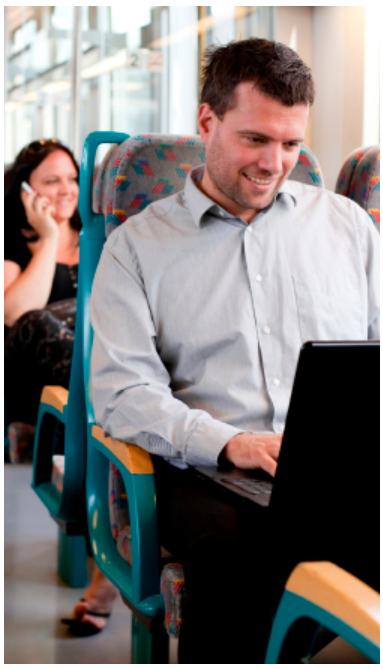
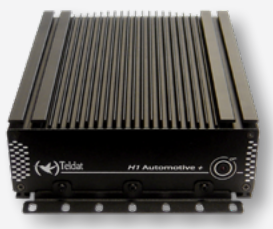




Case Study

Teldat H1 Automotive+ rugged in-vehicle router – LTE/Wi-Fi/GPS

Teldat H1 Automotive+ is an advanced IP rugged router which transmits data, voice and video whilst moving, on dual LTE and 802.11n Wi-Fi (client & access point), with GPS based location services, including Geo-Fence.

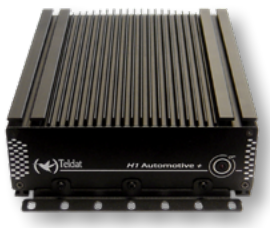
Teldat

Teldat H1 Automotive+ rugged in-vehicle router – LTE/Wi-Fi/GPS

Challenge	Solution	Why Teldat
Customer safety required high performance IP Router with LTE capability to provide communications hub.	Teldat's H1 Automotive+, a rugged in-vehicle high performance IP router meets all requirements.	Teldat's high performance LTE cellular support & industry standard networking created compelling value.
Solution had to be scalable in order to easily equip fleet of hundreds of new and retrofitted buses.	LTE and Wi-Fi connectivity allows Transit Police to monitor live video from buses on the road.	Teldat's H1 Automotive+ was purpose designed for vehicles with a rugged design and "geo-fence" features.
Bus environment required a very rugged router to meet shock, vibration, and extreme temperature ranges.	802.11n Wi-Fi permits rapid bulk video file uploading at the bus marshaling yards.	Teldat has strong experience with buses and responsiveness to client needs for support and customization.
Very limited time to upload each day's video files from hundreds of buses at the bus marshaling yards.	Exceeds extreme bus environmental requirements; high temperature range, anti-shock / anti-vibration.	Teldat's H1 Automotive+ "future proofs" the solution - the customer can add new services over time.

Client Summary

Minuteman Security Technologies specializes in unified security system solutions for small and medium sized enterprises as well as for government clients. Founded in 1988, their vertical markets comprise financial services, healthcare, higher education, insurance and transportation. The headquarters of this medium-sized company is located in Andover, Massachusetts. A provider of advanced corporate, business & government security systems and solutions ranked #68 of the Top 100 Security System Integrators in North America in 2013. They are opening new offices in Portland, Maine to meet the demand of their clients.



Teldat H1-Automotive+

Challenge

After the Boston Marathon bombing on April 15, 2013, the Massachusetts Bay Transportation Authority, often referred to as the MBTA, were given a grant from the United States Department of Homeland Security to place a video surveillance system on their buses in order to ensure security for the passengers, as well as for the bus driver.

Minuteman Security Technologies was assigned this demanding project. They had to find an advanced router that could integrate with the entire video solution project and act as the core of the surveillance system. The solution had to be scalable in order to equip new buses that routinely replace older buses or enlarge the fleet and retrofit existing buses. Additionally, the bus environment required very particular challenges. They needed a very rugged router with high performance for live video providing the ability for passing police cruisers to peer into a bus by Wi-Fi technology and for the Transit Police headquarters to monitor the hundreds of busses in the entire fleet in real-time. Each evening at the marshaling yards, the recorded videos of almost the complete fleet had to be uploaded in bulk via Wi-Fi causing a very high data transfer and density within a confined space.

Hence, for this project Minuteman Security Technologies required a very sophisticated router with flexibility and very advanced networking possibilities. Teldat provided its H1 Automotive+, the perfect solution for the project.

