

**Our IT / Tech Community is one big family.**

**We don't think in colors, we don't think in races or genders, we don't think in borders.**



## Keep Ukraine Connected

---

*February 24, 2022*

This was the day everything began.  
War started in Ukraine.

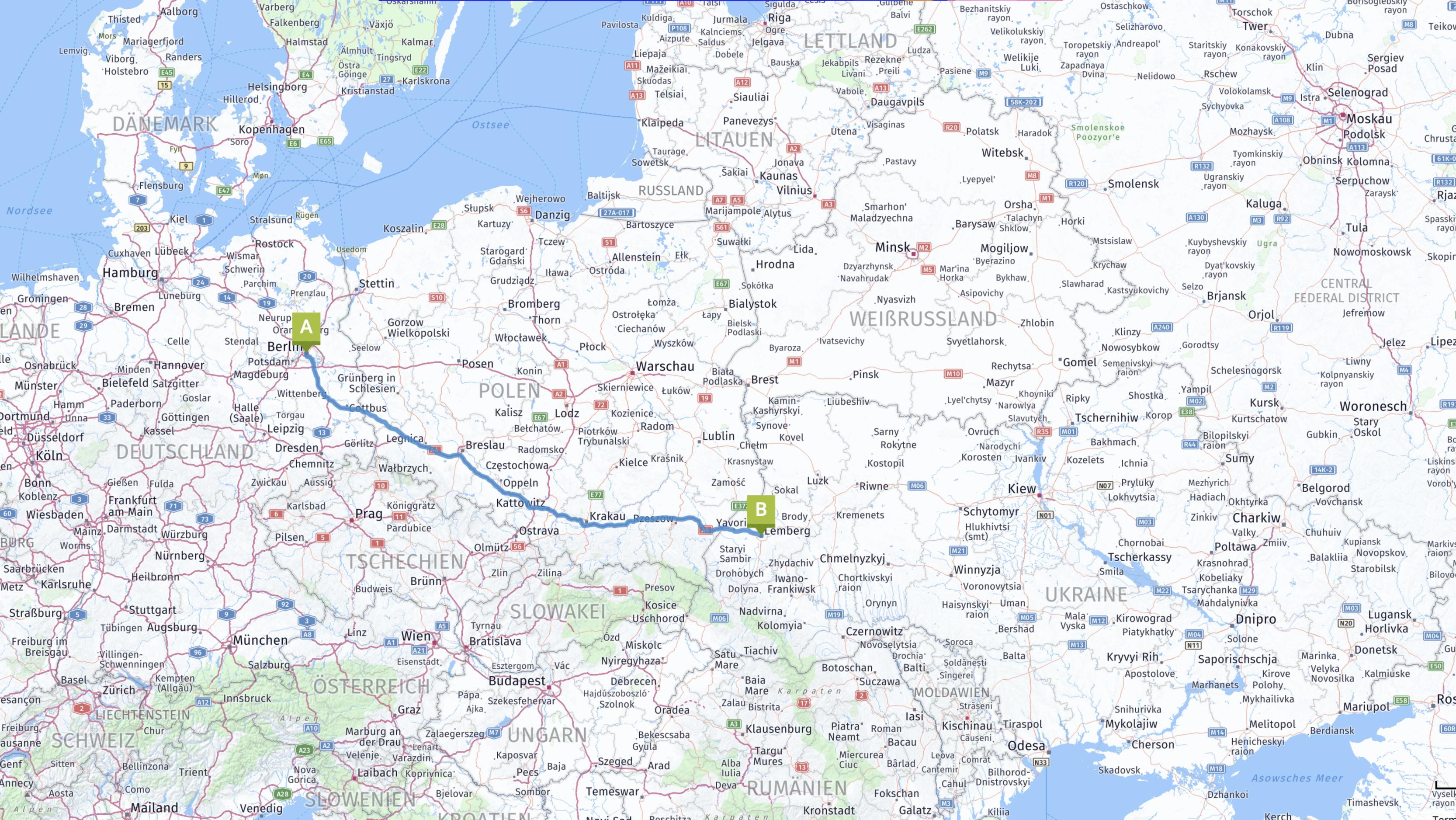
Dark days for Ukrainian people,  
but also for Internet Service Providers in the region.



## The beginning...

When Russia invaded Ukraine, our chair René Fichtmüller didn't want to stand idly by. He first got together with his friend Patrick, and helped organise two truck's worth of relief, which they dropped off at the Ukrainian border in the second week of March 2022.

However, of course, this was not enough.



A

B

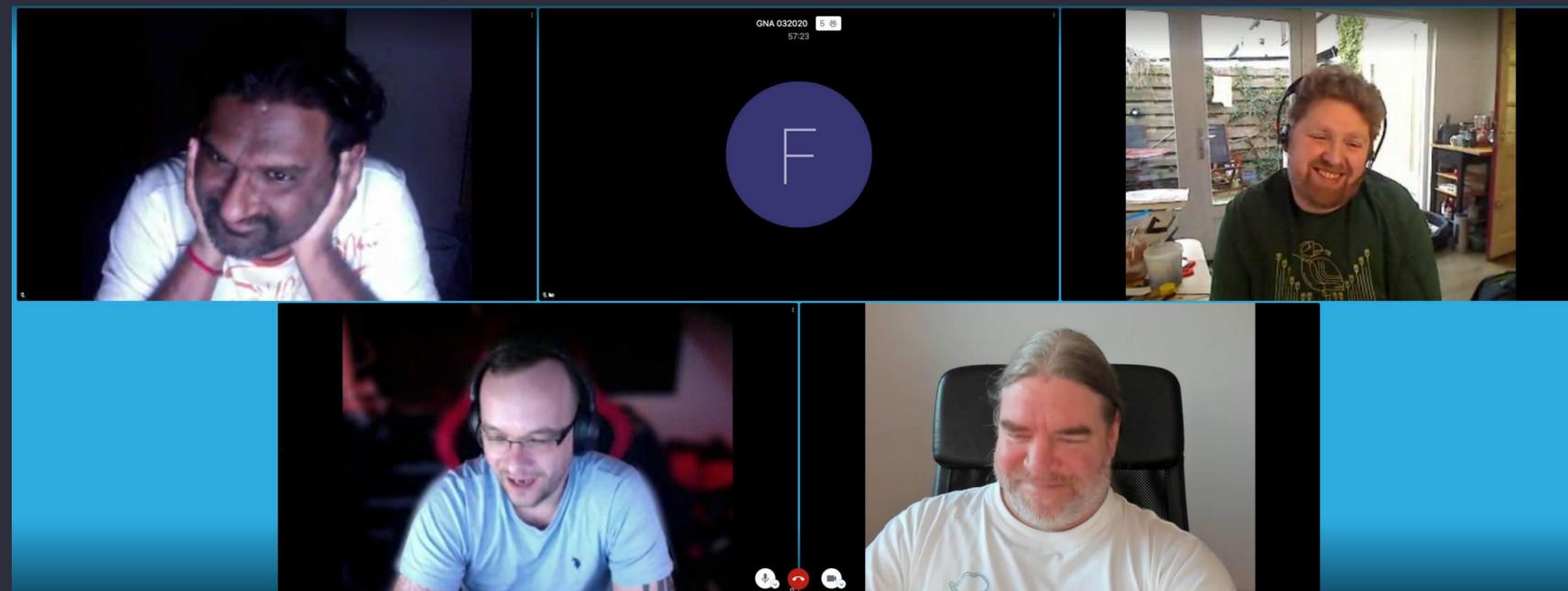
# The next day...

