



LEADERSHIP STATEMENT

Mission

XPRT's mission is to serve our armed forces and the defense community with its in-depth expertise in computer networking, communications protocols, and Modeling & Simulation (M&S).

Goals & Vision

XPRT's primary goal is to be an R&D powerhouse, with mostly research focused contracts on the cutting edge of technology.

Supporting Principles

XPRT's principle is to support the Warfighter as a C4ISR capability focused contractor.

Values

XPRT sees the Warfighters accomplishing their mission as its ultimate customers. Through its C2 capabilities, XPRT helps the Warfighters achieve their needs for reliable and timely communications even under adverse conditions.

CORE COMPETENCIES

XPRT's core competencies lie in providing its customers with the following capabilities:

Systems Engineering and Analysis of Network Performances

- » Development of network architectures
- » Analyzing network performances under different conditions
- » Development and review of system and test requirements
- » Systems Engineering support to Program/Product Managers

Software Development of Network M&S and Test Tools

- » Development of representations of radios and applications in an M&S environment
- » Development of network emulators for testing large scale networks with the least amount of equipment
- » Providing traffic generators and test applications to exercise a network

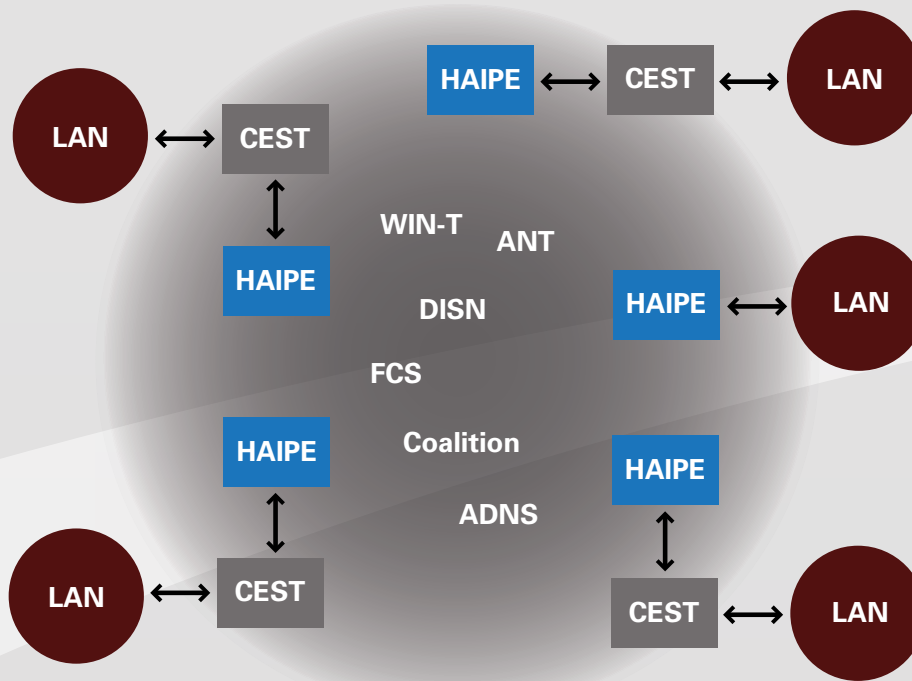
Quality of Service and Network Performance Research

- » Development of new approaches and products for providing QoS, and better voice and video performance over constrained network resources
- » Development of Comprehensive Edge Solution Technology (CEST) to address QoS over a HAIPE backbone

Technology

Scalability Testing

XPRT has developed the ITL-GW (In-The-Loop Gateway) technology to bring "Live and Virtual" under one umbrella, and to create distributed simulation capabilities. With the ITL-GW product, XPRT possesses the technical capability to support testing and evaluation of a large communications network. ITL-GW offers great cost saving to the Government organizations that plan, design, and evaluate such a large system. XPRT's technology enables bringing live and virtual network together in a distributed simulation environment. It also provides development cost savings since the simulation code is directly used as product code.



