SOLICITATION/CONTRACT/ORDER FOR COMMERCIAL ITEMS

OFFEROR TO COMPLETE BLOCKS 12, 17, 23, 24, AND 30

1. REQUISITION NUMBER	PAGE 1 OF 51
216570990614	

2. CONTRACT NO.	3. AWARD/EFFECTIVE DATE	4. ORDER NUMBER	5. SOLICITATION NUMBER	6. SOLICITATION ISSUE DATE
HQ0028-07-C-0057	26-Sep-2007		HQ0028-07-R-0022	13-Jul-2007

7. FOR SOLICITATION INFORMATION CALL:	a. NAME	b. TELEPHONE NUMBER *(No Collect Calls)*	8. OFFER DUE DATE/LOCAL TIME
	SUSAN MADRID	951-413-2371	02:00 PM 20 Aug 2007

9. ISSUED BY CODE HQ0028

HQ0028 DEFENSE MEDIA CENTER
CONTRACTING OFFICE
23755 Z STREET
RIVERSIDE CA 92518-2031

TEL:
FAX:

10. THIS ACQUISITION IS

- [X] UNRESTRICTED
- [ ] SET ASIDE: % FOR
  - [ ] SMALL BUSINESS
  - [ ] HUBZONE SMALL BUSINESS
  - [ ] 8(A)

NAICS: 334220
SIZE STANDARD: 750

11. DELIVERY FOR FOB DESTINATION UNLESS BLOCK IS MARKED

- [ ] SEE SCHEDULE

12. DISCOUNT TERMS

Net 30 Days

- [X] 13a. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 700)

13b. RATING DO-A70

14. METHOD OF SOLICITATION

- [ ] RFQ
- [ ] IFB
- [X] RFP

15. DELIVER TO CODE HQ0030

HQ0030 AFRTS
JERRY SHORTER
23755 Z STREET
RIVERSIDE CA 92518-2031

16. ADMINISTERED BY CODE

SEE ITEM 9

17a. CONTRACTOR/OFFEROR CODE 3UGD2

SNADER & ASSOCIATES INC
BRUCE RADDATZ
250 SOUTH HARDING BLVD
SUITE 1
ROSEVILLE CA 95678-3332

TEL. 800-765-7372
FACILITY CODE

18a. PAYMENT WILL BE MADE BY CODE HQ0347

HQ0347 DEFENSE AGENCIES FINANCIAL SERVIC
ATTN: DFAS VENDOR PAY
8899 EAST 56TH STREET
INDIANAPOLIS IN 46249-1500

- [ ] 17b. CHECK IF REMITTANCE IS DIFFERENT AND PUT SUCH ADDRESS IN OFFER

18b. SUBMIT INVOICES TO ADDRESS SHOWN IN BLOCK 18a. UNLESS BLOCK BELOW IS CHECKED [ ] SEE ADDENDUM

19. ITEM NO.	20. SCHEDULE OF SUPPLIES/ SERVICES	21. QUANTITY	22. UNIT	23. UNIT PRICE	24. AMOUNT
	SEE SCHEDULE				

25. ACCOUNTING AND APPROPRIATION DATA

See Schedule

26. TOTAL AWARD AMOUNT (For Govt. Use Only)

$4,954,844.00

- [ ] 27a. SOLICITATION INCORPORATES BY REFERENCE FAR 52.212-1. 52.212-4. FAR 52.212-3. 52.212-5 ARE ATTACHED. ADDENDA [ ] ARE [ ] ARE NOT ATTACHED
- [X] 27b. CONTRACT/PURCHASE ORDER INCORPORATES BY REFERENCE FAR 52.212-4. FAR 52.212-5 IS ATTACHED. ADDENDA [X] ARE [ ] ARE NOT ATTACHED

28. CONTRACTOR IS REQUIRED TO SIGN THIS DOCUMENT AND RETURN COPIES

- [ ] TO ISSUING OFFICE. CONTRACTOR AGREES TO FURNISH AND DELIVER ALL ITEMS SET FORTH OR OTHERWISE IDENTIFIED ABOVE AND ON ANY ADDITIONAL SHEETS SUBJECT TO THE TERMS AND CONDITIONS SPECIFIED HEREIN.

29. AWARD OF CONTRACT: REFERENCE

- [ ] OFFER DATED . YOUR OFFER ON SOLICITATION (BLOCK 5), INCLUDING ANY ADDITIONS OR CHANGES WHICH ARE SET FORTH HEREIN, IS ACCEPTED AS TO ITEMS:

30a. SIGNATURE OF OFFEROR/CONTRACTOR	31a. UNITED STATES OF AMERICA (SIGNATURE OF CONTRACTING OFFICER)	31c. DATE SIGNED
	Artimae D. Shepherd	26-Sep-2007

30b. NAME AND TITLE OF SIGNER *(TYPE OR PRINT)*	30c. DATE SIGNED	31b. NAME OF CONTRACTING OFFICER *(TYPE OR PRINT)*
		ARTIMAE SHEPHERD / CONTRACTING OFFICER TEL: (951) 413-2303 EMAIL: shepha@dodmedia.osd.mil

SOLICITATION/CONTRACT/ORDER FOR COMMERCIAL ITEMS (CONTINUED)		PAGE 2 OF 51

19. ITEM NO.	20. SCHEDULE OF SUPPLIES/ SERVICES	21. QUANTITY	22. UNIT	23. UNIT PRICE	24. AMOUNT
	SEE SCHEDULE				

32a. QUANTITY IN COLUMN 21 HAS BEEN

☐ RECEIVED ☐ INSPECTED ☐ ACCEPTED, AND CONFORMS TO THE CONTRACT, EXCEPT AS NOTED: _____

32b. SIGNATURE OF AUTHORIZED GOVERNMENT REPRESENTATIVE	32c. DATE	32d. PRINTED NAME AND TITLE OF AUTHORIZED GOVERNMENT REPRESENTATIVE

32e. MAILING ADDRESS OF AUTHORIZED GOVERNMENT REPRESENTATIVE	32f. TELEPHONE NUMBER OF AUTHORIZED GOVERNMENT REPRESENTATIVE
	32g. E-MAIL OF AUTHORIZED GOVERNMENT REPRESENTATIVE

33. SHIP NUMBER ☐ PARTIAL ☐ FINAL	34. VOUCHER NUMBER	35. AMOUNT VERIFIED CORRECT FOR	36. PAYMENT ☐ COMPLETE ☐ PARTIAL ☐ FINAL	37. CHECK NUMBER

38. S/R ACCOUNT NUMBER	39. S/R VOUCHER NUMBER	40. PAID BY

41a. I CERTIFY THIS ACCOUNT IS CORRECT AND PROPER FOR PAYMENT		42a. RECEIVED BY *(Print)*	
41b. SIGNATURE AND TITLE OF CERTIFYING OFFICER	41c. DATE	42b. RECEIVED AT *(Location)*	
		42c. DATE REC'D *(YY/MM/DD)*	42d. TOTAL CONTAINERS

Section SF 1449 - CONTINUATION SHEET

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0001		1	Each	$115,523.00	$115,523.00

Initial Design Review
FFP
IAW PWS PARAGRAPH 3.3.
FOB: Destination
PURCHASE REQUEST NUMBER: 216570990614

NET AMT $115,523.00

ACRN AD $115,523.00
CIN: 00000000000000000000000000000000

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0002		1	Each	$77,127.00	$77,127.00

Intermediate Design Review
FFP
IAW PWS PARAGRAPH 3.3.
FOB: Destination
PURCHASE REQUEST NUMBER: 216570990614

NET AMT $77,127.00

ACRN AB $77,127.00
CIN: 00000000000000000000000000000000

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0003		1	Each	$43,289.00	$43,289.00

Final Design Review
FFP
IAW PWS PARAGRAPH 3.3.
FOB: Destination
PURCHASE REQUEST NUMBER: 216570990614

NET AMT $43,289.00

ACRN AB $43,289.00
CIN: 000000000000000000000000000000

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0004		1	Each	$52,399.00	$52,399.00

Spare Parts Kit
FFP
IAW PWS PARAGRAPH 3.1.1.1.
FOB: Destination
PURCHASE REQUEST NUMBER: 216570990614

NET AMT $52,399.00

ACRN AD $52,399.00
CIN: 000000000000000000000000000000

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0005			Each		

Major Subsystems
FFP
IAW PWS PARAGRAPH 3.1.1. INCLUDES 2 YEAR WARRANTY STATED IN PWS PARAGRAPH 4.2.
FOB: Destination
PURCHASE REQUEST NUMBER: 216570990614

NET AMT $0.00

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0005AA		1	Each	$1,292,538.02	$1,292,538.02

SHOP FABRICATION AND SYSTEM ASSEMBLY
FFP
FOB: Destination

NET AMT $1,292,538.02

ACRN AC $1,292,538.02
CIN: 00000000000000000000000000000000

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0005AB		1	Each	$1,095,214.98	$1,095,214.98

SITE CONFIGURATION
FFP
PRECOMMISSIONING, SITE AND TRUNK CABLING.
FOB: Destination

NET AMT $1,095,214.98

ACRN AC $1,095,214.98
CIN: 00000000000000000000000000000000

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0005AC		1	Each	$777,211.76	$777,211.76

SYSTEM MOVED TO DMC/INSTALLED
FFP
FOB: Destination

NET AMT $777,211.76

ACRN AB $777,211.76
CIN: 00000000000000000000000000000000

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0005AD		1	Each	$820,638.73	$820,638.73

INGEST, PROTECT PLAYERS/STORAGE COMMISSI
FFP
FOB: Destination

NET AMT $820,638.73

ACRN AB $820,638.73
CIN: 00000000000000000000000000000000

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0005AE		1	Each	$499,996.51	$499,996.51

AIR AND ONLINE STORAGE
FFP
COMMISSIONED AND TESTED
FOB: Destination

NET AMT $499,996.51

ACRN AB $499,996.51
CIN: 000000000000000000000000000000

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0006		1	Each	$10,130.00	$10,130.00

Manuals, diagrams, and software copies
FFP
IAW PWS PARAGRAPH 3.5.
FOB: Destination
PURCHASE REQUEST NUMBER: 216570990614

NET AMT $10,130.00

ACRN AD $10,130.00
CIN: 000000000000000000000000000000

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0007		1	Each	$37,857.00	$37,857.00

Operator and Technician Training
FFP
IAW PWS PARAGRAPH 3.6. DATES TO BE DETERMINED BY CUSTOMER AND CONTRACTOR.
FOB: Destination
PURCHASE REQUEST NUMBER: 216570990614

NET AMT $37,857.00

ACRN AD $37,857.00
CIN: 000000000000000000000000000000

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0008		1	Each	$132,919.00	$132,919.00

Completion of 30 day testing
FFP
IAW PWS PARAGRAPH 4.1. DATES TO BE DETERMINED BY CUSTOMER AND CONTRACTOR.
FOB: Destination
PURCHASE REQUEST NUMBER: 216570990614

NET AMT $132,919.00

ACRN AD $132,919.00
CIN: 000000000000000000000000000000

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0009		1	Each	$220,945.00	$220,945.00

OPTION Year 3 Support/Maintenance Agreement
FFP
IAW PWS PARAGRAPH 4.2.
FOB: Destination
PURCHASE REQUEST NUMBER: 216570990614

NET AMT $220,945.00

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0010		1	Each	$220,945.00	$220,945.00

OPTION Year 4 Support/Maintenance Agreement
FFP
IAW PWS PARAGRAPH 4.2.
FOB: Destination
PURCHASE REQUEST NUMBER: 216570990614

NET AMT $220,945.00

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0011		1	Each	$220,945.00	$220,945.00

OPTION Year 5 Support/Maintenance Agreement
FFP
IAW PWS PARAGRAPH 4.2.
FOB: Destination
PURCHASE REQUEST NUMBER: 216570990614

NET AMT $220,945.00

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0012		1	Each	$28,653.00	$28,653.00

OPTION Additional Input Channels (SD)
FFP
IAW PARA 3.1.1.1.
FOB: Destination
PURCHASE REQUEST NUMBER: 216570990614

NET AMT $28,653.00

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0013		1	Each	$28,653.00	$28,653.00

OPTION Additional Output Channels (SD)
FFP
IAW PWS PARAGRAPH 3.1.1.1.
FOB: Destination
PURCHASE REQUEST NUMBER: 216570990614

NET AMT $28,653.00

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0014		1	Each	$28,653.00	$28,653.00

OPTION Additional Input Channels (HD)
FFP
IAW PWS PARAGRAPH 3.1.1.5.
FOB: Destination
PURCHASE REQUEST NUMBER: 216570990614

NET AMT $28,653.00

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0015		1	Each	$28,653.00	$28,653.00

OPTION Additional Output Channels (HD)
FFP
IAW PWS PARAGRAPH 3.1.1.6.
FOB: Destination
PURCHASE REQUEST NUMBER: 216570990614

NET AMT $28,653.00

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0016		1	Each	$1,486,414.00	$1,486,414.00

OPTION Storage Expansion per 10,000 hours
FFP
IAW PWS PARAGRAPH 3.1.1.1.
FOB: Destination
PURCHASE REQUEST NUMBER: 216570990614

NET AMT $1,486,414.00

INSPECTION AND ACCEPTANCE TERMS

Supplies/services will be inspected/accepted at:

