



Road to a Super-Connected World



Why

What

How





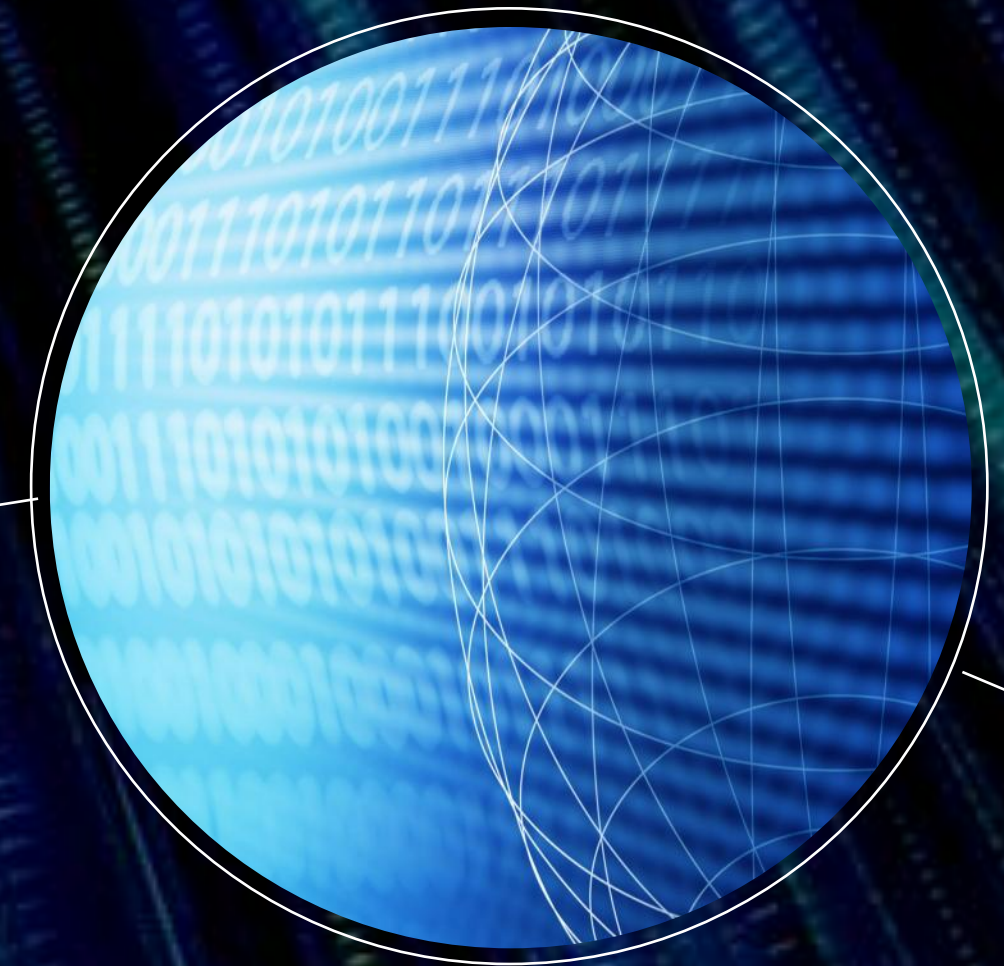
# Why Do We Need 5G ?



