ISR Reach-Back

An HSI Assessment from TW04

Mark St. John

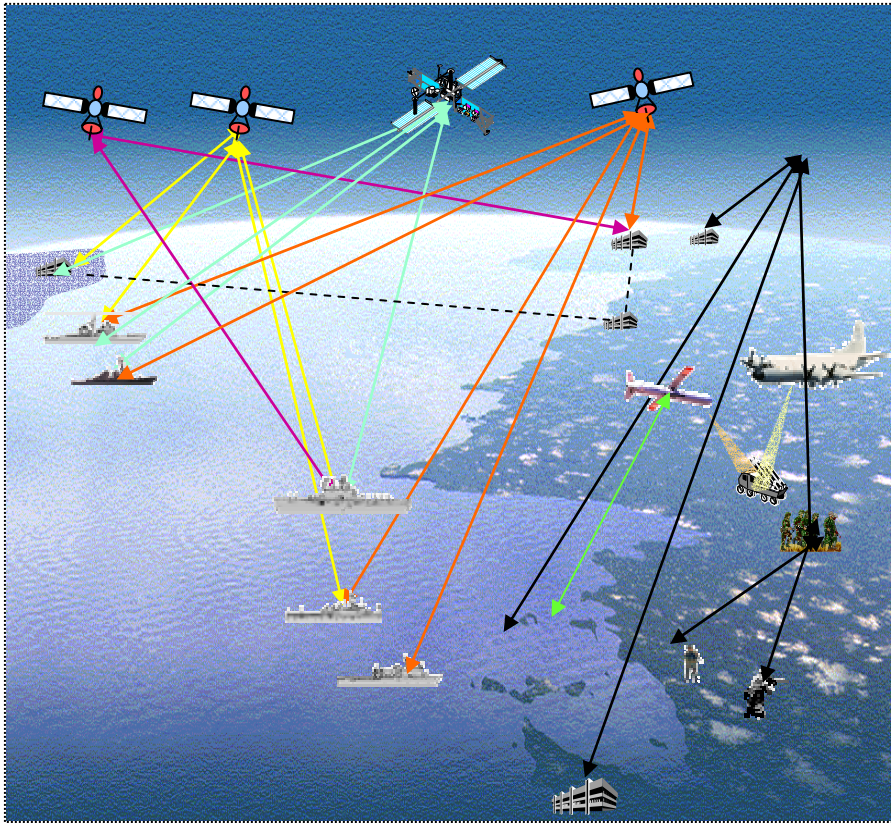
John Gwynne

Richard Kelly

Pacific Science & Engineering Group

Robert Smillie

Space and Naval Warfare Systems Command



FORCEnet Concept

- Command and control component of Sea Power 21
- Designed to enhance commanders' tactical situation awareness and decision making abilities

Definition: the operational construct and architectural framework for naval warfare in the Information Age, integrating warriors, sensors, command and control, platforms, and weapons into a networked, distributed combat force.

