



TMA Conference 2024

**Proceedings of the 8th Network Traffic
Measurement and Analysis Conference**

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1 CHAIR’S WELCOME

The Network Traffic Measurement and Analysis Conference, TMA Conference, focuses on improving the practice or application of network measurements across the entire network stack up to application layers, with an emphasis on new areas of network communication such as Network Function Virtualization, Software-Defined Networks, Cloud Services, Data Centers or Content Distribution Networks, to support innovative services and applications. Additionally, the conference interest topics were overhauled TMA 2024 to include recent interests within the community surrounding satellite communications, energy consumption, fragmentation/consolidation of the Internet and many others. The TMA conference has a strong tradition of open and lively interaction among scientists and engineers in academia and industry and serves as a premier forum to exchange ideas and present advances over the state-of-the-art.

This year, we changed the submission page limits from 9 pages including everything to 8 pages of technical content to 2 pages for references and appendix (totaling 10 pages). All submissions were explicitly required to declare (i) any potential ethical considerations and (ii) reproducibility and artifact availability in the appendix to assist the reviewers. We also asked the authors to follow the ACM policy for the use of generative AI in scientific publications.

TMA Conference 2024 **accepted 15 technical papers out of 38 high-quality submissions**. We retained much of the review process from last year, which included an evaluation phase by PC members, followed by an online discussion. All accepted papers were assigned a shepherd to assist authors in integrating the review comments appropriately within the final submission. The resulting program features a variety of high-quality papers focusing on different aspects of network measurement and analysis, including analysis of DNS use and misuse, security e.g. identification of malicious actors, measurements in wireless and mobile network, as well as network performance measurements including analysis of latency and geolocation.

In addition to the meaningful discussions, knowledge exchange, and networking opportunities with paper presentations and poster sessions, TMA 2024 also featured two keynote talks:

A case for Internet Transparency – the Responsible Internet

Ralph Holz (University of Münster)

Counting Stars: Earth-based Strategies to Understand Space-based ISPs

Nishanth Sastry (University of Surrey)

TMA Conference 2024 also hosted the 12th TMA PhD school, started back in 2010 and recognized as the most important PhD school in network measure-

ment and analysis topics today. The conference featured four exciting talks from recognized researchers and practitioners in network measurements and data analysis, including:

- Man-in-the-middle attacks against IoT devices: Vincenzo De Angelis (University of Calabria, Italy)
- Network Traffic Analysis via Machine and Deep Learning: From Theory to Practice: Antonio Montieri (University of Napoli Federico II, Italy)
- The eBPF Adventure: Exploring Linux's Hidden Superpowers: Sebastiano Miano (Politecnico di Milano, Italy) and Angelo Tulumello (NAAM Lab, Italy)
- Trace the Wumpus: Johann Schlamp (Leitwert)

TMA Conference 2024 delivered two awards.

- 1 The Best Paper Award: Towards identifying neglected, obsolete, and abandoned IoT and OT devices, by R. Yaben, N. Lundsgaard, J. Lundin, E. Vasilomanolakis
- 2 The Community Contribution Award: Evaluating the impact of design decisions on passive DNS-based domain rankings, by V. Le Pochat, S. Fernandez, T. Van Goethem, S. Tajalizadehkhoob, L. Desmet, A. Duda, W. Joosen, M. Korczyński

In addition to these two papers, the paper Serial BGP Hijackers: A Reproducibility Study and Assessment of Current Dynamics, by E. Jaw, M. Muller, C. Hesselman, L. Nieuwenhuis has been invited for fast-tracking at the IEEE Transactions on Network and Service Management journal.

TMA Conference 2024 has been a great success, and we hope that all attendees have enjoyed the excellent technical program and found a nice and constructive environment to discuss new ideas and upcoming challenges to tackle within the scope of TMA. We want to thank all TPC members for the many hours spent providing valuable feedback to authors and the authors for submitting their work and contributing to an excellent program. Finally, we would like to thank all volunteers who worked hard to make this conference successful.

