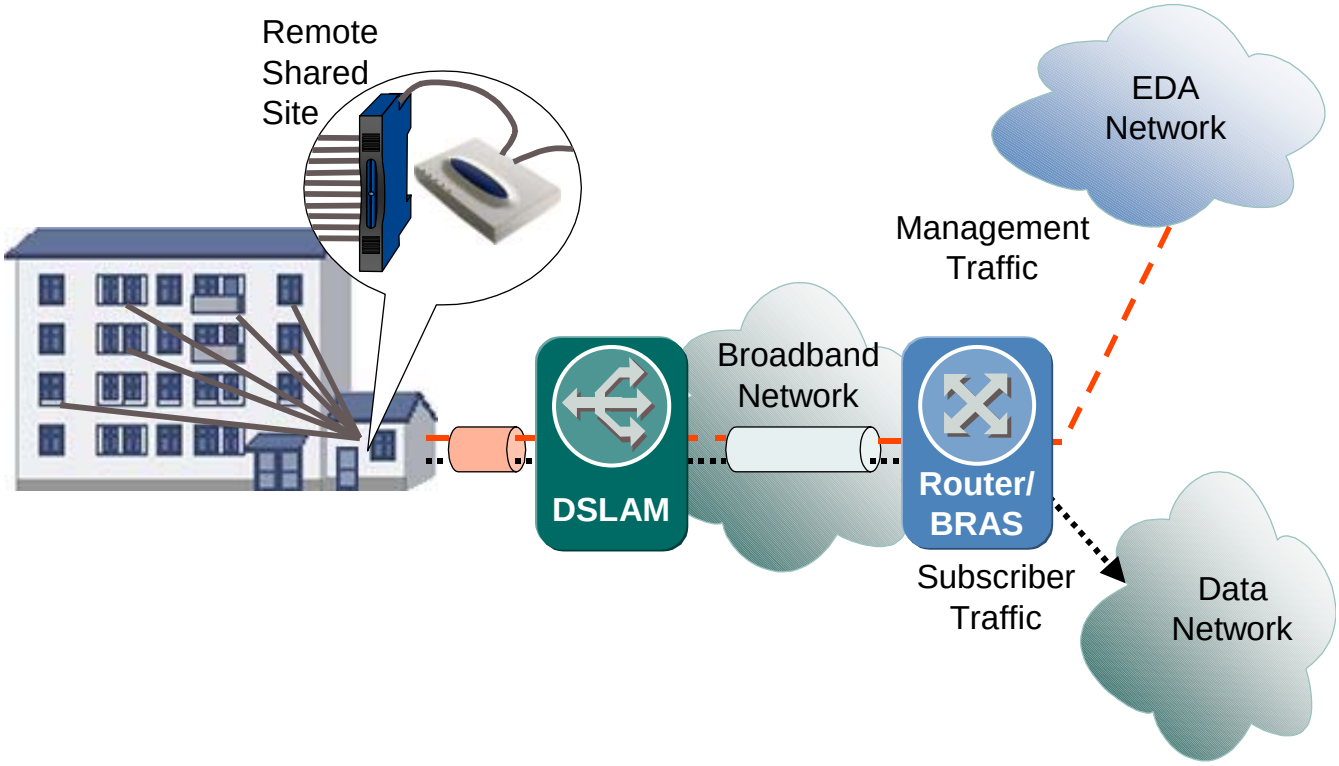
Shared DSL User Guide

EDA



ERICSSON

Shared DSL User Guide

EDA

.

.

Contents

1 Introduction to this Guide

This guide describes the Shared DSL solution, and explains how to use it. The guide is a combination of a solution description and a user's guide. It is possible to read the guide without former knowledge of the EDA system. However, it is recommended to read the EDA System Overview in order to completely understand the concept.

This guide can be printed on a monochrome printer, though the illustrations are easier understood if a color printer is used.

1.1 Revision History

This is the first version, valid for EDA 3.0.
This document is based on the previously released Shared DSL User's Guide 1/1553-HSC 901 26/4 Uen A.

