

SPACE TRANSPORTATION SOLUTIONS AND INNOVATIONS SYMPOSIUM (D2)  
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A SHARED GLOBAL GROUND NETWORK

**Abstract**

Kongsberg Satellite Services (KSAT) has provided commercial services to satellite industry and launch vehicles for more than a decade. In close cooperation with industrial partners, KSAT has developed a global ground network that is optimized for both the launcher industry and the payload authorities. The KSAT ground network has been developed with focus on geographical locations, data latency and cost effective operations. The ground segment locations in Europe, Asia, Africa and Antarctica provide space-to-ground contacts more frequent than what has been available on the free commercial market in the past. The reduced data latency is a result of the distributed locations and the communications infrastructure installed as part of this ground segment. KSAT has a 24/7 operations centre that controls the entire distributed ground network from one single point of contact. The control centre is also the interface point for all clients using the ground network. A single control centre makes contractor-client interface easy, both in terms of data access and all operational issues. The different phases during a launch require a ground segment that is geographically distributed in order to support the different phases during the flight. In addition the satellite/payload requires a ground segment capable of receiving signals from the payload either when attached to the launcher or as soon as possible after separation. The telemetry requirements of the launcher are different from the requirements of the payload. The challenges of providing a cost effective ground network with telemetry capabilities that is technical beneficial for both the launcher and the payload will be discussed in the paper. A multi mission system with the capacity to provide all telemetry bands on single antenna systems enable the ground network provider to utilize the network more efficient. The multi mission solution allows more contacts, improved monitoring and control functionalities, and a better financial model to support both the launch vehicle and the payload. The overall design with multi mission global network, robust communication and a single point of contact has proved over the years to be the most attractive model for the support KSAT provides. Future developments of the ground network in cooperation with existing providers and the launcher industry will enable an optimized solution that is designed with focus on reliability, accessibility and cost effectiveness.