



**DISTRIBUTIVE TECHNOLOGY  
TRAINING PROJECT (DTTP)  
FUNCTIONAL REQUIREMENTS  
DOCUMENT**

**NEXT GENERATION  
CLASSROOM**

**June 2001**

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## Executive Summary

The Distributive Training Technology Project (DTTP) was established at the direction of Congress with the Chief, National Guard Bureau as the Executive Agent. The Director, Army National Guard (ARNG), the Director, Air National Guard (ANG), and the National Guard Bureau (NGB) CIO support Distributed Learning (DL), and are encouraging joint development of a broad DL effort.

The joint The Army Distance Learning Plan (TADLP) and ARNG Mission Needs Statement (MNS) identifies the need for a modernized training system. The Army National Guard Operational Requirements Document for a Distributed Training Technology System herein after referred to as the ORD sets the performance and operational parameters for the Distributive Training Technology (DTT) system. The NGB DTT system must provide a high-speed information access capability for the improvement of soldier readiness, to support State Command and Control requirements and increase the quality of life in the communities where National Guard soldiers live and work. The Joint Army and Air National Guard Advanced Distributed Learning (ADL) Strategic Plan provides the vision, values, mission, goals and objectives to take the National Guard ADL program through the next decade. The vision of this plan is to provide: *“State of the art learning, anytime/anywhere, in support of America.”* The technology necessary to support ADL is state of the art and therefore constantly changing. Distributed learning courseware must meet the standards established for training the same subjects in Army service schools, colleges and academies. NGB-ART and the Army Training and Doctrine Command (TRADOC) are working together to determine critical training needs that have an impact on readiness. Distributive Training Technology is available in the fifty states, the District of Columbia, Guam, Puerto Rico and the U.S. Virgin Islands. The ultimate goal is to provide the opportunity for distributed learning throughout the force anytime/anywhere to improve readiness, support federal and state missions, and enhance local communities through shared use.

DTTP began fielding Distributive Learning Classrooms in 1996. The initial design was based on best practice associated with emerging distance learning and teaching methodologies. The technology deployed satisfied the initial definition of a distance learning environment. In the two and one half years of fielding, ARNG has monitored the use of the classrooms and their capability to deliver distributive learning, listened to instructor and student feedback, monitored maintainability, and interoperability with other DoD programs. Based on the information gathered, it has been determined that the known functional requirements needed to be revised.

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The requirements documented here represent significant effort by ARNG organizations. Section I defines the project scope, documents any known assumptions and constraints, and defines the roles and responsibilities of the various ARNG organizations.

The Operation Requirements Document (ORD) is the baseline for this document. A Field Working Group has been established to decompose the high level operational requirements into functional requirements. Members of the Field Working Group are identified in Appendix A. A project plan is included as Appendix B. The major functional areas addressed are General Requirements, Courseware Repository System Requirements, Systems Security Requirements, System Interface Requirements, Command and Control Requirements, and Shared Use Requirements. This document presents those requirements in Section II, and provides the matrix from the Field Working Group as Appendix C. Acronyms and Abbreviations are listed in Appendix D.

A Systems Life Cycle approach is recommended for the design process of the Next Generation of DTTP classrooms. Section III describes the recommended approach. This document will be delivered to the DTTP Requirements Control Board (RCB) for review, comment, and approval. After the RCB grants approval, the document will be delivered to the DTTP and AIS for detailed design. The design, potentially with alternatives, will be reviewed by the RCB for cost, schedule, and performance factors that are driven by requirements. The RCB approved design will be delivered to ART, DTTP PMO and AIS leadership for evaluation of the design and subsequent presentation to the Configuration Control Board (CCB) for approval to proceed. After obtaining CCB acceptance of the point design, ART, the DTTP PMO and AIS will conduct a Government Acceptance Test (GAT) to ensure the design meets the operational and functional requirements. The results of GAT will be reported to the CCB for a Go / No Go decision. The CCB will refer cost, schedule, or performance issues that appear to be driven by requirements to the RCB for resolution. If a Go decision is obtained, the development of drawings and BOMs will proceed and the procurement of development hardware and software will begin in order to validate the design. In parallel with the procurement process, the core engineering assets will ensure that the installation, training and operational staffs are fully trained on the new design.

The timeline associated with this project is approximately one year. The work units to be completed during this time include detailed design, developmental testing, documentation of the design to include a Rough Order of Magnitude price, Government Acceptance Testing, and the CCB Go / No Go decision.

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## 1 SCOPE, ASSUMPTIONS, AND RESPONSIBILITIES

This section defines the scope of the project, identifies any assumptions and constraints, and documents the roles and responsibilities of various Army National Guard organizations during the redesign efforts.

### 1.1 Background

The Army National Guard (ARNG) has a unique, dual mission that consists of both Federal and State roles. Although the force's primary mission is to serve as a federal reserve force, the Guard has an equally important role in support of the states. The federal mission is to “maintain properly trained and equipped units available for prompt mobilization for war, national emergency or as otherwise needed.” The state mission is to “provide trained and disciplined forces for domestic emergencies or as otherwise required by state laws.”

The joint TADLP and ARNG Mission Needs Statement (MNS) identifies the need for a modernized training system. The training system will provide for the delivery of standardized individual, collective and self-development training to soldiers, units, and civilian employees at the right place and time through the application of multiple means and technologies. Implementation of the Distributive Training Technology (DTT) System will:

- a. Improve National Guard readiness through the delivery of standardized training that is readily usable in respective student/unit training environments.
- b. Connect personnel, agencies, proponents and all components in the field to support the delivery of training.
- c. Deliver accredited training that is equivalent in quality to training received in Army service schools.

The Operational Requirements Document (ORD) contains performance and operational parameters for the DTT System. It is based in terms of minimum acceptable requirements and thresholds to satisfy the approved MNS. Distributed learning media originated or delivered by the system includes:

- a. Printed matter
-

- b. **Interactive multi-media instruction such as computer-based training**
- c. **Interactive, real time video tele-training**
- d. **Video and audio recordings**
- e. **One- or two-way audio and/or video**
- f. **Simulators and simulation exercises**
- g. **Other training materials available via the NIPRNet or commercial Internet.**
- h. **Collaborative staff training**
- i. **Mission rehearsal**
- j. **Reachback planning opportunities.**

**The NGB DTT system will provide the local high-speed information access capability necessary for improvement of National Guard soldier readiness. The system supports the training mission area (The Army School System (TASS) and Force XXI) by providing a means to deliver flexible, exportable, and effective training. Goals for the DTT system are:**

- a. **Improve readiness by providing greater access to military training and education. This includes MOS training, functional courses, officer and noncommissioned officer education, distributed simulations, and training to support disaster relief operations. Emerging National Guard training missions include Homeland Defense, facilitating training for responders to weapons of mass destruction (WMD) incidents, counter drug operations, information operations, and Partnership for Peace.**
- b. **Facilitate Command, Control, Communications, and Computing (C4) within the National Guard.**
- c. **Demonstrate the concept of “shared use” of the installed education, training, and information resources with public and private entities to foster economic development, improve educational levels, and provide information access for communities in which the National Guard is based.**

## 1.2 Scope

**The scope of this project is to refine the known functional requirements, develop a new technical design, and ensure the design meets or exceeds functional and operational requirements. The project includes enhancement of the current distributive learning environment, evaluation of the supporting infrastructure (internal and external to the classroom), and a definition of support requirements (funds and staff, maintenance, and operation).**

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## 1.3 Assumptions and Constraints

### 1.3.1 Assumptions

**Assumptions made which affect this document are:**

- a. The system design will be reviewed approximately once per year for technology improvement**
- b. Redesign will support continued interoperability of fielded classrooms**
- c. All classrooms will include a capability to deliver training in multiple modalities including synchronous and asynchronous audio/video, text and graphic presentation materials, simulations and simulation exercises, collaborative work, student to student and student to instructor interaction.**
- d. Each design will include requirements to meet all DTTP objectives**

### 1.3.2 Constraints

**Constraints upon requirements which limit this document are:**

- a. Life cycle funding availability will be a constraint**
- b. All classrooms must meet the standards of COE and PAM 350-70-2.**
- c. All classrooms must be able to deliver military training**
- d. Technology availability will be a constraint**
- e. Cost trade-offs will constrain the implementation of new technology**

## 1.4 Roles and Responsibilities

**The following paragraphs identify the roles and responsibilities of ART, the DTTP PMO, and AIS in the development of requirements defined in this document. The RCB is chartered to review and act upon requests for requirements change and requirements impact upon system cost, schedule, and performance.**

#### **1.4.1 NGB-ART**

**NGB-ART is the functional proponent (combat developer in acquisition terms) for distance learning in the ARNG. As such, they have primary responsibility for definition of requirements and making sure that the fielded system satisfies those requirements.**

- a. Distribute Functional Requirements Document for review and comment to the DTTP PMO, RTI Commanders, AIS, TRADOC, proponent schools, and other DoD organizations as appropriate**
- b. Update document based on comments**
- c. Distribute final document to the Requirements Control Board (RCB) for review and approval**
- d. Distribute final document to the DTTP PMO for technical design**
- e. Participate in design reviews**
- f. Participate in Government Acceptance**
- g. Participate in RCB**
- h. Continue to monitor field comments**

#### **1.4.2 DTTP PMO**

**DTTP PMO is the system developer. As such, they must design, acquire, field, and test the system. They are also responsible for initial equipment training and the establishment of a satisfactory maintenance plan.**

- a. Review requirements document and provide comments to ART**
- b. Participate in RCB**
- c. Dedicate resources to develop technical specifications / design**
- d. Serve as technical expert during design process**
- e. Participate in design reviews**
- f. Participate in Government Acceptance**
- g. Provide funding for new design of classroom**
- h. Provide funding for circuits**
- i. Continue to monitor field comments**
- j. Facilitate / coordinate with TRADOC, proponent schools, ADL, and other organizations on technical design and interoperability issues**

### 1.4.3 NGB-AIS

**NGB-AIS is the operating agent for the wide area communications system that supports distance learning within the ARNG.**

**Review requirements document and provide comments to ART**

- a. Participate in RCB**
- b. Dedicate resources to develop technical specifications / design**
- c. Participate in design reviews**
- d. Participate in Government Acceptance**
- e. Continue to monitor field comments**

### 1.4.4 State National Guard and ARNG Field Operating Activities

**State National Guard and ARNG Field Operating Activities are responsible for the operation of the individual classrooms. Their role in development of the Next Generation DTTP Classroom includes:**

- a. Review requirements document and provide comments to ART**
- b. Participate in RCB**
- c. Dedicate resources to develop technical specifications / design**
- d. Participate in design reviews**

### 1.4.5 Field Working Group

**The Field Working Group is specifically convened to develop, and implement this document.**

- a. Review requirements document, and provide comments to ART**
- b. Participate in RCB**
- c. Dedicate resources to develop technical specifications / design**
- d. Participate in design reviews**

- e. Provide functional expertise to the design process**

## 2 FUNCTIONAL REQUIREMENTS

This section defines requirements for the Next Generation DTTP Learning Environment in six functional areas. Appendix C contains the detailed requirements matrix developed by the Field Working Group.

