



IP DSLAM EDN288

Ericsson's EDA solution is the perfect broadband solution for mass volume rollout as well as for small and medium sites with low subscriber density. The EDA IP DSLAM is designed to remove access bottlenecks and minimize transmission costs, and the use of Ethernet uplinks reduces access aggregation and transport costs significantly compared to traditional ATM-based solutions.

288 ADSL or ADSL2 lines in one chassis

Dual 10/100/1000 electrical or
100/1000 Mbps optical SFP uplinks

Triple play support - voice, data and video services

Multicast (IGMP snooping)

Wire speed performance (Multi-megabit throughput)

Open interface management (SNMP, HTTP and CLI)

Key benefits of EDA IP DSLAMs

- Cost-effective ADSL deployment
- Ethernet as transmission technology - fewer layers needed to manage and activate the network
- Full DSL performance on all lines simultaneously
- High-quality support of voice, data and video services
- Revenue generating multimedia services
- No bottlenecks – dual Gigabit uplink
- Base-band and in-band telephony solution
- Multicast (IGMP snooping) for video services
- IGMP White List
- Plug-and-play line card replacement
- Single Ended Line Test (SELT) and Loop Diagnostics
- Operated as autonomous node
- Service selection with service separation via VLAN
- DHCP relay agent information option (Option 82)
- PPPoE to PPPoA conversion between Point-to-Point protocols over Ethernet and ATM (CPE to network)
- Unique scalability

EDN288 - 288 lines in one fully assembled unit

IP DSLAM EDN288 is a complete all-in-one-system for 288 lines. Ordered, delivered, installed, and commissioned as one fully assembled unit, the 288-line IP DSLAM ensures easy and trouble-free installation in 19" or ETSI racks.

Traffic from the EDN288 is delivered on one or two Gigabit Ethernet fiber interfaces. EDN288 offers two uplink combo ports that operate in combination with Small Form Factor Pluggable (SFP) transceiver slots. The option of cascading and subtending on Ethernet level gives EDN288 unique scalability and no bottlenecks.

EDN288 consists of one Ethernet Controller Node (ECN320) and 24 x 12-line IP DSLAMs (EDN312).

EDN312 - 12-line IP DSLAM in two variants

Designed for the EDA solution, EDN312 is a small, cost-efficient 12-port IP DSLAM. EDN312 aggregates 12 ADSL lines to one 100 Mbps Ethernet and offers aggregation both as bridge mode and routed encapsulation mode.

EDN312 has a built-in narrowband filter available in two variants:

- EDN312p: Cost-effective POTS filter
- EDN312i: ISDN filter



The 288-line IP DSLAM EDN288 is available in a standard POTS version (EDN288p), and in a flexible, customized version configured according to customer needs as a combination of the EDN312 variants.

Revenue generating services

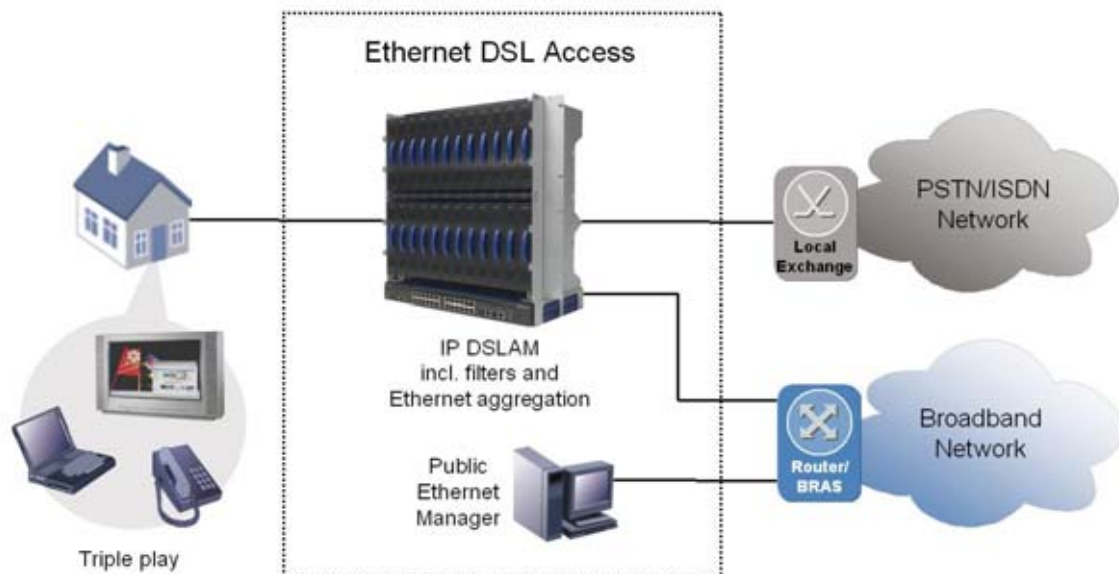
A range of services can be offered, including fast Internet, video, Telephony over IP, and VPN services. EDN288 enables a multi-service access scenario where all end-users are able to access different services simultaneously, for example, high-quality Video over IP and best-effort web access.

