

ProCurve Networking by HP

# ProCurve Networking enables real-time video streaming from driverless Metro Torino trains



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**Joerg Painta**  
systems engineer  
Funkwerk plettac GmbH  
Germany

Italian transport giant Gruppo Torinese Trasporti (GTT) SpA employs over 5,000 personnel and transports some 190 million passengers every year on urban, suburban and out-of-town train and bus networks in the Italian city of Turin.

When tasked with the creation and construction of an entirely new transport network – Italy’s first automatic, driverless metro, the Metro Torino, GTT required a technically advanced network with an effective video surveillance system, because with so many automated functions, the new metro would have fewer permanent staff to ensure passenger safety and comfort.

### Technological challenges

GTT chose its video surveillance suppliers after a demanding pan-European tender process. Applicants had to prove in tests that their technology could transmit video streams from trains moving through tunnels at 80 kilometres per hour, connect to access points, using a standard IEEE wireless protocol, and receive this streamed data without breaks at the control centre.

After receiving numerous proposals for the new surveillance system, GTT eventually selected a solution based on ProCurve switches and Funkwerk CCTV cameras, as a result of their ability to demonstrate their expertise and quality of products. Alberto Forchino, communication systems manager of GTT, explains: “We looked at the detail of each tender proposal and selected the ProCurve and Funkwerk solution for its overall quality, flexibility and value.

“There were many technological challenges, so we needed dependable suppliers who could work closely with us. ProCurve and Funkwerk provided precisely the tight technical partnership we needed,” he adds.

### Tight partnership between ProCurve, Funkwerk and GTT

Funkwerk plettac, the German-based security specialist, was the lead partner responsible for the overall security solution and manufacture of the CCTV cameras. “We chose ProCurve switches because of their flexibility, affordability, huge power and small size,” explains Joerg Painta, systems engineer of Funkwerk plettac. “Other companies had larger and more expensive equipment, however ProCurve fitted perfectly into the overall surveillance solution and each ProCurve switch comes with its own lifetime warranty.”

The Metro Torino video surveillance system currently consists of 33 ProCurve switches including IGMP-based ProCurve 5400 switches, the award-winning 3500 series, the 3400 and 2600 series switches, as well as ProCurve Manager Plus software. The ProCurve Switch 5400 series is one of the most advanced intelligent edge switches available on the market today. Easy to deploy, operate and maintain, both the 5400 and 3500 series switches offer exceptional investment protection as they are highly flexible and scalable, with a foundation of purpose-built, programmable ASICs. What’s more, these switches, as with most ProCurve products, come with a lifetime warranty.

The Metro Torino system further comprises 550 Funkwerk CCTV cameras, 48 access points, an IP-based transport protocol, MPEG4-encoded video streams and real-time IEEE-based image transmission from trains, tunnels, stations and technical rooms to a central control room. Transmitted images are displayed in real time on a 28-screen control room wall, and stored on RAID disks for up to seven days.

### Objective

- To ensure public safety and stamp out vandalism and other criminal activity, Italian transport giant GTT wanted a real-time video surveillance system with a scaleable, powerful and flexible network capable of capturing video in every train and building of the new Metro Torino – Italy’s first automatic, driverless metro in the city of Turin – and transmitting these images to the central control room.

### Approach

- Undertook a demanding pan-European public tender to ensure the correct suppliers were chosen to achieve GTT’s objectives.
- GTT selected a solution featuring Funkwerk CCTV cameras and ProCurve switches because of their small size, huge power and flexibility.

### IT improvements

- Image quality is exceptionally clear, 28-screen data projection at control centre.
- Easy system expandability. The network can grow as the Metro Torino grows.
- Network flexibility. Data transmits across all physical connections: WIFI, optical ring, and normal copper.

### Business benefits

- Greatly improved public safety complying with European Commission and stakeholder requirements.
- Cost of vandalism slashed providing ROI in ten years, saving approximately €3 million (\$US3.87 million) per annum.
- Enhanced collaboration with Turin Police.
- Project achieved within budget and on time – completion essential for Turin 2006 Winter Olympics.

“We’re pleased with the excellent image quality of the ProCurve/Funkwerk surveillance solution,” explains Forchino. “Security personnel watch the control-room screens for any criminal activity, acts of vandalism or threats to passenger safety. With images that are clear to see – despite their technically complex journey from moving trains all the way to the control centre – staff are able to respond swiftly to every incident.”

