New ZeroMQ functionality in MISP

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ZeroMQ?

- ZMQ is a high-performance asynchronous messaging library, aimed at use in scalable distributed or concurrent applications.
- CIRCL already uses ZMQ at various places:
  - AIL Analysis Information Leak Framework[1] is based on ZMQ.
  - IntelMQ[2] connectors rely on ZMQ too.
  - Datafeed exchange (Leak, malicious IP addresses,...).
- MISP used a push-pull model. The new ZMQ extension allow to have a pub-sub[3] model on a message bus.

[1] `https://github.com/CIRCL/AIL-framework`

[2] `https://github.com/certtools/intelmq`

[3] publisher-subscriber

MISP ZMQ publish-subscribe

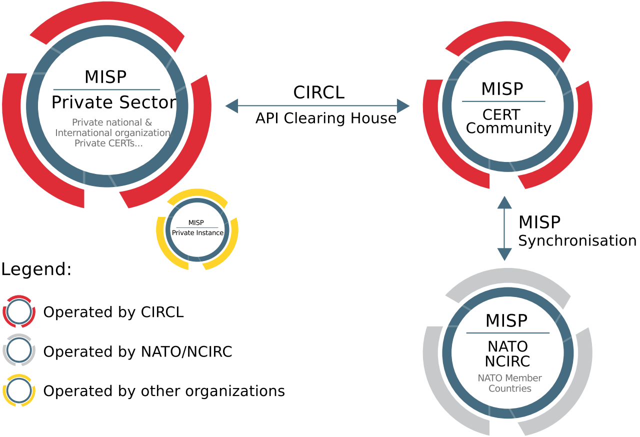
- First version implemented[4] and focus on the global events published.
- At each new publish, MISP pushes the event in JSON format into a Redis list.
- Then a Python-based service is dequeuing the Redis list and does the pub-sub.
- The pub-sub feed is limited to the administrator of the instance (TCP-based).
- External services subscribe to the feed to get all new or updated events from a MISP instance.

[4] https://github.com/MISP/MISP/commit/3f215743f0cae97587d01d460c222d1c84765c18

Future of pub-sub in MISP

- Integration with real-time and alert searches in SIEM (e.g. Splunk) or log analysis tools.
- Having a historical or audit view of MISP events (new, updated and published).
- Extending to other pub-sub systems like Apache Kafka to integrate with other systems.
- Improving the pub-sub distribution with dedicated channel per community.

MISP flows



MISP

Private Sector

Private national & International organization Private CERTs...

CIRCL

API Clearing House

MISP

CERT Community

MISP

Private Instance

MISP Synchronisation

MISP

NATO NCIRC

NATO Member Countries

Legend:

- Operated by CIRCL
- Operated by NATO/NCIRC
- Operated by other organizations