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## **Disruptive Analysis**

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*Don't Assume*

# **Latency – and networks in the real world**

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@disruptivedean

Image credits: Pixabay.com / Dean Bublely / Stable Diffusion AI / Midjourney AI

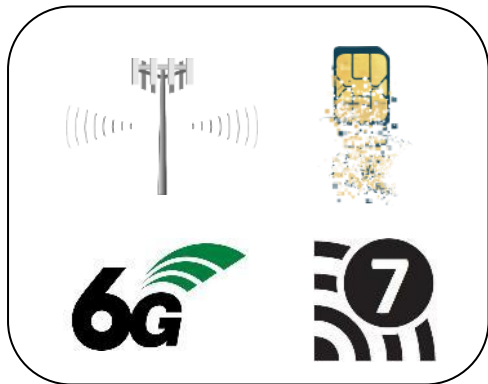


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# Dean Bublely & Disruptive Analysis @disruptivedean

- Tech/telecom analyst & strategic consulting since 1991
- Covering 5G, 6G, Spectrum, FTTX, Wi-Fi, voice, cPaaS...
- Following Network APIs since 2008, cPaaS since 2011,
- Advisor to telcos, large & small vendors, investors, government
- **Biases: Against monopolies, lazy incumbency & hype**



**Network Tech, Policy  
& Business Models**



**Communications  
Apps & Services**



**Telecom-Futurism**



**Industry Analyst  
Consulting &  
Reports**



# Real world networks mean latency is unpredictable

- Where is the user / device?
  - Indoors / outdoors?
  - Static or moving?
- Which network(s) is it attached to?
- Who controls the network(s)?
- Where is the server & edge?
- What is the value of latency?
- What happens with AI?

**Real world network conditions are complex & often unpredictable  
“Informed Adaptivity” will be the norm, although exceptions exist**