ProCurve flexibility and scalability are key advantages, as GTT required easy network expansion. “When the Metro Torino grows as planned from under 8 km to 15 km in length, and from 11 to 21 stations, this unique ProCurve/Funkwerk video surveillance solution will simply grow too,” notes Forchino. “Built-in flexibility means we can transmit data across almost all physical connections: WIFI, optical ring, normal copper and more.”

#### Rapid return on investment

GTT has experienced numerous business benefits from the Metro Torino video surveillance system. Top of this list is greatly improved public safety through constant monitoring of trains, tunnels and stations from the central control room. “With the ProCurve/Funkwerk solution, we are now proud to comply with requirements of our stakeholders for protecting the public,” says Forchino.

The transport company invested a massive €3 million (\$US3.87 million) in this video surveillance solution. “In terms of vandalism savings alone, we anticipate a return on our investment within ten years,” states Forchino. “A metro of this size can lose €300,000 (\$US387,000) per annum to vandalism but the ProCurve/Funkwerk real-time video surveillance solution virtually eliminates this cost.”

A further benefit is the new level of collaboration that GTT now enjoys with the Turin Police. During the development stage, the local police asked if they could also receive images for their own criminal surveillance purposes. “Thanks to the expandability and flexibility of the ProCurve/Funkwerk video surveillance system, it was quick and easy to add a link between Turin’s central police station and the nearest metro station. The police now view the same real-time images on their own workstation.”

#### Delivered on time and within budget

On-time completion of the solution was essential for GTT. Forchino explains: “Turin hosted the Winter Olympics in February 2006, and for public safety reasons, the video surveillance system had to be ready in time. Strict implementation targets to hit deadlines were a key feature of this project; working together, ProCurve and Funkwerk achieved an on-time, on-budget solution.”

“The ProCurve/Funkwerk solution is certainly unique in Europe and possibly around the world. Because it works so well, I am certain that it will soon be emulated in many other metros,” concludes Forchino.



Alberto Forchino, communication systems manager, GTT, alongside the real-time video surveillance system

#### What Makes it Work?

##### Primary applications

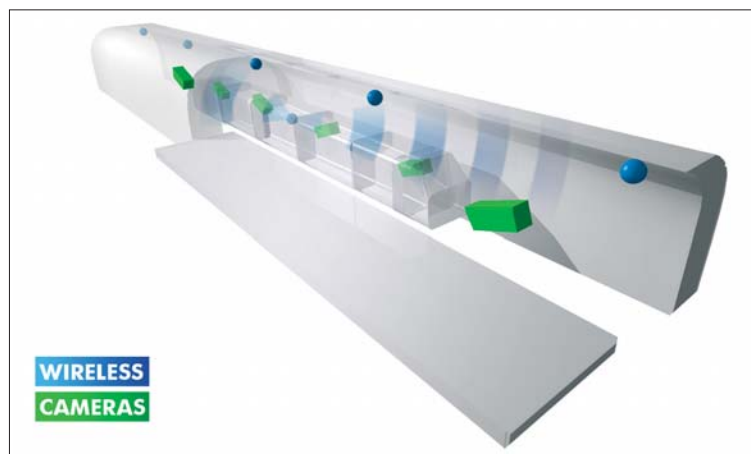
- Public transport surveillance.

##### Primary hardware

- 2 ProCurve Switches 5400zl Series (1 + 1 redundancy).
- 15 ProCurve Switches 3500yl Series.
- 1 ProCurve Switch 3400cl Series.
- 15 ProCurve Switches 2600 Series.
- 550 Funkwerk plettac CCTV cameras.

##### Primary software

- ProCurve Manager Plus.
- Funkwerk Video Network Streamer 102.
- Funkwerk plettac Open Security Architecture



Surveillance cameras (highlighted in green) are located alongside the wireless access points (highlighted in blue) between the train and platforms

**Customer at a glance:**

Industry sector: Public transport

Name: Gruppo Torinese Trasporti  
(GTT) SpA

Headquarters: Torino (Turin), Italy

Telephone: +39 011 57641

Number of employees: 5,240

URL: [www.comune.torino.it/gtt/en/](http://www.comune.torino.it/gtt/en/)

**Project partner:**

Company: Funkwerk plettac

Headquarters: Fuerth, Germany

Telephone: +49 911 758 840

Number of employees: 115

URL: [www.cctv-systeme.com](http://www.cctv-systeme.com)

Business: Security solutions

Products: Manufacturer of premium

CCTV cameras and supplier of

integrated security solutions

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Publication Number: 4AA1-0735EEW Written: April 2007

