THALES

Multi-Link Management for the Operator

Air Operations and Weapons Systems (AOW) Templecombe

Stew Guy
Business Development Manager – Tactical Data Links

Scope

- Introduction
- Snapshot of Thales
- NMS History
- Current TDL Management/Monitoring – What we do now
- Multi Link Management/Monitoring – What we may do in the future
- Summary

Stew Guy

Background

- 22 years in UK Royal Air Force 1987-2010
- UK Joint Data Link Management Organisation (UKJDLMO)
- UK embedded lead in US led coalition operations CENTCOM

Thales UK

- Business Development & Sales Tactical Data Links
  Air Operations & Weapons
  Land and Air Systems
  Thales
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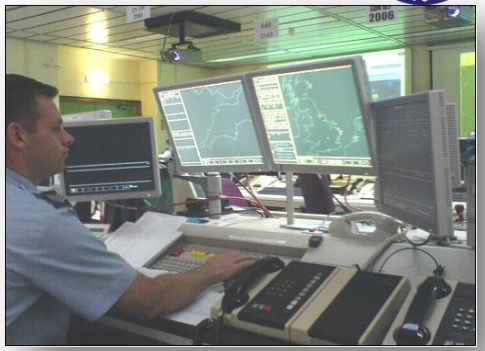
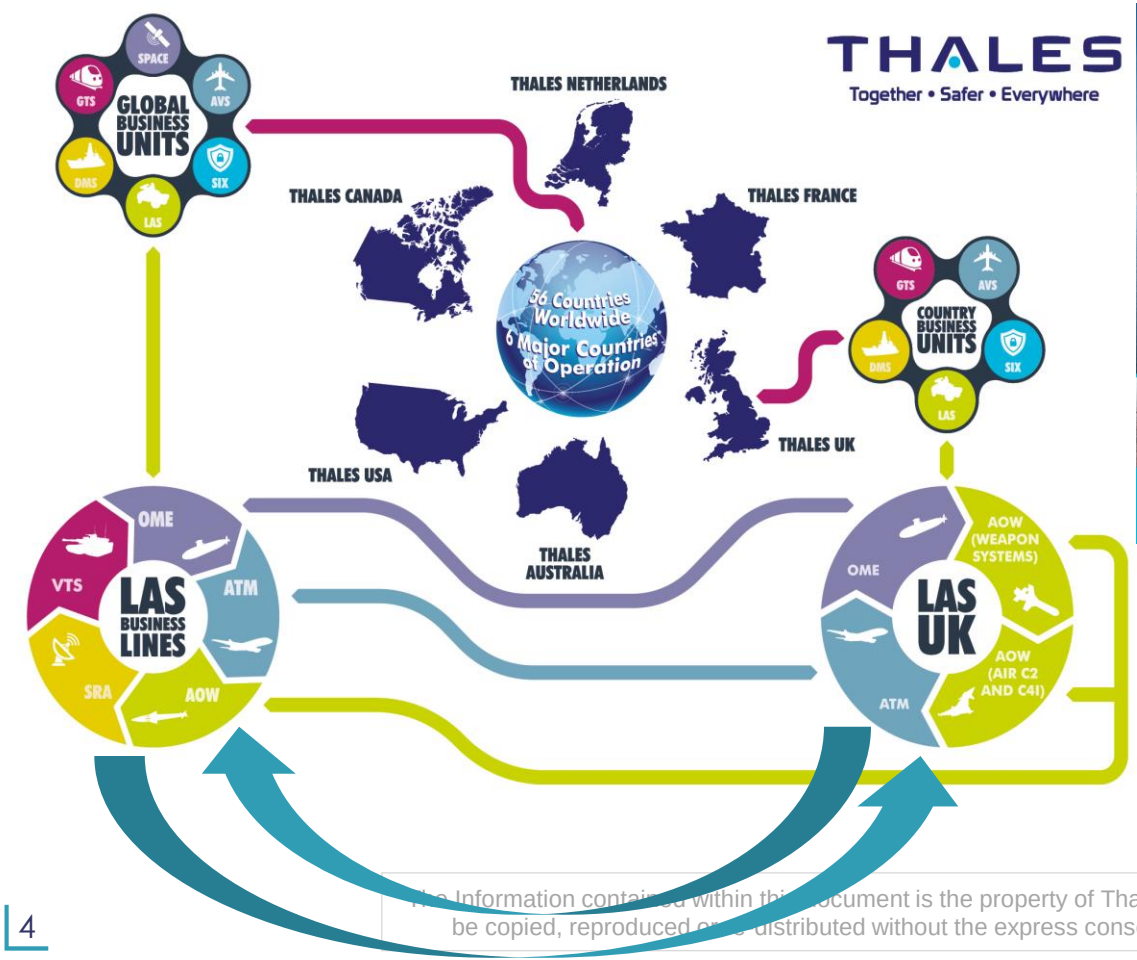
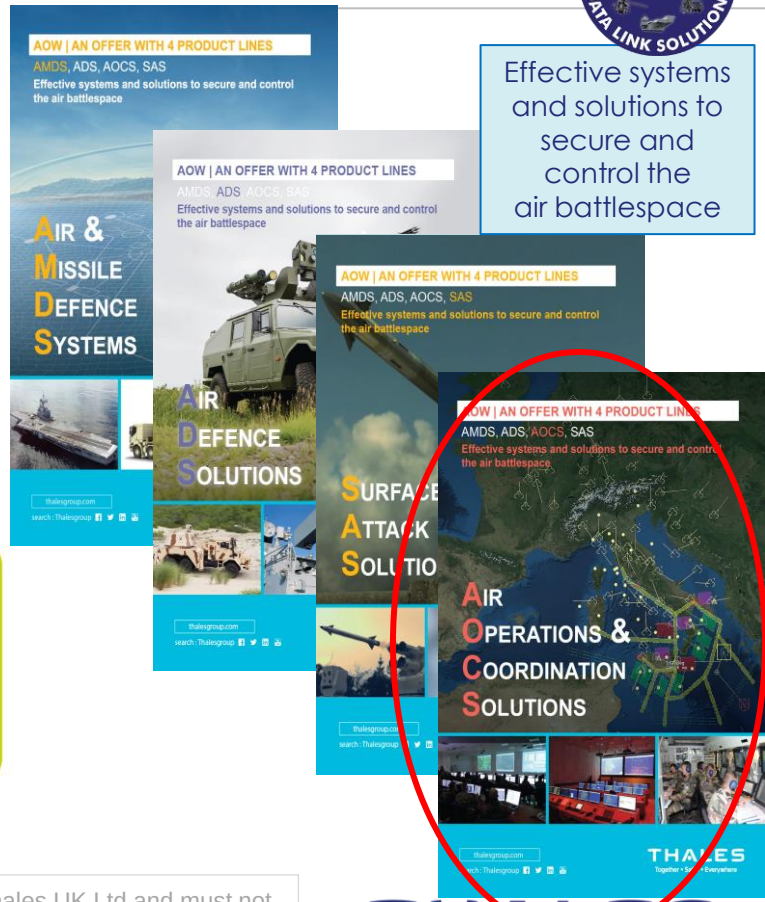


