

Leased Line With Flexible, Cost-Effective Ethernet Interfaces

Tellabs' Ethernet-over-SDH solutions extend the life of your existing SDH network. By migrating it to a data network, you can now provide your subscribers with tailored communications solutions while making better use of your existing network infrastructure.

One of the key applications for Tellabs' Ethernet-over-SDH solutions is leased line services that include high-speed Ethernet interfaces at a fraction of the cost of traditional PDH/SDH interfaces.

Not only does this significantly lower your operating expenses, it also increases your competitiveness since the solution is cost-effective, flexible and extremely attractive to business subscribers.

Leased line solutions offered to data subscribers on existing traditional SDH infrastructure are often an inadequate solution because:

- Traditional PDH/SDH interfaces are expensive
- They provide poor network utilization
- Too many types of PDH/SDH interfaces are needed
- Visits by a field engineer are needed to upgrade capacity
- The solution is inflexible for data subscribers. PDH/SDH bandwidth is offered either as 2 Mbit/s, 34 Mbit/s or 155 Mbit/s
- Provisioning and changes of capacity are too time-consuming
- Traditional SDH protection offerings are not ideal for data subscribers

Now, thanks to Tellabs, you can offer your subscribers a leased line service that provides a much better fit to their needs. Benefits include:

- Lower price
- Greater flexibility and scalability
- The right protection method for data subscribers
- Future-proof solution with migration path to more advanced services

Tellabs refers to this new service as Layer 1 Ethernet Private Line (Layer 1 EPL).

Low-Cost Ethernet Interfaces

Our Ethernet-over-SDH solutions are based on low-cost Ethernet interfaces rather than expensive PDH/SDH interfaces. Savings in interface costs relate to both the SDH equipment and the data equipment, such as routers and switches. Moreover, many routers and switches are delivered with Ethernet interfaces as standard, which means that there are virtually no additional interface expenses for this equipment.

Use Your Network More Efficiently

With the Tellabs Layer 1 EPL solution, the bandwidth available to the customer and assigned through the network is provided in steps of 2 Mbit/s. This means that a subscriber who needs a 14 Mbit/s leased line service, for example, can receive exactly this capacity. In the traditional PDH/SDH/SONET network, in contrast, the operator would only be able to offer a 34 Mbit/s (E-3) or 45 Mbit/s (T-3). In other words, the operator will either not meet the subscriber's demand or waste 20 Mbit/s or 31 Mbit/s of capacity through the network. The final result is better network utilization, and a service that matches the subscriber's demands. Tellabs is achieving this functionality via standardized virtual concatenation that addresses the flexibility and scalability problems in traditional SDH networks.

Offer The Right Protection to Your Subscribers

The Layer 1 EPL solution also provides a new protection method that is extremely attractive to business data subscribers. In traditional PDH/SDH, two kinds of protection can be offered:

- No protection. If a fiber or a PDH/SDH node on the path through the network becomes defective, the subscriber cannot send or receive any traffic.
- 1+1 protection, in which two paths are established through the network. Traffic is forwarded on both paths. If the primary path fails, traffic is received on the secondary path so service continues without interruption. The consequence is that the secondary path is unused for about 99.9xx percent of the time, which is a huge waste of network capacity.

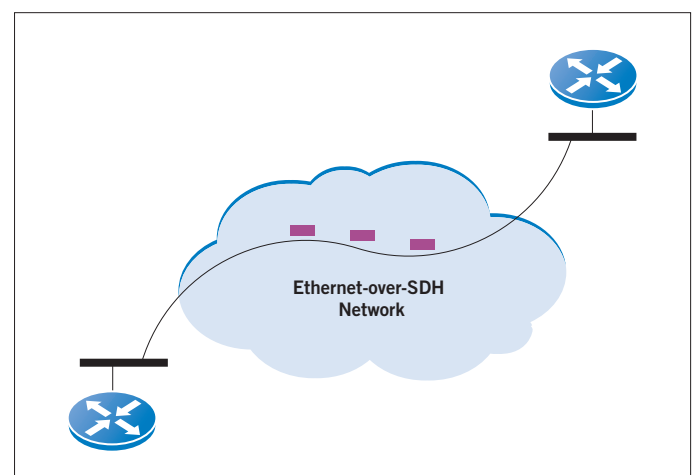


Figure 1: Layer 1 Ethernet private line solution utilizes the network more efficiently and offers the subscriber the bandwidth they request

