

Network Applications

The Equipment can be set up in any one of four different configurations, according to the functions to be performed at the node where it is installed:

- ◆ *Terminal*
- ◆ *Add/drop*
- ◆ *Regenerator*
- ◆ *Digital Cross Connect*

The Equipment can be used in network chain configuration, ring configuration or hubbing configuration in the distribution area of a public or private communication network.

It can also be used as a Gateway, interfacing the Network Management Center, as a Synchronization Master in a SDH network or as a Ring Master in a ring network.

Terminal

When configured for terminal operation, the Equipment multiplexes/demultiplexes tributary signals into/from a 155Mbit/s STM-1 line signal.

The Equipment is normally fitted with one STM-1 line interface; an additional STM-1 Line Interface is necessary when 1+1 line protection is required.

The terminal version can be equipped for interfacing the following tributary streams:

- ◆ *one 140Mbit/s stream*
- ◆ *three 45Mbit/s streams*
- ◆ *three 34Mbit/s streams*
- ◆ *sixty-three 2 or 1.5Mbit/s streams*
- ◆ *four STM-1 tributary signals (or two with 1+1 protection) with an equivalent capacity of one STM-1*
- ◆ *mixed streams with an equivalent capacity of one STM-1*

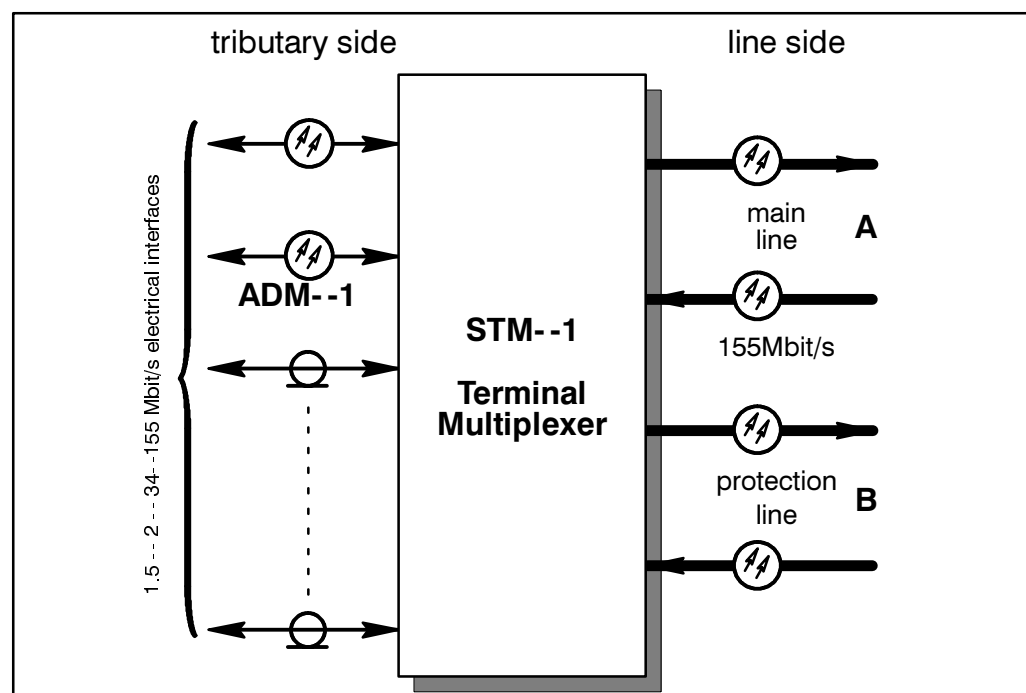


Fig. 1.3-1 ADM-1 STM-1 Terminal Multiplexer

Add/Drop

When configured for Add/Drop operation, the Equipment multiplexes/demultiplexes tributary signals into/from two independent 155Mbit/s STM-1 Line Signals.

The equipment is fitted with two STM-1 optical/electrical line interfaces, housed on a MOST Unit; two additional STM-1 optical/electrical line Interfaces are necessary when 1+1 line protection is required (these protection interfaces are housed on a second MOST Unit). The Add/drop version can be equipped for interfacing the following tributary signals:

- ◆ *two 140Mbit/s streams*
- ◆ *six 45Mbit/s streams*
- ◆ *six 34Mbit/s streams*
- ◆ *sixty-three 2 or 1.5Mbit/s streams*
- ◆ *mixed streams for a maximum overall bit rate of 2x140Mbit/s*
- ◆ *four STM-1 tributary signals (or two with 1+1 protection) with an equivalent capacity of two STM-1*
- ◆ *mixed streams with an equivalent capacity of two STM-1*