Connections



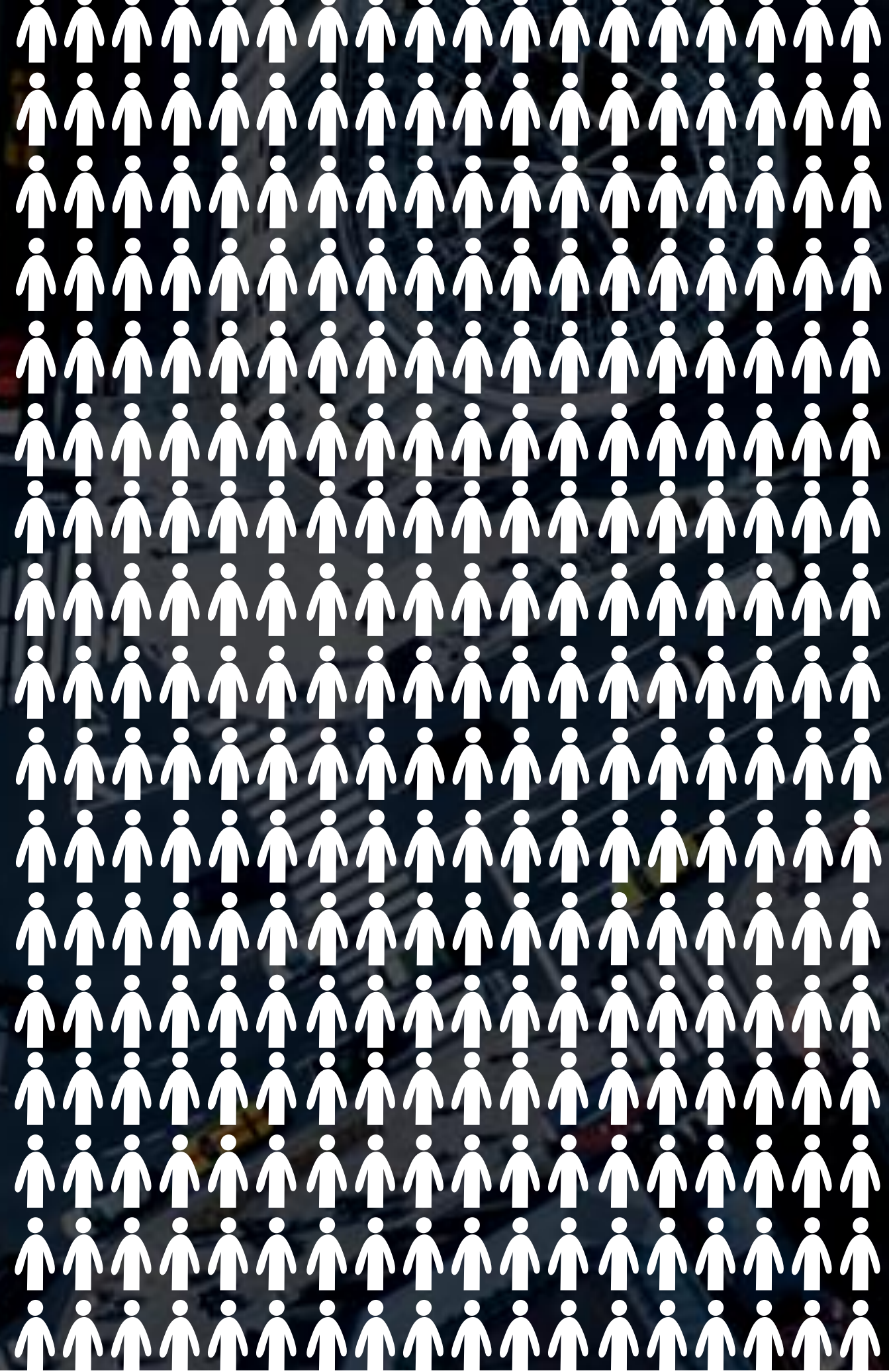
Latency



Speed



# Connections



10X

1000X

**3G** Hundreds  
per cell

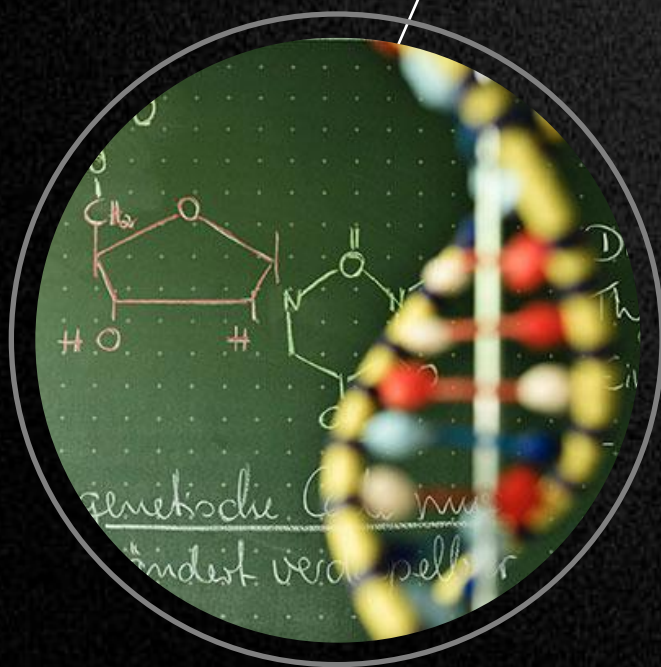
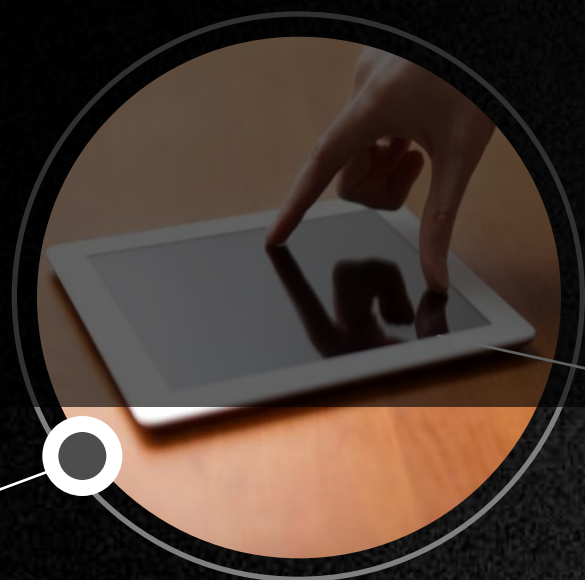
**4G** Thousands  
per cell

