REGIONAL SUCCESS STORIES IN THE CONDITIONS OF WAR

SPEAKER:

OLENA KUSHNIR

Olena Kushnir - co-founder and CEO of the Ukrainian communications operator and universal integrator of IT solutions, engineering systems, cable networks, security systems, infrastructure automation and optimization systems "WEB PRO" LLC, active participant of the Ukrainian telecommunication industry and a member of specialized assosiations.

- Member of Internet Association of Ukraine
- Member of the Ukrainian Union of Industrialists and Entrepreneurs
- Member of Ukrainian LIR community

WEB PRO

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
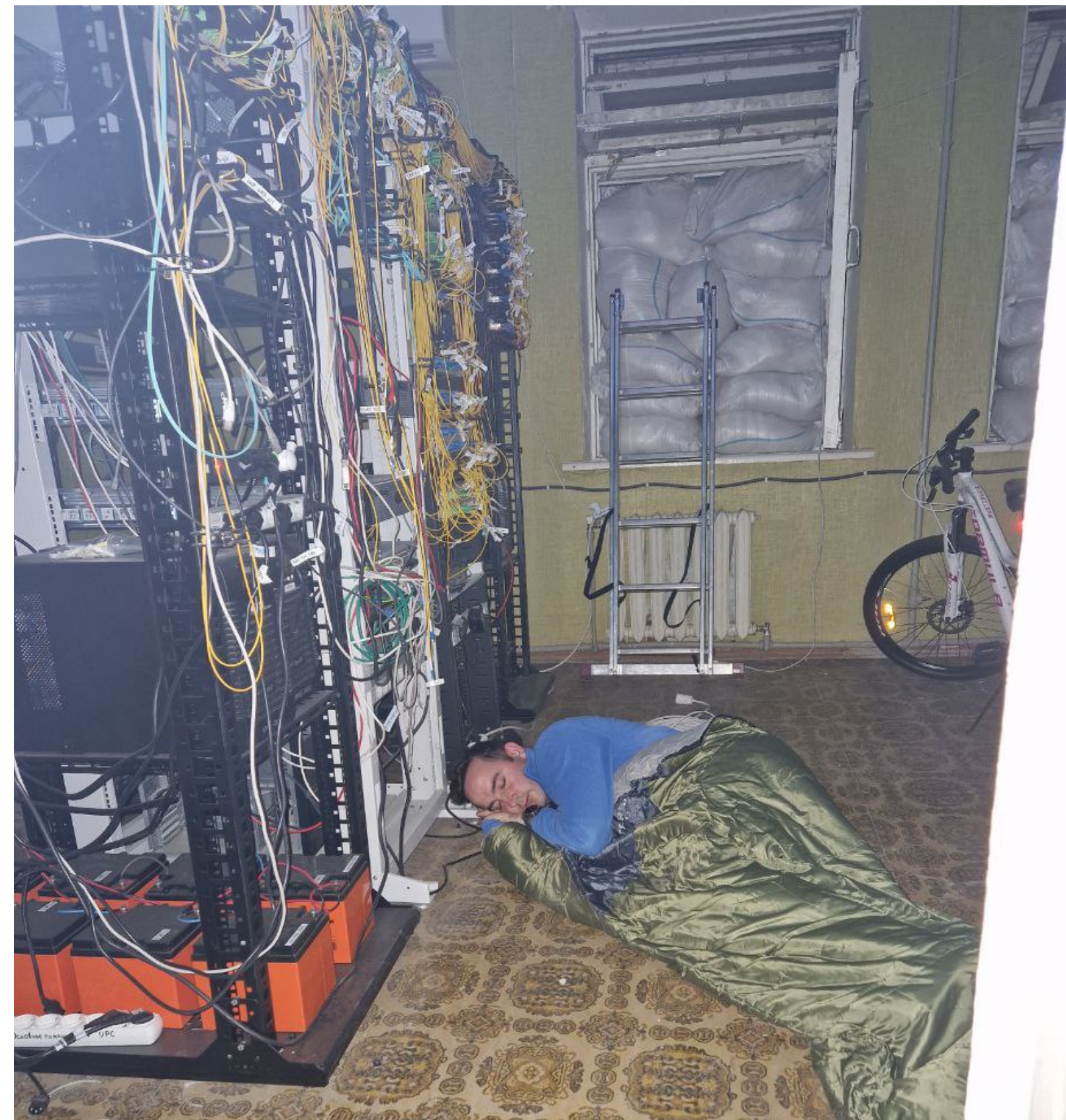
PON NETWORKS AND STARLINKS

