

## Extending carrier Ethernet over TDM network, Guaranteeing service bandwidth on demand

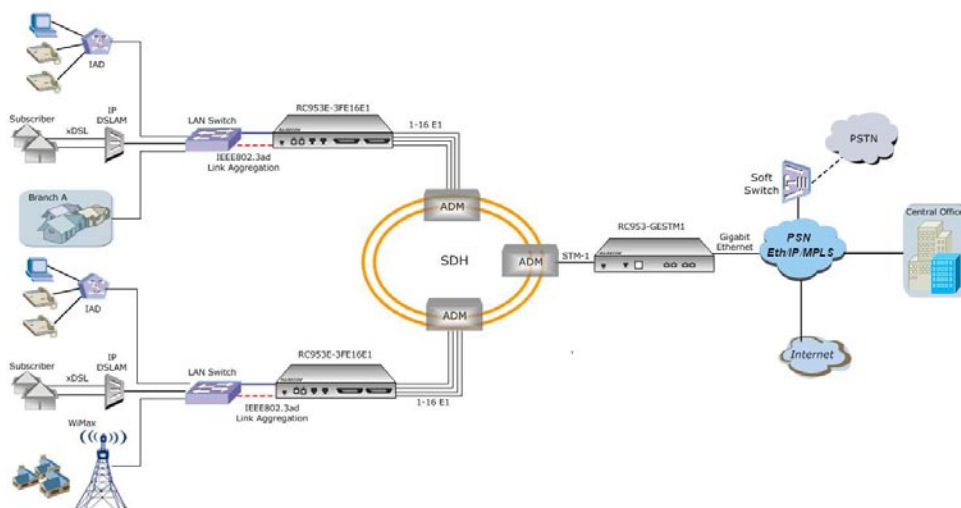
The strong market growth of Ethernet-based services is creating a challenge for carriers and service providers of metropolitan area while standing a good chance for new high-margin revenues. However, for the most part, carriers and service providers are still relying on their extending TDM networks and local copper loop to transport services in the MAN. It is proved that the most economical and least complicated solution to the problem of running Ethernet traffic over a TDM network has been the deployment of interface converter/inverse multiplexer.

The interface converter/inverse multiplexer enables carriers and service providers to extend Ethernet network by delivering transparent LAN services over existing TDM networks, offering simple, cost-effective and transparent bridging between LANs and the access networks. However, the "transparent transmission" scheme of the interface converter results in that all kinds of services are served equivalently, that

is to say the service level agreement of critical service, for example video/voice services, can not be assured as contracted when congestion happens.

In order to be truly "carrier class" and provide assured SLA to different customers, it is essential for the inverse multiplexers to support bandwidth allocation based on service type. That is to say, E1 circuits' assignment to different service is done according service type like VLAN ID, giving mission critical services a better service.

Raisecom new-generation Ethernet inverse multiplexer RC953E-3FE16E1 together with channelized Ethernet gateway RC953-GESTM1 provides carriers and service providers with a flexible, reliable and scalable Ethernet over TDM solution, realizing the assured SLA for different services through VLAN based E1 circuit resource assignment at customer premises.

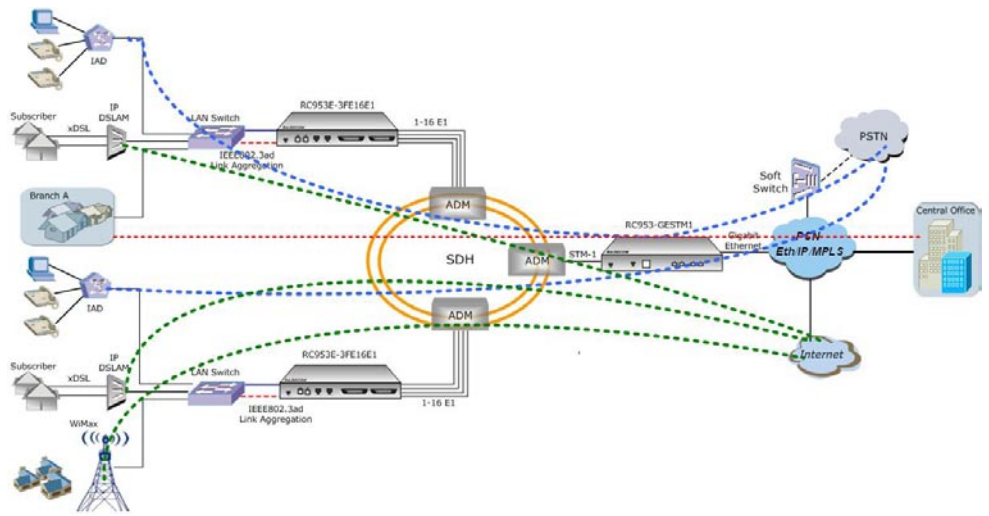


As the above solution indicates, RC953E-3FE16E1 is deployed at customer premises for accessing diversified services such as IP DSLAM, IAD, WiMax and enterprise customer service from a LAN switch. With VLAN based bandwidth allocation, RC953E-3FE16E1 provides different services with different bandwidth, for example in the first RC953E-

3FE16E1, IP DSLAM traffic with VLAN ID 100 is assigned with 8 E1 (16M), voice traffic from IAD with VLAN ID 200 is assigned with 3 E1 (6M), enterprise customer's traffic with VLAN ID 300 is assigned with 3 E1 (6M) and the left 2 E1 (4M) is assigned to Internet traffic from the IAD equipment with VLAN ID 2000. This VLAN based Ethernet traffic mapping achieves

a seamless interconnection between packet network and TDM network, while providing the

contracted SLA for different services.



The above figure shows a clear traffic flow from customer premises to their destinations: Ethernet traffic from different access equipments such as IAD, DSLAM, WiMax and enterprise customer's branch office are assigned to different VLAN by the LAN switch. The VLAN based bandwidth allocation scheme on RC953E-3FE16E1 allows carriers and service providers to offer a customized mix of services and data rates for different requirements, realizing the contracted service level agreement. With RC953-GESTM1 in central office, up to 63 E1 carrying diversified Ethernet services from remote sites can be aggregated and transmitted to packet-switch network through the gigabit Ethernet interface.

For mission critical service aggregation, more than one RC953-GESTM1 can be deployed in central office as the following figure for aggregating different service to different RC953-GESTM1 gateway. For example, all voice traffic from remote IAD equipments are aggregated to the first RC953-GESTM1 gateway and all Internet traffic from remote equipments like IP DSLAM, enterprise customer's branch office, WiMax and etc. are aggregated to the second RC953-GESTM1 gateway, realizing enhanced service availability and providing dedicated gateway for dedicated services.

