5G Strategies
For Airports

Why private wireless networks matter to airports

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Tampa Convention Center
September 14, 2019
Wireless Networks
Why are we even discussing the topic?

- 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

SOME REAL LIFE CHALLENGES / USE CASES FROM AIRPORTS:

- 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

- WiFi
- Public WLS
- P.25/TETRA
- LPWA*

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

Coverage, QoS and Security vs. Capacity

Silo’s, not optimized for Unified communication

Autonomy and Costs concerns

**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

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Wireless Strategy Considerations
Private services, Technology and Timeline

OPTIMIZED WIRELESS
AIRPORT COMMUNICATION

Mobile Operator
(public services) [DAS]

Private Multi-service
Broadband Wireless
Platform

WIFI

PASSENGERS

Best Connectivity
Experience

OPERATIONS

Best Reliability, Secure,
Predictable Performance,
Unified Communication

MULTISERVICE TECHNOLOGIES

Data Volume
1000x
10Gb/s/km2 → 10 Tb/s/km2

Network Latency
10x
10ms → 1ms

Reliability
+90%
4 → 5 9's

Service Intro
-93%
90 days → 90 min

5G

Peak Rates
100x
100Mbps → 10Gbps

Mobility
500km/h

4G

10ms → 1ms

9 9's

IoT Density
1000x
1K → 1M/km2

Reliability
-80%
(idle, no connected users)

Basestation Energy
-80%

Relevant to
Airports

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

Definitio

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

• Commercial 5G SA
private Wireless
• 4G/5G Mission
Critical devices
• 5G Radio
• 5G SA core
EXEMPLARY USE CASES WITH 5G CHARACTERISTICS

**Enhanced Broadband**
- Aircraft Telemetry Offload

**Ultra Low Latency** **Enhanced Reliability**
- Vehicle Collision Avoidance

**IOT Density** **Enhanced Reliability**
- Automated remotely controlled Gatebridge
- 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 technol'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

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