



Presentation: Mobile Technology and Healthcare

3G4G Channels...



3G4G



Free 6G Training



Free 5G Training



Telecoms
Infrastructure



Connectivity
Technology



Operator
Watch

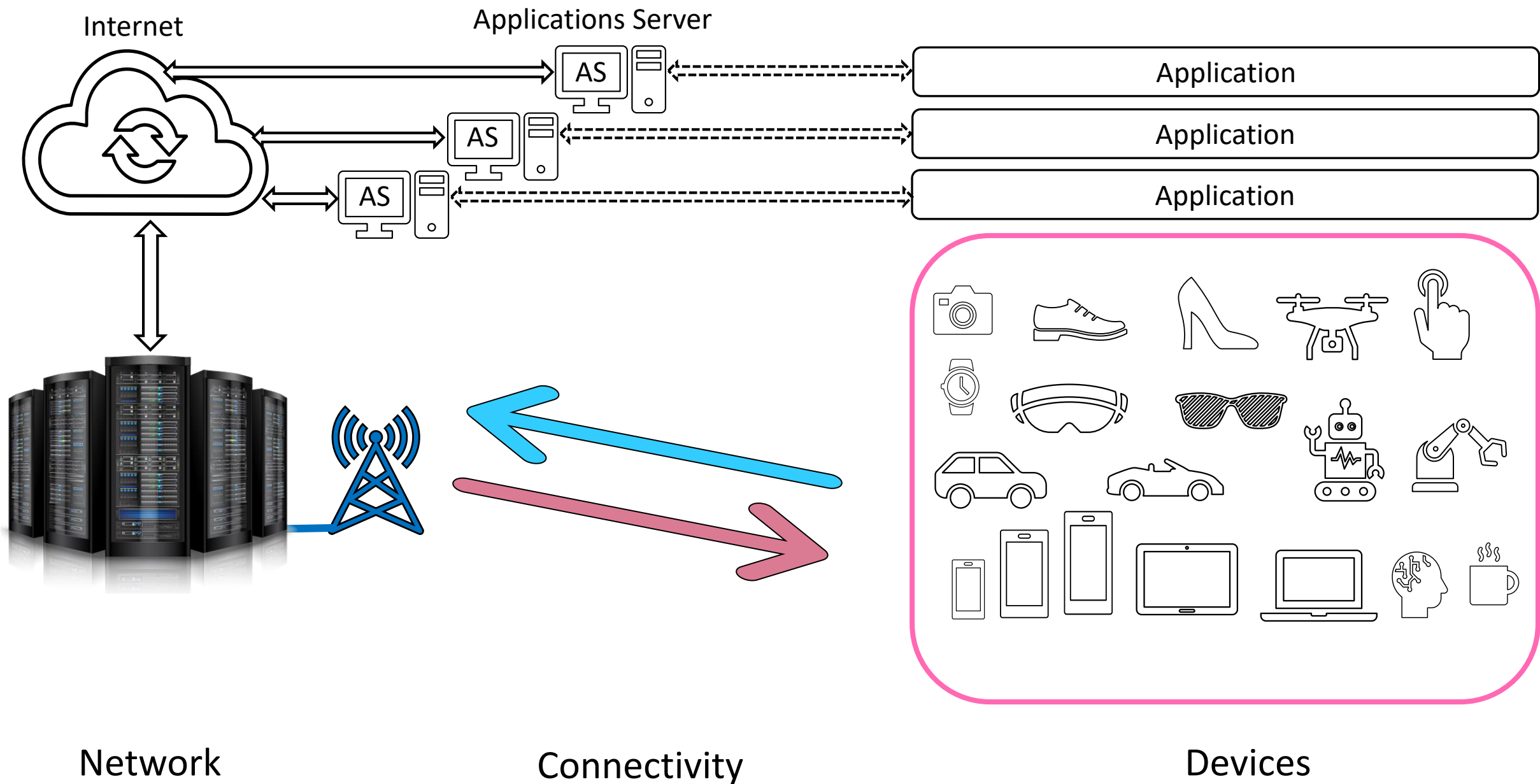


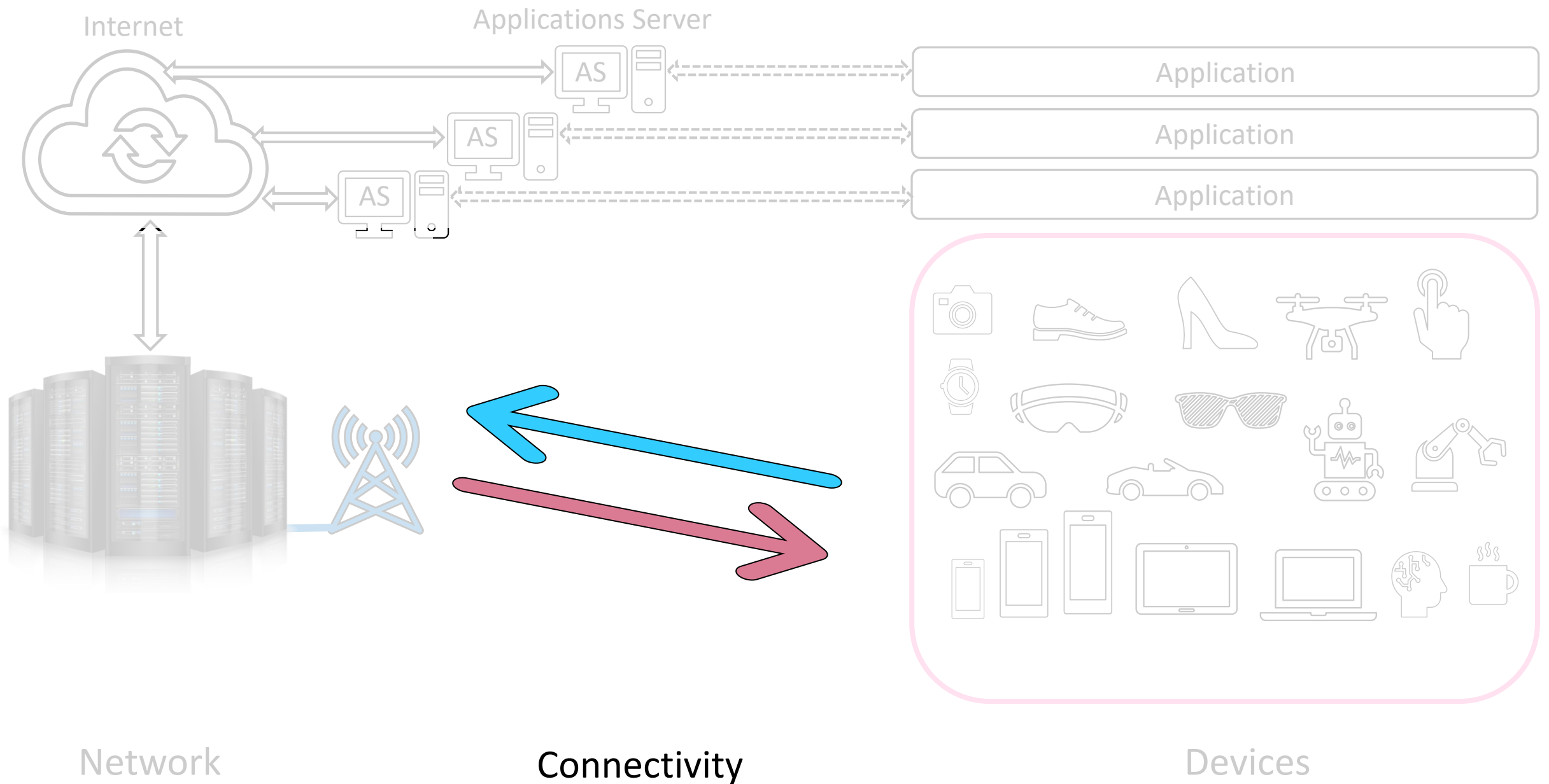
<https://www.youtube.com/3G4G5G>

5G Advert by Operator TIM, Italy



Source: [TIM](#)





