



RIPE NCC

RIPE NETWORK COORDINATION CENTRE

Anti-Abuse Training

Setting up an abuse desk

Webinar

RIPE NCC Learning & Development



**This session is
being recorded**

Take the poll!

Do you already have an **Abuse Desk** in your organisation?



1 min.



Agenda

- What is abuse?
- What should I do about it?
- What is an Abuse Desk?
- Setting up an Abuse Desk
- Some help with abuse handling
- And now what?





What is abuse?

Ethics and the Internet



RFC 1087: Ethics and the Internet

- Published way back in **January 1989**
- **Unethical** and **unacceptable** activities are those that:
 - Seek to gain unauthorised access
 - Disrupt the intended use
 - Waste resources (people, capacity, equipment)
 - Destroy the integrity of computer-based information
 - Compromise the users of the Internet
- What do we think **today** about these definitions?



Let's Talk About Abuse

- It is **difficult to define abuse** because it depends on...
 - National legislation
 - Cultural background
 - Your personal point of view, e.g. experience, expertise and opinion
- What are the **main** characteristics of ABUSE?



Well-Known Types of Abuse

- **Abuse** you might encounter includes:
 - Spam
 - General fraud
 - DDoS attacks
 - Malware
 - Phishing
 - Abuse of an open service (email, DNS, etc.)
 - Copyright/trademark infringements
 - CSAM (Child Sexual Abuse Material)*



Take the poll!

If you have ever been the **recipient** of abuse,
what **type of abuse** was it?



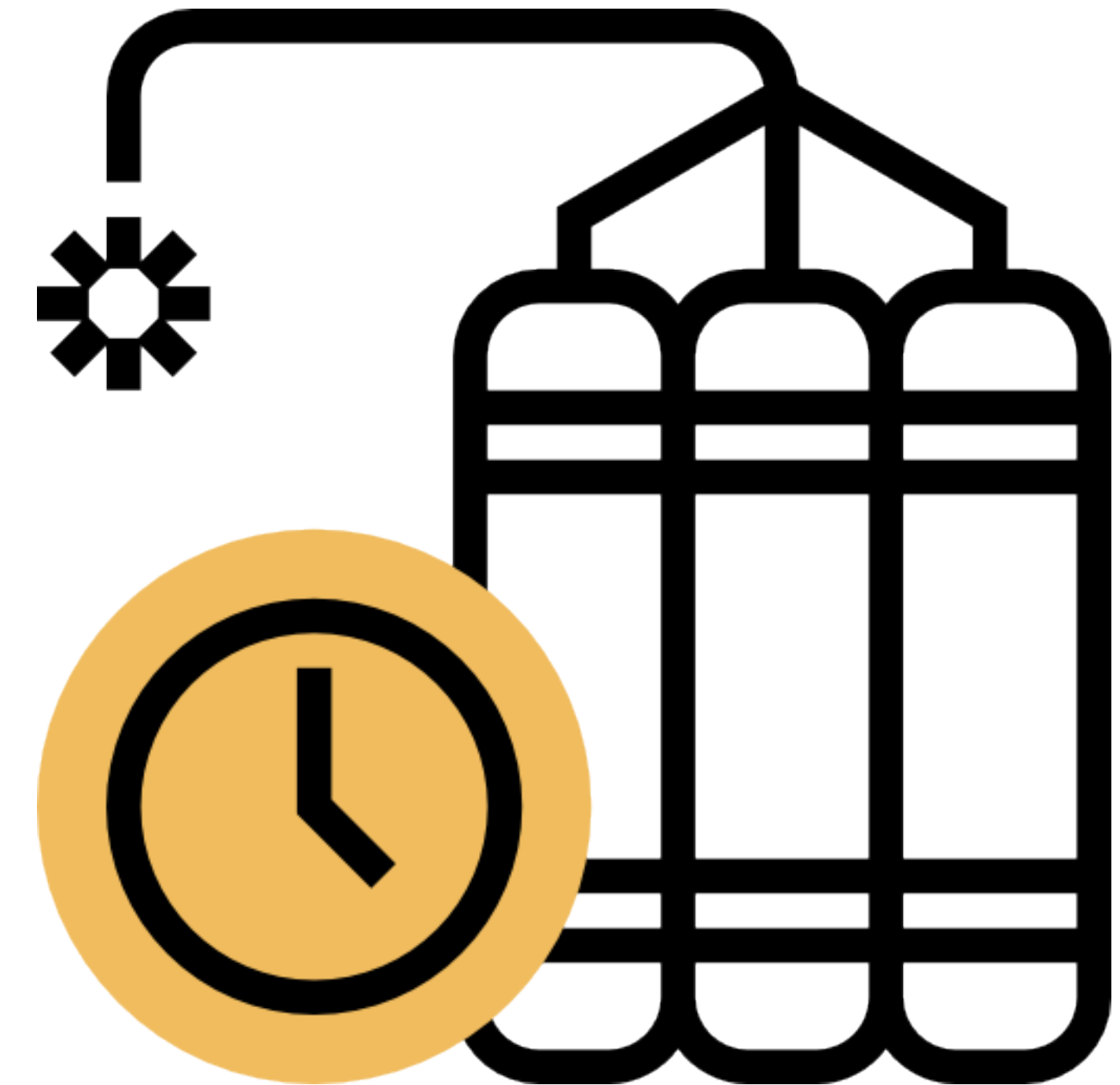
1 min.





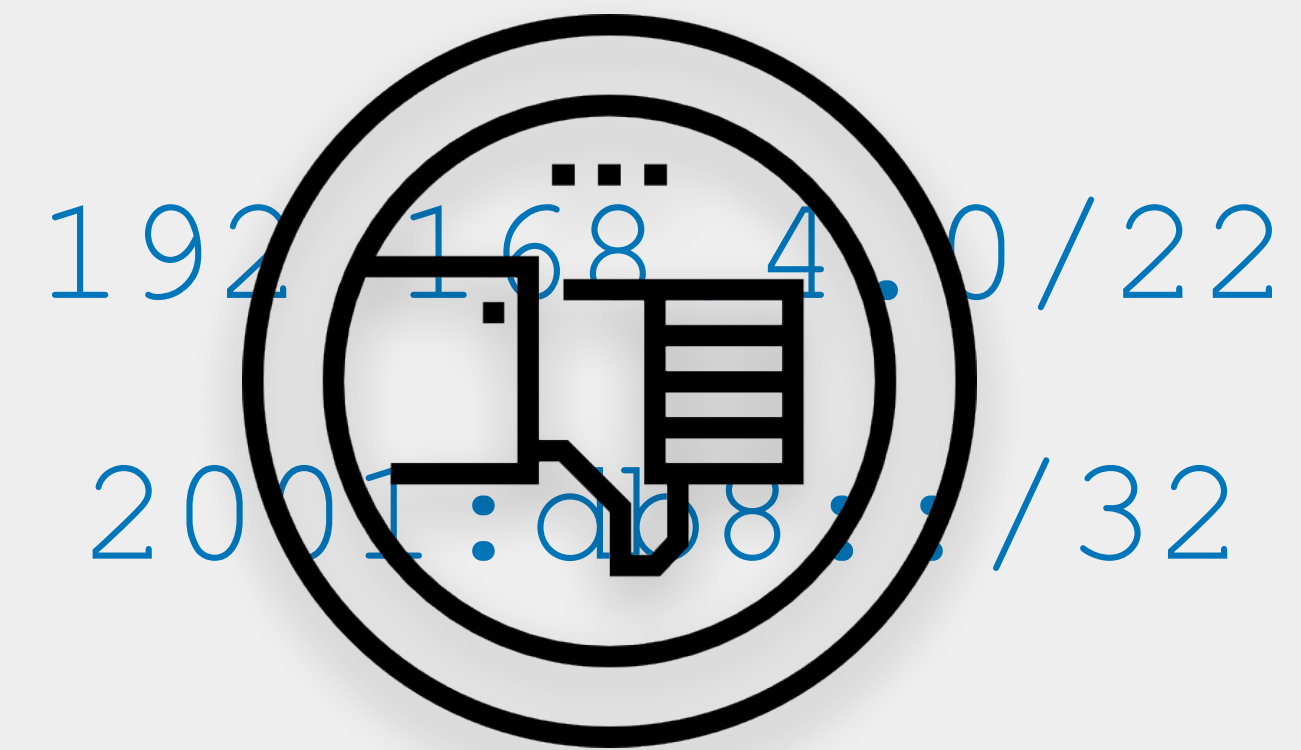
Effects of Abuse

- Abuse causes **damage** and **downtime** for networks
- Businesses **lose** business
- People **suffer** the consequences
- Trust in your network is **eroded**
- Your internal costs **increase**
- Legal **risks**



