Enhancing efficient Internet traffic management in the Pacific – Internet Exchange Point

KOICA-ESCAP Joint Capacity Building Training Programme on Digital Technologies for Addressing Climate Change Impact in the Pacific, 20-30 August 2025, Brisbane, Australia

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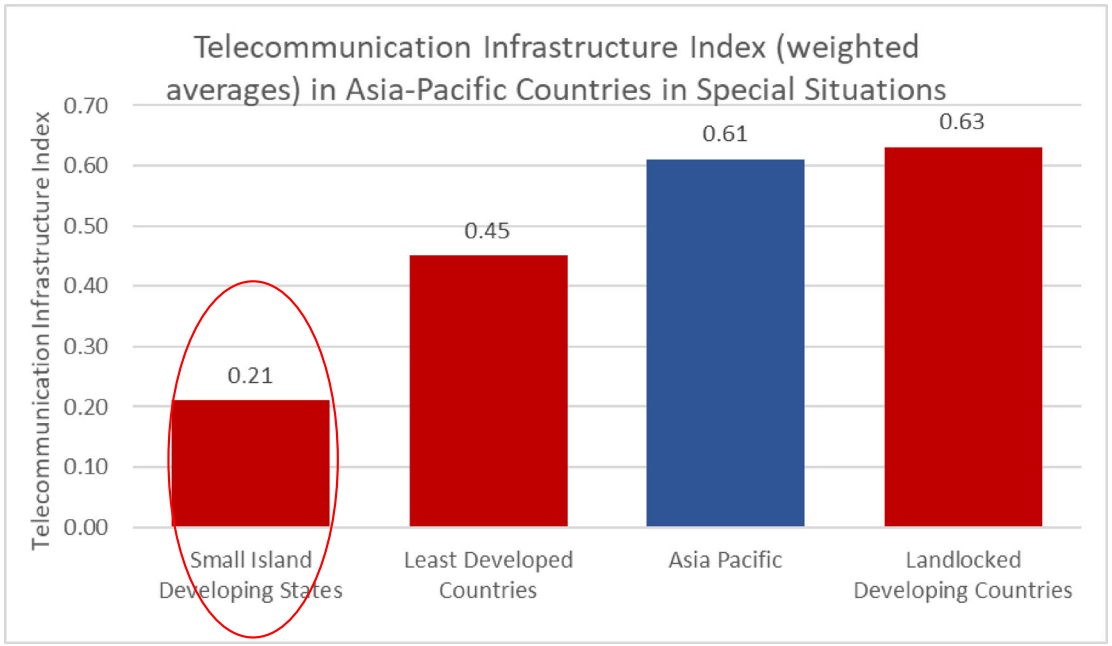
Outline:

1. Why the Pacific SIDS?
2. Why set up an IXP?
3. What is the Pacific IXP project
4. Next steps

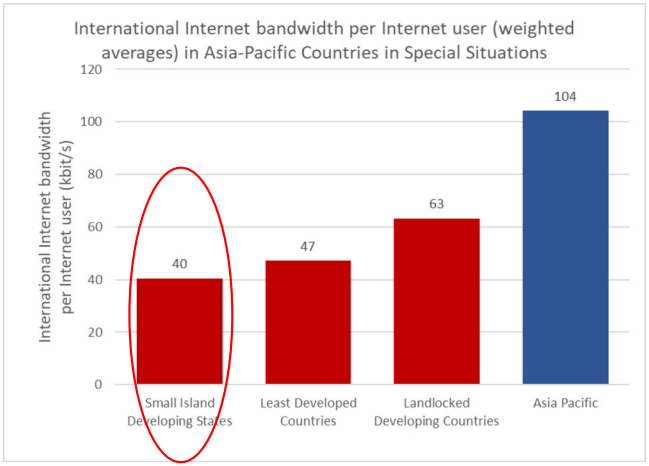
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1. Why Pacific SIDS?