R&D

SNPT (SATCOM Network Planning Toolset) Development

SNPT includes SATCOM Analysis Model and OPNET Simulation Model applicable to various SATCOM networks. SNPT is a Windows® Applications Software Package consisting of models representing and analyzing SATCOM traffic, resources, and the plan. The OPNET Models consist of node process models representing SATCOM networking components including terminals, resource management, traffic generator, TDMA slot allocation, etc. The major toolset features and the associated impacts include:

- » Providing accurate SATCOM planning and analysis models
- » Capability to automatically generate a high-fidelity discrete event simulation scenario in accordance with the SATCOM system planned by the SNPT
- » Capability to integrate other OPNET network models
- » Implementing SATCOM transmission model to execute a discrete event simulation efficiently
- » Inclusion of SATCOM Systems and Products database to fetch accurate system characteristics
- » Capability to facilitate planning a very large network by grouping remote terminals

CEST (Comprehensive Edge Solution Technology) Product Line

CEST (Comprehensive Edge Solution Technology), XPRT's flagship Product Suite, is a cutting-edge technology offering a modular collection of Quality of Service (QoS) and resource management edge functions that can be enabled based on customer needs. CEST products allow fair sharing of network resources and efficient utilization of limited bandwidth, assuring QoS for critical information.

CEST recently moved from R&D to a product phase. CEST-Voice product encompasses the techniques of VoIP compression and robustness, and is currently deployed at Bagram AF Base, Afghanistan. This VoIP booster has been proven to optimize the use of the encrypted core's limited BW, even under adverse conditions. CEST products under planning and development presently include CEST-Data, CEST-Video and CEST-Security. The CEST Product Suite offers a full range of edge functions to help the Warfighter achieve the mission's needs under limited BW links and high packet loss due to unreliable links.

Following some initial IRAD funding, CEST work has been jointly sponsored by the Army and the Air Force. It has the potential of being the tactical edge SW router all across the GIG. The product can be considered to be at TRL 6 and is being targeted to be deployed at the next On-the-Move (OTM) testbed at Ft. Dix, NJ.

Major features and capabilities include:

- » VoIP Booster, which can achieve excellent VoIP quality even if the packet loss ratio is as high as 60%.
- » VoIP Compressor, which can achieve a compression gain as high as 4.8.
- » Data Robustness, which allows the receiving end of the proxy TCP session to recover lost packets from the redundancy packets using a unique form of RS coding with packet erasures.
- » Data Compression, which exploits any compression gain that can be achieved from the TCP payloads as they are being proxied.

PRODUCTS / SERVICES

Scope of Services

XPRT provides the following types of services, which are offered separately or in combination across our customer base: engineering consulting, Modeling & Simulation (M&S), Research & Development, Integration & Test, other Technical and Professional Services. The organization has unique in-depth knowledge of commercial and military communication systems, which gives it the ability to solve the most complex problems, and to deliver on and exceed customers' expectations.

Product range

UHF SATCOM Frequency Reuse Planning Tool

Under an SBIR Contract from Navy SPAWAR, XPRT has been developing this tool, which enables frequency reuse for Navy's (and Joint Force's) UHF SATCOM (such as UFO, LEASAT, and later MUOS). XPRT has developed and demonstrated a prototype tool, which showed how reusable frequencies are identified for an existing frequency apportionment plan, and that the tool is readily applicable to practical operation. In support of the frequency reuse operation, the Tool's capabilities and features include UHF SATCOM Link Analysis that enable accurate prediction of the link performances, accepting various frequency allocation schemes (in operational areas, operational period, and terminal/system characteristics), searching and identifying reusable frequencies and analyzing the interferences accordingly.

In The Loop Gateway (ITL-GW)

ITL-GW is a PC based capability for simulating complex heterogeneous networks. It allows a mixture of live and virtual network nodes to play together, and is targeted for in-lab use, field events, and distributed testbed/environment. Its packet based technology allows seamless integration with real radios and real networking equipment, supporting playback of recorded traffic from field events. ITL-GW's modular and highly scalable design allows easy expansion to new waveforms and networks, enabling Distributed and Parallel Processing across one machine with multiple processors and also across multiple machines on the same rack. It is designed to bridge the gap between simulation, and test and evaluation in complex systems.

IPv4/IPv6 Test Tool

XPRT's IPv4/IPv6 Test Tool is a Linux Based Tool that has been developed to allow the IP user to create and execute complex IPv4/IPv6 test cases. It can evaluate system functionality and performance, and permits faster debugging of intricate problems. It emulates realistic as well as worst-case scenarios and provides benchmark measurements, serving to qualify the system under test during development, quality assurance, and final regression testing. The comprehensive protocol support allows the user to test with a single application and an easy to use GUI, reducing the learning curve. As the IP networks migrate from IPv4 to IPv6, this device will facilitate the migration testing through its dual-stack IPv4 and IPv6 traffic generation.