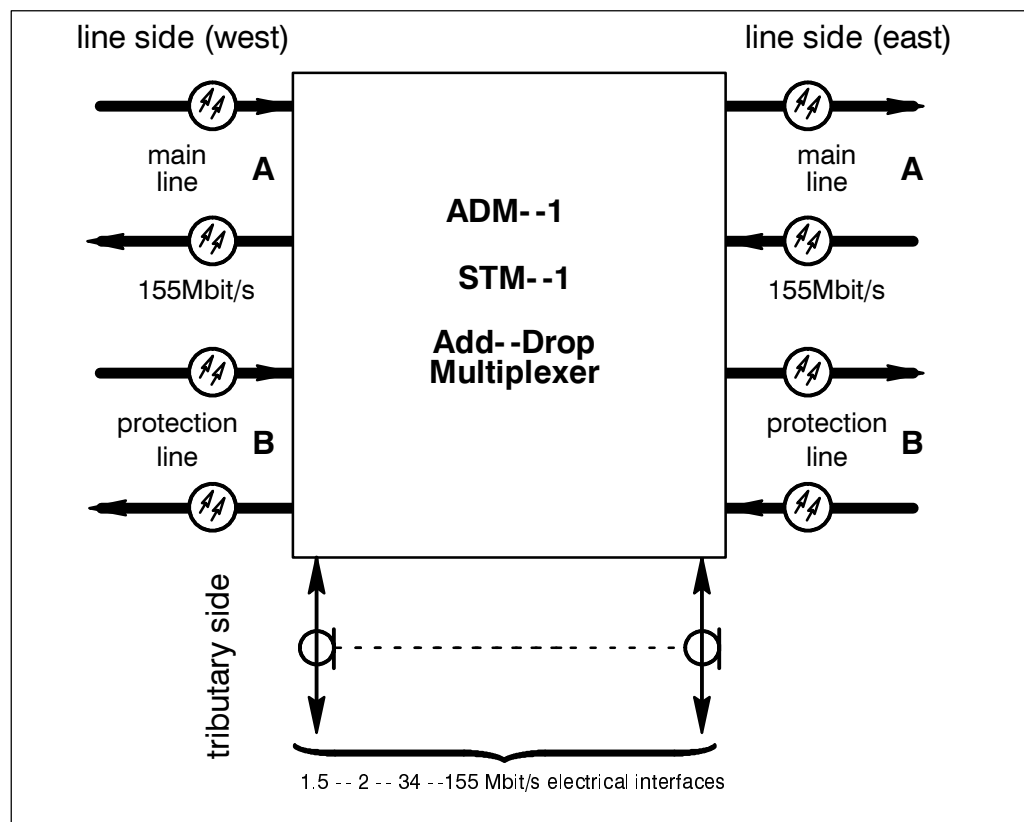


Fig. 1.3-2 ADM-1 Add-Drop Multiplexer

Regenerator

When configured for regeneration operation, the equipment regenerates an STM-1 signal on both directions without any add-drop operations.

The equipment is fitted with two STM-1 line interfaces; two additional STM-1 line interfaces are necessary when a double regenerator configuration is required (each MOST Unit acts as a single regenerator).

