



Case Study | Synergem Technologies

*Synergem Partners With AireSpring to Deliver Next-Gen
9-1-1 in Northern California
Managed Network Services Provider Ensures Resiliency
Across Northern California*

AT A GLANCE



Website: <https://synergemtech.com/>

Industry: Public Safety

Client: California Office of Emergency Services (CalEOS)

Deployment: California NG9-1-1 Network – Northern Region

Locations: 166 Public Answering Safety Points (PSAPs)

Challenges

- Unreliable POTS lines connecting PSAPs
- Single connections to PSAPs
- No ability to receive multimedia data
- Increasing frequency of outages
- Lack of diverse carriers

Solution

- Fiber-based network
- Prioritized IP over MPLS

Results

- Improved telemetry for call location data
- Network savings of 50 percent

SNAPSHOT

Synergem Technologies, a leading provider and pioneer of Next-Generation 9-1-1 (NG9-1-1) services, partners with AireSpring to provide managed diverse network connections and call processing to support NG9-1-1 services across the northern region of California.

In 2019, California allocated nearly \$1 billion to upgrade the emergency services network to the NG9-1-1 service standard statewide. To ensure redundancy and diversity for the new network, the California Office of Emergency Services (CalOES) divided the contract among four vendors. CalOES selected Synergem Technologies to serve the Northern Region, which includes 166 of the state's 450 Public Answering Safety Points (PSAPs). Synergem, in turn, partners with AireSpring to provide core network services and last-mile connections for the life-saving initiative.

CUSTOMER PROFILE

Synergem Technologies is a leading provider of public safety solutions based on the National Emergency Number Association (NENA) i3-based standard. The company's SynergemNET™ is a turnkey, network-based solution that delivers end-to-end NG9-1-1 services. The company's suite of hosted services provides a flexible and cost-effective way for telecom carriers, state, and local governments and individual PSAPs to migrate quickly from a legacy analog emergency services environment to an IP-based NG9-1-1 platform. The company already delivers NG9-1-1 services in Wisconsin, upper Michigan, Florida, and Washington.

CHALLENGE

California's legacy 9-1-1 system built on outdated POTS lines presented numerous challenges including:

- Voice-only support — PSAPs can only receive voice calls, not text, photos, or videos that can aid first responders.
- Single point of failure – PSAPs were connected with only one provider and one circuit.
- Frequent outages — Calls to certain PSAPs couldn't get through, according to All Things First Net (ATFN), which reported that the outages have escalated from 17,000 minutes per month in 2019 to between 50,000 and 100,000 in 2023.
- Limited call routing — PSAPs had only one backup PSAP, which became a severe issue during the 2017 failure of the Oroville Dam, which left six PSAPs unmanned and many 9-1-1 calls unanswered.
- Restricted location targeting — The system could only pinpoint addresses, not GPS location data from cell phone callers, which account for 80 percent of emergency calls, according to NENA. Lack of coordinates delays first responders from providing aid to people in large buildings, campuses, or outdoors.

Moving to a fiber-based IP network was intended to solve these problems and cut the state's 9-1-1 network costs in half.

However, with only one carrier serving some of Northern California's PSAPs, Synergem quickly encountered obstacles in achieving network resiliency in certain locations. Satellite's high latency was not a viable redundant connection, nor was fixed wireless, which is reserved for use by the state of California.

AT A GLANCE



SOLUTION

Synergem contacted AireSpring, a managed network services provider, for help sourcing high-availability and diverse connections.

"The other providers our team spoke to couldn't provide the scope of services in all the areas required to satisfy the CalEOS bid," says Jason Wightman, Engineering Project Manager, Synergem Technologies.

AireSpring began working with Synergem to build its core connectivity and redundant last-mile connections to each PSAP by leveraging its longstanding multicarrier relationships. AireSpring specified and placed all orders with carriers, often enticing diverse carriers to build into remote PSAP locations to provide truly diverse and redundant services.

AireSpring delivers prioritized IP over MPLS traversing fiber. The MSP connects to Synergem's network with gigabit-speed fiber cross-connects at One Wilshire and/or direct connections common to data centers around the country.

AireSpring also handles all call processing and intelligent switching for NG9-1-1 services. The MSP transfers calls between facilities in the event of overloads or outages. It also communicates location information that Synergem's i3 platform gleans from cell phones within a couple of meters, directionally north, south, east, west, and up or down. That lets first responders know if a caller is on the 20th floor of a high-rise building or has driven their car off a cliff, alerting dispatch accordingly.

RESULTS

Initially, the Northern region NG9-1-1 deployment was planned for 166 locations in 18 months, but COVID-19 lockdowns and supply-chain delays pushed the date out. Additionally, approximately 40 PSAP locations changed due to earthquake or fire damage or simple office moves and sometimes proverbial government red tape.

"At times it's difficult to deliver not one but two circuits and then a whole rack of equipment to a PSAP, especially in a remote location in Northern California," said Wightman. "The racks are six feet tall and three feet wide and sometimes require the space and power to be redone."

Network completion is expected by spring 2024.

Synergem's collaboration with AireSpring has been positive. The two teams meet weekly to coordinate the status of location deployments.

"How I look at it is that we're partners in getting this done," says Wightman.

"Our collaboration with AireSpring has made installations very smooth. The benefit of working with them is the speed of delivery. They're very good at delivering service and doing what they say they're going to do."

AireSpring's reliability has been vital to fulfilling the NG9-1-1 contract, says Wightman. "Lives are on the line, so we want it done right. AireSpring has helped to make sure things have been done right," he says.

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