DEPARTMENT OF THE NAVY

Space and Naval Warfare Systems Center San Diego
Real-time Targeting and Retargeting (RTR)
Software Design / Development Support

STATEMENT OF WORK
18 Aug 2003

1.0 SCOPE

1.1 Introduction

The Space and Naval Warfare Systems Center San Diego (SSC-SD), Code 245, has developed the Real-time Targeting and Retargeting (RTR) Program to support the transfer of RTR information using military data links among the Joint Forces Air Component Commander (JFACC), Tactical Aircraft (Strike) assets and other associated battle group Strike C4I systems. This includes the research and development through product implementation, the integration and/or development of the functional interfaces/components that combine live entities/simulations into a synthetic environment, and technical and engineering expertise to satisfy high priority Strike C4I requirements established by the Fleet. The RTR environment consists of distributed and collaborative functionality, Human Cognitive Interfaces, integration of simulation tools, decision aids, communications architecture, and an Enterprise Application Integration (EAI) infrastructure designed to support sharing of information at various levels of the command structure.

1.2 Background

1.2.1 RTR support includes Strike assets and other associated battle group Strike C4I systems. The RTR laboratory equipment can serve in the evaluation of Strike and C4I capacity in a controlled, repeatable environment. This environment can include tactical data exchange simulations and stimulation and data extraction of live tactical data. The three–tier concept is: Tier 1 - Shipboard or Land-based Reconfigurable Operations Center (i.e., Enterprise Architecture, Mission Management, Integrated Decision Support, Supporting Hardware); Tier 2 - Communications/Information Technologies Spectrum Manager; and Tier 3 - Warfighter's Airborne Mission Management System with the Warfighter Virtual Assistant (WVA) a Portable C4I ("Brick"). These software tools can serve as foundation for development of Real-time execution assessment and tactical decision aids. Live data would be exchanged between operational land, air, and sea platforms; then distributed to the Host and Combat systems through the existing land-based infrastructures.

1.2.2 The Real-time Execution Decision Support (REDS) consists of Information Management, Dynamic Decision Support, and Spectrum Management. This component of RTR will develop a capability to transparently share tactical information with multiple users in a dynamic Radio Frequency (RF) and/or Local Area Network (LAN), provide a capability to reach out and pull tailored tactical information and products, provide a secure method of supporting tactical users,

sensors, and in-flight weapons platforms with information updates, and will provide an information management and decision support capability for options generation, re-planning and re-tasking tactical aircraft and sensors.

1.2.3 Object Oriented technologies and software applied include: Distributed computing processing; Optimization algorithms; Computer automation Software Agents Database management; Gas Plasma Touchscreen display technology; Real-time operating systems; Dynamic protocol applications- (manage RF, policy based heuristics, datalinks, lan / select best route for sending information to assure and maintain connectivity); and Enterprise architecture.

1.2.4 RTR Enterprise Software Environment (Middleware) includes: Microsoft Windows NT 4.0 for Intel; Microsoft Windows 2000 for Intel; HP 11.X, Solaris/SPARC 2.7, 8; RedHat 7.0 (Intel); and WEB Logic 8.1.

1.3 Objective

This Statement of Work (SOW) describes required efforts for supporting the research, analysis, design, modification, documentation, configuration management, and engineering support services provided by SSC-SD in support of the RTR program. This SOW includes efforts to support research and development within science and technology paradigms, develop, analyze and identify software and hardware requirements, recommend specifications and implementation plans, and develop and implement software and hardware prototype and production systems. This SOW provides the engineering support services related to growth, maintenance, modification, and use of the RTR software and equipment.

The following requirements are applicable to all different classes of ships, aircraft, and shore activities, either domestic or foreign:

a. RTR research and development to support TADIL and C4I systems integration efforts.
b. RTR software development and equipment development to support TADIL and C4I systems integration efforts.
c. RTR software development and equipment development to support TADIL and C4I systems interoperability tests.
d. RTR software development and equipment development to support an evaluation plan.
e. RTR software operation and equipment operation to support a maintenance plan.
f. RTR software and equipment improvements.
g. RTR equipment software design and development.

2.0 APPLICABLE DOCUMENTS

2.1 The following documents form a part of this SOW to the extent specified herein and by individual task orders.

2.2 Order of precedence. In the event of a conflict between the text of this SOW and the references cited herein, the text of this document shall take precedence. Nothing in this

document, however, shall supersede applicable laws and regulations, unless a specific exemption has been obtained.

