

**Objective**

Build next-generation mobile data centers to serve first responders wherever disasters occur

Approach

Engage with Hewlett Packard Enterprise and HP to design a virtualized, highly available infrastructure to withstand hostile environments

IT Matters

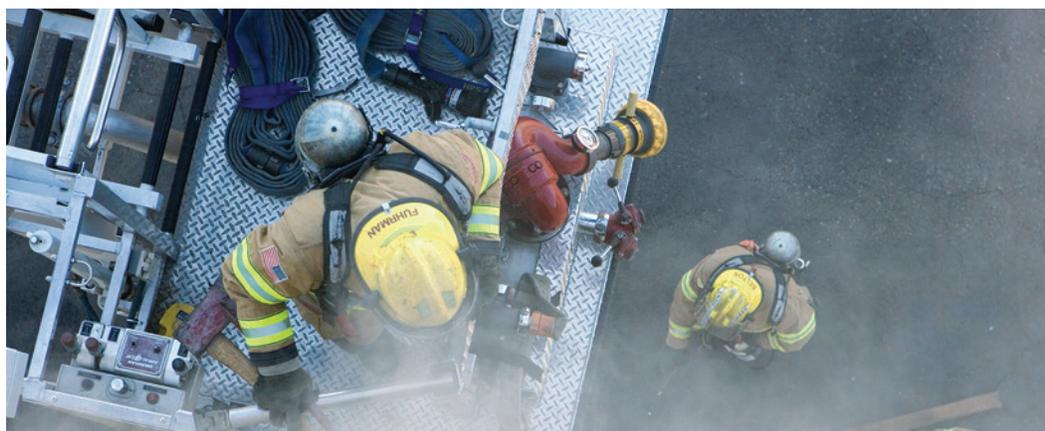
- Delivers centralized compute and storage for team access to common data
- Allows creation of command center Intranet for sharing data in real time
- Mobilizes enterprise-grade solution for deployment anywhere, anytime

Business Matters

- Speeds data delivery times to field workers by 64x (15 minutes vs. 16 hours)
- Eliminates download of GIS data from Satellite with 48TB of storage across 24 hot-swappable drives
- Provides a robust technology backbone that will operate in hostile environments

FireWhat?: Battling disasters with better data

HPE Hyper Converged systems power mobile command centers in some of the most hazardous environments on the planet

**Rare breed**

First responders in natural disasters are a rare breed. While the rest of us are shuffling around between desk jobs, social activities and the home front, first responders are putting their lives on the line around the clock in dangerous environments so we can have the illusion of feeling safe, and enjoying a sense of normalcy.

Nowhere is that dichotomy more evident than on the frontlines of a wildfire. Not only are conditions hostile to human life, but the parameters of the situation can turn on a dime. “Wildfires are incredibly dynamic, fast-moving, and always changing,” explains Nathan Johnston, Chief Technical Officer

at FireWhat?, a Geographic Information Systems (GIS) and technology company that maps emergency incidents and creates technologies to track responders and assets in and out of the field. “A wildfire creates its own weather and environmental conditions. It’s smoky, it’s hot, it’s dusty—it’s a horrible place to spend any amount of time.”

But when there’s a wildfire raging, that’s exactly where FireWhat? can be found. Co-Founded by Sam Lanier, a retired Fire Captain for the California Department of Forestry and Fire Protection (CAL FIRE), FireWhat? is dedicated to helping firefighters perform their jobs more safely and effectively by equipping them with the most up-to-date information possible.

“Now we’re able to push the availability of our data by bringing more data in faster. With the reliability and power of the HPE Hyper Converged 250 platform, we’re able to deliver new data to our responders in 15 minutes instead of 16 hours.”

— Sam Lanier, CEO, FireWhat?

Built by firefighters for firefighters

“Having spent 21 years in the fire service, I know what it’s like to be out in the field for 24 hours without any sleep, and I know how a tiny error can lead to bad things happening,” recalls Lanier, CEO at FireWhat?. “Under those conditions, even something as simple as spilling a cup of coffee on a map could be disastrous.”

In 2009, Lanier and a group of firefighter friends got together to share some ideas about how they might be able to address some of those issues. FireWhat? was the result. Launched in 2011, the team has since been fine-tuning its technology to deliver comprehensive information systems wherever and whenever disasters occur.

When a state or federal agency calls, FireWhat? arrives with their highly trained technical and GIS staff, alongside other first responders, to begin building a command post to manage the emergency. “It could be a wildfire, but we could also be called in for anything from a hurricane or earthquake to an urban terrorist attack,” Johnston relates. The team shows up in a technology-filled trailer, outfitted to deliver the most accurate mapping data in the timeliest manner possible.

Fighting data lag

Before Lanier and team launched their company, firefighters in the field rarely had access to current mapping data. “It was pretty standard for us to be fighting fires going off of information that was several years old,” Lanier recalls. “A lot can happen in that timeframe—there could be new homes in the area we wouldn’t even know about—and yet that’s the information we had.”