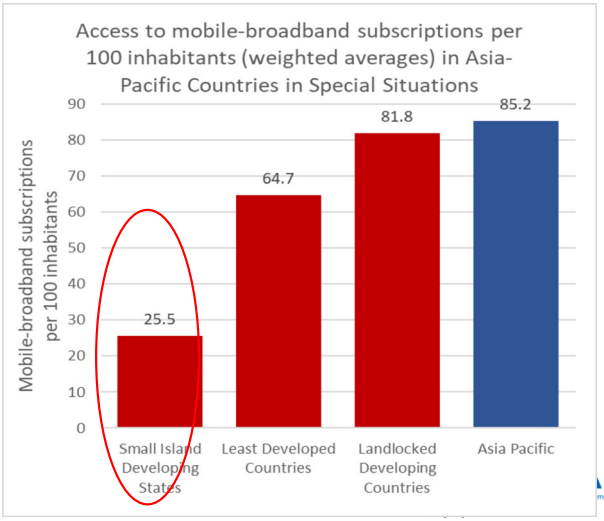
Telecom infrastructure



Internet Bandwidth



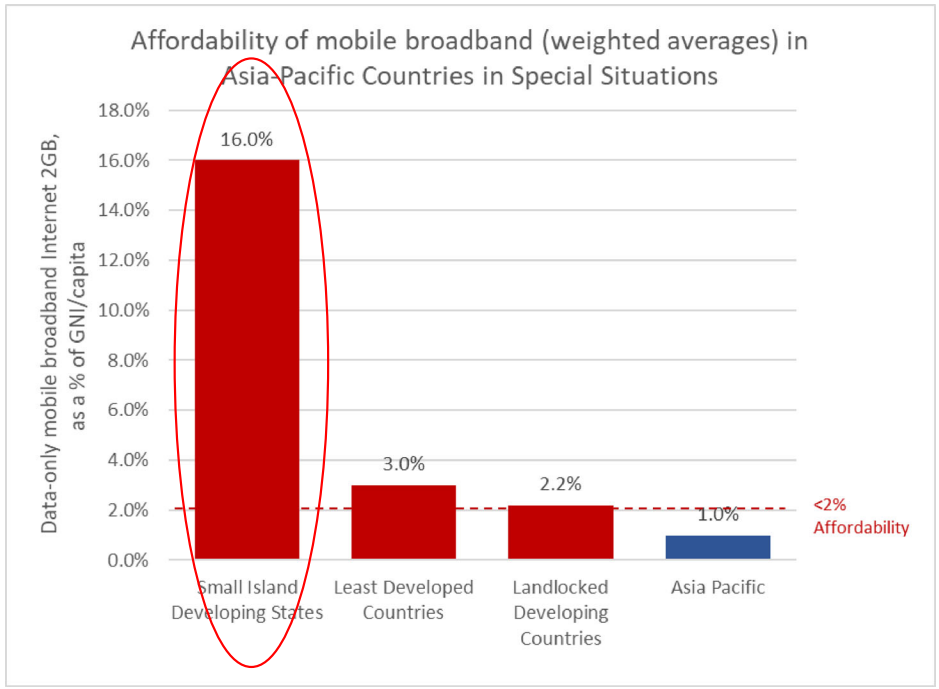
Access to mobile – broadband subscriptions



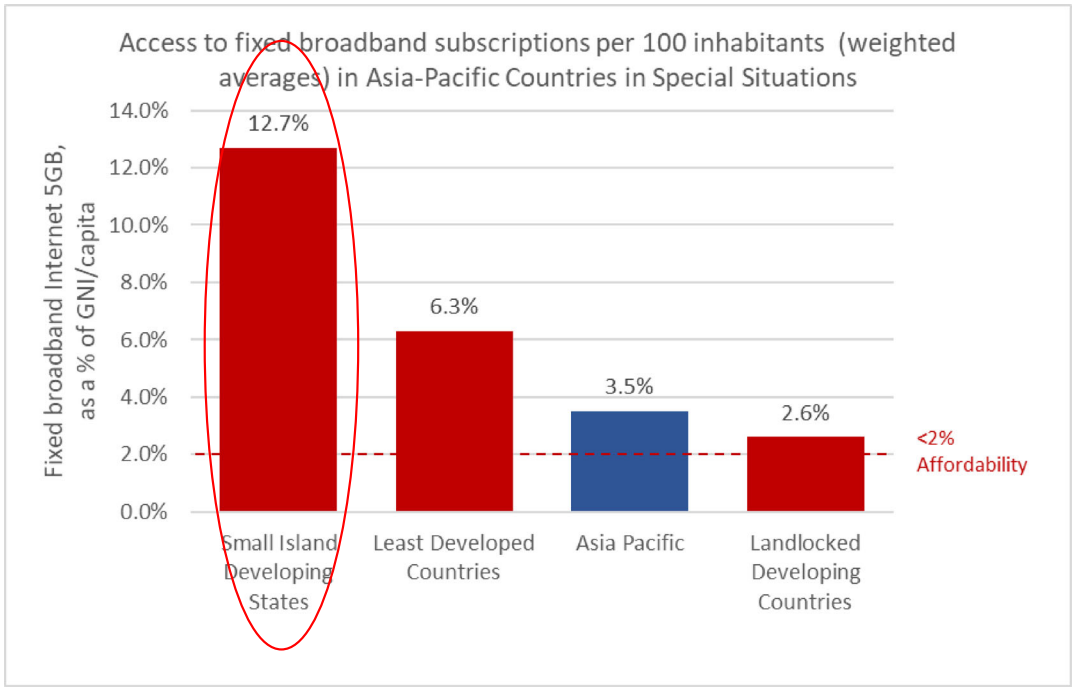
Source: ESCAP's estimates based on ITU statistics, 2025