### 2.1 General Requirements

General requirements are those that apply to the total environment, and address such areas as overall audio / video, network, multimedia support, ancillary requirements, system sustainment, etc. This section will identify the top priority requirements. A detailed requirements matrix is presented in Appendix C for the detailed functional requirements.

a. The DTT learning environment shall support asynchronous (individual students, self-paced and independent—in timing—of other students or instructors), synchronous (more than one student training at the same time with an instructor, students may be in more than one DTTP classroom), and collective (a combination of multiple people working together on the same task, may include multiple locations and environment) training events.

b. The DTTP learning environment will support simulations to include, but not be limited to ABCS, JCATS, JANUS, OneSaf, WARSIM, and VERTS.

### 2.1.1 DTT Audio / Video Requirements

The most significant Audio / Video functional requirements for DTTP facilities are documented below.

- a. Students with normal vision shall be able to read graphics (e.g. topographical maps) from any workstation with the classroom lighted to normal office lighting levels.
- b. Students with normal hearing shall be able to hear audio portion of video conferences.
- c. The A/V design shall be able to support Auditoriums with a seating capacity up to 500 seats
- d. Video shall be studio quality (not less than 30 frames per second)
- e. Each State / Territory shall be able to support intra-state video multi-point conference of various protocols (H.320, H.321, and H.323, as a minimum). The objective requirement is to be able to participate in a separate video teleconference (VTC) from each student workstation. The threshold is to be able to conduct 3 separate, simultaneous VTCs in each classroom.
- f. Each State / Territory shall be able to provide intra-state audio back-up capabilities to the Video Multi-Conference Unit
- g. Each State / Territory shall be able to host multi-point audio only conferences up to 20 ports
- h. Each State / Territory shall be provided mobile 2-way VTC capability
- i. Each NGB FOA and each TASS battalion location shall be outfitted to serve as a training origination site. See section 2.2.2

### 2.1.2 DTT Network Requirements

The most significant network functional requirements for DTTP facilities are documented below.

- a. Students must be able to participate in training at any time from any location
- b. Provide access to the Internet through GuardNet XXI
- c. Students and Instructors shall be able to access MPEG-I files from system repositories
- d. Students shall be able to receive satellite broadcasts at their individual workstations

- e. **Instructors shall be able to receive satellite broadcast, and project those images to the students**
- f. **Students shall be able to stream video in a various formats in a one to one or one to many environment**

### 2.1.3 Sustainment

- a. **The DTTP ORD states that classrooms shall be operable 14 hours a day, seven days a week with a 92 percent threshold. 96 percent is the operational goal for hardware and software availability for both synchronous and asynchronous training. Surge requirements and training support for contingency operations may require operation of the system 24-hours a day, 7-days a week.**
- b. **In support of this operational requirement, the DTT shall have maintenance on all critical components. Site personnel are responsible for problem determination and reporting. NGB-AIS is responsible for tracking problems, assisting site personnel in problem resolution, and dispatching maintenance personnel, when required.**
- c. **Technical training shall be provided to site administration personnel and Military facility support personnel upon installation.**
- d. **Critical Components must be replaced within 24 hours after a failure is reported.**

### 2.1.4 Standardization

**The DTTP classroom components (hardware and software) shall be compliant with ATIA, JTA/JTA-A, and the DII COE standards to ensure commonality with other DoD systems. Examples of the DoD standards for multimedia are MPEG-1 or MPEG-2 for video compression, and JPEG, GIF, IMG for images. The DTTP classroom components shall adhere to industry standards (e.g., H.320, H.321, H.323, and H.324 for video). The Courseware Repository shall be SCORM and / or LARM certified.**

### 2.1.5 Compatibility

**Any design changes shall be backward compatible with the currently installed DTT infrastructure. The DTT infrastructure is defined as GuardNet, the Distributed Learning Network (DLN) NT Domain, the Video Operations Center, all multi-media classroom components, ATM roll-about cards, and the Integrated Information System (IIS). Cost, schedule, and performance issues will be referred to the RCB for resolution.**

### 2.1.6 Personnel Support

**Additional personnel are required to manage, and operate each of the distributed learning facilities. The support staff shall be knowledgeable in all aspects of classroom operation.**

#### **2.1.6.1 Site Administrator**

**The Site Administrator shall have working knowledge of Microsoft NT, TCP/IP, and ADPE operations. The support roles are identified as follows:**

- a. Serve as the first line of technical support for the AIS NGB Network Operations Center**
- b. Perform preventative and remedial maintenance on active classroom components**
- c. Verify classroom operability 30 minutes prior to session kick-off**
- d. Support all scheduled events in case of technical malfunctions (e.g., problem resolution)**

**Site support personnel for shared use will be provided by the individual state. This support may require an additional site operator that can be provided by state employees, contractors, or through agreements with other organizations. Federal employees acting within their Federal responsibilities or during Federal employment working hours shall not be used to support shared use.**

#### **2.1.6.2 Instructors and Instruction Support Personnel**

**The roles of the instructor at the origination point are defined as:**

- a. Certified by TRADOC on course material**
- b. Certified as a DL Instructor**
- c. Able to operate all classroom instructional equipment (e.g., document camera, instructor and student workstations, VTC hardware and software)**

**The role of the Instructor's support staff are identified as:**

- d. Shall be SMEs in the course content and meet proponent requirements as stated in the Course Management Plan (CMP)**
- e. Shall be certified to give exams**
- f. Shall be able to assist the instructor in the conduct of the course**
- g. Shall be able to assist the instructor with administrative tasks (taking roll, handing out materials) at the remote site(s) in support of the instructor at the originating site.**



### 2.1.7 Management

a. **AIS (NOC) manages the network which is defined as extending from the hubs to and including the classroom switch. All equipment, software, and communications within the classroom are managed by the site manager. The DTT domain has a Command, Control and Communications mission. This requires that the National Guard Bureau be able to communicate with at least one DTT asset in the fifty states, three territories and the District of Columbia in case of a national emergency. NGB-AIS will provide sufficient resource to bridge between different protocols (H.320/321/323/324) and provide audio only backup to accommodate at least 56 locations. The 56 locations include the Readiness Center, Jefferson Plaza 1, the 50 states, 3 territories, and the District of Columbia. Please refer to paragraph 2.1.1 for operational requirements of DLN hardware and software components.**

b. **The NOC will manage and maintain the network from the Operations Center through the hubs and STARCs to the ATM switch in the classroom. The DLN domain shall have an overall availability of 99.95%.**

c. **NGB-AIS should staff the NOC and Video Operations Center to support the DTT minimal threshold operational requirement of 14-hours a day, 7 days as week. The objective requirement is for 24 hours per day, 7 days a week for normal operations. Surge requirements and training support for contingency operations may require operation of the system 24-hours a day, 7-days a week.**

## 2.2 Courseware Repository and Distribution System Requirements

**Classrooms must be able to deliver courseware that was developed in accordance with emerging DoD standards. The Army Training Support Center (ATSC) has developed an electronic library that is used as a primary reference resource and source of correspondence courses used in Army training. The Army Training and Doctrine Digital Library (ATDDL) is the official repository of approved Army doctrine. The ATDDL mission is to provide a world wide audience transparent access to a distributed digital repository of accurate and timely training knowledge sets and interactive applications to support training of individuals and units.**

### 2.2.1 Courseware Origination

Courseware originates from many sources (military and civilian) and in many formats. The Courseware Management System (CMS) shall accommodate access to numerous internal and external repositories, store multiple courseware formats, and courseware development for Guard specific training. The following bullets represent the highest priority for courseware origination. The CMS shall:

- a. Provide a repository for storing multi-media courseware
- b. Provide a user friendly graphical interface
- c. Support the NTC, and JRTC soldier in the field training requirements
- d. Provide national and local level scheduling of all learning environment resources (e.g., classroom assets, Hub / STARC Audio / Video capabilities, NOC Video Operations)
- e. Provide capability to distribute courseware on user-demand, and be capable of doing so simultaneously with other sites .
- f. Provide capability to take the learning environment to other than traditional classrooms (e.g., motor pool, rifle range, hangers, inside armor vehicles). This capability could be provided in predetermined quantities for the TASS Battalions, RTIs, and issued based on scheduled events. Locations initially identified are PEC, WAATS, EAATS, LDC, and T3BL.
- g. Store and retrieve courseware material (documents, graphical material, video clips, full motion videos)
- h. Provide access to and interoperate with other ADL repositories (e.g., CR XXI, TADLP, RDL, ATDDL)

### 2.2.2 Training Origination Sites

The following requirements apply to those sites whose primary mission is the origination of training. These sites include federal training centers and Regional Training Institutes.

- a. A training delivery facility separate from the standard classroom. This could be a VTF, a studio, or a classroom.
- b. Ease of use in changing media. Crestron must react to instructors touch. Each piece of equipment must be within arms reach of the instructor, with minimal bending, either sitting or standing. Must be able to change media or advance materials within a media with one touch command.
- c. Professional quality video camera (focal length, [aperture](#), zoom ratio, picture resolution, audio quality)
- d. Virtual set

- e. **Studio quality lighting**
- f. **Teleprompter**
- g. **high resolution scan converter**

### 2.2.3 Courseware Administration

The following identifies the courseware administration requirements. Administration CMS shall consist of the following high-priority functions.

