User Aided
Malicious Domain Detection

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FRAUDE HELPDESK.nl SIDN LABS

About FHD and SIDN

FRAUDEHELPDESK.nl

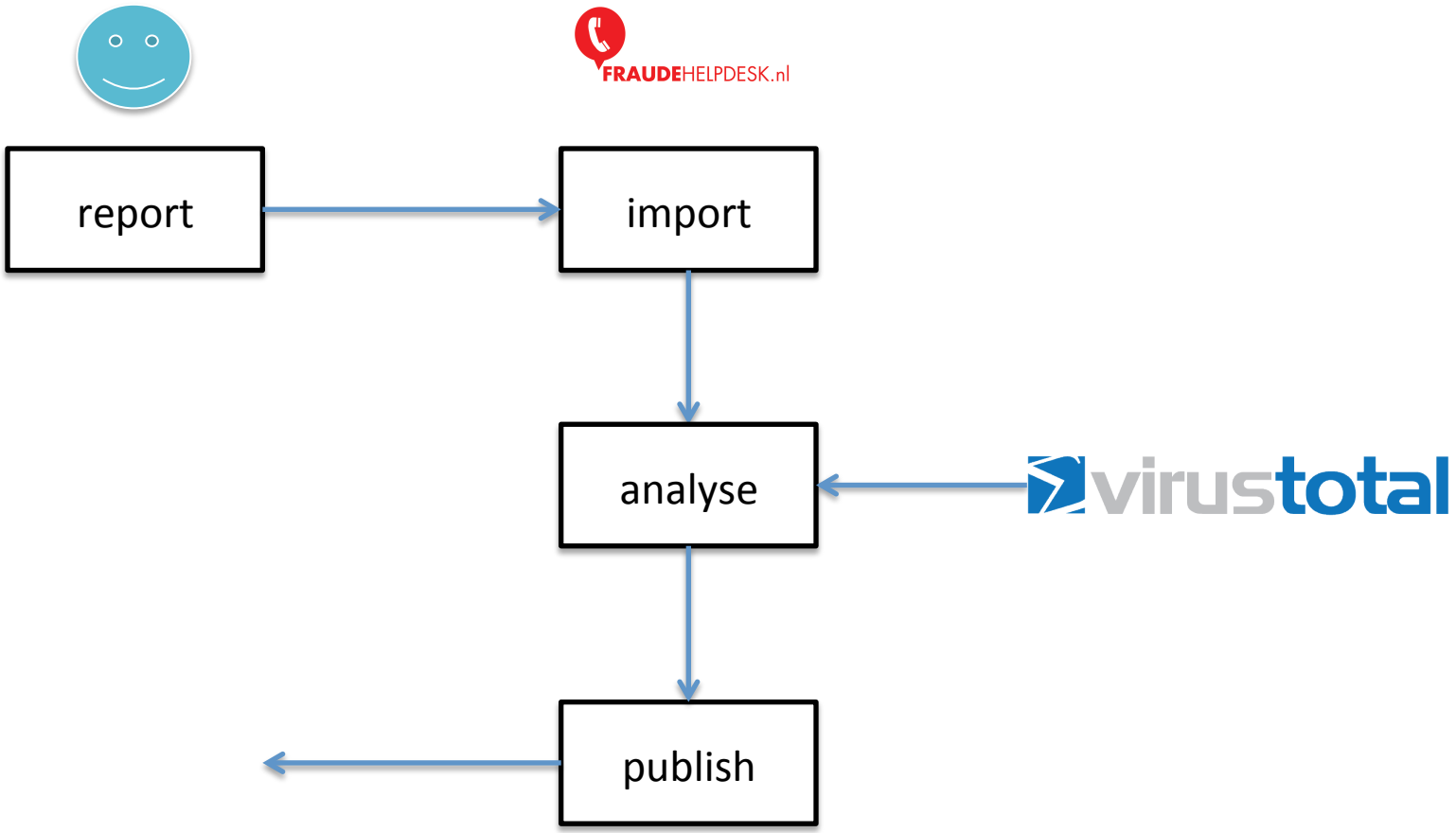
SIDN LABS

Goal of JTIE

- Joint Threat Intelligence Enrichment

- We want to classify mails faster in order to warn and protect more users from phishing and fraud

