

Lanka Education and Research Network

LEARN Update

Sri Lanka

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SANOG40 - Colombo

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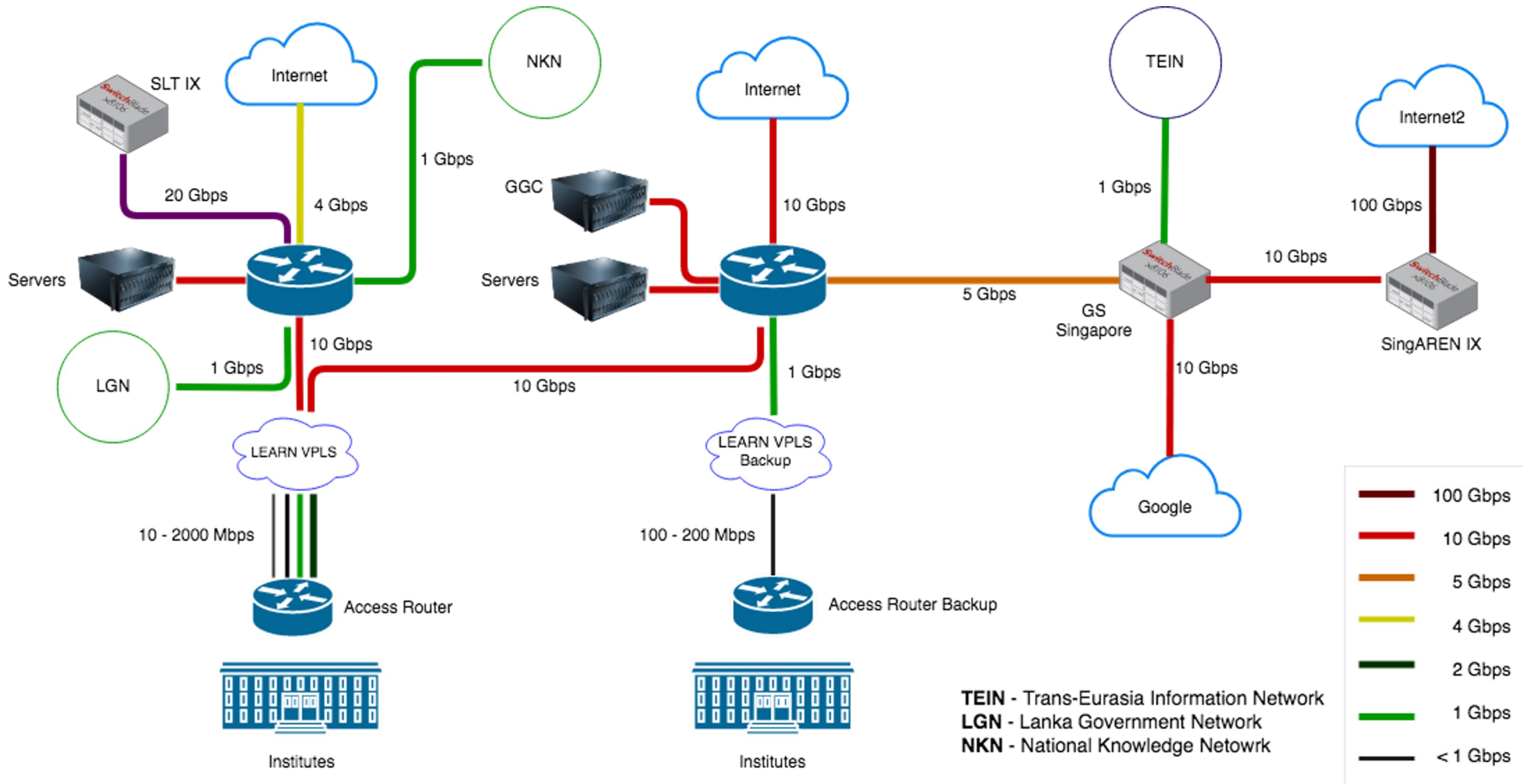
LEARN Team

- Currently 13 (Tech: 5, Non-Tech: 6, Mgt:2)
- To extend the NREN services efficiently
- Looking to recruit new staff
- Organizational restructuring plan already done
- Have increased the technical departments
- Salary restructuring was done recently to match the local industry salary scale