Air Operations Weapons (AOW) – an offer with four Product Lines



THALES
Together • Safer • Everywhere



Effective systems and solutions to secure and control the air battlespace

THALES

AOW footprint

Employees
1,600

40% UNITED KINGDOM

60% FRANCE

BELFAST

TEMPLECOMBE

FLEURY-LES-AUBRAIS

MASSY

RUNGIS

AOW Templecombe

NMS	LPDS	TACPLAN
		

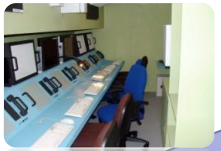
C2

- TACC – 1 ACC Royal Air Force
- NATO DARS – NATO ACCS

Mission Planning

- AirScape
  - Feeds - Intel, NOTAMS, TDL, Met, AIS
  - Supporting E3, RJ, Typhoon, Tornado, JFAC, ASTOR

History Thales UK Tactical Data Links (TDL) Systems



JTIDS Air Platform Network Management System (JAPNMS)

Link 11 ADLBS for UK RAF CRC

Tactical JAPNMS (TJF)

Network Control & Management (NCM) (NATO ACCS)

Network Management Systems (NMS)

Advanced JICO Management System (AJMS)

Link 16 Pulse De-Confliction Server

THALES

Current JICC/DLMC/JDLOC bed down

Remit to Monitor/Manage Link 16 nationally and Out of Area - NMS

- Some not required to monitor Link 16 – US
  - This may change
- DLiP – TopLink (TCS), LinPro (Tecnobit), LinkPro (TCG), LTM (Diginext)and others

Procedural management of Link 11

- May have LMS 11

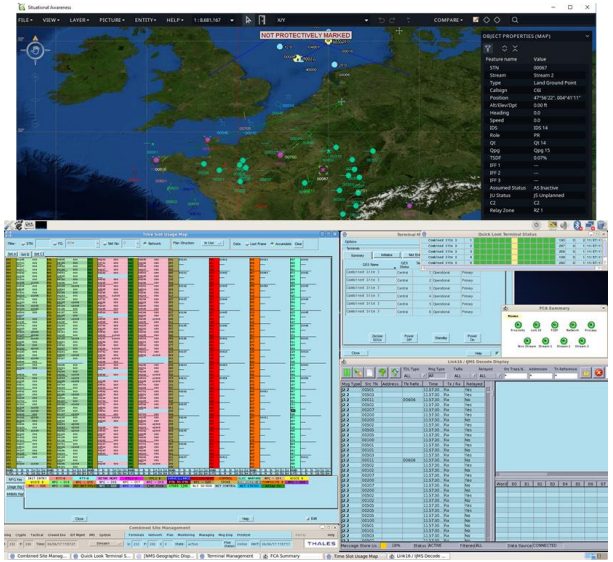
JREAP A/B/C

- JREAP C now widely used

Forwarding/Gateways -

CSI - NATO

Maybe Link 22 in the DLMC/JDLOC



Systems are stand alone

What Data Links we Manage & Monitor Now?

