

key touch[®]



customer magazine
3/2014

How to
ensure event
security

Communications
successes

Focus on your mission

WHO'S IN THIS ISSUE?

Want to know a little more about some of the experts who contribute to Key Touch? Look no further.



PETRA VAKIALA As Senior Editor Petra's role is to manage the editorial crew and make sure the magazine comes out on time. She also enjoys writing herself; in addition to that Petra is into horse riding, downhill skiing and interior design. @petravakiala



TIINA SAARISTO has been Editor-in-Chief for Key Touch magazine since 2003. "Writing for the magazine resembles my favourite hobby, quilting, where small pieces are sewn together to create a fascinating result," she says. @tiinasaaristo



JOUNI KEMPPAINEN Jouni has been a member of the cheerful TETRA team at Airbus Defence and Space for over a year now. His life-long interests have been in computers and technology and he now also focuses on IT, global trends and new media. During his free-time, Jouni is into hunting, fishing and photography.



ANKE STURTZEL is responsible for promoting Airbus Defence and Space in the international Professional Mobile Radio (PMR) trade press. Based in Paris and working with people around the globe, she also ensures Key Touch has stories on all the latest events and developments at Airbus Defence and Space. @ankstur



SATU LAMBERG has many roles in her life. Being a wife for 30 years means devotion and stability. Motherhood of two daughters brings joy and happiness and a role of a grandmother of two granddaughters continuity and pride. Working in Terminals Marketing opens a view to the commitment and enthusiasm of radio users worldwide.



TUOMAS KORPI writes for Key Touch on control room solutions, smart grids, data and applications. When not working, Tuomas is busy completing his new house and learning about interior design.



JEAN-MICHEL DUMAZERT juggles his time between work, family, scuba diving and being a local councillor. Since September 2010 he's now added to his packed schedule by contributing to Key Touch as TETRAPOL correspondent.

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A year of events ...



WELCOME to the latest edition of Key Touch. 2014 has been a year of special events and commemorations, from the joy and excitement of the FIFA World Cup in Brazil, to the sombre marking of the sacrifices of the two world wars.

With the need to safeguard three million enthusiastic football spectators across the country, Brazil's police forces made good use of their Tetrapol solutions from Airbus Defence and Space, including a new IP network that provided advanced securely encrypted digital communication for voice and data.

Tetrapol was also on hand to help the 70th anniversary of the D-Day landings, giving full interoperability between two mobile police forces. Similarly, the TETRA based ASTRID network in Belgium coped with 20 times the normal traffic as it helped the country mark the start of the Great War.

On a happier note, King Felipe VI of Spain was sworn in, with Spanish police using the country's Tetrapol network SIRDEE to keep everything running smoothly.

But it's not just major newsworthy events like this that need communications support. Read how Finland's VIRVE helps keeps the world's fastest car rally on track and how Sweden's Rakel helps the 15,000 participants in the world's oldest and longest

cross country skiing race meet the challenge of the elements.

Coming back indoors, a hospital in Finland is using VIRVE to bring medical staff quickly to the scene of an emergency, saving valuable time that can be used to treat patients.

The world of TETRA never stands still and that is true for Airbus Defence and Space. If you are attending PMRExpo in Cologne in November, look out for our new radio. For further details please see the back cover!

Before I sign off I'd just like to highlight the recent announcement by Airbus Defence and Space to sell its PMR business. With mobile communications technology smoothly shifting towards LTE, the time is right to hand over to a company that can take the business forward to meet new challenges and to further strengthen our position and portfolio. Rest assured that your relationship with the company and our commitments towards our product portfolio remain unchanged and that you will continue to receive the highest quality service together with innovative products and services.

A handwritten signature in black ink, appearing to read 'Nicole Lecca', written over a horizontal line.

Nicole Lecca

Senior Vice President
Secure Land Communications

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FIFA World Cup 2014

Brazilian police score communications success

It was one of the most exciting and unpredictable world cup tournaments ever. From the host nation Brazil crashing out spectacularly, to Suarez nibbling an opponent, the matches proved irresistible. Behind the scenes, two Tetrapol networks also won acclaim for helping the police forces keep fans safe.

Keeping tens of thousands of spectators safe at any international football match is a tough task. Imagine then the challenge facing Brazil's public safety and security forces during this year's sparkling FIFA World Cup in June and July. Over a period of 32 days, 64 football matches were played in 12 different cities, attracting around 3 million spectators, with another 4.5 million or more people watching the action at the public viewing events - the FIFA fan fests.

Despite the huge challenges, the tournament was kept largely trouble-

free thanks to the work of the Federal Police, the Ceará State Police and other local police forces. Supporting this success were two Airbus Defence and Space Tetrapol networks, providing secure communications for 7,500 police officers. Ensuring seamless communication in the host city areas, the football stadiums and the FIFA fan fest areas, the networks made a major contribution to the integrated operations of the security forces and rescue services.

Experts on site 24/7

To help ensure that the networks were always available and that com-

munications worked seamlessly and reliably, Airbus Defence and Space also put a team of experts in place in Brazil to provide 24-hour on-site support.

To provide overall security throughout the entire tournament, the Federal Police Department (DPF) used the Brazilian national secure Tetrapol radio network, Integrapol, implemented between 2005 and 2010. In particular, the integration of all DPF units from the Brazilian states into this network has become a cornerstone of national public safety to solve the challenges of large events in Brazil.

According to Dr. Kandy Takahashi, Chief of DPF Superintendency in Rio Grande do Norte State: "A key operational point was the perfect Tetrapol telecommunications support made available during the whole event. This worked without a single failure, proving the robustness of the technology, assuring the return on





investment and giving us confidence for future investments.” The overall network is composed of more than 280 radio sites and tactical repeaters.

New network for Fortaleza

In addition, the state police forces of Ceará were equipped with a new Tetrapol IP (Internet protocol) network from Airbus Defence and Space. Fortaleza, which is in the Ceará region, hosted six football games, and the new network provided advanced, securely encrypted digital communication for voice and data. The network is a key component of the newly inaugurated regional command and control centre of the state police forces in Fortaleza (CIOPS).

The centre supports the state police in urban monitoring, surveillance and the management of police, medical and rescue services. Col. Kenne-

dy Lopes, Chief of CIOPS, says: “For example, in the Fifa fan fest areas, we were able to establish a totally integrated operation model never put in place before. This enabled us to act immediately and in a very effective way, thanks to the Tetrapol data and voice communication support added to our fixed monitoring system.”

So although the events on the pitch were unpredictable and sometimes chaotic, Brazil’s public safety and security forces had the latest communications tools to help maintain order and protect the millions of fans experiencing the joy of winning or the despair of losing.



Blue Light Mobile

puts data comms back under one umbrella

Belgian Public safety users are increasingly demanding mobile broadband services. But how can they use the best of commercial services without returning to the pre-TETRA days of separate communications systems? Belgian operator ASTRID has the answer.

