



Evolving to a secure future
with Nokia Eksos N20

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Multiservice access node

Nokia Eksos N20 provides an extremely flexible solution for access and managed leased line (MLL) networks. It is possible to build compact subscriber nodes delivering PSTN, ISDN and data services, as well as complex V5 and MLL access networks using the same platform components. Several layers including cross-connect, grooming, consolidation and multihosting can be introduced into the network. Eksos N20 also provides growth path for delivery of broadband services.

PSTN and digital ISDN services are accessible through the concentrating V5.2 interface that is both economic and open in nature. This results in savings when building voice traffic transmission capacity, and in increased freedom when selecting access network vendors. Combine this with simultaneous support of non-concentrating V5.1 interfaces, or with the possibility to concentrate V5.1 tributary interfaces, and you get that often required full flexibility in network building.

Managed leased line services can be implemented using the flexible, non-blocking cross-connect functionality. A wide range of data interface types are supported and digital cross-connections can be used at any point in the network.

The Nokia Eksos solution also supports network operators when it comes to upgrading services for broadband access. Eksos N20 can be integrated with Nokia's highly flexible DSLAM, Nokia D50e, to provide both Narrowband and Broadband services from the same shelf. Also, it is possible to upgrade subscriber services from PSTN/ISDN to ADSL under network management control without actually visiting the access node site.

Multihosting and V5.1/V5.2 Conversion

Multihosting V5 capability in Eksos N20 gives operators the freedom to connect those subscribers who are connected to the same access node, to any of several different local exchanges. This may be desirable for load balancing between local exchanges or for taking advantage of the services such as ISDN and CENTREX offered by the various exchanges.

V5.1/V5.2 conversion is also supported, and provides a way to introduce concentration into those parts of the network that were originally built with V5.1.

V5.1/V5.2 conversion is completely general in nature. Hence it can also be applied to the concentration of V5.1 interfaces from other types of access multiplexers such as Nokia ACM2 and Eksos N20, Local PSTN and ISDN interfaces are also supported under the same, or if required, different concentrating interface.

Leased line data applications

In addition to PSTN/ISDN users, Eksos N20 also supports data users. A high-capacity $n \times 64$ kbit/s cross-connection function is provided within the node, and various data and voice frequency interfaces are supported. Different traffic types may be com-



bined, split or groomed as required, using the minimum number of 2Mbit/s trunks. Both leased line data and V5 applications can be combined in the same node and in the same Eksos N20 Node and Network Management 2Mbit/s lines.

Eksos N20 Node and Network Management

Eksos N20 has a standard Q3 interface that is used to make connections to the Telecommunication Management Network (TMN) and the local management system. The management interface is an integrated Local Area Network interface (Ethernet) that can also be used to connect different Eksos N20 nodes to the same station.

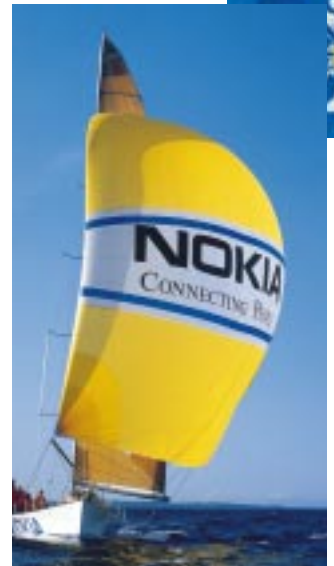
For management at the network level, Eksos N20 is managed by Nokia's Network Management System, NMS. According to the operators needs, the NMS family covers a full range of system that can manage all sizes of network cost efficiently. Major services include fault, configuration, performance, accounting and security management.

The NMS/10 is PC-based management system optimised for small and medium size access and transmission networks. The NMS/100 provides network management services for all Nokia access and transmission products, including V5 access nodes. The NMS/1000 also provides switching management services.

Eksos N20 Node Manager provides control over all the configuration and operation details of a single Eksos network element, including download and activation of software upgrades. The Node Manager is a Windows NT application program which runs on a standard PC. Subscriber line testing and fault reporting is also supported, provided that it is included in the configuration.

