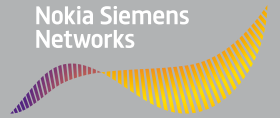# Nokia Siemens Networks
Channel Partner Program

Nokia Siemens
Networks

Product portfolio catalog
for sales partners

"We are involved in service projects with customers in more than 150 countries, and across 600 fixed and mobile network operators."

Nokia Siemens Networks
Your partner in a new era of communications

Nokia Siemens Networks is a top three player in the global communications landscape. We offer a best-in-class fixed and mobile network product and solution portfolio underpinned by a unique services capability.

With over 20,000 service professionals globally (nearly a third of our workforce) we are the only company who can offer the full range of services throughout fixed and mobile networks. We are involved in service projects with customers in more than 150 countries, and across 600 fixed and mobile network operators.

The sheer scale of our organization enables us to put significant resources into R&D, the lifeblood of our future. In fact, we will be one of the world's top 40 companies in terms of R&D investment, with R&D teams working in development centers in all the world's technology hotspots.

Our global sales partner network is of critical importance in helping us to deliver our products to our customers worldwide. We work closely with highly competent partners to provide the highest levels of service quality to all our customers, helping them prosper over the coming decade of change.

Our portfolio at a glance

Our global sales partner network is of critical importance in helping us to deliver our products to our customers worldwide.

IP Transport

Our IP Transport business unit helps communication providers increase their revenues by improving time to market and by optimizing life cycle costs for their service offerings.

Broadband Access

We provide carrier grade access solutions for fixed and converged networks, helping your customers to meet the ever-increasing demand for bandwidth and drive the evolution towards the next generation IP networks.

Operations and Business Software

We provide software solutions that automate operational and business processes, to reduce complexity for our customers and improve their business performance.

For more information, please visit www.nokiasiemensnetworks.com

IP Transport

Microwave radio

SDH split radio equipment

SRA4 Family
SRA4
What is it?
The Nokia Siemens Networks SRA4 is a synchronous digital hierarchy (SDH) system designed to provide capacities from single to multiple 155 Mb/s data channels.

What does it do?
The SRA4 combines high capacity and high bandwidth efficiency into a single radio platform. The SRA4 offers the spectrum efficiency and equipment flexibility needed to cope with increased voice traffic and the newly emerging cellular data market.

What business benefits does it deliver?
• Saves on spectrum
• Upgrades capacity
• Ensures scalability
• Supports rapid network growth

SRA4 HC (High Capacity)
What is it?
SRA4 HC is a high capacity radio providing 16 to 400 Mbit/s connectivity to HSPA sites With advanced Ethernet L2 switch capabilities and additional 18E1 for TDM. SRA4 HC is an ideal solution for 3G sites that require high capacity 25 - 400 Mbit/s. Voice can be connected via the E1 ports and data via Ethernet (FE or GE). Adaptive modulation is supported.

What does it do?
SRA4 HC supports ETSI frequencies from 6-38 GHz. Thanks to its high modularity, SRA4 HC IDU supports the following configurations:
• Native wireless Ethernet radio (Ethernet (4 FE/GE + 1GE SFP) + 18 E1/T1), 400 Mbit/s High Capacity
• PDH radio having 311 Mbit/s capacity split between 63 E1 interfaces and two Fast Ethernet ports
• Mixed configuration Ethernet, SDH and PDH (2FE + 1xSTM1 +16E1) 400 Mbit/s High capacity

What business benefits does it deliver?
• With licensing schemes 16 - 32 - 64 - 100 - 155 - 311 and 400 Mbit/s, operators can start with smaller capacity on day one if the data traffic level is not initially high
• Hybrid backhauling applications
• Optimize radio capacity for each site
• Future proof data rates
• Pay-as-you-grow

SDH trunk equipment
SRT1F
What is it?
The Nokia Siemens Networks SRT 1F is a point-to-point digital microwave communication system based on SDH specifications.

The SRT 1F consists of three main elements:
• RF branching unit
• Transceiver unit
• Supervisory, control and switching sub-rack

What does it do?
In combination with an SDH-based fiber optical transmission system, the SRT 1F forms a fully compatible SDH communication network. It receives STM-1 baseband signals, processes these and outputs the converted signals to the antenna port via the RF branching system at the required radio frequency.

What business benefits does it deliver?
The SRT 1F is fully SDH compliant and thus offers an efficient mixed-media system based on a combination of radio and SDH-based fiber-optical transmission system, catering to today's growing mobile communications needs and the emerging trend towards 3G/UMTS.

PDH split radio equipment
SRAL XD
What is it?
The Nokia Siemens Networks SRAL XD low capacity microwave digital radio system is a range of flexible and versatile indoor and outdoor radio equipment designed for urban networks, but also covering regional networks.

What does it do?
The range provides maximum power in the smallest possible enclosure and features cross-connection, remote installation, maintenance and upgrade facilities and automatic transmitter power control (ATPC).

What business benefits does it deliver?
• Terminal can be easily relocated without any hardware modification
• Gives increased link density and capacity
• Leaves spectrum occupancy practically unchanged
• Offers a flexible and versatile infrastructure

FlexiHopper family
What is it?
FlexiHopper family microwave radios enable cost-efficient and scalable solutions for different kinds of transmission needs. FlexiHopper family microwave radios are available for 7, 8, 13, 15, 18, 23, 26, 28, 32 and 38 GHz frequency bands.

What does it do?
All indoor units support all transmission capacities enabling remote over the hop transmission capacity change. The indoor can be selected from four different models, either fully BTS integrated or 19".

What business benefits does it deliver?
The integrated indoor base station gives operators CAPEX and OPEX savings.

Flexihopper XC
What is it?
FlexiHopper XC Microwave Radio is a member of the Hopper Microwave Radio family, and offers transmission capacity of 80 Mbit/s corresponding to 40x2 Mbit/s.