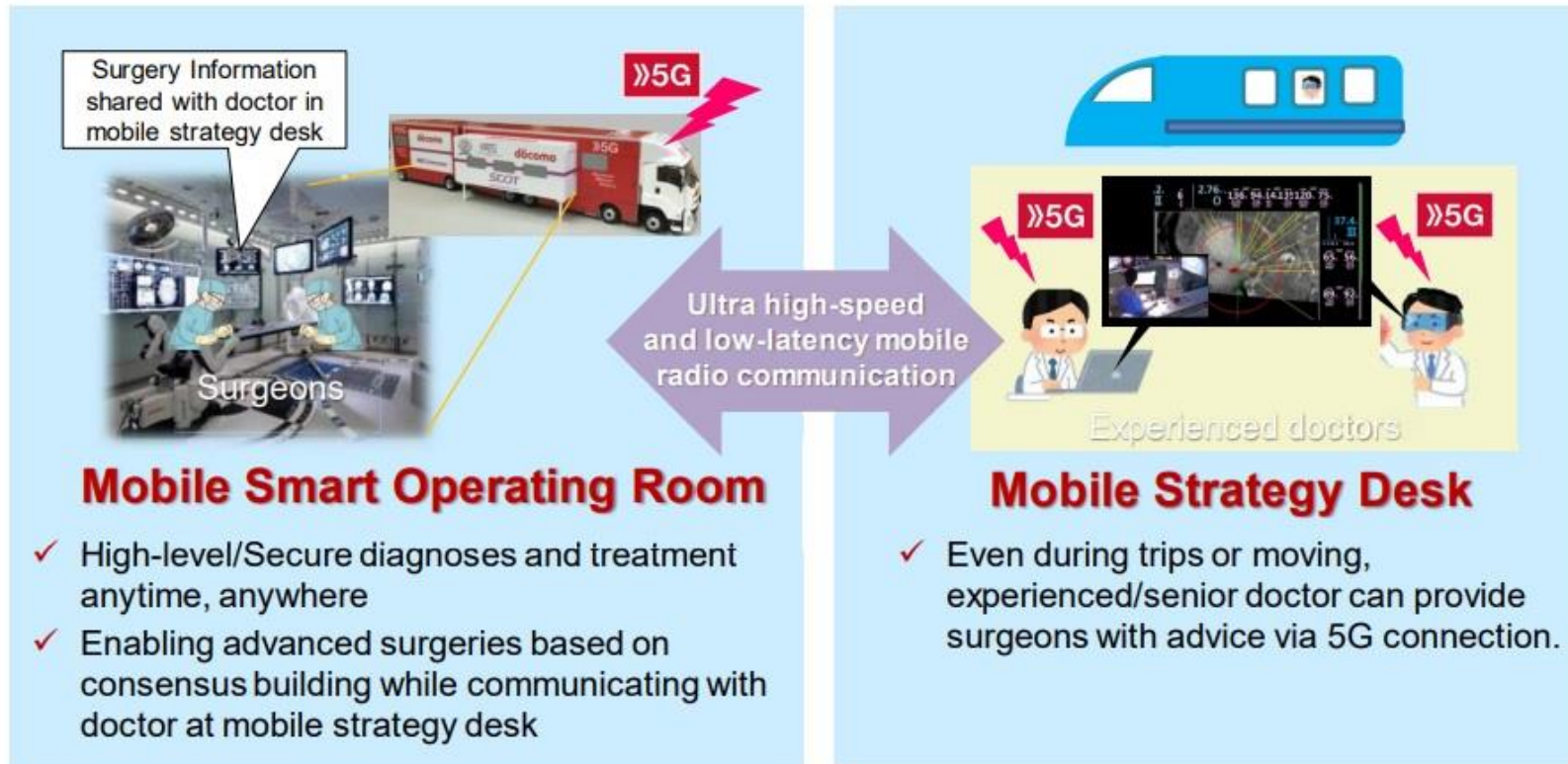
Connectivity Options for Healthcare



NTT Docomo SCOT (Smart Cyber Operating Theater)TM

Mobile SCOT Realized by 5G

Mobile version of SCOTTM leveraging ultra high-speed and low-latency 5G



5G brings advances for rural healthcare in China

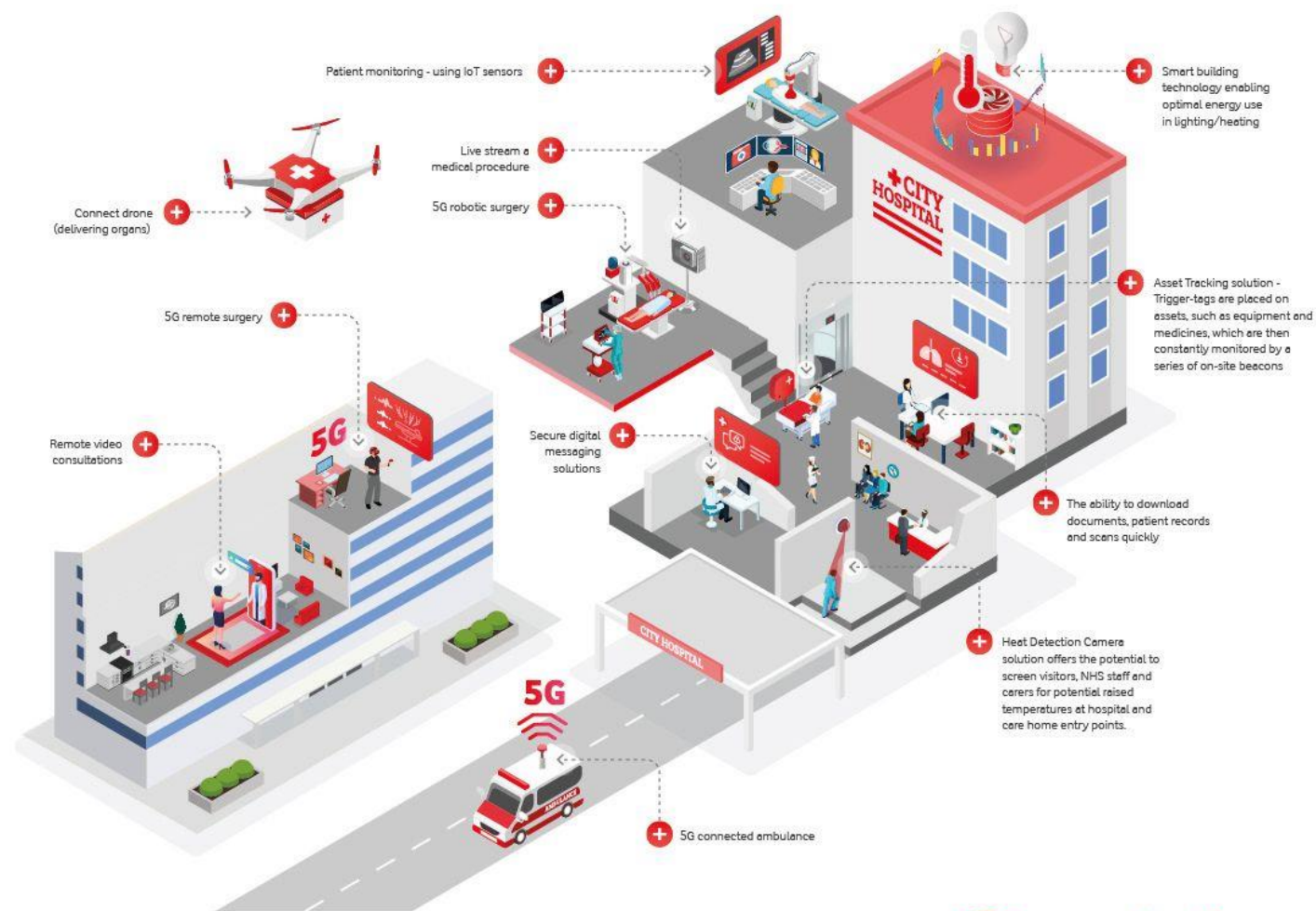


Source: [China Daily](#)

OnMed Telemedicine Station in Hospital



