8th SIG-NGN Meeting

Monday 23rd May 2022

SIG-NGN is the Special Interest Group on Next Generation Networks.

This meeting of the 8th meeting of the SIG will be held virtually.

RECORDING

Theme

"Reaching where the fibre can't"

In this meeting we will consider connectivity technology and services for environments and applications where optical networking not possible or economically feasible. The includes low earth orbit satellite (LEOSAT), packet networking architectures for 5G, and other mobile technologies. We will consider both the technologies and their applications.

Quick Links

All Presentations (currently past meeting presentations.)

Checkout the discussion on NREN.slack.com (sign up here)

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Contact the NGN Steering Committee

Registration (CLOSED) Agenda (all times are in CEST)

Monday, 23 May 2022

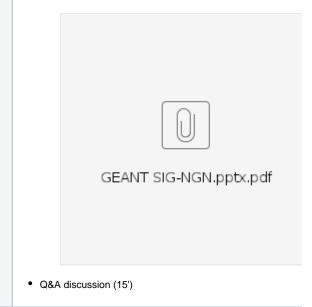
Time	What's happening
14: 45 - 15: 00	Get a coffee - Testing audio & video
15: 00 - 15: 05 ('5)	Introduction and welcome - Rob Evans (Jisc)
15: 05 - 16: 05 ('55)	 Low Orbit Satellites Host: Lars Fischer (NORDUnet) HydRON project - Josep Maria Perdigues Armengol (ESA) The ambition of the High thRoughput Optical Network (HydRON) project of European Space Agency (ESA) is to seamlessly extend terrestrial high-capacity networks into space. The concept aims to empower satellite networks by developing terrestrial networking capabilitie and features, in order to interconnect all types of space assets by an "Internet backbone beyond the cloud(s)". Concretely, HydRON will take advantage of space assets to complement terrestrial high-capacity networks ultimately enabling the configuration of a worldwide and world-first 3-dimensional optical network interconnecting terrestrial network capabilities will revolutionize the SatCom secto and its related commercial business. This presentation will provide the current status of the planned HydRON Demonstration System (HydRON-DS) to be developed and launched by 2026. The HydRON-DS represents the initial stage serving the purpose to gradually demonstrate key technologies required to deploy a first (all) optical transport networks into space.

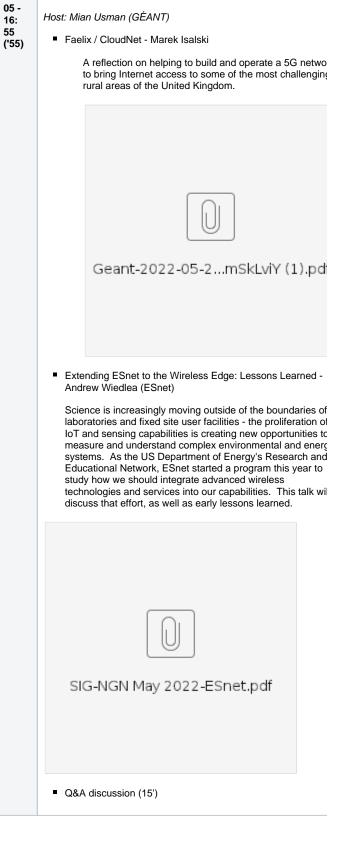


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 Developing a simulation framework and efficient data transport for low-earth orbit (LEO) satellite constellations -George Parisis (University of Sussex)

> In this work, we present our simulation framework for experimenting with LEO satellite networks that we built on top of the OMNeT++/INET framework, with support from the GÉANT innovation programme. We discuss th various components of the framework along with challenges we faced in simulating network traffic and protocols with realistically sized constellations, and focu on related optimisations we introduced to eliminate substantial overheads associated with the constantly changing network topology. We present and discuss experimentation on network latency in different constellations and across different locations on Earth and describe significant challenges in designing efficien data transport protocols. Through experimentation we show potential limitations of existing data transport protocols when operating in LEO satellite networks. We propose a receiver-driven data transport protocol that combines in-network packet trimming with edge-disjoint path routing to provide efficient data transport and improve network utilisation. Finally, we discuss current and future work on delay-based congestion control and RaptorQ codes to efficiently support different types of communication.





5G networks for R&E

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