Open Systems Approach for Maritime Communication and Information Systems

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Overview

- What is an open system?
- Useful references
- The OSA workflow
- MCIS functional breakdown
- Roadmap capability
- MCIS Architecture
- Interfaces
- Roadblocks
- Digital ship
What is an open system?

“Open architecture, in relation to computer programming, refers to a hardware system, network or even software that is able to be extended by users to provide new or expanded functionality.” - www.wisegeek.com

“In the context of military information and technology systems, an open system may be defined as a system of modular composition with its key interfaces between functional components defined according to open standards. Such a system must be capable of being verified and validated to ensure open system goals have been achieved.” - DSTO-TN-1087, 2012
Really useful references


For the MCIS analysis:
- Researched current material requirements set
- Developed high level functional and physical architecture
- List of future roadmap capability
- Identified key interfaces and standards

MCIS Roadmap Capability

- Bandwidth
- Wireless, voice, video management
- Multi-purpose end points
- Video
- SMS, MMS, chat, email
- Resilient common network
- Multi-level client cross domain
- RED and BLACK in one network
- Platform application support
- Data distribution service
- Cyber secured by design
### Key Interfaces and Standards

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Roadblock – communications management
**Roadblock – baseband switching**

**Proprietary**
- “Own the switch and you own the system”
- Intellectual property limitations
- Management complexity

**Time domain multiplexed**
- Bandwidth, delay, jitter limitations
- Obsolete technology

**Open alternatives:**
- Analogue
- IP based on IEEE -1588-v2 PTP

Oh no, I’m locked in!
Roadblock - GMDSS

- GMDSS standards and equipment change regularly
- There are no GMDSS requirements for standard interfaces
- Use radio remote heads if necessary
- Suggest treat GMDSS as stand-alone capability
The Digital Ship Vision

At last, an open system!

- Same or less NB
- More WB
- HA IP based infrastructure
- Secure by design
Conclusion

- MCIS involves significant functionality and many subsystems
- IP at the core makes common sense
- Avoid non-IP based architecture
- Some solutions are more open than others
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