

# REGIONAL SUCCESS STORIES IN THE CONDITIONS OF WAR



**SPEAKER: OLENA KUSHNIR  
FOR DIGISIGNAALI24**

**Olena Kushnir** - co-founder and CEO of the Ukrainian communications operator and universal integrator of IT solutions. "WEB PRO" LLC is an active participant of the Ukrainian telecommunication industry and a member of specialized associations.

- Chairmen of the Committee of Internet Resources Governance and Interaction with International Organizations at the Internet Association of Ukraine.
- Member of the Ukrainian Union of Industrialists and Entrepreneurs
- Candidate for RIPE NCC Board Members, 2023
- Adviser to the Deputy Minister of Digital Transformation of Ukraine.
- Co-organizer of the international conference Network Operators Group of Ukraine (NOGUA)



**THE EXPERIENCE OF  
UKRAINIAN SPECIALISTS IS  
INCREASING EVERY DAY,  
AND THE NETWORKS ARE  
REACHING A NEW LEVEL OF  
STABILITY.**

**BLACKOUTS**

**MISSILE ATTACKS**

**DESTROYED  
INFRASTRUCTURE**

**CYBER ATTACKS**

**DANGEROUS  
WORKING  
CONDITIONS**

**MOBILIZATION OF  
EMPLOYEES**

**THEFT OF UA  
RESOURCES**

# BLACKOUTS

## Take care of your home internet during power outages

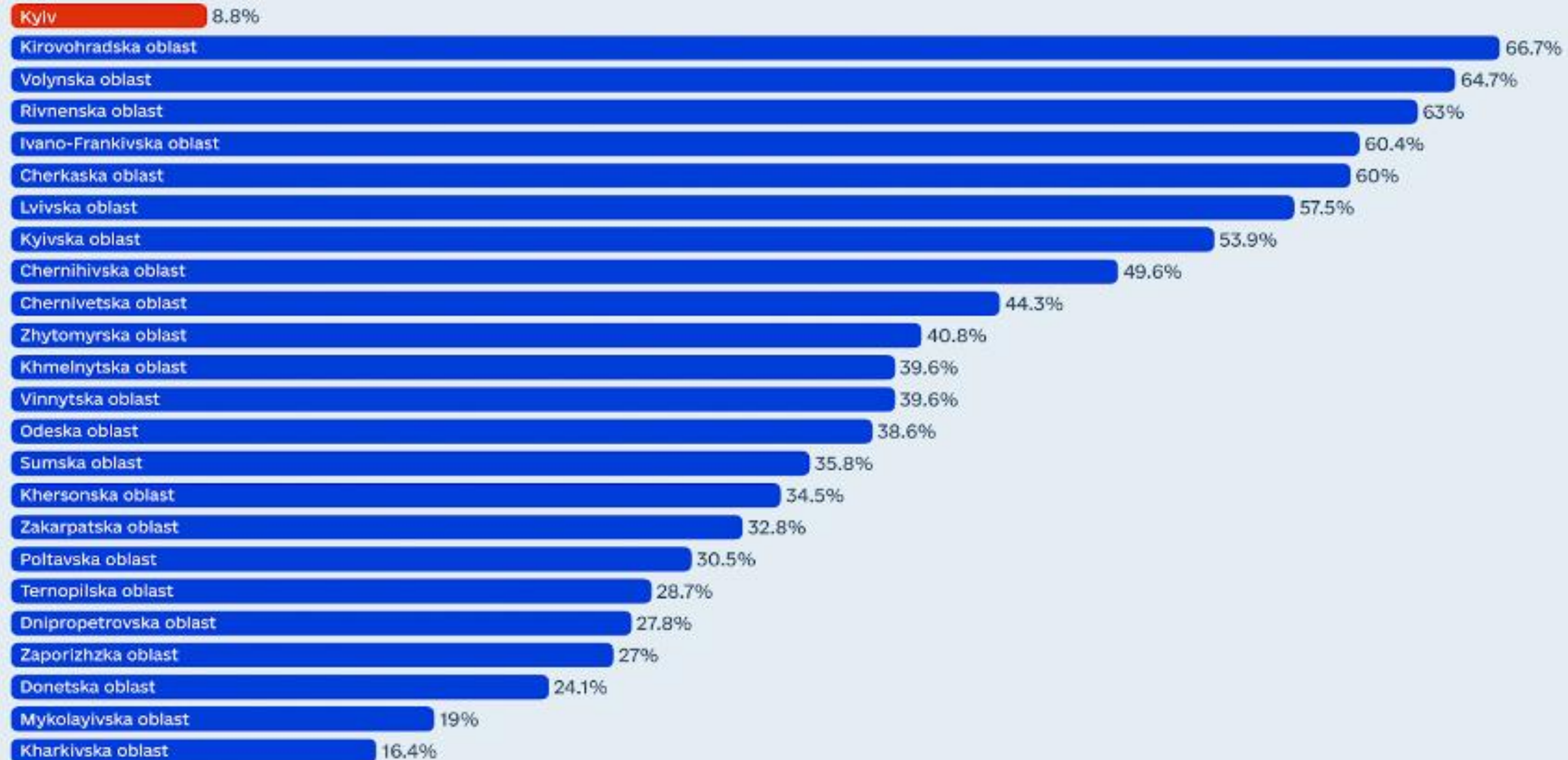
Technology	xPON	FTTx	DOCSIS	xDSL
Where will the Internet come from?	Optical fiber to the apartment	Optical fiber to an apartment building	Television cable	Telephone copper cable (for example, Ukrtelecom)
Nuance	A powerbank or other power source is required			
Average time of operation without electricity	<b>up to 72 hours</b> for 52.5% of users	<b>4 - 8 hours</b> for 52.2% of users, in some cases up to 72 hours	<b>4 - 8 hours</b> for 52.2% of users, in some cases up to 72 hours	<b>4 - 8 hours</b> for 71.4% of users

