

Solution: NetCloud Service for Mobile ■ **Industry:** Emergency Services ■ **Use Case:** In-Vehicle IoT

Live stream from the scene: How Fotokite and Cradlepoint support rescue teams

Fotokite's tethered drones offer aerial perspectives in public safety operations — streaming live thermal and high-resolution visuals to emergency teams via Cradlepoint routers.



Cradlepoint meets the public safety market's high standard when it comes to data transmission and connectivity in mission-critical situations and we are proud to deliver our combined solution to these high-impact customers."

Chris McCall, Chief Corporate Development Officer of Fotokite

Success story highlights

Challenge — In operations such as traffic accidents or fires, rescue teams often lack an aerial perspective. However, helicopter support is time-consuming and costly, and most drones require active control by trained personnel and are dependent on the weather. The situation is different with Fotokite Sigma; this situational awareness system improves the overview at the scene of the incident by using images from a thermal imaging camera and a low-light RGB camera. For the video data to be streamed live on site and remotely by emergency services, high-performance connectivity is required, even in remote areas. In addition, each drone requires its own remote ID for remote identification.

Solution — Fotokite Sigma is a GPS-independent situational awareness system that remains connected to a mobile ground station via a cable for data transmission and power supply. It can fly autonomously for long periods through inclement weather conditions and provides high-resolution video data 24/7. It can be controlled via an app and does not require trained drone pilots. This allows the rescue teams using it to concentrate on the mission at hand. Cradlepoint IBR900 ruggedized routers, installed in the ground station of the kite, enable live video transmission and ensure a fast, secure and reliable data connection even in rural areas.

Benefits — The main advantages of this situational awareness system are additional security, greater efficiency and continuous monitoring through video streaming via a dedicated Cradlepoint router. The drone is extremely fast to deploy, easy to use and the video data can be streamed live to multiple authorized devices thanks to its strong built-in connectivity. Reliable connectivity is therefore a key factor in the use of Fotokite Sigma by mission-critical teams. In addition, Fotokite and Cradlepoint worked closely together to develop and implement a remote ID solution, which is mandatory for the remote identification of drones.

Background and challenges

Better overview on site

Fotokite designs and delivers fully autonomous situational awareness products that provide invaluable overview information to first responders and public safety teams. Fotokite technology is used on a daily basis to help manage complex, safety-critical situations to first responders across six continents.

In the event of traffic accidents, fires and other public safety operations, the teams on site often lack an aerial perspective. Helicopters cannot always be used for availability and cost reasons. Drones can be an alternative, but most of them can only be flown in very good weather conditions. In addition, the majority of models need to be actively controlled and monitored by a trained person, which ties up additional resources.

It is important for the emergency services on site to have a situational awareness system that is particularly robust and easy to operate. It is particularly advantageous to be able to track the video data in real time and use it as a basis for decision-making. This requires additional coordination with the control center or remote rescue teams, who also need live access to the data. High-performance connectivity is therefore required at the scene of the incident, even in rural areas. The partners Fotokite, based in Zurich, and Cradlepoint, with a German branch in Bielefeld, provide the right solution for this.



