



KAJUPA

Identity & Privacy:

New mistakes for an online world

TLNOG2 – Friday 21st November 2025

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What is identity?



- **Identity Attributes**

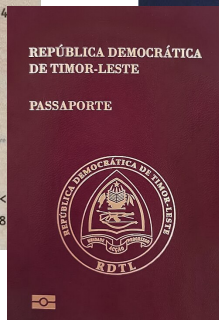
- Your name
- Your affiliation
- Your nationality

- **Forms of Identity**

- Birth certificate, school id, library card, drivers license & passport

- **Why should NOG care?**

- Links people to each other
- Links people to services



What is **traditional** identity?



- **Physical Identity**

- Plastic Card with Photo
- Often too much information
- Possessed by an individual

- **Offline Identity**

- Built in security features
- Expiry date
- Selective disclosure (bypass authority)

- **Centralised Authority**

- Primary purpose
- Reused in the absence of alternatives

Know Your Customer



- **Physical Services & Identity**
 - In person transactions
 - Purchase & payment \$€¥£₹₪₧₨₪₹
- **Online Services & Identity**
 - Non-Physical purchase
 - Payment != Purchaser
- **KYC, Fraud & Leaks**
 - Government / Banking / Telco
 - Limiting fraud - too much info

What is digital **id**entity?



- **Digital Identity**

- Email Address, WhatsApp, Facebook
- MyGovID (Australia)
- Multiple, often linked

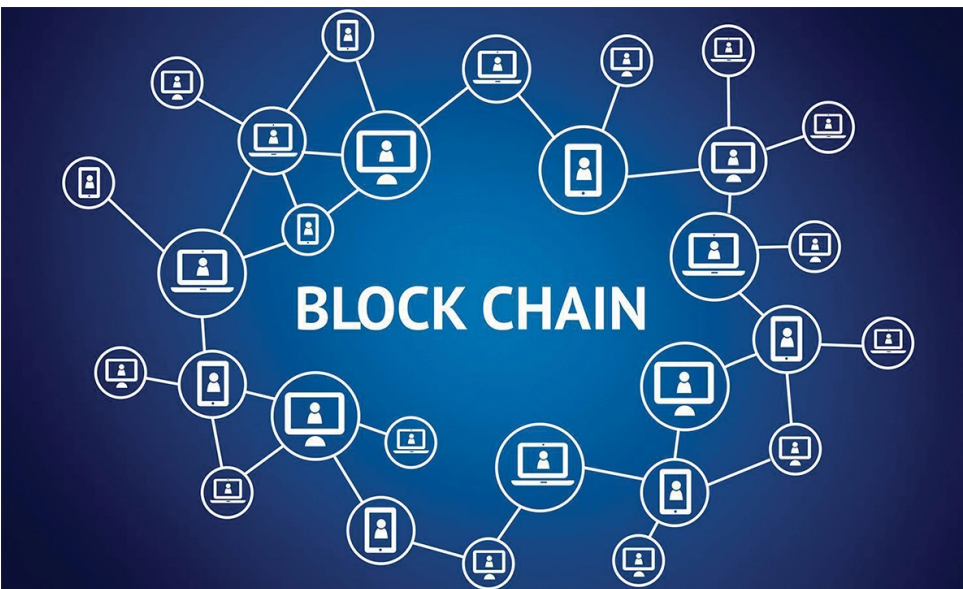
- **Online & Real-Time Identity**

- Validated in real-time (now)
- All or nothing attributes

- **Centralised, Delegated or Distributed**

- One centralised validator
- Multiple delegated validators
- Distributed validation

Block Chain as Distributed Identity



- **Block Chain Identity**

- Public ledger of information
- Immutable information
- Distributed query points

- **Buzzword Friendly**

- Verifiable Credentials
- Digital Wallet
- Zero-Knowledge (18+ vs DOB)

- **Benefit == Weakness**

- Distributed == Resilient
- Distributed == No central logging

Timor-Leste is already a target!



United Nations
Office on Drugs and Crime

Southeast Asia and the Pacific Organized Crime Threat Alert

**Strategic infiltration of vulnerable
jurisdictions through criminal foreign direct
investments: the case of Timor-Leste**

