
Qualcomm
Transforming the wireless edge to realize the full potential of 5G
Learn more at www.qualcomm.com / 5G
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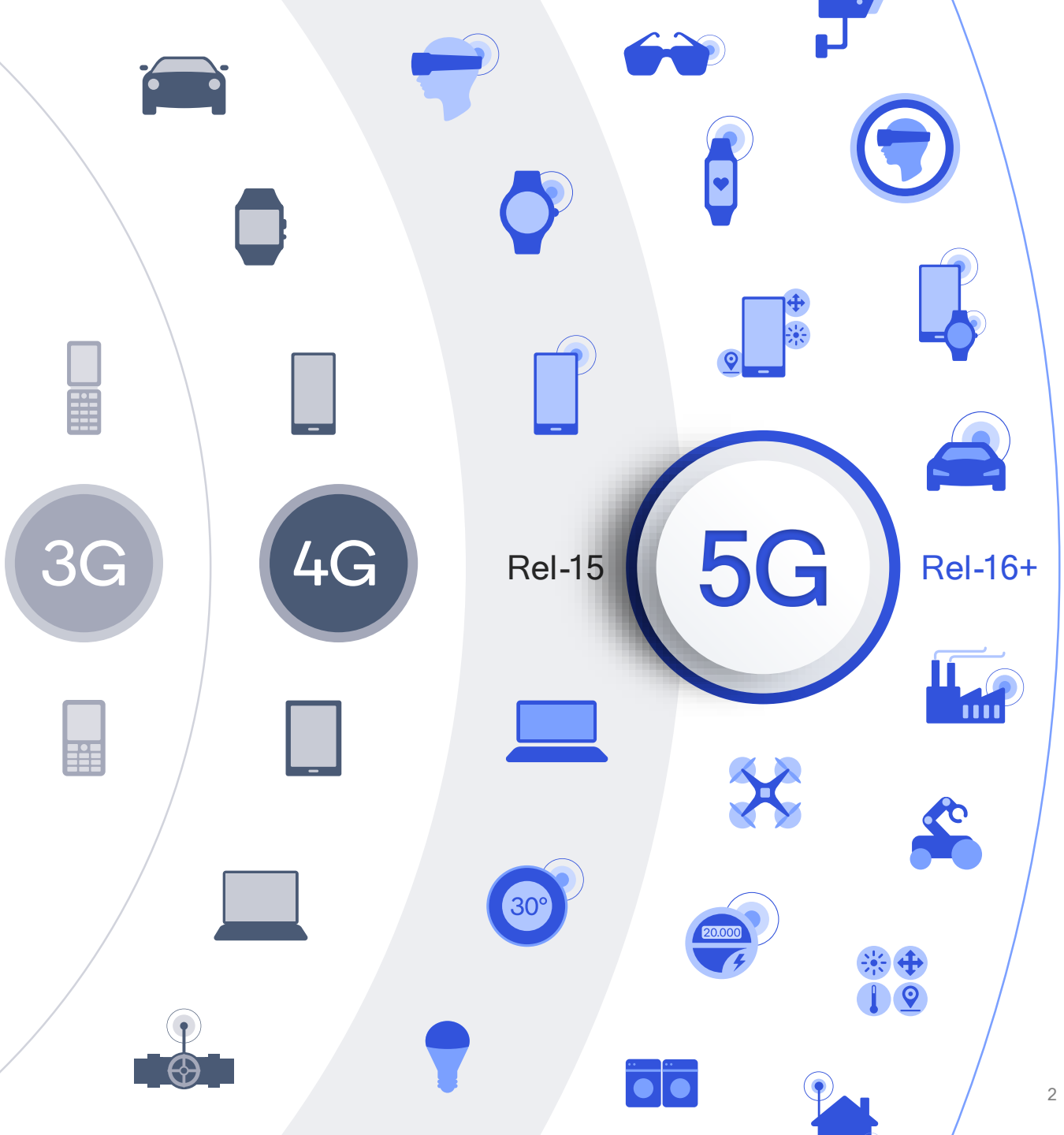
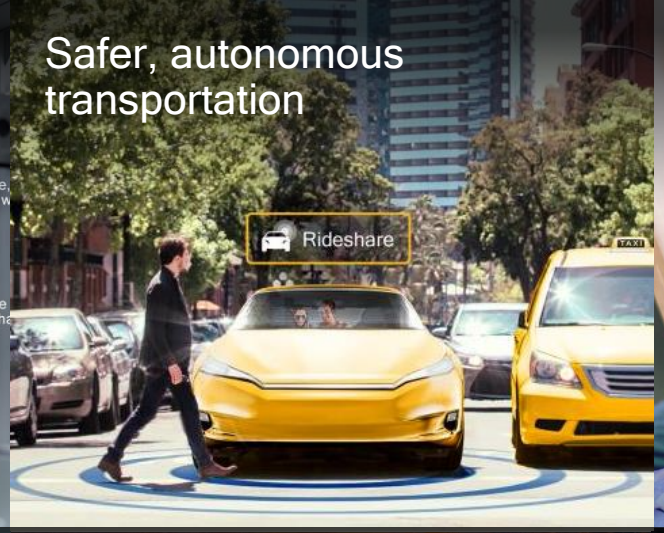
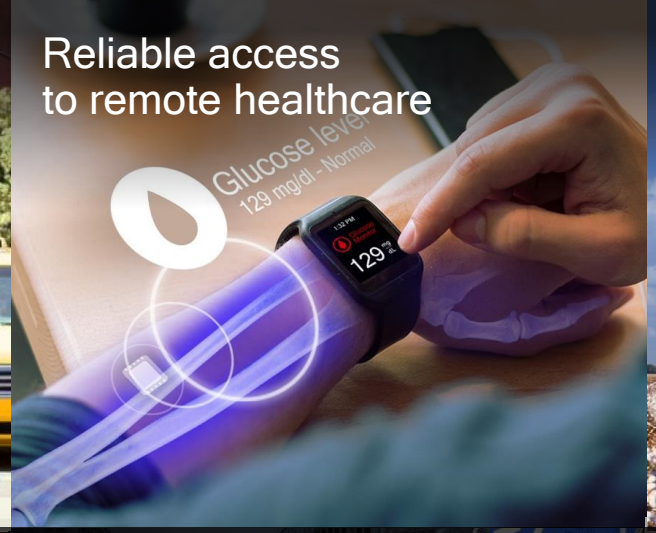
Leading society to 5G