When it comes to critical voice services, Belgian Public Safety organisations rely on ASTRID, which has been meeting their needs since the 1990s. Today around 55,000 users are served by the network, which is based on TETRA solutions from Airbus Defence and Space. Organisations relying on ASTRID include not only the fire brigades

and police but also Customs, Ambulance Services, Civil Protection, several electricity and gas companies, and the Red Cross.

Voice communications for these organisations will rely on TETRA technology for at least the next ten years. But what about data? Increasingly, users have critical needs that are best met by mobile broadband. They want to exchange information between ambulance and hospital that will ensure doctors are ready with the right treatments when the patient arrives, while police want quick access to pictures of suspects or missing persons.

There was a clear danger that these and other ASTRID-using organisations would do this on their own through a variety of 3G service providers, leading to a return to the bad old days of siloed communications and a consequent degradation in their ability to work together.



Add in the inherent insecurity of 3G and clearly something else is needed.

A new role for ASTRID

To avoid this fate, ASTRID decided to adopt a second role in addition to providing TETRA services and turn itself into a Mobile Virtual Network Operator, or MVNO. To achieve this, ASTRID launched Blue Light Mobile, which enables the emergency and security services in Belgium



to use commercial 3G networks. A single SIM card gives access within a secure environment to three Belgian operators, as well as 11 operators in four neighbouring countries. This gives the service provider the best coverage in Belgium and in the border regions. In locations where the coverage of one network is lost, the user's tablet or laptop will automatically switch to another available network. ASTRID also provides guarantees on the security of the network data through the use of a Virtual Private Network.

Using Blue Light Mobile means that searches of databases can be done more quickly and efficiently. Photos or video images can be sent directly from security cameras to mobile media, while police officers can be alerted if a motorway camera identifies a stolen car. The SIM card provides access to the emergency and security services' private cloud, giving secure access to their own applications. This means teams in the field can log on to their service's intranet, allowing them to deal with some administrative tasks while away from the office and making more efficient use of their time.

The launch of Blue Light Mobile has caused some misconceptions that need to be cleared up. Some users think the service is also used for radios and voice



communications, while others think that ASTRID has abandoned TETRA altogether. Nothing could be further from the truth. TETRA remains the main service, while Blue Light Mobile is only for data, laptops and mobile data terminals.

Already in use

Blue Light Mobile has already passed the first tests, undergoing



successful trials with ten police zones and fire services. The police zone for Beveren in the province of East-Flanders was the first of these pilots and results are very encouraging, even in some challenging conditions. The Beveren police zone lies along the border with the Netherlands and covers a large port area, which affects available coverage. Yet teams in the field have reported that data com-

munications via Blue Light Mobile are even faster than those using a fixed computer back at the station.

Niko Lardenoit, functional and technical manager for the Beveren police zone, says: "The big advantage of Blue Light Mobile is simply that it enables you to work faster. You no longer need to make a call to dispatching – you can search the database directly in the field. This reduces

incidences of mistakes."

For Belgian public authorities, the launch of Blue Light Mobile marks a new era in information sharing. More than 80 organisations are already using Blue Light Mobile which allows them to make the best use of mobile broadband as well as its all-important apps, while continuing to be able to work and communicate together under ASTRID.

ASTRID steps into the breach for a century of memories

Belgian TETRA network operator ASTRID is no stranger to supporting major events. Getting that support right was essential for this year's First World War commemorations, when ASTRID helped the country and the world honour the sacrifice of so many.

Large scale events can provide many challenges for PMR operators, but few have been as significant as the recent Great War commemorations in Belgium in August. Taking place in the historic towns of Liège, Leuven and Mons, the event saw numerous dignitaries and VIPs visiting to mark the outbreak of the 'war to end all wars.'

Among the visitors were several royals - Belgium's King Philippe and Queen Mathilde, the UK's Prince William, the Duchess of Cambridge and Prince Harry, and King Felipe VI of Spain – as well as many government leaders, ministers and high ranking representatives.

The presence of so many VIPs made exceptional security measures a necessity, with hundreds of agents and police deployed.

Twice the traffic

The provincial control rooms and the crisis and command centres were hives of activity. As could be expected, managing the events generated far more radio traffic than on a normal day, with double the normal radio traffic on over 20 ASTRID base stations in Liège, Leuven and Mons.

Before the events, ASTRID conducted coverage and capacity measurements. To achieve better usability of the radios, ASTRID provided a temporary strengthening of the capacity. One carrier was added on a base station in Liège while a mobile base station was also set up near the St Symphorien cemetery. Finally, a reinforced technical team was also on hand to handle any incident.

Daniel Haché, Director External Relations for ASTRID, says: "As has already been frequently demonstrated at large-scale events, TETRA proves its added value in critical situations. Despite an exceptional network load, the in-



frastructure was able to handle the traffic peaks thanks to constant network monitoring, but above all thanks to the excellent cooperation between all the security services."

A strict communication plan

For events of this size, good radio discipline is an absolute necessity. This discipline involves avoiding individual



Belga Image

calls and scanning, using DMO on short distances, keeping the PTT button pressed, keeping calls short and to the point.

Co-ordination between motorcyclists, foot teams, mounted police units, helicopters, vehicles, command centres and provincial control rooms also requires a structured radio communication.

For the memorial ceremonies, the different security services made clear agreements about the communication structure, using talk groups to the best advantage.

Overall, the events were a success, one that was ably supported by ASTRID.

Mobile TETRA radio coverage where it's needed

Even when PMR networks have been well planned and developed, there may be an additional need to set up mobile network coverage rapidly and flexibly.

PMR networks offer excellent coverage for their planned area, but what about when unusual or unexpected events occur?

Scheduled major events such as concerts and sports matches or unplanned incidents such as a train or plane crash, storm damage or flooding may make it necessary to extend existing PMR networks at short notice. Temporary increases in coverage can involve costly planning to add and remove extra equipment.

Although sites will have redundant equipment that can compensate for damage, a quick fix for disruptions in the network is not always possible, or cost-effective.

One answer to these challenges is to use a vehicle with mobile TETRA radio coverage.

Two approaches to mobile coverage

Mobile radio coverage can take two forms. In system mode, the mobile coverage unit is connected to the PMR network to give the same service. In this case, the vehicle is equipped with a mobile base station, for example the TB3p mini TETRA base station, an antenna and a satellite terminal.

In standalone mode, the vehicle has all the above plus a mobile switching unit, such as the DXT3p from Airbus Defence and Space. Optional workstations for radio dispatchers can also be integrated to provide technical monitoring or to help manage users.

Rapid connection via satellite

Using a satellite link, it is possible to connect the base station to the core network. All the usual TETRA services such as group and individual calls and SDS messages work the same way through a satellite link.

Last year, Airbus Defence and Space successfully demonstrated



the base station connection via satellite link to the end-users community in Belgium. The Belgian network operator ASTRID is planning to deploy a mobile base station connected via satellite link in the very near future.

Airbus Defence and Space offers satellite connection throughout the world, allowing communication between widely separated TETRA cells. Essentially, a satellite link can be set up at any location, allowing any region across the world to communicate with another. Furthermore, the satellite link can be provided immediately or after a defined activation time, for example half an hour or one day, according to the needs of the users.

