



Program Executive Office Command, Control, Communications, Computers and Intelligence (PEO C4I)

PMW/A 170 Technology Needs and Gaps

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**Information Dominance;
Anytime, Anywhere...**





Technology Needs

PMW/A 170



SATELLITE COMMUNICATIONS (SATCOM)

- Modems
 - Increased/Asymmetric/Dynamic Throughput
 - Asymmetric SATCOM Systems Compatibility (Split IP)
 - Jam Resistant Capability for Wideband SATCOM
- Amplifiers
 - Improved Efficiencies/Reduced Heat
 - Increased Output Power
- Antennas
 - Improved G/T
 - Reduced Side Lobes
 - Improved Reliability
 - Reduced Radar Cross Section
- Interface Standards
- Leverage Maritime Aerial Layer Network (MALN)
- Electrical Environmental Effects (E3)

NAVIGATION SYSTEMS

- Assured Positioning, Navigation, & Timing (PNT) Services
- Real Time Service Oriented Architecture (SOA) for PNT Systems
- Hostile Electronic Attack Direction and Location
- Jam and Spoof Resistant GPS

TACTICAL COMMUNICATIONS

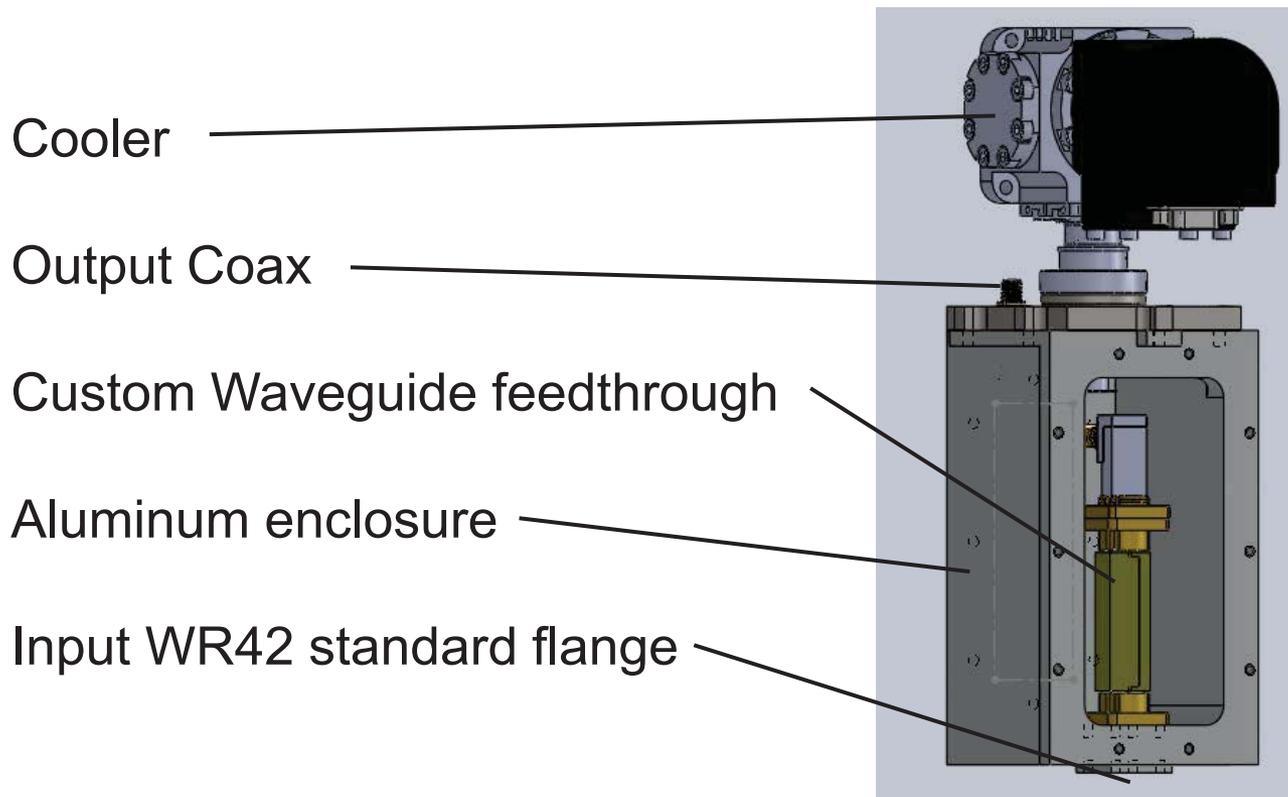
- Modems
 - Increased/Asymmetric/Dynamic Throughput
 - Jam Resistant
- Amplifiers
 - Improved Efficiencies/Reduced Heat
 - Increased Output Power
- Antennas
 - Reduced Number of Antennas
 - Reduced Radar Cross Section
- RF Distribution Technologies
- Dynamic Mobile Adhoc Networking
 - Time Division Multiple Access (TDMA)
 - Open Shortest Path First (OSPF)
- Interface Standards & Seam Issues
- Maritime Aerial Layer Network (MALN)
- Electrical Environmental Effects (E3)