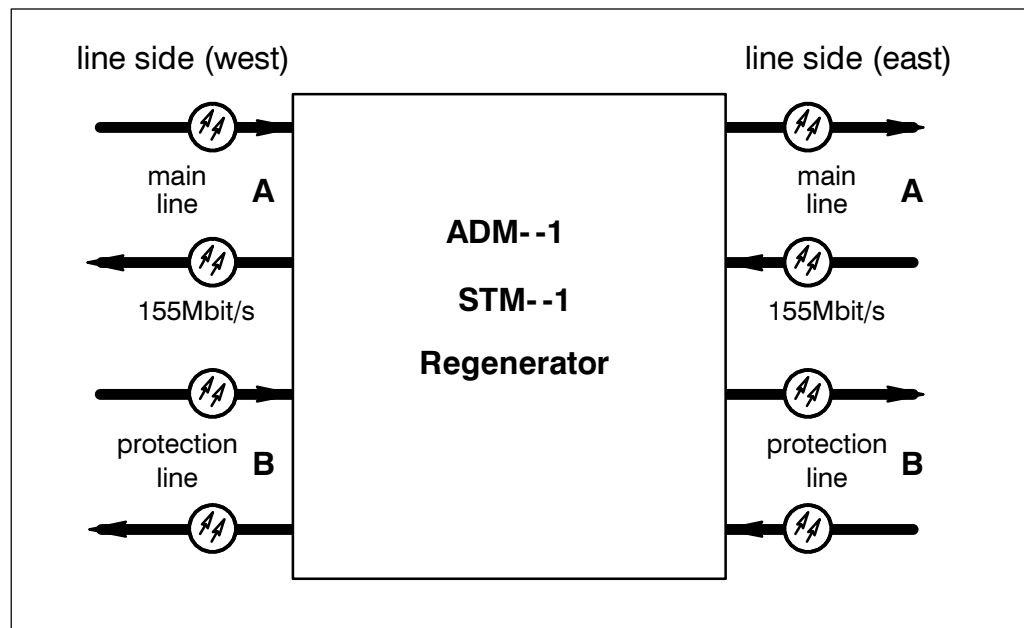


Fig. 1.3-3 *ADM-1 Regenerator*

DXC-1

When configured for DXC (Digital Cross Connect) operation, the equipment is able to interconnect SDH and PDH streams for a total capacity equivalent to 8 basic synchronous transport modules at 155.520Mbit/s (STM-1).

The equipment can manage on line interface up to four STM-1 or two STM-1 with 1+1 protection.

On tributary side PDH (1.5, 2, 34, 45 and 140 Mbit/s) and SDH (STM-1) streams will be accepted.

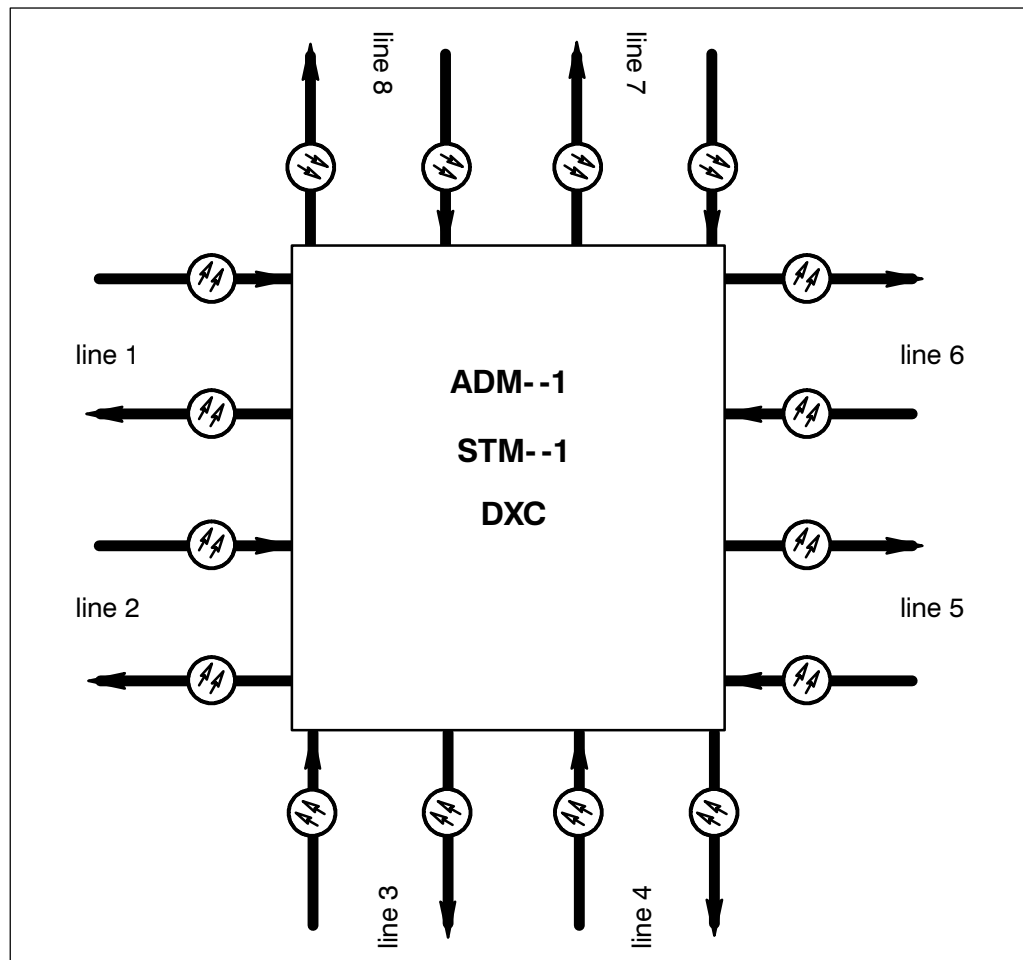


Fig. 1.3-4 ADM-1 Digital Cross Connect

Synchronization Master

A Synchronization Master is a Terminal or Add/Drop multiplexer providing access for synchronization in a network.