CLIN	INSPECT AT	INSPECT BY	ACCEPT AT	ACCEPT BY
0001	Destination	Government	Destination	Government
0002	Destination	Government	Destination	Government
0003	Destination	Government	Destination	Government
0004	Destination	Government	Destination	Government
0005	Destination	Government	Destination	Government
0006	Destination	Government	Destination	Government
0007	Destination	Government	Destination	Government
0008	Destination	Government	Destination	Government
0009	Destination	Government	Destination	Government
0010	Destination	Government	Destination	Government
0011	Destination	Government	Destination	Government
0012	Destination	Government	Destination	Government
0013	Destination	Government	Destination	Government
0014	Destination	Government	Destination	Government
0015	Destination	Government	Destination	Government
0016	Destination	Government	Destination	Government

DELIVERY INFORMATION

CLIN	DELIVERY DATE	QUANTITY	SHIP TO ADDRESS	UIC
0001	26-OCT-2007	1	HQ0030 AFRTS JERRY SHORTER 23755 Z STREET RIVERSIDE CA 92518-2031 951-413-2270 FOB: Destination	HQ0030
0002	25-NOV-2007	1	(SAME AS PREVIOUS LOCATION) FOB: Destination	HQ0030
0003	25-DEC-2007	1	(SAME AS PREVIOUS LOCATION) FOB: Destination	HQ0030
0004	13-AUG-2008	1	(SAME AS PREVIOUS LOCATION) FOB: Destination	HQ0030
0005	N/A	N/A	N/A	N/A
0005AA	13-FEB-2008	1	HQ0030 AFRTS JERRY SHORTER 23755 Z STREET RIVERSIDE CA 92518-2031 951-413-2270 FOB: Destination	HQ0030
0005AB	14-MAR-2008	1	(SAME AS PREVIOUS LOCATION) FOB: Destination	HQ0030
0005AC	13-APR-2008	1	(SAME AS PREVIOUS LOCATION) FOB: Destination	HQ0030
0005AD	23-APR-2008	1	(SAME AS PREVIOUS LOCATION) FOB: Destination	HQ0030
0005AE	22-JUL-2008	1	(SAME AS PREVIOUS LOCATION) FOB: Destination	HQ0030
0006	13-AUG-2008	1	(SAME AS PREVIOUS LOCATION) FOB: Destination	HQ0030
0007	13-AUG-2008	1	(SAME AS PREVIOUS LOCATION) FOB: Destination	HQ0030
0008	13-AUG-2008	1	(SAME AS PREVIOUS LOCATION) FOB: Destination	HQ0030
0009	28-SEP-2010	1	(SAME AS PREVIOUS LOCATION) FOB: Destination	HQ0030

0010	28-SEP-2011	1	(SAME AS PREVIOUS LOCATION) FOB: Destination	HQ0030
0011	28-SEP-2012	1	(SAME AS PREVIOUS LOCATION) FOB: Destination	HQ0030
0012	28-SEP-2010	1	(SAME AS PREVIOUS LOCATION) FOB: Destination	HQ0030
0013	28-SEP-2010	1	(SAME AS PREVIOUS LOCATION) FOB: Destination	HQ0030
0014	28-SEP-2010	1	(SAME AS PREVIOUS LOCATION) FOB: Destination	HQ0030
0015	28-SEP-2010	1	(SAME AS PREVIOUS LOCATION) FOB: Destination	HQ0030
0016	28-SEP-2010	1	(SAME AS PREVIOUS LOCATION) FOB: Destination	HQ0030

ACCOUNTING AND APPROPRIATION DATA

AB: 9770300.4101 2165 3151 012133 VALA97 DIAC76614
AMOUNT: $2,218,263.00
CIN 000000000000000000000000000000: $2,218,263.00

AC: 9760300.4101 2165 3151 012133 VALA97 DIAC66614
AMOUNT: $2,387,753.00
CIN 000000000000000000000000000000: $2,387,753.00

AD: 9750300.4120 2060 3151 012133 VAUA97 DIAC50125
AMOUNT: $348,828.00
CIN 000000000000000000000000000000: $348,828.00

CLAUSES INCORPORATED BY REFERENCE

52.203-3	Gratuities	APR 1984
52.203-6 Alt I	Restrictions On Subcontractor Sales To The Government (Sep 2006) -- Alternate I	OCT 1995
52.204-4	Printed or Copied Double-Sided on Recycled Paper	AUG 2000
52.204-9	Personal Identity Verification of Contractor Personnel	NOV 2006
52.209-6	Protecting the Government's Interest When Subcontracting With Contractors Debarred, Suspended, or Proposed for Debarment	SEP 2006
52.211-17	Delivery of Excess Quantities	SEP 1989
52.212-4	Contract Terms and Conditions--Commercial Items	FEB 2007
52.219-7	Notice of Partial Small Business Set-Aside	JUN 2003
52.219-9	Small Business Subcontracting Plan	SEP 2006

52.219-14	Limitations On Subcontracting	DEC 1996
52.219-16	Liquidated Damages-Subcontracting Plan	JAN 1999
52.222-3	Convict Labor	JUN 2003
52.222-19	Child Labor -- Cooperation with Authorities and Remedies	JAN 2006
52.222-21	Prohibition Of Segregated Facilities	FEB 1999
52.222-37	Employment Reports On Special Disabled Veterans, Veterans Of The Vietnam Era, and Other Eligible Veterans	SEP 2006
52.223-5	Pollution Prevention and Right-to-Know Information	AUG 2003
52.225-13	Restrictions on Certain Foreign Purchases	FEB 2006
52.227-2	Notice And Assistance Regarding Patent And Copyright Infringement	AUG 1996
52.228-5	Insurance - Work On A Government Installation	JAN 1997
52.232-33	Payment by Electronic Funds Transfer--Central Contractor Registration	OCT 2003
52.233-3	Protest After Award	AUG 1996
52.237-2	Protection Of Government Buildings, Equipment, And Vegetation	APR 1984
52.237-3	Continuity Of Services	JAN 1991
52.242-13	Bankruptcy	JUL 1995
52.242-15	Stop-Work Order	AUG 1989
52.247-34	F.O.B. Destination	NOV 1991
52.253-1	Computer Generated Forms	JAN 1991
252.203-7002	Display Of DOD Hotline Poster	DEC 1991
252.204-7003	Control Of Government Personnel Work Product	APR 1992
252.204-7004 Alt A	Central Contractor Registration (52.204-7) Alternate A	NOV 2003
252.205-7000	Provision Of Information To Cooperative Agreement Holders	DEC 1991
252.209-7004	Subcontracting With Firms That Are Owned or Controlled By The Government of a Terrorist Country	DEC 2006
252.219-7003	Small Business Subcontracting Plan (DOD Contracts)	APR 2007
252.223-7006	Prohibition On Storage And Disposal Of Toxic And Hazardous Materials	APR 1993
252.225-7001	Buy American Act And Balance Of Payments Program	JUN 2005
252.225-7002	Qualifying Country Sources As Subcontractors	APR 2003
252.225-7012	Preference For Certain Domestic Commodities	JAN 2007
252.225-7013	Duty-Free Entry	OCT 2006
252.225-7016	Restriction On Acquisition Of Ball and Roller Bearings	MAR 2006
252.225-7021	Trade Agreements	MAR 2007
252.226-7001	Utilization of Indian Organizations and Indian-Owned Economic Enterprises, and Native Hawaiian Small Business Concerns	SEP 2004
252.232-7003	Electronic Submission of Payment Requests	MAR 2007
252.232-7010	Levies on Contract Payments	DEC 2006
252.239-7002	Access	DEC 1991
252.239-7004	Orders For Facilities And Services	NOV 2005
252.239-7005	Rates, Charges, And Services	NOV 2005
252.239-7006	Tariff Information	JUL 1997
252.239-7007	Cancellation Or Termination Of Orders	NOV 2005
252.239-7008	Reuse Arrangements	DEC 1991
252.239-7012	Title To Telecommunication Facilities And Equipment	DEC 1991
252.239-7013	Obligation Of The Government	JUL 2006
252.239-7014	Term Of Agreement	DEC 1991
252.243-7001	Pricing Of Contract Modifications	DEC 1991
252.243-7002	Requests for Equitable Adjustment	MAR 1998
252.246-7000	Material Inspection And Receiving Report	MAR 2003
252.247-7023	Transportation of Supplies by Sea	MAY 2002

252.247-7024 Notification Of Transportation Of Supplies By Sea MAR 2000

CLAUSES INCORPORATED BY FULL TEXT

52.212-5 CONTRACT TERMS AND CONDITIONS REQUIRED TO IMPLEMENT STATUTES OR EXECUTIVE ORDERS--COMMERCIAL ITEMS (MAR 2007) (DEVIATION)

(a) Comptroller General Examination of Record. The Contractor agrees to comply with the provisions of this paragraph (a) if the contract was awarded using other than sealed bid, is in excess of the simplified acquisition threshold, and does not contain the clause at 52.215-2, Audit and Records-Negotiation.

(1) The Comptroller General of the United States, or an authorized representative of the Comptroller General, shall have access to the right to examine any of the Contractor's directly pertinent records involving transactions related to this contract.

(2) The Contractor shall make available at its offices at all reasonable times, the records, materials, and other evidence for examination, audit, or reproduction, until 3 years after final payment under this contract or for any shorter period specified in FAR Subpart 4.7, Contractor Records Retention, of the other clauses of this contract. If this contract is completely or partially terminated, the records relating to the work terminated shall be made available for 3 years after any resulting final termination settlement. Records relating to appeals under the disputes clause or to litigation or the settlement of claims arising under or relating to this contract shall be made available until such appeals, litigation, or claims are finally resolved.

(3) As used in this clause, records include books, documents, accounting procedures and practices, and other data, regardless of form. This does not require the Contractor to create or maintain any record that the Contractor does not maintain in the ordinary course of business or pursuant to a provision of law.

(b) Notwithstanding the requirements of any other clause in this contract, the Contractor is not required to flow down any FAR clause, other than those in paragraphs (i) through (vii) of this paragraph in a subcontract for commercial items. Unless otherwise indicated below, the extent of the flow down shall be as required by the clause--

(i) 52.219-8, Utilization of Small Business Concerns (MAY 2004) (15 U.S.C. 637(d)(2) and (3)), in all subcontracts that offer further subcontracting opportunities. If the subcontract (except subcontracts to small business concerns) exceeds $500,000 ($1,000,000 for construction of any public facility), the subcontractor must include 52.219-8 in lower tier subcontracts that offer subcontracting opportunities.

(ii) 52.222-26, Equal Opportunity (MAR 2007) (E.O. 11246).

(iii) 52.222-35, Equal Opportunity for Special Disabled Veterans, Veterans of the Vietnam Era, and Other Eligible Veterans (SEP 2006) (38 U.S.C. 4212).

(iv) 52.222-36, Affirmative Action for Workers with Disabilities (Jun 1998) (29 U.S.C. 793).

(v) 52.222-39, Notification of Employee Rights Concerning Payment of Union Dues or Fees (DEC 2004) (E.O. 13201)

(vi) 52.222-41, Service Contract Act of 1965, as Amended (JUL 2005), flow down required for all subcontracts subject to the Service Contract Act of 1965 (41 U.S.C. 351, et seq.).

(vii) 52.247-64, Preference for Privately Owned U.S.-Flag Commercial Vessels (FEB 2006) (46 U.S.C. Appx 1241(b) and 10 U.S.C. 2631). Flow down required in accordance with paragraph (d) of FAR clause 52.247-64.

(c) While not required, the contractor May include in its subcontracts for commercial items a minimal number of additional clauses necessary to satisfy its contractual obligations.

(End of clause)

52.216-9001 RESERVED

52.217-9 OPTION TO EXTEND THE TERM OF THE CONTRACT (MAR 2000)

(a) The Government may extend the term of this contract by written notice to the Contractor within 15 days; provided that the Government gives the Contractor a preliminary written notice of its intent to extend at least 60 days before the contract expires. The preliminary notice does not commit the Government to an extension.

(b) If the Government exercises this option, the extended contract shall be considered to include this option clause.

(c) The total duration of this contract, including the exercise of any options under this clause, shall not exceed 5 years.
(End of clause)

52.219-4 NOTICE OF PRICE EVALUATION PREFERENCE FOR HUBZONE SMALL BUSINESS CONCERNS (JUL 2005)

(a) Definition. HUBZone small business concern, as used in this clause, means a small business concern that appears on the List of Qualified HUBZone Small Business Concerns maintained by the Small Business Administration.

(b) Evaluation preference. (1) Offers will be evaluated by adding a factor of 10 percent to the price of all offers, except--

(i) Offers from HUBZone small business concerns that have not waived the evaluation preference; and

(ii) Otherwise successful offers from small business concerns.

(2) The factor of 10 percent shall be applied on a line item basis or to any group of items on which award may be made. Other evaluation factors described in the solicitation shall be applied before application of the factor.

(3) A concern that is both a HUBZone small business concern and a small disadvantaged business concern will receive the benefit of both the HUBZone small business price evaluation preference and the small disadvantaged business price evaluation adjustment (see FAR clause 52.219-23). Each applicable price evaluation preference or adjustment shall be calculated independently against an offeror's base offer.

These individual preference amounts shall be added together to arrive at the total evaluated price for that offer.

(c) Waiver of evaluation preference. A HUBZone small business concern may elect to waive the evaluation preference, in which case the factor will be added to its offer for evaluation purposes. The agreements in paragraph (d) of this clause do not apply if the offeror has waived the evaluation preference.

