NOKIA

Go Allwhere.

5G Strategies For Airports

Why private wireless networks matter to airports

ACI-NA BIT Committee Workshop
Tampa Convention Center
September 14, 2019

Wireless Networks
Why are we even discussing the topic?

Go Allwhere.

SOME REAL LIFE CHALLENGES / USE CASES FROM AIRPORTS:

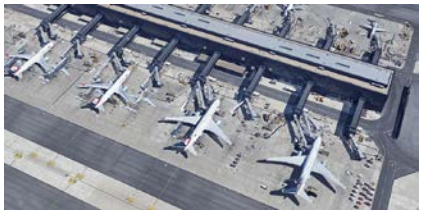
- We want to become **more autonomous** from service providers for both wireless and wireline
- The digital airport requires a **RELIABLE** and **SECURE wireless service** for all of our stakeholders & things that is **able to scale** with my airport strategy

EXAMPLES

HELSINKI – VANTAA

What: Full Airfield 4G private coverage
Indoor 5G coverage

Users: Marshall: Follow me vehicles
De-Icing operator
First Responders (vehicles) & APOC
Passenger help



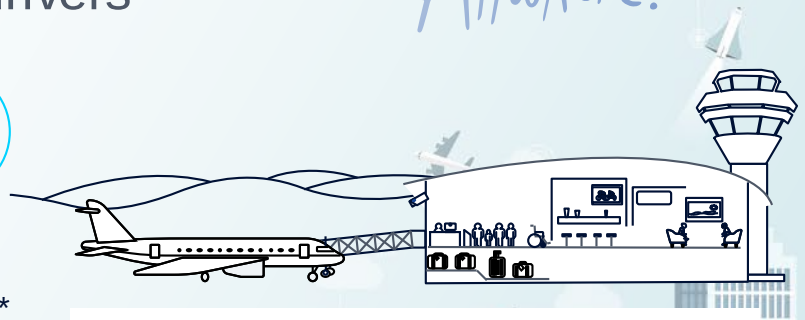
VIENNA

What: Full Airfield 4G private coverage
Dedicated ramp coverage

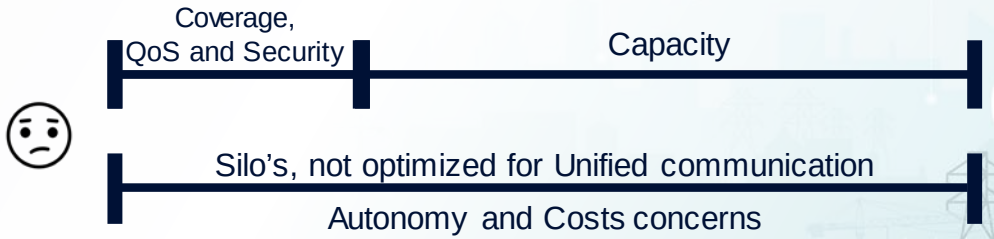
Users: Ground handlers
Airport vehicles

- The below wing process suffers from **patchy connectivity**. WiFi is **blocked by the wings** and passengers eat up the 4G bandwidth
- Mobile coverage at airfield is **not reliable or not even available**, this requires people continuously to go back to base for new instructions
- My fixed CCTV coverage limits my **situational awareness for the APOC**, I want to expand this in a flexible way
- I need **remote connectivity**, however, fiber costs are prohibitive
- My TETRA contract ends in 3 years, should I **re-invest in this silo**?
- The **Airport busses** lack proper connectivity, for operations and passenger WiFi

Wireless services at airports
Strategy Change: Technology & Business drivers



Airside & Landside Operational **communication** and **continuity** not optimized



KEY CONSIDERATIONS FOR A NEW STRATEGY

- **Digital Transformation**
  Enhanced decision making
- **Investment Protection**
  Platform with migration path
- **Situational awareness**
  Go beyond fixed CCTV coverage
- **Autonomy**
  Reduce 3rd party dependency
- **Operational Continuity**
  Purpose build, Secure, Prioritized services

* LPWA: Low Power Wireless Access – e.g. LoRA, SiGFoX

Wireless Strategy Considerations
Private services, Technology and Timeline

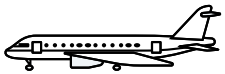
Go Allwhere.

OPTIMIZED WIRELESS AIRPORT COMMUNICATION

Mobile Operator
(public services) [DAS]

WIFI

Private Multi-service Broadband Wireless Platform



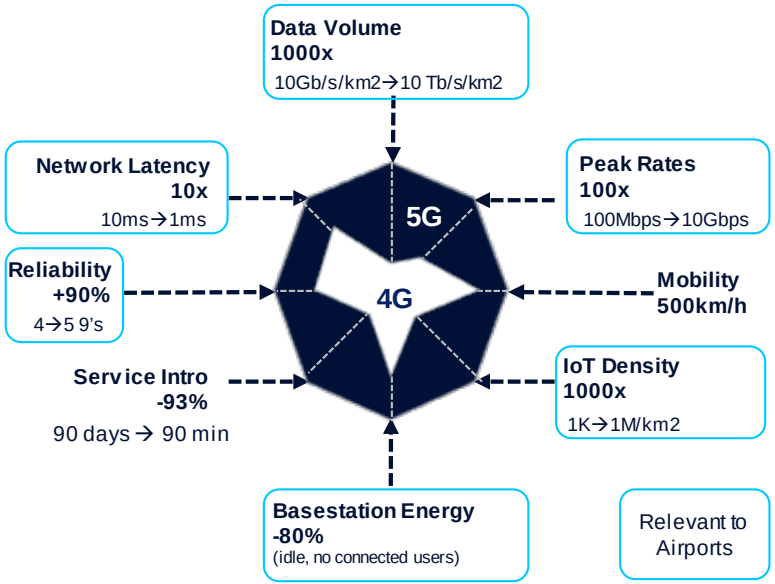
PASSENGERS

OPERATIONS

Best Connectivity Experience

Best Reliability, Secure, Predictable Performance, Unified Communication

MULTISERVICE TECHNOLOGIES



TIMELINE

NOW
- 4G Devices
- 4G Radio
- 5G Ready Core
- CBRS 4G
- CBRS Alliance 5G Definition

2020
- 5G SA* device ecosystem ramp up
- Early 5G SA PoC's
- FCC finalize 5G CBRS definitions

2021
- Commercial 5G SA private Wireless
- 4G/5G Mission Critical devices
- 5G Radio
- 5G SA core

EXAMPLE USE CASES WITH 5G CHARACTERISTICS

Enhanced Broadband

- Aircraft Telemetry Offload

Ultra Low Latency | Enhanced Reliability

- Vehicle Collision Avoidance
- Automated remotely controlled Gatebridge

IOT Density | Enhanced Reliability

- Asset connectivity [IOT] for improved operational awareness / asset lifetime optimization

WRAP UP

- Private 4G/5G is the wireless foundation of the digital airport
  - Reliability • Security • OPEX • Awareness • Unified Communication
- CBRS spectrum creates a unique opportunity for airports to build the wireless foundation of the digital airport
  - Both 4G and 5G are multiservice techno's
  - 4G is available today and covers many use cases including low-latency driven
  - 4G allows for an evolution path to 5G
  - 4G and 5G can co-exist
- Private 4G/5G wireless solutions are available to airports without the need to become a wireless expert

Meet us at **BOOTH 1814** for a **LIVE** Demo!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