\* data on the operation of energy-saving networks were obtained as a result of a survey of Internet providers conducted by the initiative group of the telecom community

# BLACKOUTS

## Access to fixed Internet over 24 hours of blackouts

% of the total number of fixed Internet users



# BLACKOUTS

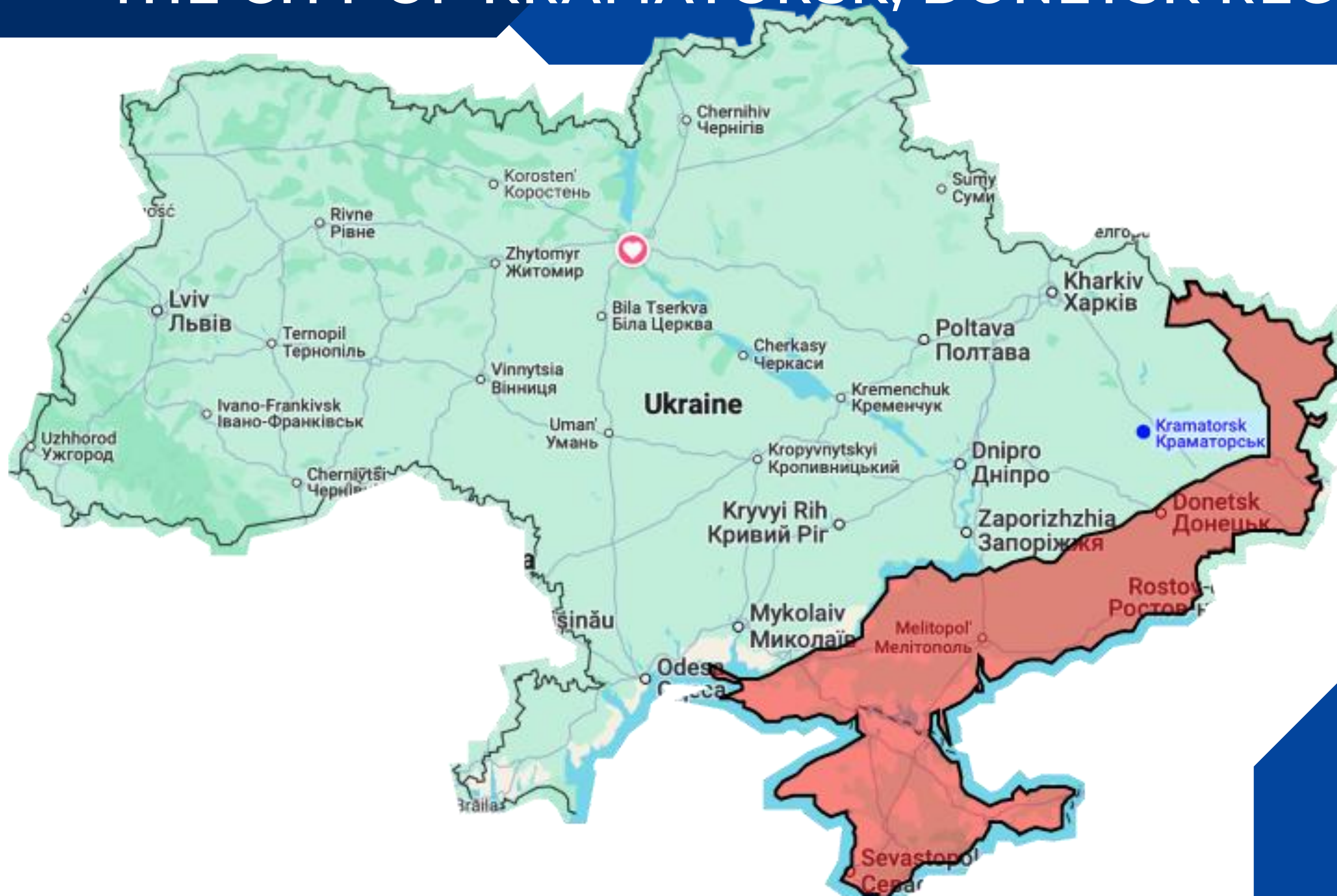


**PON NETWORKS AND  
STARLINKS**

**alternative energy sources**

**unbreakable heating  
shelters**

# THE CITY OF KRAMATORSK, DONETSK REGION



# MISSILE ATTACKS



**MYKOLA KUCHERUK, ELIT- LINE,  
KRAMATORSK, DONETSK REGION**



PROBLEMS WITH INTERNET SERVICES IN KRAMATORSK AMONG OF THE INTERNET USERS

DUOLINGO.COM



ZOOM.US



NVIDIA.COM



STEAM



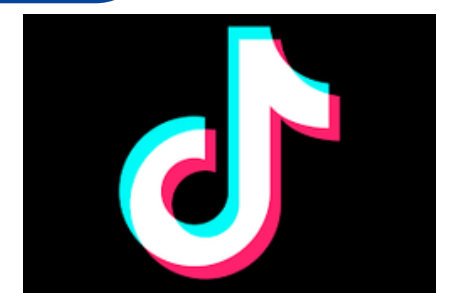
TEAMVIEWER



SKYPE



TIK-TOK



EBAY.COM



LENOVO.COM



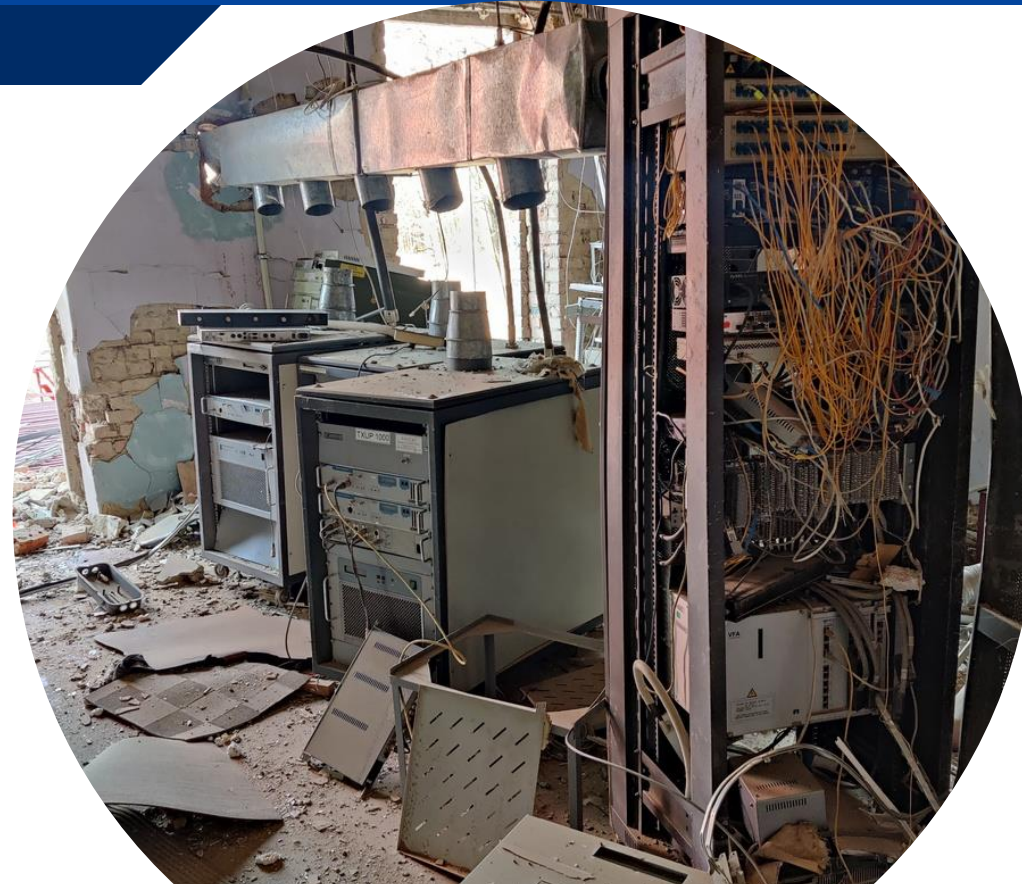
# STATISTICS OF CUSTOMERS



# DESTROYED INFRASTRUCTURE



Kharkiv region



Vinnytsia region



Kherson region

ACCORDING TO THE WORLD BANK, THE LOSSES OF THE UKRAINIAN TELECOM SECTOR AMOUNT TO 2.5 BILLION DOLLARS



Engineers



Kyiv region

## Akhtyrsky district is still one of the most mined areas of the Sumy region

The car pulled over to the side of the road near the destroyed TV tower. There were four people in it. The driver died.



A LINK TO THE GOOGLE FOLDER WITH DESTROYED INFRASTRUCTURE



# DANGEROUS WORKING CONDITIONS



**ATRACOM LLC, KHERSON REGION  
VOVCHANSK (KHARKIV REGION)**

# DANGEROUS WORKING CONDITIONS



# THEFT OF UA RESOURCES

In the last 12 months, more than 100 network registrations have moved out of Ukraine. More than 40 of these are now registered in Russia (Table 1).