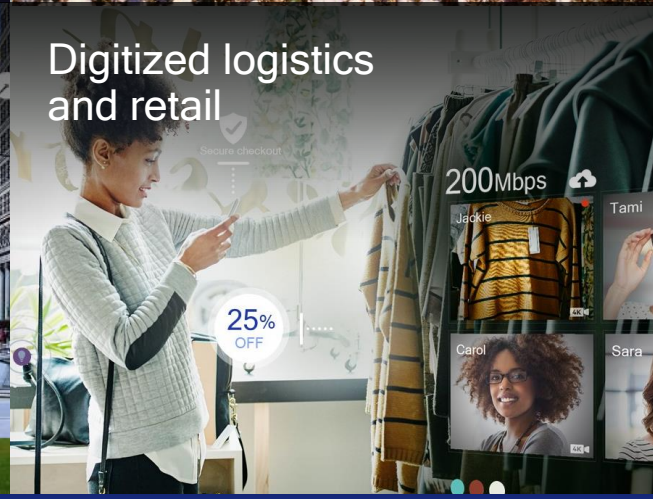
And the expansion of the 5G ecosystem




A unifying connectivity fabric for society
Like electricity, you will just expect it everywhere
5G
Multi-gigabit speed
Scalable to extreme simplicity
Ultra-low latency
Virtually unlimited capacity
Extreme reliability
On-device intelligence







