

ITU INTERNATIONAL TELECOMMUNICATION UNION

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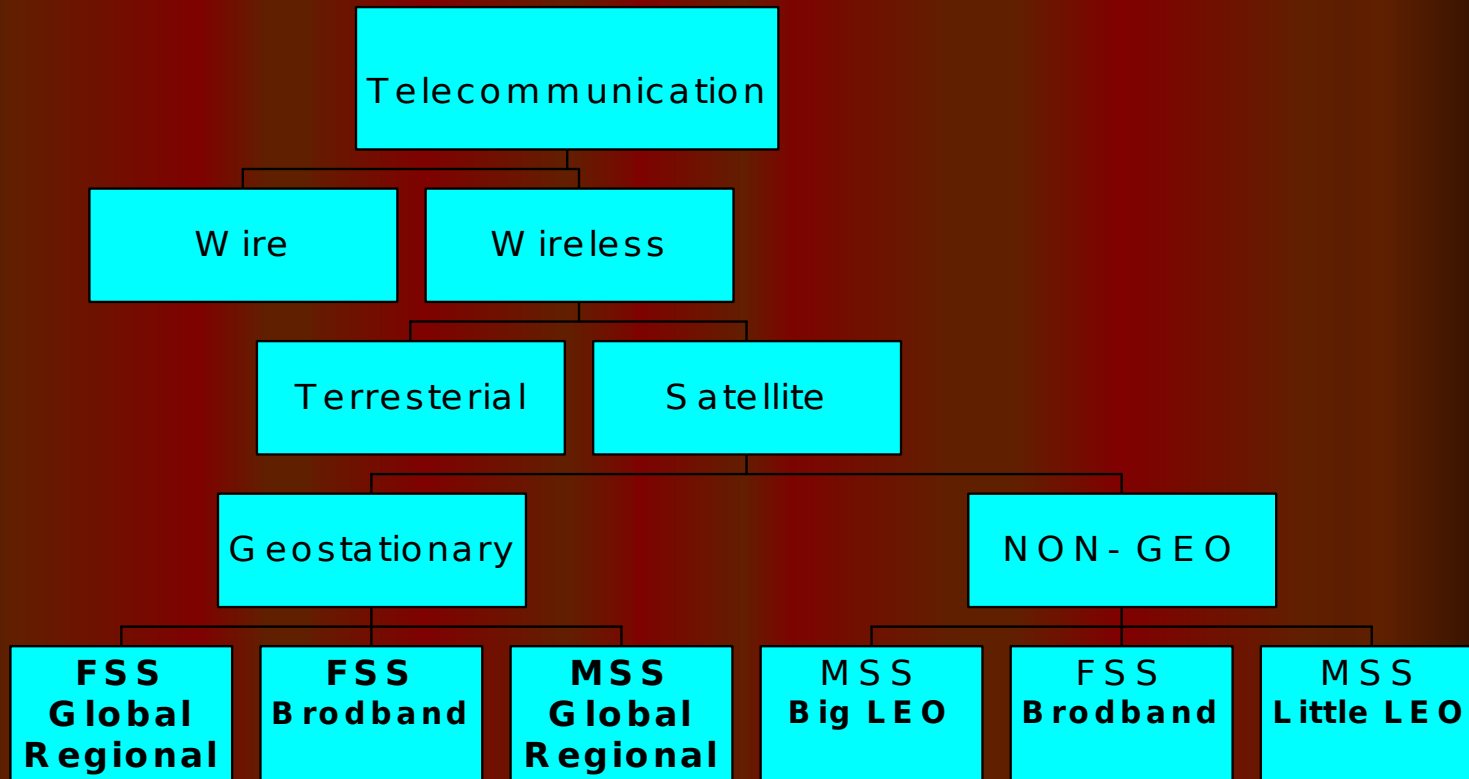
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**ITU / BDT Arab Regional workshop on
(VSAT & MMS Business Application)**

