

# MANTAWARE™ MESH

## Coordinating Naval Communications

Communications systems among different naval vessels function separately, leading to ineffective and inefficient communication outcomes. These issues are becoming more pronounced with ongoing increases in the complexity of communications technology and doctrines.

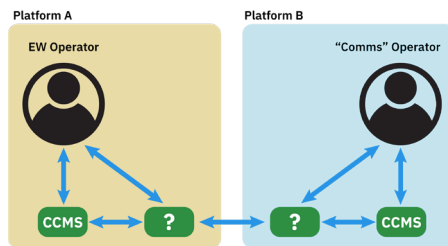
### BACKGROUND

Currently, Communications Configuration and Management Systems (CCMS) across different naval vessels and platforms operate in silos with different software, protocols and technologies. As a result, communication coordination across platforms is a manual process, relying on direct operator interaction, usually verbally.

### HIGH-LEVEL SOLUTION

Navies require solutions that integrate communication systems across platforms.

A communications system with direct knowledge of the related platform's configuration and status would be able to recognize mismatches that would result in communications failure. The system could then coordinate a response (with varying levels of autonomy) to mitigate issues and optimize communications reliability, as illustrated below:



Proposed inter-platform "Comms" interaction

There are a number of key functions required of this new component:

- > **CCMS integration:** CCMS is responsible for the configuration of devices to meet various communications capabilities

- > **Platform networking:** nodes on various platforms should be able to communicate across a standard IP network or other suitable technology
- > **Communications payload:** the system should support communications configuration/status payloads
- > **Visualisation:** information regarding the network and the communications payloads utilising it should be visualised to provide awareness to operators
- > **Circuit correlation:** the system should correlate signals and circuits between the Electronic Warfare (EW) system and CCMS to determine any impact on communications reliability
- > **Configurable automation:** the system should support enacting configuration changes to the CCMS

### DETAILED SOLUTION - MANTAWARE

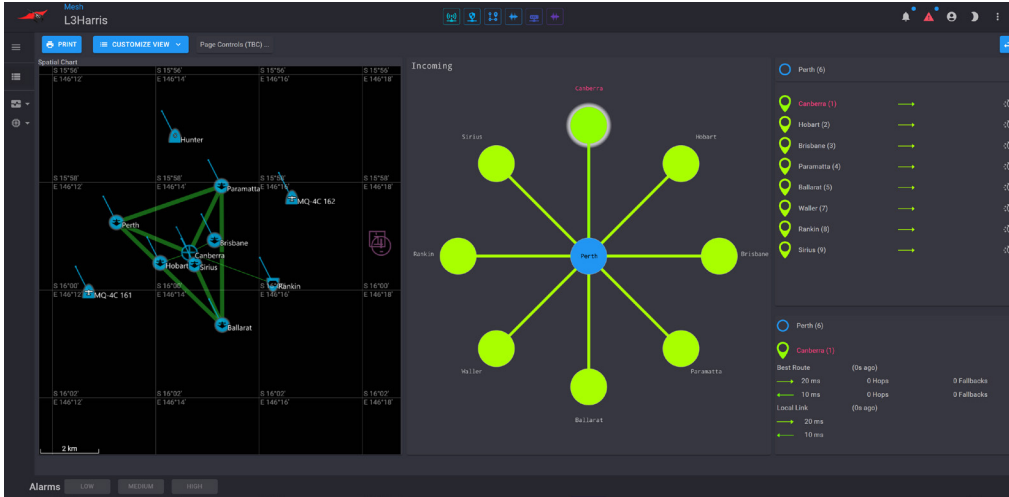
MantaWARE is an Integrated Communications Suite (ICS), providing core CCMS functionality as well as related communications system integrations and enhancements.

MantaWARE Mesh will form an application layer (layer 7) networking protocol that converts multiple point-to-point connections into a single peer-to-peer mesh network. This network is self-healing and can continue to operate in a degraded state.



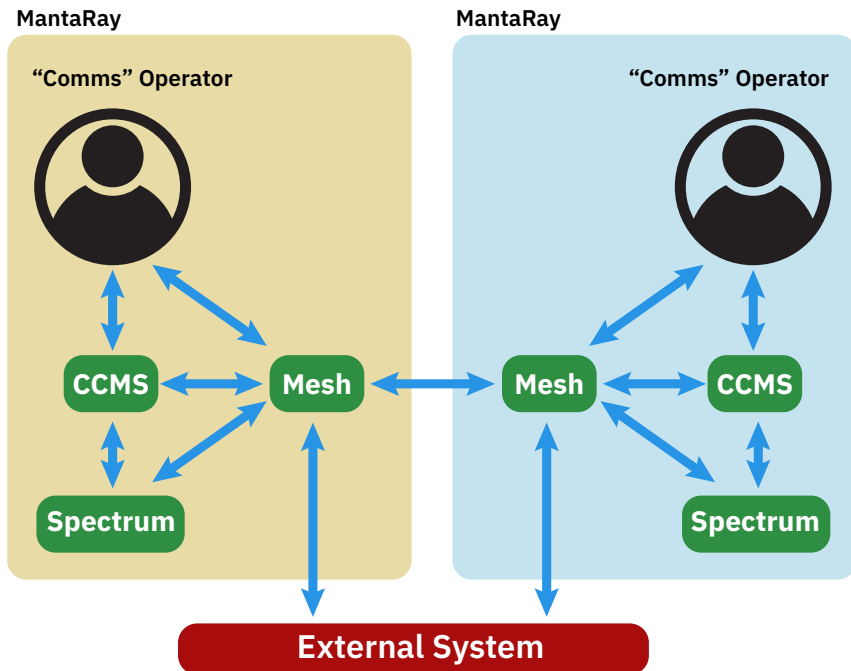
### THE MANTAWARE SOLUTION

- > **Mesh**  
Integrated tool of the L3Harris MantaWARE unified platform
- > **Pluggable**  
Inter-platform networking will be achieved via a pluggable network interface allowing integration with a range of networks
- > **Visualization**  
Both primary (Mesh network) and secondary (payloads such as communications or spectrum) data will be visualised in an integrated manner
- > **Correlation & control**  
Inter-platform circuits will be automatically analyzed for misalignment. Alternate circuits will then be calculated to determine a communications configuration optimally resilient to change
- > **Fleet coordination**  
MantaWARE Mesh allows data to be shared between different platforms in the fleet
- > **Threat positioning**  
Directional electromagnetic detections can be shared via MantaWARE Mesh, allowing automatic position fixing of electromagnetic threats
- > **System feedback**  
Electromagnetic position fixes can be shared back to the EW system or to the combat system. This capability transforms multiple platforms into a spatially diverse integrated electronic detection system



MantaWARE Mesh dashboard

The following illustration serves as a visual representation that effectively demonstrates this concept:



MantaWARE Mesh diagram

## BENEFITS

- > **Improved situational awareness:** Sharing communication system configuration and status information between naval platforms can help improve situational awareness, providing a greater understanding of the environment and allowing for more informed decision-making
- > **Simplified coordination:** Correlating and visualising communication system configuration and status information of other naval platforms allows for a simpler means of coordination and, therefore less operator burden
- > **Rapid response:** Augmenting operator decisions with machine speed suggestions or even optionally automated decisions allows for faster response times than can be achieved using legacy manual interventions

### MantaWARE Mesh

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