Investing in rural areas

Broadband for rural communities

Christian Constantin

Head of Business Development BCS

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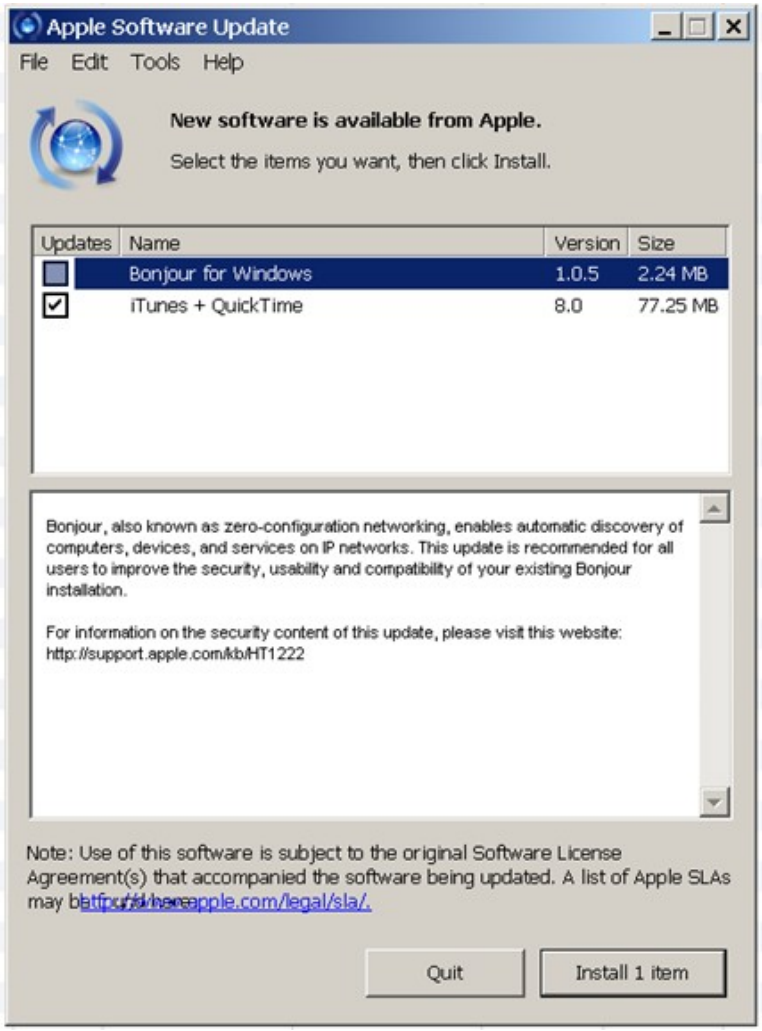
Nokia Siemens Networks