Fraudehelpdesk Workflow



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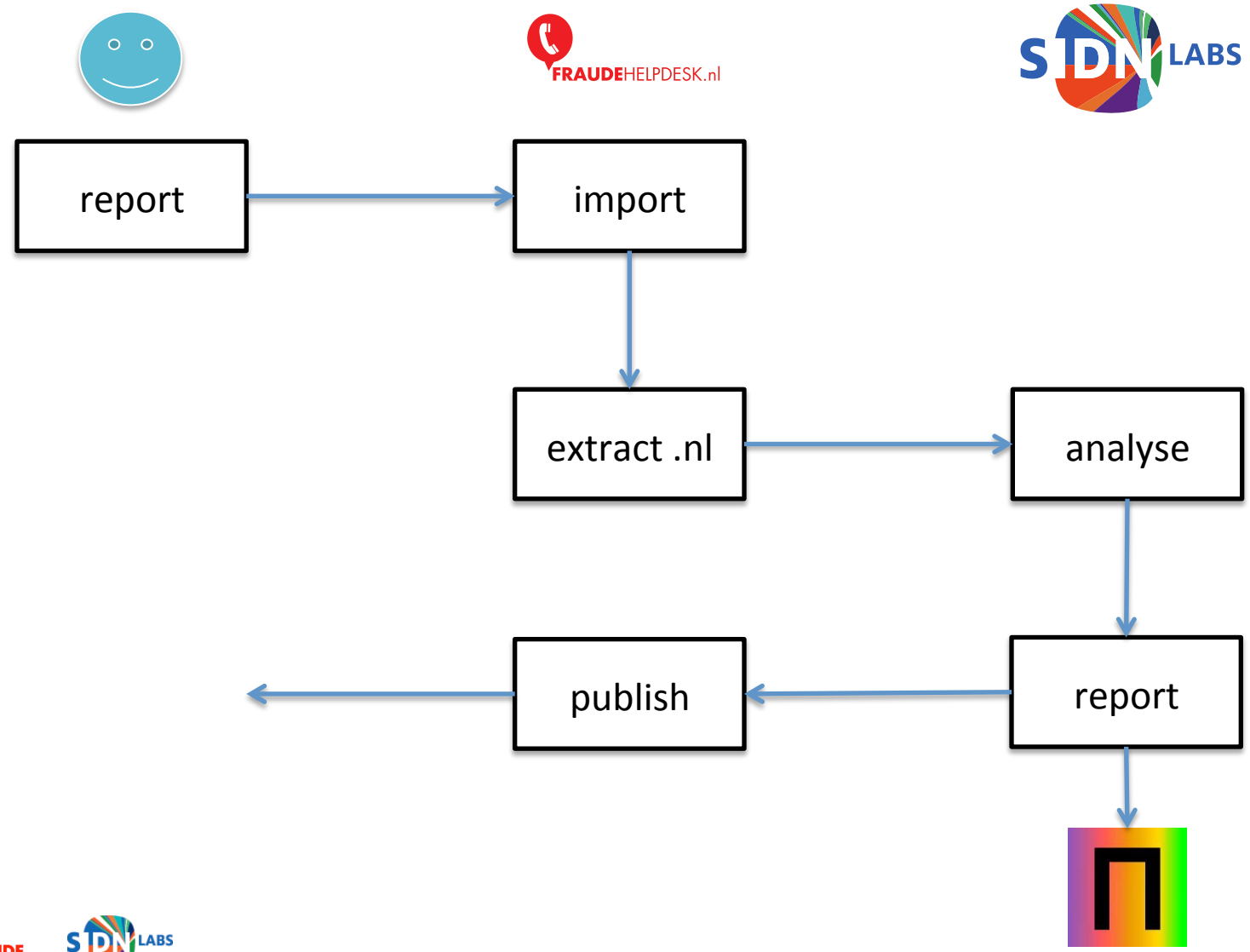
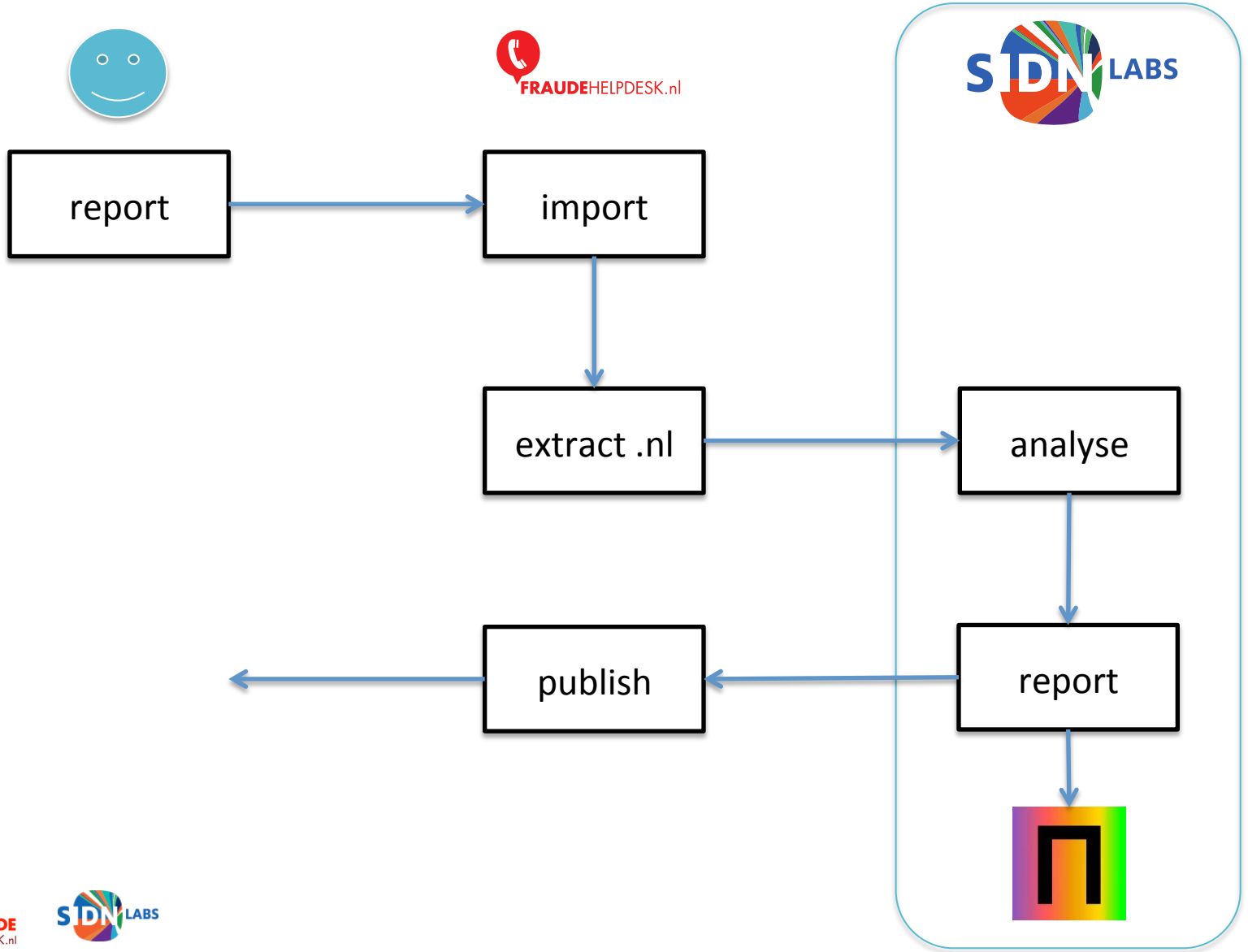
JTIE Workflow for .nl



