IFAS

Information Feed Analysis System

HKCERT

CSIRT foundry

What’s happening on our national networks?

How do national CSIRTs know what's happening?

- National CSIRTs must collect national incident data
- Many national CSIRTs don't operate networks themselves, and normally don't have global (or any) direct monitoring access
- How does the CSIRT know what's going on in their country?

The kindness of strangers

- Luckily, lots of ISPs, research teams, vendors, and other CSIRTs collect information, and will share it with us.
- And here comes the “but”...

So much data, so many formats

- Many feeds, with many formats and mediums:
  - Formats: CSV, JSON, XML, STIX, IODEF
  - Mediums: HTML, RSS, email, HTTP APIs
- Strong efforts to standardise data feed formats, but that doesn't help us process all these feeds today.

The need for standards

- Different feeds use different terms to mean the same thing:
  - ip, source_ip, src_ip, endpoint, attacker_ip, cnc_ip...
- We need to rename fields so we can compare events from different feeds.

The need for storage

- To understand the situation of our national networks, we must collect, store, and measure incident data.
- We need to keep this data for a long time - years.
- We also want to ask questions about our incident data:
  - How many C&C servers nationally in last week?
  - How many bots infected with Trojan.abc on BigISP?
  - When were web sites defaced targeting gov.zz?
  - Which national ISP has the most bot infections?

Need for automation

- Too much network event data out there to manually process
- Options:
  - a) use lots of analyst time doing tedious log processing
  - b) write lots of small, independent scripts
  - c) ignore inbound logs completely
  - d) use an centralised, automated processing system

So what do we need?

- We need something which automatically:
  - Gathers many different types of feeds
  - Normalises the data in those feeds
  - Stores that data somewhere
  - Allows search and performs statistical analysis

Introducing IFAS

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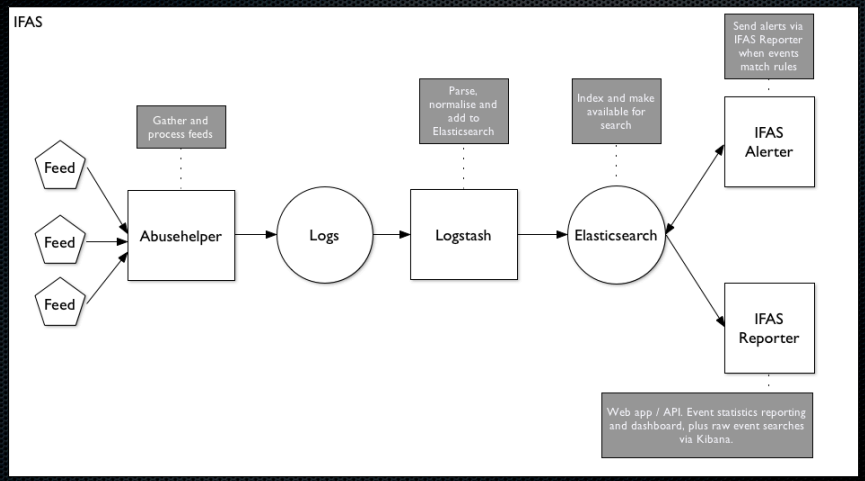
IFAS

- IFAS = Information Feed Analysis System
- Project sponsored by HKCERT and developed by CSIRT Foundry and HKCERT
- An integration of open source tools, released as open source for CSIRTs