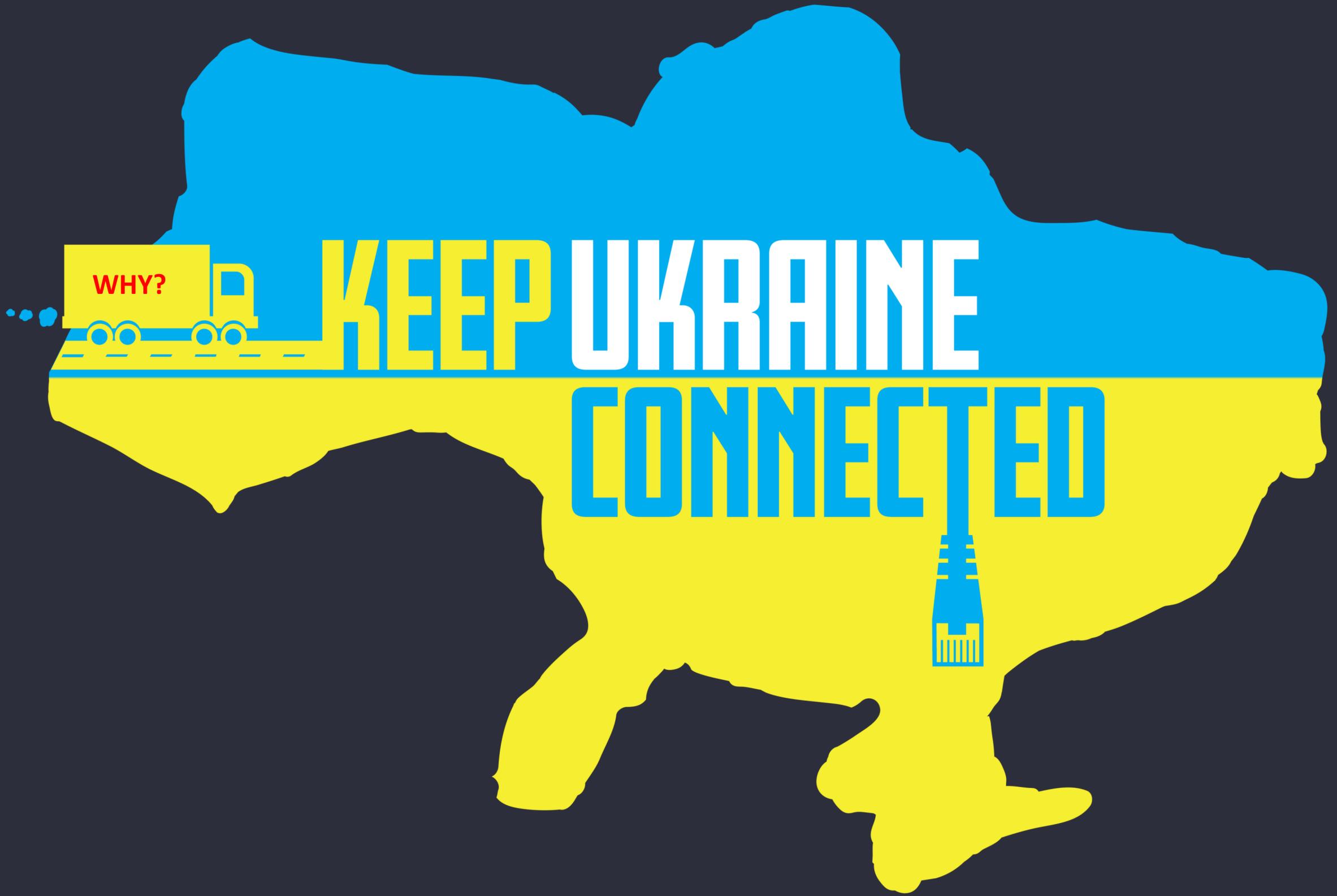
At the Global NOG Alliance Board Meeting

Rene shared his thoughts on the next steps, and we all agreed that it was time to do exactly what the Global NOG Alliance was founded to do.

Help Network Operators.

We called this task force:





WHY?

KEEP UKRAINE

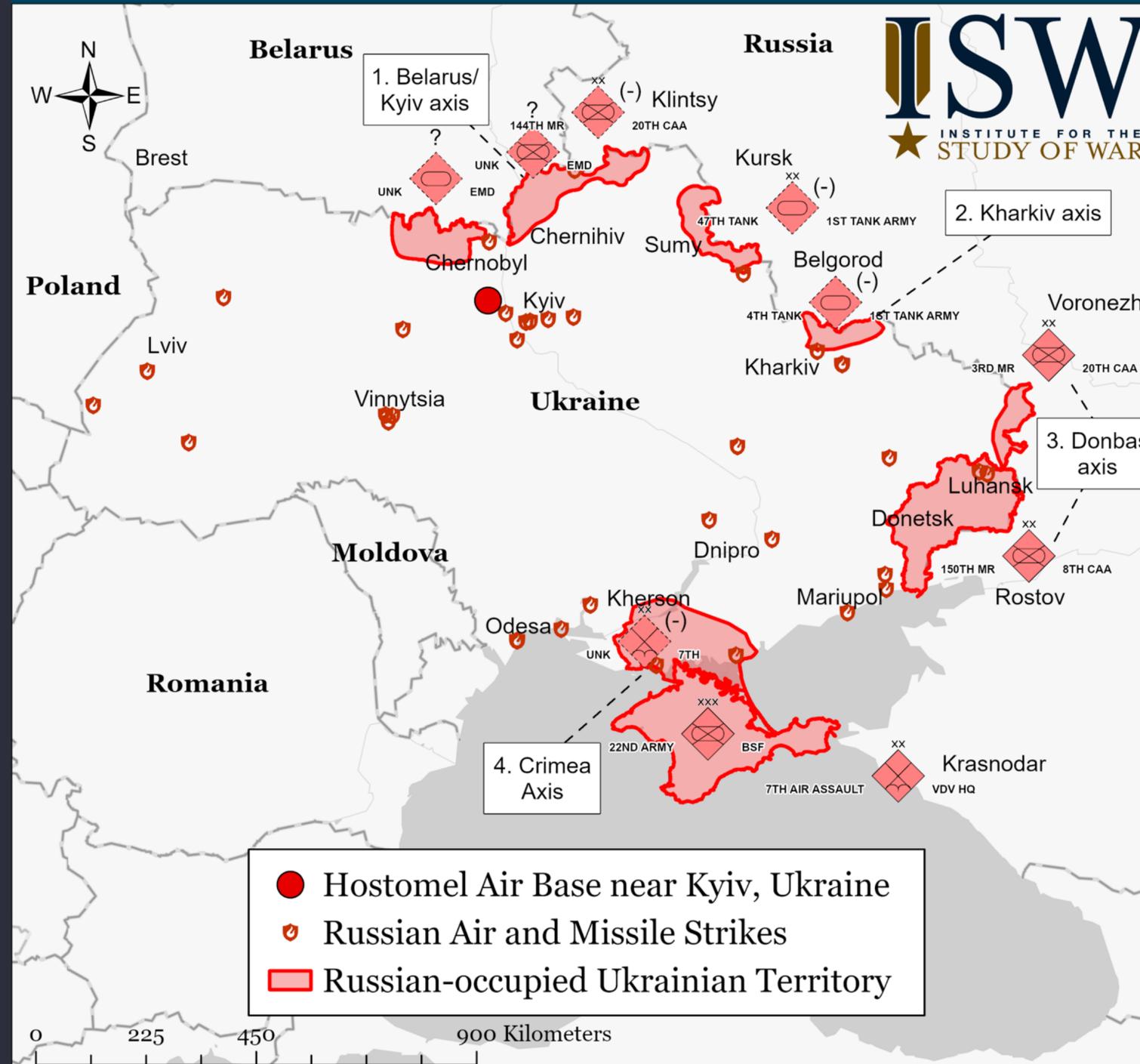
CONNECTED

...why are we doing this? (Part I)

## Infrastructure perspective



# Assessed Control of Terrain in Ukraine and Main Russian Maneuver Axes as of February 24, 2022, 2:00 PM EST



Map by George Barros, Kathryn Tyson, and Thomas Bergeron  
Institute for the Study of War © 2022

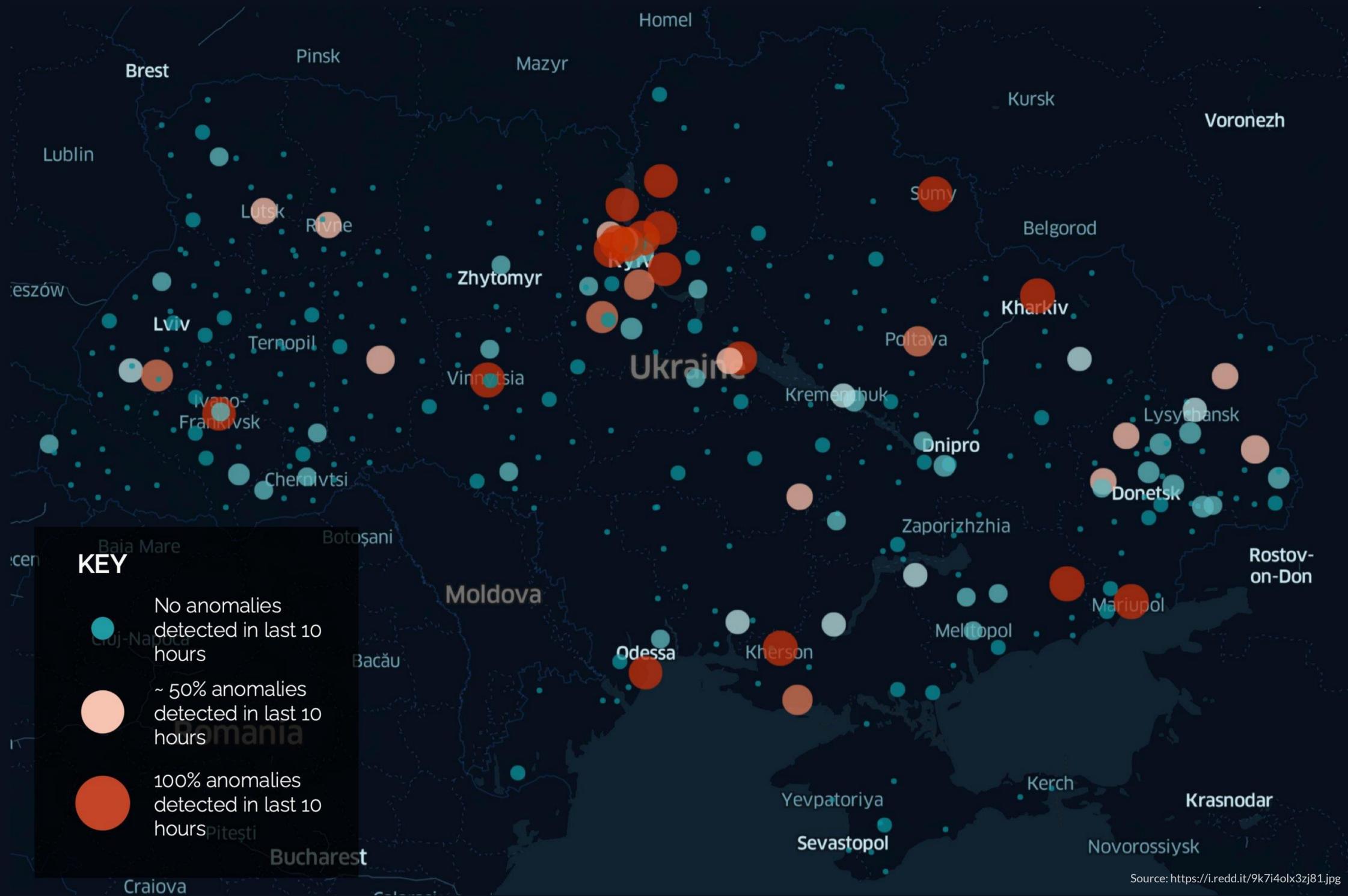
# Current ICT Connectivity Anomalies

UKR // 11h 25 Feb 2022 (GMT +2h)

