

ERDEMNET Introduction (Network Operations)

BtNOG13 Conference,
28th Aug, 2026, Thimphu,
Bhutan



OUTLINE

- COUNTRY BRIEF INFO
- ERDEMNET KEY FACTS
- ERDEMNET–TEIN CONNECTIVITY
- WHAT'S NEXT



COUNTRY BRIEF INFO



- Government: Unitary, semi-presidential
- Area: 1,564,116 km²
- Population: 3,591,120
- GDP (nominal): per capita \$7,200
- Religion: 51.7% Buddhism
40.6% No Religion

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ERDEMNET KEY FACTS (Part of University, 2000-2020)

- Launch: June 20, 2000
- Propose: Provide Internet services to the educational institutions
- Legal framework: Orders of Minister of the Education from 1998-2000
- Implementation: ADB Project “Education Reform 2” and its sub project “Academic network”
- Network solution: NOC at CSMS of MUST, International gateway through “Agila-2” satellite, SSMA radio connection to major universities
 - MUST is more strong in terms of technical and human capacity
 - Site location is more suitable for radio communications
- Site: Secondary DC at Teachers Development house
- Management: Erdemnet is structural unit of MUST, but has own Board of directors nominated by the Minister’s order until 2020
- Financing schema: Non profit, self financing
- Revoked ISP License in 2016



ERDEMNET KEY FACTS (Under MoE, Since 2020)

- Propose: Focusing “school network” maintenance only
- Legal framework: By Government Order #111 in 2020, State budget-funded enterprise
- Site: DC#1 at Teachers Development house, Site#2 at National Data Center (Backup in DC Darkhan city)
- Management: One of department in Education Information Technology Center
- Financing schema: Government fund
- Coverage: 21 Provincial centers + 6 Districts of UB city, New Century Education project was implemented in all public schools



EDUCATION NETWORK INFRASTRUCTURE



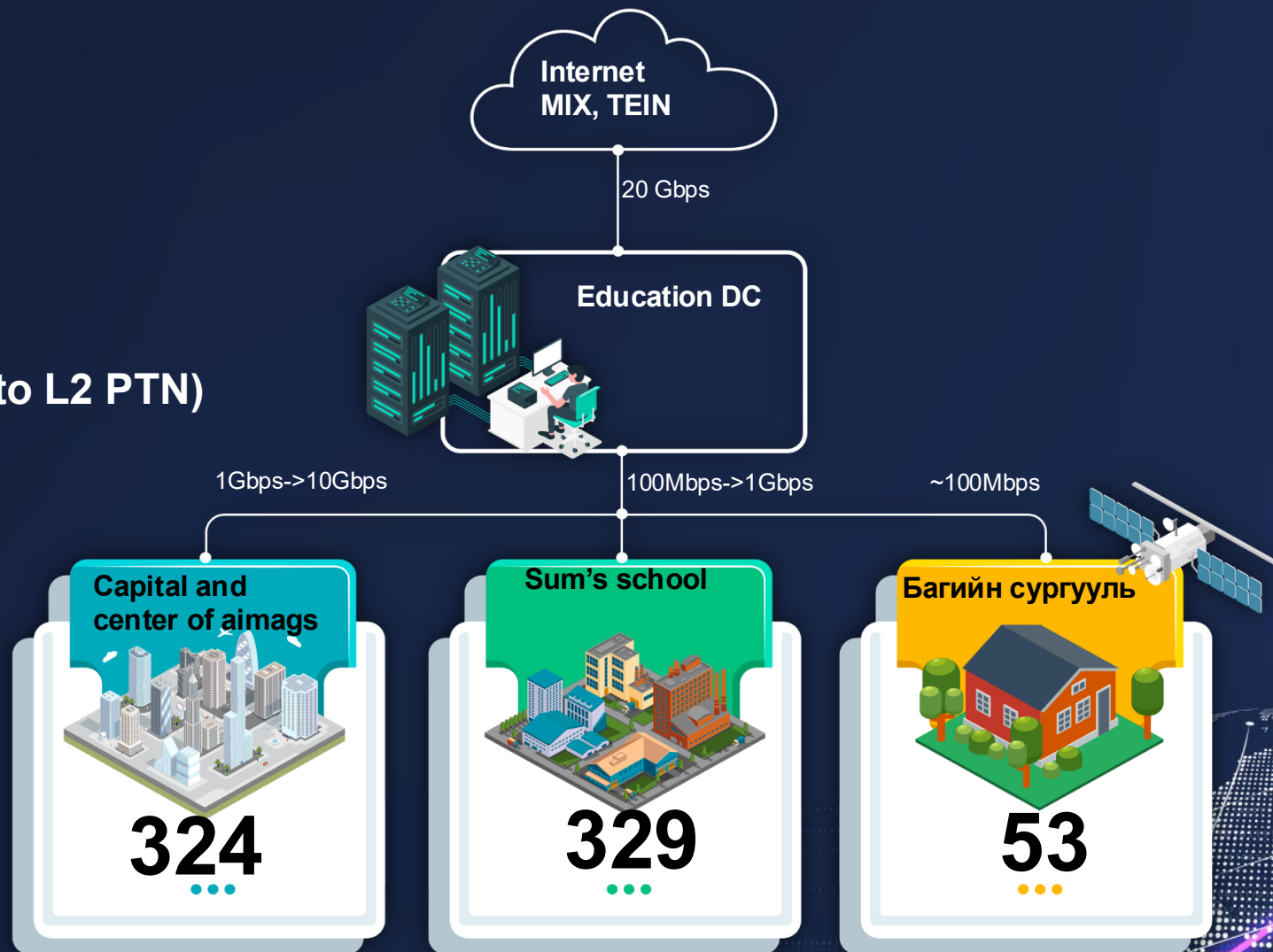
**759 public schools in UB,
Center of aimags, sums**



