



# 100GE FOR TELECOM

BENGT KVIST

CORE & COMMON COMPONENTS HARDWARE

SYSTEMS ENGINEER

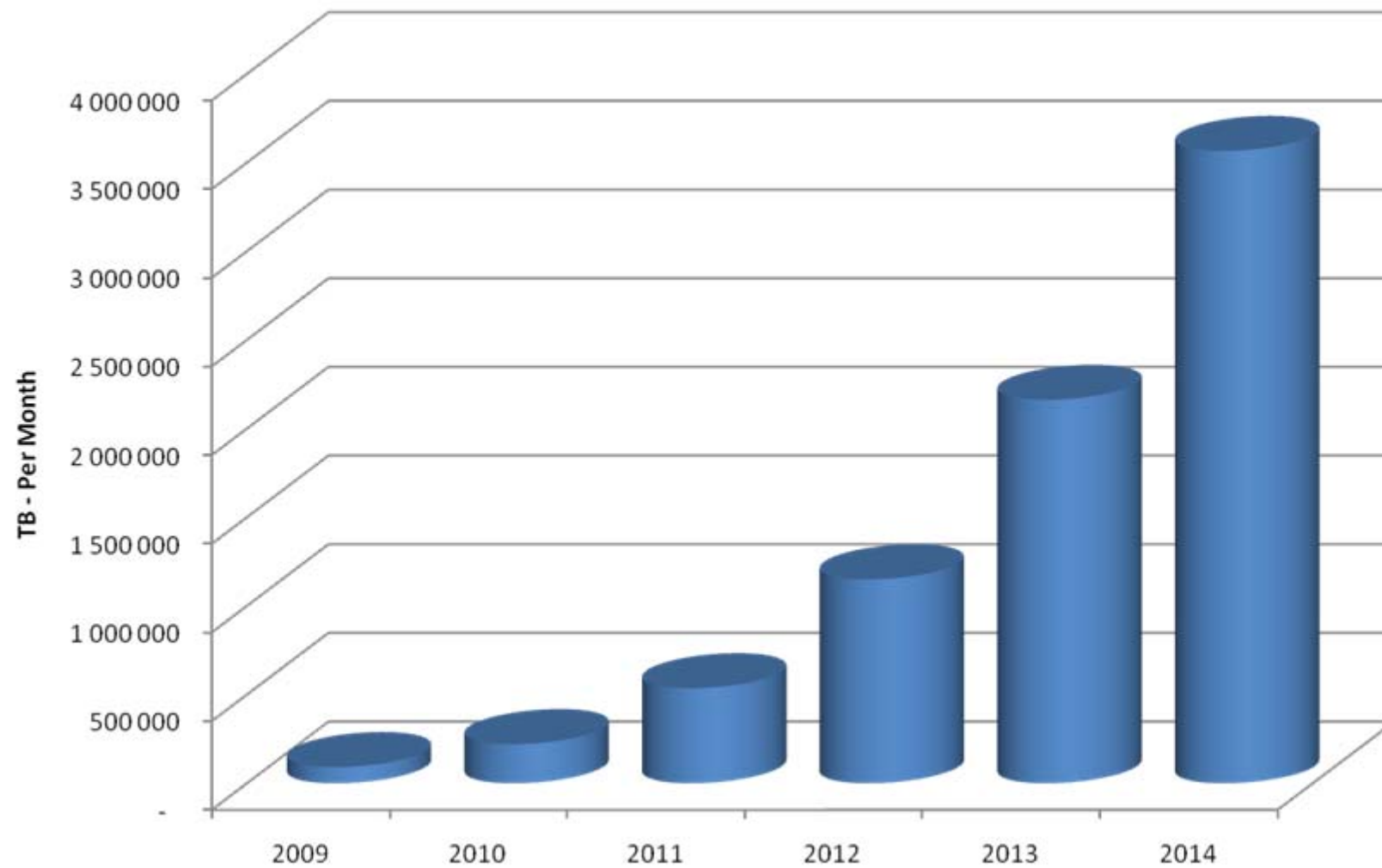
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# AGENDA

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1. Background
2. Need
3. Initial comments