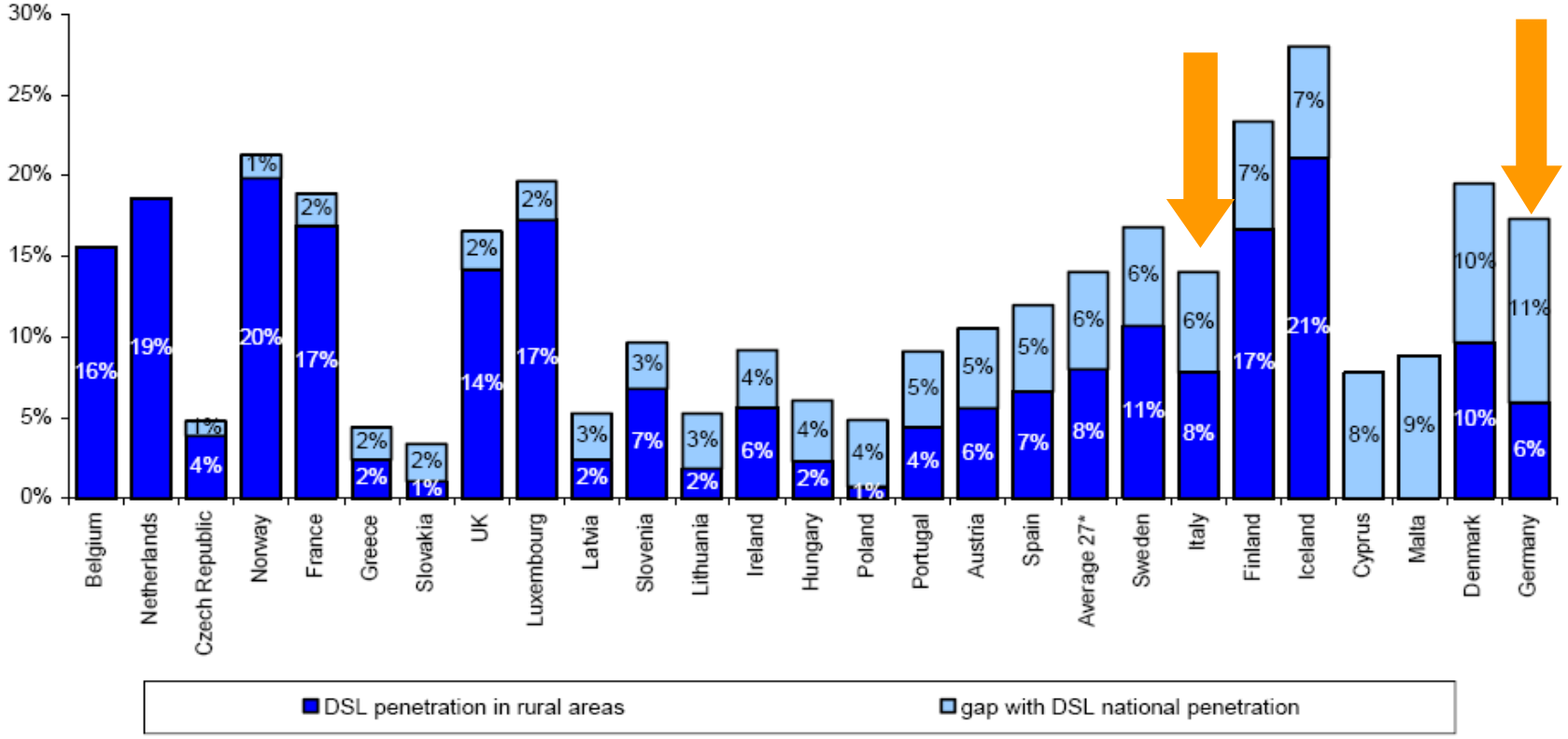
Broadband means efficiency



Internetconnection	Download time
56 kbit/s	3 hours
768 kbit/s	14 minutes
6 Mbit/s	< 2 minutes
16 Mbit/s	40 seconds
50 Mbit/s	13 seconds
100 Mbit/s	6 seconds

