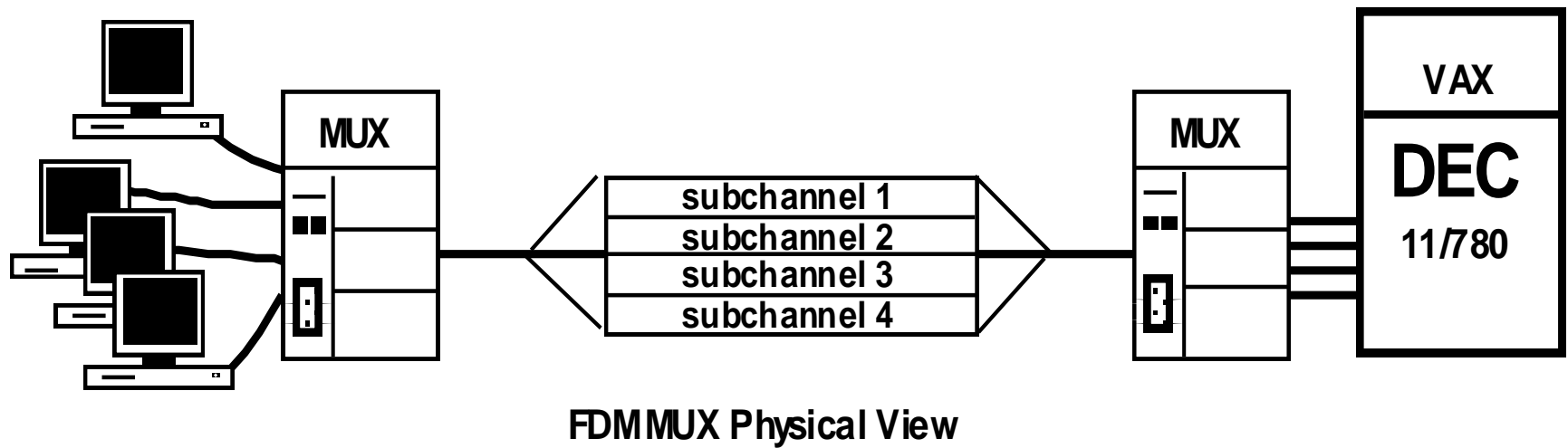# i341

Networks and Distributed Applications

Multiplexing

MUX

VAX

DEC

11/780

FDMMUX Logical View

MUX

VAX

DEC

11/780

| subchannel 1 |
| subchannel 2 |
| subchannel 3 |
| subchannel 4 |

FDMMUX Physical View
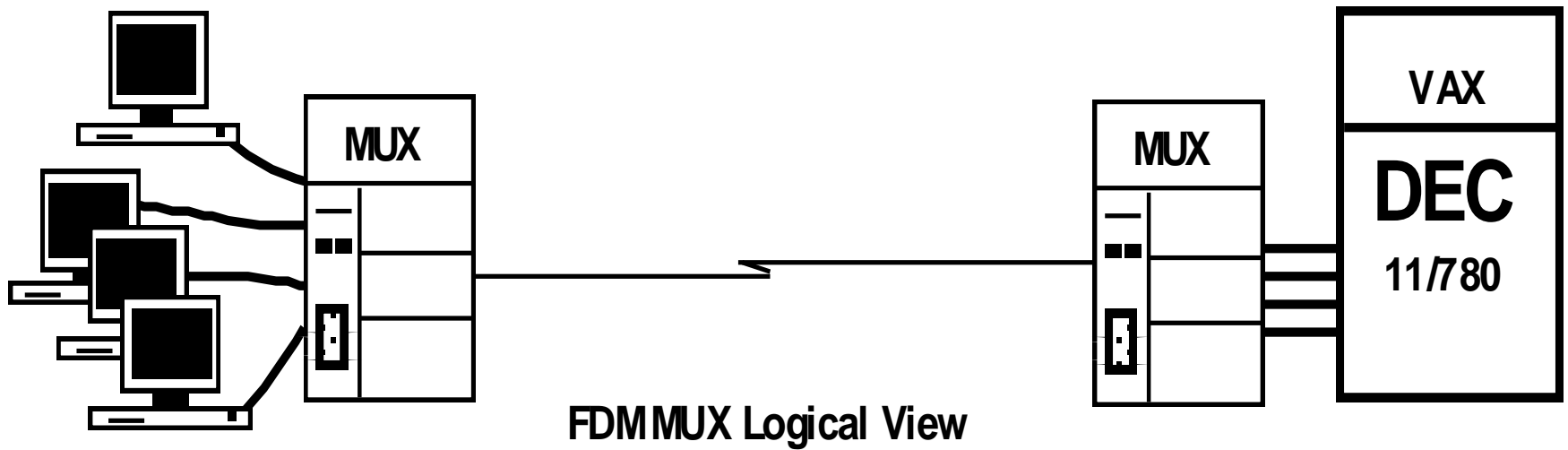
Frequency Division Multiplexing.