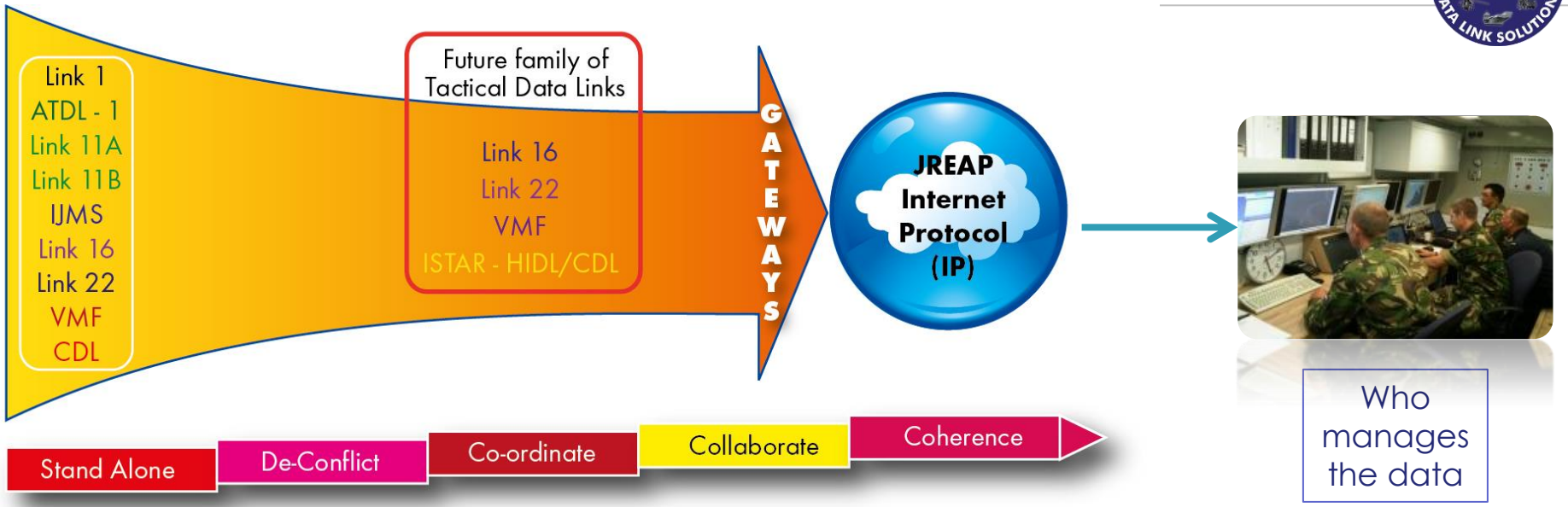
Link 16 RF – NMS

- Mandated requirement through the Frequency Clearance Agreement (FCA) to monitor the national Link 16 networks
  - Not all Nations FCA mandate Management, only Monitoring
- TDL Network design & pre- planning minimum 3 x networks
- Either from Optask Link or Design
- Initialisation, Control & Monitoring of Ground radio architectures and infrastructures
- TDL Network Dynamic real-time Management – Mainly in Europe
  - Restrict Human interaction – US viewpoint
- On-line & post-operation network analysis
- Joint Range Extension Protocol (JREAP) – Beyond Line of Site monitoring
- Frequency Clearance Health monitoring

Link 11 – Link Monitoring System

- Minimal monitoring
- Assess and monitor frequencies, pre-amble, ping pong
- Error Rates/Bandwidth monitoring

Future Management Burden for the JICO/Network Manager



Multi Link Management

Decisions based on overall Interoperability needs/compromises

- Integrated View of all TDLs
- Maximise use of Data Forwarding

Exploit TDL Management features provided by the protocols

- Link 16
  - Dynamic Time Slot Management
  - Heath Monitoring
- Link 22
  - Traditional HF/UHF Comms
  - How does the Operator know that the network is working well
  - The Dynamic TDMA piece is to be automatic
  - NATO SSSB's Link 22 networks within DLMC remit
  - Link 22 Network Cycle Structure/Time