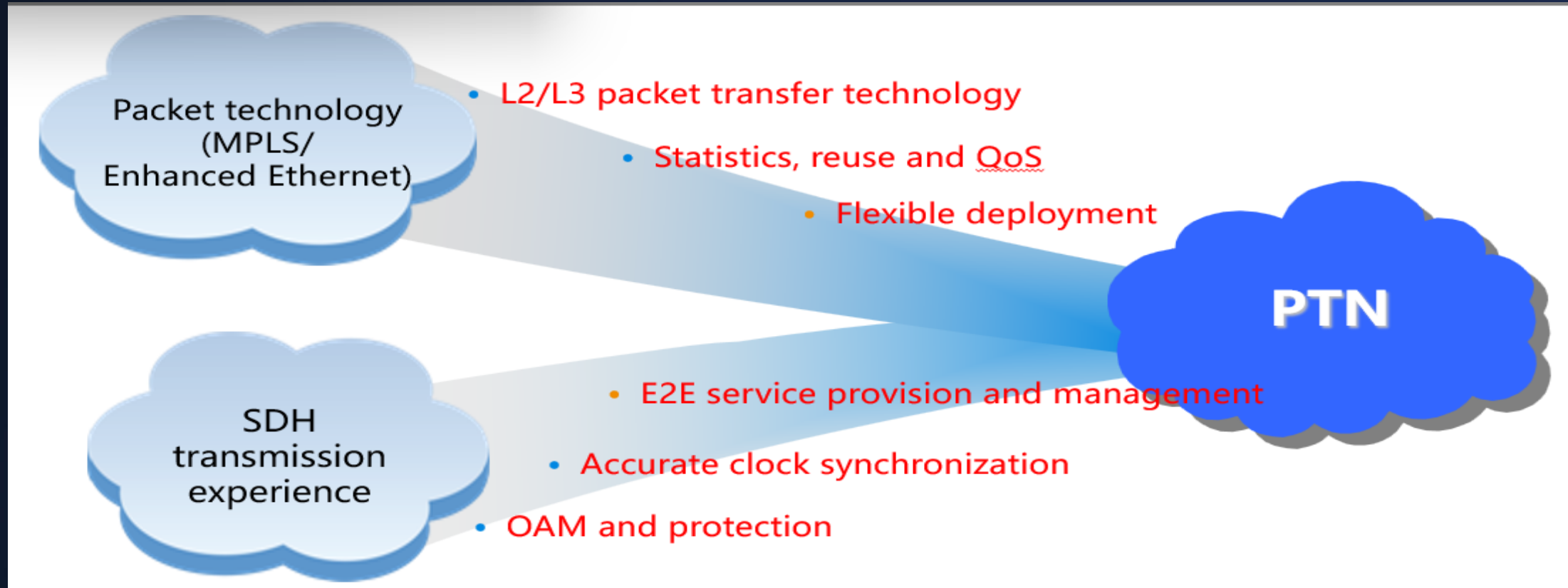
**627 Fiber optic (L3 IP MPLS to L2 PTN)
53 Starlink**



**851 Campus
and dormitory**



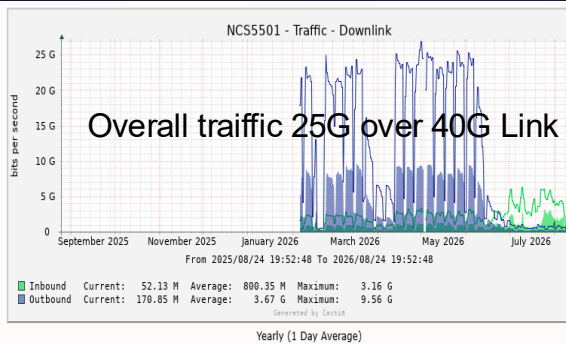
IP based PTN (Packet Transport Network)



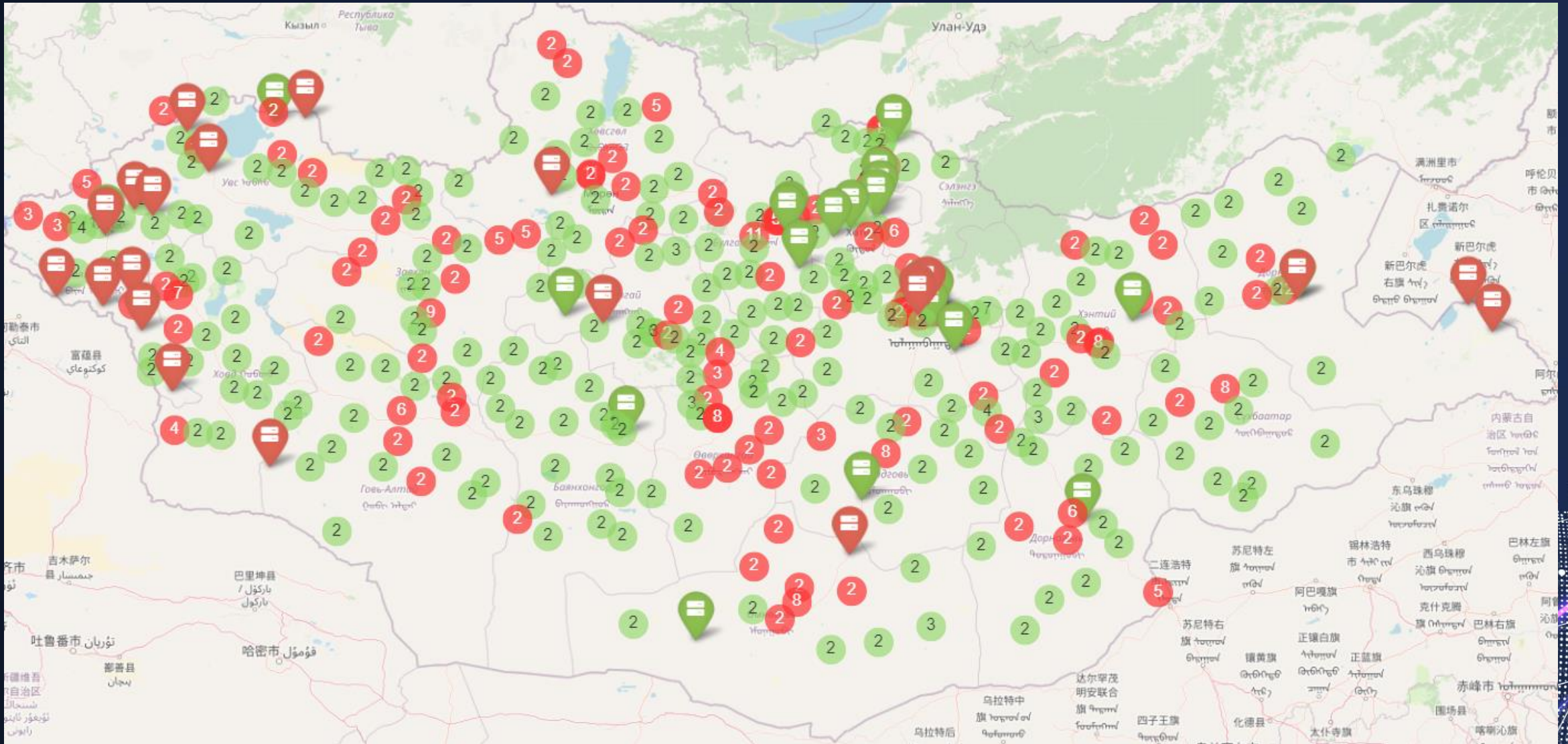
- Access link 1Gbps at end user side (no congestion)
- Easy to deploy IPv6 (Implementing start 1st September for rural area)
- IS-IS routing protocol implement after fully migrated PTN