5G

5G will expand the mobile ecosystem to new industries

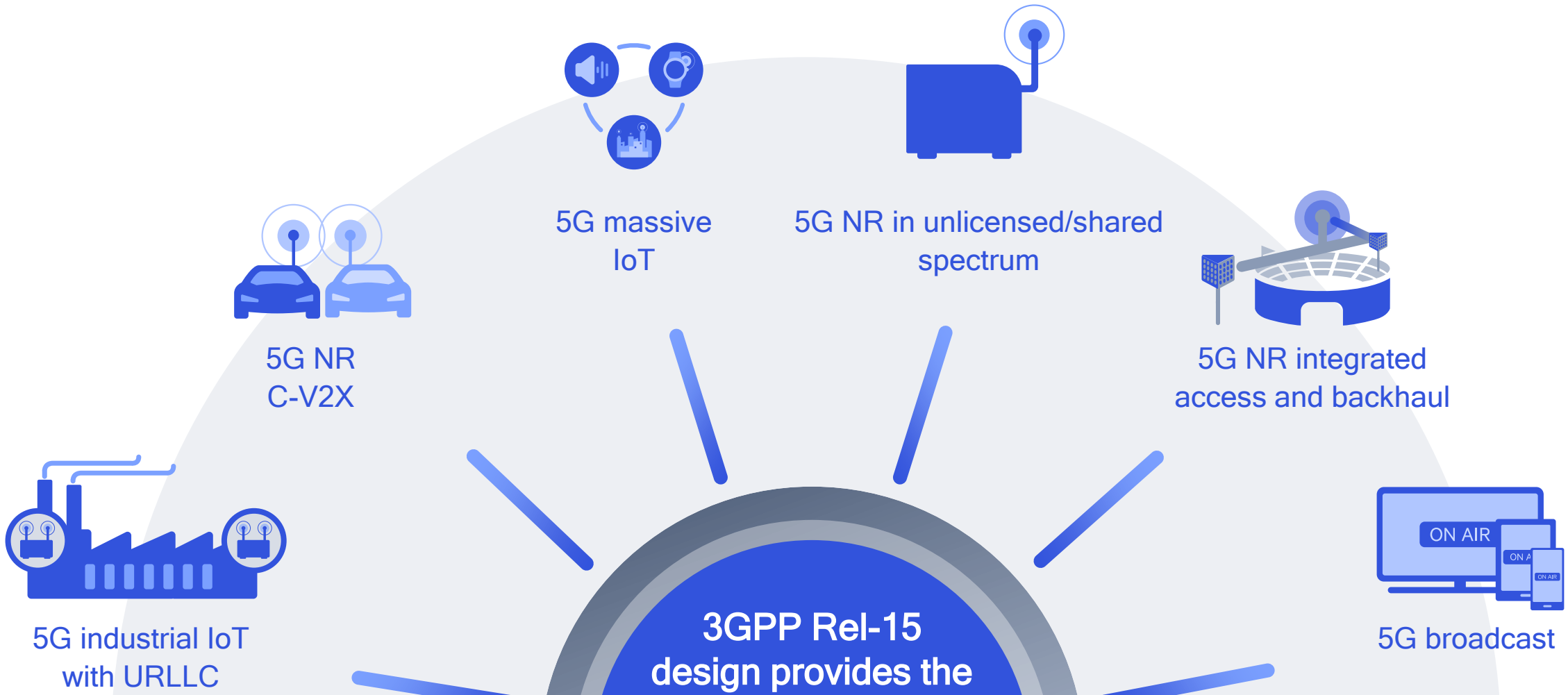
Powering the digital economy

>$12 Trillion

In goods and services by 2035*

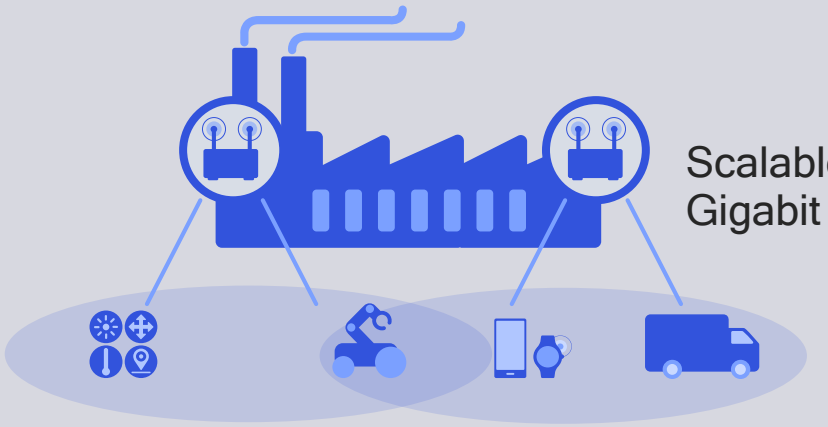
* The 5G Economy, an independent study from IHS Markit, Penn Schoen Berland and Berkeley Research Group, commissioned by Qualcomm

