TK712: QoS in IP Network

Prerequisite

Before joining this training the participants must have a good knowledge about TCP/IP routing.

Target groups

This course is for participants from all areas, who wish to acquire in-depth knowledge of QoS enabled IP and MPLS networks.

Duration

3.0 Days

Course Content

1. Basics of QoS

1.1 What is Quality of Service?

- 1.1.1 important symbols used in this course
- 1.1.2 internet performance and QoS
- 1.1.3 Quality of service versus Class of service
- 1.1.4 Service Guarantees
- 1.1.5 Physical layer and QoS
- 1.1.6 Data link layer and QoS
- 1.1.7 Network layer and QoS
- 1.1.8 Transport layer and QoS

1.2 The toolkit of QoS

- 1.2.1 Classification of packets
- 1.2.2 Queuing Disciplines
- 1.2.3 Packet discard

Copyright © TEKonsult 2016

1.2.4 Traffic shaping and Admission control

1.2.5 Traffic Parameters and QoS attributes

1.2.6 IP QoS architecture

2. The integrated Services Architecture-IntServ

2.1 History and Background

2.1.1 Introduction

2.1.2 Applications QoS requirements

2.2 The IntServ architecture

2.2.1 Elements of the architecture

2.2.2 Link sharing

2.3 Services Models

2.3.1 Flow specification

2.3.2 Controlled-load Service

2.3.3 Guaranteed Service

2.4. Resource ReSerVation Protocol (RSVP)

2.4.1 Basic features

2.4.2 RSVP messages

2.4.3 Operation overview

2.4.4 Reservation styles

2.4.5 RSVP-TE

3. The Differentiated Services Architecture-DiffServ

3.1 Differentiated Service framework

3.1.1 DiffServ versus IntServ

3.1.2 Differentiated services network model

3.1.3 Service and Forwarding Treatment

3.1.4 Differentiated Services field

Copyright © TEKonsult 2016

3.2 Traffic conditioning and classification

3.2.1 Traffic conditioning

3.2.2 Location of traffic conditioners and MF classifiers

3.3 Per Hop Behaviors (PHB)

3.3.1 Default PHB and Class Selector PHBs

3.3.2 Assured forwarding PHB group

3.3.3 Expedited forwarding PHB

3.3.4 Example for Traffic class concept

3.4 End-to-End Resource Management

3.4.1 Integrated Services over Differentiated Services

3.4.2 Interdomain bandwidth allocation

3.4.3 Comparing RSVP and Bandwidth Broker

3.4.4 Differentiated Services for Internet

4. Multiprotocol Label Switching (MPLS)

4.1 Motivation for MPLS

4.1.1 The evolution of multilayer switching in the internet

4.2 Introduction to Multiprotocol Label Switching

4.2.1 Common Misconceptions about MPLS

4.2.2 The promise of MPLS

4.2.3 MPLS Applications

4.3 L3 MPLS

4.3.1 Virtual Private Networks

4.3.2 MPLS based Layer 3 VPN with VRF

4.4 L2 MPLS

4.4.1 L2 VPN

4.4.2 Virtual Private LAN Service (VPLS)

Copyright © TEKonsult 2016

4.4.3 Virtual Private Wire Services (VPWS)

4.4.4 VPLS Example with Split Horizon

Copyright © TEKonsult 2016