Manama - Bahrain 2003

TELECOMMUNICATION



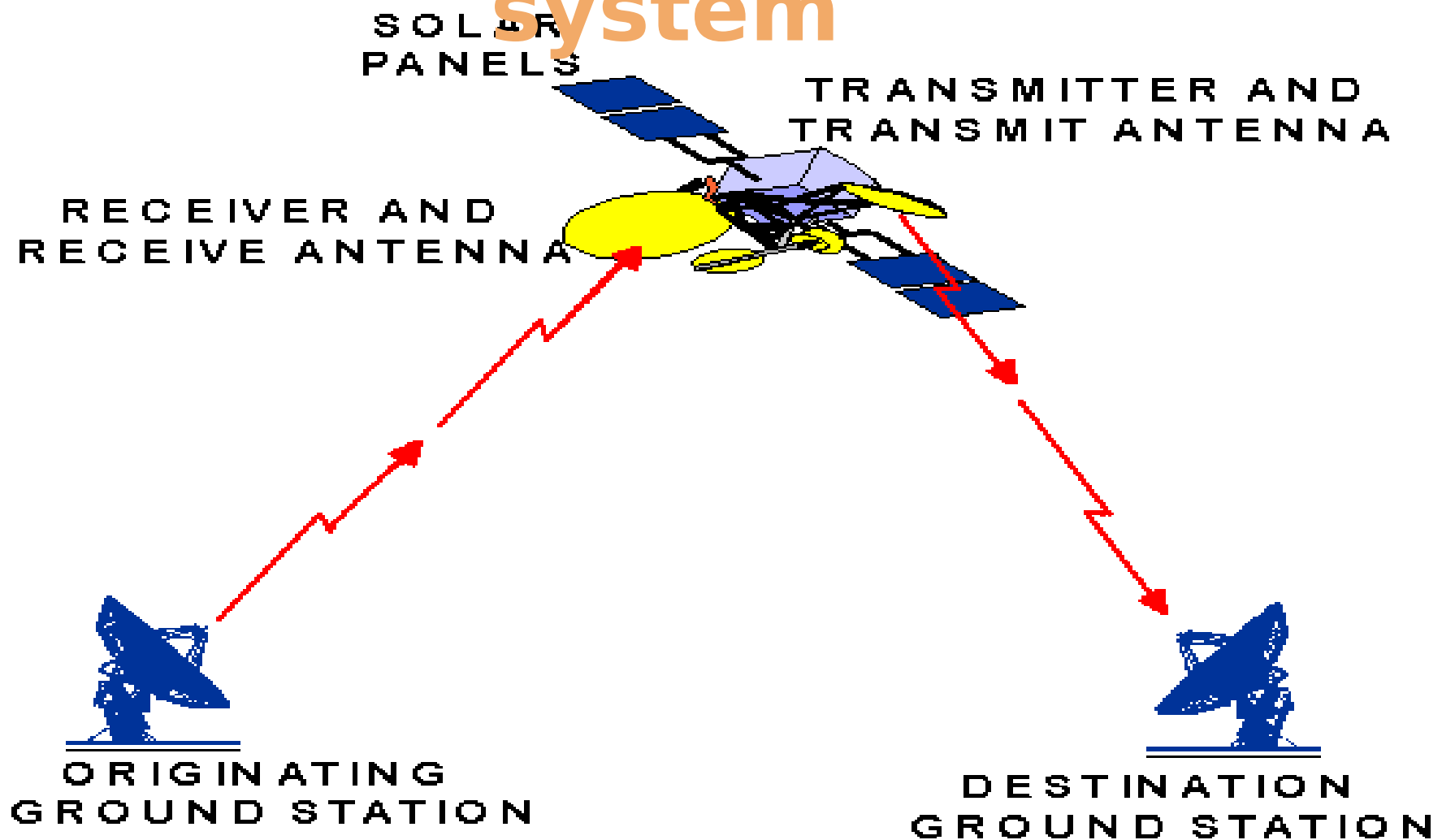
FSS = Fixed Satellite Service

MSS = Mobile Satellite Service

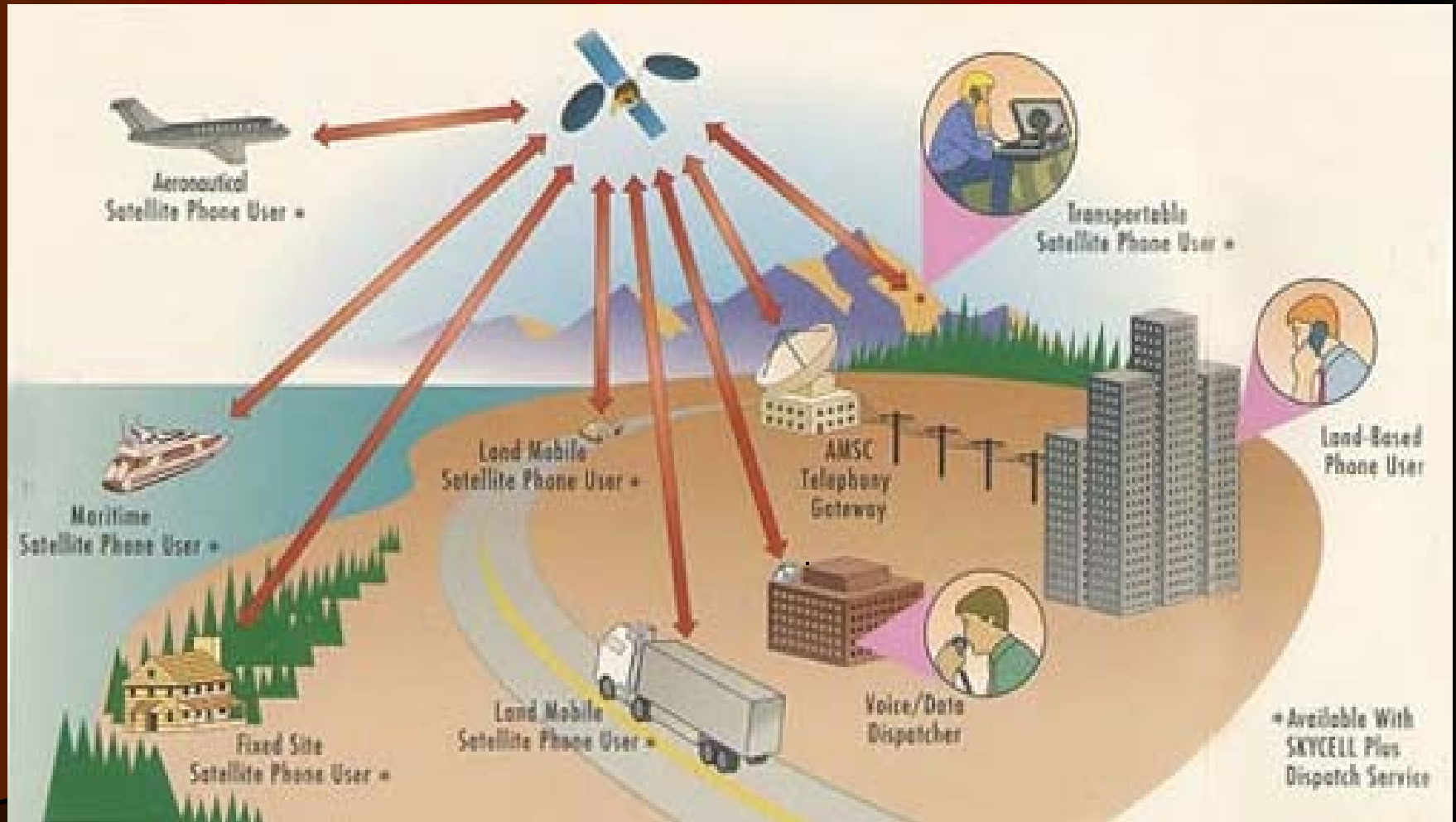
Satellite Services

- . Fixed – satellite service (FSS)
 - Typically transmits and / or receives from earth stations at fixed locations
- . Mobile Satellite Services (MSS)
 - Typically transmits and / or receives from mobile earth stations