2400 bps

2400 bps

2400 bps

2400 bps

MUX

9600 bps

MUX

2400 bps

2400 bps

2400 bps

2400 bps

FEP

IBM 37X5

IBM Mainframe
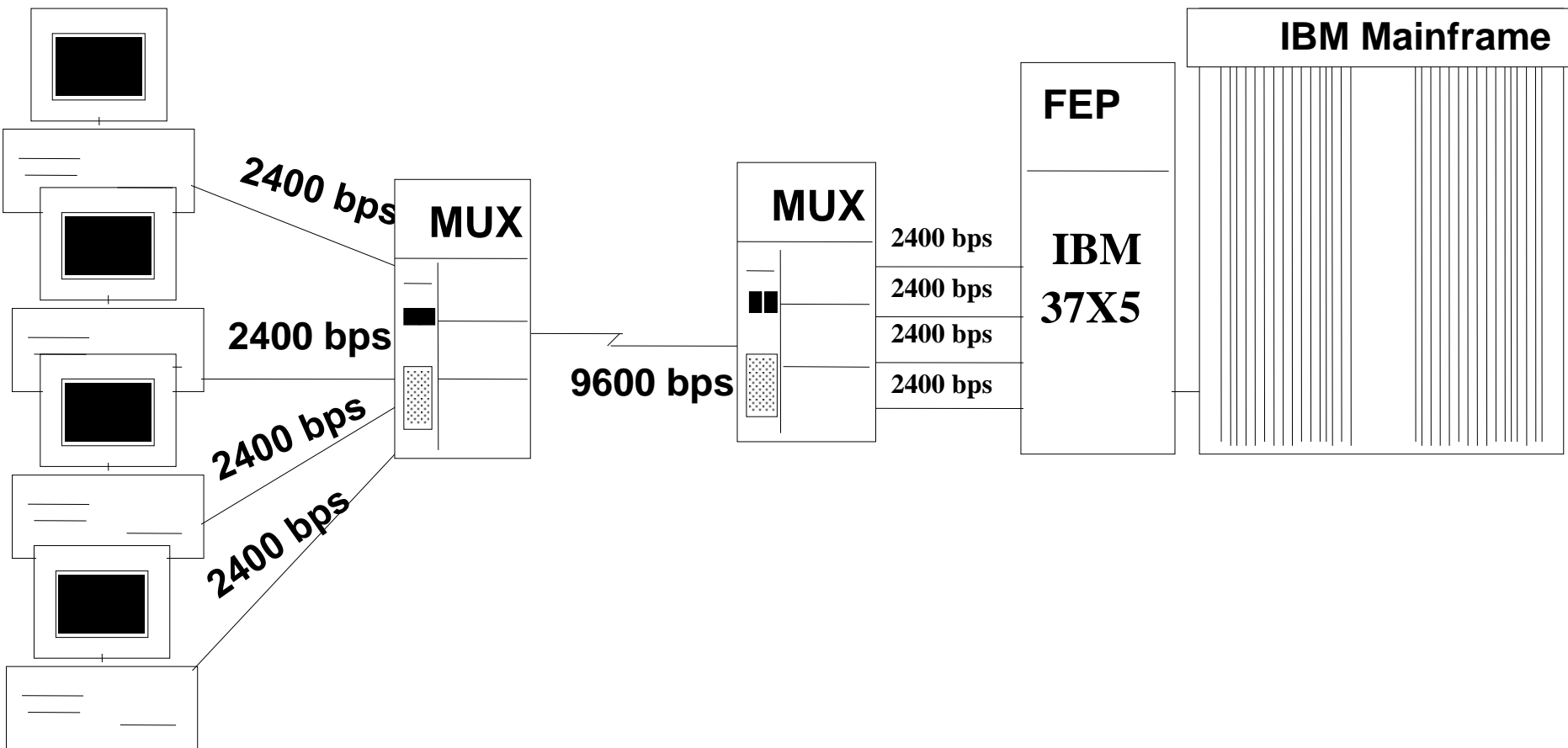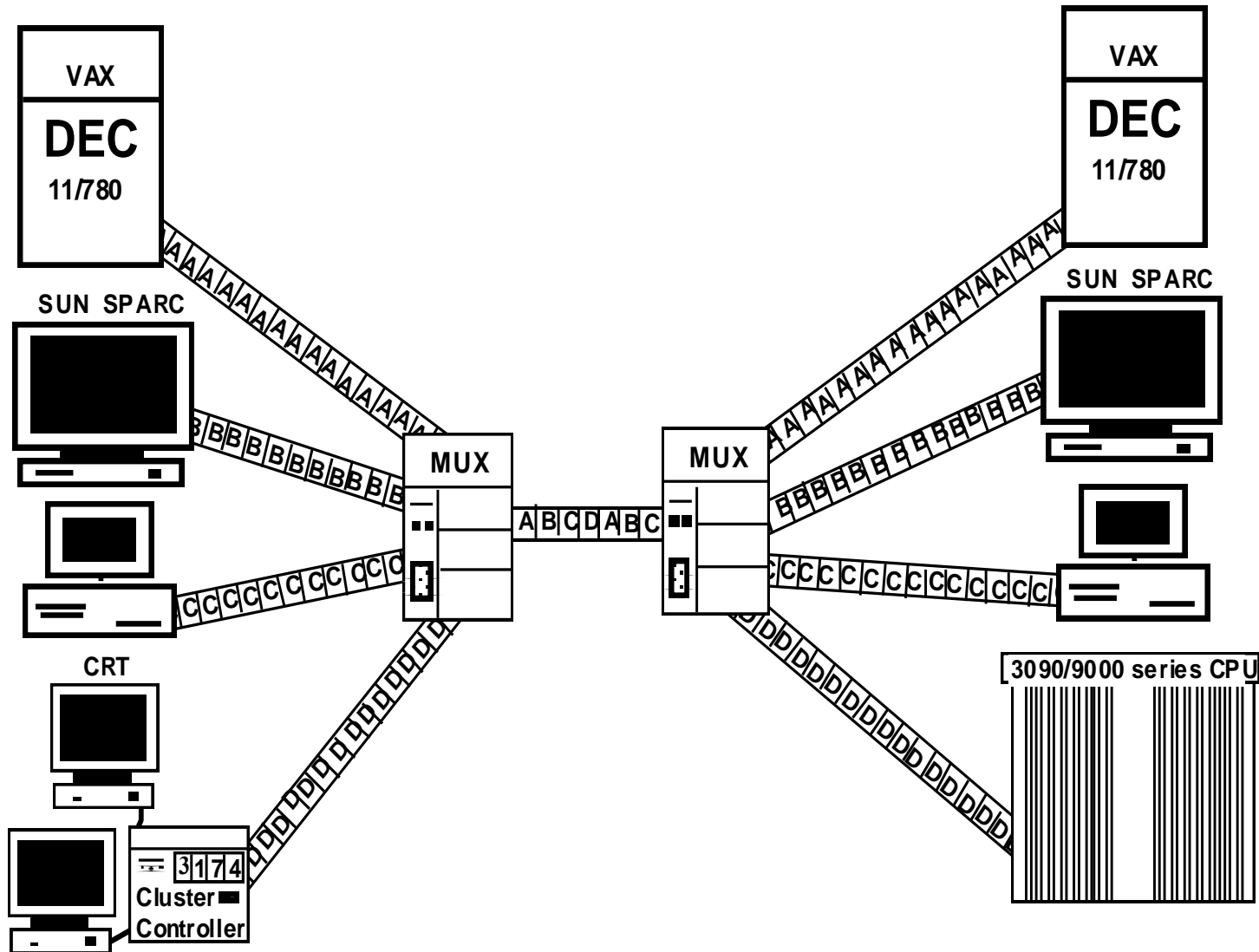