JTIE Workflow for .nl



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What does FHD share?

- The .nl domain name
- The full URLs (cleaned from privacy sensitive data)
- Unique mail ID

What does SIDN share?

- DNS queries from the last 7 days
- Query Peak (yes/no)
- Age
- Registrar (pseudonym)
- Classification Score

What does SIDN share?

- DNS queries from the last 7 days
- Query Peak (yes/no)
- Age
- Registrar (pseudonym)
- **Classification Score (0-3)**
  - is it a young domain? (+1)
  - is it registered at a suspicious registrar? (+1)
  - does it have query peak? (+1)

Results after 6 months

- **2.200** unique .nl domain names

  extracted from 90.000 mails

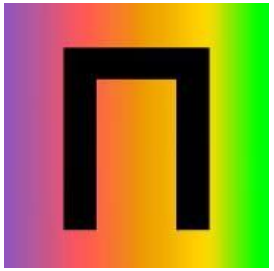
- **88** domains for sure phishing
- majority not known by Virustotal

Results after 6 months

- Why so many duplicates?
  - Many legitimate domain names from phishing targets (e.g. banks, PayPal, ...)
  - Different users report the same mail
- Why so few phishing?

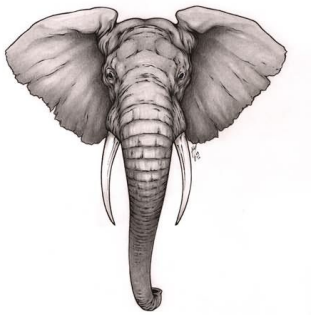
Takedown with Netcraft

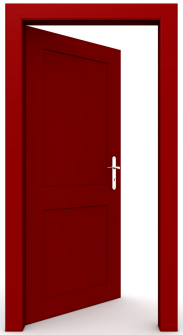
- Netcraft contacts registrars, hosters and registrants of phishing domains
- With our homemade crawler we can analyze the content
- Automatically submit domain to Netcraft
  - if *SCORE >= 2*
  - and website is still online
- 1 false positive (1,1%)
- Takedown after 90 min (on average)



