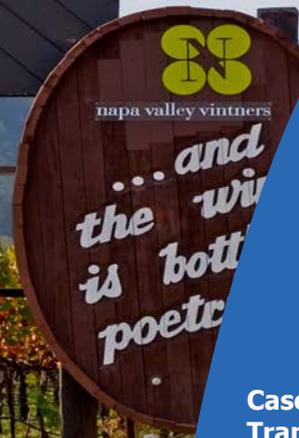




# wine growing region



## NAPA VALLEY

### Case Study :: Transportation

## The City of Napa

### Boosting Bandwidth with Carrier Ethernet over Copper Solution

The City of Napa, like many municipalities, in northern California's world famous wine region requires secure, highly available voice and data communications applications for emergency response, law enforcement, traffic management, and other public services. The number of links continues to increase as automation grows, with bandwidth per connection also rising for data services, yet the City wants to minimize operational expenses by continuing to exploit its own physical copper network infrastructure, if possible. This led the City to seek sophisticated carrier Ethernet technology for transmitting data over its own dedicated copper network.

Matters came to a head when the City required a fast two-way connection with the County of Napa, according to Jay Palompo, systems administrator for the City of Napa. "We wanted a connection from our public safety office to the County's public safety office and, initially, we used slow T1 connection devices," says Palompo.

The connection used traditional T1 lines for transmission at 1.5 Mbps, but at a maximum of 768 Kbps per copper pair, this connection quickly became obsolete. The City needed faster data communications, and after considering several options, selected Actelis Networks®, the leading provider for Carrier Ethernet over Copper™ solutions. The main attraction of Actelis' Ethernet Access Devices (EADs) and aggregation switches were the unmatched combination of speed, security, availability, seamless integration with the existing Ethernet LAN, simplicity of installation, and ease of maintenance.

"We saw the Actelis solution as ideal to increase speed, bandwidth and reach, so we

moved quickly to deploy EADs from Actelis," says Palompo. "We found that we had more than one copper pair connecting us with the County, so we loaded up all available eight pairs."

The EADs connect the two LANs together over point-to-point links. They provide nearly 45 Mbps of symmetrical bandwidth between the City and County—at approximately five megabits per pair—increasing the speed by four times per pair over the preceding T1 technology. "We have a server based at our end and now we can exchange data with the County at lightning speeds," hails Palompo.

### Communication for County Sheriff's Department

The Ethernet over copper link also provided the County with access to the City of Napa's computer-aided vehicle dispatch system so that the County sheriff can communicate between police cars patrolling the community.

"All of that traffic traverses the Actelis system sitting between Ethernet LANs on either end. Because of California Department of Justice regulations, we have a firewall on our end to allow ports to be opened up to them as needed," explains Palompo. "The point here is, access to vehicle dispatch and control must be restricted to authorized personnel within the county, which is one reason private and secure connections are necessary.

"But the traffic is not all one way," adds Palompo. "We have access to the County's criminal database, CJIM (Criminal Justice Information Management) system. This allows us to run queries on criminals, and we can add criminals to their database. So, here again, tight security is necessary."

### Solution Extended for Internal City VoIP Traffic

The Actelis platform was first deployed for the link between the City and County, but the success has

## Requirements

- High speed, secure connections
- Using existing copper infrastructure
- Economical alternative to fiber
- Quick, easy deployment and management

## Equipment Used

- ML EADs series in point-to-point
- ML1300 aggregation switches in point-to-multipoint
- MetaASSIST™ management system

## Benefits

- High performance, low cost
- Quick, easy to deploy
- Utilize existing copper facilities
- Highly secure transport
- Fiber-like qualities



## Case Study :: City of Napa

led to its adoption for other applications at both ends. The first one within the City was for quite a different purpose: to carry Voice-over-IP (VoIP) traffic between City Hall and the Corporation Yard, the base for the City's parks, street cleaning, and other public services. This required an upgrade to the Actelis equipment, since the EADs were already operating at full capacity.



ML1300 Central Office Aggregation Switch

"Instead of adding more links, we deployed an Actelis ML1300 aggregation switch, including a modem card, to handle 16 lines. We then split the modem card into two parts, one for the eight copper pairs to the County, and for now, four pairs to the Corporate Yard for VoIP traffic over the ELAN," says Palompo. With this configuration, Palompo created two separate sub-networks serving entirely different applications, one voice and one data, and yet sharing a common economical carrier Ethernet over copper platform.

### Traffic Flow Management and Traffic Monitoring

One of the great benefits Actelis' Carrier Ethernet over Copper solution is that it boosts bandwidth while being both economical and seamlessly integrating with the existing copper infrastructure. As a result, the City still has spare copper pairs available for emerging applications and, therefore, is considering deploying more Actelis equipment. One highly promising area is traffic monitoring and management, since the City's copper infrastructure reaches the places where equipment such as traffic light control hardware and cameras are located. "It's possible our electrical department may introduce this for stoplight management, and also to backhaul

streaming video for traffic cameras," says Palompo. The County of Napa has also been impressed with the Actelis solution, from its perspective when accessing the City's public safety services, according to Palompo. "We introduced Actelis to them and they're very interested. In fact, the County's potential requirements are more extensive, involving a larger copper-wire infrastructure covering a much greater geographical area than the City of Napa."

### Performance Reliability and Manageability are Critical

The real proof of any carrier Ethernet solution lies in its performance and manageability after installation. Ideally, the people responsible for administering it should almost forget it is there, and this has been the case for the City of Napa. "We've had a very positive experience," concludes Palompo. "We've never had to reboot or restart it, except when we brought up the Corporate Yard for testing. It's relatively simple to set up and we adapted to it very quickly."



Actelis Networks connects critical communications functions for the City and County of Napa, Calif.

Such qualities make Actelis Networks' Carrier Ethernet over Copper solutions well suited for smaller enterprise and government offices. It is the ideal solution for those municipalities like the City of Napa that own their own copper plant because further infrastructure investment can then be avoided.