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CONSTELLATION DEPLOYMENT ANALYSIS FOR A NOTIONAL MEGA-CONSTELLATION

Abstract

Constellations consisting of hundreds and even thousands of small satellites, sometimes referred to as mega-constellations, are being proposed and developed to provide worldwide broadband Internet and other satellite services. Hundreds of launches may be required to deploy and maintain these satellites. This paper presents a discrete event simulation based constellation deployment analysis capability for a notional constellation consisting of 1,000 small satellites. Metrics such as expected constellation deployment completion date, expected number of launches and satellites required, and expected costs are described. Example strategies for optimizing constellation deployment are shown. The potential to extend this capability to constellation sustainment analysis is discussed.