## Mobile Data Traffic: 2009 - 2014



source: Cisco Systems, Cisco VNI Mobile

INFLECTION

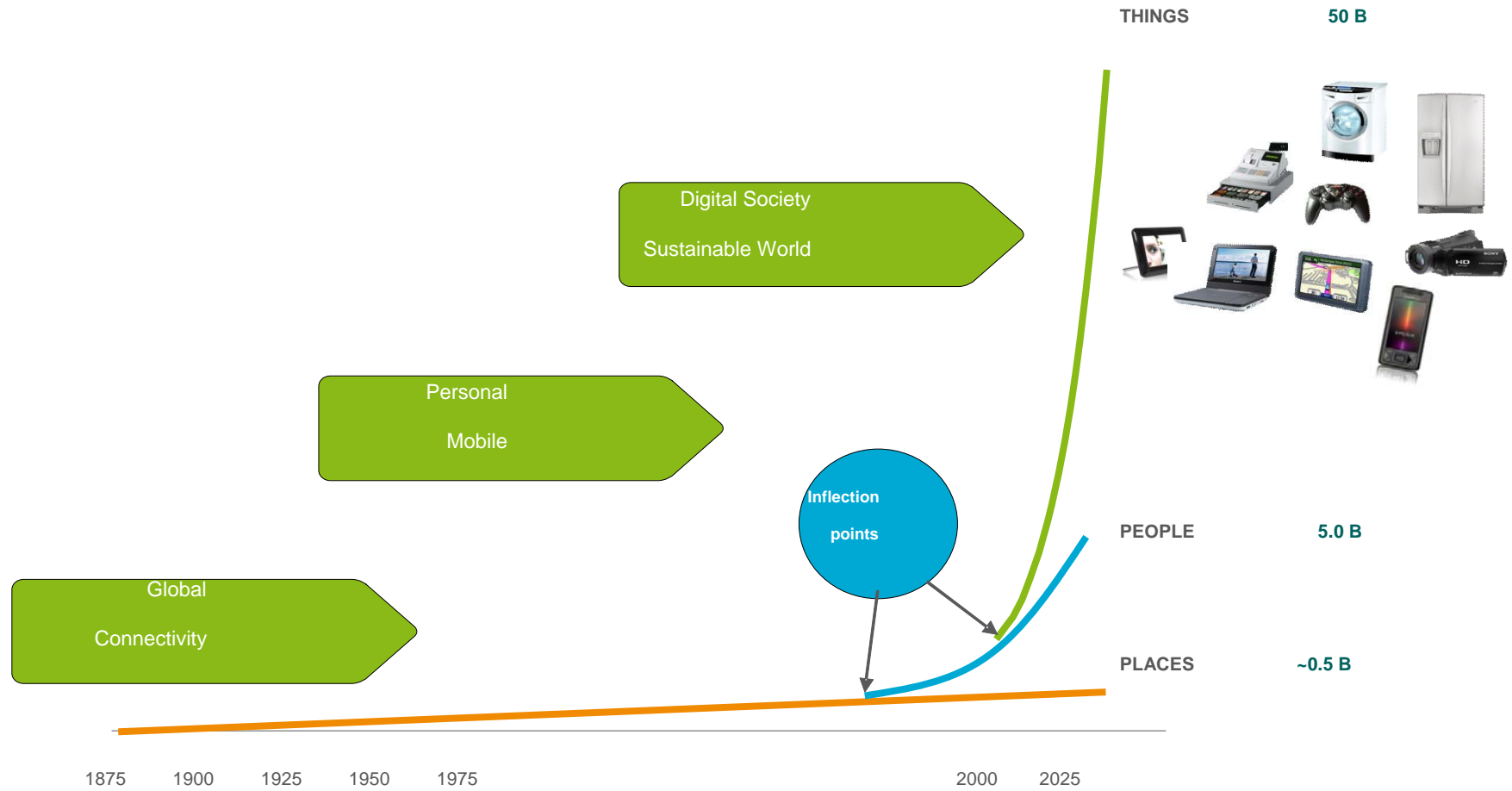
POINTS



DRIVING

OUR

BUSINESS



Source : Ericsson

# RECENT ADDITIONS:

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- › **The Coca-Cola Co. is rolling out its next-generation beverage dispenser named "the Coca-Cola Freestyle",**
  - The Microsoft's software allows Coca-Cola to remotely collect a variety of information from the machines, such as consumption data on which beverages are most popular. The company can also manage the devices from afar.
  
- › **China launches telehealth for 100,000**
  
- › **AT&T has formed a division geared toward health information technology.**
  - The new division, AT&T ForHealth, will focus on the development and delivery of health IT solutions, including telehealth, cloud computing and wireless monitoring devices.
  
- › **GE Appliances & Lighting launches home-energy management business unit.**
  - It launches a number of different products that provide insight into energy usage in multiple areas of the home.
  - Among the products already developed and being sold by GE Appliances are a line of hybrid water heaters.
  - Some studies estimate the number of smart meters will reach 40 million in the United States by 2012.
  - **Smart grid industry players announced the OpenADR (Open Automated Demand Response)**
  - The alliance's main goal is to reduce costs, improve reliability and accelerate the speed of Automated Demand Response (Auto-DR) and smart grid implementations in the US.

# THE BUZZ WORDS

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- › 50 Billion connected devices by 2025
  - One order of magnitude greater than today
- › 1000 times greater bandwidth required by 2025
  - Three orders of magnitude

# NEED

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- › We need 100G connectivity between sub-racks
  - As long as copper cables maintain lower cost than optical connections that will be the what is installed.
  - Connections between sub-racks will need 100G before the backplane connectivity will be used.
  
- › We need 100G connectivity in backplane
  - Today we have backplanes capable of handling 40G over 4 lanes.
  - We will need more in maybe 4 years, but it would be very nice to be able to supply 100G capable backplanes/sub-racks earlier.

# INITIAL COMMENTS

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- › Preference for x4. YES
- › Media reach 7m AWG26. OK  
(Probably used as ~3m with AWG30 to get more manageable cables)
- › Dual-star backplane, switches centered YES
- › Dual-star backplane, switches at edge (?, Nice to have?)



# QUESTION TO MEETING

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- › Still  $10^{-12}$  BER mentioned, that's only 10 seconds of traffic on a single link?
- › To start with tests will be on single links to evaluate connectors, PCB materials etc. Test times will be considerably longer than 10 seconds.
- › System should work fine with  $10^{-15}$  BER.
- › We'll certainly test a fully equipped sub-rack. Say 20 slots each running a link to a switch-slot and each having a cable interface (40 links). I'd expect this to run without faults for at least a week in a lab environment.  
( $40 \times 10^{+11} \times 7 \times 24 \times 60 \times 60 = 2.42 \times 10^{+18}$ )

# NEXT MEETING

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- › Most of the team within Ericsson that worked on our 40G (KR4) backplane design and the component evaluations preceding the design have started to work on 100G.
- › Hope to be able to add some figures based on their experience to a presentation next meeting.

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› Questions: