



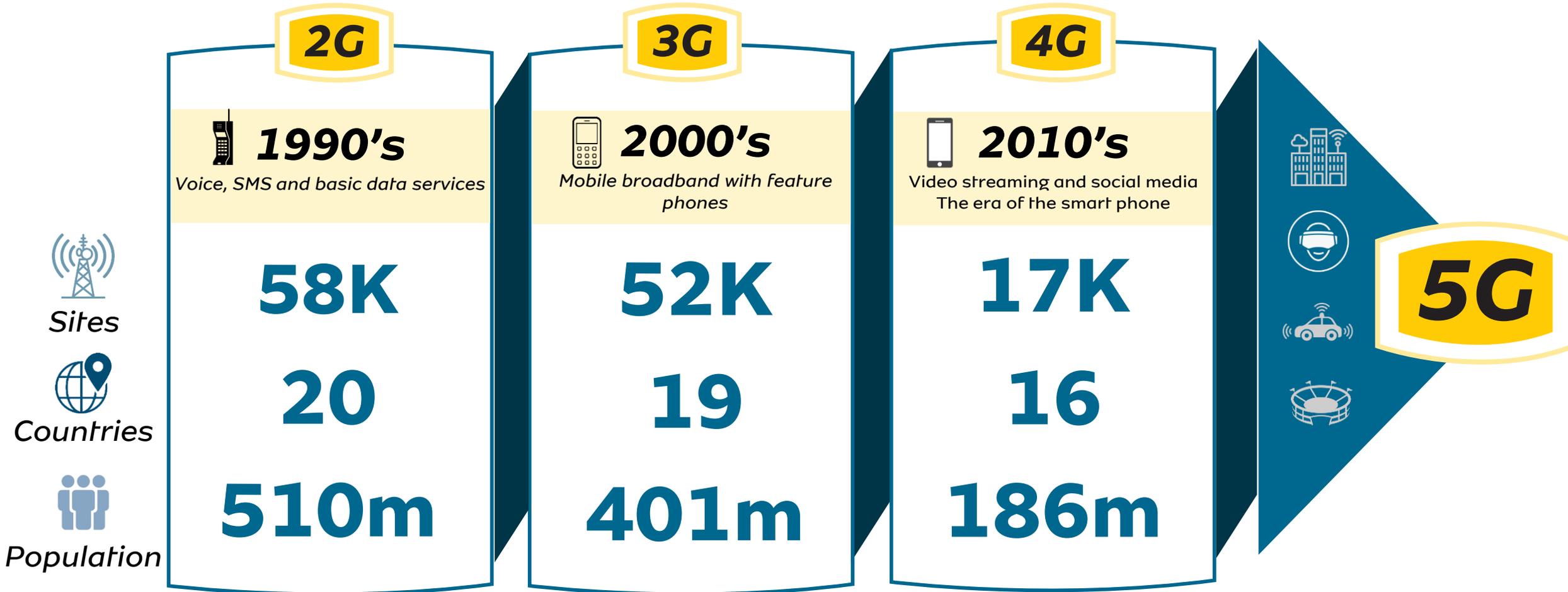
# The Impact of 5G on South Africa's Telco Landscape