Driving a rich 5G roadmap in Release 16 and beyond



Private 5G networks for Industrial IoT use cases

Optimizing LTE today



Scalable from
Gigabit LTE to LTE IoT

New opportunities with 5G NR

Ultra-reliable
low-latency

Time-sensitive
networking

mmWave and
sub-6GHz eMBB

Wireline ethernet
replacement

Optimized
Tailored for industrial applications, e.g., QoS, latency

Dedicated
Local ‘edge’ network, easy to deploy, independently managed

Secure
Industrial grade security with LTE and 5G NR

>$5 Trillion[1]

Global economic output in 2035 enabled by 5G in the following five categories

Manufacturing	Transport	Construction	Utilities	Mining
$3,364B	$659B	$742B	$273B	$249B

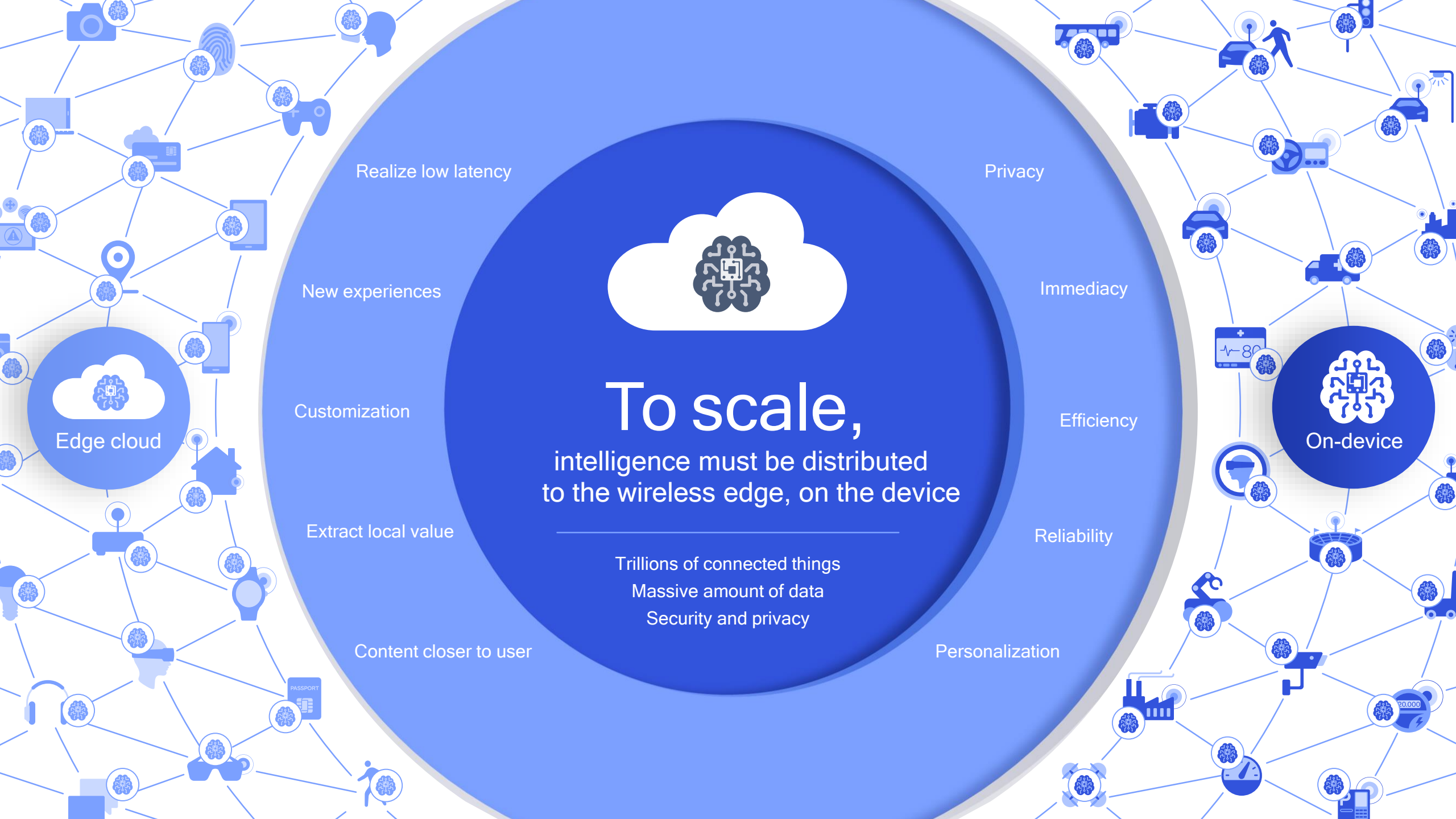
1. “The 5G economy: How 5G technology will contribute to the global economy” by IHS Economics / IHS Technology

