

Usage of satellite communication technology

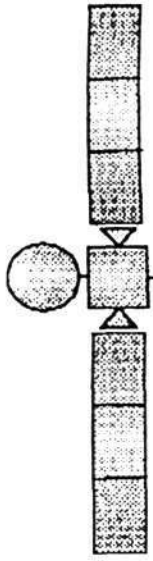
Pisitsak Runkaputi.

1996

Pisitsak R. (1996). Usage of satellite communication technology. In AMIC Seminar on Update on Communication Technology: Singapore, November 1-2, 1996. Singapore: Asian Media Information and Communication Centre.

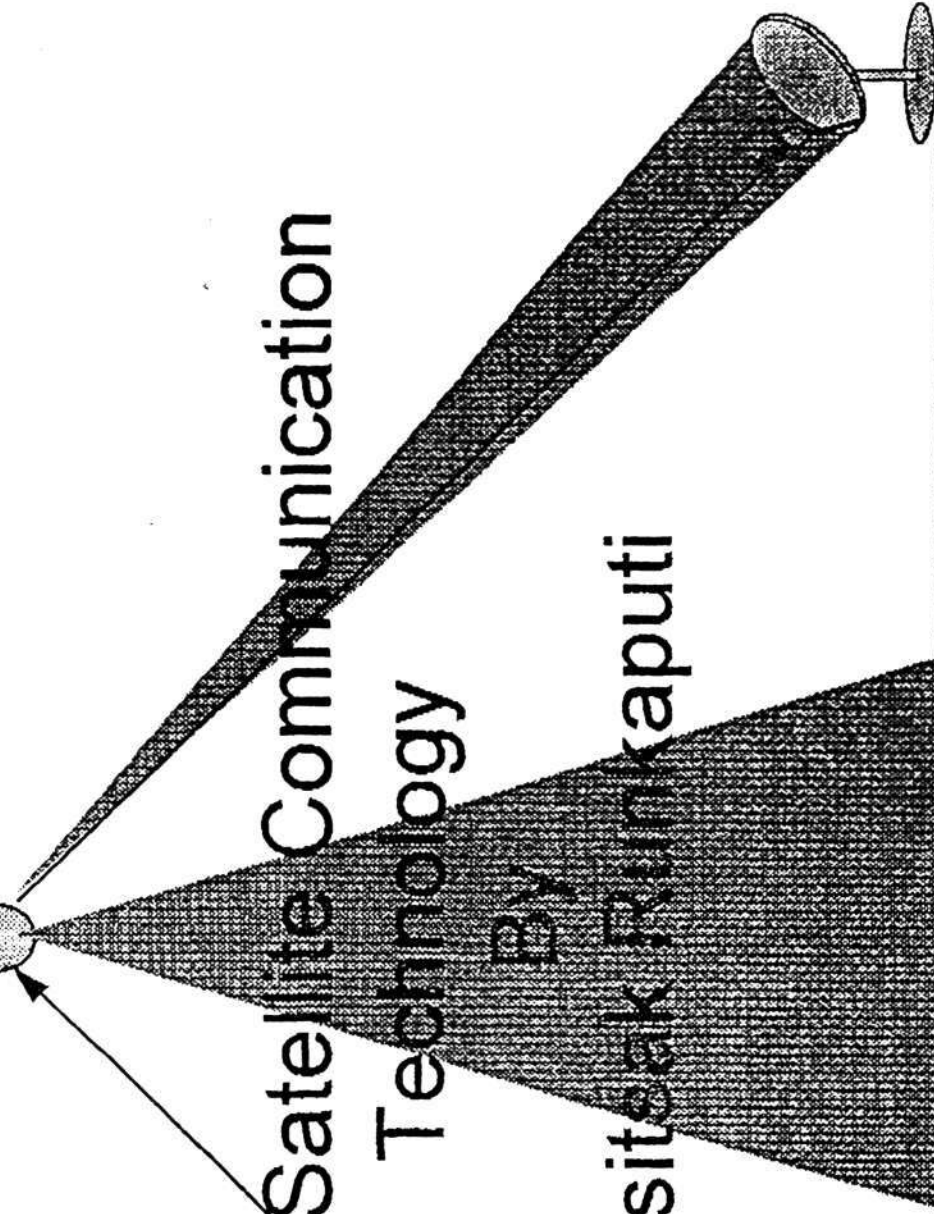
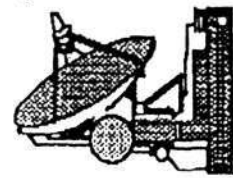
<https://hdl.handle.net/10356/87294>