Giovanni Chiarelli

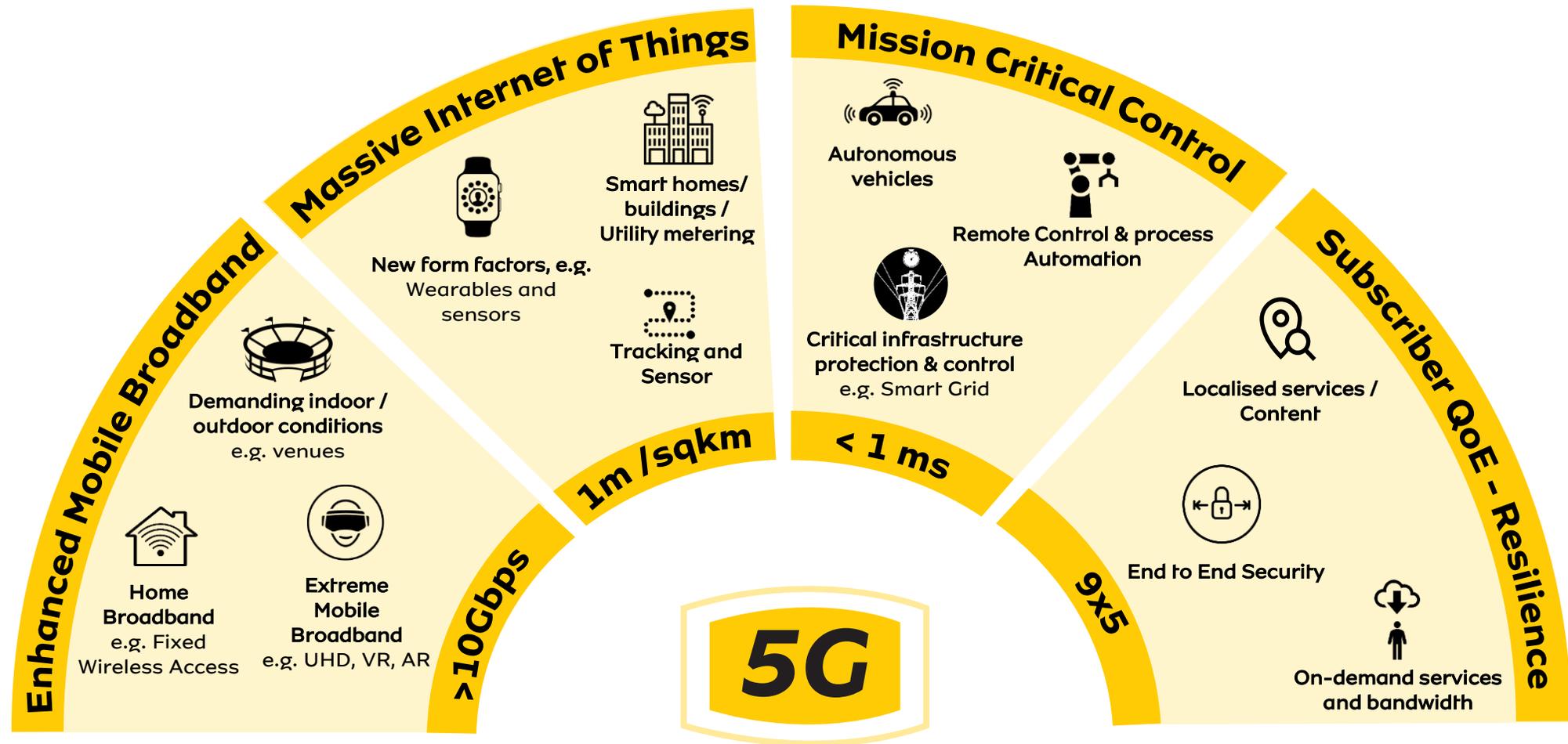
IEEE 5G Summit Pretoria  
6 May 2019



# In line with our belief of getting everyone connected, MTN has been at the forefront of driving mobile evolution within Africa towards 5G



# 5G will enrich and enhance the productivity (work and lives) by enabling a digital ecosystem



# MTN has been at the forefront of driving 5G innovation in Africa

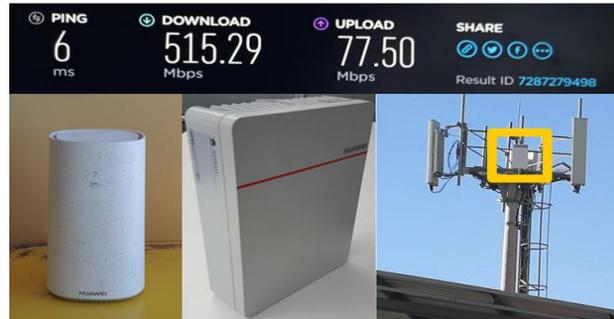


## 1st 5G TRIAL IN AFRICA - JAN 2018



<b>Throughput</b>	10-14 Gbps
<b>Latency</b>	3-5 ms
<b>Spectrum</b>	15 GHz (Trial Lic.)
<b>Bandwidth</b>	800 MHz

