... in Order of Appearance

1. NZRS (.nz)
2. SWITCH (.ch)
3. DK Hostmaster (.dk)
4. DNS Belgium (.be)
5. CZ.NIC (.cz)
6. SIDN Labs (.nl)
7. AFNIC (.fr)
8. RESTENA / DNS.lu (.lu)
9. nic.at (.at)
10. Internet.ee (.ee)
The lost European ccTLD

NZRS Ltd., .nz registry
.nz major R&D projects

• Domain Classification
  – Using the web content on each active domain, and machine learning, classify the whole register. Working classification for Industry Code, Non for-profit, Business/NFP. In progress.

• Register size prediction
  – Combining one model for domain creation forecasting with a domain retention prediction, estimate the size of the register in the future. Nearly completed

• Registrant Classification
  – Using registrant names, training data and machine learning, determine if a registrant is a person or an organization. Several working models, evaluation phase

• DNS traffic statistics publication
  – Publish using an Open Data platform statistics about DNS traffic. First stage completed

• HTTPS scan
  – Discover how many sites with HTTPS are in the .nz namespace, and general data gathering about HTTPS. Two scans so far.
.nz other projects & collaboration interest

- Zone scan using Zonemaster
- Domain Popularity
- <Idea>: Individual domain retention prediction

- Collaboration:
  - Domain Popularity
    - Verify how TTL affects traffic
    - Different resolver implementations affect traffic
    - Ultimate goal: parity between auth DNS traffic and real traffic
  - Using zonemaster
    - Running it regularly with lots of domains.
Fill in creative Subtitle, eg. speaker name

SWITCH (.li / .ch)
SWITCH R&D efforts

• Entrada (Thanks again for the workshop in the last R&D meeting!)
  – Feed intelligence into domain abuse process
  – Analytics (DNS Magnitude, ...)
  – Alerting on unusual traffic
SWITCH other projects & collaboration interest

• Collaboration: increase DNSSEC adoption
  – DS automated provisioning / RFC7344, information exchange with people who have already done it or are planning to do it
Erwin Lansing

DK Hostmaster
.dk major R&D efforts

• Dipping toes in DNS analysis
  – Collecting DNS records at SLD
  – Web crawl (SSL)

• Company wide effort to combat cyber crime
  – What role do we have as a registry?
  – What can we gather from DNS data?
  – Mandatory (by law) ID checking for Danish registrants
  – Risk assessment of foreign registrants
.dk other projects & collaboration interest

Collaboration:

– Indicators of abusive behaviour
  • Whois
  • DNS traffic
– Machine learning
DNSBelgium major R&D efforts

• Main Focus on migrations:
  – .be to cloud (finished)
  – .vlaanderen / .brussels from TLDBox to our own system (due in the fall)

• Ongoing R&D:
  2 Master thesis in Cooperation with the university of Leuven
  – real-time PCAP-analysis & anomaly detection for DNS traffic
  – Website classification using machine-learning
Bedřich Košata

CZ.NIC
CZ.NIC major R&D efforts

• Project Turris
  – slowly but persistently moving towards more user friendly product :)
• Knot DNS
  – 2.4.3
• Knot Resolver
  – 1.2.6
  – used in Turris Omnia and internally in CZ.NIC office network
• BIRD
  – 2.0.0-pre1
CZ.NIC other projects & collaboration interest

• Other projects & ideas:
  – Ongoing: Honeypot as a Service, DNS traffic analysis, Malware detection, Home network monitoring
  – Ideas: long-term DNS traffic trends (do we get more or less individual resolvers?, adoption of new (and old) technologies, etc.)

• Collaboration:
  – DNS traffic analysis
  – Malware and botnet detection (both from DNS traffic and honeypots)
  – Home network monitoring
    • parental control, IoT device separation and monitoring, anomalous behavior detection, etc.
Moritz Müller and Ricardo Schmidt

SIDN Labs
SIDN Labs’ major R&D efforts

- **SPIN**
  - Security and Privacy for In-home Networks
  - Giving users more control over (IoT-) devices in their home network
  - Next: quarantine IoT devices to protect DNS operators and service providers
  - Based on OpenWRT

- **DNS-EMAP**
  - DNS Ecosystem MAPper
  - Crawler to collect more information about the .nl zone
  - Create longitudinal model of a TLD in terms of its “objects”

- **SAND-2**
  - Self-managing Anycast Networks for the DNS
  - Develop intelligent tools to support DNS operators
SIDN Labs’ other projects & collaboration interest

• Other projects & ideas:
  – Ongoing:
    • ENTRADA (join the SWITCH-CERT hackathon 2017-08-07!)
    • JTIE (Joint Threat Intelligence Exchange)
    • SITO (Security Intelligence for TLD operators)
    • SADAG (study about abuse in new gTLDs for ICANN)
  – New consortium project:
    • DAGOBERT: applying machine learning to large amounts of network traffic to detect botnet activity. Consortium: Open University, Radboud University Nijmegen, Quarantainenet, Solcon, XS4ALL, SIDN. Looking for a postdoc researcher.