- a. **Meter and track the use of classroom resources**
- b. **Electronically report usage to the POTO, ART, DOIM, and other organizations on courseware and classroom usage**
- c. **Provide a capability to de-conflict schedules based on pre-determined business rules**
- d. **Track student enrollment based on profiles (e.g., branch of service, active, reserve, Guard, federal or state civilian employee, private citizen)**
- e. **Track student enrollment, status in course (completion, standing) and report status**
- f. **Validate for all MOS producing courses that the student is registered in ATRRS**
- g. **Provide a Point of Presence (potentially in each NG Armory) for NG members to access the training environment remotely**

### 2.2.4 Courseware Delivery – Instructor View

The following identifies the minimal functionality required by Instructor for conduct of classes. An instructor at any DTTP facility shall be provided the capability to:

- a. **Originate and control two-way video/two-way audio with viewer response devices**
- b. **Originate and control one-way video/two-way audio with viewer response devices**
- c. **Originate and control one-way video/one-way audio with viewer response devices**
- d. **Record training sessions.**
- e. **Locally generate files using standardized office application**
- f. **Access video on-demand**
- g. **Print, scan, fax, and copy documents**
- h. **Access the Internet, NIPRNet and Proponent School (e.g. RDL, ASTDL, commercial entities or whatever organization has proponentcy for the subject matter.) services**

- i. Play a video, insert a stationary picture, or have a background and "play box" for information behind the instructor position.**
- j. Display his own or other images separate from the display of students in the classroom. students.**
- k. Classroom shall provide a capability for instructor to write or draw images that can be accessed by all participating classrooms.**
- l. Play audio from instructor's workstation over the room audio system and into the video transmission**
- m. Allow student response microphone to be heard on the room audio system on top of audio from the VCR**

### **2.2.5 Courseware Delivery – Student View**

**The following identifies the minimal functionality students shall be provided for participation in distributive classes. Students at any DTTP facility shall be provided the capability to:**

- a. Access courseware internal to GuardNet or from external repositories (e.g., InterNet, RDL, ATDDL, TRADOC Proponent Schools, commercial entities)**
- b. Student must be able to work in conjunction with other students, in the same or other locations, with all students having access/visibility to the common material.**
- c. View and listen to material that has been recorded in VHS format.**
- d. Access digitally stored full motion video, documentation, presentation materials or other digital media available on a one-to-one or one-to-many basis**
- e. Participate in one way or two way audio or video conferences and simulations.**

## **2.3 System Security Requirements**

**Classified training and training materials must be able to be used in the DLN domain. The following bullets identify the high-level security requirement for the DTT learning environment.**

### **2.3.1 General Requirements**

- a. The system shall be certified to C2**
- b. The system shall support digital signatures**
- c. The system shall provide access to courseware repositories on an as needed basis**

- d. All SBU data (social security numbers, credit card numbers) shall be protected prior to transmitting**
- e. Workstation logon shall provide authorized users unique identification and protect the system from unauthorized use.**

### **2.3.2 Classified Processing Requirements**

- a. There is no requirement for the storage of classified data, either as paper documents nor in electronic.**
- b. Classrooms must be able to be set up to satisfy the physical security requirements to allow classified, up to collateral secret, meetings.**
- c. The objective requirement is to transmit and receive classified information, up to the level of collateral secret, from any classroom which has appropriate physical security to any other classroom which has appropriate physical security.**
  - through GuardNet**
  - through ISDN**
  - Through SIPRNET**
- d. An immediate requirement is to effect the objective requirement for a specified set of classrooms, interstate, on an ad hoc basis.**
- e. The minimal threshold requirement is to effect the objective requirement for intrastate classrooms only. The number of classrooms is specific to individual state requirements**

## **2.4 System Interface Requirements**

**The DTT system must interface with many diverse DoD and Civilian Schools. The bullets below identify the high priority system interface requirements.**

### **2.4.1 RCAS**

**The system shall interface with the Reserve Component Automated System (RCAS) desktop computing devices for scheduled asynchronous, synchronous, or collective training events from the participant's desktop when such events are appropriate for such devices.**

### **2.4.2 ATRRS**

**The system shall interface with Army Training Requirements and Resource System for all ATRRS managed training. This interface shall provide scheduling information of DTT assets, verify student enrollment, report student completion and standing. Sub-interface requirements are:**

- a. Register soldiers in MOS producing courses**
- b. Schedule DTT assets with Army assets**
- c. Verify soldier enrollment**

- d. Report soldier progress, completion, and standing.
- e. The system shall interface with the RDL, the Army Doctrine & Training Digital Library (ADTDL), and TRADOC training facilities (e.g., CR XXI, TADLP).

#### 2.4.3 Other

- a. The system shall interface with the Army Continuing Education System (ACES)
- b. The system shall interface with Army University On Line (AUOL)

## 2.5 Command and Control Requirements

Command and Control is stated as the second objective for the DTT program. This enables the States and Territories to use DTT assets in case of state or national emergency. The following bullets define command and control requirements.

- a. The system shall be designed and implemented with an open architecture that provides an optimal ability for the individual states to communicate with their intrastate networks.
- b. The system shall provide the ability for National Guard personnel to broadcast Situation Reports (SITREPS) from emergency locations
- c. The system shall provide for intrastate bridging between networks. The requirement is for training anytime, anywhere. Cost, schedule, and performance trade-offs must be decided by the RCB and are expected to change over time.
- d. The system shall be able to record and broadcast emergency situations for After Action evaluation and future training of Rapid Response or First Responder Teams

## 2.6 Shared Use Requirements

Sharing the DTT facilities with the local community is the third goal of the program. The following bullets provide high level requirements for shared use of the DTT.

- a. Identify user personnel by profile
- b. Track use of DTT assets
- c. Bill individual, corporation, state or local government based on resource consumption
- d. Courseware based on a various versions of MicroSoft operating systems shall be usable on every workstation



### 3. RECOMMENDED APPROACH

This section recommends a systematic approach for development of the technical design through implementation. A timeline is presented in Appendix B.

#### 3.1 Requirements Definition and Prioritization

This document reflects the consensus of the group of National Guard and civilian personnel reflected in Appendix A. A similar group of National Guard personnel, meeting at the National Guard Professional Education Center, North Little Rock, Arkansas, on June 21, 2001, arrived at consensus on the relative priority of each requirement. Each participant was asked to rate each functional requirement as one of the following priorities:

- a. Priority 1, applies to every version of the entire system including to every classroom.
- b. Priority 2, highly desirable, should be incorporated in the Next Generation Classroom if feasible.
- c. Priority 3, objective requirement, incorporate when feasible
- d. Priority 4, not a requirement

The results of the consensus prioritization are shown in Appendix E.

#### 3.2 Development of Technical Alternatives

The DTTP PMO engineering staffs will analyze the functional requirements and develop preliminary designs, with trade-off analysis, objective evaluation criteria, and programmatic impact analysis. Cost, performance, and schedule trade-offs will be referred to the RCB for resolution. The designs will be discussed with all the stakeholders and the DTTP Configuration Control Board (CCB) so the most viable design will be selected. This ensures the design to be prototyped meets or exceeds the functional and business requirements prior to construction.

#### 3.3 Construction and Developmental Testing

Once the CCB approval (as a minimum) is received, a “prototype” classroom architecture will be built in the DTTP Engineering Labs. As the design is built, the team will develop integration, and installation procedures, as well as a formal test plan and the required

**Engineering Change Proposal (ECP).** Once the new classroom is assembled, developmental testing will be conducted by the Engineering Team. Results of testing will be documented. When the Engineering Teams are confident the design meets or exceeds the stated operational and functional requirements, their report will be forwarded to the DTTP CCB. The CCB and other stakeholders will evaluate conformance and determine if GAT should be conducted or if additional engineering work is required.

### 3.4 Documentation

**Documentation shall be developed to define each configuration and the installation and operations procedures for that configuration as stand alone documents. The change control process should describe proposed changes in terms of the change to existing or previous designs. Configuration change descriptions should be published with each version of the documentation. Minimum design documentation includes:**

- a. Detailed Design Document**
- b. Integration Procedures**
- c. Site Preparation Procedures**
- d. Installation Procedures and Wiring Diagrams**
- e. NOC and Video Operations Center Guidelines**
- f. Maintenance Procedures**

### 3.5 Government Acceptance Test

**Using the test plan developed during the Construction phase, the expected results are measured against the actual performance of the individual components and the solution as a whole. Optimization of the components and solution will be completed in a controlled environment and then extended to the daily operations of classroom, which includes the current install base, IIS and GuardNet XXI. The Integration, Installation and Training Teams will assist in the GAT Test Team at the NGB Enterprise Laboratory located at the Alexandria Co-Lab with validation of the new procedures developed during the prototype phase for the new classroom suite. Trade-offs in cost, schedule, and performance will be referred to the RCB for resolution. Once the training and testing is completed and the results documented, a Class I Engineering Change Proposal will be finalized for presentation to the DTTP CCB for final approval. The ECP will include a new bill of materials, new integration and installation procedures. The Class I ECP will be presented to the DTTP CCB for approval.**

## APPENDICES



APPENDIX AFUNCTIONAL REQUIREMENTS FIELD WORKING GROUP  
MEMBERS

The following table identifies the members of the Functional Requirements Field Working Group.

|                                       |                               |                             |
|---------------------------------------|-------------------------------|-----------------------------|
| <b>Government Participants</b>        |                               |                             |
| <b>LTC Roser, AR</b>                  | <b>CPT Barham, AR</b>         | <b>LTC Wodash, AZ</b>       |
| <b>LTC Kramer, CA</b>                 | <b>CW2 Jordan, CO</b>         | <b>CW3 Moran, MO</b>        |
| <b>CW5 (Ret) Dave O’Rear, NC</b>      | <b>SFC Ellis, NJ</b>          | <b>LTC Miller, OK</b>       |
| <b>MAJ Maloney, PA</b>                | <b>CSM Toderro, PA</b>        | <b>LTC Bishop, PEC</b>      |
| <b>COL Goff, UT</b>                   | <b>MAJ Williams, UT</b>       | <b>LTC Doyle, VA</b>        |
| <b>CPT Connelly, VA</b>               | <b>LTC Jochem, WI</b>         | <b>MAJ Donohoe, ART</b>     |
| <b>MAJ Veneziano, ART</b>             | <b>Bill Gallagher, ART</b>    | <b>LTC Donovan, PM DTTP</b> |
| <b>Susan Dix, DTTP</b>                |                               |                             |
| <b>Contracting Staff Participants</b> |                               |                             |
| <b>Bill Howard, Carson</b>            | <b>Kathleen Smith, Carson</b> | <b>Greg Gorzelnik, SNVC</b> |
| <b>Jim Hunter, AB Tech</b>            | <b>Paul Sullivan, BAH</b>     | <b>Ed Kronholm, BAH</b>     |
| <b>LeAnn Sampson, EDS</b>             |                               |                             |

APPENDIX B

## PROJECT MANAGEMENT PLAN

The following table provides a project timeline for the Next Generation DTTP Classroom development process.

