

Editorial

Dear readers,

Something is happening in Europe: More and more people, politicians as well as ordinary citizens – are coming to the conclusion the CCTV monitoring of public spaces can make a significant contribution to deterring criminals and terrorists and to generating a feeling of security for the citizen. The hysterical reflex response experienced in earlier years is softening to quiet, objective consideration. That is gratifying.

Transport systems are increasingly the focus of interest in this regard. They attract several problem groups all at the same time: vandals, criminals and terrorists. It is just as well that we now have high performance, tried and tested systems for live surveillance of buses and trains. And we have made another breakthrough in this field: the transmission of video data from vehicles over IP. A successful pilot project is running in Rome. The new technology works and the advantages it offers are described in our leader article.

Other articles deal with the strengthening of our sales team and a strategic cooperation agreement with the technical services subsidiary of DB. Lastly we look briefly at our experience at this year's IFSEC in Birmingham.



I hope you find this informative and interesting reading!

Yours faithfully
Dr. Michael Weber

Leading Article

Technological Breakthrough

Live CCTV pictures from buses and trains via IP

It is already working in buses in the city of Rome: secure live transmission of video pictures over the internet. It offers many advantages, and it works very efficiently.



Technically speaking this DResearch development is really quite significant – because the available digital networks were set up for mobile phones and not for mobile video transmission.

Live pictures from public transport vehicles have many advantages over recordings. CCTV pictures recorded on hard disks are always 'after the event'. They can only help to reconstruct an accident or a crime after the event. Whereas live pictures from buses and trains enable the prompt and appropriate management of security personnel or rescue services. Besides this the control centre can check up any time to see if all mobile systems are available, and they can manage and maintain the mobile terminals by direct access.

For a long time there was only one serious option for the transmission of live pictures from vehicles: the analogue GSM mobile network which used dial-up to set up a point to point connection with a 9.6 kbit bandwidth between the control centre and the mobile transmission station. All other transmission networks such as WLAN or trunking were out of the question because even to this day there is still not 100% coverage with stable access anywhere in Germany.

If one wants constant availability of live pictures from buses and trains there is therefore only one alternative to the GSM network: IP based communication solutions using the internet. The transmission of video streams over IP which has been working in stationary surveillance for a long time is of course problematic with mobile transmission stations. The digital networks available today are not simple to use for mobile applications other than mobile phones. Problems occur with the dynamic allocation of IP addresses and the strict screening of the provider networks by firewalls. An IP solution also has to protect against attack from outside and to compensate for the instability of the connections.

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Leading Article

The benefits: Constant connection, better bandwidths, higher efficiency

There are five important advantages in using an UP solution for live video transmission in public transport:

- Reaction times:** Control rooms and vehicles are permanently online. If there is an alarm there is no time-consuming process setting up the connection to the security room. Incident management staff get an overview of the current situation very quickly and initiate appropriate measures to protect the passengers and drivers.
- Control:** It is always clear which of the mobile systems is available and which not. Each unavailability – such as when the monitored bus goes through a tunnel – appears in the log. If the unavailability exceeds a pre-defined period then an automatic report can be generated.
- Bandwidth:** One further advantage is in the high bandwidths which benefit picture quality and performance. The transmission rate depends – as always in the internet – on the actual bandwidth available. This can vary between one picture per second (in exceptional situations) and 25 picture per second. The average picture rate lies between 4 and 15 pictures per second.
- Provider costs:** Calling up UMTS or GPRS providers is free. Because in the internet one pays for the transferred data volume not for the connection, it is recommended to negotiate an individual data flat rate. The price for the permanently open communication channel is a matter for negotiation and even for single contracts is already below 50 Euros per month. There is therefore no economic pressure opposing the receipt of live pictures from all mobile terminals in the fleet.
- Remote servicing:** In addition the online solution enables other potential savings. It avoids the cost of manual hard disk handling; the video data stored in the mobile terminals can be called up at any time via the open data channel. Savings flow from the fact that the mobile systems are managed and serviced directly from the control room (online updates).

► Not insignificant: mobile surveillance over IP

In contrast to conventional networks fixed IP addresses are not readily available for mobile devices in UMTS or GPRS networks. Nowadays mobile devices work exclusively with dynamic IP addresses. When each new connection is set up the mobile user is given a new IP address which is not known to the other station. Because this is not a point to point connection the receiver station needs to at least be informed of the mobile user's current IP address, so that it can set up a connection.