___ Offeror elects to waive the evaluation preference.

(d) Agreement. A HUBZone small business concern agrees that in the performance of the contract, in the case of a contract for

(1) Services (except construction), at least 50 percent of the cost of personnel for contract performance will be spent for employees of the concern or employees of other HUBZone small business concerns;

(2) Supplies (other than procurement from a nonmanufacturer of such supplies), at least 50 percent of the cost of manufacturing, excluding the cost of materials, will be performed by the concern or other HUBZone small business concerns;

(3) General construction, at least 15 percent of the cost of the contract performance incurred for personnel will be spent on the concern's employees or the employees of other HUBZone small business concerns; or

(4) Construction by special trade contractors, at least 25 percent of the cost of the contract performance incurred for personnel will be spent on the concern's employees or the employees of other HUBZone small business concerns.

(e) A HUBZone joint venture agrees that in the performance of the contract, the applicable percentage specified in paragraph (d) of this clause will be performed by the HUBZone small business participant or participants.

(f) A HUBZone small business concern nonmanufacturer agrees to furnish in performing this contract only end items manufactured or produced by HUBZone small business manufacturer concerns. This paragraph does not apply in connection with construction or service contracts.

(End of clause)

52.233-4 APPLICABLE LAW FOR BREACH OF CONTRACT CLAIM (OCT 2004)

United States law will apply to resolve any claim of breach of this contract.

(End of clause)

52.252-2 CLAUSES INCORPORATED BY REFERENCE (FEB 1998)

This contract incorporates one or more clauses by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. Also, the full text of a clause may be accessed electronically at this/these address(es):

http://www.arnet.gov/far; http://farsite.hill.af.mil
(End of clause)

52.252-6 AUTHORIZED DEVIATIONS IN CLAUSES (APR 1984)

(a) The use in this solicitation or contract of any Federal Acquisition Regulation (48 CFR Chapter 1) clause with an authorized deviation is indicated by the addition of "(DEVIATION)" after the date of the clause.

(b) The use in this solicitation or contract of any DFARS 48 CHAPTER 2 and DLAD CFR CHAPTER clause with an authorized deviation is indicated by the addition of "(DEVIATION)" after the name of the regulation.

(End of clause)

252.204-7006 BILLING INSTRUCTIONS (OCT 2005)

When submitting a request for payment, the Contractor shall--

(a) Identify the contract line item(s) on the payment request that reasonably reflect contract work performance; and

(b) Separately identify a payment amount for each contract line item included in the payment request.

(End of clause)

252.212-7001 CONTRACT TERMS AND CONDITIONS REQUIRED TO IMPLEMENT STATUTES OR EXECUTIVE ORDERS APPLICABLE TO DEFENSE ACQUISITIONS OF COMMERCIAL ITEMS (APR2007) (DEVIATION)

(a) In addition to the clauses listed in paragraph (b) of the Contract Terms and Conditions Required to Implement Statutes or Executive Orders--Commercial Items clause of this contract (FAR 52.212-5 (MAR 2007) (DEVIATION), the Contractor shall include the terms of the following clause, if applicable, in subcontracts for commercial items or commercial components, awarded at any tier under this contract:

252.225-7014	Preference for Domestic Specialty Metals, Alternate I (APR 2003) (10 U.S.C. 2533a).
252.237-7019	Training for Contractor Personnel Interacting with Detainees (SEP 2006) (Section 1092 of Pub. L. 108-375).
252.247-7023	Transportation of Supplies by Sea (MAY 2002) (10 U.S.C. 2631)
252.247-7024	Notification of Transportation of Supplies by Sea (MAR 2000) (10 U.S.C. 2631)

(End of clause)

MARKING INSTRUCTIONS

MARKING INSTRUCTIONS FOR ALL ITEMS TO INCLUDE DROP SHIP AND DIRECT SHIPMENT

The Contractor shall attach two (2) copies of a detailed packing list with each box or container with unlike items where the full description of the contents is not authorized or cannot be shown. Include one (1) copy of the packing list inside the box or container and attach one (1) copy of the packing list on the outside of the box or container. The outside of the box or container must also include the complete shipping address as provided in the schedule and the Contract/Purchase/Delivery Order number located on Page 1 of this document.

The packing list shall contain the following information:

(a) Contract number/Purchase Order number or Delivery Order number
(b) Package number and set number (if any) of the container.
(c) A list of the contents which shows the quantity by item, item description, part number, type and size, unit of issue if other than each.

NOTE!
The government WILL NOT ACCEPT items shipped without a packing list especially when the content of the package is unidentifiable; rejected items will be returned at the contractor`s expense.

INCOMPLETE DELIVERIES

Incomplete delivery refers to the incomplete shipment of a unit of issue of an individual contract line item (CLIN). Such Incomplete, or fragmented delivery of any part of a CLIN is not authorized and will not be accepted. Each item (CLIN), including all components and subitems, is to be delivered complete. Where subline items are reflected as component parts of an item, all subline items must be delivered simultaneously to form the complete item.

RECEIVING HOURS FOR DELIVERIES

Material for delivery will be accepted at the receiving activity between 0730 and 1430 hours only, daily except Saturday, Sunday and Federal holidays. Carriers or deliveries arriving after 1400 hours will not be off-loaded or accepted until the following workday.

LIABILITY INSURANCE

The following types of insurance are required in accordance with the clause entitled "INSURANCE-WORK ON A GOVERNMENT INSTALLATION (JAN 1997) and shall be maintained in the minimum amounts shown:

a. Comprehensive General Liability: $200,000 per person and $500,000 per accident for bodily injury. No property damage general liability is required.

2) Automobile Insurance: $200,000 per person and $500,000 per accident for bodily injury and $20,000 per accident for property damage. Comprehensive form of policy is required.

3) Standard Workmen`s Compensation andEmployer`s Liability Insurance in the minimum amount of $100,000.

POINT OF CONTACT

The Defense Media Center Contracting Officer name and email address for this contract is:

Ms. Susan M. Madrid – susan.madrid@dodmedia.osd.mil

The Point of Contact for this contract is: Ms. Susan Madrid – (951) 413-2371

FOR FOLLOW-UP INFORMATION REGARDING CHANGES OR LATE PAYMENTS, PLEASE CONTACT RICH TALBERT, CONTRACTING OFFICER, AT (951) 413-6741/ FAX (951) 413-2432 or e-mail talber@dodmedia.osd.mil.

PERFORMANCE WORK STATEMENT

To acquire
Storage Infrastructure System Replacement
for the
Defense Media Center`s
American Forces Network Broadcast Center (AFN-BC)

1.0 Scope of Work

The purpose of this contract is to replace the existing Broadcast Automation System with upgraded and expanded media servers, and an SDI router system expansion for the American Forces Network Broadcast Center (AFN-BC), which is part of the Defense Media Center (DMC).

The contractor shall design, engineer, furnish, install, test, and commission all hardware, software, ancillary equipment, training, and documentation for a disk based on-line ingest, storage, and play out system, and an SDI router system expansion.

Contractor shall provide and install an SDI routing switcher capable of 512 inputs, each capable of feeding any or all 512 outputs, without the use of tie lines. A minimum of 10 inputs and outputs shall conform to SMPTE 292M HD-SDI. The remaining 502 router inputs and outputs shall conform to SMPTE 259M (SDI). The Contractor shall provide and install patch bays sufficient to provide patching for 512 inputs and 512 outputs SDI or HD-SDI. Contractor shall provide and install cabling for 512 inputs and 512 outputs SDI or HD-SDI to the interconnect racks located in room 267.

The contractor shall be responsible for interconnecting all CFE equipment within and between rooms within the Defense Media Center. The contractor will offer optional support and maintenance coverage for years 3, 4, and 5. The contractor will offer additional input and output channels and additional disk storage.

General Description

The Defense Media Center (DMC) is located in Riverside, California, and manages the AFN Broadcast Center (AFN-BC), which provides stateside radio and television programming – "a touch of home" – to approximately 900,000 U.S. service men and women, DoD civilians and their families serving outside the United States in 177 countries and aboard Navy ships at sea.

AFN-BC distributes 12 full-time television channels, which originate from a server-based Broadcast Automation System (BAS). This current system is reaching the end of its support lifespan. The goal of this contract is to upgrade the ingest, storage, play out, archive, and SDI router systems while maintaining the main router, automation and traffic and programming sub-systems.

The AFN-BC Broadcast Automation System (BAS) currently operates by ingesting program materials into Sony MAV 70 video servers. These materials consist of videotapes received directly from program distributors, programs received over the Internet via Telestream Clipmail or Pathfire servers, or programs recorded from live video feeds from a variety of sources (satellite, fiber, cable, etc.).

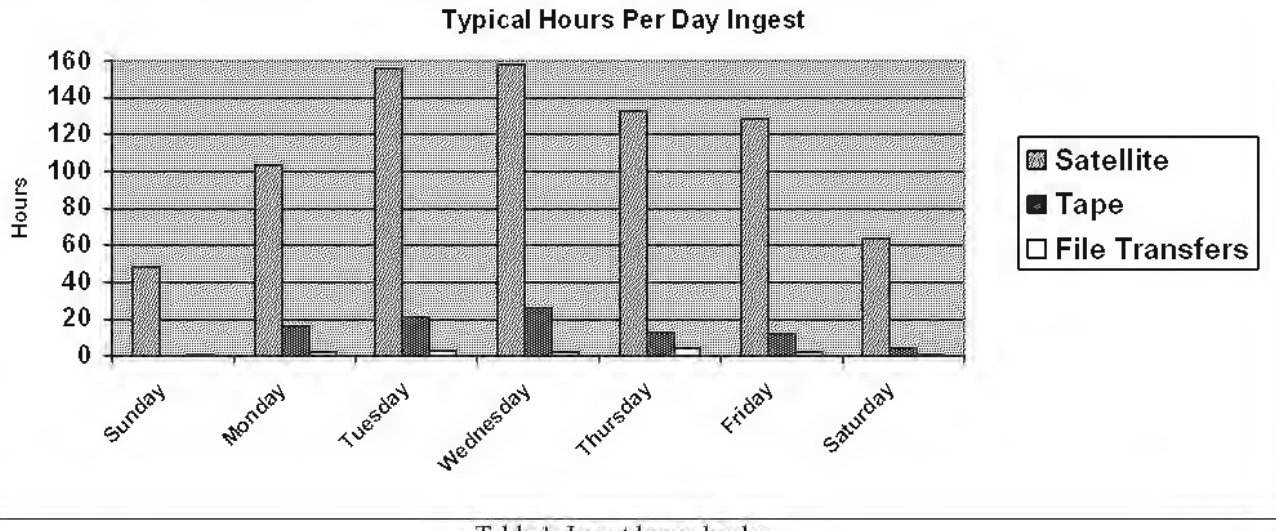

Table 1. Ingest hours by day

The ingest process is controlled via Harris Automation. Videotapes are ingested using the Harris Media Client with the AutoSat sub-system controlling satellite recordings. Ingest using satellite varies per day peaking at about 160 hours midweek. Programs are still delivered via tape and ingest of those peaks at about 26 hours per day. Some programming is received via Internet file transfers and those are less than 5 hours per day peak. During peak production weeks these typical week sample numbers increase noticeably. Once programming is in a file format the AFN-BC deletes all commercials and replaces them with AFN produced spots, Public Service Announcements, and other interstitial materials, including AFN-BC produced promo elements. Harris Media Clients are used to mark these in-points and out-points and to pass that date to the Harris Automation system.

Programming is stored in an archive using a Sony DMS-8400 Petasite and an EMC^2 CLARiiON CX600 and CX700 configured RAID 5 resulting in storage sufficient for approximately 20,000 hours of MPEG-2 4:2:2 media at 8 Mbps calculated at 4.6 GB of storage per hour of media. AFN-BC's PetaSite stores approximately 20,000 hours of MPEG-2 video files in the Sony's SFX file format. The online storage is tied to Harris Automation using EMC Avalon Storage Management Software to get files from online storage and put them into the Sony MAV 70 play out servers based on requests from Harris automation. Files are sent from Sony MAV 70 ingest servers to online storage using Harris Media Client software. The files are transported between the MAV70 servers and the CX600/CX700 using the 1000 base SX archive network. The current tape-based archive is being replaced under a separate contract action. The intent it for the new tape-based archive to function in much the same manner as the current archive. Material currently stored in the current Petasite in a Sony MPEG format is to be transcoded into a new format as part of this contract.

The Television Operations Division is responsible for controlling and monitoring all out-going television signals. TV Operation's personnel interface with the Harris Automation system to resolve problems within the automated play list.

1.2 Intended Uses

The equipment and software provided through the award and completion of this contract will upgrade and expand the ingest, on-line disk-base storage, router, and play out capabilities of the AFN Broadcast Center to help it better meet its mission requirements. All equipment shall be commercial off-the-shelf equipment with only minor alterations and settings to meet the PWS requirements. Systems proposed shall be proven technology in current use by United States broadcasters in a multi-television channel environment.

In the near future in a follow on contract the AFN Broadcast Center intends to upgrade the system's automation hardware, software, and archive managers, and programming and traffic systems completing the system improvement and expanding the capabilities. These follow-on purchases will tightly integrate with the on-line disk-based storage, the router, and other sub-systems throughout the Broadcast Center to control and automate functions.