• Collaboration:
  – Developing use cases for ENTRADA
  – Share threat information between ENTRADA instances of different CENTR members
Updates
Afnic major R&D efforts

• Web Crawling [on going]
  – Better understand what influences domains renewal or loss
  – Recurrent need from some of our smaller registrars of statistics about websites in their portfolio

• Logs analysis [on going]
  – Consolidate EPP, Whois, FW logs
  – Aim is to at first to help detect and analyse “events” from these sources

• IoT [on going]
  – Promoting DNS for IoT for different scenarios: Interoperability, Roaming, Security
  – Afnic part of the LoRa Alliance™

• Zonemaster in collaboration with IIS [on going]
  – Last pre-release April 11th
  – RIPE NCC: Zonemaster in replacement of DNScheck [RIPE74 slides]
Afnic other projects & collaboration interest

- Other projects & ideas:
  - Ongoing: Web Crawling

- Collaboration:
  - Contributions are open on Zonemaster: especially packaging but also anyone interested for helping ...!
Cynthia Wagner

DNS-LU
by RESTENA Foundation
Missions

DNS-LU operated by RESTENA Foundation
Registry for the ccTLD .LU
National Research and Education Network profile
  Network planning, operation and management Services s.a.
    Access, eduroam, email, TCS, hosting,...
  CSIRT
  Research

Specificity: community englobes educational institutions of all level as well as cultural institutions and public Administrations Operating the Luxembourg Commercial Internet Exchange
DNS-LU other projects & collaboration

- **Other projects & ideas:**
  
  - **Ongoing:**
    
    - IoT malware analysis project (CSIRT and CIRCL)
      
      - Paper presentation at TNC conference
    
    - Blackhole traffic analysis (CSIRT and CIRCL)
      
      - Presentation at FIRST conference
    
    - Blockchain & DDoS & BGP project (University of Luxembourg, SnT)

- **Collaboration:**
  
  - Open to new collaborations and partnerships
Alex Mayrhofer, Head of R&D

nic.at
nic.at major R&D efforts

• Everything around “Data”
  – Understand Registry inventory & DNS Traffic
  – Data supply to Departments / public / Registrars? / Registrants?
  – End of Year: Improve predictions & planning
• New Website @ nic.at
  – QA work (testing) + supplying Statistics
• GDPR dawn
  – Early stage: Investigating data flows and respective Tools
• RcodeZero Anycast DNS
  – Product development
• Standardization
  – IETF work (EPP, DNS over TLS)
• gTLD Registries
  – Keeping up with ICANN requirements
nic.at other projects & collaboration interest

• Other projects & ideas:
  – Ongoing: Text Analysis / Web Crawling
  – Ideas:
    • HyperLogLog for counting things, standardized data format,
    • „DNSheads“ meeting group,
    • more R&D „PR“ (once new website is out)

• Collaboration:
  – Web Crawling / Analysis („Data group“ and „Crawling Workshop“)
  – Open to any ideas!
Timo Võhmar

.ee (Estonian Internet Foundation)
.ee major R&D efforts

- Open Source Ruby Registry
  - Support for short and long registration periods
  - Microservice architecture
  - Improved integration with accounting
  - Integration with banks and online payment platforms
- Domain Auctioning System
  - Auctioning model for deleted domains
- UX development and APIs for public interfaces
.ee other projects & collaboration interest

• Other projects & ideas:
  – A lot of ideas, too little time and resources
• Collaboration:
  – Contact, personal and business information verification
  – Registry system development
Anyone else?

Don’t be shy ;)

Cc-by Paolo Braiuca - https://www.flickr.com/photos/braiu_74
Predicting Creates and Deletes: Models and Methodologies

Mini-Panel: Sebastian Castro, Alex Mayrhofer, Patrick Myles + Discussion
New Working Group Co-Chair!

- MoC: Patrick Myles
See you after Lunch!

R&D Workshop #10, Brussels, Belgium