transition to alternative energy sources

unbreakable heating shelters

MYKOLA KUCHERUK, ELIT- LINE, KRAMATORSK, DONETSK REGION

DESTROYED INFRASTRUCTURE
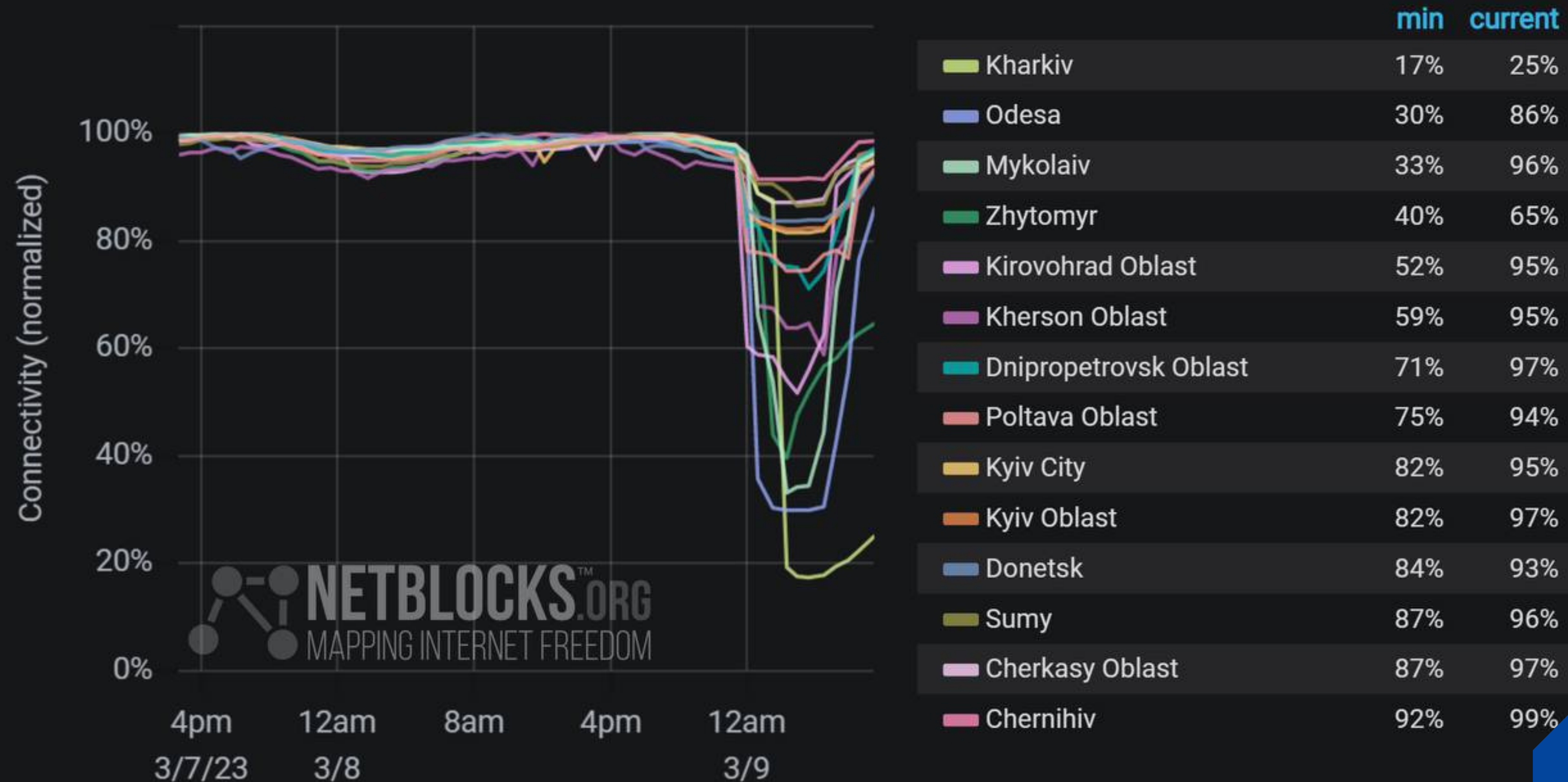

Kharkiv region

Vinnytsia region

Kherson region

Engineers

Kyiv region

DESTROYED INFRASTRUCTURE

Network Connectivity by Region - Ukraine: 2023-03-07 to 2023-03-09 UTC

	min	current
Kharkiv	17%	25%
