

STATEMENT OF WORK

Audiovisual Presentation and Video Conferencing System Refresh

SCIF, BLDG 302
Naval Postgraduate School
Monterey, California

1. Background/Scope:

The Specially Compartmented Information Facility (SCIF) at the Naval Postgraduate School (NPS) operates two classrooms with audiovisual, videoconferencing, and lecture capture systems. Certain elements of these systems require a technology refresh to replace outdated technology and/or improve features and functionality. Services are required to engineer, furnish, install and configure modifications to the existing systems.

2. Campus Access:

The Naval Postgraduate School is a DOD facility is subject to the security and access restrictions typical of any United States Naval base. The Contractor is responsible for ensuring that all staff employed by the contractor who will be involved in work on the NPS campus are eligible for access to the NPS campus and have the appropriate identification, and that all motor vehicles used by the Contractor meet requirements for use on a facility operated by the United States Navy. All contractor personnel visiting the work site must be U.S. Citizens and must be escorted by a Government representative at all times while on campus at NPS.

The Contractor must maintain current Rapid Gate registration covering any and all Contractor personnel that require access to the work site to ensure access to the campus. Contractor personnel will be required to carry and show appropriate personal identification and vehicle registration and insurance documentation upon entering the Naval Postgraduate School grounds and to comply with all regulations governing access to the facility. If rental vehicles are being used, a copy of the rental contract must be available for review by base security upon entry to the campus.

3. Work Site:

The work site includes two existing classrooms in the SCIF, Building 302 (Glasgow Hall) at the Naval Postgraduate School in Monterey, California. The classrooms are located in the building basement and are accessible via enclosed stairways and elevator. Furniture in the rooms may include fixed or moveable tables and chairs with or without casters. Most rooms are equipped with a non-mobile lectern that is not affixed to the floor but is tied to the AV system via various cables. T-bar drop ceilings are typical but some rooms may have exposed concrete ceilings or concrete ceilings covered with acoustic tiles. A loading dock is available near the stairwell leading to the work site, but contractor vehicles may not be parked at the loading dock beyond the time required to unload/load equipment. Parking is distributed around the campus, but parking spaces are heavily used and available spaces may be some distance from the building. Access to ground level entrances is via paved roadways and/or concrete walkways. Above ground level entries are equipped with ADA compliant ramps.

4. Timetable and Scheduling:

The Contractor shall perform the work according to the prioritized requirements of the Government:

- 4.1 The Contractor shall provide a plan and schedule for installation to the Government for approval at least two weeks prior to start of installation.
- 4.2 The Contractor shall be ready to begin installation according to the Government’s prioritized requirements not later 60 days from the date of contract award.
- 4.3 The work shall be completed, acceptance tested, and systems ready for full operation within 10 business days from the installation start date.
- 4.4 All work must be performed during normal business hours (0800-1630, Monday through Friday excluding federal holidays).

5. Contractor Minimum Qualifications:

The Contractor shall be an audiovisual systems integration specialist (10 years’ experience minimum) and be an OEM authorized reseller of Extron Electronics and Crestron audiovisual integration products.

6. Government Furnished Equipment (GFE):

Product	Quantity
Panasonic Video Projector (Ceiling Mounted)	1
Belkin KVM Switch	1
Vaddio HD22 Wall View PTZ Camera w/ Quick Connect Interface	2
Ceiling mounted boundary microphones with balanced XLR Outout (requires phantom power)	2

7. Contractor Furnished Equipment (CFE):

The Contractor shall furnish the equipment listed in bill of materials below. Any contractor furnished items are to be new, first quality goods offered by the manufacturer for sale in the United States of America, and in original equipment manufacturer's unopened packaging including all warranties, software, hardware, cables, power supplies, manuals and miscellaneous end items normally included by the manufacturer. Any deviations or substitutions must include an explanation, and must meet or exceed performance of the item being replaced. The Government reserves the right to refuse substitutions based on related requirements that may not be stated herein. (See Bill of Materials on next page)

Bill of Materials (CFE):