Rural areas are underserved by broadband

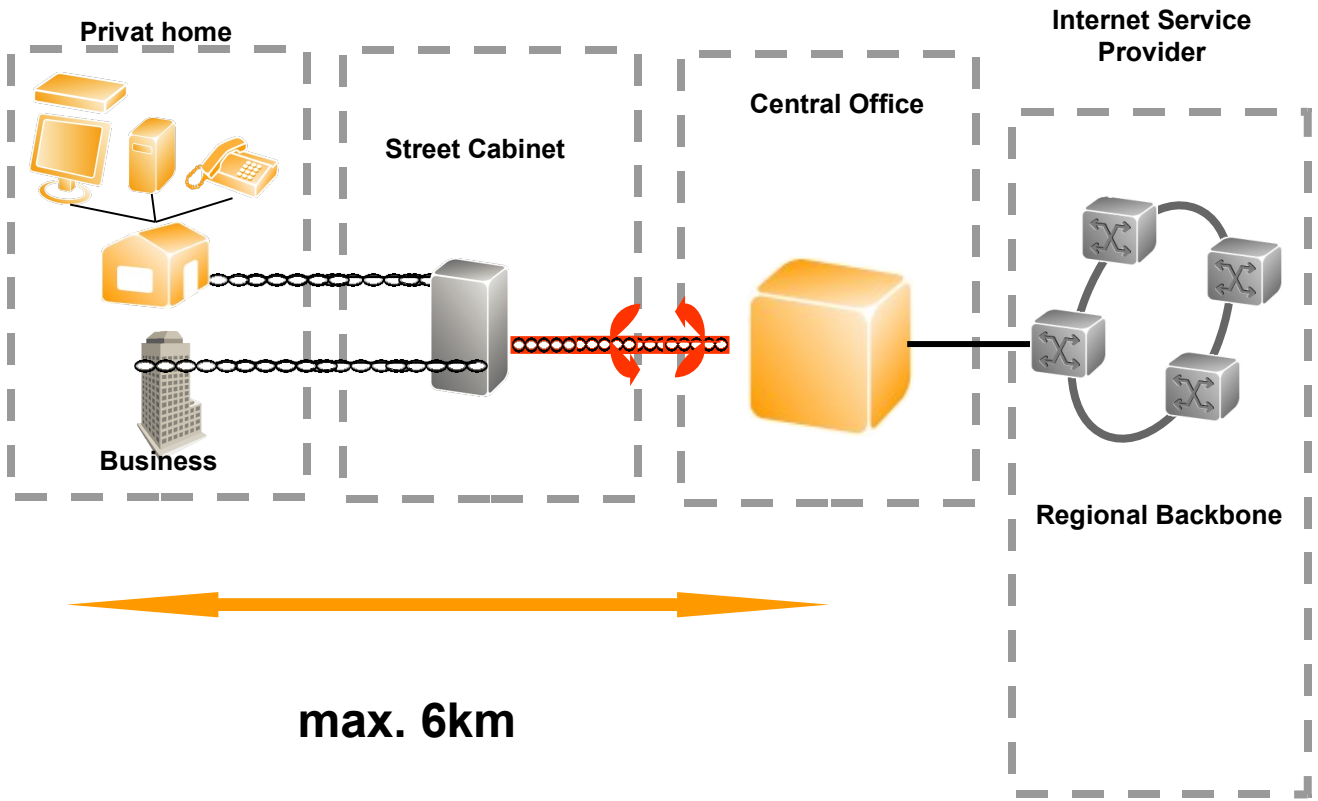
Figure 2: Gaps between DSL penetration in rural areas and DSL national penetration from 0% to 11%



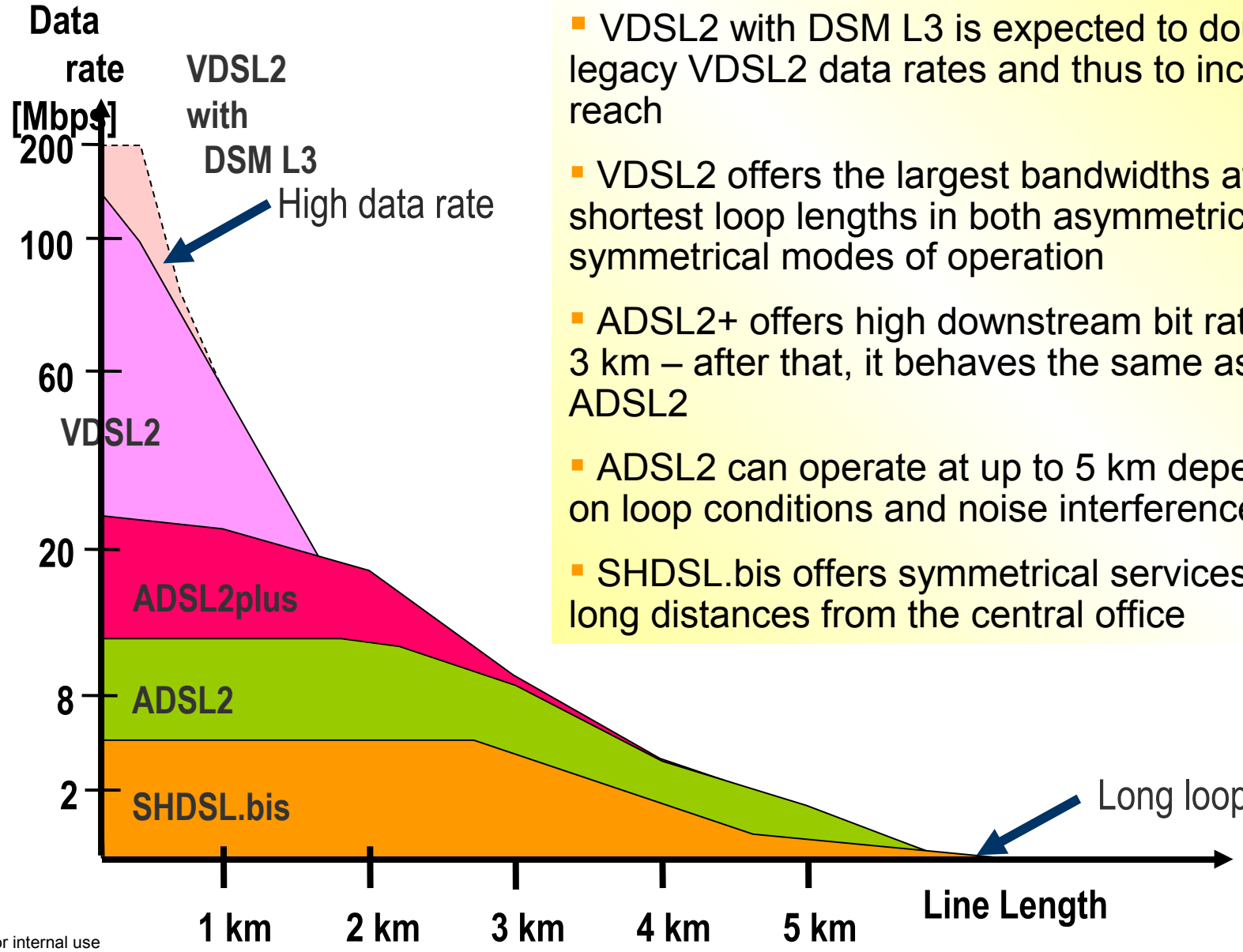
* excluding Estonia (figures not available)