When FireWhat? built its first technology trailers, it relied on servers from Hewlett Packard Enterprise (HPE), laptops from HP, and a satellite Internet link. The solution was a big step forward for emergency teams, even though there were still a few hurdles to overcome. “Emergency teams still tend to be very paper-based in their culture, so we spend a lot of time printing out maps to keep everyone up-to-date,” Lanier says.

In fact, the team printed out more than a million maps during the course of the fire season last year, at the incident command posts they were assigned to. And command post planning meetings often take place in the shadow of enormous, wall-sized maps. “It’s not uncommon for us to make 18x6-foot maps for the command center,” Lanier relates. “These things are so big, they even have a name for them: Big-Ass Maps.”

New layers of information

Recently, the FireWhat? team entered into collaboration with Esri, an international supplier of GIS mapping software that connects people to maps, data and apps. The partnership brought FireWhat? the ability to integrate massive amounts of different kinds of data into its emergency mapping services, including current data for watershed areas, environmentally sensitive areas, parklands, residential maps, photos with geo-spatial ID information, and up-to-date bulldozer lines and infrared flight photos that show fire hotspots.

FireWhat? knew it needed to upgrade its technology trailers to enable faster, more reliable delivery of this information in the field. The team was looking for an integrated server, storage, and networking system that could be deployed in any environment imaginable.

The team looked at various solutions on the market, but kept coming back to HPE. “First, we had already had a great experience with HPE gear in our initial trailer units,” Lanier says. “Secondly, we wanted the technology to come from a single vendor, and third, we needed this stuff to be able to operate in some of the most hostile conditions on the planet without downtime.”

Enterprise technology in a trailer

Lanier and team decided to partner with HPE to develop a solution based on pre-configured hyperconverged technology, which was donated by HPE. Delivering a virtualized infrastructure platform that combines powerful compute resources, highly available storage, hypervisor, and networking connections in a single, rackmount form factor, the HPE Hyper Converged 250 also offers redundant power supplies, storage clustering, and hypervisor clustering.

Connected to an HPE 5130 EL Switch Series managed Ethernet switch, FireWhat? has an enterprise solution to ensure secure data delivery in an energy efficient profile.

The solution turns FireWhat?'s trailers into mobile, centralized data hubs for any disaster command center. Inside, FireWhat? team members use ultrafast HP ZBook Workstation Ultrabooks which receive virtual desktops streaming from HPE's Hyper Converged system, giving everyone in the trailer access to the same data and the ability to modify and update it in real time.

The combination of HPE hardware and FireWhat? experience delivers a solution that could be beneficial to many different kinds of first-response teams in the field. In fact, FireWhat? may soon be offering a branded technology trailer as an HPE OEM solution to the market.

Preloaded for success

Today, when FireWhat? answers an emergency call, it shows up prepared with more data than teams have ever had access to in the past. “Our HPE Hyper Converged system allows us to arrive on the scene of an emergency situation with 24 hot-swappable data drives containing every kind of geospatial data imaginable,” Lanier explains. “Census data, vegetation data, gas and electric line data,—whatever we need can be preloaded and brought to the site.”

Previously, that data had to be downloaded via satellite link at the beginning of each emergency. “It was a slow process that could really get waylaid if our Wi-Fi password got out,” Lanier recalls. “As soon as one person gets ahold of the password, there would be people checking Facebook, uploading photos, and eventually bringing our data connection down. Now, with an enterprise storage solution, we just show up with terabytes of current GIS data and we're ready to roll.”

Customer at a glance

Hardware

- HPE Hyper Converged 250 System
- HPE 5130 EL Switch Series
- HP ZBook Workstation Ultrabooks

Software

- VMware vSphere
- Microsoft Windows Server

Applications

- Esri ArcGIS

And the benefits don't end there. Because the team is constantly working to shorten the time to delivery of new data to emergency responders, it built a solution to track field observers on the incident line to retrieve real-time data as the situation evolves.

Disaster data 64x faster

"Previously, field observers would go out to the incident line with handheld GPS devices, arrive at noon, walk a section of the fireline perimeter, walk back, and then return to basecamp," Lanier explains. "That represents about 8 hours of people moving around, collecting data, and bringing it back to us. Once the data finally made it to the trailer, it would take us 4-5 hours to process. Then we'd share the information with team leaders, and share it back to the responders to take back out into the field. The whole process took about 16 hours, which meant our people in the field were always working with yesterday's data."

Today, with an enterprise server and storage solution at the heart of every remote trailer, FireWhat? is performing live tracking on field observers. "Now we're able to push the

availability of our data by bringing more data in faster," Lanier says. "With the reliability and power of the HPE Hyper Converged 250 system we're able to deliver new data to our responders in 15 minutes instead of 16 hours."

Revolutionary for early responders

Even in an industry where paper maps are still revered, the team at FireWhat? is launching a solution this summer that might change a few minds. "We're now able to host our own internal Intranet at the incident base itself that can share this up-to-the-minute data with every responder by pushing map data to their phone or tablet," Lanier says.

It's a solution that has caught the imagination and intrigue of the emergency responder industry. "We've all been doing this for a long time—many of us have experience out in the field as these disasters unfold—and there's never been anything remotely like this in the emergency response field. It's kind of revolutionary for the industry, and it's a huge leap forward from where we were a few years ago.



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