Gaps

- Communications Alternatives to Space Based Satellites
- RF Interference Mitigation
- Throughput Improvement
- HF Anti-Jam Technologies
- Dynamic Bandwidth Interfaces

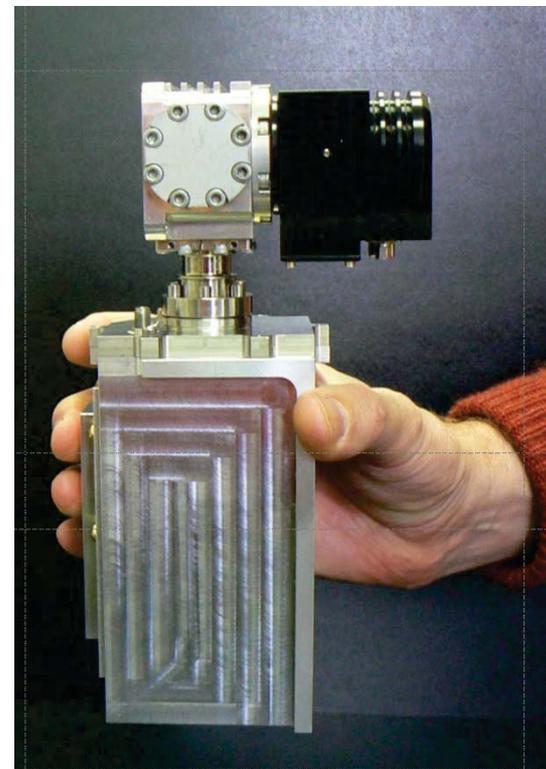
Small Business Innovative Research Cryogenic Analog RF Module (CARM)



Increasing Shipboard Receive Rates Without Increasing Antenna Size

CARM General Status

- ❑ CARM-02: Ka-band RF Module for GBS antenna
 - Completely assembled and tested at HYPRES
 - Tested at B&Z (amplifier manufacturer in Long Island, NY) using their noise temperature measurement set-up
 - Planning evaluation at Aberdeen Proving Grounds