Fig. 1.3-5 shows a Synchronization Master equipment in a ring connection.

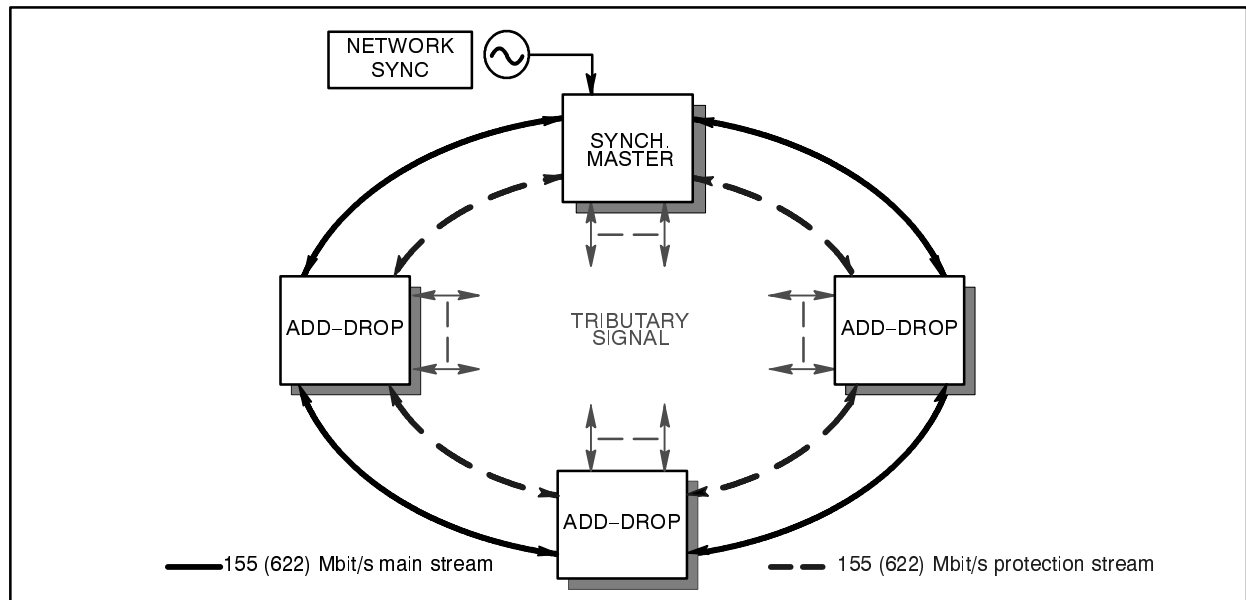


Fig. 1.3-5 *Synch. Master equipment providing access for synchronization in a ring network*

Ring Master

Ring master is the main ring station provided with STM-1 tributaries accessing the SDH network. Fig. 1.3-10 and Fig. 1.3-11 show a Ring Master equipment in ring connections.

Gateway

A Gateway is a Terminal or Add/Drop multiplexer with a data interface (Q_ interface) for two-way communication with Network Management Center. Fig. 1.3-6 depicts a Gateway equipment in a ring connection.