24 February 2022	19 February 2023	24 February 2022	19 February 2023	24 February 2022	19 February 2023
UA 12959	RU 12959	UA 42301	RU 42301	UA 47379	RU 47379
UA 196705	RU 196705	UA 42393	RU 42393	UA 47939	RU 47939
UA 197129	RU 197129	UA 42394	RU 42394	UA 48711	RU 48711
UA 197880	RU 197880	UA 42511	RU 42511	UA 49075	RU 49075
UA 199908	RU 199908	UA 42518	RU 42518	UA 49536	RU 49536
UA 21087	RU 21087	UA 42534	RU 42534	UA 49803	RU 49803
UA 24758	RU 24758	UA 43564	RU 43564	UA 50210	RU 50210
UA 29031	RU 29031	UA 43802	RU 43802	UA 51153	RU 51153
UA 31387	RU 31387	UA 44240	RU 44240	UA 56676	RU 56676
UA 41039	RU 41039	UA 44269	RU 44269	UA 57093	RU 57093
UA 41082	RU 41082	UA 44584	RU 44584	UA 8381	RU 8381
UA 41308	RU 41308	UA 44857	RU 44857	UA 8654	RU 8654
UA 41479	RU 41479	UA 44878	RU 44878		
UA 41914	RU 41914	UA 47124	RU 47124		
UA 42104	RU 42104	UA 47243	RU 47243		

Table 1 – ASNs that were registered under Ukraine at the start of the war but, as of publishing, are registered in Russia.

Interestingly, the RIPE NCC transfer data shows that only the following five ASNs have been transferred in the last 12 months:

- **AS12959** Anton Bobrovnikov Teleradiocompany Nadezhda Ltd 13/09/2022 POLICY
- **AS210877** Towse'e Saman Information Technology Co. PJS TS Information Technology Limited 09/12/2022 POLICY
- **AS41039** Timer, LLC LLC "FTICOM" 30/09/2022 POLICY
- **AS44269** Informational-measuring systems Ltd. Electro-Communication Telecom Ltd 23/12/2022 POLICY
- **AS198654** PEKITEL Ltd. Alfa Telecom 31/01/2017 POLICY AS48654 RTK-centr Ltd. Balnet Ltd. 08/03/2022 POLICY

Why all of the 43 ASNs mentioned in the table above are not shown in the RIPE NCC transfer data is not clear to me. It could be due to the NWI-10 policy, which updated the country codes in delegated statistics: perhaps these networks changed their addresses from Ukraine to Russia.