**5G** Million  
per KM<sup>2</sup>



# 100B

## Smart Nodes





# Latency

3G 100ms



4G 50ms





4G

1.4 M



5G

2.8 CM



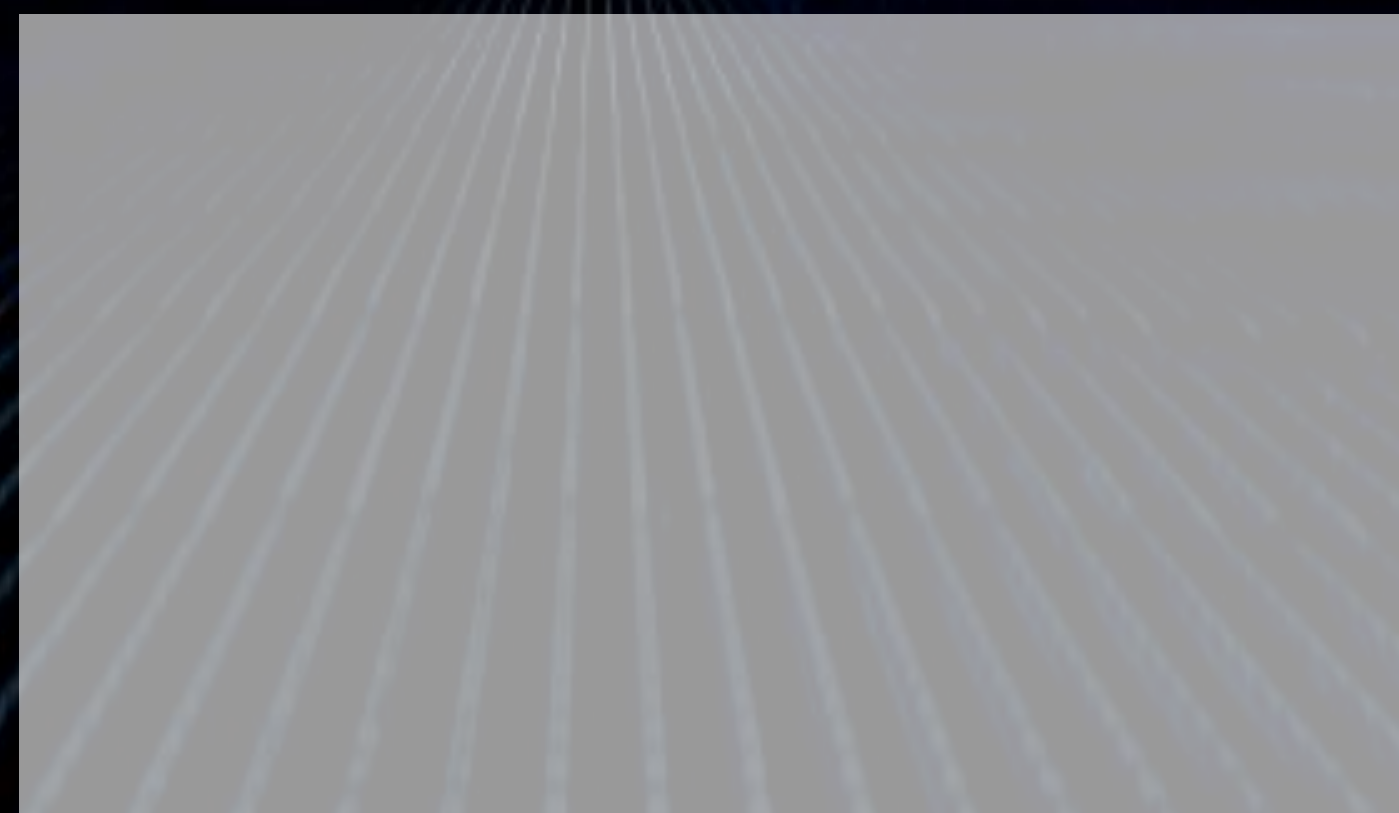


# Latency

3G 100ms



4G 50ms

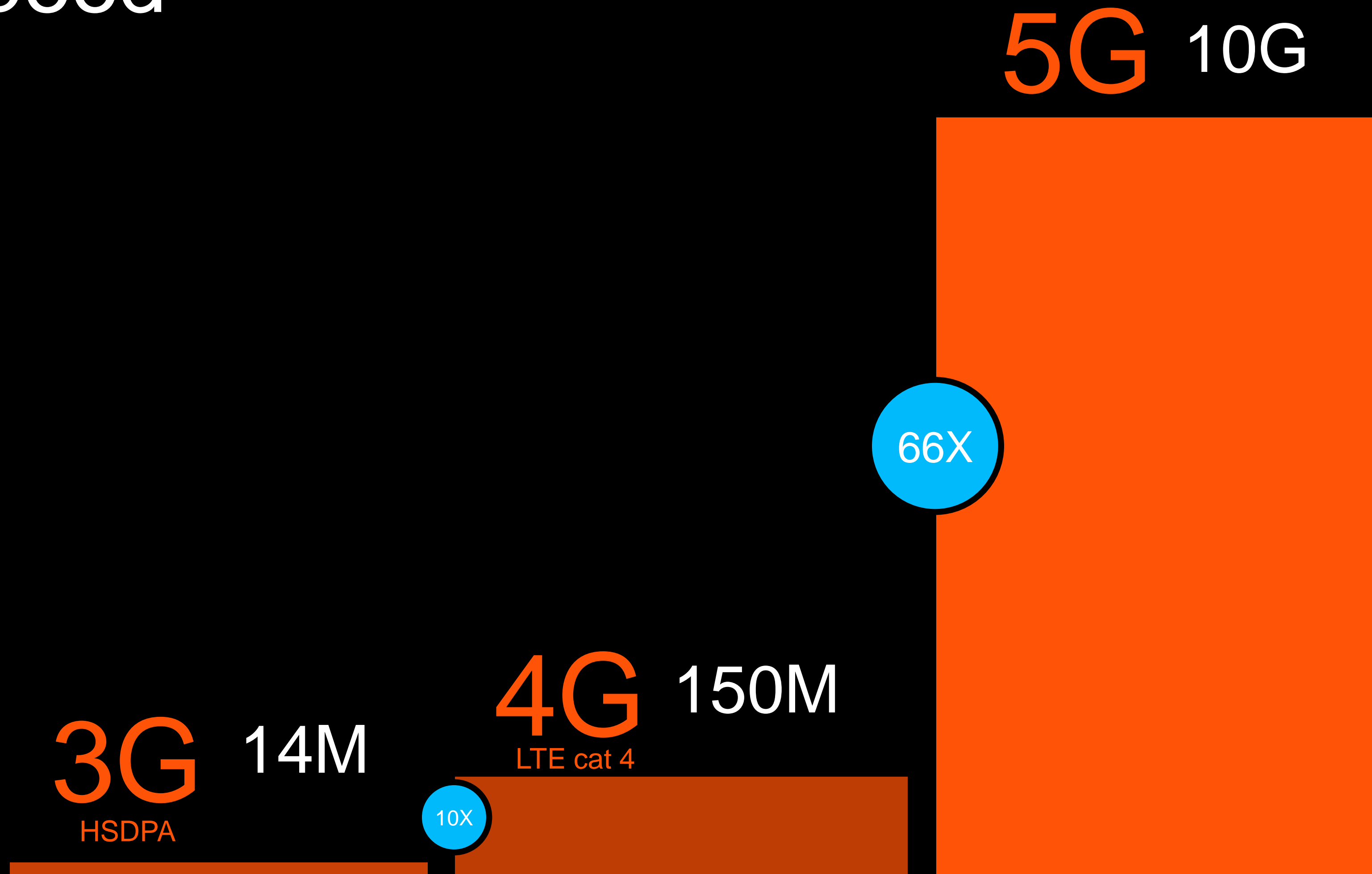


5G 1ms





# Speed





3G

4G

5G

8G HD movie  
download

70 min

7 min

6 sec

E-health

Online health  
records

HD-video  
emergency  
