Management and Operations of Networks, Services, and Systems

Provision a management service

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Goals

- Learn how to provision a network management service
  - What network management software is out there that you can use?
  - What can that software do?
- So that it monitors a target system
  - What target system? Web server example from the previous lab work
  - What are the main management concerns that you would have for that target system?

Design goals 1/4

- How can the management software help your management concerns?
  - Passive measurements
  - Active measurements
  - Storage
  - Processing, queries, visualization

Design goals 2/4

- How will data be collected?

- Out-of-band vs. in-band
  - Send data over management network
  - Send data over target system network
- Location of capture and storage devices
  - Independent device capturing network traffic
  - Configure device for logging, apply software for collecting logs
- Where will the data be stored and processed?
  - Same device that captures data?

Design goals 3/4

- Is there any relation between the management service and one or more of the steps in the provisioning playbook of the target system?

- Step 3 in the automated part of the playbook
  - Apply monitoring
- Step 5 in the automated part of the playbook
  - Provide monitoring data to the NOC

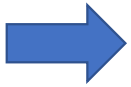
Design goals 4/4

- Can you use the provisioning playbook to the management service?
  - Bootstrap, manual (2 steps), Cycle, automated (6 steps)

- Docker image?
- Baseline configurations? Templates and deployment code?
- What are the management concerns for the management service?
  - Can you use the monitoring service to monitor itself?
  - What are the consequences of the service failing?
- Does the management service have a control API?
- Can you restart the management service, update to a new version?
  - What happens to the storage data?
  - How long does it take – and what about the data capture while it's updating?

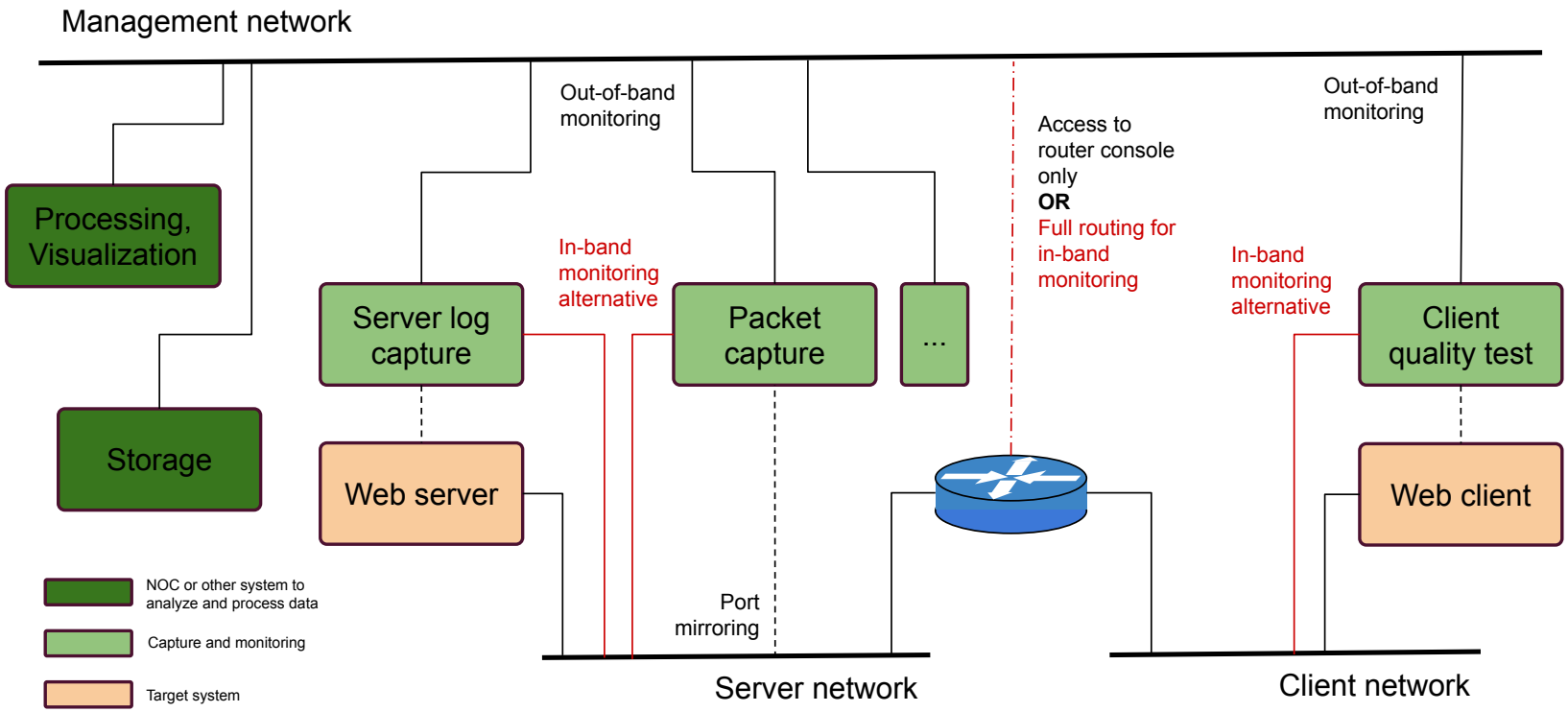
Options for network management software

- Nagios
- Netxms
- Inciga
- pandoraFMS
- libreNMS
- Zabbix
- Observium
- …



- Look them up on the web
  - Look up others
- See if they’re open source
- Check what they do
- See how you can install them
  - Docker, vm?
- Find out how they can be configured

Example setup



Test your monitoring solution

- Can you create an anomaly or increase traffic in the target system
- And use the data you're monitoring to detect it?

- Can you deploy a new version of the monitoring software automatically?
  - How long will it take?
  - How much monitoring data will you lose?
  - Can you do it without losing any monitoring data?

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