What does it do?
FlexiHopper supports both 4-state and 16-state modulations, allowing the operator to choose the modulation best suited to a specific hop and achieve the highest area based spectral efficiency and capacity in dense urban networks.

What business benefits does it deliver?
Upgrading sites from FlexiHopper to FlexiHopper XC is simple because the FlexiHopper XC outdoor unit can use the same antennas and antenna alignment units as existing FlexiHopper units – upgrading can be done by simply swapping the radio units.

What business benefits does it deliver?
It offers clear benefits for operators through reduced network building and operational costs due to better optimization of transported traffic, both in circuit- and packet switching.

FlexiHub also complements the Flexi BTS transport solution bringing additional functionality. The FlexiHub uses the same Flexi BTS Outdoor module and will therefore have the same look and feel.

MetroHopper
What is it?
MetroHopper is a 58 GHz radio link for short haul wireless transmission access at 4x2 Mbit/s capacity. It is available with a rectangular 20 cm flat panel antenna or with a 30 cm parabolic antenna.

What does it do?
Its small size and unnoticeable appearance enable MetroHopper to blend easily into the metropolitan environment and help operators to find new types of site locations. The antennas can be mixed in the same hop to find the optimum between outlook and hop length.

What business benefits does it deliver?
- Self-regulated 58 GHz band enables fast rollout without coordinated frequency planning
- Very high frequency re-use in high-density urban access networks
- Faster, easier and cheaper installation than with other radios - small size and light weight
- Faster and easier commissioning than with other radios - channel auto selection
- Common indoor units with FlexiHopper radios

Next generation metro

The SURPASS hiT 70xx series is the Nokia Siemens Networks next generation SDH platform, enabling true multi-service provisioning and serving the requirements of emerging converged networks.

The SURPASS hiT 70 series platform provides the flexibility of true Ethernet switching and Ethernet transport, while operating with the inherent reliability of SDH. The efficiency of this multi-technology approach, together with extensive use of highly integrated components allows the SURPASS hiT 70 series to be offered at lower costs than current solutions.

SURPASS Multi-Service Optical Networks by Nokia Siemens Networks meet the demands of a complete IP-optimized solution for regional and metropolitan areas. Enhanced Ethernet functions are added to the full set of classic transport features for TDM services.

Both the existing and the new services are managed by a single network and service management system.

FlexiHub
What is it?
FlexiHub is a transmission hub which enables network level efficiency features. FlexiHub performs traffic consolidation, aggregation and protection, for example with loop protection.

What does it do?
FlexiHub can combine traffic from several sources: E1/T1 -lines, Ethernet, STM-1 and microwave radios. FlexiHub supports up to 10 radio directions with FlexiHopper XC, FlexiHopperPlus and MetroHopper.

FlexiHub plays a key role with Hybrid transport solution in microwave network. Now FlexiHub also integrates microwave radios seamlessly into the transport end-to-end solution.

SURPASS hiT 7020

What is it?
The SURPASS hiT 7020 is an element of the Nokia Siemens Networks Next Generation SDH platform.

What does it do?
The SURPASS hiT 70xx series is the Nokia Siemens Networks next generation SDH platform, enabling true multi-service provisioning and serving the requirements of emerging converged networks.

The SURPASS hiT 7020 is a highly compact and integrated STM-1/STM-4 system for use within the customer premises environment. The SURPASS hiT 7020 supports any mix of voice (E1) and data (Fast Ethernet, Layer 2 switch) applications.

What business benefits does it deliver?
The SURPASS hiT 7020 is the ideal solution for network operators who are looking for an ultra-compact network element to significantly cut costs and increase revenue through more efficient TDM and data service provisioning.

SURPASS hiT 7030

What is it?
The SURPASS hiT 70xx series is the Nokia Siemens Networks next generation SDH platform, enabling true multi-service provisioning and serving the requirements of emerging converged networks.

SURPASS hiT 7030 supports data-based services to improve the network, not only helping exploit idle capacity, but also being very easy to use. It provides services more flexibly and more quickly to improve competitiveness.

What does it do?
The SURPASS hiT 7030 is a highly compact and integrated STM-1/ STM-4 system positioned for Metro Access applications. With its modular and yet compact design, the SURPASS hiT 7030 is the product of choice for mixed data and voice applications at end customer premises or at the edge of the carrier network. The card commonality with other meers of the SURPASS hiT 70xx family simplifies operational logistics and the holding of spares.

What business benefits does it deliver?
Since the SURPASS hiT 7030 supports both TDM and Ethernet services, it provides carriers with an extremely cost-efficient platform for multiservice access.

The installation effort – and visit to the customer premises – takes place only once, and all service-related changes can be carried out remotely.

The integrated Layer 2 switch module provides switching and overbooking capability, leading to better utilization of the available network bandwidth.

hiT 7025

What is it?
SURPASS hiT 7025 is an element of the Nokia Siemens Networks Next Generation SDH platform that enables true multi-service provisioning and serves the requirements of emerging converged networks.

The SURPASS hiT 7025 supports TDM (from STM-1 to STM-16) as well as Ethernet services, thus providing carriers with an extremely cost-efficient platform for multi-service support. The integrated Layer 2 switch module provides switching and overbooking capabilities, thus offering the additional possibility of multipoint-to-multipoint connections.

What does it do?
The SURPASS hiT 7025 is a highly versatile piece of equipment in terms of its applications and equipping options. While covering the complete range from an STM-1 to an STM-16 system, compact ADM-4 or ultra-compact ADM-16 will form the prime usage. The SURPASS hiT 7025 supports a large variety of data interfaces including Ethernet and industry standard PDH/ SDH interfaces. In addition, the system supports Ethernet Layer 2 switching functionality, providing reliable and efficient data transport. The card commonality with other members of the SURPASS hiT 70xx family members simplifies operational logistics and the storage of spares.