Organized Crime Threat Alert Series - September 2025

Research & Education chose Delegated Identity



- **eduroam**

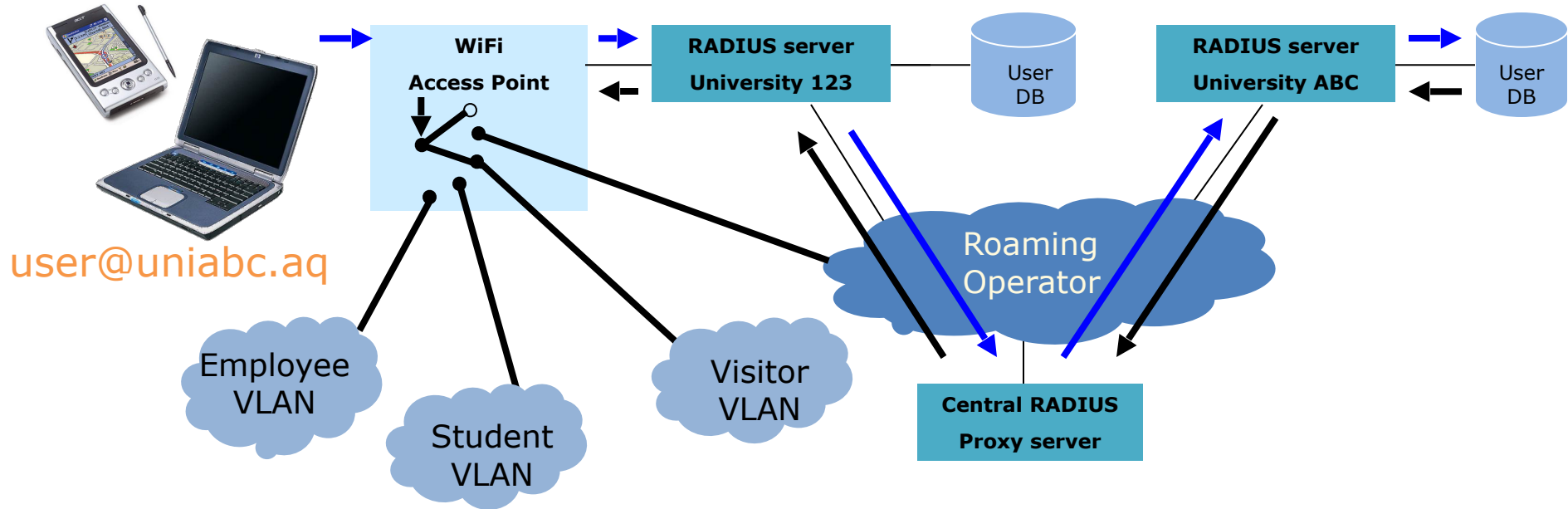
- No Pre-Shared Keys
- No Splash Screen
- WPA2/Enterprise (802.1x)
- username@intitute.tl
OR Device Specific Profile/Account

- **eduGAIN**

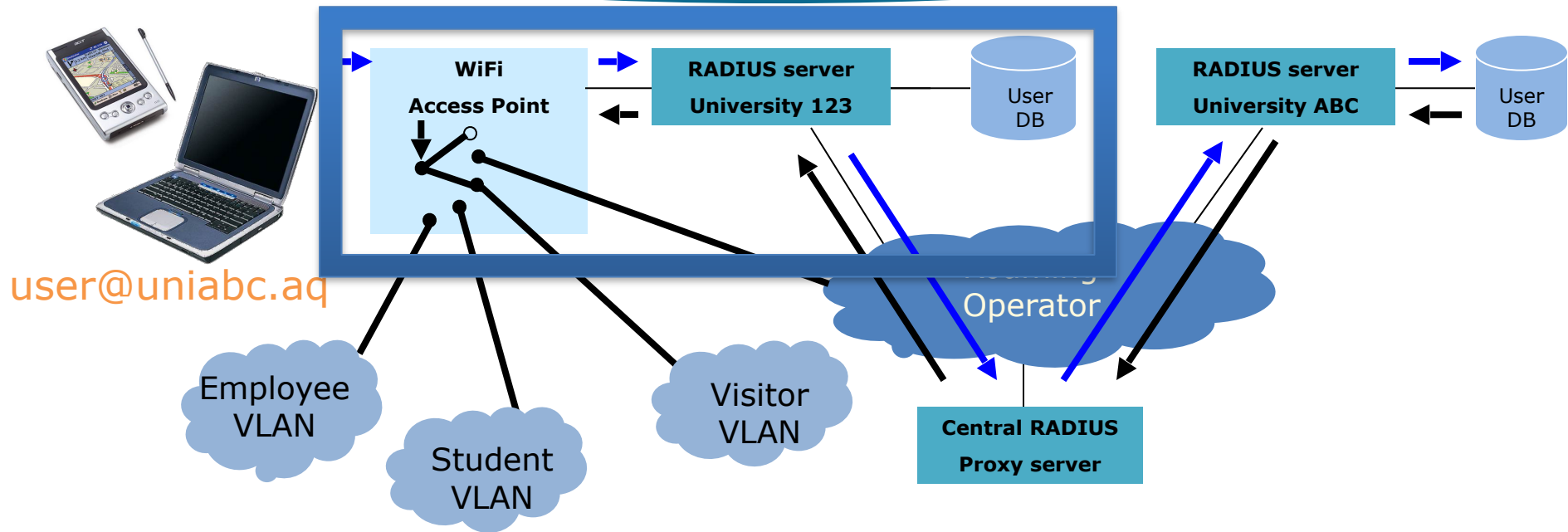
- SAML2 AuthNZ via attributes
- Information Minimisation (K/C) 
- Interfederated