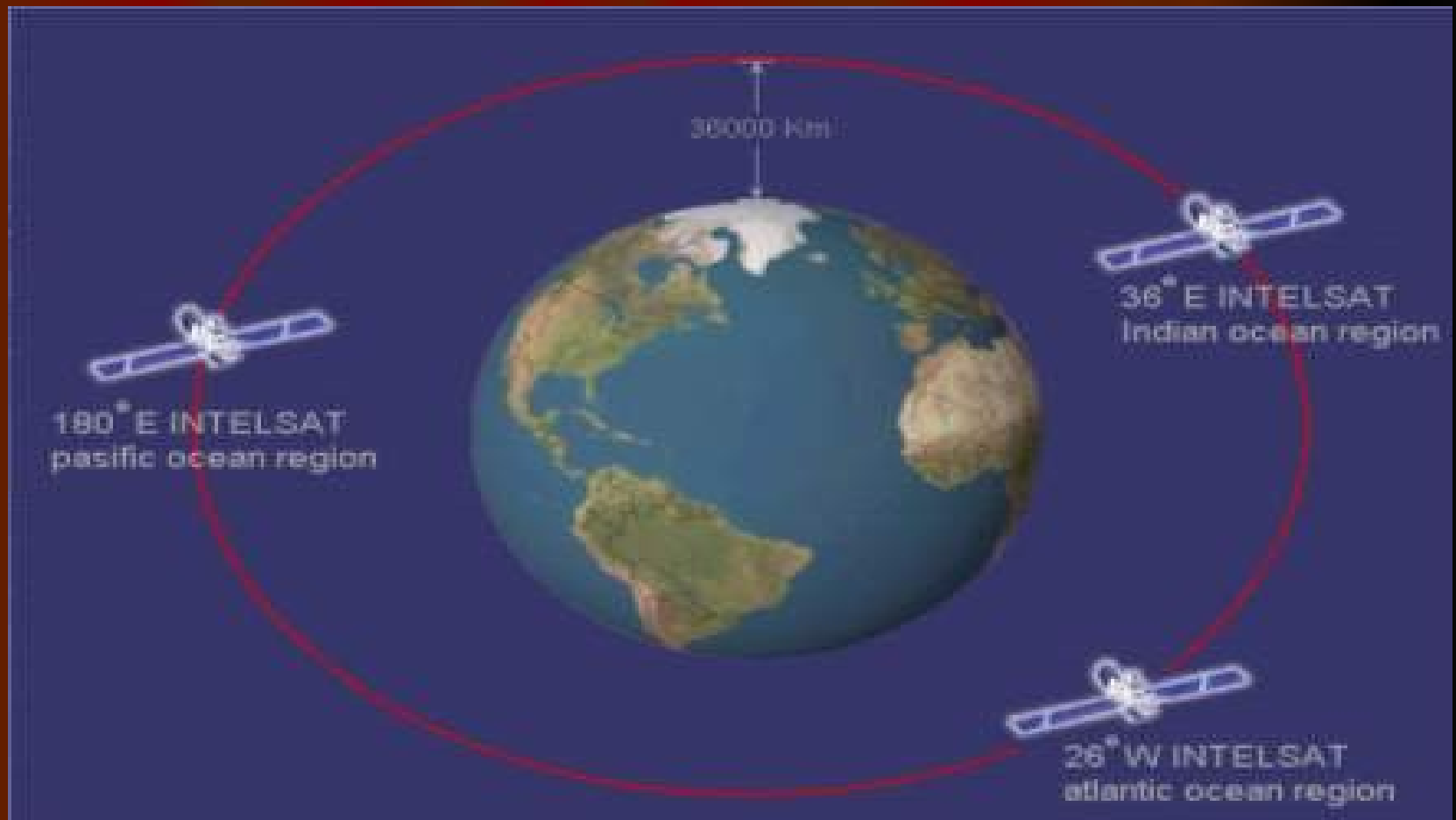
FSS - Fixed Satellite system



MSS - Mobile Satellite System

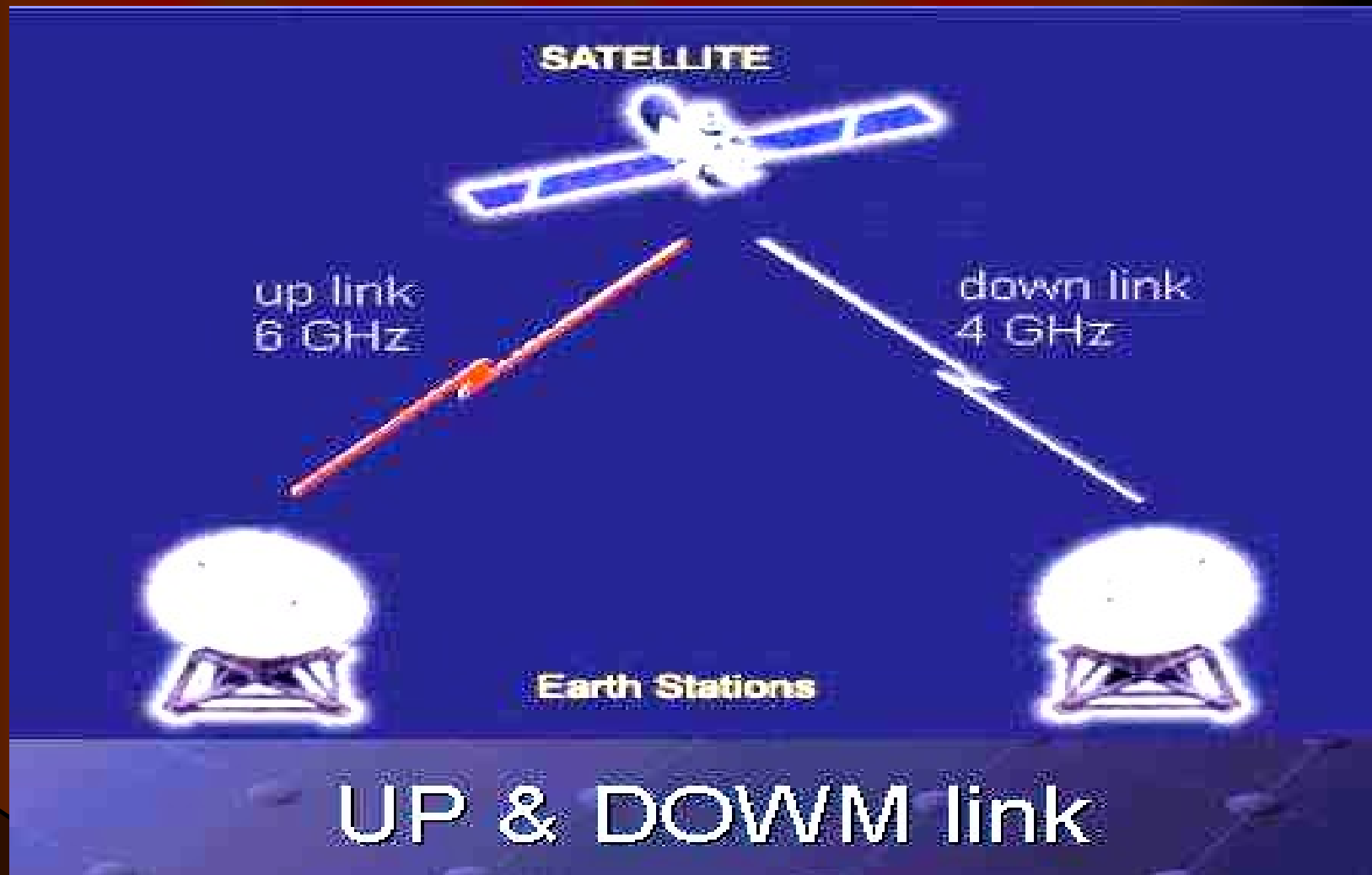


GEO Satellites



Intelsat satellites position

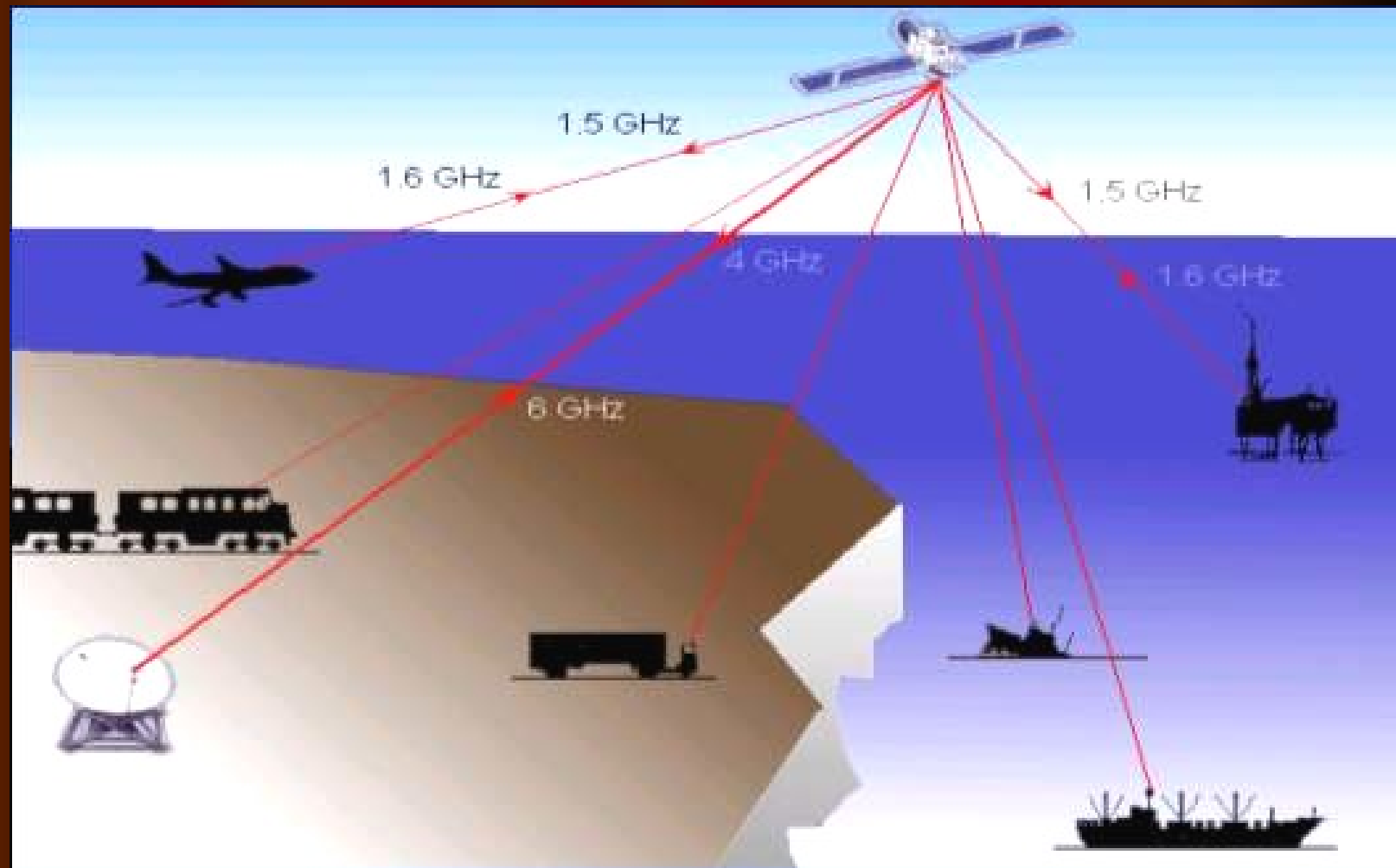
Satellite Communication



General Satellite Link

- . Communication established between a transmitting & receiving terminal through Satellite.
- . Can become an integral part of existing network

Mobile Satellite System



INMARSAT Network

INMARSAT Equipment



INMARSAT equipments

VSAT EQUIPMENT



INTRODUCTION OF VSAT NETWORKS

- VSAT is kind of fixed satellite service
- VSAT = Very Small Aperture Terminal
- VSATs are usually part of intelligent network
- Antenna size is typically 0.7 m to 3.7 m , radio output is typically 2 – 20 W
 - Price is cheap (5,000 to 50,000 usd per location)
 - Installation and commissioning is easy (0.5 to 2 days)

VSAT NETWORKS: Benefits Over Terrestrial Service

- .Reach remote locations with customer premise access
- Provide better service(quality, . performance,availability)
- Lower costs .
- Greater control of operation and costs .
- Flexibility in adapting to growth and change in . traffic

VSAT NETWORKS

- VSAT network are user- oriented , as compared with IBS/IDR networks witch are transmission – oriented