– CNO

ISR Reach-Back

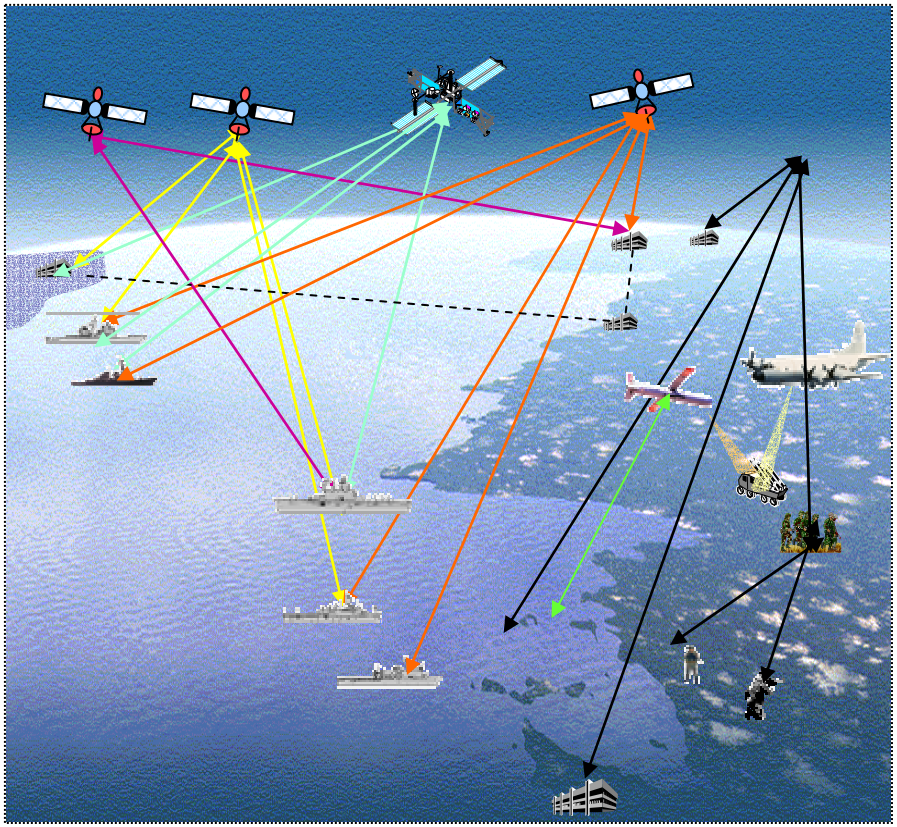
Goal

- Video exploitation for targeting via a remote (ashore) facility

Process

- Request for information
- Assignment
- Collection
- Processing
- Exploitation
- Analysis/Fusion
- Dissemination
- Management

Ashore



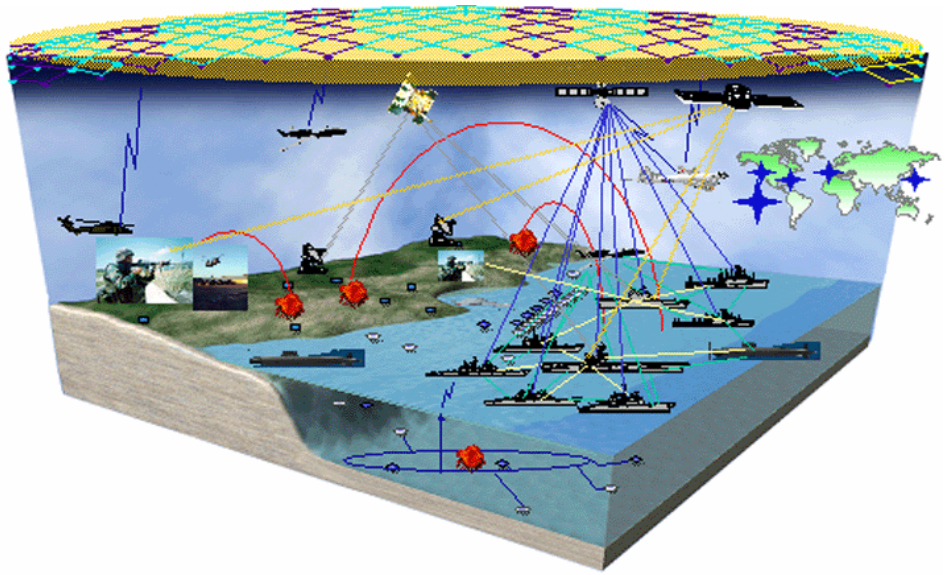
Trident Warrior Sea Trials

Trident Warrior

- Assess and implement FORCEnet systems
- Focus on network-centric warfare to improve tactical situation awareness
  - » Rapidly field improved FORCEnet command and control warfighting capability to the Fleet
  - » Develop supporting tactics, techniques, and procedures

Trident Warrior 2004 (TW04)

- 4–15 October 2004
- Southern California operating theater



ISR Reach-Back in TW04

Afloat-Ashore functional distribution

- Afloat (Tarawa ESG)
  - » Joint Information Center
  - » Supporting Arms Coordination Center
- Ashore (FIST)
  - » Fleet Intelligence Support Team
- Technologies
  - » WebCOP, HITS, JSIPS-N, AFATDS, SACC-A, BFT

