ON 5G AND IOT PERSPECTIVES OF KTH LIVE-IN LAB
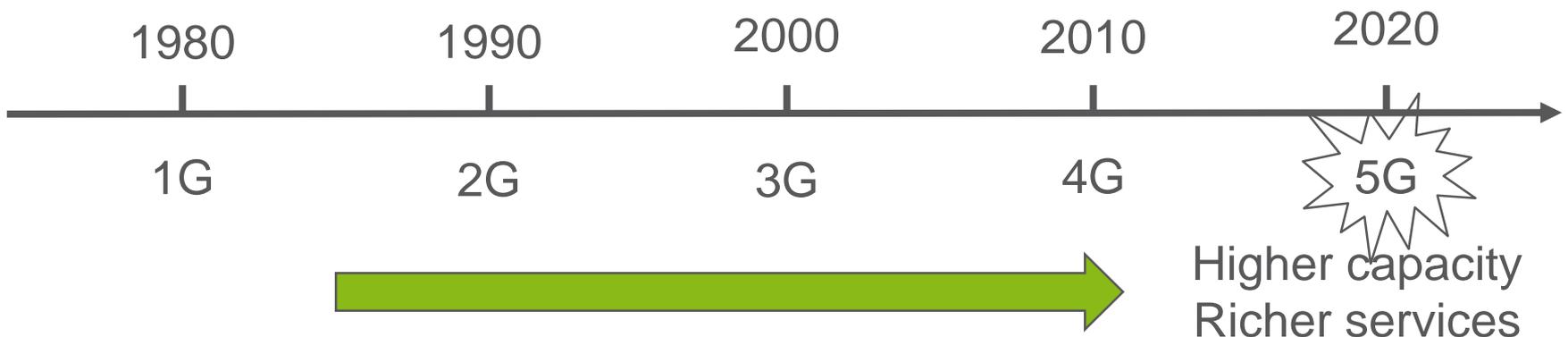
Chenguang Lu and Mikael Anneroth

Ericsson Research, October 6 2017

MOBILE NETWORK TOWARDS 5G IN 2020
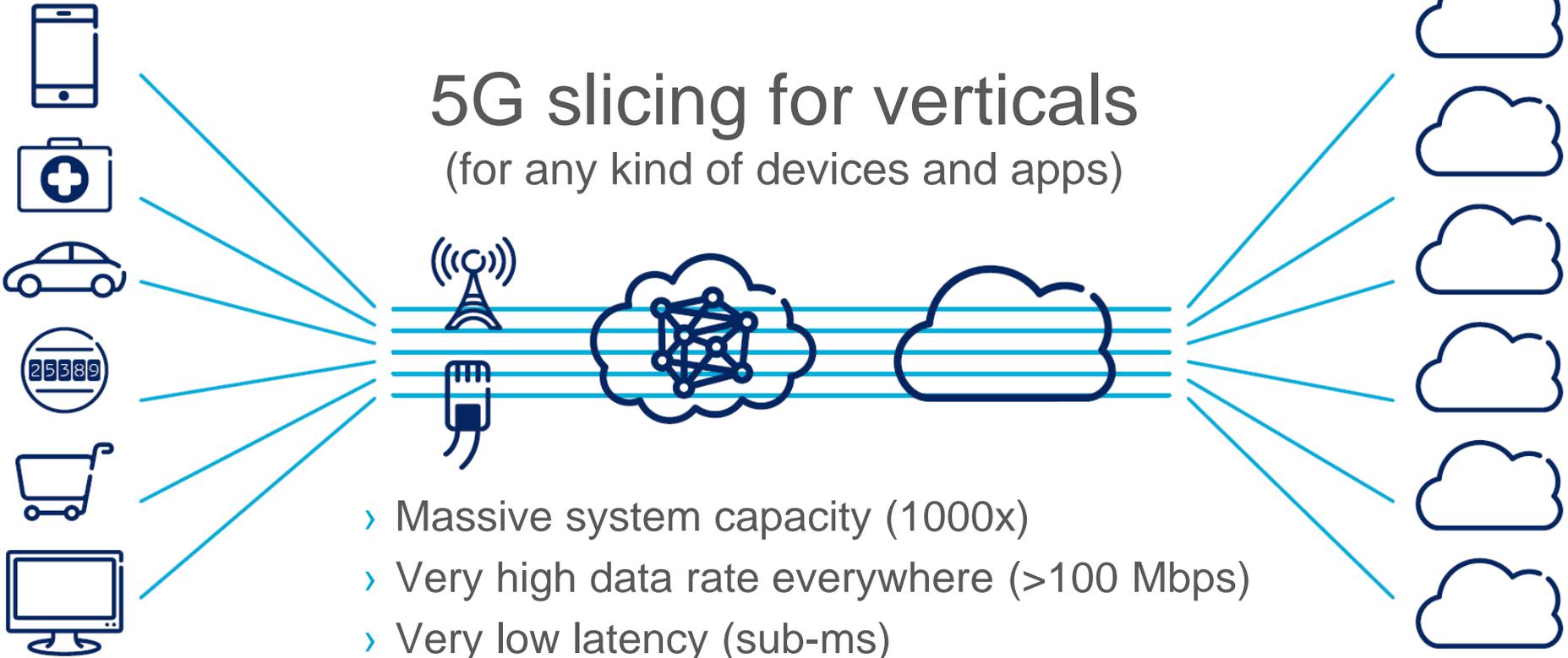
	Key new technology elements	Killer applications
1G	Analog	Voice
2G	Digital	Voice, SMS
3G	Packet switching	First MBB
4G	All IP	Real MBB
5G	Cloud, SDN, NFV	Enhanced MBB, Vertical services

