

October 23, 2018

@cristianoamon

Hong Kong

Qualcomm

Building the 5G future

Cristiano Amon

President, Qualcomm Incorporated





Leading mobile innovation for over 30 years

Transforming how the world connects, computes and communicates



Digitized mobile communications

Analog to digital



Redefined computing

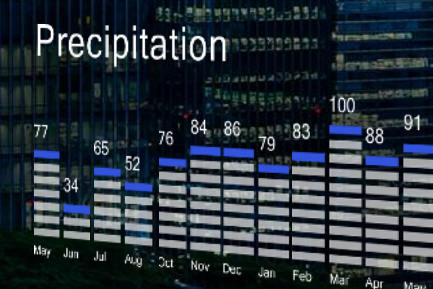
Desktop to smartphones



Transforming industries

Connecting virtually everything

5G will power a new cycle of innovation



Mobile ecosystem
building towards this
moment for years

5G

2G-3G-4G

Multiple technology
generations

560+

Contributing
companies

2,000+

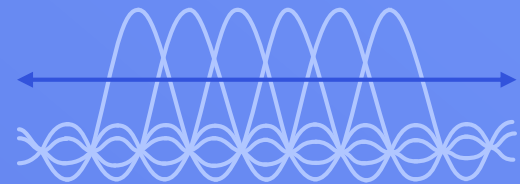
Man years in cumulative
standards meeting time*

100,000+

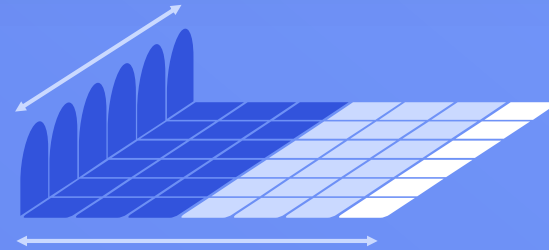
Technical contributions

* Source: 3GPP Mobile Competence Centre (3GPP Support Team) Summary Report from RAN#79 (RP-180616)

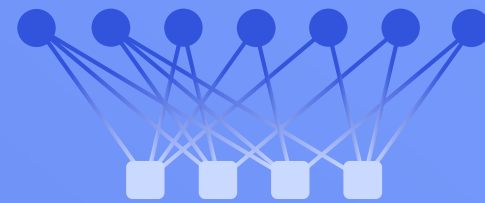
Key foundational inventions at the core of 5G



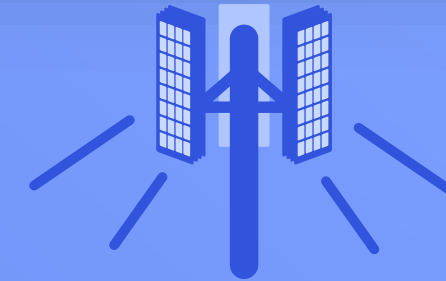
Scalable OFDM-based
air interface



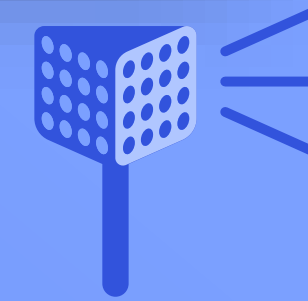
Flexible slot-based
framework



Advanced
channel coding



Massive
MIMO



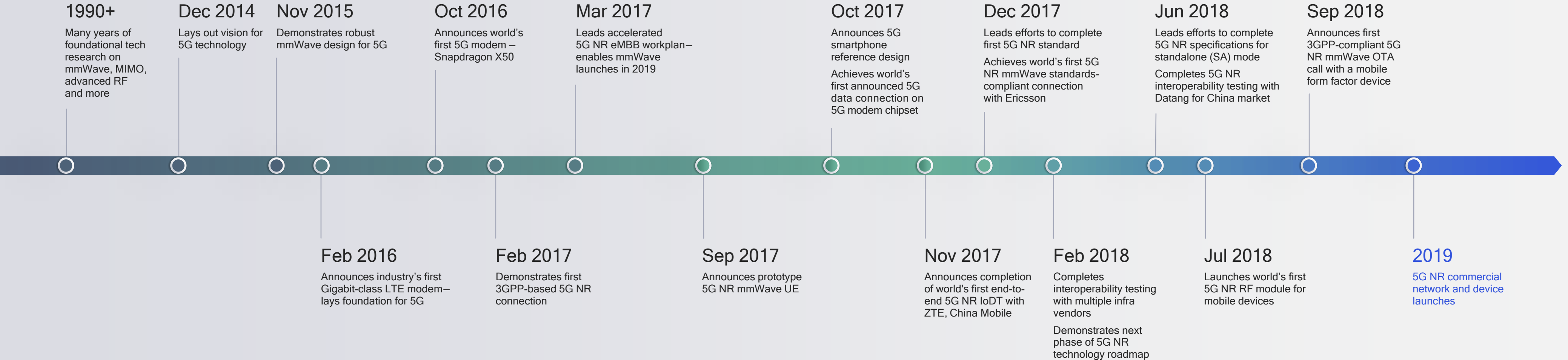
Mobile
mmWave

Enabling
ecosystems

Transforming
industries

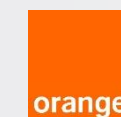
Enriching
lives

Many world-first milestones to commercialize 5G NR



Collaborating on 5G NR interoperability testing, trials

Driving towards launch readiness in 2019





5G will be a
commercial
reality in 2019

*Assuming 100 MHz of sub6 TDD, 800MHz of mmW bandwidth and 70/30 DL/UL ratio



Qualcomm

ERICSSON 

First successful 5G NR sub-6 GHz OTA call

with smartphone form factor device

Demonstration solidifies path to commercial 5G NR networks and devices in first half of 2019

Qualcomm Snapdragon is a product of Qualcomm Technologies, Inc. and/or its subsidiaries.
Qualcomm Technologies' mobile test device with integrated Qualcomm® Snapdragon™ X50 5G modem and RF subsystem.