- Must be integrated with user s business – e.g retail , banking , government department
- Interface directly with user equipment – computers,phones , fax machines , ect.
- Interact directly with user s application – e. g, hotel reservation system, newspaper distribution

VSAT NETWORK APPLICATIONS

Business Communications services .

Retail , banking , automotive , mining , oil , -
Public Communications Services .

Extend PSN to remote rural areas -

Mainly voice -

. Special Communications Services

- Transportable communications for special events
- disaster recovery

VSAT Communication



VSAT Communication with Satellite

TYPES OF VSAT NETWORKS

Packet Switched Networks .

Mainly Data -

Star Connectivity with large Hub --

TDM /TDMA Access - -

*This is the classic definition of (**VSAT Network**)-*

Circuit Switched Networks .

Mainly voice -

Mesh connectivity -

SCPC or Low Rate TDMA Access -

VSAT System Configuration

Remote Earth Station

Typical Size (C Band).

m - 2.4 m 1.8 -

. Size (KU Band)

m - 1.8 m 0.7 -

**Inbound Carrier Shared by VSATs to Carry .
Packet to HUB**

**Time Division Multiple Access (TDMA) -
Carrier**

kbps to 256 kbps 19.2 -

VSAT System Configuration

: Master Earth Station (HUB)

Typical size (C Band) .

m - 11.0 m 9.0 -

Typical size (KU Band) .