| Task Name  | Duration | Start           | Finish          |
|--|----------|-----------------|-----------------|
| Functional Requirements Definition                                 | 253 days | Tue<br>3/21/00  | Thu<br>7/26/01  |
| Review Operational Requirements Document for Baseline Requirements | 228 days | Tue<br>3/21/00  | Thu 2/1/01      |
| Develop Matrix   | 87 days  | Tue<br>3/21/00  | Wed<br>7/19/00  |
| Establish Field Working Group                                      | 87 days  | Thu<br>7/20/00  | Fri<br>11/17/00 |
| Develop Functional Requirements Document                           | 30 days  | Mon<br>10/23/00 | Fri<br>12/1/00  |
| Distribute document to ARNG organizations for review and comment   | 30 days  | Mon<br>12/4/00  | Fri<br>1/12/01  |
| Update document based on comments                                  | 14 days  | Mon<br>1/15/01  | Thu 2/1/01      |
| Requirements Control Board Process                                 | 15 days  | Fri<br>2/2/01   | Thu<br>2/22/01  |
| Present to RCB for Review and Comment                              | 15 days  | Fri<br>2/2/01   | Thu<br>2/22/01  |
| Hold RCB for Next Generation DTTP Classroom Approval to proceed    | 0 days   | Thu<br>2/22/01  | Thu<br>7/15/01  |
| Develop Preliminary Technical Design                               | 10 days  | Fri<br>2/23/01  | Thu 3/8/01      |

|  |                |                        |                        |
|--|----------------|------------------------|------------------------|
| <b>Develop Desktop Framework</b>   | <b>10 days</b> | <b>Fri<br/>2/23/01</b> | <b>Thu 3/8/01</b>      |
| <b>Develop Client/Server Framework</b>   | <b>10 days</b> | <b>Fri<br/>2/23/01</b> | <b>Thu 3/8/01</b>      |
| <b>Develop Enterprise Services Framework</b>                                     | <b>10 days</b> | <b>Fri<br/>2/23/01</b> | <b>Thu 3/8/01</b>      |
| <b>Develop Network Management Framework</b>                                      | <b>10 days</b> | <b>Fri<br/>2/23/01</b> | <b>Thu 3/8/01</b>      |
| <b>Present Preliminary Design to DTTP CCB for Approval to Proceed</b>            | <b>0 days</b>  | <b>Thu<br/>3/8/01</b>  | <b>Thu 3/8/01</b>      |
| <b>Construction</b>  | <b>81 days</b> | <b>Fri<br/>3/9/01</b>  | <b>Fri<br/>6/29/01</b> |
| <b>Develop Classroom and IIS Design and Documentation</b>                        | <b>45 days</b> | <b>Fri<br/>3/9/01</b>  | <b>Thu<br/>5/10/01</b> |
| <b>Perform Developmental Testing</b>   | <b>5 days</b>  | <b>Fri<br/>5/11/01</b> | <b>Thu<br/>5/17/01</b> |
| <b>Develop initial BOM with Rough Order Pricing</b>                              | <b>5 days</b>  | <b>Fri<br/>3/9/01</b>  | <b>Thu<br/>3/15/01</b> |
| <b>Govt. Review of Ppreliminary BOM and Pricing</b>                              | <b>5 days</b>  | <b>Mon<br/>6/25/01</b> | <b>Fri<br/>6/29/01</b> |
| <b>Government Acceptance Test</b>  | <b>43 days</b> | <b>Mon<br/>7/2/01</b>  | <b>Wed<br/>8/29/01</b> |
| <b>Build Environment at ADL Co-Lab</b>   | <b>5 days</b>  | <b>Mon<br/>7/2/01</b>  | <b>Fri 7/6/01</b>      |
| <b>Conduct Government Acceptance Test</b>  | <b>15 days</b> | <b>Mon<br/>7/9/01</b>  | <b>Fri<br/>7/27/01</b> |
| <b>Document Results</b>  | <b>5 days</b>  | <b>Mon<br/>7/30/01</b> | <b>Fri 8/3/01</b>      |
| <b>Present Results to CCB and Obtain Approval to Proceed to RCB</b>              | <b>0 days</b>  | <b>Fri<br/>8/6/01</b>  | <b>Fri<br/>8/10/01</b> |
| <b>Present Results to RCB and Obtain Approval to Proceed With Implementation</b> | <b>0 days</b>  | <b>Thu<br/>8/10/01</b> | <b>Thu<br/>8/10/01</b> |
| <b>Produce Final Classroom Bill of Materials</b>                                 | <b>15 days</b> | <b>Thu<br/>7/18/01</b> | <b>Wed<br/>8/7/01</b>  |

|  |                |                         |                         |
|--|----------------|-------------------------|-------------------------|
| <b>Procure</b>   | <b>60 days</b> | <b>Mon<br/>9/3/01</b>   | <b>Fri<br/>11/23/01</b> |
| <b>Price Final BOM</b>   | <b>10 days</b> | <b>Mon<br/>8/8/01</b>   | <b>Fri<br/>8/21/01</b>  |
| <b>Govt. Review of final BOM and pricing</b>   | <b>5 days</b>  | <b>Mon<br/>8/22/01</b>  | <b>Fri<br/>8/28/01</b>  |
| <b>Present Costed BOM to CCB</b>   | <b>0 days</b>  | <b>Fri<br/>8/28/01</b>  | <b>Fri<br/>8/28/01</b>  |
| <b>Procure Hardware/Software</b>   | <b>45 days</b> | <b>Mon<br/>8/29/01</b>  | <b>Fri<br/>10/30/01</b> |
| <b>Training of Installation, Training, and Operations Staffs</b>                       | <b>1 day</b>   | <b>Mon<br/>10/31/01</b> | <b>Mon<br/>10/31/01</b> |
| <b>Conduct Training on new design at the IDA Co-Lab</b>                                | <b>1 day</b>   | <b>Mon<br/>11/1/01</b>  | <b>Mon<br/>11/1/01</b>  |
| <b>Integrate Classrooms</b>  | <b>20 days</b> | <b>Mon<br/>10/31/01</b> | <b>Fri<br/>11/27/01</b> |
| <b>Ship to Site</b>  | <b>10 days</b> | <b>Mon<br/>11/28/01</b> | <b>Fri<br/>12/11/01</b> |
| <b>Install Classrooms</b>  | <b>25 days</b> | <b>Mon<br/>12/12/01</b> | <b>Fri<br/>1/15/02</b>  |
| <b>Train Site Administrator and site support personnel on the classroom operations</b> | <b>5 days</b>  | <b>Mon<br/>1/16/02</b>  | <b>Fri<br/>1/22/02</b>  |
| <b>Operate and Maintain</b>  | <b>0 days</b>  | <b>Fri<br/>1/23/02</b>  | <b>Fri<br/>1/23/02</b>  |

APPENDIX C

NEXT GENERATION DTTP CLASSROOM FUNCTIONAL MATRIX

The following table identifies the functional and technical requirements and identifies how the top five commercial products satisfy the requirement:

| RQMTS Number   | Requirement   | Additional Information | ORD Reference |
|--|---|------------------------|---------------|
| 2.1.6 Personnel Support Requirements (PS-# reflects staffing requirements) |   |                        |               |
| PS-1   | "Site Administrators shall be experienced in NT server, TCP/IP, ADPE operations."   |                        |               |
| PS-2   | "Site Administrators shall be available during all scheduled events for problem resolution, assistance with technical classrooms issues / problems"   |                        |               |
| PS-3   | Site Administrators shall be able to verify operability within 30 minutes of session kick-off   |                        |               |
| PS-4   | Instructors shall be TRADOC certified for MOS/ASI, etc as required. Additional instructor requirements shall follow the current TRADOC requirements for course requirements.  |                        |               |
| PS-5   | "Instructor support personnel (e.g., Assistant Instructor and / or SMEs) shall be capable of giving an exam and shall be made available in each classroom to assist the instructor with courseware presentation as defined in the POI." |                        |               |
| PS-6   | Site Administrators / Operators shall be DL equipment certified (i.e., DL equipment course).  |                        |               |
| PS-7   | Instructor shall be DL Certified (VTT and/or DLITC) and able to operate the DTT classroom equipment.  |                        |               |

| RQMTS Number  | Requirement   | Additional Information   | ORD Reference |
|---|---|--|---------------|
| PS-8  | Support personnel at the distant end need to be SMEs and shall meet proponent requirements as specified in the Course Management Plan (CMP).                      |  |               |
| PS-9  | "Support shall be available for administrative tasks (taking roll, handing out materials, etc.) at remote site in support of instructor at the originating site." |  |               |
|   |   |  |               |
| 2.2.5 Delivery/Courseware – Student Centered View Functional Requirements (CS-# reflects Courseware Student Requirements) |   |  |               |
| CS-1  | Students in classroom with VCR/video disk courseware.   | Instructor on site   | 1.3.d         |
| CS-1a   | "Students in classroom with digitally stored full motion video, documents, presentation or other digital media available for 1 to 1 or 1 to many access"          |  |               |
| CS-2  | Students in classroom with Computer and CD ROM drive  | Instructor on site   |               |
| CS-3  | Students in classroom with Computer and Internet.   | Instructor on site   |               |
| CS-4  | Students in classroom with LAN and WAN / groupware software   | Instructor on site.  |               |
| CS-5  | Students in classroom with VCR/video disk courseware  | Instructor at remote site.   |               |
| CS-6  | Students in classroom with Computer and CD ROM drive  | Instructor at remote site.   |               |
| CS-7  | Students in classroom with Computer and Internet  | Instructor at remote site.   |               |
| CS-8  | Students in classroom with Computer and Internet  | Instructor on line   |               |
| CS-9  | Students in classroom with LAN and WAN / groupware software   | Instructor on line in either a synchronous or asynchronous environment |               |
| CS-10   | Students in classroom with Computer and CD ROM drive  | No Instructor or limited interface (self-study)                        |               |
| CS-11   | Students in classroom with Computer and Internet (either through the GuardNet or commercial provider)   | No Instructor or limited interface (self-study)                        |               |
| CS-12   | Students in classroom with LAN and WAN / groupware software   | No Instructor or limited interface (self-study)                        |               |

| RQMTS Number  | Requirement  | Additional Information                          | ORD Reference |
|---|--|---|---------------|
| CS-13   | Student with remote access to classroom, courseware repository, or internet.   | Instructor at remote site.                      |               |
| CS-14   | Student with remote access to classroom, courseware repository, or internet.   | Instructor on line.                             |               |
| CS-15   | Student remote with Computer, CD ROM drive, and Internet based collaborative / groupware software  | Instructor on line.                             |               |
| CS-16   | Student with remote access to classroom, courseware repository, or internet.   | Instructor on site                              |               |
| CS-17   | Student with remote access to classroom, courseware repository, or internet.   | No Instructor or limited interface (self-study) |               |
| CS-18   | Student remote with Computer, CD ROM drive, and Internet based collaborative / groupware software  | No Instructor or limited interface (self-study) |               |
|   |  |   |               |
|   |  |   |               |
| 2.2.4 Delivery/Courseware – Instructor Centered View Functional Requirements (CI-# reflects Courseware Instructor Requirements) |  |   |               |
| CI-1  | Instructor can originate audio tele-training.  |   |               |
| CI-2  | Instructor can originate and control audio-graphic training sessions.  |   |               |
| CI-3  | Instructor can originate and control two-way video/two-way audio with viewer response devices. The viewer response system shall provide audience feedback, question queuing, voting, on-screen report generation of participant responses, automatic tabulation. |   | 4.1.1.b       |
| CI-4  | Instructor can originate and control one-way video/two-way audio with viewer response devices.   |   |               |
| CI-5  | Instructor can originate and control one-way video/one-way audio with viewer response devices.   |   |               |
| CI-6  | Instructor can record training sessions  |   |               |
| CI-7  | Instructor can transmit files.   |   |               |
| CI-8  | Instructor can locally generate files using standardized office application.   |   |               |
| CI-9  | Instructor can access video on-demand.   |   |               |

