

Packet Transport

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Abstract

The transport network is used to interconnect routers that handle data packets for various services such as e-mail, web access and VoIP (Voice over IP). Since it is indispensable infrastructure for network services, high reliability and availability is always required. Today, network traffic volumes are continually growing higher, and the required level of service quality is becoming more diversified, running the gamut from bursts of data traffic up to real-time communications. It is necessary that the transport network handles such differing traffic efficiently while maintaining the service quality level of each type. In legacy transport networks, time division multiplex (TDM) technologies such as SONET (Synchronous Optical NETWORK) or SDH (Synchronous Digital Hierarchy) have been used. However, most services are based on IP packets these days, and transport technology is predicted to move from TDM-based schemes to packet-based, also called "Packet Transport".

Our research covers service quality control and traffic rate control for various packet service mixtures and higher volume traffic, taking into account preservation of the high reliability and availability of legacy transport networks.

Technology

- **Quality of Service (QoS) control**

Packets are handled with their service class. For example, includes development of priority queuing for differentiated services, low-latency queues considering packet "best-before-date", fairness rate control for large numbers of users, etc..

- **Hitless packet switch-over**

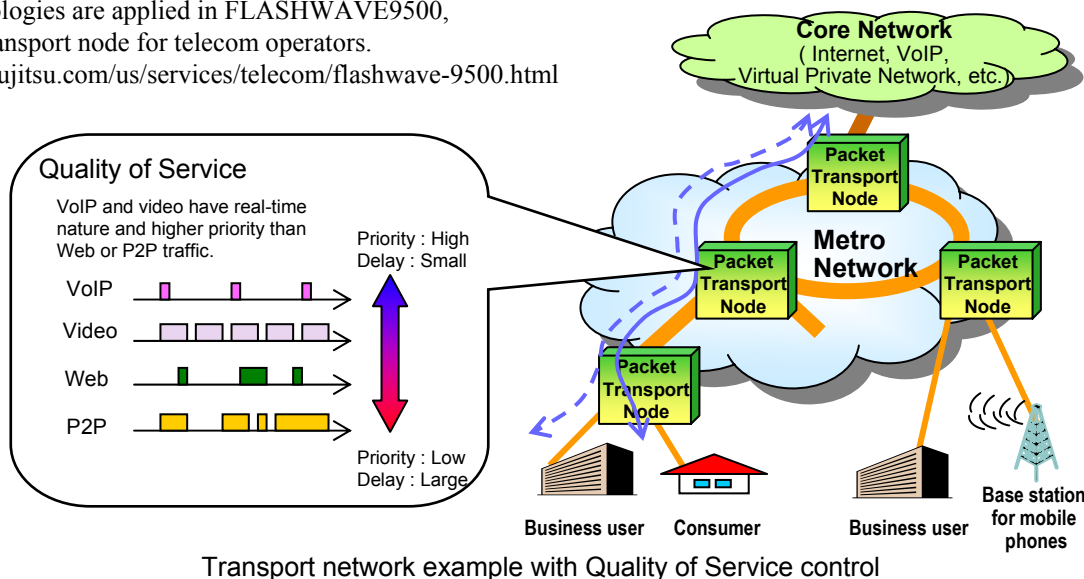
The packet switching fabric supports redundancy. When any failure is detected on the active switching fabric, traffic is switched over to the stand-by fabric without packet loss.

- **Failure detection and route recovery with OAM (Operation Administration and Maintenance) packets**

Network is monitored with OAM packets to detect link and node failure. Network failure is recovered and switched over to the stand-by route by also using OAM packets.

Application Examples

These technologies are applied in FLASHWAVE9500, the packet transport node for telecom operators.
<http://www.fujitsu.com/us/services/telecom/flashwave-9500.html>



Transport network example with Quality of Service control