

# Commercial Description for EDA 2530 3.2



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# 1 Introduction

Broadband wire-line access in the world is dominated by DSL (Digital Subscriber Line), by far the most successful technology in this arena having passed 260 million subscribers to date (with a growing rate of 1.25 million a week, two-thirds of the total). The ability to deliver broadband services over telephone lines helps reaching a vast customers' base with an efficient reuse of the existing network infrastructures; these two aspects are key helping Network and Service Providers speeding-up their returns on the investments made, paving the way to a successful business. Just as well as DSL is the answer to the "last mile problem", Ethernet is the established transport technology to provide connectivity throughout the whole network (access and core).

The EDA 2530 is part of the EDA 2500 family and is designed to provide full Ethernet/IP capability, the ideal solution for a carrier-grade deployment of a future proof multi-service network. EDA 2530 is a high-density Ethernet-based MSAN supporting triple-play (data, voice and video) Internet applications over copper broadband connections, coupled with VoIP baseband telephony. A single shelf can serve up to 1,200 ADSL2+ or POTS users, as well as a combination of the two. EDA 2530 features effective bandwidth management, high availability and a very compact design.

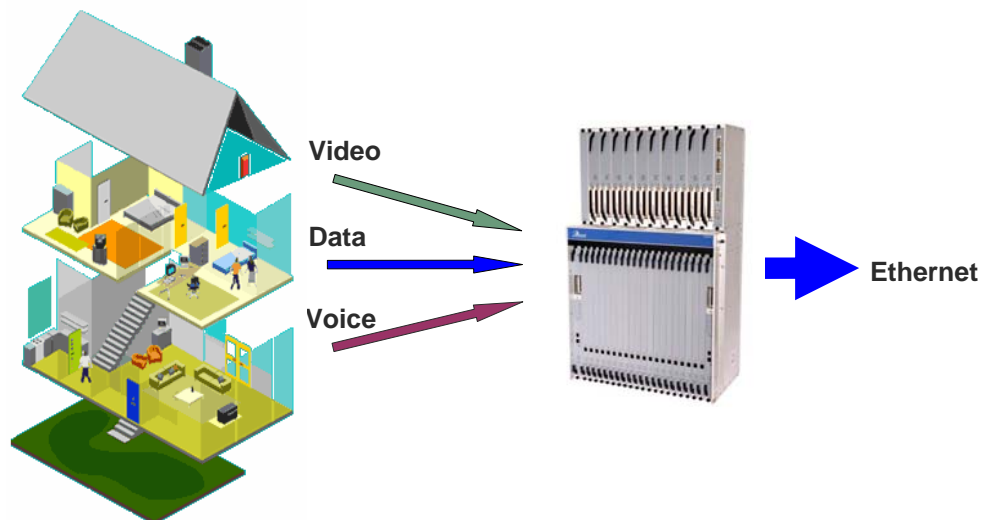
EDA 2530 exploits the benefits of Ethernet and IP, enabling new services at lower installation and maintenance costs, maximize the Operator's returns on the investments made.

## 2 EDA 2530 Solution Overview

Bringing Ethernet outside the office environment is not a trivial task. Resiliency, security, scalability, fault detection and recovery, lack of operation and management procedures and protocols are only the top of the iceberg that an access node must face in order to be competitive in this market segment.

Ericsson is well aware of these issues having been long and actively involved in Ethernet DSL access and one of the first technology supplier to promote Ethernet as the technology of choice also in this field, by spending efforts within the DSL Forum and significantly contributing to the achievements of the TR-101 document. Ericsson's EDA 2530 is an Ethernet-based access node designed accordingly, providing 44 Gbps switching capacity in conjunction with a 110 Gbps chassis backplane which gives it maximum flexibility.

The modular design of EDA 2530 is based on the universal slot concept, meaning that line cards can be mixed within the shelf with no particular limitations, to cope with different deployment scenarios. This allows the platform to be easily reconfigured or upgraded with new features and additional interfaces, scaling to face subscribers' growth and new services.



EDA 2530 has been designed focusing on services, to seamlessly support triple play service distribution over Ethernet transport. High-speed Internet surfing, Video on Demand and Broadcast IPTV as well as VoIP telephony together and at the same time delivered to the customer premises thanks to the ADSL2+ increased capacity.

