The Design of MPLS IP VPNs to support Multi AS

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Multi AS를 지원하기 위한 MPLS IP VPNs 설계

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ABSTRACT

Service providers need a scalable VPN solution, and MPLS, with its ability to separate flows into logical streams, makes it an ideal technology to deploy. To solve these scaling problems, a border gateway protocol/multiprotocol label switching (BGP/MPLS) VPN standard is now being adopted to provide IP VPN solutions using BGP to carry route information over a MPLS core. With an MPLS backbone network, a provider has the flexibility to offer VPN services. In large backbone networks, MPLS core can consist of multi AS domains between service providers.

In this paper, we focus on the issues related to providing MPLS IP VPN services in Multi AS domain environments. We propose the design of MPLS IP VPN application to support multi AS is based on BGP/MPLS VPNs (rfc 2547bis) and this has been derived from various scenario and workflow analysis of the actual customer requirements for a provider provisioned Virtual Private Network. We discuss the design to arrive at the architecture of the MPLS IP VPN module to support Carrier's Carrier and Multi AS cases. This can provide way how to realize MPLS IP VPN services in a router on the analysis of requirement. In conjunction with MPLS, the implementation of MPLS IP VPNs provides VPN routing and forwarding solution for CE and PE routers.

KEYWORD: MP-BGP, MPLS, VPN, Carrier's Carrier, Multi AS

I. INTRODUCTION

A VPN is a Private Network connections over a shared infrastructure implemented through a collection of policies, and these policies control connectivity among a set of sites. A customer site is connected to the service provider network by one or more ports, where the service provider associates each port with a VPN routing table. Examples of Virtual Private Networks are the ones built using traditional Frame-Relay and ATM technologies.

And the VPN technologies are various. Those greatly can be divided into the ATM/FR based VPN, IP tunneling based VPN and the MPLS based VPN. However, the MPLS based VPN provides better flexibility, simple management with low cost, and can support the differentiated QoS.

This paper is divided into for sections. In Section 2, we present MPLS IP VPN services, such as MPLS VPN architecture, and services in carrier's carrier and Multi AS backbones. In Section 3, we propose the design of MPLS IP VPN application to support multi AS is based on BGP/MPLS VPNs [7]. Finally, in Section 4, a brief conclusion is presented