1.3 Information for Offerors

The contractor shall submit a written proposal describing the Broadcast Automation System upgrade fully integrated into the current BAS. The proposal shall include details on the following:

- The design, capabilities, capacities, physical, functional, and interface layout of all major parts to include:
  - Disk based on-line storage .
  - Ingest encoders.
  - Play back decoders.
  - Router expansion.
- Block level diagrams of the proposed logical interface into the current work flow processes.
- Hardware, software, and network configuration and integration of the ingest, play-out, disk archive, and router expansion into the current BAS.
- Descriptions of operator interfaces.
- Description of training that shall be provided for both the equipment operation and maintenance. Include an outline of training classes.
- The proposal shall use and follow the same paragraph numbering system as the PWS section of this document.
- Heat load and electrical power consumption of rack mounted equipment within the proposed system with the bid submission.
- Provide a customer list which demonstrates the ability of their ability to integrate systems of a similar complexity and nature.
- The maximum length of the proposal submission is 40 pages not including any drawings, pictures, or diagrams submitted. Four copies of all proposal documentation must be submitted.
- Additionally an executive description of the overall functional concept of the system shall be submitted. This high-level description should be limited to three pages and include block level diagrams if needed. Block level diagrams are not counted against the page limit. Three copies of the executive description shall be provided separately from the proposal submission's 40 pages.
- A proposed transition plan (see paragraph 3.2 for requirements).

2.0 Applicable Documents

The equipment shall be designed in accordance with good engineering practice and shall provide a level of performance consistent with the state of the art.

The equipment shall comply with the following safety and certification standards. The following documents, or the versions closest in time prior to the release of this solicitation, form a part of this PWS to the extent specified herein. Where the requirements of these documents conflict with the instructions herein, the requirements of this SOW shall govern.

a. National Fire Protection Association NFPA-70 (1999) National Electrical Code

Copies of NFPA documents may be obtained from:
http://www.nfpa.org/
or
National Fire Protection Association
1 Batterymarch Park
P.O. Box 9101
Quincy, MA 02269-9101

b. Electronics Industry Association (EIA)/Telecommunications Industry Association (TIA) Standards.

EIA RS-310-C Racks, Panels and Associated Equipment

Copies of EIA documents may be obtained from:
http://www.eia.org/
or
Electronics Industries Association
2001 I Street, N.W.
Washington, DC 20006

c. International Telecommunications Union (ITU) Standards

ITU-R BT.601-5 Studio Encoding parameters of Digital Television for Standard 4:3 and wide-screen 16:9 aspect ratios, October 1995

Copies of ITU documents may be obtained from:
http://www.itu.int/home/
or
International Télécommunications Union
Place Des Nations, CH-1211
Geneva 20, Switzerland

d. International Organization for Standardization (ISO)/

International Electrotechnical Commission (IEC)
ISO/IEC 13818-1:DIS Generic Coding of Moving Pictures and Associated Audio-Systems, June 1994
ISO/IEC 13818-2:DIS Coding of Moving Pictures and Associated Audio-Video, March 1994
ISO/IEC 13818-3:DIS Coding of Moving Pictures and Associated Audio,
March 1994

Copies of ISO documents may be obtained from:
http://www.iso.org
or
International Organization for Standardization
1 - Rue de Varembe
Geneva, Switzerland

ISO/IEC 13818-4 Compliance
ISO/IEC 13818-5 Software Simulation
ISO/IEC 13818-6 Digital Storage Media—Command and Control (DSM-CC)
ISO/IEC 13818-9 Real Time Interface for System Decoders
ISO/IEC 13818-10 Digital Media Storage (DSM) Reference Script Format

e. Society of Motion Picture and Television Engineers (SMPTE) Standards.
SMPTE 170M - Composite Analog Video Signal-NTSC for Studio Applications
SMPTE 259M Serial Digital Interface for 10-bit 4:2:2 Component and
times sub carrier frequency NTSC Composite Digital Signals
SMPTE 272M Television - Formatting AES/EBU Audio and Auxiliary
Data into Digital Video Ancillary Data Space
SMPTE Standard 377M Material Exchange Format (MXF) Engineering Guideline.

Copies of SMPTE documents may be obtained from:
http://www.smpte.org/
or
Society of Motion Pictures & Television Engineers
595 W. Hartsdale Ave.
White Plains, NY 10607-1824

f. Maintenance, Replacement and Reliability, A.K.S. Jardine, Published by Halsted Press,
Library of Congress Catalog Card No: 73-5367

g. American National Standard Institute/Institute of Electrical/Electronic Engineers
(ANSI/IEEE).
IEEE 802.2 Local Area Ethernet for LAN
IEEE 802.3 Fast Ethernet
IEEE 802.6 Switched Multi-Megabit Ethernet
IEEE 802.9 Isochronous Ethernet
IEEE 802.12 100 Base-VG AnyLAN
http://www.ieee.org/

h. Consultative Committee on International Radio (CCIR) Standard 601, International Standard for Digital Component Television.

i. American National Standards Institute (ANSI) X3.230-1994, Fibre Channel - Physical and Signaling Interface (FC-PH).

Copies of ANSI documents may be obtained from:
http://www.ansi.org
or
American National Standards Institute
25 West 43rd Street
4th Floor
New York, NY 10036

j. California Geological Survey, Special Publication 117, Guidelines for Evaluating and Mitigating Seismic Hazards

Copies of CGS documents may be obtained from:
http://www.consrv.ca.gov/CGS/
or
Copies of CGS documents may be obtained from:
State of California Geological Survey

801 K Street, MS 14-33
Sacramento, CA 95814-3532

3.0 General Requirements

The contractor shall design, deliver, install, configure, and test all hardware, software, and network items necessary to fully integrate the ingest encoders, on-line storage, playback decoders, and the router expansion/extension into the current BAS. The government will provide 19-inch rack and desk space, electrical power, and cooling requirements based on contractor provided requirements included in the proposal. The contractor shall provide any and all interface equipment or software as required to fully integrate the system equipment upgrade within the BAS. Video programming will be transcoded by vendor furnished equipment such as Telestream FlipFactories into the on-line archive's file format. The contractor shall provide extended warranties through the original manufacturer. The contractor shall conduct training in the operation and maintenance of the system using factory certified personnel.

The contractor shall transcode or rewrap approximately 20,000 hours/40,000 files of Sony MPEG video content into an MPEG 2 ML/MP file format compatible for playback by the new MPEG video decoders.

The contractor shall be responsible for interconnecting all contractor furnished equipment (CFE) within and between rooms within the Defense Media Center. All cables must be plenum rated. The systems shall use 75 ohm BNC input and output SDI connectors and strain relief's on network RJ-45 connectors. Contractor shall run all control and media cables to all CFE supplied equipment utilizing the government furnished equipment (GFE) interconnect racks when entering or exiting rooms.

Systems shall include a router "mission critical" spares kit as recommended by the equipment manufacturer.

All equipment shall preserve NTSC line 21 closed captioning and v-chip data.

If edge play out servers are used AFN-BC has approximately 75 hours of television commercials which need to be persistently keep available for play out in each server. A 12-hour look ahead window is maintained normally where automation looks ahead 12-hours in advance looking into the disk-based or tape-based archive to move files up to the current MAV-70 media servers. During archive or system maintenance periods the look ahead is advanced as far ahead as 36 hours. If used, the edge servers shall support this caching of commercials and programming.

The following diagrams are meant only to illustrate the functional interface with the current existing archive storage, the Sony MAV-70 file servers, and Harris Automation system. The contractor's proposal may or may not match this diagram beyond these interfaces.

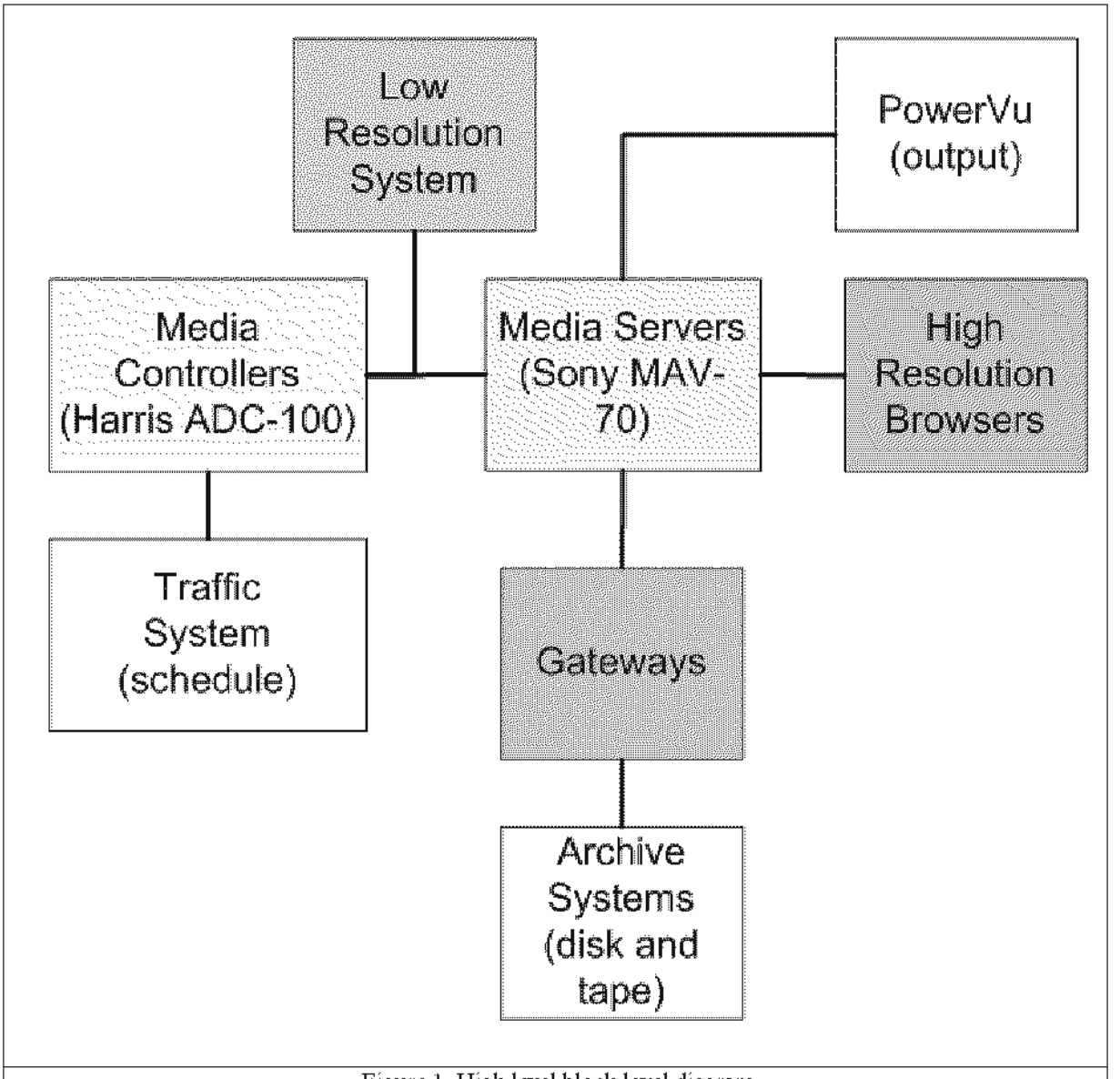

Figure 1. High level block level diagram

Figure 1 shows that the Harris traffic system provides a play list schedule to the Harris Automation ADC-100 media controllers. The ADC-100's control the Sony MAV-70's recording and play out. Additionally a Harris ADC-100 in the GMT role instructs EMC Avalon software to move files from the EMC CLARiiON disk based archive or the Sony PeteSite tape-based archive through a series of gateways and into a media server. Concurrent with the recording of a standard resolution copy the Harris ADC-100's control an MPEG-2 encoder to store a lower resolution copy in a dedicated RAID array. Harris high resolution (actually standard definition) editors are used to do butt-cut editing of recorded material. Upon play out the MAV-70's send their signals though a Scientific Atlanta PowerVu system for eventual transmission via satellite.