LEARN National and International Connectivity

- Transits
- 10 Gbps through Dialog Axiata
- 4 Gbps through Sri Lanka Telecom (SLT)
- Peering
- SingaREN IX (10 Gbps) (through 5 Gbps Singapore GS)
- National Knowledge Network (NKN) of India (1 Gbps)
- SLT IX (20 Gbps)
- Lanka Government Network (LGN) (1 Gbps)
- Other connections
- TEIN (1 Gbps) network (through 5 Gbps Singapore GS)
- Google (10 Gbps) (through 5 Gbps Singapore GS)

LEARN National and International Connectivity



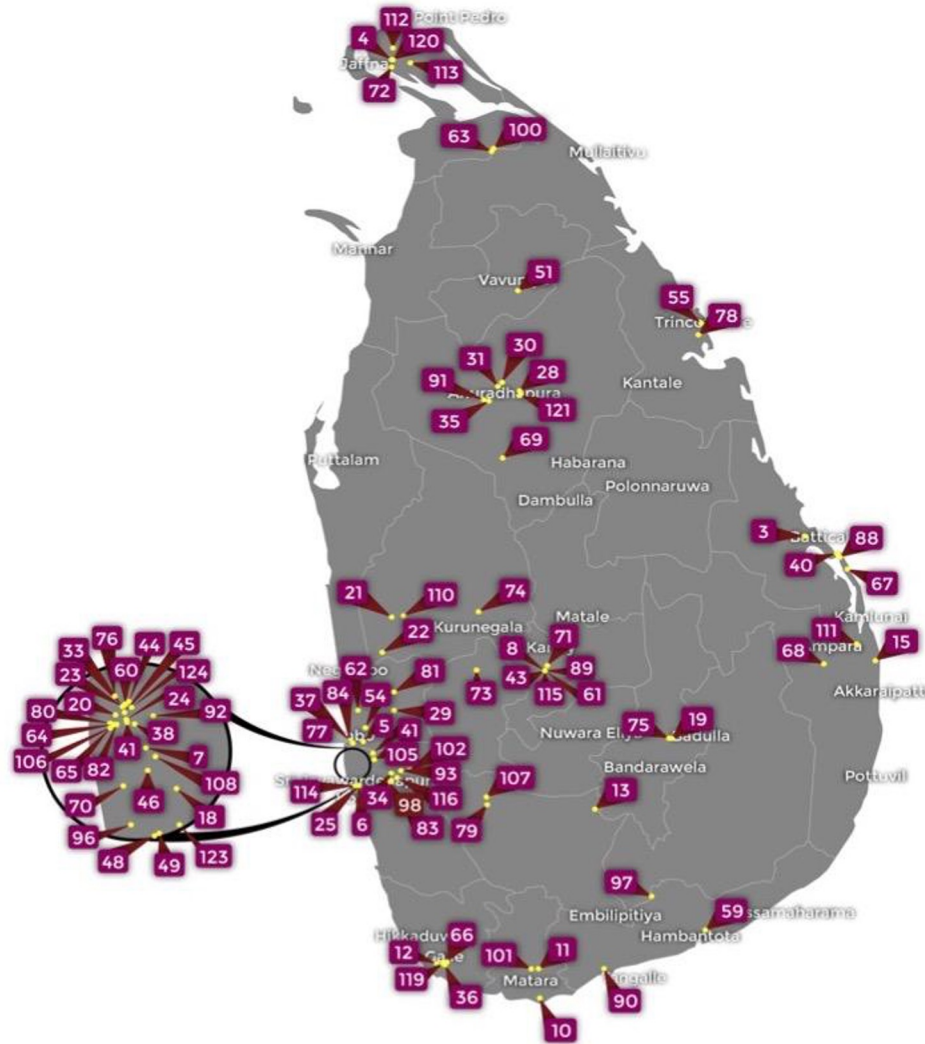
LEARN Local Network

- Connect institutes through VPLS networks
- VPLS networks leased from Local ISPs
- VPLS network from Sri Lanka Telecom (SLT)
- Connect the all member institutes
- Total 100 links
- Maximum bandwidth 2 Gbps, Minimum bandwidth 10 Mbps
- VPLS network from Dialog Axiata
- Provided as a backup link to the members with 300 Mbps or higher primary link
- Total 27 links
- Bandwidth 200 Mbps and 100 Mbps



Geographical Distribution of Members

Geographical Coverage of LEARN Connections (Local Links)



LEARN Services

- LEARN Identity Access Federation - LIAF (<https://liaf.ac.lk/>)
- Identify access federation for R&E in Sri Lanka
- eduGAIN member since 2019
- 50 members connected
- Services Zoom, EduVPN and other services available through eduGAIN
- Since 2018 IAM related workshops conducted nearly at each year