- **Delegated to NRENs/Institutions**

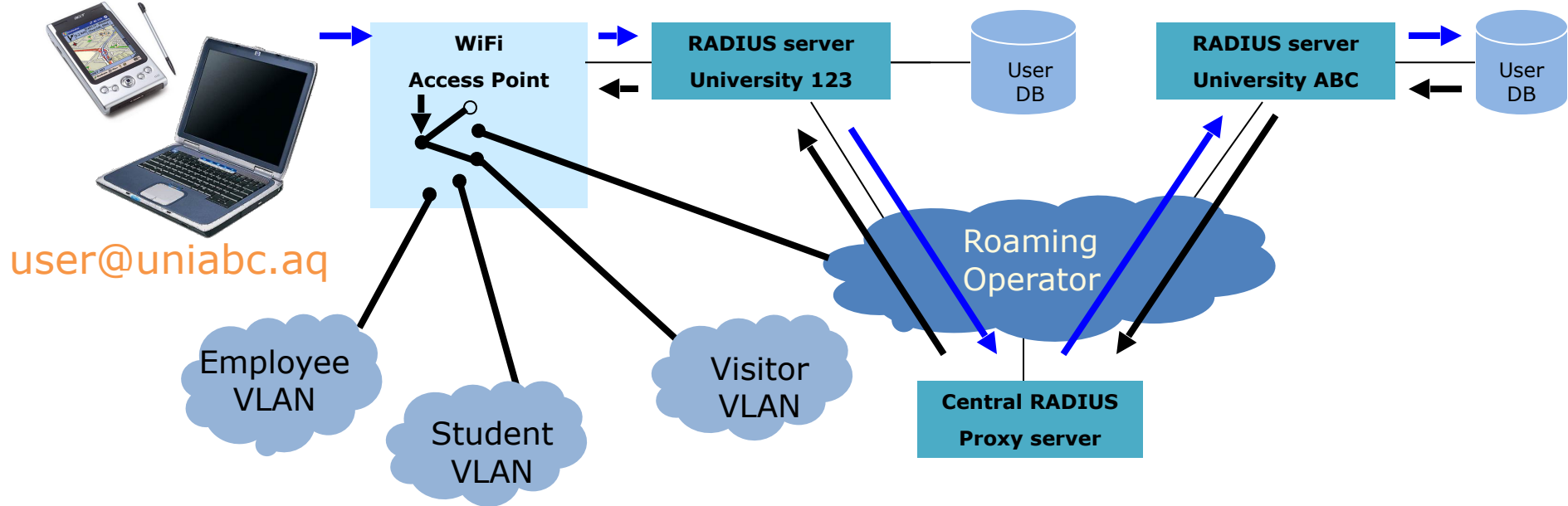
- Technology standardised
- Implementation choices (2FA)
- Trust fabric is membership



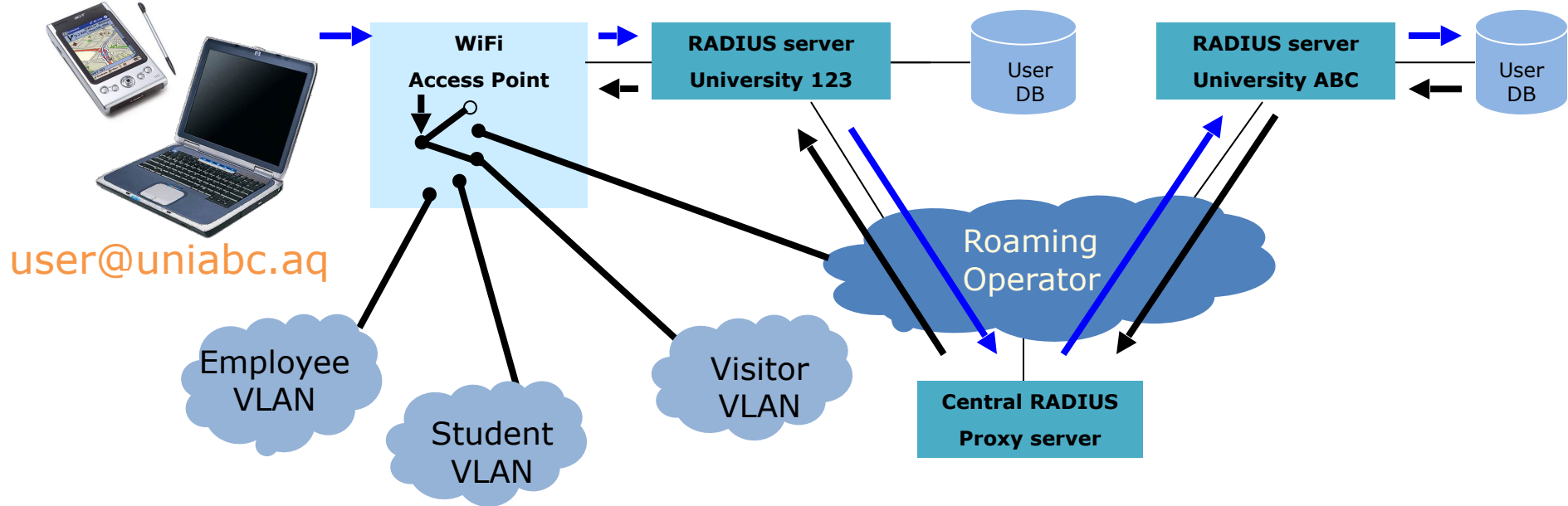
- WiFi Access Points, a RADIUS Server and a user database for sites.
- RADIUS proxy for Federation Level RADIUS



