

# Battle Force Email (BFEM) and other HF Issues



## N6 Conference 14-17 Nov 2000

DISTRIBUTION A: Cleared for Public Release; Distribution is unlimited.

Contract Number: SPO700-98-D-4002 D.O. 0003  
Information Superiority and Sensors and C4/IO and ISR Analysis  
IATAC TAT 98-04  
February 2000  
3190 Fairview Park Drive  
Falls Church, VA 22042

# REPORT DOCUMENTATION PAGE

Form Approved  
OMB No. 074-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing this collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503

<b>1. AGENCY USE ONLY (Leave blank)</b>		<b>2. REPORT DATE</b> 11/17/2000	<b>3. REPORT TYPE AND DATES COVERED</b> Briefing 11/17/2000	
<b>4. TITLE AND SUBTITLE</b> Battle Force Email (BFEM) and other HF Issues			<b>5. FUNDING NUMBERS</b>	
<b>6. AUTHOR(S)</b> Draper, John				
<b>7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)</b> Booz Allen & Hamilton 8283 Greensboro Drive McLean, VA 22102			<b>8. PERFORMING ORGANIZATION REPORT NUMBER</b>	
<b>9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)</b> Office of the Chief of Naval Operations 2000 Navy Pentagon, Washington, DC 20350-2000			<b>10. SPONSORING / MONITORING AGENCY REPORT NUMBER</b>	
<b>11. SUPPLEMENTARY NOTES</b>				
<b>12a. DISTRIBUTION / AVAILABILITY STATEMENT</b> Approved for public release; Distribution unlimited			<b>12b. DISTRIBUTION CODE</b>  A	
<b>13. ABSTRACT (Maximum 200 Words)</b>  A description of the Battle Force E-mail 66 system.				
<b>14. SUBJECT TERMS</b> IATAC Collection, battle force, email, system, network, server,			<b>15. NUMBER OF PAGES</b>  14	
			<b>16. PRICE CODE</b>	
<b>17. SECURITY CLASSIFICATION OF REPORT</b> UNCLASSIFIED	<b>18. SECURITY CLASSIFICATION OF THIS PAGE</b> UNCLASSIFIED	<b>19. SECURITY CLASSIFICATION OF ABSTRACT</b> UNCLASSIFIED	<b>20. LIMITATION OF ABSTRACT</b> UNLIMITED	

NSN 7540-01-280-5500

Standard Form 298 (Rev. 2-89)  
Prescribed by ANSI Std. Z39-18  
298-102

# Program Information



- ❑ **Battle Force E-mail 66**
  - ◆ **Sponsor: CNO N61**
  - ◆ **Funding:**
    - **OPN – In Place**
    - **OMN – ISEA Not funded; \$360K required**
  - ◆ **Requirement: High Frequency Data Systems (HFDS) ORD #330-06-93 (modifications for BFEM in approval chain)**

# System Description



- ❑ **Provides basic IP data transfer capability between Allied/NATO/Coalition afloat forces**
  - ◆ **Primarily using HF spectrum**
  - ◆ **All allies have HF capability**
  - ◆ **Modern HF modems allow higher performance**
  - ◆ **File attachments – ASCII & Imagery files**
  
- ❑ **Automatic transfer using:**
  - ◆ **SMTP/POP3 E-Mail messages**
  - ◆ **Data speeds up to 9.6KBPS coded (half duplex) point-to-point**
  
- ❑ **Provides inter-ship user-to-user service**
  
- ❑ **Secure transfer using KG-84A/C or KIV-7 crypto**

# Battle Force E-Mail Operation



## □ Network and Server Operation:

- ◆ System is completely automatic once radio net is properly established.
- ◆ Operates in a Carrier-Sense Multiple Access (CSMA) network discipline.
- ◆ Data is conveyed in a series of point-to-point connections—nearly identical to Ethernet LAN, except at much lower data rates.
- ◆ Radio connection is half-duplex.
- ◆ Member systems monitor the net, but respond only when packet is received with specific user address.