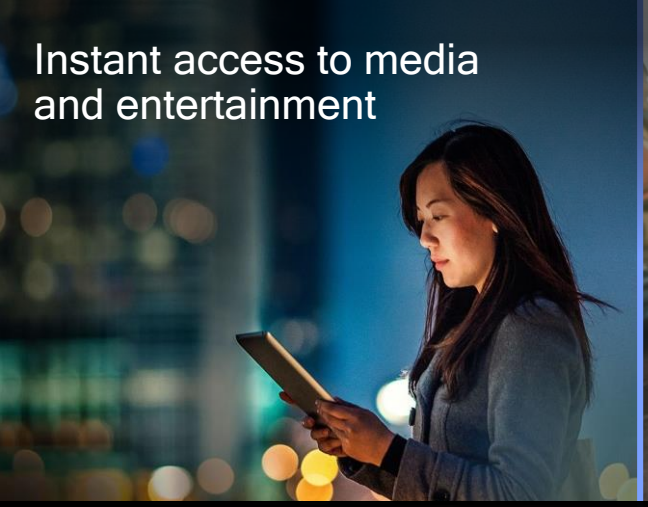
Enabling reliable wireless IoT connectivity at transport hubs

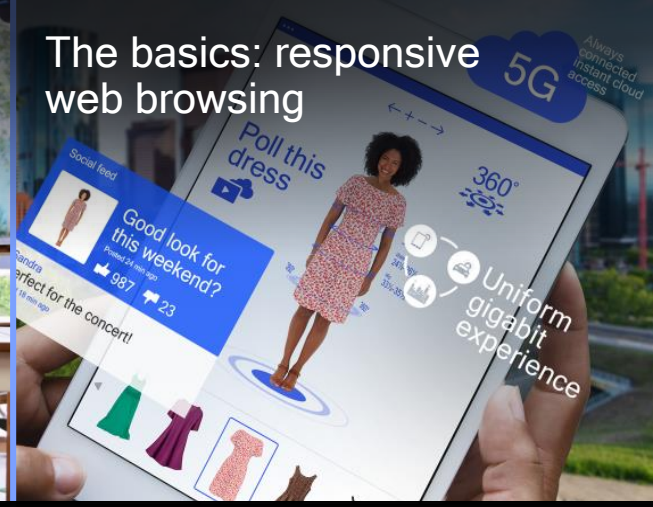
The reconfigurable factory of the future will thrive on the wireless edge

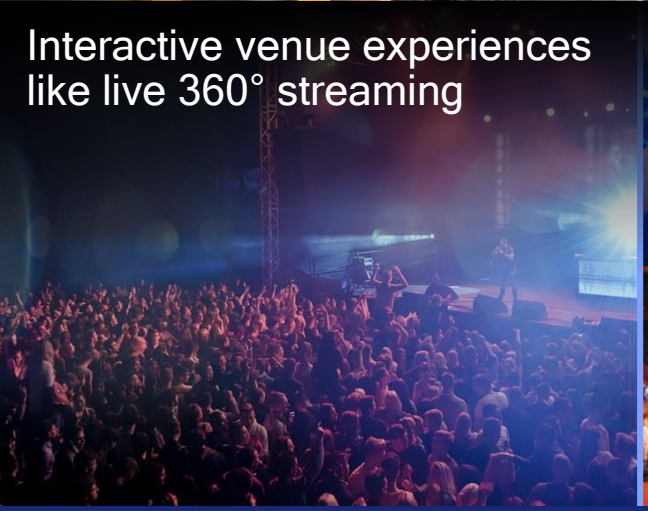
You don’t want your device to confirm with the cloud to take action