Paper No. 6

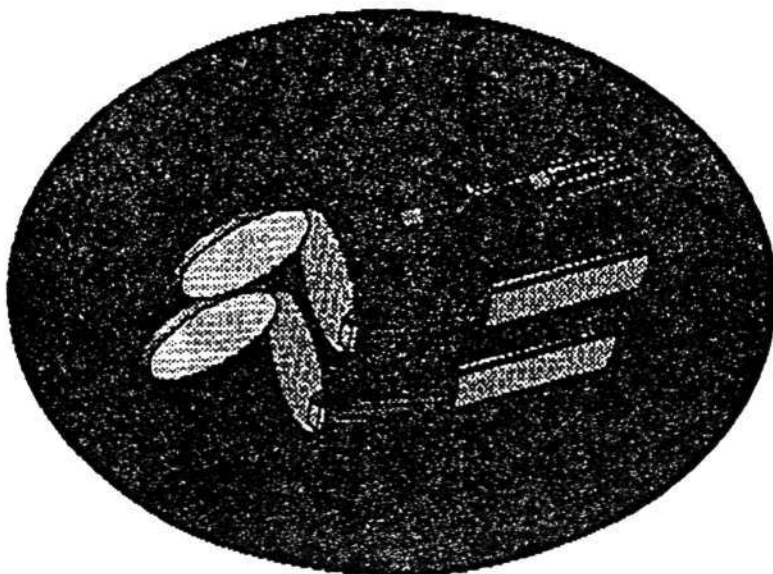


Usage of Satellite Communication Technology

By
Pisitsak Runkaputi



Thaicom 1&2 Satellite System



DESIGN:
2 identical Hughes' HS-376 dual spin stabilized spacecraft
2.16m dia., 6.76m high - in orbit

POWER: BOL 801W
MASS : 1080 Kg at launch
LIFE: 15 Years

TRANSPONDER CAPACITY:
10 C-Band each: total 20
2 Ku-Band each: total 4

LAUNCHER: Arianespace of France

SATELLITE LOCATION :
LAUNCH DATE :
SERVICE DATE :