The hospital of the future



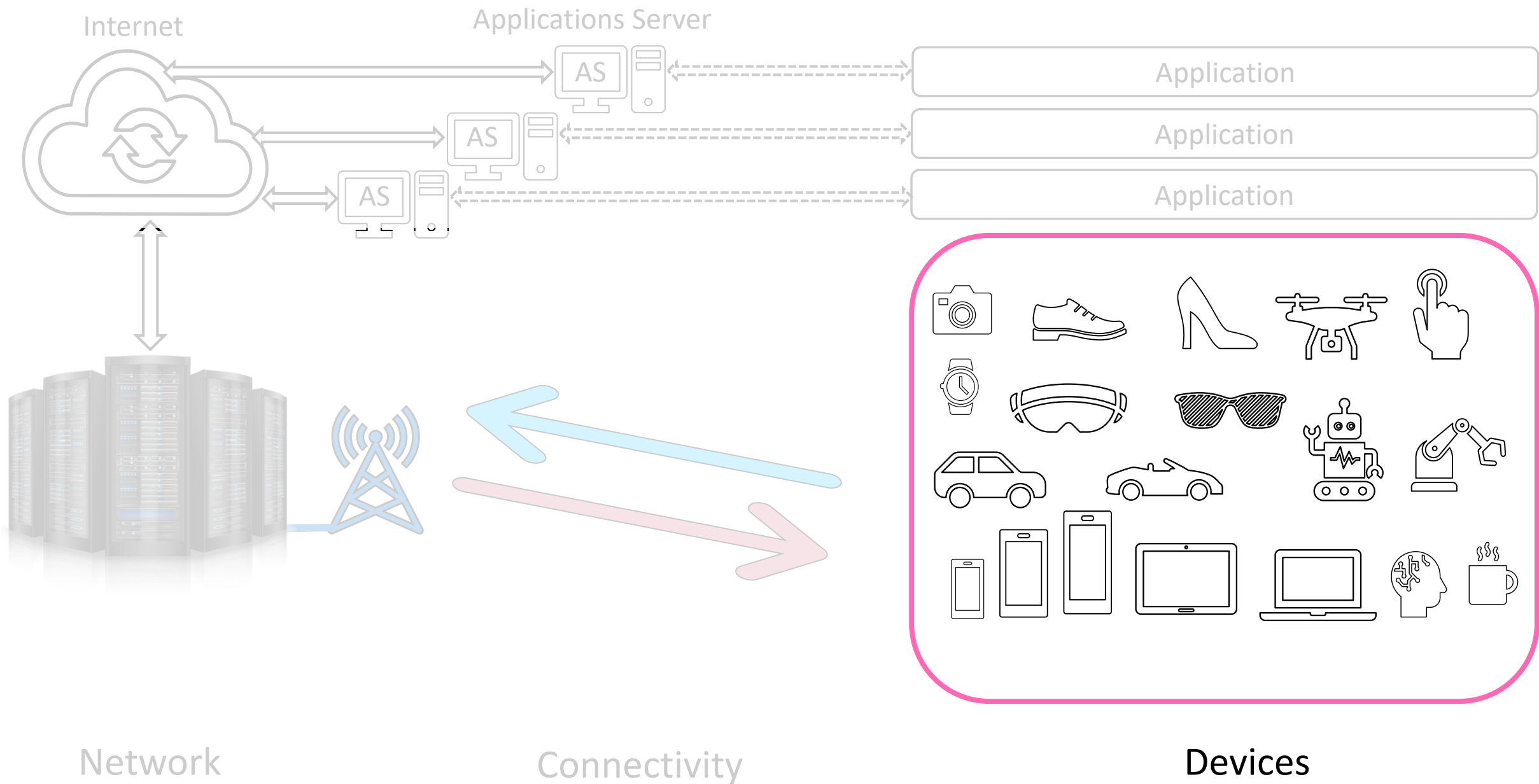
Source: WPI [Strategy report](#) for Vodafone UK

Satellite Applications Catapult Connected Ambulance



“In our Health Living Lab, we have been utilising the benefits that come with combining terrestrial and satellite communications networks, and in particular the use of 5G and satellites.”

- Read more about 5G Satcomms and Health [here](#).



