Measuring Internet Reliability in 2020: Czech Republic, Slovakia and the rest of the world
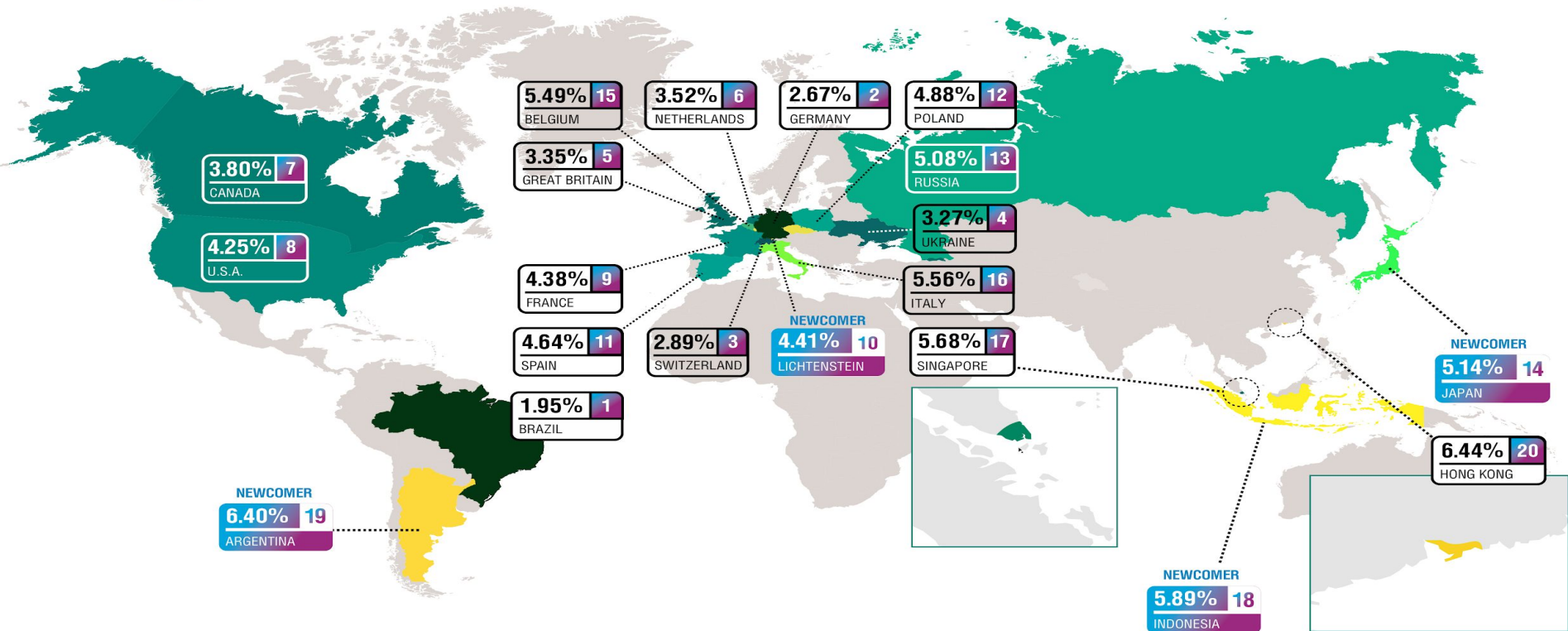
Alex Kozlov, Qrator Labs

QRATOR LABS

What we do:
- DDoS attacks mitigation is the speciality of Qrator Labs;
- Qrator.Radar is the largest BGP path collector in the world (almost 700 members), and a team behind analytics tool and incident reports;

Also, we do researches - and one of them is the
"National Internet Segments Reliability", which are going to discuss in detail, specifying two regions we are interested in: Czech Republic and Slovakia.

2020 Map of IPv4 Top 20 Fault Tolerant Countries

RADAR
by Qrator

2.26%   7.13%

5.49% 15
BELGIUM

3.52% 6
NETHERLANDS

2.67% 2
GERMANY

4.88% 12
POLAND

3.80% 7
CANADA

3.35% 5
GREAT BRITAIN

5.08% 13
RUSSIA

4.25% 8
U.S.A.