| RQMTS Number  | Requirement   | Additional Information | ORD Reference |
|---|---|------------------------|---------------|
| CI-10   | <b>Instructor can upload and download digitized information.</b>  |                        |               |
| CI-11   | <b>Instructor can print documents.</b>  |                        |               |
| CI-12   | <b>Instructor can copy, fax, and scan documents.</b>  |                        |               |
| CI-13   | <b>Instructor can access the Internet, NIPRNet and Proponent School services.</b>   |                        |               |
| CI-14   | <b>Instructor teaches class using VCR/video disk/CD ROM.</b>  |                        |               |
| CI-15   | <b>Instructor teaches class via one way video/one way audio</b>   |                        |               |
| CI-16   | <b>Instructor teaches class via one way video/two way audio</b>   |                        |               |
| CI-17   | <b>Instructor teaches class via two way video/two way audio</b>   |                        |               |
| CI-18   | <b>Instructor answers questions via e-mail.</b>   |                        |               |
| CI-19   | <b>Instructor teaches class on line to multiple classrooms</b>  |                        |               |
| CI-20   | <b>Instructor teaches class on line with students at remote site</b>  |                        |               |
| CI-21   | <b>Instructor teaches class via video on demand.</b>  |                        |               |
| CI-22   |   |                        |               |
|   |   |                        |               |
| 2.2.3 Delivery/Courseware - Administration View Functional Requirements (CA-# reflects Courseware Administration Requirement) |   |                        |               |
| CA-1  | <b>Automated Administrative System supports and manages instruction.</b>  |                        |               |
| CA-2  | <b>Automated Administrative System meters and tracks usage of classroom sites.</b>  |                        |               |
| CA-3  | <b>"Automated Administrative System shall be able to develop reports and electronically distribute to the POTO, ARI, DOIM and others on Courseware and Classroom Usage"</b> |                        |               |

| RQMTS Number | Requirement   | Additional Information | ORD Reference |
|--------------|---|------------------------|---------------|
| CA-4         | The DTT system shall interface with ATRRS to allow registration for military courses. (previously CI-6d6)   |                        |               |
| CA-5         | Automated Administrative System shall provide the capability to de-conflict schedules based on business rules   |                        |               |
| CA-6         | Automated Administrative System shall provide a mechanism for requesting a scheduled event outside of the ATRRS process                                 |                        |               |
| CA-7         | Automated Administrative System shall provide a mechanism for authorized personnel to make or change schedules based on pre-established business rules. |                        |               |
| CA-8         | Network bandwidth has capacity to carry video tele-training (or satellite reception capability).  |                        |               |
| CA-9         | Audio bridge can reach and connect multiple sites.  |                        |               |
| CA-10        | Users can participate in audio/video teleconferencing between multiple classrooms.  |                        |               |
| CA-11        | Tracks student enrollment, status in course, completion and standing in course (e.g., Transcripts)  |                        |               |
| CA-12        | Allow authorized users to schedule unit level courses / events  |                        |               |
| CA-13        | Allow as required scheduling of system assets for intra-state, intra-region, intra-BDE level events   |                        |               |
| CA-14        | Allow authorized personnel the ability to cancel or reschedule events that conflict with the NGB missions.  |                        |               |
| CA-15        | Provide a point of presence (potentially at each NG armory) for NG members to access the training environment remotely.                                 |                        |               |
| CA-16        | System shall support simulations such as ABCS, JCATS, JANUS, VERTS, etc."   |                        |               |
| CA-17        | The DTT system shall verify student registration in ATRRS.  |                        |               |
|              |   |                        |               |

| RQMTS Number  | Requirement  | Additional Information | ORD Reference |
|---|--|------------------------|---------------|
| 2.2.1 Delivery/Courseware – Courseware Origination View Functional Requirements (CO-# reflects Courseware Origination Requirements) |  |                        |               |
| CO-1  | System provides capability to store courseware. (Command, Military & Functional)   |                        |               |
| CO-2  | System provides capability to distribute courseware on user-demand.  |                        |               |
| CO-3  | System provides national and local level scheduling of resources   |                        |               |
| CO-4  | System provides capability to take the learning environment to other than traditional classrooms (e.g., motor pool, rifle range, hangers, inside armor vehicles) This capability could be provided in predetermined quantities for the RTI, and issued based on scheduled events. Locations initially identified are PEC, WAATS, EAATS, LDC, T3BL. |                        |               |
| CO-5  | Learning environment shall support the NTC, and JRTC soldier in the field training requirements  |                        |               |
| CO-6  | System provides a repository with search, retrieve, assemble, and deploy ad hoc training materials.  |                        |               |
| CO-7  | Repository and its tool set provides an instructor the ability to search, retrieve, and archive courseware rapidly (need to define upper and lower thresholds) based on keywords, etc.   |                        |               |
| CO-8  | Repository shall be able to store and retrieve documents, graphical material, video clips, or full videos  |                        |               |
| CO-9  | Repository shall have a graphical user interface   |                        |               |
| CO-10   | Repository shall provide instructors at Federal Training Centers and RTIs with the ability to build presentation materials ""on the fly"" using a mixture of local and remote information to meet a just in time training requirement, when authorized (e.g., chemical spill training, natural disaster, unit training objectives, etc).           |                        |               |

| RQMTS Number   | Requirement  | Additional Information | ORD Reference |
|--|--|------------------------|---------------|
| <b>CO-11</b>   | <b>Repository shall allow the instructor to insert new materials into existing course modules or create new modules from existing courseware.</b>  |                        |               |
| <b>CO-12</b>   | <b>The DTT System shall be compliant and certified with / to ADL standards (e.g., SCORM, LARM)</b>   |                        |               |
| <b>CO-13</b>   | <b>Repository shall have access to and interoperate with other ADL repositories (e.g., CR XXI, TADLP, Air Guard, TRADOC school houses)</b>   |                        |               |
| <b>CO-14</b>   | <b>Collaborative tool for import / export of ad hoc classroom material including instructor standing at a whiteboard or podium. Shall be able to electronically generate, capture, and transmit hand written images to remote locations.</b> |                        |               |
| <b>CO-15</b>   | <b>System shall be user friendly</b>   |                        |               |
|  |  |                        |               |
| 2.2.2 Training Origination   |  |                        |               |
| <b>TO-1</b>  | <b>Separate facility</b>   |                        |               |
| <b>TO-2</b>  | <b>Ease of use in changing media</b>   |                        |               |
| <b>TO-3</b>  | <b>Professional quality camera</b>   |                        |               |
| <b>TO-4</b>  | <b>Instructor is able to play a video, insert a stationary picture, or have a background and ""play box"" for information behind the instructor position.</b>  |                        |               |
| <b>TO-5</b>  | <b>Studio quality lighting</b>   |                        |               |
| <b>TO-6</b>  | <b>teleprompter</b>  |                        |               |
| <b>TO-7</b>  | <b>High resolution scan converter</b>  |                        |               |
|  |  |                        |               |
|  |  |                        |               |
| 2.5 Command and Control Functional Requirements (CC-# reflects Command and Control requirements) |  |                        |               |
| <b>CC-1</b>  | <b>Ability to access State Network (e.g., .gov or .edu) for personnel actions, material management, etc when Governor calls for National Guard assistance</b>  |                        |               |

| RQMTS Number   | Requirement  | Additional Information                                   | ORD Reference |
|--|--|--|---------------|
| CC-2   | Ability to broadcast and receive voice, video, and data from emergency location to provide SITREPS,  |  |               |
| CC-3   | Ability to record broadcast for After Action evaluation and future training for Rapid Response or First Responder Teams  |  |               |
| CC-4   | Ability to bridge intra-state, intra region, and / or intra command (BN above or below) audio and video capable locations which may or may not be on the GuardNet or within the confines of the 50 states, 3 territories and the District of Columbia. |  |               |
| CC-5   | System may be used for family morale purposes when Guard members are supporting the active component.  |  |               |
|  |  |  |               |
| 2.4 Training Systems Interface Functional Requirements (SI-# reflects Training Systems Requirements) |  |  |               |
| SI-1   | The DTT system (including IIS) shall interface with Active and Reserve Component schools and systems.  | "Get DISA involved in the interfaces, security, futures" | 1.3           |
| SI-2   | Army Doctrine & Training digital Library (ADTDL)   |  | 1.3.a         |
| SI-3   | DoD training schools and systems   |  | 1.3.a         |
| SI-4   | Army Continuing Education systems (ACES), Army University On Line (AUOL)   |  | 1.3.a         |
| SI-5   | Civilian Schools   |  | 1.3.a         |
| SI-6   | TRADOC training facilities (e.g., TADLP, Classroom XXI)  |  | 1.3.b         |
| SI-7   | ASAT   |  |               |
| SI-8   | SATS   |  |               |
| SI-9   | AIMS-R   |  |               |
| SI-10  | ATRRS  |  |               |
| SI-11  | The DTT system shall interface with ATRRS to allow registration for military courses.  |  |               |
| SI-12  | The DTT system shall verify student registration in ATRRS.   |  |               |

| RQMTS Number   | Requirement  | Additional Information | ORD Reference |
|--|--|------------------------|---------------|
| SI-13  | The DTT system shall certify course completion to ATRRS.   |                        |               |
| SI-14  | The DTT system shall provide access to courseware at the Army Doctrine and Training Digital Library, Army Training Systems Center, and proponent schools.  |                        |               |
| SI-15  | The DTT system shall provide video tele-training with TASS units and the Army proponent schools.   |                        |               |
| SI-16  | Automated Administrative System shall provide ATRRS interface to schedule training based on locations and number of seats required.  |                        |               |
| SI-17  | Automated Administrative System shall provide ATRRS current information on DTT classroom availability, capability, and capacity.   |                        |               |
| SI-18  | The DTT system shall verify student registration in ATRRS.   |                        |               |
| SI-19  | National Guard Training Centers, TRADOC component schools; proponent and other professional schools (e.g., US Army Command & General Staff College; US Army JFK Spec Warfare Center & School; U.S. Army War College; U. S. Army W. O. Career Center; Federal Emergency Management Inst.; U. S. DSMC; JAG School; UN Instit. for Trng & Rsh.) |                        | 1.3.g         |
| SI-20  | The system shall allow interfaces with appropriate automated training and personnel systems to permit posting of military course completion information  |                        | 4.2.1.g       |
| SI-21  | RCAS   |                        |               |
|  |  |                        |               |
| 2.3 System Security Functional Requirements (SS-# reflects System Security Requirements) |  |                        |               |
| SS-1   | Instructor and student workstations require password access  |                        | 4.5.a         |
| SS-2   | Passwords shall be controlled by site administrators / facilitators  |                        | 4.5.a         |