## 1st OUTDOOR 5G TRIAL IN AFRICA - MAY 2018



<b>Throughput</b>	515 Mbps
<b>Latency</b>	5-6 ms
<b>Spectrum</b>	28 GHz
<b>Bandwidth</b>	100 MHz

## 1st 5G TRIAL IN MOBILITY IN AFRICA - JUNE 2018



<b>Throughput</b>	1.6 Gbps
<b>Latency</b>	5-15 ms
<b>Spectrum</b>	28 GHz
<b>Bandwidth</b>	100 MHz

## 1st MTN 5G LIVE CUSTOMER - NOV 2018



<b>Throughput</b>	1.6 Gbps
<b>Latency</b>	5-15 ms
<b>Spectrum</b>	28 GHz
<b>Bandwidth</b>	110 MHz

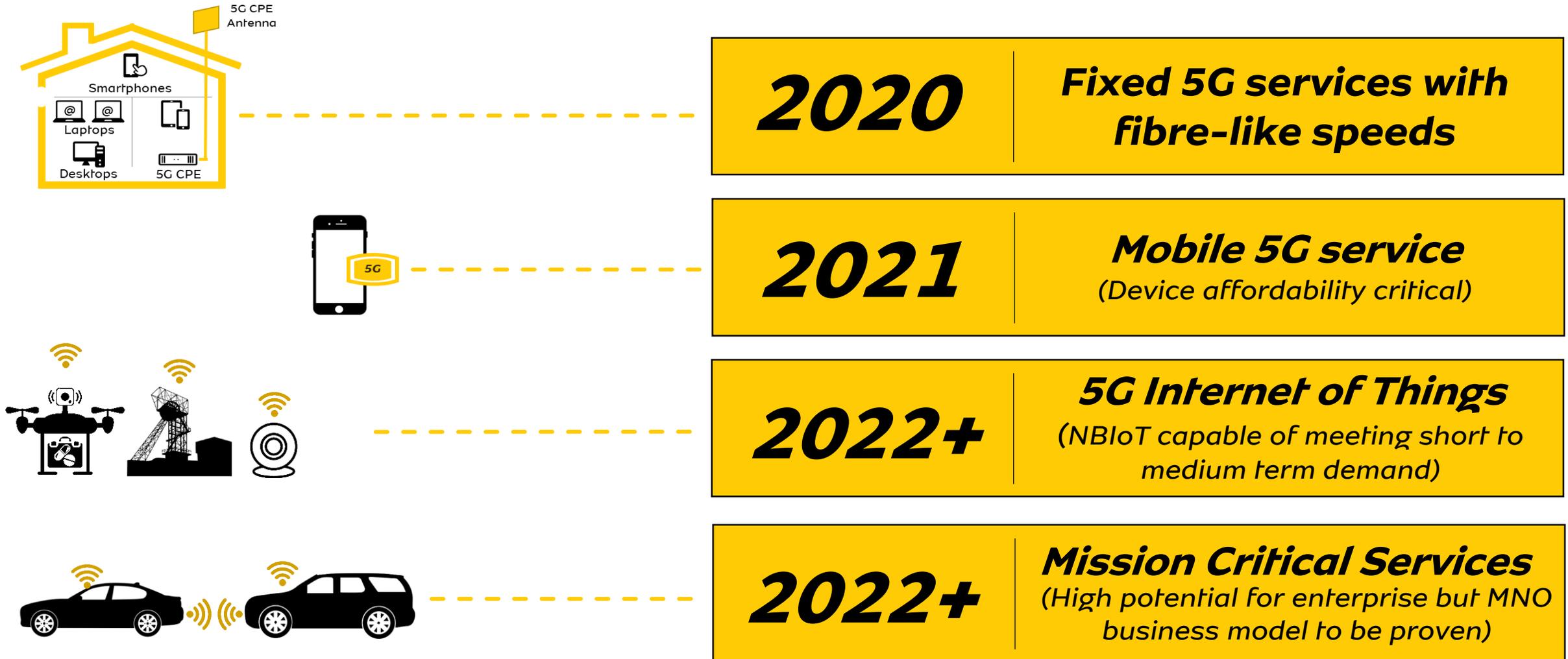
## 2nd MTN 5G LIVE CUSTOMER - MAR 2019



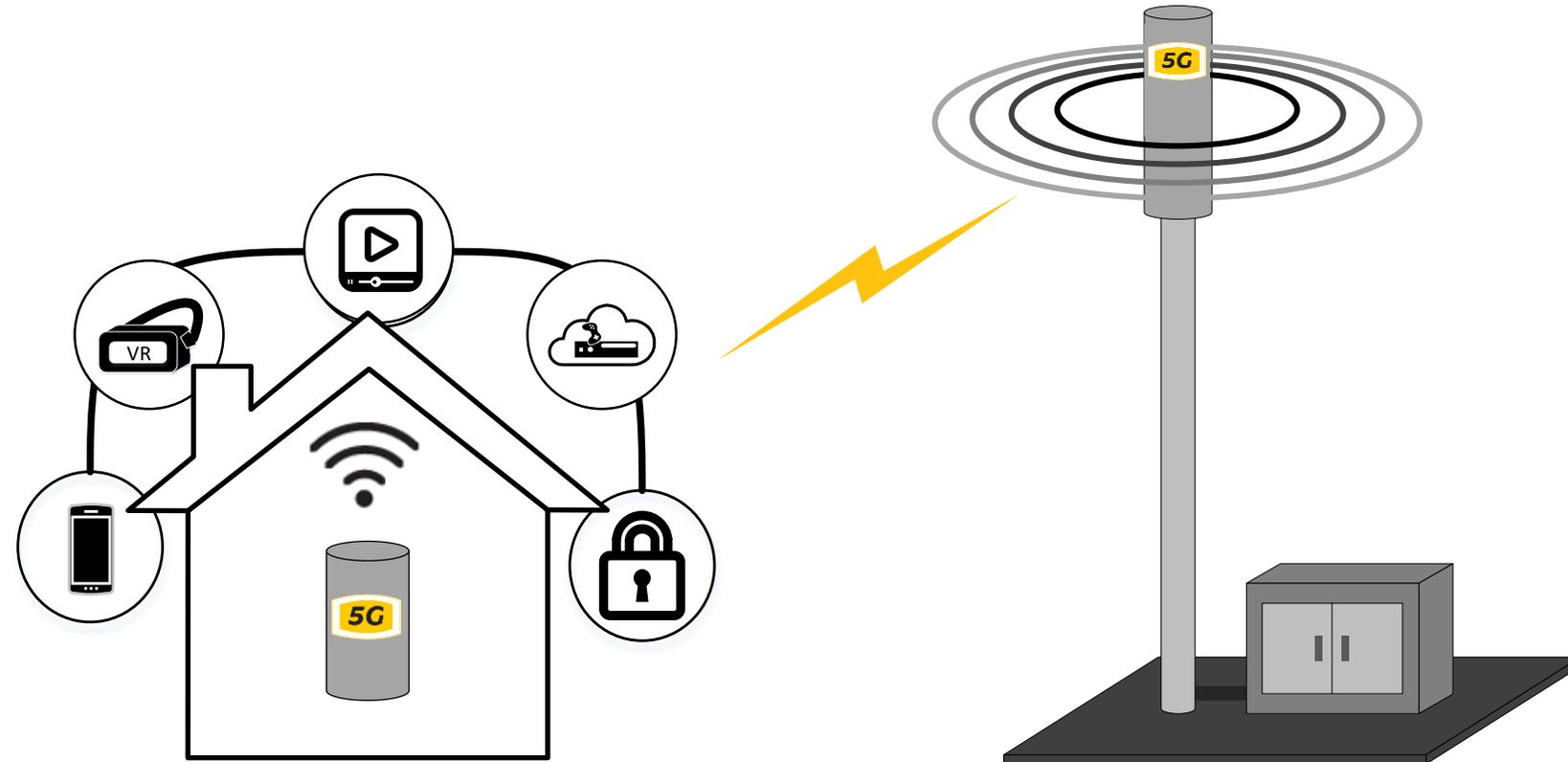
<b>Throughput</b>	630 Mbps
<b>Latency</b>	5-10 ms
<b>Spectrum</b>	28 GHz
<b>Bandwidth</b>	100 MHz