What business benefits does it deliver?
The SURPASS hiT 7025 has been designed to address the emerging convergence networks. Combining the best of both worlds, the SURPASS hiT 7025 is the optimum solution for all types of mixed TDM and data traffic.

hiT 7035

What is it?

The SURPASS hiT 7035 is a remarkably versatile component that provides many application options. Although it covers the full range from STM-1 to STM-16 systems, it is geared primarily for full-blown ADM-4 and compact ADM-16 applications.

What does it do?

The SURPASS hiT 7035 is a highly versatile piece of equipment in terms of its applications and equipping options. While covering the complete range from an STM-1 to an STM-16 system, full-blown ADM-4 or compact ADM-16 applications will form the prime usage.

The SURPASS hiT 7035 supports a large variety of data interfaces including Ethernet and ATM-IMA (Inverse Multiplexing over ATM), as well as industry-standard PDH/SDH interfaces. The system also supports Ethernet Layer 2 switching functionality, providing reliable and efficient data transport. The card commonality with other members of the SURPASS hiT 70xx family members simplifies operational logistics and the holding of spares.

What business benefits does it deliver?

SURPASS hiT 7035 improves the carrier's market competitiveness through higher service flexibility, faster service provisioning, reduction in operating and capital expenditures and protection of investments. It gives carriers a unique competitive advantage by transporting flexible Ethernet services from business customers using reliable SDH technology. Furthermore, the Ethernet services can be offered with high quality (carrier-grade) as well as best-effort service.

ATM-IMA aggregation capability prepares the equipment for use in the fixed part of a mobile network. The small form factor pluggable (SFP) optical modules are customized port features, which allow "under-equipping" of interface cards to support different applications cost-effectively. Long-haul and short-haul interfaces can be mixed on one card.

SURPASS hiT 7060/7060 (HC)

What is it?

SURPASS hiT 7060 is a cost-effective platform that covers the whole range of network applications required for the regional and metro core.

The SURPASS hiT 7060 and SURPASS hiT 7060 HC support a large variety of data interfaces including 10/100M FE/FX, GE, as well as industry-standard PDH/SDH interfaces. In addition, the system supports Layer 2 switching and RPR, providing highly reliable and efficient data transport.

What does it do?

SURPASS hiT 7060 can operate as a UHC feeder, a terminal multiplexer, an add-drop multiplexer, a local cross-connect, a multi-ring terminal in point-to-point, (multi)point-to-multipoint, chain and ring topologies and also ring interconnections.

It is optimized for both packet and traditional SDH traffic. It is available in two versions: The SURPASS hiT 7060 is a platform for STM-16 applications, the SURPASS hiT 7060 (HC) is scalable up to STM-64.

What business benefits does it deliver?

SURPASS hiT 7060 offers the highest degree of flexibility and scalability and via GFP mapping and LCAS, Ethernet bandwidth can be provisioned on demand. An integrated Layer-2 switch allows building VLANs and VPNs. RPR in the metro access, where ring topologies dominate, make the SURPASS hiT 7060 the optimum solution in a multi-service environment.

SURPASS hiT 7070

What is it?

SURPASS hiT 7070 is a high capacity platform of the Nokia Siemens Next Generation Metro product family SURPASS hiT 70xx, a platform that enables true multi-service provisioning.

The SURPASS hiT 7070, as well as all other members of the SURPASS hiT 70xx family, has been optimized for both packet and traditional TDM traffic. It uses state-of-the-art technologies such as the ASTN architecture within the standard GMPLS control plane, thus preparing the carrier's network for the evolutionary step to a next generation optical network. The SURPASS hiT 7070 follows the Nokia Siemens Networks ASTN/GMPLS strategic evolution.

What does it do?

Delivering powerful performance with its 160Gbit/s higher order switch matrix, and with a small footprint, the SURPASS hiT 7070 can be deployed as a UHC network feeder, a terminal or add-drop multiplexer, a local cross-connect or a multi-ring.

The SURPASS hiT 7070 offers:
- Flexible and scalable links through the use of GFP and LCAS
- Point-to-multipoint or multipoint-to-multipoint connections and aggregation via an integrated Layer 2 switch to build VLANs
- Cost-efficient Metro WDM, CWDM and DWDM backbone feeding
- Carrier services such as TDM leased lines, VLAN, VPN application and clear channels
- GMPLS VPNs (layers 1 and 2) using the ASON/GMPLS architecture

What business benefits does it deliver?
The SURPASS hiT 7070 allows carriers to scale into the future by upgrading their switching matrix capacity and line rates. Moreover, it features trend technologies such as Ethernet Layer 2 and ASON.

Major benefits of SURPASS hiT 7070 are:
• Increased revenue from new services
• Significant reductions in OPEX and CAPEX
• Seamless integration into the existing network infrastructure
• Full integration into Nokia Siemens Networks' best-in-class network management system, TNMS

SURPASS hiT 7080
What is it?
The SURPASS hiT 7080, the new flagship of the SURPASS hiT 70xx product line, has been developed for both packet and traditional TDM traffic. It uses state-of-the-art technologies such as the ASON architecture within the standard GMPLS control plane, thus preparing the carrier's network for the evolutionary step to a next generation optical network. The SURPASS hiT 7080 is aligned with the Nokia Siemens Networks ASTN/GMPLS strategic evolution.

What does it do?
The SURPASS hiT 7080 can be deployed as a UHC feeder, a terminal or add-drop multiplexer, a local cross-connect or a multi-ring in point-to-point, chain, ring and meshed topologies, and ring interconnections.

It offers:
• Flexible and scalable point-to-point links through the use of GFP and LCAS
• Point-to-multipoint or multipoint-to-multipoint connections and aggregation via an integrated Layer 2 switch to build VLANs
• RPR for the metropolitan area, where ring topologies dominate
• GMPLS VPNs (layers 1 and 2) using the ASTN architecture

What business benefits does it deliver?
NG Metro SURPASS hiT 7080 offers the highest levels of flexibility and scalability, providing high density interfaces and extension shelves. It delivers powerful performance and has a small footprint.