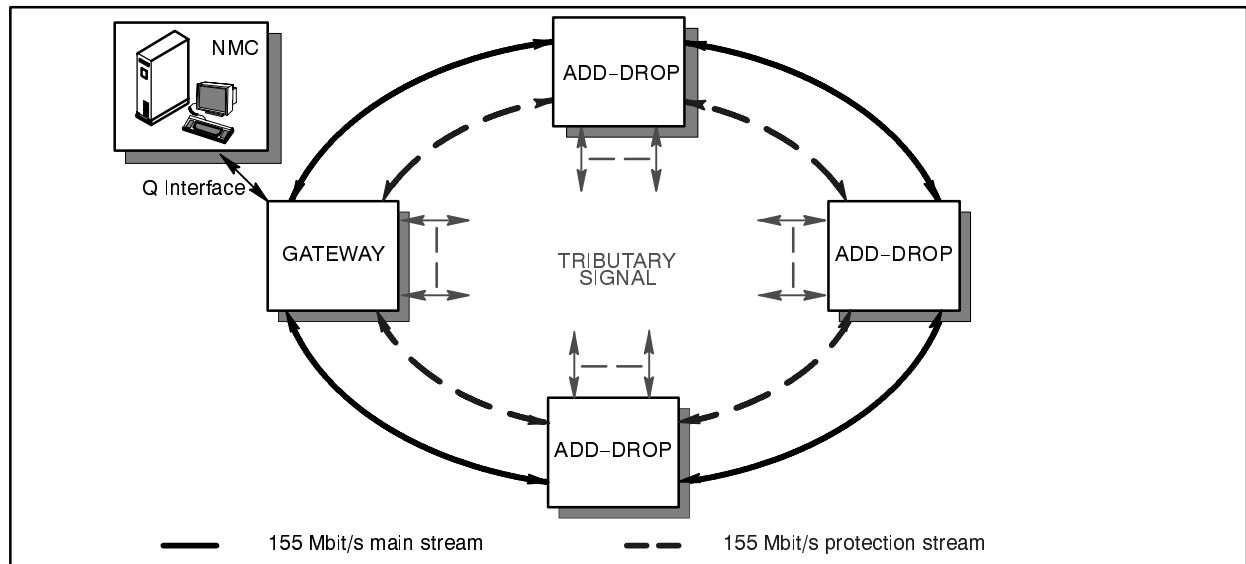


Fig. 1.3-6 Gateway equipment with Q_ Interface connection to NMC in a ring network

Network Configurations

Depending on the requirements of the applications, the distribution network can be configured as :

- ◆ **Chain network**, (see Fig. 1.3-7 single or duplicated for 1+1 line protection. (Type of equipment: Terminal, Gateway, Add/drop).
- ◆ **Hubbing network**, with STM-1 tributary interfaces (see Fig. 1.3-8 and Fig. 1.3-9). As a rule the overall input bit rate resulting from the sum of the STM1 tributary interface signals shall not exceed 140Mbit/s. (Type of equipment: Terminal, Gateway, Add/drop).
- ◆ **Ring network**, single or duplicated to provide diversified protection alternatives in the case of a fault (see Fig. 1.3-10 to Fig. 1.3-11). As a rule the sum of the tributary streams circulating in the ring shall not exceed 140Mbit/s. (Type of equipment: Gateway, Add/drop).