**MTN's 5G Trials – 1<sup>st</sup> in SA and on the Continent**

# Given the peculiarities of Africa, initial launch of FWA use case has the potential for immediate monetisation impact

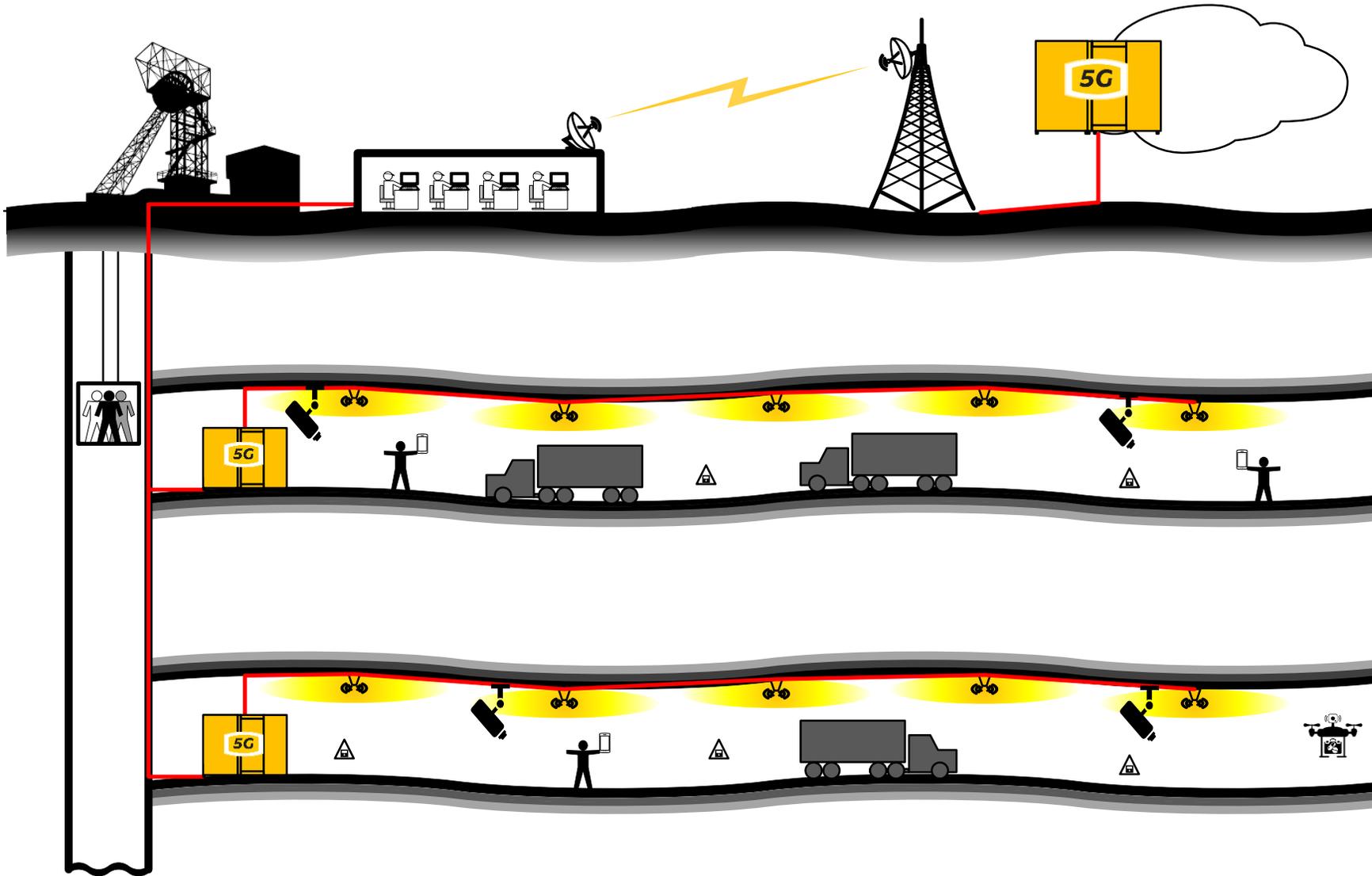


# 5G Use Case Examples – 5G Fixed Wireless Access (FWA)



- 5G FWA Services are an alternative to FTTH/B services
- Future applications demanding high throughputs and low latency:
  - Video & Music Streaming
  - Security & Video Surveillance Systems
  - Smart Home & Digital Assistants
  - Virtual, Augmented & Mixed Reality
  - Cloud Gaming

