



Es'hailSat Policy - TECHNICAL CRITERIA

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In order to consistently provide the desired end-user experience, improve the availability and reliability of the overall Product offering, Es'hailSat and the Customer need to work cooperatively to achieve the Product Levels and availability of the extended network.

- 1.1. The following are technical requirements that apply if the Customer is connecting terrestrial infrastructure to Es'hailSat's Inmarsat Network, i.e. it or its Product Providers have their own APN:
 - 1.1.1. The Customer shall have two independent interconnections with the Inmarsat Network, working as primary and automatic backup. This is to minimise the risk of a single point of failure and increase the durability of the connectivity.;
 - 1.1.2. The Customer is requested to implement a fallback via internet back bone. The internet back bone is to support temporary network connectivity with the Inmarsat Network in case both the lease interconnects fail;
 - 1.1.3. The Customer shall have an on-line and fully synchronised redundant Radius server, for use in case of hardware or software failure of the primary server. This is to minimise down time of outages and to avoid single point of failure in the network;
 - 1.1.4. The Customer shall have two tunnels per APN, configured on all of the active Gateway GPRS (General Packet Radio Product) Support Node's (GGSN) and Customer termination routers/firewalls, working as primary and automatic back-up. This is to minimise down time of outages and to avoid single point of failure in the network;
 - 1.1.5. The Customer shall implement a common, default APN. To minimise the impact of an outage to end users, a common to all Channel Customers APN (bgan.inmarsat.com) should be available to all users in case of lengthy (i.e. more than one hour) network interruptions;
 - 1.1.6. The Customer shall have test Satellite Terminals available at all times with their support team in order to perform test calls for their network. The test Satellite Terminals shall support the Products provided by the Customer (prepaid SIM cards also should be available, if prepaid Products are provided by the Customer);
 - 1.1.7. The Customer shall allow Inmarsat's network monitoring equipment access to tunnel end points and Radius servers on agreed protocols so that Es'hailSat can pro-actively monitor their connectivity status;
 - 1.1.8. Es'hailSat shall have access to at least one of the Customer's SIM cards to perform test calls. This SIM should have access to the Products provided by the Customer.

1.2. The Customer shall comply with the following coordination requirements:

- 1.2.1. The Customer shall have appropriate engineer(s) on-call and available within 15 minutes to support troubleshooting with Es'hailSat. The on call support engineer(s) should be trained and capable of performing all levels of debugging on the Customer's infrastructure with respect to the IP tunnels and Radius messages. The support should remain on the teleconference bridge until the problem is resolved by Es'hailSat and / or the Customer.
- 1.2.2. Any network or configuration changes required on the Customer side shall be coordinated with Es'hailSat fourteen (14) days in advance where possible, but in any case no less than one full Business Day in advance.
- 1.2.3. Any technical problems identified by the Customer which affect customer traffic shall be communicated immediately where possible, but in any case within five (5) minutes of discovery, to Es'hailSat's NOC.
- 1.2.4. The Customer shall provide Es'hailSat with a network drawing for identifying the devices on the route connecting the tunnel end point and Radius servers.
- 1.2.5. The Customer shall provide Es'hailSat with a detailed Customer technical escalation procedure including contact details. Any changes to the escalation procedure should be communicated to Es'hailSat as appropriate.
- 1.2.6. The Customer shall provide Es'hailSat with a detailed Customer test matrix and test plan for the provision of any new APN.
- 1.2.7. The Customer shall provide Es'hailSat with a detailed failover process and validate the results with Es'hailSat, during testing of a new APN.