Planes, Trains and Automobiles (and Ships & Spacecraft)

Mobility Cyber Security

Andy Davis, Transport Assurance Practice Director
Global experts in cyber security & risk mitigation

- 1500+ Employees worldwide
- 35+ Offices across Europe, North America, Asia-Pacific & Middle East
- NCC Group was formed in June 1999
- 15,000 organisations worldwide to manage risk & limit threat of cybercrime
- £233.2m Group Revenue for year end May 2018
Agenda

• Size of the challenge
• Levels of cyber security maturity
• Lessons not being learned
• Progress being made
• The future
• Q&A
What is the size of the challenge?

Attack Surface Overviews
Harbours
- Office IT systems connected to the Internet
- AIS (Automatic Identification System) gateways
- VTS (Vessel Traffic Services)
- ICS (Industrial Control Systems)

Navigation
- GNSS (Global Navigation Satellite System) data
- ECDIS (Electronic Chart Display Information System)
- eLoran

Rigs
- AIS transceivers, LRIT (Long-range Identification and tracking)
- Fleet broadband
- DSC (Digital Selective Calling), Man-in-water beacons
- Data sharing between systems via USB memory sticks
- Lack of segregation between systems

Ships
- Malware inadvertently introduced via Internet browsing and USB memory sticks

nccgroup
Relative levels of cyber security maturity by industry

* Based on my experience at NCC Group
Lessons not yet being learned (between verticals)

• Embedded systems developer mind-set

• Safety ≠ Cyber Security

• Insecure data comms - CAN bus for satellites

• Segregation - TT&C shared with data

• COTS / Open Source software - needs to be security tested and regularly updated
Progress being made

- Guidance documentation
- Standards being developed
- Security Programmes – SDL
- Cyber security awareness is increasing
The Future – what challenges lie ahead?

• Multi-modal transport systems: 
  more communication between transport verticals

• 5G mobile communication: 
  more devices with connectivity / greater bandwidth

• V2X (Vehicle to everything): 
  privacy concerns / inter-vehicle malware

• Autonomous Vehicles and Artificial Intelligence: 
  safety concerns / new attack classes
Questions?

+44 (0)161 209 5200
TransportSecurity@nccgroup.trust
www.nccgroup.trust/transport

A global practice offering the full range of Cyber Security and Assurance services to the Transport industry

North America
- Atlanta
- Austin
- Boston
- Chicago
- New York
- San Francisco
- Seattle
- Sunnyvale

Canada
- Waterloo

Middle East
- Dubai

Europe
- Manchester - Head Office
- Amsterdam
- Basingstoke
- Cambridge
- Cheltenham
- Copenhagen
- Edinburgh
- Glasgow
- Leatherhead
- Leeds
- London
- Luxembourg

North America
- Atlanta
- Austin
- Boston
- Chicago
- New York
- San Francisco
- Seattle
- Sunnyvale

Canada
- Waterloo

Middle East
- Dubai

Europe
- Manchester - Head Office
- Amsterdam
- Basingstoke
- Cambridge
- Cheltenham
- Copenhagen
- Edinburgh
- Glasgow
- Leatherhead
- Leeds
- London
- Luxembourg

Middle East
- Dubai

- Dubai

Aerospace

Maritime

Rail