2. Why Pacific SIDS? – need to improve affordability

Mobile subscriptions



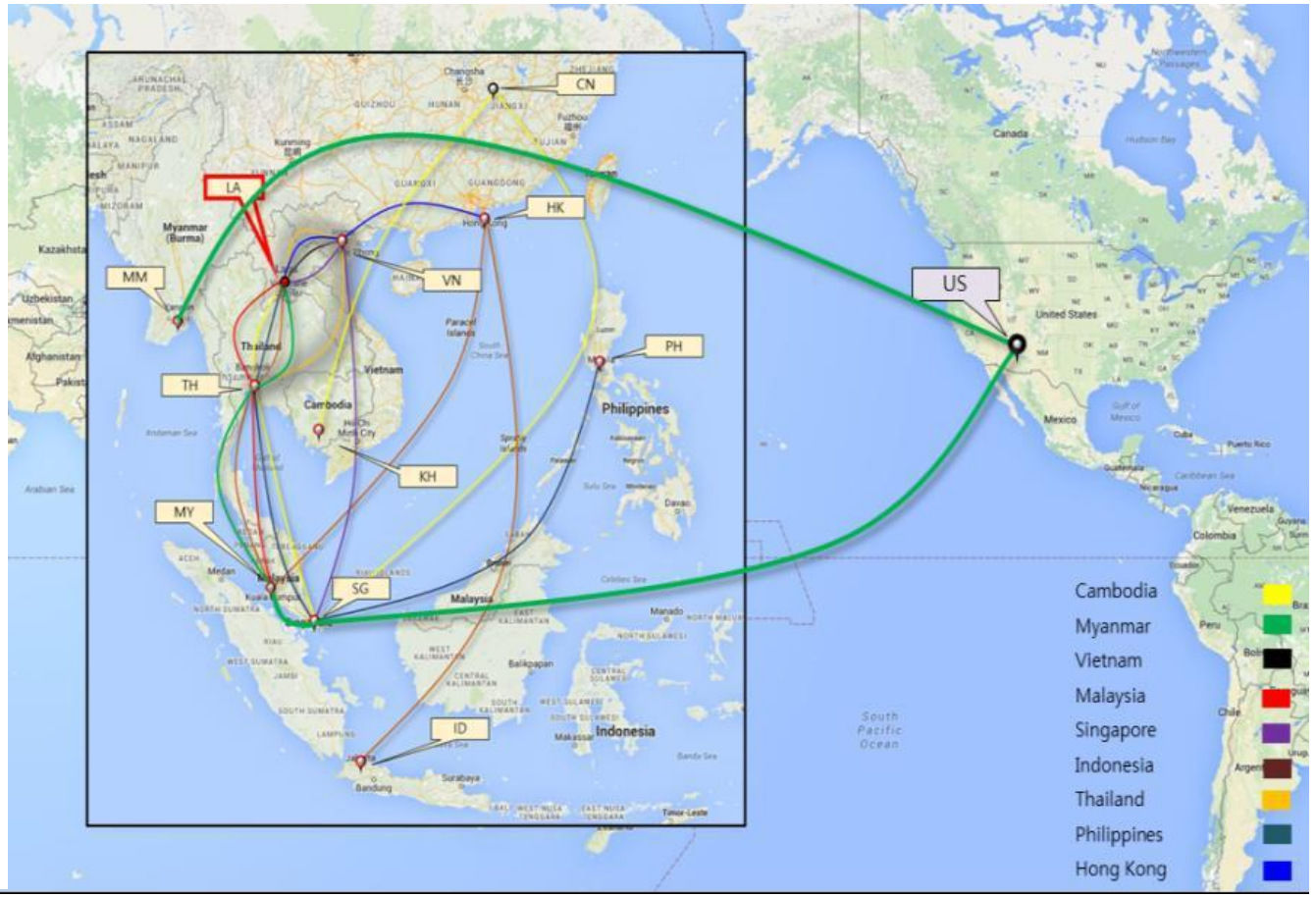
Fixed subscriptions



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2. Why set up an IXP? - Tromboning problem of Internet traffic routes (example from SEA)

- Lao PDR to Myanmar (33.02, tromboning index)
- Traffic route: Lao PDR-Thailand-Malaysia-Singapore-USA-Myanmar

