Aurora
One challenge…
Five solutions

The defence industry is having to change its approach to managing the spectrum. There are several drivers for this: spectrum is a valuable and finite resource, and there are competing demands for it from commercial and government spectrum users. There is also treasury pressure for defence to reduce its spectrum footprint – the Cave Report recommends the introduction of market mechanisms to spectrum, which means that users will need to be more efficient in their use.

THE CHALLENGE

One of the big challenges defence has is that it is very difficult to predict the military demand on spectrum and ensure its capabilities have the agility and flexibility to operate in different parts of the spectrum. Addressing this will improve the ability to manage and allocate this finite resource which in turn will help defence achieve the vision of Information Enabled Capability and meet the Cave Report requirements. Fortunately, spectrum management is something we know a lot about.

OUR APPROACH

First, we built the UK Ministry of Defence (MOD) their Pilot Battlespace Spectrum Management System (PBSMS). Then we took this a stage further in the Coalition Warrior Interoperability Demonstration (CWID) in 2008. We've helped the MOD audit their spectrum holdings, analyse their use and identify potential opportunities for release to the commercial sector through market mechanisms. We have pulled all this knowledge together and created a next generation spectrum management architecture and demonstrated it at CWID 2010.

It's known as Aurora and it can deal with all aspects of spectrum management from acquisition and deployment through to disposal. The Aurora suite provides these capabilities through a Service Oriented Architecture. It's hosted and integrated within an Enterprise infrastructure, which means it can connect with other services, capabilities, and of course, your coalition partners.

Aurora has been designed as a suite of tools, each with different functionality, which means you have the tool to fit your needs. At the heart of Aurora is the spectrum information repository. The information services offered by Aurora ensure that the integrity and availability of information is fully utilised. Aurora can support offline and remote use, with synchronisation when connectivity is available, which means you don't need to worry about unreliable communication links. It uses international data standards to ensure interoperability with national and international partners / regulators.

KEY BENEFITS

- Enterprise Spectrum Management capability
- Support to Strategic, Operational, Tactical and Acquisition users
- International data standards ensure interoperability
- Suite of tools gives you the right tool to fit your needs
- Cross sector expertise gives you access to commercial innovations

The Aurora tools can be used independently or in conjunction with the rest of the suite:

Aurora.Core - Aurora is underpinned by a set of 'core' capabilities common to any spectrum management tool which include:

- A distributed Information Repository
- Mapping and Environmental Models
- Analysis and Engineering Tools (incl. extensive propagation models)
- Modelling and Simulation.

The Aurora suite has been specially designed to use these core services to provide the right information to the right people at the right time.

Aurora.Pro - Aurora.Pro allows expert users to maximise spectrum re-use and assess complex co-existence and interference analysis. It's underpinned by a dynamic 'risk based' approach that allows the Spectrum Manager to focus on management by exception where innovative alerts facilitate time sensitive, positive control. The tool is designed to open standards, including SMADEF-XML, OGC and exploits proven commercial technologies such as ICS Manager and HTZ Warfare from ATDI. A series of visualisation and information exploitation tools allows the spectrum community to make informed and assured decisions - contributing to Joint Battlespace Management.

Aurora.Net - Different spectrum users have different needs and priorities, and Aurora.Net provides access to the broader user community, allowing a range of services to be available to providers, consumers and decision makers at all levels.

Aurora.Lite - Aurora.Lite provides a simplified, tailored capability to support rapid reaction and response when speed and reaction times are critical and the operator is under extreme pressures with limited reachback support. It is also designed to operate if you are working with the constraint of having incomplete data, which in the past would have been prohibitive.

Aurora.Mobile - Mobile spectrum management means that users either on the move or deployed away from their infrastructure can benefit from the best available information about spectrum. It offers situational awareness and spectrum analysis tools (such as coverage plots and Path Profile Analysis) for nearby locations or users.

WHY CGI?

We're a key partner on the UK MOD's journey towards Defence Spectrum Reform. We are helping them manage this valuable asset more effectively and efficiently. We offer innovative solutions, backed up with real delivery to meet the challenges of the military spectrum environment. And we don't just work with defence, but also industry, product suppliers and other government departments, to meet their Spectrum Management needs. We provide an in-depth understanding of the end-user environment, covering every aspect of the spectrum and acquisition lifecycle. We're leading the UK's contribution towards a multinational effort to standardise spectrum management data exchange (SMADEF-XML). We're also helping to develop longer term capabilities through our support of the Spectrum Dominance Research Programme.

The projects referenced in this document were delivered by Logica, which CGI acquired in August 2012

ABOUT CGI

With over 68,000 professionals in 40 countries, CGI fosters local accountability for client success while bringing global delivery capabilities to clients' front doors.

Founded in 1976, CGI applies a disciplined delivery approach that has achieved an industry-leading track record of on-time, on-budget projects.

For 40 years we have worked with Defence in the UK, US, Canada, Australia and across Europe and have over 6,000 Defence and Security professionals working across the Five Eyes and NATO community.

Together we deliver large-scale, complex programs across operations, security, intelligence, communications, personnel systems, logistics and infrastructure.

In the UK we are ranked as a top 5 Defence SITS supplier and we focus on delivering Information Enabled Capability (IEC) across the Defence domain.

Our high-quality business consulting, systems integration and outsourcing services help clients leverage current investments while adopting new technology and business strategies that achieve top and bottom line results.

As a demonstration of our commitment, our average client satisfaction score for the past 10 years has measured consistently higher than 9 out of 10.

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