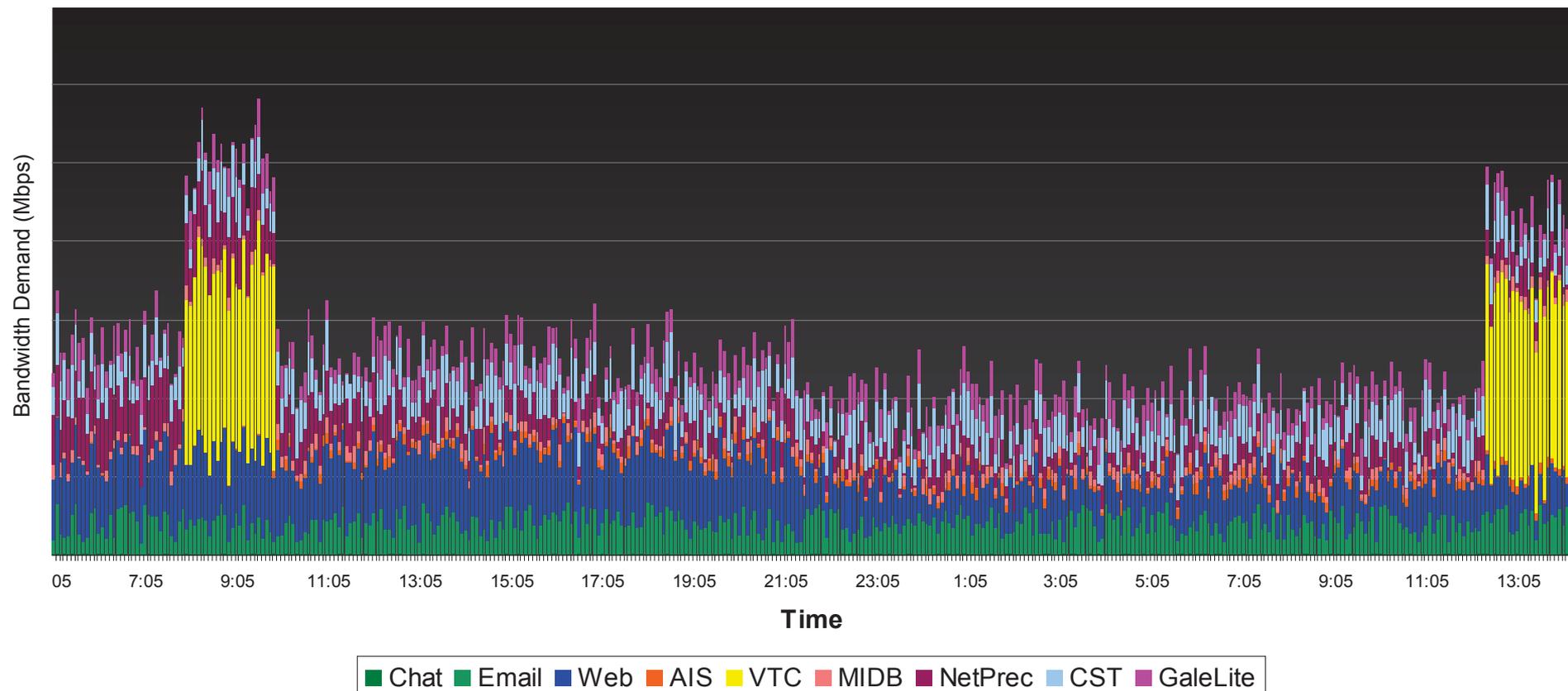




Bandwidth Analysis Toolkit (BAT™)