The transmission path taken by the data is always known, ensuring full control of data flow. Satellite terminals also offer high protection against eavesdropping as well as different levels of encryption.

Easy to set up anywhere

Mobile satellite systems can be transported in any medium-sized vehicle or in a special trailer. After arriving at a suitable location, the antenna homes in on the required satellite independently and fully automatically, at the

push of a button, establishing the radio link and making immediate connection to the PMR network.

In contrast to the usual satellite telephone services, the Airbus Defence and Space service can provide exclusive access to the appointed bandwidth and ensure the required data transfer rate.

Depending on how the organisation uses the service, it can be set up for immediate operational readiness (premium service) or for planned operations with warning times of hours or days (basic or standard service).

The mobile TETRA elements

The TB3p mini TETRA base station is easy to integrate into almost any vehicle so it can be deployed practically anywhere. It also offers up to two carriers to provide additional coverage. Despite its compact form it provides all the same TETRA services as the

larger base stations and, provided it uses the same system version as the PMR network, can be readily linked to these base stations via satellite. The TB3p's stand-alone mode enables the base station to be used in isolation and offers basic TETRA services for immediate deployment.

The DXT3p offers switch functionality in compact form, enabling small stand-alone networks to be set up in any location. Like its big brothers, DXT3 and DXTip, the DXT3p's components are based on the telco carrier-grade platform, which means extreme availability.

Combined with a mobile satellite unit, the TB3p base station and the DXT3p compact switch make a great combo that can deliver continuous radio coverage whenever and wherever needed.



From 45 networks to just one in South Tyrol

TETRA is stepping up to the challenge of providing communications across one of Italy's most mountainous areas, cutting the number of public networks from 45 to just one.

Known for its beautiful landscape and excellent food, South Tyrol is an autonomous province of Italy. As well as its scenery, in the near future a visitor may also spot public safety professionals carrying a TETRA radio and us-

ing any of the province's three official languages: German, Italian and Ladin.

The region's first TETRA radio cell went on air this summer, a major milestone for the project team from Airbus Defence and Space and Centre Communication Systems. The core TETRA network consists of the DXT switch, the first 56 TB3 base stations and RCS9500 radio dispatcher stations.





The region's stunning scenery of mountains and valleys is extremely challenging for such a project that has a goal of 90% coverage. The main road network, for example, includes over 28 tunnels. Taking on this challenge is the TB3 base station, which offers wide coverage and excellent sensitivity. The base stations will also be equipped with GPS antennas for seamless handover.

Cutting costs with a single network

Both professional and volunteer civil protection organisations will use the network, including fire fighters, mountain rescuers, first aiders, forestry services, flood

The main road network includes over 28 tunnels.

protection and highway maintenance personnel.

These organisations currently use about 45 radio communication systems for various needs. Using just one TETRA network to provide all radio communication services will cut maintenance costs significantly.

Easy extensions from the start


The first phase of the project will provide TETRA communication services for the largest cities and the main road network. At the same time integration to other

systems, including control rooms, will be done. Even in this phase, the core switch will be equipped with the ability to interconnect to base stations both over E1 and IP connections, making future extensions as flexible and easy as possible.

This phase is expected to last until summer 2015 as many radio sites are not accessible outside the summer months. Many are also only accessible with a helicopter.

In the next phases of the project, network coverage will be improved, an extremely important aspect for rescue organizations that need to get to even the most difficult places in the region.

Both visitors to and residents of the region will soon be able to enjoy the area in the knowledge they have help at hand, wherever they go.

A high-angle photograph of a firefighter in a bucket, looking down at a red fire truck on a city street. The firefighter is wearing a helmet and a dark jacket with yellow reflective stripes. The fire truck is red with yellow and white markings. The background shows a city street with trees and buildings.

Need to know what strategies can help migrate your Tetrapol network to IP? Read on and then let us help plan your own way forward.

SOLUTIONS

MAKE THE IP POWERPLAY YOUR NEXT MOVE

Telecommunication networks are major investments. To maintain the value of that investment, network operators need to upgrade them regularly, adding new functions to improve reliability or reduce operating costs.

For Tetrapol networks, this development takes the form of IP migration, which will keep the network modern and secure its services for the future. It will also prepare the network and users for mission critical broadband services over LTE that will be available before the end of the decade.

Improved reliability and lower operational costs

Tetrapol IP migration upgrades base stations to the newest technical level, improving reliability for the next 15 years. The network uses less frequency by reducing channel spacing. At the same time, it increases network capacity significantly, as software can be used to accurately size the network to meet operational needs. Together with IP transmission, this minimises transmission costs and is also a pre-requisite for using future PMR network technologies like LTE.

There are two approaches to IP migration: going step-by-step using TDM-IP gateways and migrating the network region-by-region.

Mexico goes step-by-step

A smooth migration can be achieved through the use of TDM-IP gateways, avoiding the need to make the migration investment in one step. Some radio network users may benefit without waiting for the full network. In urban areas, for example, the need



for increased capacity is greater than in rural or suburban areas.

The core network technology is first upgraded to IP to offer high-speed data services over LTE as users need them and to enable more applications with IP connectivity.

New Base Stations and Control Nodes are deployed while maintaining the TDM network in service. Radio Gateways allow both networks to co-operate. When IP network deployment is finished, the TDM network can be shut down.

France migrates region-by-region

France has elected to migrate its national Tetrapol network to IP region-by-region. Instead of radio gateways between TDM and IP, entire IP network elements have been deployed and commissioned - once fully op-

erational, the TDM network is shut down.

The Corsican IP network has been operational since 2013, while other networks are being migrated during 2014.

What is your IP migration strategy?

IP migration can deliver great benefits immediately - however, Airbus Defence and Space can help you improve your network still further for more efficient services, as well as reducing your operational and maintenance costs.

To start planning your own IP migration strategy, contact your local sales representative for a white paper and an analysis of how IP migration could be done in your network.



EFE/Juan Carlos Cardenas

Tight security as Spain's King Felipe is crowned

Spain's national mobile voice and data communications network (SIRDEE) was on hand to help proceedings go smoothly when the country's new King Felipe VI was sworn in.

The SIRDEE system is based on Tetrapol technology from Airbus Defence and Space. As part of the communications plan for the Proclamation Day, the network was used to coordinate the activities of the National Police, which deployed 4,300 officers, including 120 snipers on the rooftops along the procession route. There were also 860 members of the Civil Guard, 40 special agents searching for explosives and a police dog unit.

The number of SIRDEE network users more than doubled during peak times on the Proclamation Day and almost tripled in the busiest area without any negative effects on net-

work performance. Individual calls increased by 160% with full availability for Tetrapol users, while group calls also rose by 59%.

Spanish security forces have previously relied on SIRDEE during large-scale events like Pope Benedict XVI's

four-day visit to Madrid on the World Youth Day in 2011 with over 1.5 million visitors, the Royal wedding of the new king in 2004 and major emergencies where SIRDEE proved to be a reliable and efficient communications system.