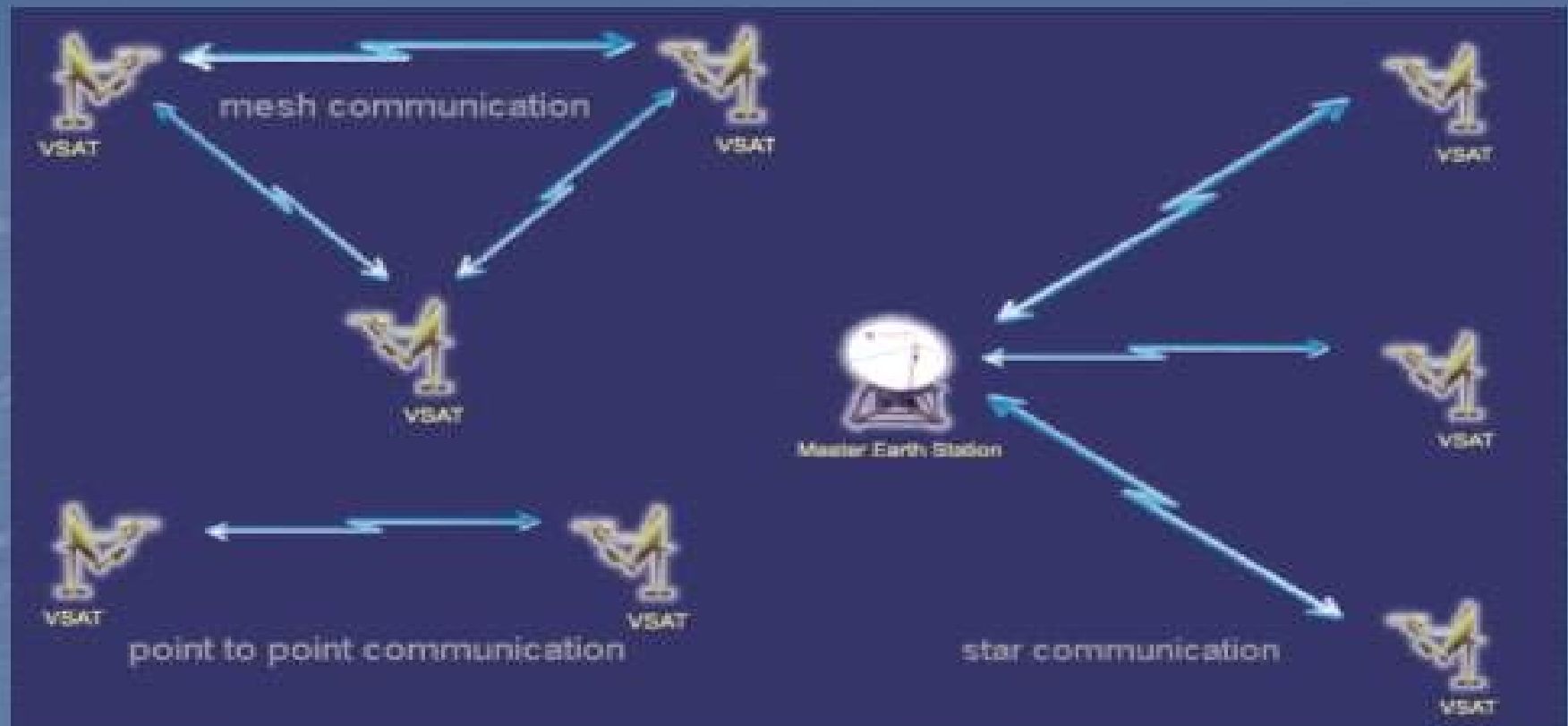
m - 6.1 m 4.5 -

Outbound Carriers Packet to Each VSAT .