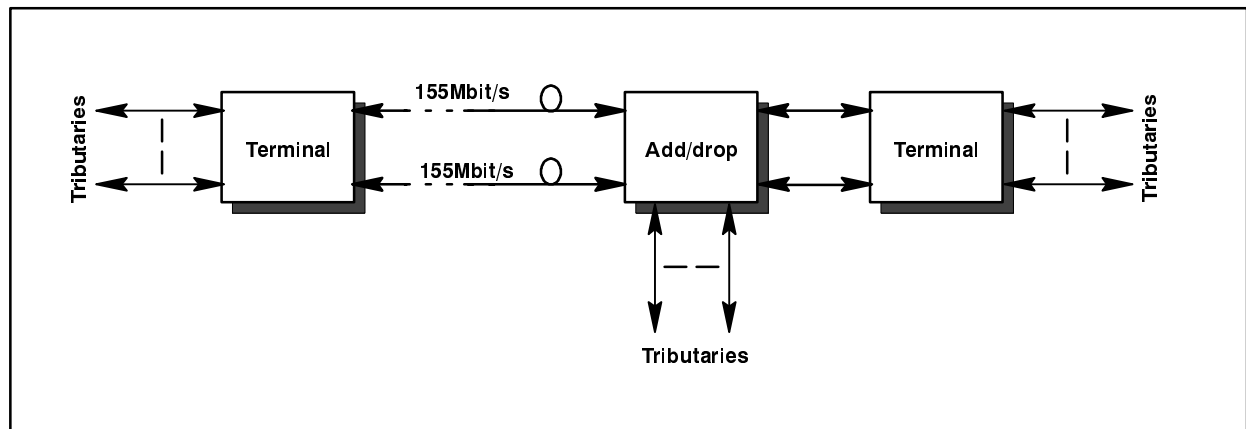


Fig. 1.3-7 Chain distribution with 1+1 line protection

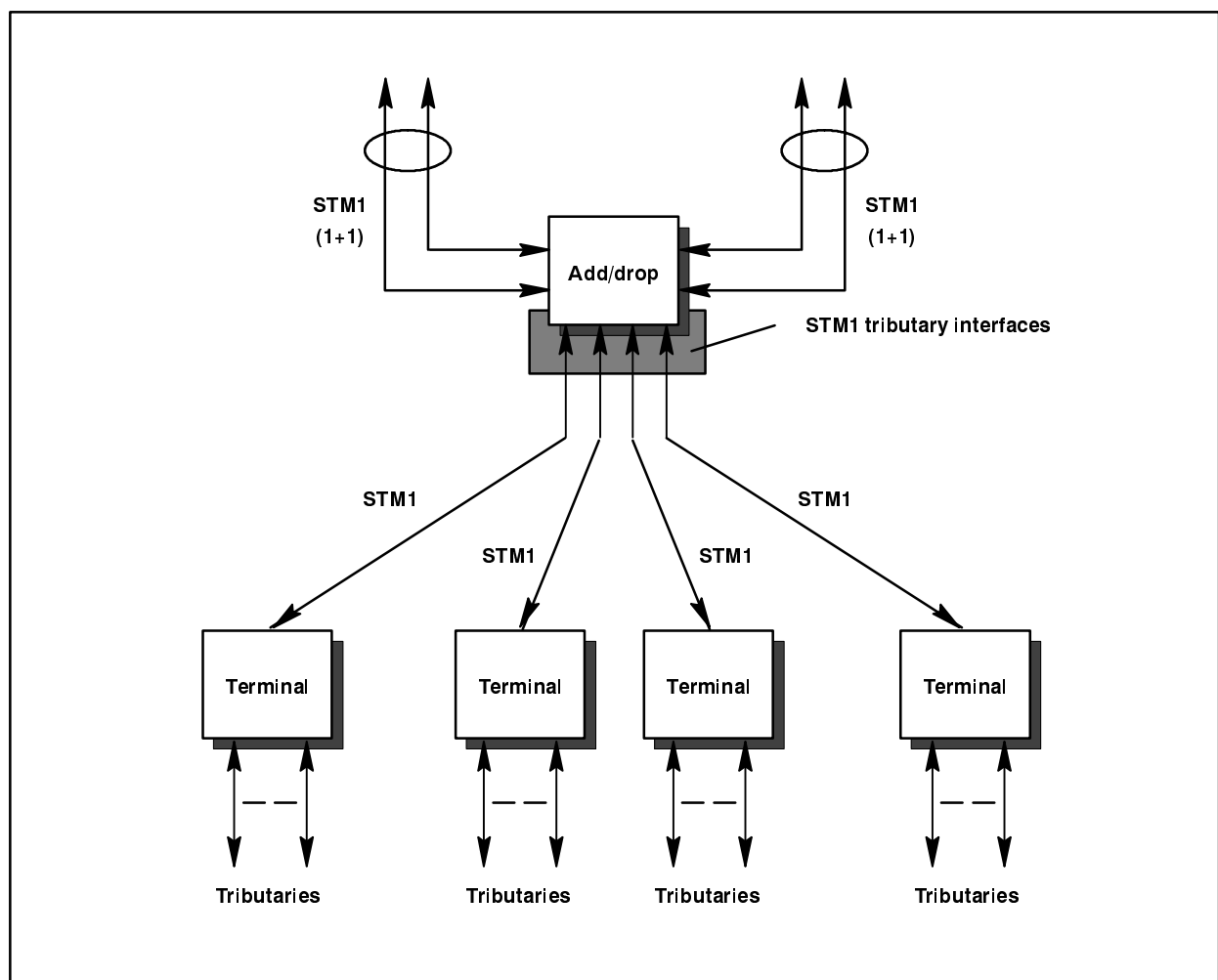


Fig. 1.3-8 Star distribution with STM-1 interface