Line #	Manufacturer	Part #	Description	Qty
1	Extron	600-882-01	DXP 88 HDMI Matrix Switcher	1
2	Extron	60-1331-12	DTP HDMI 4K 330 Transmitter	1
3	Extron	60-1331-13	DTP HDMI 4K 330 Receiver	1
4	Extron	60-1489-01	DSC HD-HD HDMI to HDMI scaler	1
5	Extron	60-1418-01	IPCP 550 Pro control processor	1
6	Extron	60-1083-01	TLI Pro 101 touchlink interface	1
7	Extron	60-1324-01	SMP 351 H.264 streaming media processor with 80GB SSD	2
8	Extron	60-844-03	MPA 152 Plus stereo amplifier, 15 watts per channel	1
9	Extron	42-103-03	One pair: SI 3CT LP full range ceiling speaker with 4" back can and 70/100V transformer	1
10	Trendnet	TPE-TG44g	8-port gigabit Greenet POE+ Switch	4
11	Cisco	CTS-SX80-K9	SX80 video conferencing codec with rack ears and power cable.	1
12	n/a	n/a	Any and all miscellaneous mounting hardware, fasteners, cables, adapters and other items as needed to meet requirements.	As Needed
13	Extron	22-236-03	XTP DTP 24 shielded twisted pair cable for XTP and DTP systems (OR EQUAL)	As needed
14	Extron	101-005-02	XTP DTP 24 Plug shielded RJ-45 plug for Extron XTP DTP 24 STP cable (OR EQUAL)	As Needed
15	Extron	26-702-XX	XTP DTP 24 Series pre-terminated STP cables in lengths as needed (OR EQUAL)	As Needed
16	Extron	As needed	Ultra-series HDMI Cables in lengths as needed	As needed
17	Extron	26-616-01	HDMIF-DVIDM (HDMI Female to DVI-D Male Adapter) or equal	As needed
18	Dell	S2240T	21.5" multi-touch monitor	1

The contractor shall provide a list identifying the OEM serial numbers, brand, and model of all active Contractor furnished electronic components. Any component below \$100 in cost may be excluded from the list.

8. FUNCTIONAL REQUIREMENTS. The Contractor shall install and configure the system to provide the following functional capabilities:

8.1 Lecture Capture Control (Classrooms 1 & 2): Enable the user to start and stop capture mode, select from all available sources to be routed to the capture appliance's inputs, select from available layouts, add markers to the captured recording. The GUI shall provide a video preview window of the output of the capture appliance so the users can prepare the source inputs and layout prior to starting capture. NOTE: In Classroom 1, capture appliance control shall be integrated into the new CFE Extron control configuration. In Classroom 2, the existing Crestron control configuration shall be modified to enable control of the new CFE capture appliance without modification to the existing audiovisual presentation or videoconferencing control functions. Government has the source code for the existing configuration.

8.2 Audiovisual Control (Classroom 1 only): Enable a user at the lectern to operate the audiovisual system via a Graphical User Interface on the touch panel monitor. The following operational and control functions shall be enabled:

8.2.1 System Startup/Shutdown. Turn on/off the main classroom video display. Include a startup routine which sets the system back to defaults, routing the lectern PC to the projector, program volume to a preset level (to be determined at time of installation) and adjusting audiovisual signal routing and device input selection as needed for operation. Shutdown command shall turn off the main classroom video display, disconnect any VTC calls, mute VTC microphone inputs, and put VTC system into do-not-disturb and standby modes (see VTC control further on in this SOW for details).

8.2.2 Shutdown Warning. When the shutdown command is selected by the user, the GUI shall display a warning message advising the user of imminent shutdown and disconnection of any VTC calls, and offer an opportunity to cancel or proceed with shutdown.

8.2.3 Display Power Control. Turn on and off the classroom video display independent of the system power control as needed for special requirements.

8.2.4 Signal Routing: Select any connected audiovisual source for display on the classroom projector and/or send that source to the remote VTC site.

