UTS-Netlink

OSI based Lower Layer protocol stacks for Windows NT, Solaris and AIX.

UTS-Netlink provides an integrated package for OSI Lower Layer Protocol Stacks that have proven industry standard strength and interoperability.

UTS Netlink consists of individual components for UTS-LAN, UTS-WAN and UTS-TCP (RFC1006). All these products are described in more technical detail below.

All UTS Netlink implementations are integrated with Vertel's M*Ware   product line (like the M*Ware Convergent Manager /Agent and the M*Ware TMN simulators) and applications have the ability to run concurrently on low end and high end systems.

The products are available on CD and are easy to install and test. Users can install a mix and match of UTS-LAN, UTS-TCP and UTS-WAN. The stacks are carefully ported to utilize the specific features of the supported operating systems.
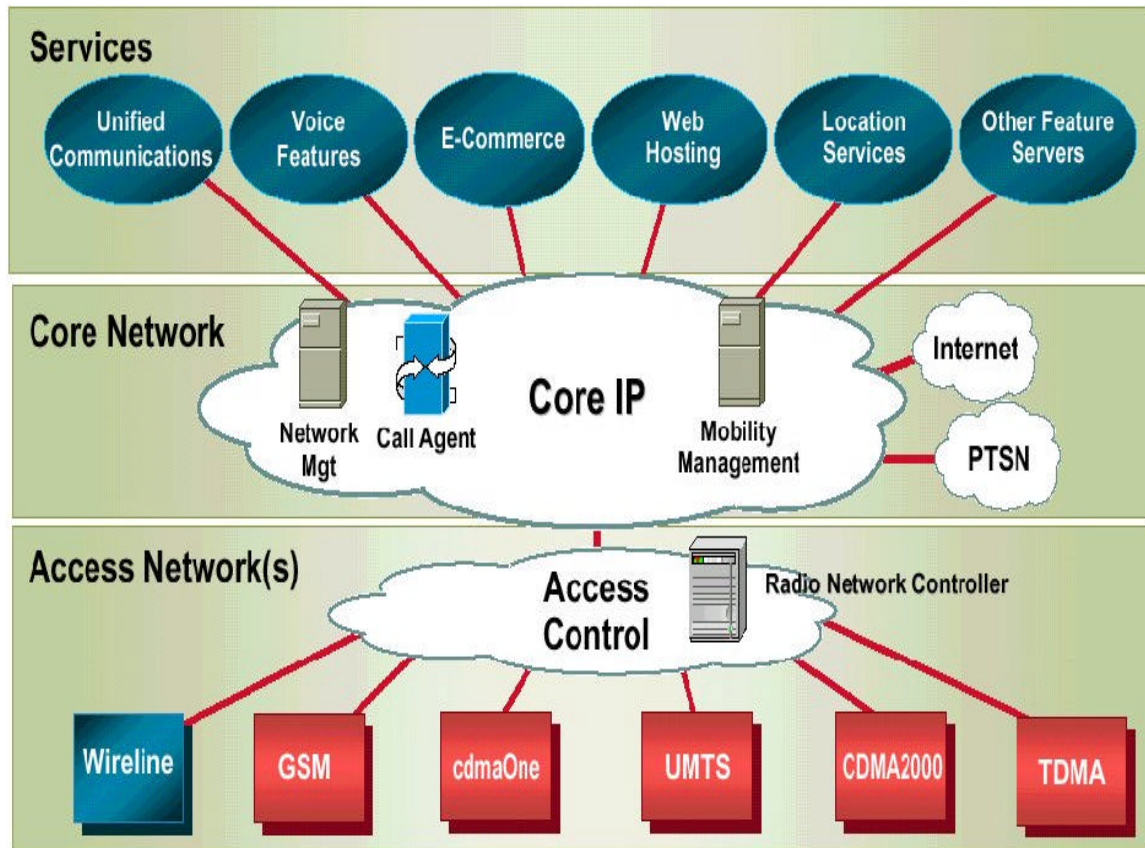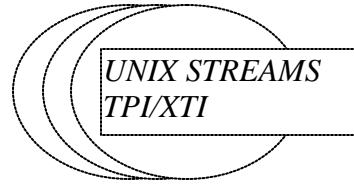

Figure 1: IP networks interconnect with public networks, professional protocol stacks are mandatory for seamless service management

NT WinSock
Applications

UNIX STREAMS
TPI/XTI

WinSock API (NT)   TLI/XTI API(UNIX)

User Space

Kernel space

ISO TP   ISO TP Class   RFC1006

                                        ES

X.25/LAPB   CLNP   TCP/IP
(*)