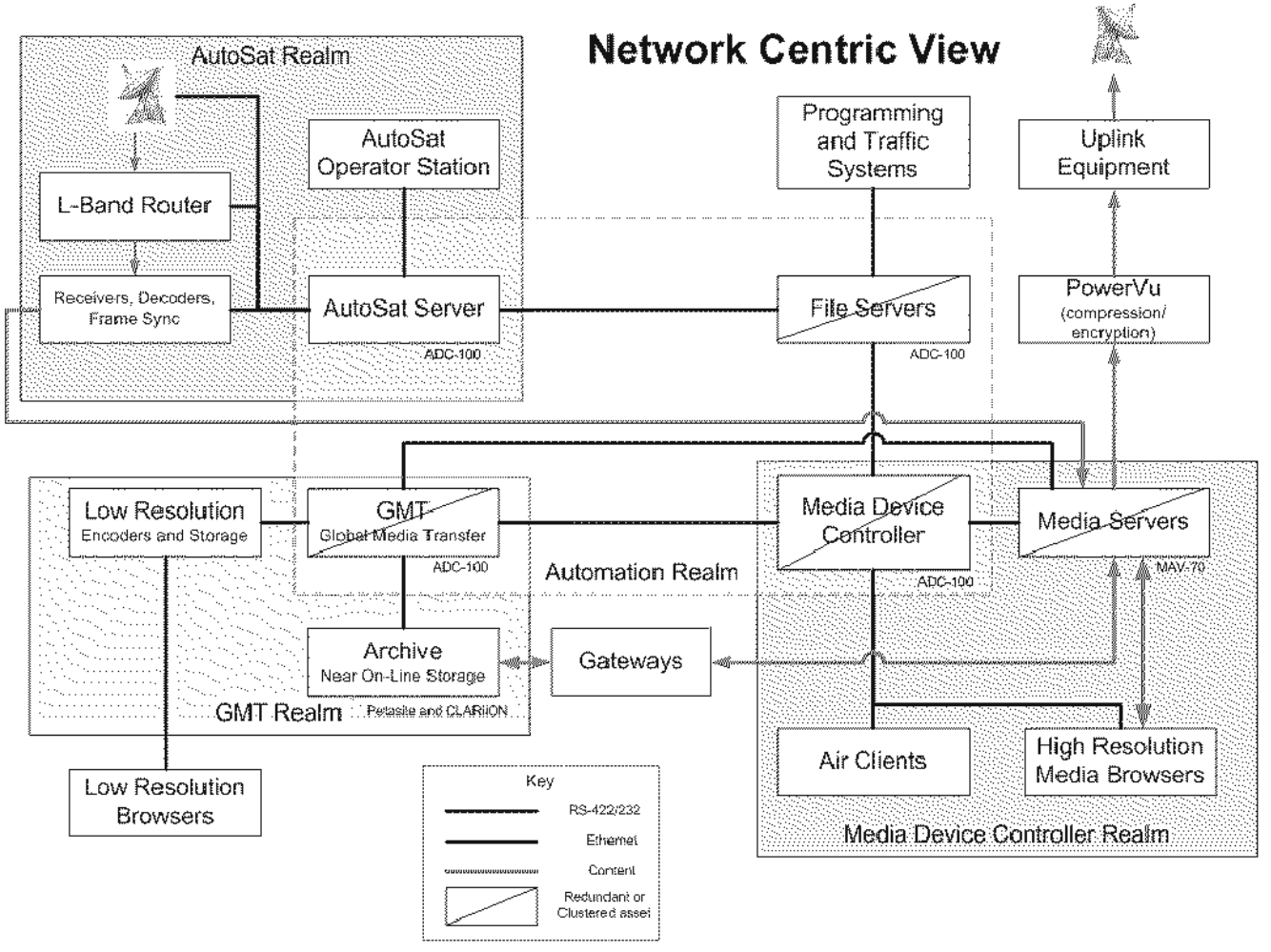

Figure 2. Network centric diagram.

Figure 2 shows the relationships between computer networks. The main focus of this new system falls in the automation realm, the GMT realm, and the media device controller realm. The media servers sit inside the media device controller realm and are controlled by the ADC-100's over EIA-422 (formerly RS-422) and RS-323 serial cables. The archives sit inside the GMT realm and are controlled by a Harris Automation ADC-100 running the Global Media Transfer software. Inside the media device controller realm the Harris Automation Air Clients control the Harris Automation ADC-100 media device controllers to allow recording, playback, and editing of video clips. The Harris Automation high resolution browsers act as a graphical user interface for these functions. In the automation realm the file servers act as a transfer point connecting the traffic system's clients to the media controllers passing the play list between the two networks. In the GMT realm the ADC-100 there controls both the low resolution encoders and storage to create "thumbnail" copies of programming. The GMT also interfaces with EMC Avalon software to request that files be transferred to and from the EMC CLARiiON disk-based and the Sony PetaSite tape-bases archives. In the Harris AutoSat (now Automated Ingest) realm the ADC-100 there allows for automated ingest of programs based on a schedule.

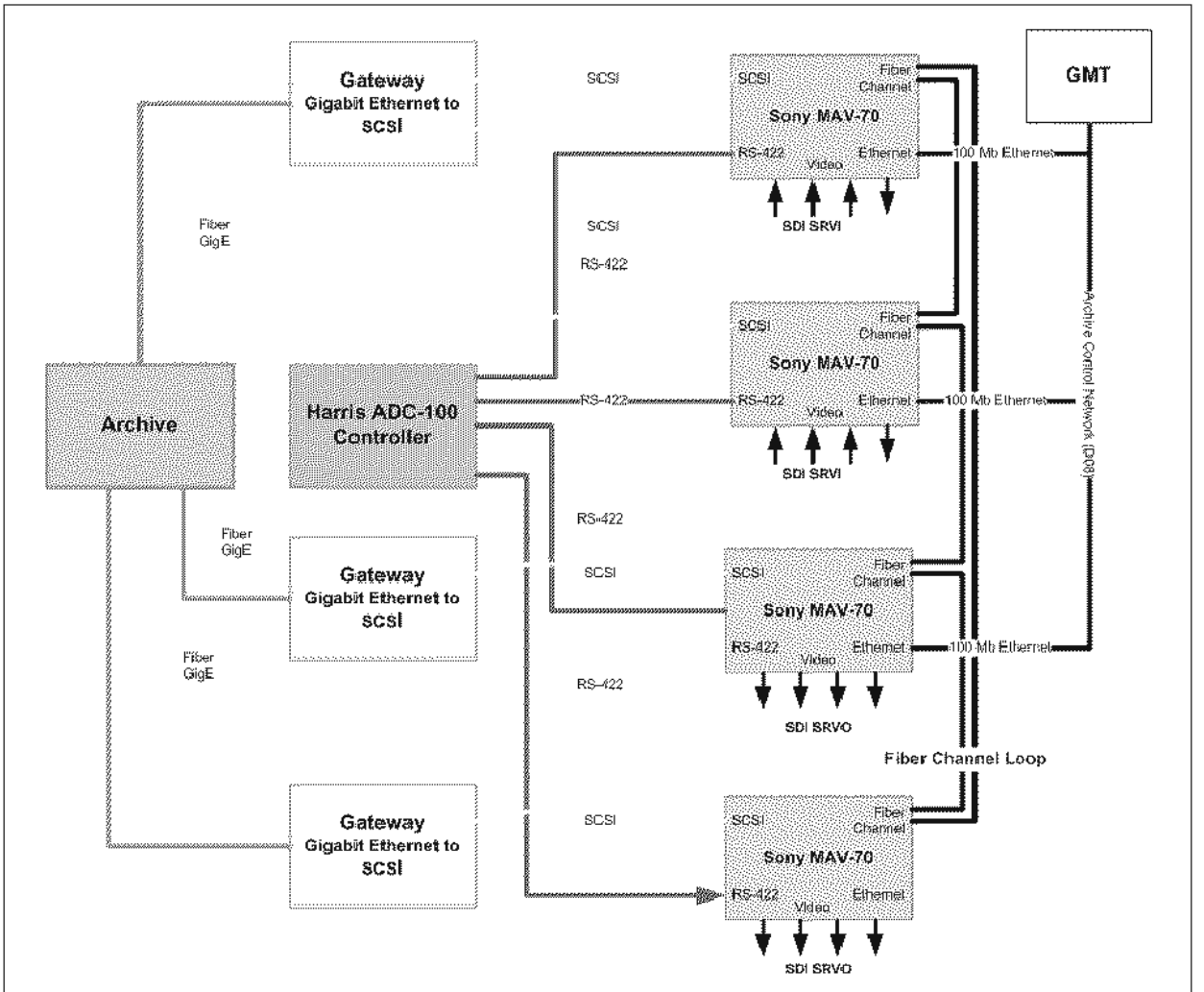

Figure 3. Sony MAV-70 details (typical pod).

Figure 3 details the network interfaces within each cluster or "pod" of Sony MAV-70 media servers. There are minor differences between some of the four pods worth of MAV-70's but the concept is generally the same between each. The archives are controlled by EMC Avalon software which takes file transfer requests from the GMT ADC-100. The files are sent via Fibre GigE to a series of physical protocol gateways converting GigE to SCSI for input into the Sony MAV-70 media servers. The Harris ADC-100 media server controller uses RS-422/RS-323 serial commands to control the media servers. The media servers have a Fiber Channel loop which connects the four media controllers to each other to allow inner pod transfers. There is also a 100 Mb Ethernet network to allow transfers between pods.

The following diagrams are meant as a conceptual drawing only and is not meant to limit the design of any proposed solutions. The Harris GMT, EMC CLARiiON, and EMC IDM and archive manager are currently installed and are not going to be replaced with this contract action.

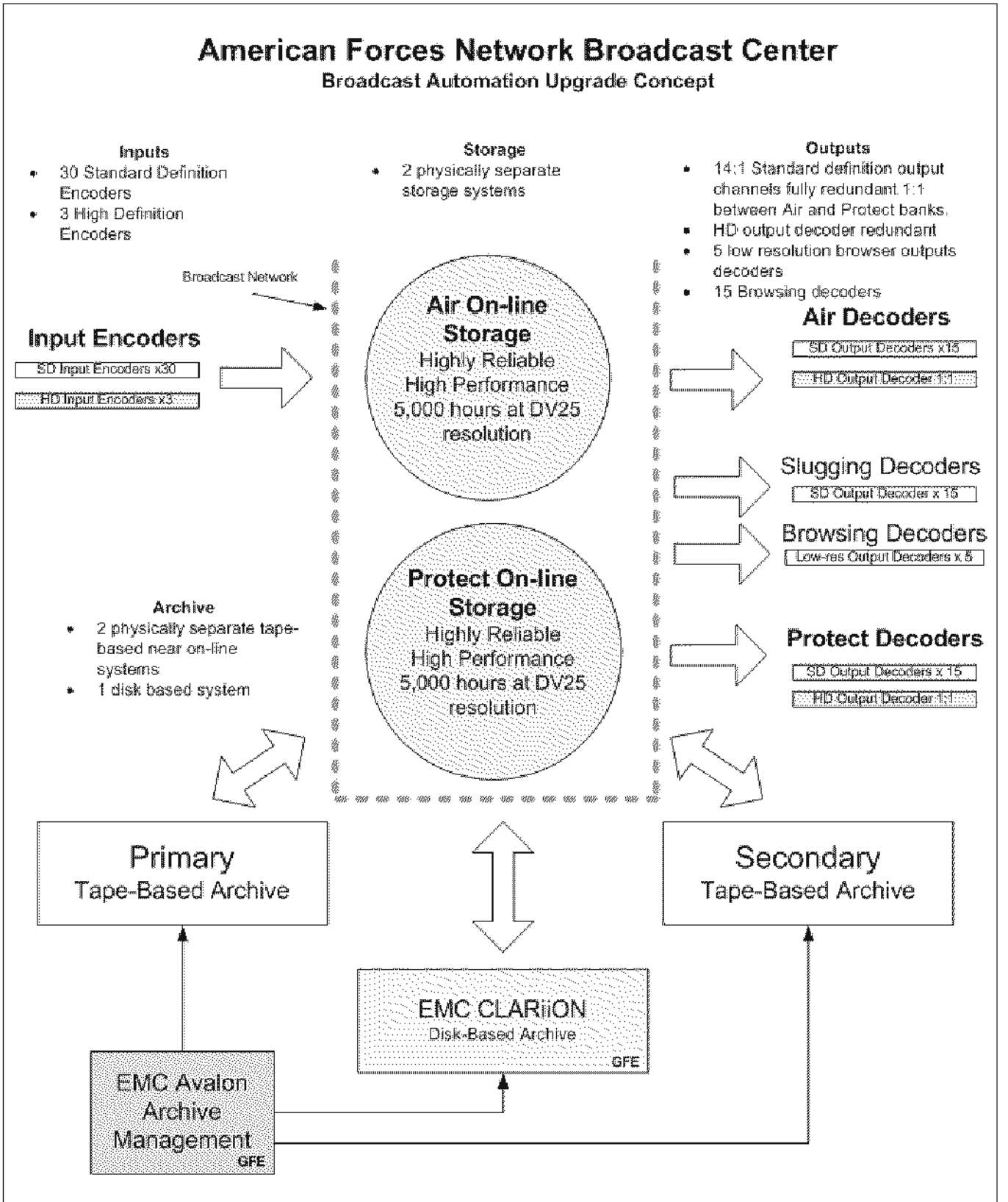

Figure 4. On-line conceptual system drawing.

