

8K Arrives

Editorial

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Abstract: Papers in the March 2019 issue of the *Journal* include discussion on the National Broadband Network, technical papers on the Internet, MANET and Cloud security and a fascinating look back at the *Eucla Recorder*. The history of Australian telecommunications paper covers the Australian Post Office's involvement in the Apollo 13 emergency and a review of laser developments. In the present day, 8K televisions are set to launch in Australia on 1 April 2019 and in the process move entertainment and telecommunications into the next phase of development. The *Journal* welcomes contributions.

In This Issue

In this issue of the *Journal* papers cover public policy, new technology solutions and historical insights. The National Broadband Network is discussed in two papers that focus on how to transition to FTTP and the threat of fixed broadband services. Technology papers cover the Internet, MANET and Cloud security.

The Historical Technical News Items present two historic reprints from 1970 covering the Australian Post Office's involvement in the Apollo 13 emergency and a non-theoretical review of laser developments.

The Wireless Threat to Fixed Broadband Services provides results from a survey of broadband customers in Australia in November 2017 that showed an increasing acceptance of mobile broadband, in line with other market trends, but identified significant dissatisfaction – one quarter of mobile broadband respondents and about one third of fixed broadband respondents – with current services.

Tunnelling the Internet proposes an approach that utilises tolled priority allocated mini-tunnels to reduce regional congestion. A system that includes brokerage for access to the congestion-bypassing mini-tunnels is proposed.

A Threat Computation Model using a Markov Chain and Common Vulnerability Scoring System and its Application to Cloud Security proposes a novel approach to compute the

probability distribution of cloud security threats based on a Markov chain and Common Vulnerability Scoring System.

How to Transition the National Broadband Network to Fibre To The Premises discusses the migration from the MTM NBN to a Fibre to the Curb or ubiquitous Fibre to the Premises (FTTP) NBN.

An Artificial Immune System-Based Strategy to Enhance Reputation in MANETs proposes an Artificial Immune System-based reputation (AISREP) algorithm to compute trust and thereby provide a resilient reputation mechanism.

The Eucla Recorder (1898 – 1900) explores the Eucla story, offering a vivid snapshot of the community's preoccupations and challenges at the end of the 19th century through the pages of its monthly newspaper, the *Eucla Recorder*.

8K Television arrives

The arrival of 8K technology in Australia changes the entertainment landscape by delivering the best possible viewing experience to local consumers. Samsung, followed later in the year by Sony and LG, will launch 8K on 1 April 2019.

8K models have four times more pixels than equivalent 4K models and provide improved contrast, brightness and picture detail.

Early adopters of 8K will find, as with all new television technologies in the past, that models will be expensive initially. The soon-to-be-released Samsung QLED 8K models include the 65-inch (1.65 m; \$9999), 75-inch (1.90 m; \$12,999) and 85-inch (2.16 m; \$17,499).

For Australian viewers the introduction of 8K television will highlight two issues. The first is the lack of 8K content available locally other than test videos that are available through Google's YouTube. The second is the lack of modern telecommunications infrastructure in Australia that can support the high capacity, reliability and low latency needed for 8K streaming.

After spending about \$51 billion on the multi-technology mix National Broadband Network (NBN) many Australians will be provided with broadband connections that will only provide access to heavily compressed, poor-quality, high definition (HD) and 4K streaming and this means that 8K streaming is likely to be delayed for some time.

While the focus is on 8K, it is timely to revisit why 3D technology has been ditched by the electronics industry. Some of the reasons for the 3D demise include vendors failing to adopt a common approach leading to a variety of 3D glasses and viewing experience, the premium

price being charged for 3D televisions, 3D Blu-ray players and the need for two channels to support 3D broadcast and streamed television.

For broadcast television and streaming media providers struggling to find a way to offer standard definition (SD) and HD within the available spectrum or broadband capacity, the requirement for a second channel for 3D was insurmountable. The additional cost would need to be passed on to consumers.

The spectrum and broadband capacity limitations affecting broadcast television and streaming media has led to increased compression. Consumers are now often provided with a very poor-quality viewing experience.

Whilst it might have been assumed that the introduction of 4K would lead to the phasing out of SD broadcast and streamed media, the broadcast television and streaming media providers have doggedly stuck with the format and have resisted moving to support 4K. Live sport continues to be broadcast using the SD format, a travesty in 2019.

The introduction of 8K will put increased pressure on the local telecommunications and media entertainment industry to move beyond SD and HD and to embrace 4K and 8K as the standard formats.

However, for this to occur, the government will need to revisit spectrum allocations and the state of the NBN. High compression leading to poor quality is not a solution to this problem.

The *Journal*, Looking Forward

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

Technological change is happening at a rapid rate and consumers anticipate that governments and industry keep pace to ensure that the benefits can be fully utilised. 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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