25-Feb-2022 01:00:00 to 25-Feb-2022 11:00:00 (GMT +2H)

Map shows number of ICT connectivity anomalies (degraded internet) in last 10 hours for the given district

powered by  
**KASPR Datahaus**





May 29

Source: <https://www.nytimes.com/interactive/2022/08/09/technology/ukraine-internet-russia-censorship.html>



**June 1**

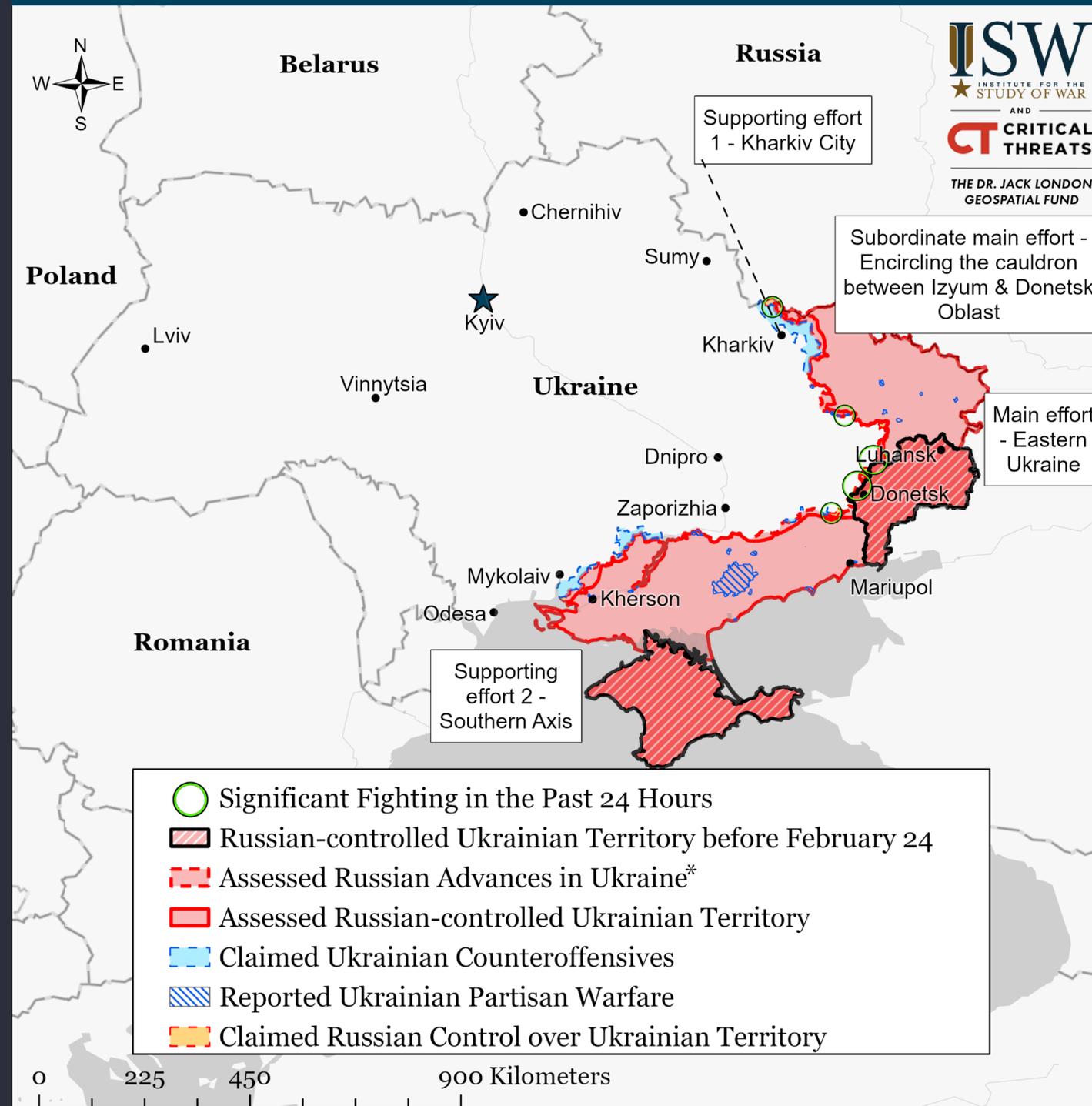
Source: <https://www.nytimes.com/interactive/2022/08/09/technology/ukraine-internet-russia-censorship.html>



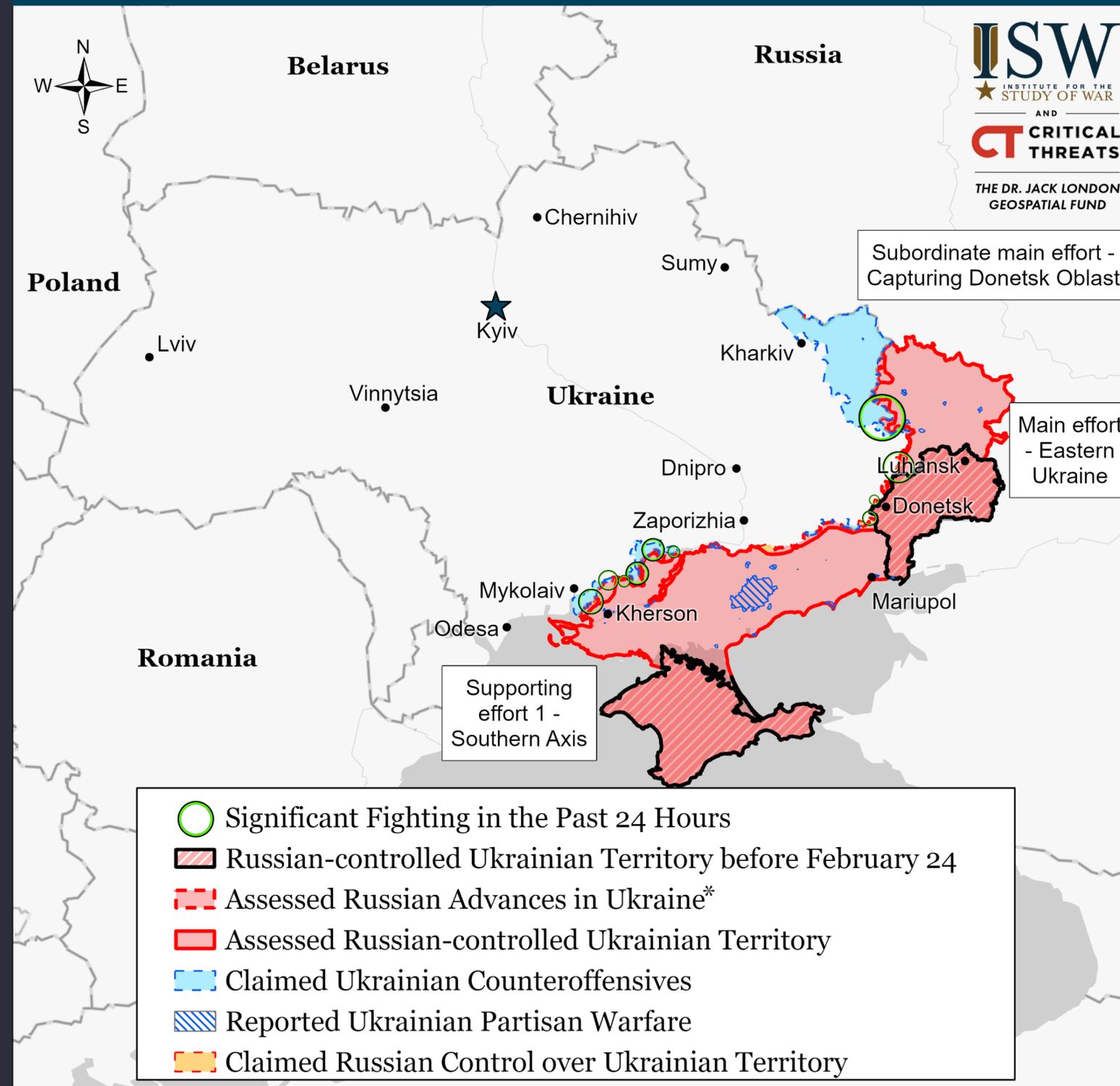
June 5

Source: <https://www.nytimes.com/interactive/2022/08/09/technology/ukraine-internet-russia-censorship.html>