Source : IDATE survey

Europe is primarily relying on DSL broadband connections

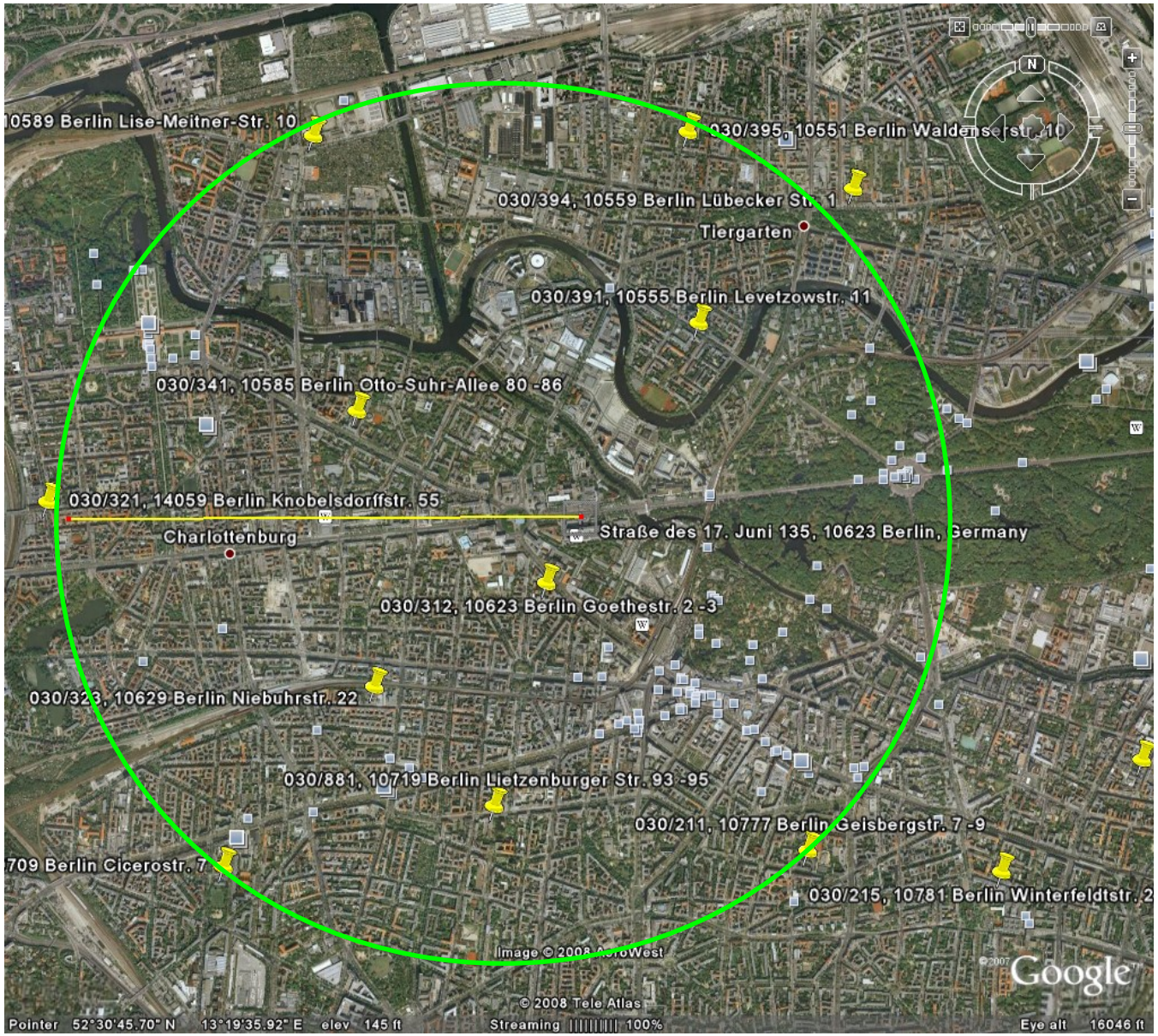


xDSL Bandwidth over copper



- VDSL2 with DSM L3 is expected to double legacy VDSL2 data rates and thus to increase reach
- VDSL2 offers the largest bandwidths at shortest loop lengths in both asymmetrical and symmetrical modes of operation