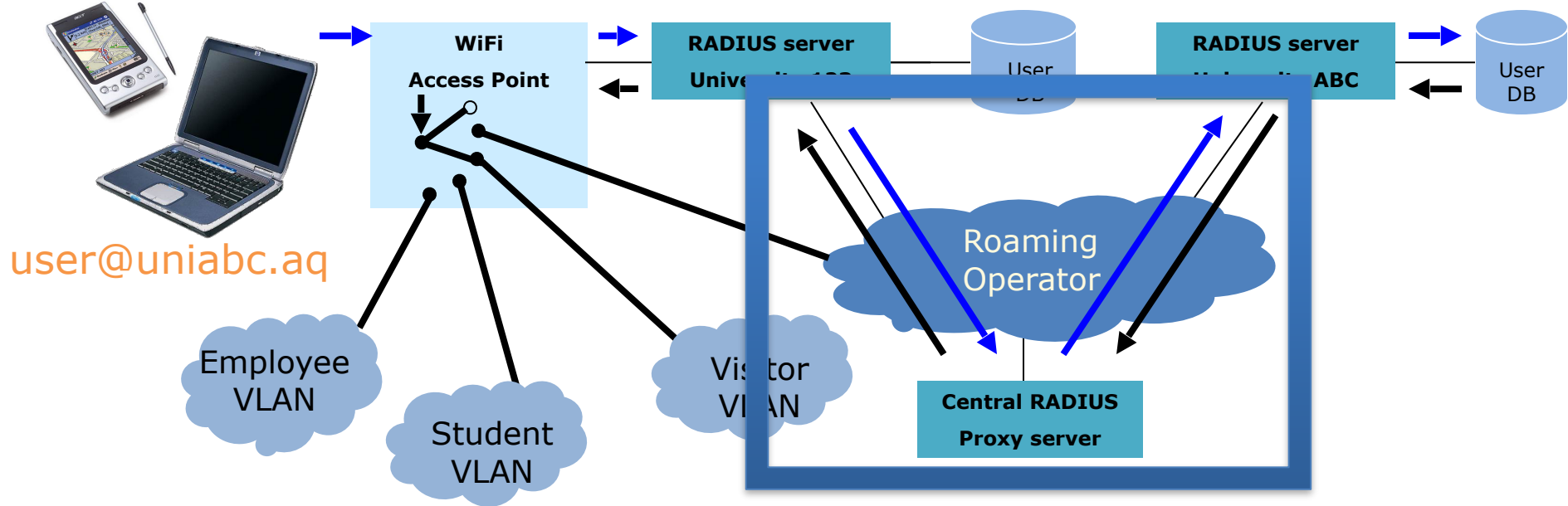
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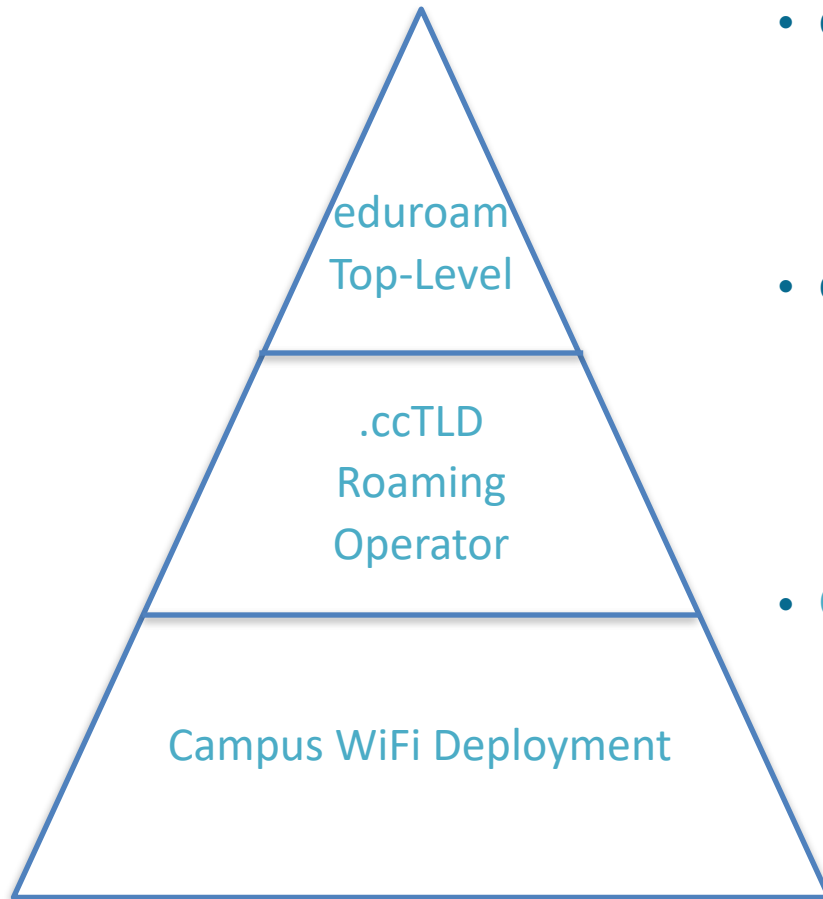


