Internet Connectivity in Pacific NSOs

Summary

Connectivity across the Pacific varies considerably, with a high quality connection available in Noumea, but much slower higher latency connections available in Tokelau. The office connections in FSM and Fiji were in between, with very limited bandwidth of 2Mbit/s being shared between over 100 staff in Fiji's case.

While download speeds and reliability are generally adequate for use of cloud services in the countries monitored, latency is the biggest barrier to use of cloud services. Latency will adversely impact the performance of services that require real-time interaction, whereas it has less of an impact on data transfer. So for example, high latency would cause the responsiveness of the user interface of a web-based email solution to be poor, however an email solution where mail is downloaded to a local client from a cloud-hosted server would perform adequately.

Similarly, usage of cloud storage for data transfer such as that used by the World Bank's Survey Solutions software would also perform adequately. This solution uses cloud storage for upload of data from tablets used for data collection. The data is then downloaded into the NSO's own network.
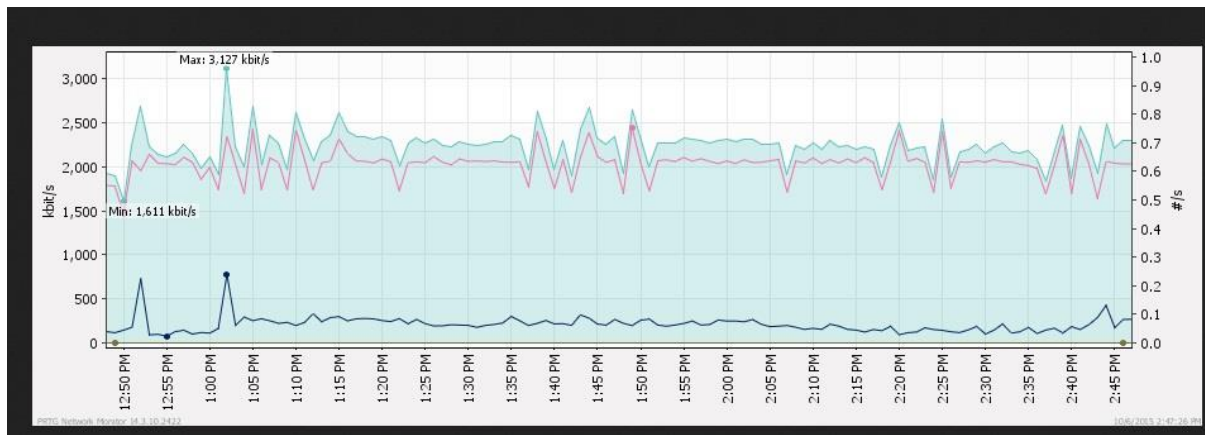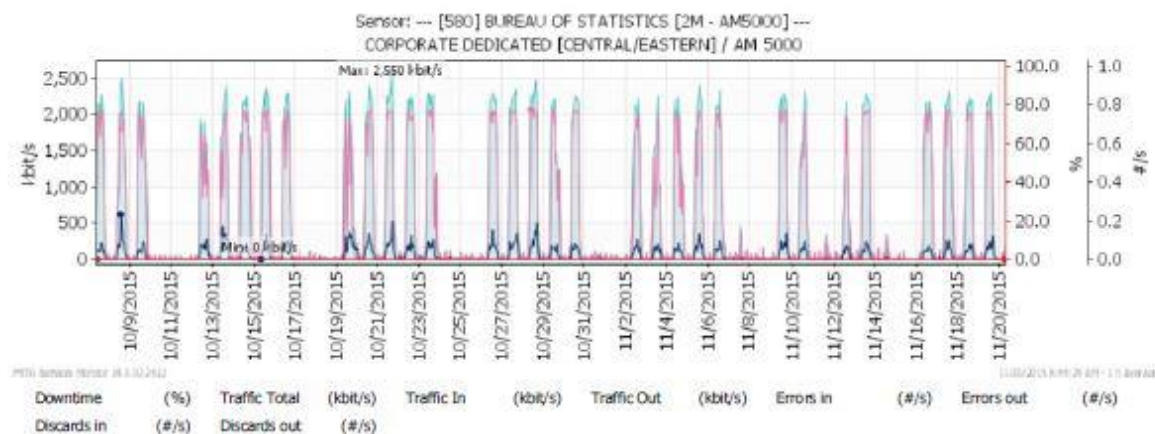
Fiji

Reliability

During the monitoring period (October 12 – November 16 2015) there were a number of outages of internet connectivity. While most occurred out of hours, there were 10 recorded during business hours. Most of these were less than 10 minutes, however there was an outage recorded across the entire weekend of Nov 14-15.

Speed

The main internet link for the Fiji Bureau of Statistics is a 2Mbit link shared between all staff (over 100) in the Suva office. Monitoring of this link by the ISP shows the bandwidth fully utilised:

Monitoring over the course of 6 weeks, also shows a similar pattern of the link being fully utilised during business hours:

Noumea

SPC in Noumea monitor connectivity from their offices to a number of external services. This is particularly important for SPC as they have moved some of their key systems (such as email) into the cloud. The following monitor to the Amazon cloud shows good performance with only 4 dropped requests during the week displayed. Average ping was 27ms.

Report Time Span:	6/10/2015 3:52:00 PM - 12/10/2015 3:52:00 PM			
Sensor Type:	Ping (60 s Interval)			
Probe, Group, Device:	Noumea Probe NOUPRTG01 > SPC External > Amazon PRTG			
Uptime Stats:	Up:	100 % [5d23h53m36s]	Down:	0 % [0s]
Request Stats:	Good:	99.954 % [8633]	Failed:	0.046 % [4]
Average (Ping Time):	27 msec			

Tokelau

Performance

Tokelau NSO provided monitoring from a range of different connections:

- Apia, Samoa Office
- Apia, Samoa Home (mobile broadband dongle)
- Atafu, Tokelau (ADSL)
- Wellington, New Zealand (ADSL broadband)

Data covers the period 27/10/2015-6/1/2016. The table below summarises the median upload and download speed, as well as latency for each of these connections.

	Apia, Samoa Office	Apia, Samoa Home	Atafu, Tokelau	Wellington, NZ Home
Download (Mbit/s)	1.73	0.64	5.33	5.69
Upload (Mbit/s)	2.06			
Latency (ms)	198.714	255.776	415.024	45.982

Federated States of Micronesia

Reliability

Reliability was good with only one outage being recorded during the monitoring period. This was an approximately 20 minute power outage.

Performance

FSM internet connection shows an average download performance of between 3.5 and 3.8 Mbit/s and an average upload performance of 3 – 4 Mbit/s. As the server the speedtest was being run against was only 12km away, latency was in the 4-6ms range and is not representative of what latency to cloud services hosted in North America, Asia or Australia would be.