



# CYBER SECURITY AND RESILIENCE SYMPOSIUM

## TOWARDS A RESILIENT AVIATION CYBERSPACE

AMMAN, JORDAN | 15-17 OCTOBER 2019

## Cyber security in ATM - Is it sink or SWIM

An ANSP's perspective.

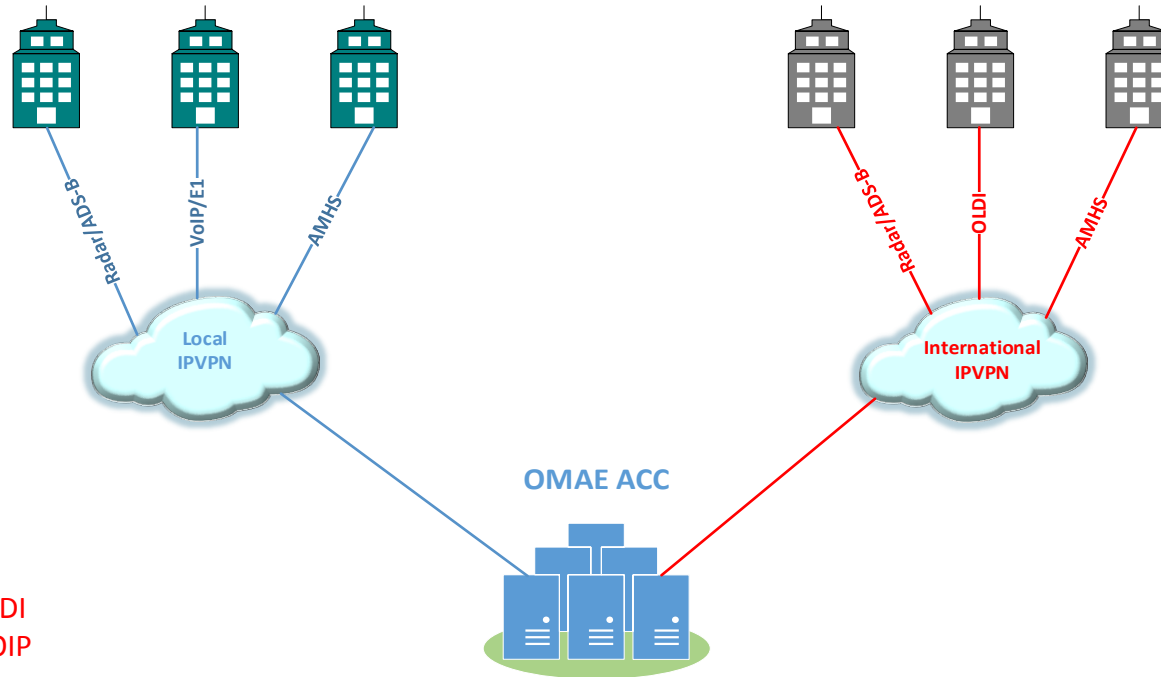
***Greg Kurten***

***Director of CNS – UAE General Civil Aviation Authority***





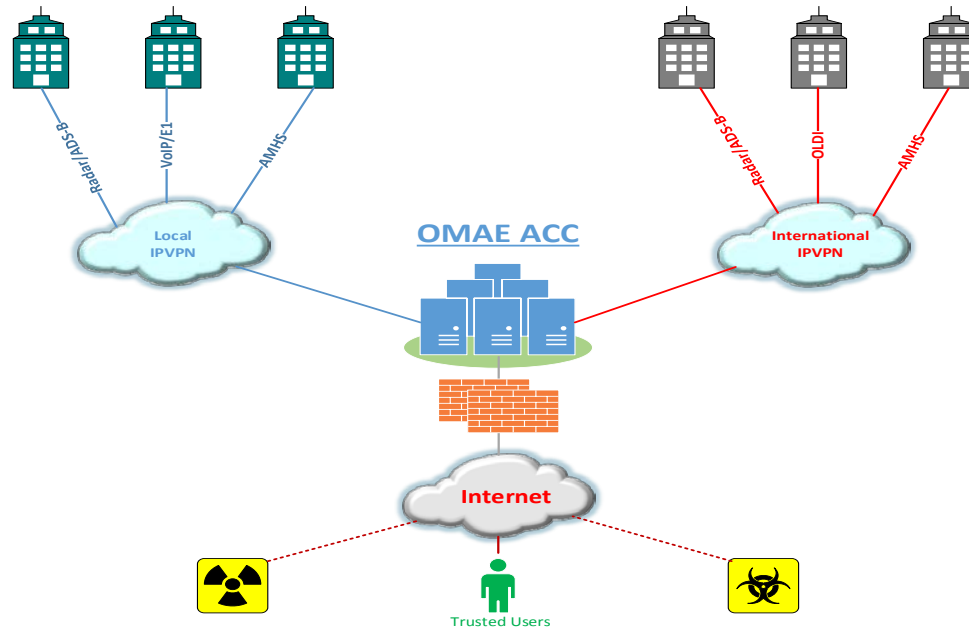