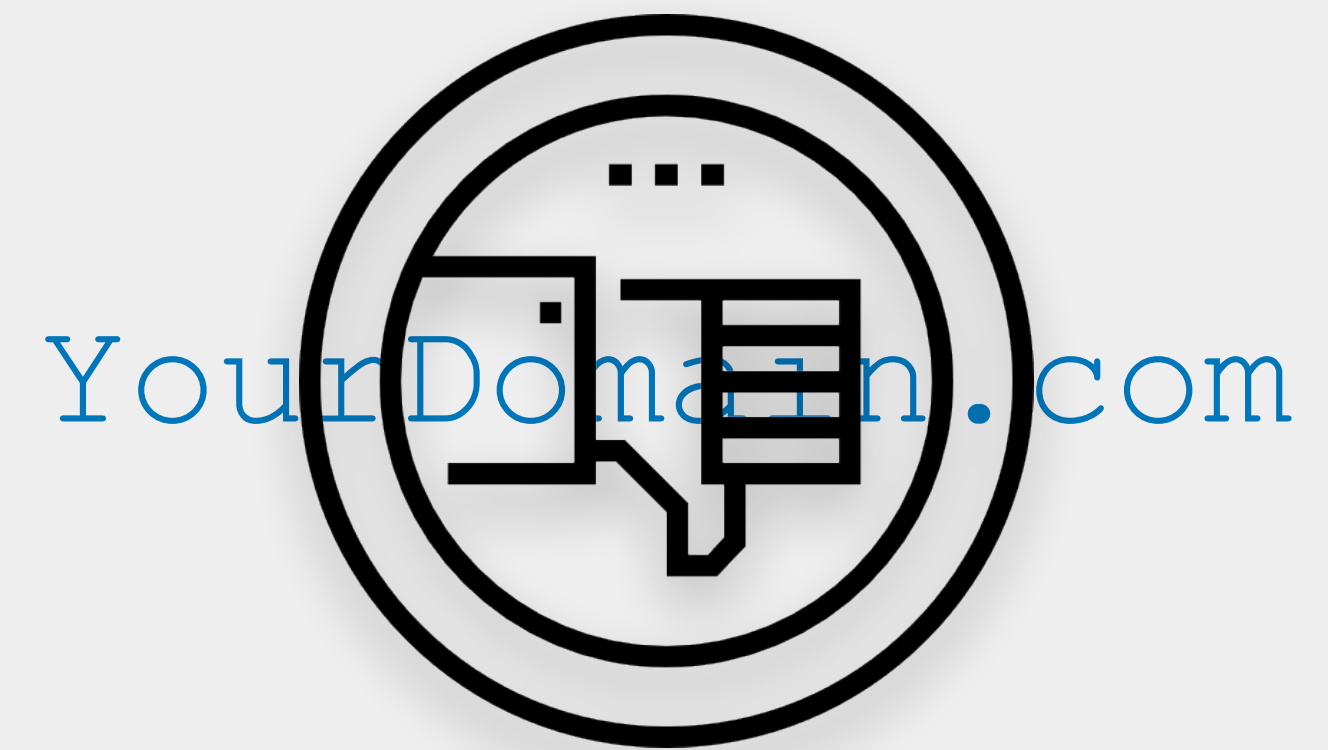
Your IP Reputation

- Helps **evaluate** the quality of an IP address
 - Can be an individual IP or a whole prefix
- A **negative reputation** will likely decrease the traffic you can send and receive
- **Monitoring changes** to your reputation helps to detect abuse



Your Domain Reputation

- Works on a **scoring system**
 - Determined by factors like spam, complaint rates, bounce rates, etc
 - Every network has their own way of calculating the score
- Providers use it to **make decisions** about whether your emails should make it to the inbox or not



Blocklists

- Databases of “**known bad**” or “**suspicious**” IPs or domains
- They help to **prevent** or **block** harmful IPs or domains from accessing networks
- **Public** and **private** blocklists





What should I do about it?

Expectations and Obligations

Take the poll!

Who do you think has **expectations** about abuse being taken care of?



1 min.





The Abuse Victim Expects...

- Victims want the abuse to **stop** immediately, obviously
- They expect to be **heard/listened** to and acknowledged
- Network operators should be **ethical** and **responsible**





Your Local Authorities Expect...

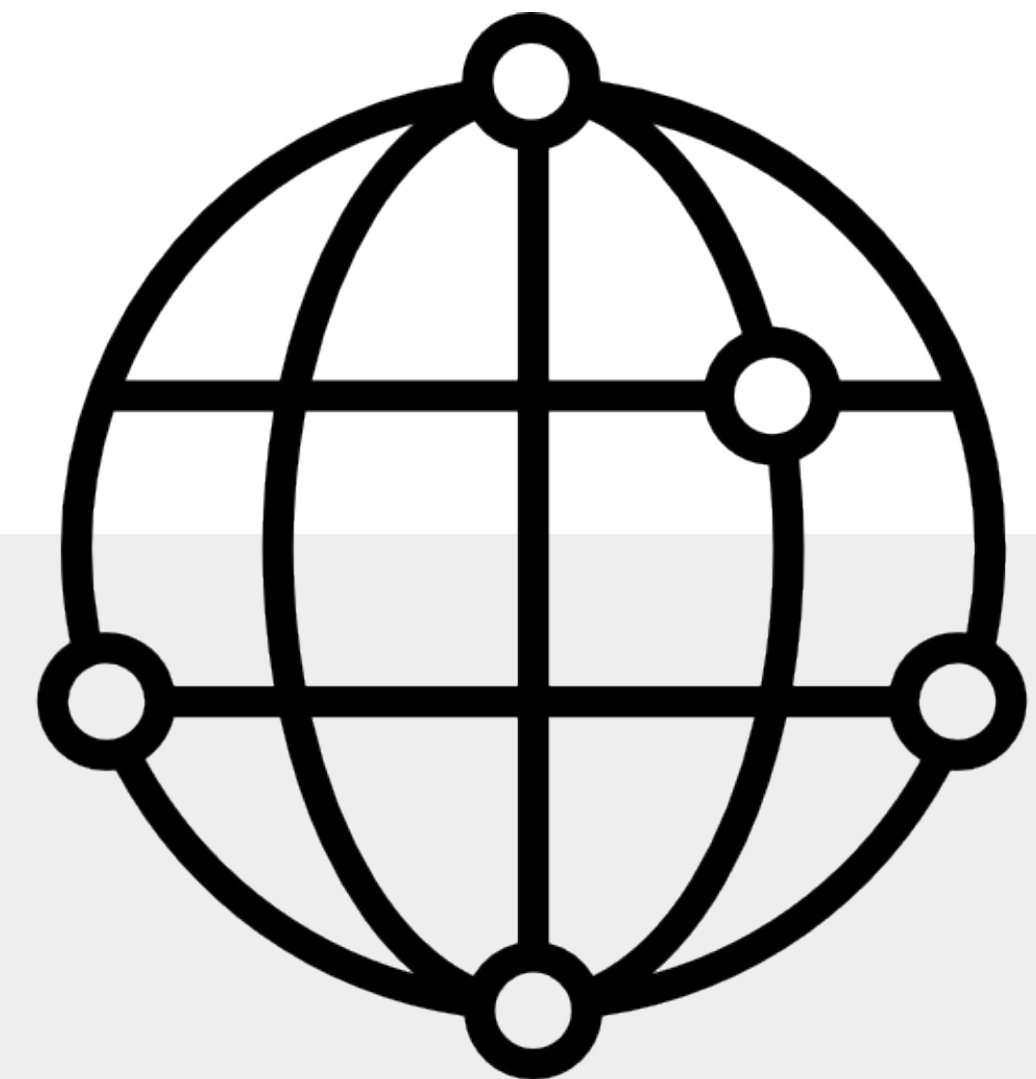
- Network operators and users to follow the local **laws** and **regulations**
- **Obstacles** to abuse and cybercrime
- A **safer** information society





The Internet Community Expects...

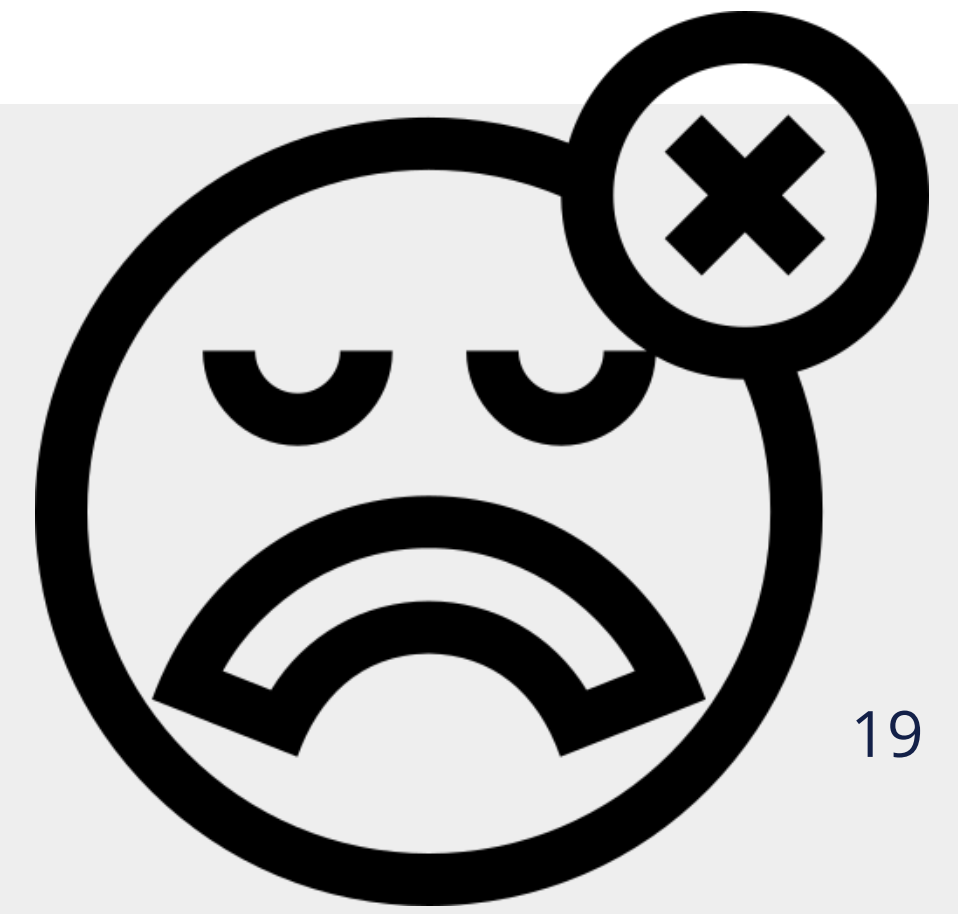
- The abuse from **your network** is causing damage:
 - Network operations degraded or disrupted
 - Financial losses or costs
- You take care of the **vulnerabilities** and **exploits**
- You **deal** with the abusive users
- You be **ethical** towards other networks
- ... and **your customers!**





Why Handling Abuse is Important

- **Cybercrime** is on the rise
 - Cybercriminals use your network as part of their infrastructure
- Consequences of **not handling** abuse reports
 - Loss of trust in your network
 - Reduced network visibility due to filtering
 - Serious legal problems in certain cases





Why Handling Abuse is Important

- Benefits when you **do handle** abuse complaints
 - More stable network operations (uptime)
 - Better visibility of your network on the Internet
 - Reduce operational costs
 - Improved business due to a good reputation
- **Clean, efficient network = Happy users that don't leave!**