| RQMTS Number   | Requirement  | Additional Information | ORD Reference |
|--|--|------------------------|---------------|
| SS-3   | Removable hard drives shall be provided as an option for student classrooms.   |                        |               |
| SS-4   | No requirement for classified storage  |                        |               |
| SS-5   | Classified training and training materials must be able to be used with the system.  |                        | 4.4           |
| SS-6   | SBU data, such as social security numbers and credit card numbers, shall be transmitted and shall be protected   |                        | 4.4           |
| SS-7   | System shall be sufficiently resistant to adverse information operations that such operations cannot cause catastrophic failure  |                        | 4.4           |
| SS-8   | The system shall be certified to C2 level of security  |                        | 4.4           |
| SS-9   | System shall support digital signatures  |                        |               |
| SS-10  | Access to Courseware Repository shall be on an as needed basis   |                        |               |
| SS-11  | Must provide adequate physical security for Secret   |                        |               |
| SS-12  | Transmit and receive collateral Secret   |                        |               |
| SS-12  | Transmit and receive collateral Secret intrastate only   |                        |               |
|  |  |                        |               |
|  |  |                        |               |
|  |  |                        |               |
|  |  |                        |               |
| 2.6 Shared Usage Functional Requirements (SU-# reflects Shared Usage Requirements) |  |                        |               |
| SU-1   | The classrooms shall be shared where possible with other Federal government agencies, communities, academia, business, and state and local governments to help reduce National Guard operating costs |                        | 1.2           |
| SU-2   | Classroom services shall be cost competitive with local economy.   |                        |               |
| SU-3   | Access to the commercial internet shall provide 768kbps of throughput per session  |                        |               |

| RQMTS Number | Requirement   | Additional Information | ORD Reference |
|--------------|---|------------------------|---------------|
| SU-4         | All workstations shall provide a mechanism for instruction and student participation of various operating systems (e.g., Window NT, Unix, etc) and productivity software.   |                        |               |
| SU-5         | Classroom services shall provide a mechanism for instructing and student participation in professional IT certifications, such as Microsoft Certified Software Engineering and other courseware.  |                        |               |
| SU-6         | Classroom shall provide an instructor podium as an option   |                        |               |
| SU-7         | Classroom shall provide a “follow-me” camera and wireless microphone capability for instructors separate from student camera and microphone services.   |                        |               |
| SU-8         | Classroom shall provide a tool for ad hoc spontaneous data and graphical import and export during classes / VTCs, such as smart whiteboards. The information shall be capable of being electronically captured at all participating DTTP sites. |                        |               |
| SU-9         | Network services should be provided at no cost for military and commercial demonstrations. There must be a mechanism in place to allow Site Demonstration without network charge to encourage other government and commercial shared use.       |                        |               |
| SU-10        | Video teleconferencing capabilities shall be provided at a variety of speeds (384, 586, 768, etc) and a variety of protocols (H.320, H.321, H.323, etc).  |                        |               |
| SU-11        | DTTP System shall provide an automated service for billing of services (Wide Area Network, Local Area Network, desktop applications, etc).  |                        |               |

| RQMTS Number                 | Requirement   | Additional Information | ORD Reference     |
|------------------------------|---|------------------------|-------------------|
| SU-12                        | <b>DTTP System shall provide an automated National Scheduling System, but will allow each site administrator to view the availability and have final approval events of the local DTTP assets, and request scheduled events from other site administrators.</b> |                        |                   |
| SU-13                        | <b>Video Conferencing bandwidth shall be tailored to provide the necessary bandwidth to support the total number of DTTP classrooms within each state.</b>  |                        |                   |
|                              |   |                        |                   |
| <b>2.1.3 Sustainment</b>     |   |                        |                   |
| SUS-1                        | <b>Technical Training shall be provided to the Site Admin., and military facility support personnel</b>   |                        |                   |
| SUS-2                        | <b>System shall be available 14 hours a day, 7 days a week with a 92% threshold and 96% goal for hardware and software availability rates for synchronous, asynchronous and collective events.</b>  |                        | <b>para 4.2.1</b> |
| SUS-3                        | <b>System shall support a surge requirement and training support for contingency operations 24 hours a day, 7 days a week.</b>  |                        | <b>para 4.2.1</b> |
| SUS-4                        | <b>Critical components must be replaced within 24 hours</b>   |                        |                   |
|                              |   |                        |                   |
| <b>2.1.4 Standardization</b> |   |                        |                   |
| STD-1                        | <b>The system shall conform to the following standards and shall interoperate</b>   |                        |                   |
| STD-2                        | <b>"H.320 series (H.320, H.321, H.323)"</b>   |                        |                   |
| STD-3                        | <b>MPEG</b>   |                        |                   |
| STD-4                        | <b>SCORM/LARM</b>   |                        |                   |
| STD-5                        | <b>VGA and Composite</b>  |                        |                   |
| STD-6                        | <b>ADL</b>  |                        |                   |
|                              |   |                        |                   |
|                              |   |                        |                   |

| RQMTS Number  | Requirement  | Additional Information | ORD Reference  |
|---|--|------------------------|----------------|
| 2.1.5 Compatibility   |  |                        |                |
|   | <b>Shall operate with previously fielded DTT systems</b>   |                        |                |
|   | <b>Shall operate with other DoD ADL systems and architectures</b>  |                        |                |
|   |  |                        |                |
| 2.1.7 Management  |  |                        |                |
| <b>MN-1</b>   | <b>The ARNG NOC shall have visibility through the hubs to the classroom ATM switch</b>                   |                        |                |
| <b>MN-2</b>   | <b>A National Scheduling System shall be available for all Site Administrators</b>                       |                        |                |
| <b>MN-3</b>   | <b>Locally bridge different protocols (H.323/320/321) and different data rates (56K, 128, 384, etc).</b> |                        |                |
| <b>MN-4</b>   | <b>The network shall have an availability of 99.95%</b>  |                        |                |
|   |  |                        |                |
| 2.1.1 and 2.1.2 Student Functional Requirements (SR-# reflect Student Requirements) |  |                        |                |
| <b>SR-1</b>   | <b>Students can receive and participate in audio tele-training.</b>                                      |                        | <b>1.3.d</b>   |
|   | <b>Training</b>  |                        |                |
|   | <b>Asynchronous - e.g., Speakerphone, headsets</b>   |                        |                |
|   | <b>Asynchronous - CD ROM with headphones</b>   |                        |                |
| <b>SR-2</b>   | <b>Students can participate in multi-user audio conferences for:</b>                                     |                        | <b>4.1.2.3</b> |
|   | <b>Training &amp; Conferences</b>  |                        |                |
|   | <b>Two physical locations in a direct call</b>   |                        |                |
|   | <b>Three to 20 physical locations in a intra-state bridged call</b>                                      |                        |                |
|   | <b>Three to 60 physical locations in a inter-state bridged call</b>                                      |                        |                |
| <b>SR-3</b>   | <b>Students can participate in audio-graphic training sessions for:</b>                                  |                        |                |
|   | <b>Training</b>  |                        |                |

| RQMTS Number | Requirement   | Additional Information | ORD Reference |
|--------------|---|------------------------|---------------|
|              | <b>Conferences</b>  |                        |               |
|              | <b>Multi-location participation bridging</b>  |                        |               |
|              | <b>Backup to VTC</b>  |                        |               |
| SR-4         | Students can view presentations on large screen monitors under normal classroom lighting.   |                        | 4.1.2.e       |
| SR-5         | Auditorium up to 500 seats  |                        |               |
| SR-6         | Students can participate in two-way video/two-way audio with viewer response devices.   |                        | 4.1.1.b / 1.e |
| SR-7         | Students with normal hearing shall be able to hear audio portion of VTCs  |                        | 1.e           |
| SR-8         | Students can receive one-way video/two-way audio satellite broadcast sessions (delivered via network or satellite).   |                        | 1.e           |
| SR-9         | Students can conduct computer-based training.   |                        |               |
|              | CD-ROM based locally  |                        |               |
|              | Access MOSQ producing TRADOC schoolhouse courseware over the GuardNet (e.g., Reimer Digital Library or ATSC repository)   |                        |               |
|              | the system shall have ability to support streaming video to 2,000 desktops simultaneously at a low bit rate (minimum 128kbps)   |                        |               |
|              | Access to external continuing education facilities or institutions. (e.g., technical schools, colleges, universities)   |                        |               |
|              | Student participation shall be scalable from 1 to 2,000 participants for training sessions, briefings, planning exercises, emergency operations, etc. Minimum number of simultaneous sessions is 8. |                        |               |
| SR-10        | Students can conduct video on-demand training sessions.   |                        |               |
| SR-11        | Students in a DL classroom can record training sessions.  |                        |               |
| SR-12        | Students in a DL classroom can play videotape (VHS) presentations.  |                        |               |

| RQMTS Number | Requirement  | Additional Information | ORD Reference  |
|--------------|--|------------------------|----------------|
| <b>SR-13</b> | <b>Students can digitize and transmit graphics.</b>  |                        | <b>4.3.1.b</b> |
| <b>SR-14</b> | <b>Students can upload and download digitized information.</b>   |                        | <b>4.1.1.a</b> |
| <b>SR-15</b> | <b>Students can print documents.</b>   |                        | <b>1.2</b>     |
| <b>SR-16</b> | <b>Students can copy, fax, and scan documents.</b>   |                        | <b>1.2</b>     |
| <b>SR-17</b> | <b>Each student workstation (either in a classroom or from a RCAS workstation) can access the NIPRNet and commercial Internet with a minimum of 240 kbps throughput per session.</b> |                        | <b>4.1.2.5</b> |
|              |  |                        |                |

## APPENDIX D

### DTTP ACRONYMS AND ABBREVIATIONS

The following list of DTTP acronyms and abbreviations is provided for convenience and for keeping the list up-to-date. Additions or changes to this list may be provided to Roger Bradford, EDS Technical Writer-Editor, 703-262-3550, [roger.bradford@eds.com](mailto:roger.bradford@eds.com):

|      |   |
|------|---|
| AC   | <b>alternating current</b>                                |
| ADA  | <b>American Disabilities Act</b>                          |
| AFB  | <b>Air Force Base</b>                                     |
| AFF  | <b>above the finished floor</b>                           |
| AIS  | <b>Army Information Systems; see “NGB-AIS”</b>            |
| Amp  | <b>amperage</b>   |
| ANG  | <b>Air National Guard</b>                                 |
| APC  | <b>Adaptive Picture Control</b>                           |
| ARNG | <b>Army National Guard</b>                                |
| ARO  | <b>Operations, Training, and Readiness; see “NGB-ARO”</b> |
| ATID | <b>Advanced Technology Integration Demonstration</b>      |
| ATM  | <b>asynchronous transfer mode</b>                         |
| A/V  | <b>audio-visual</b>                                       |
| BAH  | <b>Booz • Allen &amp; Hamilton</b>                        |
| BDC  | <b>backup domain controller</b>                           |
| BOM  | <b>Bill of Materials</b>                                  |
| BRI  | <b>basic rate interface</b>                               |
| BTU  | <b>British Thermal Unit</b>                               |

