IDS & IPS

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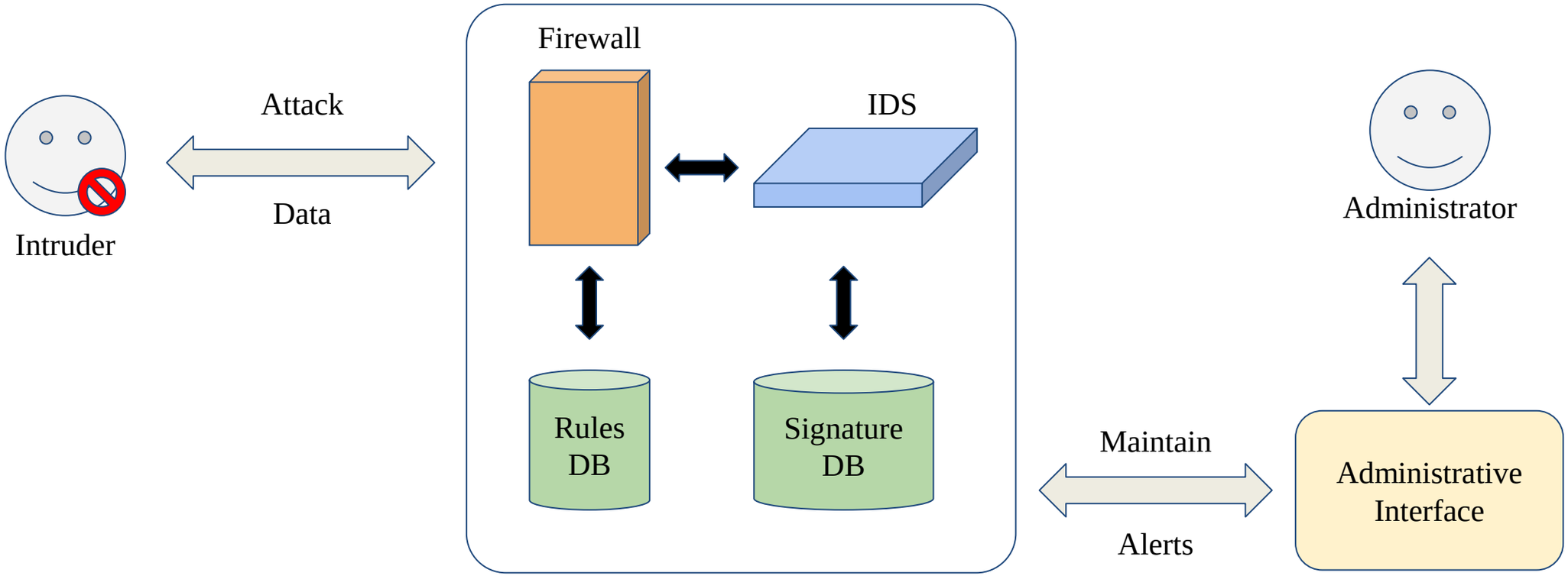
IDS & IPS

- Intrusion detection system (IDS) is a device or software application that monitors a network or systems for malicious activity or policy violations.
- The main functions of intrusion prevention systems (IPS) are to identify malicious activity, log information about this activity, report it and attempt to block or stop it.

IDS / IPS with Firewall



Detection Method

- Signature-based
  - Patterns of known malicious events
  - Difficult to detect new attacks
  - Example: Snort
- Anomaly-based
  - Use machine learning to create a model of trustworthy activity, and then compare new behavior against this model.
    - Example: https://zeek.org/
    - Example: ReCAPTCHA v3

      reCAPTCHA v3 returns **a score** for each request without user friction. The score is **based on interactions with your site** and enables you to take an appropriate action for your site.

Pros & Cons

- Pros
  - Simple
  - Cost Efficiency
- Cons
  - False positives are frequent
  - Need to update signature library

Snort

- An open source IDS
  - GPLv2
- Very simple to use it

Snort - Installation

- FreeBSD: pkg install snort
- Don’t forget to update latest updated rules
  - Configure PulledPork
    - cp /usr/local/etc/pulledpork/pulledpork.conf.sample /usr/local/etc/pulledpork/pulledpork.conf
    - mkdir /usr/local/etc/snort/so_rules
    - mkdir /usr/local/etc/snort/rules/iplists
    - touch /usr/local/etc/snort/rules/local.rules
    - cp /usr/local/etc/snort/preproc_rules/sensitive-data.rules-sample /usr/local/etc/snort/preproc_rules/sensitive-data.rules
    - /usr/local/etc/snort/rules/white_list.rules
    - /usr/local/etc/snort/rules/black_list.rules

Snort - PulledPork

- /usr/local/etc/pulledpork/pulledpork.conf
  - https://github.com/shirkdog/pulledpork/blob/master/etc/pulledpork.conf

```
rule_url=https://www.snort.org/reg-rules/|snortrules-snapshot.tar.gz|<oinkcode>
rule_url=https://snort.org/downloads/community/|community-rules.tar.gz|Community
rule_url=https://snort.org/downloads/ip-block-list|IPBLOCKLIST|open
ignore=deleted,experimental,local,decoder,preprocessor,sensitive-data
temp_path=/tmp
rule_path=/usr/local/etc/snort/rules/snort.rules
sorule_path=/usr/local/etc/snort/so_rules/
local_rules=/usr/local/etc/snort/rules/local.rules
sid_msg=/usr/local/etc/snort/sid-msg.map
sid_msg_version=1
sid_changelog=/var/log/sid_changes.log
snort_path=/usr/local/bin/snort
config_path=/usr/local/etc/snort/snort.conf
distro=FreeBSD-12
```

Run PulledPork

- pulledpork.pl -c /usr/local/etc/pulledpork/pulledpork.conf -l

Start Snort

- In /etc/rc.conf.local
  - snort_enable="YES”
  - snort_interface="em0”
- /usr/local/etc/rc.d/snort start

Update rules periodically

- crontab
  - 0 6 * * * /usr/local/bin/pulledpork.pl -c /usr/local/etc/pulledpork/pulledpork.conf -l > /dev/null