



## Case Study

# Teldat H1 Automotive+ Makes bus travel more convenient and safer

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

# Teldat H1-Automotive+ Makes bus travel more convenient and safer



Challenge	Solution	Why Teldat
▶ Make travelling on these buses more pleasant and convenient for customers by offering a Wi-Fi service.	▶ H1-Automotive+ gives a high level Internet connectivity via Wi-Fi to both passengers and employees.	▶ H1-Automotive+ rugged design which exceeds the shock, vibration and extended temperatures of a bus.
▶ Separate Wi-Fi/LTE network on the bus for staff, to connect to the Internet for security and bus operations.	▶ High performance LTE on buses also allows transmission of real time video in emergency situations.	▶ Teldat offered LTE which was vital to offer the type service desired by the end user.
▶ Secure communications between bus and Data Center. Hence VPN for both passengers and staff was required.	▶ H1-Automotive+ has 4 LAN ports so DVR, cameras, etc. can connect to the network and router offers VPN for security.	▶ GPS position and location-based features like Geo-Fence, permitted efficient use of Wi-Fi connects.
▶ Bus Wi-Fi interface had to change to client mode, to upload recorded video from the buses to the data center.	▶ GPS application on H1-Automotive+ can track the bus location and even pinpoint the bus as inside/outside the marshaling yard.	▶ Supported separate secure passenger and staff Internet connections through SSIDs and VPN from bus to control center.

## Client Summary

The end client is a North American county public transit company, operating many different bus routes within the southwestern coast of the U.S. state of Florida. The area is renowned for its cultural and environmental amenities, as well as its beach resorts. This transit company maintains a 24hour fixed-line bus route system, plus a dial-a-ride paratransit service.



Teldat H1-Automotive+

## Challenge

The end client's county wanted to reduce the amount of cars on its regional roadways and encourage those travelers to use the transit company public transportation bus routes. As one of the plans to achieve this goal, this transportation company wished to make travel on these buses more pleasant and convenient for the travelers by offering a Wi-Fi service with LTE connection onto the Internet.

There was also another objective of having a second Wi-Fi network, so that the employees on the buses could use a Wi-Fi/LTE connection to the Internet for security and bus operations scenarios.

One of the most important requirements the client had was to ensure security for communications between the buses and the Data Center. Also, it was essential to provide separate passengers and staff Wi-Fi connectivity, as well as VPN for both networks. Although the client did not need QoS at that moment in time, it was important to have the ability to add it in the future.

In order to upload the recorded video from the buses to the data center, as soon as the vehicles reached the marshaling yards, it was essential to be able to change the usage of the Wi-Fi interface to client mode.

Moreover, the end user also wanted to introduce on-board video recordings for safety issues, which could arise while the bus was on route and then analyze these afterwards at the city's data center, or view them in emergencies in real-time.