Time Division Multiplexing.
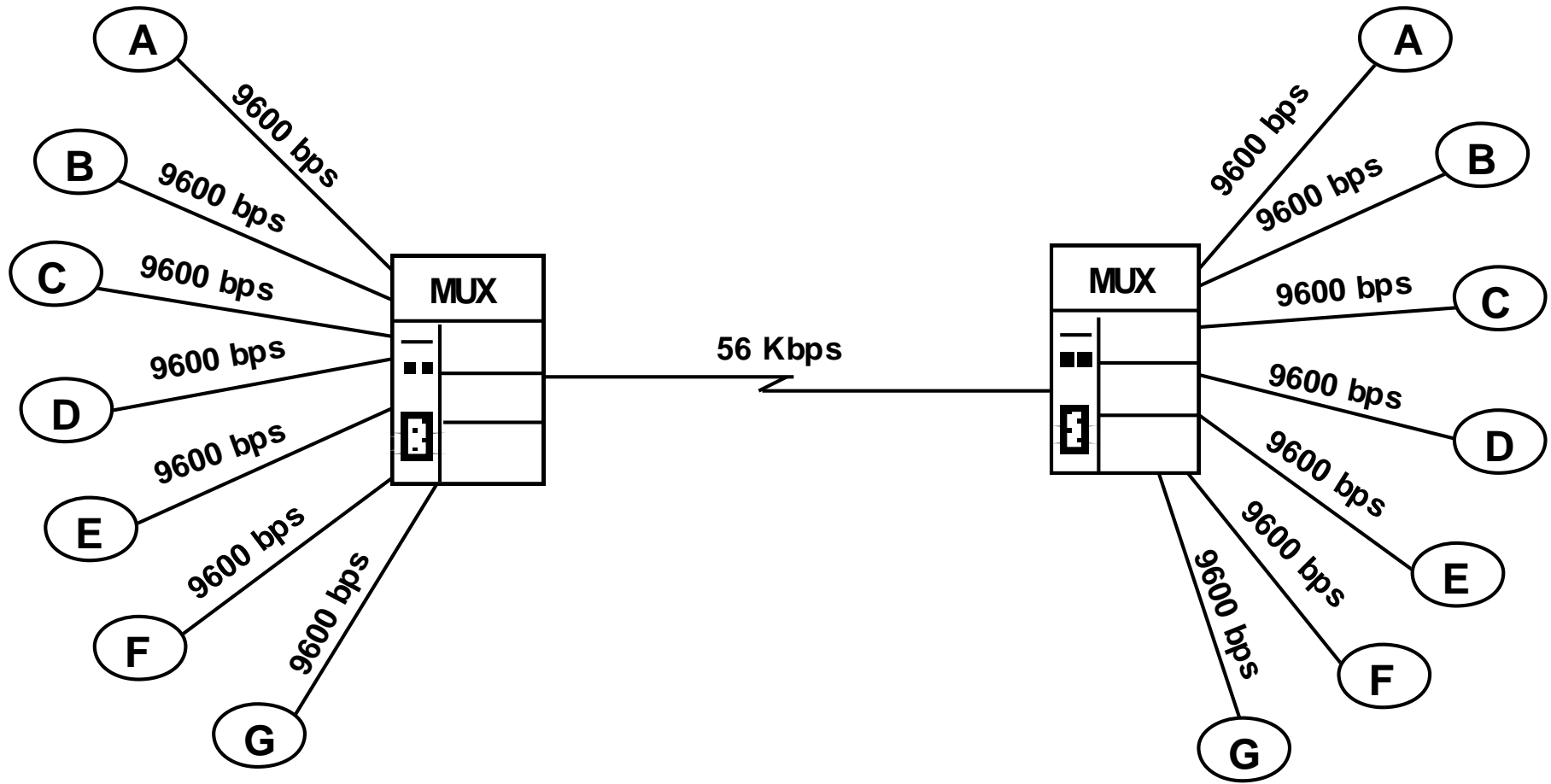
Statistical Time Division Multiplexing.