Part of the product   LLC-1
(* NT Only)

Interface

HDLC Driver   NDIS Driver
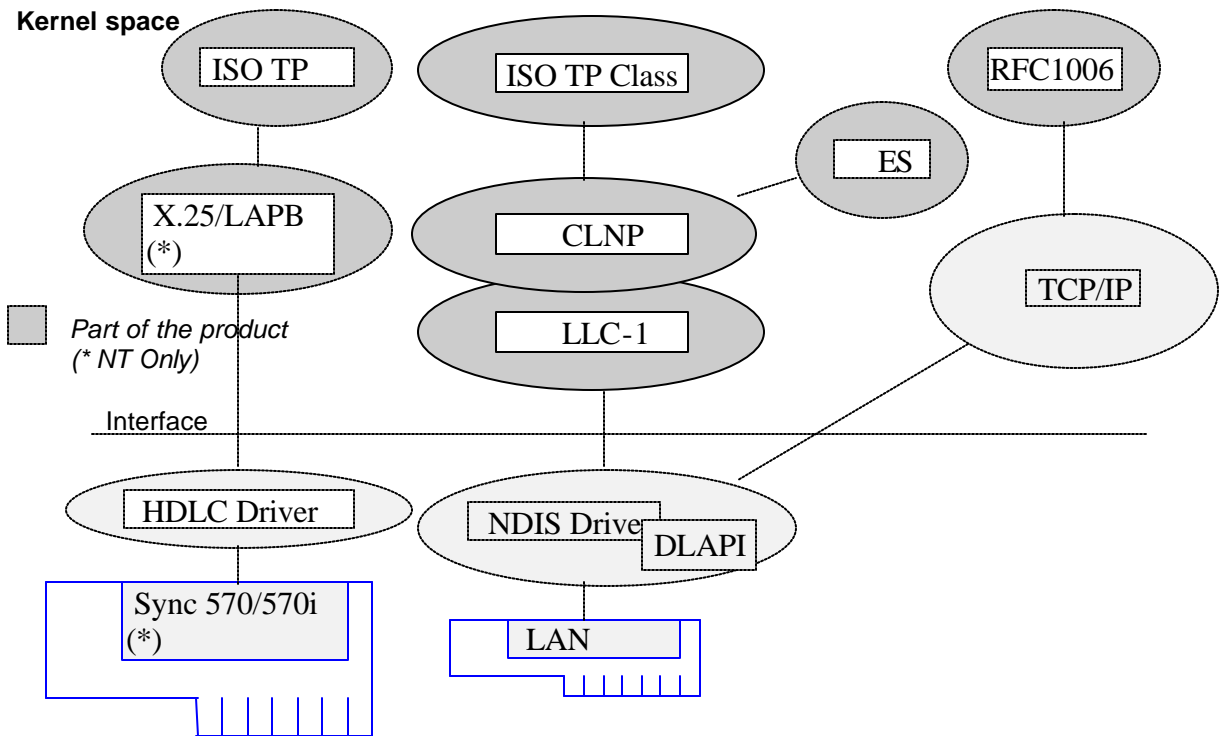   DLAPI

Sync 570/570i   LAN
(*)

Figure 2: Schematic overview of the Netlink Functions

UTS-LAN

On UNIX, UTS-LAN is implemented as an efficient Streams driver which exposes a standards based TLI/XTI interface and seamlessly integrates with the supported DLPI MAC interface on supported systems.

On Windows NT, the UTS-LAN package is implemented as a Windows NT Kernel Driver and works with the Windows NT LAN adapters. The product is well integrated into the Windows NT networking interfaces and provides the standard *winsock* interface to the Applications. It makes use of the services of the *NDIS 3.0* interfaces to access the LAN adapters. The product supports the media types **Ethernet, Token Ring** and **FDDI**.

Conformance

All mandatory functions for UK-GOSIP (Government OSI Profile) V3.1/V4.0 are supported
All mandatory functions for US GOSIP Version 2.0 are supported.

Interoperability

Interoperability testing with a number of vendors with protocol stacks on other platforms was carried out as part of quality assurance process. The NT product has been thoroughly tested to work with network interface cards for different media like Ethernet, Token-Ring, and FDDI from a number of vendors **at Microsoft's Laboratory**. It has also been tested with a variety of routers capable of OSI routing (Vertel's ETS-IS, Cisco, Wellfleet, 3Com).

Functional Specifications

- **ISO 8073** Open Systems Interconnection - Connection Oriented Transport Protocol specification. Addendum 2: **Class four** operations over connectionless network service, 1989.