Lehtikuvu / AFP Photo / Pedro Armestre

Tetrapol secures the beaches 70 years after D-Day landings

Overlord, Gold, Juno, Sword, Utah, Omaha – to these illustrious names can be added Rubis and Topaze, which played their part recently in helping secure the landing beaches of Normandy, 70 years after the allies stormed ashore to liberate Europe.

Topaze and Rubis are Tetrapol-based communications networks used by French Police, firefighters and Gendarmerie. The national shared transmission infrastructure (Infrastructure Nationale Partageable des Transmissions) INPT also played an important role in the operation. The systems were used to good effect this June by 12,000 police and military police officers, firefighters and military staff as they provided security for visiting dignitaries, including the President of France, François Hollande, the President of the United States of America, Barack Obama,

Her Majesty Queen Elizabeth II and the British Prime Minister, David Cameron.

The organisation of numerous national and international ceremonies over the wide area of the landing beaches was a real challenge, both in terms of logistics and security as well as human resources. Secure interoperable radio communications systems provided by Airbus Defence and Space were used to guarantee security at this major international event.

The tactical Topaze network (PTN), which is based on Airbus Defence and Space's Tetrapol technology, was connected to Rubis, used by the Gendarmerie, to ensure full interoperability between the two mobile police forces, as well as with the armed forces. Thanks to Topaze, a tactical secure communication system be could rapidly set up, guaranteeing that transmission facilities would be available at all sensitive locations.

Topaze can be used to create additional radio coverage or network capacity by adding up to 11 additional base stations in the field.



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Lehtikuvu / AFP Photo / Jean-Sebastien Evraud

At the Neste Oil Rally in Finland, Virve radios were 'an absolute must', for everything from event management to critical security communications.



Keeping speed safe

Excitement is in the air. There is only half an hour until the first cars cross the start line at this year's Neste Oil Rally Finland (NORF), the fastest in the World Rally Championship. At the NORF Control Centre, different mobile devices are on the tables - Virve radios, VHF radios and GSM phones, while wall maps show the Lankamaa special stage and threatening storm fronts. Jari Wilén, rescue commander for NORF, is on the phone almost constantly.

Wilén has been involved in the rallies for the last 12 years and

knows its security organisation inside out. He has arranged for a helicopter to hover above the event area, while several hundred VHF radios, together with mobile phones, are used for non-critical communications.

The rescue organizations use their field commanding system, PEKE, to follow the rescue units' locations. The maps on the wall show the times and places where the rescue and emergency care "satellite units" and medical helicopter are located.

Every year since 2001, the organisers have used Finland's na-

tional authority radio network, Virve for event security and communication.

The Virve radio network comes into its own helping manage the event security. For critical security communications, NORF has rented 136 handheld radios from the Kuopio rescue academy. In addition, around 100 authority users have connected their Virve radios into rally-specific talk groups.

"If we could give out a Virve radio to everyone involved, it would make things a lot easier," Wilén says.

For the rally, several Virve talk



Photo: Maria Kuula

Jari Wilén, rescue commander for NORF



groups have been set up, two general groups for the first responders, one group for the lead cars that prepare the rally routes, and a group for each special stage. Many of the people using the Virve radios during the rally have had less than a day's training. But that has not been a problem, thanks to easy-to-use radios from Airbus Defence and Space. The radios have worked perfectly throughout the event.

During the special stages,

Virve groups are used at the start, at the mid point and at the finish line. The rally organization and the emergency response centre also have a shared talk group. Throughout the event, the emergency response centre employs a special rally desk whose dispatcher is dedicated to event-related communications and messages.

Wilén explains the importance of Virve: "We operate in the same radio network as all authorities. If this were a rally only network, I

don't think rally communications would be possible any more. It is an absolute must."

Even the local radio station has its own Virve talk group and last year helped warn spectators to keep off the track.

As the start draws closer, all eyes are on the wall displaying the Lankamaa special stage route. The lead car checking the route has announced everything is ready. Suddenly, there is a call saying that a spectator nearby is suffering from chest pains. An ambulance is dispatched to the site. There is a risk of a delayed start for the rally. If this happens, it is disappointing but safety must always be the true winner.

Translation from the Finnish original written by Maria Kuula, Erillisverkot

Satellite link

A mobile satellite-connected Virve base station was tested at the Neste Oil Rally, offering extra radio coverage over the Jämsä region where an historic rally special stage was driven. Using a normal Virve base station set up in a trailer, the satellite link was set up well before the special stage.

When thousands of skiers set out on a grueling cross country course, providing medical assistance at the drop of a ski hat could prove difficult. Not, though, if you are connected to Rakel, Sweden's nationwide PMR network.

The oldest and longest race of its type in the world, Vasaloppet is also the biggest and this year attracted 15,000 skiers to the main event between the village of

Sälen and town of Mora, as well as 40,000 to related races.

Because the public mobile network lacks coverage and becomes overloaded, the Vasaloppet healthcare organization uses Rakel during the event and has done for three years. The system really comes into its own when conditions start to get tough. As darkness falls, there may be several hundred skiers still struggling to the finish line, the final stage of a 12 hour battle against the elements and their own fatigue.

Rapid response

Race participants who suffer illnesses and injuries along the race's course can expect a rapid and effective response. Two talk groups are enough to co-ordinate healthcare along the course. Alarms and coordination between health care resources are managed in one talk group. Transportation and logistics from medical checks are handled in another one. For this reason, even medical radio exchange is divided into two segments, one for each talk group.

The radio system has to be easy to use, as most of the volun-

Safeguarding 15,000 skiers across a 90 km course? All in a day's work for Rakel.

Rakel brings skiers in from the cold

Lehtikuvu / AFP Photo / Jonathan Nackstrand

teers only use the radio for one week a year, during Vasaloppet itself. The good cooperation between the alarm centre in Falun and the temporarily established radio central is important, with direct contact at the alarm to exchange information.

Doctors on snowmobiles

To safeguard the skiers, healthcare professionals are stationed at each Vasalopps Control centre, each of which also has rescue snowmobiles to reach patients wherever they are.

Following the skiers are another nine snowmobiles, five

from the Mountain Rescue team and four from the Vasaloppet team. All have GPS-positioning and can also be seen on the radio center's map.

The system showed how it works in reality at this year's event when a participant suffered severe chest pain during the race. Rescue Snowmobile 3, with doctors on board, was 1.5 km behind the victim and was alarmed by the radio control center to get to the patient. This snowmobile had trouble getting up the track so Rescue Snowmobile 2, which was aware of both the alarm and the second snowmobile's problems, reported its position and went to offer its support.

Both snowmobiles reached the place almost simultaneously, about 10 minutes after the alarm. Meanwhile, the nearest ambulance had arrived alerted via a SDS.

The police also played their part. Having been alerted to the incident via one of the talk groups, they announced via Rakel that a police helicopter has confirmed that the route to the hospital is clear and the ambulance would have a police escort. All this was handled very quickly and smoothly and all in the same talk group, ensuring that race participants have the coordinated response they need to keep them safe.

