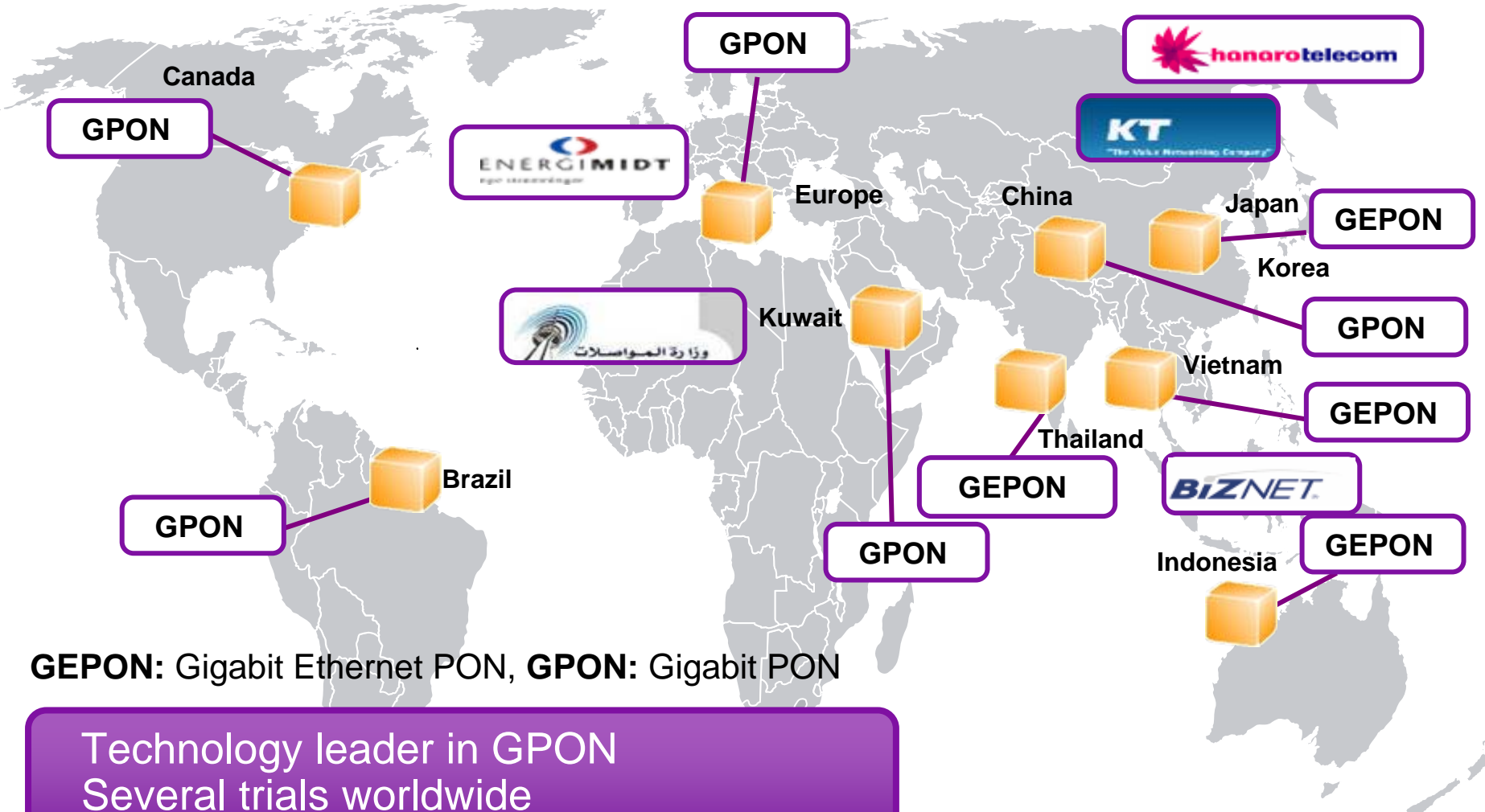
All over the world, operators go for FTTx deployment



Source: World Broadband Statistic Report, Q3 2006

Telecom operators, municipalities and public utilities have recognized FTTx as the access technology of the future.

GPON market leader – with 33% market share strong GEPON market position *



GEPON: Gigabit Ethernet PON, **GPON:** Gigabit PON

Technology leader in GPON
 Several trials worldwide
 Very positive customer feedback

* Estimated Share Slides shows also customer trials





First FTTH GPON Solution

1st worldwide ever deployed GPON Project

Customer challenges

- Ministry of Communications; Incumbent Operator State of Kuwait with the Strategy to change the whole Country Network from Copper to Fiber Technology
- FTTH Overlay Network of existing Infrastructure
- 1st Phase approx. 14.000 Buildings and 155.000 Lines

Our solution

- Gigabit Passive Optical Networks: hiX 5750 (Optical Line Termination), 5703 (Optical Network Termination), 5709 (Multi-Dwelling Unit)
- ACI-E Element Manager
- Outside Plant Deployment (Fiber Optic Cable & Splitter)
- Project Management & Turnkey Solution