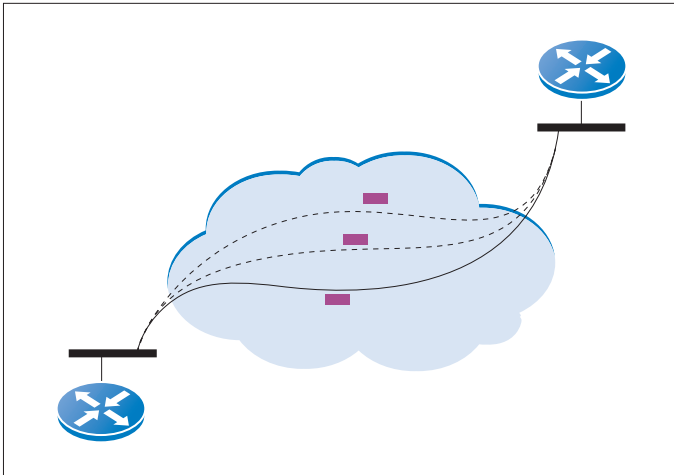


Figure 2: Layer 1 Ethernet private line offers the right protection with LCAS by sending packets via diverse routes through the network

The above protection methods are not ideal for either data subscribers or operators, as either protection method is inadequate or the protection is very expensive and the network is badly utilized. What data subscribers need is a leased line service with a protection along the following lines:

- 99.9xx percent of the time, they have full capacity on the link.
- If a fiber or a PDH/SDH node fails along the path, the consequence is only a temporary degrading of capacity, for instance, from 14 Mbit/s to 8 Mbit/s. This means the subscriber can still serve customers and employees, even though the speed is lower.

This is exactly how Tellabs' Layer 1 EPL solution works. Subscriber traffic is transmitted on both the primary and secondary paths. If a fiber or equipment becomes defective, traffic is only transmitted/received on the remaining trail, thus reducing capacity but maintaining the service. The main economic advantage of this method is that many data subscribers will move to the new protection method, which means operators can match subscribers' demands while effectively doubling their network capacity. Tellabs has achieved this functionality via a new protection method; Link Capacity Adjustment Scheme (LCAS) — a solution that combines the best of the SDH world with the actual requirements of the data world.

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Lower Your Operational Expenses

Since only one type of interface is needed, Ethernet, as opposed to the traditional E-1/T-1, E-3/T-3 and STM-1 interfaces, the need to keep interfaces in stock and train technicians to install and maintain them is significantly reduced.

With a traditional PDH/SDH/SONET solution, if the subscriber needs to upgrade or downgrade the connection, a field engineer would have to physically go to the subscriber and PoP/colocation site to install additional interface cards. In many cases, this upgrade also need to be performed at a time convenient to the subscriber, usually at night.

In Tellabs' Ethernet-over-SDH solutions, the interface remains the same. Capacity through the network is assigned as a number of virtual containers that are connected to this interface.

For instance, a subscriber with a 14 Mbit/s line will receive this as an Ethernet interface and 7*VC12's assigned to this interface. If the subscriber wishes to upgrade or downgrade the connection, it is just a matter of adding or removing a number of virtual containers, which is easily accomplished through Tellabs' centralized network management system.

The fine granularity in bandwidth assignment makes it possible to match your subscribers' needs much more accurately. Moreover, since changes in bandwidth no longer require a site visit, subscriber requests can be carried out very quickly.

Benefits at a Glance

- Reduced capital expenses due to low-cost interfaces and better network utilization
- Reduced operational expenses since less equipment must be kept in stock; the same interface type is used no matter what capacity the subscriber requests
- Reduced operational expenses as capacity up/downgrades can be carried out via centralized network management software; no site visit by a field engineer is needed
- Increased competitiveness through more accurate bandwidth provisioning, faster provisioning and changes in bandwidth, and optimal protection methods for data applications

Tellabs Products for Ethernet-over-SDH

Tellabs® 6325 Edge Node
Tellabs® 6340 Switch Node
Tellabs® 6345 Switch Node
Tellabs® 6350 Switch Node

For More Information

Tellabs' Ethernet-over-SDH Technology White Paper.

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