

Keeping Traffic On Schedule

Long Beach Transit uses Observer® Suite to isolate viruses, monitor network traffic and justify capacity upgrades

Over 700 Million Served

Long Beach, with a population of over 435,000, is the fifth largest city in California. The location is well known for its favorable climate (345 days of sunshine every year), close proximity to major tourist attractions and numerous water-oriented activities. It's no wonder that almost 4.7 million people visit Long Beach annually. The city has another advantage; it offers more public transportation options than any other city in Southern California. In fact, the Long Beach Public Transportation Company, founded in 1963, has delivered 40 years of uninterrupted service. That equates to servicing over 700 million customers, more than 27 million passengers in the past year alone.

Long Beach Transit employs approximately 750 people to ensure continuous, on time, reliable service to the city's commuters. One of these employees is network administrator Mesmak "Mark" Giorgis. Giorgis works for the Long Beach Transit IS Team (led by IS manager Patrick Pham) to ensure 100% uptime of the systems that keep the transportation network running on schedule.

"Every employee's goal is to serve our riders," said Giorgis. "I assist in this effort by making sure the network is up and running at all times. Our network has some unique attributes in that each bus is equipped with a GPS automobile vehicle location device, which communicates back to our network so we can tell exactly where the buses are. We can also send alerts to the drivers, even in the form of text messages when required."

Giorgis manages the LAN and WAN systems for Long Beach Transit. The organization has over 200 nodes and over 20 servers to assist corporate employees. The network spans two buildings and a terminal station connected via a private, point-to-point microwave link.

"Our network runs predominately over a LAN and WAN but our buses use some wireless," said Giorgis. "We're currently holding off on further WLAN deployment due to security concerns. Our organization also communicates with emergency services. The Long Beach Police Department has an office on-site and officers can communicate with our drivers via wireless radios."

Traveling On A Strict Budget

With this constant network activity and numerous demands, Giorgis considered investing in a network analysis product to assist with daily troubleshooting. Giorgis first began looking closely at network management software in 2002 as municipal budgets were tightening, making cost a large factor in selecting a product.

"Our network problems were becoming more and more complex," said Giorgis. "We were trying to get rid of viruses, eliminate network chatter, free up bandwidth – it was all becoming too time consuming. But I wasn't sure if the department could invest in any more software. I attended a trade show where I learned more about Sniffer® by Network Associates® and Observer by Network Instruments. Sniffer was way outside my price range; I could not justify that cost internally. Observer had the perfect price. Network Instruments also offered me a two week evaluation copy to make sure I was getting what I needed."

After careful evaluation, Giorgis chose the most comprehensive management console from Network Instruments, Observer Suite, and two remote networking probes – one for Long Beach Transit's second location and another for the terminal station. He also decided to take a two-day class on network management from NI University.

"Observer is very easy to learn," said Giorgis. "I was able to use the product right away and see its value. But the NI University course offered tricks and tips so that I was able to manage my network more effectively. The course was a great idea because it maximized my investment."

Isolating Unwelcome Passengers

Right away Observer was put to the test. In the spring of 2003, Long Beach Transit was hit with the W32 Welchia worm. The worm crippled the network, infecting about 75% of the systems. Giorgis knew that Observer could help him easily locate the contaminated devices. Giorgis went to his Observer Suite console and went to work.

"I looked at Observer, looked at my Top Talkers, captured and decoded some packets and bingo," said Giorgis. "With Observer's packet decode screen, I quickly recognized a pattern of ascending values in the last octet of the destination IP address. This helped me identify which systems were infected. With Observer I had full confidence that I could locate every instance of the virus, take the appropriate steps to disinfect the network and get our systems back to normal."

Remote Probes Offer Faster Troubleshooting Routes

Remote networking probes extend Observer's data collection ability to any IP-connected network, saving valuable amounts of troubleshooting time and eliminating unnecessary travel. Giorgis quickly scanned all of his remote networks, identified problem areas and informed the necessary support teams — all without leaving his office.

In summary...

About Long Beach Transit

Founded in 1963, Long Beach Transit serves the fifth largest city in California, providing transportation to over 27 million people annually. The organization has over 700 employees and its network spans across two operating facilities and a terminal location. The operating fleet consists of more than 250 vehicles and over 40 routes through the Long Beach and Southeast Los Angeles area. The company also operates shuttle buses, an Aquabus to ferry passengers to the Long Beach waterfront and a Tour D'Art service showcasing historic sites and art galleries.

Challenge

The Information Systems team at Long Beach Transit needed a robust application to monitor bandwidth levels, ensure delivery of mission critical data, offer insight into the organization's network and assist in planning for capacity upgrades. All for a price that was within budget.

Solution

By introducing Observer Suite and remote probes into the network, the IS team gained a solid return on investment with valuable knowledge for troubleshooting and future planning. Observer helped to identify worm-infected devices, offered information on bandwidth utilization and predicted network reaction to capacity upgrades. Now, with the insight offered by Observer, the IS team is better prepared for dealing with network issues today and for deploying new technologies tomorrow (such as VoIP) across the organization.

"With Observer, I'm making more intelligent decisions about the future of our network ultimately ensuring we continue to deliver a smooth and safe ride to our Long Beach customers."

