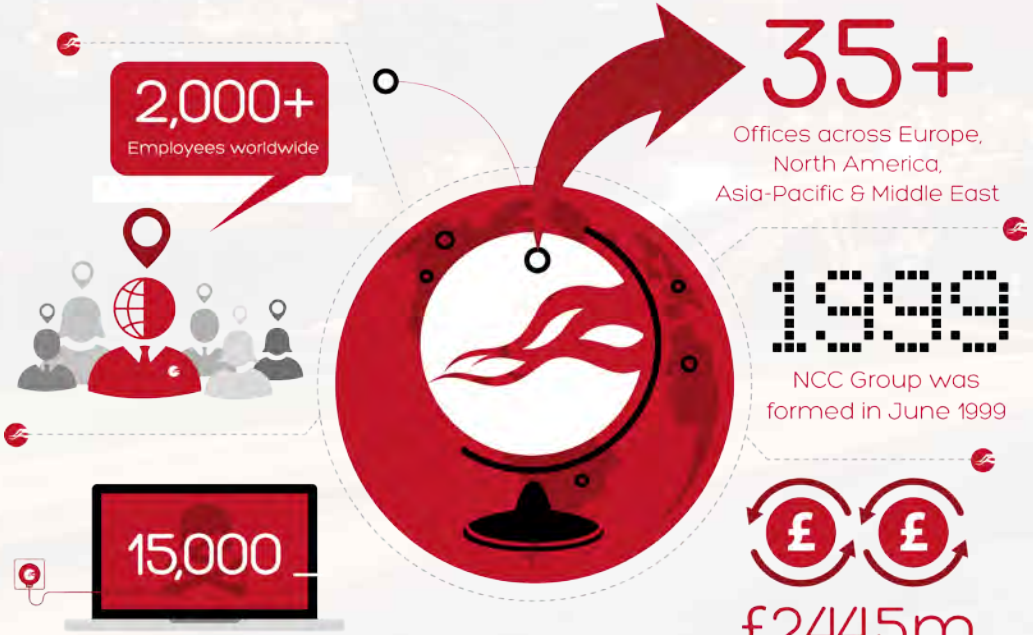
Transport Assurance: Maritime

Services, Capabilities and Research

NCC Group Company Overview



Agenda

- Maritime Cyber Attack Surface
- Potential Impact
- Common Maritime Cyber Themes we have observed
- Our services
- Secure Development Lifecycle
- Q&A

Potential Impact

- Technical safety controls in ICS systems and procedural controls make ‘catastrophic’ scenarios unlikely, but possible.

- More likely: Failure of a critical system (e.g. Engine Management or ECDIS) leaving a ship ‘quarantined’ in harbour losing money every day

Attack Surface Overview: Maritime

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

Electronic chart data

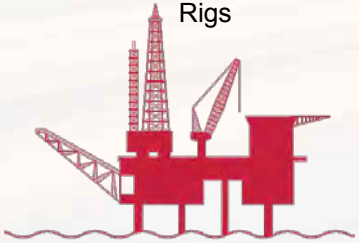
ECDIS (Electronic Chart Display Information System)

eLoran

DP (Dynamic Positioning) systems

Malware inadvertently introduced via Internet browsing and USB memory sticks

Rigs



AIS transceivers, LRIT (Long-range Identification and tracking)