# Assessed Control of Terrain in Ukraine and Main Russian Maneuver Axes as of August 28, 2022, 3:00 PM ET



# Assessed Control of Terrain in Ukraine and Main Russian Maneuver Axes as of September 28, 2022, 3:00 PM ET





Subordinate main effort -  
Capturing Donetsk Oblast

Main effort  
- Eastern  
Ukraine

Supporting  
effort 1 -  
Southern Axis

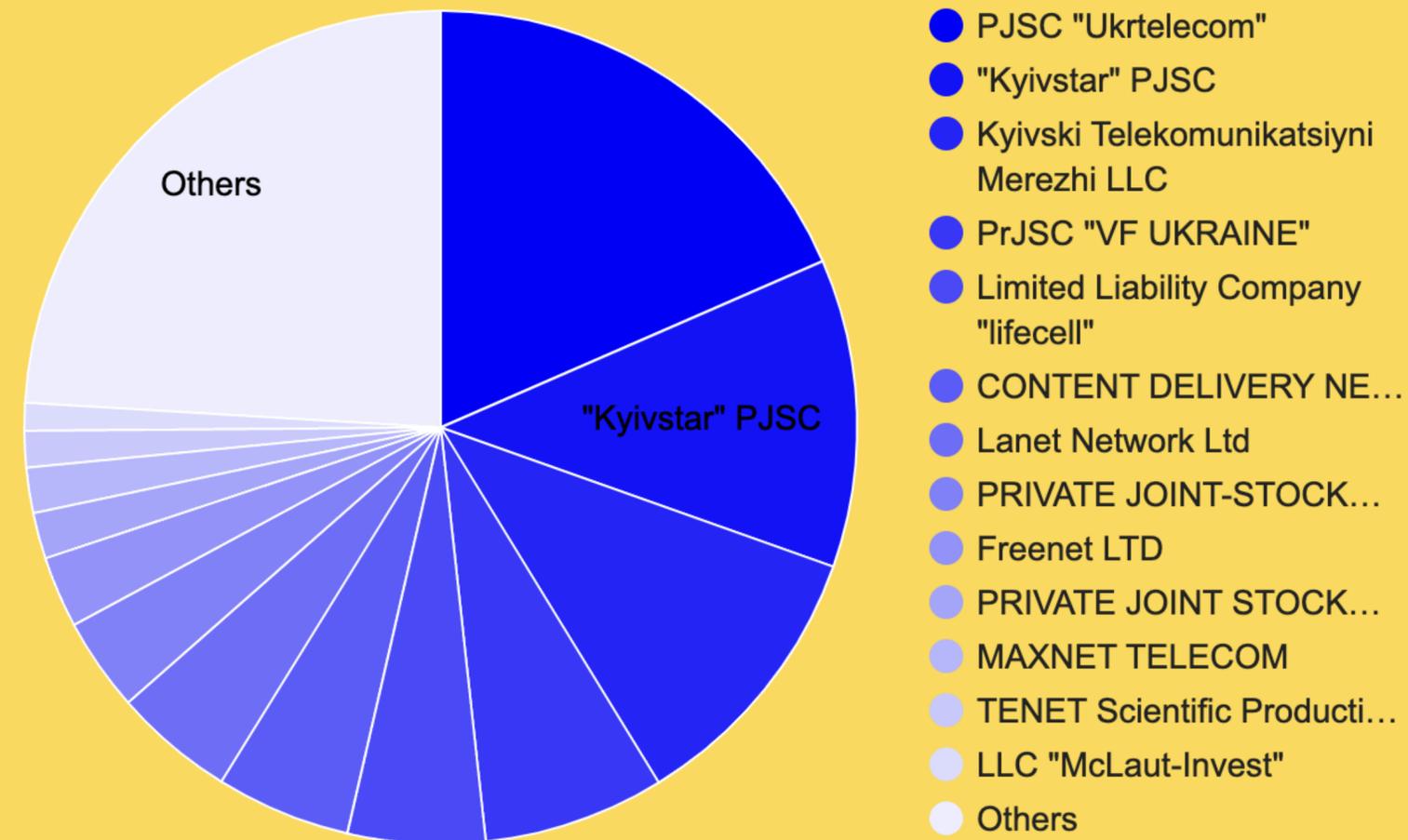
 Significant Fighting in the Past 24 Hours  
 Russian-controlled Ukrainian Territory before February 24

# Ukraine (UA) - IPv4 address statistics - Sorted by number of addresses

Data from RIPE NCC website as of: Mon Aug 29 2022

Total number of addresses: 7 858 944

Ukraine: IPv4 Statistics by LIR for RIPE NCC Allocations

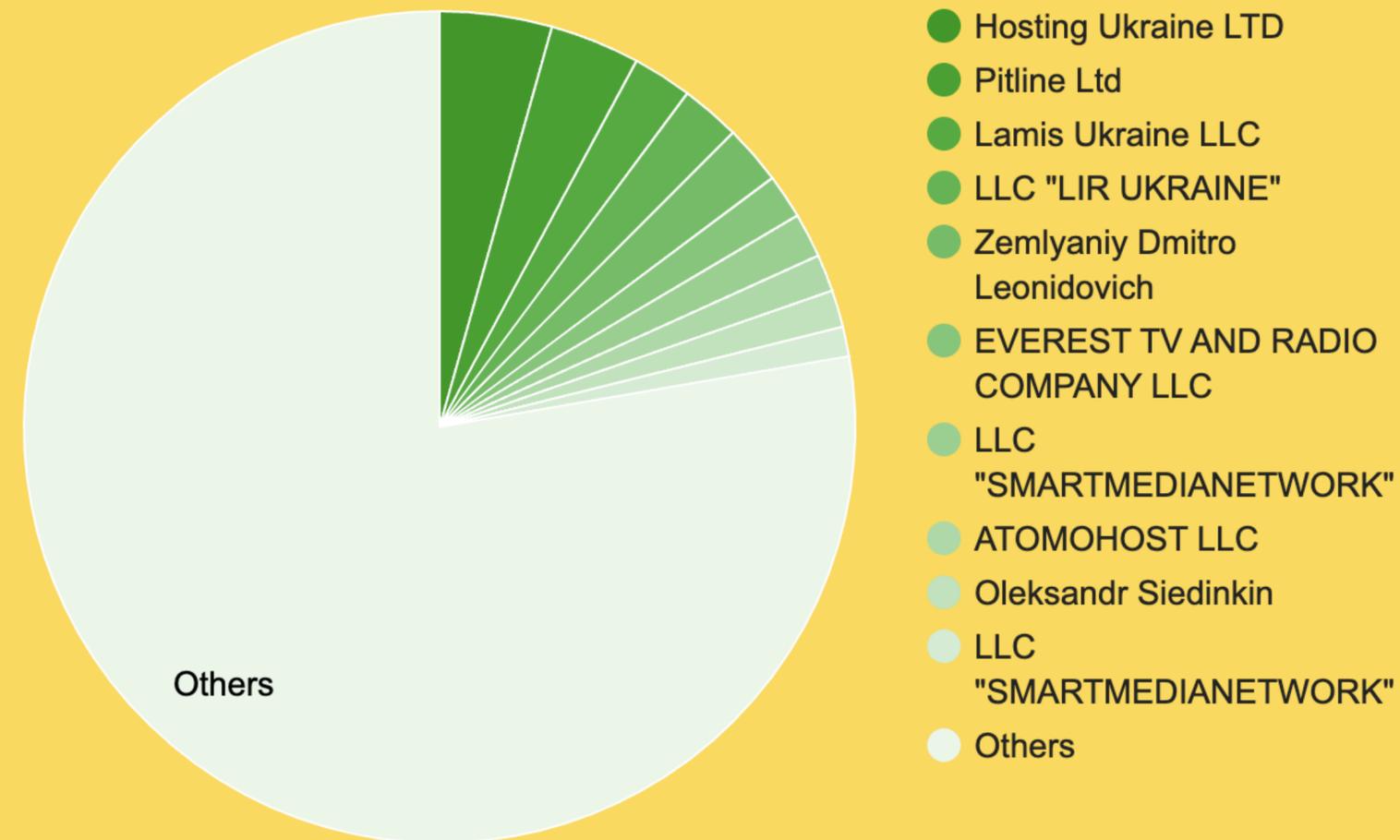


# Ukraine (UA) - IPv6 address statistics (in /32 blocks) - Sorted by number of addresses

Data from RIPE NCC website as of: Mon Aug 29 2022

Total number of addresses: 2 774

Ukraine: IPv6 Statistics by LIR for RIPE NCC Allocations

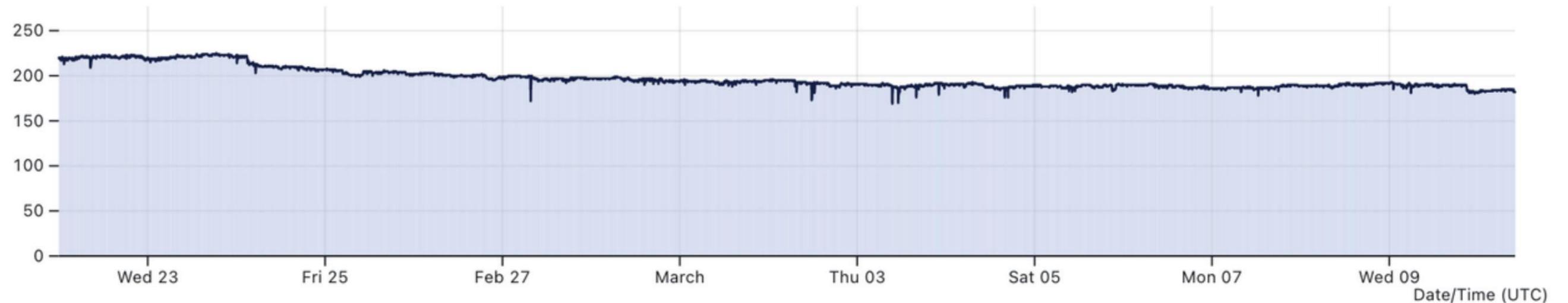


# RIPE Atlas Probes in Ukraine



- Slow decline

Connected RIPE Atlas probes



<https://observablehq.com/@ripencc/internet-outages-as-seen-by-ripe-atlas>

Source:

Name ↓	Media Type	Country	City	Networks
<u>1-IX Kyiv</u> 1-IX Internet Exchange	Ethernet	UA	Kyiv	49
<u>BGP.Exchange - Kyiv</u>	Multiple	UA	Kyiv	2
<u>CLOUD-IX KHA</u>	Multiple	UA	Kharkov	4
<u>CLOUD-IX KIEV</u> CLOUD-IX KIEV	Multiple	UA	Kiev	10
<u>Crimea-IX</u> Crimea-IX	Ethernet	UA	Simferopol	7
<u>DN-IX</u> Donetsk Internet eXchange	Ethernet	UA	Donetsk	2
<u>DTEL-IX</u> Digital Telecom Internet Exchange	Ethernet	UA	Kiev	167
<u>Filanco-IX</u>	Ethernet	UA	Kiev	2
<u>GigaNET Kharkov</u> GigaNET Kharkov local exchange	Ethernet	UA	Kharkov	7
<u>GigaNET Kyiv</u> Giganet Internet exchange network	Ethernet	UA	Kyiv	172
<u>GigaNET Lviv</u>	Ethernet	UA	Lviv	2
<u>GigaNET Odessa</u> GigaNET Odessa local exchange	Ethernet	UA	Kiev	11
<u>GigaNET Zaporizhia</u>	Ethernet	UA	Zaporizhia	0
<u>IF-IX</u> IVANO-FRANKIVSK INTERNET EXCHANGE	Ethernet	UA	Ivano-Frankivsk	8
<u>Kherson Traffic Exchange</u> Kherson Traffic Exchange	Ethernet	UA	Kherson	4
<u>KM-IX</u> Khmelnitskiy Internet Exchange Point	Ethernet	UA	Хмельницький	3
<u>KM-IX UA</u>	Ethernet	UA	Khmelnitskiy	0
<u>kremen-IX</u>	Ethernet	UA	Kremenchuk	7
<u>LVIV-IX</u> Lviv Internet Exchange	Ethernet	UA	Lviv	10
<u>MESH-IX</u> Mesh Internet Exchange	Ethernet	UA	Mariupol	4
<u>PITER-IX Kiev</u> PITER-IX Kiev	Ethernet	UA	Киев	63
<u>RUDAKI-IX</u> RUDAKI INTERNET EXCHANGE	Ethernet	UA	Kyiv	9
<u>RV-IX</u>	Ethernet	UA	Rivne	2
<u>SerinIX IX</u> SerinIX Internet Exchange	Ethernet	UA	Kiev	1
<u>UA-IX</u> Ukrainian Internet Exchange	Ethernet	UA	Kiev	127

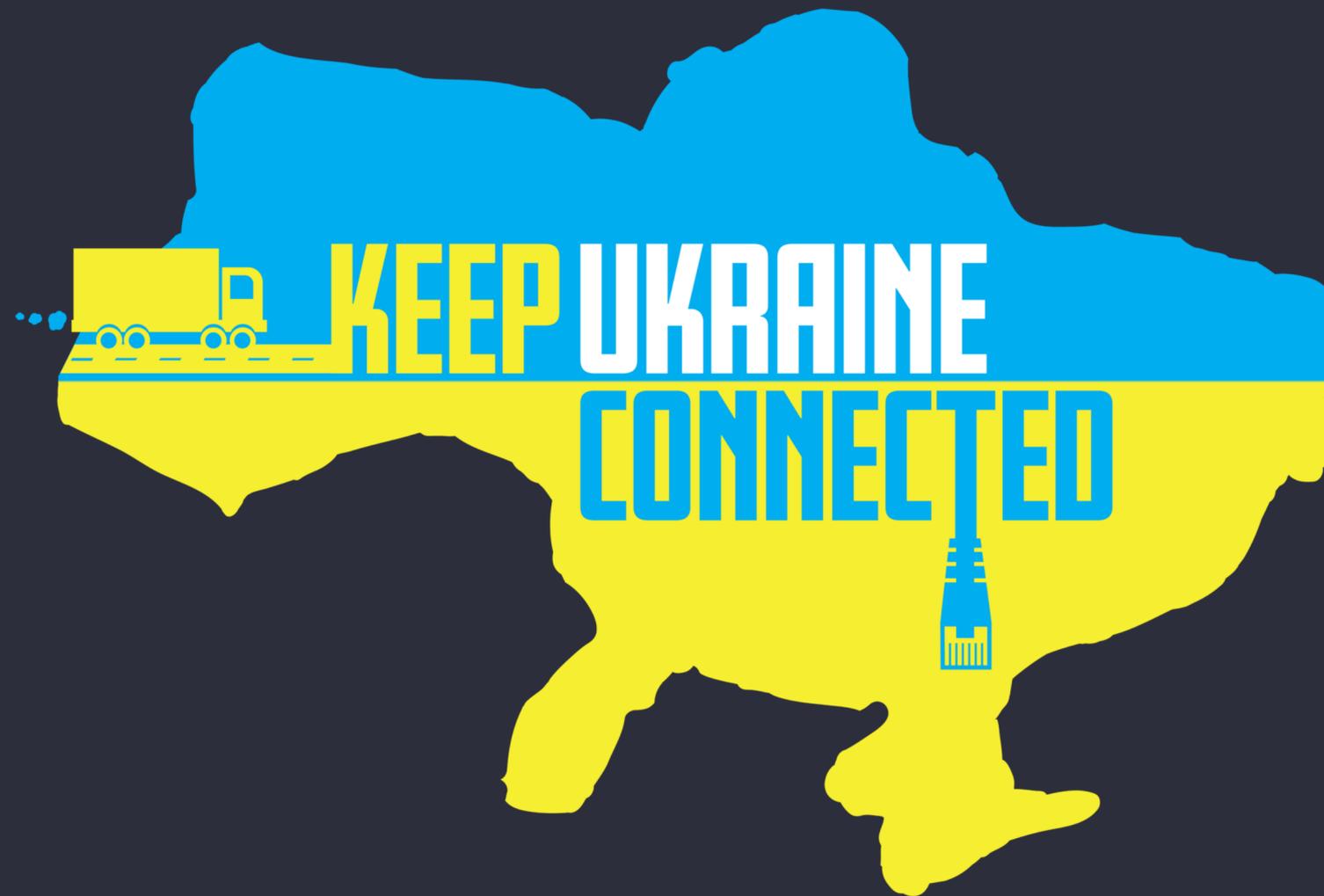
Name	Media Type	Country	City	Network...
<u>GigaNET Kyiv</u> Giganet Internet exchange network	Ethernet	UA	Kyiv	172
<u>DTEL-IX</u> Digital Telecom Internet Exchange	Ethernet	UA	Kiev	167
<u>UA-IX</u> Ukrainian Internet Exchange	Ethernet	UA	Kiev	127
<u>PITER-IX Kiev</u> PITER-IX Kiev	Ethernet	UA	Київ	63
<u>1-IX Kyiv</u> 1-IX Internet Exchange	Ethernet	UA	Kyiv	49
<u>GigaNET Odessa</u> GigaNET Odessa local exchange	Ethernet	UA	Kiev	11
<u>CLOUD-IX KIEV</u> CLOUD-IX KIEV	Multiple	UA	Kiev	10
<u>LVIV-IX</u> Lviv Internet Exchange	Ethernet	UA	Lviv	10
<u>RUDAKI-IX</u> RUDAKI INTERNET EXCHANGE	Ethernet	UA	Kyiv	9
<u>IF-IX</u> IVANO-FRANKIVSK INTERNET EXCHANGE	Ethernet	UA	Ivano-Frankivsk	8
<u>Crimea-IX</u> Crimea-IX	Ethernet	UA	Simferopol	7
<u>GigaNET Kharkov</u> GigaNET Kharkov local exchange	Ethernet	UA	Kharkov	7
<u>kremen-IX</u>	Ethernet	UA	Kremenchuk	7

