CELTIC-NEXT PROPOSERS DAY

6th September 2022

Pitch of the Project Proposal

Networking resilience transformation

CRL
Communications Research Ltd

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Teaser

1 slide:

- *Climate change is increasing the frequency and severity of disruptions to communications infrastructure. Recent experience has demonstrated the fragility of the network edge and has spurred some operators to embrace ad-hoc 2-D (fixed-mobile) hybrid access to improve resilience to severe weather and accidents affecting fixed and mobile networks,*

- *Intrinsic challenges include: the removal of line-power feeding for emergency service provision due to the optical network transformation, the need to adapt networks to 3-D (fixed-mobile-satellite) operation as on-demand and broadcast 'linear' TV services evolve in an uncertain regulatory environment, and lack of standardisation for satellite broadband interfaces,*

- *The main project benefits will be influence and acceleration of a standards architecture for 3-D networking, improved connectivity resilience with integration of 3D NTN , and technologies for ultra low power operation,*

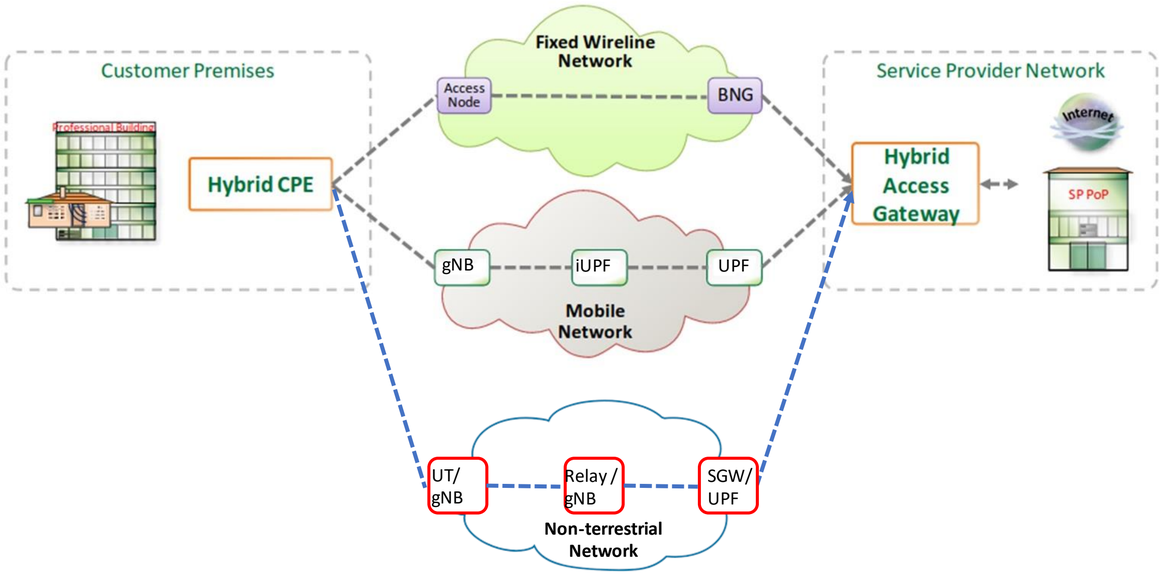
- *The added value is increased service resilience exploiting diversity across terrestrial and non-terrestrial paths, and through creation of a resilience plane based on new ultra low power access modes.*

Organisation Profile

Communications Research Ltd is a start-up specialising in modelling and simulations of cross domain resource management (wired / wireless), access standards and architectures over the 3 domains, remote powering,

Proposal Introduction (1 of 2)