Carrier Multiplexed Environment

OC-3

OC-12

MUX

OC-48

MUX

OC-192

T-3

MUX

OC-12

T-1

DWDM

OC-192

DWDM

OC-3

OC-48

MUX

OC-12

MUX

OC-12

T-3

MUX

T-1

T-3

Frame Relay Switch

OC-12

ATM Switch

ATM Network

OC-12

ATM Switch

ATM Switch

OC-192

Cell Switch

OC-192

Cell Switch

Cellular 3G/4G Network

router

router

OC-192

OC-192

MPLS Network

OC-192

router

OC-192

router

ISP (Internet Service Provider)
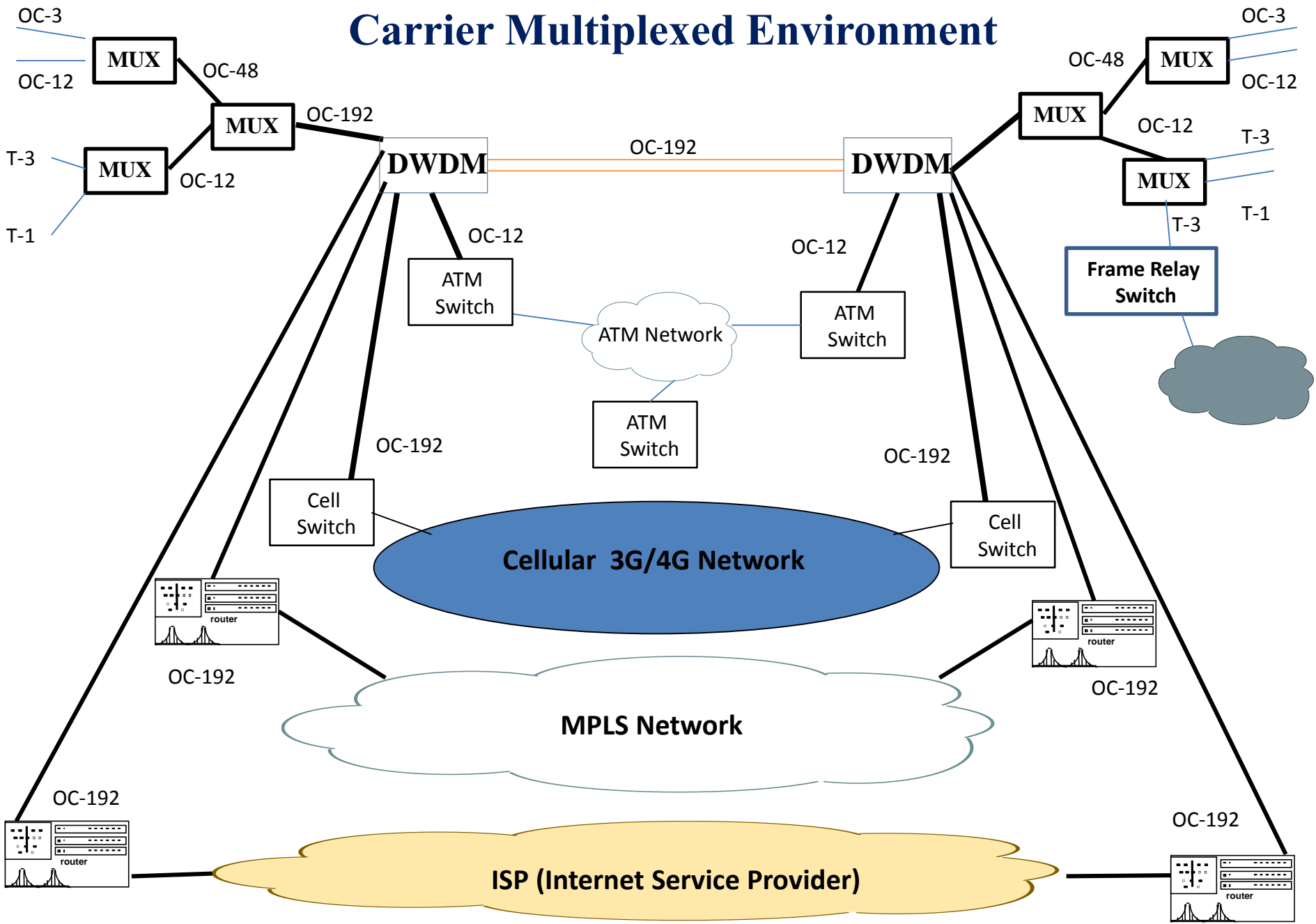
Increasing Capacity – adding links

