Digital Intelligence

BAE SYSTEMS

Synchronisation and Coordination of CEMA

Cyber and Electromagnetic Activities

Synchronisation and Coordination of CEMA

The electromagnetic environment is an essential but complex, multi-dimensional information space that is both congested and contested. It is therefore essential to maintain dominance by protecting friendly emitters and information bearers and exploiting those of the adversary. A key aspect of this is the synchronisation and coordination of CEMA alongside traditional capabilities such as kinetic fires. A number of factors must be considered: including capability options, decision support, modelling and planning, asset management, configurations and orchestration.

Empowering commanders to perform these activities at pace is essential to giving them the competitive edge. Key enablers are decision-support tools with intuitive user interfaces, and a common data bus architecture that supports interaction between edge-systems and the decision-making core. This enables diversity in edge systems and a common core data platform. Such a data bus must be owned and controlled by the authority to ensure it remains flexible and accessible to the widest range of vendors.

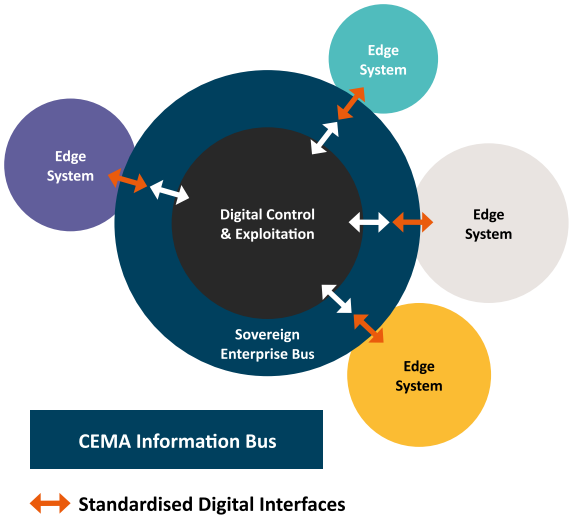
> BAE Systems solve complex problems across the cyber and electromagnetic environment

When seeking to take advantage of the force multiplier effects of CEMA, any solution must:

- Allow the development and easy integration of new features from third parties, e.g. as ‘plug ins’
- Be scalable – to handle ever-increasing numbers of users, sensor/effector nodes, and volumes of data
- Support operation in network-degraded or network-denied environments

Defining a ‘CEMA Information Bus’ is a vital enabler to connect edge systems from different vendors – the best maritime ELINT and land COMINT offerings not necessarily being from the same supplier – to a central data exploitation centre. Rather than having stovepiped systems that must be integrated later with additional cost and risk, procurement agencies can ensure systems comply with sovereign middleware standards from the beginning. Ownership of the ‘information bus’ is key: having full control over the selected standards ensures they can be updated in future to meet changing needs.

We can provide skills in data engineering, data architecture and user interface design underpinned by CEMA expertise and mission understanding, to assist in addressing these challenges.



Cyber and Electromagnetic Activities

The electromagnetic spectrum (EMS) underpins our daily lives, and modern warfare. It enables both communication and sensing. But as the demand placed on it continues to grow, it is increasingly both congested and contested. Cell phones use spectrum close to safety-critical radars, while in combat, commanders wish to deny their enemies' use of the EMS while guaranteeing their own. The increasing complexity and interconnection of wireless systems have blurred the traditional lines between 'cyber' and 'electronic warfare' (EW), leading to the concept of 'cyber and electromagnetic activities' (CEMA).

Increasingly, CEMA is being seen as a fifth domain of warfare. To maintain their defensive strength, states must ensure they have a CEMA enterprise that can operate with:

Speed

Agility

Versatility

BAE Systems Digital Intelligence has over 30 years' experience providing solutions to complex problems across the cyber and electromagnetic environment.

Our expertise in CEMA includes:

- Software-defined Electronic Warfare
- Versatile Low Size, Weight and Power Payloads
- Sovereign Capability Development
- Protocol- and System-aware Effect Development
- Future-proofing Platforms for CEMA
- Synchronisation and Coordination of CEMA
- Tactical CEMA
- Operational Analysis
- Azalea Data & Insights Radio Frequency Mapping

BAE SYSTEMS

To learn more about our CEMA integration capabilities. visit baesystems.com/CEMAintegrator

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