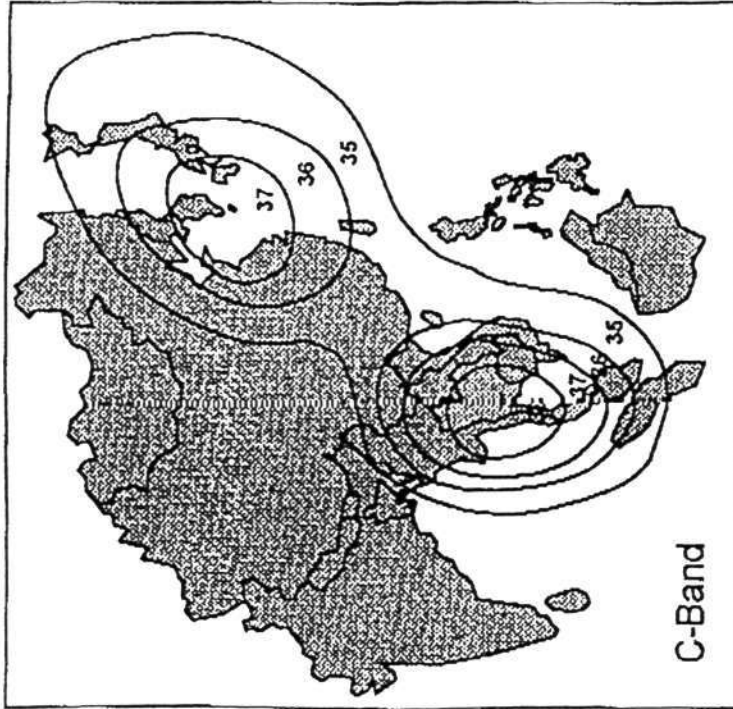
THAICOM-1 THAICOM-2

78.5°E 78.5°E
December 1993 October 1994
February 1994 December 1994

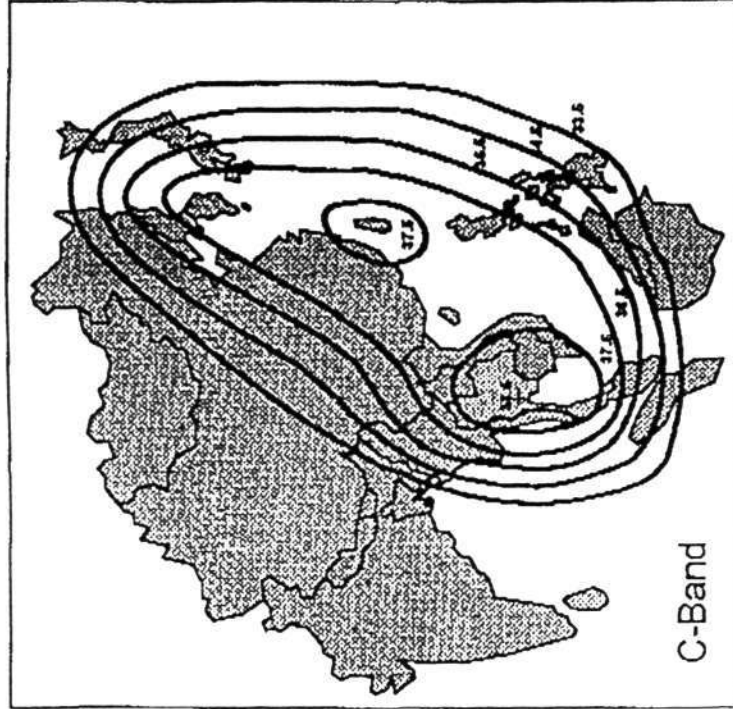


THAICOM 1 & 2 FOOTPRINTS

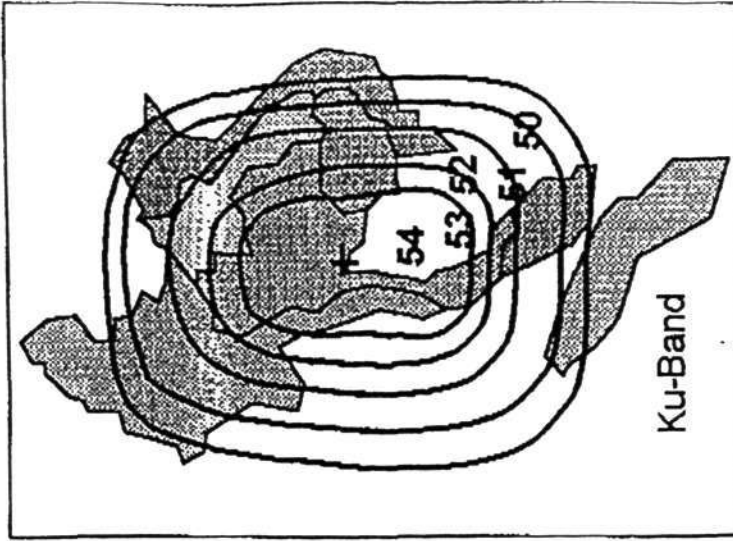
THAICOM 1



THAICOM 2



THAICOM-1 & 2



