IXP.mk - Lessons learnt from Covid19 and the Future

Is the future bright or gray…

Vladislav Bidikov, FCSE, UKIM, Macedonia

Some history

- IXP.mk is born 09.07.2018, we are young ☺
- Started with only 3 peers (University, Faculty, One Company)

- 2019 – Donations from ISOC (2 new switches and some Optics)
- 2 new peers (smaller ISPs)

- An then… – Covid19 …

RIPE

Covid 19 – Year 2020

- Ministry of Health declares a pandemic in One Municipality – 3-2020
- Ministry of Education stop educations process (10.03.2020)
- FCSE in just 7 days switches to full online classes

- Internet links 2 x 1 Gbit (Geant + Commercial ISP) full
- People start to work from home – regular outages/latency during the work hours (8-18)
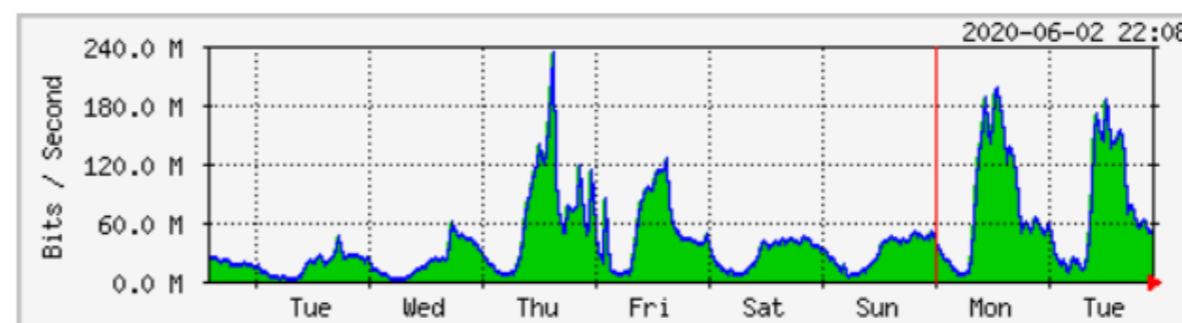
RIPE

Covid 19 – year 2020 (part 2)

- FCSE contacts Macedonian Telekom – they have almost full upstream capacity and lead time for upgrade 60+ days
- Macedonian Telecom joins IXP.mk (18.03.2020) ☺
- 2 smaller ISPs join – 4-2020

- First test: Exam Week 6-2020

- Yes - ~250 Mbit

IXP.mk Aggregate Traffic

	Max	Average	Current
In	233.910 Mbits	43.365 Mbits	47.685 Mbits
Out	233.909 Mbits	43.385 Mbits	47.676 Mbits

2020-06-02 22:08

RIPE

Covid 19 – year 2020 (part 3)

- A1 Macedonia joins IXP.mk (08.2020) ☺ ☺
- Telekabel joins IXP.mk (11.2020)
- New Donation from ISOC (third switch + Optical Mux)
- New POP @ Telesmart DC (neutral DC with large colo space to grow) – Black Fiber lease donated by private company
- Plans for creating a fiber RING

RIPE

Covid 19 – year 2021

- Donation of used Optical MUX + SFP modules
- Tender procedure for lease of fibers for fiber ring (ring will be possible for 2 POPs)
- PCH node ~~in progress~~ online
- FCSE starts next school year (2021-2022) online
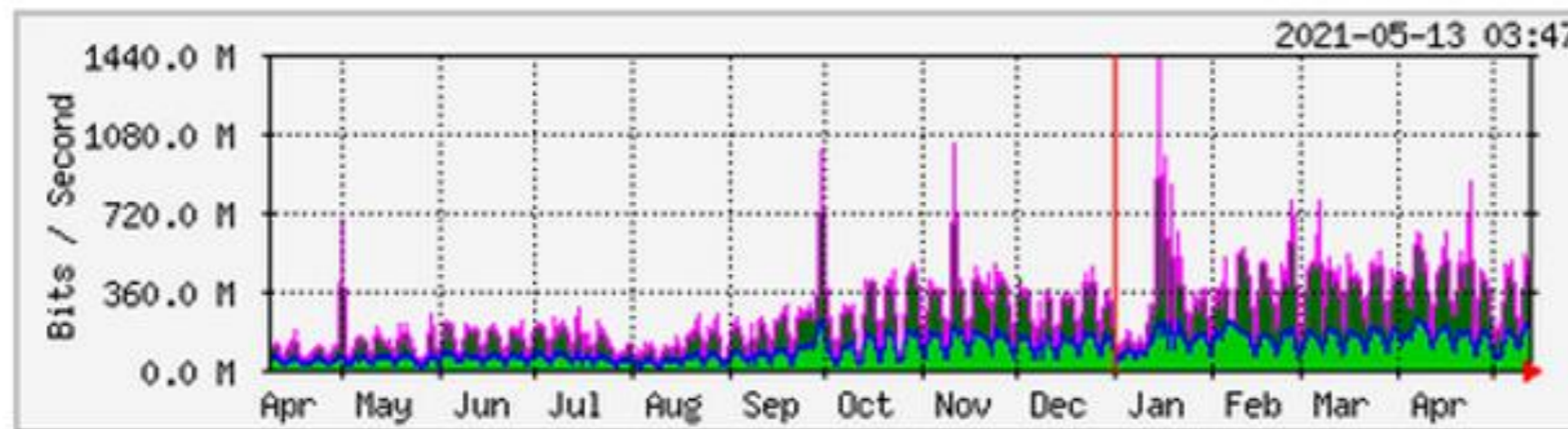
	Max	Average	Current
In	1.416 Gbits	95.331 Mbits	118.161 Mbits
Out	1.416 Gbits	95.374 Mbits	118.172 Mbits