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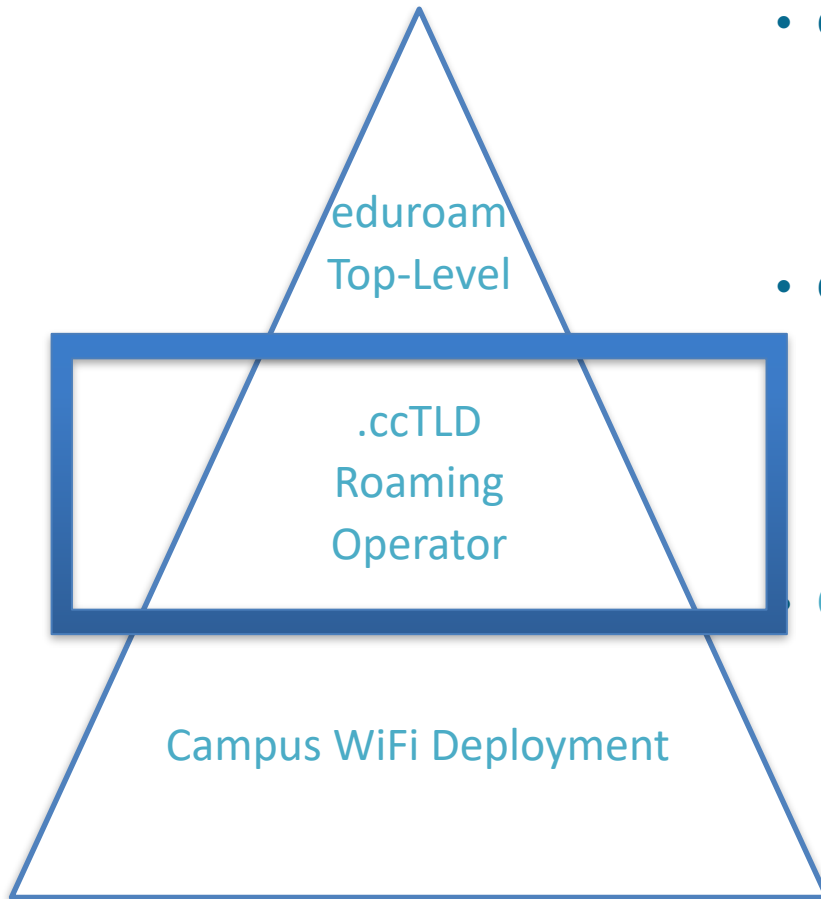
What authentication options are supported?

	Clear-text	NT hash (ntlm_auth)	MD5 hash	Salted MD5 hash	SHA1 hash	Salted SHA1 hash	Unix Crypt
PAP	✓	✓	✓	✓	✓	✓	✓
CHAP	✓	✗	✗	✗	✗	✗	✗
Digest	✓	✗	✗	✗	✗	✗	✗
MS-CHAP	✓	✓	✗	✗	✗	✗	✗
PEAP	✓	✓	✗	✗	✗	✗	✗
EAP-MSCHAPv2	✓	✓	✗	✗	✗	✗	✗
Cisco LEAP	✓	✓	✗	✗	✗	✗	✗
EAP-GTC	✓	✓	✓	✓	✓	✓	✓
EAP-MD5	✓	✗	✗	✗	✗	✗	✗
EAP-PWD	✓	✗	✗	✗	✗	✓	✓

- <http://deployingradius.com/documents/protocols/compatibility.html>



- **eduroam Top-Level**
 - Connects 100's of Countries
 - Monitoring for Country Roaming Operators
 - Increased Shared Services
- **ccTLD Roaming Operator (*usually an NREN*)**
 - Connects to the 2 top-level servers (or regional)
 - ...and all the universities, schools, libraries.
 - Helpdesk, WebSite, Management Agreements,
™ & ®
- **Campus WiFi Deployment**
 - Connects to ccTLD Roaming Operator
 - Manages Local WiFi
 - Manages User Accounts
 - Local User Helpdesk (and maybe visitors)