# Our traditional “trust” model..



Local IP-VPN also has OLDI  
International also has VOIP



# SWIM = “Exposure to the elements” ...





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75 YEARS OF  
CONNECTING  
THE WORLD

# ANS systems vulnerability...



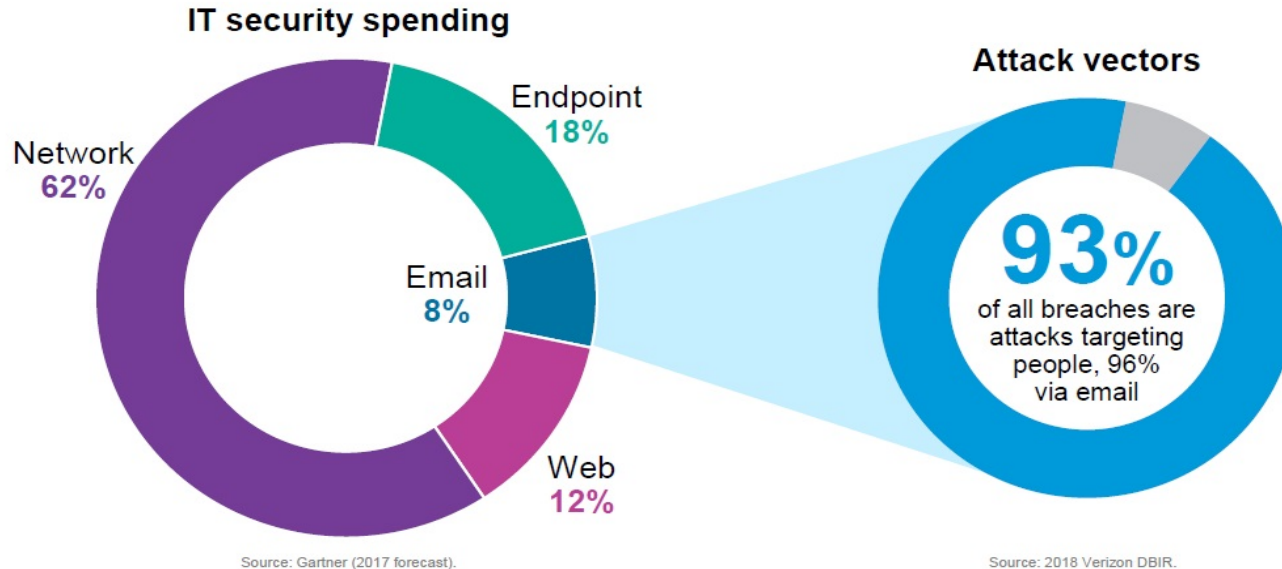


# Why are ANS systems vulnerable?

- 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?






