



NETWORK AND INFRASTRUCTURE DEVELOPMENT

In 2024, as part of the implementation of investment projects for the technical development and maintenance of the Company’s telecommunications networks, the following key areas of network development were pursued:

- › backbone transport network;
- › data transmission network;
- › access network.

6×100 Gbps

transit channels have been organized on the China-Russia route with 1+1 redundancy

>1,400 Gbps

cache servers of leading international platforms (Cloudflare, Microsoft, VK, and others) have been connected

70,291 subscribers

were migrated to GPON optical networks under the Tazartu program

TRANSPORT NETWORK

Several significant initiatives were completed as part of the development of the backbone transport network:

- › Six units of OSA5422 frequency and time synchronization equipment were installed in the cities of Almaty, Astana, and Shymkent, and a centralized ENC management system was implemented. This enabled the provision of comprehensive phase and frequency synchronization services to mobile operators in support of 5G networks.
- › Transit channels with a capacity of 6×100 Gbps were established in the China–Russia direction with 1+1 redundancy, enhancing the resilience of international traffic.

- › Sixteen 100 Gbps channels were created on the backbone DWDM network to connect central nodes in Shymkent, Almaty, Zhezkazgan, Karaganda, and Konaev.
- › A 100 Gbps channel was organized to the Turkestan DC to improve communication quality for the B2B segment and government agencies.
- › 43 ATN910-M routers were installed at stations across six regions.
- › Construction was completed on 28 fiber-optic communication line (FOCL) segments with a total length of 129 km to connect mobile operator base stations.

DATA TRANSMISSION NETWORK

In 2024, the data transmission network was strengthened, ensuring increased capacity and reliability of services:

- › 62×100 Gbps links between BNGMX and SORM and 24×100 Gbps between INET-PE and SORM were organized in 10 cities.
- › Cache servers of leading international platforms (Cloudflare, Microsoft, VK, and others) were connected, with a total capacity exceeding 1,400 Gbps.

- › 169 5G base stations were connected for KCELL and MTS LLP operators.
- › Migration of customer channels to modern Juniper MX104 equipment was completed to enhance network reliability and performance.
- › External internet channel connectivity was optimized, increasing the average capacity to 100 Gbps and improving the stability of international routes.

ACCESS NETWORK

The access network saw active development aimed at improving service quality for subscribers:

- › 70,291 subscribers were migrated to GPON optical networks under the Tazartu program.
- › 5,015 ports of outdated G-PON OLT equipment were replaced in the country’s largest cities.
- › The rate of individual malfunctions was reduced by 12% compared to the previous year.
- › As part of the Master of the Optical Network professional skills competition, 160 households in the village of Birlik were connected, demonstrating the social orientation of the Company’s activities.

PLANS FOR 2025

- › Continued construction of communication channels to 5G base stations.
- › Participation in the FOCL-laying project across the bottom of the Caspian Sea.
- › Expansion of transit capacity on the China–Europe route.
- › Connection of at least 70,412 subscribers under the Tazartu program.
- › Completion of the Sapa+ project.
- › Reduction of analog TV subscribers by 10,000.
- › Construction of BKV: 55–72 SNPs, up to 94,754 ports.
- › Connection of 301 educational institutions.
- › Network optimization through decommissioning of at least 70 telephone exchanges and freeing over 1,000 m² of company-owned space.