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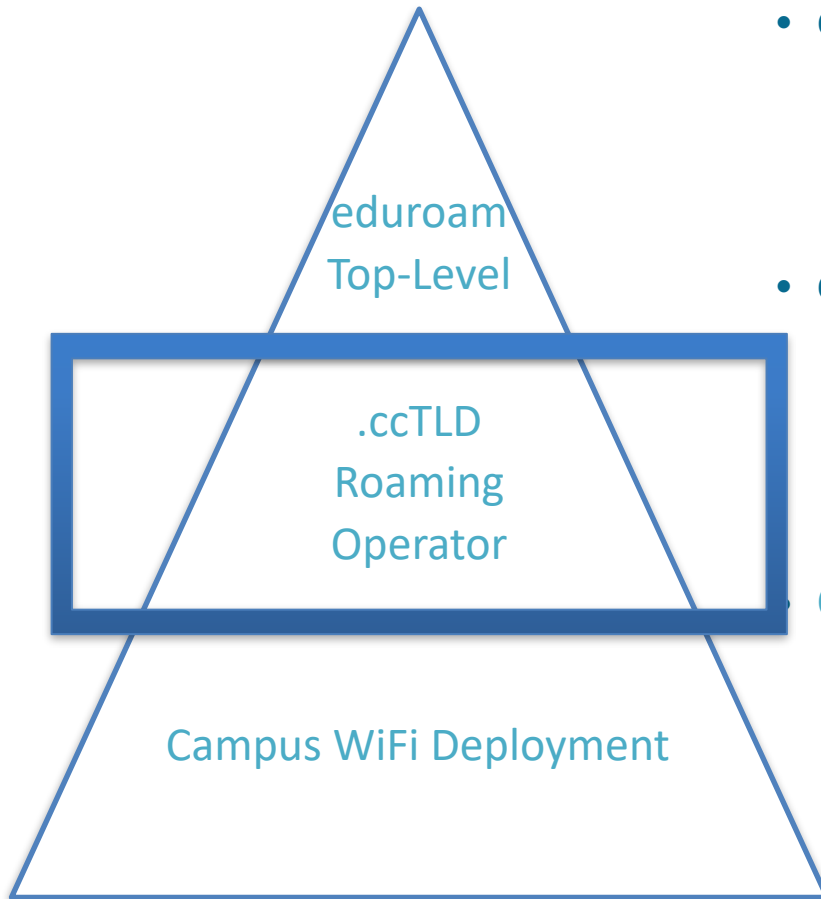
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- **eduroam in the World**

- >95% of roaming is local
- Not pre-shared key wifi / splash screen
- Improve security choices
- Stepping stone for CampusID

- **An anti-pattern for deployment**

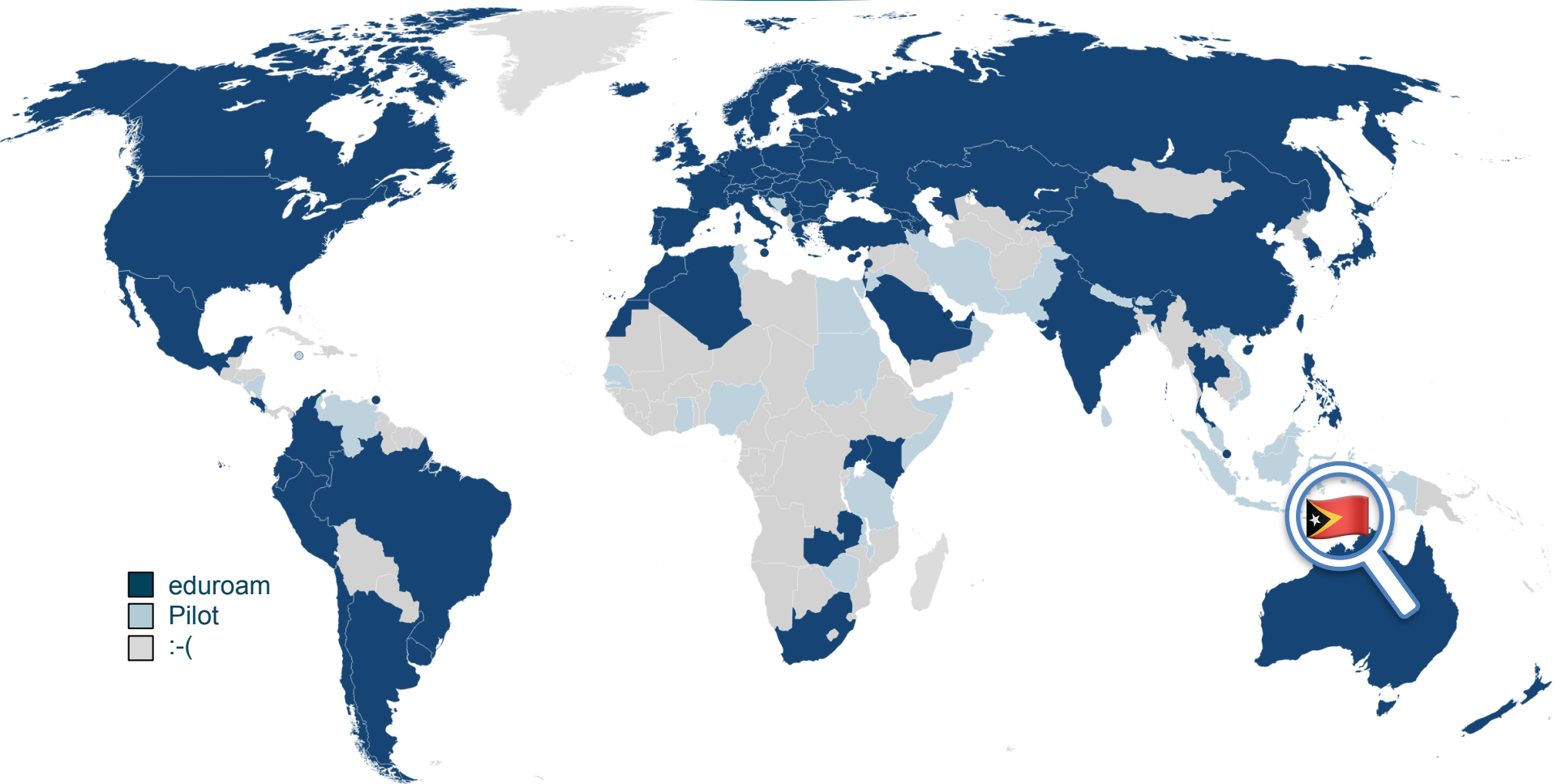
- Focus on roaming doesn't resonate
- User/Pass > Device Specific Profile
- Mobile phones? A solution?