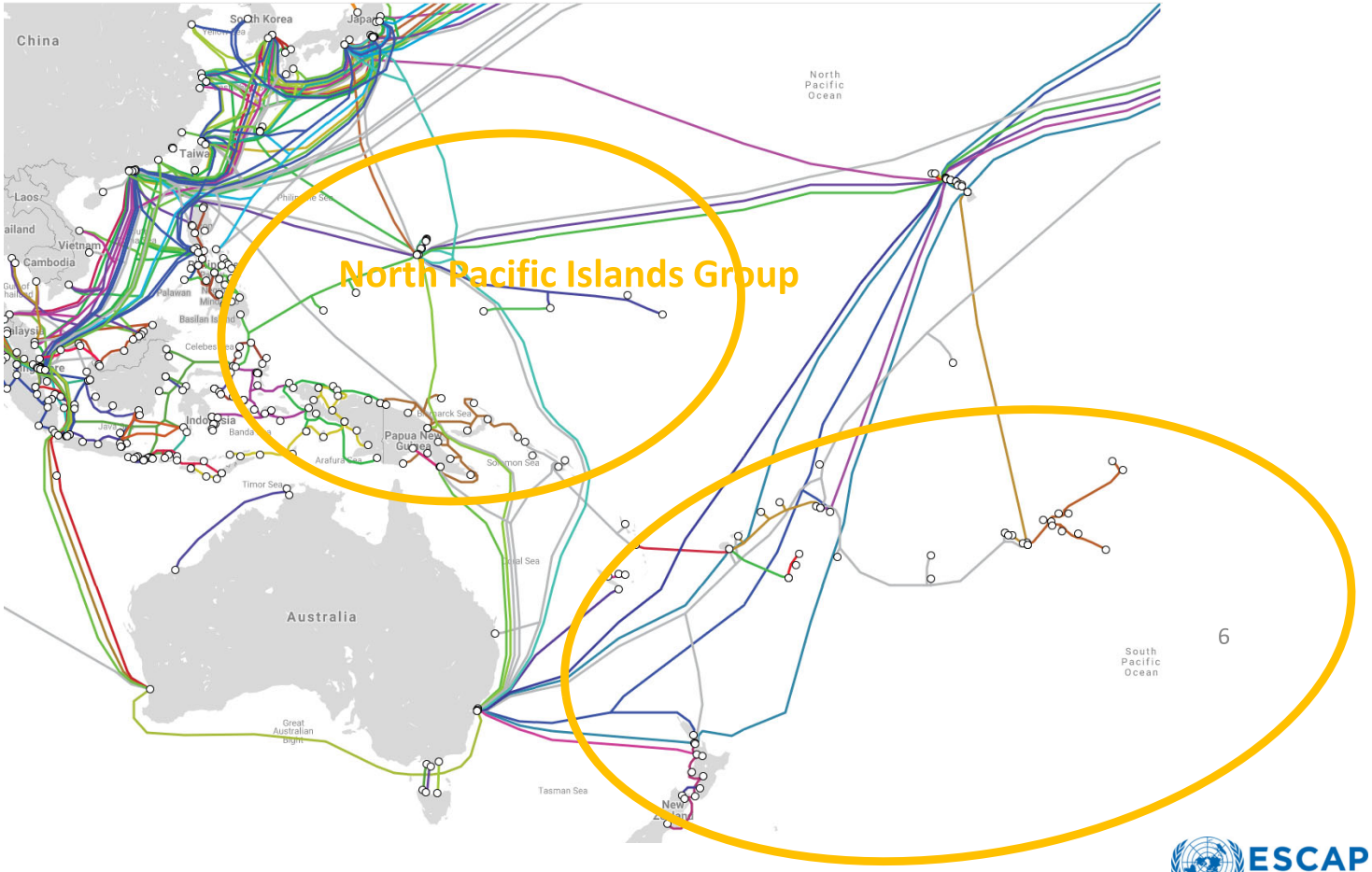


Source: ESCAP, In-Depth Study of the Asia-Pacific Information Superhighway in CLMV Countries, 2020, https://www.unescap.org/resources/depth-study-asia-pacific-information-superhighway-clmv-countries

So

2. Why set up an IXP? – single cable vulnerability

- The hairpin problem: data traffic roundtrips many times through hubs (USA, Singapore, HK) before reaching its final destination
- Adds costs, and latency (delays) - poor internet quality
- IXPs enable traffic to be shared locally
- Shared IXP due to small size of traffic volume
- Two Pacific Zones



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2. Why set up an IXP? - Higher latency due to lack Internet routes coordination in Pacific island countries

Estimated latency (milliseconds) of the Pacific IXP Proposal

Country	Population	Internet Users	Latency to NZ	Weighted Latency	Latency to Fiji	Weighted Latency	Latency to Samoa	Weighted Latency	Latency to closest	Weighted Latency
Fiji	926276	425680	29	11.24	0	0.00	16	6.20	0	0.00