consultation

Interactive  
3D brain  
imaging



# What is 5G?

**100 billion** connections

**1 millisecond** ultra-low latency

**10 Gbit/s** peak speed



# What is 5G?



A **platform** for  
new applications,  
new business models,  
new industries

An **enabler** of disruption



# How can we get to 5G?

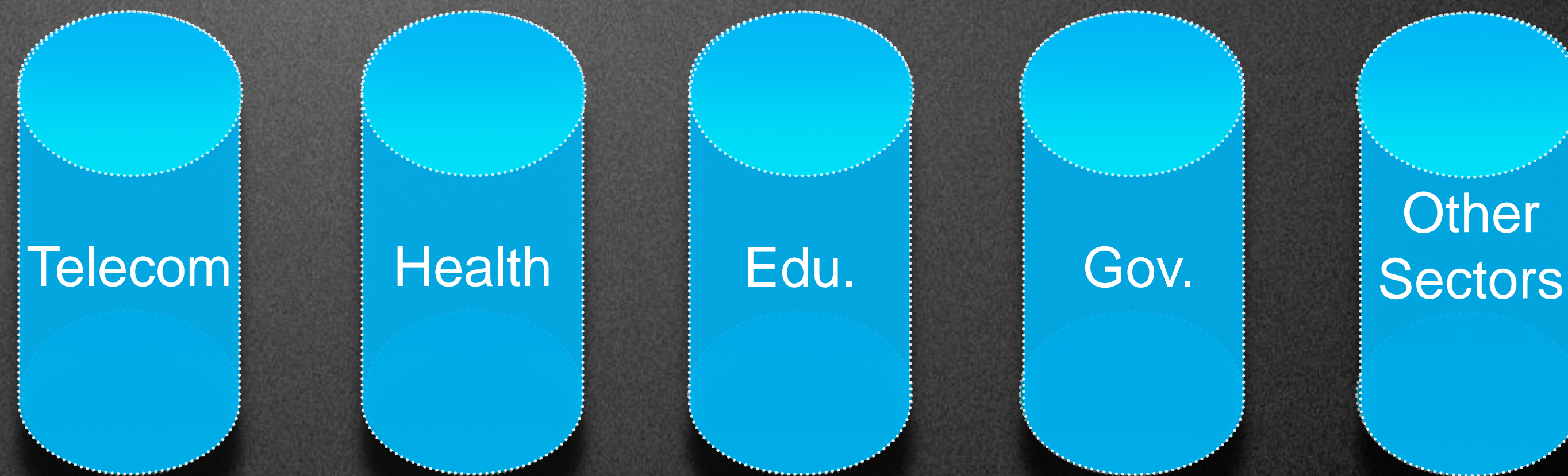
**Open collaboration** across industries

