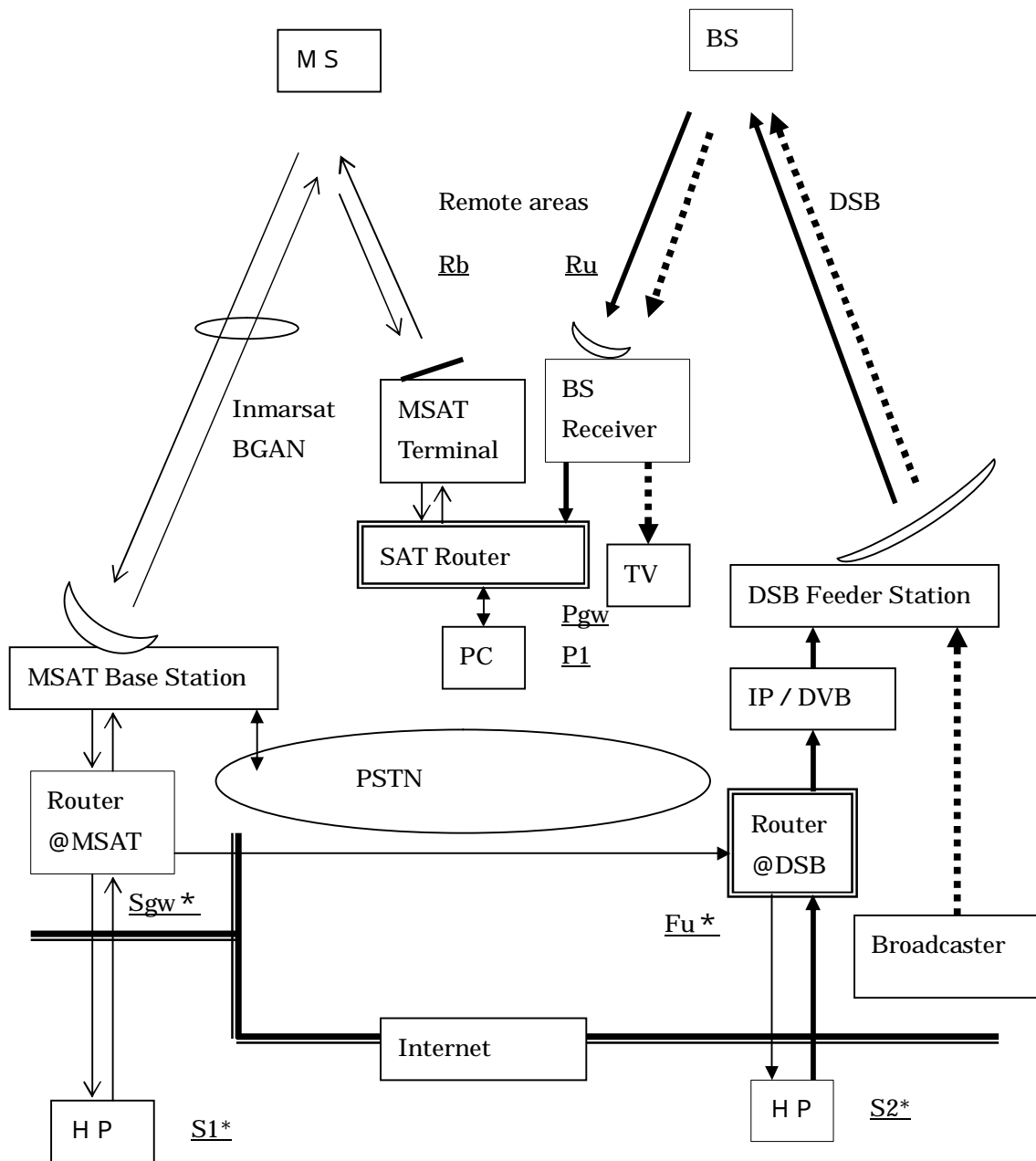


Direct DVB-MSAT Internet

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1 . System Configuration



Configuration of Direct DVB-MSAT-Internet System

2 . Operation

In the figure above, the underlined symbols as S1* depict IP addresses. The addresses with or without * are global or local addresses respectively.

[1] MSAT Internet

There are some Mobile Satellite Communication networks that provide mobile Internet services to the users. The Inmarsat BGAN (Broadband Global Area Network) is available all over the world.

[2] Direct-Satellite-Broadcasting (DSB)

DSB is possible in most parts of the world where KU-bands beams are available.

[3] Direct DVB-MSAT internet

This is a new system proposed here. The basic operation is as follows.

- (1) User-Equipment consists of an MSAT terminal and DSB receiver combined by the Satellite Router which also provides a LAN connection to a user operation terminal such as PC .
- (2) The PC generates a request IP packet [S2*/P1] where the destination address S2* is based on the user specification and the source address (P1) is a local address assigned by the provider of this system.
- (3) The request packets from the user is encapsulated into RFC3077 tunnelling packet format [Fu*[S2*/P1]] by the SAT-router and transferred via MSAT to the MSAT base station.
- (4) The Router at the MSAT Base Station tunnels the packets to the DSB feeder station according to the destination address Fu*.
- (5) The request IP packet is de-capsulated at the DSB feeder station router and the original packet [S2*/P1] is regenerated.
- (6) The DSB router generates IP packet [S2*/Fu*] and transfers it to the designated destination over the Internet; the source address P1 is replaced by Fu* under IP masquerade function.
- (7) The destination WEB server generates the response packets [Fu*/S2*] which are transferred to the DSB feeder station through the Internet.
- (8) The DSB router translates the packets addresses to [P1/S2*] and feeds it into IP/DVB translator and then to the satellite through the DSB feeder station.
- (9) The packets [P1/S2*] is transferred to the user through the DSB satellite link.
- (1 0) The Sat-Router selects the packets and delivers them to the user PC.

3. Features of Direct DVB-SAT internet

[1] Complementation of MSAT and DSB features

The features are enhanced and shortcomings of the networks are compensated as follows;

	DVB	MSAT	DVB-MSAT
Data rate capacity	Excellent	Poor	Excellent
Interactivity	No (Uni-directional)	Yes (Two-ways)	Yes (Two-ways)
User Terminal	Simple	Simple	Simple

[2] New service based on existing networks

Both MSAT and DSB are already well-established markets. The Inmarsat service is globally available. The regional MSAT systems such as Thuraya, ACeS, AMSC/TMI, Aussat, NSTAR and others provide extra channel capacity in many parts of the world. The DSB is the application that best exploits the features of satellite communications; wide area coverage, single hop broadcasting nature. There are already close to 100 million subscribers in the world.

Conclusion

The proposed system enhances features and compensates shortcomings of Mobile Satellite communication (MSAT) and Direct Satellite Broadcasting (DSB) networks which are well established and have vast market bases all over the world.

This is quite a feature to start a new service as the user equipments are widely available at cheap prices and additional development effort can be minimized. The proposed system can readily provide broadband internet services to users in many parts of the world where basic communications infrastructure is not yet well established.