- ADSL2+ offers high downstream bit rate up to 3 km – after that, it behaves the same as ADSL2
- ADSL2 can operate at up to 5 km depending on loop conditions and noise interference
- SHDSL.bis offers symmetrical services at long distances from the central office

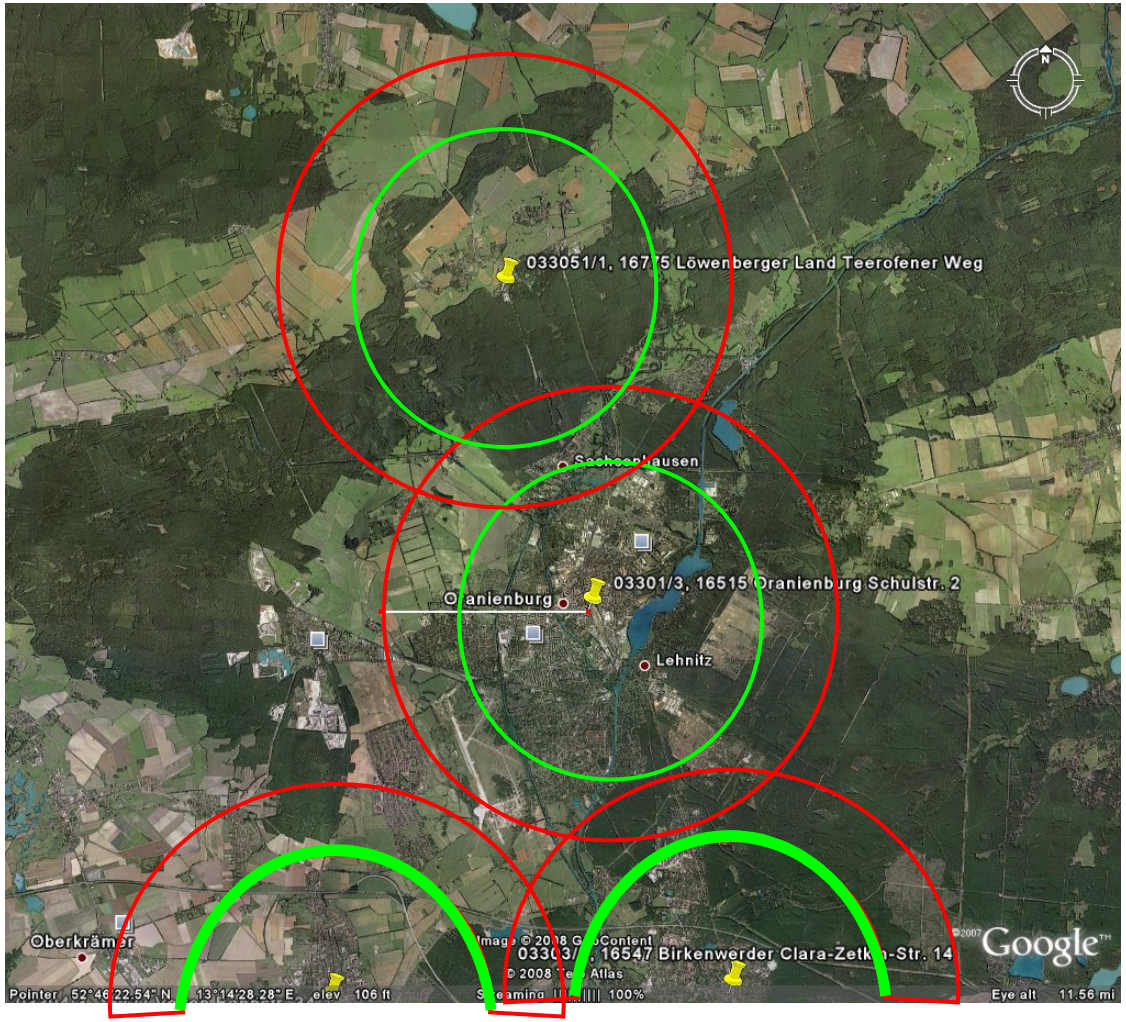
Central Office locations in a major city – r=2.5km