2 The Shared DSL Solution

The Shared DSL solution is a new, cost effective, and secure way of unbundling DSL, when the primary Access Provider is not the owner of the EDA network. The secondary Access Provider (who owns the EDA network) simply extends the EDA network through the primary Access provider network. The Shared DSL solution is targeted towards data services like Internet Access.

2.1 Shared DSL Concept

In a situation where another Access Provider owns the line to multi dwellings, leasing a line for each End-user (subscriber) can be expensive. The Shared DSL concept calls for leasing only one line, then creating a remote EDA site. The connected End-users share the DSL line capacity, while maintaining the EDA system security and benefits. For the Secondary Access Provider, managing the remote site is almost the same as managing nodes and End-users in a standard EDA network.

Figure 1 on page 2 illustrates the Shared DSL concept

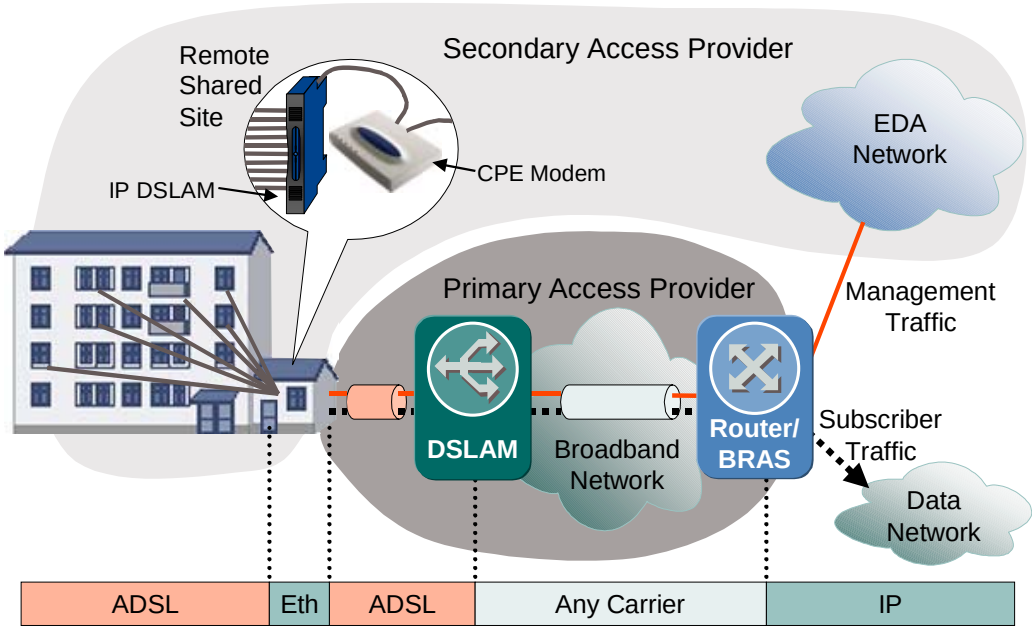


Figure 1 Shared DSL Concept

The concept of the Shared DSL is using one DSL line inside the Primary Access Provider network, terminating the line with a Customer Premises Equipment (CPE) modem that converts the DSL to Ethernet. The Ethernet is then converted again to DSL by the IP DSLAM to make the DSL connection to the End-users (this part belongs to the secondary Access Provider). The concept does not call for any specific equipment in the Primary Access Provider network, except that it is able to separate and isolate the data channels coming from the Shared DSL remote site: End-user data and Management data.

The Concept allows for one type of Quality of Service for both End-users and management traffic. The limiting factor is the capability of the CPE modem in the remote site to prioritize traffic. Both types of traffic are therefore best effort.

The End-user traffic is directed towards public data network (Internet) from the Router or BRAS of the Primary Access Provider. The Management traffic is directed toward the EDA network (Access Domain).

The Shared DSL solution requires that the used CPE Modem has the capabilities of mapping between Ethernet VLANs and ATM Permanent Virtual Circuits (PVCs).

The Shared DSL Solution supports DHCP option82 (please refer to *System Description* for details about the DHCP relay agent in the EDA).

