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Towards a true multi-vendor environment with TETRA Inter-System-Interface (ISI)

A network technology whose elements are supplied by a number of manufacturers gives customers a real choice of competing systems. As well as keeping prices down, it makes a wider range of different functions available.

The introduction of ETSI's Inter-System Interface (ISI) for TETRA provides even greater opportunities. ISI is designed to make different TETRA systems compatible, but it will also give police and other public authorities the full benefits of cross-border communication throughout Europe. As the leading vendor of TETRA network systems, Nokia is already working hard to implement ISI in the Nokia TETRA System, as part of the company's policy of supporting open communications systems and avoiding proprietary approaches wherever possible.

Effective cross-border co-operation…
The free movement of people between most European countries has turned cross-border police communications into a hot topic. The new freedom makes it easier for international criminals to operate and makes it essential to have effective cross-border communication between authorities. Such communication also enables cross-border rescue operations to be undertaken quickly and more effectively.

…with Inter-System-Interface
As long ago as 1985, the Schengen agreement envisaged a more co-ordinated, co-operative approach between public authorities across Europe, sparking the standardisation process in mobile communications for public safety and security. The Schengen treaty recognises that the authorities are already using cross-border mobile communications. In most cases, this is currently carried out using conventional equipment operating on the frequencies of the police organisations on each side of the border. However, only the introduction of ISI will enable the authorities to reap the full benefit of cross-border communications.

The Inter-System-Interface covers advanced functions unique to TETRA. These include group communication, half-duplex calls and the transmission grants necessary to support half duplex and group communication.

What is ISI?
• ISI is a set of standards that provide the interface for a TETRA service across network boundaries
• ISI can connect several TETRA networks together
• ISI is based on the QSIG protocol, which is used in IPBX network signaling, as well as enabling end-to-end signaling
• TETRA standard services over ISI are embedded into QSIG and are described in ISIIC, ISIGC, ISISS, ISISD and ISIMM
• In practice, the services that can be supported are those defined under air interface interoperability

Testing guarantees co-operation
As well as basic call control, ETSI's specification for ISI covers advanced functions unique to TETRA, for example, group communication, half-duplex calls and the transmission grants necessary to support half duplex and group communication.

Nokia is committed to performing all necessary IOP (Interoperability) specification and testing with other TETRA vendors, and the company has been the driving force for new proposals and discussions with some TETRA manufacturers. These have formed the basis of a draft for the TETRA Interoperability Profile (TIP) for ISI.

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The proposal fully covers the functions for the first phase of ISI, and a large part of the second and third phases. It enables TETRA manufacturers to implement ISI, allowing TETRA customers to perform cross-border communication or purchase their network from more than one manufacturer. The ISI specification covers every aspect of TETRA network interconnection, so a phased implementation strategy is the most sensible approach. By creating, testing and releasing each phase in a carefully devised sequence, vendors should be able to deliver their top priority functions to users as early as possible.

Rapid success with ISI
The different vendors need to co-ordinate the phasing of the ISI implementation to make sure that their networks can continue to work together as each stage is released. Nokia is confident this can be achieved, because the major manufacturers have already co-ordinated their efforts in a similar way

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Notes to the editor:

Nokia is playing a major role in the TETRA MoU's interoperability work. So far Nokia has been granted two certificates of interoperability by Tele Danmark for all the major terminals on the market. All six current TETRA terminal manufacturers have an interoperability certificate for the Nokia TETRA System

Nokia has been the driving force for a new proposal, which has been agreed to as a draft for the TETRA Interoperability Profile (TIP) for ISI. The proposal fully covers the functions for the first phase of ISI, and a large part of the second and third phases. It enables TETRA manufacturers to implement ISI, allowing TETRA customers to perform cross-border communication or purchase their network from more than one manufacturer. Roaming between TETRA networks provided by different suppliers is expected to be possible in phases during 2002. The equipment is expected to be on the market soon after that.

Nokia intends to implement ISI as an open interface and its specifications will be available to all interested parties.

For more in depth information on the interoperability work and certificates please visit
http://www.tetramou.com/Tech/index.asp

Glossary
IPBX - ISDN private branch
Exchange
ISI - Inter-System Interface
ISIIC - ISI individual call
ISIGC - ISI group call
ISISS - ISI supplementary services
ISISD - ISI short data
ISIMM - ISI mobility management

All Nokia communication solutions are based on open standards, which brings many benefits. User organisations can be confident that they will be able to benefit from technology developments and cost-effective multivendor solutions. Nokia systems are future proof.

Nokia is the world's leading supplier of TETRA networks and terminals, offering the most modern countrywide digital radio communication solutions for public safety organisations. Special features for the use of public authorities include: top-class communication security, fast group calls, sophisticated

emergency call functionality, prioritized calls, advanced messaging and data communication services, including packet data. Nokia has a proven track record of delivering multi-switch TETRA networks capable of providing all TETRA services uniformly countrywide. The open interfaces of Nokia TETRA solutions enable seamless integration to command and control systems.