



RIPE NCC
RIPE NETWORK COORDINATION CENTRE

Hackathons Are Awesome

Announcing DNS Hackathon 2023 and
Reporting from Quantum Internet Hackathons

Vesna Manojlovic | SEE 11 | 5 April 2023

What is a Hackathon?



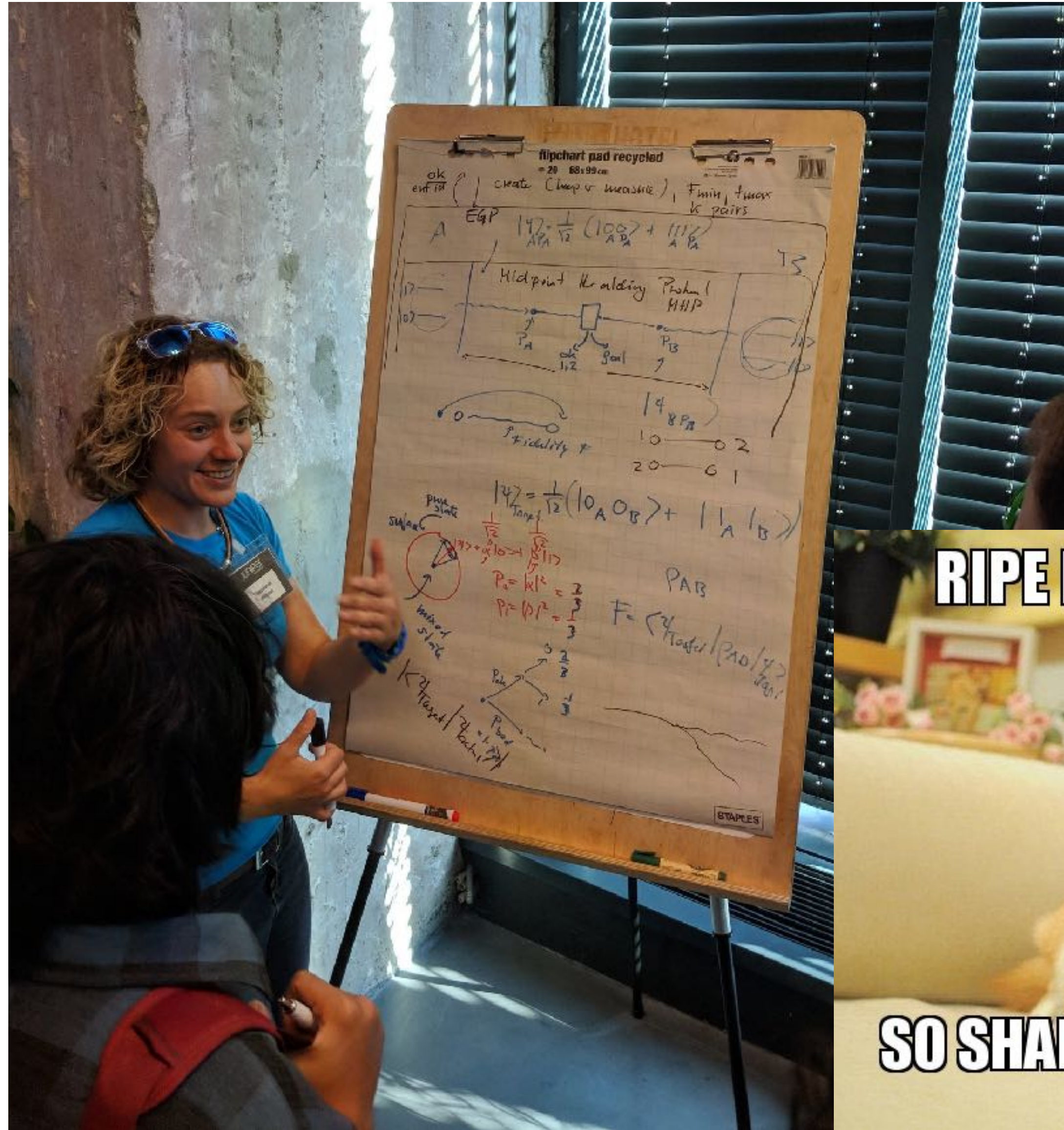
- Hack-a-thon = hacking marathon
- “Ours” are different from the “usual”
- We focus on:
 - Producing and using FLOSS (free/libre open source software)
 - Non-commercial: no monetary rewards
- Cooperative, collaborative, non-competitive:
 - Several projects are awarded symbolic prizes: Most Innovative Solution, Best Team Work, Most Complete Presentation