Thaicom 3 Satellite

DESIGN: Aerospatiale' SpaceBus-3000
3-Axis stabilized spacecraft

POWER: 5000 W at End of Life
MASS : 2800 Kg at launch
LIFE: 15 Years

TRANSPONDER CAPACITY:

C-band:

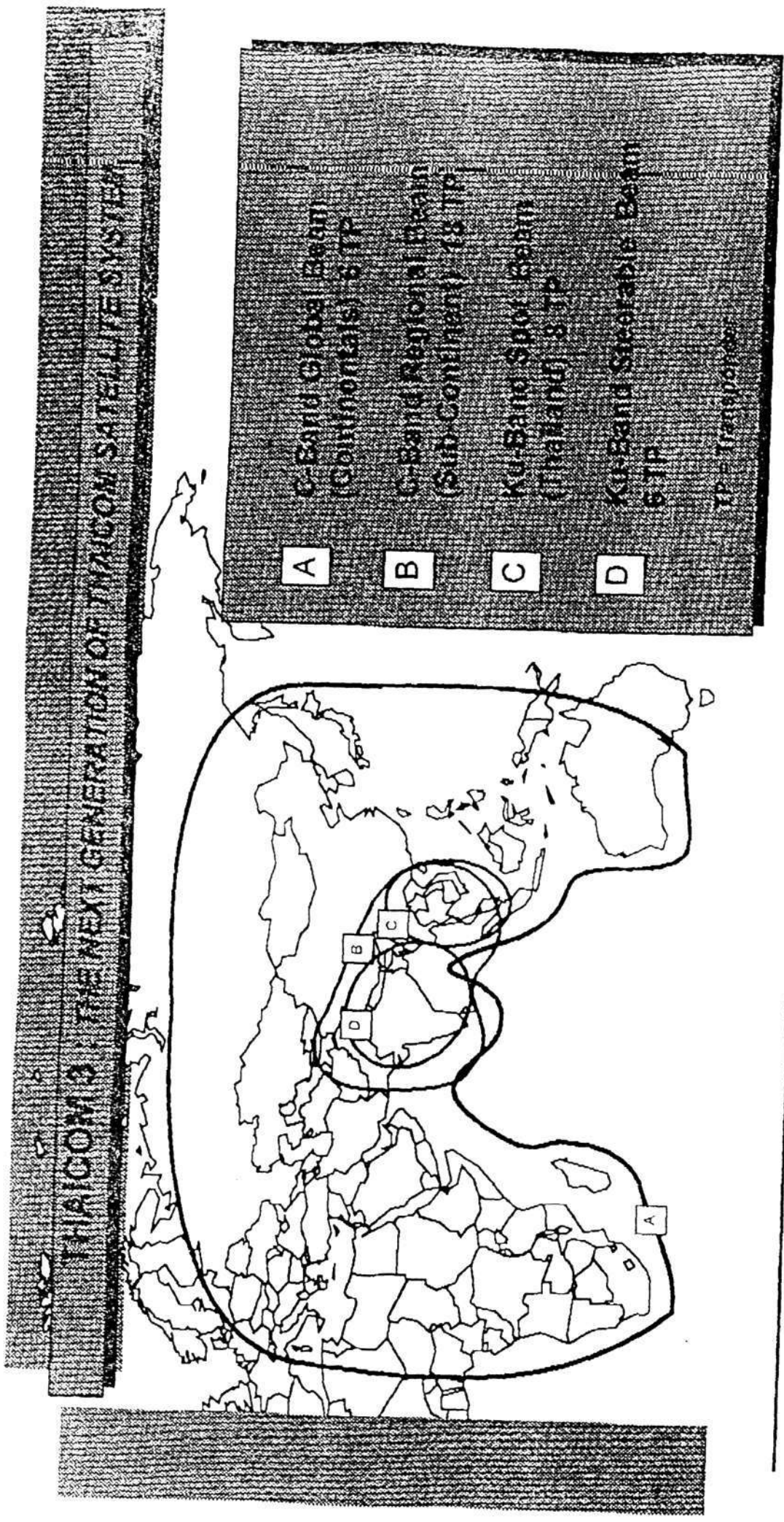
Global Beam: 6 Transponders
Regional Beam: 18 Transponders