## Number of ASNs transferred to other countries from Ukraine

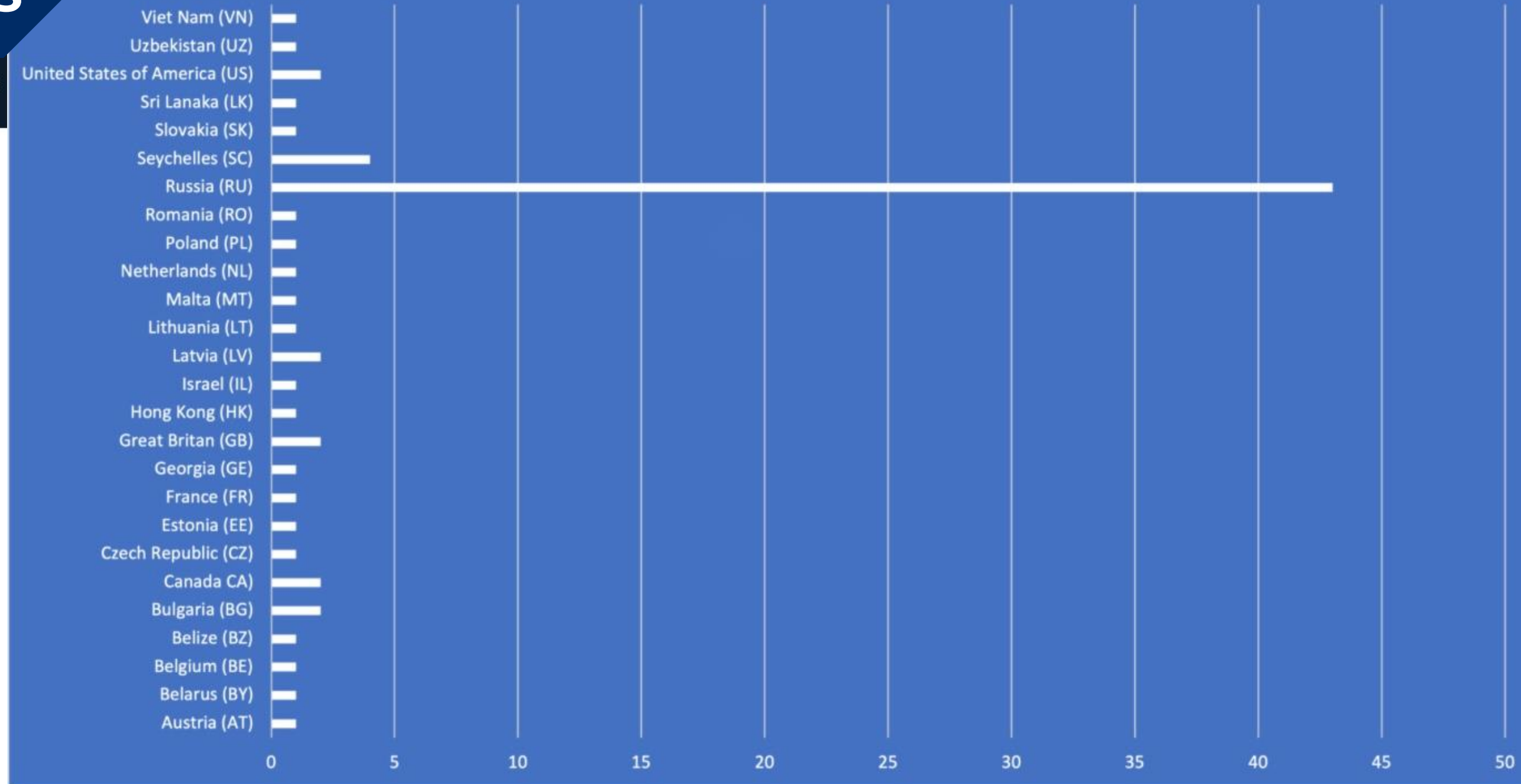


Figure 2 – Where ASNs allocated to Ukraine networks have been transferred since February 2022.

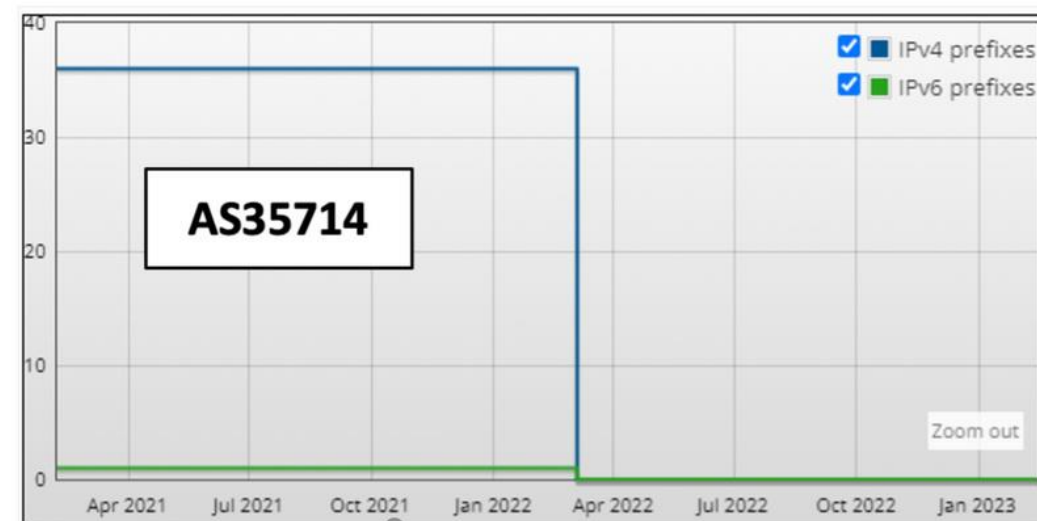


Figure 7 – Routes from AS35714 that appeared on the global routing table from November 2021 to January 2023. Source: RIPE Stat.

Other large networks from the same region, such as AS57864 – MEGABIT and AS35714 – Infoservice-UA, also disappeared around the same time but did not return.

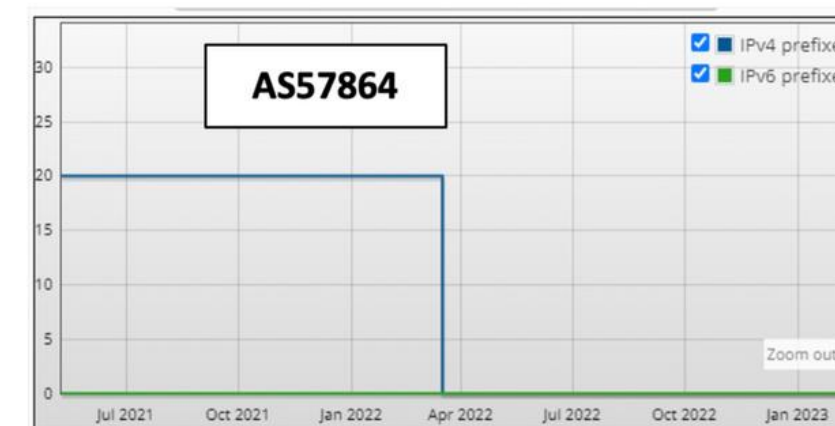


Figure 6 – Routes from AS57864 that appeared on the global routing table from November 2021 to January 2023. Source: RIPE Stat.



