Pub-Sub Profile for Authentication and Authorization for Constrained Environments (ACE)

draft-ietf-ace-pubsub-profile-02

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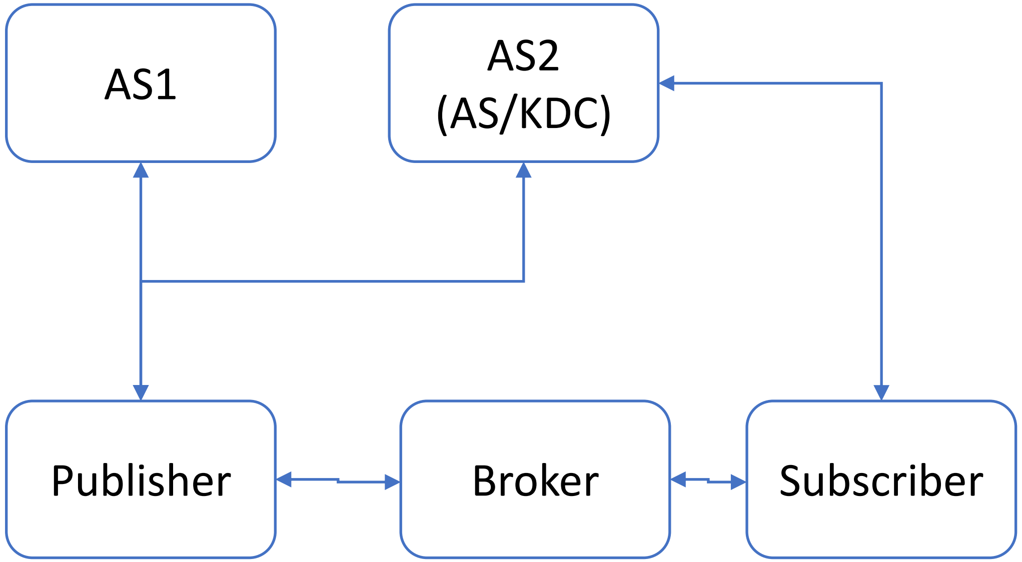
Updates to the document

- Restructured to describe CoAP and MQTT solutions

- Described MQTT case
    - Generally similar to CoAP client
    - Differences:
        - Publisher/Subscriber Clients are not separate
        - Subscriber Clients are also authorised
- Remaining
    - Incorporating changes in Scope parameter (AIF-MQTT etc.)
    - Resolving discussion points

Discussion: Architecture

Current Architecture



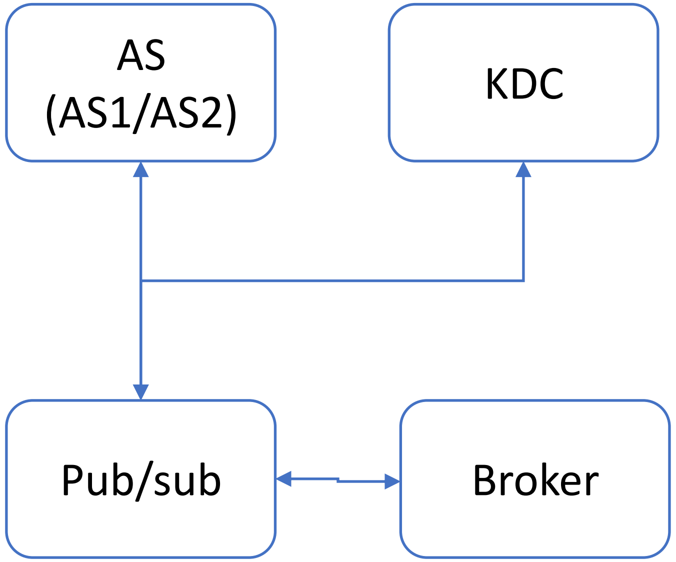
Pros

- AS2 can authorise and hand out keys in one request (token + keys) – however client may still need to contact AS before to learn algorithms etc.

Cons:

- AS1 and AS2 should have synchronised policies
- Subscriber authorusation can be set-up but not supported by default.

Proposed Change



Pros

- Can support single group policy
- AS can be flexible, two separate ASes or single AS (policy synchronisation is not a must, it's a choice).
- Subscriber-authorisation supported by default
- May be simpler for nodes that are both pub and sub

Cons

- Need to get a token from AS to talk to KDC

Question : Single token for multiple use?

Discussion: Policy Synchronisation

Point

- Problem with AS1 and AS2 as being independent appliers of access control logic without any communication between them. AS1 needs the ability to give policy to AS2 on a topic after it has been created and before any subscribers get keys. In the case they are co-resident this is trivial; in other cases it may not be.
- If the publisher loses its membership in the group for any reason, what happens? When group membership changes, both should change/become invalid
  - Permissions towards broker
  - Permissions towards KDC
- Whose responsibility it is to revoke rights, AS1 or AS2?

Counter-point:

- AS1 and AS2 have clearly separated functions. There is some coordination involved (to gain knowledge of the policies), but this can be dealt as application specific.
- Revocation should be handled, but as a WG-level general solution.

Discussion: Group Join Request

- In groupcomm
  - Authorisation request scope may have multiple topics (groups)
  - Group join request is per group/topic
- Group join request to multiple topics (groups)?
  - mqtt using AIF = [["topic1", ["pub","sub"]], ["topic2/#",["pub"]], ["+/topic3",["sub"]]]
  - There needs to be a separate request for each topic filter.
  - In MQTT, topics are organized in topic trees. **Depending on how topics are grouped, the KDC may have different sections of the tree keyed differently.**
  - Subscription requests may include wildcards spanning several levels of the topic tree.
  - **Two things may happen:**
    - **An MQTT node may be returned keys for a wider set of topics (groups) that their token permits them.** However, since the Broker authorises all Clients (regardless of their role is only Publisher or Subscriber), the Clients cannot access any messages sent for a topic beyond their token's scope.
    - **The Join request spans multiple groups? (need to fetch groupnames using topic filters as gids?)**