**DIRTY SECRET....**

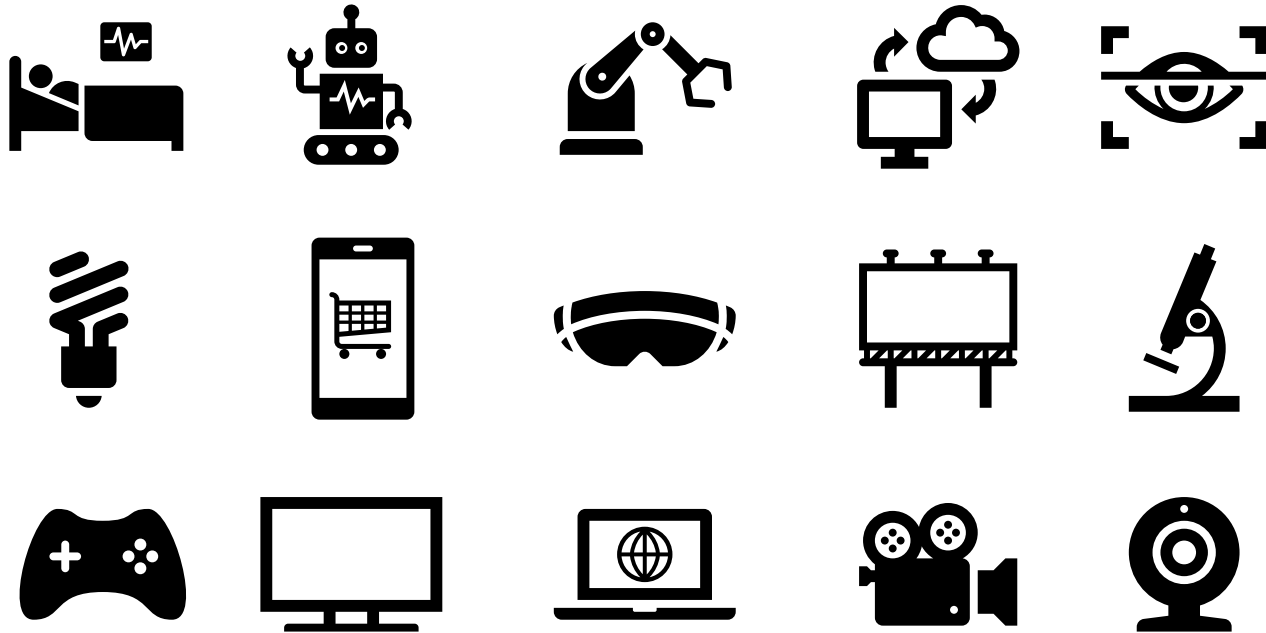
**LOW-LATENCY DOESN'T WORK, IF THERE'S  
NO RELIABLE NETWORK COVERAGE**

**So, where is there reliable network coverage?**

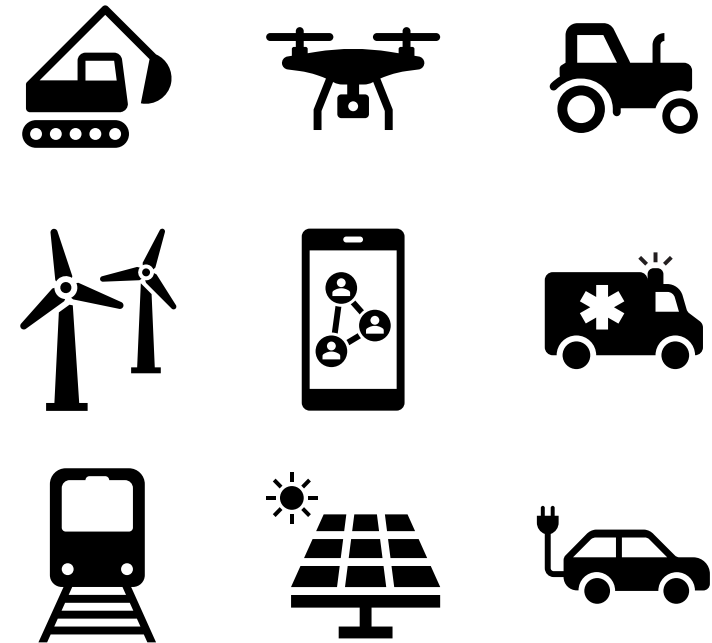


c80% of mobile use/value is indoors. But <5% of attention

## Indoor



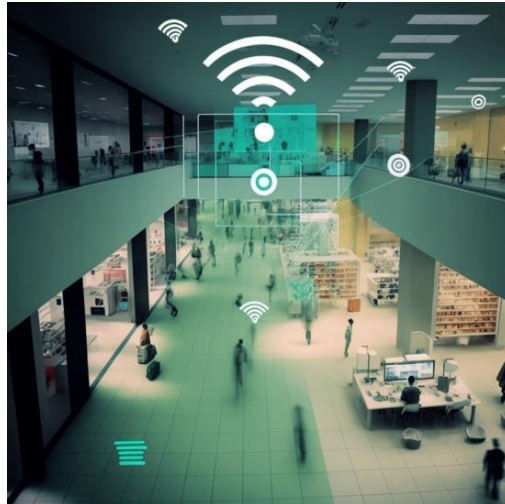
## Outdoor







# Many indoor environments & user/device types



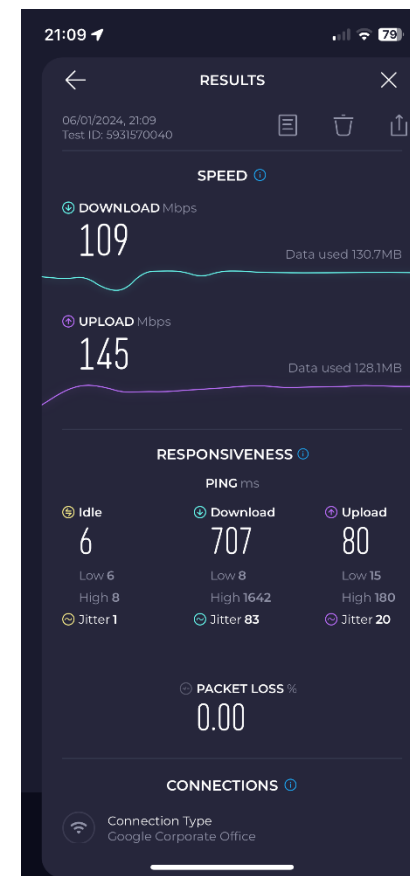
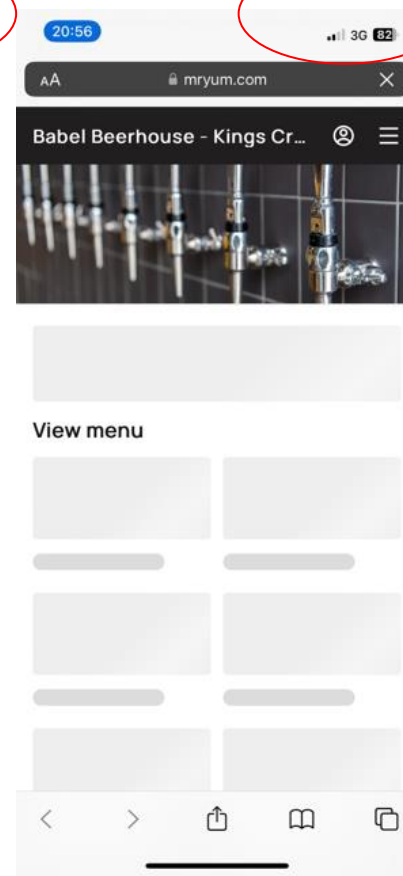
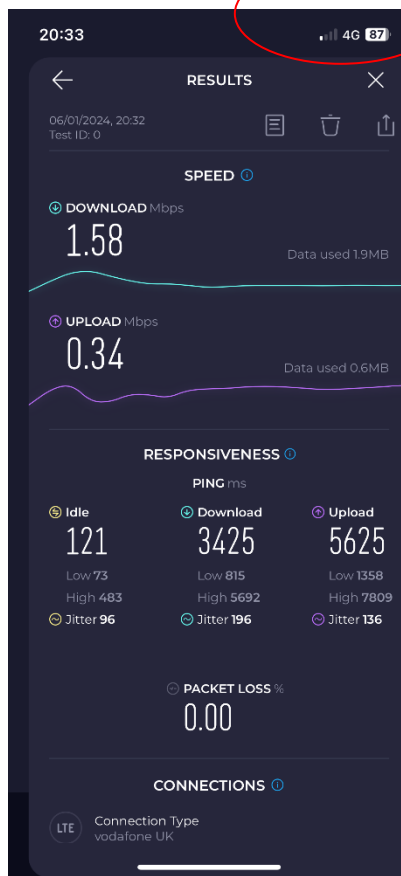
- Houses / MDUs