## 2.1 EDA 2530 key benefits

EDA 2530 key benefits are:

- High-capacity Ethernet switching capability (44Gbps)
- System scalability, from 16 to 1,200 subscribers per MSAN
- Cost effective broadband access solutions, providing ADSL2/ADSL2+ (Annex A)
- ADSL2 diagnostic measurements (DELT)
- RSTP for network connection redundancy
- Outstanding flexibility in telephony services, with POTS line cards capable of providing H.248 by software configuration. Basic Rate ISDN is supported as well
- QoS Engine based on IEEE 802.1p (with 8 priority queues per port) mapping QoS levels as well as managing traffic separation between the two transport layers (Ethernet)
- Support for PPP-based traffic with PPPoA to PPPoE conversion
- DHCP Relay Option 82 and PPPoE Intermediate Agent functionality for increased security
- Triple play support with local multicast functionality for broadcast video delivery (IGMP snooping over Ethernet and over PPPoE)
- Offers field proven central office platform combined with Fiber To The Curb (FTTC) and Fiber To The Building (FTTB) applications
- Ease of provisioning and comprehensive management via the Ericsson ServiceOn<sup>R</sup> suite

## 2.2 ADSL2+

The EDA2530 3.2 supports ADSL2+ (Annex A) technology to deliver triple play to residential customers, delivers true broadband data services, such as high-speed internet surfing, on-line gaming, video conferencing and others. The lines have ADSL fallback capability, to help migrating the network without loss of service.

## 2.3 Scalability

Thanks to the design flexibility, EDA2530 3.2 can be configured to fit both low-density (few tens of lines) and high-density (thousands of users) configurations. In both cases the same electronics is used, paired with different mechanics depending on the installation requirement. The “S4” chassis shown in the next picture (left) provides room for up to four line cards, as well as for working and protection Common Part cards (the system main unit, with on-board traffic switching fabric, system controller and network interfaces). Up to 240x ADSL2+ users can be served with the EDA 2530 3.2 using the S4 chassis (installed both vertically and horizontally).



In case of local exchange installations typically with high-density of users, the “S20” shelf is the right choice, capable of hosting up to twenty line cards, that is a maximum of 1,200 ADSL2+ users within a single EDA2530 shelf with the option of CP card protection. The S20 shelf (the version with support for built-in POTS splitter cards) is shown in the above picture (right).

The S20 shelf is available in different versions, with and without support for built-in POTS splitter functionality. It’s also possible to provide combo functionality by using specific connection modules with built-in POTS splitters and TAM functionality (optional) for connecting an external line test system, to complement the EDA 2530 DELT functionality.

## 2.4 QoS

The EDA2530 supports a number of advanced mechanisms in order to provide each service with the most proper QoS level, including jitter and delay control.

- Ethernet-based QoS based on IEEE 802.1p with up to 8 traffic queues for each bridge port; possibility to configure the mapping of the priority level to the CoS queues
- Ethernet priority assignment based on Ethertype and TOS/DSCP and ability to configure the association between PVC, CoS queue and Ethernet priority
- Rate Limiting for data stream (over different PVCs) with Ethernet priority equal to 0 and 1

## 2.5 Security

EDA 2530 3.2 addresses the issue of traffic security by providing subscriber MAC address anti-spoofing and user port isolation, preventing users from sniffing each others' traffic. In addition to this, it is also possible to limit the number of user-side MAC addresses learnt on each user port.

Furthermore, unique user identification is provided through PPPoE Intermediate Agent and DHCP Relay Option 82.