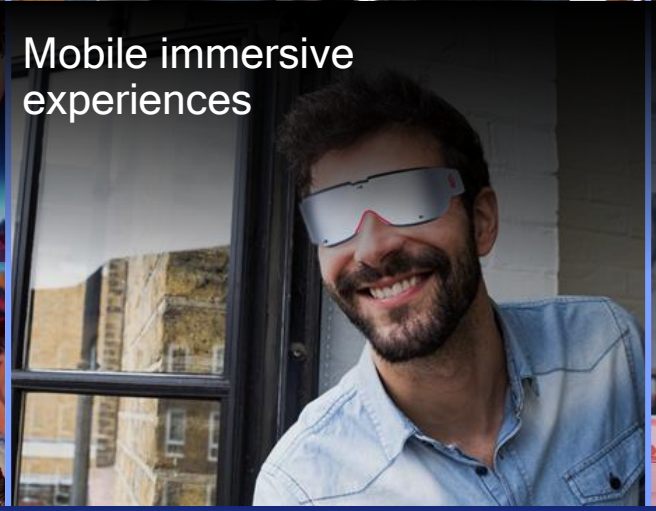
On-device intelligence is key for today’s and future autonomous cars


Realize low latency
New experiences
Customization
Extract local value
Content closer to user
Privacy
Immediacy
Efficiency
Reliability
Personalization
Edge cloud
On-device
To scale,
intelligence must be distributed
to the wireless edge, on the device
Trillions of connected things
Massive amount of data
Security and privacy









5G

- Fiber-like data speeds
- Low latency
- Uniform performance
- Massive capacity

+

- Content/control closer to user
- Realization of low latency
- Customized local value
- Augment on-device processing

