

Frequency- and Time-Synchronization in Packet Networks

Synchronization methods SyncE, IEEE1588v2, CEoP, NTP

Previous requirements as accurate and reliable measures of PDH, SDH and broadband networks are a necessity for the trouble-free and thus effective operation of a network. The trend toward modern telecommunications networks means today consistently digital. Previous circuit-switched networks will be gradually replaced by a new generation network (NGN) based on the packet switching technology.

The challenge now is to forward circuit-switched networks information such as PDH and TDM applications over these packet-switched networks.

Simultaneously these new services must have the same quality. A precise time and frequency Synchronization is for the existing infrastructure and their migration to the infrastructure of the next generation indispensable. For Next Generation Networks, both parameters frequency and correctly time., have to be transferred correctly. For real-time applications and services, the clock frequencies in the different components must be precisely controlled.

This seminar provides them with the necessary foundations for the methods and standards, and the technical details of the various procedures in Sync-Ethernet networks.

Contents

- ▶ Introduction
 - Why is package synchronization needed?
 - Demands to the synchronization
 - Methods of clocking distribution
- ▶ Synchronous Ethernet in Packet Networks
 - Migration to Ethernet/IP-architectures
 - Requirements for mobile communications networks
 - Clock distribution and Clock restoring via Ethernet networks
- ▶ Operation of different Synchronization protocols
- ▶ SNTP/NTP
 - Simple Network Time Protocol - IETF RFC 2030
 - Network Time Protokoll - IETF RFC1305
- ▶ SYNC-E Synchronous Ethernet
 - ITU-T G.8262/Y.1362: G.8264/Y.1364
 - Sync-E in mobil networks
- ▶ 1588v2/ PTP Precision Time Protocol
 - IEEE1588v2
- ▶ CES Circuit Emulation Service
 - CEoP Circuit over Packet
- ▶ Market Trends and status of the various Standards

Equipment discussed

- ▶ Tester for SyncE and PTP

Trainer

- ▶ Helmut Otto

Course objectives

By the end of the seminar participants will understand the new technologies and protocols that can be used for Packet Synchronization in Ethernet networks.

Target group

Network technicians and engineers as well planners and network operators with a telecommunications or service provider background who are confronted with this new technology.

Prerequisites

General Basic knowledge in the range of LAN/WAN transport networks. Basic knowledge of Ethernet technology is helpful but not required. The relevant principles of Ethernet are repeated during the seminar.

Related seminars

- ▶ IEEE 802.3 Ethernet Technology
 - Ethernet Standards, Concepts, and Architectures
- ▶ TCP/IP & Routing – Introduction to IP/TCP – Protocols

Seminar info

- ▶ Duration
 - 2 days, from 9.00 to 16.30 h
- ▶ Date, location and price on request or see under www.viavisolutions.com
- ▶ On-site or customized seminars and E-Learning on request

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