The healthcare professionals are stationed at each Vasalopps Control centre with their rescue snowmobiles.

Vasaloppet healthcare organization has been using Rakel during the event successfully for three years.





Vast forest fire gives Rakel a hot time

Emergencies are just what Sweden's TETRA-based Rakel network was designed for and there is no hotter emergency than a huge forest fire. Despite the great challenges and immense danger, TETRA's versatility allowed the network to cope.

When Sweden's largest forest fire in more than 40 years broke out in the country's Västmanland, firefighters and MSB, the operator of the country's public safety network Rakel, knew they had a major challenge on their hands. Breaking out in an area only 140 kilometers north of the capital Stockholm and caused by the

heatwave sweeping Northern Europe, the fire spread until it raged over some 15,000 square kilometers, an area more than a quarter the size of Switzerland.

The fire killed one man and seriously injured another, while a number of properties were also destroyed. Clearly, firefighters faced a huge task in tackling this dangerous fire and stopping it causing even more injuries and damage.

The fire crews were of course greatly assisted by the country's Rakel network, which had the versatility to cope with the rapidly changing conditions caused by the fire.

Anders Grundin, Rakel project manager at MSB, says: "Technically, Rakel worked extremely well during the operations. On the other hand, people had some challenges with working methods, for example when it came to communicating between the different organisations on site."

"When we saw the fire start to escalate, we set up extra monitoring on the Rakel base stations in the area affected. Several base



Photos: MSB Angas.



stations were upgraded to handle double capacity, allowing us to manage the increase in traffic. We also set up a depot stocked with spare Rakel parts in the area and a mobile base station was made ready so it could be used if any of the regular base stations in the area were damaged. Luckily, however, the spare base station

was not needed," says Grundin.

MSB lent around 40 Rakel radios to staff at the site, to make it easier for them to communicate. MSB also supported the fire crews by answering many technical questions about Rakel.

The terrain in which the fire spread is very hilly, which meant that the radio coverage was not

perfect. But even in patchy coverage areas, people could still communicate over Rakel. For example, there was the possibility to use a strategically placed vehicle-mounted Rakelmobil, which in Gateway Mode, allowed users to stay in contact with the Rakel network.

Added Grundin: "We will make a deeper evaluation of Rakel's ability to function during the operations so we can learn from this before we encounter similar situations in the future. We also intend to improve the national guidelines for cooperation over Rakel."

Young fire-fighters learn the ropes

A camp for young fire-fighters encouraged new skills and friendships, all ably supported by a TETRA network supplied by Airbus Defence and Space.

Over 3,000 young people gathered in Finland this summer to learn valuable fire-fighting skills. Taking place at Kirjurinluoto, Pori, the week-long VIKSU 2014 International Camp for Young Firefighters gave boys and girls the opportunity to take part in courses in which they practised fire-fighting skills and learnt about the safety cultures of other countries.

The camp was designed to encourage young people to be more

active in society and gave them the chance to voice their own opinions. It also helped improve social skills, by creating opportunities to meet new people and make new friends.

Airbus Defence and Space played an important role in helping the week go smoothly by providing a radio system based on TETRA technology – a base station and 50 radios. The organisers of the camp spent the week using the system to communicate with each other. Good radio communication was vital to help the organisers to co-ordinate activities, which often took place over a wide area.

Training for emergencies

As a part of the camp activities, a special disaster exercise was carried out, simulating a major downburst on the camp that causes an emer-



The camp was designed to encourage young people to be more active in society and gave them the chance to voice their own opinions.



*Finnish president
Sauli Niinistö
and his wife
visiting the camp
accompanied by
camp's safety
manager Mika
Gröndahl.*

gency situation. The whole exercise was planned by a student from Laurea University of Applied Sciences, and with the subsequent analysis will form their thesis. The exercise was also part of the international Macico project which examines multiagency co-operation in cross-border operations. The purpose was to test how the camp organisation would operate and communicate during such an event. In a real situation, the downburst could well have caused several injuries as well as broader destruction across the entire camp area. The Airbus Defence and Space TETRA network and radios were used to co-ordinate response to the 'disaster'.

A situational awareness system with video transmission capabilities by Eye Solutions was tested during the camp. Real-time video was captured by smartphones and transmitted to the camp's control center. Ajeco, a Finnish high technology company, provided a telecommunications solution to ensure the continuity of information to and from the control center. Positive feedback was gathered and the transmission worked extremely well, but during the disaster exercise

the people present in the control centre did not really make full use of this video material, even if training was given earlier on. It was concluded that personnel are not accustomed to using video material in these situations and would need more practice. As the saying goes, a picture is worth a thousand words and so should video material be.

President sees youngsters in action

President of the Republic Sauli Niinistö and Mrs Jenni Haukio paid a visit to the camp and saw the participants undertaking a number of courses and activities. During one course the youngsters learned how to extinguish a grease fire correctly.

The President appreciated what he saw and told the organisers that he values the work of the voluntary fire brigades. "The best thing was to see youngsters in action and active," he said.

Value of more advanced features highlighted

The camp's safety manager, Mika Gröndahl, appreciated the TETRA

network's capabilities: "Equipping more than 50 people with proper and well-functioning radios is always a challenge. And when it's not only public information one is sharing, but confidential and personal information too, you require more from a radio than just the ability to convey a message. TETRA was just right for this purpose.

The camps' medical and safety teams demand a lot from the system - it must work, information must flow and the information must stay only in the possession of the people



intended. However, during the disaster exercise even if the radios were easy and simple to use, we found that the demo network with just the basic features wasn't enough. More features were needed, such as ability to set priority groups as well as being able to take multiple calls at the same time. With a more advanced network this could have been achieved."

For the president's visit, Gröndahl had the overall responsibility for things working as they should: "I was with the president constantly, keeping a TETRA radio in hand, ready to act if something unexpected happened. I used the radio to interact with my safety team to ensure the visit stayed on schedule. The youngsters really enjoyed the visit of the president and his wife and it also gave the camp a lot of publicity."

Still using the TBS2?

It's time to upgrade

Key Touch describes the top three reasons (and a few more) to change from TBS2 base stations to the TB3-series.

Does your network still use TBS2 base stations? There are many three motives you should let go of previous generation products and evolve your network towards TB3-series base stations. Here are three of the most important reasons.

REASON 1:

DO MORE WITH LESS

The TB3-series base stations are extremely sensitive. This means they can "hear" radios much further away. In effect, one new base station gives you a larger radio coverage than before.



REASON 2: GET BETTER COVERAGE AND SAVE MONEY

Adopt the small X pol panel antennas which the new base station supports. They are smaller than vertical panel antennas with the same gain and still provide better radio coverage when used with the TB3. Smaller antennas could also bring a reduction in site rental fees.

REASON 3: SAVE POWER, MONEY AND THE ENVIRONMENT

You can do yourself, your wallet and the environment a favour by adopting TB3-series base stations. They use around 30% less power than TBS2s. What this also means is that if the base station should lose its power feed, it can stay operational for around 30% longer with the same type of batteries.

STILL NOT SURE?