**Heavy investment** in technological innovations

**Evolutionary** commercialization strategy



# Open **collaboration** across industries



Silos in the past



# Internet of Vehicles



WAVE



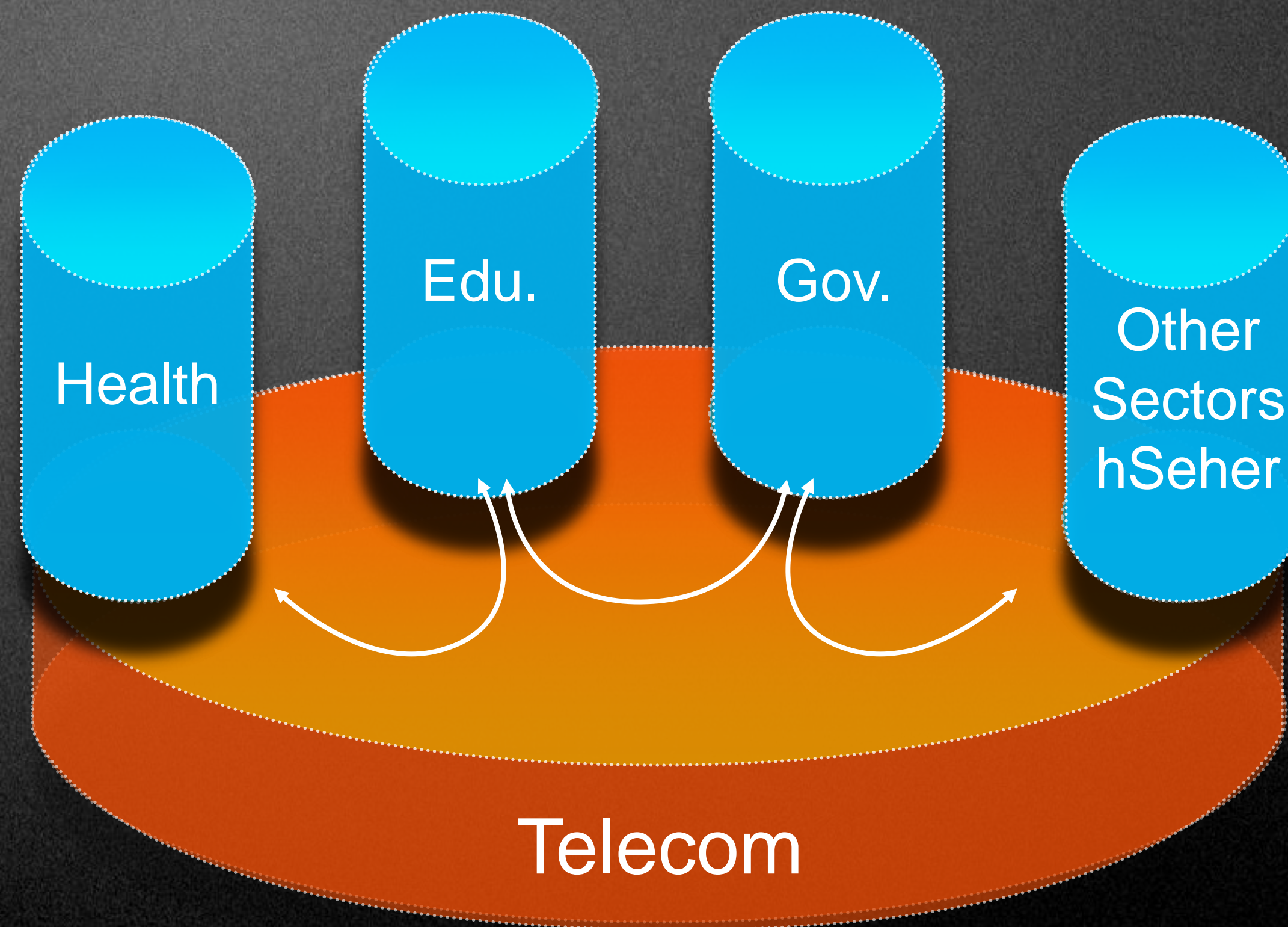
C-ITS



LTE - V



# Open **collaboration** across industries



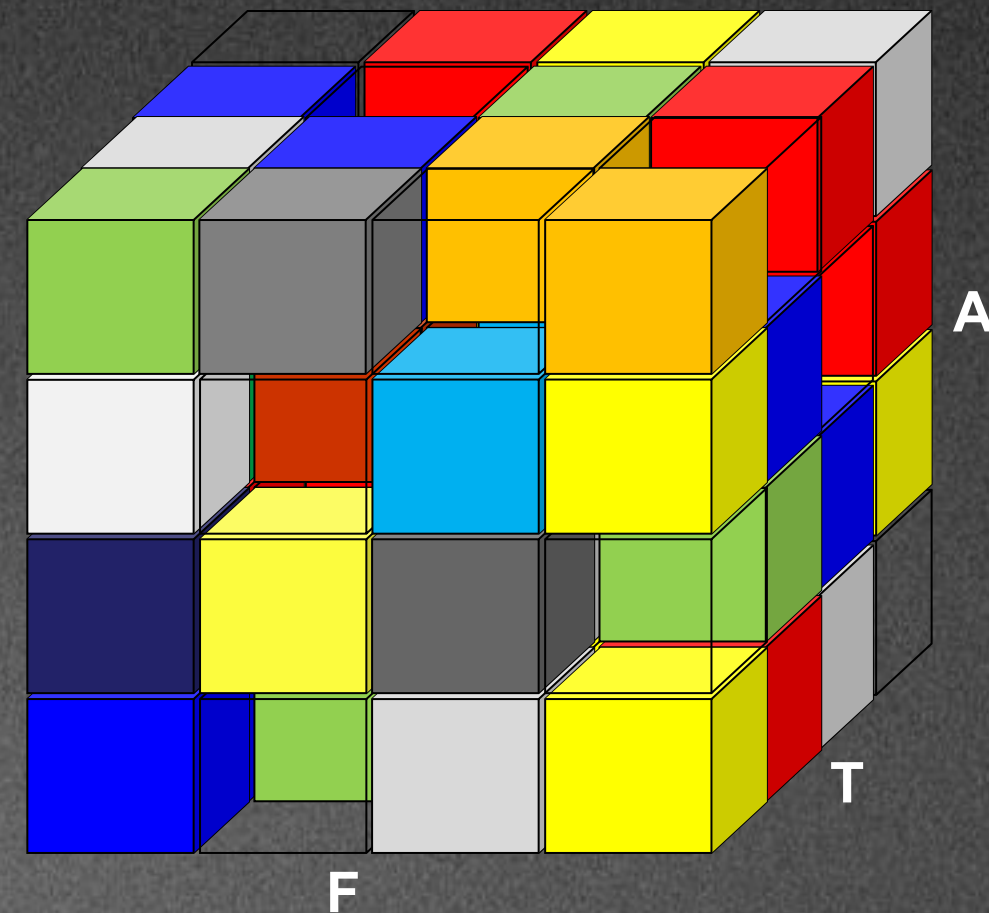