Name Management	CLLI NPA-NXX	City Country	State Postal Code	Networks ↓ <sup>1</sup>
<u>NewTelco Kiev</u> NewTelco Ukraine	- -	Kiev UA	- 1033	146
<u>Ucomline Kiev</u> Ucomline (Digital Generation)	- -	Kiev UA	- -	62
<u>9 Leontovicha</u> NetAssist LLC	- -	Kiev UA	- 01030	26
<u>Giganet</u> GigaNET IXN	- -	Kiev UA	- 03037	23
<u>OD-IX</u> GigaNET IXN	- -	Odessa UA	- 65020	19
<u>BeMobile</u> BeMobile	- -	Kyiv UA	- 02000	17
<u>TSUA</u> TSUA	- -	Kiev UA	- 01030	15
<u>Omega Telecom Kyiv</u> Omega Telecom LLC	- -	Kyiv UA	- 03067	13
<u>Datagroup Kiev</u> Datagroup JSC	- -	Kiev UA	- 03005	12
<u>TOPNET/UA/Leontovicha9</u> TOPNET	- -	Kiev UA	- 03037	10

Source:

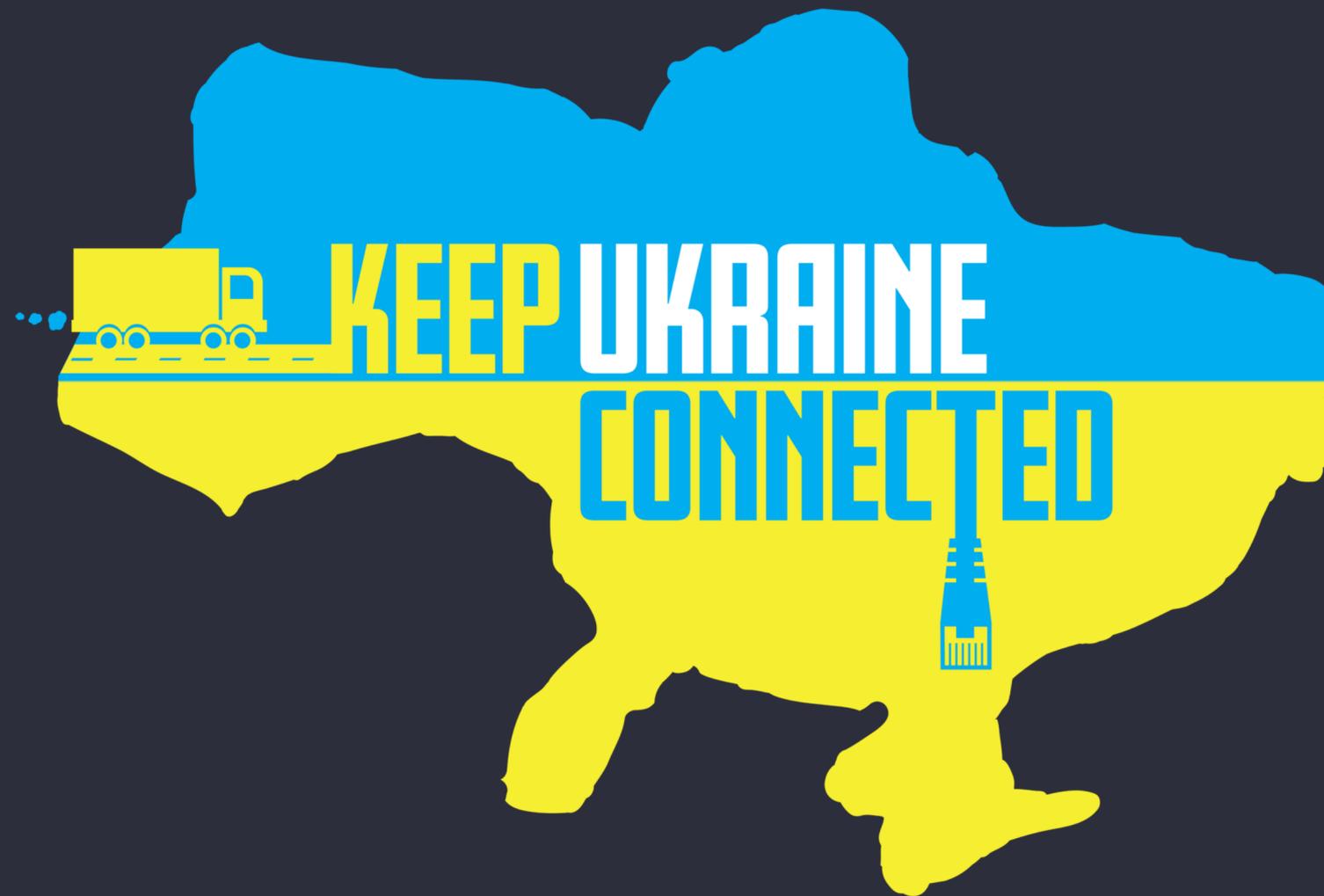
[https://www.peeringdb.com/advanced\\_search?country\\_in=UA&reftag=](https://www.peeringdb.com/advanced_search?country_in=UA&reftag=)

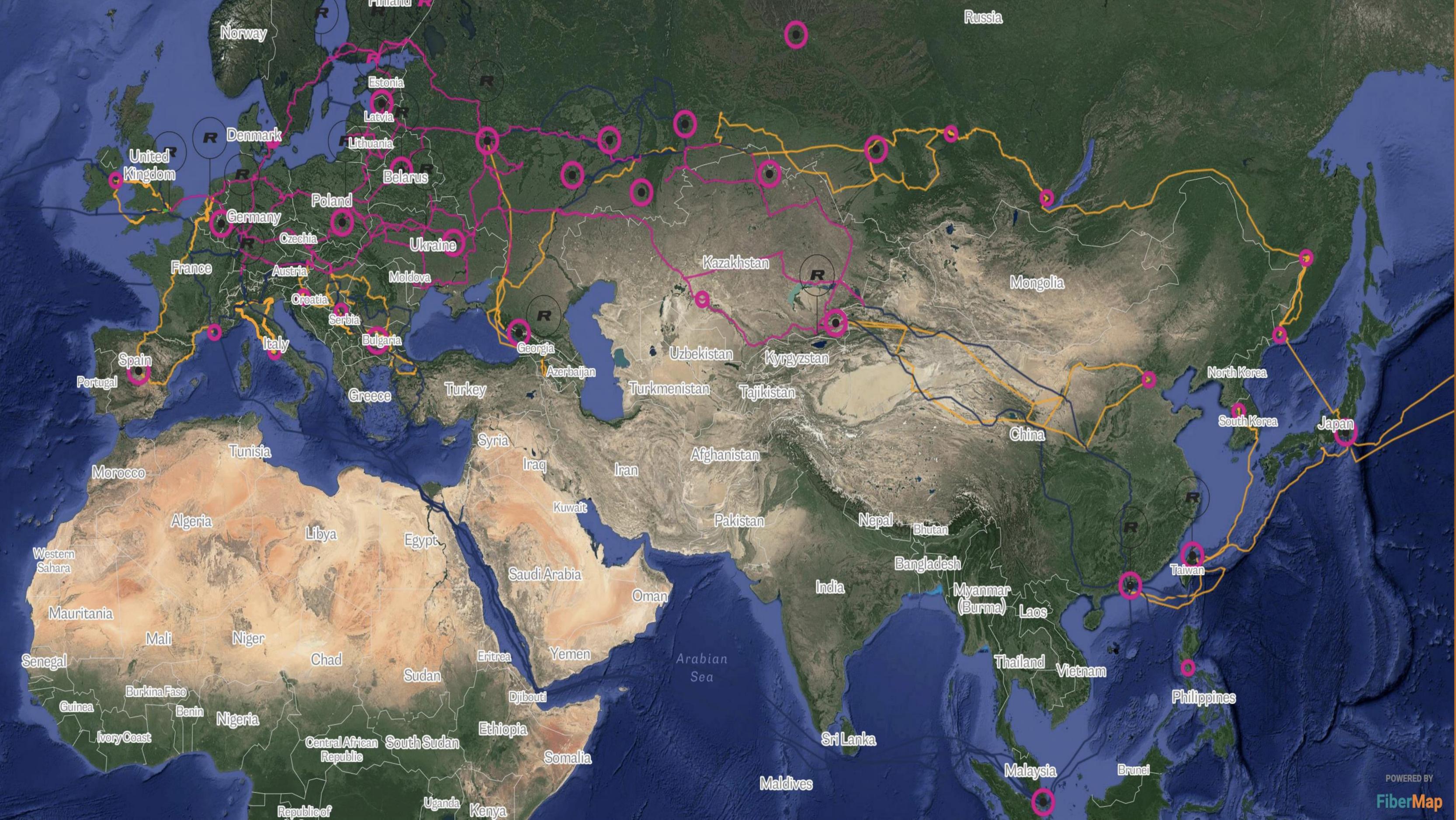
# Mapping Backbone Dataline





# Backbone Mapping from RETN





**„They came to them and put guns to their head and just said:“**

**„Do this“**

*said Maxim Smelyanets, who owns an internet provider that operates in the area and is based in Kyiv.*

**„They did that step by step for each company.“**

**„The first thing that an occupier does when they come to Ukrainian territory is cut off the networks“**

*said Stas Prybytko, who leads mobile broadband development in Ukraine's Ministry of Digital Transformation.*

**„The goal is to restrict people's access to the internet and block them from communicating with their families in other cities and keep them from receiving truthful information.“**

## Our vision & mission

---

We are the Link between the Disaster Region and the global community.