Example Berlin – 10 COs within 2.5km

Yellow Pins are CO locaions

Central Office locations in rural areas – r=4km, r=2,5km



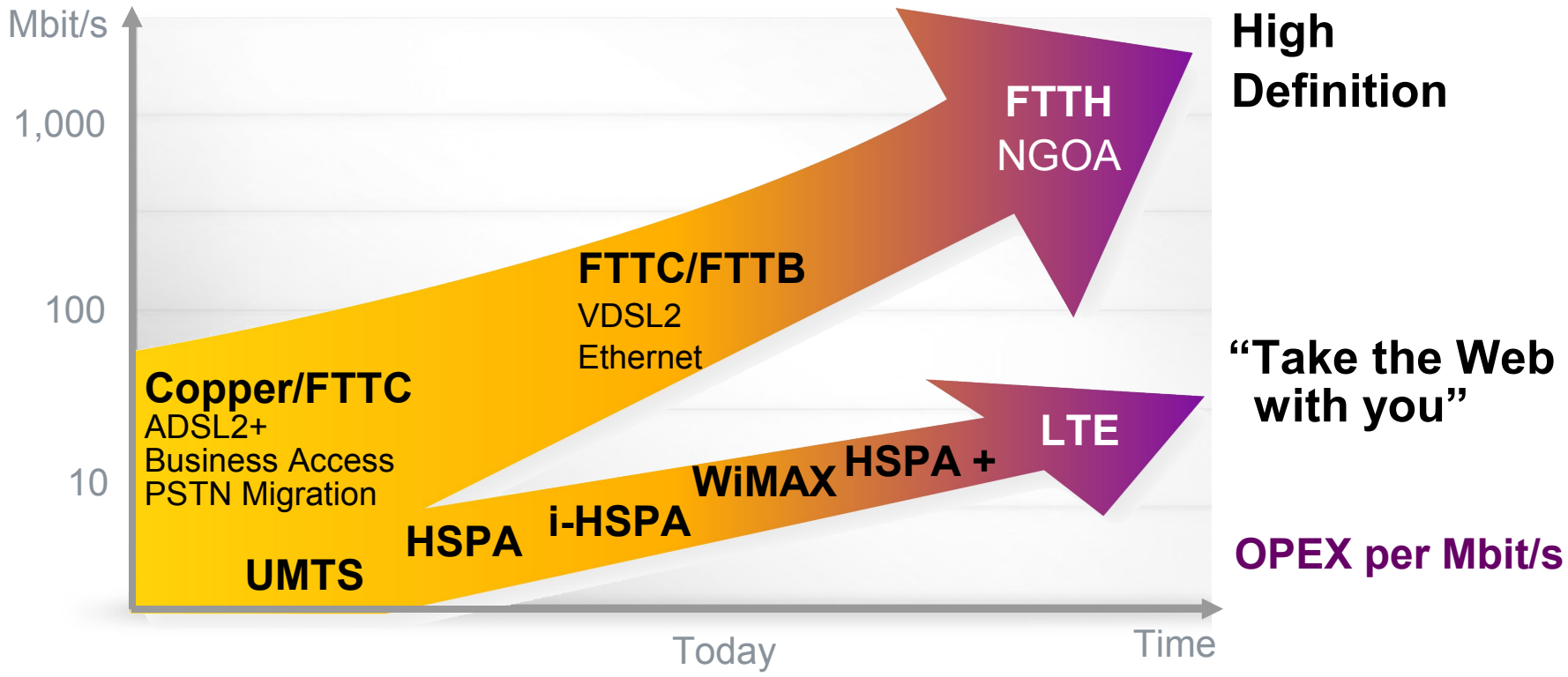
Example Oranienburg

When you know the central office locations

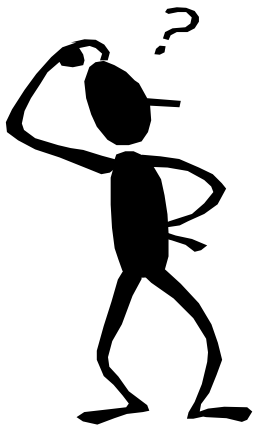
you know where the white spots without broadband access are.

You need to connect each community by a highspeed backbone connection - the actual access can be fixed or mobile

Delivering broadband at lowest cost



How can we achieve a better broadband penetration in rural areas?



- **We need a highspeed backbone connection in the rural community**
- **Utilization of existing infrastructure:** Utilization of existing copper infrastructure via DSL and usage of existing ducts for fiber
- **Utilize synergies** with other infrastructure measures to bring fiber to the area, e.g. renweing of sewage, streets,etc.
- **Stimulus Packages, Public Privat Partnerships and New Business Models** to bring fiber into rural areas
