EUROPEAN
SPALLATION
SOURCE

Kafka Authentication and Authorisation

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Agenda

1. Motivation
2. Proposed solution
3. References
4. Questions and discussion

Motivation

- Kafka clients from a certain instrument should have access to data from topics belonging to that instrument, but not to others
- Kafka and some clients will run in a separate network, to which users will not have direct access
- Some clients might run in a different network and use ESS credentials for authentication (using AD/LDAP)
- The solution should not be overly complex, but should work transparently with existing user credentials

Proposed solution

- Kafka nodes accept connections through listeners
- Multiple listeners can be defined using different ports
- A listener specifiers the protocol used for connection and might employ encryption and authentication

Sample configuration:

```
listeners=DEFAULT://:9092,VIP://:9093,DMSC://
:9094

advertised.listeners=DEFAULT://172.30.242.20:
9092,VIP://dmsc-
kafka01.cslab.esss.lu.se:9093,DMSC://172.24.0
.207:9094
listener.security.protocol.map=DEFAULT:PLAINT
EXT,VIP:PLAINTEXT,DMSC:PLAINTEXT

inter.broker.listener.name=DMSC
```

Proposed solution

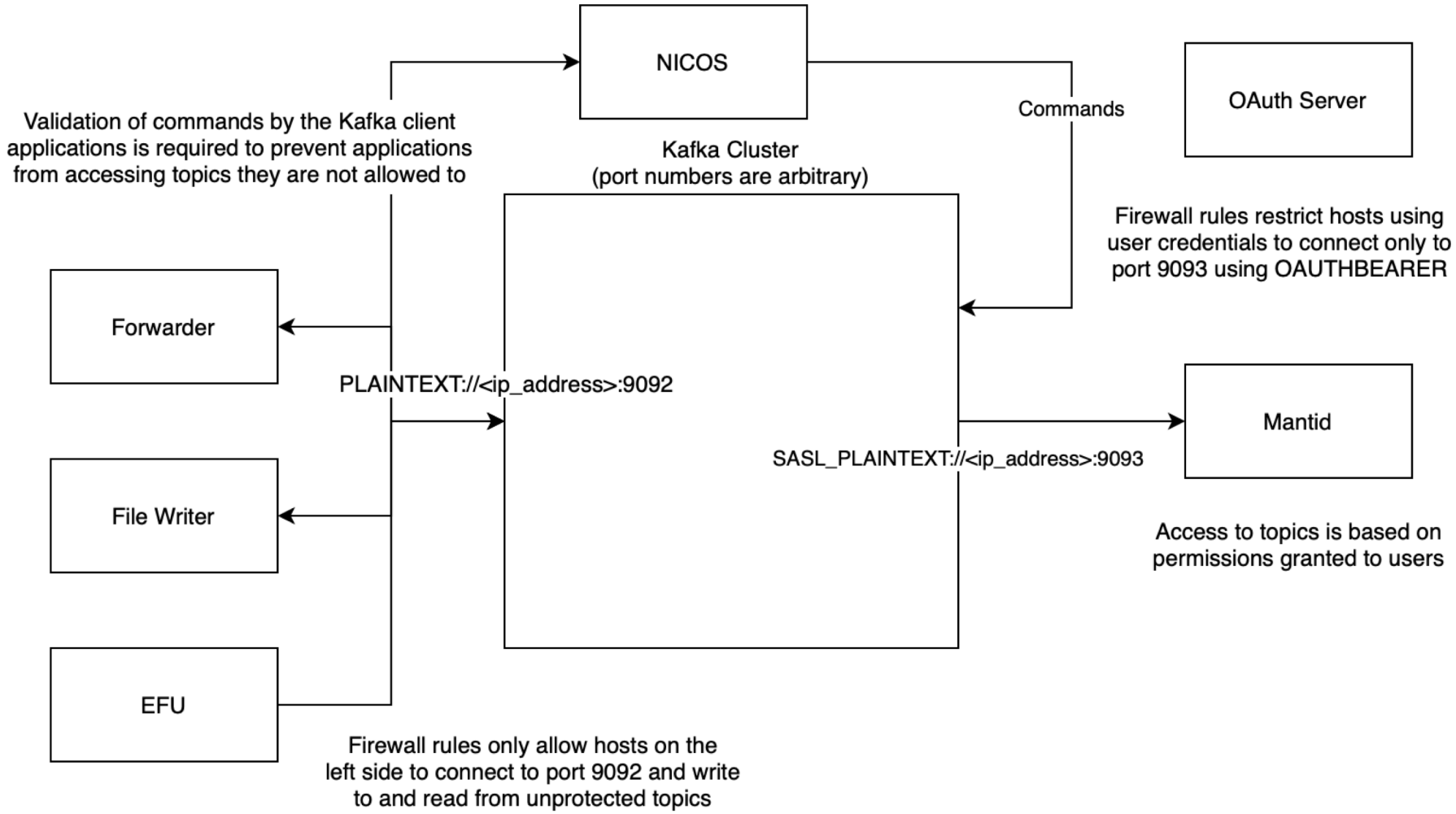
No encryption

Configure different types of listeners (using different ports) for the multiple clients:

- For services under our control (e.g. EFU, Forwarder, File Writer), use plaintext and restrict connections to the Kafka port using a firewall
- For external services (e.g. Mantid), use SASL/OAUTHBEARER and restrict access to the Kafka port using a firewall; authorisation is based on access control lists (ACLs)
- Some of our services (e.g. NICOS/File Writer) will potentially have to deal with evaluating whether a user issuing a request has permission to read or write to specific topics

A small scale demonstration of the proposed solution will be implemented using Docker

Proposed solution



References

- https://github.com/ess-dmsc/udderly-secure
- http://kafka.apache.org/documentation/#security

Questions and discussion