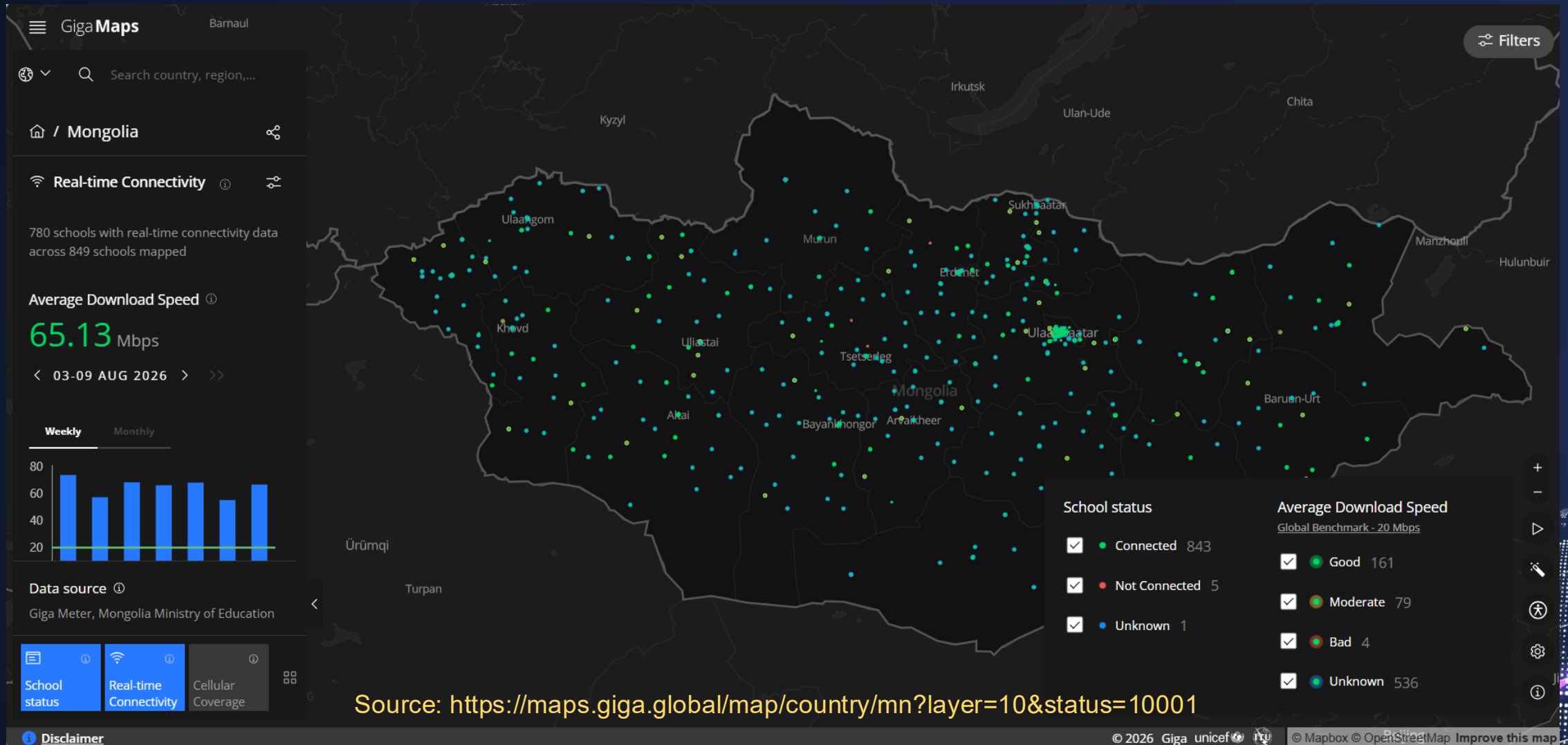
INTERNET SERVICE FROM FIVE UPSTREAM PROVIDERS



REAL TIME MONITORING (exchange data to GIGA)