hacker: n.

[originally, someone who makes furniture with an axe]

1. A person who enjoys exploring the details of programmable systems and how to stretch their capabilities, as opposed to most users, who prefer to learn only the minimum necessary. RFC1392, the *Internet Users' Glossary*, usefully amplifies this as: A person who delights in having an intimate understanding of the internal workings of a system, computers and computer networks in particular.

<https://labs.ripe.net/author/becha/hackathons-are-awesome/>



General Goals for Our Hackathons



- Since 2014:
 - Bringing together network operators, students, researchers, designers, software developers, hackers...
 - Combining creative skills
 - Getting feedback about services
 - Contributing useful tools for the community
 - Making new connections
 - Having fun!
- Aligned with Strategic Goals:
 - *“Support the innovation and evolution of the Internet”*
 - *“Support an open, inclusive and engaged RIPE Community”*
 - *“Be a centre of excellence for data, measurements and tools that provide insight on the Internet and its operations.”*
 - *“Increase adoption of routing security best practices”*

Previous RIPE NCC Hackathons



- RIPE Atlas DataViz (March 2015, Amsterdam)
- RIPE Atlas Tools for Operators (October 2015, Bucharest)
- RIPE Atlas Interfaces (April 2016, Copenhagen)
- IXP Tools (October 2016, Madrid)
- IXP Tools Code-Sprint (April 2017, Amsterdam)
- DNS Measurements (April 2017, Amsterdam)
- Version6 (November 2017, Copenhagen)
- Network Operators Tools (June 2018, Dublin)
- (First) Quantum Internet Hackathon (October 2018, Amsterdam)
- RPKI Deployathon (March 2019, Amsterdam)
- IoT Hackathon (October 2019, Rotterdam)
- Pan-European Quantum Internet Hackathon (2019)
 - <https://labs.ripe.net/author/becha/results-of-the-pan-european-quantum-internet-hackathon/>
- Virtual Hackathon (March - May 2020)
 - <https://labs.ripe.net/author/becha/report-from-the-first-virtual-ripe-ncc-hackathon/>
- RIPE Atlas SW Probes Deployathon (2020)
 - <https://labs.ripe.net/author/becha/report-from-the-ripe-atlas-software-probes-deployathon/>
- Quantum Internet Hackathon 2022
 - <https://labs.ripe.net/author/anastasiya-pak/your-quantum-internet-hackathon-report-for-2022/>



Reporting from Quantum Internet Hackathon 2022

QIH 2022: Quantum Internet Hackathon



- 1-2 December 2022
 - Distributed and hybrid: 5 physical locations and online
 - 80+ participants! 10 projects!
- Goals:
 - Sharing existing software and protocols for the Quantum Internet
 - Producing tools & documentation, or learning/interaction materials
 - Forging connections between participants and between nodes
- Challenges:
 1. Quantum Key Distribution
 2. APIs for Quantum Protocols
 3. “Little Green Qubits”:
sustainability, ecological and social impacts, diversity, environmental justice, human rights aspects of the Quantum Internet

Shared Work of Many Organisers!