Benefit for the customer

- Replacement of an old Cable Cable Infrastructure with a new, State-of-the-Art fiber based GPON Network leads to OPEX reduction
- Offering of high bandwidth consuming Services and Applications

“We are very happy with the Performance and the Combination of Good Spirit and Working-In-Partnership and we hope to see Nokia Siemens Networks again in the 2nd Phase of our GPON Deployment here in Kuwait”, said Mr. Mansour Al-Bader (Project Director) Grand Tender Project, Ministry of Communications

KT deploys GE-PON solution to create a FTTH access network

Customer challenges

- Replace existing xDSL subscribers by FTTH
- Over 1 million customers nationwide to get Real-FTTH access in 2007 based on GE-PON
- Spend about \$2.2 billion by 2010 on FTTH

Our solution

- GE-PON based FTTH solution including Optical Line Termination hiX 5430 and Customer Premises Equipment hiX 5404

Benefit for the customer

- CAPEX effective and sufficient solution for premium-grade triple play services like high-speed Internet, VoIP or IPTV
- Up to 20km possible distance between OLT and subscriber
- Up to 1.25 Gbps symmetrical data rate

KT has about 6 million broadband customers

Main players in the wireline Broadband market

Full network suppliers (mobile fixed and value add)

Alcatel-Lucent



Ericsson



ZTE中兴

Only fixed net suppliers

tellabs®



Only access suppliers

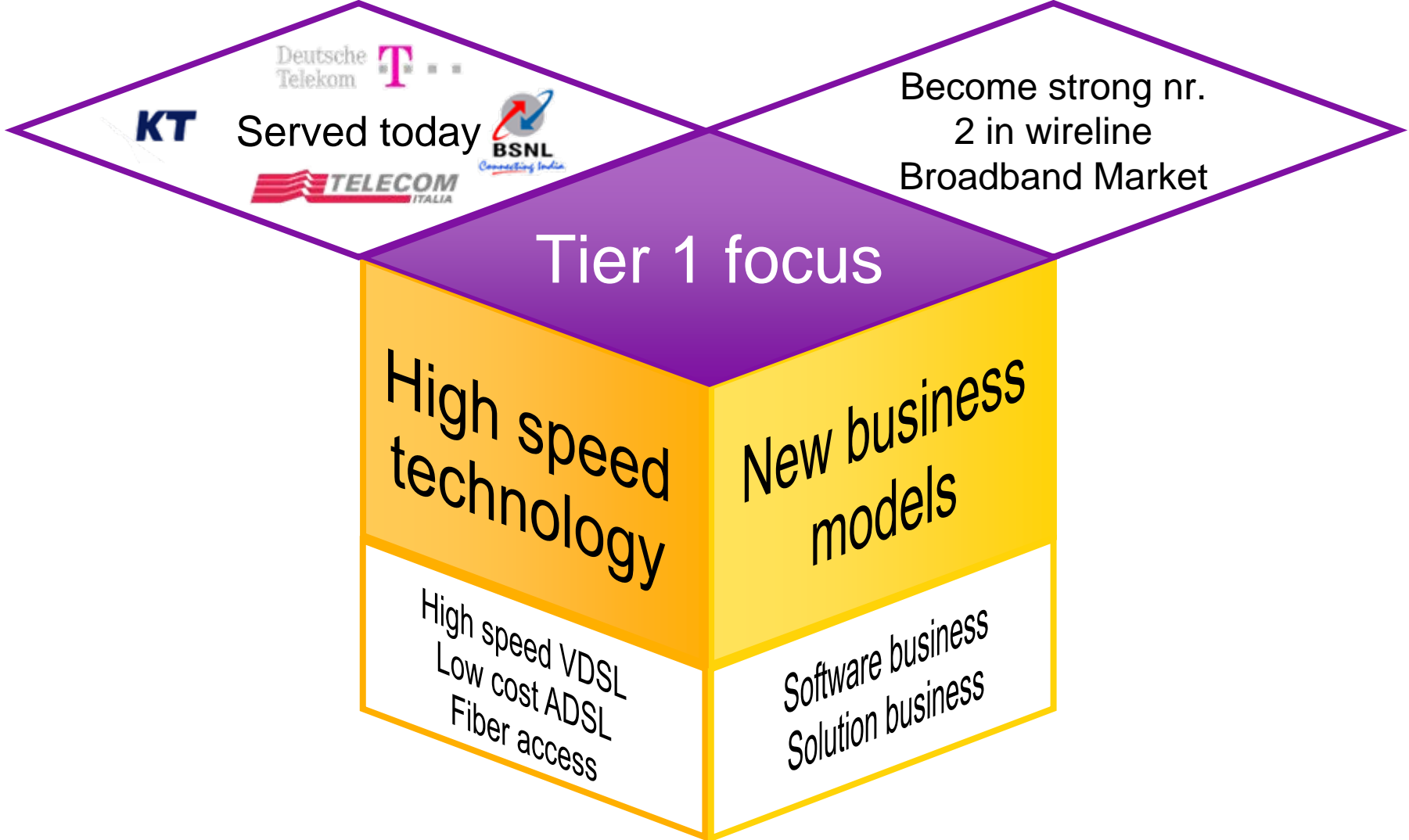
Calix (PON)

SUMITOMO ELECTRIC

(E-PON relevant only in Japan)

Strategic intent and objectives

Clear number 2 in Broadband Access



We are on the way to become no 2 in wireline access. How?