Ku-Band:

Thailand Beam: 7 Transponders
India Beam: 7 Transponders

LAUNCHER: Arianespace
LAUNCH DATE: Q4, 1996





SHINAWATRA SATELLITE PROPRIETARY..



SHINAWATRA SATELLITE PROPRIETARY..

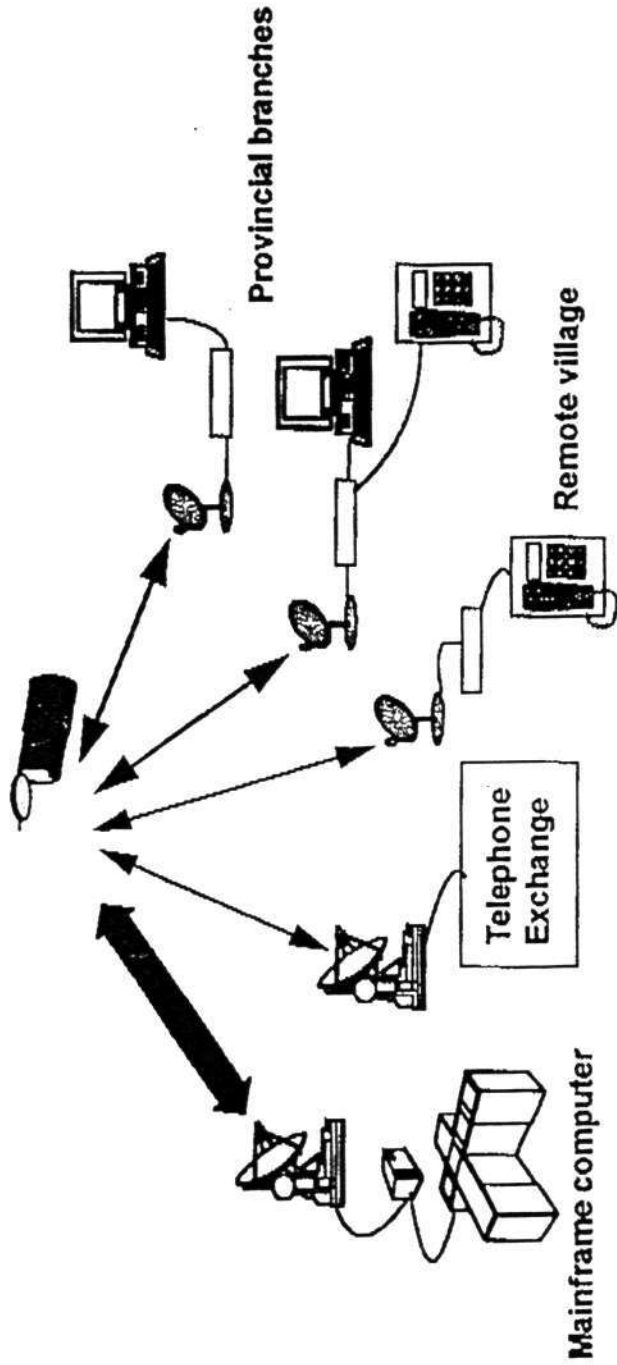
tel: (66 2) 841-0734, fax: (66 2) 841-0713

Febru
T3PR

SATELLITE APPLICATIONS

DATA (Satellite Communication Network & VSAT)

