INTERNET DURING WARTIME

CHALLENGES
IMPACT
LESSONS

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Before the full-scale war Ukraine had one of the best broadband Internet coverage in Europe.

Many ISPs, including our company Viner Telecom, already built their networks on PON technology, and our users even in small towns and villages had the high-speed connection.

Viner Telecom is an Internet provider that provides communications in Zhytomyr, Kyiv, Chernihiv, Mykolaiv, Vinnytsia and Kherson regions.

THE FULL-SCALE MILITARY INVASION OF UKRAINE BECAME A HUGE CHALLENGE FOR THE TELECOMMUNICATIONS INDUSTRY FROM TOTAL NETWORKS DESTROYING TO FRAGMENTATION OF UKRAINIAN INTERNET SEGMENT ON DIFFERENT LEVELS

CHALLENGES and changes

- o Destroyed network infrastructure and whole cities
- o Theft and destruction of equipment, theft of companies and their recourses
- o Blackouts
- o Traffic rerouting
- o Cyber attacks
- o Migration of people

Different types of destroying infrastructure

Constant missile and drone attacks, bombing

Different types of destroying infrastructure

Intentional destruction of infrastructure facilities, such as data centers

Different types of destroying infrastructure

Flooded networks and infrastructure after explosion of the Kakhovka Hydroelectric Station

NETWORK IMPACT

o Destroying network on physical level
o Configuration changes
o Migration of IP recourses from UA zone to RU and others
o Traffic and connectivity changes
o Dropped SLA access network level during blackouts

SOCIAL IMPACT on the territory controlled by Ukraine

Destroyed networks and blackouts led to many changes in daily life of
Ukrainians and their Internet behavior:
- broken work processes, especially for remote online work
- e-commerce had delays of order processing and deliveries
- someone even lost jobs, earns
- children and students had difficulties with online studies processes
- digital services worked uncorrected or were not available
- total disorientation and panic psychological state during air alarms
without access to online news and information

SOCIAL IMPACT on occupied territories

Total control and censorship, which disconnect Ukrainians from Ukrainian segment of Internet and led to:
- full military control and problems with access to telecom hubs
- disinformation
- Russian propaganda spreading
- inability to continue study
- inability to use usual means of communications
- cutting off any business processes with those part which is on Ukrainian territory
- usage of inconvenience VPN access
- fully blocked Ukrainian TV and vide streaming access

LESSONS

- Ukrainian Internet showed a high level of resilience due to the decentralized infrastructure (Ukraine has more than 4000 ISPs that managed their networks individually).
- ISPs should pay great attention to the network security to prevent cyber attacks.
- It is necessary to have independent reserved channels for fast switches when some part of network is damaged or destroyed.
- A stock of equipment must always be available.
- Network should be provided by alternative uninterrupted power supply.
- All accesses to all levels of the network management should be documented and available not only for one person in company.
- We should take care about information we share on the Internet.
- It is important to have a plan for fast relocation.

We learned to make quick decisions, react to threats, use new technologies. And thanks to this, we relatively kept Ukrainians connected even in the darkest times and continue to do everything for this, even near the war zones.

We realize how important for people to orient themselves in space and rapidly changing circumstances, to know about missile threats and react to them in order to save the most valuable thing - their lives.

But a very large part of Ukrainian Internet segment is still under occupation and fully disconnected in technical, application and geolocation levels.

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Thanks to everyone who helps Ukraine and our Internet providers in this difficult fight!

Glory to Ukraine!

Glory to all who stand and fight with Ukraine!