

Providing Corporate Data From Mobile Access Networks

As mobile network operators are expanding the reach and density of their mobile access network, it may not only serve mobile traffic — it can also be a powerful transport grid for cost-efficient data services.

It is well known that the growth in mobile 2G services has passed its peak in many markets; the growth in the number of GSM subscribers is flattening, and there is stiff competition to capture market share. This means increasing pressure on profits for GSM telephony, and so operators need to consider all possible ways of increasing revenue while decreasing Operating Expenses (OpEx). One solution is to utilize the mobile network infrastructure to the greatest possible extent by developing and optimizing services that address as many customers as possible. And, as technology evolves, more and more options for doing so become realistic.

Traditional 2G mobile access networks have often been dimensioned to support 2G traffic only. But today more and more transmission capacity is being built into mobile networks. To support 3G, new SDH distribution networks between the mobile core and the radio access network are being built, facilitated by the emergence of cost-effective SDH radio links in recent years.

Consequently, more spare capacity in mobile access networks is becoming available and can be used to realize further revenue streams. One possibility is to expand further into the corporate fixed data- and voice-services market. The traditional approach has been to offer voice and data services to large businesses, which could deliver the necessary traffic volumes to justify expensive leased lines between the mobile core and business premises.

But as last mile transmission technology develops, it may well become profitable to also deliver corporate services to the SME market. Every base station represents a potential Point-of-Presence

(PoP) from where data services can be delivered to business customers. A wide variety of corporate data and voice services can be offered within the same geographical coverage as the mobile network. This includes connectivity services such as standard leased lines, managed Ethernet or IP, Frame Relay or ATM. Further value-added services can also be offered, e.g., Virtual Private Network (VPN), service provider access, GPRS or CDMA 1x integration and converged fixed-mobile voice and data services. The Tellabs portfolio of transport solutions offers the ideal vehicle for providing cutting edge IP and Ethernet connectivity in this scenario, as well as standard TDM services, delivered via SDH and PDH networks.

Benefits

- Generate further revenue from the already established mobile access network
- Amortize OpEx across mobile access and fixed data services, and achieve economies of scale by carrying more traffic in the same network
- Integrate network management, i.e., manage SDH and Ethernet services from the same platform, giving significant operational advantages
- Obtain high statistical gain of data traffic from handling many customers on single copper pairs or in single SDH Virtual Concatenated Groups (VCG)
- Exploit high concentrations of base stations and corporate office buildings in central city areas