3-D Access and Networking
fixed – mobile - satellite

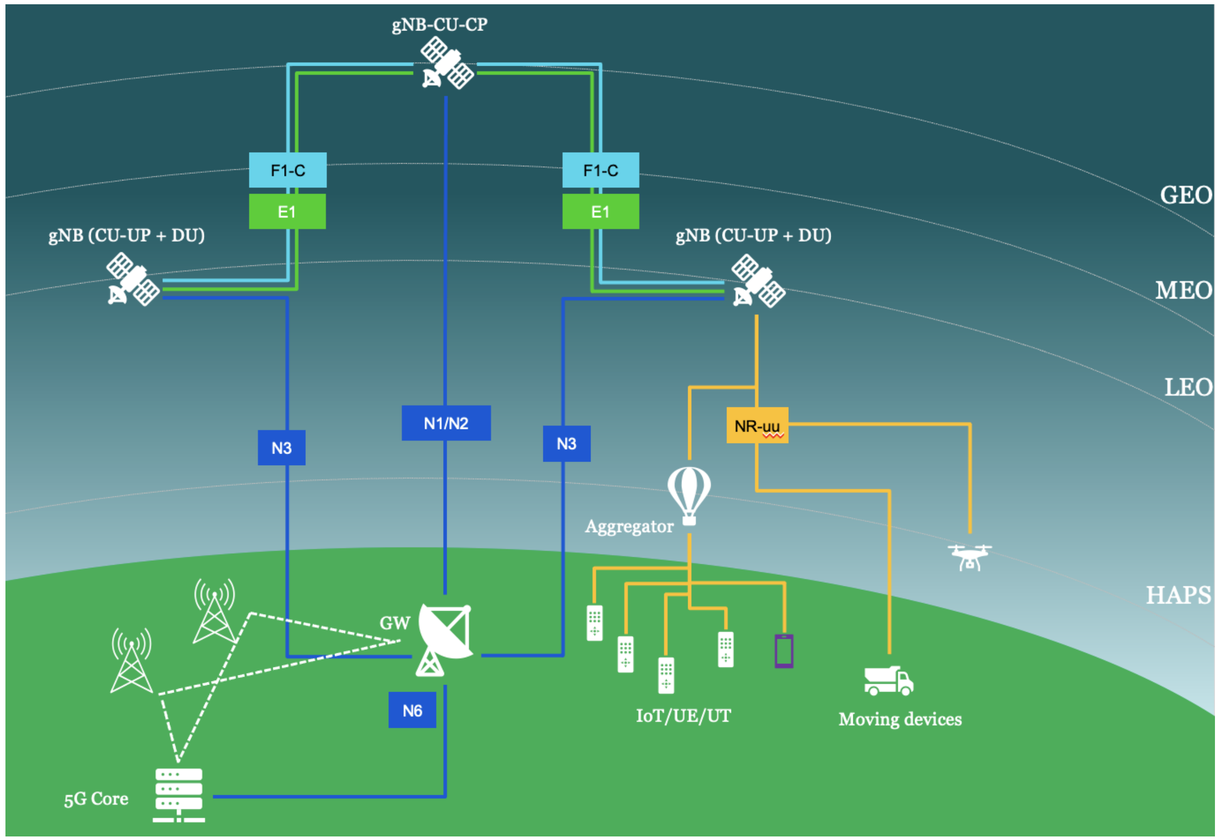


- The focus of this proposal is extension of the unfinished work to develop 2-D Hybrid Access and Networking, to add interoperability with future satellite access modes to create 3-D networks adding satellite channels to the mix.
- As well as conventional internet connectivity the service mix is complicated by adding a mix of high bandwidth interactive, on-demand streaming, and linear broadcast service elements.
- The issues go far beyond adapting satellite practices for compatibility with 5G, but needs co-adaptation of terrestrial networks as well.

The Resilience Plane

- Resilience to severe infrastructure disruption requires emergency specific functionality, in particular ultra low power access solutions, to provide life critical connectivity with affordable batteries, while requiring minimal adaptation of existing technologies.

Proposal Introduction (2 of 2)



Example of 3D NTN providing 5G connectivity to areas where infrastructure is disabled

Proposal Introduction

Expected outcome is improved resilience and scalable, viable multi-service slice management across multiple hybrid network path segments and ultra low-power solutions for a Resilience Plane
Month 1 – 11: Use-case analysis and architecture design with learning and engagement with BBF and ITU to promote standardisation
Month 8 – 24: Modelling of traffic and resource management algorithms and ULP access technologies
Month 25 – 36: Verification through test-beds

Partners

We are interested to participate in consortia, and would like to work with content providers including broadcasters and on-demand sides of the business, systems integrators, in-home terminal vendors, chip designers, and academics.

Contact Info

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