## 2.6 Management

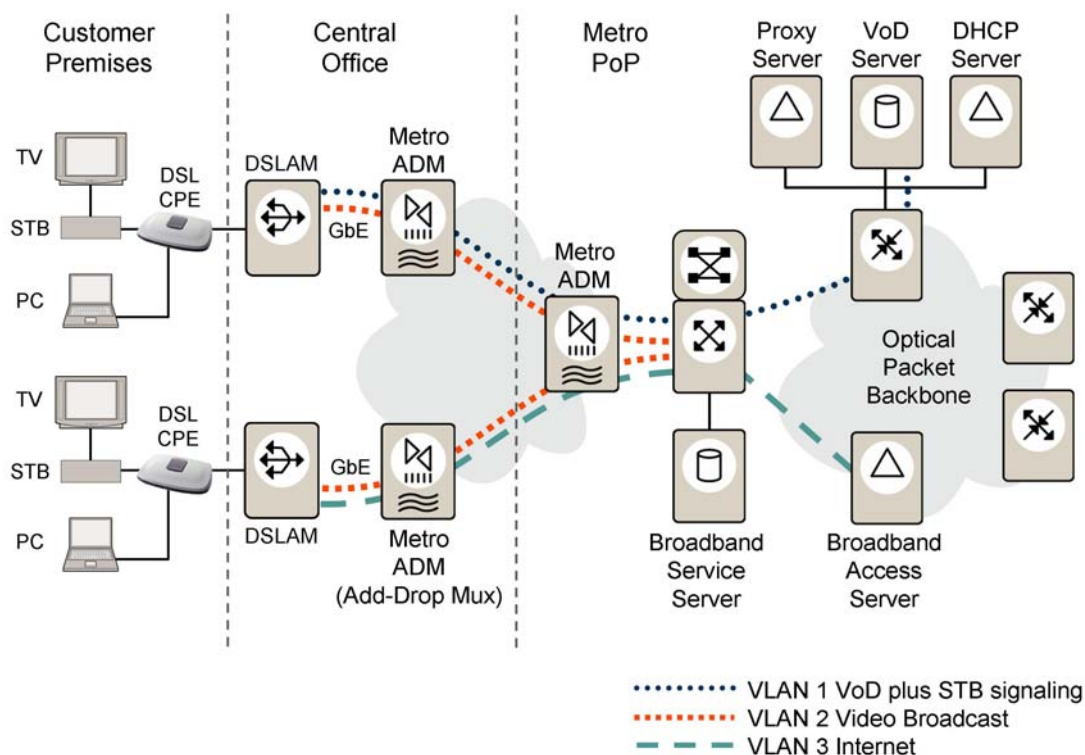
Being part of the Ericsson broadband access portfolio, EDA 2510 3.2 is managed by the ServiceOn software suite, providing comprehensive FCAPS functionality.

### 3 Revenue generating services

#### 3.1 IPTV

EDA 2530 3.2 provides support for triple play services even in high density configurations, thanks to the two-level IP multicast capability. IP TV streams received from the remote servers in the network are replicated locally within the EDA 2530 system on both the CP card and the line cards, in order to optimize the use of the network and internal resources.

The video IP multicast functionality is based on IGMPv1/v2; EDA 2530 3.2 provides IGMP snooping over PPPoE and IGMP snooping/Proxy functionality over IpoE, both with IGMP "keep alive" support. In addition to broadcast TV, it's also possible to deliver VCR-like services carried over unicast streams, such as Video on Demand.



## 3.2 Voice

EDA 2530 3.2 supports baseband VoIP service thanks to 60-port POTS line card, enabling up to 1,200 users to be served by a single shelf. H.248 signaling is supported (available interoperability with the Marconi XCD5000 and the Italtel IMSS softswitches as well as a number of national mapping already supported).

The POTS line cards operate as media (converting the analogue voice signal into IP packets) and signaling gateway under direct control of the Operator' Softswitch.

## 3.3 Data

Broadband Internet access and business data services can be delivered by the EDA 2530 via the DSL links in combination with voice and video. Native IP and PPP-based traffic flows are supported, with the ability to convert IPoA to IPoE and PPPoA to PPPoE (autosensing) traffic, ensuring compatibility with the existing installed base of DSL CPE.

## 4 Abbreviations

ADSL	Asymmetric Digital Subscriber Line
ATM	Asynchronous Transfer Mode
CoS	Class Of Service
CP	Common Part
DHCP	Dynamic Host Configuration Protocol
DSLAM	Digital Subscriber Line Access Multiplexer
FTTB	Fiber To The Building
FTTC	Fiber To The Curb
FTTH	Fiber To The Home
GE	Gigabit Ethernet
GW	GateWay
IGMP	Internet Group Management Protocol
IP	Internet Protocol
IPoA	IP Over ATM
IPoE	IP Over Ethernet
IPTV	Internet Protocol Television
ISDN	Integrated Services Digital Network
IWF	Interworking functions
MAC	Medium Access Controller
MIB	Management Information Base
MSAN	Multi-service Access Node
NGN	Next Generations Network
NSP	Network Service Provider
OAM	Operation, Administration and Maintenance
POTS	Plain Old Telephone Service
PPP	Point-to-Point Protocol
PPPoA	PPP over ATM
PPPoE	PPP over Ethernet

PSTN	Public Switched Telephone Network
QoS	Quality of Service
RSTP	Rapid Spanning Tree Protocol
SFP	Small Form-factor Pluggable
SLA	Service Level Agreement
SNMP	Simple Network Management Protocol
SOA	Service on Access
VC	Virtual Channel
VLAN	Virtual LAN
VoD	Video On Demand
VoIP	Voice Over Internet Protocol
VPN	Virtual Private Network
xDSL	Digital Subscriber Lines (all types)