Odesa	30%	86%
Mykolaiv	33%	96%
Zhytomyr	40%	65%
Kirovohrad Oblast	52%	95%
Kherson Oblast	59%	95%
Dnipropetrovsk Oblast	71%	97%
Poltava Oblast	75%	94%
Kyiv City	82%	95%
Kyiv Oblast	82%	97%
Donetsk	84%	93%
Sumy	87%	96%
Cherkasy Oblast	87%	97%
Chernihiv	92%	99%

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.
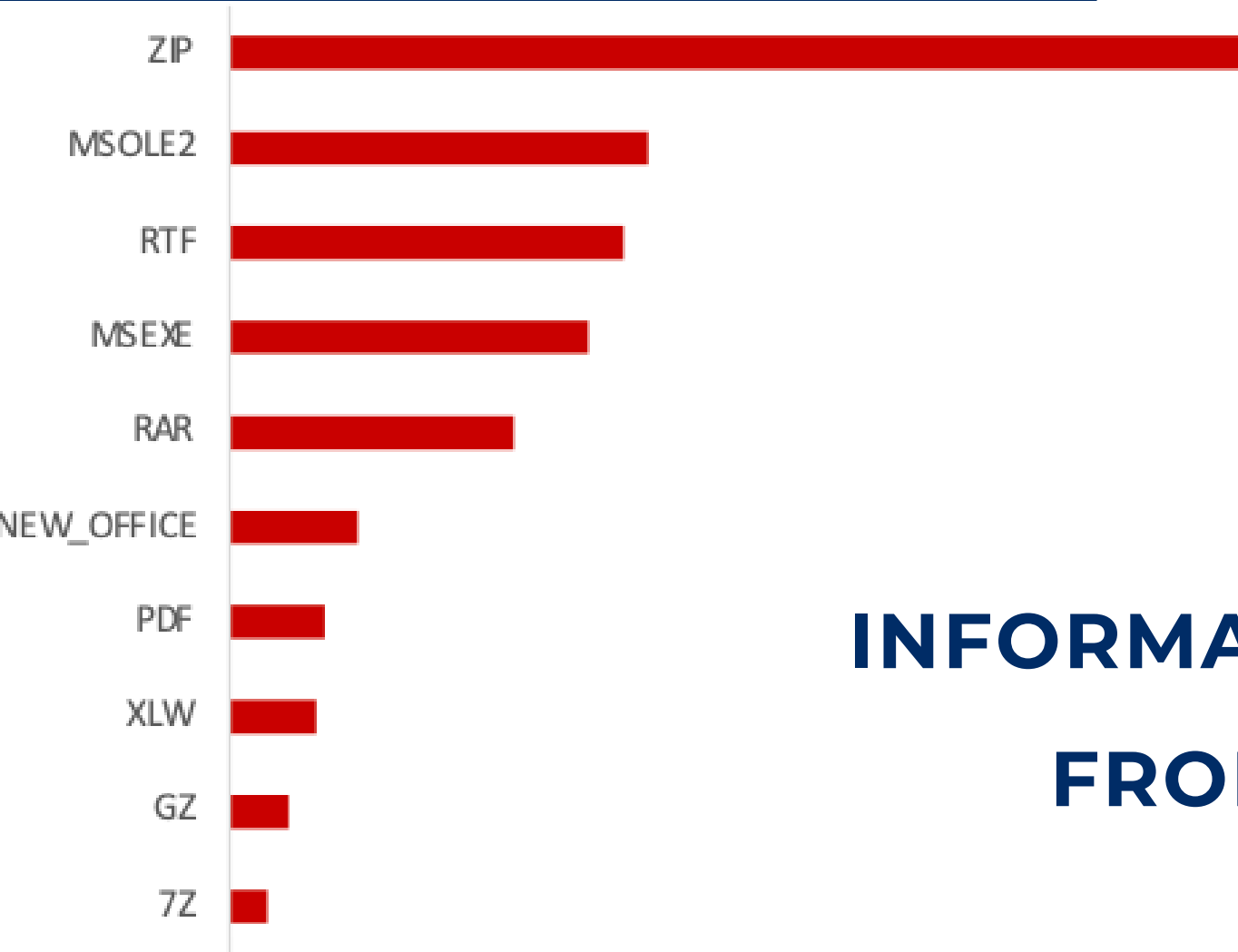
DANGEROUS WORKING CONDITIONS