In addition to these three top benefits, there are other compelling reasons to make the change.

The TB3-series base stations support a number of new functions that are not available in previous-generation base stations. For example, thanks to the Secondary Control Channel option, the TB3 can handle significantly more SDS and AVL messages. If the use of AVL is threatening to create bottlenecks in your TBS2 based network, you should look at switching to TB3s as quickly as possible.

In addition, the next-generation TB3 base stations support IP transmission – another chance to save money. Thanks to the Dual Homing feature, a TB3 base station can also be connected to two switches, forming a solid basis for proper disaster recovery schemes.

What's more, you don't have to change the cabinet to get all these TB3 features - just change the radio units and controller to TB3 plug-in units and, in some cases, the multicouplers and you are good to go.

Going for TB3s can give you more and save money. Get in touch with your contact in Airbus Defence and Space and they will help you take the right steps. Or send an email to marketing@cassidian.com for more information.

CONTROL CENTRE CONNECTION?

It's child's play

Achieving a smooth integration between your control room and TETRA network used to require special skills. New interfaces now make TETRA connectivity child's play, offering better usability, more robust services and reduced integration cost.

TETRA systems from Airbus Defence and Space have always offered open interfaces to allow control rooms to connect to mission-critical TETRA networks. TETRA Connectivity Server (TCS) has provided status and text messaging services, connectivity for

AVL systems as well as signalling information to manage subscribers' talk groups and calls. Voice has been provided from a TETRA switch through an E1 interface. These have been the building blocks for integration.

Well, things just got even easier.

IP voice through RCS 9500 API
RCS 9500 API offers voice and data connectivity through a high level IP interface, making it straightforward to create features such as click-to-call in any mapping or CAD application. A morning training session was all that was required for one CAD vendor to integrate TETRA connectivity into its application.

Mobile Data Gateway for all the data needed

Mobile Data Gateway (MDG) provides a widely used SOAP/XML interface for text and status messaging and radio tracking information, such as the selected





talk group. This widely used technology makes it easy to find developers to perform any integration.

MDG also acts as an AVL server based on the OMA/MLP standard, keeping track of field units and providing this information to applications using standard protocols. Thanks to the standard, MDG can easily replace legacy AVL solutions and several mapping applications can access location information from MDG.



Tap into the next generation of management

Some systems still need a heavy-duty management interface to a TETRA network. The Tactilon® Suite can manage TETRA and broadband subscribers as well as the Secure MVNO infrastructure and security. It is the bridge



between TETRA and broadband, making its API an attractive choice for developers aiming to create solutions that are both future-proof and create immediate value.

Better usability, faster and more cost-effective

The new interfaces of RCS 9500, Mobile Data Gateway and Tactilon make control room integration to TETRA extremely easy. They reduce errors and the skill and time needed to bring integrated control room solutions to users. This reduced development

time lowers the cost of integration. TETRA users in the control room can benefit from better usability and the purchasing organization from more attractive prices.



For more information on these solutions, request our white paper or a video on the RCS 9500. Please send an email to marketing@cassidian.com.





Making it easy for transport dispatchers

How do you keep one of Europe's busiest cities moving while making things as easy as possible for the radio network dispatchers? We discover how Bonn keeps the wheels rolling.

Stadtwerke Bonn (SWB) provides the people of the city with public transportation, as well as energy and water. In 2012, it carried 88.5 million passengers.

To help it do all this, SWB relies on TETRA radio communications from Airbus Defence and Space. The system handles 1,100 individual calls, 450 group calls and 1.1 million SDS messages every day.

Andreas Giersberg is System Administrator for SWB's TETRA system: "The biggest user group is primarily public transportation, but parts of the water and electricity departments also use it."

Keeping Bonn's people moving

Public transportation is managed from a single control centre. Connected to a similar control centre in a neighbouring Cologne re-



gion, the service appears seamless to public transport vehicles moving between the cities.

Location information and situation data such as mileage from all buses, trams and subway trains are transmitted as SDS messages over TETRA into a central traffic management application (ITCS) in Bonn's control centre. Cologne has the same system and when a vehicle leaves one city and enters the other, it automatically appears on the other city's system.

Another key TETRA function is the emergency call, activated

by pressing a hidden button in the vehicle. This is an important feature for protecting drivers and passengers.

All public transportation vehicles are equipped with TMR880i mobile radios that include a GPS receiver. The information is relayed to passenger information systems that display when the next train or bus is coming.

Modernising TETRA dispatchers

Although day-to-day routines are automated, SWB runs Dispatcher Workstations in case the main



public transport control system fails. "The Dispatcher Workstations are our last line of defence," says Giersberg. "They are also used during major festivals, for example, to communicate with maintenance staff."

SWB is in the process of modernising its dispatching stations to an IP infrastructure. "When selecting a dispatching solution, we look for reliability, flexibility and availability. We are introducing



©iStock.com/william87

RCS9500 to better serve the needs of our 16 dispatchers."

The ability to freely configure the user interface was a key need for SWB. The user interface of the RCS9500 is easy to tailor to match the operational process. "It is like being able to serve every dispatcher's wishes," says Giersberg.

For more information, contact marketing@cassidian.com to see a video on how you can tailor RCS9500 in less than three minutes to match your operations.

No borders for communications



TETRA is well known for its ability to offer country-wide communications – with such a network in place, public safety organisations can communicate quickly and easily, sharing information to aid them in their work.

But what about those areas that lie beyond the reach of the network? Rugged mountains and remote forests, or even the sea, where no network coverage exists?

Out of range? No problem

BASE STATION FALL BACK

Challenging field conditions demand robust and failure resistant switches if full functionality is to be maintained. A TETRA feature that helps here is base station fall back, which makes communication possible even during a transmission failure or while setting up the base station.

DIRECT MODE

Using Direct Mode, where terminals communicate directly with each other, makes terminal users totally independent of network elements. If the terminals are beyond network coverage, connection can be established with a Direct Mode Gateway terminal at the edge of the coverage area.

SATELLITE CONNECTION

Satellite services make it possible to transmit between network elements in remote areas and even between moving vehicles, once again offering the complete range of network functionality.





Four uses for communications on the go

Uninterruptable communications and features that allow TETRA base stations to go anywhere - a mobile TETRA solution from Airbus DS can provide the communications needed to run a variety of missions.

1

A MILITARY CONVOY ON A PEACE KEEPING MISSION

could deploy a secure TETRA communication system using small switches and base stations. These can be connected by satellite to command and control in base camps or even in another country.

2

PUBLIC SAFETY AUTHORITIES

can use a TETRA system in places where no network coverage exists, for example, following an aircraft accident in a rural area, a natural disaster that takes out all communications or some operations abroad.

An example of such temporary use occurred in 2013 when a major exercise was organised in Norway. Rescue teams from Russia, Sweden, Finland and Norway took part, using a mobile base station transported by a car to communicate with the Finnish TETRA network.