- Offices
- Venues
- Commercial
- Industrial
- Transport
  
- Cities can have 1000s of complex buildings / structures



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# Low-E glass wall; a case study over a pint

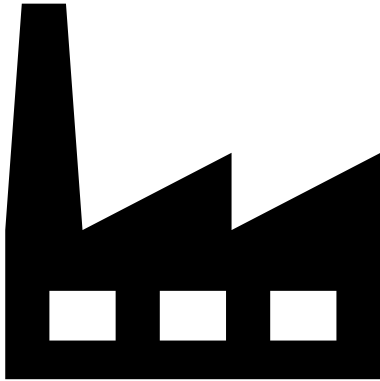


A seat by the window. A key London business district. 1Mbps from MNO. QR menu? Nope.

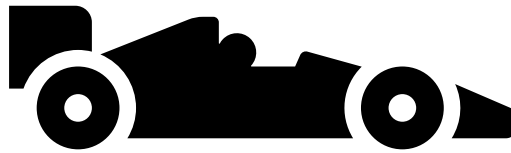
*Ah, Google DeepMind next door has open Wi-Fi through the wall*



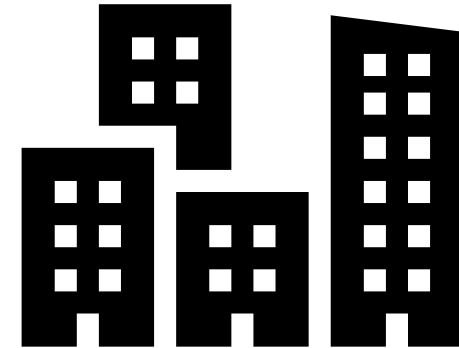
# Reliable, predictable network coverage suitable for QoD