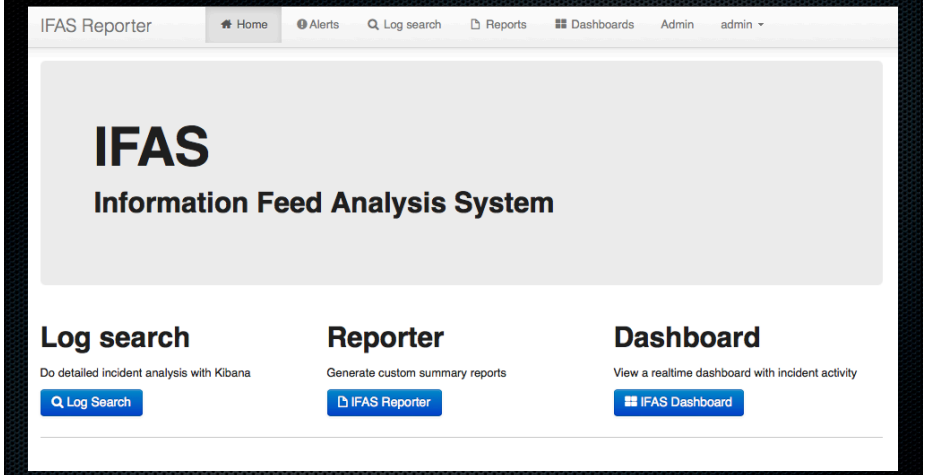
Architecture



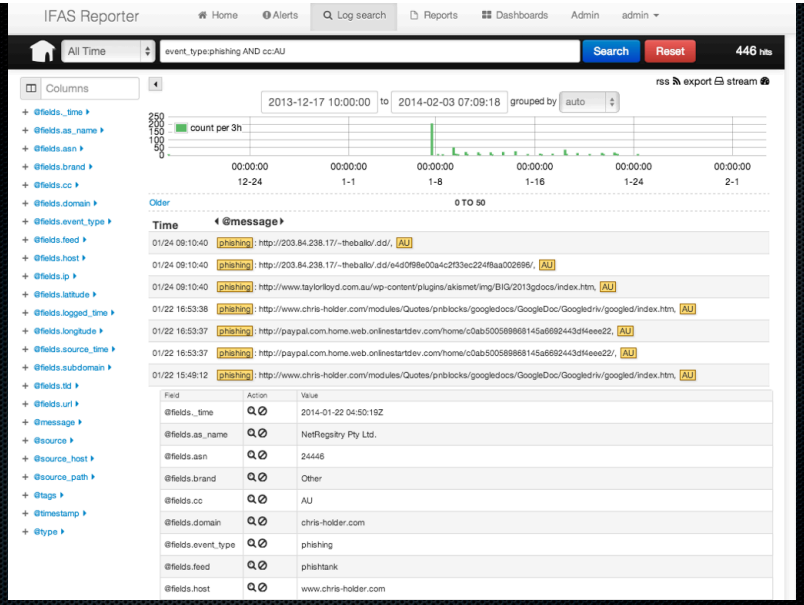
Architecture

- Abusehelper: gather, process, and enrich feeds, generate events
- Logstash: process and normalise feeds
- Elasticsearch: store events in schema-free index server
- Kibana: search through events
- IFAS Reporter: get overall statistics, build realtime dashboards

Let’s have a look at IFAS



IFAS homepage



Kibana event searches

IFAS Reporter | Home | Alerts | Log search | Reports | Dashboards | Admin | admin

Feed counts

Toggle report controls

Title: Feed counts

Category: First reports — Add new category

Grouping fields: feed — Add new field

Filters: Fields | Full query — Add new filter

Unique fields: Add new unique field

Geographic filter: 2-letter country code, e.g. HK

Report dates (+10 GMT): 2013/12/26 - 2014/01/24

Metrics: Total events

Sort order: By field names / By metric

Run report | Export... | Update report #1 settings

feed	
-	1
abuse.ch	390
cleanmx	415
mdl	53
millersmiles	63
phishtank	44537

Ad-hoc statistical reporting

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IFAS Reporter | Home | Alerts | Log search | Reports | Dashboards | Admin | admin

Phishing by TLD, ISP, brand

Toggle report controls

Title Phishing by TLD, ISP, brand

Category First reports — Add new category

Grouping fields
- tld
- as_name
- brand

Add new field

Filters Fields | Full query
- event_type:phishing
- tld:*.au

Add new filter

Unique fields
- url

Add new unique field

Geographic filter
- AU

2-letter country code, e.g. HK

Report dates (+10 GMT): 2013/12/26 - 2014/01/24

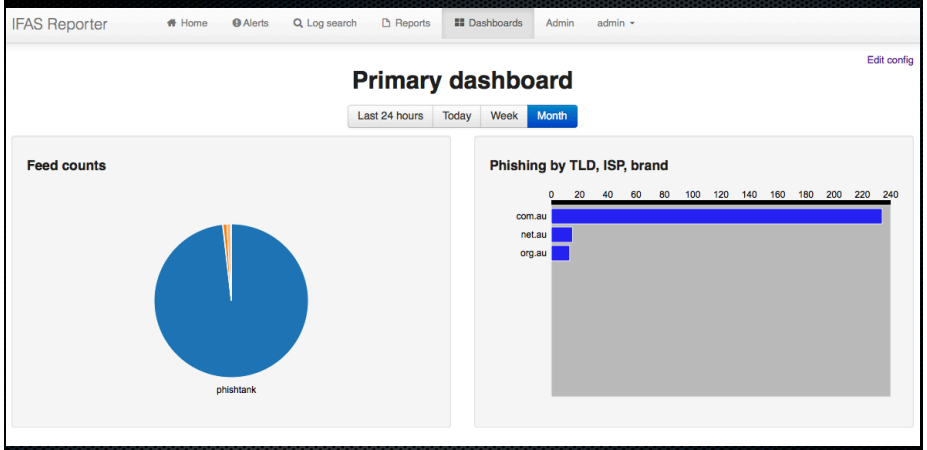
Metrics Total events

Sort order
- By field names
- By metric

Run report | Export... | Update report #2 settings

tld	as_name	brand	
com.au	8.1 Graphix Row	PayPal	2
	Amazon.com, Inc.	AOL	4
		Other	2
	Aust Domains International Pty Ltd.	AOL	1
		Cielo	1

Nesting, filtering, deduplication



Realtime dashboards

IFAS Alerter

- IFAS Alerter: detect events which are high priority incidents
  - e.g. anything with domain:*.gov.zz
- Highlighted in menu when matching events arrive

Other IFAS features

- Run reports over months of data
- Data export from any report
- Authenticated API for automated reports and data export
- Highly granular access control
  - Report groups (e.g. analysts, managers, ISP staff)
  - Dashboard access control
  - Admins and editors

What you need to start

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Hardware

- Multi-core machine (4+ ideal)
- Production: 8-16GB memory machine
- Dev: 4GB okay for testing
- Runs in a VM no problem

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Software

- Open source release under Apache 2.0 License
- Automatically installs and configures all necessary software via install script
- Contributions, bug reports, feature requests most welcome!

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Where to get it

- Currently closed pilot program to trusted CSIRTs
  - Eventually public release
- Please contact contact@ifas.io for details

IFAS benefits summary

- Greater awareness of incidents for operational response
- Analyse incident trends at high level
  - HKCERT publishes stats based on IFAS data to HK stakeholders
- Automation = less tedious work, more time for deep analysis
- Visualise incident statistics
- Store events and analyse so we can:
  - Identify ISPs with poor response
  - Identify new trends in phishing, defacements, malware

Thank you!

contact@ifas.io