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Chris Fowler  
City of Jacksonville  
Senior Network Architect



### Challenge

Being a member of the network team in Florida’s largest city means ensuring network performance and on-time application delivery for a myriad of city functions from the police and emergency services to city building inspectors looking up the status of a building permit.

Many applications delivering services are housed on multiple server tiers, each tier handling a different application process. For example, the city’s building inspectors rely on a robust application that consists of a front-end web server coupled together with multiple back-end database servers to track and manage the building permit approval process.

These applications are typically developed internally and can be extremely complex to troubleshoot. The city lacked the ability to quickly sort through the multiple points of potential failure or delay within applications to identify the problem source. In addition to troubleshooting multi-tiered applications, the city needed a flexible monitoring solution that would support its extensive VoIP rollouts.

### Solution

“This was a Sniffer shop when I first got here,” said Scott Gravitt, Network Design and Engineering Group Manager for Jacksonville. “We used the Sniffer Distributed software for about a year. With Observer’s

expert analysis we realized we’d spend considerably less time troubleshooting than we were with our previous analyzer.”

“We were convinced Observer would meet our diverse range of management needs, especially when we saw Observer’s expansive VoIP capabilities, from monitoring VoIP quality to being able to reconstruct calls. The number of ways we can use it on the network allows it to quickly pay for itself.”

The city worked with Sinnott Wolach Technology Group, a provider of network monitoring and information security management solutions, to implement a cost-effective network management strategy. According to CTO Jeff Wolach, “The city’s network team was looking for a long-term monitoring solution that would allow them to maximize their troubleshooting resources and provide in-depth support for standard and emerging applications like unified communications. Observer offered immediate savings by reducing their mean time to resolution and allowing them to rely on a single solution rather than deploying multiple point solutions.”

### Pinpointing Application Delay

In a multi-tiered environment, spotting the source of delay can be like finding a needle in a haystack. With the majority of the applications developed in house, it falls to the city’s network team to handle the user complaints, pinpoint the exact problem, and communicate with the development, application, or server team what went wrong.

“Handling these complaints can be a complex process,” said Chris Fowler, senior network architect. “It’s up to us to determine whether a performance problem is caused by the application code, server, network, or end user. Using Observer’s expert analysis features like Connection Dynamics, which graphically displays server-to-client

communication in detail, makes it easy to spot the delay source and explain the problem to the correct IT team.”

In these environments, Observer’s logical drill down from managing overall application performance to displaying specific application delay is critical for accurate diagnosis. Using Observer’s expert analysis reduced Jacksonville’s network downtime by allowing the team to resolve problems with greater accuracy and speed.

Recently, Fowler was troubleshooting a slowdown with an application used to track and process building permits. Although packets reached the server, one- to two-minute delays were occurring before responses reached the client. The server team believed the network was the cause of the delay, but knowing database processing could be very memory intensive Fowler needed proof to show the database server was the actual cause.

“With Observer, we were able to trace the packet’s path across the network to the server, and give the server team concrete proof the database server was holding the packets,” he explained.

Without clear evidence of the problem cause, the troubleshooting efforts would have turned into arguing and fingerprinting between the IT teams.

“Using Observer we could show the server team what was happening. They could go back to the server and see why the request for the SQL back-end to pull information from the database was staying so long on the server. In response, they recompiled the database and made a few changes to resolve the problem. With our previous analysis tools we would have spent hours figuring out the problem. Observer’s expert analysis pointed me right to the source.”





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### Managing VoIP with Observer

As a part of Jacksonville's massive VoIP rollout, all new city buildings are VoIP equipped, and Observer plays a central role in managing the deployments and daily monitoring. Gravitt explained the importance of VoIP metrics when troubleshooting VoIP problems with other IT teams.

“We can show the non-technical user the jitter rates and other voice quality metrics without having to go into a detailed packet capture. To be able to play back the VoIP conversation so other IT teams could hear what the user was hearing was priceless.”

Observer's VoIP analysis was instrumental in resolving dropped call issues that were mistakenly blamed on the network. During Jacksonville's supervisor elections in November and February, users complained of dropped calls or answering the phone and hearing nothing.

“With Observer I took captures from different parts of the network, and was able to show the other IT teams that calls weren't being dropped,” said Gravitt. “If the network were dropping the calls, I'd no longer be able to capture packets because VoIP is an end-to-end technology. It turns out the issue was with the headsets, which proved to be incompatible with the phones.”

In a more innovative use of the software, the network team uses Observer Expert for recording calls from Jacksonville's City Link call center, which handles citizen inquiries and complaints.

“We have saved a significant amount of money using the software to record phone calls for call center training. To purchase a recording solution from our VoIP provider would have cost around \$30,000, but with Network Instruments we can do it at a fraction of the cost. So when our call center representatives answer calls, they can be recorded to a SAN and reviewed later.”

### Future

As the city's reliance on its network grows, Jacksonville's network team is looking to expand its use of Network Instruments analysis solutions. As Wolach explained, “The city's network team has taken a more proactive stance in monitoring and troubleshooting problems before they impact the users. The increased use of Network Instruments solutions will allow them to continue to decrease the time spent troubleshooting and to ensure the network meets the city's future needs.”

### About Jacksonville

The City of Jacksonville serves the 12th largest population in the United States. The city not only boasts an average high of 78 degrees, it also has a complex and vast administrative system capable of delivering a range of critical services from law enforcement to issuing building permits. To maintain network and application performance a 230-member IT department led by the network team focuses on network planning, design and implementation, day-to-day monitoring, managing off-the-shelf and home-grown applications, and implementing a VoIP system.



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