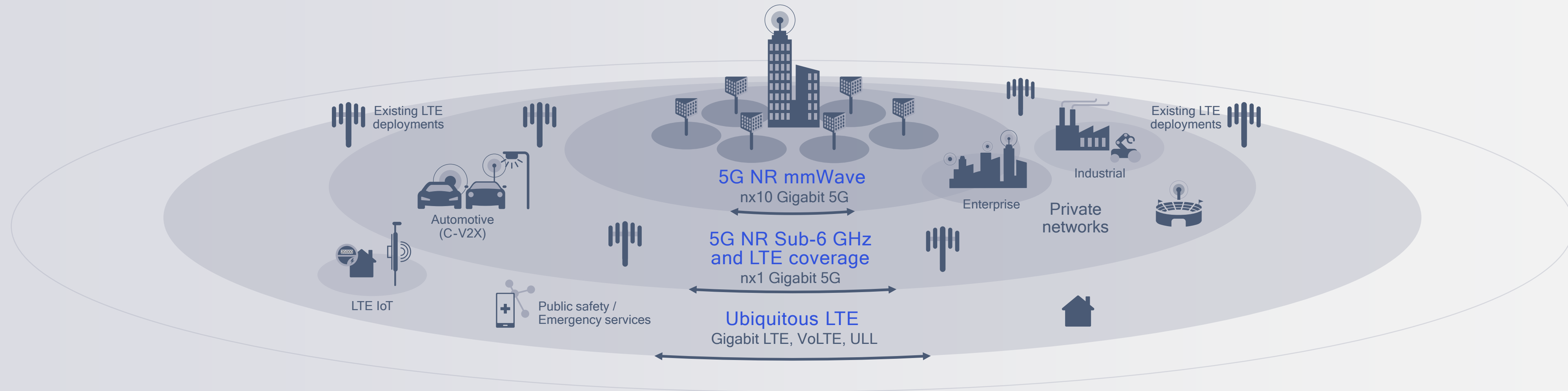
ERICSSON

Ericsson

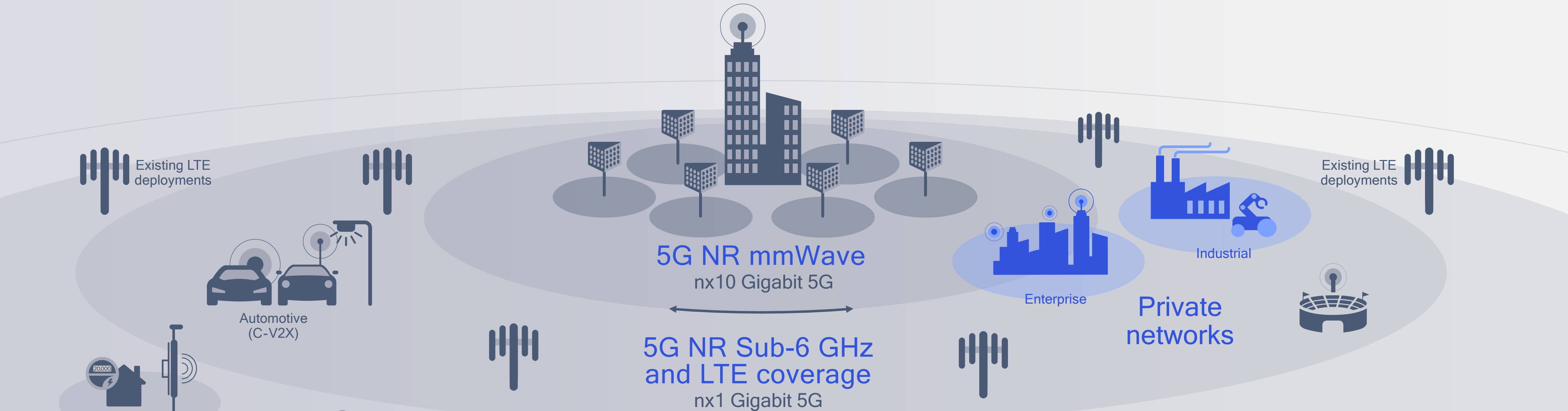
Thomas Noren

Vice President, Head of 5G Commercialization

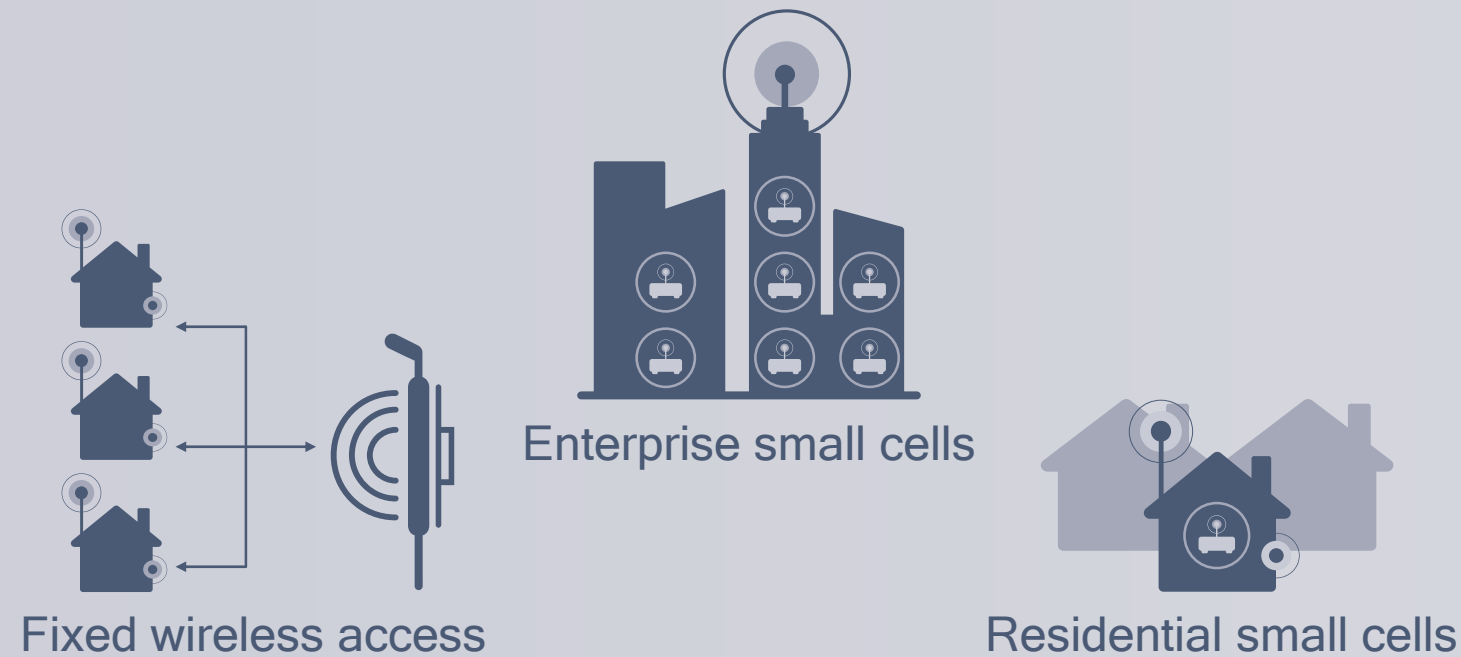
Greater deployment diversity with 5G



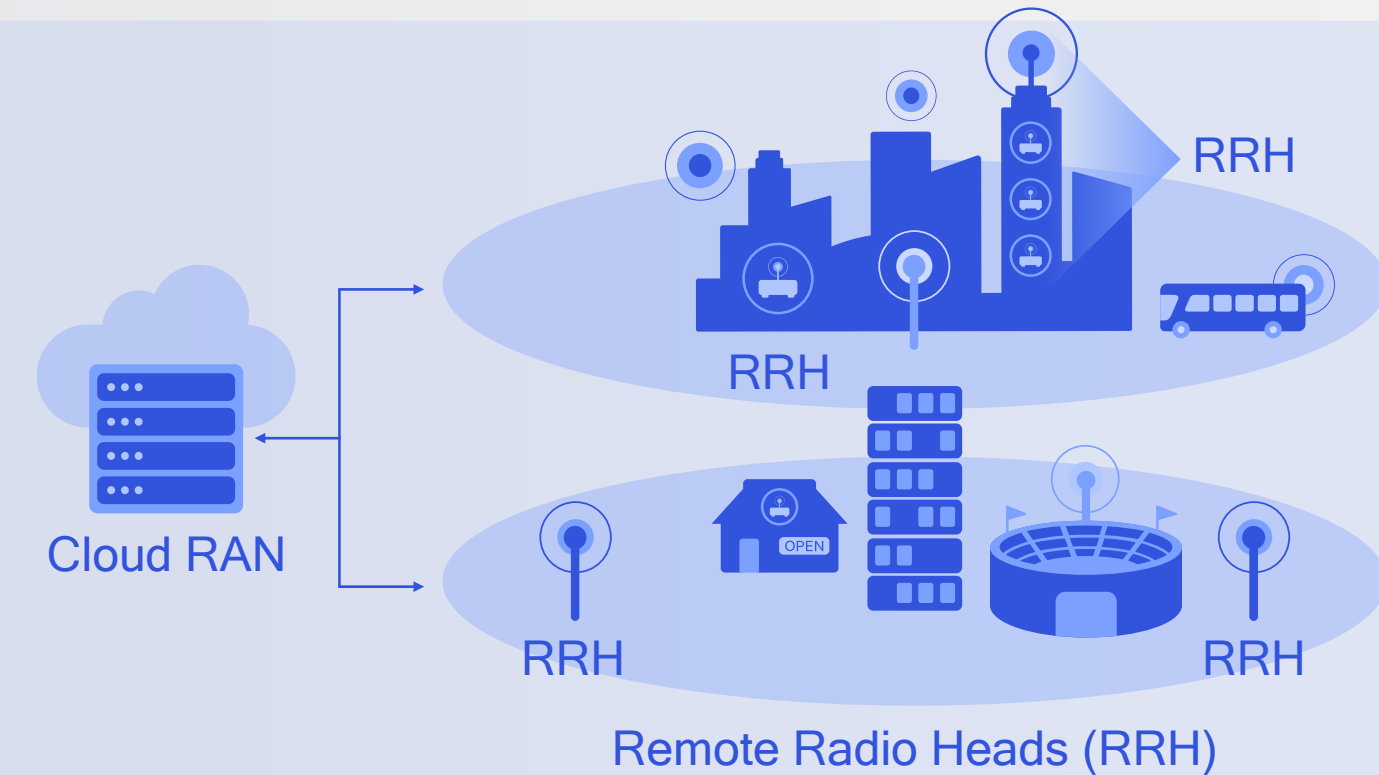
Accelerating network densification



Small cells integral to new 5G network architectures



More distributed baseband processing

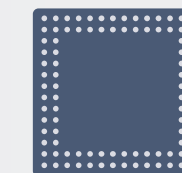
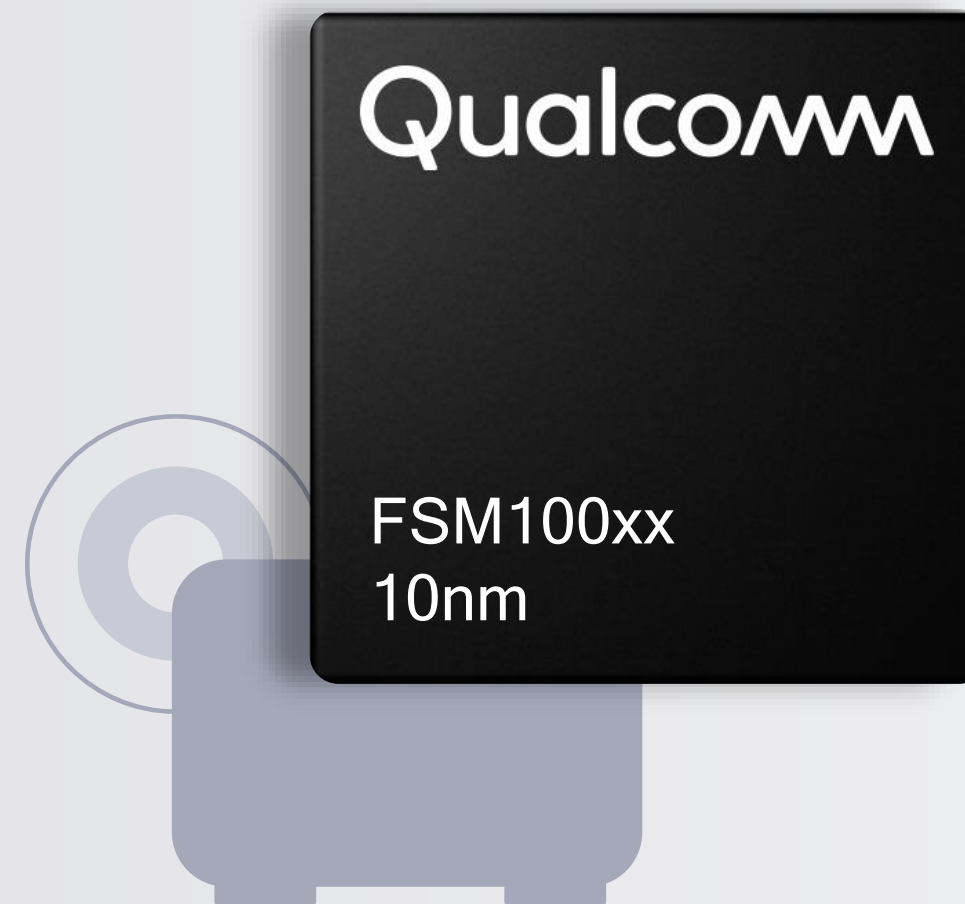


More centralized baseband processing

Developing industry leading 5G NR small cell infrastructure

Qualcomm SAMSUNG

Qualcomm FSM100xx is a product of Qualcomm Technologies, Inc and/or its affiliates



Powered by Qualcomm
FSM100xx 5G NR small
cell chipset



Supporting uniform 5G speeds
and experiences—indoors
and outdoors

Expected to begin sampling in 2020

The graphic consists of two concentric circles. The inner circle is a solid dark blue and contains the word "SAMSUNG" in white, bold, uppercase letters. The outer circle is a lighter shade of blue and is partially visible on the left side of the frame.

SAMSUNG

Samsung

Woojune Kim

Senior Vice President,
Head of Products and Business Strategy,
Networks Business Unit

Making 5G devices
a commercial reality



Commercializing mmWave and sub-6 GHz

In a smartphone form factor



Qualcomm
snapdragon
X50 5G modem

Qualcomm®
Snapdragon™ X50
5G modem family



Qualcomm®
QTM052 mmWave
antenna modules



5G NR Qualcomm®
reference design

5G NR

Qualcomm® reference design



Introducing the Qualcomm®

QTM052 5G mmWave antenna module

Expands portfolio of fully-integrated 5G NR mmWave modules for mobile devices

Image shows partially-assembled state.