# 5G Use Case Examples – Private Mobile Networks



- Private Mobile Networks for specific industries
- Enabling Massive IoT and Mission-Critical Services in industrial environments
- Example Mining Applications include:
  - Basic voice & data communications for staff
  - IoT sensors to monitor and track conditions & assets
  - Tele-operated & autonomous vehicles

# Key enablers to commercially launch 5G services and applications



## SPECTRUM READINESS



**mm Wave (>24GHz)**  
5G fixed-wireless access services

**Mid band (1-6GHz)**  
5G mobile capacity

**Low band (<1GHz)**  
5G mobile coverage and IOT services

## DEVICE ECOSYSTEM



**2019: 5G FWA Routers**

**2020: 5G Mobile Handsets**

**2021+: 5G IoT Chipsets & Devices**

## ACCESS EVOLUTION



**Deployment of 5G New Radio equipment**

**Massive MIMO deployments**

**Fiberisation of Network**

## Telco Cloudification

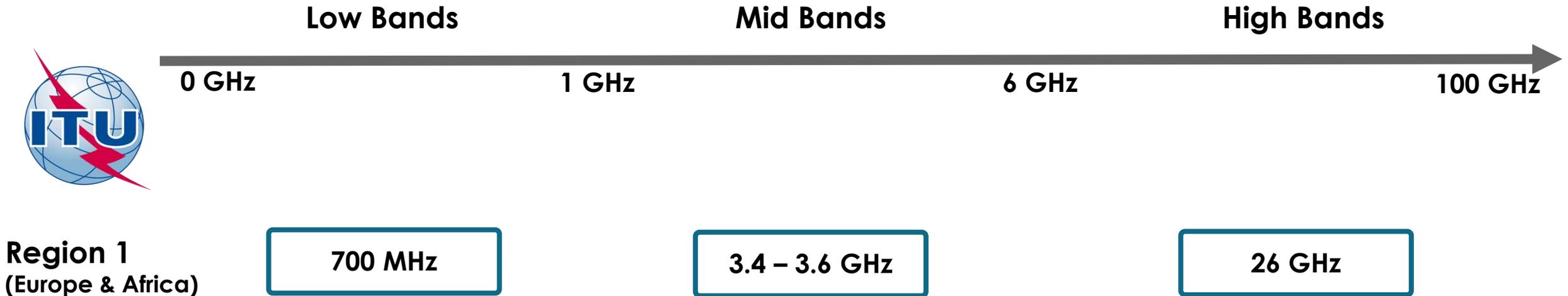


**Evolved Virtualised EPC**

**Orchestration enabling automation**

**Virtual functions closer to the edge**

# 5G Spectrum Readiness



## South Africa 5G Spectrum Synopsis

- Dependent on Analog to Digital Migration
- Delayed to circa 2021
- High Demand Spectrum
- 2 operators with licensed spectrum in this band
- Further allocation will likely form part of a spectrum auction
- Re-farm existing MW spectrum to make min 100MHz channel size available
- Limited deployment in selected areas where spectrum can be re-farmed (very limited range)

**Significant work still to be done**

# MTN Access Network Evolution



**Modernize Radio and Transmission network through a “like-for-better” approach:**

-  Implemented across entire national footprint
-  Standardised and simplified configurations
-  Support for new spectrum bands
-  Enablement of wholesale agreements
-  Future-proof Hardware and Software, i.e. 5G ready

**The next level for the #1 network in SA**



## Evolve the Core and Transport Networks using Network function virtualisation (NFV) and Software defined networking (SDN) to:

- Cloud ready / cloud native SDN and VNFs
- Based on Industry Standards
- Common NFVI carrier grade hosting multiple VNFs
- Distributed architecture – reduce latency benefit
- Automation of network resource control, orchestration, business processes
- Multi-vendor support and Open API
- Best practise security implementation – maintain critical system integrity

# Key deployment barriers to deploying 5G in Africa & levers to address them