3

ENERGY COMPANIES

are under pressure to restore service to all customers after a storm or other natural disaster. They need to get things fixed quickly, typically without the aid of any energy and communications. Using deployable base stations helps speed up the repair of storm damage, helping the energy company avoid the payment of fines for exceeding a defined length of service break.

4

SEA RESCUE ORGANISATIONS ON A JOINT RESCUE MISSION

can set up a shared TETRA radio communications network. The rescuers from different organisations and countries can then communicate even in international waters where no cellular coverage exists.



IHM status panel

Messaging and navigation in one vehicle-mounted unit

The IHM Status Panel combines status and messaging with navigation in one compact unit.

Imagine being able to send status and short messages simply by pushing one button. Quick, easy and reliable. IHM's Status Panel comprises two components, a push button panel and a junction box for interfacing external units, such as Airbus Defence and Space TMR880i mobile radios. By pushing a single button, the user can transmit status and SDS messages over the radio.

The junction box also has a communications port to connect a GARMIN GPS Navigator, allowing the sending and receiving of SDS messages with GPS coordinates. The user can receive a task including destination address and the GARMIN Navigator can automatically show the fastest or shortest route to the location.

While driving to the site of an incident, officers can receive further detailed text messages or voice communication from the dispatcher, allowing them to prepare before they arrive at the site.

The IHM Status Panel is fully dust and water-proof with a rugged de-

sign. Intended for use in a vehicle, the unit's compact design means it can be fitted quickly and easily. The nine large, backlit buttons on the panel are customisable with text and colours and the Status Panel can even be used while wearing gloves. In addition, there are three outputs for controlling the siren.

IHM Status Panel is a unique application that provides a very efficient information channel between the vehicle and control centre. It can offer a

faster and better overview for officers and a fast response to an emergency call. Recordings of incidents and calls can be stored on the Tablet PC for later evaluation.

The Status Panel was developed by a Danish company IHM P/S, which is also a distributor for TETRA radios. The IHM Status Panel has been installed in thousands of vehicles, helping to make work easier for a vast number of users.

For further technical information and brochures, please go to: <http://ihm.dk/index.php/en/statuspanel>



Mission Critical Communication Solutions

IHM P/S established in 1981

Based in Copenhagen, Denmark

Denmark's leading producer of applications/ solutions and equipment for mission critical tele-and radio communications

Distributor for TETRA radios from Airbus Defence and Space

<http://ihm.dk>



Keep them ✈️ flying with the right radio

An airport is like a giant machine, one that needs close management to function well. Whether staff perform their job at the check in desk or out on the apron, there is a TETRA radio to suit.

Although aeroplanes are the reason airports exist, they don't play the most important role. That is reserved for people, who, in their many different duties, keep everything rolling and on time. Airport personnel are an excellent example of the highly-skilled teamwork of multi-tasked professionals. Everyone knows exactly what they are doing and

precisely when to act. The aeroplanes are merely a means of transportation, controlled by the staff.

What keeps these staff working is efficient and seamless communication between all functions and teams. Suitable, tailored radios are vital to support the different users in their roles and duties. All operations and actions are scheduled minute-by-minute and accuracy is critical for a smooth performance. ►

Check in or turn round, there's a radio to suit

➔ **Whatever the job
or situation at the
airport, there is a
radio that is up to the task.**

TH1n



The perfect radio for terminal staff

The TH1n is an excellent radio for staff working at check-in, at the departure gate or in offices. The first truly pocket-size TETRA radio, it slips easily into any pocket or a variety of widely available carrying cases. Alternatively, it can easily be attached to any type of clothing, even a business suit. The light and slim TH1n is a 4-in-1 device that can be used as a normal TETRA radio, a covert radio, a pager and a repeater. In spite of having the looks and size of a GSM phone, the TH1n is rugged and durable with IP65 classification.

Need explosion proof equipment? This is the radio for you

Those who work in explosion-prone areas, such as aircraft fuelling crews, need an intrinsically safe radio. The THR9 Ex is a fully featured radio, just like the THR9i, but it is ATEX certified. Many ATEX approved accessories are available to enhance the user experience.



THR9 Ex

THR9i
THR9 Ex
TMR880i

TMR880i

TH1n
THR9i
THR9 Ex
THR9+
THR880i
TMR880i
TDM880i
TGR990
P8GR

TETRA radios' availability in various frequency bands

330 – 360 MHz

350 – 370 MHz

380 – 430 MHz

THR9i



THR9+

The rugged choice on the apron

The THR9i or THR9+ robust handheld radios are the preferred choices for ground handling crews. Both radios have the same functionality, while the THR9+ has a simplified keypad with fewer and bigger buttons. This makes it handy to use even when wearing gloves. IP65 is one of the key criteria for these users and both radios offer this level of protection.

Best for drivers

Airport buses and other vehicles can have fixed TMR880i mobile radios installed to stay connected with other groups. Versatile installation options and antenna selection enable use in many types of vehicle.

The TDM880i data module can be a solution for telemetry and other applications when voice communication is not needed. The TDM880i can be integrated as a part of a larger system to gather information and send messages.



TMR880i



TDM880i

THR9i
THR9 Ex
TMR880i

TH1n
THR880i
TMR880i

450 – 470 MHz

800 MHz

Task management made easy

Many tasks undertaken by versatile teams at airports require radios that can adapt to enable a tailor-made solution for each user. TETRA radios from Airbus Defence and Space meet this demand by offering customisable special keys and buttons on the radio and flexible software that can be optimized for each task and user.

Applications can be tailor-made for airport use too, because the radios support Java. A great example application is the Mentura Role Oriented Communication System (ROCS), which enables users to make a call simply using the relevant flight number and the person's role, without knowing their telephone number. The application also helps task allocation – when a user picks up any radio from the office and logs in to the server, the task is registered and the radio receives all related messages and information. The system can even guide the user to begin the next task on their schedule. So maintenance staff changing shifts can pick up tasks with new radios, while the old radio is sent to maintenance without any programming or subscriber management needed from the operator.

Contact marketing@cassidian.com for more information to solve your communicational needs.

DID YOU KNOW...

your carkit is actively helping you?

Your Airbus Defence and Space TETRA Terminal's Active Carkit is a safe and convenient place to hold your handheld in your vehicle. But did you know that the carkit is also actively assisting you in many ways - even automatically?

Simply place your radio in the carkit holder and what happens? The carkit can turn the radio on or off automatically when powering on the vehicle.

The carkit connects to the vehicle's external TETRA and GPS antenna to ensure network and satellite connection. This connectivity to an external GPS antenna is only available in the TETRA carkits from Airbus Defence and Space.

Any previously selected profile is automatically changed to 'Carkit' to adapt to the vehicle environment and meet the needs of your radio usage. Furthermore, it can trigger position information, sending a message to keep your organisation aware of your location in a vehicle.

You also get an interface for external audio, enabling you to use a hands-free kit, a separate handset, a speaker microphone or even integration with the vehicle's own audio system.

When data is needed, the radio acts as a TETRA modem to connect data devices. The car kit can also be used via a remote PC/tablet or even through the vehicle's own user interface. With strong TETRA and GPS signals, you can use map applications on a PC.