3.27% 4
UKRAINE

4.38% 9
FRANCE

5.56% 16
ITALY

NEWCOMER
4.41% 10
LICHTENSTEIN

4.64% 11
SPAIN

2.89% 3
SWITZERLAND

5.68% 17
SINGAPORE

NEWCOMER
5.14% 14
JAPAN

1.95% 1
BRAZIL

6.44% 20
HONG KONG

NEWCOMER
6.40% 19
ARGENTINA

NEWCOMER
5.89% 18
INDONESIA

RADAR by Qrator

Top 20 Countries Dynamic

2019 ···▶ 2020

	2019	2020	BRAZIL	GERMANY	SWITZERLAND	UKRAINE	GREAT BRITAIN	NETHERLANDS	CANADA	U.S.A.	FRANCE	LICHTENSTEIN	SPAIN	POLAND	RUSSIA	JAPAN	BELGIUM	ITALY	SINGAPORE	INDONESIA	ARGENTINA	HONG KONG	CZECH REPUBLIC	IRELAND	LUXEMBOURG	BULGARIA	
	2.19%	1.95%																									1
	2.74%	2.67%																									2
	3.07%	2.89%	+1	-1																							3
	3.16%	3.27%																									4
	3.35%	3.35%			+2		-2																				5
	4.00%	3.52%																									6
	4.17%	3.80%																									7
	4.24%	4.25%																									8
	4.31%	4.38%																									9
	4.55%	4.41%							+2		-2	NEW															10
	4.74%	4.64%																				-8					11
	5.15%	4.88%											+2														12
	5.23%	5.08%												-2													13
	5.25%	5.14%													-2	NEW											14
	5.72%	5.49%					+8										-7										15
	6.12%	5.56%																+1					LEFT TOP 20		LEFT TOP 20		16
	6.44%	5.68%																									17
	6.83%	5.89%																+1	-11	NEW				LEFT TOP 20			18
	6.92%	6.40%							+10												NEW		LEFT TOP 20				19
	7.27%	6.44%																									20
																											21
			BR	DE	CH	UA	GB	NL	CA	US	FR	LI	ES	PL	RU	JP	BE	IT	SG	ID	AR	HK				

![QRATOR LABS]

Where is the Czech Republic and Slovakia?

- Last year (2019) CZ was at 20 place, Slovakia at 100.

- In 2020, CZ in at place 21 and Slovakia is 77th.
How so? What happened?

- Nothing, actually - both regions improved connectivity.
Let's examine how.

QRATOR LABS

2019 stats; <u>CZ</u>: 19th place in the reliability rating with AS47232 - outage impact: 7.272%. <u>Slovakia</u>: place 100 with AS5578, outage impact 18.594%.

2020 stats; <u>CZ</u>: 21th place in the reliability rating with the same AS - 47232. Outage impact: 6.517% <u>Slovakia</u>: place 77 with outage impact on the same AS at 15.392%.

Basically, both Czech Republic and Slovakia segments reliability rating improved, but was moved out of the rating Top-20 by the better performing countries.

Let's look at the exact numbers.

ASN stats	CZ(v4)	CZ(v6)	SK(v4)	SK(v6)
ASN	599	360	175	67
Non transit	505	300	145	58
Stub (no multihome)	390	216	121	32
Clear stub (no peerings)	257	156	85	24
Main stub provider	AS47232 - ISPAlliance, AS6830 - LibertyGlobal (former UPC)	Same AS47232, AS6830	AS5578 - Benestra, AS6855 - SK Telekom	AS31117 - Energotel, AS6855

Prefix Stats	Registered		Active			
	CZ	SK	CZ(v4)	CZ(v6)	SK(v4)	SK(v6)
ASN	714	212	599	360	175	67
Global	0.72%	0.21%	0.87%	1.78%	0.25%	0.36%
Place	27	53	23	8	50	42
Prefixes			2456	581	724	95
Global			0.25%	0.61%	0.47%	0.10%
Place			47	29	90	64

And now... MORE RELEVANT DATA

Czech Republic - PTR critical AS - 5610 "O2" - **26.85% impact score**.
Slovakia - PTR critical AS - 6855 "SK Telekom" - **41.18% impact score**.

AS47232 is CZ's critical all around - for global transit and stub networks.

However, in Slovakia AS5578 Benestra is the critical AS for stub networks.

It is the same for IPv6! CZ's v6 critical AS is 47232 (8.10% impact score with 5.10% partial connectivity, combined 13.20%).
In Slovakia it is again AS5578 (14.72% impact score with 1.53% partial connectivity, combined 16.25%).

QRATOR LABS

This is it.
Thank you!

All reports are available in Qrator.Radar's and Qrator Labs' blogs.

2020 Reliability Research is going to be published this week - you saw the data first :)

shapelez@qrator.net