
# The Measurable Security Lab (MSL)

## Cybersecurity Systems and Data Analysis Research

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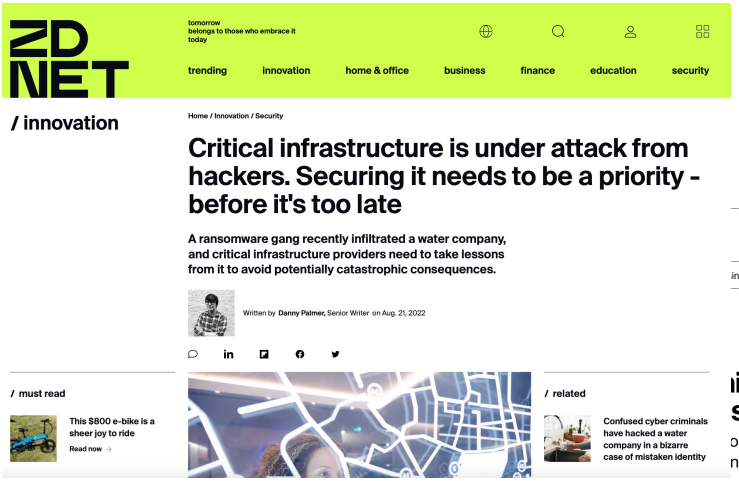
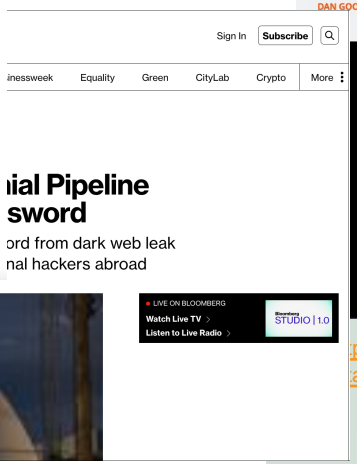
## Cybersecurity Systems and Data Analysis Research

- Research focus derived from ***real world*** cybersecurity threats/solutions/operations
- Cybersecurity is a fascinating space, but can be a challenge to know *what are the "real problems"*





ps://arstechnica.com/information-technology/2013/11/repeated-acks-hijack-huge-chunks-of-internet-traffic-researchers-warn/

# Basic Research with Real-World Impact

- It can be a challenge to find ***real*** problems that lead to deep/exciting research
- Industry is full of challenges, problems, and context
- MSL's collaborative/community network is vast
  - DigiCert, Verisign, ICANN, ISOC, IETF, ICANN, and more…
- We focus on basic research results impacting operational cybersecurity infrastructure
  - Distributed Denial of Service (DDoS)
  - Internet-scale cryptographic key management protocols
  - Inter-domain routing security

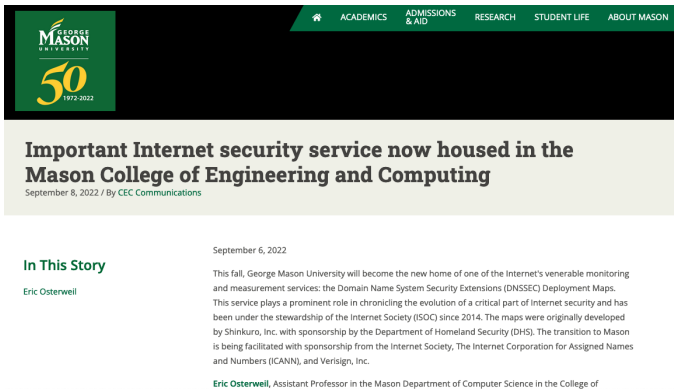
# Recent Results

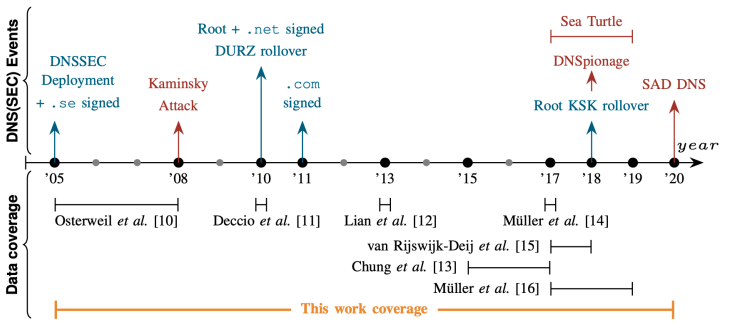
- Just published results from 15 year study of how cryptographic keys are managed in the first core Internet protocol to be enhanced with crypto: DNSSEC
  - Using our unique data corpus of over 36 ***billion*** real-world measurements

    Osterweil, Eric, Pouyan Fotouhi Tehrani, Thomas C. Schmidt, and Matthias Wählisch. "From the Beginning: Key Transitions in the First 15 Years of DNSSEC." *IEEE Transactions on Network and Service Management* (2022).

- Just completing the transition of a research/operational community resource/dataset from an industry partner (ISOC) to our lab at Mason

https://www.gmu.edu/news/2022-09/important-internet-security-service-now-housed-mason-college-engineering-and-computing



# An exciting time for cybersecurity research

## Doing basic science in MSL is exciting, and opens opportunities

- ❑ Exciting collaborations
- ❑ Working with industry and communities
- ❑ Real-world impact from research
- ❑ Students get known to industry for ***your work***

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Hit me up!