We have contacts in the community and with the manufacturers. We wanted to use these contacts to do good things.



From a simple idea,  
to supply chain managers...

The GNA **Supply & Demand Database** works very well. Anyone who wants to donate equipment can get a login from us, and can specify what they want to donate.

Using this database, we can manage which donations we've received. This makes it easier for us to keep track of everything, and means we can show people from Ukraine who need equipment what we have in the system.



# Supply & Demand Tool

v1.0

Start typing to filter...	
AUTHENTICATION AND AUTHORIZATION	
Groups	+ Add
CONTACTS	
Contacts	+ Add
Organisations	+ Add
SUPPLY & DEMAND	
Changes	
Offers	+ Add
Requests	+ Add

<input type="checkbox"/> Network Automation & Config Management Software	Multiple Unimus Unlimited Licenses
<input type="checkbox"/> Network equipment	1x Advocent Mergepoint Unity 2016 1x Brocade Brocade FastIron Edge 648P 1x Brocade Brocade FastIron Edge 648P-POE 3x Brocade Brocade FastIron Edge GS 624P 2x Brocade FCX-4XG 1x Brocade FWS 624G 1x DeLL Powerconnect 5324 8x Foundry FastIron Edge 2402 2x Foundry FastIron Edge 4802-POE 1x Foundry FastIron Edge GS 624P 3x Foundry FastIron Edge X424 2x Foundry FastIron Edge X448 1x Foundry FastIron GS 648-POE 1x Foundry FastIron GS 648P 1x Juniper EX 3200 series 1x Juniper J4350 1x Juniper M5 Backbone Router 1x MRV Optiswitch 906 1x Open Gear IM 4208-2-DAC-X2
<input type="checkbox"/> Power Generator	1x Pramac P2000
<input type="checkbox"/> Power Generators	10x IMOTO 5000 Watt
<input type="checkbox"/> Power Generators	10x Misc Power Generator 5KW
<input type="checkbox"/> Rack	1x Unknown 27U rack

# Supply & Demand Tool

## (Requester View)

v2.0

Select offered item to change



Search

Action:



Go

0 of 100 selected

<input type="checkbox"/>	TYPE	BRAND	1 ▲	MODEL	2 ▲	NOTES	# OFFERED	CLAIMED	REJECTED	RECEIVED
<input type="checkbox"/>	Hardware			27U rack			1	0	✗	✗
<input type="checkbox"/>	Hardware			2900 mAh rechargeable Batteries			8	8	✗	✓
<input type="checkbox"/>	Hardware			8+2+2SFP All Gigabit POE Switch		PoE Switch with 2 SFP	1	1	✗	✓
<input type="checkbox"/>	Hardware			Mini Smart Switch			1	1	✗	✓
<input type="checkbox"/>	Hardware			PS2 keyboard			22	0	✗	✗
<input type="checkbox"/>	Hardware			UPS		Various UPS, without batteries	10	0	✗	✗
<input type="checkbox"/>	Hardware			USB/PS2 Optical mouse			10	0	✗	✗
<input type="checkbox"/>	Hardware			XENPAK 10G DWDM Single Mode Fiber		variety of DWDM channels, can be used without DWDM MUX. You need to add attenuation for short distance links	31	0	✗	✗
<input type="checkbox"/>	Hardware			XENPAK 10G Multi Mode			5	0	✗	✗

Availability

Already claimed

# Supply & Demand Tool

## (Donor View)

v2.0

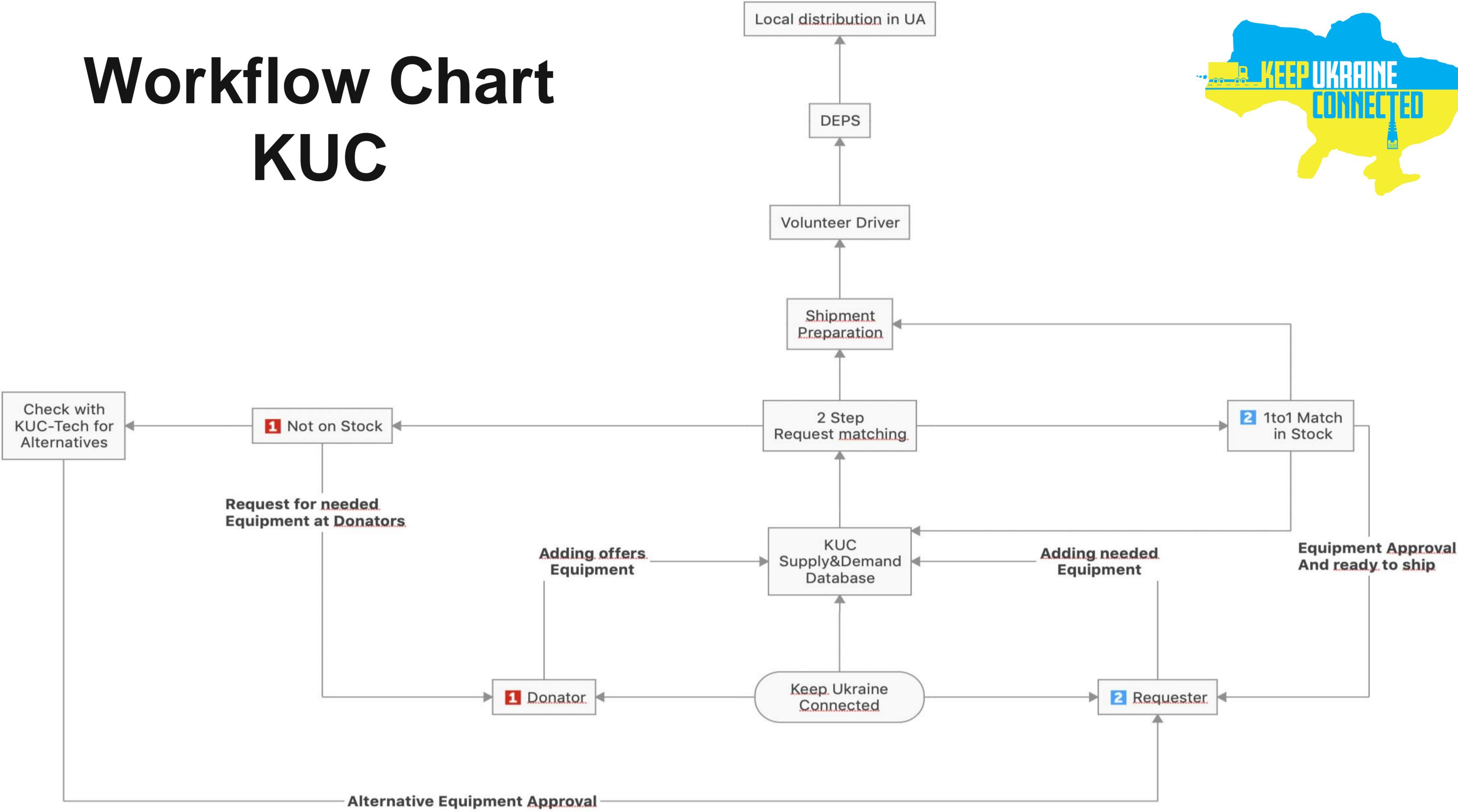
Select requested item to change

Search

Action:  Go 0 of 100 selected

<input type="checkbox"/>	TYPE	BRAND	1 ▲	MODEL	2 ▲	# REQUIRED	UP TO	ASSIGNED	DELIVERED	CREATED AT	IT
<input type="checkbox"/>	Hardware			100G-CFP2-LR4		8	10	✗	✗	April 2, 2022, 6:46 p.m.	UA
<input type="checkbox"/>	Hardware			24 port switch with SFP uplinks		11	-	✗	✗	April 18, 2022, 9:01 a.m.	Ho
<input type="checkbox"/>	Hardware			Anchor clamp H3 (D)		1252	-	✗	✗	April 18, 2022, 9:08 a.m.	Ho
<input type="checkbox"/>	Hardware			Anchor clamp H3 (D)		4092	-	✗	✗	April 18, 2022, 9:05 a.m.	Ho
<input type="checkbox"/>	Hardware			any model		1	3	✗	✗	April 13, 2022, 2:22 p.m.	UA
<input type="checkbox"/>	Other			Catch-all		1	-	✓	✓	April 21, 2022, 11:52 a.m.	DE Di sh
<input type="checkbox"/>	Hardware			Coupler PLC-1x8-split-0-SC/UPC-0.9mm		360	-	✗	✗	April 18, 2022, 9:05 a.m.	Ho
<input type="checkbox"/>	Hardware			Coupler SC-1x2-1310/1490/1550-50/50-0-		32	-	✗	✗	April 18, 2022, 9:05 a.m.	Ho

# Workflow Chart KUC



# PROCESSES IN UKRAINE



## WAREHOUSE AND PROCUREMENT TEAMS



## CLIENT RELATIONS AND CARE TEAMS

# Our Friends & Partners in Ukraine

---

We are currently working with the organisations listed below. They are helping us with paperwork, permits, and local distribution of the donated equipment.