The convergence of data and voice combined with increased functionality and high integration density significantly reduces the amount of equipment needed and saves operational and maintenance costs considerably.

The integrated Layer 2 switch module and RPR fabric provide switching and overbooking with customer separation without needing additional platforms and technologies. The carrier can thus offer Ethernet services with different service qualities - carrier-grade Ethernet for business customers and best-effort Ethernet for a large number of additional customers, such as residential customers.

The automated processes brought by GMPLS implementation allow service providers to configure the network quickly and simply.

Network utilization is improved by using meshed restoration, multiple failures resilience and traffic engineering.

Dense Wavelength Division Multiplexing

SURPASS hiT 7300
What is it?
SURPASS hiT 7300 is a leading DWDM platform. The product relieves operators from any capacity and fiber shortages. The SURPASS hiT 7300 is a flexible and cost-efficient 40/80 channel DWDM transport platform that is optimized for high capacity transport within access, regional and long-haul networks.

What does it do?
The product protects operators from capacity and fiber shortages. The SURPASS hiT7300 is a flexible and cost-effective 40/80 channel DWDM transport platform that is optimized for high capacity transport within access, regional and long-haul networks.

What business benefits does it deliver?
• For all sizes of network, whether large or small, this future-proofed, cost-optimized solution is a strong performer in both regional and long-haul domains
• Minimizes complexity
• Simplifies network operation, management and maintenance
• Prevents procedural errors
• Cuts capital and operational expenditures

Nokia Siemens Networks' A-series consists of a variety of scalable switches, each specifically designed for metro core, aggregation or edge business applications.

Carrier switches

SURPASS hiD 3100
What is it?
The SURPASS hiD 3100 is a
future-proof multi-service switch family.

What does it do?
SURPASS hiD 3100 is designed to streamline
access in GPRS/UMTS radio networks.

What business benefits does it deliver?
The SURPASS hiD 3100 platform
dramatically lowers mobile transport costs
by creating a highly-efficient aggregation
layer a highly-efficient aggregation layer.

SURPASS hiD series switches
What is it?
SURPASS hiD 6630/6650/6670 Carrier
Ethernet aggregation switches offer
powerful metro core functionality.

What does it do?
The products support various Ethernet-in-the-first-
mile access options as well as MPLS in the core.
SURPASS hiD 6630/50 supporting mainly metro
aggregation applications whereas SURPASS
hiD 6679 also supports core applications.

What business benefits does it deliver?
As part of the Nokia Siemens Networks
end-to-end, packet-based solution, SURPASS hiD
6630/6650/6670 Carrier Ethernet switches enable
operators to provide residential and business
broadband access, cost-effectively and quickly.
Enabling network convergence, they combine the
flexibility of Ethernet with the reliability of classic
transport networks (TDM interfaces included).

The range comprises:
Product: SURPASS hiD 6630 Carrier
Ethernet Aggregation Switch
Capacity: 120 Gbps
Form factor: 3 service slots supporting
60x1G or 6x10G interfaces
Key features: Advanced Ethernet package
(ERP, VLAN XC, VLAN manipulation,
traffic management), Provider Bridge, L2
protection (RSTP, MSTP), IGMP snooping

Product: SURPASS hiD 6650 Carrier
Ethernet Aggregation Switch
Capacity: 320 Gbps
Form factor: 5 service slots supporting
100x1G or 10x10G interfaces
Key features: Advanced Ethernet package
(ERP, XC, VLAN manipulation, traffic
management), Provider bridge, L2 MPLS
(LER, LSR, VPWS, VPLS, OSPF, ISIS,
LDP, RSVP for FRR), IGMP snooping

Product: SURPASS hiD 6670 Carrier
Ethernet Aggregation Switch
Capacity: 640 Gbps
Form factor: 12 service slots supporting
240x1G or 24x10G interfaces
Key features: Advanced Ethernet package
(ERP, XC, VLAN manipulation, traffic
management), Provider bridge, L2 MPLS
LER, LSR, VPWS, VPLS, OSPF, ISIS,
LDP, RSVP for FRR), IGMP snooping

A-Series switches

What is it?

Nokia Siemens Networks' A-series consists of a variety of scalable switches, each specifically designed for metro core, aggregation or edge business applications. The range also includes Ethernet demarcation devices.

What does it do?

These products are seamlessly managed by the service platform for Ethernet networks, ASPEN, a fully integrated and standards-based network management system offering device configuration and inventory management, as well as performance and fault management data collection.

What business benefits does it deliver?

The A-series switches are a comprehensive range of carrier-optimized Ethernet products and the most complete, easy-to-use service management and OAM&P solutions.

The range comprises:

Product: A-8100 Carrier Ethernet Core Switch
Capacity: 150 Gbps
Form factor: 17-slot, 1/3 chassis 14 RU
Key features:
- Standard MPLS architecture
- GigE, 10 GigE and DWDM support
- Scales up to 320 Gbps over a single fiber
- Sub 50ms failure recovery
- Redundant-processor, fabric and power supply

Product: A-4100 Carrier Ethernet Aggregation Switch
Capacity: 80 Gbps
Form factor: 8-slot chassis, 6.5 RU
Key features:
- NEBS-compliant, high-density, low profile
- Shares same interface cards, functionality and key features as A-8100

Product: A-2000 Family Carrier Ethernet Edge Switches
Capacity: 4 Gbps
Form factor: A-2140/2100 1 RU
Key features:
- Standard QinQ architecture
- Hot swappable access modules with Fast-Ethernet (fiber and copper), Gigabit-Ethernet (fiber and copper), E1/T1 and STM-1/OC-3 interfaces
- Two fixed 1000BaseX (SFP) network ports
- Port-based, VLAN-based, priority-based and IP address mapping schemes