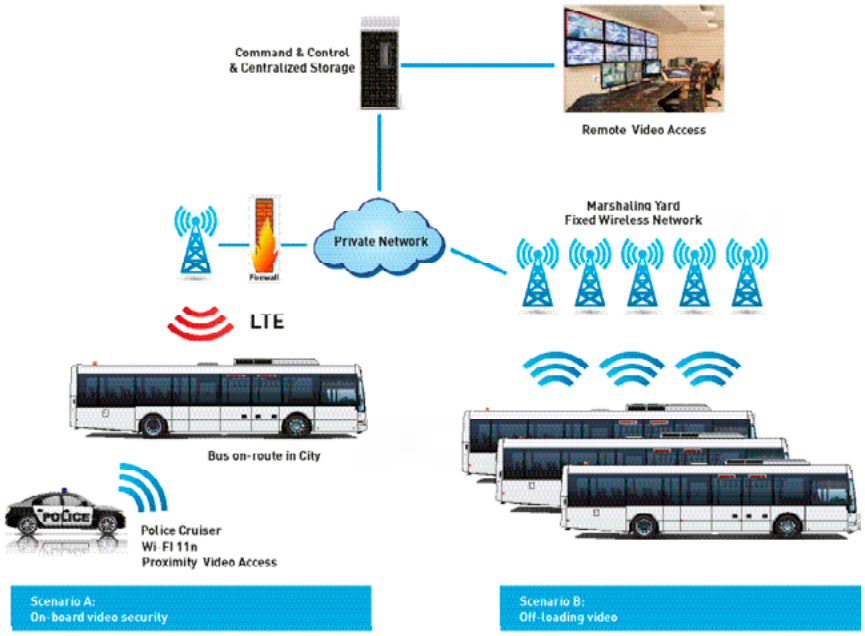
Solution Value

Teldat's solution for this ambitious project is the Teldat H1 Automotive+ router. It is a highly advanced, IP standards based, rugged, small form-factor router, which meets all the demands of MBTA. It provides dual LTE/4G cellular modules as well as 802.11n for Wi-Fi, in both access and client modes. A dedicated GPS interface provides tracking information and controls operation of the router based on location.

Integrated into the client's advanced private cellular network, the Teldat H1 Automotive+ accesses video in real time, even while the bus is moving. In order to comply with all the grant requirements, Teldat quickly modified the software design to enhance Wi-Fi performance, so that:

- Video upload in bulk at the marshaling yard is realized by using only the 802.11n standard for Wi-Fi.
- Enhanced Access Point selection functionalities ensure that each bus, while moving at the marshaling yard, chooses the highest performance AP.
- Customized selection of the 5 Ghz frequency bands to optimize data transfer performance.

The router is simple to set up, has a small size to integrate into a purpose built enclosure on the bus, as meets all other requirements such as, high temperature range, anti-shock and anti-vibration functions.



Results

Teldat's H1 Automotive+ in-vehicle routers, the core of the video surveillance communication system, meet the demanding solution requirements and goals:

- Police situational awareness for passenger safety is improved - transit police on patrol can view live video from each bus and the transit security headquarters can monitor the entire fleet of buses in real-time. Issues are quickly seen and documented.
- Transit police can now respond with improved information and provide higher levels of assistance to passengers.
- Passengers now feel much safer on the bus.

Why Teldat Got the Deal

Teldat's high performance LTE cellular support, industry standard networking protocols and compelling value made it stand out among the few competitors capable of meeting these requirements.

Teldat's H1 Automotive+ router's rugged design and multiple Geo-Fence (GPS based control) capabilities, along with Teldat's extensive experience with bus fleet installations provided high confidence in the solution.

Moreover, Teldat was very responsive to the client needs and gave very close support, quickly implementing new requirements found during deployment. Without this close cooperation, all the project objectives could not have been achieved.

Furthermore, selection of the Teldat router "future proofs" the solution with the ability to add additional services over time.

FLEXIBLE
COMMUNICATIONS SOLUTIONS
THAT GROW WITH YOU.

H1-Automotive+

Advanced communications for vehicles

- Up to two embedded LTE interfaces provide high speed connectivity for onboard applications
- 802.11n wireless configurable as access point or client
- Robust mechanical and electrical design, optimized for unattended installations in vehicles
- Hardware-based encryption for outstanding multi-VPN performance
- Teldat software: complete suite of IP networking protocols + security & firewall

The **Teldat H1-Automotive+** router is an integrated rugged communications platform that enables highly available, reliable, and secure broadband cellular connectivity in vehicles. Multiple services involving different vendors and business units can be delivered over a single platform, reducing equipment and operating costs.

The **Teldat H1-Automotive+** combines robust industrial design with versatile broadband wireless, mobile, and LAN (Ethernet) connectivity. You can manage a fleet of **Teldat H1-Automotive+** routers centrally on Teldat's network management platform (Teldages), or seamlessly integrate them into an existing network management system.

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