New Caledonia	282754	201000	45	8.24	60	10.98	32	5.86	32	5.86
French Polynes	290373	195275	74	13.16	50	8.89	34	6.05	34	6.05
Solomon Is	660121	69859	58	3.69	29	1.84	45	2.86	29	1.84
Vanuatu	288037	66613	42	2.55	13	0.79	29	1.76	13	0.79
Samoa	201316	58508	40	2.13	16	0.85	0	0.00	0	0.00
Tonga	106398	42552	38	1.47	9	0.35	25	0.97	9	0.35
American Sam	50826	17000	45	0.70	21	0.33	5	0.08	5	0.08
Kiribati	109367	14649	65	0.87	94	1.25	105	1.40	65	0.87
Cook Is	11700	5160	66	0.31	42	0.20	26	0.12	26	0.12
Niue	1618	1090	44	0.04	20	0.02	4	0.00	4	0.00
Tokelau	1285	805	41	0.03	70	0.05	81	0.06	41	0.03
TOTAL	2930071	1098191	54.08	**44.42**	41.75	**25.55**	41.25	**25.36**	**26.67**	**15.99**
				NZ		**FIJI**		**SAMOA**		**All THREE**

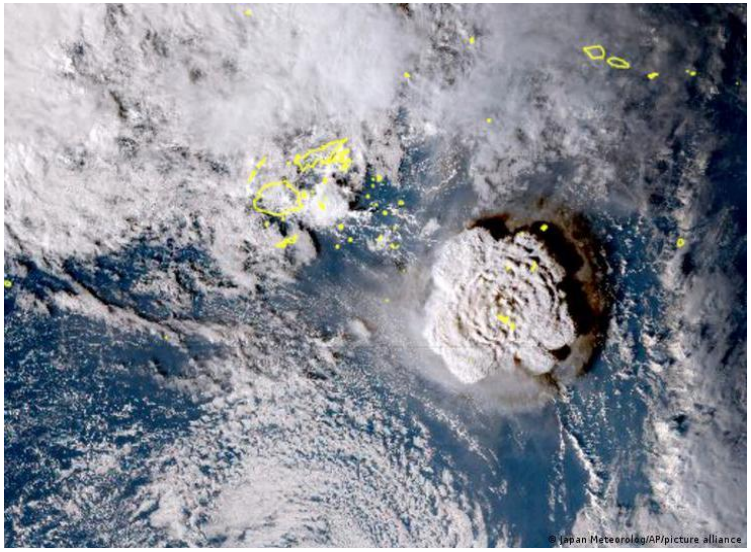
- Internet latency with no IXP

- Internet latency with IXP

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2. Why set up an IXP? – redundancy

Tonga - volcanic eruption in January 2022 broke the only submarine cable to Tonga, 18 months of no internet nationwide.