Product: A-210 Carrier Ethernet Demarcation Devices
Capacity: A-200 1000Base-X
Form factor: 1 RU
Key features:
- Single user port and single network port
- SNMP manageability via network port
- Local management over RS-232 or Ethernet
- 802.1q tagged or untagged customer traffic
- Advanced OAM&P capabilities
- For FTTx in enterprise or residential setting

Product: A-2160 Carrier Ethernet Edge Switch (Outdoor)
Capacity: 4 Gbps
Form factor: N/A
Key features:
- 2 GigE network facing ports (SFP or SSF)
- Up to 2,000 simultaneous connections
- Same functionality and key features as A-2000 with the addition of outdoor capabilities
- For use in cable aggregation or cellular backhaul

Product: ASPEN Advanced Carrier Ethernet Network Management Platform
Capacity: Fully scalable
Form factor: N/A
Key features:
- Aspen Manager: end-to-end point-and-click service provisioning, graphical representation of the managed network, advanced troubleshooting aids, device, link, service and module inventories, full fault management tools, software download to the device
- ASPEN OSS: northbound interface for integration with upper-level third-party Operation Support Systems (OSS)
- ASPEN Customer Network Manager (CNM): web-based software development kit for customer management and monitoring of network services by end user

Broadband
Access

Narrowband/multi-service products

Open access products
SURPASS hiX 5200
What is it?
SURPASS hiX5200 is the optimized way
to connect subscribers to the existing TDM
PSTN or Next Generation core Network.

What does it do?
On the customer side, hiX5200 provides
high-density POTS and ISDN voice interfaces.
On the network side towards the backbone,
the open, standardized V5.2 interface offers
concentration of voice bearer channels and thus
guarantees optimum utilization of bandwidth.

hiX5200 takes a flexible approach and is
completely modular - typically suited to
central office voice access concentration,
with high port densities built up from
64 channel line small footprint.

What business benefits does it deliver?
• High port density (up to 5120 ports)
• Multi-shelf concept
• Small footprint
• Standard V5.2 network interfaces
  to achieve concentration
• Redundancy (both hardware
  and network interfaces)
• Automatic test functions
• Remote software administration

Remote Line Unit
What is it?
The RLU (Remote Line Unit) is a Next
Generation Access Platform for the
delivery of voice and data services.

What does it do?
Based on common modular architecture, the
SURPASS product family provides a complete
range of modular end-to-end solutions that give
network operators the flexibility to offer any
service in today's and tomorrow's networks.

The RLU will seamlessly integrate into a
current Next Generation Network infrastructure.
RLU will allow the network operator to
migrate its network to an IP-based Next
Generation Network whenever it is ready.

What business benefits does it deliver?
• Carrier-class IP multimedia service
  access gateway
• Requires minimal investment to offer
  fixed voice and internet services
• Can be configured as an all-in-one
  shelter/satellite based solution
• Ideal for replacing small TDM based switches
• Future-proofed for Next Generation Networks

Dedicated networks
Dynanet
What is it?
Dynanet is a flexible product family for primary
access networks, optimized for Utility,
Dedicated and Corporate Networks that
require high reliability in all systems relating
to service delivery. It offers a broad family of
different interfaces with varying capacities
to meet the various services needs of
primary access networks. Dynanet also
has supplementary Cards which makes the
Dynanet Portfolio future proof. These include
the ability to transport E1 over Ethernet
(TDMoP) and Ethernet over Copper (EoC).

What does it do?
Dynanet achieves flexibility through a modular
product architecture and distributed power
supplies and offers a broad range of subscriber
interfaces covering high/low speed data, Ethernet
and Voice (e.g. V35, X21, V24, 2/4-wire VF, E&M).

What business benefits does it deliver?
The high reliability of Dynanet is achieved through
• High level of integration
• Strict design rules
• Careful component control

The equipment MTBF values have been
increased and field reliability statistics show
actual reliability to be even higher than expected.

Leased lines
Dynanet SHDSL
What is it?
DNT2Mi (Data Network Terminal) is a SHDSL network terminal for transmission of n*64 kbit/s services (ISDN PRI, structured or unstructured leased line) over the subscriber loop using one, or two, twisted copper pairs. It provides voice and data transport over the local loop to the 2M service at the central site.

The unit provides multiple (1.3) G.703/G.704, V.11, V.35, X.21, V.28, EIA-530-A, and 10Base-T customer interfaces.

What does it do?
DNT2Mi is a stand-alone customer premises unit. It typically connects to the network node's line terminal unit ACL2i (locally powered), ACL2i-PF (power feeding), or ACL2i-RP (remotely powered). The transmission conforms with ITU-T recommendation G.991.2 providing high quality, high performance transport over long physical distances using twisted copper pairs as a communication path. DNT2Mi is TDM-based equipment that can be used for delivering any E1 or fractional E1 services (voice, data, image and video) to the end user application.

What business benefits does it deliver?
• ITU-T G.991.2 compliant
• TC-PAM line coding
• 2-wire/4-wire operation
• n*64 kbit/s line rates
• 2 Mbit/s of aggregate bandwidth
• Remote powering
• Complies with Nokia NMS management system
• n*64 kbit/s services
• Integrated TDM features with
  up to 3 user interfaces

DFCX
What is it?
The DFCX delivers global low and high speed 'triple play', making it the ideal solution to SDH/ SONET multi-service access applications.

What does it do?
IIn addition to Ethernet, E1/T1, E3/DS3, serial data, and voice services, the platform's Digital Access Cross Connect Switch (DACS) and Channel Bank support effortless service management and configuration. The 16 slot platform reserves two module spaces for optical trunk interfaces, and 14 spaces for the flexible implementation of highly configurable data, Ethernet, and voice trunk or tributary circuits, achieving the economic advantages of a combined Add/Drop Multiplexer and DACS in a single, consolidated 1RU unit.