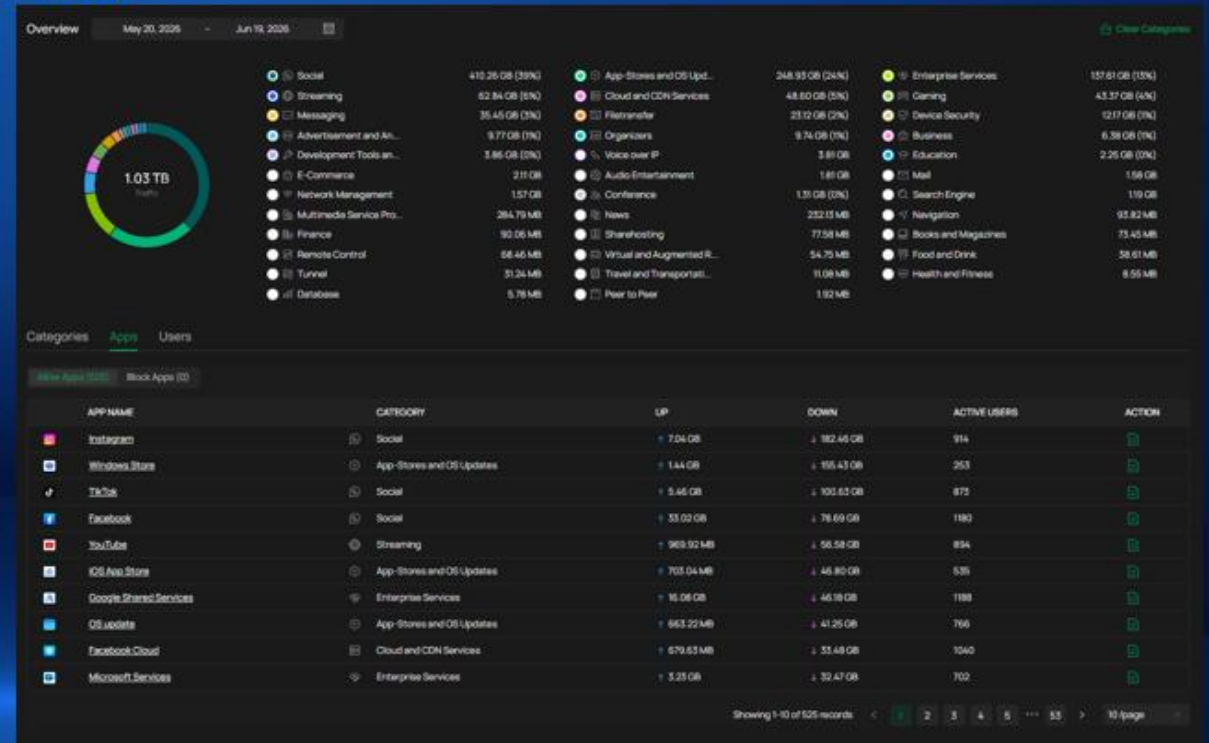
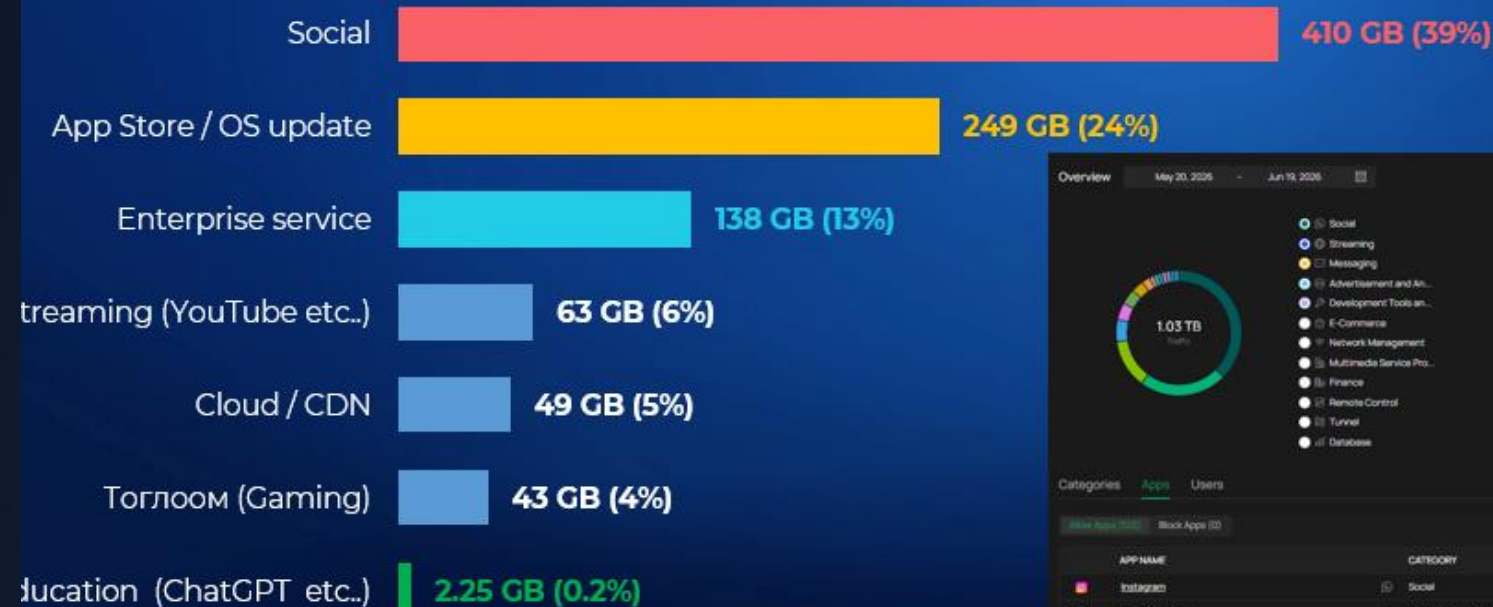


UNICEF GIGAMAPS : MONGOLIA



PROTOCOL ANALYSIS AND EVALUATION

Duration: 2026.05.20–06.19 | Total traffic: 1.03 TB | Number of application 525



Эх сурвалж: Боловсролын нэгдсэн сүлжээний урсгалын хяналтын систем (30 хоногийн дата)