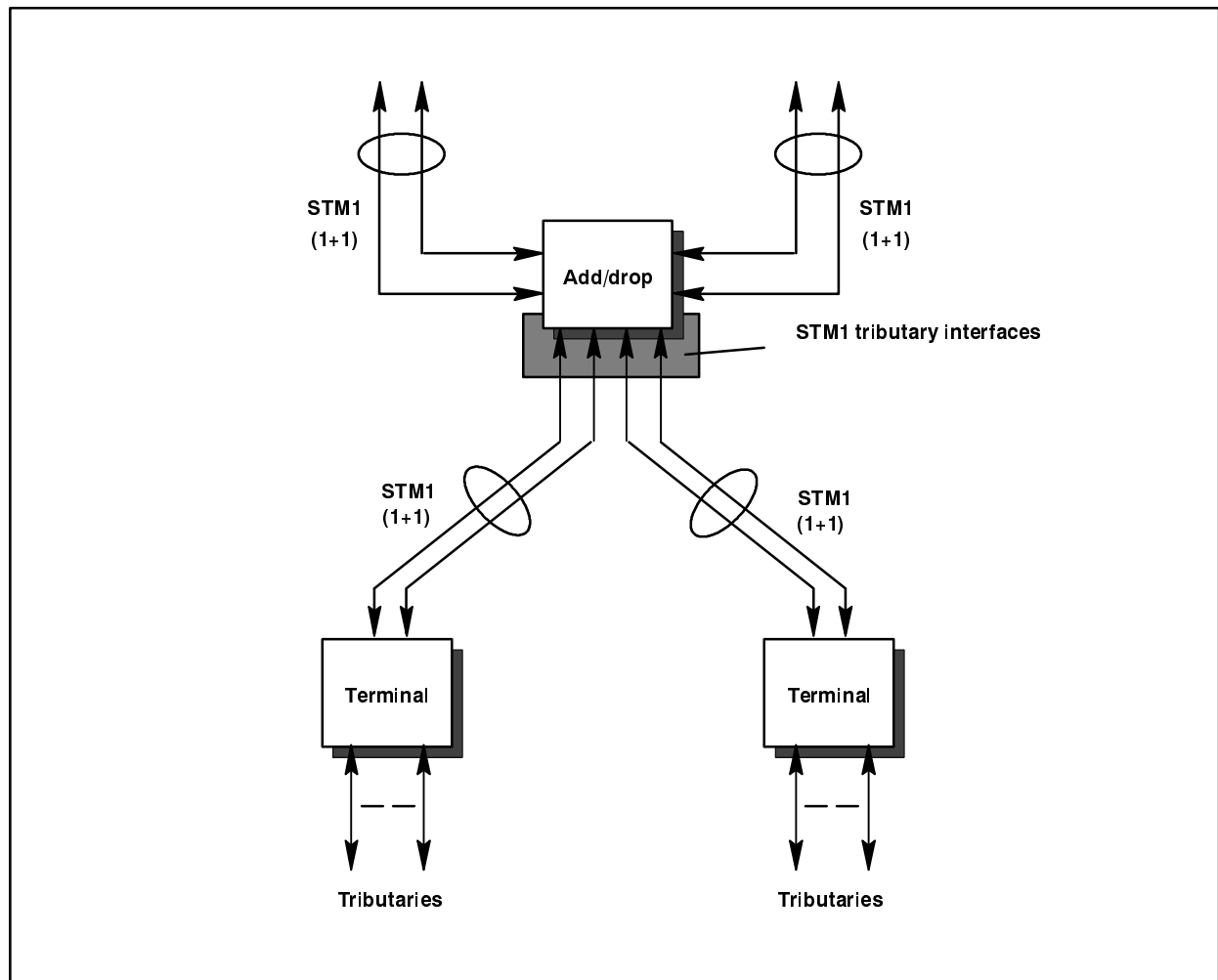


Fig. 1.3-9 Star distribution with 1+1 line protection

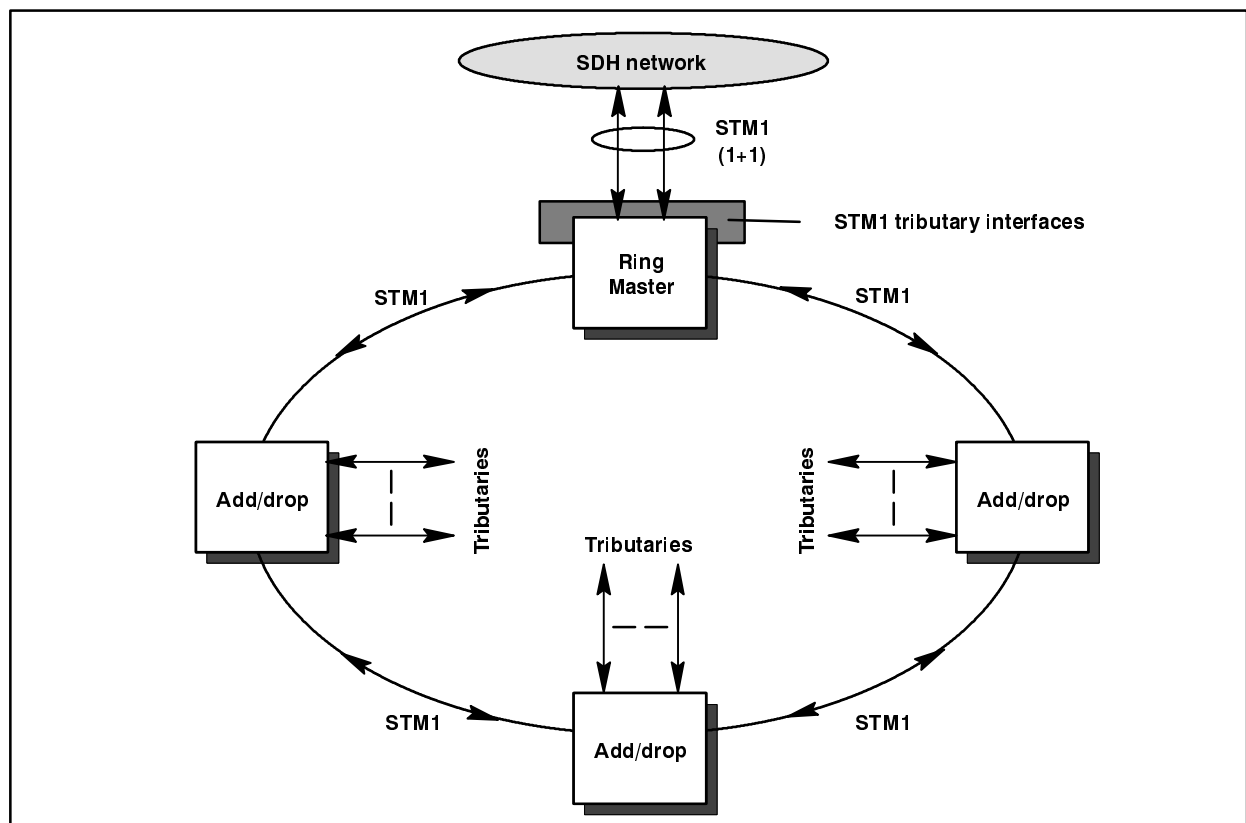