**Private 5G networks**



**Carefully-  
engineered wireless  
at specific venues**

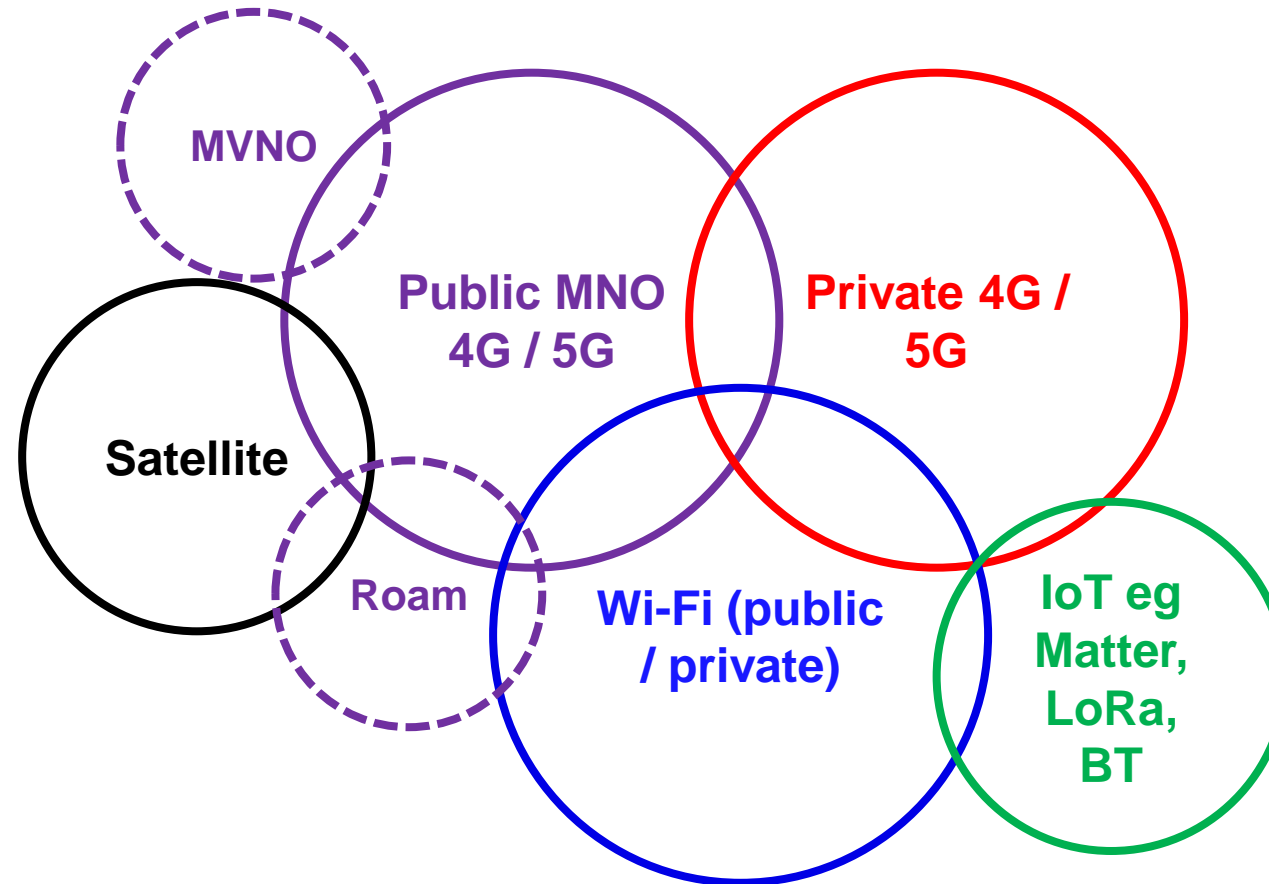


**Metro areas  
(outdoors) + indoors  
with neutral host**





# Wireless network landscape is complex & often hybrid





# Networks will increasingly involve boundaries

## ■ Wholesale / retail

- ☐ Open-access FTTP + Retail ISPs
- ☐ MNOs + MVNOs
- ☐ Shared networks / neutral host