Google Introduces Pixel Watch with Fitbit health and fitness

Health and fitness

Live healthier with Fitbit.²


Fitbit's most accurate heart rate tracking yet.


Keep an eye on your heart with the ECG app.

Track your nightly sleep stages and health metrics.

Stay protected with fall detection and Emergency SOS.

Get extra insights with Fitbit Premium included.






The ECG app is only available in select countries. Not intended for use by people under 21 years old. See Fitbit.com for additional details.

Sensors

Compass	Optical heart rate sensor ⁸
Altimeter	Accelerometer
Blood oxygen sensor ⁷	Gyroscope
Multipurpose electrical sensor	Ambient light sensor





Samsung Galaxy Watch 5



Sensors:

- Accelerometer,
- Barometer,
- Bioelectrical Impedance Analysis Sensor,
- Electrical Heart Sensor,
- Gyro Sensor,
- Geomagnetic Sensor,
- Light Sensor,
- Optical Heart Rate Sensor

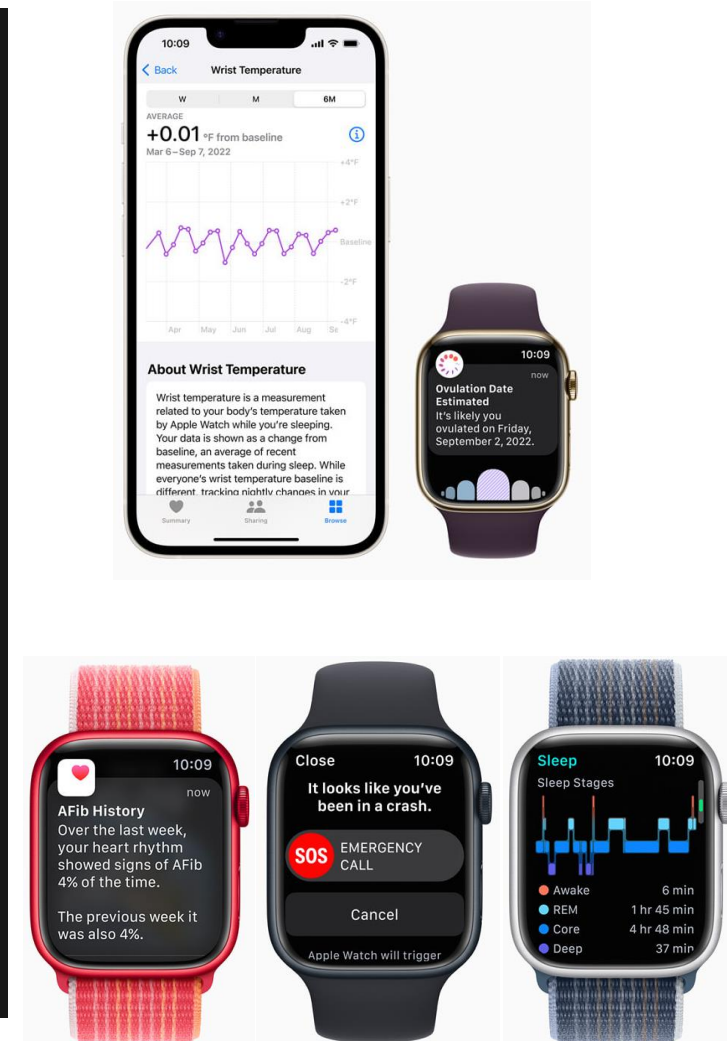
Amazfit GTS 2e – Where Style Meets Health

	Amazfit GTS 2	Amazfit GTS 2e
		
Endurance		
Battery capacity	246 mAh (typical value)	246 mAh (typical value)
Charging method	Magnetic charging stand	Magnetic charging stand
Charging time	About 2 hours	About 2 hours
Typical use battery life	7 days	14 days
Basic use battery life	20 days	24 days
Heavy use battery life	3.5 days	7 days
Sensor		
Health	Self-developed BioTracker™ 2 PPG (support blood-oxygen) Biological data sensor	Self-developed BioTracker™ 2 PPG (support blood-oxygen) Biological data sensor
Movement	Acceleration sensor Gyroscope sensor Geomagnetic sensor Ambient light sensor Air pressure sensor	Acceleration sensor Gyroscope sensor Geomagnetic sensor Ambient light sensor Air pressure sensor Temperature sensor
Connection	WLAN 2.4GHz ¹⁷ , Bluetooth 5.0	Bluetooth 5.0 / BLE



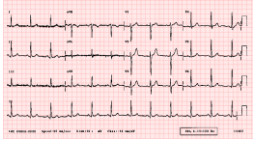
Source: [Amazfit](https://www.amazfit.com)

Apple Watch Series 8



Apple Watch Keeps Saving Lives

Apple Watch Successfully Detected Heart Failure with New App



A [new study](#) indicates that an Apple Watch app may be useful in detecting left-ventricular dysfunction.

Apple Watch helps diagnose deadly tumor, saves Maine woman's life



Apple Watch Fall Detection helps save 92-year-old farmer after fall



Apple Watch fall detection feature saves another life again



A hiker fell into a river and fractured his back, but the fall detection function of his [Apple...](#)

Apple Watch ECG could be a good early heart attack detection system



Apple Watch car accident detection useful network praise



Apple Watch praised for saving UK man's life after wild 48 hours when heart stopped 138 times





Source: Kelsey Farish on [Twitter](#)

Tektelic eBeat Arm Band

eBeat Solution

» Use Case Opportunity

Simple and low cost digital medicine solution that reduces medical personnel efforts & costs and improves quality & accuracy of patient care in hospitals, nursing homes and at homes.



Key Features

- » Long range wireless communication
- » 24/4 autonomous operation
- » Personalized setting by a nurse
- » Vital signs data and analysis
- » Alarm setting and monitoring
- » Easy to use by patients of all ages
- » ~3 month battery life (CR2477)



Core Functions

- » Blood Oxygen (SpO2)
- » Heart Rate & HRV
- » Body Temperature
- » Respiratory Rate
- » Body Position
- » Fall Detection