And don't forget that the number keys can be programmed to select a talk group. This is very convenient, particularly when the THR880i radio is in the holder with the group selector key on the back being unreachable.

Now you know that the carkit is smarter and more useful than you expected. In many cases the carkit is a better option than a traditional mobile radio. The carkit is available for the TH1n, THR9i- and THR880i -series of handportable radios.

Folders have been used by TETRA radios from Airbus Defence and Space for a long time, helping to organise Talk Groups to make daily work routines easier and more efficient for the radios' users.

The user organisation benefits too. Well-structured talk groups help operations to run more smoothly and efficiently.

The latest radio software release 7.5 (ECR5) from Airbus Defence and Space widens the philosophy of folders to the structuring of the radio's phonebook. Previously, the phonebook was simply a long list of up to 500 names with numbers.

A better way to organise your phonebook

Now, with the ability to reorganise contacts into folders, the phonebook has a more disciplined and logical structure that makes it quick and easy to find any information.

A single radio can have up to 100 phonebook folders. Three folder levels are supported, meaning that one folder can contain subfolders as well as contacts. Folders can be named, for example, by organisation, team or location to best serve operational needs.

The phonebook folders are just one example of the new features that the latest

software release offers. To enjoy better usability and the newest features, always have your radio upgraded whenever new software is released.

Before

- ✗ Axel Rose
- ✗ Bill Smith
- ✗ Cindy McCoy
- ✗ Gary Cooper
- ✗ Jill Murphy
- ✗ John Doe
- ✗ Mark Jones
- ✗ Office
- ✗ Peter Hill
- ✗ Ramon Perez

·
·
Up to 500 names

Now

- 📁 London hospitals
 - ✗ Axel Rose
 - ✗ Gary Cooper
 - ✗ Mark Jones
- 📁 North Central
 - ✗ Bill Smith
 - ✗ Cindy McCoy
- 📁 North Central
- 📁 Royal
- 📁 South Central
 - ✗ Jill Murphy
 - ✗ Peter Hill
 - ✗ Office

TETRA pagers

keep better track of hospital staff

Two-way pagers at a Finnish hospital alert staff and show who's available. A recent trial showed just how much of an impact they could make to the level of care being provided.

Kuopio University Hospital has a problem. When emergencies crop up, it needs to get the call out to doctors, anaesthetists and surgery teams to enable them to swing into action. A paging system is ideal for this but Kuopio retired its previous system five years ago as it had reached the end of its life. Even when it was in use, it was not adequate - the hospital could not tell if the alert had gone through, while the person receiving the alert had to phone back, a method that was very inconvenient.

To try and improve this situation, Sami Haapamäki, communication manager, at the University Hospital analysed his own hospital district, looking at how many people were left unreached in a critical situation, or how many times the alerts did not work. There were a lot, enough to make the management board decide that paging could be based on VIRVE, Finland's TETRA network. Those who do not need the complete functions

of a VIRVE radio in their work could very well use a TETRA pager.

To use TETRA in a hospital, indoor coverage must be guaranteed. Kuopio University Hospital built its own multi-operator network, which has worked very well and is now being further developed.

Real life test

The hospital needed to know if a two-way pager could give them what it needed. As well as alerting staff, this would provide a way to see whether a person was

reached and was available for duty. They needed not simply to alert staff and hope for the best, but to get real information on who was available.

Using a single Airbus Defence and Space P8GR pager running an alerting application, ten staff took it in turns to use it as part of their everyday work. Says Haapamäki: "The hospital also wanted to see what solutions could be built on top of TETRA. Another objective was to determine which users need to be alerted but who are not critical. At the moment, these





people are called to duty over their GSM phones."

A back-up for VIRVE radios

The new pager gathered some favourable responses, with a typical comment being: "This new pager is very promising. It would give us a way to manage tasks and resources because we would know who can be reached and who are going to arrive on duty."

The size was found to be good, as was the weight and feel of the device.

"It was also assessed as a good complement to conventional radios," says Haapamäki. "There are always fewer radios than we would really like, so when there's a short-term, temporary need, such as when their regular radio is being serviced and there is no spare available, a person could manage with this two-way pager."

The P8GR pagers would also be useful for a student or someone who doesn't know the discipline of using

VIRVE – giving them a pager would allow them to communicate readily because it is even easier to use than the radio.

"A VIRVE radio and this device are very different," says Haapamäki. "They complement each other."

Taking the next step

Before bringing the pagers into full operation, a thorough survey needs to be done on the radio coverage. "Although VIRVE coverage is excellent, there may be a few spots like tunnels and basements, where reception is not so strong. The radios from Airbus Defence and Space give an alert tone if they lose connection with the network. This is an important feature!" adds Haapamäki.

Another important factor is to develop the system so that the complete chain of care is considered. This includes the situation and location the patient is in, allowing the hospital to allocate the task to where the resources are. "For example, if Joen-

suu has five operating rooms available, the patient is not moved from Jyväskylä to Kuopio but to Joensuu," says Haapamäki.

This makes care more efficient and makes the most of available resources. "This requires a new kind of thinking, and the new technology's possibilities need to be taken full advantage of. The importance of the flow of information will grow significantly when we can do more with less and at the right time," says Haapamäki.

One idea for improvement is for a full call-out to have a different severity level. This would be indicated by the device making a different sound and blinking in a different way to other, non-critical alarms. Severity levels could be graded from 1 to 15, where 1 would be an all-out national disaster, and 15 would be "please would the janitor go and spread gravel on the ice in front of the entrance."

"The more we use VIRVE, the more useful it becomes, and the use increases," concludes Haapamäki.

Baby-savers:

New alerts quickly call medics to the rescue

Alerting medical staff as a group saves vital minutes in the race to save a new life.

Babies in Finland's North Karelia hospital now have a better chance of a healthy life thanks to two new alarms that bring medical staff running.

The first, the Emergency Cesarean Section alert, set off around 26 times a year, alerts medical staff to be ready to perform a potentially life-saving delivery. Saving a vital three minutes by alerting all necessary staff at the same time, it means less time without oxygen for the unborn baby.

There is also a "baby revive alert," an alarm set off when a



newborn needs to be resuscitated. Used about once a week, this alert ensures that the necessary people are notified, saving the time taken for individual calls.

Both these alarms are made over the country's VIRVE network, which also handles more general incidents through alarm calls. When an incident occurs, the local emergency response centre sends a message to the medical unit at the same time as alerting the rescue service. The hospital is told how many patients are coming in and what their vital signs are, for instance.

Deputy Chief,
Paediatric Dept.
Mari Juuti:
"The Emergency
Cesarean Section
alert saves time
in the most critical
situation."

This means that everyone is ready to get to work as soon as the patients arrive at the hospital. The X-ray room is ready and the laboratory is primed to process any samples, while blood bank nurses know to reserve the right

type and number units of blood for each patient.

With everything ready and waiting, they can begin treatment as soon as the patients arrive. Before VIRVE, it could take as long as 20 minutes to call everyone individually on a cell phone. Now the trauma group alerts everyone at once.





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