- **Roaming is a bonus**

- OpenRoaming compatible
- GovRoam + CityRoam



Where next for eduroam?



Not just eduroaming...



- More roaming options...



Is there a demand for eduroam?



WiFi Roaming Confederation

for Asia/Pacific collaboration



No “splashscreens”



No “evil twin” networks



No “shared” passwords



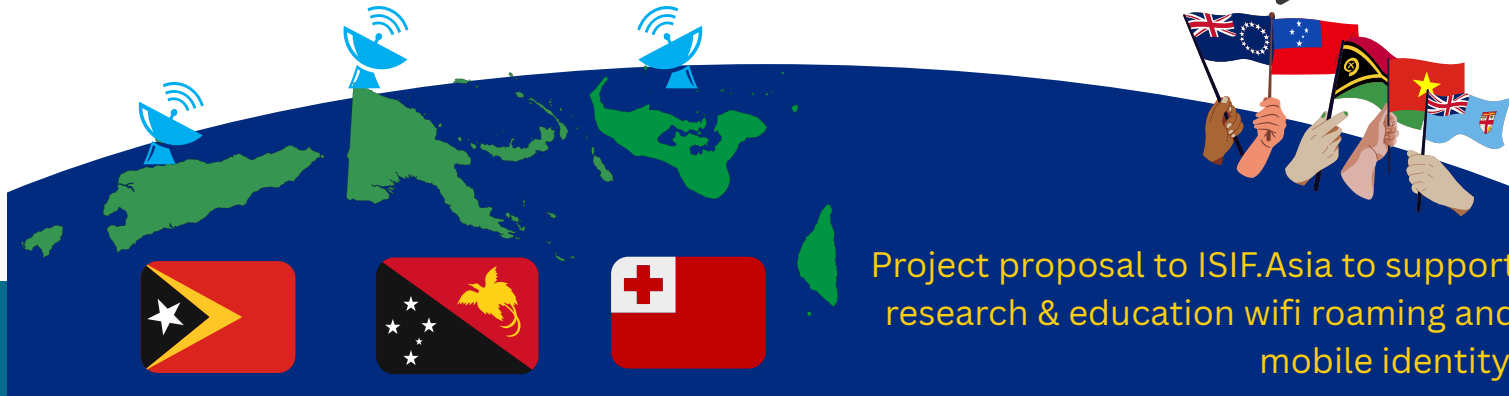
Works on top of any network, provider or technology



