



Hybrid alerts and express alarm: a new infrastructure in three gradual steps

Reference report on the Rhein-Sieg district, Germany

Fire departments and rescue services in Germany's Rhein-Sieg district responded to 119,000 alerts in 2015 using a state-of-the-art alerting system. The district – Germany's third-largest – renovated its entire alerting infrastructure in three steps spread out over three fiscal years. Emergency responders based in Rhein-Sieg now benefit from targeted hybrid alerting with responding and, thanks to express alarm, a significantly increased alerting speed.



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Ralf Ahr, System Administrator and Deputy Director of the district control centre

The district control centre in Siegburg and the fire departments and rescue services in the district's 19 municipalities originally used an alerting network with 512-baud technology, which Swissphone had installed in the 1990s. The responsible officials wanted to completely renovate this network so that the district would once again have access to the latest technology and fastest possible alerting.

Hybrid alerting: reliable and practical

With this in mind, the district control centre's management decided to introduce hybrid alerting. The district control centre now numbers among the first users of the new Swissphone system, whereby emergency responders are automatically alerted via GSM/GPRS if they do not acknowledge a message via POCSAG. Martin Bertram, Director of the district control centre, says: «Volunteer fire departments have taken over firefighting in all of the municipalities in our district. The only fire stations that are manned full-time are the ones in Siegburg and Troisdorf. Because of this, it is very important to us that our volunteer firefighters have access to quick and reliable alerting.»

The Rhein-Sieg district in figures

The 1153 km² Rhein-Sieg district is Germany's third-largest district, with approximately 600,000 inhabitants living in 19 municipalities. The western portion of the district covers the Rhine valley to the right and left of the Rhine river, around the city of Bonn. Meanwhile, the eastern portion of the district extends to the low mountain range, where the Seven Hills, particularly the famous Drachenfels hill, are a popular tourist destination.

Hybrid technology also allows alerted emergency responders to immediately respond whether they can actually go to the scene of the incident. This means that the operations director always knows exactly how many responders are available. He or she can send follow-up alerts accordingly and prevent volunteers from leaving their workplaces unnecessarily in the event that their services are not needed after all.

The district control centre managers were equally concerned with ensuring a high alerting speed for rescue forces. Ralf Ahr, System Administrator and Deputy Director of the district control centre, says: «The district's rural municipalities are spread over large distances. According to the fire safety plan, volunteer firefighters need to receive alerts within 90 seconds, and the fire department needs to be at the scene of the fire within eight minutes. If it actually takes a full 90 seconds to receive an alert, then we barely have enough time to reach far-flung sites before it is too late – we need to use an alert that saves time.»

«Swissphone carried out all of the changes to the current operations smoothly.»

Ralf Ahr, System Administrator and Deputy Director of the district control centre

Swissphone's express alarm does just that. This patented multicast technique for digital alerting pairs multiple addresses for groups of emergency responders with an alerting text. This reduces the amount of data considerably, as Ahr asserted: «It now takes six seconds for us to receive an alert, whereas it previously took up to 50 seconds for us to receive an alert for a four-alarm fire.»

Multi-baud technology

Setting up hybrid alerting and express alarm required installing a new infrastructure; the Rhein-Sieg district control centre chose multi-baud technology. As a result, the district can now operate 512-baud devices as well as new 1200-baud message receivers in the same network. This keeps Rhein-Sieg flexible in terms of end device usage, and allows its municipalities to gradually convert to the new technology.

Meanwhile, the responsible officials have also planned to renovate the radio network. Since 1200-baud technology requires a greater number of base stations, or so-called digital alert converters (DAUs), the district is successively putting additional ones into operation. Bertram says: «We increased the number of DAUs from seven to 29 over the last three years. This guarantees stable and, thanks to Multimaster technology, redundant operation across the entire district. And since the new DAUs will initially run in the old network, we can also proceed step by step.»

Gradual installation over three years

The Rhein-Sieg district has spread out the entire infrastructure's installation over three years to comply with budgetary restrictions. «Swissphone carried out all of the changes to the current operations smoothly, and all of the municipalities were centralised in March 2015», describes Ahr, adding: «We are also switching out the messaging devices step by step so that the fire departments and rescue services can benefit from all of the advantages of the new technology as soon as possible.»

Encryption is being rolled out

The infrastructure project, which also includes a control system for 330 sirens, is now complete. Next up on the responsible officials' agenda is converting additional municipalities to encrypted communication (IDEA). Bertram says: «All communication between the fire departments should be encrypted by 2017. The municipalities are overseeing this conversion, which requires purchasing new pagers.» All of the municipalities in the district should also be using express alarm by the time that they acquire new pagers.

Components of the Swissphone solution

Hardware

- RES.Q with hybrid (Option)

Network

- Multimaster technology