SITLink

Secure and confidential communication on leased lines

Everyone is talking about mobile communication, wireless around the world using exorbitant bandwidths. The leased line usually recedes into the background when such solutions are discussed. But it is often forgotten that the leased line is an approved communication medium for transmitting large data quantities at low cost.

The purpose of SITLink is to provide confidential communication on such transmission routes.

Leased lines – more topical than ever

Today, as most certainly in the future too, data are forwarded to modern communication nodes through fixed terrestrial networks. Leased lines are still the most efficient means of data transmission between the concentration points. In a state-of-the-art infrastructure, the classic leased line or one of its modern variants, like the logical leased line in SDH* networks or a PVC or S-PVC in ATM networks, is often used to set up a permanent link with remote partners. The communication nodes of the omnipresent Internet are also linked by this medium for instance. State-of-the-art communication networks are unimaginable without leased lines, which demonstrate their worth in numerous applications (see box on right).

A permanent link is more economical than a dial-up one if the traffic between two corporate sites exceeds a certain volume. If the partners communicate for more than 50 minutes per workday, a leased line is more attractive¹, not to mention other factors like integrated data, speech and video, less time to set up calls and reliable availability.

* Abbreviations: see box on right.

FIG 1  SITLink for confidential communication on synchronous leased lines up to 2 Mbit/s

FIG 2  Data encryption on leased lines with SITLink
Leased lines at risk too

As reliable and economical a permanent link may be, it is by no means resistant to attack. A leased line is usually installed on a continuous basis and through fixed routes. The user is normally unable to influence the media employed or the real route of the leased line once it is switched onto the public information highway. Contrary to public opinion, leased lines are not necessarily the shortest physical connection as even satellite and microwave links may be involved. As can be imagined, an economical and reliable line does not really offer the best information security and confidentiality. These factors make the lines a target for espionage. The threat is often not taken very seriously, much to the delight of intruders.

SITLink ensures confidentiality

The powerful crypto algorithms of SITLink (FIG 1), a product of Rohde & Schwarz SIT GmbH, make eavesdropping on leased lines a fruitless enterprise. Even intentional or inadvertent misrouting is almost impossible and would not reveal any information to a chance recipient anyway. SITLink can be integrated into G.703 E1 lines and X.21 networks (FIGs 2 and 3).

Great emphasis was placed during design on making the system virtually invisible to the user. Neither quality nor bandwidth was to be degraded by the extra functionality. After installation, the system operates transparently for the user and largely unnoticed by the system. Operating and maintenance costs are significantly lower than with other solutions at protocol (e.g. IP) or even application (e.g. e-mail) level.

SITLink supports transmission rates up to 2 Mbit/s and encrypts data without restricting bandwidth. The short latency time of 0.5 µs guarantees uniform link quality. Encryption is performed by the SCA95 crypto chip, a hardware tool that meets the most severe requirements.

A management system for the security functions permits secured access to access of branch offices through the central gateway and firewall

Possible applications for leased lines

- Link-up of telephone and Internet and server-to-server link between headquarters and field office (small corporate networking); large corporate networking for many sites
- Simple LAN-to-LAN link
- Video telephony and video conferencing between corporate divisions and subsidiaries, Internet

Abbreviations

- **ATM**: Asynchronous transfer mode
- **DCE**: Data circuit-terminating equipment
- **DTE**: Data terminal equipment
- **IP**: Internet protocol
- **LSM**: Link security management
- **PABX**: Private automatic branch exchange
- **PDH**: Plesiochronous digital hierarchy
- **PSTN**: Public switched telephone network
- **PVC**: Permanent virtual circuit
- **S-PVC**: Soft or signalized permanent virtual circuit
- **SDH**: Synchronous digital hierarchy
- **TDM**: Time division multiplex

News from Rohde & Schwarz

Number 169 (2000/IV)
In addition to cost-saving in-band access, the system can also be monitored via a separate network with greater fail-safety. Simple, PC-based LSM (FIG 4) provides scalable solutions for monitoring and managing the security functions of a corporate network.

Ronald Kuhls

Reader service card 169/11

---

1) Cost analysis of Deutsche Telekom (see http://www.telekom.de/angebot/datenkomm/nutzberater/index.htm)

---

CD-ROM TIP | Broadcasting

T & M Dream Team for Digital TV

The title of the new CD-ROM from Rohde & Schwarz sounds very promising. Behind it is the latest in test and measurement technology for digital television. The CD gives an overview of Rohde & Schwarz’s wide product range for this market segment. The dream team mainly consists of generators and analyzers, presented through data sheets and detailed information material.

In addition, the CD contains demo versions of various test and analysis software tools. If you want, you can test whether they are up to your requirements in terms of operation and functionality. “Documentation” holds the entire operating manuals for the DTV equipment. Fields of application and practical use are described in numerous technical articles in pdf format.

And there is also a film on the silver disk if you want to know more about Rohde & Schwarz in general.

All in all, the CD-ROM is a recommendable compendium, available free of charge from your local Rohde & Schwarz representative (PD 757.4447.43).

Stefan Böttinger