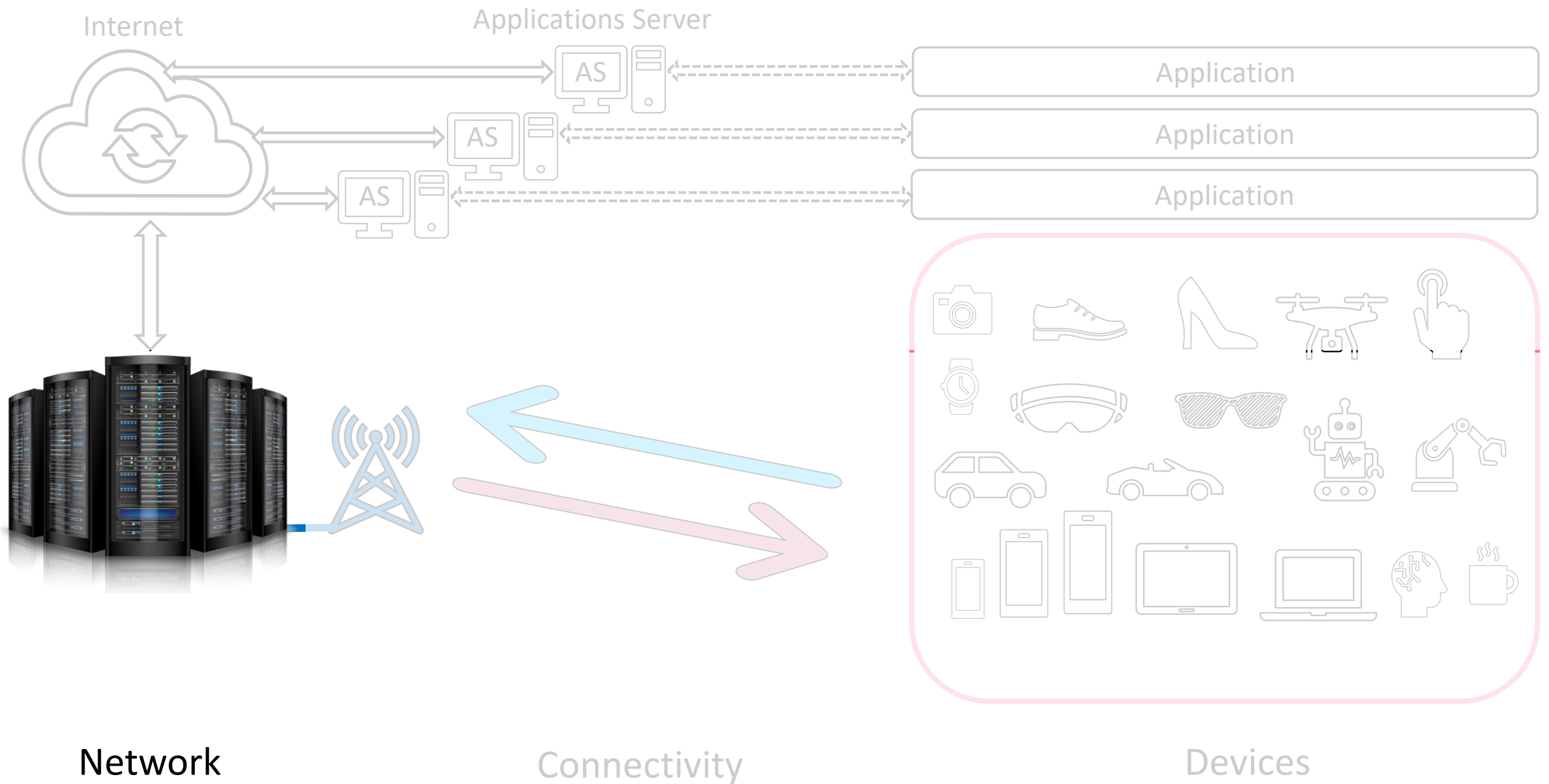
Digital Health reduces medical personnel efforts by 20-35%

Tekihealth's Teki-Hub for Care Homes and Remote Consultation



More info on [WM5G](https://www.wm5g.org.uk) and [Tekihealth](https://www.tekihealth.com)