## ■ Coverage extension

- ☐ Satellite
- ☐ Indoor
- ☐ Shared rural / remote

## ■ Daisy-chained

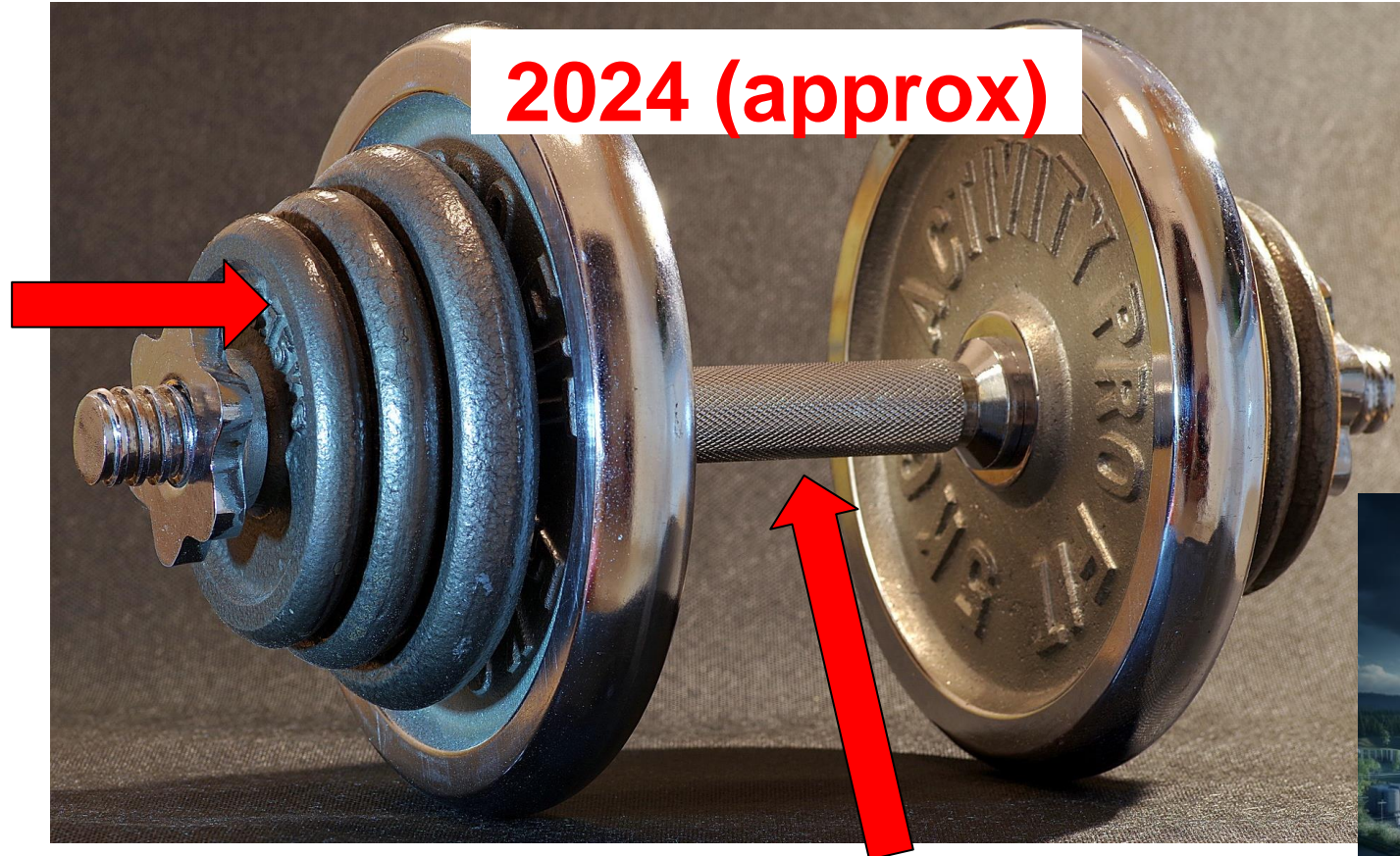
- ☐ Cellular + Wi-Fi
- ☐ Ethernet + USB
- ☐ Mesh
- ☐ Access + Bluetooth / Matter