2.3 Specifications

2.3.1 Navy Center for Tactical Systems Interoperability

OS 516.2	Link-16 Operational Specification

2.3.2 Joint Interface Test Center - Joint Interoperability and Engineering Organization

TADIL DERG	Tactical Digital Data Link Data Extraction & Reduction Guide Joint I

2.3.3 National Institute of Standards & Technology (NIST)

FIPS PUB 31	Federal Information Publication Service Guidelines for ADP Physical Security and Risk Management

2.3.4 North Atlantic Treaty Organization (NATO)

a. STANAG 4175	Technical Characteristics of the Multifunctional Information Distribution System (MIDS)
b. STANAG 5516	Tactical Data Exchange - Link 16
c. STANAG 5602	Standards for Interconnecting Multiple Platforms for Link Evaluation
d. STANAG 5616	Standards for Data Forwarding Between Tactical Data Systems Employing Digital Data Link 11/11B and Link 16

2.4 Military Standards

a. MIL-STD-1553B	Digital Time Division Command/Response Multiplex Data Bus
b. MIL-STD-6016A	Tactical Digital Information Link (TADIL) J Message Standard

3.0 TECHNICAL REQUIREMENTS

The following tasks describe the type of work required to support SPAWARSYSCEN SD. The specific work to be accomplished will be identified in individual task orders. These tasks are limited to RTR Program software and equipment.

3.1 Systems Engineering

The contractor shall:

a. Perform analysis, definition, design, development, configuration management, testing, installation, integration, and maintenance in accordance with applicable engineering techniques.

b. Review suggested engineering changes and recommend their acceptance/rejection based on current system definition.

c. Define the configuration of RTR software and equipment.

d. Provide Configuration Management for RTR software and equipment.

e. Research identified problems, determine solutions and articulate those solutions at technical interchange meetings.

f. Identify technical assets required for resolving problems or system modifications.

g. Provide for formal RTR related technical/program reviews by preparing technical material and/or presenting the material at the reviews.

3.2 Design

The contractor shall:

a. Analyze concept, operational, functional and performance requirements specified by the Government.

b. Identify and provide competing software and hardware to meet RTR requirements.

c. Compare alternative Government-provided design approaches.

d. Define and document (configuration control) the selected design.

3.3 Development

The contractor shall:

a. Analyze interface requirements.

b. Recommend a detailed approach for accomplishing development.

c. Recommend detailed system components to implement development (system components include computer hardware, software, firmware, cable assemblies, circuit boards, wiring, and peripheral devices).

d. Assemble or modify system/subsystem components.

e. Provide and develop new RTR software, and/or modify RTR software.

f. Integrate and provide software and hardware in accordance with design.

g. Provide support system/subsystem/software test plans and test procedures.

3.4 Installation

The contractor shall:

a. Identify/provide/develop requisite material/software to accomplish the installation and validation of the installed system.

b. Prepare the installation design, plans, and detailed installation schedule to meet program schedule and requirements.

c. Conduct pre-installation checkout and testing of systems/subsystems and/or software.

d. Determine detailed installation support requirements.

e. Develop pre-, post-, and installation testing and validation processes and documentation.

f. Deliver completed systems/subsystems/accessories/software, installation tools/material, and appropriate documentation to installation sites.

g. Conduct all installation work in accordance with prescribed Government instructions, specifications, engineering drawings, and supporting documents.

h. Install systems/subsystems/equipment/software, or provide installation support.

i. Interface the system/subsystem/equipment/unit being installed with existing system(s).

j. Test system/subsystems/components to validate phases and completion of installation.

k. Provide post-installation configuration control.

3.5 Integration

The contractor shall:

a. Install software into RTR hardware systems and integrate the RTR into host site training and C4I systems.

b. Ensure operational performance of each part of the integrated RTR training/C4I system.

c. Perform operational tests at the host sites to ensure operational performance of the RTR training/C4I system.

d. Identify/resolve interoperability problems encountered with the RTR training/C4I system.

3.6 Testing

The contractor shall:

a. Develop comprehensive testing programs.

b. Establish test scenarios.

c. Execute testing.

d. Collect test data.

e. Analyze test results.

3.7 Operations

The contractor shall:

a. Configure RTR equipment to site-unique requirements as detailed in individual Task Orders.

b. Provide continuous logistics support such as equipment maintenance and repairs as well as software updates for the RTR equipment, wherever installed.

c. Provide technical support of RTR equipment.

3.8 Training and Demonstration

The contractor shall prepare for and conduct technical demonstrations, technical training, on-the-job training, and operational training in support of RTR software and equipment.

3.9 Reports, Data, and Other Deliverables

The contractor shall deliver data products resulting from work performed under this SOW as identified in the attached DD Form 1423, Contract Data Requirements List (CDRL), Exhibits A and as specified under individual delivery/task orders.

4.0 Other

4.1 Security

Contractor personnel assigned under this SOW must have a U.S Government Secret clearance in accordance with the attached DD Form 254, Contract Security Classification Specification, or as specified under the individual delivery/task orders.

4.2 Travel

The contractor must provide personnel that are available for business travel to other U.S Government facilities within the US (CONUS) and outside CONUS. Required travel is not expected to exceed:

75 trips of 5 days each for 1 person from SSC-SD to Washington, DC. (or other CONUS)
25 trips of 10 days each for 1 person from SSC-SD to Bahrain (or other NON-CONUS)