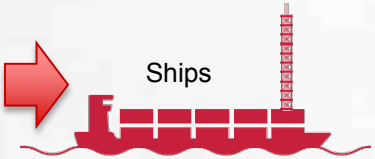
Fleet broadband

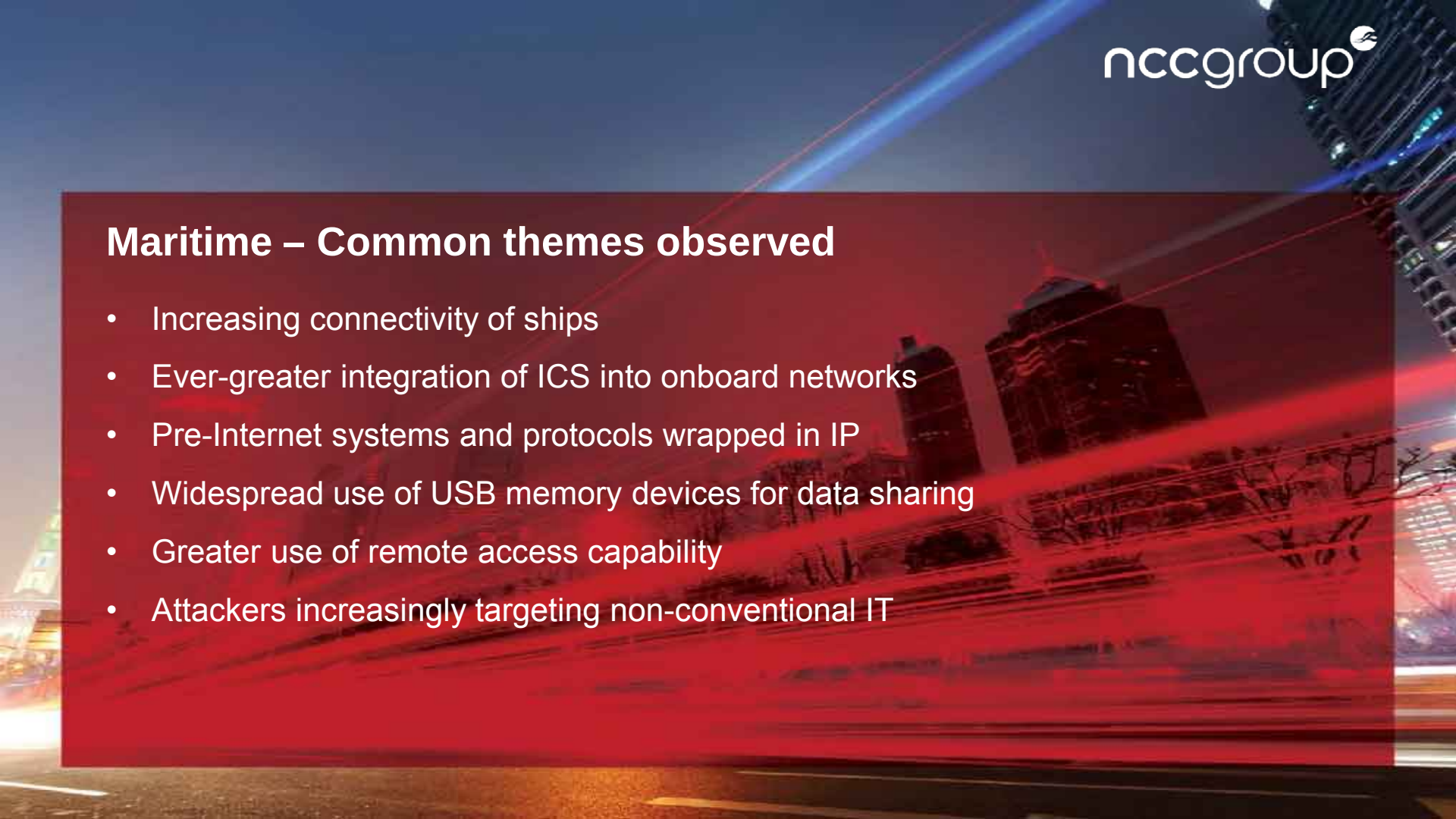
DSC (Digital Selective Calling), Man-in-water beacons

Data sharing between systems via USB memory sticks

Lack of segregation between systems

Ships





Maritime – Common themes observed

- Increasing connectivity of ships
- Ever-greater integration of ICS into onboard networks
- Pre-Internet systems and protocols wrapped in IP
- Widespread use of USB memory devices for data sharing
- Greater use of remote access capability
- Attackers increasingly targeting non-conventional IT

Cyber Guidelines

NCC Group were a key contributor to the BIMCO *Guidelines on Cyber Security Onboard Ships*.

Guidelines include:

- Understanding Cyber Threats
- Risk Assessment
- Cyber Security Controls
- Incident Response and Recovery Plans

IMO Guidelines on Maritime Cyber Risk Management

- International Guidance
- References BIMCO and ABS Guidelines
- NCC Group Contributed

Our Approach

Strategic

- Strategy and Policy Review
- Strategy and Policy Development
- Process and Control Guidance

Technical

- Penetration Testing
- Product Assurance Testing
- ‘Red Team’ Scenarios
- Technical Security Training
- Research-led Engagements

Operational

- Cyber Defence Monitoring Services
- Incident Response and Forensic Services

Figure 1. Cyber security approach as set out in the guidelines

Partnerships

Comité International Radio-Maritime (CIRM)

- International Trade Association for Maritime Electronics Manufacturers and Suppliers
- NCC Group Holds a Directorship – Brendan Saunders
- Chair Cyber Security Working Group
- Advisors to the IMO and other International Bodies

Kilo Marine Electronics

- Reseller of NCC Group Maritime Cyber Security Services

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