

Tactical Messaging Interoperability Hub

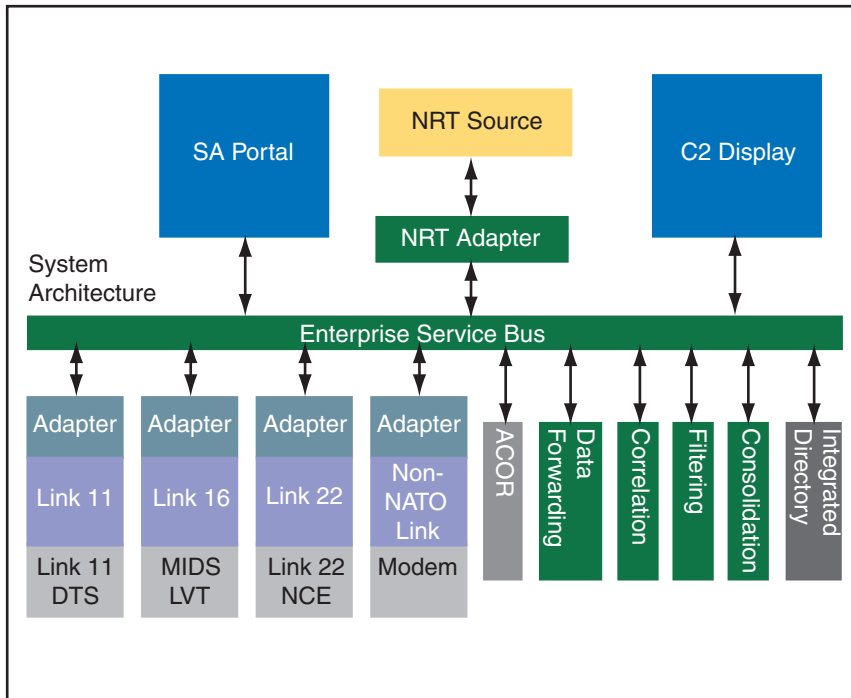


Tactical communications are the heart of command and control. In modern military situations, tactical assets – ships, aircraft, field vehicles, and even individual service members – need to share relevant data with task force members in order to better perform their missions. In addition, they need to interoperate across service and national boundaries in joint and coalition environments. Interoperability should be achieved in a cost-effective manner based on open standards and platform independence. Proprietary and custom solutions are inflexible and limit the ability of forces to adapt to the dynamic battlespace.

Highlights

- **Apply a Service-Oriented Architecture (SOA) using messaging middleware to modernize Tactical Data Link (TDL) communications**
- **Employ TDL interoperability across coalition forces to improve decision making and mission performance**
- **Consolidate tactical data with other non-TDL sources of information to enrich the tactical picture**
- **Extend information superiority to non-TDL units and platforms by providing relevant tactical and situational awareness information on a browser-based display**

Most of today's tactical data link communications systems (Link 11, Link 16, Link 22, etc.) are driven by highly formatted message structure bandwidth constraints. Although these data link message structures optimize the transfer rate for the available network bandwidth, the physical size and cost of data link systems limits the number of enabled links in operations as well as the effectiveness of non-link participants who cannot share a Common Operational Picture (COP).



IBM Tactical Messaging Interoperability Hub architecture

- C2 Command and Control
- MIDS LVT Multifunctional Information Distribution System – Low-Volume Terminal
- DTS Data Terminal Set
- NCE NILE Communications Equipment
- NILE NATO Improved Link Eleven
- ACOR (Aide à la Conception de Réseaux) workstation for configuration, initialization and supervision of the system, network design and support creation of “OPTASK Link”
- NRT Non-Real Time
- SA Situational Awareness

The IBM interoperability solution

IBM’s Tactical Messaging Interoperability Hub (TMIH) meets present-day communication requirements and facilitates interoperability between platforms that have Tactical Data Link (TDL) legacy systems and platforms or sites that are TCP/IP-enabled. This means improved mission performance through sharing a Common Operational Picture (COP) among all assets who must participate in a mission.

TMIH is based on commercial off-the-shelf (COTS) software that includes IBM WebSphere® messaging

middleware products and other IBM products and services. Using COTS software products, TMIH supplements or replaces existing hardware-based applications and allows a single link process to enable forces to work closely in network-centric manner.

Using a Service Oriented Architecture (SOA), based on open standards, TMIH is a low-risk approach that offers significant growth in future capabilities. By leveraging commercial products that are directly applicable to the military messaging infrastructure, users are able to cost-effectively upgrade their TDL systems to current and future technology.

In TMIH, data link messages are normalized via an adapter, the data items are published to an enterprise service bus (ESB), and

relevant consolidated information is made available to subscribing users. Through TMIH, users receive tactical data to enable situational awareness, mission management, and accident avoidance. The TMIH collaboration environment supports constructing cross-organization teams of individuals/roles with the right combination of skills to address specific missions or tasks, based on emerging needs. TMIH provides low-cost, high-value, rapidly deployable capabilities for engaging people and resources to share information and manage events.

Specific capabilities

The IBM Tactical Messaging Interoperability Hub enables data exchange with other TDLs or non-TDL participants in the following ways:

XML adapters provide the capability for input sources to publish data to the ESB or subscribe to information from the ESB. Non real-time (NRT) data is available through adapters to augment TDL data and provide a richer information environment. Examples of NRT data are logistics data, intelligence information, and photos.

The *Situational Awareness (SA) Portal* consists of a geospatial display on which information is delivered (the COP, appropriately filtered for the needs of the subscribing users) as well as the following WebSphere collaboration tool portlets – a Search portlet to locate people and resources in the integrated directory, an IBM Sametime® Chat portlet, and a Sametime Web Conference portlet.

Configurable services. Consolidation and Track History services have been built, but these are only the beginning. At a high level, these are equivalent to functions within TDL systems,

e.g., “Consolidation” is equivalent to track correlation, but operates on the broader set of data on the ESB. This service consolidates data from different TDL sources with other sources such as NRT data.

TMIH benefits

Units and command centers using the IBM Tactical Messaging Interoperability Hub can expect the following:

- *Improved mission performance through better communication and collaboration among task force participants.*

- *The ability to do more with less. For example, instead of data link-enabling 10% of the tactical vehicles a year, it might be possible to do this five times faster at the same or lower cost.*
- *Greater ease and speed in collaborating across organizations in a given operation.*
- *Flexibility to locate and communicate with additional assets as driven by events.*
- *Freedom from proprietary solutions and their associated high maintenance and upgrade costs.*

Facts about IBM and Data Links

IBM has extensive experience in the design and development of operational Tactical Data Link systems. Here are some facts:

- *28 IBM Link 11 processing systems have been in operational service since 1993.*
- *Systems have been in service with the Royal Marines since 1996 as Autonomous Link Eleven System (ALES).*
- *4 Tactical Data Link Systems “DV-Anlage Link 16 F123” are in use in the German Navy and operational since May 2003.*
- *An upgrade for Link 16 was delivered to the UK Ministry of Defense in 2001.*
- *Currently equipping 8 German frigates class F122 with the “DV-Anlage Link 16 F122.”*
- *IBM is part of the NATO Improved Link 11 (NILE) program.*
- *IBM provides data link studies and modeling as well as further support for customers.*



For more information

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IBM's Network-Centric Operations
solutions, visit:
[http://www.ibm.com/government/
defense](http://www.ibm.com/government/defense)

To schedule a briefing and learn more
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