8.2.5 Program Audio Volume. Adjust overall program audio volume. Include a toggle style button to instantly mute and unmute program audio. Activate a master speaker mute function reducing audio volume to zero. When active, the GUI shall display a visual alert notifying the user.

8.2.6 VTC Audio Volume. Adjust the main audio output level of the VTC system independent of the master audiovisual system volume.

- 8.2.7 Video Preview.** The GUI shall include video preview of the active selected video source appropriate to what the user needs to see when performing a given function. For example, when selecting sources for display, the selected source should appear in a video preview window to provide the user with confirmation of the source selected. When in VTC mode the preview window shall show the video output of the VTC system. Include video preview windows as needed so that the user does not need to turn away from the touch panel to see which source was routed after executing the command.
- 8.2.8 Full Screen Mode.** Enlarge any computer source to display in full screen mode at the native resolution of the touch panel (1920x1080 pixels) without obstruction by any GUI elements. Return to GUI mode in response to a touch on any part of the touch sensitive surface. This feature is required to enable the user to use the touch panel as the primary visual interface to the computer. The Full Screen mode shall be available in both local presentation and VTC modes.
- 8.2.9 Video Privacy Mode.** Activate a video privacy function which disconnects AV sources from the projector and the VTC system inputs while still providing video preview of those sources via the GUI. When active, the GUI shall display a visual alert notifying the user.
- 8.2.10 Additional:** Any other control functions as needed to meet the functional requirements described herein.

8.3 VTC Control (Classroom 1 only). Comprehensive control of the VTC system shall be enabled through the graphical user interface so that the VTC system's handheld remote control is not required to perform any functions in preparation for or during a videoconference. Control of the following functions is required:

- 8.3.1 Microphone Mute/Unmute.** A GUI button to activate and deactivate the microphone mute function of the VTC system shall be provided. The mute button shall be visible on the GUI at all times, shall function as a toggle and shall change state (including text and color) to indicate the current status of the mute function so that the mute button state remains in sync with the status of that function in the VTC system. Mute methods external of the codec are not adequate, the VTC system's mute function must be engaged/disengaged by the mute button.
- 8.3.2 Microphone Mute by Default.** The VTC system's mute function shall be activated by default upon system startup and shutdown, upon initiation and termination of any audio or video calls, and any time the system is not being used in VTC mode. When active, the mute function shall remain active until the user presses the mute function button on the touch panel.
- 8.3.3 Privacy Mode.** A privacy mode button shall be provided in the GUI. Privacy mode shall also be automatically engaged whenever the AV system shutdown command is executed and/or when the system is not being used in VTC mode. Engaging privacy mode shall disconnect any calls in progress, activate the microphone mute function, rotate all PTZ cameras to pre-established presets to face an adjacent wall so that no view is allowed of the room or its occupants, and un-route all audiovisual source signals from the VTC

system's inputs. When privacy mode is engaged by the user the GUI shall display a warning message advising the user that the system is about to enter privacy mode, that any VTC calls will be disconnected, and offer an opportunity to cancel or activate privacy mode.

