Module 1 - Services Overview and Implementation

Telecommunication Services Technologies:

- Internet Protocol (IP) is now the most used
- Ethernet Layer 2 transportation is also common
- Frame Relay and Asynchronous Transfer Mode (ATM) are less common
- Time Division Multiplexing (TDM) technologies are used in older networks
- Sonet transportation is not common. Replaced with direct optical networks

Converged Network Infrastructure Requirements

Service providers consolidate the delivery of multiple service types onto a single networking technology because of:

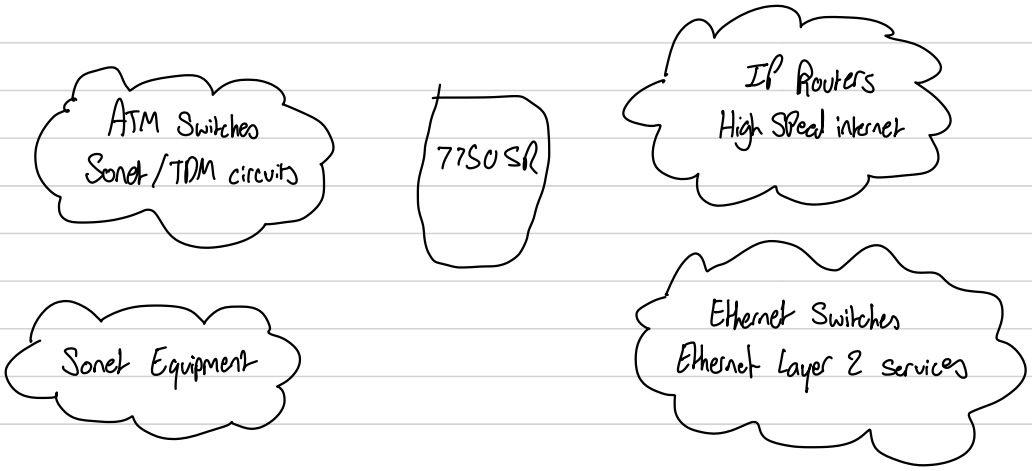
- High cost of maintaining and operating discrete legacy networks
- Need to continue supporting high revenue legacy services such as Frame Relay, Sonet, and TDM
- Consumer demands for new services that require higher bandwidth service at decreasing prices.

A number of factors are driving service providers to adapt to a single network infrastructure that supports the delivery of a wide variety of telecommunication services. Includes:

- High cost of maintaining and operating discrete legacy networks
- Service Providers desire to continue to support high-revenue legacy services (Frame Relay, TDM)
- Consumer demand for new services such as wireless data and streaming video
- Competitive market creating consumer expectation for higher bandwidth service at decreasing prices.

One approach to building a common infrastructure for deploying a wide range of telecommunication services uses a core IP/MPLS network that supports a range of Virtual Private Network services.

Nokia Solution: Nokia 7750 Service Router



7750 SR product family was specifically designed to build a single network infrastructure using an IP/MPLS core network that supports a range of VPN services. It can also collapse separate overlay networks onto one platform while still supporting an overlay model.

VPN Service

- Virtual: VPN to a service provider
- Private: VPN to the customer

Service:

- Logical entity that refers to a type of connectivity
- Uniquely identified by a service ID

Provider Terminology

Provider Edge Routers (PE)

- Have at least one interface outside the provider domain facing the customer

Provider Core Routers (P)

- Have all interfaces internal to the provider domain

Customer Edge Routers (CE)

- Located at customer premises and are service unaware