Case Study

**Germany's BOS digital radio network,
to serve beyond 500,000 users – what's in the network**

EADS
DEFENCE
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Germany'

Germany's nationwide project to switch to a single, digital public safety communications network is pushing ahead as scheduled. Berlin city and Berlin Bundesland are the first areas to go fully operational with the new system, with the other 45 areas that make up the national rollout.

Up to 500,000 users will be able to communicate simultaneously through the completed network, making BOS digital radio network the largest of its kind in the world. The aim is to increase security and boost co-operation between Germany's police forces, security services, customs officers, firefighters, disaster relief services, civil defence and other organisations.

Many benefits

The new network is replacing the numerous outmoded analogue networks previously used by many of the

s public safety services get set to go digital

Germany's BOS digital radio network will soon be the biggest of its kind in the world, serving beyond 500,000 users.

user organisations. BOS digital radio network is based instead on the advanced digital standard for Public Safety - TETRA.

This will deliver significant improvements in communications for day-to-day field operations, such as fast call set-up (including instant access using an emergency call button), high availability, end-to-end encryption, security against eavesdropping, improved voice quality and the ability to use the same network for high-speed data applications. It will even make it possible for dispatchers or commanders to track the precise position of officers in the field by incorporating GPS technology within their TETRA terminals.

In addition, TETRA is helping the German authorities make better use of scarce frequency spectrum, in part because the relevant channels are only occupied when they are actually needed. TETRA coding is very spectrum efficient as well. The new system also makes it possible to connect users to the public telephone and cellular networks.

EADS Secure Networks was awarded the framework contract for BOS digital radio network and the roll-out began in 2007.

What's in the network?

Some 4,000 base station sites will eventually cover the 45 network regional sectors that make up the national network. BOS digital radio network also includes 62 switching centres, four transit switching centres and two network management centres. Mobile base stations will be deployed to support the fixed network when necessary, for example, in case of an emergency or during a major sporting event.

The core network is owned by the federal government and connects the switching centres, transit switching centres and network management centres. The plan is for the federal government to retain the core network and appoint security-screened civilian organisations to run the switching centres.

End users will reach the core network via one of the associated access networks, which connect the base stations together and link them to the switching centres. The different regional governments, or Länder, are each taking their own approach to implementing the access networks.

Co-ordinating the project

Central planning is in the hands of the BDBOS, a special governmental body, but the decentralised implementation creates more flexibility at a local level. TÜV Rhineland has been appointed as an external project controller to support BDBOS in co-ordinating the setup of the network's different parts.

Compatibility among the locally-implemented systems is assured thanks to a reference platform set up in 2006. This will make it possible to gather vital experience in building and operating the network systems and to test the compatibility of different terminals with the network, which is a prerequisite for their certification.

The seamless nature of EADS TETRA network technology also enables completed base station sites to begin operating before the switching centre they will ultimately be assigned to is ready. They can be temporarily linked to another centre and reconfigured to fit into the final network configuration when the time is right. The reference platform has already been used in this way to put BOS digital radio network on the air in Berlin, Hamburg, Lower Saxony (Lüchow-Dannenberg), North-Rhine Westphalia, Baden-Württemberg and Bavaria.

Good experience so far

Initial experience accumulated via the BOS reference platform has been overwhelmingly positive. For example, the forces deployed to safeguard the G8 summit in Heiligendamm used the TETRA system, Berlin is enjoying full BOS Digitalfunkcoverage and Bavaria trialled the system successfully at the Oktoberfest beer festival in Munich. The clear voice quality and easy-to-use radios have won particularly high praise from users.

EADS and the German Federal Police also carried out a demonstration at the end of October to show successful end-to-end encryption over EADS TETRA THR880i devices. This showed even the most security-conscious BOS users that the system will provide the secure communications they need.

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