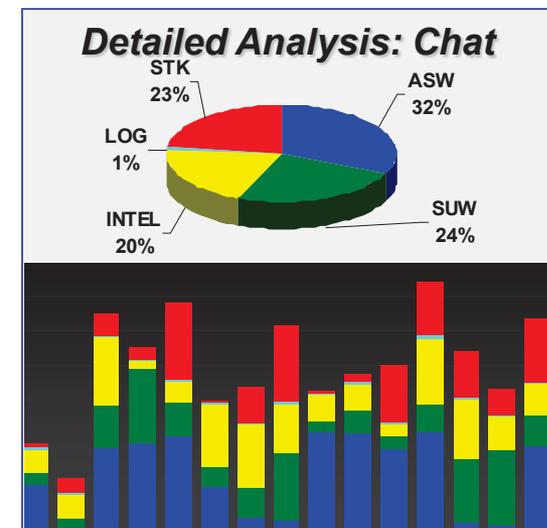
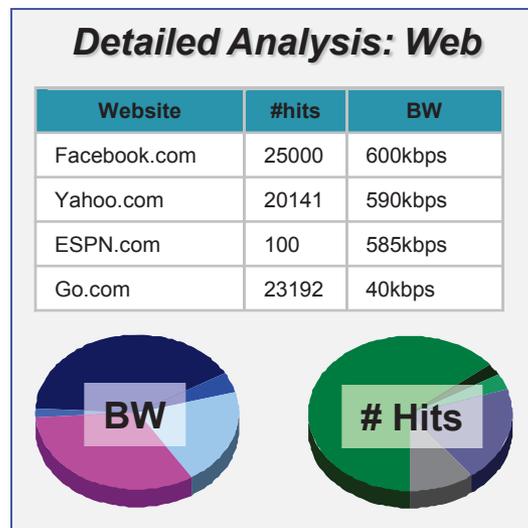
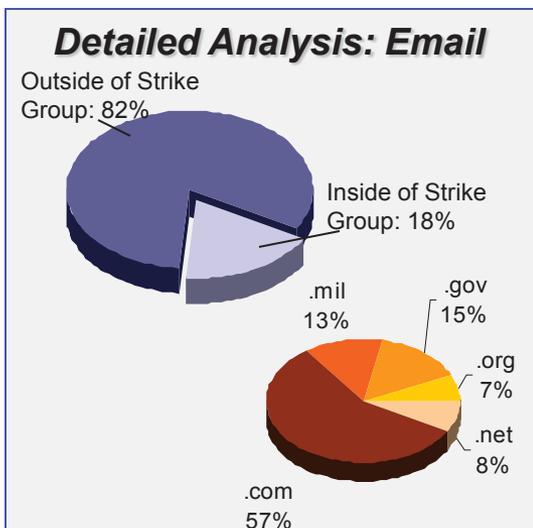
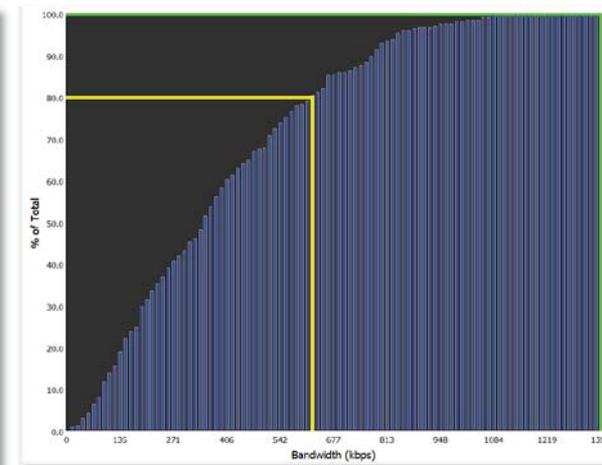
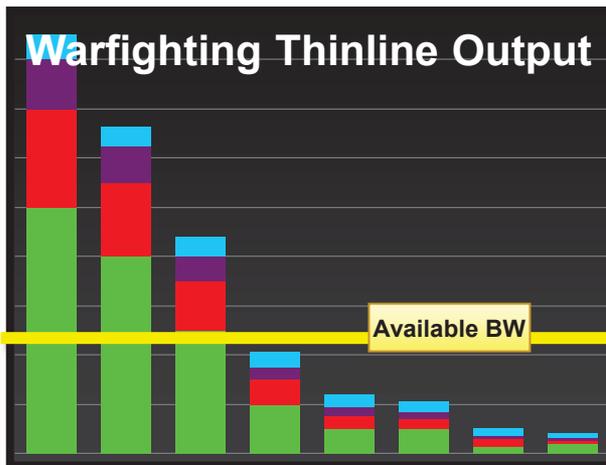
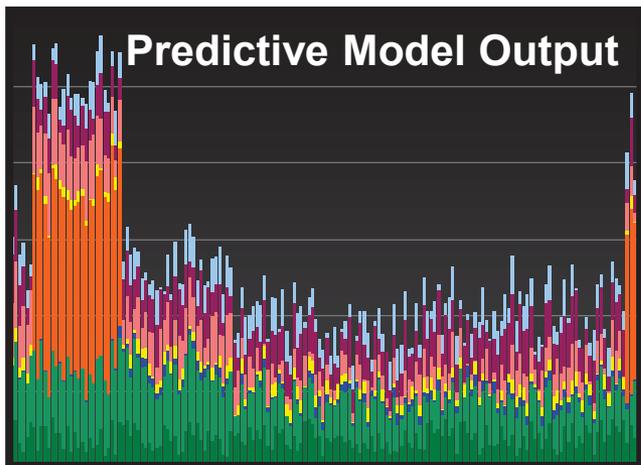
Bandwidth Demand for CVN



BAT is able to produce stochastic time phased bandwidth demand for all Navy platforms that is a function of operational scenario (including threat and neutral forces), missions being performed and systems being used.



