SDH

- Based on GlobalConnect's country wide fibre network
- 50 msec protection swithcing
- 24x7x365 network monitoring and fault correction
- Transparent SDH technology
- Interfaces: E1, E3, DS-3, STM-1, -4, -16 and -64
- Ideal for PBX'es, voice switches and applications requiring fast protection switching

SDH represents the latest technology within circuit switched network technology and has throughout decades shown its worth in practice as the core of any telephony network. Even though Ethernet and IP have long been proclaimed the substitute for SDH, predictions of early phasing out of SDH have not yet materialised.

This is both due to the large number of telephony exchanges and PBXs, which can be connected only through this technology, and due to the extremely high level of reliability demonstrated by SDH.

GlobalConnect has implemented SDH in the core and in the distribution parts of the network, making it available in the full coverage area of GlobalConnect.

Protection
It is possible to establish protection in two different levels when using SDH:

• Path Protection
• Two diversely routed circuits

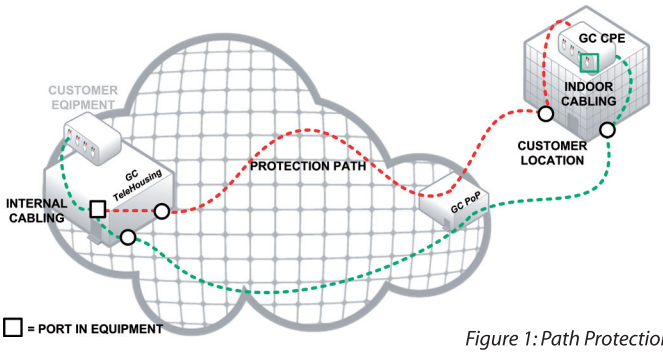

Figure 1: Path Protection

Path Protection provides full protection in both access-parts and backbone parts of the circuit. The GlobalConnect Customer Premises Equipment (CPE) automatically switches over to the redundant path in case the primary path disappears. The only single point of failure is the equipment at each end point of the connection; all connections including access into buildings are diversely routed. This solution is suitable for applications, where automatic protection switching is expected to be part of the transmission service.

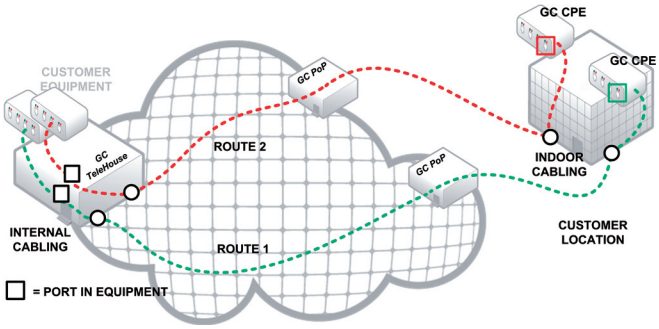

Figure 2: Two diversely routed circuits

Two diversely routed circuits provide two completely independent circuits through the network. The two connections may be used concurrently. Protection switching is carried out in connected equipment owned by the customer.

Connectivity
With SDH it is possible to establish standard point-to-point connections and point-to-multipoint network topology. Point-to-multipoint utilises that an SDH-interface is capable of grouping various data sources into virtual containers (virtual connections), which can be terminated at different physical destinations at the opposite end.

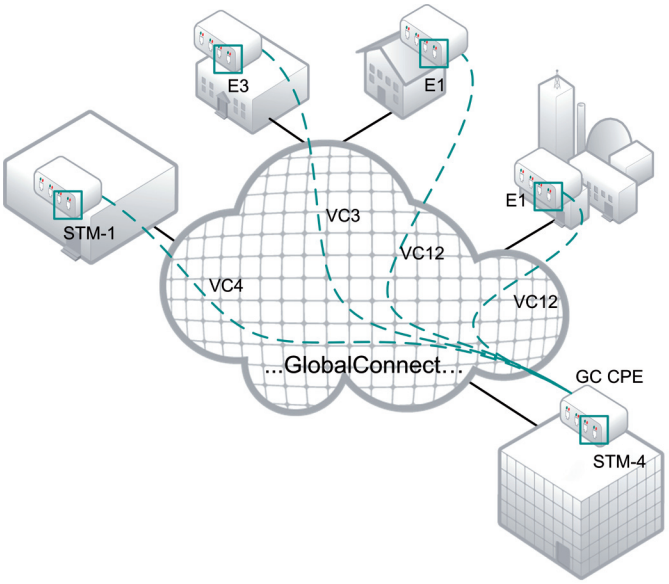

Figure 3: Point-to-multipoint topology

This may be exploited to connect a head-end or a point-of-interconnect with a variable number of distant locations.

Note that this type of point-to-multipoint service keeps traffic from various sources completely separated at all stages. Every far end location has a separate point-to-point connection towards the head-end, while it is still possible to add new locations without any physical installation work at the head-end.

The capacity between two end points is scalable by changing the number of virtual containers known as VC-12, VC-3 or VC-4. This ensures a stepwise adaptation to the necessary speed, without necessity for physical installation work at each step.

The following physical interfaces are normally used for the various speeds and virtual containers:

Physical interface	Virtual container	Capacity
STM-64	VC-64	10 Gbit/s
STM-16	VC4-16/VC4-16c	2,4 Gbit/s
STM-4	VC4-4/VC4-4c	622 Mbit/s
STM-1	VC-4	140 Mbit/s
DS-3	VC-3	45 Mbit/s
E3	VC-3	34 Mbit/s
E1	VC-12	2 Mbit/s

Specifications:

Standards	ITU-T G.707, G.781, G.782, G.783, G.803, G.703
Path Protection standard	SNC/N
Interfaces	STM-64, STM-16, STM-4, STM-1, DS-3, E3, E1
Max. fail-over switching time	50 ms
Optical interfaces	SC/PC or LC/PC connectors
Copper interfaces	RJ-45, LSA eller BNC
Availability (SLA)	99,99% with protection 99,7% without protection
Network monitoring	24x7x365

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