SMCN

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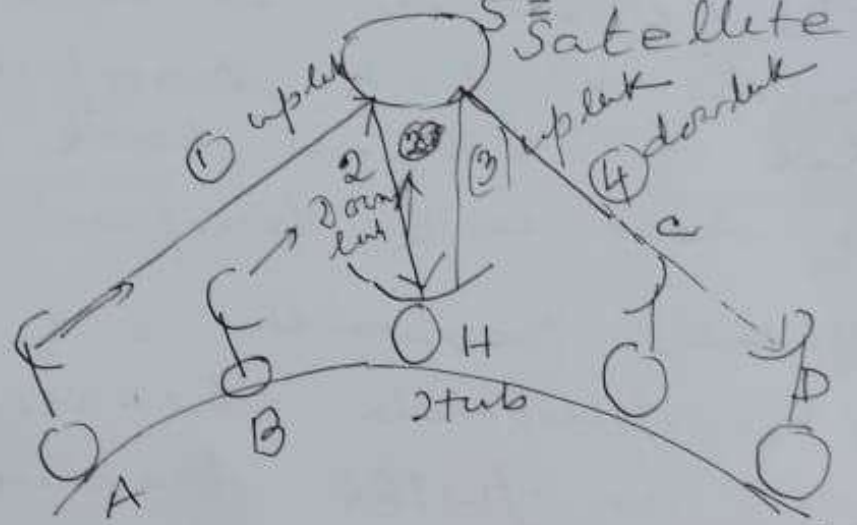
1. VSAT based data network



(i) A, B, C .. D are ground stations.

(ii) H is the stub (Master controller) – channel allocation – ground stations work as slave

(iii) Suppose this VSAT is based on one transponder channel 50 MHz uplink and 5 MHz down link.

(iv) channels can be created based on FDMA / FDD, TDMA / FDD

and CDMA/FDD

(V) Uplink and downlink Division is normally by FDD (what the satelite receives in the uplink transponder that is relayed back to the downlink transponder.

(VI) Uplink transponder and downlink transponder channel 50MHz each is further divided into channels using FDMA or TDMA or CDMA based already taught.

(VII) channel allocations are done by the ~~Sate~~ stub.

(VIII) Communication from ground station A to D: CH (step)

A → S uplink 1 CH (1)

S → H downlink 1 (2)

H → S uplink CH 2 (3)

S → D downlink CH 2 (4).

(IX) For Semi duplex communication 2 uplink and 2 downlink channels required.

(IX) For semiduplex communication 2 uplink and 2 downlink channels are required. (Reverse path (VIP))

(X) For Full duplex communication 4 uplink and 4 downlink channels are required.

(XI) In the above scheme, the communication always takes through the Hub (Indirect)

(XII) There is another VSAT communication mode:
— Direct mode
— After channel allocation

The communication directly takes place from A to D
A → S — uplink channel 1
S → D — downlink " 1
D → S → uplink channel 2
S → A → downlink channel 2
(For Full duplex communication

(1) NIC ERNet (Education & Research Network) was developed in 1990 was based on the VSAT based on Satellite network.