Fig. 1.3-10 Single ring distribution network with access to SDH network

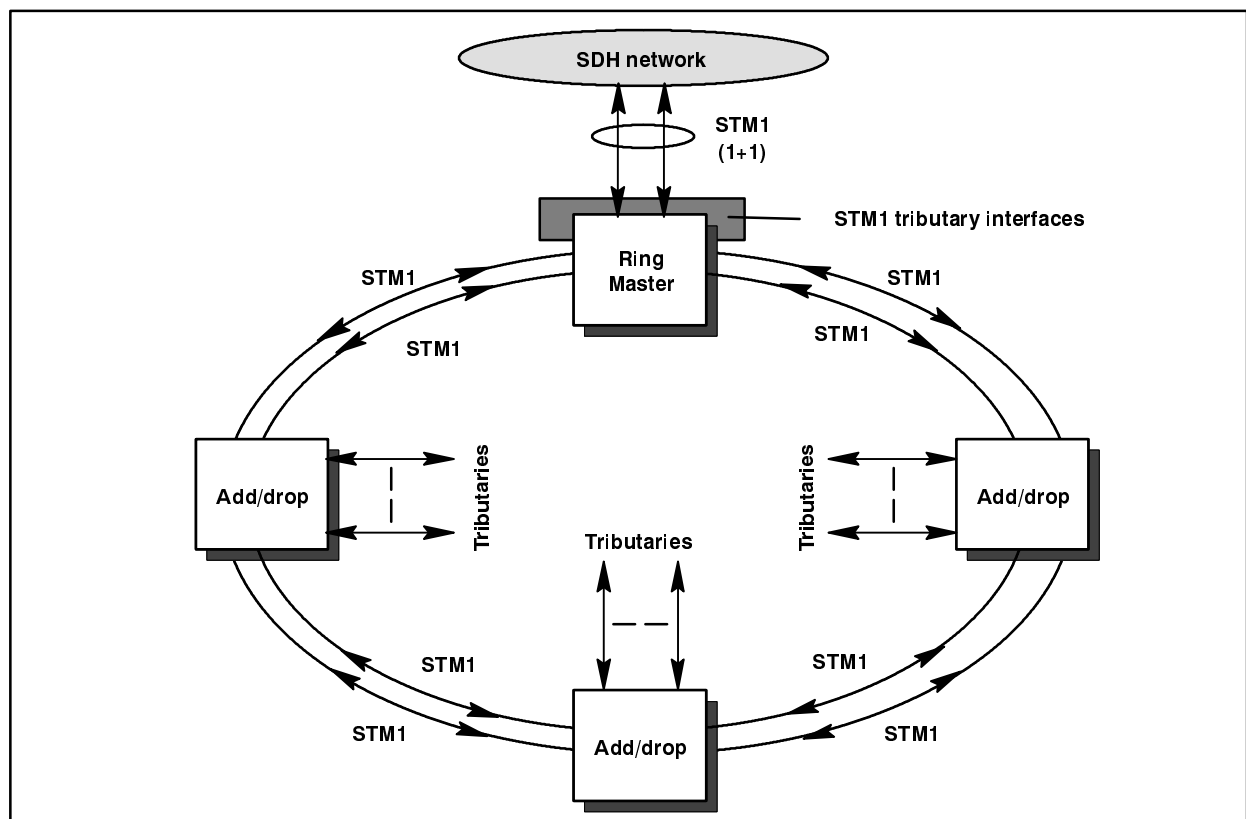


Fig. 1.3-11 Dual ring distribution network with access to SDH network