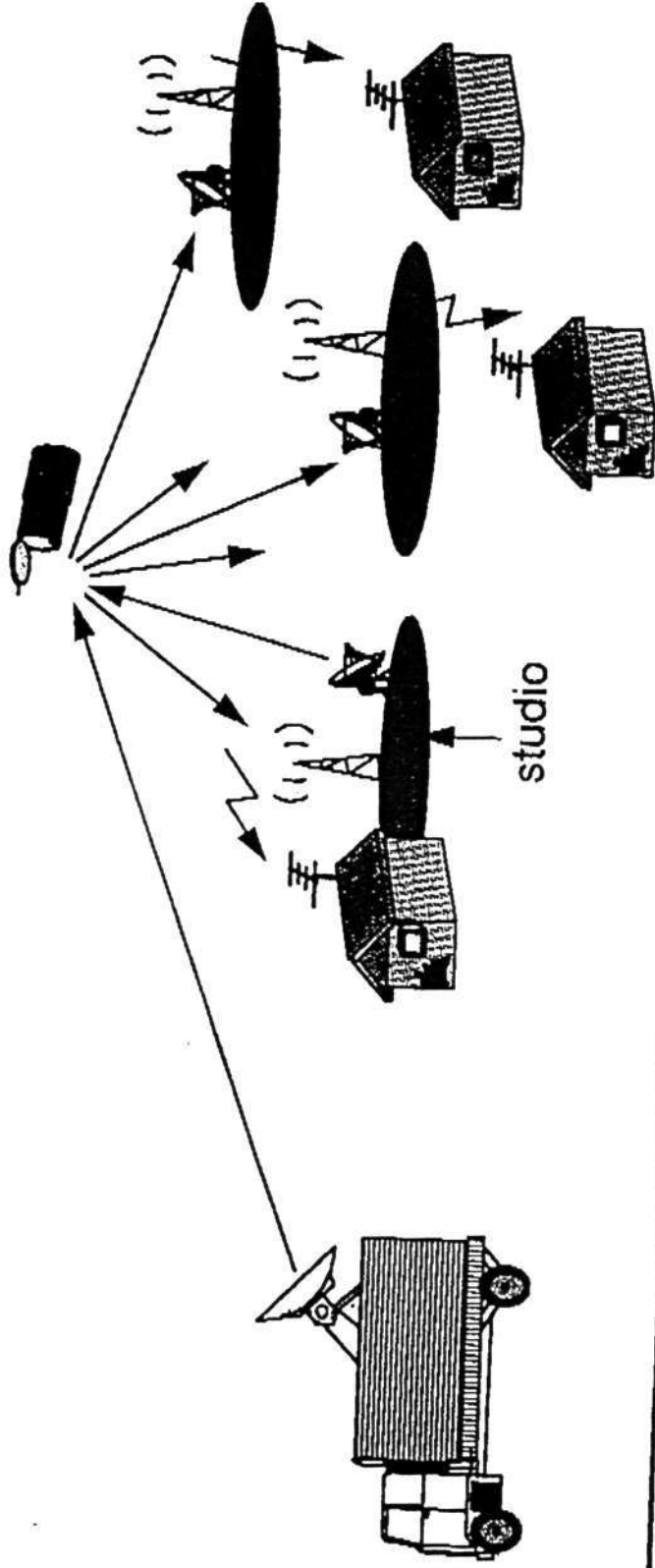
- Provide high performance connection for high speed computer network
- Information can be Data, Voice and Video (video conferencing)



SATELLITE APPLICATIONS

TELEVISION: TV Distribution, Relay & Live Broadcasting

- The main studio sends TV signal via satellite to be picked up and rebroadcasted
- by the local rebroadcast stations nationwide (TV Distribution)
- Live broadcasting with mobile system (Satellite News Gathering: SNG)



SATELLITE APPLICATIONS

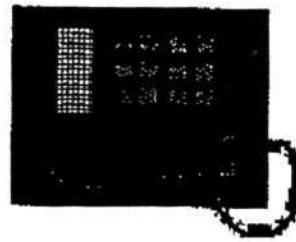
Radio (Radio Distribution & Relay)

- Transmit and relay signal among distance radio stations, to exchange programs or rebroadcasting within local areas



Telephone (Satellite Telephony)

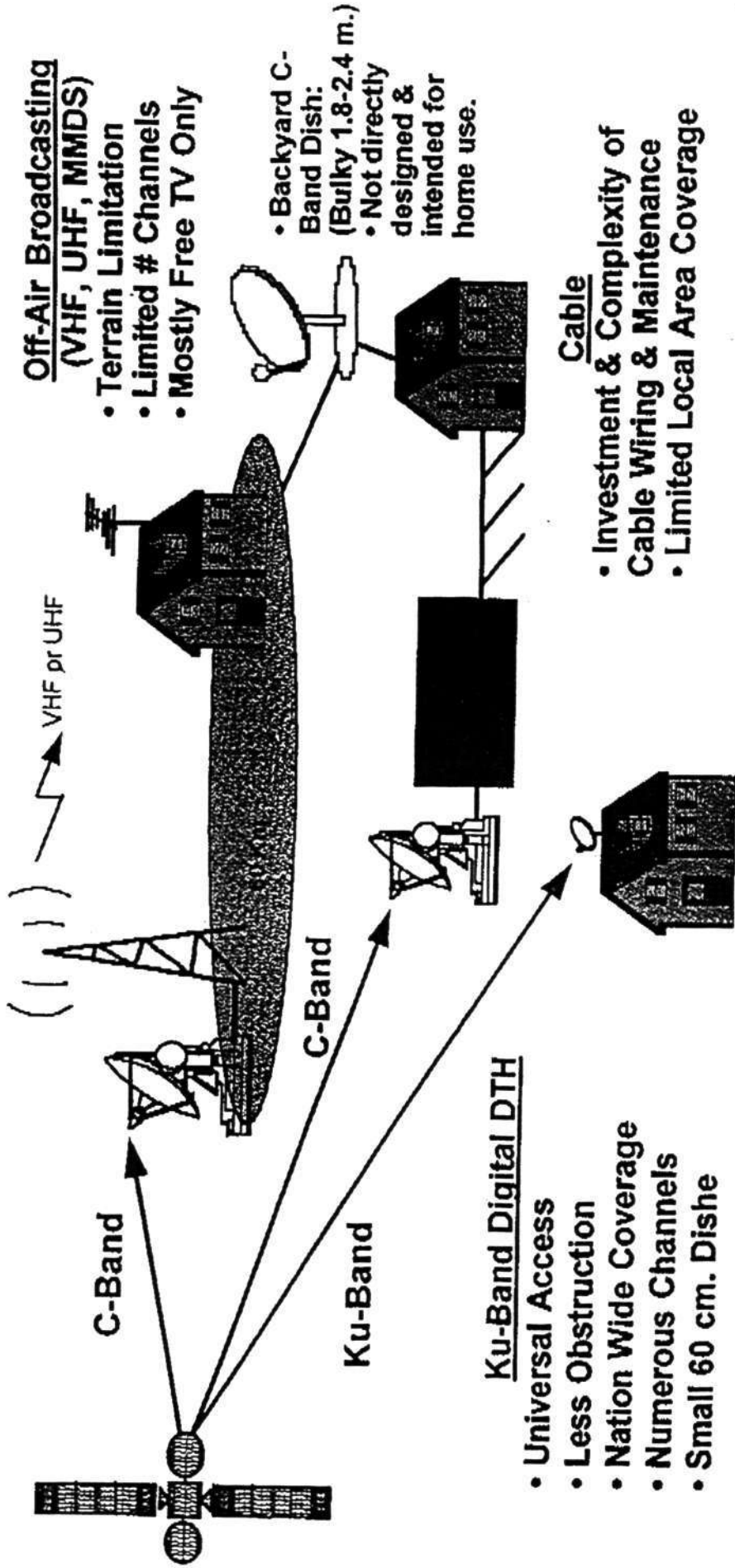
- Connect regional switching centers together
- The use of small terminal to connect remote sites to major switching center
- Connection can be implemented much faster than terrestrial lines