- Fiji – Category 5 Cyclone Winston in 2016 destroyed communications networks & transmission towers, affecting Internet and communication services (total damage 25 million USD (0.5% of GDP))



Source: https://www.gfdrr.org/sites/default/files/publication/Post%20Disaster%20Needs%20Assessments%20CYCLONE%20WINSTON%20Fiji%202016%20(Online%20Version).pdf

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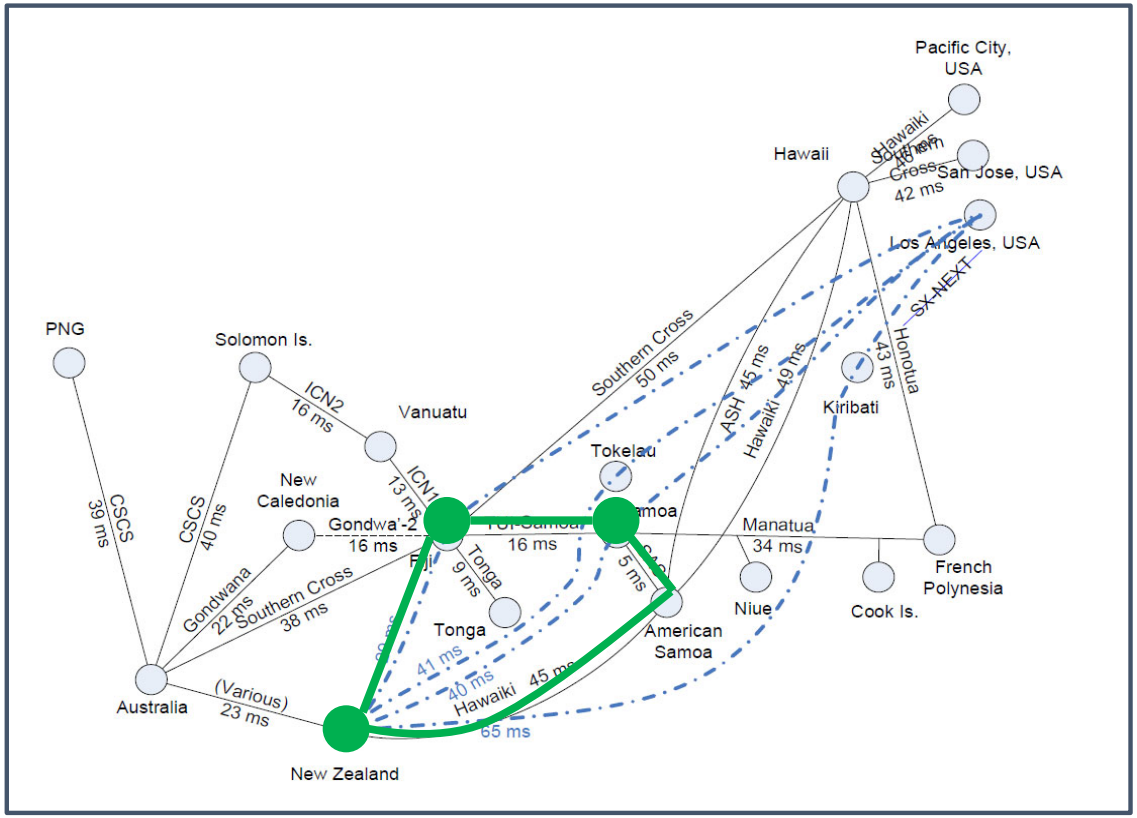
3. What is the Pacific IXP project?

- National IXP of Fiji, New Zealand, and Samoa to connect to each other in order to better coordinate the Internet traffic in South Pacific island countries

Estimated improvements:

- Latency of 12 PICS through NZ improved by 178%
- Latency of 12 PICs through Fiji improved by 60%
- Latency of 12 PICs through Samoa improved by 59%

Pacific IXP setup – distributed IXP



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ESCAP & partners supported subregional consultations since 2018

