Inter university campuses communication using multiprotocol label switching (MPLS-VPN)

Final Year Project Report

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Abstract

MPLS is short for Multiprotocol label switching. It is the latest technology in WAN network. Many of the Telecommunication Industry Sector is shifting their backbone networks on MPLS because of it has advance enhance features like QoS and fast switching speed. Although MPLS provides some security at low level to enhance its security, Virtual Private Networks are created to secure the data completely to its destination. VPN itself is secure. A virtual private network (VPN) is the essential security feature that allows remote monitoring systems to take advantage of the low communications cost of the internet. This paper introduces the VPN concept and summarizes the networking and security principles. The mechanics of security, for example, types of encryption and protocols for exchange of keys between partners, are explained. Important issues for partners in different countries include the interoperability and mutual accreditations of systems.

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Abbreviations

Following are the important abbreviations.

MPLS	Multiprotocol Label Switching
VPN	Virtual Private Network
LSPs	Labeled Switch Paths
QOS	Quality of Service
CER	Customer Edge Router
PER	Provider Edge Router
WAN	Wide Area Network
TE	Traffic Engineering
CEF	Cisco Express Forwarding
VRF	Virtual Router Forwarding
LSR	Label Switch Router
IPv4	Internet Protocol Version4
TTL	Time To Live
LDP	Label Distribution Protocol
BGP	Border Gateway Protocol
LER	Label Edge Router

Chapter 1

Introduction

1.1 Introduction

MPLS is an efficient encapsulation mechanism. MPLS is a technology for transfer of IP services. MPLS enables most packets to be forwarded. These packets are in the form of Labels. Instead of being left behind to Layer 3, they converted into labels .Each and every packet is labeled. Service provider’s switches in the network domain do this task. The remaining routers will do the task of packet switching. They also done packet forwarding. All this transfer of packets is one in the form of labels on the packets, instead of IP on the packets. The packets after that will exit from egress routers to their specified destinations.