Prospects of 5G ICT infrastructure at airports

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By: Karim Jaser – SITA Product Management Mobility and IoT
“We always overestimate the change that will occur in the next 2 years and underestimate the change that will occur in the next 10”  Bill Gates
Airport 10 predictions for 2030

1. Security is integrated/frictionless journey (on the move)
2. Fully digitalize security (Data, AI, Interconnection)
3. Activities have moved away from the airport (Bags, Sensors, UAV)
4. The airport is highly connected everything is monitored
5. The airport is now thinking for itself (AI)
6. Collaboration is critical for efficiency and profitability (Data Sharing)
7. The airport is now highly automated (Mission Critical Performance)
8. An airport that adapts to the passengers’ needs (Flexibility)
9. Mobility is now a service on demand (New Business Model)
10. There’s an API for everything we do at airport (API)
How can I solve patchy communications?

How can I connect my devices indoor/outdoor?

What’s the future looking like?

How can I connect my passengers in the check-in area, at the gates or in the plane?

How can I have remote connectivity in the Apron?

How can I connect and have signal on the plane?

Should I invest in TETRA or cellular?

What about Wi-Fi?

Should I deploy a private or public 5G solution?
Present Airport communications: Several ad hoc networks

TETRA
Highly Reliable!

Cellular?

Best Effort

Planning and cabling!

Wi-Fi

Airport Premises

AIRPORT Fixed network
Compelling event: MCPTT moving to cellular

US/S-Korea planning to move to LTE

End of technical lifetime for a number of TETRA network

Market disruption, Window for Managed Transition from Narrowband to critical broadband

Critical LTE data + Voice technology Available

TETRA communications available

2010 2015 2020 2025 2030

5G Available

New Gateways and mobile applications appearing in the market

ESTABLISHED TETRA SOLUTIONS

Text, Data, Video, Voice

Voice

source TCCA – The Critical Communication Association

MCPTT will migrate to cellular
Cellular: 5G Requires in building/outdoor dedicated coverage

Radio Waves Spectrum

- 3KHz
- 3kHz
- 2 GHz
- Wi-Fi 2.4/5GHz
  - 2.4 GHz
  - 5 GHz
- 5G: 3.5 GHz
- 24-86 GHz
- 50 GHz

Cellular in Building solution required
Wi-Fi is here to stay

Wi-Fi 6 uses MIMO and OFDMA to increase efficiency and capacity

Wi-Fi and Cellular are collaborating in serving wireless users needs

Wi-Fi will not disappear
Extra Capacity ?
Extra Capacity ?
Future Airport communications

E2E management and Service

TETRA/Mobile Convergence

Private and public Cellular

Seamless Authentication

TETRA

Wi-Fi

In Building Slicing

CONVERGENCE ON CELLULAR

Airport Premises
From cable to cellular mobility: Passengers and Operations: Connectivity and Reliability.

- Self Check in
- Self Bag Drop
- Self Driving assets
- Robotic Assistance
- Asset tracking
- Security – Video everywhere
- Sensors
- Crowd control – network analytics
- PAX and Operations, which network, private or public?
- Airport reconfiguration and expansion: wireless assets
Private LTE/5G - Improved turnaround

Reliable broadband services

- Baggage Services
- Bag Manager Tablet
- Ground Services Tablet
- Aircraft data offload
- Critical Voice PTT
- Pilot real time data
- Aircraft Services
- Crew Tablet Onboard

Below Wing

Above Wing
Private LTE/5G: AIRPORT DIGITIZATION and IoT:
The value of data: driving new use cases

- Green Airport
- PAX Experience
- Situational & Operational Awareness
- Video Analytics Security
- Marshal Car Real Time Awareness
- Improve & Guarantee Turnaround Time
- Asset Location Management
- Connected Aircraft
- Collision Avoidance
- New Business Models
- Automated Runway Inspection

SITAP
Emergency Response

Increased situational awareness

Security officer with bodycam & PTT phone
Landside / Airside

Wireless CCTV
Landside / Airside

Command and Control room: Controls PTT, PTV and VMS

Remotely controlled PTZ*
Camera on firefighter truck for management situational awareness

Smart Phone: Video Surveillance (Camera) and PTT

* Pan, Tilt, Zoom
THANK YOU