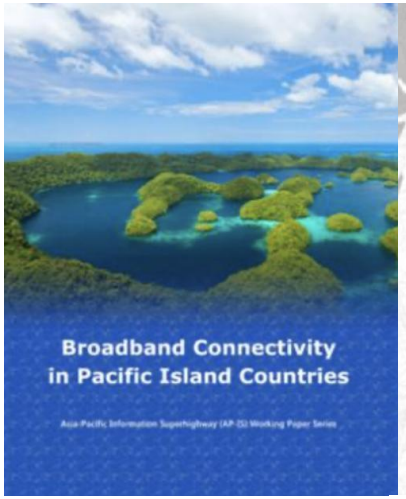


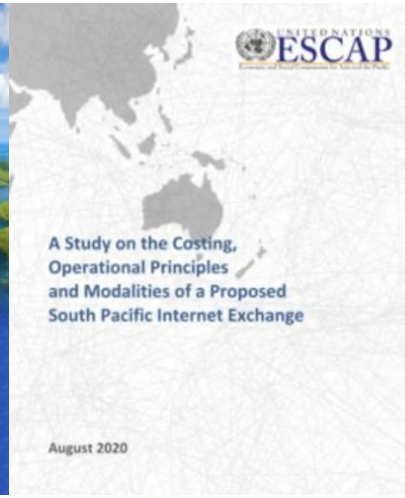


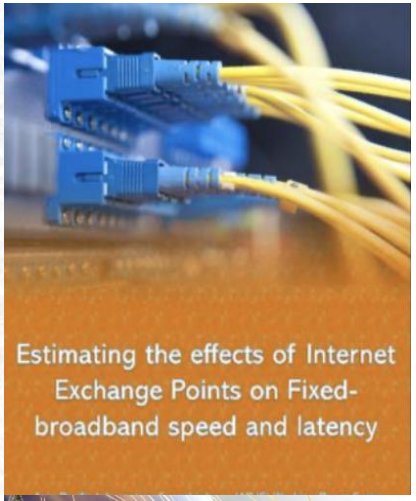
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Technical studies to inform Pacific dialogue

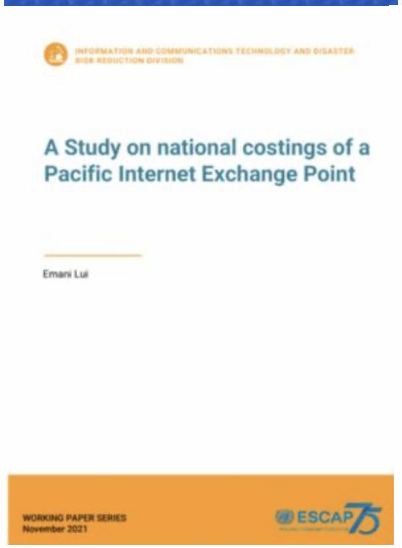
- ✓ Including feasibility study, operating guideline, costing, and online survey

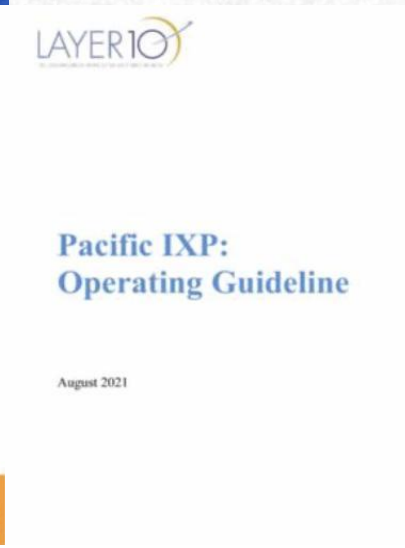


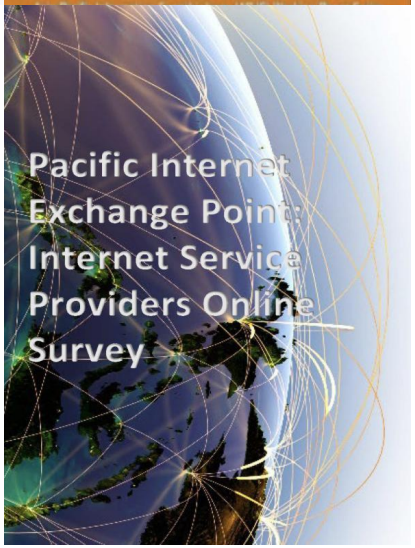












Pacific Internet Exchange Incorporated

1. ESCAP facilitated negotiations between government representatives and other relevant stakeholders in Fiji, New Zealand, and Samoa,
2. Agreed on a Constitution for establishment of the Pacific IXP.
3. As a result, the **Pacific Internet Exchange Incorporated was registered** in New Zealand as a legal entity on 17 June 2024.