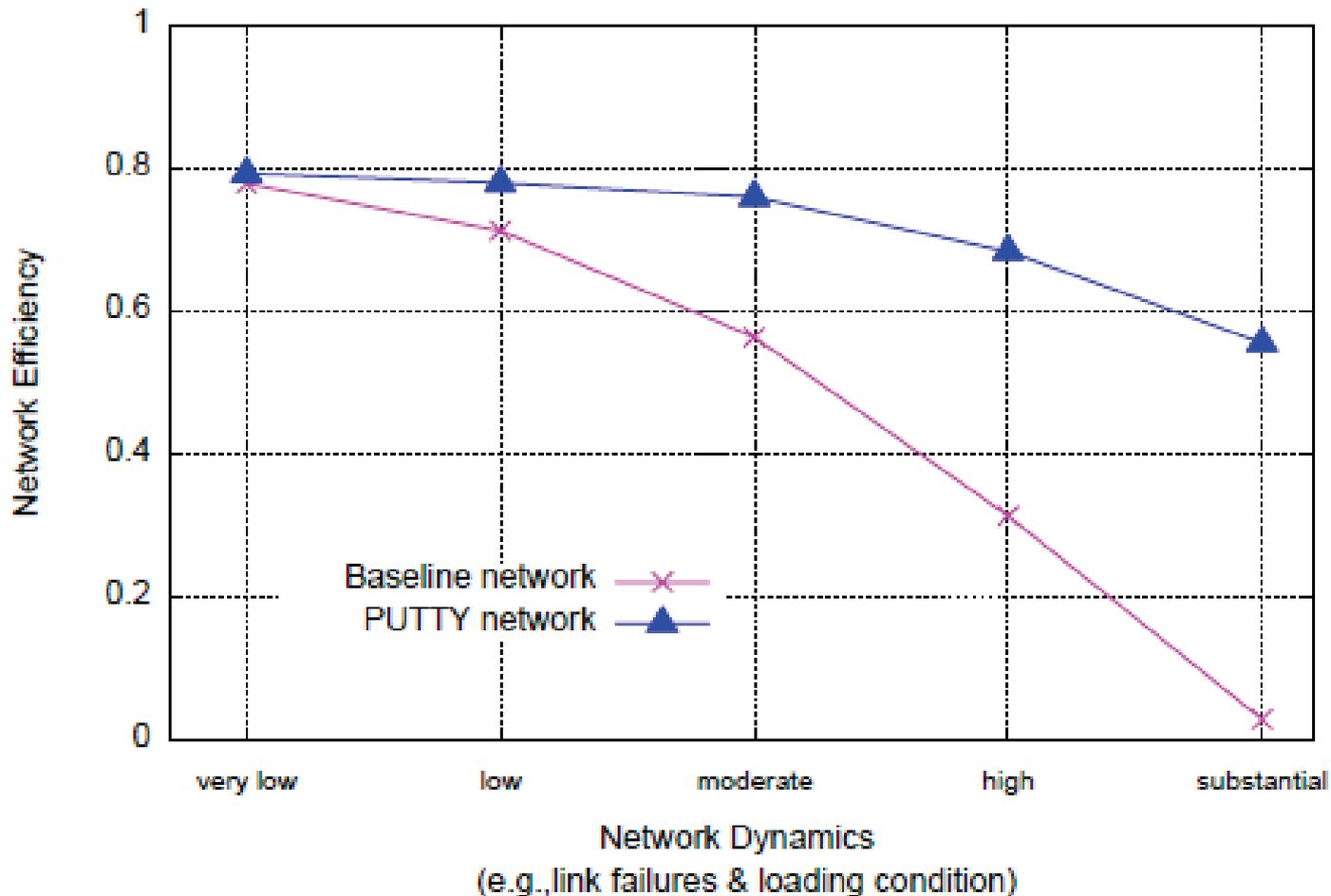
METRON BAT Analysis Products





Small Business Innovative Research

Prioritized Unbalanced Traffic Total Yield (PUTTY)



An Approach to Topology Management in Directional Networks



Science and Technology POC's

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We get IT.

We also integrate it, install it and support it. For today and tomorrow.



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