



INTUG Response to CISP-55, 14/15 November 2016

INTUG is a global association, which has represented business users of communications services since 1974. With members and contacts in all five continents, INTUG uses its reach to actively promote professional customers' interests at the international level.

INTUG's aim is to bring down all barriers that private companies and public institutions face when introducing new and innovative on-line processes, to enhance investment in improved communications technologies, and to ensure open access and connectivity to enable a fully inclusive and connected information society.

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INTUG is pleased to provide comments on the following Items from CISP-55:

Item 4b Work Programme 2015-16 and 2017-18

INTUG supports the priority choices of Rural/Remote Broadband and Network Neutrality, as identified by Country delegations, with the addition of the Internet of Things, identified by CDEP, but believes that the "Operator of the Future" activity is more appropriate as an output of work on other areas, rather than an input or a parallel priority.

As a result, in terms of timing, INTUG believes this work item should follow, rather than precede, the other projects. The current shape and character of Network Operators should not be assumed as an appropriate start point for research. For example, the Operator of the Future might not be the natural or best owner of passive infrastructure (including ducts, poles, holes and masts) in the future, as has been the case historically.

100% connectivity for fixed and mobile is essential for optimising investment in, and take up for, innovative business processes in the private and public sector. The private sector is increasingly driven by SMEs and crowd businesses where traffic flows are not the same as multinational applications such as on-line banking, shopping or information searching. The public sector requires full connectivity for social inclusion, and in order to enable the full potential of benefits in cost reduction and service equality improvement. This can only arise when legacy processes and systems can be completely eliminated.

As noted by several delegations at the CISP-55 meeting, there is an accelerating trend towards sharing of both passive and active infrastructure to improve the effectiveness of investment, and to extend reach to previously "uneconomic" users and/or locations - the latter being particularly relevant for the Internet of Things. INTUG suggests that the Work Programme addresses options for funding the remaining unconnected users and locations for both fibre connections and mobile access, including the potential for such investment to come from other sources, which then provide such infrastructure to network operators and service providers independently. This might be extended to existing passive infrastructure if such organisations were to purchase this from network operators (predominantly ex-incumbents), with the additional spin-off benefit of capital for them to invest in services. This is particularly acute for 5G, where shared passive infrastructure is essential, as one mast will be needed for each 3 Hectares, making access infrastructure for every operator impractical, because many million masts will be required to cover a medium size country.



Item 5b Broadband Satellite Access

INTUG welcomes the draft report, which addresses an important complementary area of technology for Broadband Access. The latency inherent in satellite communications has historically been a constraint on business applications, as have other service limitations, e.g. resilience during eclipses, and exposure to precipitation effects.

Business applications have varying profiles and traffic patterns, which are not all suitable for support by geostationary satellite communications, due to latency and other service characteristics, whilst others can be supported effectively. The OneWeb service might reduce latency to 20-40 msec, where more applications could be supported through MEO and LEO satellites, subject to price and overall service resilience and quality, but there will always be applications, e.g. in finance, where point to point fibre connection is essential. As the book Flash Boys showed, it was considered worth \$300m dollars to lay a 1330km cable from Chicago to New Jersey, just to reduce latency from 17 msec to 13 msec.

There are three broad categories of traffic profile arising from business applications, where these are provided and/or used by large multinationals, or SMEs, or individuals, such as through social media. Some involve a mixture of categories. Firstly, there is broadcast or streaming, which can tolerate latency and through buffering can survive brief interruptions. Secondly, there are peer-to-peer applications, increasingly involving high capacity where symmetric speed and capacity is required and where interactive dialogue is less tolerant of interruption. Thirdly, there are asymmetric applications where the downstream capacity needed is generally much greater than upstream, e.g. for browsing/information retrieval.

In the past, hybrid solutions with slower speed terrestrial paths for requests and satellite delivery for responses, has been deployed, e.g. for Reuter information services.

The paper would benefit from acknowledging the wide discrepancies in traffic profiles inherent in different types of business application. It would also be useful to extend the assessment of suitability to address other quality characteristics in addition to speed and latency, e.g. packet loss, phase jitter, eclipses, turn round delay within the satellite and earth segments (all adding to the full end to end latency) and transponder resilience.

Item 11b 2017 Digital Economy Outlook Chapter 2

INTUG welcomes the general scope of the draft Chapter and, like other delegates, would be disappointed if content was lost in pursuit of reducing length. On the contrary, INTUG suggests there is merit in covering backhaul pricing and availability, mobile termination charge trends, and “In-building” connectivity as specific areas of great interest.

Special consideration must be given to fixed and wireless infrastructure in multi-occupancy locations like hospitals, shopping malls, schools, theme parks, sports stadia, entertainment sites, and large high-rise apartment complexes. All require flexibility of supply for devices, access, service and content, and effective traffic management for peak intra day loading.



Item 11c 2017 Digital Economy Outlook Chapter 6

INTUG agrees with the focus of the draft Chapter and suggests the analysis of converged regulators could be extended to assess the difficulties envisaged for countries that do not, or cannot have converged regulators. INTUG believes there is a fundamental policy issue to be addressed concerning the need for increasing shared mobile access infrastructure. This will affect spectrum auction and licence policy. The DEO should also examine trends and best practice in encouraging and/or requiring access to fixed passive infrastructure.

Item 12 Benefits of Digitalisation for Growth and Well-Being

INTUG strongly supports this work, which will encourage and support faster realisation of the demonstrable economic and societal benefits of digitalisation, and the potential from universal connectivity of businesses and individuals. Paragraphs 2, 3 and the first part of 4 sum up the issues very well. The major challenge, which we believe Modules #2 and #4 should address, is how to optimise industry structure and how to construct business cases.

INTUG urges the project to address the national and local public sector funding structures, which continue to impede business cases for investment in digitalisation to realise benefits. Examples include health, transport, education, energy, housing, construction, immigration, local government, agriculture, supply chains, taxation, customs, policing and security. This needs joined up thinking across all Government departments and public sectors.

This will affect the conclusions on who should invest in civil engineering, and own resulting passive infrastructure, which may well not be network operators. At the very least, to return to a common theme, a critical enabler is going to be sharing access infrastructure.

Item 13 Pricing

INTUG supports most of the simplification proposals for pricing baskets for data collection and reporting, with 2 specific exceptions - broadband upstream services and leased lines. INTUG supports the proposal to add "access" or connection charges, since these feature significantly in the economic decisions involving supplier/service provider switching.

Upstream speed and price are of increasing importance for some business applications, such as those of a peer-to-peer structure. Video uploads are an essential element of many processes, e.g. sharing of complex 3D architectural drawings facilitates distributed construction design. Leased lines are a very cost-sensitive component of international business networks, and pricing trends for these are critical to systems integrators, who must compete with incumbents. It is recommended that these are retained, and that extension to Ethernet Services in the wholesale market would enhance leased line data.

Nothing in this submission is confidential and the contents can be considered to be in the public domain. It is being made available on the INTUG web site at www.intug.org

Comments and queries should be addressed to: **Nick White**, Executive Vice President International Telecommunications Users Group (INTUG)

Email: nick.white@intug.org Tel: +44 20 8647 4858 Mobile: +44 77 1009 7638