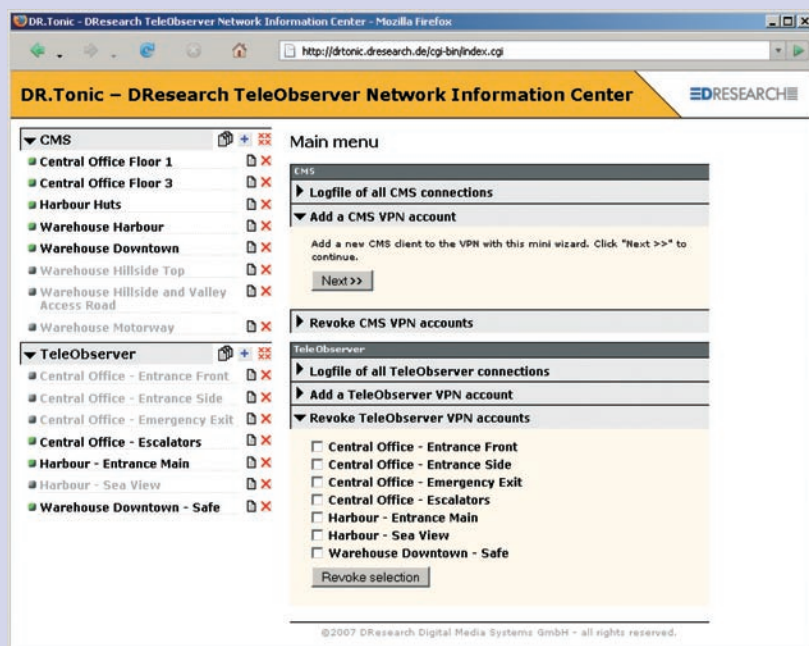
The transmission of sensitive video data automatically from the user's mobile terminal over the web involves third party service providers – the firms who manage the IP addresses in the network. This introduces considerable insecurity (no deep contractual regulation, no security against outages, openings for hackers etc.). Stationary IP surveillance systems also have this kind of problem – but are different because they use VPN-protected company networks which can be freely parameterised.

Another problem for the transmission of video streams over IP is posed by the providers' firewalls. In order to protect mobile phones against unauthorized access, the providers rigorously screen off their networks and all terminals. A digital network works like a fortress: communication from inside to the outside works if the provider opens the appropriate door (port). But on the other hand nothing goes from outside to inside. Mobile terminals in a provider network can therefore not be called up from outside – i.e. from the internet - without a mobile wireless provider. How can a permanently open, yet secure connection for video data be achieved?

Data transmission in your own 'tunnel'

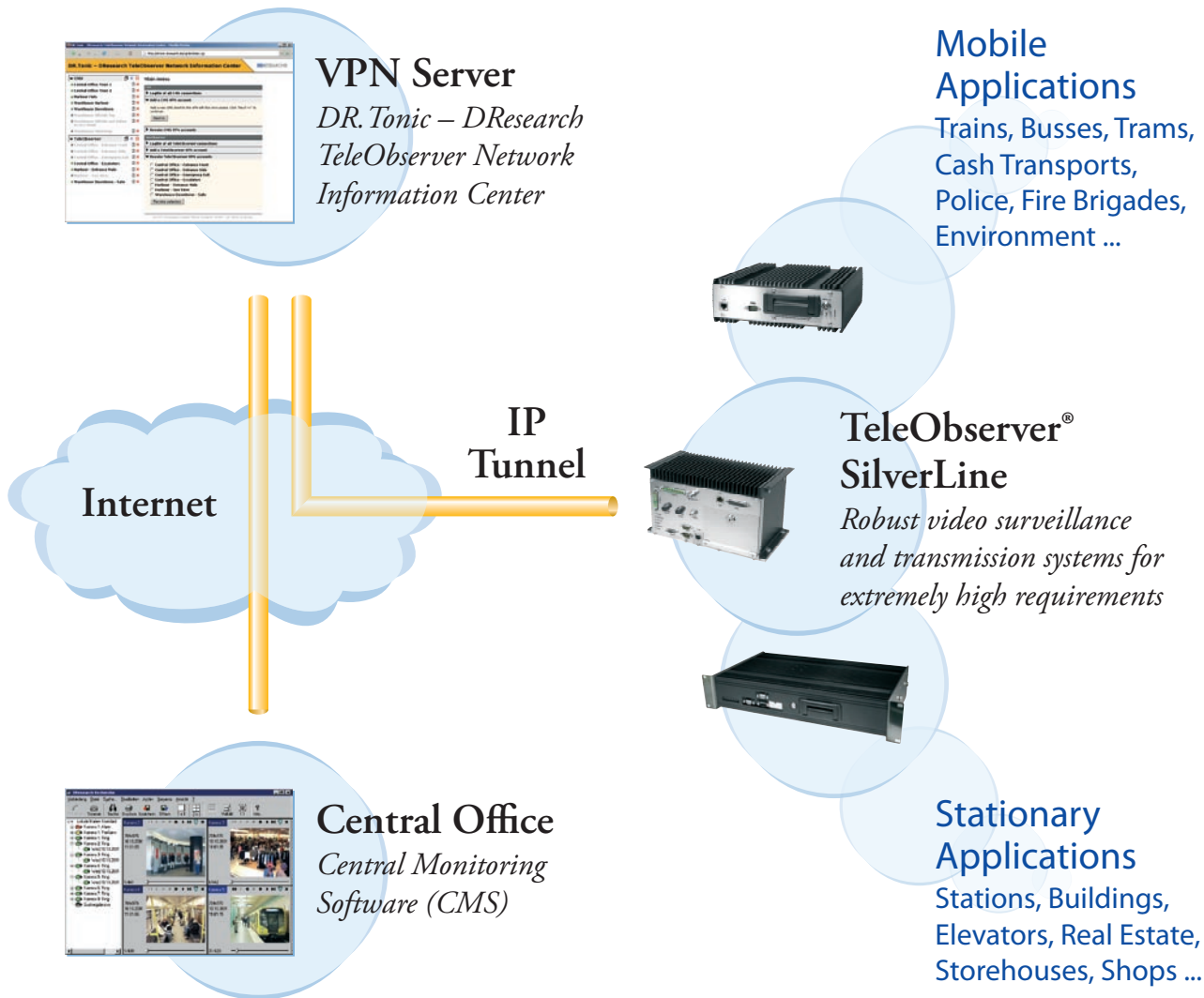
In the search for a solution DResearch has now developed a connection strategy based on OpenVPN and working under Linux which exploits the advantages of the latest network technology for mobile video surveillance. At the core of the solution is a software package for allocating keys and monitoring connections in digital networks.