## ■ End-to-end latency will be composed of multiple network segments... and multiple network owners



# Energy availability wins over latency for edge

**Devices &  
Device-  
Edge  
Units  
70-  
100GW**



**2024 (approx)**

**Mid- & Large  
DCs  
150GW**

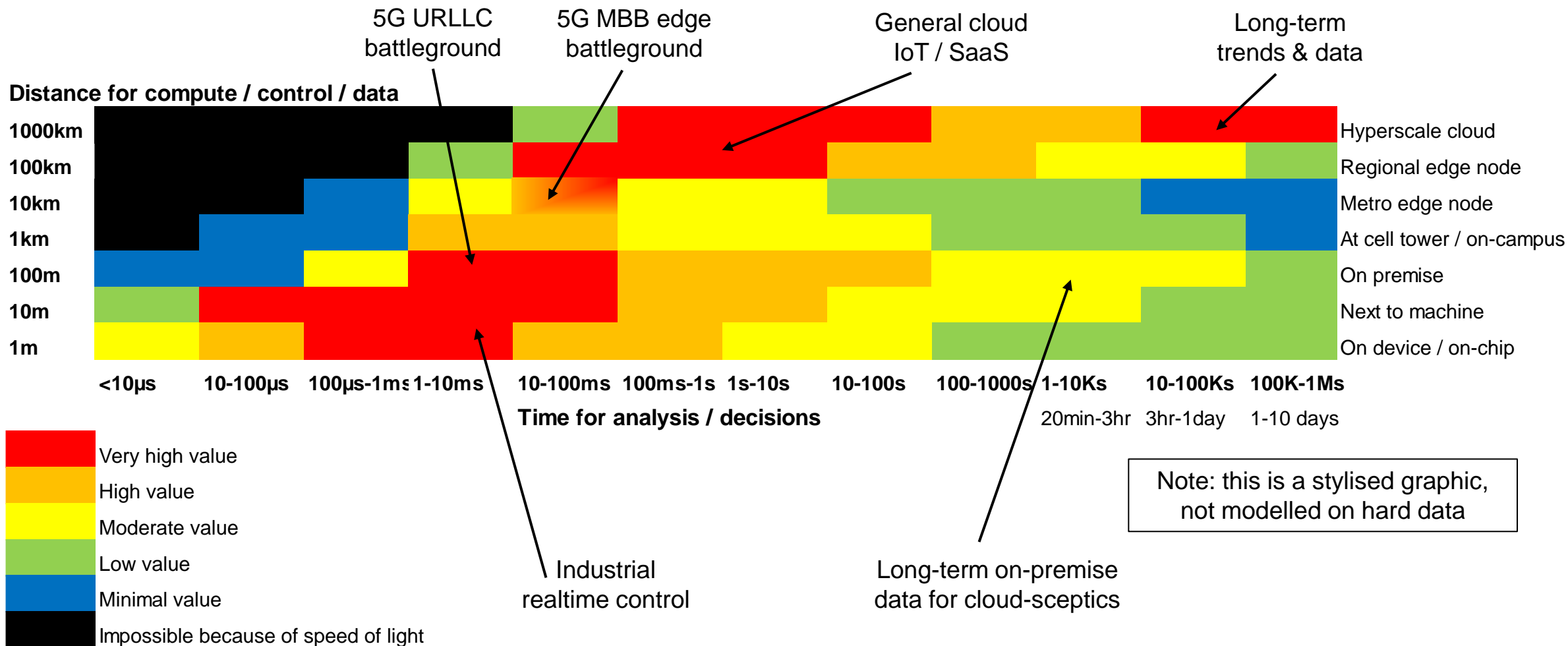
**(+SMRs in  
future?)**

**MEC, AI-RAN, Network Edge & Micro DCs  
<5GW**





# Cloud / IoT latency & edge: hypothetical heatmap of value

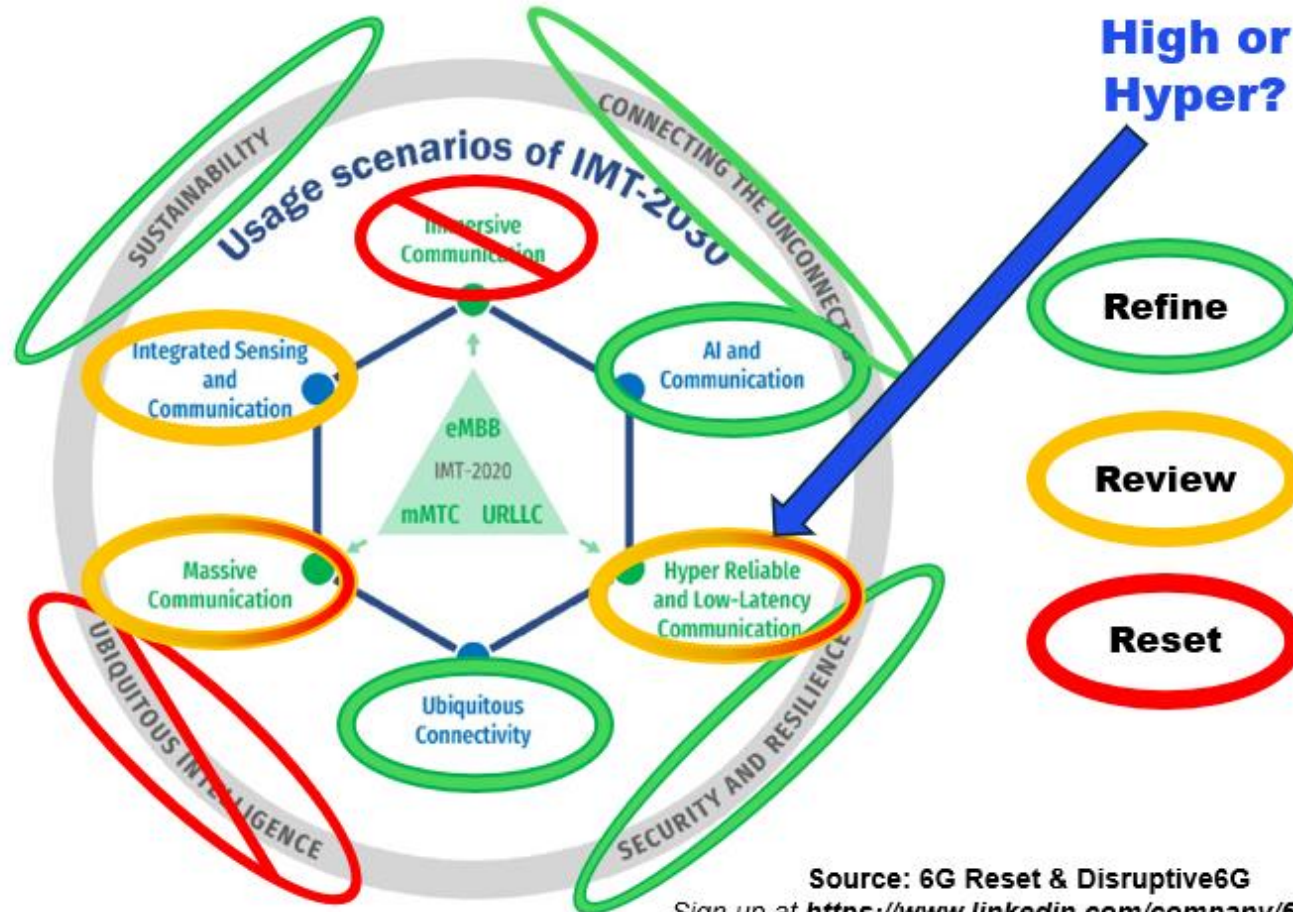






# Forget about 6G and 0.1ms latency

**6G  
RESET**  
#6Greset



Source: 6G Reset & Disruptive6G

Sign up at <https://www.linkedin.com/company/6greset/>





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# Could GenAI help “hide” latency or other network issues?





## **DIRTY SECRET #2....**

# **NETWORK AWARENESS & INSIGHT IS OFTEN MORE VALUABLE THAN CONTROL**

**Is there coverage at Location X, or along route Y-Z? What capabilities are available? Is the network congested?**

**Think about “Informed Adaptivity” – eg L4S, insight APIs**



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