What business benefits does it deliver?
• DFCX helps network operators to provide a large number of voice and data services from a confined space and highly efficiently
• DFCX offers a wide range of Ethernet, E1/ T1, E3/DS3, serial data, and voice interfaces
• The DFCX Transport Terminal provides an SDH transmission stage
• DFCX is class leading in its innovative approach to reliability, redundancy, protection and maintainability
• DFCX is housed in a single Rack Unit (1.75 inches high) rack mount device

Access switches

SURPASS hiD 6610/6615 Series
What is it?
SURPASS hiD 6610 and 6615 Series provides carrier class Ethernet connectivity from the customer premises to the IP/MPLS core.

What does it do?
SURPASS hiD 6610/15 switches can be used for a variety of new, revenue generating applications, for example as L2/L3 Ethernet LAN switches in high-rise buildings or as DSLAM traffic consolidation and aggregation switches. Additionally, SURPASS hiD 6610/15 switches help to enhance network efficiency by offering dedicated L3 functionality and support of IP-Multicast features to optimize TV broadcast networks.

What business benefits does it deliver?
Carriers can deploy all services over one network. This greatly simplifies end-to-end OAM&P. Moreover, service providers can instantly add, delete, or change services, thus avoiding expensive truck rolls. In addition, all QoS and SLA parameters can be adjusted remotely and in real-time just as easily as with conventional networks by using the Nokia Siemens Networks network management system ACI-E.

Whether managed by the ACI-E (Element Manager) or simply via the standard CLI, the SURPASS hiD 6610/15 switches allow end-to-end OAM&P and new profitable services – all combined with the very low cost vof ownership that carriers expect from Ethernet.

Operations and Business Software (OBS)

Telecommunications Network Management System (TNMS)

What is it?
TNMS is the all-in-one network management solution for the complete transport network (DWDM and NGM), supporting SDH, DWDM, Ethernet and PDH services.

What does it do?
TNMS carries out all common management functions in the element, network and service layer extremely efficiently. Its outstanding graphical user interface (GUI) simplifies, and therefore speeds up, optical network management.

Fast and efficient provisioning of services using the automatic or manual routing wizard for single services or bundle of services Mass provisioning of services via XML import interface Network supervision with correlation of alarms to links and services and zoom in capability from network layer view to the details of a network element. Integrated operation in an operation support system (OSS)/multi-vendor environment via open interfaces (SNMP, TMF CORBA).

What business benefits does it deliver?
- Reduce operating expenses: All in one solution for the complete Nokia Siemens Networks transport network. Best in class user interface, open interfaces and comprehensive network layer intelligence ensure fast and efficient service provisioning, easy supervision and quality assurance with minimal effort
- Optimize capital employed: Ensures fast return of investment for your transport network by fast provision of services and the most efficient usage of network resources and protection capabilities
- Retain your customers: Low initial investment that can grow with the network size and required functionality. Support includes SDH/DWDM legacy networks. Ready for future technologies like ASON/GMPLS

NetAct™ network management system

What is it?

NetAct is a single system for monitoring, measuring and configuring the network and services. Using open and well-documented interfaces enables the addition of future network technologies and new OSS applications. We have completed more than 300 installations of NetAct worldwide.

What does it do?

NetAct provides reliable and readily available information about network status, services and subscribers. It provides seamless management of multi-technology, multiservice and multivendor networks.

What business benefits does it deliver?

- NetAct features a modular framework that allows the rapid and flexible addition of new components to the solution
- High scalability meets the growth of network, services and technology lifecycle requirements
- Reduced OPEX by using an integrated network management system and automated management processes
- Increases revenue through the use of centralized tools in network-wide operations and taking advantage of NetAct's ability to provide more proactive responses to network events
- Optimizes CAPEX by making information needed for business decision-making constantly available

NetViewer NME Suite

What is it?

The NetViewer NME Suite is a collection of products for network management including one Element Manager and a number of Local Craft Terminals.

NetViewer NME Suite is a powerful, flexible and scalable Management Solution for the Microwave (SDH, PDH, Ethernet and Point-to-Multipoint) networks as well as WiMAX "802.16d fixed and nomadic" products and NBA nodes. Behind the core Element Manager NetViewer, an integrated collection of optional features including Northbound Open Interfaces for FM, PM, and Inventory (the "Agents"), specific "connectors" for Umbrella Management Systems belonging the OBS portfolio (for example TNMS Core, NetAct, SPOTS), and a set of optional tools for dedicated tasks especially focusing on MWR circuit management and automatic provisioning.

The Local Craft Terminals (LCT) support the first installation and maintenance in the field of several network elements belonging to the business lines mentioned above.

What does it do?

The Suite addresses the element management layer of Microwave, NBA and WiMAX market segments; it is available worldwide to support both ex-Siemens and ex-Nokia customers. It is typically used by (virtual) mobile operators, fixed operators, TV broadcasters and utilities (dedicated networks).

In particular, the NetViewer Element Manager is highly scalable in order to serve very small networks, as well as nationwide deployments.

What business benefits does it deliver?

Complete element management features: Inventory management, fault management, configuration management, security management, performance monitoring
"Light" Network Management features:
- MWR Link, path and circuit management
- Friendly graphical user interface, that can also use web access with standard browsers as an option
- Reduce operating expenses by improving productivity in network monitoring and maintenance
- Retain your customers by ensuring the best network performance and supporting the integration in other NOC applications
- Generate new growth for services for example by acting as mediation device toward customer umbrella systems, either from Nokia Siemens Networks like TNMS Core, NetAct and SPOTS, customer proprietary or third party owned

AccessIntegrator is the common element management system for Nokia Siemens Networks access networks which include first mile access and second mile aggregation network elements.