- **Utilization of Mobile Technology** (e.g. Wimax, HSxPA) in areas you cannot reach via DSL or where fiber is not economic

Clear and stable regulatory rules paired with public funding where appropriate will narrow the gap between rural and urban broadband supply- technology is ready

Conclusion

Broadband is the basis of the information society, economic growth and societal inclusion

We need to address the rural areas

You can choose between a variety of technologies and business models to bridge the digital devide

Politicians, Governments, Regions and Industry need to work together to make broadband everywhere a reality

We are committed to rural broadband

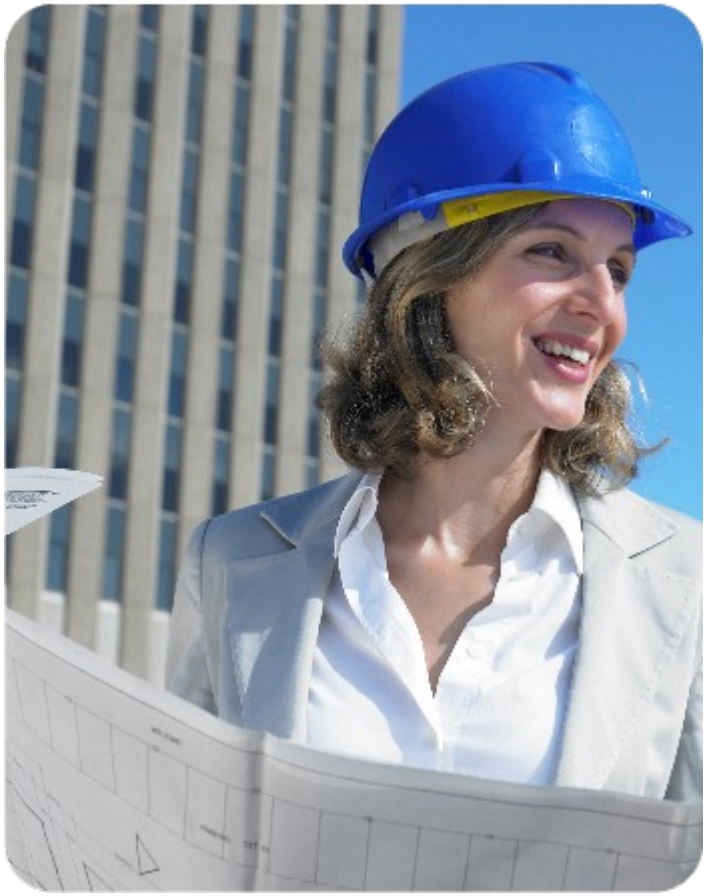
For more information please contact:

NOKIA SIEMENS NETWORKS

Christian Constantin

Tel: +49 151 5515 2803

Mail to: christian.constantin@nsn.com



Thank You

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