

5G Arrives

Editorial

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Abstract: Papers in the December 2018 issue of the *Journal* include discussion on 5G security, what's next for the National Broadband Network, a technical paper on the conflicts in routing and UAV autonomy, HTTP traffic flow load balancing and an insight into how the use of location information affects privacy. The history of Australian telecommunications paper on impressions of an overseas visit by a lines engineer provides an insight into how knowledge transfer improves with the opportunity to study telecommunications in Europe, North America and Australia. The *Journal* welcomes contributions.

In This Issue

In this issue of the *Journal* papers cover public policy, new technology solutions and historical insights. The rate of technological change is highlighted by the breadth of articles and discussion on 5G mobile cellular and the National Broadband Network.

The 4G to 5G Network Architecture Evolution in Australia presents a review of how the International Telecommunications Union has maintained the option for network operators to separate access network from core networks and systems. The paper also highlights the need for a telecommunications security assurance capability.

What Now for Australia's NBN? argues for a return to a fully privatised telecommunications market by disaggregating the National Broadband Network and selling it off. The paper also continues the discussion on the establishment of a regional telecommunications fund financed by a broad-based telecommunications levy.

Impressions of an Overseas Visit by a Lines Engineer is a fascinating paper from 1961 contrasting the technical and general differences in providing telecommunications services in Europe, North America and Australia.

Flow-level Load Balancing of HTTP Traffic using OpenFlow provides an exploration of the concept of flow-based load balancing of network traffic on multi-homed hosts.

Conflicts in Routing and UAV Autonomy examines the implications of autonomous coordination of multiple UAVs on routing techniques and network architecture stability.

Privacy versus the Use of Location Information for Law Enforcement and Security in Australia reviews existing knowledge regarding the powers of the Australian Security Intelligence Organisation and the Australian Federal Police to access and use metadata.

Mobile Cellular 5G arrives

The introduction of 5G New Radio (NR) to succeed 4G (LTE/WiMax) and 3G (UMTS) has commenced. The Australian mobile network operators have begun the 5G infrastructure rollout in anticipation of 5G-compatible handsets and devices becoming available in 2019. By October 2019, the major handset vendors should have 5G-compatible versions of their flagship products available on the market in Australia.

5G is a major step forward for mobile cellular communications and the Enhanced Mobile Broadband (eMBB) will offer improved connectivity to services and applications over greater distances and with improved reliability within built-up areas.

A key facet of 5G is the push for Ultra Reliable Low Latency Communications (URLLC) to facilitate improved access to and utilisation of applications and services that are delay sensitive and require highly reliable connectivity. The URLLC usage scenario highlights how the mobile cellular technologies are moving to create a “fibre-like” connection utilising wireless technologies.

The advent of the Internet of Things (IoT), including sensor networks, has driven the 5G Massive Machine Type Communications (mMTC) usage scenario that aims to support connections from up to 1 million devices in a square kilometre.

The ITU 3GPP IMT-2020 specifications that form the basis for what is colloquially known as 5G has set a speed target for spectrum above 6 GHz of 20 Gbps, with users experiencing a data rate of 1 Gbps and a radio network latency of 1 ms.

For spectrum below 6 GHz, the expected performance matches the still evolving 4G LTE/WiMAX technology capabilities and, over the next decade, further enhancements should be introduced to 5G NR.

The ambitious targets set by the 3GPP will culminate with the 3GPP Release 16 specification that is due to be finalised in July 2019. The work program based on the 3GPP IMT-2020 specifications should continue for several years.

The *Journal* welcomes papers on the digital economy, including, theory, public policy and case studies.

The *Journal*, Looking Forward

2019 promises to be a momentous year for Australian telecommunications with the introduction of 5G networks and devices, an increasing number of driverless vehicles and improvements to satellite and fixed wireless services.

The *Journal* is calling for papers on how new technologies will affect Australian telecommunications consumers.

The topics of *International Telecommunications Legislation and Regulations* and *International Mobile Cellular Regulation and Competition* are set to continue for some time, as the opportunity to attract papers from around the globe continues. We encourage papers that reflect on where the global telecommunications market is now, how it got to where it is, and what is going to happen next.

Papers are invited for upcoming issues. With your contributions, the *Journal* will continue to provide readers with exciting and informative papers covering a range of local and international topics. The Editorial Advisory Board also values input from our readership, so please let us know what themes you would like to see in the coming year.

All papers related to telecommunications and the digital economy are welcome and will be considered for publication after the double-blind peer-review process.

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