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IoT Trends: Leveraging the Power of Wireless Connectivity

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Introduction and contents

- Contents
 - Value of Wireless connectivity
 - Current wireless connectivity technologies and standards
 - Future trends
- Hopefully, it will provoke some new thoughts
 - Help you make educated decisions regarding your future products
 - Question some preconceptions on wireless communications

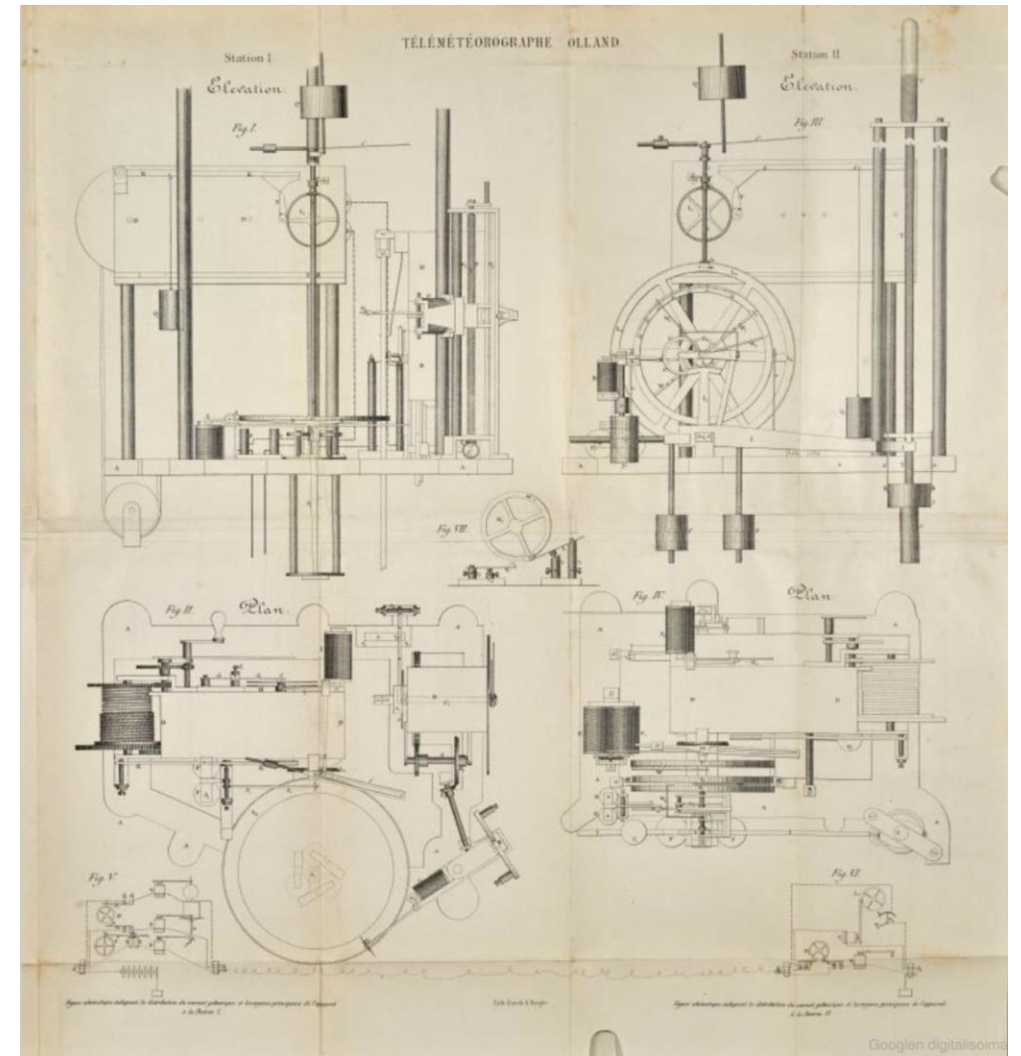
Connectivity – why?

■ Connectivity?

- In a connected world one requires Connectivity to leverage value from data, information, control etc.

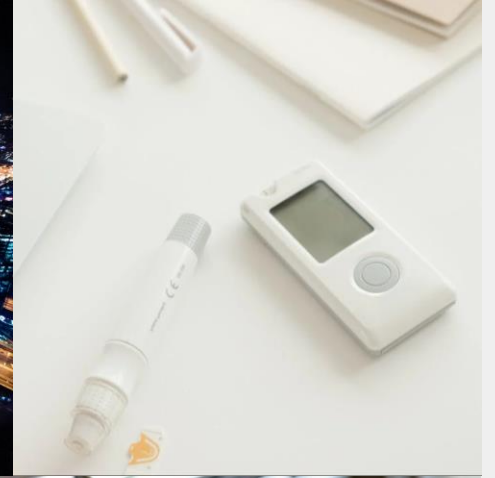
■ Why wireless connectivity?