ATRACOM, KHERSON, VOVCHANSK (KHARKIV REGION)

CYBER ATTACKS

Bar chart (file types):
- ZIP
- MSOLE2
- RTF
- MSEXE
- RAR
- NEW_OFFICE
- PDF
- XLW
- GZ
- 7Z

INFORMATION RECEIVED
FROM CERT -UA

Legend (donut chart):
- Other; 624
- Local authorities; 24
- Transport industry; 36
- Government organizations; 41
- Telecom and software developers; 8[...]
- Financial sector; 85
- Energy sector; 89
- Commercial organizations; 132
- Security and defense sector; 235.
- Government and local authorities; 442

Total: 1880

Donut chart values: 624, 442, 235, 132
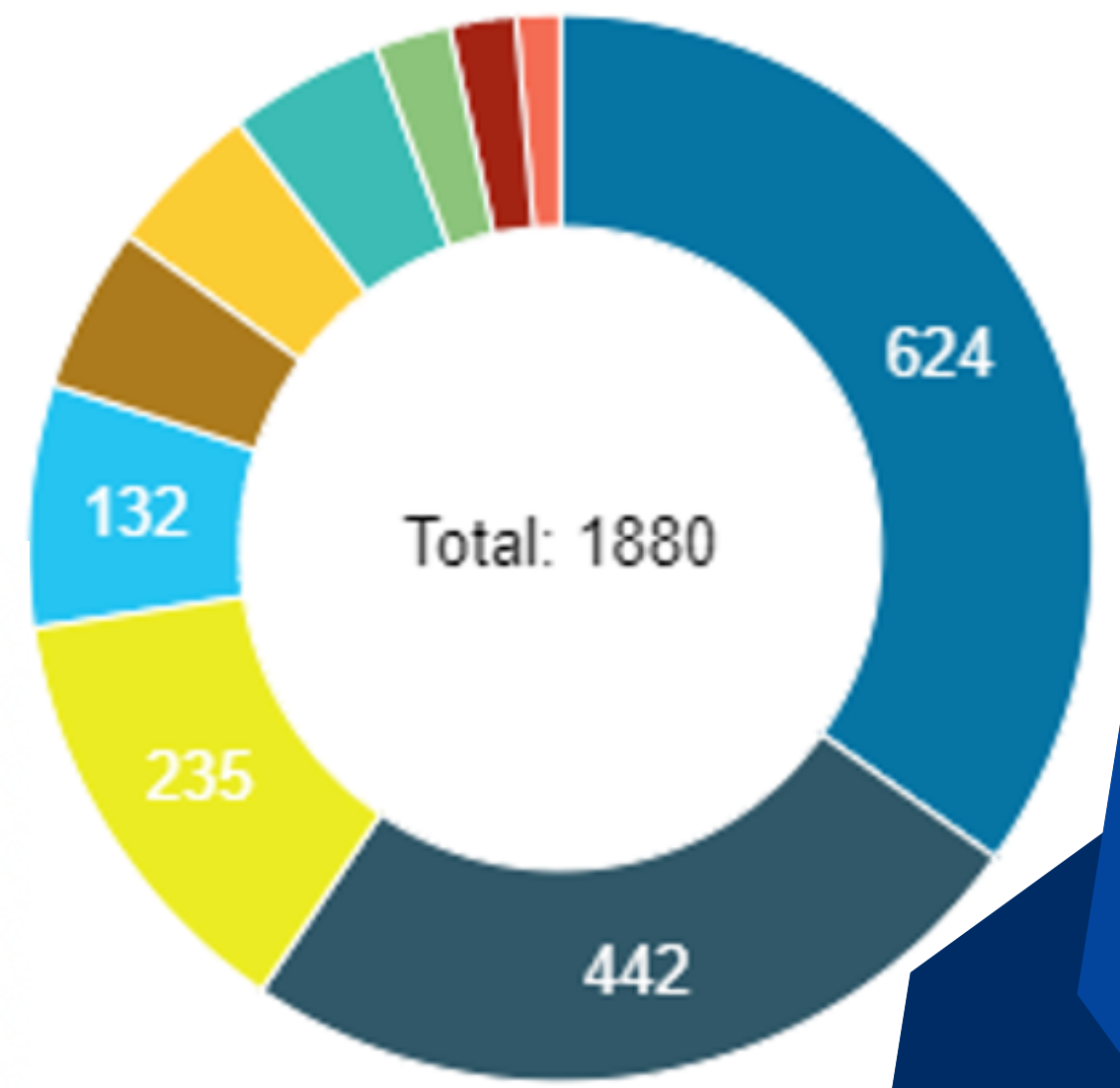
src	src country	AS NUMBER	AS NAME	%
45.93.16.71	Germany	AS23470	ReliableSite	0,40
206.189.5.99	Netherlands	AS14061	DIGITALOCEAN-ASN	0,38
89.248.165.199	Netherlands	AS202425	IP Volume inc	0,32
72.167.32.184	United States	AS398101	GoDaddy	0,31
185.156.73.91	russian federation	AS44446	OOO SibirInvest	0,30
97.74.81.123	Singapore	AS26496	GoDaddy	0,29
60.161.81.116	China	AS4134	Chinanet	0,26
93.174.93.227	Netherlands	AS202425	IP Volume inc	0,23
146.88.240.4	United States	AS20052	NETSCOUT Arbor	0,22
45.143.200.114	russian federation	AS212283	Roza Holidays Eood	0,21