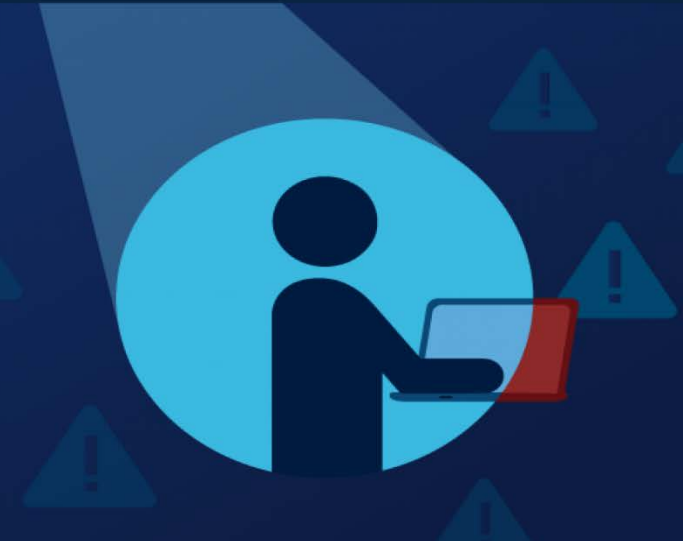
# Consequences of a successful cyber attack

- Credible data corruption:
  - ATFM 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

<b>CYBER SECURITY</b>	vs	<b>CYBER SAFETY</b>
protects data and information on networks.		protects individuals from harmful online content and activities.
 <p>A green shield containing icons for a desktop monitor, a server tower, and a laptop. Dotted lines with arrows indicate data flow between these devices. The background is dark green with faint icons of a fedora hat and sunglasses.</p>		 <p>A blue circle containing a silhouette of a person sitting at a desk with a laptop. The background is dark blue with several warning triangle icons.</p>



## 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

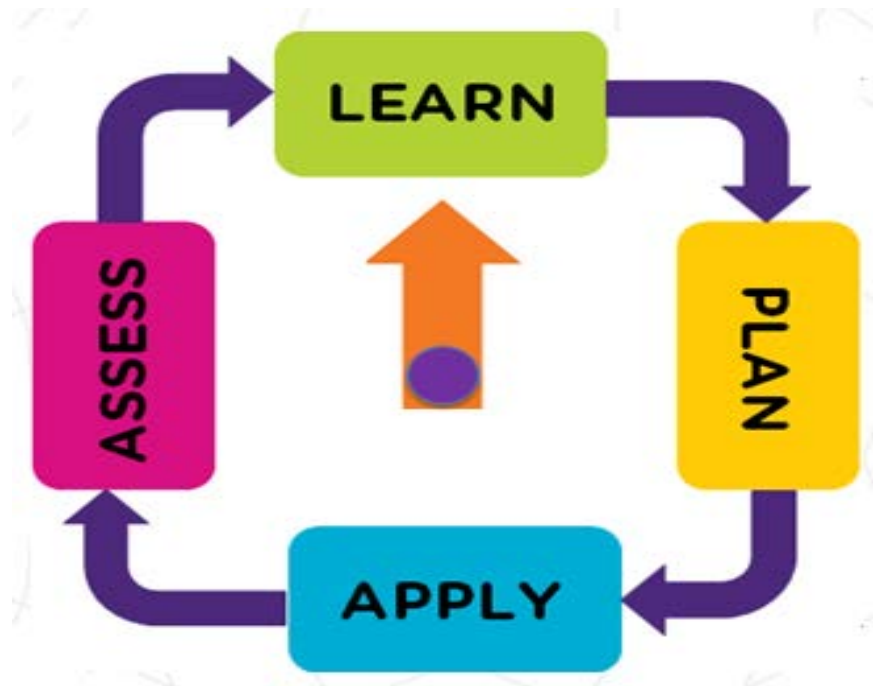


# Dedicated ANS cyber security training...





# Effective implementation...





# Continuous monitoring...





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Thank You