LEARN Services

- Zoom Conferencing (through LIAF)
 - Ended the on-premise hosted Zoom service on 12th Oct. 2023 which was received from the Asi@Connect project “facilitating Distance Learning using Digital Conferencing facility (fDLuDCf)” supported by NORDU.net
 - To continue the service LEARN purchased Zoom accounts
 - Moved the existing on-premise accounts to the Zoom cloud
 - Had to re-initiate all accounts so that users had to backup/record all the settings and data
 - Advantages with moving to the Cloud : Social media streaming, detailed meeting reports, better redundancy and reliability, top-notch support etc.
 - What was good with on-premise : Free data access to the Zoom (based on an agreement with local ISPs)
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LEARN Services

- Eduroam
- LEARN is the eduroam National Roaming Operator (NRO)
- Initiated in 2016
- Enabled in 29 institutes

- EduVPN (through LIAF)
- Secure internet access for NREN institutes



LEARN Services

- EduID (<https://eduid.lk>)
- Lifelong Identity for Students and Staff
- Single ID to access world-wide services connected through LIAF
- Good for Students and Staff with no institutional account
- Can access Euroam through this



Service	Description
Office 365	SSO to O365 services
ORCID for researches	Single ID for researchers
LEARN Event Manager	Online event manager maintained by LEARN
Science Data	Cloud Storage for Scientists
Filesender by GEANT	High volume data transfer support
Jupyterhub	JupyterLab Computational Env.
Chem Compute	Computational Chemistry
DataONE	Data Observation Network for Earth
The Ocean Observatories Initiative	The Ocean Observatories Initiative
ICE	Indonesia Cyber Education Institute (Free Online courses)

LEARN Services

- Technical Assistant Center (TAC)
- Started in 2017
- Technical guidance to design and develop infrastructure
- Remote setup of applications/services and network devices
- DNS, email, Eduroam, IAM idp/provider, Network monitoring and management, Firewalls, Routers
- DNS hosting and delegation
- *.ac.lk
- Email inbound/outbound relaying and filtering

BIND

Berkeley Internet Domain Name



LEARN Services

- Computer Security Incident Response Team (CSIRT)
- Single point of contact for reporting computer security incidents
- Help mitigate the situation
- Warn about possible attacks
- Usual incidents reported from member institutes
- Malware installations like Botnets and generating SSH and DDoS attacks to outsiders
- Web attacks by taking advantages of outdated CMSs and misconfigured systems
- Copyright infringement

On-going Developments

- LEARN Cloud Services (SAAS)
- Completely Free Open Source
- On-premise solution
- LMS (Moodle), CMS (Wordpress, Joomla, etc)
- Highly available Kubernetes cluster on Cisco servers
- Horizontally Scalable
- Increase cluster size by introducing more new servers
- Increase capacity of a LMS/CMS instance by more k8s parallel container instance
- Ceph persistence storage
- Cluster linked with MariaDB Galera cluster for back-end database requirement of LMS/CMS

Recent LEARN Activities and Collaborations

- Hosted APAN 56
- From 21st - 25th August 2023 in Colombo
- Total participants
- 390 = 282 (Foreign) + 108 (Local)
- Total physical participants
- 199 = 123 (Foreign) + 76 (Local)
- Conducted 80 sessions



Recent LEARN Activities and Collaborations

- New successful additions in APAN 56
 - APAN56 Conference on theme “AI and HPC: Better Together”
 - Single day event while not conflicting with regular meetings
 - REN Leaders forum
 - Datathon
 - Data science hackathon for undergraduates
 - An 24-hour event
 - Event Challenges
 - somewhat new staff to handle the program and technical stuff on such a event
 - Tight timeline when taken over by LEARN
 - Finding sponsorships under country’s bad economic situation
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Recent LEARN Activities and Collaborations

- Project of Joint Research on IPv6 Network Management : Research Development and Demonstration
- Looking Glass
- Active Probe
- Passive Measurement
- IPv4/IPv6 Network Telescope
- BGP Route sharing
- APNIC ISIF Project: Developing a Collaborative BGP Routing Analyzing and Diagnosing Platform
- Free online courses for students by joining with Indonesia Cyber Education Institute

Member Trainings/Workshops

- Two or three workshops conducted yearly
- Target the network/systems technical staff at member institutes
- Workshops in 2022
 - Workshop on Tuning up Campus Network
 - Network Management and Measurements
 - Campus Systems Linux Essentials
- Workshops in 2023
 - Identity Access Management Campus Essentials
 - TODO in Dec. 2023 – Workshop on Dockers and Kubernetes

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Thank You

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