Ministry of Digital  
Transformation



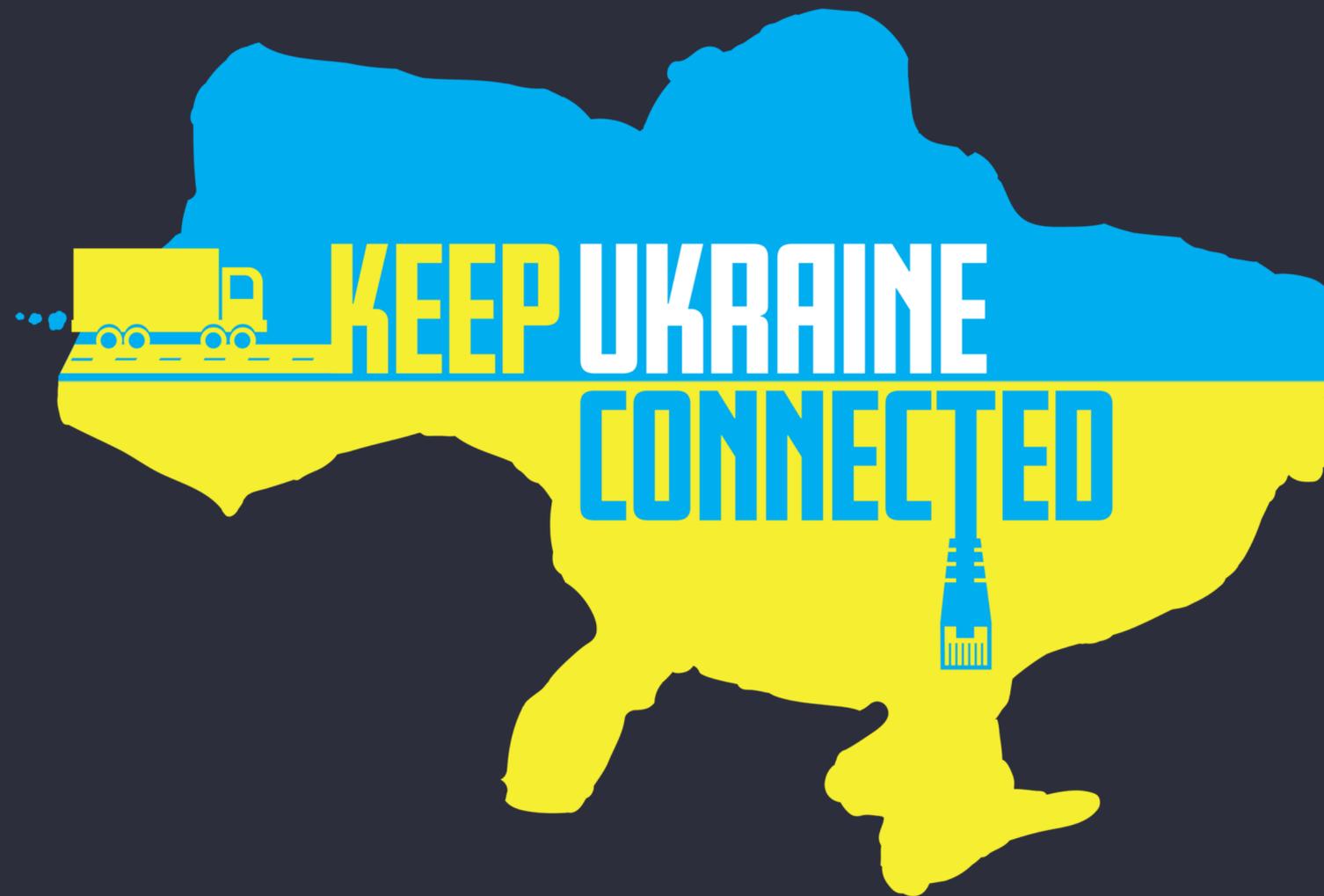
DEPS  
(local distribution)



Ukrainian Internet  
Association

...why are we doing this? (Part II)

**Human/ 2<sup>nd</sup> Family perspective**













ELITE LINE

цифрове телебачення та інтернет

elite-line.net

ЗАКАЗ

RENAULT

AH 4263 00

(099) 50-316-50  
(093) 50-316-50  
(097) 50-316-50

ELITE LINE

elite-line.net

цифрове телебачення та інтернет

(099) 50-316-50  
(093) 50-316-50  
(097) 50-316-50













ИНТЕРФЕТ  
NEOCC  
0-8  
0-8

verleih - verkauf - service  
ton-, licht-, av-technik, bühnen, traversen & dj equipment

Prenzlauer Promenade 44  
13089 Berlin  
Tel: +49 (0) 30 - 81 61 60 360  
Fax: +49 (0) 30 - 81 61 60 380



Events  
Veranstaltungstechnik

me-events.de







MR.  
WORK  
OUT

3e  
deps  
русские энергетические ресурсы

KUC  
DALLEMC



Ukraine

KEEP UKRAINE  
CONNECTED

GLOBAL  
NOG  
ALLIANCE

deps



deps

JACK & JONES

WELL BRINGS NEW YOU PARTY

# Overview

- 6 Deliveries (around 1mio€)/ 6 Tons
- 17 Splicers (around 85.000€) more ordered incl. OTDR Gear
- 100.000,00€ Donation from SES Satelites

Quantity of companies,  
received aid, 04/08/2022



Type of Equipment	Brans	Quantity	Approximate cost
SFP trancievers and SFP configurators	FlexOptic, Nortel, Avaya	More than 500	> 50 000 \$
Optical Splicers	Inno Instrument , Fujikura	17	> 60 000 \$
Switches and routers	Cisco, Juniper, HP, D-link	More than 1000	> 500 000 \$
Wireless equipment	Turris, Ubiquiti, IgniteNet	More than 400	> 100 000 \$
Other			> 50 000 \$
<b>Total</b>			<b>&gt; 750 000 \$</b>

	Number of SKU	Quantity of SKU	Dates of delivery	Company received
Shipment 1	114	1163	4/17/22	29
Shipment 2	59	228	5/16/22	16
Shipment 3	16	159	6/3/22	21
Shipment 4	37	370	6/26/22	in the process of giving
Shipment 5	7	68	7/10/22	in the process of giving
Total	233	1988		66

Who is behind the Task Force “Keep Ukraine Connected”

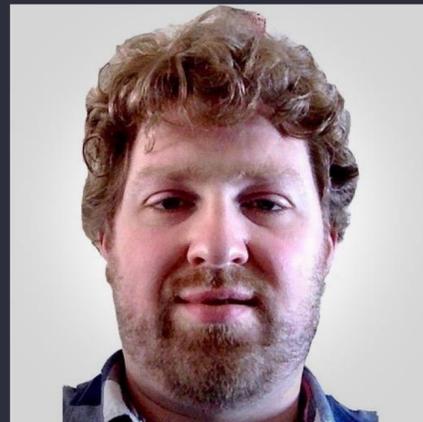
# Who is behind the Task Force “Keep Ukraine Connected”



*Corinne Pritchard*



*Nathalie Trenaman*



*Sander Steffann*



*Rene Fichtmueller*



*Jan Žorž*

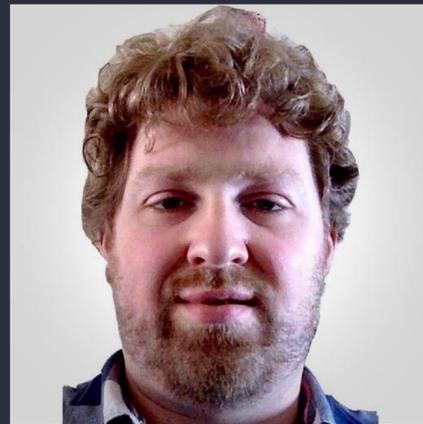
# Who is behind the Task Force “Keep Ukraine Connected”



*Corinne Pritchard*



*Nathalie Trenaman*



*Sander Steffann*



*Rene Fichtmueller*



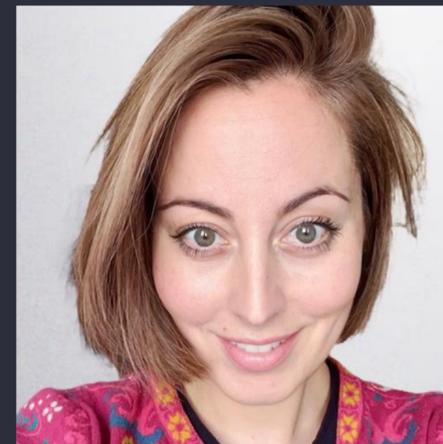
*Jan Žorž*



*Erik Bais*



*Daniel Houben*

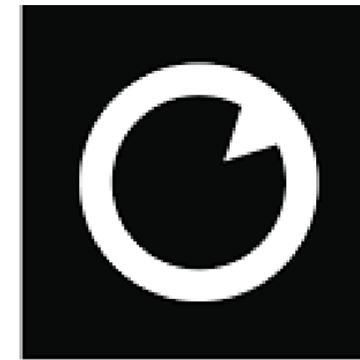


*Ester Paál*



*Marcin Kuczera*

With extra special thanks to:



**FLEXOPTIX**

For giving their employees the time to invest in this task force.

**Thank you!**

**Mail us:**

**[ukraine@nogalliance.org](mailto:ukraine@nogalliance.org)**

**Supply&Demand DB:**

**[www.keepukraineconnected.org/admin/login](http://www.keepukraineconnected.org/admin/login)**