NMS/10 agents and mediators
What is it?
NMS/10 is a PC-based multi user network manager for network monitoring, configuration and data collection in small fixed and mobile transmission networks.

What does it do?
NMS/10 provides full-scale fault management support for the entire transmission network, including alarm forwarding to enable unattended operation.

It also offers performance management to provide a continuous view of the service-level indicators, as well as inventory management to provide a collection of hardware information from ND generation as well as from E generation nodes.

Another feature is the Node Manager Server, which is a platform that enables remote launch and use of node managers.

What business benefits does it deliver?
• Remote management and maintenance reduces costly site visits: centralized configuration management with remote Node Managers. Performance monitoring provides an early indication of potential faults in the network
• Low initial investment by using a standard PC-based operating software. Easy to use tools reduce operating expenses through savings in integration, maintenance, system administration and training
• A complete view of network topology simplifies fault detection and decreases service downtime

AccessIntegrator Ethernet (ACI-E)

What is it?
AccessIntegrator is the common element management system for Nokia Siemens Networks access networks which include first mile access and second mile aggregation network elements.

What does it do?
ACI provides full ITU-T FCAPS (Fault, Configuration, Accounting, Performance and Security) management functionality for all Nokia Siemens Networks fixed access network technologies:
- hiX5300 ATM DSLAMs and hiX5600 IP DSLAMs
- hiX5700 GPON
- hiD6610/15 access ethernet switches
- hiD6630/50/70 carrier ethernet switches
- narrowband access products such as hiX5200 and FM X and FlexiNT

ACI supports full network provisioning and continuous synchronization of network resources and efficient real-time fault detection, as well as connection and equipment testing. It also offers rich features for retrieving the actual network performance and inventory data.

Through its task-oriented graphical user interface with its consistent look and feel across different domains and network elements, ACI enables fail-safe and easy operation of large networks.

ACI's advanced platform-independent system architecture fulfills all requirements for system configuration, scalability and reliability. The installation can range from single PC workstations for one operator managing less than 100 network elements, up to geo-redundant multi-server/multi-site installations with more than 100 operators and thousands of operations per day.

Featuring powerful standardized XML, Corba and SNMP northbound interfaces, ACI is well suited for integration with any OSS/BSS environment.

What business benefits does it deliver?
- Lower OPEX through fully centralized operation of all types of access network elements from a common management system
- Reduced time-to-service is ensured by a task-oriented and intuitive graphical user interface which supports efficient and error-free configuration of network resources and faster fault detection and trouble-shooting
- Reduced CAPEX by ACI's advanced system architecture which supports any existing operational and IT environment while fulfilling highest scalability and reliability requirements
- Additional OPEX saving through northbound integration into any automated OSS/BSS processes like flow-through provisioning and service assurance
- ACI is a mature and well-established product with over 300 installations world-wide including many big incumbent telecom operators, as well as new, competitive service providers

ASPEN

What is it?
ASPEN is Nokia Siemens Networks' Advanced Service Management Platform for Carrier Ethernet Networks.

What does it do?
ASPEN software allows carriers and service providers to manage all A-series (and in the future some hiD-66XX) network elements to deliver the most reliable, scalable and cost-effective Carrier Ethernet transport solution. Using a multi-layered modular architecture, ASPEN software supports large, dynamic carrier-class networks and is ideal for minimizing hardware deployment time, service planning, provisioning, and monitoring.

What business benefits does it deliver?
Delivers enhanced service management capabilities for rapid end-to-end, point-and-click carrier Ethernet service provisioning, comprehensive network and element management, fault management, real-time SLA display, user and customer management, and is open to manage and be managed by others.

ASPEN has a fully-scalable architecture that can grow with your network and brings all the benefits of FCAPS network management applications to the carrier Ethernet world.

Node Managers, radio
What is it?
Node Manager Server is an OBS platform for node managers. The available node managers for the radio domain include Epsilon BTS Manager, WBTS Manager, AXC Manager, WiMAX BTS Site Manager, FlexiHub Manager, Hopper Manager, AXC FB Manager & Transmission Loader

What does it do?
Node managers are used at the site (during installation, repair, hardware swap etc.) and remotely via the NetAct network management system.

What business benefits does it deliver?
Node Manager server removes the need for site visits for trouble shooting, software upgrades and configuration changes.

NetManager

What is it?

NetManager provides element and domain-management for Nokia Siemens Networks Perfect Voice, VoIP and broadband access products (PSTN modernization via IP solution with main network elements hiE9200, hiG1600, hiX56xx/EWSD/hiS700 and solutions: PSTN modernization via IP, IPT, ICA, FMC, CBVoIP, BBA).

What does it do?

NetManager provides efficient element management (FCAPS) with integrated fault clearance support using an alarm topology map that includes all the network elements from the Perfect Voice and CBVoIP Product range.

NetManager is aimed at incumbent operators for carrier class Voice and VoIP Solutions, and operators migrating from TDM (EWSD) to PSTN Modernization via IP Solution.

What business benefits does it deliver?
Optimize capital investments: optimize coverage and capacity of your service delivery platform and IT infrastructure. Minimize rollout costs and achieve faster time to market with cost effective and tested element and domain management system Reduce OPEX: improve productivity in service assurance and deployment, benefit from built-in automation in systems and tools. NetManager supports full FCAPS functions and task oriented applications for efficient service and network management.
- Manage risk: implementation and care services, operations support and managing the life-cycle
- Support smooth migration from TDM Infrastructure to NGN and VoIP Service with PSTN modernization via IP (NGN), CBVoIP, FMC solutions

IP Manager

What is it?

The IP Manager is a highly flexible and customizable, scalable and high-performance OAM solution for IP-based networks, independent of the supplier environment.

What does it do?

IP Manager provides a central point of management in multi-vendor IP-based networks. It provides OAM functionalities such as fault management, configuration management and performance data collection for post processing systems (e.g. SPOTS).

