

Overview

At Kratos we have wide experience of VSAT systems, and understand that not all VSAT systems are the same or fit all applications. We have experience and knowledge of the following VSAT platform manufacturers:

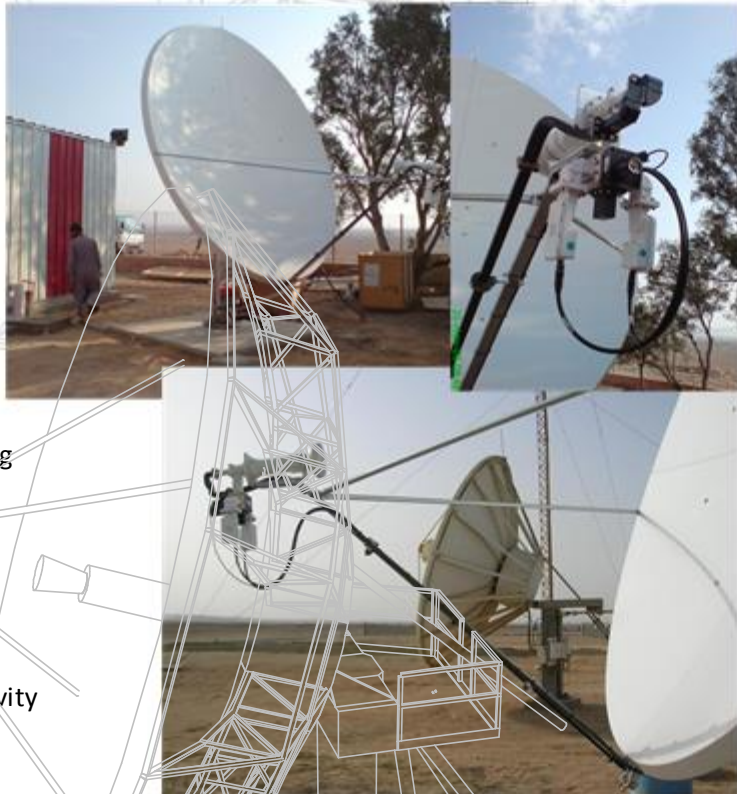
- ❖ Advantech
- ❖ Hughes
- ❖ Shiron
- ❖ Gilat
- ❖ Comtech
- ❖ NDSatcom
- ❖ iDirect
- ❖ TSAT
- ❖ Polarsat
- ❖ ViaSat
- ❖ Newtec
- ❖ STM

The VSAT market has developed rapidly over the last 10 years, with Remote Terminal costs reducing significantly and hub technology becoming more and more feature rich – with IP becoming the favoured interface protocol and MF-TDMA and DAMA given as the best VSAT protocol.

However, we understand that not all VSAT platforms are suitable for all applications and IP and TDMA are not necessarily suitable for all traffic types.

There are many markets and applications for VSAT that include:

- ❖ Oil&Gas
- ❖ Education
- ❖ Military
- ❖ M2M
- ❖ Air Traffic Control
- ❖ Private Business
- ❖ Domestic Internet
- ❖ Video Conferencing
- ❖ Maritime
- ❖ Lottery
- ❖ Disaster recovery
- ❖ Last Mile connectivity



Analysis

VSAT systems require in-depth knowledge of traffic analysis to enable selection of the best platform for the applications. Our team of designers have vast experience in traffic analysis and satellite link budgets – matching inbound and outbound carrier FEC, modulation and bit rates parameters to minimize the satellite Power Equivalent Bandwidth (PEB) for any given network.

At Kratos we work with our customers to profile the network traffic and select the right amount of bandwidth to meet the requirement. The bandwidth required will depend on the type of traffic and the way in which the wider system uses it. Bandwidth is an important consideration and its correct selection will determine the long term success and cost of the network.

Internet, Video conferencing, SCADA, E-mail, Data transfer and voice all have different traffic profiles and in DAMA based systems the analysis of the traffic is key to achieving the potential cost saving offered by DAMA technology whether using SCPC or MCPC technology.

Complex, iterative analysis is often required to match modulation type, FEC rates, bit rates and network throughput requirements to enable the overall Power Equivalent Bandwidth (PEB) of the satellite to be utilised in the most efficient manner.

Within VSAT there are many options and technologies such as: Carrier-In-carrier, DVB-RCS, DVB-S/S2, MF, TDMA, SCPC, Web Acceleration, QoS, Mesh, Star, Hybrid, security, IP acceleration, spot beams, Frame Relay, ATM, IP Acceleration, NMS, Ka-band, HTS and may others.

At Kratos we work with our customers and suppliers to analysis the business and system requirements, to select the right technology, options and VSAT vendor to meet the operational requirement.

Benefits

VSAT benefits from being able to offer dedicated, wireless, broadband connectivity.

As a back-up communications medium, VSAT is ideal to enable true diverse back-up communications connectivity. Many companies understand that communications is critical for business continuity. However, opting for diverse terrestrial links is not generally ideal, as the copper and fiber lines often sit in the same ducting and a maintenance error such as a road crew digging up a cable can break both routes at the same time. The wireless nature of VSAT avoids this scenario.

For Natural Disasters and Business Disaster Recovery, VSAT is an ideal solution. With Fly-away, Transportable and SNG type solutions, VSAT terminals can be deployed quickly to areas which lack terrestrial infrastructure due to damage from natural disasters or loss of "Last Mile" connectivity.

For remote areas, where the establishment of terrestrial infrastructure is cost-prohibitive, or is simply not possible, VSAT is an ideal solution. For domestic Internet, or commercial "Last Mile" or backhaul connectivity, VSAT can deliver bandwidth that suits the requirement.

VSAT systems also have the advantage of being able to deliver a Private Network or VNO. For some applications like a Lottery communication network or a SCADA telemetry network, security and guaranteed data delivery is critical to achieving required business level SLAs. SMS, GPRS, 3 and 4G networks are viewed as simple, low cost deployment solutions for nation-wide data connectivity. However, these terrestrial based networks are geared towards the domestic market. Data packet delivery is not guaranteed and is usually a “best efforts” commitment (especially if your site location is in a busy cell). Base stations can be switched off or dropped to reduce power during upgrades and maintenance, without notification. SLAs are not something GSM network operators are usually willing to sign to up. If the SLA of the GSM network does not meet your business requirements, then your business is exposed to SLA penalties. VSAT networks can be tailored to meet your SLAs and be controlled or even own completely by your business to guarantee delivery.

VSAT can offer point-to-point world-wide connectivity for voice and video conferencing connectivity. This type of connectivity is ideal of global companies that wish to connect their world wide offices without necessarily committing to international travel every time.

A growing market for VSAT is Martine. With communications, and in particular data communications, becoming more and more a business need for efficient operation of shipping fleets, VSAT and Hybrid VSAT/Inmarsat solutions are becoming more and more common.