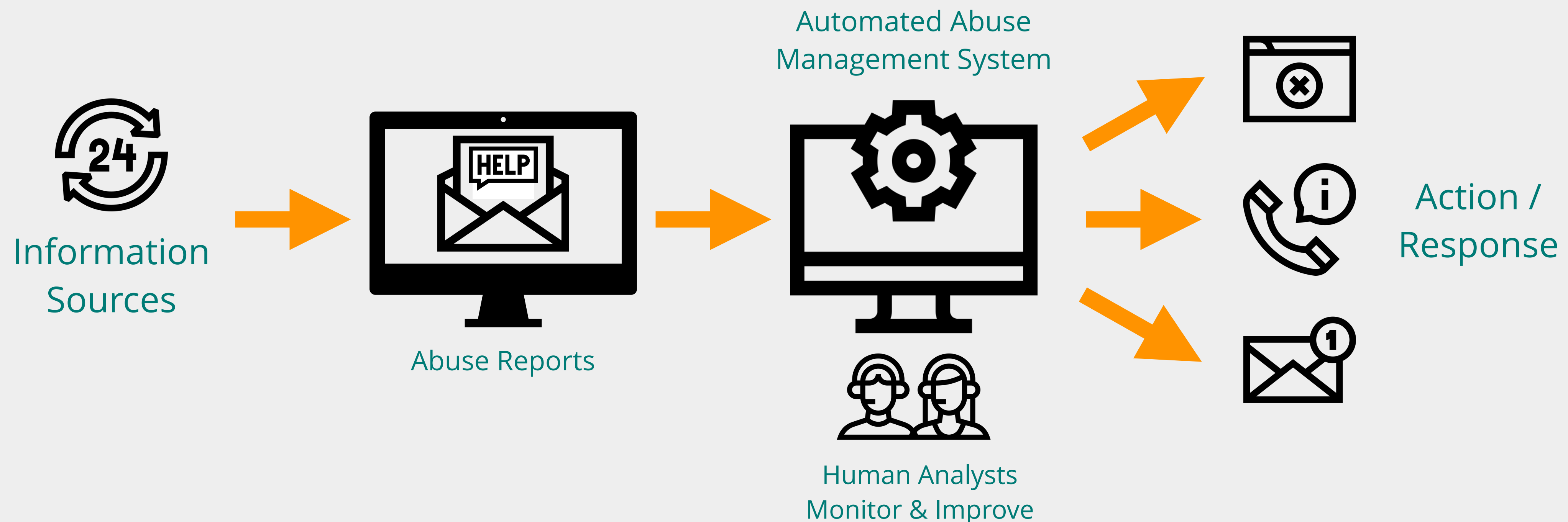
What is an Abuse Desk?

Listen to complaints



What is an Abuse Desk?

- Usually part of the **Security Operations** function
- Ensures that complaints about IPs or domains are taken care of



What does an Abuse Desk do?

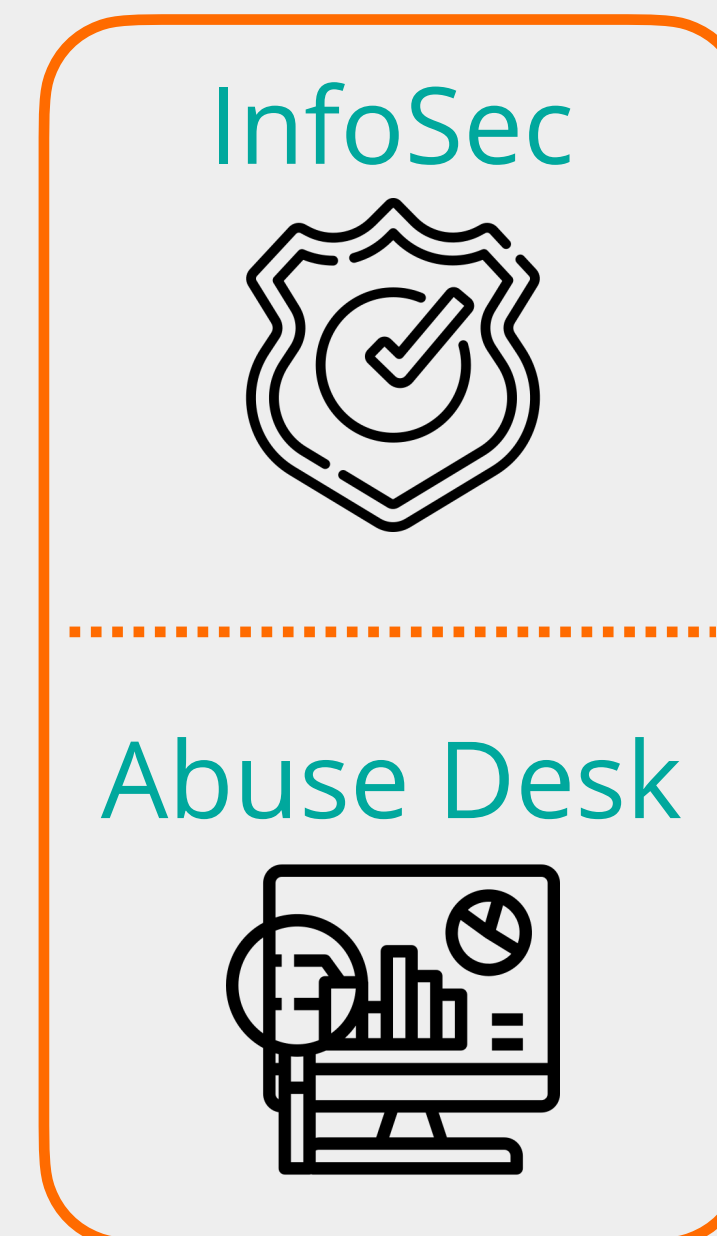
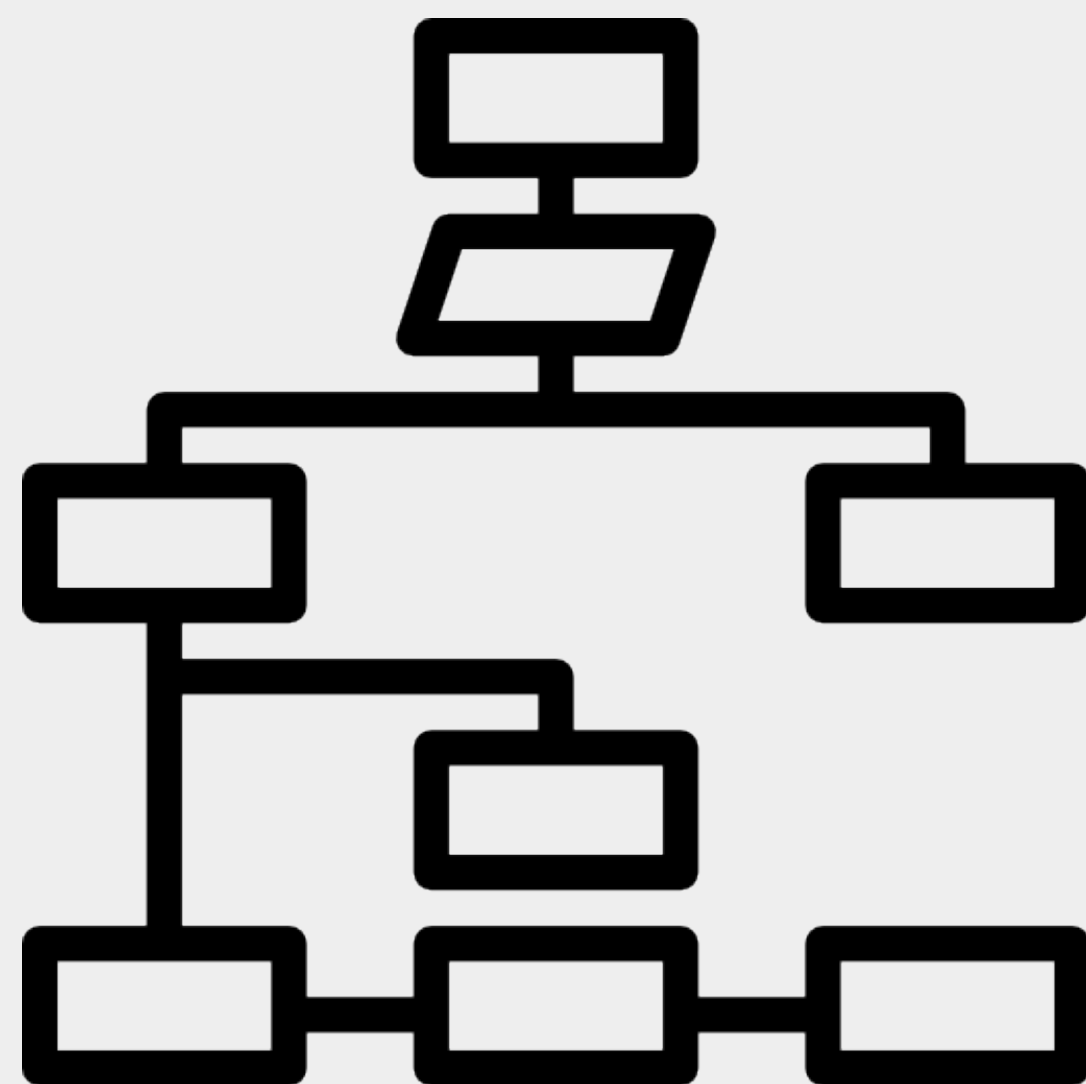
- **Receives** and **catalogs** the abuse reports
- **Prioritises** the reports that require urgent action
- **Takes action** depending on the issue:
 - Mitigates the impact of the abuse
 - Educates on how to avoid these problems
 - Shuts off customer from the Internet, if it's the only solution
 - Contacts LEAs if required by law





Where is the Abuse Desk found?

- ***Looks*** like a Help Desk
- But is mostly located under **Information Security**
- Has a lot of contact with the Legal dept.



Take the poll!

You need to have **highly skilled people** running the abuse desk.

TRUE or FALSE?