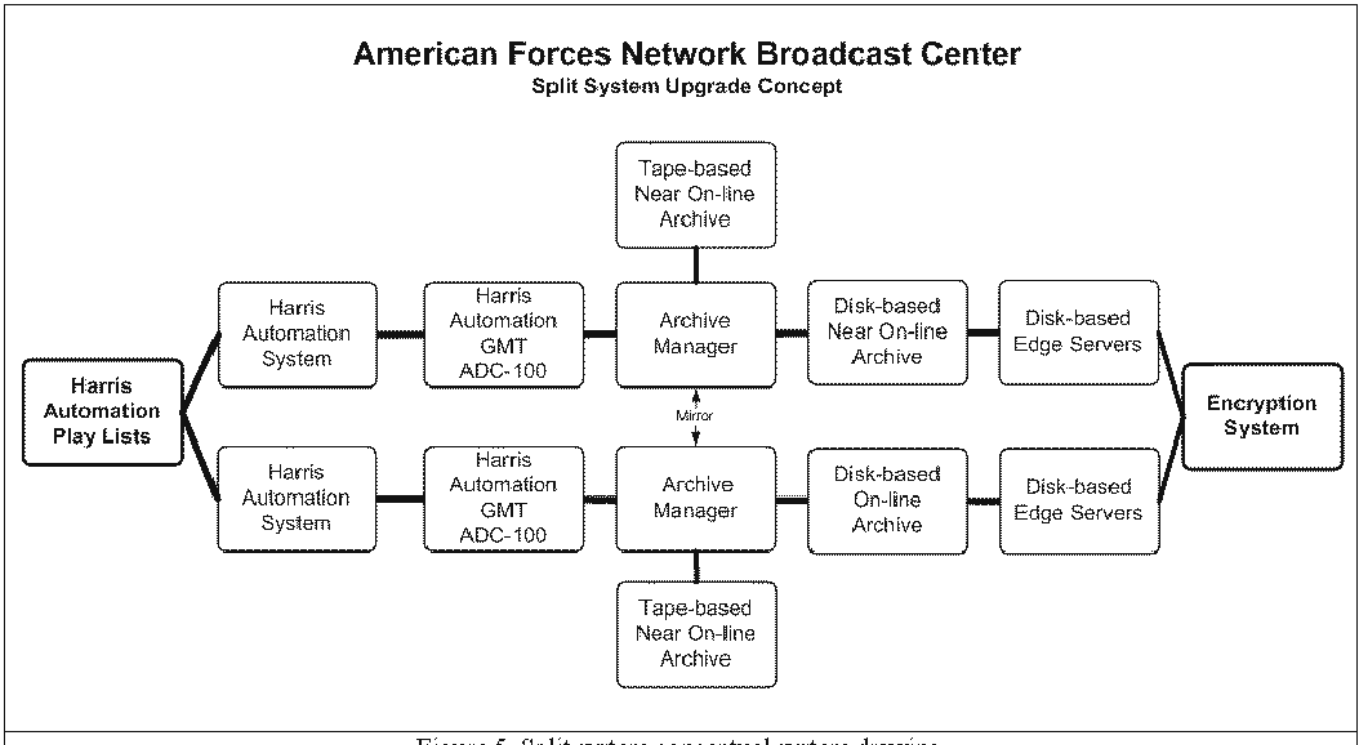

Figure 5. Split system conceptual system drawing.

3.1 Contractor Furnished Equipment (CFE)

All CFE and services are to be installed at the American Forces Network Broadcast Center located at 23755 Z Street, Riverside CA 92518-2017. All equipment described herein other than existing AFN-BC equipment is to be supplied by the contractor.

3.1.1 Media Servers

3.1.1.1 Standard Definition SMPTE 259M Input Encoders

The contractor shall deliver, install, wire, configure, and fully integrate standard definition input encoders with SMPTE 259M SDI inputs. All audio sources have embedded two channel audio. The government will designate demark points and provide a patch panel for the contractor to interface to an SDI router. The contractor shall provide a spare parts kit of recommended spares.

Input Encoder Hardware

The contractor shall deliver encoder hardware sufficient to simultaneously encode 30 incoming streams of SDI video with embedded audio in real time.

- The compressed file shall use the MPEG main level and main profile at 4:2:2 sampling at a data rate of approximately 30 megabits per second.
- The file format shall use a SMPTE 378M Material eXchange Format (MFX OP1a) file wrapper.
- The input encoders shall write to both of the on-line disk-based media storage devices simultaneously or nearly simultaneously. The failure of one storage sub-system shall not effect the recording of the file in the other sub-system.
- Remote GUI - The encoders shall be capable of remote status monitoring at a central location on site using a graphical user interface. A GUI shall be provided to monitor the encoder's status and configured to receive status messages from the encoder. The government will furnish a KVM port and display for this purpose.
- Audio – two audio channels are required.
- Line-21 - The encoders must preserve line-21 of the incoming SDI stream to preserve closed captioning and v-chip data.
- Power Supplies - The encoders shall have redundant power supplies.
- The system shall automatically fail-over to stand-by encoders upon a detection of a failure or a manual input entered by an engineer or operator.
- The contractor shall provide costs for optional standard definition input channels in a logical number. If a chassis is required and can hold four input channels the option should be for 4 input channels. These extra encoders shall be provided in an optional CLIN which maybe exercised within three years of the award of contract. Cost shall be listed to match the logical number i.e. 4 channels for so many dollars.

On-line Media Storage

The contractor shall deliver, install, configure, test, and interface enough disk storage for a minimum of 10,000 hours worth of video encoded at a date rate of approximately 30 megabits per second.

- The system shall consist of two mechanically separate 5000 hour storage systems complete with their own content management/metadata controllers.
- The two systems shall mirror each other's operation to a frame accurate timing level being controlled by separate automation device controllers.
- The system will be designed so that no single hard drive failure will cause the loss of data.
- The system will be designed so that no single hard drive enclosure failure will cause the loss of data.
- The on-line storage system shall have the ability of expansion to store 25,000 hours worth of video with the addition of storage frames.
- There shall be a management software provided which will allow for administration, troubleshooting, and maintenance of the storage.
- The system shall have software for setting business rules for data management with the ability at a minimum to make multiple copies, move, and delete files based on a files storage location and age.
- The file storage shall maintain MXF wrapper information.
- The two file storage systems shall allow them to be merged into one larger storage pool with reconfiguration.

On-line Media Storage Hardware

The contractor shall configure and test all hardware to ensure that the equipment functions as a system and within manufacturer specifications.

- Redundancy - Through the use of RAID or Redundant Arrays of Independent Nodes the on-line media storage will have no single point of failure.
- There shall be two physically separate storage systems which will function independently of each other. No failure of one system shall cause the second system to fail.
- Bandwidth - The on-line media storage shall have enough bandwidth to support 45 input streams and 45 output streams simultaneously at 30 megabits per second and 6 input and 3 output streams of high definition video at a minimum of 50 Mb/Sec rate.
- Volumes - The on-line media storage will permit the storage to be segmented into volumes or containers to allow organization with the ability to apply different business rules to allow automated control over the life of the media – moving, copying, deleting, or transcoding based on file parameters and location.
- Content/Metadata servers – If required by the file system fully redundant content or metadata servers shall be used. The content or metadata servers shall have the ability to backup their data both locally on removal media such as a DVD or data tape, and via an Ethernet network to a remote location.
- The contractor shall provide costs for optional disk based storage expansion for an expansion of 10,000 hours of storage for each of the storage systems. This extra disk storage expansion shall be provided in an optional CLIN which maybe exercised within three years of the award of contract.

3.1.1.3 Standard Definition SMPTE 259M Output Decoders

The contractor shall deliver, rack mount, wire, configure, and fully integrate 30 standard definition output decoders with SMPTE 259M SDI outputs. All audio sources will have embedded two channel audio. The government will designate signal demark points and provide a patch panel for the contractor to interface to an SDI router inputs.

- If the proposal uses edge servers there shall be a minimum of 75 hours of storage per server for persistent storage of commercials plus a minimum of 36 hours per channel of additional storage for television program material.
- There shall be fully redundant 1 for 1 output ports for each of 12 channels.
- There shall be an extra decoders within each output bank of decoders that operates in a 12:3 redundant method with the ability to be switched into the operating position of a failed decoder.
- The encoders shall provide for line 21 data output in the SDI stream preserving both closed captioning and v-chip data.
- Audio – two channel audio will be provided in the output SDI stream.

Standard Definition SMPTE 259M Output Decoders Hardware

The contractor shall deliver encoder hardware sufficient to simultaneously decode 12 outgoing streams of SDI video with embedded audio in real time. There shall be fully redundant 1:1 fail over ability to 12 additional decoders being driven by a second automation system device controller. Three extra decoders are to be configured in an n+3 redundancy function with the ability to be switched into the place of any of the first 14 decoders within each bank.

- Expansion – the system shall have bandwidth to support 45 channels of output (90 decoders total).
- Remote GUI - The decoder shall be capable of remote status monitoring at a central location on site using a graphical user interface to display the system "health". A GUI shall be provided to monitor the decoder's status and configured to receive status messages from the decoder. The government will furnish a KVM port and display for this purpose.
- Line-21 - The encoders must reproduce line-21 of the outgoing SDI stream to preserve closed captioning and v-chip data.
- Power Supplies - The encoders shall have redundant power supplies.
- The system shall automatically fail-over to stand-by encoders upon a detection of a failure or with a manual input.
- The contractor shall provide costs for optional output standard definition channels in a logical number. If a chassis is required and can hold four output channels the option should be for 4 output channels. These decoders shall be provided in an optional CLIN which maybe exercised within three years of the award of contract.

3.1.1.4 Low Resolution Browser System

The contractor shall deliver a low resolution browser system with the ability to provide screening of the audio and video of a media file on a personal computer running Windows XP operating system using Microsoft Media Player or Apple QuickTime or a like application.

- The low resolution media shall be transcoded from a standard or high definition file. The low resolution file shall not be encoded simultaneously during media capture from a separate dedicated device.
- The low resolution file shall be encoded at a bit rate of less than 1 megabit per second of media.
- The system shall maintain a relationship between standard definition files and low resolution files deleting and recreating low resolution files if standard definition files are edited. The low resolution file shall be deleted if the standard definition file is deleted.
- If separate low resolution storage outside the main 5000 hour storage cluster is required it shall store a minimum of 1000 hours of low resolution proxy files and have the ability to automatically delete files a certain age i.e. all files older than 30 days old are automatically erased.

3.1.1.5 High Definition SMPTE 292M Encoder Option

The system shall be SMPTE 292M High Definition capable with the ability to take an SDI HD video stream and encode it at 50 megabits per second rate, 4.2.2 encoding, using I-frames only.

- There shall be three HD encoders which accept an SDI input.
- Closed captioning and v-chip data shall be preserved.
- The file format shall use a SMPTE 378M Material eXchange Format (MFX OP1a) file wrapper.
- Remote GUI - The encoders shall be capable of remote status monitoring at a central location on site using a graphical user interface to allow monitoring of the encoder "health".
- Power Supplies - The encoders shall have redundant power supplies.
- The HD encoder shall have surround sound encoding ability.
- The contractor shall provide costs for optional HD input channels in a logical number. If a chassis is required and can hold four HD input channels the option should be for 4 HD input channels. These extra encoders shall be provided in an optional CLIN to be exercised with three years of the award of contract.

3.1.1.6 High Definition SMPTE 292M Decoder Option

The system shall be SMPTE 292M High Definition capable with the ability to take a file and decode it into a SDI HD stream.

- There shall be one HD encoder with one redundant backup.
- Closed captioning and v-chip data shall be preserved.
- The input file format shall use a SMPTE 378M Material eXchange Format (MFX OP1a) file wrapper.
- Remote GUI - The encoders shall be capable of remote status monitoring at a central location on site using a graphical user interface.
- Power Supplies - The decoder shall have redundant power supplies.
- The HD decoder shall have surround sound decoding ability.
- The contractor shall provide costs for optional HD output channels in a logical number. If a chassis is required and can hold four HD output channels the option should be for 4 HD output channels. These extra decoders shall be provided in an optional CLIN to be exercised with three years of the award of contract. Cost shall be listed to match the logical number of the chassis i.e. 4 channels for so many dollars.

3.1.1.7 File Transcoding Method

The contractor re-wrapping and/or transcoding the estimated 20,000 hours/40,000 hours of current files stored in the EMC CLARiiON in Sony SXF to a MXF file format which matches the new systems encoders and decoders format. This background process must take place without interrupting on-going on-air signals and the operation of the EMC Avalon control of both the tape-based and disk-based archives. The transcoding should be "smart" seeking out files that require playback sooner then those which will playback in the future based on selections and rules. This re-wrapping or transcoding shall take place simultaneously with the process of ingesting new material in to the new system.

A tape-based archive will be provided to act as a transfer point for transcoded files.

Available metadata must be preserved. Files will not be resampled from the current 8 Mb/sec to the new 30 Mb/sec data rate but the system must be able to play back both data 8 Mb/sec and 30 Mb/sec rates in an automation system's play list/time line seamlessly back-to-back.

The contractor's transition plan must detail the file transcoding method and provide an estimate on how long it will take to transcoded the existing files.

3.1.1.8 Sub-system Requirements

The systems infrastructure like bandwidth support hardware shall allow for future growth to 45 input and outputs without major hardware changes which would disrupt on-air signals. Adding or upgrading network switches or backbones would not be acceptable. Adding additional licenses and encoder/decoder hardware or software is permitted.

- The contractor shall deliver console with a graphical user interface to display the system status of the encoders, storage, decoders, network, and all other system components that report their status via Simple Network Management Protocol (SNMP). The output of this system will feed a GFE monitor wall via an existing Raritan KVM system.
- The disk-based storage system shall allow the GFE Harris Automation Media Clients to slug programming marking the start of message, end of message, time code start and stop times for each program segment, and entering programming metadata: Material ID, Title, Air Date, Purge Date, Alternative ID, User Data, and Operator. Slugging is the process where commercial programming is reviewed and the program content is marked to separate it from the commercials contained within the original file. The file is not segmented or edited, only the metadata from the slugging processes is passed to Harris Automation for use during playback of the files.
- The disk-based storage system shall allow Harris Automation Media Clients to scrub though video files displaying video and providing audio content to an SDI picture and technical measurement scope. If this ability requires dedicated decoders 15 shall be provided. Scrubbing is the process where during slugging an editor rapidly shuttles a file at several times real speed reviewing content seeking the commercial breaks.
- The system needs to have the delivered ability to support 45 standard definition encoders and 45 standard definition decoders. These extra encoders and decoders shall be provided in an optional CLIN which may be exercised, at the Government's choice, with three years of the award of contract.
- The system needs to have the delivered ability to support 6 high definition encoders and 6 high definition decoders. These extra encoders and decoders shall be provided in an optional CLIN to be exercised within three years of the award of contract.
- The system shall have the ability to perform remote backup of media data sending MXF files via a network to a remote location for redundancy operation in the event of a catastrophe. This transfer of files shall be a background operation moving files based on business rules or manually selected programming. This ability is for future use.
- The system shall have a status graphical user interface which shall summarize the operational health of the system reporting and logging failures of equipment. This system shall be networked together with all provided equipment that supports remote status monitoring.
- The system shall be controllable by Harris ADC-100 using Video Disk Control Protocol (VDCP) and Sony BVW automation commands at a minimum. The ability to in the future to use API controls is highly desired.

