New Advanced Operations Center to Serve as Prototype for Armed Forces

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"The beauty of the Jupiter display wall controller is that it helps us synthesize some 18 displays or any combination of them onto a single screen and see a situation more clearly, evaluate it quickly, and communicate that information more effectively to our commander."

—Major Tim Sellers, Deputy G6, 263rd Army Air and Missile Defense Command

Background
The Air and Missile Defense Command and Control Systems (AMDCCS), based in Huntsville, Alabama, is an office under the Project Manger for Tactical Operations Centers (PMTOC), responsible for helping the Army to defend against theater ballistic missiles.

In 2001 the AMDCCS was tasked with providing equipment to the 263d AAMDC (Army Air and Missile Defense Command) that would serve as a prototype for air and missile defense command and control operations around the world. In response to the events of September 11, 2001, work on this prototype was accelerated, and the AMDCCS worked with Northrop Grumman (formerly TRW) to develop the new advanced operations center known as the AMDPCS (Air and Missile Defense Planning and Control System).

State of the art
The new center's planning and control systems provide access to tactical and strategic communications, tactical data links, and intelligence networks, allowing the commander and his staff to manage all aspects of air and missile defense. Integrated with the latest in communications technologies, the system allows interoperability with joint and coalition forces. This state-of-the-art system was developed in less than a year -- record time -- with commercial off-the-shelf equipment. Delivered to the 263rd AAMDC, based in Anderson South Carolina in the Spring of 2002, it enables the unit to deploy anywhere in the world to support theater air and missile defense missions.

System Requirements
Prior to installing the Jupiter controllers, the AAMDC had no way to share valuable data among different functions in their tactical operations center (TOC), except by walking over to individual consoles where one group's information was displayed. If a commander wanted to see an overall picture of his command, he would be forced to look at data on multiple, monitors in different locations within the TOC. Additionally, critical, real-time video and resources could be found in only one area of the operations center.

The new display system had to address these limitations and be easy-to-use, fault tolerant and highly reliable. Designed for 24/7 operation, it had to be rack-mounted inside a shelter or shock-mounted on a military transit case. The system had to be able to survive harsh conditions, including dust, mud, and intense heat. Even in environmentally controlled areas, the system had to operate over a range of extreme temperatures. Most importantly, the technology had to be easy to install, use and maintain.

To accomplish its missile defense mission, the AAMDC determined to implement a full-scale display wall system. *Display walls*, increasingly used in military and other operations, provide a single integrated picture of critical information, to form a Common Operational Picture or COP. *Display Wall Controllers* enable display walls to synthesize and digest enormous amounts of data from a wide range of sources at the same time, to zero in on a specific spot of activity, or to enlarge or manipulate the data to display only the relevant information.

Jupiter Vizion Series Display Wall Controllers
Because of these requirements, the AMDCCS selected the Jupiter Systems Vizion Series controller for single, dual and quad display. The new controllers feature "virtual screen" capability, which makes multiple screens look and act as if they are a single, large screen. They provide the ideal solution for presenting large amounts of data onto an operator's console or high-resolution projector display wall quickly, simply, and reliably—and at an affordable cost.

Allows Customer to Choose Best Display Solution for Its Specific Needs

Built for maximum flexibility and dependability, Jupiter Systems' Display Wall Controllers are the only controllers sold on their own, independent of the projector. For the AMDPCS, this meant the unit could choose the best display devices for their specific needs. Moreover, the Jupiter controller is well suited to a broad range of projectors.

Provides Highest Level of Performance

A primary concern of the AMDCCS was that the controller could perform to meet the rigorous requirements of missile defense operations. By seamlessly integrating multiple sources of digital and analog information onto a single high-resolution screen, the Jupiter system enables the Army's command and control—for the first time—to synthesize the inputs from some 19 different sources, with 24/7 reliability. The unparalleled combination of up to 12 video and 12 RGB inputs, LAN connectivity, and the ability to run all PC applications in *one* platform enables the visual data to be displayed in exactly the way the viewer needs it. The Vizion series supports a 16bpp color model at resolution of up to 1600 × 1200 for clear, sharp imaging. Sources simply plug into rear-mounted ports for a clean and easy setup.

High performance is also assured through the use of a Pentium processor, a 7200 RPM UDMA/100 hard drive, 256MB of RAM, and a 10/100 Mbps Ethernet interface.

Easy-to-Use

The compact, fully integrated system is dependable and intuitively easy to use and can be controlled by an attached keyboard and mouse, a touch-panel interface, or a customer interface. Users can also control the system remotely via a LAN and a Vizion series control client. Multiple clients can connect to the processor simultaneously, and all client users receive real-time updates. Through the easy-to-use Windows NT/2000 interface, users can create and adjust RGB and video windows on the screen, save the current setup of the system as a layout, and recall that layout at any time. The high level of visual feedback makes control of nearly all aspects of the system simple and intuitive.

Remote-Control Interface

The remote-control interface, ControlPoint, provides the capability of controlling your RGB and LiveVideo windows from a single homogeneous interface that can be used both locally and remotely. The remote control capabilities of ControlPoint allow control of a display device from the desktop or console, as well as from the display controller itself.

Brief Description of the Solution

The new mobile command and control system consists of six vehicles and six shelters (16 x 30 feet). Three of the tents contain video walls which measure approximately 60" in diameter: Active Defense, Passive Defense, and Attack Operations. A fourth, the Combat Information Center, houses two 60" displays side-by-side and can handle up to 18 different images or inputs (nine each). Each screen is designed to display individual video feeds from two Epson 9000 series projectors which are easy to mount and relatively small compared to a plasma monitor or large screen television. Weight is greatly reduced by using the screens and cabling is simplified by

using fiber inputs to the Jupiter controller which converts signals to the requisite RGB, and Video feeds.

About Jupiter Systems
Jupiter Systems is considered the leading worldwide supplier of network-based multiple-screen display stations and display wall controllers. Its products, considered “best of breed”, drive desktop and operator consoles and projectors in display walls. All Jupiter products feature “virtual screen” capability, which makes multiple screens look and act as if they are a single, large screen. Jupiter Systems has 3,000 installations around the world, in the utilities, telecommunications, aerospace and defense, corporate, manufacturing, process control, traffic, and law-enforcement markets. Its installations include the transit authorities of Boston, Washington D.C., and Chicago; telecommunications companies such as AT&T, Sprint, Telia A.B. (Sweden), and Deutsche Telekom; and Boeing, GE, Northrop Grumman, NASA, and many other major companies throughout the world.

For more detailed information on the Jupiter Vizion Series Controller, you can obtain a product specification sheet online at http://www.jupiter.com/Frame_Vizion.htm