Internet Society Pulse

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. 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.

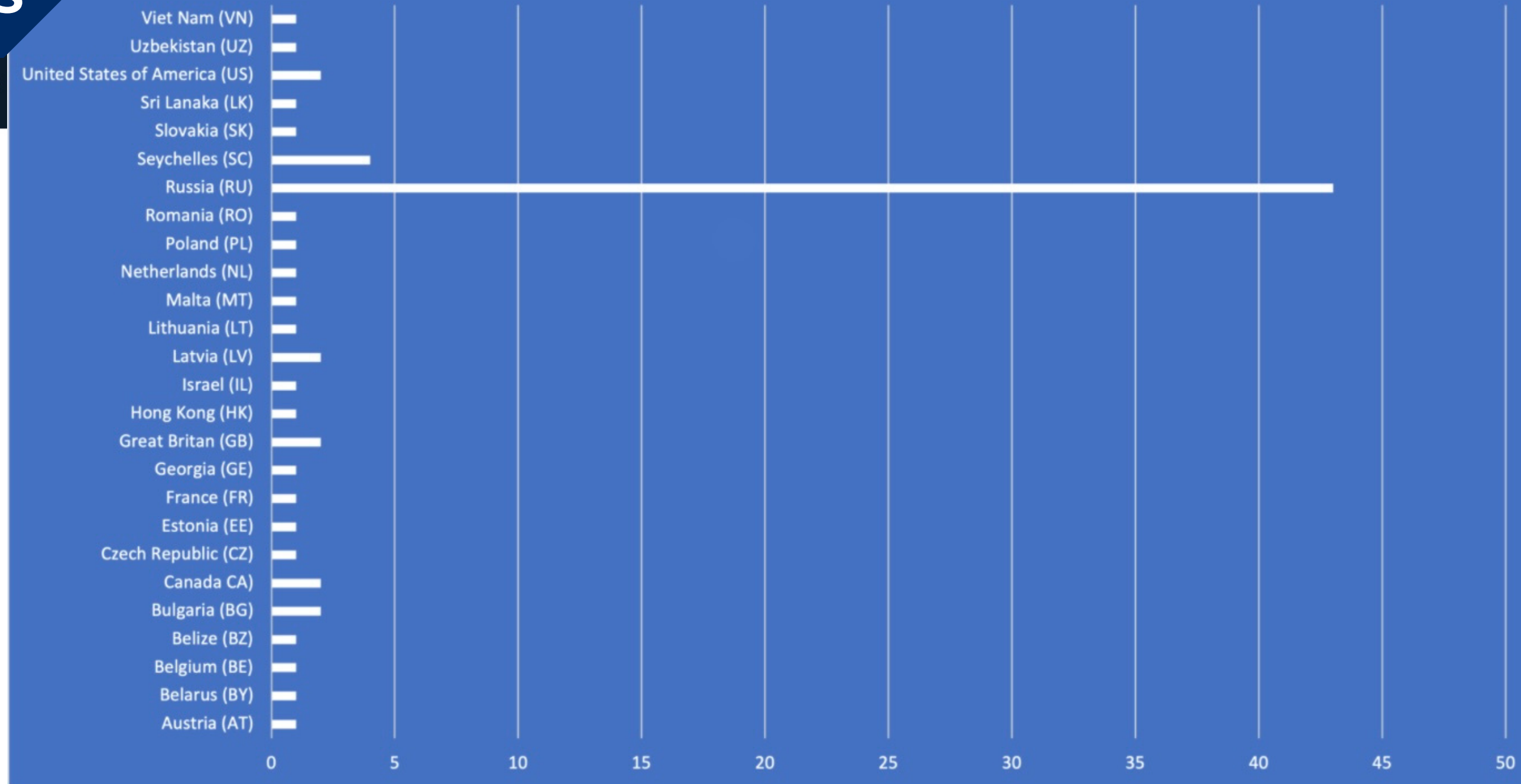**Number of ASNs transferred to other countries from Ukraine**