The major components of the Tool include: a Traffic Generator capability that allows all hosts in a network to be centrally configured, a Traffic Analyzer capability that allows users to harvest transmit and receive log information from all nodes in the network both manually upon command or automatically at a pre-determined time after execution of the test, and TG/TA capability to be run via either Command Script or via the GUI.

RBCI GUI Tool

The Radio Based Combat ID (RBCI) GUI Tool is an Interrogation/Response System that is used to verify the presence of friendly units within a target area. It can also be used to track specific friendly units of interest. XPRT developed this Windows operating system based tool in support of the Army, and is currently supporting its deployment for a number of customer applications.



REPRESENTATIVE PROJECTS

Multilayer Real-Time Simulation (MrSim) with Parallel Processing

XPRT's ITL-GW product is able to break down (at the IP level) a large scale model over different server blades at the subnet level (in addition to being able to connect real and virtual entities seamlessly). ITL-GW connects the different subnets and makes them run as if they were over one server, i.e., it enables distributed processing of a large scale model.

XPRT is currently developing the next level of technology, which enables parallel processing, i.e., breaking down the model on one server blade over different processors. This combination of distributed and parallel processing has the potential to make XPRT a pioneer in the large scale simulation/testing field.

MARKETS / CUSTOMERS

Government

- » PM NSI NAIL
- » PM NSI SETA (Sensor Tech, Inc.)
- » PM TRCS/ITT
- » PM GMR
- » PM FBCB2
- » CECOM/CERDEC – M&S branch
- » CECOM/CERDEC – NETOPS branch
- » CECOM/CERDEC – IA branch
- » SPAWAR PMW 146
- » SPAWAR HQ
- » AFRL
- » PM HMS

Private

- » Lockheed Martin for the AMF JTRS Tier 2 Simulator
- » Small Tree Corporation



PROFILE

XPRT Solutions, Inc. (XPRT) is a wholly owned subsidiary of DSCI. Since its inception in the year 2001 as an engineering technology company, it has become a well diversified organization with activities in engineering consulting, Modeling & Simulation (M&S), Research & Development, Integration & Test, as well as patents, development, and research publications. XPRT members have unique in-depth knowledge of commercial and military communication systems, which gives them the ability to solve complex engineering problems. XPRT Solutions, Inc. was named as one of the top 100 diversity-owned and small businesses in the State of New Jersey for two consecutive years (2004 and 2005).

Core Advantages

XPRT holds a TOP SECRET Facility Clearance Level (FCL). The facility contains approximately 27,000 square feet of space currently supporting Systems Engineering, Modeling & Simulation (M&S), hardware and software design/fabrication, analyses, concept development, advanced research prototype fabrication, test/experimentation, training, and Information Assurance activities. The layout of the facility contains a classified processing lab, three (3) large conference rooms (available to support meetings, technical interchange meetings, program reviews, etc.), and over 4,000 ft² of laboratory space, which includes Information Assurance Lab, C4ISR Technology and Simulation Lab, Advanced Physics Lab, and 3D Rendering / Graphics Technology Lab.

These facilities meet environmental laws and regulations of federal, state (NJ), and local Governments for, but not limited to, the following groupings: airborne emissions, waterborne effluents, external radiation levels, outdoor noise, solid and bulk waste disposal practices, and handling and storage of toxic and hazardous materials.

Security Clearance

Most of XPRT employees hold SECRET or TOP SECRET Clearance.

Value Proposition

XPRT's extensive experience maximizes value and minimizes risk for our clients through:

- » Extensive operational knowledge of military communications systems
- » In-depth analytical capabilities
- » Independent Verification & Validation (IV&V) capabilities
- » Extensive military communications modeling experience
- » Expertise in systems engineering and test & evaluation (T&E)
- » Early identification of problems and risks
- » Support to lifecycle engineering process
- » Proficiency with M&S tools including OPNET
- » Ultimate generation of high-level system model

Our Team's M&S communications experience in complex systems enables us to identify and address problems in advance. In so doing, we actually reduce the cost of testing, improve performance verification and lower the risk.



CONTACT INFO

XPRT Solutions, Inc.
12 Christopher Way, Suite 301
Eatontown, NJ 07724

Dr. George Elmasry, President
(732) 542-3113 x123