DSL technologies

EDA IP DSLAMs EDN288 and EDN312 support asymmetric ADSL and ADSL2, including Annex M for support of symmetrical services and Annex L for Extended Reach. All DSL line coding is included in the same software package. ADSL2 ITU G.992.3 improves performance and interoperability and adds support for new bandwidth-demanding applications, services, and deployment scenarios. The ADSL2 implementation in EDA supports fractional S and scales to 13.4 Mbps downstream and 1.5 Mbps upstream as well as symmetrical 3.4 Mbps.

Future-oriented technology deployment

EDN288 provides future-oriented technology with open standards. EDN288 fulfils the requirements of contentionless ADSL performance on all 288 lines, limited only by the uplink capacity, and is also highly capable of meeting the demanding multimedia services. EDA is based on standard interfaces and protocols, meaning that both Ericsson and non-Ericsson switches, routers, Voice Gateways and Customer Premises Equipment (CPE) can be applied in the network.



Telecom Grade and easy installation

EDN288 offers Telecom Grade design with high liability, hot-swappable units, and fans replaceable without any service interruptions. EDN288 is delivered as a pre-assembled unit and the only connections needed are -48 V DC, Ethernet uplink connections, and subscriber line connections. EDN288 is power-fed from a standard telecom graded -48 V DC power supply and the EDN312 units are powered over the Ethernet cable, making installation easier as both data and power run in the same cable.

Security

EDA includes mechanisms for handling any type of attack on the system, including attacks on EDA system nodes within the Ethernet access domain and on data conveyed via the EDA network. The IP DSLAM is able to perform filtering, Layer 2 traffic separation within VLANs with MAC forced forwarding, as well as other functions that ensure security and privacy, restricting the types of frames/packets forwarded by the IP DSLAM. Traceability is possible down to IP, phone, and MAC address.

Quality of Service and Service Selection

Quality of Service (QoS) is ensured by Ethernet prioritization and ATM QoS mechanisms. EDA offers up to six PVCs for different services and four ATM service classes. EDA gives priority to voice and video packets according to a differentiated service scheme. Services are separated via VLAN by assigning a separated access network to each service or Service Provider.

Management

The Public Ethernet Manager (PEM) is available both on Windows and Unix and provides open interfaces such as CORBA and SNMP, enabling use of the same provisioning and management system already employed in the operator's network.

EDN288 has built-in EDA Management Proxy (EMP) functionality; a series of functions and work processes that efficiently reduce the time and costs needed for installation, operation, and maintenance of a DSL network. EMP turns EDN288 into a true autonomous stand-alone node with hot-swappable line cards.

