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AN EXCITING NEW DAWN FOR ESA'S HYDRON DEMONSTRATION SYSTEM

Abstract

HydRON (High thRoughput Optical Network) is a project of the European Space Agency (ESA) and has been ongoing since 2019. The ambitions of HydRON is to extend high-capacity terrestrial networks into space, seamlessly and by interconnecting all kind of space assets across different orbits and terrestrial networks (i.e., 3-dimensional optical network). The targeted capacity performance is orders of magnitude greater compared to today's satcom systems (terabit/sec in contrast to gigabit/sec), exceeding capabilities and partially building on optical communication technologies which went to scale in the past two decades.

This paper will present a recent update of 2024 developments of the HydRON Demonstration System concept (HydRON-DS), including a discussion of the ideas discussed and elaborated as a part of the agency's Call for Proposals in Q3 2023.