

Net-centric control

This large-scale visualization solution harnesses the power of the network for real-time access to vital information for proactive decision-making and collaboration, meaning traffic can be effectively managed, congestion reduced, and incidents cleared quickly

by Theresa Myers, Activu, USA

The central nervous system of many ITS networks is the operations center, within which some major technological advances have evolved recently that are taking traffic management to a whole new level. This is aptly demonstrated at the recently opened New Jersey Traffic Management Center (TMC) at Woodbridge, New Jersey. There, the New Jersey Turnpike, Garden State Parkway, the New Jersey State DOT and State Police have come together physically and figuratively in a state-of-the-art facility that may prove to be a model for future TMCs.

The centerpiece of the new US\$29 million facility is a two-story operations hub with an 18ft x 50ft wall display driven by net-centric Activu software to monitor and control traffic operations, upon which the TMC can monitor real-time roadway situations via the 150 Turnpike and 300 DOT traffic cameras throughout the state. "What it allows is an integrated view of incidents statewide, enabling operational personnel to make better and more informed decisions regarding potential traffic impact on the roadways," advises Paul Noble, CEO of Activu, the company responsible for the intelligence behind the wall display – a network-based software solution for large-scale visualization and collaborative decision-making running on the center's data walls and desktops. Additionally, Activu designed and built the entire visualization system, including the large wall display comprised of 48 Mitsubishi 67in rear-projection cubes, as well as another smaller wall display in the executive briefing room.



⬆️ The new Woodbridge TMC provides a level of inter-agency traffic and data sharing that was previously impossible

In such mission-critical environments, organizations invest in a wide range of systems that produce information vital to conducting operations. But to gain the maximum benefit, Noble believes the key is to turn that information into knowledge, which can subsequently be made transparent across an organization. "A dynamic visualization system is an essential tool for making information readily available from the control room to the conference room and into the field," he confirms.

Brian Gorman is the director of IT and Administration at the new TMC. Despite welcoming the fact that Activu offers him visibility of legacy applications, new applications, as well as the video information displayed on the wall, he suggests it provides something probably far more important – a virtual disaster recovery strategy. "We can literally take a laptop and go anywhere on our network. We are fortunate that when we did the E-ZPass deployment, we put fiber in the ground – around 440 miles of it, spanning throughout the state. There are around 120 areas where we have access nodes – all the toll plazas and service areas – so we can go to any one of those locations with a laptop, plug in and connect, meaning we can operate the center remotely."

SMART IDEAS, SMART PEOPLE

"The whole idea behind Activu – which we first developed over 10 years ago – was that visualization could be better handled by network-based software," Noble continues. "Our whole philosophy was to take a standard consumer server, such as an HP, Dell or IBM, and do what had previously been done with audio-visual proprietary devices. There is now a tremendous movement in the marketplace



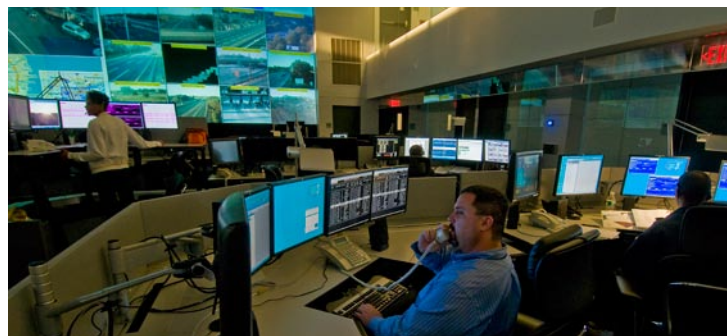
⬅️ Activu allows situational awareness of what is happening on New Jersey's transport network

toward IT solutions for the sharing of visual information versus AV solutions. We're now seeing IT professionals taking more decision-making roles that may have previously been fulfilled by AV professionals – and these guys welcome the concept of open software-based solutions running on standard IT hardware. There's a generation of very smart, savvy IT-focused people that are employing the latest IT technology, and I think Brian Gorman is a case in point. He realizes the enormous power of distributed information visualization across the WAN and into the homes of key executives, who might find themselves at home in the middle of the night when a situation arises. And this is easily achieved with Activu."

Activu advances the visualization paradigm by creating a visual layer in the network that puts people at the center of the information ecosystem, enabling the dynamic aggregation of visual information from anywhere within the network and its visual integration on display walls, flat-panels, workstations and even laptops and Windows-based hand-held devices. "Consolidated visual information can be assimilated, analyzed and shared person-to-person, team-to-team, display-to-display and site-to-site to create a fluid and dynamic collaborative environment," Noble explains.

Integrated within a network, Activu enables organizations to leverage their existing IP network infrastructure, creating what Noble describes as "a borderless information ecosystem in which users and operators, devices, sources and displays are seamlessly connected", regardless of location and distance. Deployed on commercial-off-the-shelf (COTS) server and display hardware, it provides a cost-effective platform. Furthermore, as a scalable system, it is quite easy to add new operators, displays, information sources and locations, simply by connecting them to the network. "This gives organizations the flexibility to evolve with changing demands, while avoiding the expense, operational inconvenience and functional constraints of hard-wired 'stove-piped' systems."

Such an open-architecture approach enables a broad range of sources to be



← Through the use of integrated technology, information is presented to a cross-agency team to aid in solving regional transportation incidents more quickly and effectively

aggregated, displayed, controlled and shared. Additionally, analog sources can also be displayed and shared. "This open and dynamic visual layer helps sustain accurate situational awareness and a complete operating picture," Noble adds. "Aggregated real-time information can be instantly reconfigured to adjust to rapidly evolving situational requirements. There is also no restriction on the number of sources that can be simultaneously viewed in a single display, while users can also activate and operate devices such as video cameras, etc."

BOTTOM-UP APPROACH

Although Activu's technology has played a big part in operational improvements at Woodbridge, Noble feels much credit should go to Gorman's unique approach. Collaboration, he feels, is designed into the facility from the ground up. "It is tailored specifically to our needs," Gorman confirms. "Rather than have architects come in and design something, with us trying to fit into the space, we did the reverse. The aim was to create an environment that improves the flow of information and the quality of decisions that we make at the facility."

So, how has this collaborative process improved life for New Jersey's travelers? For

starters, the mean-time to remove incidents from the roadways has been reduced. "What's really meaningful about that – and what most people don't recognize – is the real impact on traffic," Gorman says. "During peak travel times, we use a pretty standard metric: for every minute there's no mitigation on an incident, a mile of traffic will back up. That mile of traffic actually takes 12 to 15 minutes to clear. Extrapolate that to four miles and motorists are facing up to an hour of delay. Minimizing the mean-time to clear incidents off the roadway has dramatic effects."

Although Woodbridge features all the bells and whistles you would expect for a near US\$30 million outlay, Noble stresses that as a result of the Activu software-based approach, you can do a lot more for less. "In a cash-strapped industry, you can add intelligence to what you have for a fraction of what it would cost to start from scratch. TMCs can install a very robust, net-centric solution that allows them to collaborate, but it doesn't have to be a huge wall such as at Woodbridge. With Activu, you can have the same kind of control on a variety of platforms, even in the palm of your hand." ■

For more information, contact Activu by phone at +1 973-366-5550, email info@activu.com, or log on to www.activu.com/traffic