Mesmak "Mark" Giorgis
Network Administrator
Long Beach Transit



"Instead of traveling to different locations looking for infected systems I was able to find them from my office and notify the appropriate administrator," said Giorgis. "I just called up the other support teams and told them which machines needed to be cleaned. We saved countless hours of troubleshooting time this way. With the one Observer console at my desk, I can get into all network areas, locate problems and recommend appropriate courses of action."

Watching For Developing Traffic Jams

Observer Suite not only assists the IS team with high-level network problems such as viruses, but also reports daily metrics on which systems are generating the most traffic on the network. Identifying the network's Top Talkers is an easy way of controlling traffic levels and monitoring bandwidth utilization. Giorgis has eliminated a great deal of unwanted network chatter with Observer.

"Top Talkers is now the first screen I check every morning," said Giorgis. "It's a good snapshot to help me see if the network is healthy or if something is out of the ordinary. I can watch protocols and see what traffic is work-related and what is not. Sometimes it can be an easy problem like a bad NIC sending out too much chatter. Most often, high network traffic is due to our users downloading large files from the Internet. With Observer I can now see all this activity and can proactively manage my bandwidth levels."

Long Beach Transit monitors bus performance by collecting data on emergency systems, brakes, engine performance and driver information. This vital data is transmitted by a specific group of servers every 60 seconds to a few workstations. This traffic consumes bandwidth and when the IS team needed to send the same data to all users Giorgis used Observer to predict how the network would respond.

"Our bus information is critical and must get through," said Giorgis. "When the plan came for a more company-wide deployment effort we had to rethink the network configuration. Using Observer we decided to first review the current traffic data

and determine if our systems could handle the expansion. We agreed we would first need to put these servers on a separate network or do a redesign. This was the only way we could ensure continued data flow without causing network traffic jams. Without first checking Observer, we would have simply clogged the network and had a whole new set of problems."

Justifying Capacity Upgrades

Observer also offers robust tools for determining when network upgrades are necessary. Comparison Reports offer IT administrators the ability to compare the network's current state to how it would behave in various scenarios. Giorgis uses these tools to determine if large network expenditures are necessary.

"With 'What-If' Analysis and Modeling I can see how the network will respond to upgrades before making costly investments," said Giorgis. "Our microwave has the capacity to carry 16 T1s and we're going from five T1s to 12 T1s – that's a big deal. We're also going to replace all our Cisco 4700 routers with the Cisco 3745 line soon. With Observer I can easily justify the investment and make sure we are not purchasing too much or too little for what we need."

Preparing for VoIP Deployment

Overall, the Long Beach Transit IS team knows the network monitoring and troubleshooting power of Observer has delivered a strong return on investment. From assistance in day-to-day troubleshooting, locating viruses, to justifying the cost of network upgrades, Observer Suite has saved the team time, money and offered visibility into the Long Beach Transit network.

"Our next big project is VoIP and Observer's VoIP Analysis feature is going to assist us with implementation," said Giorgis. "Before I wouldn't have known if our systems were prepared for VoIP deployment but now I have the confidence we can go forward. If you're going to invest in a security system for your house you need to fully understand your property and its structure then you can make solid decisions on what you need. Observer has provided us with that same understanding at our organization. With Observer, I'm making more intelligent decisions about the future of our network ultimately ensuring we continue to deliver a smooth and safe ride to our Long Beach customers." 

About Remote Probes

Through the deployment of Advanced Remote Probes, Network Instruments offers scalable, distributed monitoring solutions for remote networks. From one location, administrators can view statistics in real-time, produce long-term trending reports and capture packets for in-depth analysis. Probes eliminate unnecessary travel time and reduce expenses by offering IT administrators a way to resolve all remote network issues from one central location.

About NI University

Network Instruments offers a variety of network troubleshooting certification programs and product training across the world through NI University. Courses are designed to help administrators effectively monitor, troubleshoot, optimize and maintain their networks from end-to-end by giving both theory and practice in analyzing networks.

About Virus and Attack Signatures

Observer uses Filters to watch for virus and attack signatures and sends an immediate notification with Triggers and Alarms if security threats are detected. An administrator can take appropriate action to isolate the concern, such as detaching infected devices from the network. New security filters are released periodically, keeping up with the latest virus and attack signatures.

About Top Talkers

The Observer Top Talkers display shows detailed traffic flow statistics to reveal runaway station, a broadcast/multicast storm or an unbalanced switch. With this information, network administrators can determine network use patterns, detect faulty network hardware and determine what percentage of the network's bandwidth potential each system is using, all from one comprehensive window.

About Comparison Analysis Reports

Measure bandwidth utilization, error distributions, router statistics and more with Comparison Analysis reports. Because these reports are measured over time, they aid in undertaking future capacity levels for planning and traffic level management as well as provide cost justification for network capacity upgrades.

About VoIP Expert

Observer's VoIP Expert helps monitor VoIP connections to improve performance across the organization. Observer tracks the amount of VoIP traffic on the network, both globally and by user; decodes VoIP protocols; and offers Expert VoIP analysis including video.

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-Mesmak "Mark" Giorgis

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