HSI evaluation

- Effectiveness
- Usability
- Scientific guidance on “how to get there”

Evaluation Procedures

Participants

- 13 from JIC
- 3 from SACC
- 7 from FIST

Data Collection

- ISR/Fires scenarios
- Questionnaires
- Focused interviews
- Observer checklists
- Automated logs

Fleet exercise constraints

- Variable training on technologies
- Variable orientation briefings
- Poor weather
- Sporadic connectivity
- Unavailable Common Operating Picture technology (WebCOP)

Overall Results

- Technical objectives were achieved
  - RFIs passed
  - Exploited images passed
- Usability mediocre
  - Mid 50s out of 100
  - Other systems high of 80s and low of 40s
- Mental workload moderate
  - 3-4 out of 7

In-Depth Evaluation

- ★ Request for information
- Assignment
- Collection
- Processing
- ★ Exploitation
- Analysis/Fusion
- ★ Dissemination
- Management

Request For Information (to FIST)

Understand request

- 3.5 out of 5

Understand COP

- 2.9 out of 5

Use of chat

- Extended chat exchanges – 15-50 exchanges on some issues
- Chat/email effectiveness: 2.9 - 3.6 out of 5

Poor “remote” understanding

- SACC (afloat) COP: 3.0 out of 5
- FIST (ashore) COP: 2.0 out of 5

Image Exploitation (in FIST)

Effectiveness

- Information content: 2.8 out of 5
- Sufficient detail for targeting: 1.3 out of 5
- Sufficient for ESG intelligence: 2.1 out of 5

Factors

- High variability
  - » Specific images
  - » Variable COP
- Low image quality, timeliness, detail
- Difficult access: 1.7 out of 5

Dissemination (to JIC)

Connectivity

- Sporadic
- Multiple links in chain

File formats

- Some unreadable afloat

Transfer procedures

- Locations
- Naming conventions
- Feedback

Database integration

Summary – HSI Concerns

Poor shared SA technologies

- No WebCOP
- Chat/Email sporadic
- Chat/Email “sparse”

Poor information management

- Databases
- Compatibilities
- Business rules

Caveats

- Poor weather
- Insufficient training
- Leading edge technologies

HSI Recommendations

Distributed information management of images and analyses

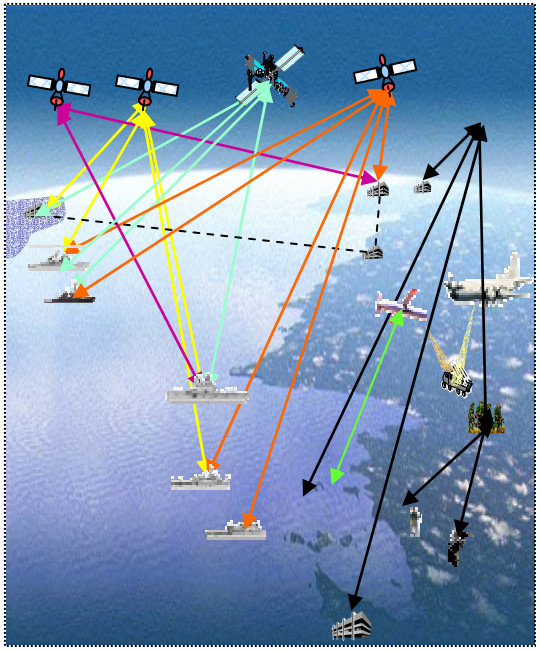
- Effective, transparent business rules
- The Devil is in the details

Shared situation awareness

- Commander's intent
- Commander's information requirements
- Proximity to tactical situation – battle rhythm
- Proactive support
- Common Operating Picture
  - » Good COP, Bad COP
- Team SA

Robust, integrated communications

- Beyond connectivity – integrated with COP



For more information, please contact:

Pacific Science & Engineering Group
Mark St. John, Ph.D.
www.pacific-science.com
stjohn@pacific-science.com
(858) 535-1661