**Aftab Siddiqui**

23 February 2023 г.

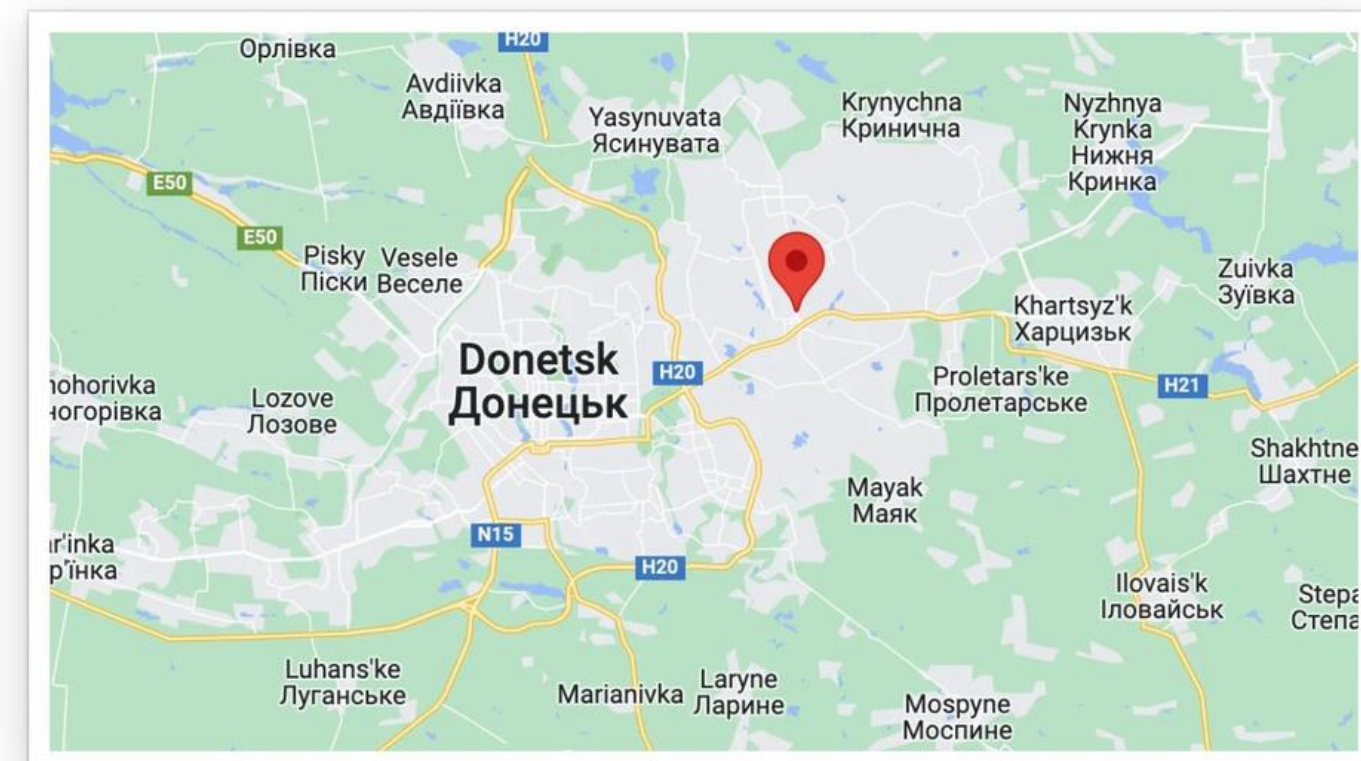


**“THE RUSSIAN GOVERNMENT WANTS THE WORLD TO BELIEVE THESE INTERNET SERVICE PROVIDERS ARE OPERATING ON RUSSIAN SOIL. CHANGING THE REGISTRATIONS OF THESE IP RANGES TO REFLECT THAT WORLDVIEW IS PART OF A WIDER EFFORT OF THE RUSSIFICATION OF CAPTURED UKRAINIAN TERRITORIES.”**

For another example, take 151.0.0.0/20, which is originated by Online Technologies LTD (AS45025) in the Donetsk region. A change, highlighted below, on July 18th last year updated the country field from Ukraine to Russia.

```
$ whois --diff-versions 3:4 151.0.0.0 - 151.0.31.255
% Difference between version 3 and 4 of object "151.0.0.0 - 151.0.31.255"
@@ -3,3 +3,3 @@
descr:      Online Technologies LTD
-country:   UA
+country:   RU
geoloc:     48.045955739960114 37.96531677246094
@@ -10,3 +10,3 @@
created:    2012-01-05T13:39:09Z
-last-modified: 2018-12-10T12:06:53Z
+last-modified: 2022-07-18T12:09:23Z
source:     RIPE
```

In case there was any doubt about where this network is purportedly located, this registration entry helpfully contains **lat/long coordinates** which point to an address in Makiivka, just to the east of the city of Donetsk and the site of a **deadly missile strike** on New Year's Eve.



Doug Madory



## STOLEN UA IP -RESOURCES

IN THE TEMPORARY OCCUPIED TERRITORIES THE OCCUPIERS STEAL IP-RESOURCES

## STOLEN EQUIPMENT AND ISP COMPANIES' RESOURCES

IN THE OCCUPIED TERRITORIES THE OCCUPIERS STEAL EQUIPMENT, OTHER COMPANY RESOURCES, AND COMPLETELY TAKE NETWORKS UNDER THEIR CONTROL.

## SWITCHING TRAFFIC ROUTING

OCCUPIERS FIRST OF ALL TURN OFF MOBILE COMMUNICATIONS FROM UKRAINIAN OPERATORS, AND ALSO SWITCH FIXED COMMUNICATION CHANNELS TO THE CRIMEAN OPERATOR MIRANDA. IN THIS WAY THEY TAKE FULL INFORMATIONAL CONTROL OF UKRAINIAN CITIZENS WHO ARE UNDER OCCUPATION, SPREADING PROPAGANDA AND BLOCKING UKRAINIAN RESOURCES.