3.1.2 Router Expansion

3.1.2.1 At minimum, the system shall have fully redundant power supplies, internal matrix controllers.

3.1.2.2 At minimum, the system shall have n-plus-1 redundant input/output modules.

3.1.2.2 Redundant power supplies and control modules shall be hot swappable.

3.1.2.3 The Router shall be capable of migrating to SMPTE 292M HD-SDI for selected or all remaining inputs and outputs. Contractor shall include the migration plan including a list of equipment and software needed to migrate the router in whole or in part from SDI to HD-SDI IAW SMPTE 292M.

3.1.2.4 The router shall be controlled by the GFE NV9000 Router Control system currently controlling the GFE NV8256 SDI router.

3.1.2.5 The router shall be controlled by the Government furnished Harris ADC-100 automation system, via the GFE NV9000 Router Control system. The router shall not require manual control to execute the ADC-100 automation playlists.

3.1.2.6 The Router shall route any input on the router to any output or outputs on the router.

3.1.2.7 At minimum, the system shall auto re-clock at 143 Mb/s, 270 Mb/s, 360Mb/s for SD and up to 1.5 GB/s for HD-SDI.

3.1.2.8 The router shall include analog to SD-SDI video decoding modules w/frame synchronizers on input to convert (100) satellite, fiber, and videotape ingest feeds from analog NTSC composite video to 4:2:2 SMPTE 259M (270 Mbps) digital signals. The analog to digital video decoding equipment shall provide a minimum of 10 bit quantization.

3.1.2.9 The router shall include video processing amplifier control including, at minimum video level, color, hue, and clip controls.

3.1.2.10 The router shall include audio modules to convert (200) balanced analog television audio stereo pairs to AES/EBU digital audio at a minimum of 24 bit quantization. These digital audio signals will be embedded into the contractor converted SDI digital video signals.

3.1.2.11 The router shall include audio processing of embedded audio including, at minimum, level, invert, delay, swap controls.

3.1.2.12 The router shall include modules for multiplexing/embedding to combine and embed the associated television audio channels for each of the (100) contractor converted SDI feeds. The router shall embed a minimum of four discreet audio channels per SDI signal.

3.1.2.13 Contractor shall state within their proposal the maximum processing delay introduced by the encoding/processing modules.

3.1.2.14 System shall provide an audit trail of what switch commands were received and from what control module and be available for review on at least one remote client.

3.1.2.15 System shall re-clock signals on output from the router.

3.1.2.16 System shall provide for switching between SDI feeds with imbedded audio without switching errors.

3.1.2.17 Contractor shall furnish and install high definition, high density patch bays - such as the ADC PP12232RC-MVJ-BK - sufficient to provide patching for each input and output on the routing switcher including monitor outputs.

3.1.2.18 Contractor shall install the router and patch bays and run all control and media cables to interconnect racks in room 267 at AFN-BC.

3.1.2.19 Contractor shall run all control and media cables to all CFE supplied equipment utilizing the GFE interconnect racks when entering or exiting rooms.

3.1.2.20 System shall use high quality, 75 ohm BNC input and output connectors such as Kings connectors for cable BELDEN - 1695A .

3.1.2.21 System shall include a router "mission critical" spares kit.

3.1.2.22 Contractor shall include basic system training 20 technicians on-site and advanced training for 2 technicians.

3.1.2.23 Contractor shall furnish and install high quality, Plenum rated, low loss serial digital video cable, such as Belden 1695A. Cable lengths shall not exceed the maximum allowed to assure no more than 30dB loss at ½ the clock frequency (135 MHz) per SMPTE 259M. Miniature video cable used for connection between router modules and patch bays is acceptable but must meet the previously stated cable standard.

3.2 Transition Plan

The contractor shall provide a timeline from the after award date to full system completion stipulating when each Contract Line Item Number (CLIN)/Sub-contract Line Item Number(s) (SLIN) is required for each functional area. Detail consideration should be given to the file conversion of the disk-based archive systems.

3.2.1 Operational Considerations

Transition to the proposed system shall have a minimal effect on current operations; i.e. the television channels must continue full-time operations with minimum interruption. Material needs to be transcoded into the new system prior to putting it on-air and at the same time material needs to keep supplying the current on-air system until the cutover date. The contractor shall describe in detail cut over procedures and estimated times of loss of video and production time. The contractor shall provide a list of any single points of failure, their impact upon operations, and possible methods to mitigate them.

3.2.2 Transition Phases

Proposed transition plans shall describe the phases for installing the upgrade and describe those current operations and functions that will be affected during each phase. Transition plans shall start with current operations and describe the conversion to the proposed system for each phase. The contractor shall include estimated down time if needed for each phase.

3.3 Contractor Installation Performance

The contractors design shall go through three distinct phases: initial, intermediate, and final, each of which will require a on-site meeting and government sign-off before proceeding. The selected contractor shall provide an initial installation plan based on the agreed upon transition plan to AFN-BC not later than (NLT) 30 days after date of award document (ADAD). The initial installation plan must describe the contractor's procedures for installing the system at the AFN-BC. The plan must include a detailed schedule and identify any critical milestones that exist during the actual performance period of the installation. The intermediate design review is due NLT 60 days ADAD. The final installation plan must be provided NLT 90 days ADAD. Installation of the initial phase based on the transition plan shall begin NLT 150 days ADAD. The complete system, all phases, must be completed NLT 330 days ADAD to include all installation, basic, advance, and maintenance training, and 30 days of acceptance testing. All training must be completed no sooner than 30 days of the start of the acceptance test (see paragraph 4.1).

3.4 Installation Equipment

The selected contractor shall provide all the necessary special test and installation equipment required during the installation portion of the systems upgrade at the AFN-BC. Contractor shall install all and test all equipment necessary to meet the requirements of this document and run all control and media cables for all contractor supplied equipment. The Government shall establish the demarcation points for all CFE to GFE connections. The contractor shall also include a list of the recommend test equipment and spare parts for set-up and on-going maintenance of the proposed system as a part of the draft installation plan due 60 days ADAD. Personnel commissioning systems and conducting training shall be factory trained and certified.

3.4.1 Installation Space

Standard 19" wide rack space is available in room 269 for the media server system and in room 261 for the router. See the included building diagram for locations. An AutoCad drawing or file is available upon request.

3.4.2 Installation Space Environment

All equipment areas are cooled to normal office environment levels. Room 269 is a dedicated computer area and has additional cooling and humidity controls. The areas are free from abnormal levels of dirt and dust. The contractor shall take measures to reduce the amount of dust and dirt raised and shall clean all areas to the original condition upon the completion of work.

3.4.2.1 HVAC and Electrical Power

The government will provide electrical power including UPS protection and HVAC services. The contractor shall provide power requirements for individual rack requirements. The contractor shall provide total power consumption for the complete system upgrade.

3.4.2.2 Electromagnetic Environment

The contractor shall take such precautions as necessary to guard against electromagnetic and electrostatic interference. Further, the contractor shall verify the adequacy of the electromagnetic environment of the space provided for all equipment to ensure acceptable performance of the proposed system.

3.5 Commercial Manuals and Contractor Documentation

The contractor shall provide, at a minimum, the following documentation for all equipment supplied:

1. Equipment installation manuals.
2. Operations and maintenance manuals.
3. Functional descriptions of systems, subsystems and primary circuits.
4. Detailed engineering drawings (preferred drawings in AutoCad file format), to include:
    a. frame/chassis, motherboard and backplane layouts
    b. PCB layouts with component designations identified
    c. inter-frame wiring diagrams
    d. detailed electrical/circuit diagrams
    e. connector/interface diagrams
5. Software program listings with version numbers.
6. Protocol listings/descriptions.
7. Interface requirements/descriptions.
8. Periodic/preventive maintenance procedures/schedules.
9. Troubleshooting procedures.
10. Warranty and customer support information/instructions.
11. Training documentation such as student guides if available.
12. Original manufacturers software disks and license documentation.

The contractor shall provide three (3) complete sets of operations and maintenance manuals for each individual piece of equipment installed at the AFN-BC, with one complete set to the contracting officer. CD-ROM renditions are acceptable versus traditional paper copies of manuals. Three (3) copies of the contractor installation documentation

shall also be provided to the AFN-BC and to the contracting officer. CAD/CAM produced drawings may be provided as files or on CD-ROM in Portable Document Format (PDF). In addition, 2 complete sets of manuals for each type of equipment used in the system shall be delivered for inclusion in the AFN-BC Technical Libraries. These manuals shall contain detailed data, parts layout diagrams, parts lists and information pertaining to the design, repair, operation and maintenance of the systems. These manuals shall incorporate information provided by all the vendors. Text shall be letter quality and/or CD-ROM versions are acceptable. The contractor shall provide commercial manuals, copies of such and/or CD-ROM renditions of Original Equipment Manufacturer (OEM) equipment that is used in the system.

The contractor will provide copies of all service agreements with third party providers and will include license or service contract number, telephone support contacts, and technical support phone numbers. All licenses and warranties shall pass through to the Government.

3.6 Training

All training must be completed within 90 days completion of equipment installation.

Personnel commissioning and conducting training shall be factory trained and certified.

The contractor shall provide training on all portions of the system to AFN-BC operations and engineering personnel. Outline shall as a minimum cover subsystem or equipment to be trained, subject areas, types of personnel to be trained, length of the training and location of the training for each phase of the proposed transition plan.

A maximum of 6 Operations personnel shall require basic training on the upgraded system to include just the overall concept or block level diagram familiarization with the new system.

A maximum of 20 engineering and technical personnel shall be trained for basic maintenance and field troubleshooting procedures of all systems – media servers, and router expansion - giving them the ability to do routine troubleshooting and repairs of common fault conditions. Additionally two engineers will require advanced level training which would typically require off-site training teaching them details on configuration and more advanced system maintenance allowing them to repair less common or more complex fault conditions within all three sub-systems.

All training requirements should be planned around the need for the AFN-BC to maintain current 24-hour-a-day operations and consider training all types of personnel in a 24-hour-per-day, 7-days-a-week shift environment. Most training requirements should be met on-site; however, selected personnel may be trained off-site.

Training plans shall designate training requirements as on-site and/or off-site or a combination. Off-site training sites must be designated (e.g., Denver, Houston). On-site training requirements for space, classrooms, audio-visual support, etc. shall be provided in the outline. An auditorium and other smaller government on-site conference rooms can be made available for training but requires prior coordination. The government has a training room equipped with Microsoft Windows computers with a capacity of twelve students that can be used for on site training. The contractor shall be responsible for providing all training materials, equipment and supporting documentation for the classes.

3.7 Interface Requirements

The contractor shall furnish and install interfaces for the GFE Harris Automation System, the Telestream FlipFactories, Sony Petasite archives, EMC Clarion archives, and existing computer networks for the contractor furnished equipment. The government will identify existing SDI video patch panels to interface the SDI inputs and outputs media servers. The government will supply IP network address ranges for use in contractor supplied equipment.

3.8 Engineering Change Proposals (ECPs)

The Contractor is encouraged to submit Engineering Change Proposals on their own initiative or at the request of the Government. There shall be no cost to the Government associated with the preparation and submission of the ECPs. However, additional costs for labor and materials associated with implementation of the ECP shall be included in the ECP and must be approved by the government Contracting Officer prior to implementation. The ECPs may provide changes in standards, format or equipment to meet evolving industry standards, enhance services and system performance, and solve system/program issues.

4.0 Processes: Acceptance Testing, Warranty, Support and Maintenance agreement, Workmanship, Reliability, Working Hours, Design Review Process.

4.1 Acceptance Test Criteria

Acceptance testing by government personnel will emphasize the operational, functional and reliability factors of the system under load or while being fully utilized. Acceptance test begins at cut over to the complete system and ends when the complete system has met the standards of performance by operating for a period of 30 consecutive calendar days without system failure downtime of any kind. The system for purposes of the final acceptance test is defined as all functional subsystems as defined in this PWS, associated hardware, software, terminal equipment and CFE connectivity that constitute the system upgrades.

System downtime is a period of time in which the system is not reliably operable due to intermittent or consistent failure so that any component or portion of the system cannot be used, or that those components or portions of the system will not operate in accordance with the specifications.

4.1.1 Resumption of Acceptance Tests After a Failure

In the event that the system does not meet the standards of performance during the initial 30 consecutive calendar days, the acceptance test shall continue on a day-to-day basis until the standard of performance has been met for a total of 30 consecutive calendar days.

If the system cannot be accepted within 90 days of cut over, contractor shall at its own expense replace any defective part or parts of the system (including the entire system, if necessary). The acceptance period shall begin again after the replacement of the designated parts. If the system cannot be accepted within 180 calendar days of cut over, the Government may reject the system entirely and contractor shall return all payments and liability, if any, made up until the point of rejection and releases the Government from all future payments. Contractor shall not remove the system until a suitable replacement system is installed and functioning in accordance with these specifications.

