



Interoperability for the Future

By Lee Randell, Systematic

The need for multinational forces to exchange battle space information has become extremely important in today's highly complex operations. Asymmetric warfare presents very different threats from those of conventional combat, where opposing powers had similar equipment, resources and tactics – fighting against each other on almost similar terms. Today, the need for effective interoperability to enhance situational awareness has never been so important in achieving mission objectives while also minimising civilian and military casualties, particularly through Friendly Force

Tracking (FFT) technologies.

NATO defines interoperability as, “The ability of systems, units, or forces to provide services to and accept services from other systems, units, or forces, and to use the services so exchanged to enable them to operate effectively together.” On the face of it, this appears to be reasonably straight forward. In reality this isn't the case. Aside from nations operating disparate C2 systems and technologies, the evolution and adoption of many different data exchange standards intensifies the interoperability conundrum.

The MIP (Multilateral Interoperability Programme) data model is the most widely agreed Command & Control information exchange standard currently available. Ratified by 27 nations and organisations, it is aimed at supporting the entire spectrum of Joint military operations. Of course, data standards evolve and, as MIP Block 2 has advanced to MIP Block 3, it is vital that interoperability is maintained between nations in a potentially mixed environment.

A New Approach

With so many disparate systems and versions of the standards available, something is needed to join them together and allow them to interoperate.

The SitaWare C2 Server from Systematic does exactly that: It is a high-performance, scalable data repository that provides platform independent services, making it ideal for use by systems integrators and developers, as well as by military officials responsible for the C2 architectures of the future.

Being based on Service Orientated Architecture principles, the SitaWare C2 Server makes it easy to integrate many different specialist systems, off-the-shelf products and legacy installations. Using SitaWare C2 Server Web Services, users can develop custom C2 applications specific to their needs and requirements, for instance to build and display a single unified COP. The unified COP can either be viewed in a standard web browser or made available to other applications via an open web services API.

“The SitaWare C2 Server gives us a very high degree of flexibility and the ability to support multiple, disparate standards simultaneously,” explains Hans Jørgen Bohlbro, Systematic Product Manager, *“It easily maps data and provides interfaces between systems using, not only, MIP Block 2 and MIP Block 3, but can also exchange data types such as NFFI, MTF, XML and tactical data links.”*

The SitaWare C2 Server uses gateways to interface between systems operating with different data standards. This makes it highly flexible and supports the entire mission from planning and execution

Above: SitaWare Headquarters 5 is a robust, scalable C2 solution that is easy to integrate with other technologies and systems – current and future.

through to after action review.

It supports unit symbols, tactical graphics, equipment symbols, installation symbols and MOOTW/CIMIC symbols. Users can drill down into the COP contents, report new symbols on the COP and manage layers and sub-layers of information.

During the planning stage, users are able to develop collaborative plans, distribute plans to selected sites, issue orders, manage task organisation and plan/order state changes. Supported plan/order content includes main textual document, task organisation, textual and graphical (overlays) appendices and annexes.

The SitaWare C2 Server also manages the ORBAT and holdings for Equipment, Consumables and Personnel, with the ability to report and obtain actual holdings for each unit.

The Service Oriented Architecture of the SitaWare C2 Server also provides the engine under the hood of SitaWare Headquarters 5, a complete off-the-shelf C2 system that gives a full overview of any theatre of operations, showing force activities as well as the resources available. The new application programming interfaces and web services make it easy to hook up to core SitaWare C2 functionalities with other external systems and technologies.

In Action

During 2010, both SitaWare Headquarters 5 and the SitaWare C2 Server successfully demonstrated MIP Block 2 and MIP Block 3 interoperability at the Coalition Warrior Interoperability Demonstrator, held at DSTL Porton Down in the UK.

Interoperability tests were based on current Coalition operations in Afghanistan, and the UK trial provided a unique opportunity for Systematic to interoperate with allies including the United States, The Netherlands, Finland, France, Germany, Italy, Poland and Estonia. Both MIP Block 2 and MIP Block 3 interoperability were successfully demonstrated by Systematic, enabling live, dynamically updated UK tactical situational awareness picture to be easily exchanged between the UK and Coalition Partners' C2 systems.

One particular highlight, made possible by using the SitaWare C2 Server was the opportunity to put both the UK and Coalition C2 pictures into the Fujitsu OpenJOP portal, using Systematic's light weight web COP viewer.

The trial also enabled the distribution of live tactical situational awareness tracks to NATO's ICC application using a NFFI data exchange via Systematic SitaWare

THE FUTURE OF C2

deployed today

Visit us on stand number

02-A4/IDEX, 230/NAVDEX,

to see our complete suite of SitaWare C2 products
for all levels of command.

TrackServer and the NIRIS track server. Testing was demonstrated both locally at DSTL Porton Down near Salisbury, and also federated with the C2 Battle Lab at Shrivenham.

A second trial demonstrated the benefits of the SitaWare C2 Server, which has been chosen by the UK MoD for their Joint Command and Control Support Programme (JC2SP). Systematic is working alongside Hewlett Packard to incorporate this new technology into JC2SP, which will be hosted on the Defence Information Infrastructure (DII).

The SitaWare C2 Server trial demonstrated how the Common Information Repository and open Web Services API could successfully provide warfighters with 'one-stop' access to C2 information from a variety of sources such as tactical and operational C2 applications and even Link-16 air tracks.

Under test, the SitaWare C2 Server collected data from several of the CWID trials, before aggregating SitaWare Track Server with both UK and coalition C2

track information in real time. User access to SitaWare Track Server was made available using nothing more than an ordinary web browser allowing visualisation and information dissemination of the Common C2 picture to be simple and cost effective.

The trial show how different communities of interest can share not only a common C2 picture, but also potentially Logistics, Medical, Targeting, IED, Plans, Orders, ORBAT and other operationally focused information.

Systematic's C2 products have also enabled interoperability during Exercise TALON STRIKE. The purpose of the exercise was to investigate the interoperability achievable by a British Army Brigade operating within a larger US Army Division, each using their national Command & Control (C2) systems, technologies and procedures.

The two-week exercise, which took place in June 2010, used an Afghanistan-based scenario to explore interoperability issues, highlight capability gaps and

identify potential solutions or workarounds. Week 1 was set in 2010, with UK Forces using the Joint Automated Deep Ops Coordination System (JADOCS) as its primary C2 tool. Week 2 was set in 2017, with UK Forces migrating to BCIP 5.4 / ComBAT to communicate with US Forces who were primarily using Command Post of the Future (CPOF).

Working as part of the Niteworks Partnership, Systematic's SitaWare suite of software sat at the very heart of the interoperability exercise: It provided the vital MIP Gateway through which the UK and US national C2 systems successfully exchanged and replicated operational data.

Systematic's interoperability specialists are now preparing for Exercise FLANDRES, an Anglo-French interoperability exercise in June 2011, where it is expected that Systematic's COTS C2 and military messaging products will, once again, allow nation to exchange data unto nation regardless of the standards they are using.

Below: SitaWare C2 Server provides the platform necessary to pull together the information you need to generate the full operational overview, displayed as a unified Common Operational Picture (COP).