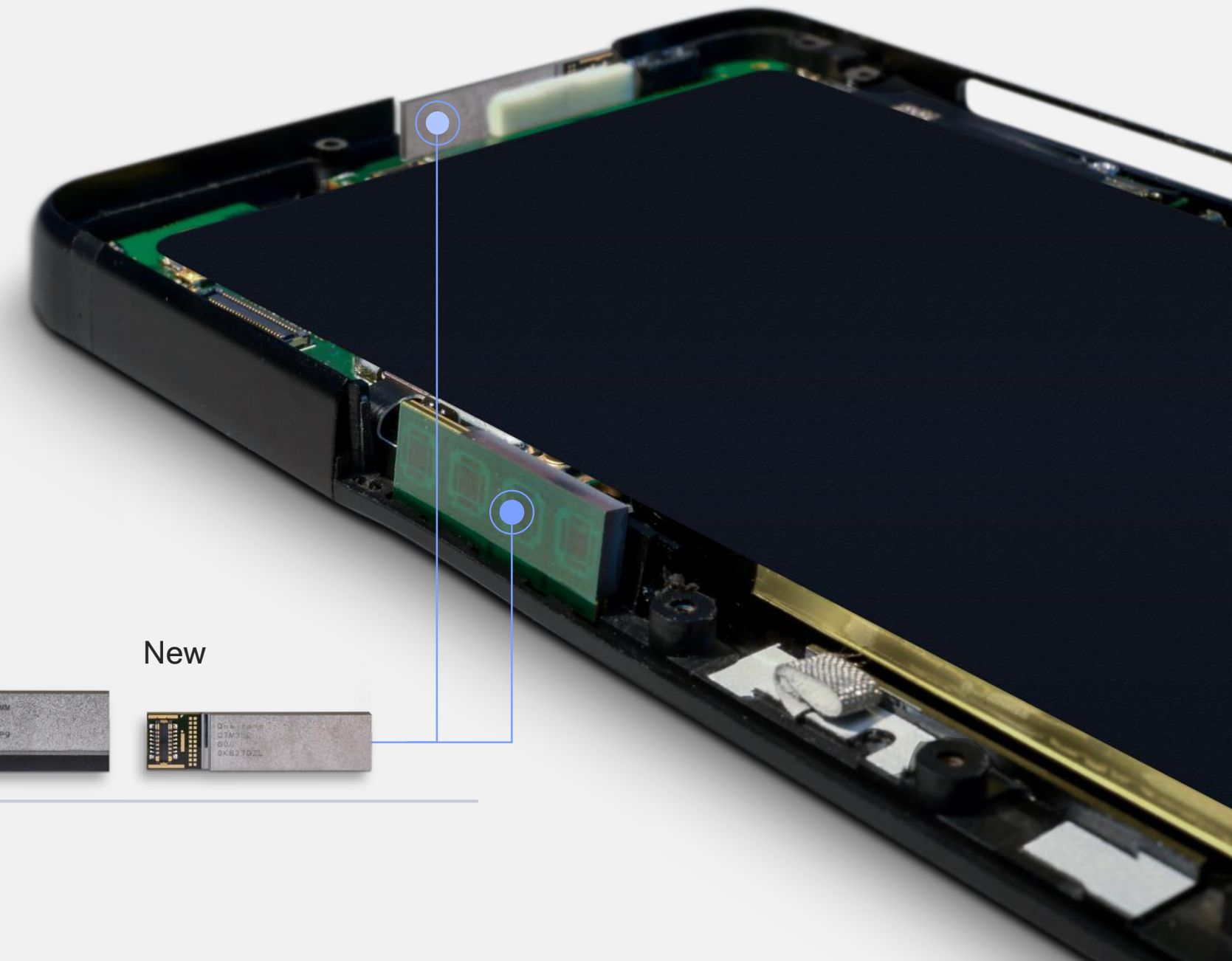
Previous



New



Size scale



Continued 5G OEM Momentum

Fueled by the Qualcomm Snapdragon
X50 5G NR modem family





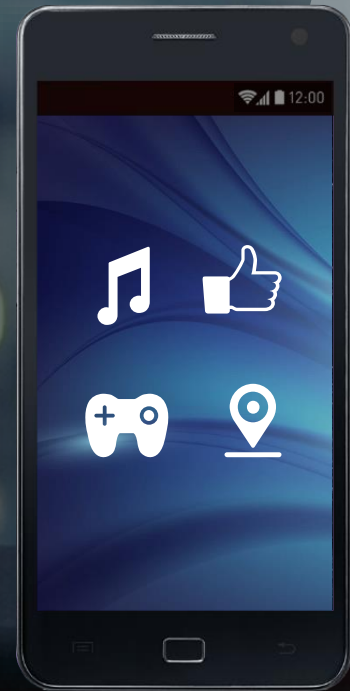
OnePlus

Carl Pei

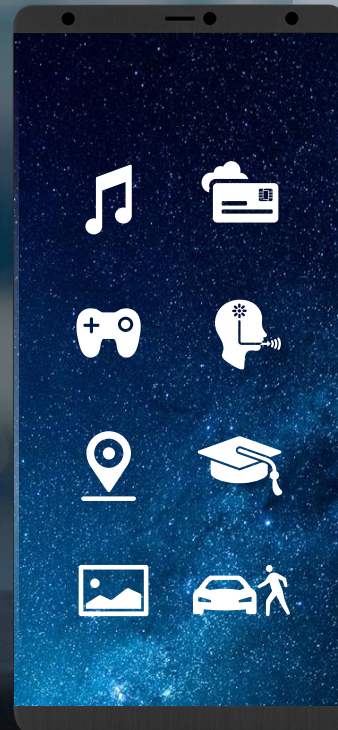
Co-Founder

5G will take the smartphone experience to new levels

Powerful app platforms



4G Smartphone



5G Smartphone



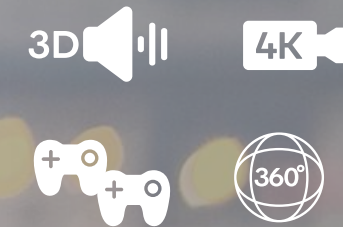
Immersive streaming services



4G Smartphone



5G Smartphone



The graphic consists of two concentric circles. The inner circle is a solid blue color and contains the Tencent logo. The outer circle is a lighter shade of blue and is partially visible on the left side of the frame. The logo itself is white and features the word 'Tencent' in a stylized italicized font, followed by a small white arrow pointing to the right, and then the Chinese characters '腾讯' in a bold sans-serif font.