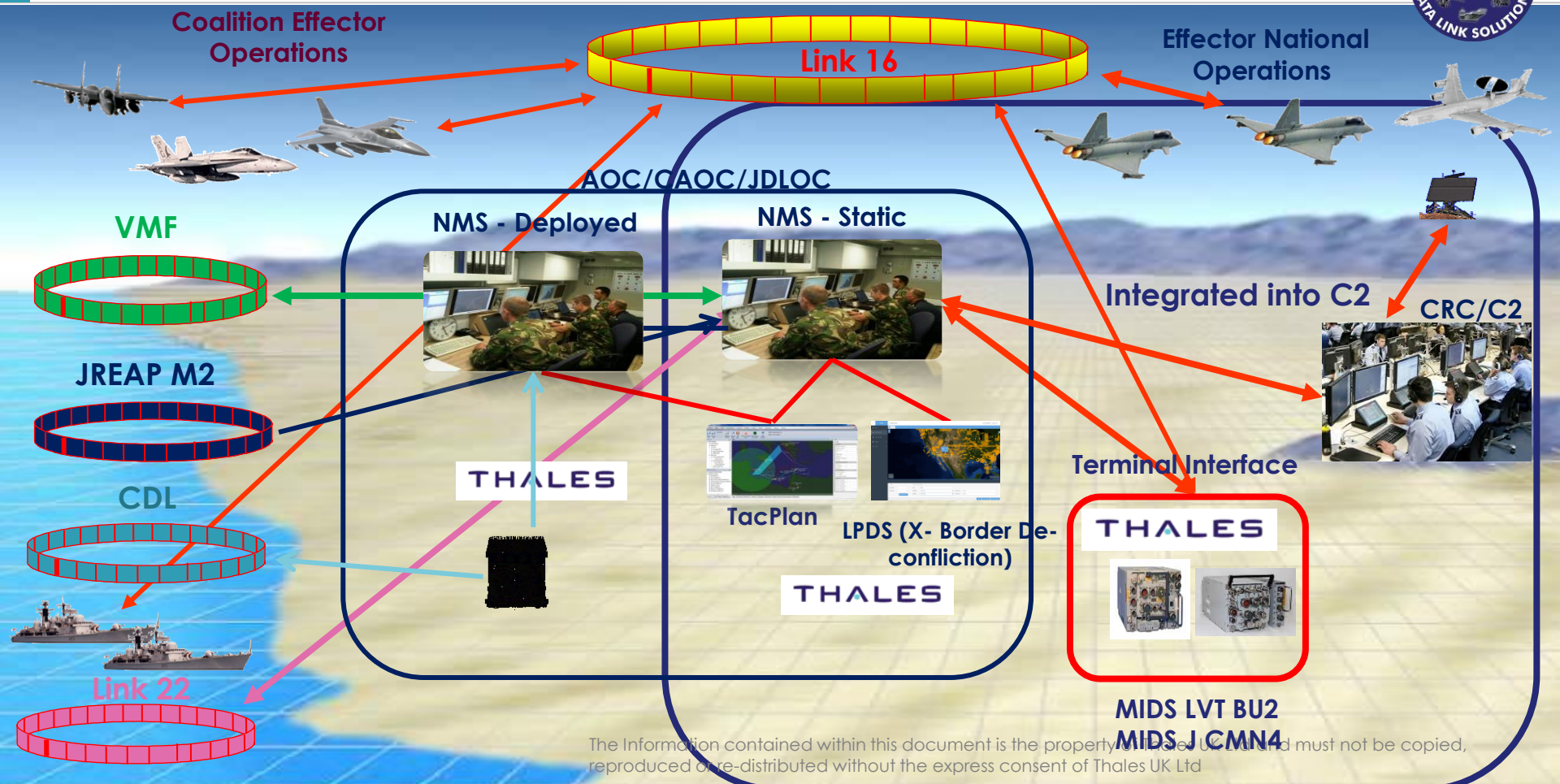
Multi Link Management (Cont'd)

JREAP Management/Monitoring (JREAP M2) Client/Server IP Relationship

- Do we assess & monitor the data – Not really…
- Is there IP corruption
- BLOS Tx Power/range monitoring
- Data Latency
- Dual Tracks
- Error Rates/Bandwidth monitoring
- JRE/L16 Time Quality/Sync

All can and should be monitored and acted upon by JICO/Network Manager adopting JREAP Management

Potential Multi-Link Management Solution – Could be?



Summary

Multi-Link Management/Monitoring is relevant

- Link 16/22 and JREAP

Reduced footprint of capabilities

- Less stove piping /combined systems
- Potential one stop shop monitoring

Give the JICO/Network Manager full access to monitoring data where necessary to ensure the warfighter can complete the mission

QUESTIONS