What business benefits does it deliver?
- Central management of different suppliers NEs in IP domain
- Easy operations and user-friendly GUI increases operating efficiency and minimizes OPEX
- Relatively small investments (CAPEX) compared to similar products in the market
- Minimize rollout costs and achieve faster time to market
- Optimize capital investments with optimal support for many different IP NEs and application and service platforms
- Retain customers: guarantees improved network and service quality for customers
- Generate new growth: boost network integration and quality of service for new components and service platforms

Nokia Siemens Networks Care services offer continuing support throughout the lifetime of a product or solution.

Care Services

What is it?
Nokia Siemens Networks Care services offer continuing support throughout the lifetime of a product or solution.

Services include: Software Services, Care Management and Hardware Services.

What does it do?
Service scope and pricing are defined in a Care Agreement. Services are based on an annual services fee per sales partner's delivered base value. The sales partner manages all end customer cases, and resolves 70% of them. Nokia Siemens Networks delivers backup support for hardware and software faults. Software services are delivered remotely without local interaction with Nokia Siemens Networks.

What business benefits does it provide?
• Access to global technical
  expertise and support
• Latest enhancements and software
  updates reduce operational costs
• High quality repair in authorized repair
  centers ensures low operational costs

Software Services
• Trouble resolution
  Customer oriented handling of reported
  technical malfunctions and delivery of
  workarounds and/or ultimate solutions
  within the agreed response and resolution
  times. Regular progress reports throughout
  the problem solving process
• Technical query
  Fast and competent provision of answers and
  assistance for technical and operational queries.
  Direct access to extensive system expertise

• Software update
  Regular delivery of software update packages
  with respective release documentation.
  Software Updates have been thoroughly tested
  before release and provision.
  New software releases (upgrades)
  can be purchased separately

Care Management
• Delivery and improvement of Nokia
  Siemens Networks Care services
  and end customer satisfaction
• Unique interface with the sales partner
  for all services related matters

Hardware service
Hardware Services cover Repair Services together with the Spare Parts Supply Service.

Repair and Return:
High quality repair of defective units sent to Nokia Siemens Networks, which returns a functioning unit. The service is based on a 60-day contracted turnaround time and provides an original supplier repair warranty. High quality repair services ensure that equipment is maintained at peak performance with maximum reliability and in compliance with technical specifications.

Spare Parts Supply:
Provides consumables and units that cannot be repaired to enable a sales partner to build up and/or extend its spare part stocks (locally or centrally) to fulfill customer requirements for rapid remedy of hardware defects.

Abbreviations

MWR & NG Metro & DWDM
ASON: Automatically Switched Optical Networks
ADM: Add/Drop Multiplexer
ASTN/GMPLS: Automatically Switched
Transport Networks/Generalized Multi
Protocol Label Switching
ATM-IMA: Asynchronous Transfer
Mode – Inverse Multiplexing for ATM
CAPEX: Capital expenditures
CWDM: Coarse Wavelength Division Multiplexing
DWDM: Dense Wavelength Division Multiplexing
GFP: Generic Framing Procedure
HC: High Capacity
LCAS: Llink Capacity Adjustment Scheme
OPEX: Operational Expenditures
PDH: Plesiochronous Digital Hierarchy
RPR: Resilient Packet Ring
SDH: Synchronous Digital Hierarchy
SFP: Small Form Factor Pluggable
STM: Synchronous Transfer Mode
TDM: Time Division Multiplexing

Carrier Switches
BGP: Border Gateway Protocol
(BGP), a routing protocol
DHCP: Dynamic Host Configuration
Protocol, used for IP address assignment
ERP: Ethernet Ring Protection
FE: Fast Ethernet
FRR: Fast Re-Route, a protection
mechanism used with MPLS
GbE: Gigabit Ethernet (a.k.a. GigE)
IGMP: Internet Group Management Protocol, to
provide Ethernet Switches with Multicast capability
IS-IS: Intermediate System to
Intermediate System Protocol, a Link-
State Interior Gateway Protocol
L2 MPLS: MPLS forwarding L2
packets (i.e. mostly Ethernet)
LDP: Label Distribution Protocol, used to distribute
path related information in a MPLS network

LER: Label Edge Router, device at the
edge of the MPLS domain, assigns
the traffic to the MPLS path
LSR: Label Switch Router, device in the MPLS
domain, forwarding the traffic acc. to the label
LPM: Longest Prefix Match
MPLS: Multi Protocol Label Switching
MSTP: Multiple Spanning Tree (802.1s)
OAM&P: Management system for Operation,
Administration, Maintenance and Provisioning
OSPF: Open Shortest Path First, a routing protocol
PIM-SM: Protocol Independent Multicast -
Sparse-Mode, a Layer 3 Multicast Protocol
PIM-SSM: PIM Source Specific Multicast,
a Layer 3 Multicast Protocol
QoS: Quality of Service
RIP: Routing Information Protocol,
a routing protocol
RSTP: Rapid Spanning Tree Protocol (802.1w)
RSVP: Resource Reservation Protocol,
use for resource reservation and
label distribution in MPLS
RU: Rack Unit, unit of measure used to
describe the height of a device mounted
in a 19-inch rack or a 23-inch rack.
One rack unit is 44.45 mm (1.75 in) high.
SP: Strict priority (a scheduling method;
scheduling means here: sending the packets
from the egress buffer of a switch)
STP: Spanning Tree protocol (802.1d)
VLAN: Virtual LAN, adding a tag to an
Ethernet Frame to separate traffic
VLAN manipulation: adding or removing
a VLAN tag or changing the VLAN ID
VLAN XC: VLAN Cross Connect; i.e. setting
up a p-t-p connection with forwarding
solely based on VLANs, can include VLAN
manipulation. MAC learning is switched
off for the respective p-t-p connection.

Every effort is made to ensure that our
communications materials have as little
impact on the environment as possible

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