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BUSINESS BEYOND THE 70S, A COST-EFFECTIVE APPROACH TO THE ARCTIC

Abstract

With a projected capacity surpassing 20 Gbps and a market size exceeding $300M/y in the next 10 years, Polar Regions are becoming an increasingly active area for telecommunications service provision. Several polar concepts exist in the in space literature and a few initiatives are to be rolled out soon e.g. PCW, Arktica, CASSIOPE, Iridium NEXT, OneWeb. However, these are either missions addressing national interests or are a bi-product of global constellations, as opposed to tailored solutions for the broader Arctic community.

As of today, most dedicated commercial upstream solutions, designed to cover high throughput services, fail to meet the low price point required to enable sustainable commercial services in an infant, segmented and easily saturated market. This paper aims to bridge the Arctic's addressable market capacity and upstream solutions with a flexible and cost-effective telecommunications platform design. In the heart of the article, the new SSTL GMP-E platform is presented with a modular design aimed to allow early market penetration with a small initial expenditure.

The case study is approached at both mission and system level, including constellation architecture, deployment strategy from LEO, HEO and GTO, and spacecraft platform design. The ultimate goal is to enable rapid, reliable and cost-effective deployment of broadband, VSAT, TV, M2M or commercial mobility services to support the inevitable surge of activity in the Arctic.