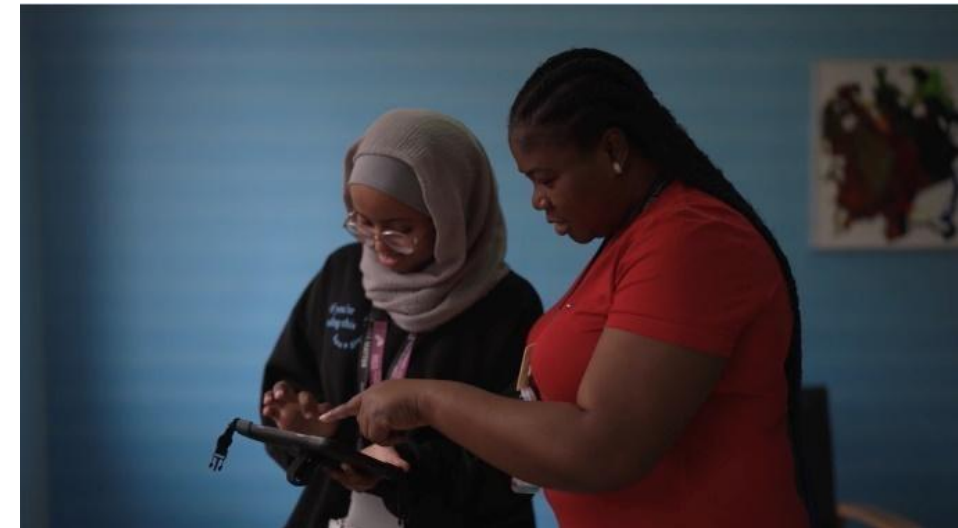




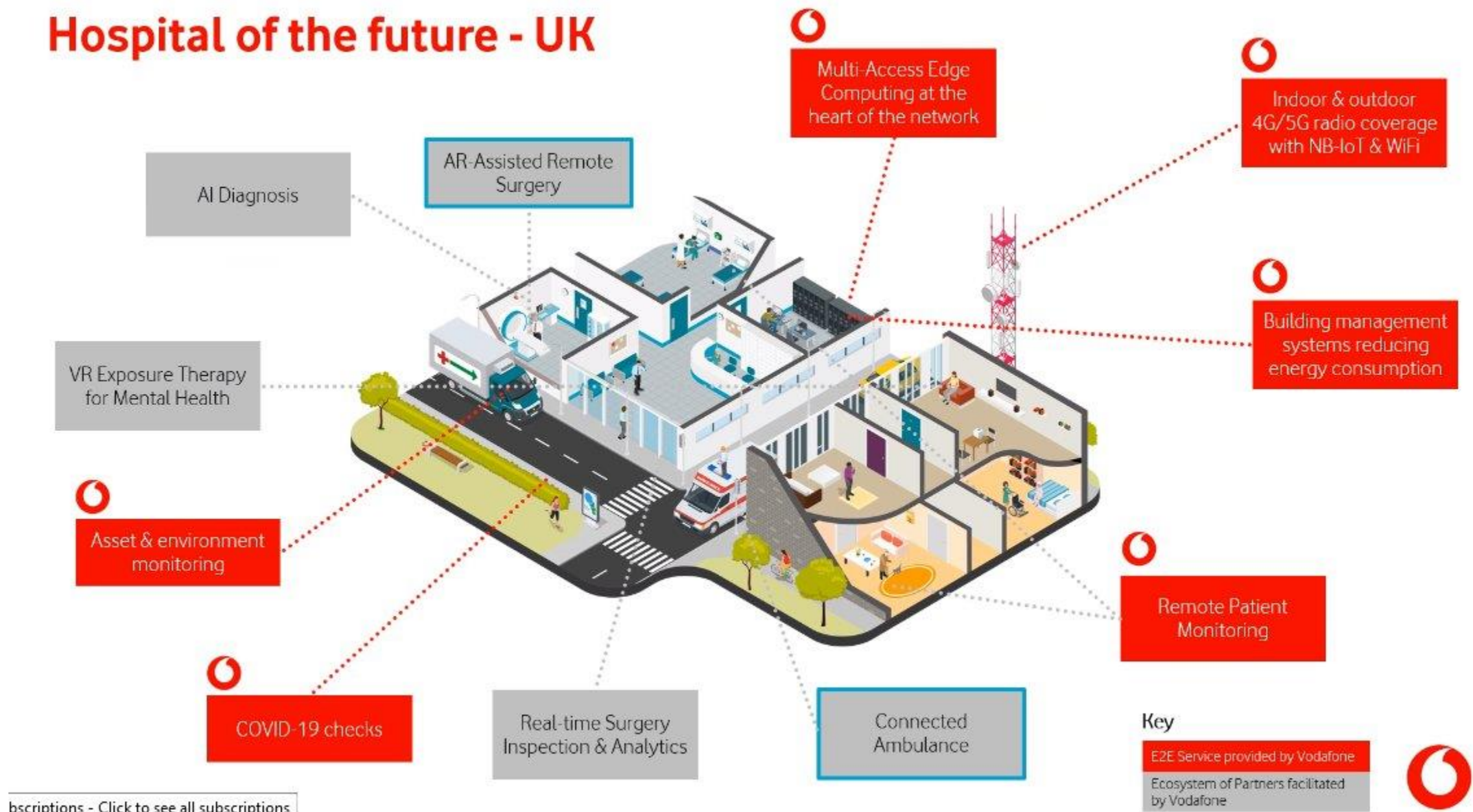
Private Network for UK's First 5G Hospital

Virgin Media O2 Business and Nokia use a Private 5G Network to connect mission-critical hospital activity:

- Handheld devices to update patient records.
- Smart devices and monitoring to reduce expensive medicine waste and track the air quality in wards.
- Hospital IT teams will have access to expert maintenance support in other hospitals thanks to Remote Expert (an AR tool)