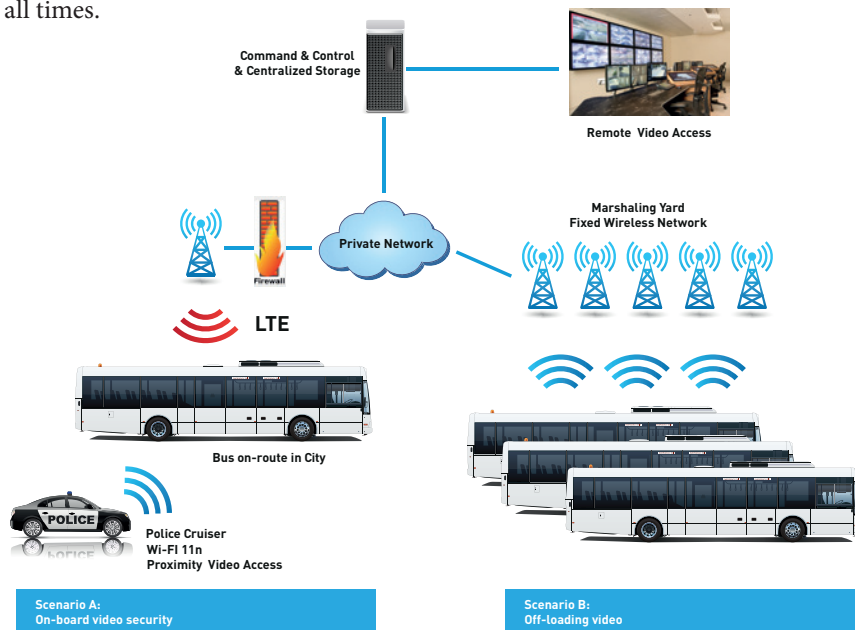
## Solution Value

The Teldat H1-Automotive+, solved perfectly the challenge. This router is a rugged in-vehicle advanced IP router, based on Teldat transit technology which had been used in many other transit projects across the globe. For this project Teldat's H1-Automotive+ has LTE connectivity to give a high level of service for the passengers and employees connecting to the Internet via Wi-Fi, while the bus is travelling along area roadways.

Apart from Wi-Fi connection, the router has 4 LAN ports so that a DVR and other corresponding devices, such as cameras, can also have connectivity on to the network. For the end user coverage is vital; the high performance of LTE allows both high speed passenger internet service, but also video from each bus can be transmitted in real time in case of emergency situations. Security connections for the passenger Internet use and video, is provided by VPN connections H1 Automotive+ on the H1-Automotive+ router.

At the end of day when each bus reaches the marshaling yards, the Teldat H1-Automotive+ routers automatically convert the Wi-Fi role to client mode, so that the video recorded on buses while on route, is quickly uploaded from the bus to the centralized digital storage server.

The Teldat H1-Automotive+, can change the operation of the router based on gps location using GPS applications (like Geo-Fence), which tracks the router as being inside or outside the marshaling yard. GPS location is also provided and available to track the location of the bus at all times.



## Results

Firstly, the passengers were happy to have high performance Internet access while on a moving bus.

Secondly, staff were very pleased that they could now not only see live video from the bus at the data center, but also had the capability to view live video from transit police vehicles. Recorded video is archived and available for future review and use as needed.

Thirdly, customers and staff felt safer riding the bus knowing that there was video monitoring of the bus passengers.

Lastly, the customer was very pleased at the speed and support Teldat provided to resolve some early deployment issues.

## Why Teldat Got the Deal

Teldat had technical features which were clearly superior:

1. The rugged design – exceeds the shock and vibration and extended temperatures of a bus.
2. LTE was vital to offer the type service desired by the end user.
3. GPS position and location-based features like Geo-Fence permitted efficient use of the Wi-Fi connects, including high speed uploading of video at the marshaling yards.
4. Supporting separate secure passenger and staff Internet connections through features like multiple SSIDs and VPN from the moving bus to the control center.

# 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.



### Germany

bintec elmeg GmbH  
Suedwestpark 94,  
90449 Nuremberg (Germany)  
Phone: +49 911 9673 0  
info@bintec-elmeg.com

### USA

Silicon Valley Offices  
718 University Ave. Suite 210  
Los Gatos, CA 95032 (USA).  
Phone: +1 408 892 9363

### Mexico

Diagonal 27. Colonia del Valle,  
Mexico D. F. 03100 (Mexico).  
Phone: +52(55)55232213

### Brazil

Rua Moaci 395, Office 123,  
Moema, CEP 04083-000 –  
São Paulo – SP, (Brasil),  
Phone: +55 11 9 9480 8522

### SPAIN

Head Office:  
Teldat S. A.  
Parque Tecnológico de Madrid  
28760 Tres Cantos, Madrid (Spain)  
Phone: +34 91 807 6565

### France

6 Avenue Neil Armstrong  
Immeuble le Lindbergh  
33692 MERIGNAC Cedex (France)  
Phone: +33 (0) 557356300

### Italy

Viale Edison 637  
20099 Sesto San Giovanni (MI) (Italy)  
Phone: +39(02)24416624

### Portugal

Rua Açúcar, 78  
1950-009 Lisboa, (Portugal)  
Phone: +351 21 862 20 40

### China

(A007), F10 SOHO Nexus Centre  
No19A, East 3rd Ring North Road,  
Chaoyang District, Beijing 100020  
(China). Phone: +86 10 57351071

D'Anna Piferrier 1-3  
08023 Barcelona (Spain)  
Phone: +34 93 253 0222

info@teldat.com - www.teldat.com