|                  |  |
|------------------|--|
| C <sup>4</sup> I | <b>Command, Control, Communications, Computers, and Intelligence</b> |
| CAC              | <b>computer-assisted classroom</b>                                   |
| Cat-5            | <b>Category-5</b>  |
| CBT              | <b>computer-based training</b>                                       |
| CCB              | <b>Configuration Control Board</b>                                   |
| CD               | <b>compact disk</b>  |
| CD ROM           | <b>compact disk, read only memory</b>                                |
| CM               | <b>configuration management</b>                                      |
| CMP              | <b>Configuration Management Plan</b>                                 |
| CLIN             | <b>Contract Line Item Number</b>                                     |
| CODEC PC         | <b>compression/decompression personal computer</b>                   |
| COTS             | <b>commercial off-the-shelf (product)</b>                            |
| CPG              | <b><i>DTTP Classroom Preparation Guide</i></b>                       |
| CSU              | <b>channel service unit</b>  |
| CSU/DSU          | <b>channel service unit/data service unit</b>                        |

|        |   |
|--------|---|
| CVW    | <b>Collaborative Virtual Workspace</b>                                  |
| CWR    | <b>courseware</b>   |
| DAR    | <b>Designated Agency Representative</b>                                 |
| DB     | <b>database</b>   |
| DC     | <b>direct current</b>   |
| DD-250 | <b>Department of Defense Form 250</b>                                   |
| DID    | <b>Direct Inward Dial</b>   |
| DISA   | <b>Defense Information Systems Agency</b>                               |
| DL     | <b>Distance Learning</b>  |
| DL POC | <b>Distance Learning Point of Contact</b>                               |
| DLCT   | <b>Distance Learning Collaborative Technologies; see “DTTP”</b>         |
| DLN    | <b>Distance Learning Network; see DTTP</b>                              |
| DM     | <b>distribution matrix</b>  |
| DMMC   | <b>Dual Multi-Media Classroom</b>                                       |
| D.O.   | <b>Delivery Order</b>   |
| DOA    | <b>“dead on arrival”</b>  |
| DOIM   | <b>Director of Information Management</b>                               |
| DR     | <b>Discrepancy Report</b>   |
| DSN    | <b>Defense Switched Network</b>   |
| DSU    | <b>data service unit</b>  |
| DTS-W  | <b>Defense Telecommunications Services - Washington</b>                 |
| DTT    | <b>Distributive Training Technology</b>                                 |
| DTTP   | <b>Distributive Training Technology Program (replaces DLCT and DLN)</b> |
| ECP    | <b>Engineering Change Proposal</b>                                      |
| EDS    | <b>Electronic Data Systems Corporation</b>                              |
| EIA/IS | <b>Electronics Industries Alliance/Interim Standard</b>                 |
| ETA    | <b>estimated time of arrival</b>  |
| ETM    | <b>Ethernet transparency module</b>                                     |

|              |   |
|--------------|---|
| <b>FAR</b>   | <b>Federal Acquisitions Regulations</b>           |
| <b>FDDI</b>  | <b>fiber distribution data interface</b>          |
| <b>FEMA</b>  | <b>Federal Emergency Management Agency</b>        |
| <b>FISP</b>  | <b>Facility Installation Support Plan</b>         |
| <b>FMO</b>   | <b>Facilities Management Officer</b>              |
| <b>FOC</b>   | <b>firm order commitment</b>                      |
| <b>FSIS</b>  | <b>Financial Securities Information Systems</b>   |
| <b>FTE</b>   | <b>full-time equivalent (personnel)</b>           |
| <b>FVC</b>   | <b>First Virtual Corporation</b>                  |
|              |   |
| <b>GFE</b>   | <b>government-furnished equipment</b>             |
| <b>GSA</b>   | <b>General Services Administration</b>            |
| <b>GUI</b>   | <b>graphical user interface</b>                   |
|              |   |
| <b>HD</b>    | <b>hard drive</b>                                 |
| <b>HEAT</b>  | <b>help-desk expert automation tool</b>           |
| <b>HRO</b>   | <b>Human Resources Office(r)</b>                  |
| <b>HTLC</b>  | <b>High-Tech Learning Center (Draper, UT)</b>     |
| <b>http</b>  | <b>hypertext transfer protocol</b>                |
| <b>HVAC</b>  | <b>heating, ventilation, and air conditioning</b> |
|              |   |
| <b>IAW</b>   | <b>in accordance with</b>                         |
| <b>IDA</b>   | <b>Institute for Defense Analysis</b>             |
| <b>IDF</b>   | <b>intermediate distribution frame</b>            |
| <b>IIS</b>   | <b>Integrated Information Services</b>            |
| <b>I-MUX</b> | <b>inverse-multiplexor</b>                        |
| <b>IOC</b>   | <b>initial operating capability</b>               |
| <b>IP</b>    | <b>internet protocol (e.g., IP addresses)</b>     |
| <b>IPT</b>   | <b>Integrated Product Team</b>                    |
| <b>IR</b>    | <b>infrared</b>                                   |

|         |  |
|---------|--|
| IRB     | <b>Internal Review Board</b>                                     |
| ISDN    | <b>Integrated Services Digital Network</b>                       |
| ISP     | <b>internet service provider</b>                                 |
| IV&V    | <b>Independent Verification and Validation</b>                   |
| IWS     | <b>Information Work Space</b>                                    |
|         |  |
| Kbps    | <b>kilobits per second</b>                                       |
| KBps    | <b>kilobytes per second</b>                                      |
|         |  |
| LAN     | <b>local area network</b>  |
| LDP     | <b>Limited Deployment Phase</b>                                  |
| LEC     | <b>local exchange carrier</b>                                    |
| LEDs    | <b>light-emitting diodes</b>                                     |
|         |  |
| Mbps    | <b>megabits per second</b>                                       |
| MBps    | <b>megabytes per second</b>                                      |
| MM      | <b>multi-mode (e.g., MM fiber); multi-media (see MMC)</b>        |
| MMC     | <b>Multi-Media Classroom</b>                                     |
| MOU     | <b>Memorandum of Understanding</b>                               |
| MPEG    | <b>Motion Picture Experts Group</b>                              |
| MSCS    | <b>Microsoft Cluster Server</b>                                  |
| MT      | <b>mini-tower</b>  |
| MTC     | <b>Medium Trainer Classroom</b>                                  |
| MUX     | <b>multiplexing equipment</b>                                    |
| MVIP    | <b>multi-vendor integration protocol</b>                         |
|         |  |
| N/A     | <b>not applicable</b>  |
| NG      | <b>National Guard</b>  |
| NGB     | <b>National Guard Bureau</b>                                     |
| NGB-AIS | <b>National Guard Bureau—Army Information Systems</b>            |
| NGB-ARO | <b>National Guard Bureau—Operations, Training, and Readiness</b> |

---

|                |   |
|----------------|---|
| <b>NGB-PEC</b> | <b>NGB Professional Education Center</b>                  |
| <b>NGBRC</b>   | <b>National Guard Bureau Readiness Center</b>             |
| <b>NIC</b>     | <b>network interface card</b>                             |
| <b>NICI</b>    | <b>National Interagency Counter-drug Institute</b>        |
| <b>NIT</b>     | <b>Network Installation Team</b>                          |
| <b>NMLI</b>    | <b>native mode LAN interface</b>                          |
| <b>NOC</b>     | <b>NGB Network Operations Center</b>                      |
| <b>NOR</b>     | <b>Notice of Revision</b>                                 |
| <b>NPA/NNX</b> | <b>National Public Area Code/National Number Exchange</b> |
| <b>NSACC</b>   | <b>Network Scheduling and Control Center</b>              |
| <b>NSU</b>     | <b>Network Shared Usage</b>                               |
| <b>NTSC</b>    | <b>National Television Standards Committee</b>            |
|                |   |
| <b>ODC</b>     | <b>other direct costs</b>                                 |
| <b>OEM</b>     | <b>original equipment manufacturer</b>                    |
| <b>ORD</b>     | <b>Operational Requirements Document</b>                  |
|                |   |
| <b>PBX</b>     | <b>private branch exchange</b>                            |
| <b>PDC</b>     | <b>primary domain controller</b>                          |
| <b>PEC</b>     | <b>Professional Education Center; see NGB-PEC</b>         |
| <b>PIP</b>     | <b>picture-in-picture</b>                                 |
| <b>POC</b>     | <b>point of contact</b>                                   |
| <b>POP</b>     | <b>point of presence</b>                                  |
| <b>POTO</b>    | <b>Plans, Operations, and Training Office(r)</b>          |
| <b>POTS</b>    | <b>plain old telephone service</b>                        |
| <b>PRI</b>     | <b>primary rate interface</b>                             |
| <b>PVC</b>     | <b>permanent virtual channel</b>                          |
|                |   |
| <b>QoS</b>     | <b>Quality of Service</b>                                 |
|                |   |
| <b>RAM</b>     | <b>random access memory</b>                               |

|           |  |
|-----------|--|
| R/C       | <b>Readiness Center</b>  |
| RCAS      | <b>reserve component automated system</b>                            |
| RF        | <b>radio frequency</b>   |
| RFD       | <b>Request for Deviation</b>   |
| RFW       | <b>Request for Waiver</b>  |
| RMA       | <b>Request for Maintenance Action; Return Material Authorization</b> |
| RO        | <b>receive-only</b>  |
| ROM       | <b>read-only memory</b>  |
| RPM       | <b>rate pacing module</b>  |
| RTI       | <b>Regional Training Institute</b>                                   |
|           |  |
| SCN       | <b>Specification Change Notice</b>                                   |
| SDP       | <b>service delivery point</b>  |
| SIMCMDCTR | <b>Simulation Command Center</b>                                     |
| SMP       | <b>Symmetric Multi-Processing</b>                                    |
| SNET      | <b>Southern New England Telecommunications</b>                       |
| SNMP      | <b>Simple Network Management Protocol</b>                            |
| SOW       | <b>Statement of Work</b>   |
| SPAWAR    | <b>Space and Naval Warfare Systems Command</b>                       |
| SPC       | <b>Software Productivity Consortium</b>                              |
| SPPG      | <b><i>NGB DTTP Site Planning and Preparation Guide</i></b>           |
| SQPB      | <b>S-VHS Quasi Play Back</b>   |
| SSQ       | <b>Site Survey Questionnaire</b>                                     |
| SSQR      | <b>Site Survey Questionnaire/Report</b>                              |
| SSR       | <b><i>NGB DTTP Site Survey Report</i></b>                            |
| SSV       | <b><i>NGB DTTP Site Survey Verification Report</i></b>               |
| ST        | <b>shielded twisted</b>  |
| STARC     | <b>State Area Command</b>  |
| STC       | <b>Single Trainer Classroom</b>                                      |
| SVGA      | <b>super video gate array</b>  |

|          |   |
|----------|---|
| TAG      | <b>The Adjutant General</b>                                     |
| TASS     | <b>Total Army School System</b>                                 |
| TBD      | <b>to be determined</b>   |
| TDY      | <b>temporary duty</b>   |
| TELCO    | <b>telephone/telecommunications company; telecommunications</b> |
| TSC      | <b>Technical Support Center</b>                                 |
|          |   |
| UPS      | <b>uninterrupted power supply</b>                               |
| USP&FO   | <b>United States Property &amp; Fiscal Office</b>               |
| UTP      | <b>unshielded twisted pair</b>                                  |
|          |   |
| V        | <b>volts</b>  |
| VAC      | <b>volts, alternating current</b>                               |
| V-Cache  | <b>Video Cache</b>  |
| V-Caster | <b>Video caster</b>   |
| VCR      | <b>Video Cassette Recorder</b>                                  |
| VGA      | <b>video gate array</b>   |
| V-Gate   | <b>Video Gateway</b>  |
| VLS      | <b>video locator server</b>                                     |
| VTC      | <b>video teleconference; video teleconferencing</b>             |
| VTT      | <b>video Tele-Trainer; Video Tele-Training</b>                  |
|          |   |
| WAN      | <b>wide area network</b>  |
| WBS      | <b>Work Breakdown Structure</b>                                 |
| WMD      | <b>Weapons of Mass Destruction</b>                              |
| www      | <b>worldwide web</b>  |

