Report on my attendance at IEEE Globecom 2019, Waikoloa Village, Hawaii, December 9-13

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Quote: Globecom is big, but the Pacific is bigger!

IEEE Globecom is one of the two flagship conferences run by the IEEE Communication Society. It's where the world's leading academic and corporate researchers come together to share results and insights on communication technology from theory to applications and standards development, from nearfield and personal networks to my field of interest – satellite communication.

As a second-time Globecom attendee, I knew that not only the plenary and paper sessions would be of interest, but also the technical committee meetings – which are open to all comers.

My main excuse for attending was to present our results on the behaviour of short TCP flows on Internet satellite links. Such flows tend to behave much like "unfriendly" UDP flows as the long round trip time of the links prevents them from backing off under congestion. Our paper thus argued that we ought to rethink the common practice of blocking UDP on satellite links, especially given that most contemporary UDP applications back off at the application layer anyway. I used our primary "use case" – Internet connectivity in Pacific Islands – as a motivator.

My presentation in the second Satellite and Space Communications (SSC) session on the first full day of the conference was well attended with around 30 participants. That said, with most research in SSC now focussing on 5G communication via satellites, spot beam management and the upcoming low earth orbit (LEO) constellations, my topic must have appeared as a bit of an oddball to many in the audience.

This changed fundamentally the next morning with David Lassner's keynote. He is currently president of the University of Hawaii System and was one of the main movers and shakers when it came to connectivity in the Pacific. He passionately argued that the Pacific was of key global scientific interest and deserved considerable focus from the communications research community. He cited astronomy, climate, geophysics, diabetes and tropical diseases, Antarctica and marine as research fields where the Pacific contributed above average. Some of my session participants later approached me saying "I hadn't realised that the Pacific is so interesting ...". For me, this was Christmas come early!

Sadly I didn't have a chance to meet David Lassner personally after his talk as I had the SSC Technical Committee to attend, but I am planning on following up. An additional reason for wanting to follow up is that the University of Hawaii and Auckland are strategic partner universities. When I visited colleagues at their

Manoa Campus enroute to Globecom, we got talking about support for indigenous Hawaiian students and interests at UHawaii.

It emerged quickly that this is still in its infancy compared to our Tuākana programmes, dedicated Māori and Pasifika staff in senior leadership, and Vision Matauranga in our operations. In contrast, the UHawaii Regents have only recently co-opted their first indigenous Hawaiian – on an honorary basis. One of the consequences: UHawaii can't currently build a US\$1b telescope on Mauna Kea while indigenous protesters block the access road. So I hope that we may be able to share some of our own engagement practice with Māori and Pasifika communities with them.

At Globecom, I also renewed my acquaintance with Daniel Lucani from Aarhus, Denmark, among others, who introduced me to his students Rasmus Vestergaard and Nestor Hernandez. The likely outcome will be a common paper with Rasmus on using data compression in signal processing, and Nestor had a bright idea on how our satellite simulator could simulate LEO constellations – so two more areas to follow up on! Plus plenty of ideas for my next sabbatical.

Last but not least, I couldn't resist a visit to nearby Spencer Beach, where the Southern Cross Cable from Takapuna in Auckland lands. A kind ranger explained to me where it was buried and confirmed my identification of the cable landing station up the hill. The resulting photos will be used in my upcoming data communications lectures later in the year!



The author giving his talk on "Rethinking TCP and UDP on shared satellite links".



The author with Nestor Hernandez from Aarhus University in Denmark – a likely future collaborator.



David Lassner's talk putting the Pacific at the heart of IEEE Globecom: Christmas come early!



A large part of NZ's international Internet traffic passes right under here: Samuel M. Spencer Beach on Big Island Hawaii. The other end of the Southern Cross Cable is at Takapuna Beach, Auckland.