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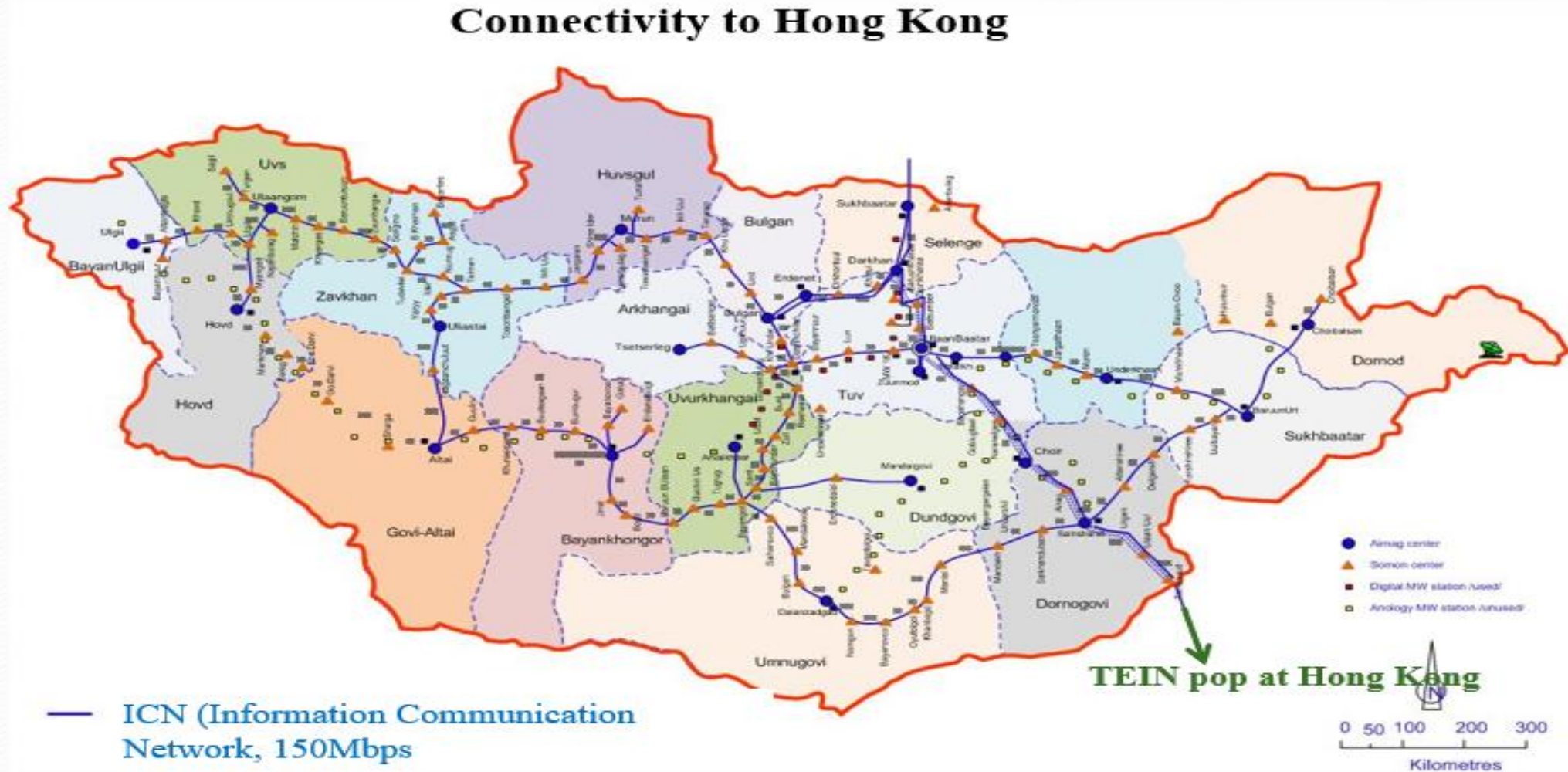


MONGOLIA-TEIN CONNECTIVITY

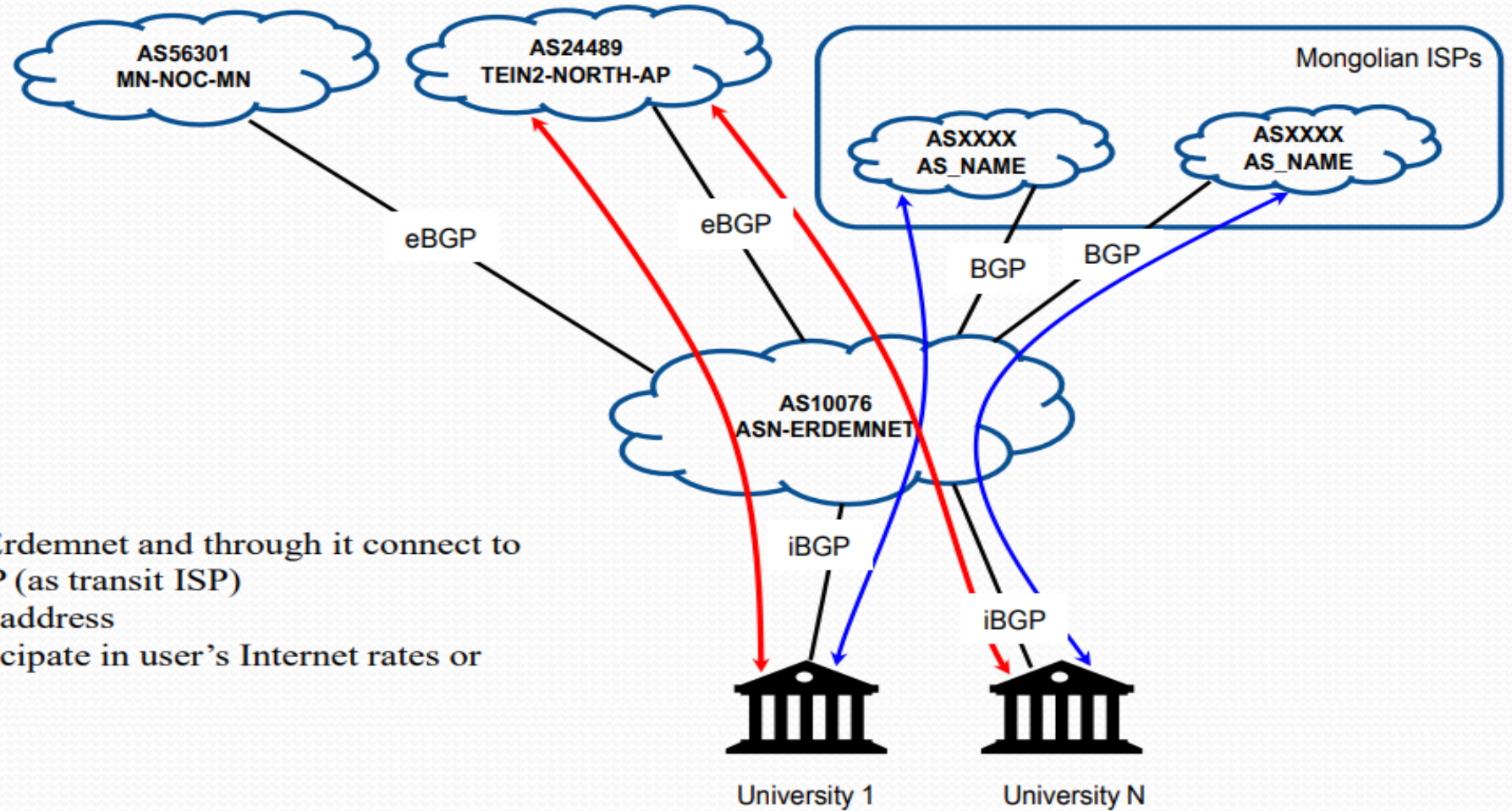
- TEIN member since 2016
- Connection established to the TEIN on 21st October 2020
- Ulaanbaatar – Hongkong, 150Mbps
- Stakeholders of Erdemnet
 - MUST – Mongolian University of Science and Technology
 - MSUE - Mongolian State University of Education
 - NUM – National University of Mongolia (eBGP)
 - MNUMS – Mongolian National University of Medical Science
 - Mongolia Japan Joint Hospital (our GPON)
 - MAS – Mongolian Academy of Science (cable installing)
 - MULS – Agricultural University (by VPN)