- Big thanks to:
 - All the organisers from all five nodes (Amsterdam, Sarajevo, Dublin, Padua, Poznan)
 - Organisers: RIPE NCC staff, SURF, QuTech, GEANT, PSNC, QIA, QNE...
- And of course, the PARTICIPANTS!
 - and to their families who were giving support to prepare, work, travel and recover :)



Padua



Sarajevo, Dublin and Poznan



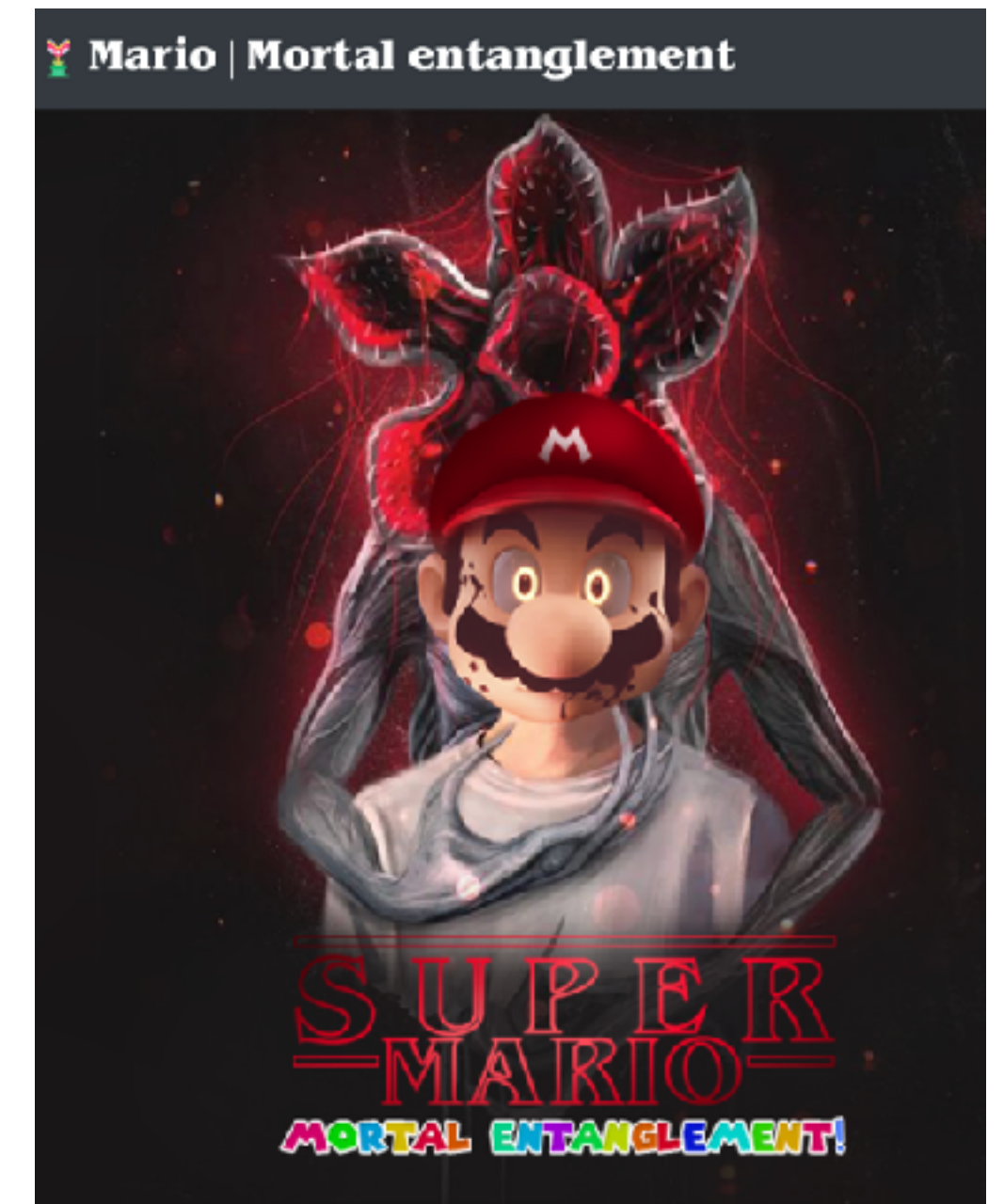
Amsterdam



Results: Labs, GitHub, Game and Paper



- On RIPE Labs
 - <https://labs.ripe.net/author/anastasiya-pak/your-quantum-internet-hackathon-report-for-2022/>
- On GitHub
 - <https://github.com/Lizaterdag/QIH-2022/>
- Game design and quantum entanglement -> Super Mario!
- Research paper done in two days! Conclusions:
 - Making Quantum hardware and software more energy efficient
 - Cooperate with existing standardisation bodies
 - “Pushing for sustainability to be a be part of ethical, legal and social considerations when discussing quantum and society.”
 - “Surveying the quantum community’s diversity landscape and pushing for a more welcoming and diverse field.”



Qubits For The Kids
Realizing a sustainable quantum internet for the smallest/future researchers

Ed Kuijpers, Swantje Kastrop, Jasper van de Kraats, Robert de Keijzer, Zhichao Guo, María Gragera Garcés, and Vesna Manojlovic

Results of the Quantum Internet Hackathon 2022
Amsterdam, The Netherlands

2nd December, 2022

1 INTRODUCTION
1 What is sustainability?

With the progress of a quantum internet also sustainability should be considered. The sustainability of a system is influenced by different factors: the ecological footprint and social impacts like social and environmental justice or human and labour rights [1]. But also software maintainability and portability is a factor. With this project we would like to focus on the ecological impact of the quantum internet and how it could be measured. The ecological sustainability of a system is influenced by the following factors that have to be considered when comparing systems [2, 3]:

3 Challenges in Quantum vs Classical comparison