Tencent 腾讯

Tencent

Wu Dan

General Manager, Tencent Innovation Lab

Powering next-generation immersive experiences



Connectivity and
intelligence everywhere



Immediate, rich
social interactions



Wow! It's like I'm right there.

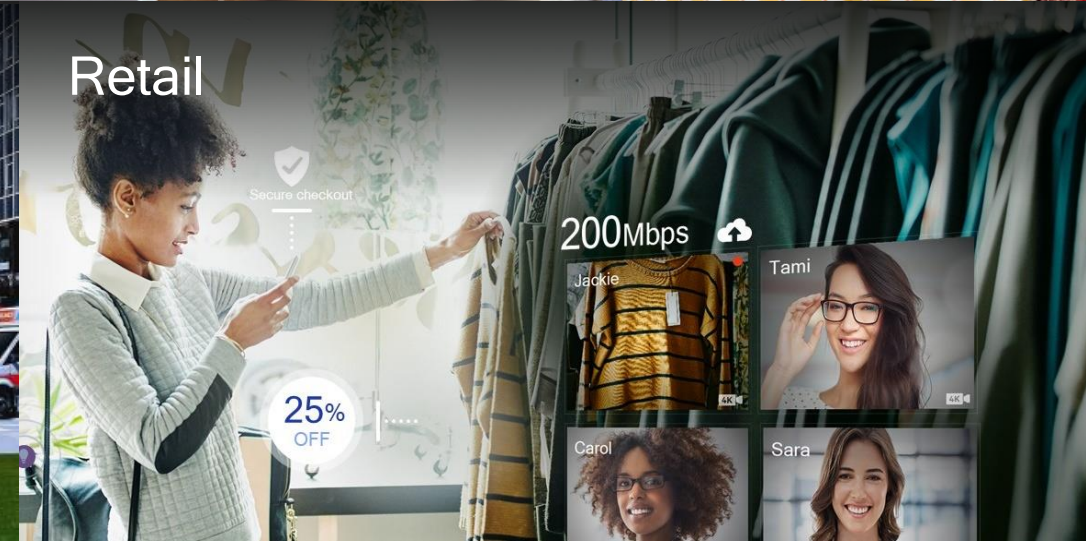


Next VR

David Cole

Co-Founder and CEO

5G will expand the mobile ecosystem to new industries



Qualcomm
snapdragon



Defining the Always On, Always Connected PC

Multi-day battery life

Instant on

Connected standby

Continuous connectivity*

Gigabit LTE (with 5G in 2019)

Location aware

Thin, quiet, and cool

*Requires network connection and will support up to 20 hours of battery life



Lenovo™



Miix 630

Lenovo™



Yoga C630



Envy x2

ASUS®



NovaGo

SAMSUNG



Galaxy Book 2

More on the way...



