ST Engineering

MOBILITY MEETS EFFICIENCY

Mobility Meets Efficiency

The mobility, offshore and maritime markets today are confronted with increased demand for higher data throughputs to support bandwidth intensive services such as video conferencing, Internet access, VOIP, E-mail and media streaming.

These services come on top of the standard communications on board ships, trains, airplanes and offshore platforms and are required to increase operational efficiency, improve crew welfare, drive revenue, or to satisfy passenger demands and avoid churn.

There are multiple challenges associated with satellite communications for mobility, offshore and maritime environments due to the constantly changing conditions and the need to respect SWAP (size, weight & power) constraints due to the limited size of the platform itself.

ST Engineering iDirect brings the Satcom technology and experience to the table to tackle the challenges and meet the required throughput and reliability demands.

Meeting high throughput demands with maximum service availability and efficiency for on-the-move Satcom applications

EVOLUTION
VELOCITY
DIALOG
powered by
Newtec iDirect

Maximize Throughput, Spectral Efficiency and Service Availability

ST Engineering iDirect Satcom technology overcomes **the various challenges** (smaller antennas, limited satellite coverage, interference, shadowing and fading effects) linked to **mobile satellite communications** while simultaneously maximizing spectral efficiency and service availability for video, data and voice traffic.

Optimum Throughput in Same Bandwidth

Our innovative technologies such as DVB-S2/S2X, Mx-DMA®, FlexACM®, Clean Channel Technology® and Network Optimization Software (acceleration, compression, multicasting) are combined into a unique, multi-layered solution to achieve maximum throughput over satellite (Ku-, Ka-, C-, X-band, HTS) for mobile applications.

Maximum Service Availability

Even in harsh and hostile conditions (rain fading, interference, blockage shadowing etc.) or when on-the-move, satellite link availability is maximized by auto-adaptive modulation technology FlexACM, built-in to our modems and hubs.

Moreover service priorities (e.g. video, data, voice) and Quality-of-Service policies can be auto-adapted on-the-fly through Cross-Layer-Optimization technology to ensure the availability of mission critical applications, even during fade conditions.

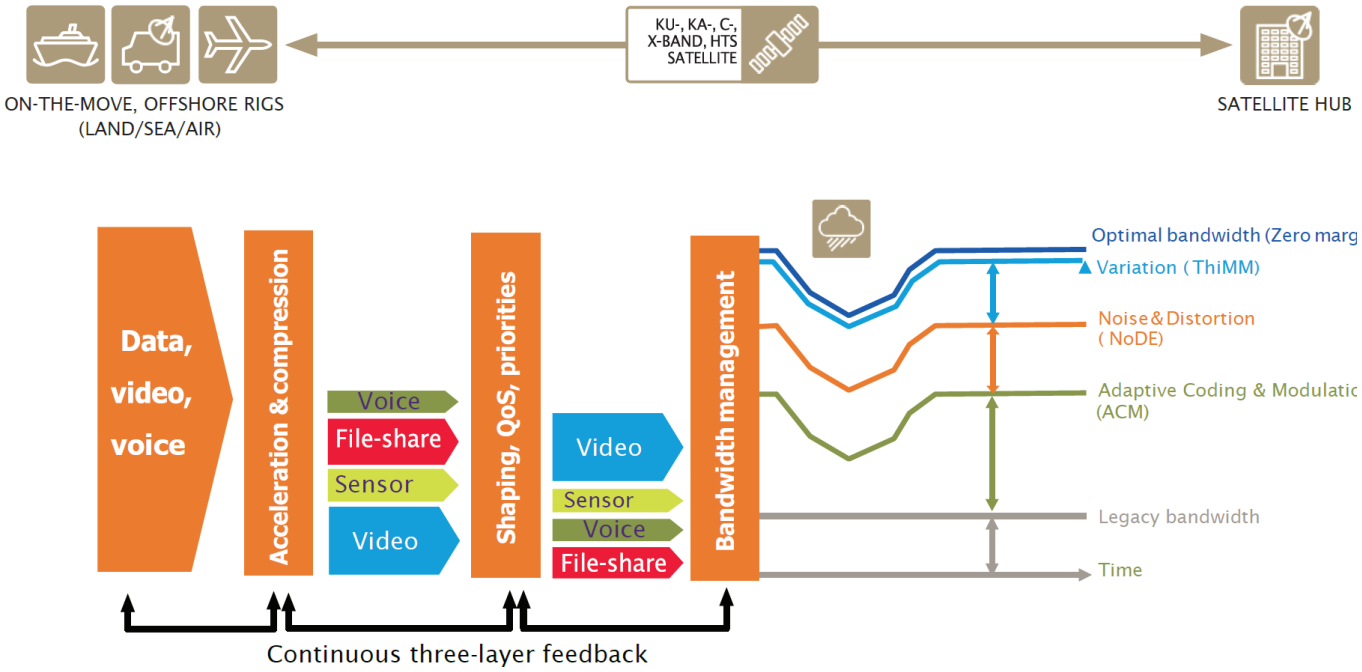
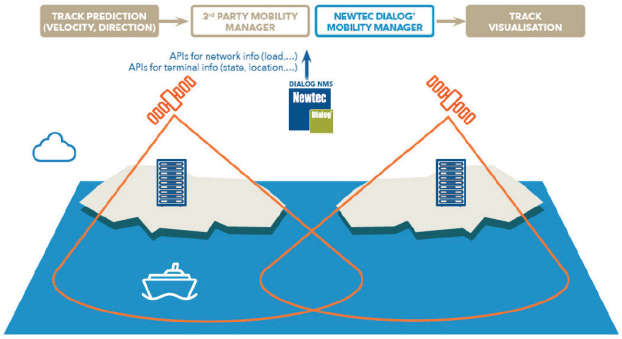