NEW ZEALAND COMPANIES OFFICE

NZBN More business Less work

Certificate of Incorporation

PACIFIC ISLANDS INTERNET EXCHANGE INCORPORATED
50210954
NZBN: 9429052168000

This is to certify that PACIFIC ISLANDS INTERNET EXCHANGE INCORPORATED was incorporated under the Incorporated Societies Act 2022 on the 17th day of June 2024

Registrar of Incorporated Societies
17th day of June 2024

To check the validity of this certificate visit
https://app.businessregisters.govt.nz/sber-businesses/verify/9429052168000/IncorporatedSociety-41802898.html

Certificate generated on 17 June 2024 11:52 AM NZST

Pacific Internet Exchange Incorporated

1. ESCAP facilitated the inauguration meeting of the PIEI on 15 July 2024
2. **PIEI members**:

a) **Chair** – Mr. Ravnil Prasad, Ministry of Communications, Fiji.
b) **Treasurer** – Mr. Chris Browning, NZIX, New Zealand
c) **Secretary** – Mr. Terry Sweetser, APNIC Foundation, Australia

Members: Mr. Junior Latu & Ms Sarai Faleupolu Tevita (Samoa), Mr. Tevita Navila (Fiji)

Observer: ESCAP

Inauguration Meeting of the Committee of the Pacific Internet Exchange Incorporated, 15 July 2024, (virtual)



3. What is the Pacific IXP project?

G1 | milliseconds

	A	B	C	D
	Country	**Top Level Domain**	**Org Name**	**ASN**
2	Fiji	.fj	Telecom Fiji/Connect Internet Servic	ASN 4638 & 45349
3	Fiji	.fj	Vodafone Fiji	
4	Fiji	.fj	Fiji International Telecoms (FINTEL)	
5	Fiji	.fj	Digicel Pacific	
6	Tonga	.to	Digicel Tonga	
7	Tonga	.to	Tonga Communications Corp	
8	Tonga	.to	Tonga Cable Limited	
9	Tonga	.to	(Tongan Government)	
10	Samoa	.ws	Bluesky Samoa/SamoaTel	
11	Samoa	.ws	Digicell Samoa	
12	Samoa	.ws	CSL	
13	American Samoa	.as	ASTCA Pago Pago	
14	American Samoa	.as	Samoa Telco	
15	American Samoa	.as	BlueSky Pago Pago	
16	American Samoa	.as	(American Samoan Government)	
17	Kiribati	.ki	(no '.ki' domains, sites or hosts that are physically located in Kiribati.)	
18	Kiribati	.ki	(Kiribati Government)	
19	Niue	.nu	Spark New Zealand Satellite	
20	Niue	.nu	(Niue Government)	
21	Cook Islands	.ck	Telecom Cook Islands	
22	Cook Islands	.ck	(Cook Islands Government)	
23	French Polynesia	.pf	**OPT**	
24	French Polynesia	.pf	VINI SAS	
25	French Polynesia	.pf	VITI	
26	French Polynesia	.pf	(French Polynesia Government)	
27	Vanuatu	.vu	Vanuatu IX	
28	Vanuatu	.vu	Telecom Vanuatu	
29	Vanuatu	.vu	Interchange Ltd	
30	Vanuatu	.vu	(Vanuatu Government)	
31	Solomon Islands	.sb	**Solomon Telekom**	
32	Solomon Islands	.sb	SATSOL Ltd	
33	Solomon Islands	.sb	(Solomon Islands Government)	
34	New Caledonia	.nc	**OPT**	
35	New Caledonia	.nc	Offratel	
36	New Caledonia	.nc	CANL	
37	New Caledonia	.nc	(New Caledonia Government)	
38	Tokelau	.tk	(no '.tk' domains, sites or addresses physicaly located in Tokelau)	
39	Tokelau	.tk	(Tokelau Government)	
40				
41				

According to an ESCAP survey, approximately **30 different service providers, national government agencies, and cable systems** can benefit from connecting to the Pacific IXP

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4. Next steps

Key issues for the Committee to address:

- Administrative and logistical arrangements
- Funding support for the procurement of equipment and training of staff in the 3 countries
- Inviting more members to the PIEI from various stakeholders in Fiji, Samoa and New Zealand

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Thank you