TMA Conference 2024 Program Chairs and General Chair.
Mirja Kühlewind, Ericsson Research, Germany
Nitinder Mohan, TU Munich, Germany
Matthias Wählisch TU Dresden, Germany

2 TMA CONFERENCE 2024 ORGANIZATION

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Session 1: Domain Use and Misuse (chair: Mirja Kühlewind)

- **Evaluating the Impact of Design Decisions on Passive DNS-Based Domain Rankings**
V. Le Pochat, S. Fernandez, T. Van Goethem, S. Tajalizadehkhoob, L. Desmet, A. Duda, W. Joosen, M. Korczyński
- **Shielding Brands: An In-depth Analysis of Defensive Domain Registration Practices Against Cyber-Squatting**
B. Chukwuemeka Benjamin, J. Bayer, S. Fernandez, A. Duda, M. Korczyński
- **Do CAA, CT, and DANE Interlink in Certificate Deployments? A Web PKI Measurement Study**
P. Fotouhi Tehrani, R. Hiesgen, T. Lübeck, T. Schmidt, M. Wählisch

Session 2: Identifying Malicious Actors (chair: Matthias Wählisch)

- **Propagating Threat Scores With a TLS Ecosystem Graph Model Derived by Active Measurements**
M. Sosnowski, P. Sattler, J. Zirngibl, T. Betzer, G. Carle
- **Serial BGP Hijackers: A Reproducibility Study and Assessment of Current Dynamics**
E. Jaw, M. Muller, C. Hesselman, L. Nieuwenhuis
- **Towards Identifying Neglected, Obsolete, and Abandoned IoT and OT Devices**
R. Yaben, N. Lundsgaard, J. August, E. Vasilomanolakis
- **How Russia's Invasion of Ukraine Impacted Internet Peering of the Conflicted Countries**
A. Chatzivasileiou, A. Kornilakis, K. Lionta, G. Nomikos, X. Dimitropoulos, G. Smaragdakis

Session 3: Wireless and Mobile Networks (chair: Thomas Schmidt)

- **Starlink on the Road: A First Look at Mobile Starlink Performance in Central Europe**
D. Laniewski, E. Lanfer, S. Beginn, J. Dunker, M. Dückers, N. Aschenbruck
- **WetLinks: A Large-Scale Longitudinal Starlink Dataset with Contiguous Weather Data**
D. Laniewski, E. Lanfer, B. Meijerink, R. van Rijswijk-Deij, N. Aschenbruck
- **RoME-QCD: Robust and Measurement Efficient Quickest Change Detection in 5G Networks**
S. Lindstahl, A. Proutiere, A. Johnsson

Session 4: Latency and Geolocation (chair: Oliver Gasser)

- **A Shortcut Through the IPX: Measuring Latencies in Global Mobile Roaming with Regional Breakouts**
V. Vomhoff, M. Sichermann, S. Geissler, M. Giess, A. Lutu, T. Hofffeld
- **Where Has the Time Gone? Examining Over a Decade of Broadband Latency Measurements**
J. Schnitzer, D. Reed, A. Gandhi
- **Selection of Landmarks for Efficient Active Geolocation**
S. Cho, Z. Weinberg, A. Bhattacharya, S. Dai, R. Rauf

Session 5: Network Performance (chair: Colin Perkins)

- **Improving Cloud Gaming Traffic QoS: A Comparison Between a Class-Based Queuing Policy and L4S**
P. Graff, X. Marchal, T. Cholez, B. Mathieu, S. Tuffin, O. Festor
- **Quality of Service Performance of Multi-Core Broadband Network Gateways**
R. Figueiredo, H. Woesner, A. Kessler, H. Karl

Session 6: Extended Abstracts

- **RIPEn at Home – Surveying Internal Domain Names using RIPE Atlas**
E. Boswell, C. Perkins
- **Identification of HTTP Traffic Injection for Free-Riding in Zero-Rating Data Plans**
C. Gómez Chico, L. de Pedro, D. Perdices, J. E. López de Vergara
- **First Steps Towards Federated Learning Network Traffic Detection**
A. Boiano, V. Detomas, A. Enrico Cesare Redondi, M. Cesana
- **Can Blocklists Explain Darknet Traffic?**
D. Ravalico, R. Valentim, M. Trevisan, I. Drago
- **vTNT: Unikernels for Efficient and Flexible Internet Probing**
M. Letemple, G. Gain, S. Ben Mariem, L. Mathy, B. Donnet
- **MSTG: A Flexible and Scalable Microservices Infrastructure Generator**
E. Wansart, M. Goffart, J. Iurman, B. Donnet
- **Towards reusable models in traffic classification**
J. Luxemburk, K. Hymek
- **Timeless Foundations: Exploring DC-VAEs as Foundation Models for Time Series Analysis**
G. García González, P. Casas, E. Martínez, A. Fernández
- **HALIDS: a Hardware-Assisted Machine Learning IDS for in-Network Monitoring**
B. Brandino, E. Grampin, K. Dietz, N. Wehner, M. Seufert, T. Hoßfeld, P. Casas
- **More than Words is What you Need - Detecting DGA and Phishing Domains with Dom2Vec Word Embeddings**
L. Torrealba Aravena, P. Casas, J. Bustos-Jiménez, M. Findrik