The Shared DSL solution does not support EDA Dynamic Management VLAN concept (DMV).[1]

[1] The DMV is a solution for using a different management VLAN (not 246) in the EDA network, with automatic adaptation of the IP DSLAMs to the management VLAN.

2.2 Services

Up to seven services can be offered to the End-users of each remote site, if the Primary Access Provider’s DSLAM and network supports it (eight PVCs together with the Management channel). However, since there is no Quality of Service differentiation between the different services, they can only be used to enable End-users to use different Service Providers.

2.3 End-users Layer two Separation

It is most likely that all End-users of one remote site will be using the same Service, and therefore the same VLAN in the remote site Ethernet. Layer two separation of the End-users is achieved by using PPPoE, or by using the EDA Fast forwarding feature that forwards all End-user traffic to a specific router.

3 Router Role

The Router or BRAS plays an important role in the Shared DSL concept, and must perform the following functions:

- DHCP requests from the IP DSLAM in the remote site must be relayed towards the EDA network, using the management VLAN ID.
- The Management PVC from the remote site must be mapped to the EDA Management VLAN.
- If PPPoE or PPPoA is used for the END-user traffic, it must be terminated by the BRAS.
- If the Router (or BRAS) is not an Edge Node of the EDA network as well, a tunnel must be established to the EDN network (for example L2TP or another VPN solution, see Figure 2 on page 5).

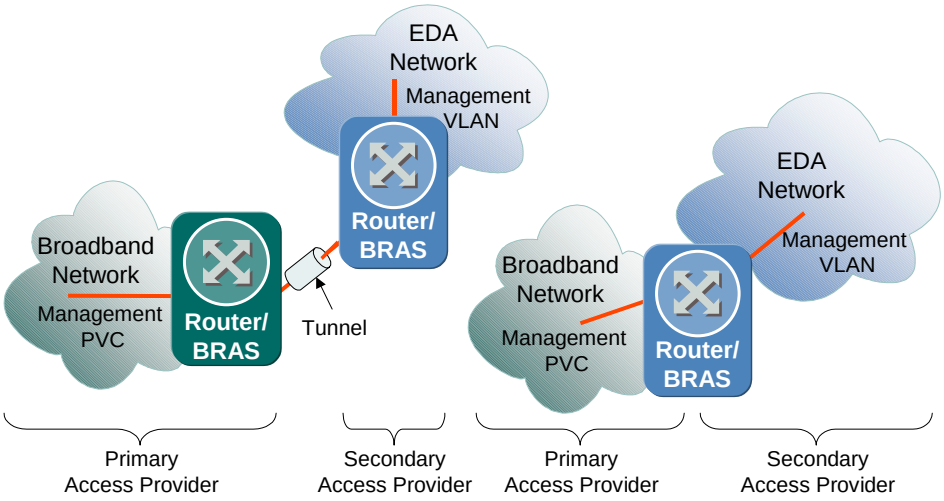


Figure 2 Management Traffic Mapping

4 The Remote Site

The Remote site is the extension of the EDA network. The Shared DSL solution does not specify the full extent of the site, only the minimum required functionality and basic elements.

4.1 Remote Site Elements

The remote site must contain at least the following elements:

- -48 VDC power supply
- 230 VAC outlet
- CPE modem
- EPN102 EDA Power Node
- IP DSLAM
- Necessary KRONE connectors for the IP DSLAM and EPN102

Depending on the type of installation and IP DSLAM used, an EDA filter might also be necessary.

Note: Under usual circumstances, it is not necessary to have a battery backup of the system, since the remote site is supplied with the same power as the rest of the building.

Figure 3 on page 7 illustrates a remote site for 12 End-users, using the EDN312, which has a built-in filter.

