Cyber security in ATM - Is it sink or SWIM
An ANSP’s perspective.

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Director of CNS – UAE General Civil Aviation Authority
Our traditional “trust” model...

Local IP-VPN also has OLDI
International also has VOIP
SWIM = “Exposure to the elements”...
ANS systems vulnerability...
Why are ANS systems vulnerable?

- Legacy equipment
- Increased operational demands for SWIM connectivity
- Lack of Training
- Vulnerability of Critical inter-connected non-CNS systems
- Cloud based solutions
- Limited guidance on ANS related cyber regulations
- Staffing
Or are we the biggest problem?

IT security spending:
- Network: 62%
- Email: 8%
- Web: 12%
- Endpoint: 18%

Attack vectors:
- 93% of all breaches are attacks targeting people, 96% via email

Source: Gartner (2017 forecast).
Source: 2018 Verizon DBIR.
Consequences of a successful cyber attack

- Credible data corruption:
  - ATFМ slot allocation manipulation
  - ADS-B/ADS-C spoofed data
  - AMAN tactical manipulation
  - GNSS spoofing

- Loss of revenue

- Reputational damage

- Loss of life
What can be done to mitigate these risks
ANS Related Cyber Guidelines - Minimum Security Baselines (MSB’s)...

- Application security
- Firewall security
- Linux security
- Router security
- Switch security
- Third party data sharing and vendor access
- Web application firewall security
Dedicated ANS cyber security training...
Effective implementation...
Continuous monitoring...
CYBER SECURITY AND RESILIENCE SYMPOSIUM

TOWARDS A RESILIENT AVIATION CYBERSPACE

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