- 8.3.4 Dialing Control Screen.** The GUI shall enable the user to dial, answer calls, enter DTMF PIN codes, and terminate calls without the need to interact with the VTC system's on-screen menus. The dialing controls screen shall include a preview video window displaying the main video output of the VTC system, and an exit button to hide the dialing controls from user view once dialing and password entry is completed. The dial screen shall remain visible on the GUI, even after a call has been successfully connected, until closed by interaction from the user.
- 8.3.5 Alphanumeric Entry.** The GUI shall enable the user to enter alphanumeric dial strings such as H.323 IDs and SIP URIs, including any special characters they may contain. A delete/backspace key shall be provided for correcting mistakes prior to dialing.
- 8.3.6 Display of Dialed Numbers.** The GUI shall display dial digits as the user enters them, enabling the user to make corrections during entry and/or prior to launching the call.
- 8.3.7 Password Entry.** Provide a keypad to enable the user to enter conference passwords using the VTC system's DTMF function.
- 8.3.8 Redial Last Call.** Provide a button to automatically re-dial the last dialed endpoint.
- 8.3.9 Incoming Call Actions From OFF State.** The codec will be remotely managed by another agency and will be configured for auto-answer mode. In order to ensure that users in the classroom are aware of the status of any VTC calls regardless of the on/off state of the AV system, the control system shall monitor the SX80 codec for incoming call activity and shall execute the following tasks when an incoming call occurs and the AV system is in the OFF state: Power on the video projector and route the codec's output to the GUI's video preview window, the projector and the audio amplifier, adjust audio volume to a preset default level sufficient to hear the codec's ring tone and/or audio from the remote site, wake the touch panel from sleep, show appropriate VTC controls on the touch panel GUI, and display a visible incoming call alert on the touch panel GUI.
- 8.3.10 Visible Incoming Call Alert.** The GUI shall alert the user with a visible alert message when the codec is receiving an incoming call and when an incoming call has been answered. The call alert message shall be designed to preclude other use of the GUI until the message is acknowledged by a touch from the user. Upon user acknowledgement, the incoming call alert shall be hidden, the video output of the codec shall be routed to the GUI's video preview window, the projector and the audio amplifier, the codec audio output shall be set to an audible level, and the GUI shall present the controls necessary to managing videoconference mode.
- 8.3.11 Camera Control.** Control of pan, tilt, and zoom functions of shall be provided via the GUI. A video preview window showing the video output of the camera being adjusted shall be displayed on the touch panel.

8.3.12 Camera Presets. Enable the user to establish, save and change presets for all PTZ cameras as needed. A minimum of 4 presets per camera is required.

8.3.13 Volume Control. Control of overall VTC system volume, independent of classroom program audio volume.

8.3.14 Source Selection. Selection of any needed source as the outgoing video signal, including any AV system input and the PTZ cameras and chromakey system.

8.3.15 Content Mode and Source Selection. Open or request a content channel. Selection of any available audiovisual source connected to the AV system as the content channel source when an H.239 or BCFP content channel is active.

8.3.16 Content Channel Status Indicator. Provide a visual indication of the VTC system's content channel status to inform the user when the VTC system is either receiving or sending content.

8.3.17 Layout Selection. Select from available video layouts provided by the VTC system.

8.3.18 Self-View Control. Turn on/off the VTC system self view function, move the self-view PIP around the screen as allowed by the VTC system, switch between self-view PIP and self-view full screen modes.

8.4 Perform a reload of all custom programming and GUI files using the backup copy to be furnished to the Government. Fully test system after reload. Note: Government technical personnel shall be present during the performance of this task.

9. Installation and Integration Tasks and Acceptable Quality Levels: The contractor shall install and integrate all system components per the block diagram.

9.1 Surplus Government Owned Equipment: Remove and surrender to the Government existing equipment which is surplus to the requirements.

9.2 Rackmounted Equipment: Mount all equipment within the existing equipment rack except any equipment which must be located outside the rack in order to meet system functional requirements.

9.3 VTC Microphones: Connect the existing GFE ceiling microphones to the VTC system and configure the audio parameters for effective operation and echo cancellation.

9.4 Cable Installation and Routing: All cables shall be installed in accordance with OEM specifications for bend-radius and termination techniques. Service loops shall be provided at each end. Service loops shall sufficient length to be within minimum bend radius specifications the type of cable being installed. Signal, power, data, and control cables shall be routed to all equipment as needed. Any location where surface mounted cables are unavoidable will require the installation of a CFE cable raceway designed for use in visible locations and finished to match or compliment the surface to which it is attached. All raceway shall be designed to enable removing and/or installing new cables without the

need to cut and re-terminate any cables. Any location where exposed wall penetrations are unavoidable shall be equipped with trim covers. Where any existing cables are not long enough the Contractor shall install extensions of appropriate length. Any in-line connectors or cable splices must be located outside of any raceway and in an accessible location to enable future troubleshooting. The Contractor shall document the location of any in-line connections or splices and provide that documentation to the Government at time of acceptance.