- **ISO 8473** Open Systems Interconnection - Protocol for providing Connectionless mode Network Service, 1988. It supports either the **Full Protocol** mode or the **Inactive Subset** modes.

- **ISO 9542** End System to Intermediate System Routing Exchange protocol for use in conjunction with the Protocol for providing the connectionless mode network service (ISO 8473), 1988.

- **ISO 8802-2** Logical Link Control, 1989.

Physical Layers (Layer 1)

- Ethernet, Token Ring and FDDI physical interface framing supported. (Hardware not included)

Diagnostic Aids

Sample applications source code and binaries are included as part of the standard delivery, which can be executed as per Users Guide to make sure that the stack is operational.

UTS-WAN

UTS-WAN is available as a binary, easy to install product on Win NT, Solaris and AIX. On Solaris, the product is implemented as a Streams driver, exports a standard TLI interface and is integrated with ADAX's X.25 Adapter Card (APC-SBX board) and ADAX's X.25 for UNIX. ADAX hardware and software in not part of the standard product.

On Window's NT, the Software was implemented as a Windows NT Kernel Driver and works with *Digiboard Sync 570/570i* adapters (X.25 Software and *Digiboard* are part of the standard product). The product is well integrated into the Windows NT networking interfaces and provides the standard W*inSock interface* to the Applications. The product also allows direct access to the X.25 Packet Layer protocol to enable applications run directly on top of X.25 Packet Switching Interface.

Conformance

All mandatory functions for US GOSIP Version 2.0 are supported.
All mandatory functions for UK-GOSIP (Government OSI Profile) V3.1/V4.0 are supported

Interoperability

Interoperability testing with a number of vendors with protocol stacks on other platform was carried out as part of quality assurance process.

Functional Specifications

- **ISO 8073** Open Systems Interconnection - Connection Oriented Transport Protocol specification. Conforms to the Transport Classes 0 and 2.

- **CCITT X.25** Recommendation, 1984, 1988: Packet Layer Protocol. (*)

- **ISO 8208**, 1987: Open Systems Interconnection - X.25 Packet Layer Protocol for DTE. (*)

- **ISO 8878**, 1987: Open Systems Interconnection - Use of X.25 to provide OSI CONS. (*)

- **ISO 8348 AD2**: Open Systems Interconnection - Network Service Definition, Addendum 2: Network Addressing. (*)

- **CCITT X.25** Recommendation, 1984, 1988: Link Access Procedures, excluding the Multilink procedures. (*)

- **ISO 7776**, 1986: Description of the X.25 LAPB compatible DTE Data Link Procedures. (*)

- EIA-232D physical interface with the *Digiboard Sync 570* adapter. (*)

- EIA-232D or V.35 physical interface with the *Digiboard Sync 570i* adapter. (*)

- ADAX X.25 Adapter Card (APC-SBX board), X.25 for UNIX Release 2.5.1.4, ADAXapcs Driver, Release 1.3, V1.33 Mod Software (**)

(* Available as part of the standard product on Win NT Only)

(** Requirement for Solaris)

UTS-TCP

UTS-TCP is implemented as a streams driver on UNIX and uses the TPI/TLI interface to communicate with TCP and offers a standard TLI interface to the application developer. UTS-TCP conforms to IETF's RFC1006 and has been tested against all vendors' implementations of RFC1006.

On Windows NT, the software is implemented as a Windows NT Kernel Driver.

UTS-Netlink Operating Environments

- Windows NT 4.0 Workstations with Intel/Alpha processors.

- Ethernet/Token Ring /FDDI Cards supported by Windows NT.

- Solaris 2.6 – 2.8 (32 and 64 bit modes)

- AIX 5.1 for RISC.

Development Toolkit for OSI application developer

- *WinSock* addendum for applications development in Users Guide

- Sample *WinSock* applications in 'C'

- Binary Test utilities for UTS-LAN, UTS-TCP and UTS-WAN

Customer Support & Services

- Standard 90 day Customer support to assist in installation, configuration of the product.
- Site-wide support contracts available.
- Support Provided by Vertel through telephone and Email.
- Vertel also offers further custom development, systems Integration services and portations.

Complementary Products

Complimentary products that work with UTS-Netlink products are

M*Ware Convergent Manager:
M*Ware Convergent Manager/Agent and TMN simulators and applications. See the dedicated datasheets for more details.
HP OpenView: HP OpenView TMN Software.
OSSC: IBM's Networking Software and applications.
NM620:   OSI Upper Layer Services (Session, Presentation, ACSE)
UTS-FTAM: OSI FTAM protocol based file transfer product for UNIX and NT.
ETS: Vertel's line of stacks and applications for traditional RTOS.