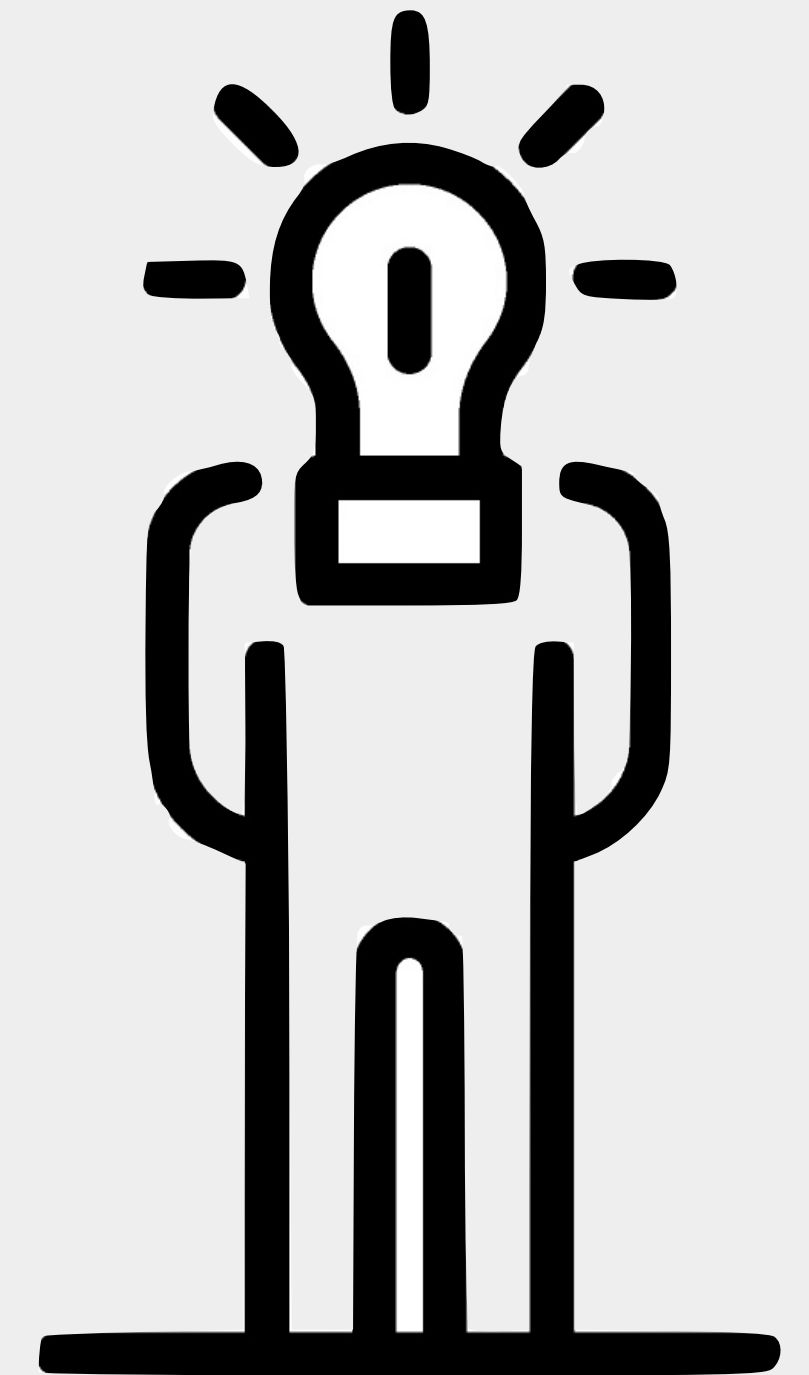


1 min.



Useful Skills You Should Have

- The abuse desk doesn't require a network engineer
- But it will **benefit** from skills such as:
 - IP addressing (IPv4 and IPv6 subnetting)
 - Basic understanding of the technologies used in the network
 - Reading log files
 - IP packet analysis
 - Among others...
- **Soft skills** are really important!

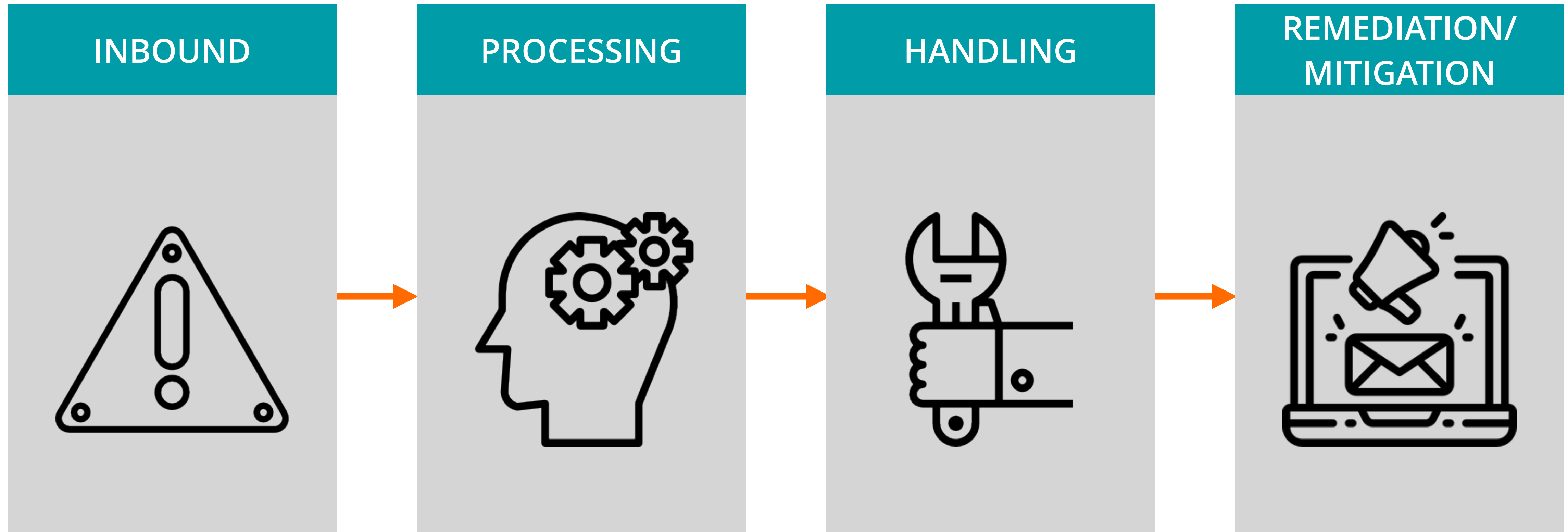




Setting up an Abuse Desk

How to get started

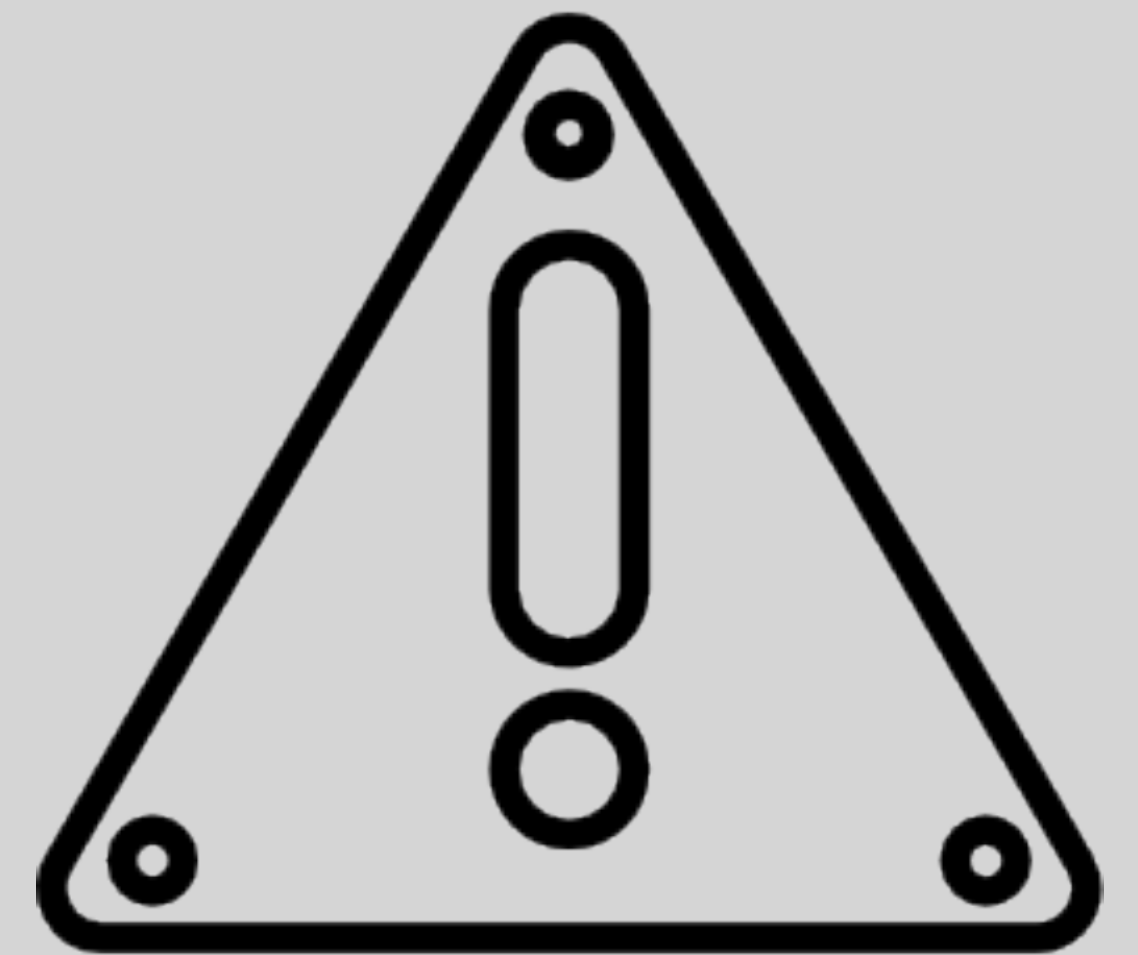
The Abuse Handling Process



SPEED is the most important factor!