Supports Uni's, Schools, Gov't + more

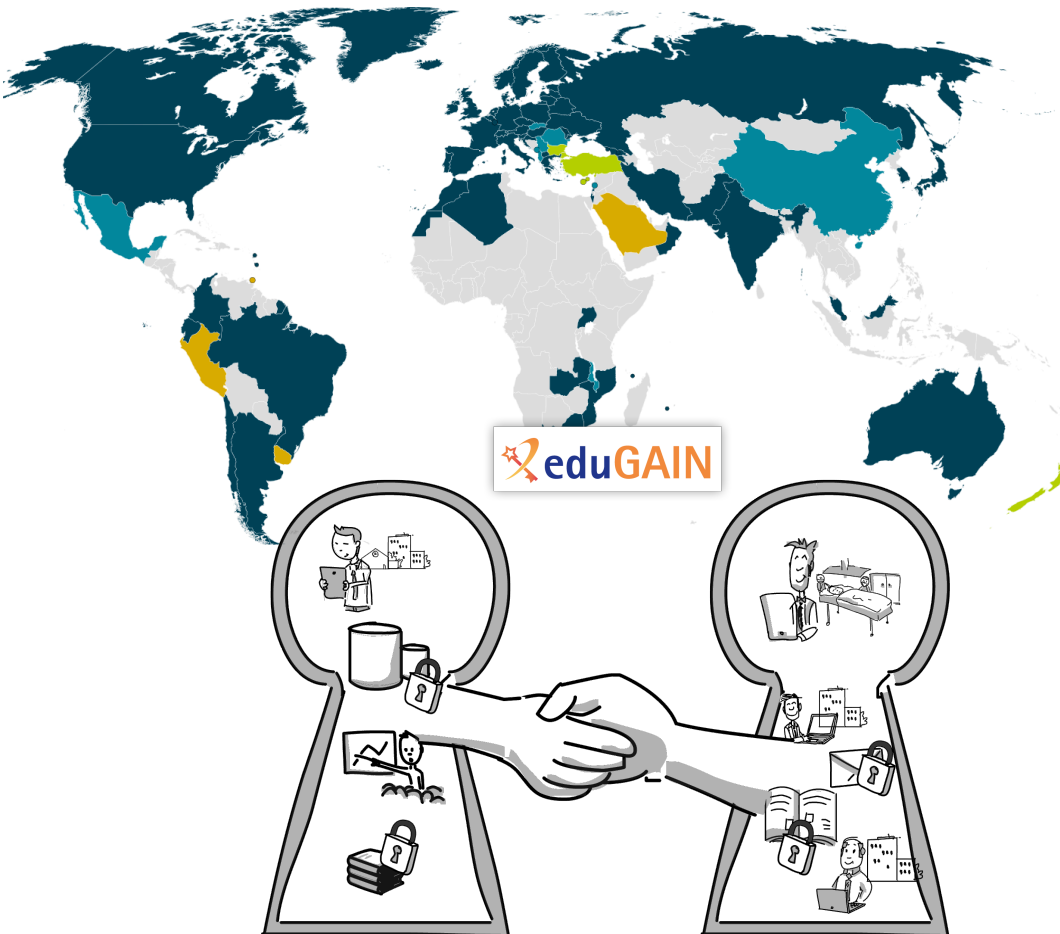


Seamless roaming home & abroad



Project proposal to ISIF.Asia to support research & education wifi roaming and mobile identity.

A path to Identity in Timor-Leste



- **Journal Access + Login**

- Federated SAML WebSSO
- eduGAIN has 75+ R&E federations
- 1,000s of services for free

- **Training & Support**

- An Identity Course for NSRC
- Time + \$€¥£₹₪ Req'd

- **National Digital Independence**

- Tech sovereignty utilising open source & open protocols
- Build local knowledge for use with Industry & Government



It's the federation...





Building international R&E connections...

Goal of the NSRC

The NSRC cultivates collaboration among a community of peers to build and improve a global Internet that benefits all parties. We facilitate the growth of sustainable Internet infrastructure via technical training and engineering assistance to enrich the network of networks.



1100+ Field Activities & 60,000+ Trained



NSRC Internet Development and Deployment

1990 to 2023

Region Filters:
All regions

Activity Filters:

- Workshop
- Assist with infrastructure
- Technical conference
- Presentation or Tutorial

Interactive map created by UO InfoGraphics Lab, Department of Geography | [CARTO.js](#) | [HighCharts](#) | [Leaflet](#)

Core Training Programmes

- Campus Network Design & Operations (CNDO)
 - Fix your campus network
- Network Monitoring & Management (NMM)
 - Monitor your campus network
- BGP
 - Advanced networking & IXP Development
 - Popular in the NOG community



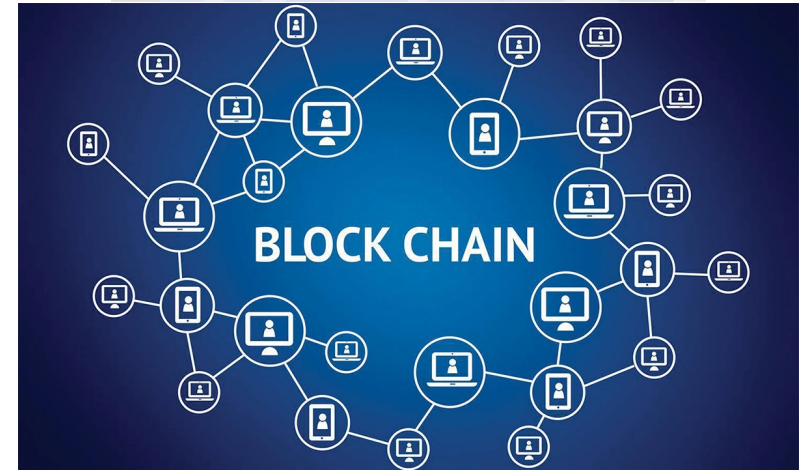
<https://nsrc.org/activities/outlines/>

- Direct Engineering Assistance
 - Hands on with campus team to correct issues and plan a path forward
- Defining a “Source of Truth”
- Synchronisation of Identity Stores



<https://nsrc.org/activities/> ←DEA Request Docs

What path will Timor-Leste choose?





KAJUPA

Questions?

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KAJUPA

- **Kajupa is my boat**
 - Named after a Tibetan deity that is the “destroyer of obstacles”
 - 11.94m LOA, 4.37m beam and a 1.2m draught
- **An adventure to Timor-Leste**
 - Will return to Timor-Leste by boat at the end of the month
- **Funded this TLNOG Trip**
 - USD\$1,000 not spent on the boat