## Appendix E

### Priorities for Functional Requirements

| Number           | Description                        | Priority 1 | Priority 2 | Priority 3 | Priority 4 |
|------------------|------------------------------------|------------|------------|------------|------------|
| <b>2.1.a</b>     | <b>Learning environment</b>        |            | <b>X</b>   |            |            |
| <b>2.1.b</b>     | <b>simulations</b>                 |            | <b>X</b>   |            |            |
| <b>2.1.1.a</b>   | <b>Read graphics</b>               | <b>X</b>   |            |            |            |
| <b>2.1.1.b</b>   | <b>Hear audio</b>                  | <b>X</b>   |            |            |            |
| <b>2.1.1.c</b>   | <b>auditoriums</b>                 |            | <b>X</b>   |            |            |
| <b>2.1.1.d</b>   | <b>Studio quality video</b>        | <b>X</b>   |            |            |            |
| <b>2.1.1.e</b>   | <b>Multi-point video</b>           | <b>X</b>   |            |            |            |
| <b>2.1.1.f</b>   | <b>Audio back up</b>               | <b>X</b>   |            |            |            |
| <b>2.1.1.g</b>   | <b>Audio conferencing</b>          | <b>?</b>   | <b>?</b>   |            |            |
| <b>2.1.1.h</b>   | <b>Mobile VTC</b>                  |            | <b>X</b>   |            |            |
| <b>2.1.1.i</b>   | <b>Courseware origination</b>      |            | <b>X</b>   |            |            |
| <b>2.1.2.a</b>   | <b>Any time, any where</b>         |            |            | <b>X</b>   |            |
| <b>2.1.2.b</b>   | <b>Internet access</b>             |            | <b>X</b>   |            |            |
| <b>2.1.2.c</b>   | <b>Access MPEG-1</b>               |            |            | <b>X</b>   |            |
| <b>2.1.2.d</b>   | <b>Satellite to the desktop</b>    |            |            | <b>X</b>   |            |
| <b>2.1.2.e</b>   | <b>Satellite to the classroom</b>  |            | <b>X</b>   |            |            |
| <b>2.1.2.f</b>   | <b>Stream video</b>                |            | <b>X</b>   |            |            |
| <b>2.1.3.a</b>   | <b>14/7 - 24/7</b>                 | <b>X</b>   |            |            |            |
| <b>2.1.3.b</b>   | <b>AIS maintenance</b>             | <b>X</b>   |            |            |            |
| <b>2.1.3.c</b>   | <b>Technical training</b>          | <b>X</b>   |            |            |            |
| <b>2.1.3.d</b>   | <b>Replace critical components</b> | <b>X</b>   |            |            |            |
| <b>2.1.4</b>     | <b>Standardization</b>             | <b>X</b>   |            |            |            |
| <b>2.1.5</b>     | <b>Compatibility</b>               | <b>X</b>   |            |            |            |
| <b>2.1.6.1.a</b> | <b>First line tech support</b>     | <b>X</b>   |            |            |            |
| <b>2.1.6.1.b</b> | <b>Perform maintenance</b>         | <b>X</b>   |            |            |            |

|           |                                   |   |   |  |  |
|-----------|-----------------------------------|---|---|--|--|
| 2.1.6.1.c | Verify operability                | X |   |  |  |
| 2.1.6.1.d | Resolve problems                  | X |   |  |  |
| 2.1.6.2.a | TRADOC Certified                  | X |   |  |  |
| 2.1.6.2.b | Certified instructor              | X |   |  |  |
| 2.1.6.2.c | Operate equipment                 | X |   |  |  |
| 2.1.6.2.d | SME                               | X |   |  |  |
| 2.1.6.2.e | Give exams                        | X |   |  |  |
| 2.1.6.2.f | Assist conduct of course          | X |   |  |  |
| 2.1.6.2.g | Administrative tasks              | X |   |  |  |
| 2.1.7.a   | Bridge to 56 locations            | X |   |  |  |
| 2.1.7.b   | Availability of 99.95%            | X |   |  |  |
| 2.1.7.c   | 14/7 – 24/7                       | X |   |  |  |
| 2.2.1.a   | Store multi-media                 | X |   |  |  |
| 2.2.1.b   | Graphical interface               | X |   |  |  |
| 2.2.1.c   | NTC and JRTC                      | X |   |  |  |
| 2.2.1.d   | scheduling                        | X |   |  |  |
| 2.2.1.e   | Distribute courseware             | X |   |  |  |
| 2.2.1.f   | Other than traditional classrooms | X |   |  |  |
| 2.2.1.g   | Store and retrieve                | X |   |  |  |
| 2.2.1.h   | Access to repositories            | X |   |  |  |
| 2.2.2.a   | Separate facility                 |   | X |  |  |
| 2.2.2.b   | Ease of use                       |   | X |  |  |
| 2.2.2.c   | Quality video camera              |   | X |  |  |
| 2.2.2.d   | Virtual set                       |   | X |  |  |
| 2.2.2.e   | Quality lighting                  |   | X |  |  |
| 2.2.2.f   | Teleprompter                      |   | X |  |  |
| 2.2.2.g   | Scan converter                    |   | X |  |  |
| 2.2.3.a   | Meter use                         | X |   |  |  |
| 2.2.3.b   | Report use                        |   | X |  |  |

|         |                              |   |   |  |  |
|---------|------------------------------|---|---|--|--|
| 2.2.3.c | De-conflict schedules        | X |   |  |  |
| 2.2.3.d | Track enrollment             | X |   |  |  |
| 2.2.3.e | Track status                 | X |   |  |  |
| 2.2.3.f | Validate ATRRS registration  |   | X |  |  |
| 2.2.3.g | Point of presence            |   | X |  |  |
| 2.2.4.a | Two-way audio and video      | X |   |  |  |
| 2.2.4.b | One-way video, two-way audio | X |   |  |  |
| 2.2.4.c | One-way audio and video      | X |   |  |  |
| 2.2.4.d | Record sessions              |   | X |  |  |
| 2.2.4.e | Generate files               | X |   |  |  |
| 2.2.4.f | Access video                 |   | X |  |  |
| 2.2.4.g | Print, fax, scan, copy       | X |   |  |  |
| 2.2.4.h | Access internet, NIPRNet     | X |   |  |  |
| 2.2.4.i | Virtual set                  | ? | ? |  |  |
| 2.2.4.j | Display instructor image     | X |   |  |  |
| 2.2.4.k | White board                  | ? | ? |  |  |
| 2.2.4.l | Audio over room audio        | ? | ? |  |  |
| 2.2.4.m | Student mike over room audio | ? | ? |  |  |
| 2.2.5.a | Access courseware            | X |   |  |  |
| 2.2.5.b | Collaborative work           |   | X |  |  |
| 2.2.5.c | View VHS                     |   | X |  |  |
| 2.2.5.d | Access video                 | X |   |  |  |
| 2.2.5.e | One- or two-way VTC          | ? | ? |  |  |
| 2.3.1.a | C2                           |   | X |  |  |
| 2.3.1.b | Digital signatures           |   | X |  |  |
| 2.3.1.c | Access to repositories       |   | X |  |  |
| 2.3.1.d | SBU protection               | X |   |  |  |

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|                |                                    |          |          |          |  |
|----------------|------------------------------------|----------|----------|----------|--|
| <b>2.3.1.e</b> | <b>User Identification</b>         | <b>X</b> |          |          |  |
| <b>2.3.2.a</b> | <b>storage</b>                     | <b>X</b> |          |          |  |
| <b>2.3.2.b</b> | <b>Physical security</b>           |          | <b>?</b> | <b>?</b> |  |
| <b>2.3.2.c</b> | <b>Objective Collateral secret</b> |          | <b>X</b> |          |  |
| <b>2.3.2.d</b> | <b>Specified set of classrooms</b> |          | <b>X</b> |          |  |
| <b>2.3.2.e</b> | <b>Intrastate secret</b>           |          | <b>X</b> |          |  |
| <b>2.4.1</b>   | <b>RCAS</b>                        | <b>X</b> |          |          |  |
| <b>2.4.2.</b>  | <b>ATRRS interface</b>             |          |          |          |  |
| <b>2.4.2.a</b> | <b>Register soldiers</b>           | <b>X</b> |          |          |  |
| <b>2.4.2.b</b> | <b>Schedule</b>                    | <b>?</b> | <b>?</b> |          |  |
| <b>2.4.2.c</b> | <b>Verify enrollment</b>           | <b>X</b> |          |          |  |
| <b>2.4.2.d</b> | <b>Report progress</b>             | <b>X</b> |          |          |  |
| <b>2.4.2.e</b> | <b>RDL, ADTDL, TRADOC</b>          | <b>X</b> |          |          |  |
| <b>2.4.3.a</b> | <b>ACES</b>                        |          | <b>X</b> |          |  |
| <b>2.4.3.b</b> | <b>AUOL</b>                        |          | <b>X</b> |          |  |
| <b>2.5.a</b>   | <b>State networks</b>              | <b>X</b> |          |          |  |
| <b>2.5.b</b>   | <b>Emergency locations</b>         | <b>?</b> | <b>?</b> |          |  |
| <b>2.5.c</b>   | <b>Bridging to state networks</b>  |          | <b>X</b> |          |  |
| <b>2.5.d</b>   | <b>Record emergency operations</b> |          | <b>X</b> |          |  |
| <b>2.6.a</b>   | <b>User profile</b>                | <b>X</b> |          |          |  |
| <b>2.6.b</b>   | <b>Track use</b>                   | <b>X</b> |          |          |  |
| <b>2.6.c</b>   | <b>Bill use</b>                    | <b>?</b> | <b>?</b> |          |  |
| <b>2.6.d</b>   | <b>Multiple operating systems</b>  |          |          | <b>X</b> |  |
|                |                                    |          |          |          |  |
|                |                                    |          |          |          |  |