Hyperledger Fabric Policies

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- Roles
- Channel level
- Key level access control

Roles

Types of organization members that allow for hierarchical authorization

Types:

- admin
- peer
- orderer
- client
- member

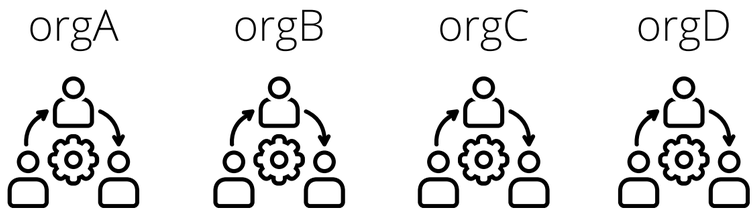
Roles

Specify sets of roles to use in the channel policy

Example for org A:

- **Readers**: admin or client or peer
- **Writers**: admin or client
- **Admins**: admin
- **Endorsement**: peer

Scenarios - Resources



Writers:

- client or peer
- member or admin

<u>Invoke CC</u>

- Any Writers

Readers:

- client or peer or admin
- member or client

<u>Read Blocks:</u>

- Any Readers

Channel Policies

Rules governing access to fabric resources

Specify:

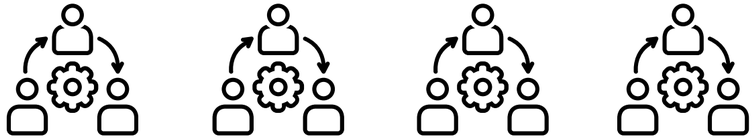
- What are the acceptable roles to endorse this action?
- How many/what specific signatures of these roles are needed?

Examples:

- Update channel Policy: MAJORITY admins
- Endorse transaction: MAJORITY peers
- Get Block Events: Any Readers

Scenarios - Channel Update

orgA orgB orgC orgD



MAJORITY Admins

- A and B and C
- B and C and D
- A and C and D
- etc..

A,B as Partial Owners:

(A or B) and

- C and D

ALL:

- A and B and C and D

Owners Only:

A and B

Considerations

How much decentralization is needed? Are there owners?
Who owns the Ordering Service?

Possible scenario

1. A and B create consortium with Majority
2. A and B deploy chaincode with Majority
3. A and B agree to add C to channel
4. B and C agree to add D to channel
5. B C D agree to manipulate the network/data/chaincode
6. A disagrees
7. B C D remove A from the network

KRAKEN Proposal

Channel: Owners should protect themselves from 51% attacks. Also, there should be more than 1 owners for security so that an attack (hack/issue) on 1 owner would not affect the decisions on the rest of the network (in case org cannot sign transactions).

2 orgs (Owners) must sign all updates + MAJORITY of other orgs

Org1:Lynkeus
Org2:Streamr

(LYN and/or STRMR) AND (MAJORITY of C, D, E, ...)
Also owners of the Ordering Service

Considerations

What is the user role in the network?

Architecture 1: A new organization is added that is used only for users and is only given access to chaincode invocations using channel policies.

Architecture 2 (In progress): 2 Root Certificate Authorities are used: 1 for Org Members and one for Users. We set channel policies to access resources based on CA issuer.

Key Level Endorsement

Specify policy for a specific key on the ledger

If a key-value pair belongs to an organization, they can set a policy to be required to agree for an update on that key

E.g. assets under an org's ownership

Proposals

Network: Lynkeus and Streamr are required to vote for every channel update. They also own the ordering service.

User Roles: Using a designated root CA to specify users is the better approach if possible.