MONGOLIA-TEIN CONNECTIVITY



CONNECTION SCHEMA

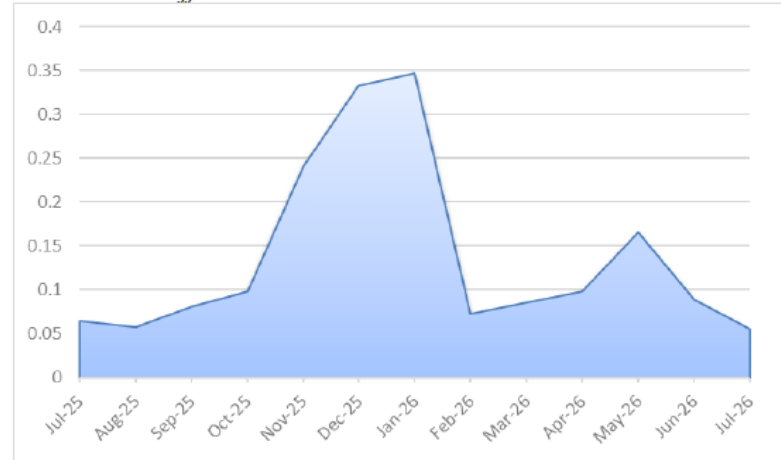


- Connect to the AS of Erdemnet and through it connect to TEIN or respective ISP (as transit ISP)
- Will provide public IP address
- Erdemnet doesn't participate in user's Internet rates or conditions

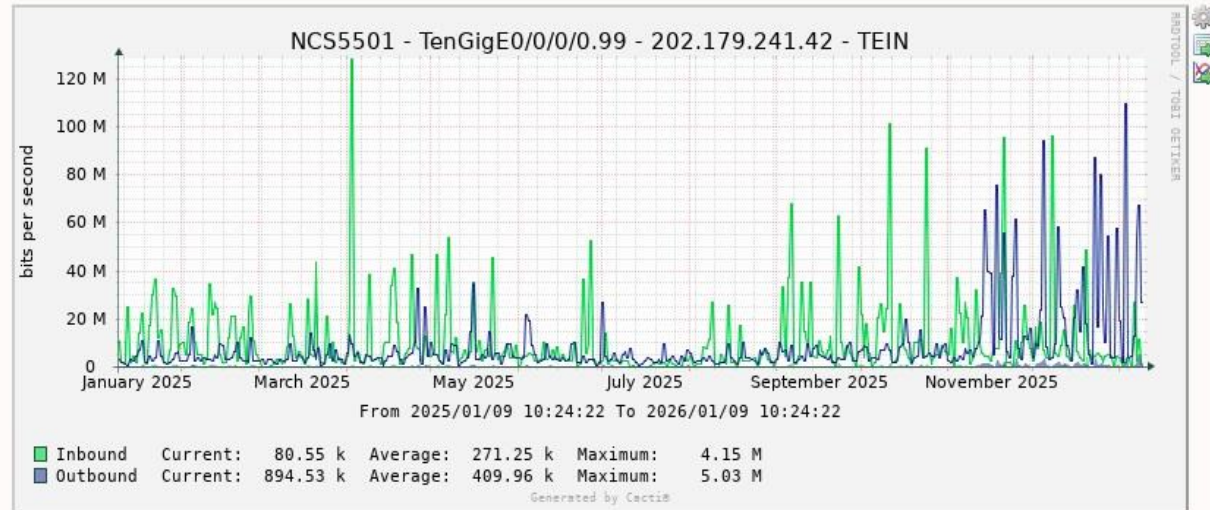
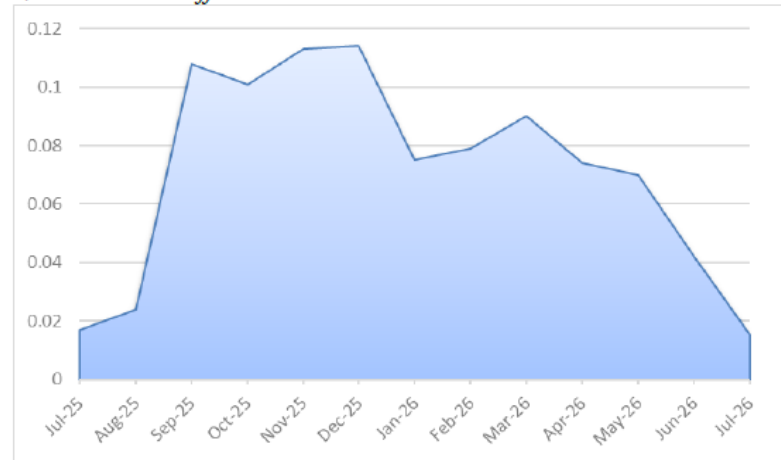
USAGE OF TEIN