10

System Comparison

Evolution of Television Program Delivery Mechanisms



Off-Air Broadcasting (VHF, UHF, MMDS)

- Terrain Limitation
- Limited # Channels
- Mostly Free TV Only

Backyard C-Band Dish:
(Bulky 1.8-2.4 m.)

- Not directly designed & intended for home use.

Cable

- Investment & Complexity of Cable Wiring & Maintenance
- Limited Local Area Coverage

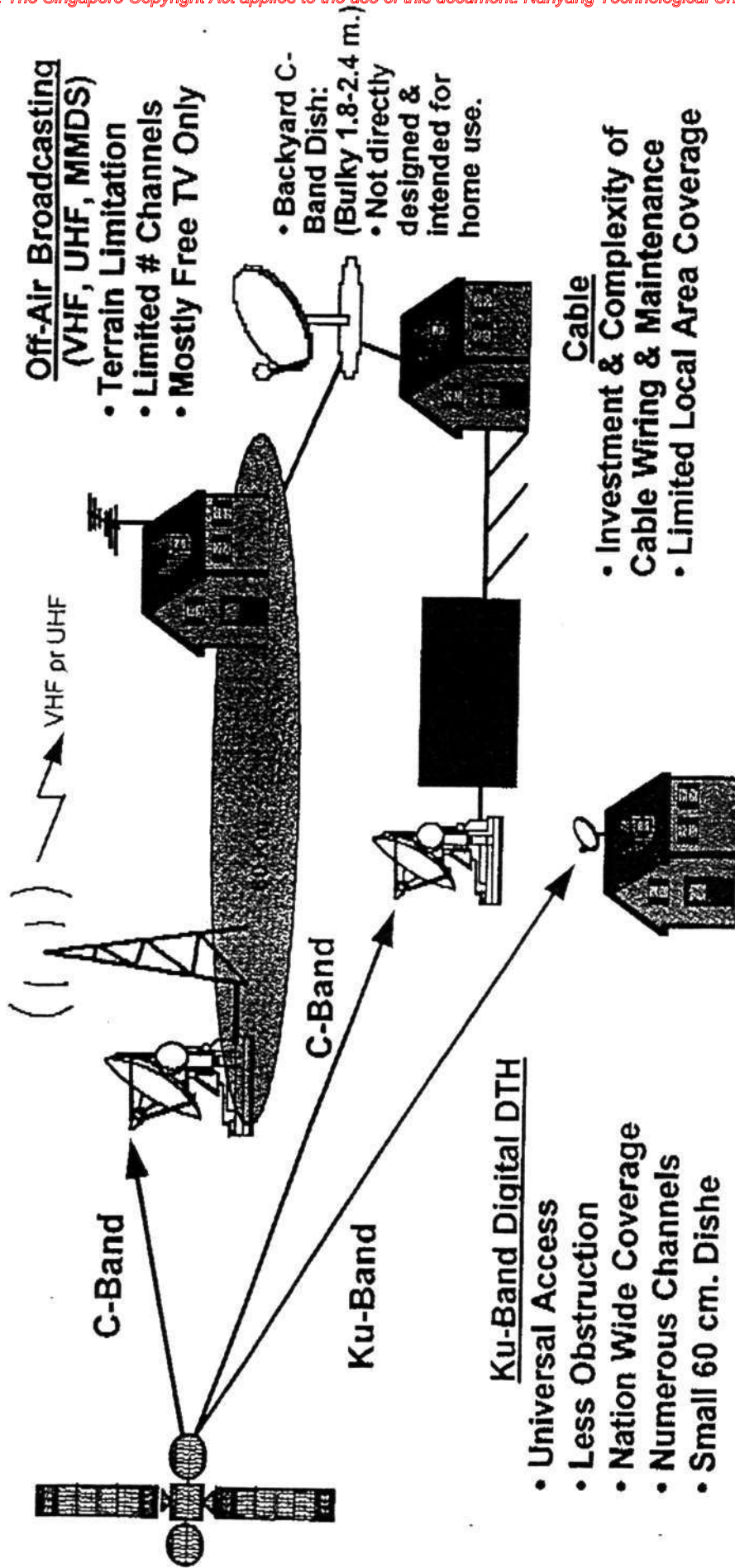
Ku-Band Digital DTH

- Universal Access
- Less Obstruction
- Nation Wide Coverage
- Numerous Channels
- Small 60 cm. Dishe



System Comparison

Evolution of Television Program Delivery Mechanisms



ShinawatraSatelliteDTH.ppt



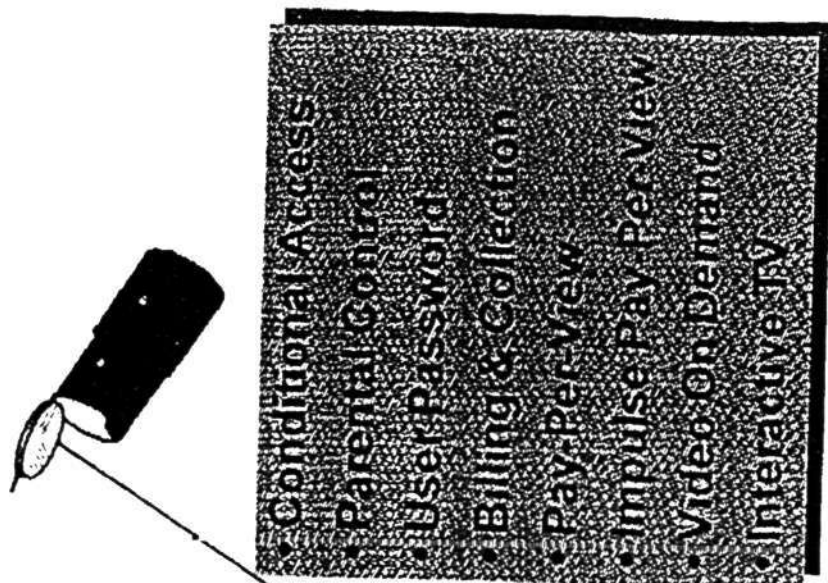
SHINAWATRA SATELLITE PROPRIETARY. February 1, 1996 .

tel: (66 2) 591-0735, fax: (66 2) 691-0719

Enabling Technology

Digital Compression:

- Flexible Video and Audio Quality
- Subscription Services and Management
- Noise Immunity (Better Transmission Quality)
- Spectrum Efficiency (Expand Usable Bandwidth: Many More Channels)
- Power Efficiency (Smaller Antenna & Power Requirement)



Enabling Technology

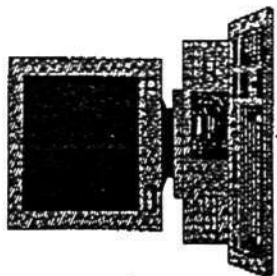
Digital Compression Standards

- MPEG-2 (ISO 13818)
 - Video, Audio Coding & Multiplexing Standard
- DVB (Pending ITU)
 - Service Information
 - Scrambling System
 - Error Correction, Modulation & Channel Coding
 - Telephone Descriptor and Future Interactivity
- Transports:
 - » Satellite
 - » Cable & SMATV
 - » Terrestrial
- Standards & Cross Compatibility: Universal/off-the-Shelf IRD Products Will Reduce Price & Increase Availability
- Thaicom DTH: First MPEG-2 DVB implementation in the world

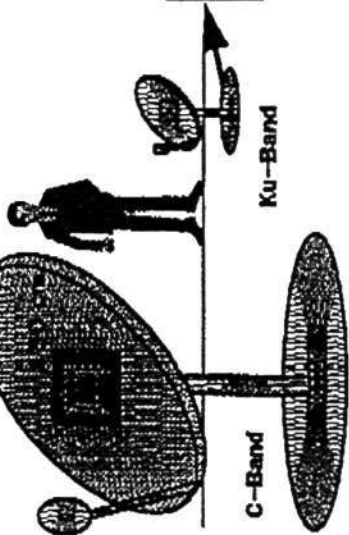


Multi-Media Services

DATA : High Speed Data Broadcast & DDB for Downloading of Computer Programs, News, information



