NETWORK POLYGRAPH

AN INNOVATIVE NETWORK VISIBILITY SERVICE (NOT ONLY) FOR NRENS

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COMPANIES DEPEND ON NETWORKS

1. Productivity enhancement
2. Entire business models

NETWORK MALFUNCTIONS ⇒ LARGE COSTS

42,000 $/h to 5,600 $/min (Gartner, Ponemon Institute)

SOLUTION: NETWORK VISIBILITY

"When you can measure what you are speaking about, and express it in numbers, you know something about it." – Lord Kelvin

- understand how the network is used
- identify bandwidth hogs
- detect unwanted applications
- detect anomalies & attacks
- investigate security incidents
- long-term network planning

TRADITIONAL APPROACHES

Deep Packet Inspection (DPI): high visibility at high cost

- instrument network with hardware ✗
- capture & analyze every data packet ✗
- compute any metric of interest ✓

NetFlow / IPFIX / sFlow: low visibility at low cost

- delegate capturing to routers/switches (standardized) ✓
- no access to packet contents - only *traffic summaries* ✗
- aggregate results and present them to user ✗

NETWORK POLYGRAPH

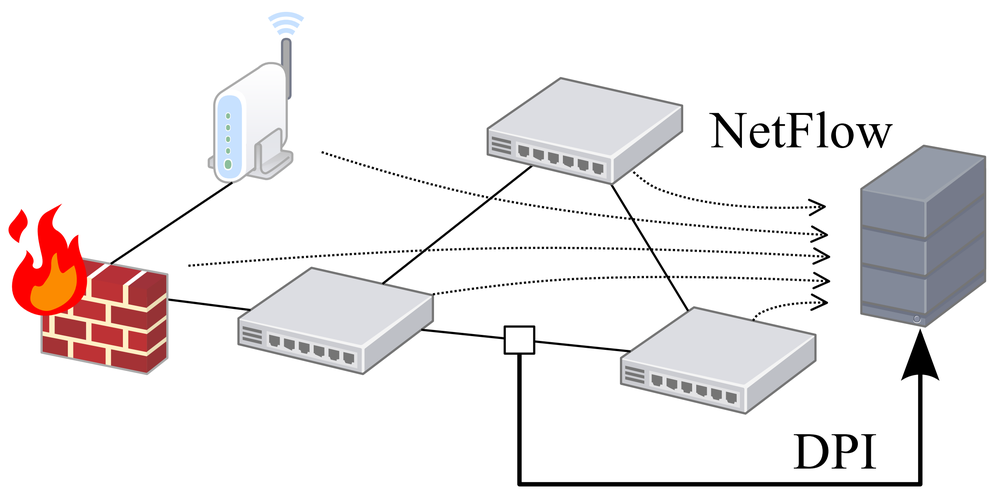
Leverages a huge body of research works in **traffic classification**, combines available techniques in a network visiblity product

- **Capture** traffic at one link
- **Extract** NetFlow & perform DPI
- **Train** a classification engine
- **Extend** to *all* the network

Advantages:

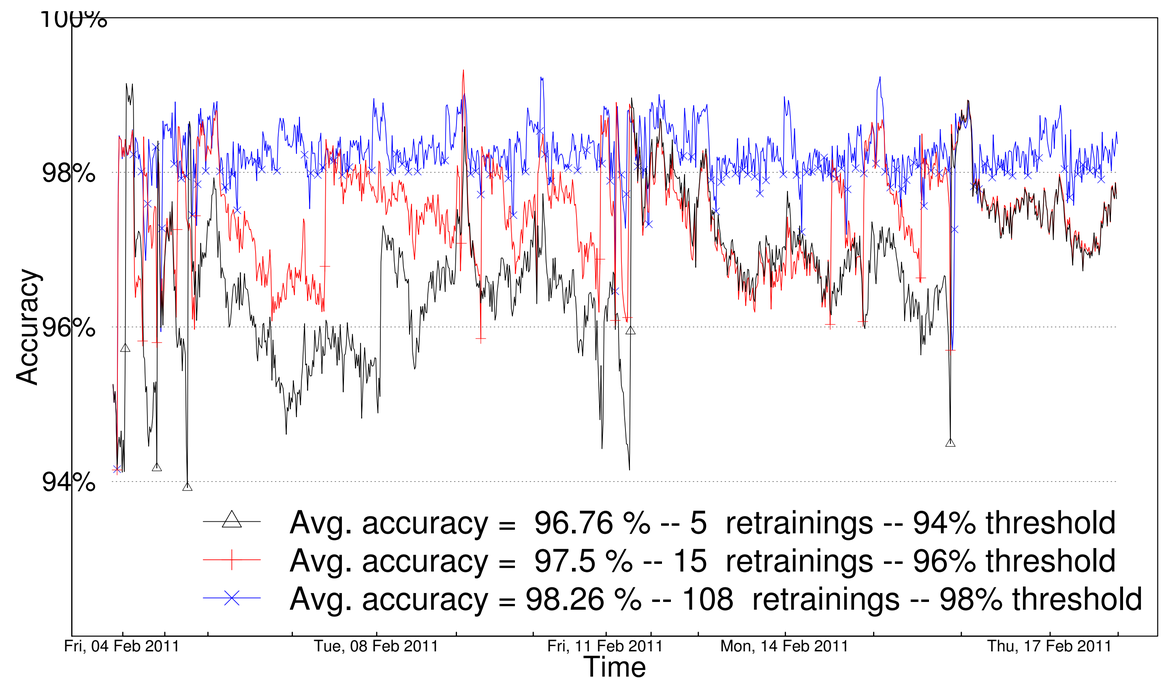
✓ Main data input: **NetFlow** – cost-effective, easy to deploy
✓ Accuracy comparable to DPI, ability to self-assess accuracy

DEPLOYMENT AT CSUC AND REDIRIS

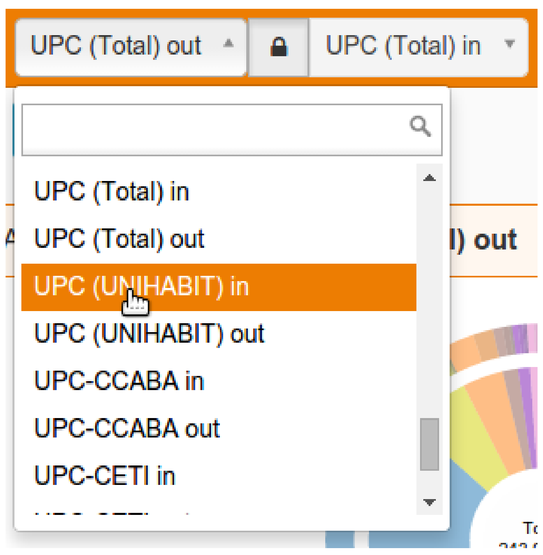


NetFlow as main data input. Auxiliary DPI input to train the application clasification engine, which is applied to *all* the traffic.

RESULTS



MULTI-TENANT: SERVICES ALL INSTITUTIONS



Both an internal tool and a value-added service for institutions connected a NREN.

In production in Anella Científica (CSUC), and in deployment at RedIRIS (Red.es).

CLOUD DEPLOYMENT

Super fast deployment (just a few minutes to configure routers).

Without DPI: runs on default lab-generated training model.
Offered under a subscription model (SaaS) from the cloud.
Currently in use by customers in 3 continents.

Offered by ourselves leveraging the multi-tenancy feature.

Alternatively, on-site deployment (possibly virtualized) is available.

On-line demo: https://polygraph.io