➤ Yearly traffic volume graph (TByte)

◆ Inbound traffic



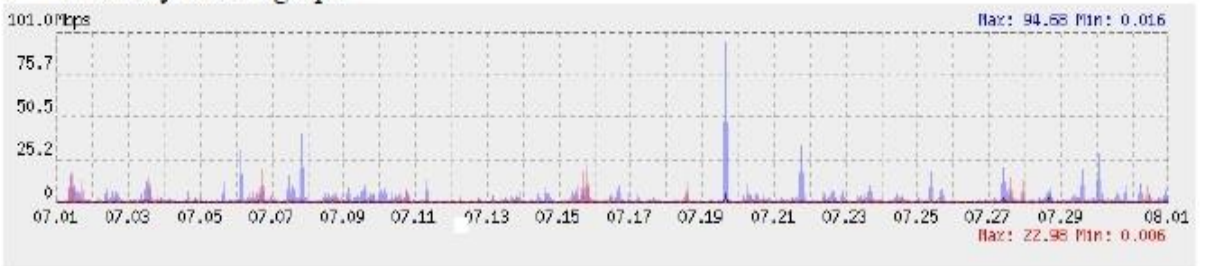
◆ Outbound traffic



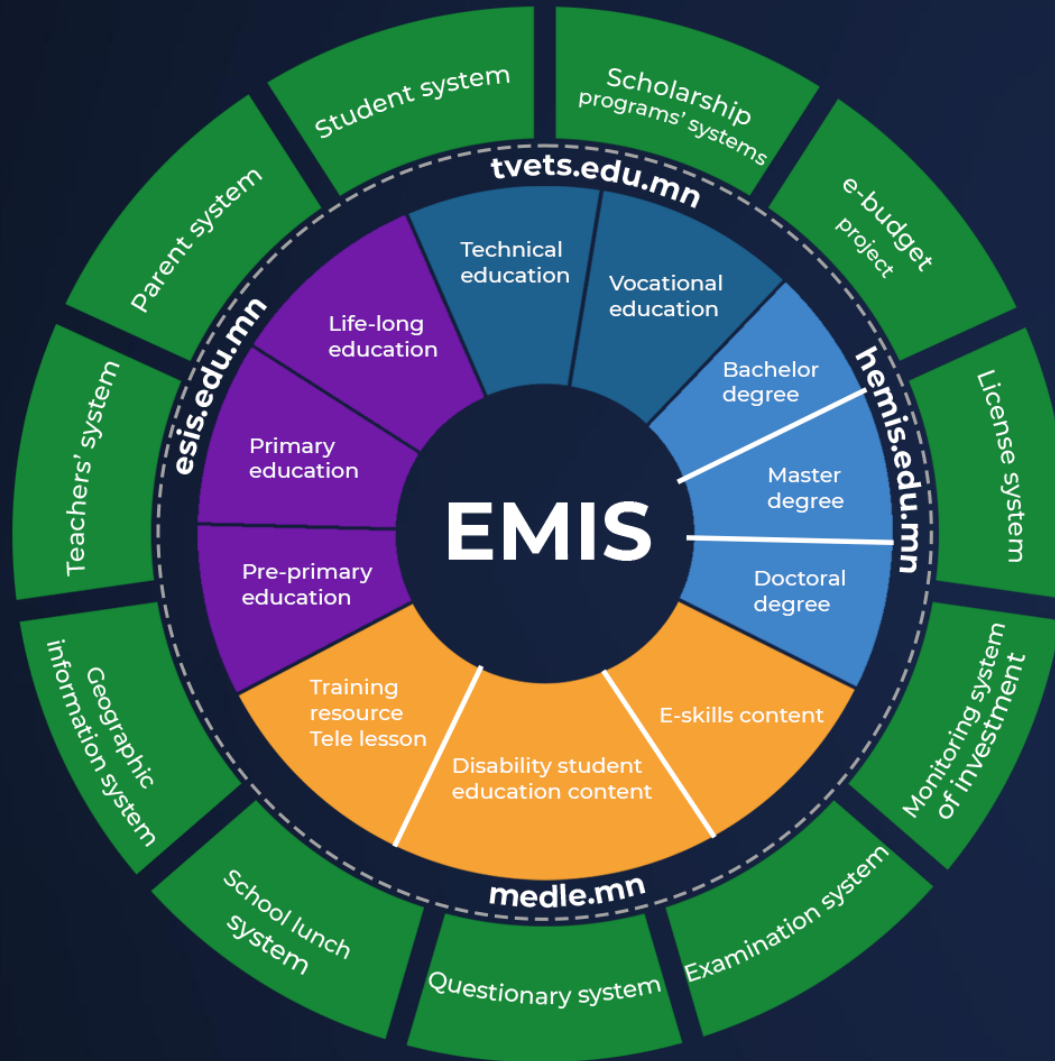
Yearly (1 Day Average)

HK-150M_to_MN (GE link between HK PoP and Erdemnet)

➤ Monthly traffic graph



EDUCATIONAL MANAGEMENT INFORMATION SYSTEM



esis.edu.mn /Educational management information system/

- Pre-school education
- General education
- Life-long education
- Educational documents
- QR attendance tracking

tvets.edu.mn /Technical and vocational education management information system/

- Technical education
- Vocational education
- To provide opportunities to launch a start-up for entrepreneurs as a result of ensuring fully attendance on technical and vocational education using QR attendance tracking

hemis.edu.mn /Higher education management information system/

- Verify the authenticity of educational documents using blockchain
- Confirmed and verified transcript database documents

medle.mn /Mongolian education learning system/

Medle.mn platform consists of following sub systems:

- Content management system
- Competitive selection system
- Learning management system
- Curriculum management system.