Growth in new products

Always On, Always Connected* PCs
powered by Snapdragon

*Requires network connection and will support up to 20 hours of battery life

Building the Always On, Always Connected PC ecosystem

Qualcomm
snapdragon

Windows 10

Free or
unlimited
data

Bundled
data

Operator
and online
stores

Sprint

中国电信
CHINA TELECOM

TIM

EE

中華電信
Chunghwa Telecom

Deutsche
Telekom

Telefonica

TIM

verizon

JD.COM

Sprint

amazon

AT&T

OEMs

Lenovo

ASUS

SAMSUNG

hp

Operators

at&t

中国移动
China Mobile

中国电信
CHINA TELECOM

中華電信
Chunghwa Telecom

cubic telecom

EE

Sprint

swisscom

T-Mobile

Deutsche
Telekom

Telefonica

Telstra

TIM

transatel

verizon

Retailers

amazon

fnac

JD.COM

BT Shop

Microsoft Store

ASUS

boulangier

unieuro

PCWorld



Microsoft

Erin Chapple

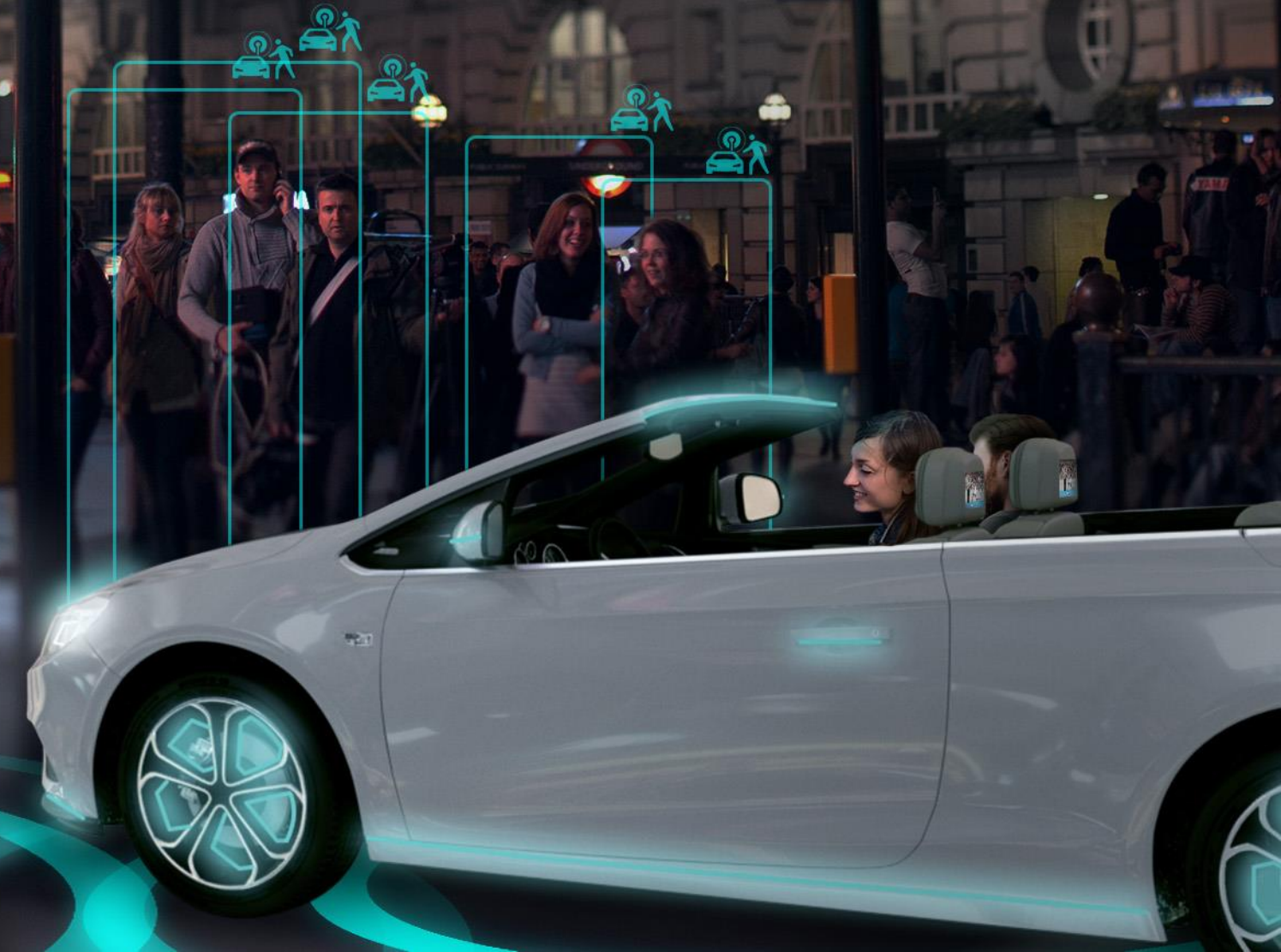
Corporate Vice President,
Platforms Engineering, Microsoft

Transforming automotive

Safety-rich

Efficient

New services
and experiences



C-V2X paves the way to the 5G-powered future

Enhanced range, reliability

More cost-efficient

Forward compatible to 5G C-V2X

Commercial readiness in 2019

Cloud

Krišjāņa
Valdemāra

Vehicle-to-infrastructure

Vehicle-to-network

Vehicle-to-vehicle

Vehicle-to-pedestrian



The graphic on the left consists of two concentric circles. The inner circle is a solid blue color and contains the word "GEELY" in white, bold, uppercase letters. The outer circle is a lighter shade of blue and is partially visible on the left side of the frame.

GEELY

Geely

Ziyu Shen

Vice President, Geely Automobile Research Institute

Driving the next industrial revolution



Guided execution



Surveillance



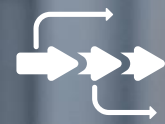
Ultra reliable, low-latency wireless connection



Dynamic factory reconfigurability



5G NR
Private network



Real-time supply chain visibility



Predictive maintenance



Industrial IoT opportunity extends across segments

Robotics

Street lighting

Digital signage/
Commercial AV

On-premise
compute and storage

Updating

Tracking

At port (Days)

3

Location

Spools shipped



Capacity



Camera



Retail

Energy
and metering

IoT
gateways

Real-time inventory

- ☐ Lumber
- ☐ Hardware
- ☐ Technology
- ☐ Manufacturing
- ☐ Produce
- ☐ Automotive
- ☐ Earth/Soil
- ☐ Retail

Industrial handhelds

The graphic consists of two concentric circles. The inner circle is a solid dark blue and contains the word 'Honeywell' in white. The outer circle is a lighter shade of blue and is partially visible on the left side of the frame.

Honeywell

Honeywell

Suresh Venkatarayalu

Vice President and CTO for
Safety and Productivity Solutions

Accelerating next-gen retail experiences



*Requires network connection and will support up to 20 hours of battery life



Amazon

Philip Thompson

Worldwide Tech Leader - Retail

Additional announcements



Qualcomm® Quick Charge™ technology momentum



GoPro HERO7 powered by Qualcomm® Vision Intelligence Platform



Wearables momentum with Snapdragon Wear Platforms



Amazon Alexa reference design for wireless earbuds, hearables

Qualcomm

Snapdragon 

Alex Katouzian

SVP and GM, Mobile, Qualcomm Technologies, Inc.