4.1.2 System Failure Responsibilities

It shall be the Contractor`s responsibility to demonstrate that any period of downtime was not caused by system failure. System failure downtime does not include:

1. Failures caused by the government (its employees, agents, and invitees) misuse, abuse or accident.
2. Acts of God, such as lighting strikes, earthquakes, or other events beyond human power to cause, prevent, or control.
3. Electrical power outages not caused by the contractor`s supplied equipment.

4.1.3 Intermediate Acceptance

Contractors shall submit proposed acceptance criteria for intermediate phases of the installation based on their transition plan as a part of their proposal submission. These tests shall be conducted to ascertain the performance of major critical components prior to the installation of a complete operational system. Intermediate acceptance of components and/or subsystems does not modify the requirement for the entire system to function without failure for 30 consecutive days as previously stated.

4.2 Warranties

The contractor shall furnish a two (2) year, minimum, standard commercial, parts and labor, software updates, and hardware replacement warranty at no extra cost to the government from the date of the completed system acceptance on all delivered equipment and software. Software releases and release notes are to be provided to the government within 90 days of any published software upgrades. The government will review the release notes and make a decision on the requirement for the upgrade. In a release is selected for upgrade the contractor shall install that upgrade within 90 days.

Travel costs for warranty repair at the AFN-BC shall be provided at no cost to the government before acceptance and for a period of two years from date of acceptance.

The minimum acceptable level of support shall include:

1. System software updates to ensure system software features and capability are equivalent of the latest systems of the same type delivered by the manufacturer.

2. Software up-dates as necessary to correct software defects that affect system performance or reliability.

3. On-line support provided by manufacturer's identifying problems and assisting with the resolution of problems. Access shall be made available to AFN-BC personnel free of any fees.

4. Contractors shall state the capabilities, if any, of system software to be updated, maintained or troubleshot through remote modem access.

The Contractor shall provide the Government with follow-on optional 1-year preferred parts and labor maintenance and software support agreements on the system giving pricing for each year separately for three additional years. Optional years would be renewable in one-year increments.

4.2.1 Warranty, Support, and Maintenance Agreement Response Support

The warranty shall cover the repair or replacement of software, equipment or subassemblies, which are defective and/or do not meet the technical specifications in the manual/s for the initial two years following the system acceptance by the Government. The support and maintenance agreements shall extend coverage beyond the initial two year period. The warranty and service and support agreements shall provide any replacement board required to be delivered to the AFN-BC within 24-hours of notification of the requirement. If contractor personnel are required to perform repair, repair personnel shall be on-site within 24 hours of notification, at no cost to the government. Sufficient spare parts shall be supplied to keep the system functional at 99.95% reliability/availability. In the event a repair of a part is necessary due to operational requirements and the lack of parts, the warranty or service and support agreement shall not be affected unless it is shown the technician performing the repair was clearly negligent. If negligence is found, the warranty or agreement shall remain in effect and the cost to the Government shall not exceed the cost of the replacement damaged part.

4.2.2 On-call Warranty, Support and Maintenance Agreement

Telephone support shall be available 24 hours per day. The minimum support shall be telephone access to allow recording of messages regarding problems or beeper paging. The response time for call back support for trouble calls shall not exceed one hour.

Contractor shall state if active modem or Internet access to the system is offered to perform such tasks as diagnostic routines, software upgrades, and provide assistance as necessary to resolve system technical or operational problems.

4.3 General Workmanship

This requirement establishes the acceptable workmanship criteria for electronic equipment to be installed at the AFN-BC. This requirement will define those workmanship requirements not normally covered in subsidiary specifications or drawings.

4.3.1 Soldering

All solder connections shall be free from cold or crystallized joints. Excess solder and solder bridges due to excess solder shall not be permitted. Circuit cards shall be free from burns or overheating due to solder connections. Excess solder flux or rosin shall be removed from all connections.

4.3.2 Cleaning

After fabrication, parts and assembled equipment shall be cleaned of smudges; loose, spattered, or excess solder; weld metal, metal ships and mold release agents; or any other foreign material which might detract from the intended operation, function, or appearance of the equipment. The government will provide refuse dumpster service, the contractor is responsible for placing all generated refuse into the provide container.

4.3.3 Threaded parts or devices

Screws, nuts and bolts shall show no evidence of cross threading, mutilation, or detrimental or hazardous burrs, and shall be firmly secured.

4.3.4 Bearing assemblies

Bearing assemblies shall be free of rust, discoloration, and imperfections of ground, honed, or lapped surfaces. Contacting surfaces shall be free of tool marks, gouge marks, nicks, or other surface-type defects. There shall be no detrimental interference, binding, or galling.

4.3.5 Wiring

Wires and cables shall be positioned or protected to avoid contact with rough or irregular surfaces and sharp edges and to avoid damage to conductors or adjacent parts. Computer network cables shall be tested for proper connector attachment and signal throughput prior to installation into the existing network. All network, video, and audio cables will be plenum rated and must comply with low smoke requirements.

4.3.6 Shielding

Shielding on wires and cables shall be secured in a manner that will prevent it from contacting or shorting exposed current-carrying parts. The ends of the shielding or braid shall be secured to prevent fraying.

4.3.7 Containment

The harness and cable form containment means should be neat in appearance, uniformly applied, and positioned to retain critical form factors and breakout locations. The containment means (lacing, ties, tie down straps, etc) should not cause the wire or cable insulation to deform so that performance characteristics are adversely affected.

4.3.8 Insulation

There should be no evidence of burns, abrading, or pinch marks in the insulation that could cause short circuits or leakage.

4.3.9 Clearance

The clearance between wires or cables and heat generating parts should be sufficient to minimize deterioration of the wires and cables.

4.3.10 Labeling

All switches, outlets, cables, ports, controls, etc., shall be clearly, logically and permanently marked. All cables/wires shall be properly terminated. All wiring between pieces of equipment is required to be labeled on each end with a minimum of a government provided cable number.

4.3.11 Electrical and Fire Regulations

All cabling external to the electronic cabinets shall be installed in accordance with the State of California, County of Riverside, and City of Riverside electrical and fire regulations. In the event that adequate space is not available, an existing conduit/raceway or additional conduit/raceway is required for any reason; the contractor shall furnish and install the required conduits/raceways.

4.3.12 Earthquake Requirements

All equipment and cabinets shall be installed to meet the requirements of earthquake seismic area 4.

4.3.13 Wireless Networking

No equipment shall be configured to use wireless networking I.E. IEEE 802.11.

4.4 Reliability

The system shall take advantage of all commercial standard reliability improving methods such as redundant power supplies and cooling, spare part kits, paralleled signal paths, by-paths, patch panels, clustered computer systems, the use of continuous parameter monitoring, and other methods typically used within the television broadcast industry to reduce the impact of component or system failures. The system will favor reliability over economy.

4.5 Accountability for Actions

The contractor shall take all due caution when working on and around the on-the-air broadcast chain to include the automation system and critical signal path. AFN-BC highly values its ability to continuously provide radio and television signals without disruption. In the event that a contractor caused event causes the system to halt or causes a disruption of normal service that requires the government to contract for outside assistance the contractor will be held accountable for all costs occurred to repair the system back to full functionality.

4.6 Working Hours

The AFN Broadcast Center operates 24-hours a day, seven days a week but during the normal working hours of 6:00 AM to 5:00 PM there are additional personnel available. After those hours a minimum number of personnel are present and it is difficult to support additional work loads. Contractors should endeavor to perform most of their work during normal working hours. Provisions can be made for extended working hours with advanced coordination.

4.7 Design Review Process

The contractor's design shall go through three distinct phases: preliminary, critical, and final, each of which will require a on-site meeting and government sign-off before proceeding. The design review process is a mechanism for ensuring design standards, alignment, and diligence throughout the course of the system design process. All meetings will be held on site at the AFN Broadcast Center.

Immediately following the Award of Contract, the contractor shall conduct a survey of all facilities and equipment locations to determine requirements for interface.

4.7.1 Preliminary Design Review (PDR): The selected contractor shall provide an initial installation design plan based on the agreed upon transition plan to AFN-BC not later than (NLT) 30 days after date of award document (ADAD). The purpose of the initial installation design review is to examine the conceptual design to ensure that the planned technical approach and use of technology will meet the requirements. The plan must include a detailed schedule and identify any critical milestones that exist during the actual performance period of the installation. The contractor shall also provide a list of the recommended test equipment for maintenance of the proposed system. The contractor shall provide a rack-by-rack power and heat load calculations. The contractor shall provide a list of rack space requirements.

4.7.2 Critical Design Review (CDR): This intermediate design review is due NLT 60 days ADAD. The contractor shall provide at the critical design review: detailed drawings, a list of materials (cable and connector types etc.) and equipment, and installation procedures to be followed shall be presented and agreed to by the Government. Training course outlines shall also be provided. Upon approval of the CDR items purchase of equipment and system installation can begin but the contractor assumes all responsibility for all purchases and work if disapproved at the final design review.

4.7.3 Final Design Review (FDR): The final design installation plan must be provided NLT 90 days ADAD. At the final design review board any changes made at the intermediate design review board shall be presented and a complete detailed build-to drawing package shall be delivered, reviewed, verified, and approved. The contractor will submit a functional test plan listing out all items to be tested and the procedures to followed. All other previously required documents will be approved and finalized.

4.7.4 Design Review Submittals

At least calendar seven days prior to each scheduled review board the contractor shall submit to the Government five paper copies of the documents to be reviewed at the meeting. Note, electronic copies of the design review materials are encouraged, but does not replace the copies of design documentation require under this and any other paragraph of this instruction.

4.7.5 Project Engineer's Approval (Resident Engineer). The government will accept or reject each design review submittals within 15 calendar days of the design review. Certain long lead items may be ordered after the contracting officer and resident engineer's approval of the PDR, IDR and/or CDR. Contractor shall submit a list of these long lead items for review and approval as part of the PDR, IDR and/or CDR.

4.7.6 Resubmittal of Rejected Items. All items not approved by the Government shall be resubmitted for review and approval after correction, and within 10 calendar days.

4.7.7 Required Submissions:

Preliminary Design Review:

1. Preliminary design plan – the overall characteristics of the system, functional and logical interfaces. Includes a work processes and signal flows in block level diagrams.

2. Work schedule – day-to-day listing of planned activities in a Gantt chart to show the orderly progression of events leading to a timely completion and cutover of the system to service. It shall cover all other details including the removal of unused equipment and cabling and clean up of the work space and installation locations. The approved schedule shall be updated as required, as but not less frequently as monthly, whenever conditions necessitate revision to the Contractor's work schedule

3. Delivery schedule – an estimated delivery of major sub-system equipment. This is to include long lead items required.

4. Recommended test equipment list – a listing of equipment recommended to be procured by the government for testing and maintenance of the equipment following installation. The contractor is responsible for all test equipment needed during installation.

5. Rack-by-rack heat and power load – a spreadsheet listing out each piece of equipment by noun name and the peak power required in watts and resulting estimated heat load produced. Each rack's worth of equipment shall be sub-totaled.

6. Installation space requirements – a list of required racks and an elevation drawing of estimated equipment placement.

Critical Design Review:

1. Detailed drawings - Wire point-to-point diagrams of each interconnect within the system.

2. List of materials – A list by manufacture and part number of cables, connectors, and other construction material.

3. List of equipment – A list by manufacture and part number of equipment.

4. Installation procedure – the final transition plan with step-by-step procedures to transition between the current system and the newly installed system and the estimated acceptance test date start.

Final Design Review:

1. Detailed build-to drawing set – finalized built-to drawling set.

2. Functional test plan – a detailed check list of process items to be reviewed by the contractor prior to starting the acceptance test listing which system or sub-system is to be tested and the test to be preformed.

3. Training plan - The contractor shall provide training plans for approval for technical maintenance personnel and user training in system operations and use.

4. Documentation plan – the contractor's procedures to meet the requirement to maintain the following documents.

(A) A complete set of records pertaining to the system. This shall include hardware documentation as well as documentation of the software programs unique to the system.
(B) Records of all hardware additions, deletions, moves and changes as well as software moves and changes. Also, complete information concerning features and service of working item.
(C) All wiring and interconnects to include equipment block and/or ladder drawings. These drawings shall include cable size from equipment rooms to demark panels.
(D) All cables shall be labeled at both ends and documented on the cable layout diagrams.

(E) Documentation shall be presented in such a manner that the Government can, without physically auditing cable runs determine the location of all equipment and lines as well as routing of cable serving all locations.

(F) The contractor shall maintain the following records relative to operation of the system. Such records shall be made available for inspection or reproduction upon request by the Government.

(1) "As Installed" drawings for all installed equipment, distribution cable, terminals and related network items.
(2) Trouble reports made by users. These reports shall include date, time, equipment item, trouble and action taken to clear trouble.
(3) Records of system tests conducted, reason for test and results.
(4) Records of interruption to service. These records shall include the same information as trouble reports.
(5) Inventory of all equipment. Records shall include equipment name, quantity, features, location and date installed.
(6) Drawing plan showing all router assignments for all signals, equipment locations, computer software and installation date.
(7) During the term of the contract or any extended warranty the contractor shall be responsible for all equipment updates, recalls, and repairs.

5. Acceptance test plan – a detailed check list of process items to be reviewed by the Government prior to system acceptance and which system or sub-system is to be tested and the test to be preformed.