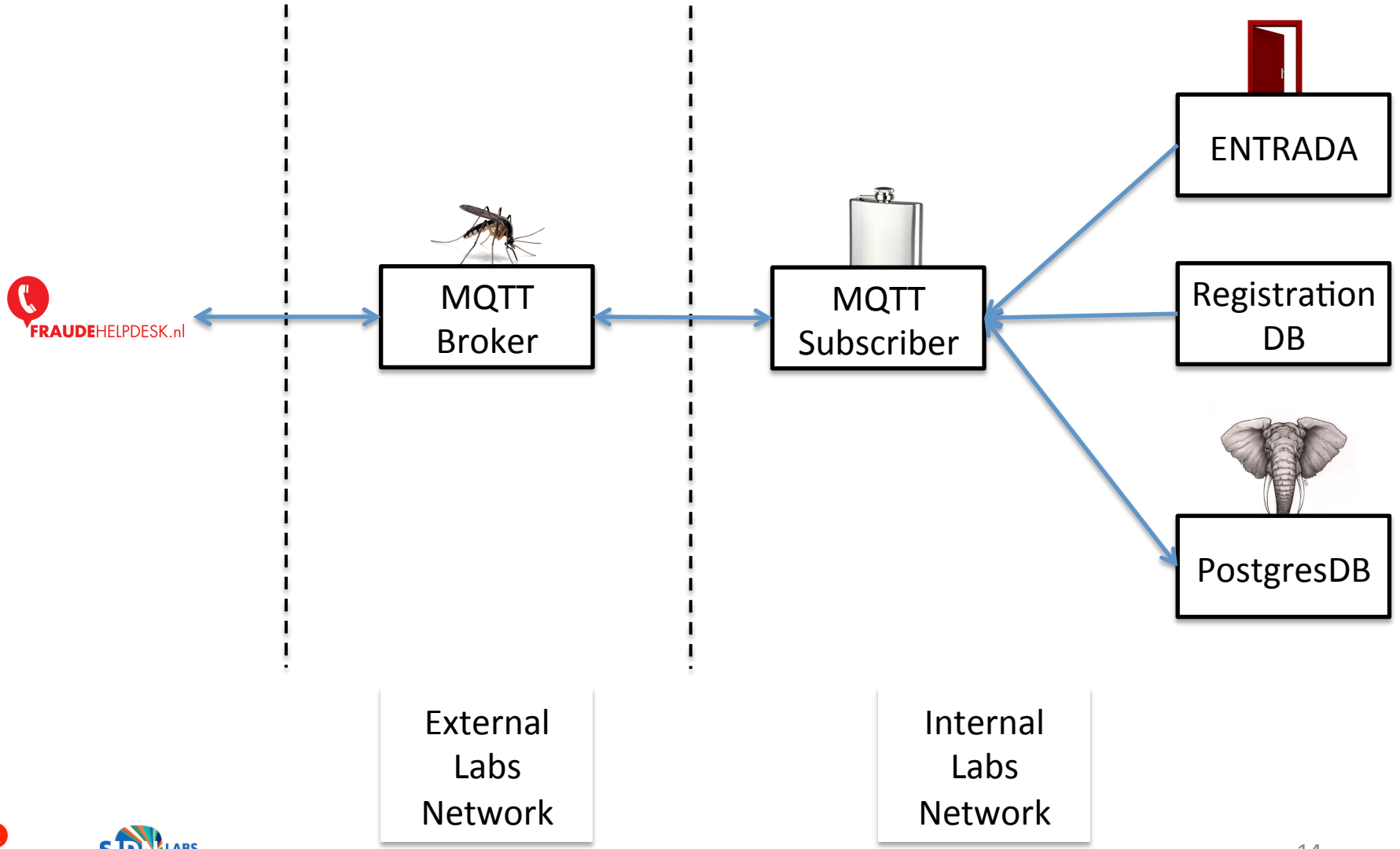
How do we share it?

- Mosquitto MQTT Broker
- Flask Python Web Framework
- ENTRADA
- Postgres DB





Setup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MQTT Broker
MQTT Subscriber
ENTRADA
Registration DB
PostgresDB
External Labs Network
Internal Labs Network

Next steps

- Rebuild backend
- Extract more features:
  - Website content
  - Registration data
  - URL
- Follow URL shorteners
- Whitelisting
- Improve peak detection

Summary

- Pre-filtering by users is powerful
- Straight forward phishing detection
- Easy ENTRADA use case

Is there room for collaboration?

Questions?

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