# Intensive technological innovations

## New air interface

SCMA, F-OFDM, polar coding

3X efficiency

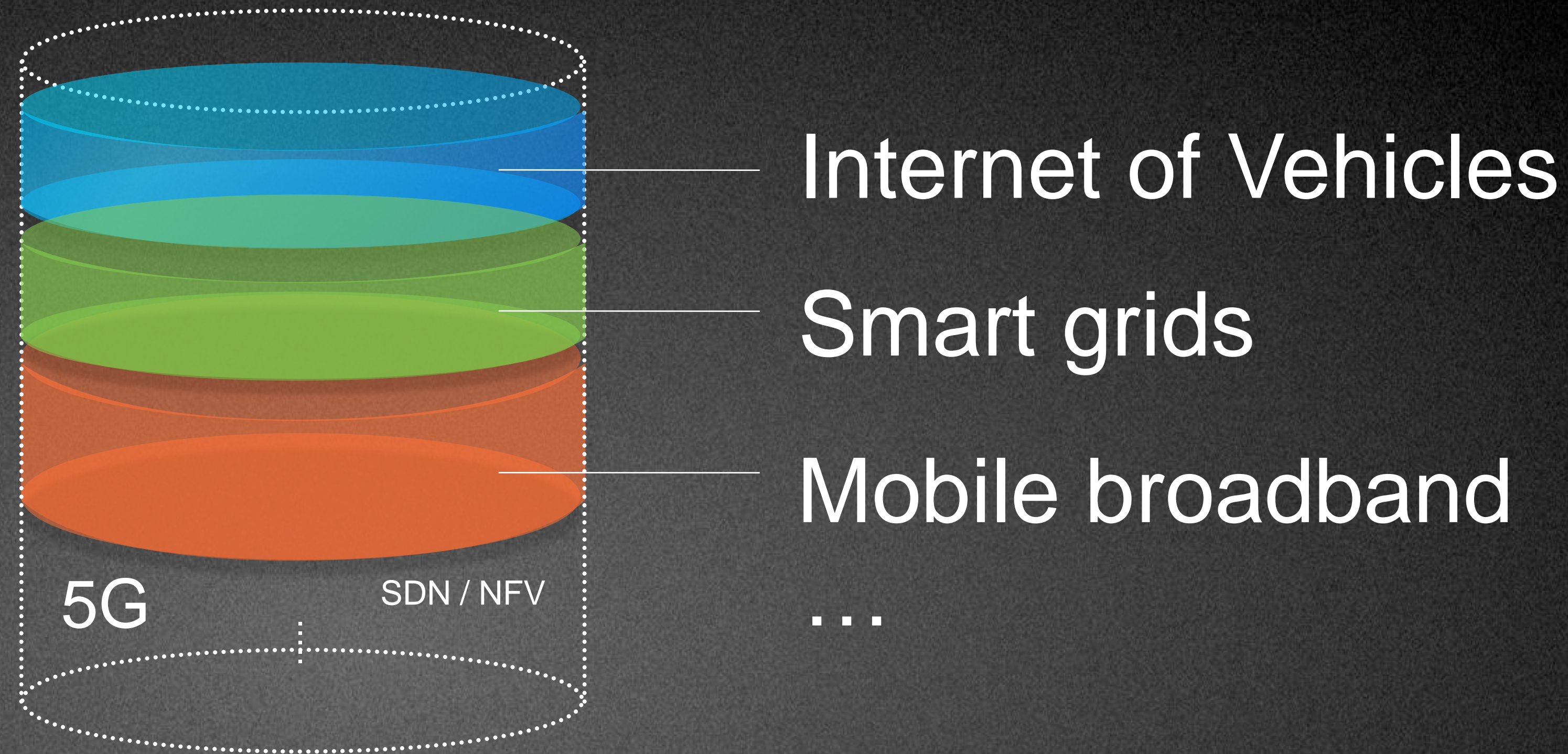


ultra-low latency

more  
connections



## Virtualized architecture



Single **physical** network for different applications



Intensive technological innovations



**All** spectrum access

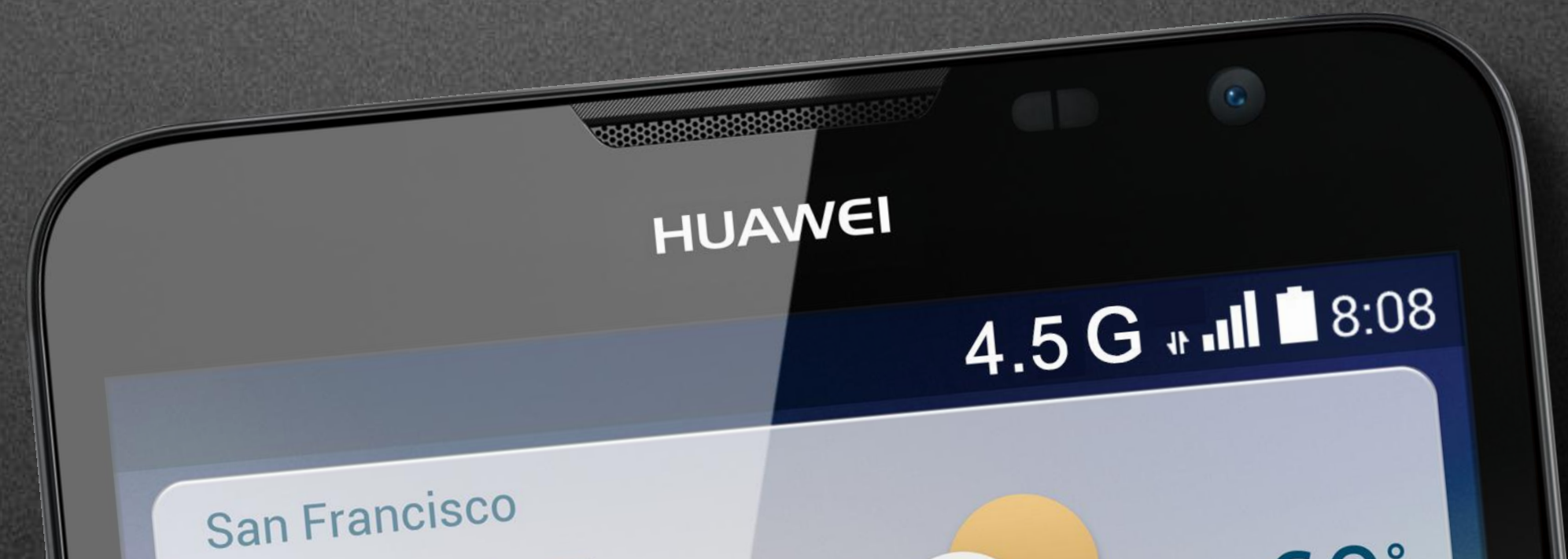


**Single** wireless access network  
with  
**Unified** access technologies



# Evolutionary commercialization strategies

- 4.5G Leverage 5G innovations
  - LTE-M 100X connections
- Maximize ROI of 4G
- Stimulate demand for 5G
- Extend market leadership from 4G to 5G







“The world only needs five computers”



“We are just at the beginning of the beginning”

Kevin Kelly