By providing

Broadband Connectivity

Operational Efficiency

Revenue Growth

Flexible FTTx connectivity

pave the way for advanced consumer multi-play service delivery

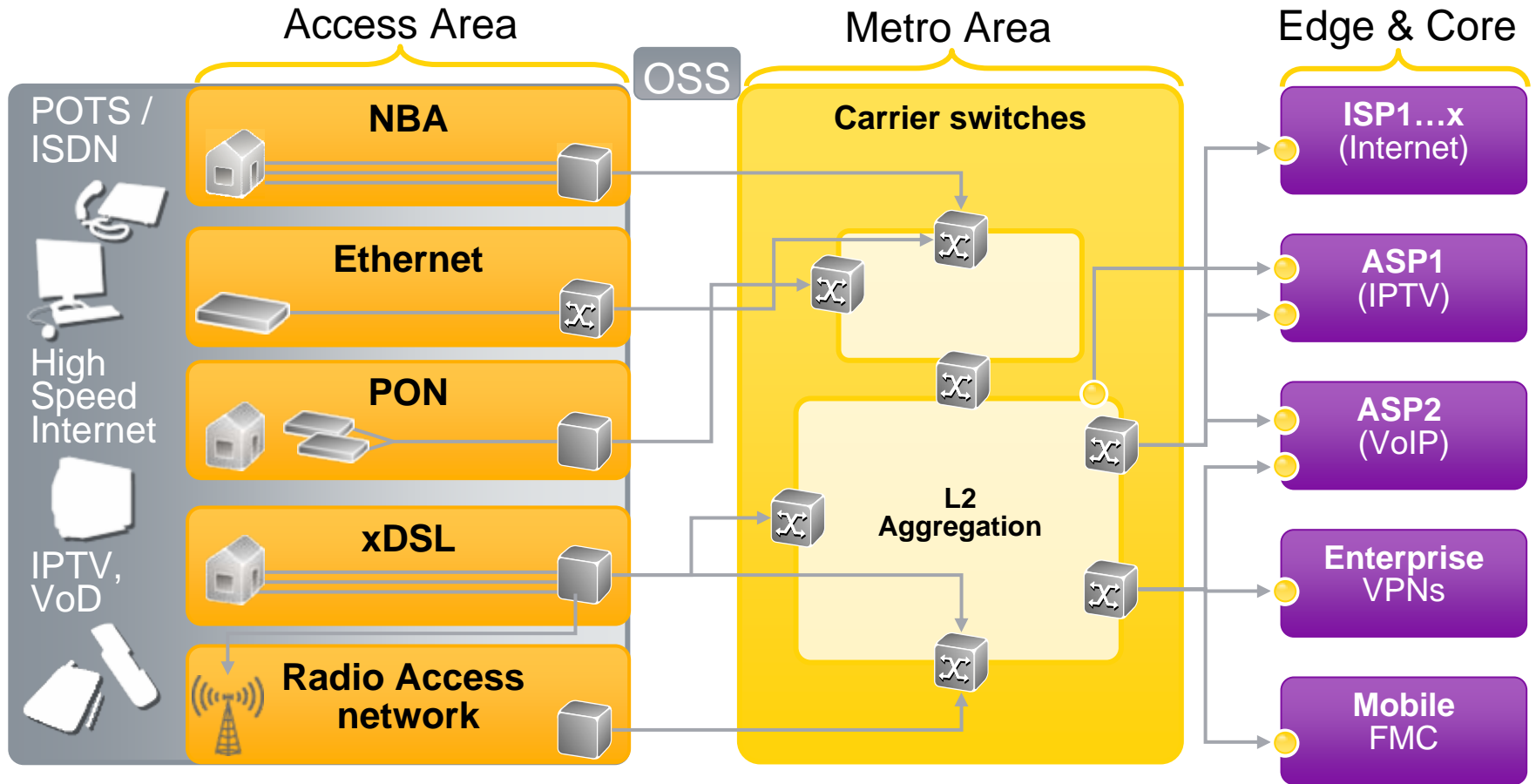
Voice over Broadband access solution

reduce complexity of managing multiple networks

Beyond mobile to all-broadband service player

new growth potential
save costs on backhaul expends

Nokia Siemens Networks has best in class building blocks to provide these solutions



Operators rely on our comprehensive world-class portfolio

Nokia Siemens Networks is the best partner to face the broadband challenge

- Clear vision and competence to build broadband access networks
- Guaranteed interoperability through standardized solutions
- Protects investment while migrating operators to a unified and converged world
- Deep expertise in all kind of operators and environments: fixed, mobile and hybrid
- Turn-key solutions comprising network planning, building, maintenance and operations



Nokia Siemens Networks