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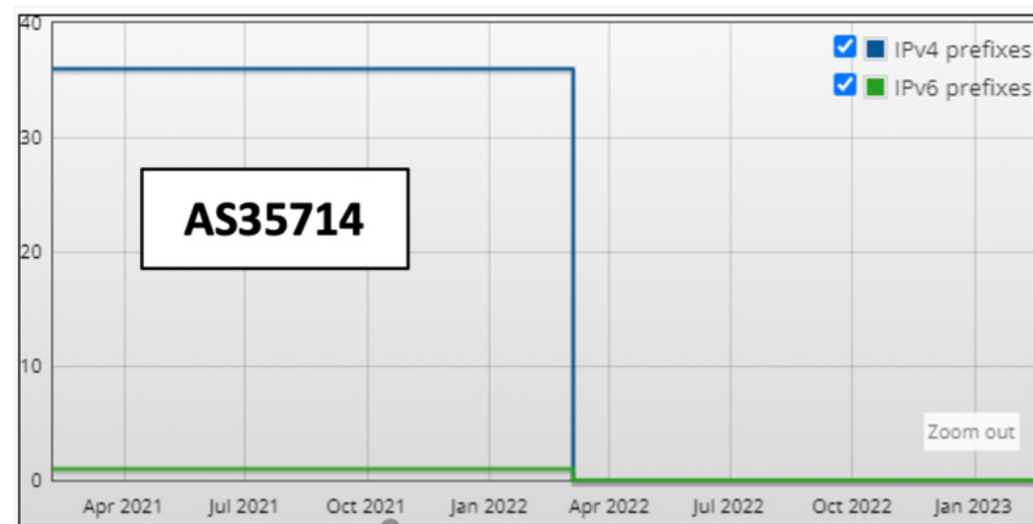

AS35714

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.
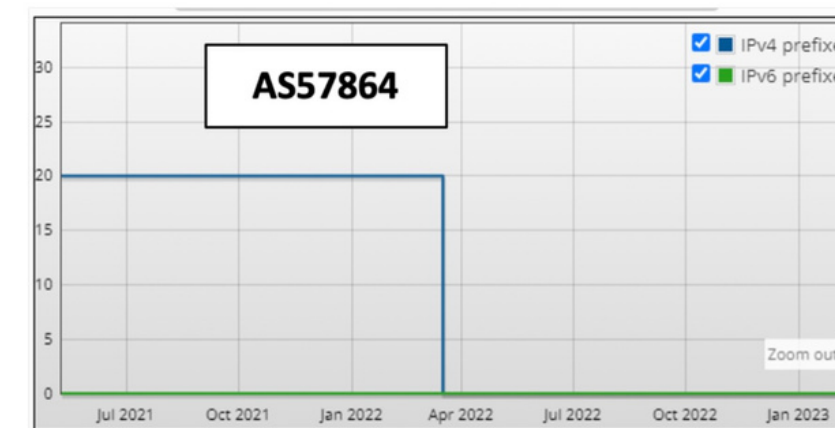

AS57864

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.