Inbound

- Inbound data can come from several sources:
 - **abuse@** mailbox
 - Internal sources
 - Threat intelligence
 - Other external sources
- Is the data in the abuse report **complete**?





The Abuse Mailbox

- **RIPE-705** - “**Abuse Contact Management in the RIPE Database**” defines the abuse contact for RIPE region IPs and ASNs
- Mandatory on all **aut-num** objects and directly allocated **inet(6)num** objects
- “abuse-mailbox:” contains email address where abuse reports should be sent
- The abuse-mailbox address is validated every year

Search results

This is the RIPE Database search service. The objects are in RPSL format. The RIPE Database is subject to [Terms and Conditions](#).

Responsible organisation: [Reseaux IP Europeens Network Coordination Centre \(RIPE NCC\)](#)
Abuse contact info: abuse@ripe.net

inetnum: 193.0.24.0 – 193.0.30.255
netname: RIPENCC-MEETING-PUBLIC
descr: Reseaux IP Europeens Network Coordination Centre (RIPE NCC)

Standardised Abuse Reports

- Allows **automation** of abuse reports
- Makes abuse handling **easier**
- **XARF** is a popular standard
 - Simple, extensible, and structured, and, therefore, easily automated

<https://github.com/abusix/xarf>

```
{
  "Version": "2",
  "ReporterInfo": {
    "ReporterOrg": "ExampleOrg",
    "ReporterOrgDomain": "example.com",
    "ReporterOrgEmail": "reports@example.com",
    "ReporterContactEmail": "contact@example.com",
    "ReporterContactName": "Mr. Example",
    "ReporterContactPhone": "+ 01 000 1234567"
  },
  "Disclosure": true,
  "Report": {
    "ReportClass": "Activity",
    "ReportType": "Spam",
    "ReportSubType": "Trap",
    "Date": "2018-02-05T14:17:10Z",
    "SourceIp": "192.0.2.55",
    "SourcePort": 54321,
    "DestinationIp": "198.51.100.33",
    "DestinationPort": 25,
    "SmtptMailFromAddress": "spam@example.com",
    "SmtptRcptToAddress": "victim@example.com",
    "Samples": [
      {
        "ContentType": "message/rfc822",
        "Base64Encoded": true,
        "Description": "The spam mail",
        "Payload": "bWFpbA=="
      }
    ]
  }
}
```


Processing

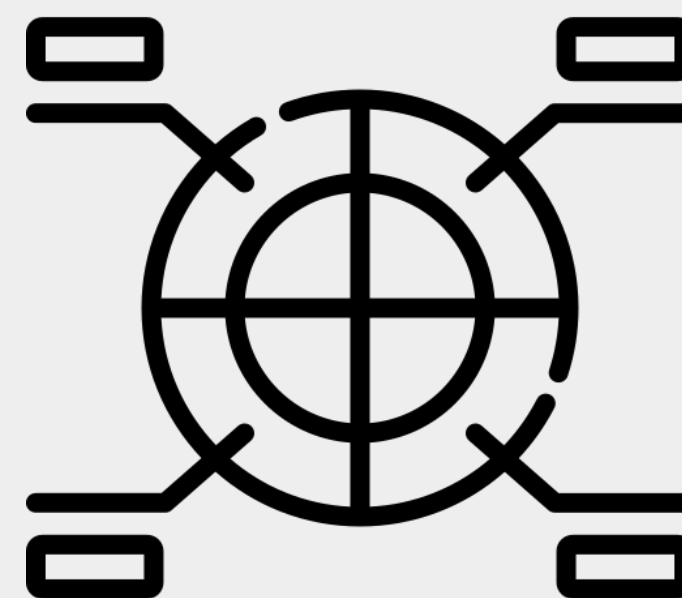
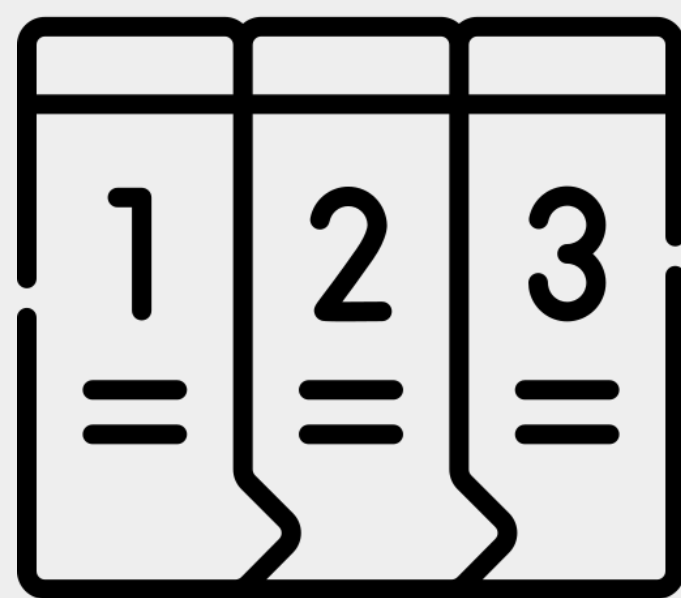
- **Link** the events from a resource to its end user
- **Aggregate** the events and identify the end users
- Aggregation provides a **view** of what you need to handle
- Move as much “manual handling” into “**automatic processing**”





Gather all the reports

- An **Abuse Management** tool helps
 - Catalog and classify incidents
 - Correlate abuse reports with open cases
 - Send notifications about incidents





Link resources to end users

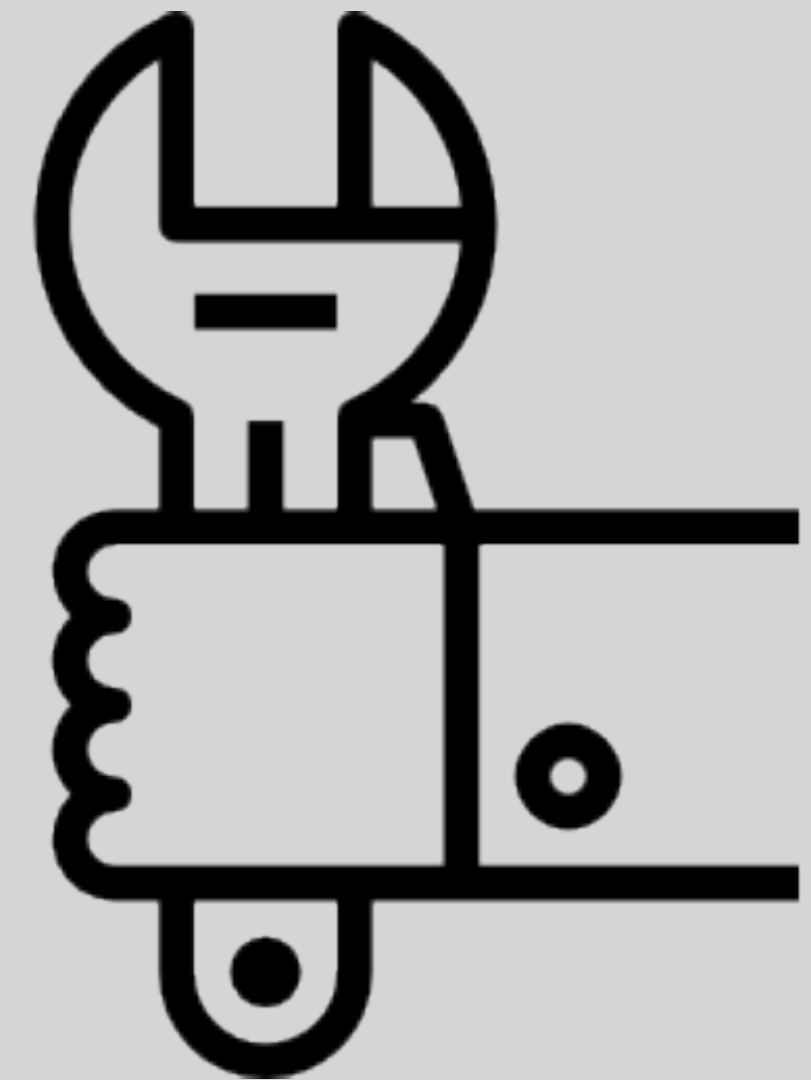
- You want to be able to **contact** the end user to solve the problem
- An **IPAM tool** helps to resolve domains and IP addresses to customers

The screenshot shows a web-based IPAM tool interface. At the top, there's a navigation bar with a search box labeled 'network search' and tabs for 'networks', 'VLANs', 'sites', 'lines', 'CM', and 'import/export'. Below the navigation bar, the 'networks' section is active. On the left, there's a sidebar with a tree view showing 'ALL', '10.0.0.0/8', and '192.168.0.0/16'. The main area displays a table of networks with columns: network, BM, description, site, and category. The table lists various IP ranges and their associated details. A tooltip is visible over the '255.255.255.128 - 126 hosts' entry.

network	BM	description	site	category
<input type="checkbox"/> 10.0.1.0	29	sync FWs	Lon1	prod
<input type="checkbox"/> 10.0.1.8	29	sync LBs	Lon1	prod
<input type="checkbox"/> 172.17.0.0	16			
<input type="checkbox"/> 192.168.0.0	24	frontends	Lon1	prod
<input type="checkbox"/> 192.168.1.0	25	backends	Lon1	prod
<input type="checkbox"/> 192.168.1.128	25	frontends II	Lon1	prod
<input type="checkbox"/> 192.168.2.0	24	application server	Lon1	prod
<input type="checkbox"/> 192.168.3.0	24	Vips-int	Lon1	prod
<input type="checkbox"/> 192.168.4.0	24	management	Lon1	prod
<input type="checkbox"/> 192.168.5.0	26		Lon1	prod
<input type="checkbox"/> 192.168.8.0	24	backup	Lon1	prod
<input type="checkbox"/> 192.168.30.0	24	frontends pre	Lon1	pre
<input type="checkbox"/> 192.168.31.0	25	backends pre	Lon1	pre
<input type="checkbox"/> 192.168.32.0	2	255.255.255.128 - 126 hosts	Lon1	pre
<input type="checkbox"/> 192.168.40.0	25	fontends dev	Lon1	dev
<input type="checkbox"/> 192.168.40.128	25	backends dev	Lon1	dev
<input type="checkbox"/> 192.168.50.0	24	administrators	BCN	corp
<input type="checkbox"/> 192.168.51.0	24	developers	BCN	corp

Handling

- **Prioritising** which event should be handled
 - Quantity: 25000 spam reports > 1000 spam reports
 - Type of event: **spam** vs **phishing** vs **DDoS attack**
- You prioritise based on **your situation**
 - Some issue types are more urgent for you
 - Some sources are of more importance for you





How urgent is it?