- Even with its complexity and challenges, it is still hugely valuable
- Mobility of devices
- Self-healing
- Reduced installation and maintenance costs
- Convenience and practicality



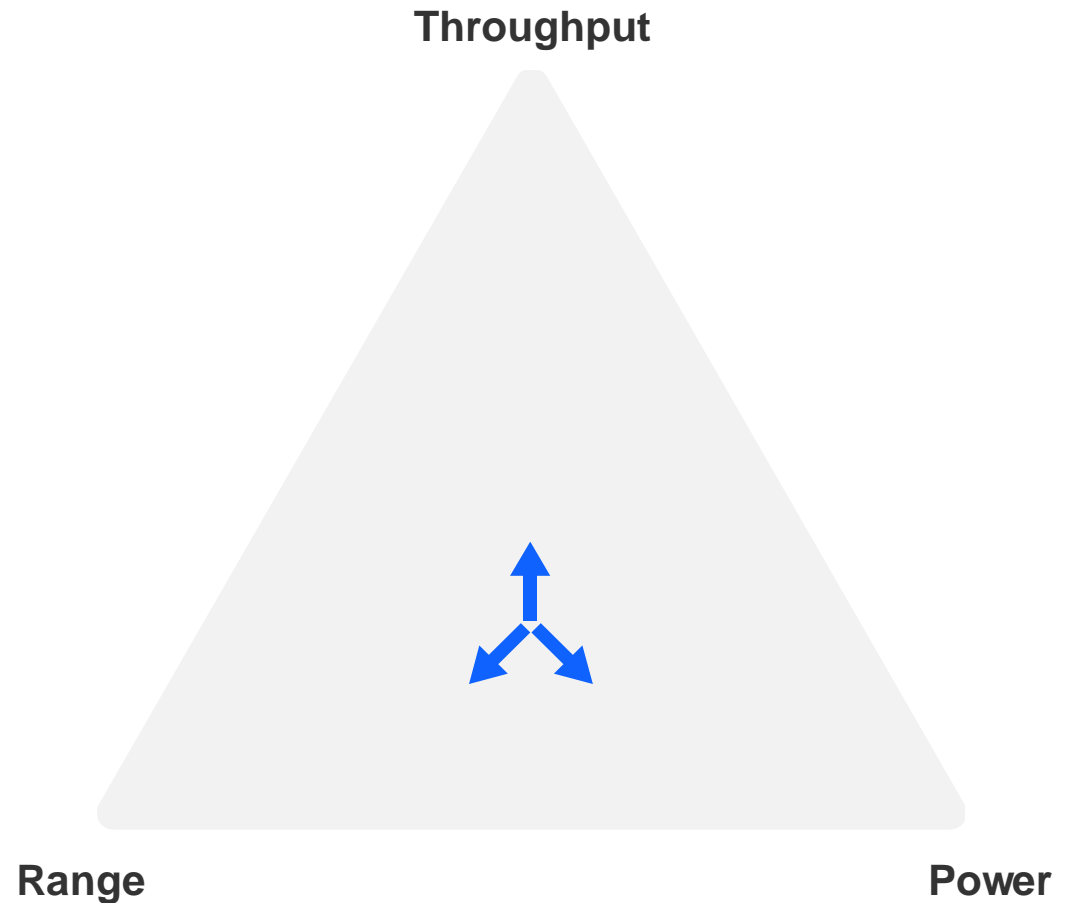
Connectivity use cases

- Smart metering
- Smart cities
- Appliances/electronics
- Medical
- Health
- Security
- ...



Connectivity requirements

- Range
- Low power
- Data rate
- Multi-hop/mesh
- Reliability (jamming tolerance/avoidance)
- Co-existence
- Scalability
- Etc.



Wireless technologies...

- **Why so many wireless technologies?**

- Wireless is fundamentally complex
- No universal solution

- **Is Connectivity the ultimate foe for IoT solutions developers?**

- No! It just requires informed choice of technologies and partners

- Aloha
- Bluetooth
- BLE
- Zigbee
- Zwave
- WiSun
- Thread
- Cellular (2G, 3G, 4G, 5G...)
- LoRaWAN
- Sigfox
- WiFi (all variants)
- Cat-M1
- NB-IoT
- NFC
- RFID
- ANT
- Dash7
- WirelessHART
- Satellite (e.g. Intelsat, Inmarsat, Iridium and Starlink)
- DSN (Deep Space Network)
- + multitude of proprietary protocols and technologies



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Trends

General trends

- Constantly evolving
- Competing requirements
 - Efficiency
 - Range
 - Speed
 - Etc...
- These trends are fundamentally orthogonal → increasing specialization of the wireless technologies
 - This trend seems to be going strong!
- Increasing integration
- What does this mean to the developer then?
 - Think ahead
 - Think about future product portfolio
 - Think about the breadth of wireless technologies

Wireless technologies in select segments

- Smart cities
 - Sidewalk
 - Wi-SUN
- Home
 - Wi-Fi
 - Thread
 - Bluetooth
- Commercial
 - Bluetooth

Protocols and software

- Matter
 - Achieved something extraordinary
 - Different wireless technologies
 - Commercial and industrial use cases
- Sidewalk
 - An interesting approach to large-scale network availability
 - Similar advantages to cellular networks
 - Excellent choice to certain applications in the U.S.

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Thank you!

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