VIDEO : 50-100 Channel Universe of Very High Quality Video, Wide Screen & HDTV



Convenience : Small 60 cm. Dish: Aesthetic & Easy to Install

AUDIO : CD-Quality, Surround Sound, Multi-Lingual & DAB Channels



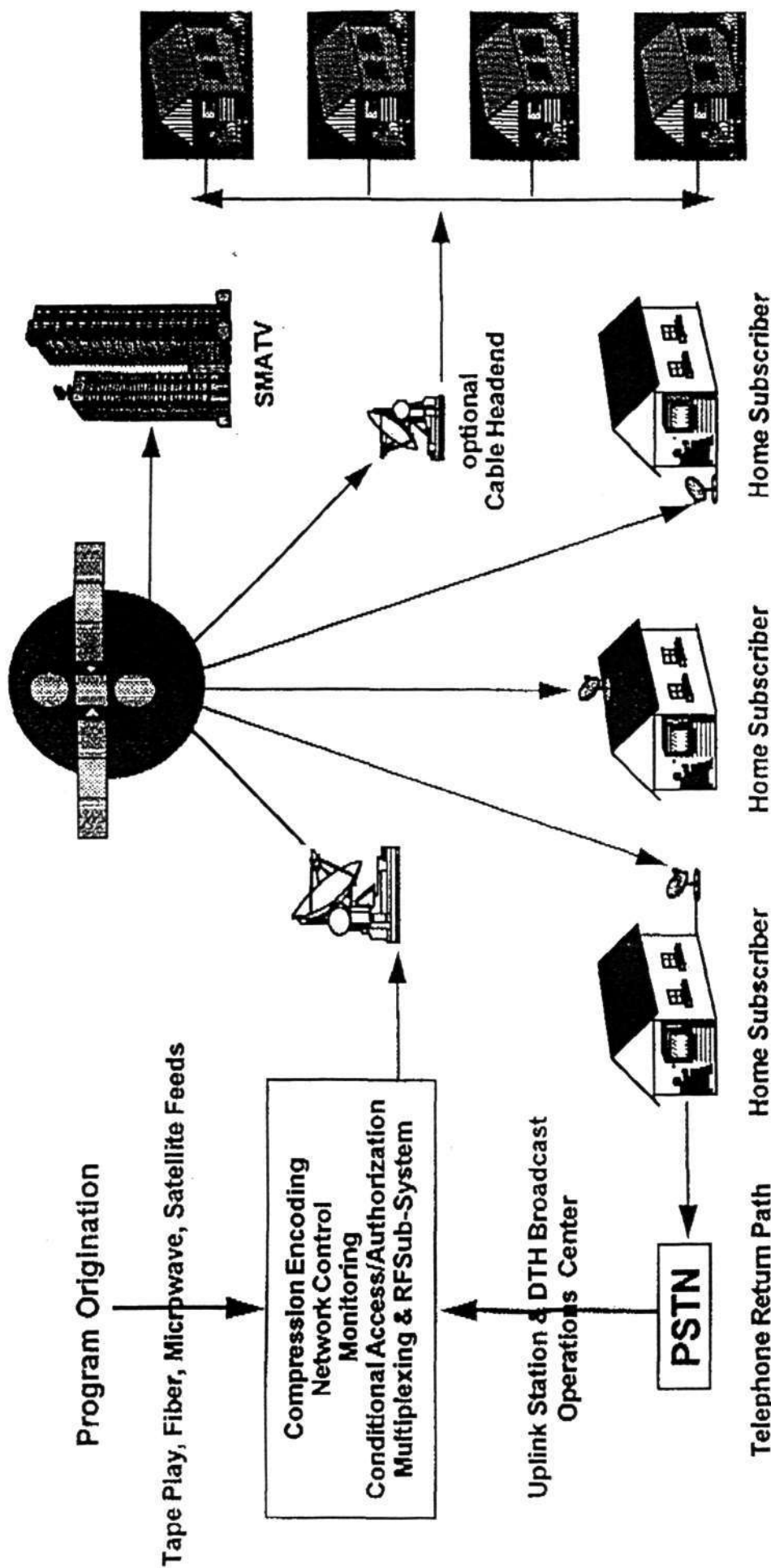
Two-way : Telephone Connection for Return Link: Interactive Services



Integrated Receiver and Decoder (IRD) : High End Consumer Entertainment System



Digital DTH System



13

Digital DTH Strategic Advantages

- **Channel Capacity & Addressable Capability:**
 - New Revenue Avenue with advanced multichannel subscription services
 - Better Copyright protection mechanism
 - Provide consumer the power to program: Control & Choose. What they want, Whenever they want, & Anywhere they want to Watch
- **Nation-wide coverage with direct reach to millions of viewers**
 - National & Narrowcast programs
 - Uniform/Universal service to all locations
 - Bypassing local limitation
- **Technically, commercially and financially viable:**
 - High-end home entertainment system: Digital quality & capacity
 - Best fit to unwired and unsatisfied cable subscribers
 - A small penetration can make Digital DTH service feasible
 - Opportunities: for satellite, programming & consumer electronic Industries



Technology Trends

Space Segment Technology (Satellite)

- » Super highpower
- » Large transponder capacity
- » Ku & Ka band