THEFT OF UA RESOURCES

kentik

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.
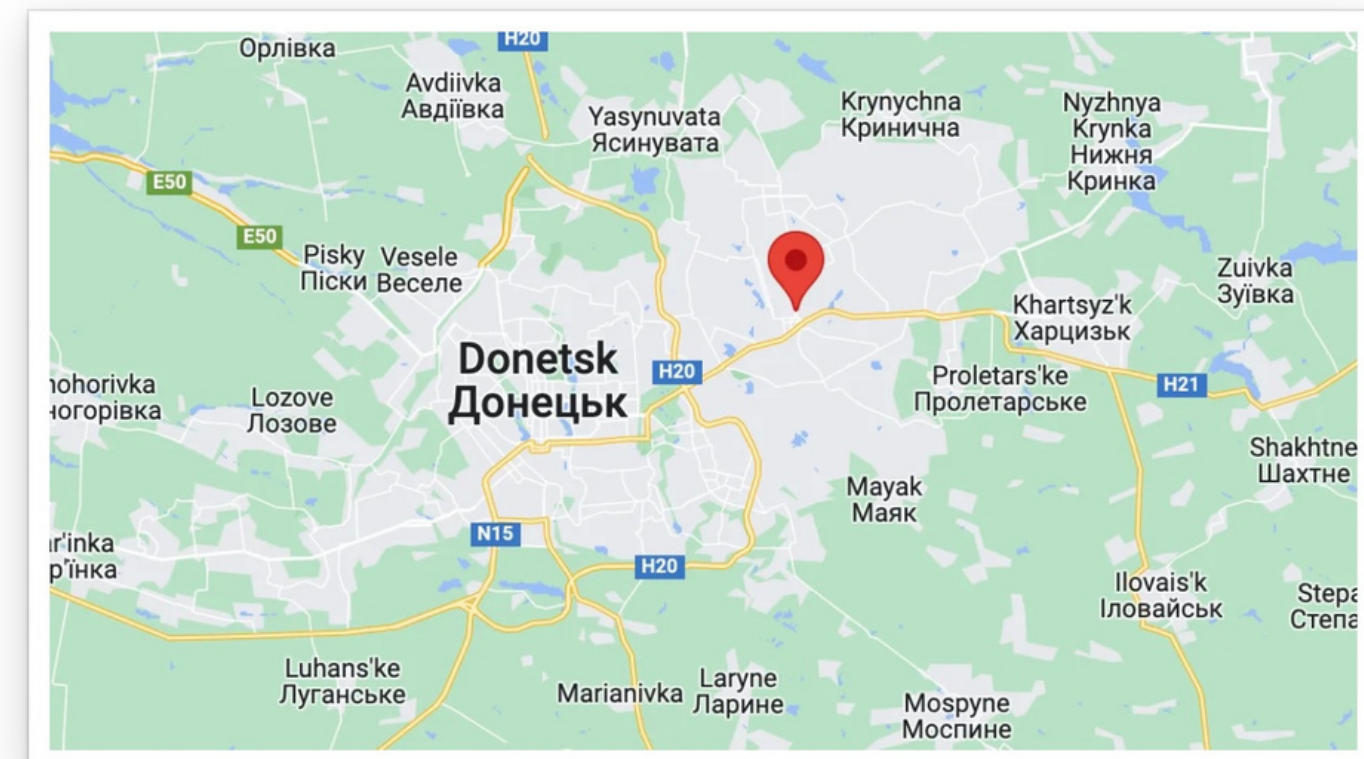
Doug Madory

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."

THEFT OF UA RESOURCES

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

TTRAFFIC SWITCHING IS ONE OF THE BIGGEST PROBLEMS IN THE OCCUPIED TERRITORIES. 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.
EMPLOYEES AND OWNERS OF SUCH ISP COMPANIES, WHO WERE UNABLE TO LEAVE, MUST EITHER OBEY THE OCCUPIERS AND FOLLOW THEIR ORDERS OR RISK THEIR LIVES.

Sander Steffann

Rene Fichtmueller

Jan Žorž

Corinne Pritchard

Nathalie Trenaman

Ester Paál

Daniel Houben

Marcin Kuczera

Erik Bais

Ministry
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KEEP UKRAINE CONNECTED

Thank You

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