Daily record: 1.22 Gbit (January 2021)

RIPE

Covid 19 – year 2022

- Tender procedure for lease of fibers for fiber ring (ring will be possible for 2 POPs) started
- K-root node in progress
- Neotel joins ☺☺☺ (planed migrations with equipment needed, ZTE equipment sometimes sends strange packets)
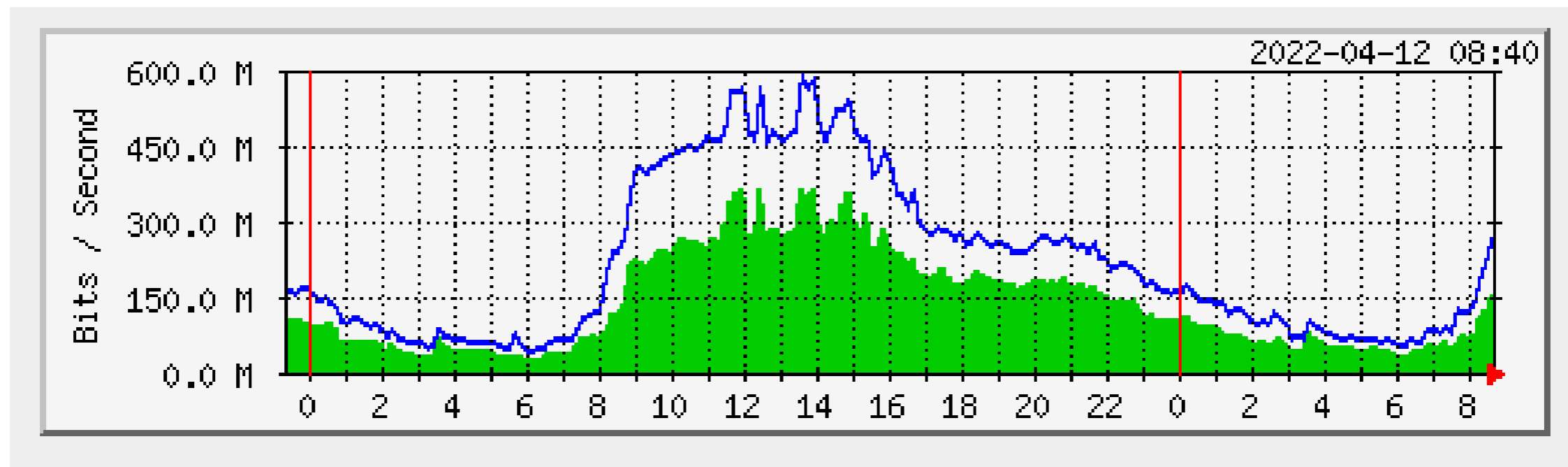
The gray future?

- Keep things running smoothly (we have zero incidents so far – fingers crossed)
- Get upstream (10G-20G) capacity for IXP.mk usage which does not cost a fortune per month (cache fill, services, etc…) in order not to impact the FCSE/UKIM capacity – possible donation
- New core router (something scalable for n X 10 Gbit BGP) - VM for core router sometimes is stressful... But works
- Upgrade IXP Manager to latest
- Promote IPV6 usage (RS are ready, no peers ☹)
- First "ISP Technical meeting @ IXP.mk" – Q3-Q4 2023 and hopefully not online ☺

RIPE

The black ~~gray~~ future?

- Strategy for Digitalization – IXPs are not mentioned and not seen as enablers
- Strategy for Cybersecurity – IXPs only in definition
- Critical infrastructure – IXPs are the Critical Infrastructure bucket – so is DNS (and we run/host the core node for .mk cctld)
- Strategy for Information critical infrastructure (looks like NIS/NIS2 but it's not)

- How do we proceed – Currently the legal Entity "behind" Ixp.mk is the Faculty (FCSE), there is no support to make a practical legal entity (Law only allows for something NGO like)

RIPE

The real future (or 2023 plan)?

- Establish an Entity for the IXP – use the fremium model
- Include the IXP in the Cyber resilience efforts and critical infrastructure
- Find donation for equipment to fully utilize the fiber ring
- Find donation for Upstream for cache fill (regional support?)
- Get other key players to join – ISPs from other city, Banks, governmental institutions which have their own AS
- IPV6 push – especially for new/small ISPs entering the market
- Build a 100G link between some important points (cities) in the country (fiber to be used from the government - Faculty "finds" equipment for best cost/performance)

RIPE

DISCUSSION

RIPE

Connect with us – www.ixp.mk

Questions?

vladislav.bidikov@finki.ukim.mk
@bidikov

RIPE