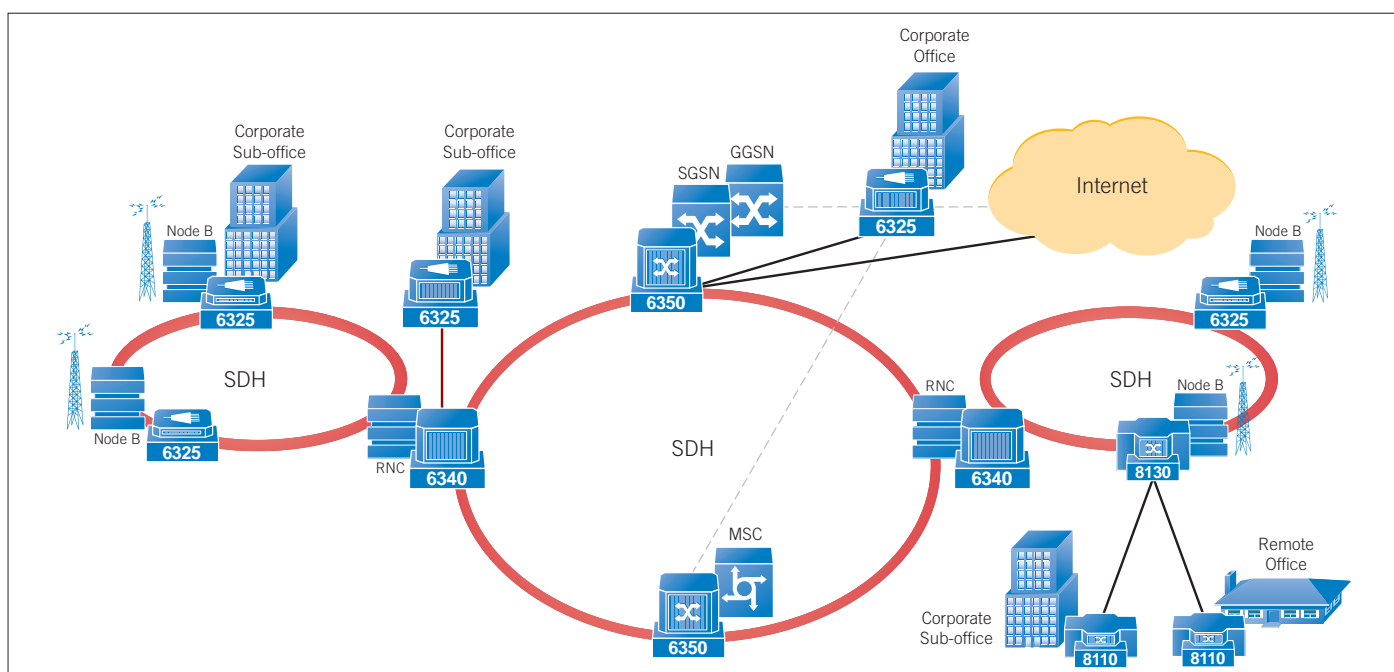


Figure 1: The SDH network nodes provide a dense grid of access points for corporate data services

Example Case: Mobile Operator X-com Provides Corporate LAN Connectivity

Let us consider a fictitious case for illustration. X-com is a medium sized provider of mobile telephony services that has recently deployed an all-new 2G network in a new 2G market. The mobile access network has been designed with an SDH distribution layer between the nodes at hub sites for distribution in city areas. X-com has roaming and service partnering agreements with mobile and fixed operators in other countries.

To gain competitive advantages over other 2G operators in the area, X-com has decided to generate revenue on spare capacity in the access network by provisioning selected fixed line services to corporate customers. The choice has been to provide a portfolio of Layer 1 and Layer 2 Ethernet connectivity services with international reach and different variants of corporate voice and GPRS integration. Using the Tellabs® 6300 Managed Transport System and the Tellabs® 8100 Manged Access System, such services are easy and inexpensive to offer, either from hub-sites where the SDH backbone passes, or from base stations connected with PDH.

In places where the SDH backbone does not pass, new SDH PoPs can be established using noncopper media such as fiber ducts in streets and buildings or SDH microwave links. For longer distances, the Tellabs® 8100 system, including the Ethernet Switching Unit (ESU) and the CTU-R provides the means to offer Ethernet-over-SHDSL on copper pairs within ranges of up to 6 kilometres. Thus it is possible for X-com to offer wide coverage of fixed data services, optimizing business opportunities in the whole area, and providing optimal synergy with its mobile services. The latter may be in the form of integrated voice and GPRS corporate services, based on direct voice and data links to the MSC and Gateway GPRS Support Node respectively.

X-com has found that it is profitable to install SDH PoPs in large office buildings, and then to provide Ethernet connectivity to a large number of SMEs. This is possible due to the VPN capabilities of the Tellabs next-generation SDH solution. A large number of different customers can be connected to single fiber pairs with complete separation of each customer's traffic. At the same time, the statistical gain ensures a high utilization of the scarce number of fiber pairs available for each building.

Thanks to the built-in Quality of Service (QoS) facilities on the ETEX modules, X-com is able to offer differentiated service classes from the same Ethernet interfaces: a leased line service for delay-sensitive traffic such as client-server transactions, a burst service for standard file server traffic, and a best effort service for Internet traffic. These service classes have been defined by X-com itself, and are optimized for the customers in the region. This has been possible by configuring the service characteristics using the integrated SDH and Ethernet management system of the Tellabs® 6300 system.

X-com has taken this one step further by offering international Ethernet connectivity on a global scale. This has been possible through partnerships with other operators offering Ethernet-over-SDH services — all it takes is standard SDH connectivity on all stretches of the transport network, and standards compliant Ethernet-over-SDH mapping in both ends. As the Tellabs solution supports several ITU-T standards, Ethernet connectivity can be achieved even in a multivendor environment.

Product Information

The following Tellabs product series are suitable for provisioning the above mentioned services:

- The Tellabs 6300 system, including the ETEX series modules
- The Tellabs 8100 system, including the ESU, CTE-R and CTU-R modules

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