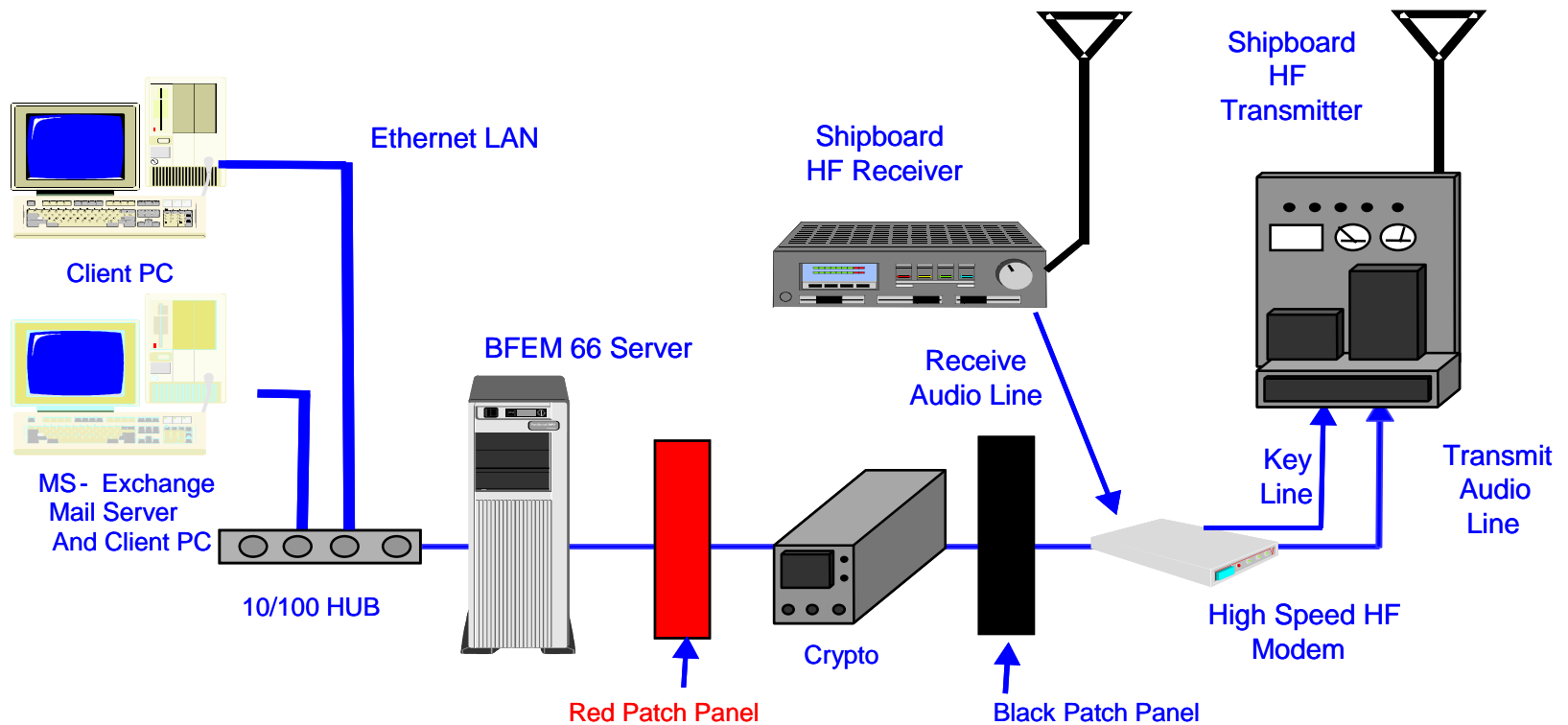
# Battle Force E-Mail Operation - cont.



## □ Network and Server Operation:

- ◆ Adaptive to link quality - number of packets sent increase if link is good.
- ◆ No E-mail loss due to power disruptions.
- ◆ Will complete delivery even if radio link is only available intermittently.
- ◆ Will “return to sender” if delivery is not achieved in a programmable time period.
- ◆ Packet operation insures error-free delivery.

# Battle Force E-Mail 66 System Diagram



# R&D Testing



- ❑ **FY 99/FY00 Lab testing SSC SD D846**
  - ◆ 5066 E-mail compliant software from Rockwell-Collins and Marconi.
  - ◆ MIL-STD-188-110B compliant modems from Harris and Rockwell-Collins
  
- ❑ **Back-to-back bench testing and Over-The-Air testing of initial COTS H/W and SW and each upgrade to include**
  - ◆ Point-to-point connections
  - ◆ 3 & 4 networked nodes
  - ◆ Data throughput analysis
  - ◆ STANAG 5066 compliance assessments
  - ◆ Vendor interoperability assessments
  - ◆ US/Allied crypto interoperability evaluations
  - ◆ USN RF Systems interoperability tests
  - ◆ Equipment configuration optimization





# Implementation

## □ Two-Phased Effort:

### ◆ Phase I (FY00)

- Funded SSC CHASN directly for BFEM 66 Hardware and Software procurement.
- Procured STANAG 5066 Software using FEDSIM vehicle.
- SSC CHASN - Integrate and Test.
- Installs: TRUMAN/NASSAU BG/ARG  
KITTY HAWK/Essex BG/ARG (FDNF)
- AITs to Install for “Quick Reaction Capability”.