A side by side comparison of Quantum and Classical systems is incredibly difficult to perform, for the following reasons:

- Firstly, the nature of quantum and classical information is different in essence. We cannot directly compare a qubit and a bit as they follow different probabilist laws, respond to different effects and maintain differences physically. Therefore computational costs and outputs can only be benchmarked in a case by case manner, and even within specific contexts these comparisons can be questionable as the inputs given to both systems are not equivalent.



Announcing DNS Hackathon 2023

Adjacent to the RIPE 86 Meeting



- DNS Hackathon in Rotterdam
- 20-21 May 2023
- Co-hosted and sponsored by:
 - DNS-OARC, Netnod, RIPE NCC; NLnet Labs, SIDN, ISC, ICANN, Gcore
- We already have 53 participants!
 - You can still apply and join the waiting list:
<https://www.ripe.net/participate/forms/apply/dns-hackathon-2023/>
- Challenges: Sustainability, Security (and Privacy), Sovereignty
- More info:
 - <https://www.netnod.se/join-the-dns-hackathon-2023>



Continuity



- Paradox: Most hackathon work is done **outside** hackathons!
 - Results are published on GitHub to make it available to the community
- **Invite us to host a hackathon together!**
 - In 2023, we want to focus on RPKI, IPv6 and data analysis / visualisations
- In the meantime
 - You can subscribe to the mailing list: hackathon-list@lists.ripe.net
 - You can contribute further code improvements on [GitHub](#)
 - You can stay up-to-date on RIPE Labs: labs.ripe.net/hackathons / [Calendar](#)
- Join us at other events

Upcoming DNS and Sustainability Events



- 22-26 May 2023, RIPE 86 in Rotterdam: ripe86.ripe.net
- IETF hackathons, NETNOD meetings, OARC meetings
- 14-15 June: Computing within Limits: <https://computingwithinlimits.org/>
 - Academic conference / workshop about the role of computing in human societies affected by real-world limits
- RIPE 87 (November 2023) (DNS-WG)
 - Supporting newcomers through academic Cooperation: ripe.net/raci
 - Fellowship programme: ripe.net/fellowship



Questions



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