- Set **priorities** and **processes** for the different issue types

Issue Type	Urgency Indicator	Process to follow
Spam	Lots of reports; not too many consequences	A
Phishing	Consequences for the end users	B
Malware	Few indicators visible to ISP; requires external data	C
Copyright	Has consequences for the end user	D
Botnets	Not visible until attack happens	E
CSAM	High priority; has severe legal implications	F



Exceptions

- Some incidents **cannot** be automated
- There will always be **special** cases where manual intervention is required
- The long term goal is to automate as much as possible



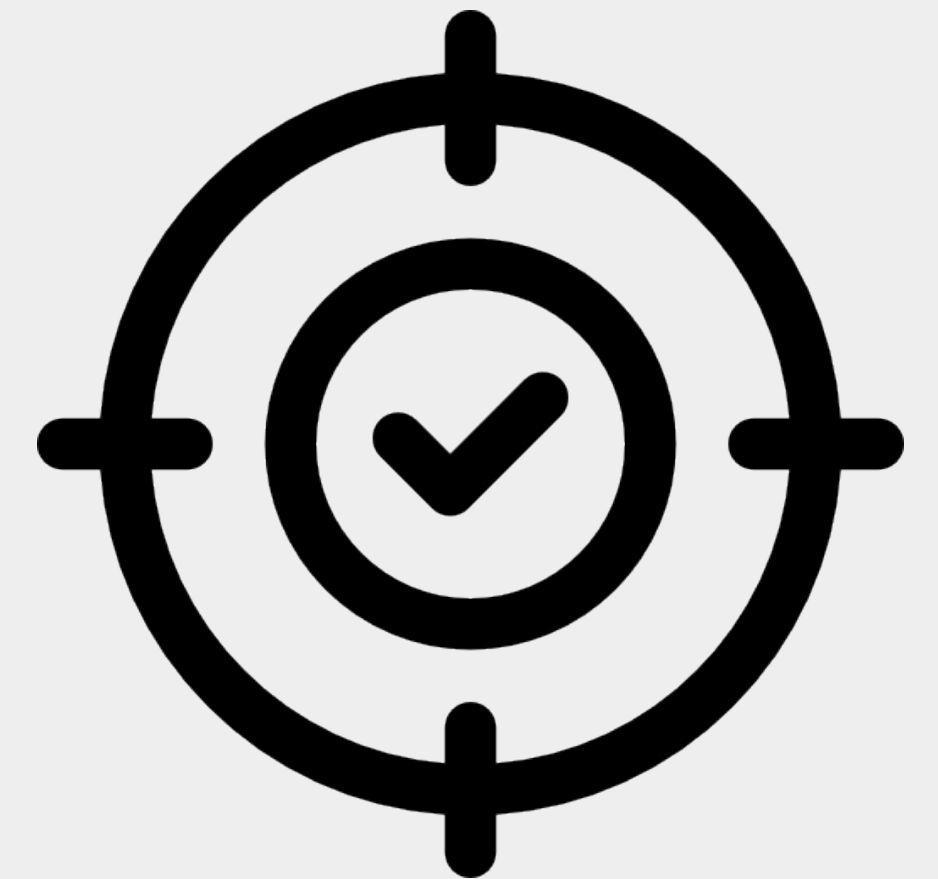
Remediation / Mitigation

- How to **solve** the issue will depend on:
 - What is the root cause of the issue?
 - What is your environment like?
- Which **actions** can you take to **solve** the issue without completely shutting down the end user?



How to Measure the Success?

- **Start** with a first measurement:
 - How many abuse reports were received when the abuse desk started?
- **Keep** daily / weekly / monthly statistics
 - Issues reported / End users contacted / Issues resolved
- **Compare** the statistics over time
 - Do you see a growth or reduction in amount of issues reported?



Take the poll!

What are the **four steps** in the abuse handling process?



1 min.





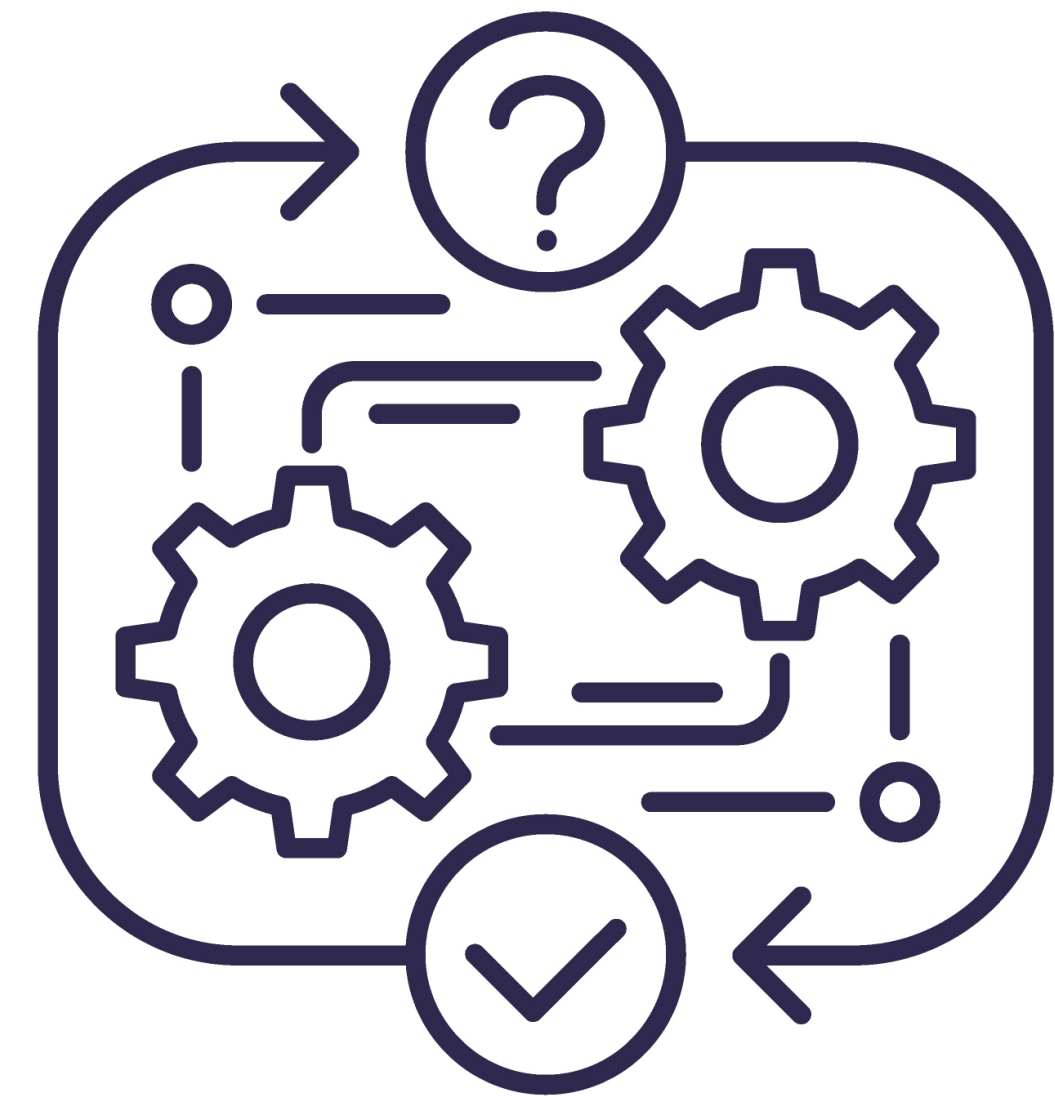
Some help with abuse handling

Tools and Services



Automation Helps

- **Save time** and let the computer do the grunt work!
- **Software** can do the repetitive tasks:
 - Collect the reports
 - Aggregate the cases to identify priorities
 - Cross-reference with other data input
 - Take actions to solve simple issues