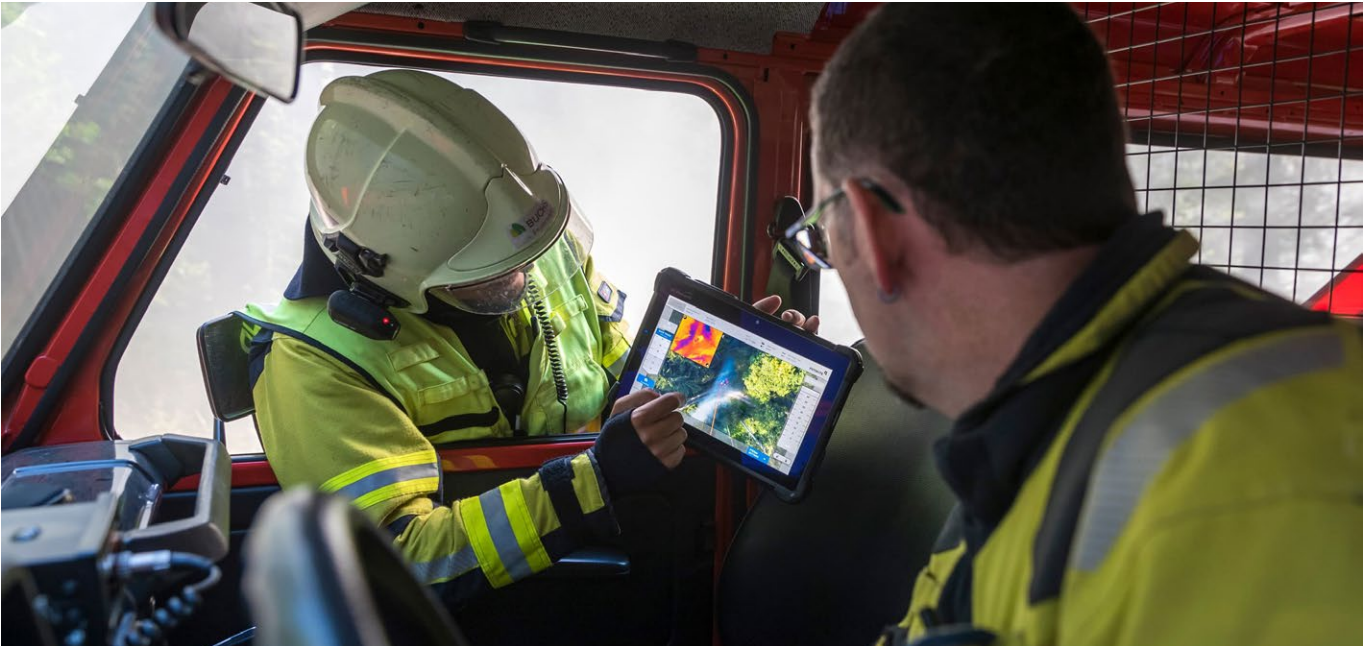
Solution and benefits

Autonomously flying drone with LTE connection

The GPS-independent Fotokite Sigma situational awareness system flies completely autonomously at an altitude of up to 45 meters, even in rain, wind or snow. Take-off, landing and the settings for altitude and camera perspective are made with just a few clicks and in a matter of seconds via an app on a tablet. Furthermore, nobody has to actively control or monitor the drone — the teams can concentrate fully on the mission and use the system to get a constant overview of the situation. The “kite” remains connected to the ground station with a tether cable and can remain in the air 24/7 if the power supply is sufficient. If the winds get too strong, Fotokite Sigma lands automatically.

Cradlepoint router enables secure data transmission in real time

Video recordings from the integrated thermal imaging camera and the low-light RGB camera begin immediately after take-off and are transmitted to the ground station via the tether cable. Via the ruggedized Cradlepoint router installed there, the data is transmitted live via WIFI to the tablet linked to the Fotokite Live app at the scene. This gives the emergency services a quick overview of the conditions on site. Thanks to the secure and powerful LTE connection, the data can be streamed remotely to other authenticated devices.



Two technologies that complement each other perfectly

Secure connectivity via Cradlepoint routers has been one of the key components and benefits of Fotokite since 2022.

“From our experience with our customers, we know how important a reliable connection is for the rescue team on site and remote emergency teams. They need a strong data connection and high security standards — and that’s exactly what Cradlepoint offers,” explains Chris McCall, co-founder and Chief Corporate Development Officer of Fotokite.

“If you look at all the technology behind Fotokite Sigma, connectivity may seem like a small part of the solution at first glance, but it is actually essential. Without the reliable and secure connection for data exchange, our life-saving customers would not be able to share their mission-critical data in a timely and reliable way,” says Chris McCall.

He also emphasizes that higher customer satisfaction has been achieved since Fotokite Sigma was delivered with the Cradlepoint router. The router is optimized for mobile first responder operations and can withstand high temperatures, shock and vibration to ensure a reliable connection.



Together with Cradlepoint, we can offer a very elegant and practicable solution for very complex challenges. Our team’s success is measured in how well we help our customers save lives, stay safe, and serve their communities. A better product translates into better mission outcomes for our customers. We are proud to be delivering that.”

Chris McCall, Chief Corporate Development Officer of Fotokite

Remote ID: innovative solution for a special challenge

According to both US and EU Drone Regulation, drones must have a so-called remote ID solution for remote identification. The permanent transmission of location data in real time is intended to make airspace safer. As there are no standardized remote ID systems that can be implemented for all drones, the expertise of both manufacturers was required. Jan Willeke, Area Director Central Europe at Cradlepoint, praises the close and collaborative partnership:

“Our technologies and visions complement each other perfectly – and we also share a willingness to innovate. So we not only equipped the drones with the appropriate routers, but also developed a joint technical solution to integrate a remote ID for real-time remote identification.”

Networked drones offer wide-ranging benefits related to situational awareness

Day or night, wind or rain: With a flight time of over 24 hours and without being controlled by trained pilots, Fotokite Sigma enables completely autonomous situational awareness. The system is in use on a daily basis across six continents. In Germany, several fire departments are already using it for a wide range of operations in the four areas of rescue, recovery, extinguishing and protection. When fighting fires, for example, the source of the fire and hidden pockets of embers can be spotted using the thermal imaging camera.

Jan Willeke from Cradlepoint is certain that the German police and other fire departments will also rely more heavily on drones in the future. He is particularly pleased that the system co-financed by the EU’s Horizon 2020 SME grant program has been so successful so far:

“As a leading provider of safety-critical connectivity solutions, we are proud to be an essential part of this progressive development process. That is why, together with Fotokite, we want to continue to develop the best possible solutions for people who save lives every day.”



We see ourselves not only as a provider of connectivity solutions, but also as an innovative partner for customer-specific challenges. In close cooperation with Fotokite, we have developed and integrated a new remote ID solution for remote identification in addition to the router in order to comply with the EU drone regulation.”

Jan Willeke, Area Director Central Europe at Cradlepoint