=

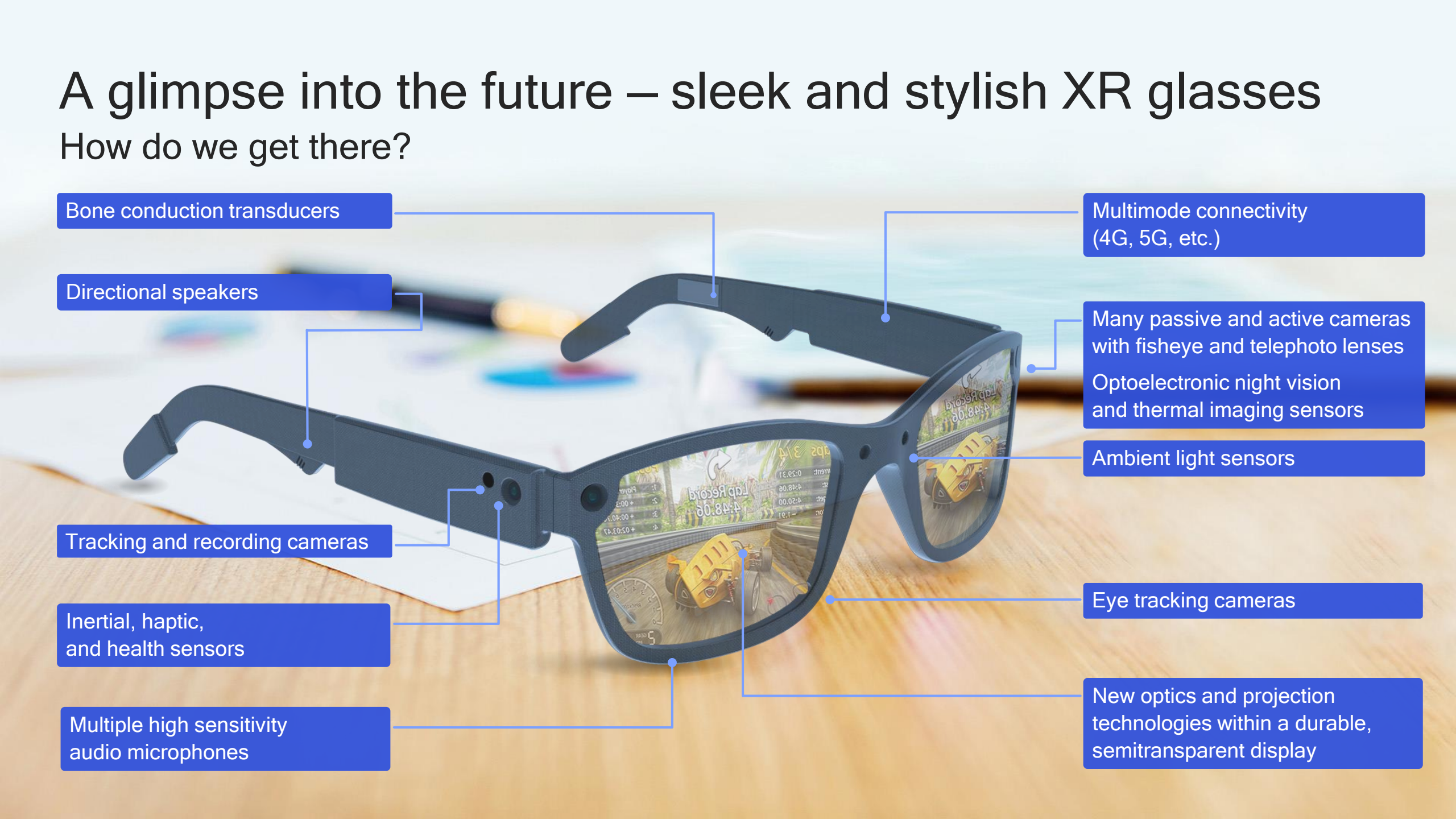
Enhanced and entirely new experiences

5G’s capacity and latency for shared venue experiences

Augment on-device processing for boundless photorealistic mobile XR

A glimpse into the future – sleek and stylish XR glasses

How do we get there?