Technically it works like this: the software generates individual key files which are loaded onto every terminal in a fleet. ►



DR.Tonic – DResearch TeleObserver Network Information Center

Leading Article



► The terminals in vehicles are not only the TeleObserver TO 3100 but also the analogue and/or IP cameras being used with it. When it is switched on the TeleObserver automatically connects with the OpenVPN server (usually made available and hosted by DResearch), and receives from it the current connection key which it then uses to go online permanently.

Since this happens automatically when the connection is set up, it means all active mobile terminals in the VPN can communicate with the control room in a secure 'tunnel' – regardless of the current provider's firewalls. On the other hand the control room is kept in the picture via all the mobile terminals and can view current video streams without having to dial-in specially.

Secure and user-friendly

The VPN is screened against attack from outside using the latest encryption algorithms with up to 256 Bit (AES) or 4.096 Bit (DH-RSA) keys. This in itself prevents any unauthorized access. In order to construct a system without any external participation, the VPN server can also be set up on a company server and looked after by the company itself.

The DR.Tonic (DResearch TeleObserver Network Information Center) user interface in the control room is structured so that it can be operated intuitively. Active transmission devices in the network are visible on the screen. Terminals in the system can be managed by mouse click. ■



ATAC Roma likes the DResearch solution using TeleObserver TO3100, DR.Tonic and VPN-Server so much that it wants to gradually extend its use to all its 600 buses.

Cooperation

Superbly positioned

Cooperative contract with Deutsche Bahn, the German rail provider



DResearch is signing a cooperation agreement with DB Kommunikationstechnik, the DB's universal technical service provider. This agreement covers the common marketing and technical implementation of CCTV surveillance solutions.

In future both companies will work together as partners in the mobile CCTV surveillance field. DResearch contributes

its tailor-made customer solutions for mobile video monitoring. While the rail subsidiary takes over responsibility for the implementation and maintenance of these installations.

Both sides profit from the co-operation. DResearch presents DB Kommunikationstechnik with the opportunity to offer its installation and maintenance skills everywhere where TeleObserver systems are already in use. DB Kommunikationstechnik reciprocates by supporting its partner in winning new customers.

Thanks to this sales partnership with DB Kommunikationstechnik, DResearch has an excellent platform for offering large groups such as the Deutsche Bahn mobile CCTV surveillance solutions. ■

Impressum

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Exhibition Review

IFSEC 2007

Lots of interest in the new IP solutions for public transport

DResearch was showing two new developments at this year's IFSEC, international security exhibition from 21st to 24th May 2007 in Birmingham: besides the DR.Tonic/VPN-Server solution (see leading article) DResearch was also showing a high performance hybrid recorder for use with analogue and network cameras. Both solutions attracted great interest among users.

Users of the latest TeleObserver MR3140, the third SilverLine model, can in future operate four digital network cameras alongside four analogue ones in a system. The recording rate over all eight cameras is 125 pictures per second. One important advantage of the new hybrid recorder is the high resolution of the digital video pictures (up to 6 megapixels). Another plus point is revealed during installation: one cable or WLAN is all that is required for connecting

network cameras. Hence data transmission within vehicles or between the carriages of a train is much easier.

Great interest was shown in the DR.Tonic/VPN server solution (see leading article). The success of the pilot scheme in Atac Roma's scheduled bus service was an important positive factor. The fact that the user has already planned a fleet expansion to 600 units was perceived as: a clear indication that the solution works efficiently and delivers a real increase in security. ■



TeleObserver® MR3140