Hospital of the future - UK

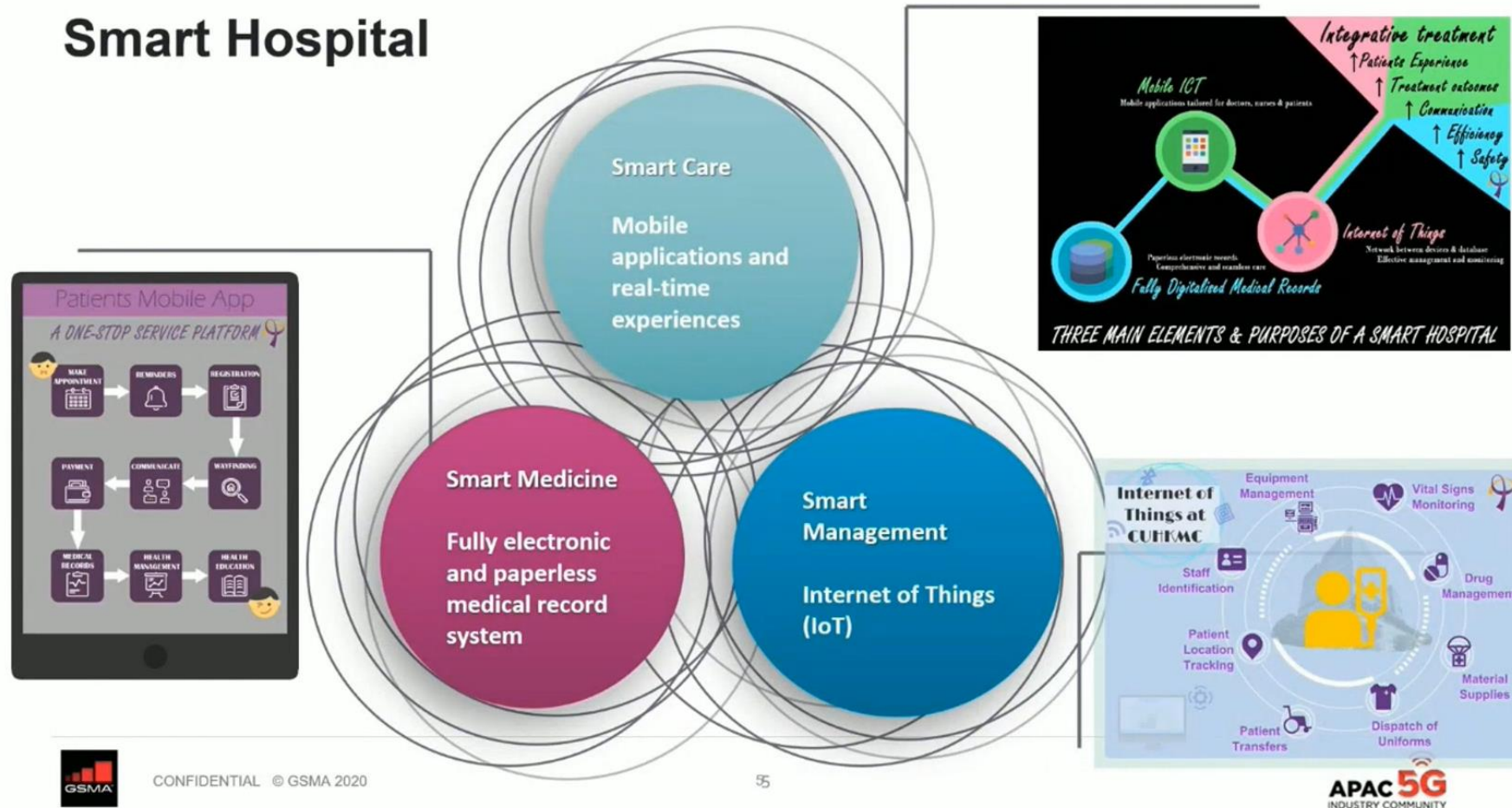


bscriptions - Click to see all subscriptions

C1 Public
See how Vodafone Group

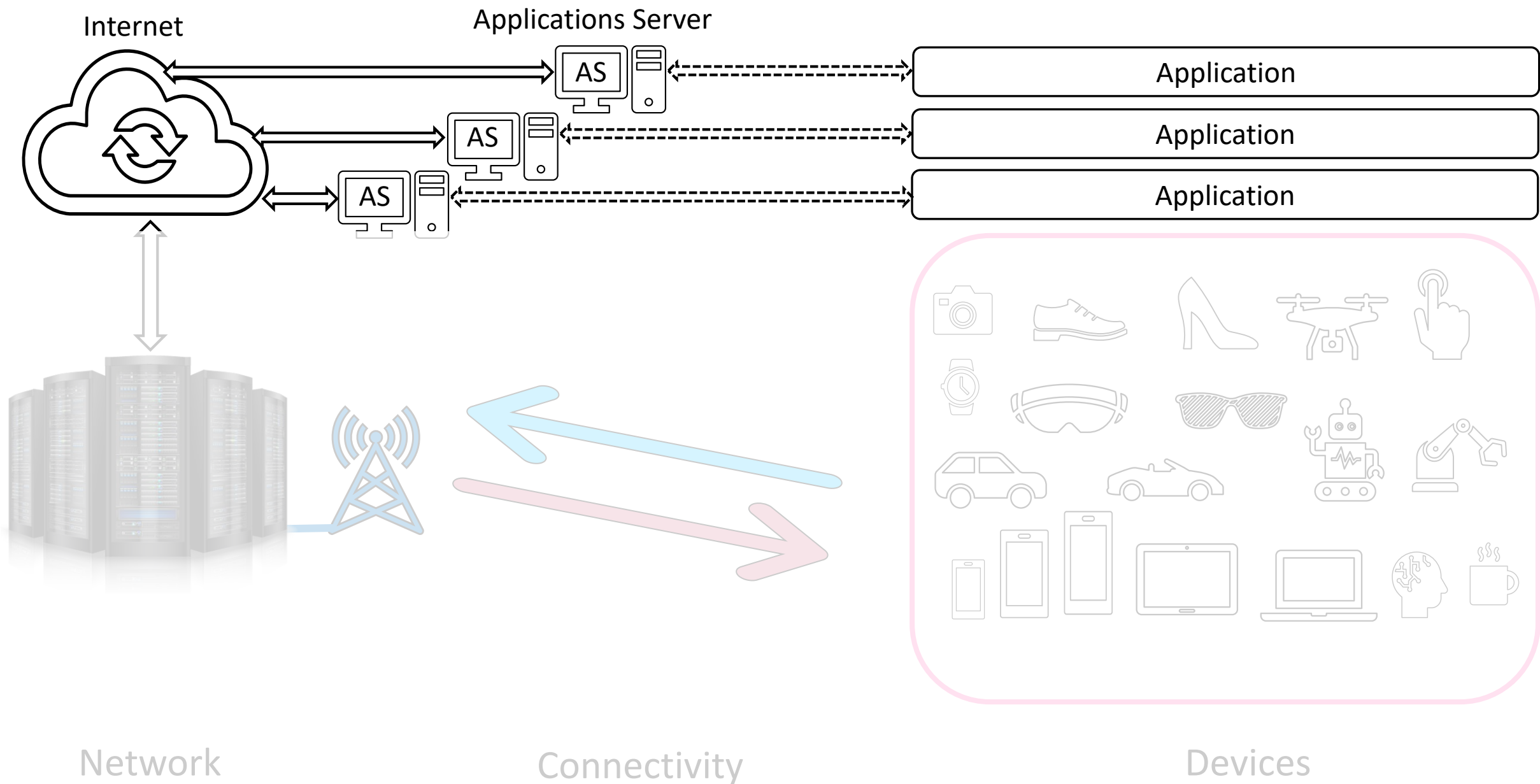
Smart Hospital: CHUK Medical Centre, Hong Kong

Smart Hospital

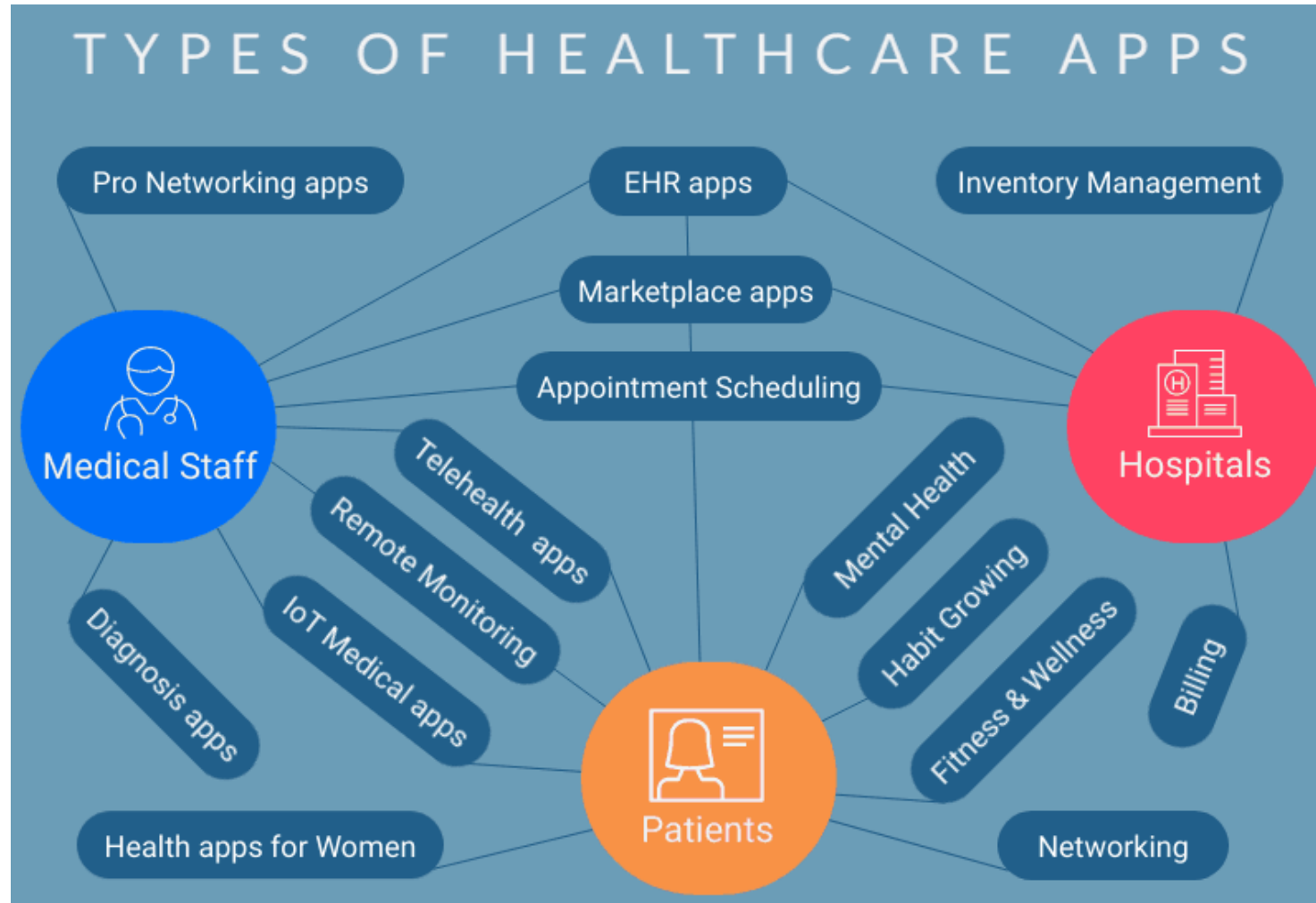


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Examples of Healthcare Apps in General