A new era in distributed processing

Essential on-device processing

Optimized under strict power, thermal, size constraints

Premium experiences today that continuously improve

Split rendering

5G

Low latency

High capacity

Reliable link

Augment by edge cloud processing

Significant higher power envelope–beyond PC class

Augment on-device rendering with edge cloud rendering

Voice is the transformative user interface (UI) we've been waiting for

Designed to be

Always-on

Conversational

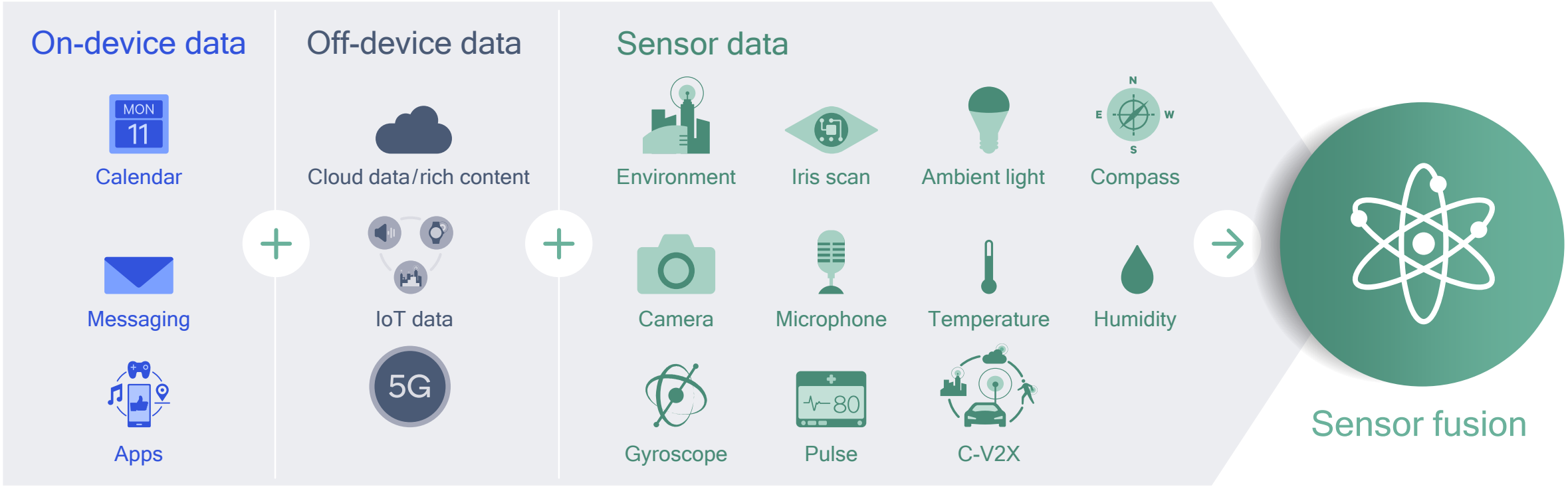
Personal

Private

Critical to create a true virtual assistant

A context aware and personalized "digital me" sitting on the device

Contextual intelligence required for personalization



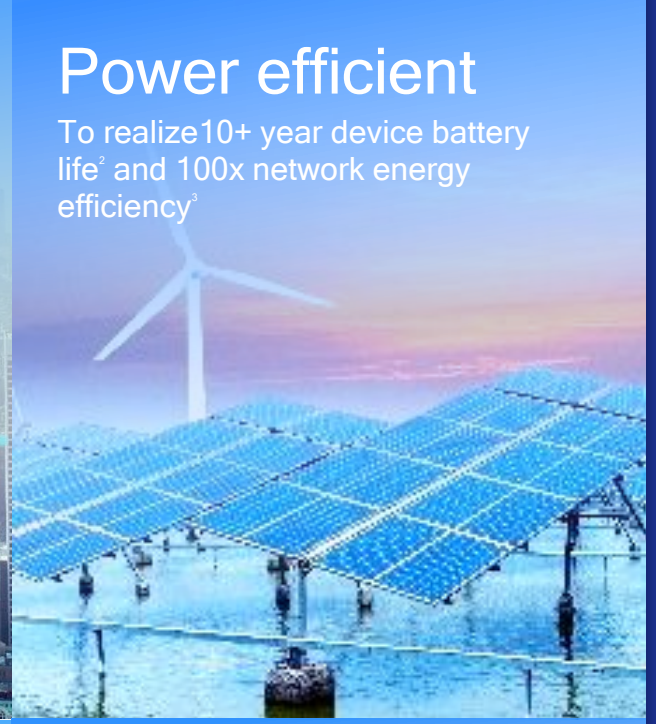
The local fusion of many types of sensors and personal information

Massive scale

To efficiently support dense connections of 1+ million devices/km[2]

Power efficient

To realize10+ year device battery life[2] and 100x network energy efficiency[3]

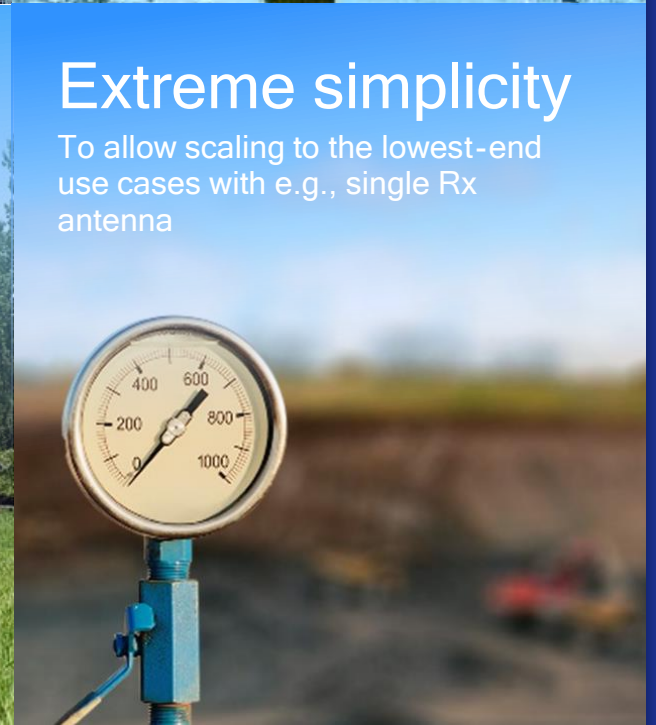


Long range

To reach challenging locations by achieving device link budget of 164 dB[1]

Extreme simplicity

To allow scaling to the lowest-end use cases with e.g., single Rx antenna



Scaling for the massive Internet of Things

Addressing growing needs of low-power, wide-area IoT use cases

1. Maximum Coupling Loss, assuming data rate of 160bps
2. Assuming 200B UL + 20B DL per day at 164 MCL with 5Wh battery
3. Compared to IMT-Advanced

AI in here. And everywhere.

Advanced camera processing, powerful machine learning, and computer vision at the edge will allow new applications that push the boundaries of our connected world.

Intelligent cameras monitor and track what's inside.

Local at the edge processing means low latency and max efficiency.

Neural networks watch and learn your preferences.

Ubiquitous connectivity helps you avoid running out of critical food supplies

Qualcomm

Thank you!

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