T1 (1.54 Mbps link)

router

LAN

router

LAN

2 - T1s (1.54 Mbps link ea.)

router

LAN

router

LAN
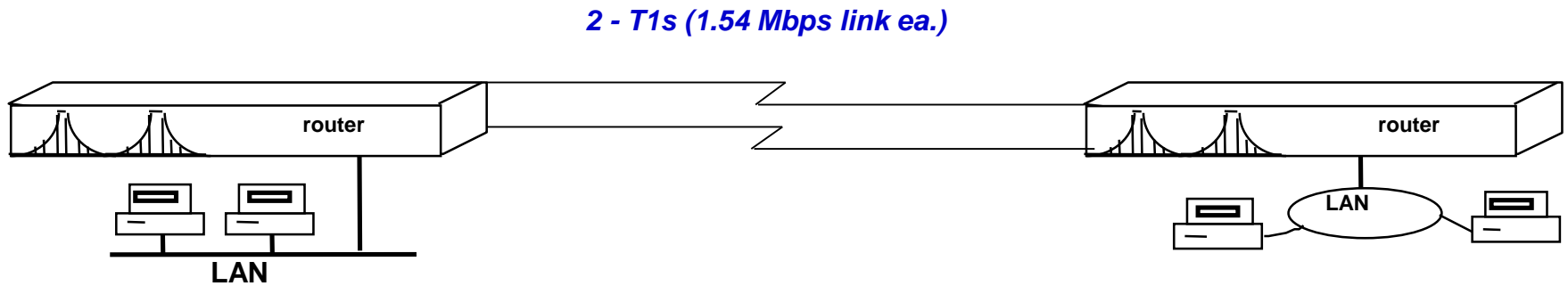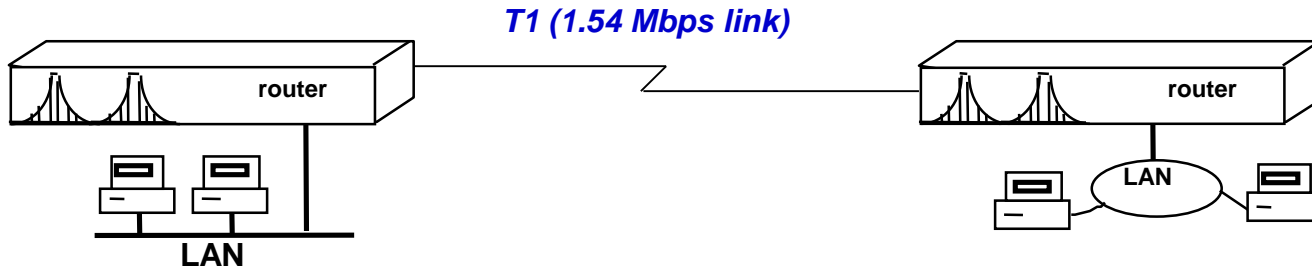
Inverse MUX (Multiplexing)

HSSI

INV MUX

DSU

DSU

DSU

router

INV MUX

DSU

DSU

DSU

router

T1 Links

LAN

LAN Switch/Hub

Printer

Printer