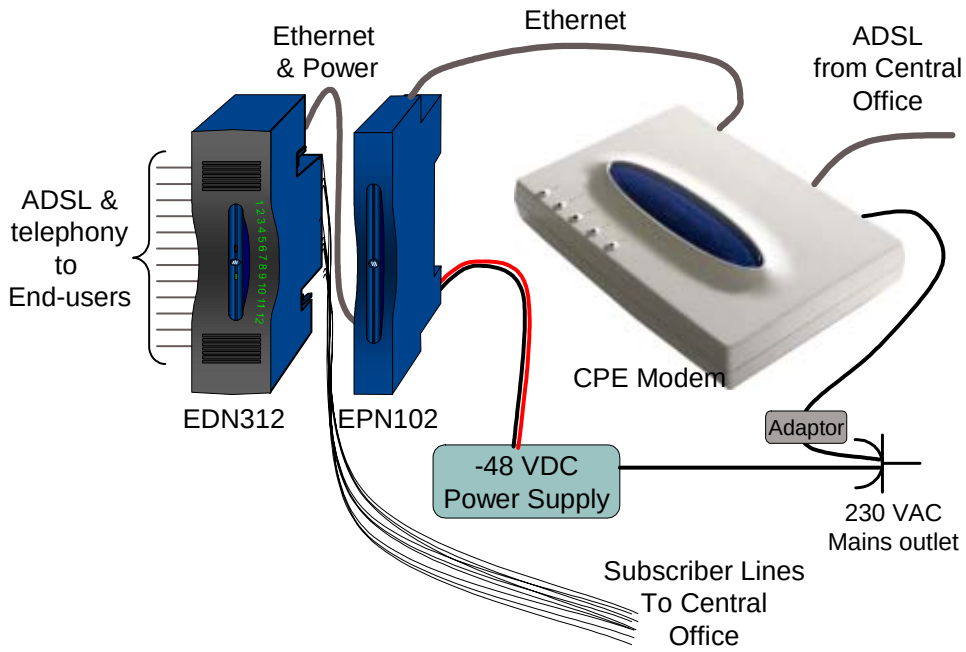


Figure 3 Remote Site for 12 End-Users

4.2 Environment

It is recommended to take some security measures for the site to prevent tampering with the equipment (for example a locked cabinet).

The ambient temperature around the equipment must be within 0 – 45 ºC. The relative humidity must be within 5% - 95%, non condensing.

4.3 Configuring the CPE Modem

The CPE Modem must be configured to map the VLANs used by the IP DSLAM to PVCs towards the Central Office (see Figure 4 on page 8). It must be configured to use the PVCs (VPI, VCI) used by the Central Office DSLAM, and the Management and Data VLAN IDs used by the IP DSLAM.

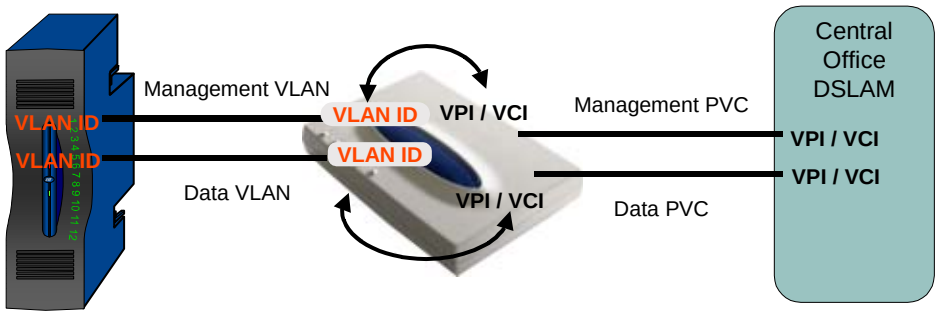


Figure 4 Configuration of the CPI Modem

Note: The Management VLAN ID does not necessarily have to be the same VLAN ID as the ID used in the EDA network (although it is recommended to use it to avoid confusion).

Acronyms and Abbreviations

ADSL
Asymetric Digital Subscriber Line

ATM
Asynchronous Transfer Mode

BRAS
Broadband Remote Access Server

CPE
Customer Premises Equipment

DSL
Digital Subscriber Line

L2TP
Layer Two (2) Tunneling Protocol

PPPoA
Point to Point Protocol over ATM

PPPoE
Point to Point Protocol over Ethernet

PVC
Permanent Virtual Circuit

VCI
Virtual Channel Identifier

VPI
Virtual Path Identifier

VPN
Virtual Private Network

Ericsson AB
www.ericsson.com

1/1553-HSC 901 86/1 Uen A 2006-02-21