IP Address Management Tools

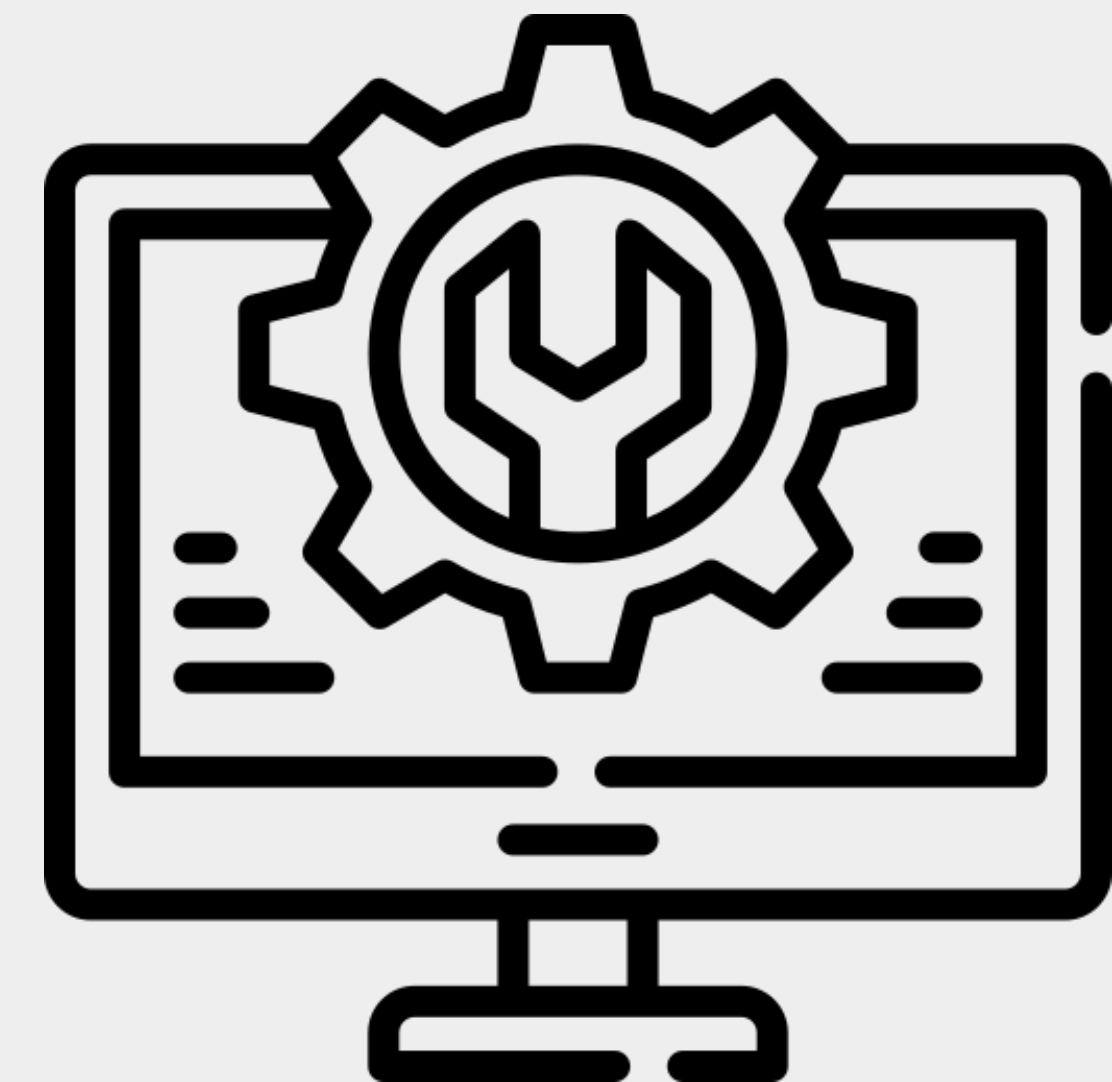
- **Data tracked** by an IPAM system includes information such as IP addresses in use, and the associated devices and users
- **Centralised collection** of this information supports troubleshooting and abuse investigations

- **IPAMs (free)**

- Netbox
- GestióIP
- NIPAP
- There are more!

- **IPAMs (paid)**

- There are many available
- Simply search for "IPAM tool"



Abuse Management Software



- AbuseIO (Open Source)
<https://abuse.io>



Reports

Export to CSV

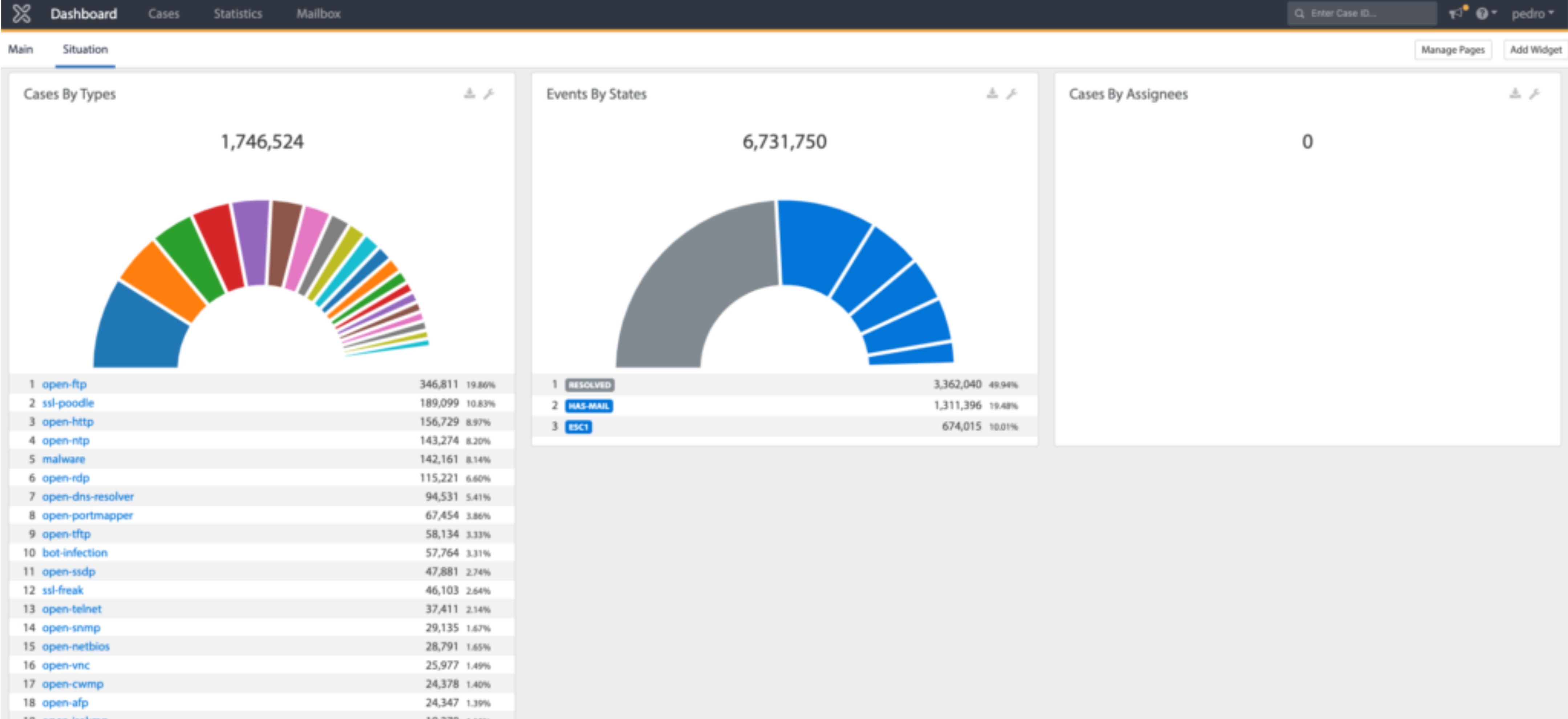
Previous page 1 2 Next page Showing results 1 - 100 of 123

Ticket	IP	Customer	Type	Classification	Last Seen	Count	Status
103	1.62.8.118	IDKFA - Quake Inc	INFO	Open SSDP Server	16-03-2014 08:15	1	OPEN
119	103.11.16.76	GLOBAL - The Internet	INFO	SSLv3 Vulnerable Server	16-11-2014 03:13	1	OPEN
76	104.203.27.245	GLOBAL - The Internet	INFO	Open REDIS Server	19-01-2015 12:10	1	OPEN
70	106.243.166.162	GLOBAL - The Internet	INFO	Open NTP Server	21-03-2014 02:13	1	OPEN
61	107.130.85.168	GLOBAL - The Internet	ABUSE	Possible DDOS sending NTP Server	12-04-2014 08:43	1	OPEN
2	108.171.205.41	COD - Call of Duty	ABUSE	Compromised website	16-06-2014 00:16	1	OPEN
55	108.212.206.167	GLOBAL - The Internet	ABUSE	Possible DDOS sending NTP Server	12-04-2014 08:43	1	OPEN
59	109.173.161.167	GLOBAL - The Internet	ABUSE	Possible DDOS sending NTP Server	12-04-2014 08:43	1	OPEN
28	110.88.112.88	GLOBAL - The Internet	INFO	Open Microsoft SQL Server	04-02-2015 07:38	1	OPEN
29	112.20.206.38	GLOBAL - The Internet	INFO	Open Microsoft SQL Server	04-02-2015 07:38	1	OPEN



Abuse Management Software

- AbuseHQ (SaaS)
<https://abusix.com/products/abusehq/>



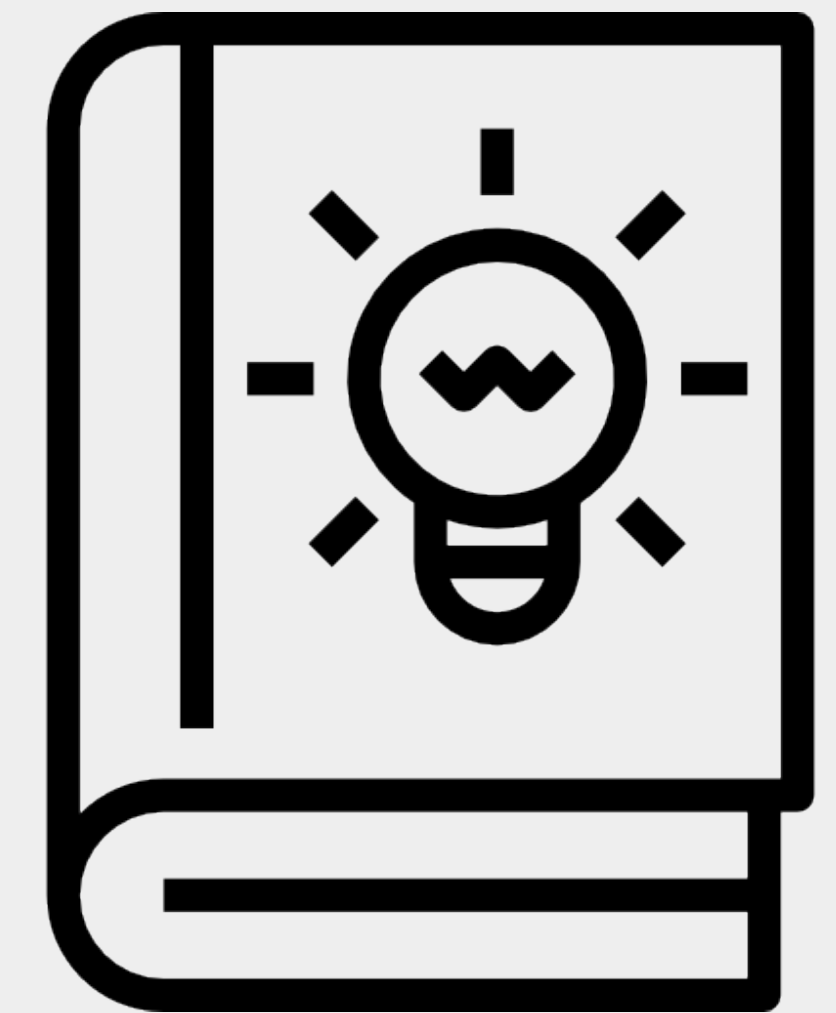
Stay Ahead of the Game

- **Read** the BCOPs
i.e. “Good Practice In Minimising Email Abuse”
<https://www.ripe.net/publications/docs/ripe-409>
- **Connect** with other abuse desks
The Messaging, Malware and Mobile Anti-Abuse Working Group (M3AAWG)
<https://www.m3aawg.org/>
- **Keep up to date** with the latest developments