Time Division Multiplexed (TDM) -
Carrier

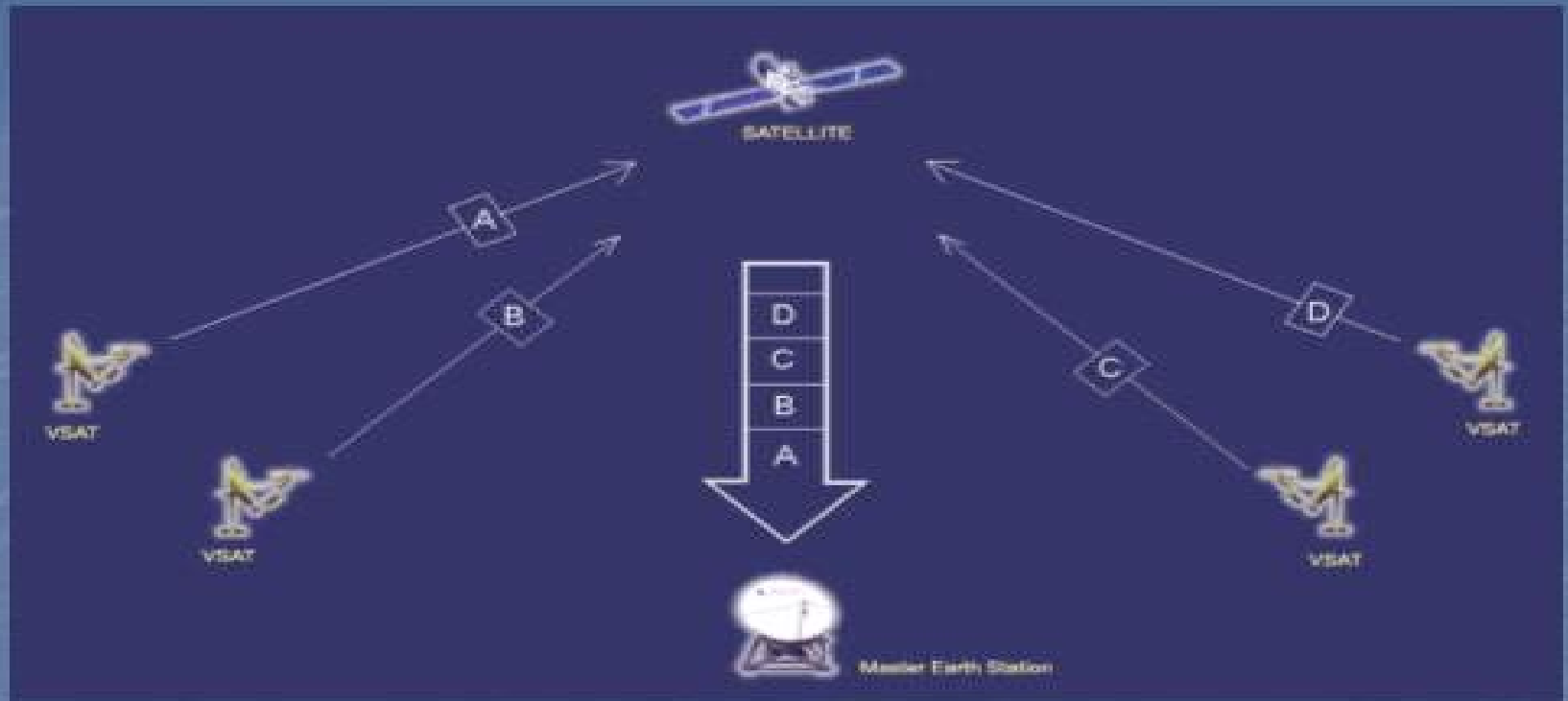
kbps to 1.5Mbps 56 -

VSAT NETWORK



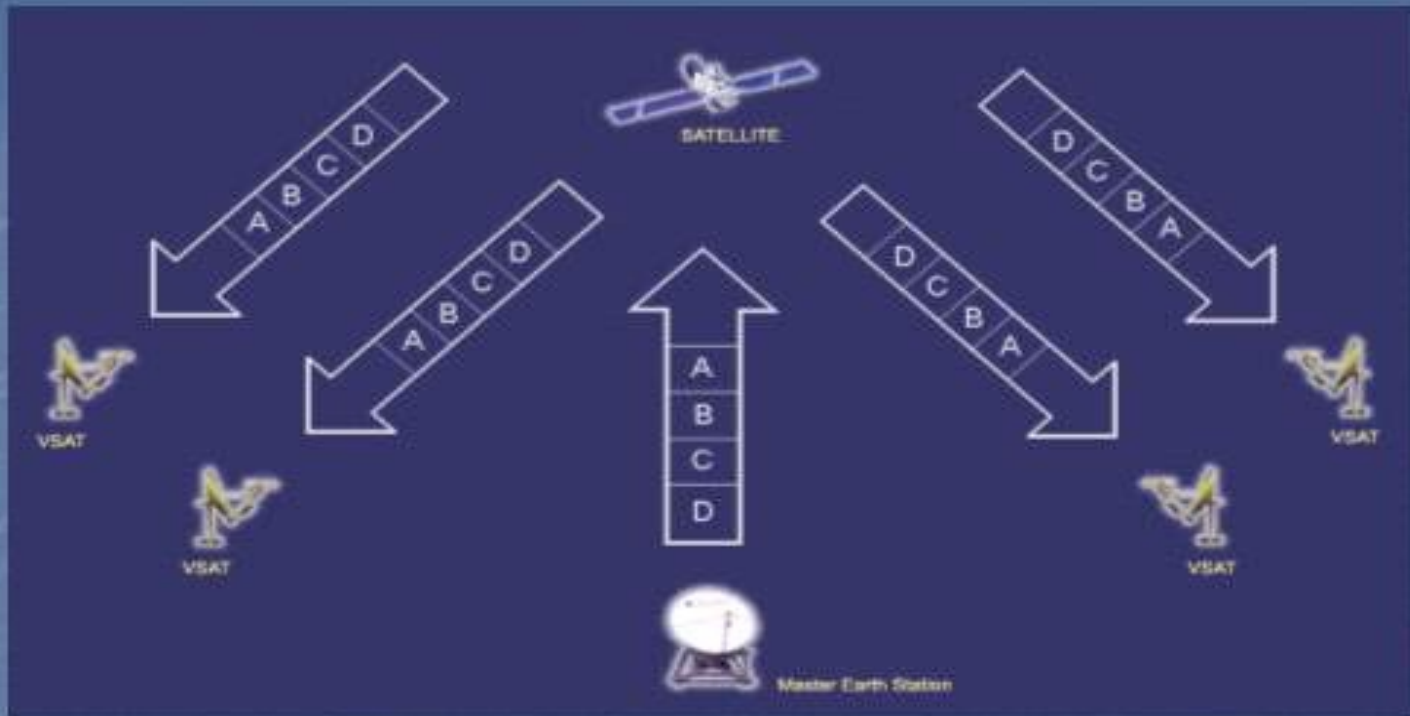
VSAT Communication

VSAT Communication Remote to Hub TDMA



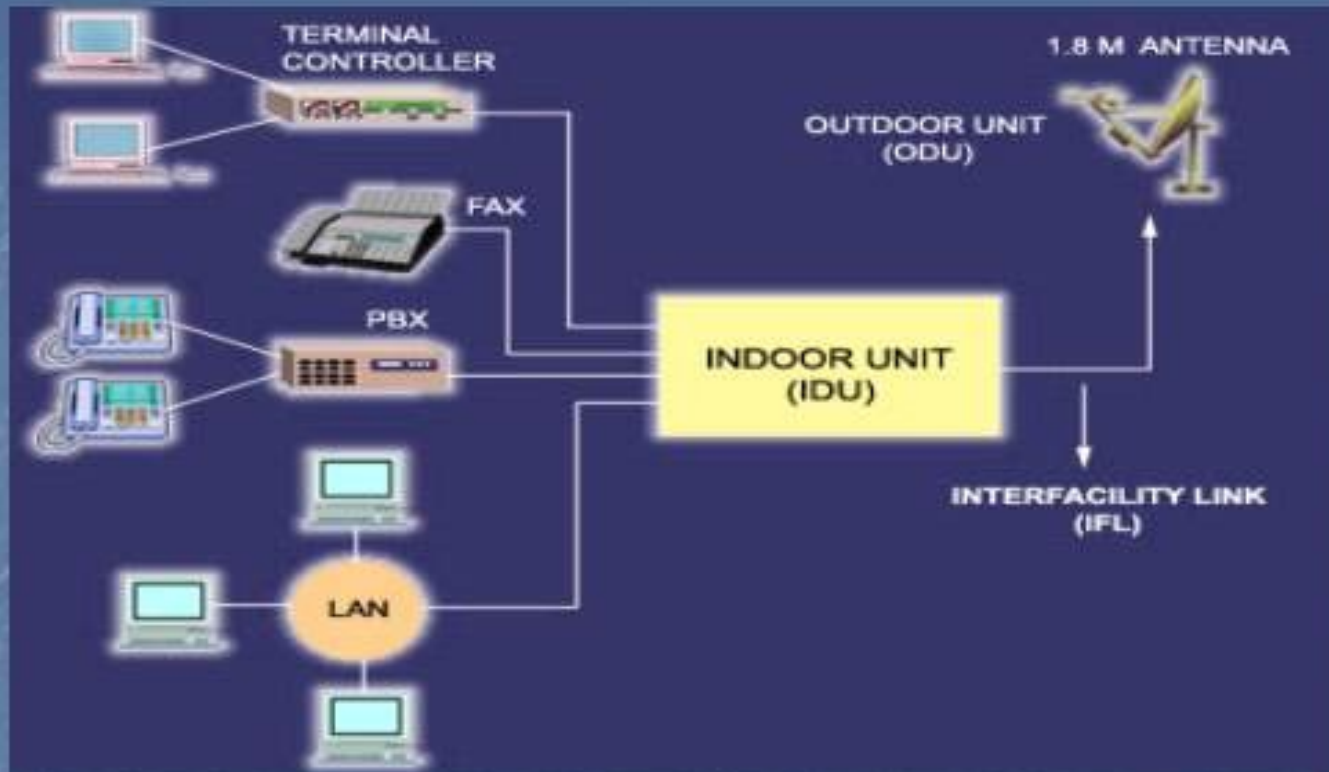
REMOTE-to-HUB TDMA carrier

HUB - TO - REMOTE (TDM)



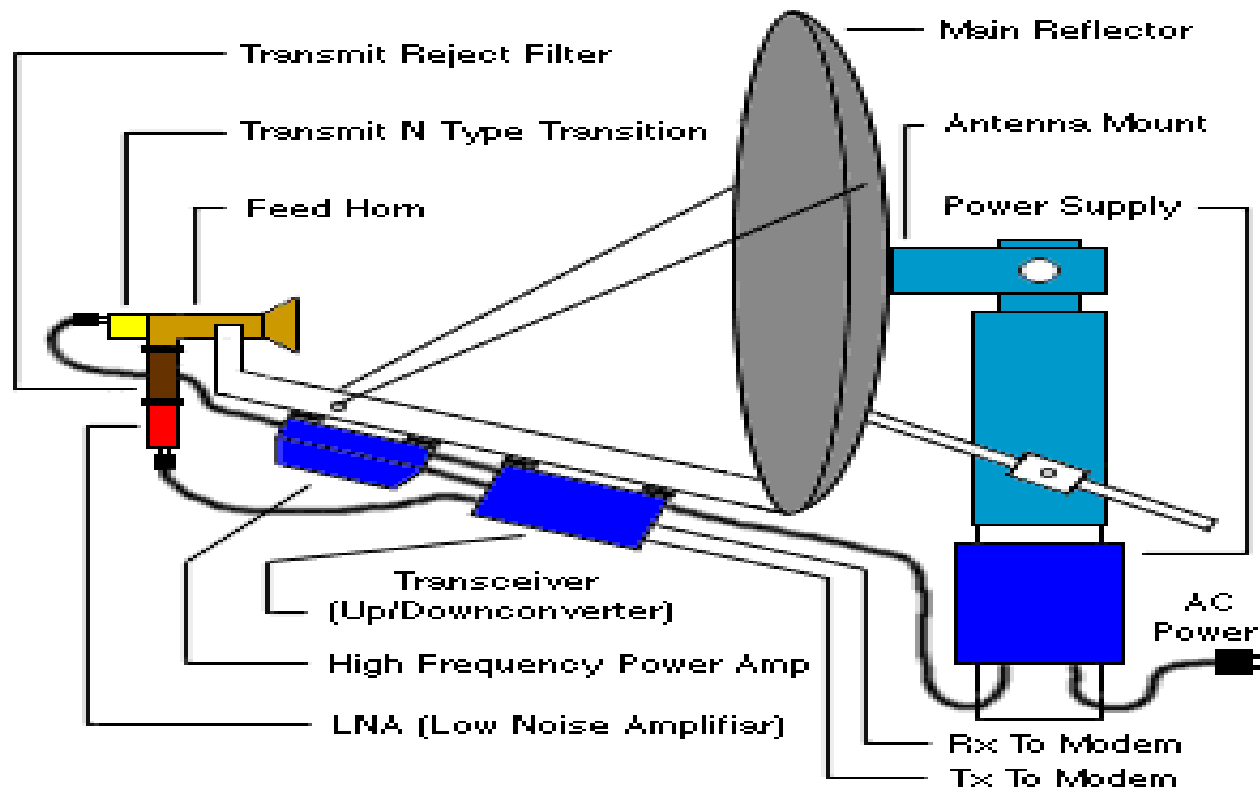
HUB-to-REMOTE TDM carrier

VSAT EQUIPMENT



VSAT Equipments

VSAT EQUIPMENT



Big LEO



IRIDIUM communication systems

MSS - Mobile Satellite Service



**CALLING AT 33,000 FEET.
IT'S NOW THE HEIGHT OF
CONVENIENCE.**





IRIDIUM mobiles





TELECOM EGYPT

- Established in 1957
- In 1978 installation of the first fixed satellite service
- In 1987 installation of first Mobile satellite service
- In 1995 installation of VSAT Network

INMARSAT Earth station

VSAT Service In EGYPT

Maadi E/S VSAT DEPARTMENT

- **HUGHES HUB**
80 COSTUMER
VOICE & DATA
Domestic
- **NEC HUB**
85 COSTUMER
VOICE & DATA
Domestic
- **VISA INTERNATIONAL**
6 banks
Data
International

VSAT Service In EGYPT

- In 1995 starting VSAT service with one HUB
voice only
 - In 1996 installing a special HUB to the Ministry of Education
Video conference
 - In 1997 provided VSAT service to Ministry of Industry
- mining department
 - In 1997 TOSHKY Project
voice only

In 1999 provided VSAT services to Ryan valley, west desert

VSAT Service In EGYPT

- Banking connection
Cairo Bank (National Bank)
- **VISA INTERNATIONAL**
- **OIL Companies Connections**

THE END