

CARRIER ETHERNET

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ABSTRACT

There are many technologies which are used to transport data in local, metro, wide areas but the problem faced by these technologies nowadays is inflexible bandwidth scalability. Whenever the service provider's need more bandwidth, they either attach multiple circuits together or upgrade their network and devices to cope up with a new technology which results in nonlinear bandwidth. This nonlinear bandwidth is often not at the appropriate bandwidth increment that the user needs or it becomes expensive to afford. Carrier Ethernet acknowledges this limitation and fix it. This paper provides information regarding Carrier Ethernet which is a modified form of Ethernet which helps in solving this problem by providing flexible bandwidth scalability, with the help of Carrier Ethernet, subscribers or users can now use the same Ethernet technology for their LAN, MAN and WAN connections

Keywords: Carrier Ethernet, MPLS, E-LAN, SONET/SDH, Ethernet.

I. INTRODUCTION

Carrier Ethernet builds the fundamental of network and transport retail and wholesale communications services. It focuses on characteristics such as bandwidth, scalability, reliability, from its name we can see that Ethernet is prefixed with Carrier which reveals its usage, better efficiency and its capability of delivering the data in local as well as wide area networks. Carrier Ethernet is like a highway which transports your data back and forth, it is a coding requirement that allows us to take bunch of 0 and 1, convert them and send them across the wire from one end to other and they are decrypted, understood, reassembled and back and forth. Carrier Ethernet uses Ethernet as it is cheap; it is quick to set up and is incredibly reliable in the whole world networking. In simple words, Carrier Ethernet is a fundamental technology that can be implemented over many different types of Layer 1 transport network technologies, Ethernet over fiber, Ethernet over SONET/SDH, Ethernet over μ Wave, i.e. Ethernet transported over microwave frequency spectrum.

II. DIFFERENCE BETWEEN ETHERNET AND CARRIER ETHERNET

The 3 basic difference between Ethernet and Carrier Ethernet are :

- In Carrier Ethernet an entire organization connects to a Carrier Ethernet "port" at a given subscriber location but in Ethernet each user connects to a dedicated Ethernet port on the LAN

- The Carrier Ethernet network serves many organizations but the Ethernet LAN serves one organization
- The Carrier Ethernet network is outside the building across a wide area but the Ethernet LAN is inside the building.

III. TYPES OF CARRIER ETHERNET SERVICES

Carrier Ethernet is also a service delivery technology used to deliver a variety of connectivity services, including E-Line, E-LAN and E-Tree for retail services and E-Access for wholesale access services.

- E-line: a service connecting 2 customer Ethernet ports over a WAN.
- E-LAN: a multipoint service connecting a set of customers ends points.
- E-Tree: a multipoint service connecting one or more roots and a set of leaves but preventing inter leaf communication.

There are various applications of Carrier Ethernet such as 3G/4G cell site Mobile backhaul; interconnecting 3G/4G base stations at cell Sites to their base station controllers at a mobile switching center Ethernet access to IP services, Ethernet access to Internet, Ethernet access to cloud services.

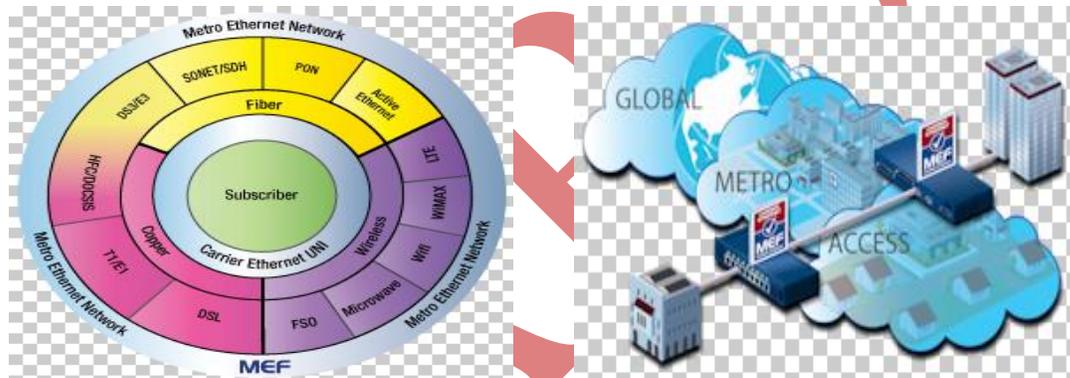


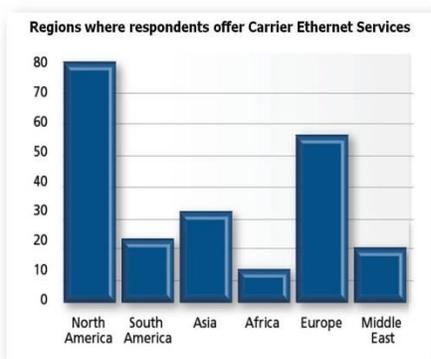
Fig 1

Fig 2: showing Carrier Ethernet services in LAN, MAN and WAN services

In the fig 2 we can see that Carrier Ethernet subscribers can now use the same Ethernet technology for their Local area network, Metropolitan area Network and Wide area network connections.

IV. ETHERNET OR MPLS FOR CARRIER ETHERNET?

Carrier Ethernet technologies and standards have come a long way since those early days and can now provide the performance and scalability that are once only available through the use of MPLS technology. Ethernet is certainly the key, 99% of the network today is using Ethernet technology as it is cheap, it is quick to set up, it is incredibly reliable in the whole world networking.



The graph showing regions provided with Carrier Ethernet Services

V CONCLUSION

Carrier Ethernet intensifies Ethernet LAN technologies to build metro and wide area networks. It is delivering standardized yet highly customizable services. It led to include worldwide services spanning national and global Services. Carrier Ethernet offers capability to rapidly detect and recover service failures. These services of Carrier Ethernet provide significant savings and offers a strong competitive advantage.

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