Continually bringing
premium features to
other tiers

2015 Premium device



CPU
Quad-core, up to 2.2GHz



Modem
X12 LTE modem



Artificial Intelligence
1st generation AI platform



Camera
Dual ISPs



Video
4K capture @ 30fps

2018 Mid-range device



CPU
Octa-core, up to 2.0GHz



Modem
X12 LTE modem



Artificial Intelligence
3rd generation AI platform



Camera
Dual ISPs



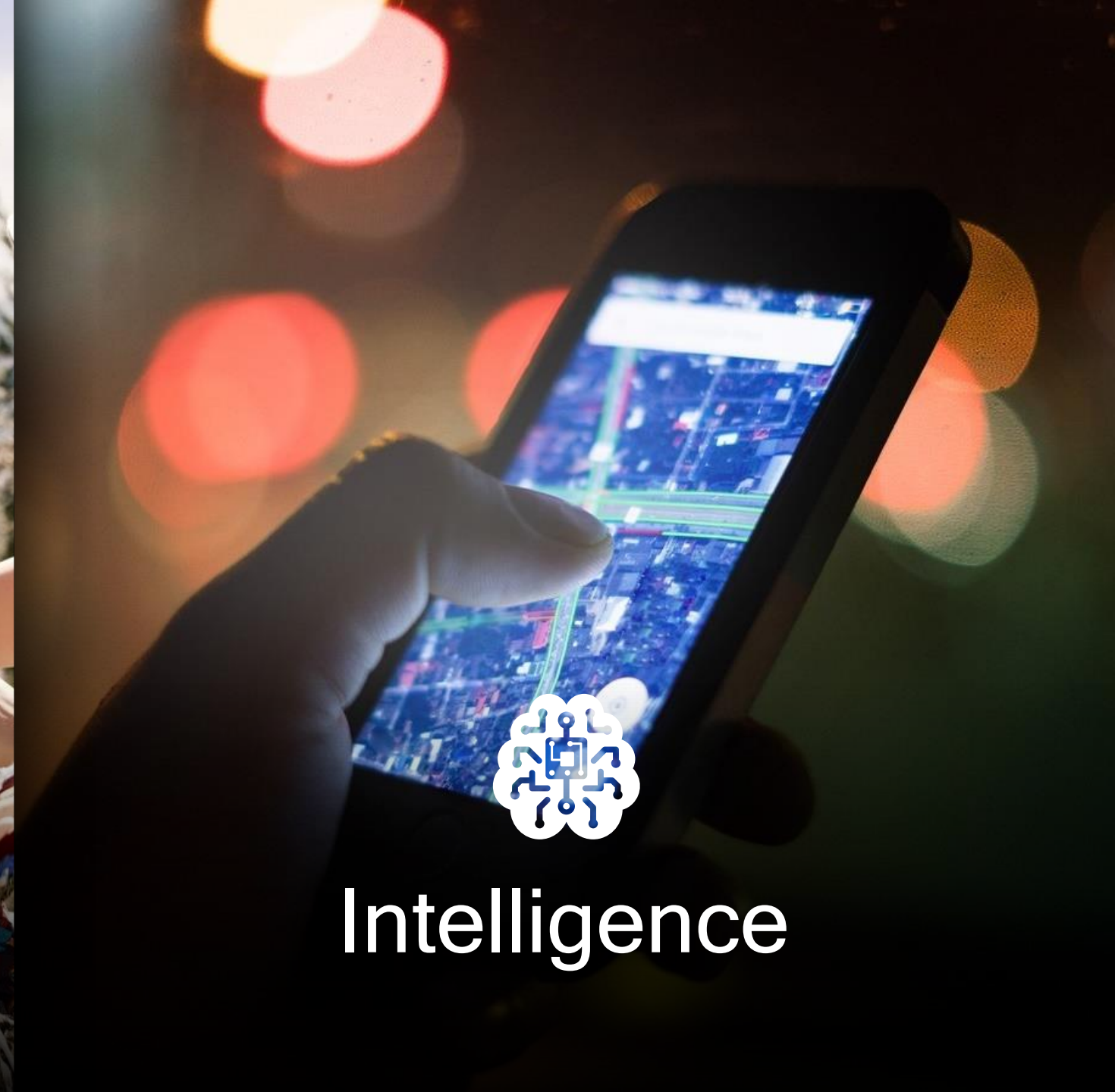
Video
4K capture @ 30fps



Gaming



Imaging



Intelligence



Console-quality
gaming...anywhere



Capturing stunning
images and video



Enhancing the mobile experience with AI



Imaging



Contextual awareness



Security



Voice interaction



Battery life

Introducing the

Qualcomm snapdragon 675 mobile platform

Powering the highly sought-after mobile experiences

Qualcomm Snapdragon is a product of Qualcomm Technologies, Inc. and/or its subsidiaries



Powerful gaming



Triple camera



Limitless slo-mo



3rd generation AI engine





Xiaomi India

Manu Kumar Jain

Vice President, Xiaomi and
Managing Direction, Xiaomi India

Qualcomm snapdragon 675 mobile platform

Powering the highly sought-after mobile experiences

Qualcomm Snapdragon is a product of Qualcomm Technologies, Inc. and/or its subsidiaries



Powerful gaming



Triple camera



Limitless slo-mo



3rd generation AI engine



Leading the world to 5G





Thank you

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