More sources of data

- **AbuseIPDB**
 - <https://www.abuseipdb.com>
- **Talos IP & Domain Reputation Center**
 - https://talosintelligence.com/reputation_center
- **Shadowserver**
 - <https://www.shadowserver.org>
- **Spamcop**
 - <https://www.spamcop.net>
- *Know more? Let us know!*





Participate in the Community

- **Sign up** for the Security working group!
- **Discuss** and **share** information
 - On technical and non-technical methods of enhancing the security, resilience, and stability of the Internet
- **Help** to produce and update a Best Common Practice document
- Get and give **advice** on strategic and operational topics



<https://www.ripe.net/community/wg/active-wg/security/>



Questions





And now, what?

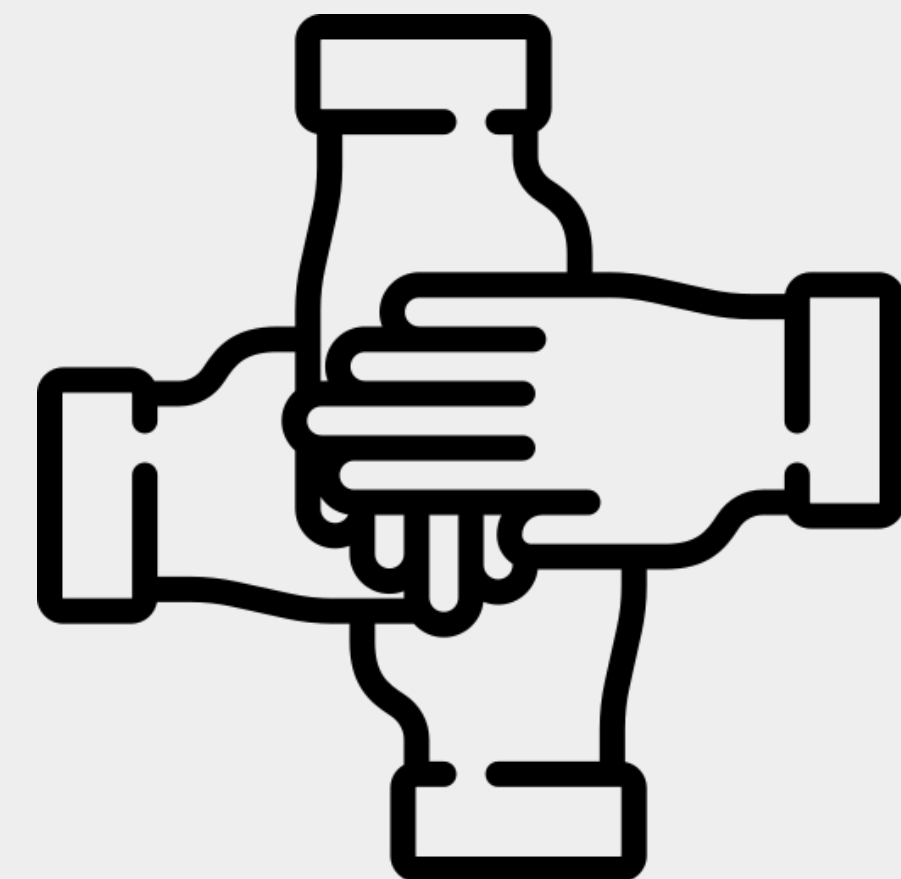
Call to Action



Your Next Steps...

- **Prepare** your inbound data sources
- **Set up** your IPAM and Abuse Management tool
- **Set priorities** for the different possible incidents
- **Create procedures** for handling the different types of incidents
- **Set up** your metrics and statistics

Start handling those abuse reports!



We want your feedback!

What did you think about this session? Take our survey at:

<https://www.ripe.net/feedback/anti-abuse>



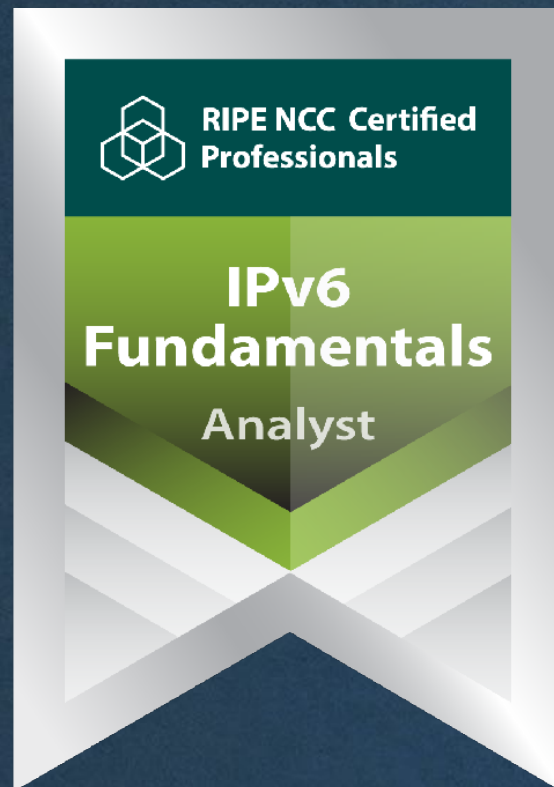


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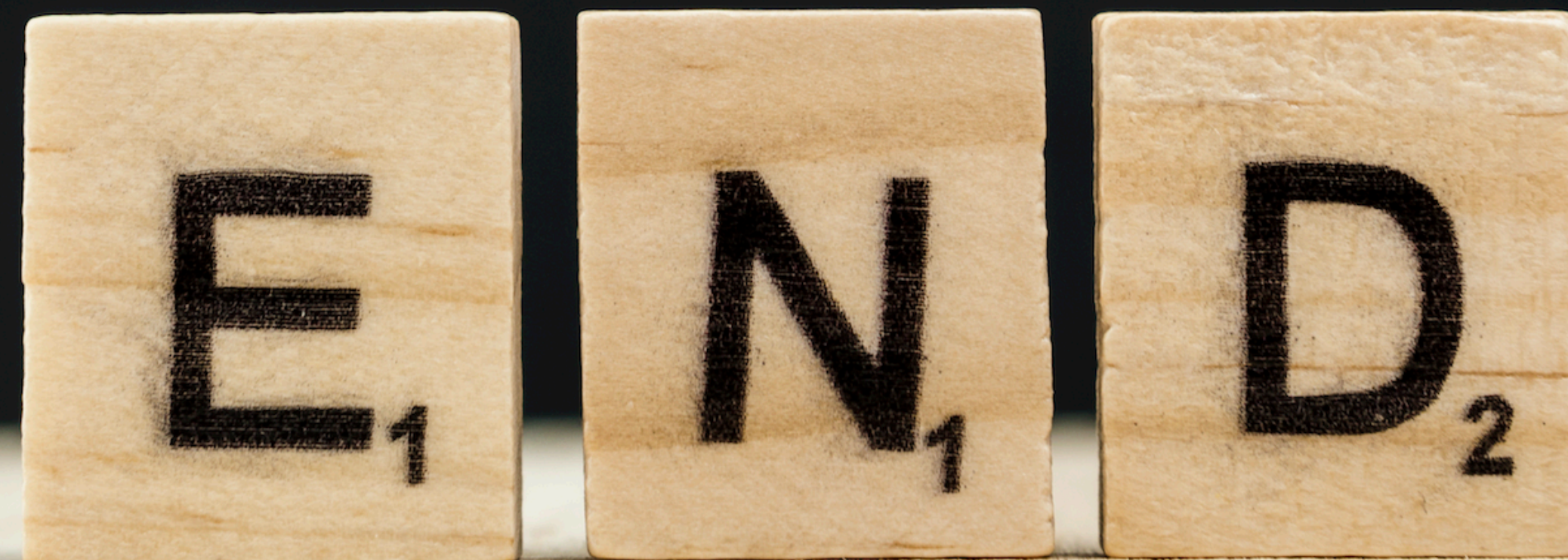


Have more questions? Ask us!

academy@ripe.net



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Son	დასასრული	הסוף	Tmíem	Liðugt	Finis
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Kraj	Sfârșit	النهاية	Конец	Konec	Fund
Fine	Fin	Einde	Fí	Край	Beigas
					Τέλος
Fim	Slut				Pabaiga



What's Next in Network Security



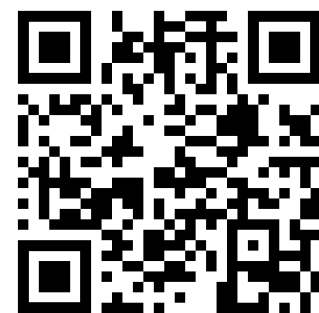
Webinars

**Attend another webinar
live wherever you are.**

- ❖ IP Blocklisting Basics (1 hr)
- ❖ Anti-Abuse (1.5 hrs)



For more info click
the link below



learning.ripe.net

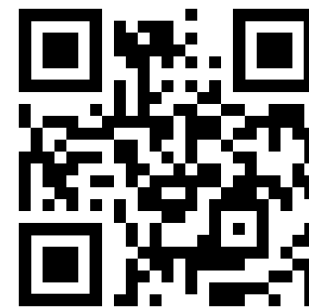


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