### ◆ Phase II (FY01)

- Free and Open Competition.
- SSCs to participate in Integration/Testing.
- Successful transition to production-based phase.

# Program Plans



- ❑ **Installations: (FY00 funded)**
  - ◆ **TRUMAN/NASSAU BG/ARG, complete**
  - ◆ **KITTY HAWK/ESSEX BG/ARG, in progress**
  - ◆ **CONSTELLATION/BOXER BG/ARG, funded**
  - ◆ **ENTERPRISE/KEARSARGE BG/ARG, funded**
  - ◆ **FDNF MINE SWEEPERS**
    - **USS GUARDIAN**
    - **USS PATRIOT**
    - **USS ARDENT**
    - **USS DEXTROUS**
    - **USS CARDINAL**
    - **USS RAVEN**

# Program Plans cont



- ❑ **Installations: (FY01 funded)**
  - ◆ **VINSON/PELELIU BG/ARG**
  - ◆ **TR/BATAAN BG/ARG**
  - ◆ **LINCOLN/BELLEAU WOOD BG/ARG**
  - ◆ **STENNIS/BH RICHARD BG/ARG**
  - ◆ **JFK/WASP BG/ARG**
  - ◆ **WASHINGTON/SAIPAN BG/ARG**
  - ◆ **Command Ships:**
    - **USS LA SALLE**
    - **USS CORONADO**
    - **USS MT WHITNEY**
    - **USS INCHON**

# Current Issues



- Procurement of 31 BFEM 66 systems for CONSTELLATION/BOXER (12), ENTERPRISE/KEARSARGE BG/ARG (13) and FD Mine Forces (6) for installation in FY01.
- Analysis of performance of BFEM 66.
- Message received from CNO on BFEM 66 stating requirement for continued fielding.
- Letters in approval chain to MDA for:
  - ◆ authorization to continue fielding.
  - ◆ reaffirmation of ACAT IVT designation.
- Coordinating with sponsor to have BFEM designated “Rapid Deployment System” for acquisition purposes.

# ISEA Funding



## ❑ Following HF/VHF/UHF Legacy Equipment Unfunded:

◆ AN/URC-131 (HFRG)	\$398K
◆ BFEM 66	\$360K
◆ AN/URT-23	\$190K
◆ AN/URC-109	\$276K
◆ HF RECEIVERS	\$170K
◆ HF COUPLERS	\$75K
◆ ANTENNAS	\$75K
◆ AN/URC-80	\$30K
◆ AN/GRC-211 / GRT-21 / GRR-23	\$35K
◆ AN/VRC-46	\$40K
◆ AN/WSC-3(V)7	\$40K
◆ AN/GRC-171	\$20K
◆ HSFBI / STANAG HF MODEM	\$40K
◆ AN/FRT-96	\$154K

## ❑ Working with OPNAV N6



# Points of Contact

- ◆ Program Manager: CAPT Madsen (619) 524-7530;  
[madsenc@spawar.navy.mil](mailto:madsenc@spawar.navy.mil)
- ◆ Assistant Program Manager: Jim Stein (858) 537-0495;  
[steinj@spawar.navy.mil](mailto:steinj@spawar.navy.mil)
- ◆ Acquisition Program Manager: Felix Zamora (619) 524-7688;  
[zamoraf@spawar.navy.mil](mailto:zamoraf@spawar.navy.mil)
- ◆ Fleet Web Access: Camille Tuomi (619) 725-6764;  
[camille\\_tuomi@bah.com](mailto:camille_tuomi@bah.com)
- ◆ Sponsor: CNO N60Q, CDR Jim Dale (Foreign National) HOB Joint & Allied Interoperability (703) 601-1290; [dale.jim@hq.navy.mil](mailto:dale.jim@hq.navy.mil)
- ◆ Program Engineer: SSC SD, Jose Ramos (619)553-4657;  
[jramos@spawar.navy.mil](mailto:jramos@spawar.navy.mil)

# Battle Force E-mail 66



## PMW 179 Web Info:

- ❑ 179 Public Site:  
<http://c4iweb.spawar.navy.mil/pmw179>
  
- ❑ 179 Fleet Area Site:  
<http://c4iweb.spawar.navy.mil/pmw179/179fleet>

**Fleet Web Access: Camille Tuomi 725-6764; [tuomi\\_camille@bah.com](mailto:tuomi_camille@bah.com)**