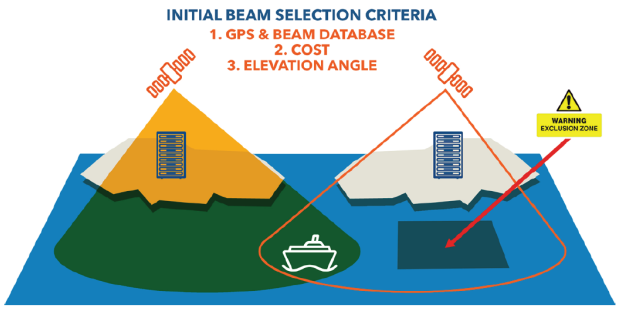
Figure 1: The combination of technologies such as FlexACM and Cross-Layer-Optimization increase throughput in the same satellite bandwidth at maximum service availability.

Flexible and Scalable Beam Switching Architecture

The consolidation of the VSAT industry, combined with the ever-increasing availability of High Throughput Satellites (HTS), has created an environment where mobile VSAT networks are getting much larger, and more complex. This rapidly evolving trend has accelerated the need for more **sophisticated beam switching** systems to allow network operators to more effectively manage issues like **network load balance, least cost routing** and **regulatory compliance**.

When terminals are offline, a local **Automatic Initial Beam Selection (AIBS)** process runs on the modem to help it join the network, anywhere in the world. The AIBS process combines simple logic with GPS data and GXT footprint files to identify all eligible beams available in a given area. AIBS then uses an arbitrary "cost" variable (lower cost beams are preferred) and satellite elevation angle (higher elevations are preferred) to sort the available beams. **Exclusion zones can be defined on each beam to enforce regulatory restrictions.**





The Dialog beam switching engine called the Mobility Manager is a centralized hub-side process that orchestrates all aspects of beam switching, and interfaces with the Dialog NMS via a rich set of mobility APIs. While the Dialog Mobility Manager is a turn-key solution, customers will also have the option to implement their own mobility managers, giving them **unprecedented control over beam switching logic**.

Beams are tried one at a time in the order determined by AIBS, and respecting any exclusion zones. Once a terminal **successfully joins the network**, all subsequent beam switches are managed by the central Dialog Mobility Manager.

Newtec iDirect