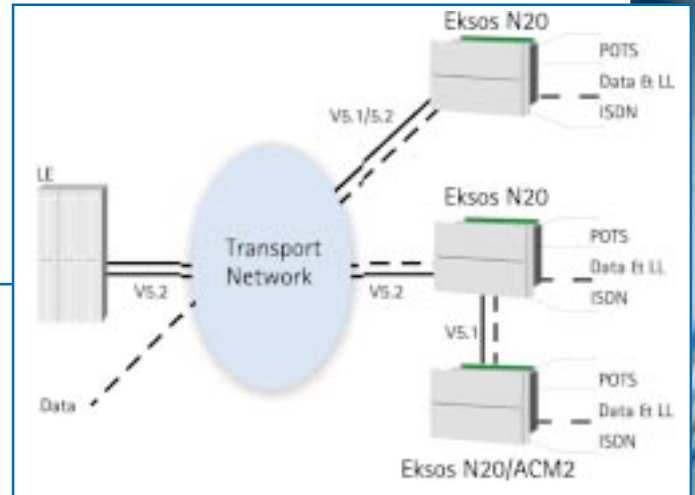
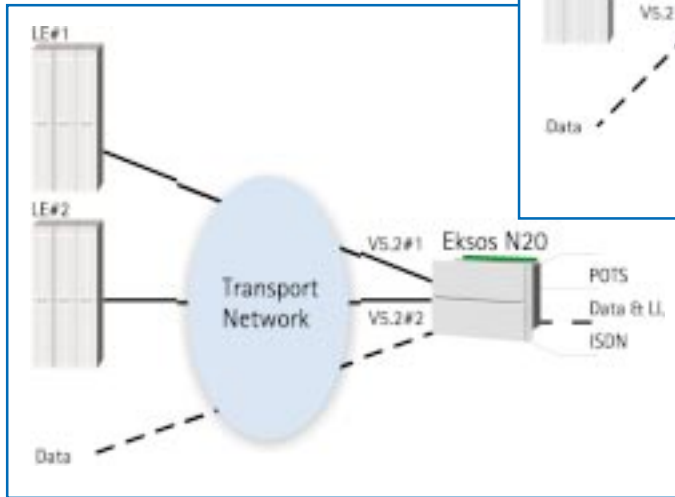
What is V5?

V5 is an ETSI/ITU-T standard for a signalling interface between access network and local exchange. There are two variants of the standard, V5.1 and V5.2, both based on the use of 64kbit/s channels and 2Mbit/s links. V5.1 is a single 2 Mbit/s interface which supports PSTN and ISDN BRA user ports. In V5.1, bearer channels for user ports are allocated statically, while in V5.2, dynamic bearer channel allocation (i.e. concentration) is inherently included in the design. Also included in V5.2 is support for ISDN PRI, the possibility to use up to 16 x 2 Mbit/s lines and channel protection. Nokia's commitment to open interfaces such as V5 has made it the leader in deployment of V5 technology both in access nodes and in local exchanges.



Product highlights

- Extensive set of functions with one flexible platform
- Concentrating multiplexer with one or more V5.2 logical interfaces
- Digital cross-connect with variety of data interface units
- Integrated SDH Add-Drop Multiplexer or Terminal Multiplexer as an option
- High packing density in a physically compact node
- Multihosting and V5.1/V5.2 conversion
- Can be upgraded to provide Nokia Broadband services
- Remotely upgradeable subscriber interfaces for cost-efficient migration from narrowband to broadband



Technical Data	Nokia Eksos N20
Capacity	512 bearer channels
Subrack (W x D x H)	17-slot, 450 X 240 X 330 mm 8-slot, 215x240x350
Rack	ETS 300 119 19" rack
Interfaces	Optical: STM - 1 Electrical: analogue PSTN, ISDN, various data interfaces, 2Mbit/s, HDSL
Signalling	V5.1 ETS 300 324 - 1 V5.1 ETS 300 324 - 1/A1 V5.2 ETS 300 347 - 1 V5.2 ETS 300 347 - 1/A1
Management	Q3 G.773, Q.811 - Q.812 Ethernet
Synchronisation source	Internal clock, external 2 048 kHz / kbit/s
Synchronisation output	2048 kHz / kbit/s
Cross-connection	n x 64 kbit/s
Power supply	40,5 - 75 VDC
EMC	EN 50082 - 1 EN 55022 (class B) EN 300386 - 2
Environment	ETS 300 019, Operation class 3.2
Humidity	5...95% RH
Temperature	-5...+45 °C

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