Source: [Topflight](#)

Example of mHealth Apps from China

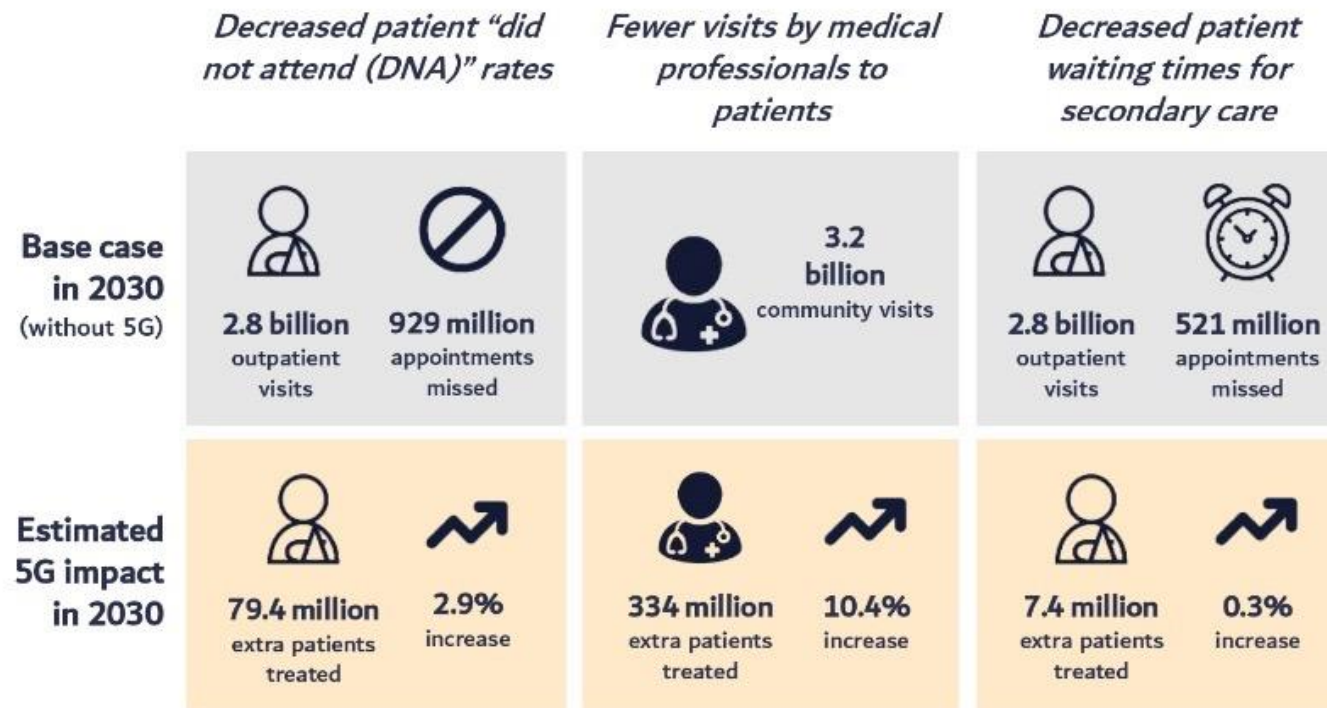


Source: [MDPI](#)

Huge Potential for Connectivity in Healthcare

In healthcare, 5G use cases like virtual consultations improve patient outcomes significantly

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Source: [STL Partners](#)

Further Reading

- NTT Docomo: Mobile SCOT Concept ([link](#))
- Springer Link: Smart Cyber Operating Theater (SCOT): Strategy for Future OR ([link](#))
- China Daily: 5G brings advances for rural healthcare ([link](#))
- Vodafone UK: How 5G and IoT Technology Can Transform Health and Social Care ([link](#))
- Satellite Applications Catapult: Connected Ambulances: The Future of Healthcare ([link](#))
- Apple Newsroom: Apple reveals Apple Watch Series 8 and the new Apple Watch SE ([link](#))
- Apple support: Intro to Health data on iPhone ([link](#))
- Samsung: Enhance your life with Samsung Health ([link](#))
- TechRadar: Amazfit smartwatches are getting a potentially life-saving new feature ([link](#))
- The 3G4G Blog: 5G & AI Powered Smart Hospitals ([link](#))
- The 3G4G Blog: 5G Remote Surgery and Telehealth Solutions ([link](#))
- The 3G4G Blog: Banana and Egg gets 5G Telesurgery ([link](#))
- Operator Watch Blog: Vodafone Deutschland (Germany) Continues 5G Use Cases Innovation ([link](#))
- Operator Watch Blog - China Mobile on The Next Phase of 5G: Progress, Challenges, and Opportunities ([link](#))
- VentureBeat: Telemedicine and chatbots are using data to transform health care ([link](#))
- Vodafone Germany - Connecting4Good: Visit to the doctor at the telemedicine station ([link](#))
- UK5G: 5G and Medical Treatment ([link](#))
- UK5G – 5G in Action: Emergency Care ([link](#)), Remote Robotic Surgery ([link](#)), Telemedicine ([link](#))
- Liverpool 5G: Connecting Health and Social Care in Liverpool ([link](#))
- STL Partners: Quantifying the impact of 5G on the healthcare industry ([link](#))
- Research Paper - Recent Advances in Wearable Sensing Technologies ([link](#))
- Advanced Materials: Research Paper - Wearables in Medicine ([link](#))
- IPSOR Magazine - Wearables: Making a Mark in Digital Health ([link](#))
- Huawei Watch D lands in China with blood pressure tech ([link](#)). Demo of Blood pressure measurement ([Video 1](#), [Video 2](#))
- Qualcomm OnQ Blog - Developers: Building intelligent health and fitness wearables ([link](#))

Thank You

To learn more, visit:

3G4G Website – <https://www.3g4g.co.uk/>

3G4G Blog – <https://blog.3g4g.co.uk/>

Telecoms Infrastructure Blog – <https://www.telecomsinfrastructure.com/>

Operator Watch Blog – <https://www.operatorwatch.com/>

Connectivity Technology Blog – <https://www.connectivity.technology/>

Free 5G Training – <https://www.free5gtraining.com/>

Free 6G Training – <https://www.free6gtraining.com/>

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