EDUCATION SECTOR INFORMATION SUB-SYSTEMS



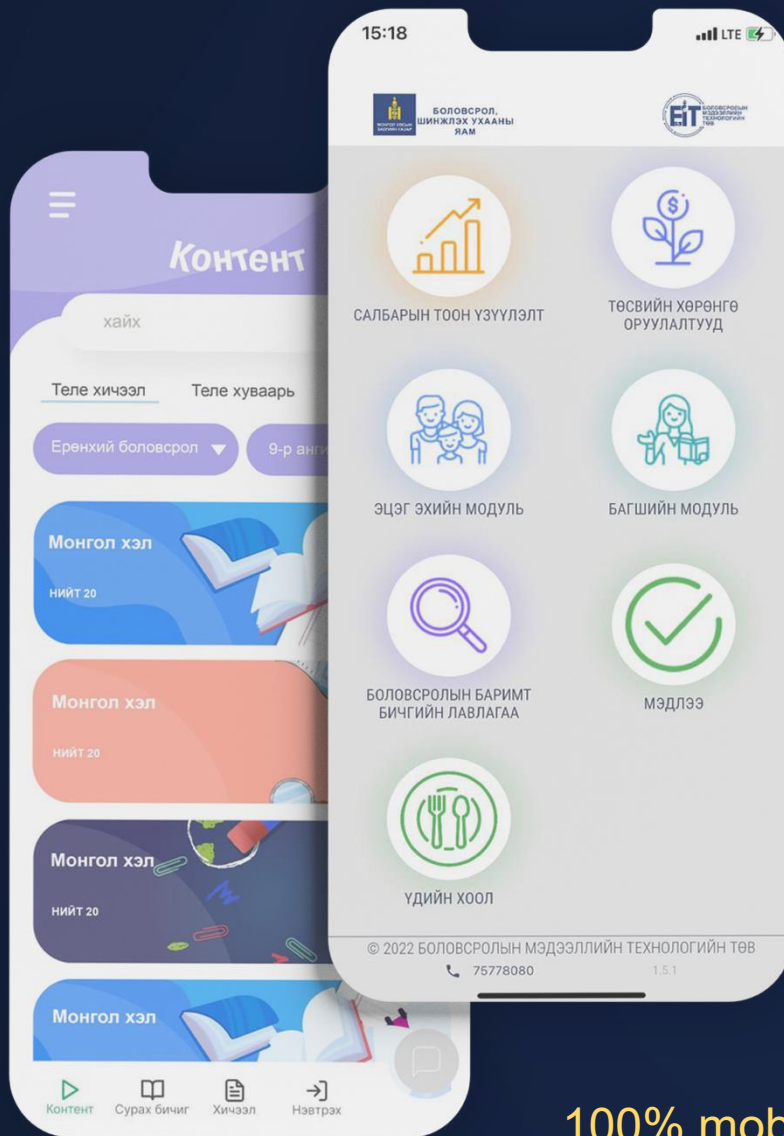
PUBLIC EDUCATIONAL APPLICATION SYSTEMS

- ESIS

- Parent
- Teacher
- Statistics
- School lunch
- Investment

- Medle

- Textbooks
- Tele lesson
- Labs
- Contents



MEDLE APP



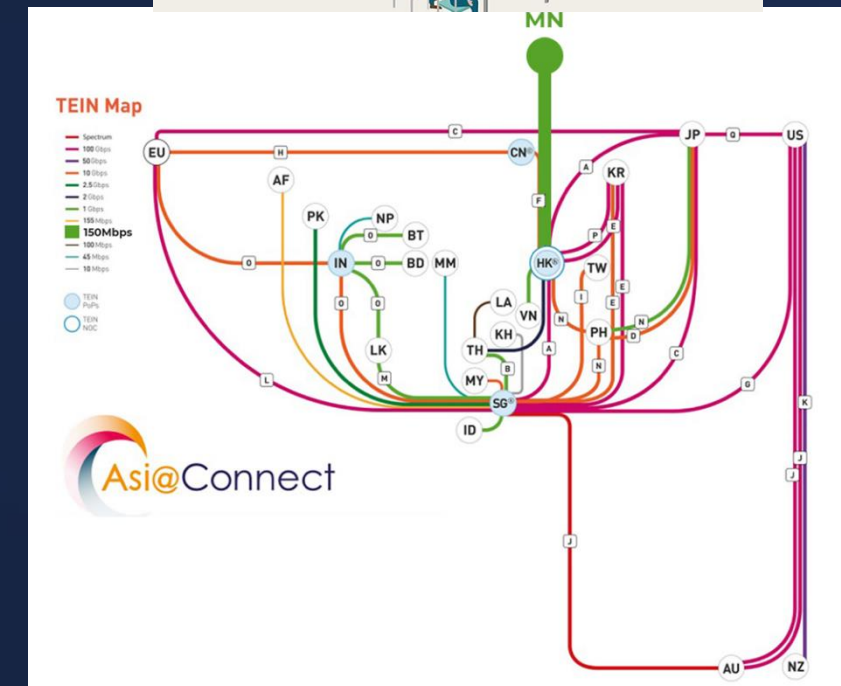
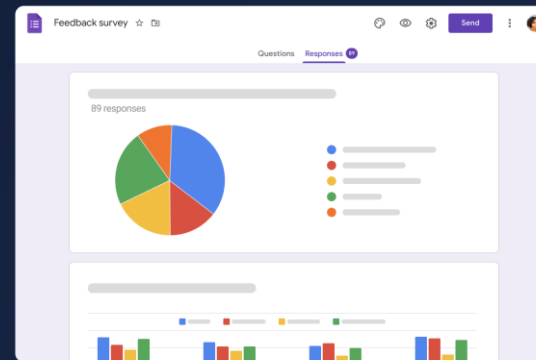
ESIS APP

100% mobile data free in nationwide

ROAD MAP



COOPERATION WITH INTERNATIONAL ORGANIZATIONS



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WHAT'S NEXT ?

- NREN twining programme (Peering DrukREN?)
- Increase IPv6 Deployment
- EduRoam, EduGAIN...
- Recruiting new Stakeholders (become an APNIC member)
- Enhance TEIN connectivity capacity – to 1Gbps from existing 150Mbps



THANK YOU.

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