9.5 Custom Software Backup and Rights: The contractor shall furnish backup copies of all final tested versions of software (versions used during acceptance testing). Upon acceptance, all custom software created by the Contractor for control, configuration and/or operation of the system shall:

- 9.5.1** Become the property of the Government with unrestricted rights to duplicate, modify, reverse engineer, and re-utilize to meet the needs of the Government.
- 9.5.2** Include all files and software elements necessary to restore the control system to full operational status following repair or replacement of any control system hardware due to malfunction.
- 9.5.3** Include all un-compiled files necessary to enable the Government to edit the programming to make future modification to control system and GUI.
- 9.5.4** Be furnished to the Government on CD-ROM disc in a format ready for upload to the control system hardware without further modification.

Note: Flash-drives are not to be used to furnish any software to due to DOD cyber security restrictions.

9.6 Warranty: The Contractor shall provide a one year warranty, effective at 0800 on the date of installation acceptance, against failure caused by defect or faulty installation of any and all custom software, installation hardware, fasteners, raceways, connectors, cables, and cable/connector terminations (including but not limited to soldered connections, crimped connections, screw terminal connections, captive screw connections). The Contractor shall repair any such defects or failures at no cost to the Government.

- 9.6.1** All commercial off the shelf equipment (COTS) provided by the contractor shall be covered by the standard warranties provided by the original equipment manufacturer (OEM).
- 9.6.2** During the warranty period the Contractor shall be prepared to deploy a field technician to the Naval Postgraduate School during the normal Government business hours of 0800-1630 Pacific Standard Time. All repairs under warranty shall be completed not later than 1630 PST on the next business day following receipt of the request, unless delays are agreed upon by the Government and Contractor, or in the event that failed equipment must be

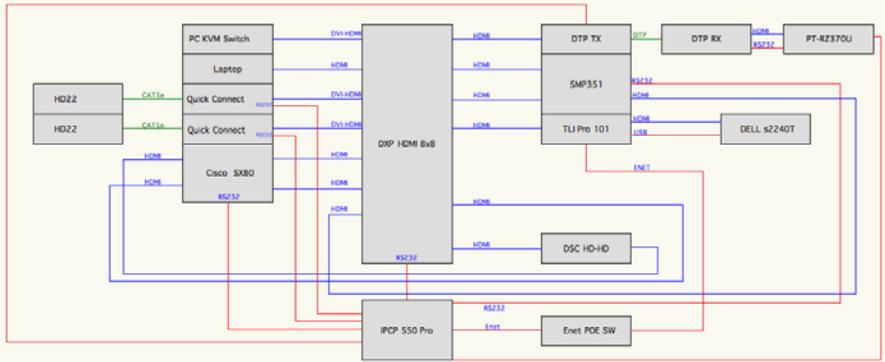
returned to an OEM service center. Upon receipt of a request for warranty service the Contractor shall have a field technician on site at the Naval Postgraduate School between the hours of 0800 and 1530 PST on the next business day following receipt of the request, or at a later time and date if specified by the Government. Business days are Monday, Tuesday, Wednesday, Thursday, and Friday.

- 9.6.3** In the event of failure of any system component still covered by OEM warranty the Contractor shall contact the OEM service center and arrange for repairs. If the component cannot be repaired in the field the Contractor shall remove said component from the system, package it appropriately and arrange for shipping the component to and from the nearest OEM certified repair center. Upon receipt of the repaired component the Contractor shall re-install and test the component in the system.
- 9.6.4** The Contractor shall maintain and report to the Government all tracking information required for tracking outbound and return shipments.
- 9.6.5** During the warranty period the Contractor is responsible for all costs related to returning any equipment to an OEM service center for warranty repair including packaging, shipping and labor required to remove and reinstall the equipment.
- 9.6.6** No billable action shall be undertaken by the Contractor without a payment authorization, purchase request or modification to the purchase order from an authorized Government purchasing agent.

EXHIBIT A: System Diagram

Classroom 1

Video Plan



Audio Plan

