Intelligent logging server

“SIEM for the poor”

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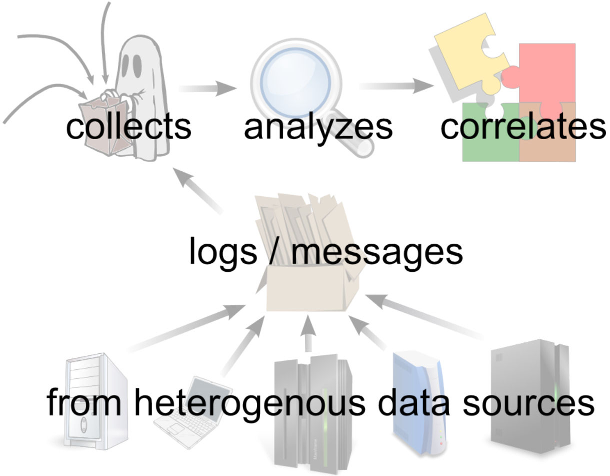
Introduction

Use case: cyber attack detection

Intelligent logging server (ILS)

useful tool for intrusion detection and forensic analysis that:



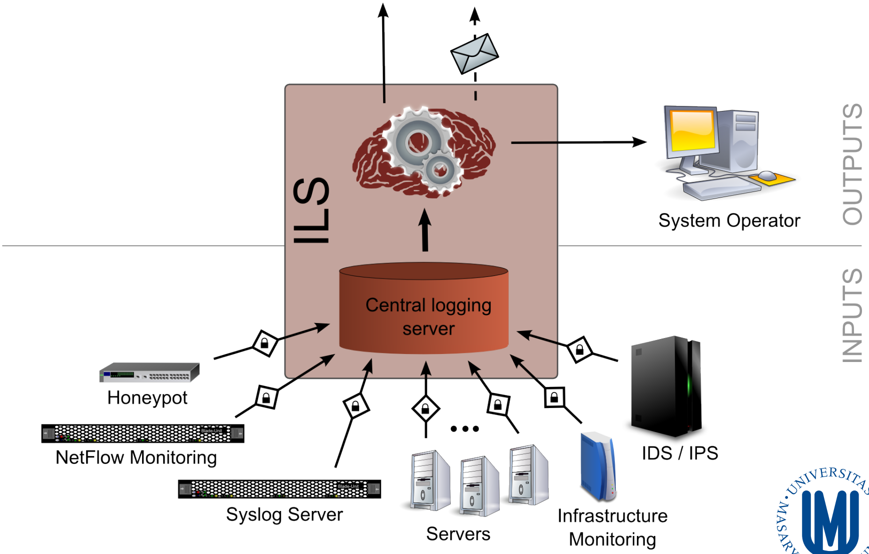
Intelligent logging server (ILS)

- Enables earlier and more accurately detection of cyber attacks.
- Integrates outputs from separate ICT monitoring systems.
- **Based on free (and open-source) components.**
- Reduces total count of relevant messages and eventual false positives.
- Supports network hierarchy – suitable for large networks.
- Detects also system misconfiguration.

ILS as a central monitoring point I

- Supervises network infrastructure:
  servers, IDS, honeypots . . .
- Centrally stores log files destroyed by attackers at compromised hosts (allows forensic analysis).
- Can reveal malicious activities invisible at host level (e. g., distributed attacks).
- Uses additional data sources such as public blacklists.
- Logs are sent via secure channel to ensure message integrity and authentication.

ILS as a central monitoring point II



ILS development as a project I

- Small project funded by Development Fund of CESNET and Masaryk University.
- Our prototype is aimed at the Linux operating system family.
- Should be **easy to deploy in real-life network infrastructure**.
- Project period: 09/2009–11/2010.
- Output available under BSD license:
  software package and deployment guide incl. probes configuration.

ILS development as a project II

- Done:
  - project specification:
    ”core” protocol: Syslog, correlation: Simple Event Correlator
  - central log storage deployment (Linux server with RAID)
  - honeypot deployment (honeyd, VMware + Sebek + database of attempted passwords)
  - deployment of public blacklist correlation engine
  - integration of flow-based IDS
  - attack detection modules
- In progress:
  - presentation layer
  - deployment of the whole system in the Masaryk University network

Use case: Unauthorized access to computer system

- network reconnaissance by attacker
- online distributed dictionary attack
- successful breach
- destruction of evidence
- ...

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We do not know any connection between these events.

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Events are correlated, one incident is reported
and all evidence is kept.

Summary: incident handling without ILS

- Events are correlated
- Only one dashboard
- Utilization of public blacklists
- Retaining all logs for forensic analysis

- Several alerts relevant to one attack
- Several different systems
- Local logs prone to destruction

Questions&Answers

Intelligent logging server

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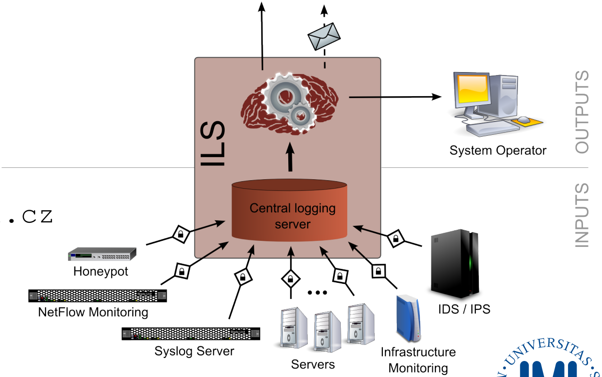
ILS
Central logging server
System Operator
OUTPUTS
INPUTS
Honeypot
NetFlow Monitoring
Syslog Server
...
Servers
Infrastructure Monitoring
IDS / IPS