1980	1990	2000	2010	2020
1G	2G	3G	4G	5G

Higher capacity
Richer services

WHAT 5G OFFERS?

5G slicing for verticals
(for any kind of devices and apps)

› Massive system capacity (1000x)

› Very high data rate everywhere (>100 Mbps)

› Very low latency (sub-ms)

› Ultra-high reliability and availability (mission critical)

› Very low device cost and energy consumption (IoT)

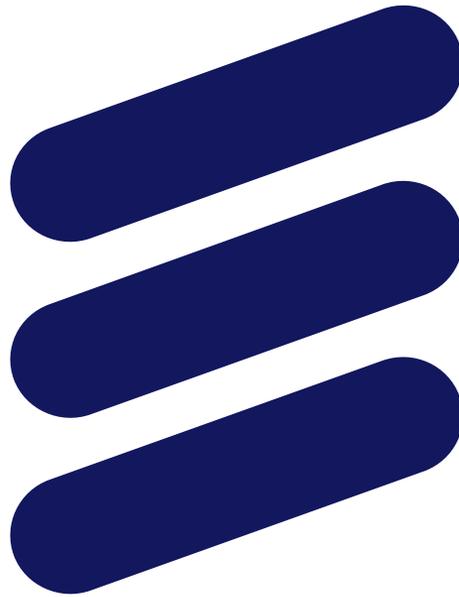› Energy-efficient networks (sustainability)

WHAT IS IOT?

› A digital representation of the real world
  – Make sense of it
  – Manage and optimize it intelligently

› Eco-system
  – Device, Network, Cloud, APP

› Challenges
  – Management of billions of devices
  – Fragmented standards, architectures, applications
  – …

temp	vibration
noise	temperature
air quality	traffic intensity
occupancy	surface condition
energy	noise level
water	route to work
energy	heart rate
water	skin conductance
waste	calories
CO_2 emission	gesture
machine tear	mood
production	position
location	movement
occupancy	irrigation
fuel	luminosity
emissions	nutrition
speed	moisture
	pesticides

ERICSSON IN KTH LIVE-IN LAB

› Working group member
  - Contribute to the initial setup

› Indoor mobile infrastructure
  - Deploy Ericsson Radio Dot System to improve indoor coverage and capacity and later for 5G evolution
  - Support cellular-based IoT devices to facilitate IoT installation

› IoT infrastructure
  - Connectivity solutions for wireless sensor devices and GWs
  - APPIoT cloud platform for data gathering, storage and analytics

› Research interests
  - IoT for smart buildings, especially for energy management
  - Indoor radio system design for 5G