# WHO HELPING US



Sander Steffann



Rene Fichtmueller



Jan Žorž



Corinne Pritchard



Nathalie Trenaman



Ester Paál



Daniel Houben



Marcin Kuczera



Erik Bais

G L O B A L



A L L I A N C E





## PROGRAM COMMITTEE



René  
Fichtmüller



Nataliia  
Klitna



Maksym  
Smilianets



Tetiana  
Popova



Oleksandr  
Glushchenko



Oleksandr  
Savchuk



Iryna  
Kabala



Mykola  
Kucheruk

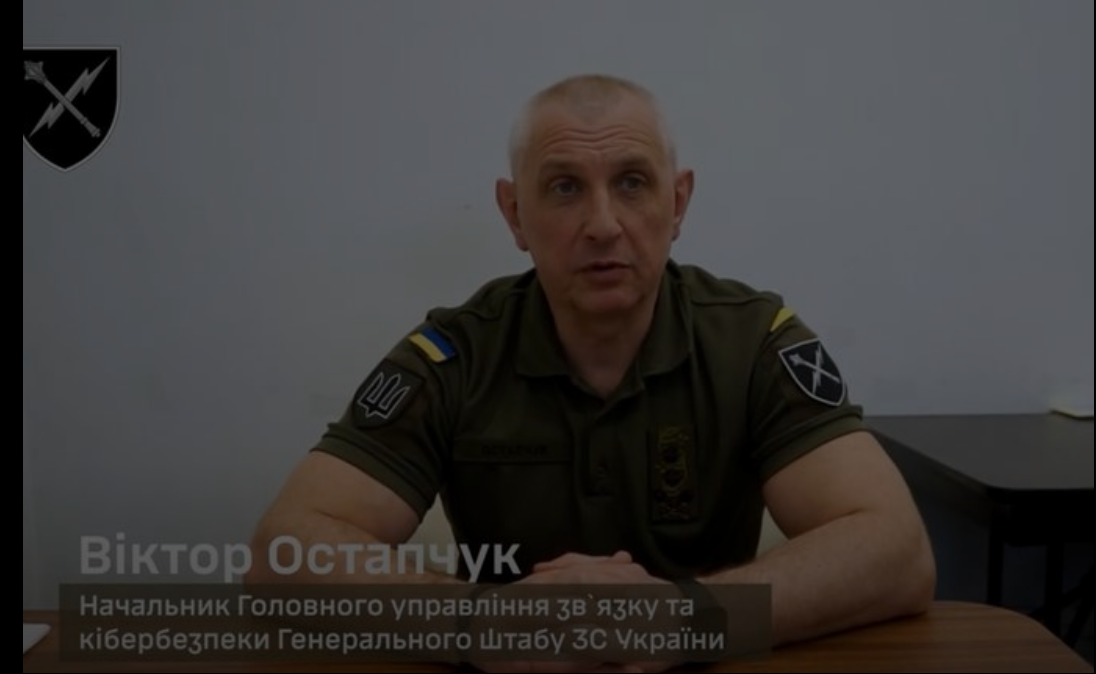


Oleksandra  
Krovyakova

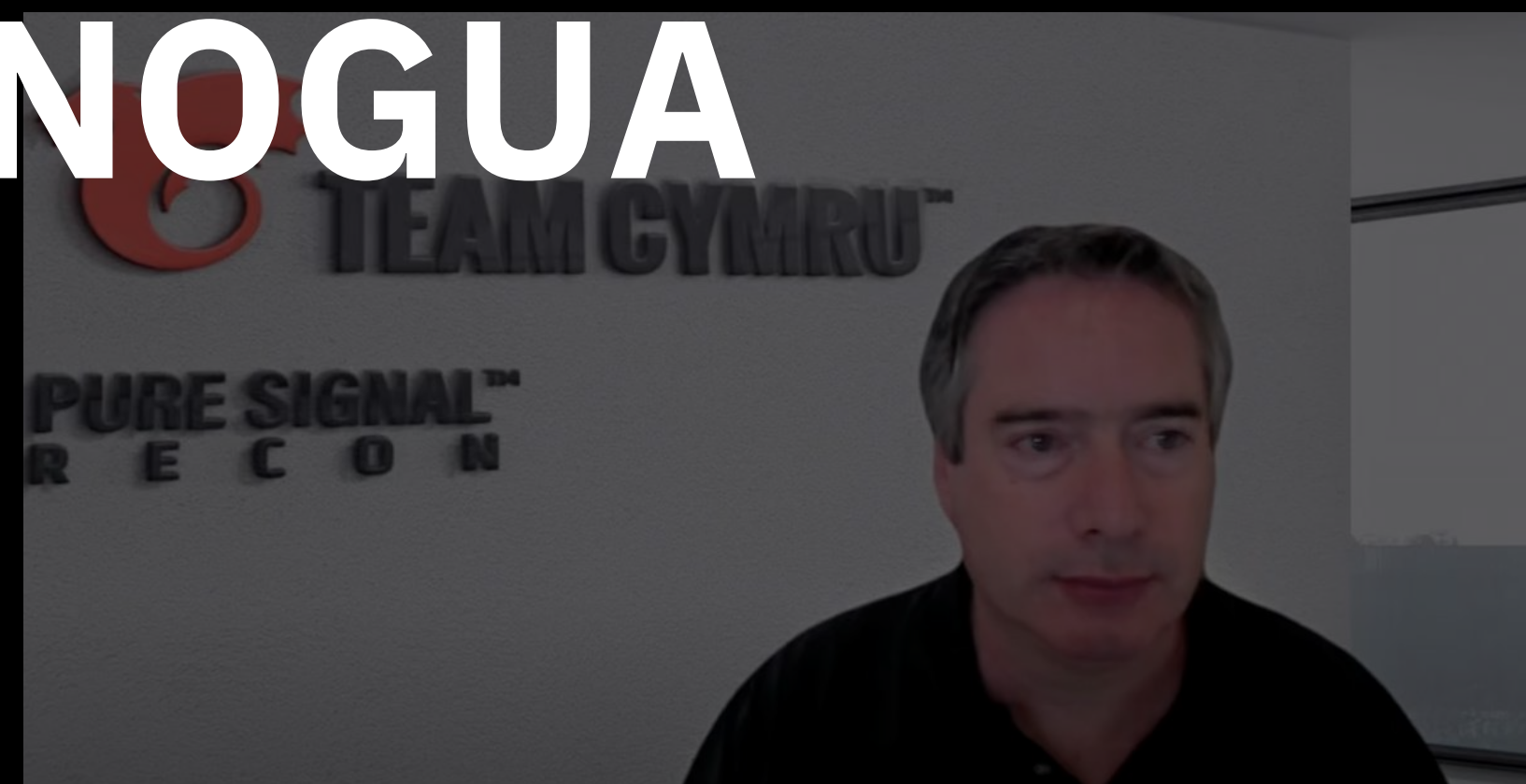
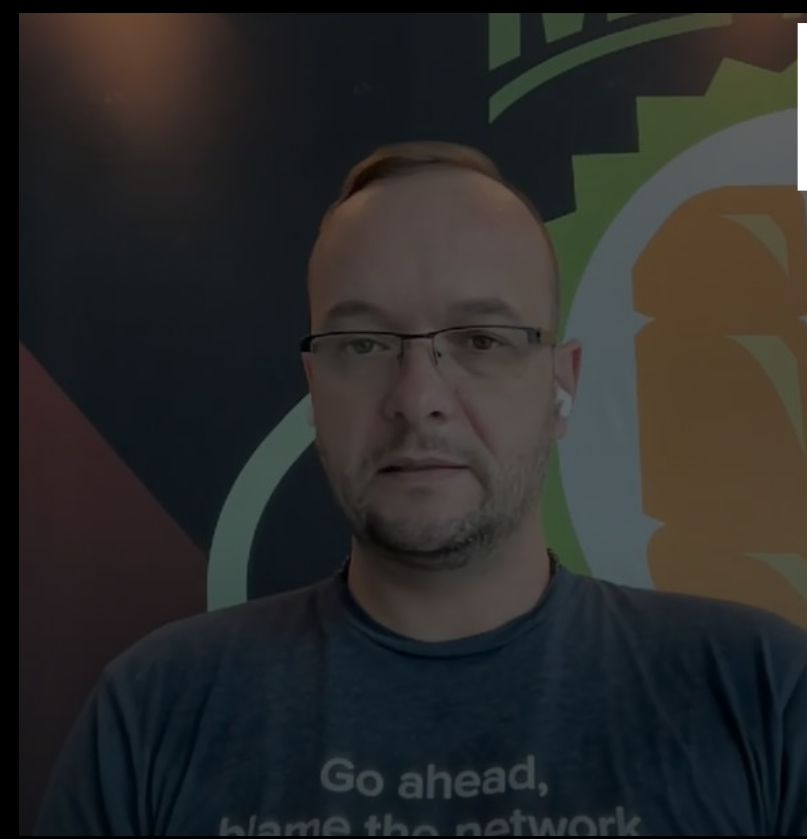


Oleg  
Zinkov





# OPENING THE FIRST NOGUA



watch  
video  
here





# MAIN GOALS: CHARITY AND AID FOR ISPs

**ISP**

FROM  
FRONTLINE  
AREAS

Free participation for visiting all conference official part and social events, hotel accommodation

**deepnet**  
Deep Networks Ukraine

5 Grants of 2,500 EUR each from both General Sponsor and general conference fund for ISPs

**10%**

FROM ALL  
TICKETS

Sent to general conference fund for aid for ISPs from frontline areas

**eQualitie**

7 certificates from Canadian donor each of 6,5 km of fiber optic cable





# NOGUA IN NUMBERS

**150+**

ONSITE  
PARTICIPANTS

**30+**

ONLINE  
PARTICIPANT

**90+**

DIFFERENT  
COMPANIES

**9+**

DIFFERENT  
COUNTRIES



# Contacts



A LINK TO THE GOOGLE FOLDER  
WITH DESTROYED  
INFRASTRUCTURE

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**THANK YOU FOR  
attention**