Technical data

THIS DOCUMENT IS VALID FOR RELEASE

- EDA 1.3, EDA 2.0, EDA 2.1, and EDA 2.2

GENERAL

- RFC2131 DHCP protocol
- RFC1350 TFTP protocol
- RFC0959 FTP protocol
- RFC1305 NTP protocol
- RFC2236 IGMP v2 Multicast
- IEEE 802.1D Bridged Ethernet
- IEEE 802.1D Spanning Tree
- IEEE 802.1w Rapid Spanning Tree
- IEEE 802.3ad Link aggregation
- IEEE 802.1Q VLAN
- Up to 255 VLANs (three for management)
- Built-in Gas Discharge Tube (GDT) Over Voltage Protection (OVP) in EDN312
- LEDs on EDN312 front indicating status for each line
- Power over Ethernet (PoE) inlet in EDN312

SUPPORTED STANDARDS

- ITU-T G992.1 Annex A (ADSL over POTS)
- ITU-T G992.1 Annex B (ADSL over ISDN)
- ITU-T G992.3 Annex A (ADSL2 over POTS)
- ITU-T G992.3 Annex B (ADSL2 over ISDN)
- ITU-T G992.3 Annex L (ADSL2 Reach Extended)
- ITU-T G992.3 Annex M (ADSL2 Symmetrical ADSL)
- ITU-T G994.1 (Handshake Procedures)
- ITU-T G997.1 (Operation and Management)
- ETSI TS 101 388 (European requirements)
- ETSI ETR 328 (ADSL requirements and performance)
- TR-048 (Test specifications (DSL Forum))
- ANSI T1.413-1998 (Metallic Interface)
- ETSI TS 101-952-1-1 v.1.1.1 (2002-05) POTS
- ETSI TS 101-952-1-3 v.1.1.1 (2002-05) ISDN

CONNECTION METHODS

- DHCP
- Static IP address
- Transparent LAN/VLAN
- PPPoE (over Ethernet) and PPPoA (over ATM)
- IPoA (RFC 2684 routed encapsulation)

INTERFACES

EDN288:

- Two uplink combo ports: 10/100/1000 Mbps Base-T ports that operate in combination with Small Form Factor Pluggable (SFP) transceiver slots
- SMF SX: < 500 m
- SMF LX: 10 km, 35 km, 80 km

EDN312:

- One 100 Mbps Ethernet uplink

PERFORMANCE

- 2 Gigabit throughput
- Asymmetric up to 13.4/1.5 Mbps (ADSL2 Annex A)
- Symmetric up to 3.4 Mbps (ADSL2 Annex M)
- 7 Mbps throughput per ADSL line in average

SECURITY AND QUALITY OF SERVICE

- Forced forwarding to a fixed gateway
- Virtual MAC address
- DHCP with Relay Agent
- TCP/UDP filtering
- 6 PVCs selectable from CBR, VBR-rt, VBR-nrt or UBR
- PVC mapped Ethernet interface, using IEEE 802.1Q

VOLTAGE INPUT

- -40.5 to -57.0 V DC +GND (Nominal input -48 V DC)

POWER CONSUMPTION

- Idle/Typical/Max. 288 lines: 215/425/525 W
- Idle/Typical/Max. per line: 0.75/1.48/1.82 W

Preconditions: -48 volt, 20°C.

Line length of 6000 feet. PoE cable length of 1.3 m.

Typical at 256/128 kbps. Max. at 8/1 Mbps.

MANAGEMENT

- Ericsson's Public Ethernet Manager (PEM)
- Default VLAN pre-configured for management
- Open interfaces SNMP, HTTP and CLI
- RFC 1907 SNMPv2

DIMENSIONS

- HxWxD: 490 x 480 x 300 mm
- Weight: 25 kg
- 288 subscribers per subrack
- 1152 subscribers per cabinet

EMI/EMC

- EN 300 386:2001 for Telecommunication Centers and locations other than Telecom Centers. Class A
- FCC Part 15 Class A
- K.20 (02/2000) and K.21 (10/2000) (OVP)

ENVIRONMENTAL

- ETS 300 019-2-1 class 1.2, Classification of environmental conditions; Storage
- ETS 300 019-2-2 class 2.3, Classification of environmental conditions; Transportation.
- ETS 300 019-2-3 class 3.2, Classification of environmental conditions; Operation.
- Operating temperature range: 0°C to +55°C