

# ALTO Protocol

draft-ietf-alto-protocol-06

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Grateful to contributions from large number of collaborators;  
see draft for complete list.

# Outline

- Summary of Changes
- Remaining Issues

# Change Summary

## ■ Protocol Updates

- ❑ Rules for certain identifiers (*PIDs*, Cost Type, Cost Mode)
- ❑ Fixed some typos / naming inconsistencies in the encoding

## ■ Redistribution

- ❑ Substantially revised, mostly editorial except for...
- ❑ *Allow certificate chains (feedback from IETF78)*

## ■ IANA Considerations

- ❑ *Cost Types registry*
- ❑ application/alto MIME type

## ■ Discussion Section

- ❑ Separated text that should find a new home

# PID Naming

## ■ Background

- There has been discussion/interest for hierarchical PIDs
- However, it is unclear (at this point) ...
  - how it might be used in practice, and
  - how to define certain concepts (e.g., cost)

## ■ Current approach

- Allow hierarchical PIDs in the future, but don't define them now
- Thus, the '.' character is reserved in PID names

# ALTO Service ID (quick recap)

## ■ Example of problem

- Two ALTO Servers  $S_A$  and  $S_B$  deployed for load balancing / redundancy
- ALTO Client  $C_A$  maps to  $S_A$  via discovery and retrieves ALTO Info
- ALTO Client  $C_B$  maps to  $S_B$  via discovery
- $C_A$  *should be able to redistribute ALTO Info to  $C_B$*

## ■ Solution approach

- Enable set of ALTO Servers to distribute identical ALTO information
- ALTO-layer ID to avoid dependence on particular implementation
  - e.g., anycast or DNS
- Redistributed ALTO Info includes Service ID

# ALTO Service ID

## ■ Service ID

- ❑ UUID shared by ALTO Servers distributing identical ALTO Information
- ❑ Servers with same Service ID ~~use same private key for digital sigs~~

## ■ Use certificate chains

- ❑ Each ALTO Server exports certificate chain
  - Via Server Capability query
- ❑ ALTO Servers with equivalent info **MUST** have chains with common root
  - Verified at client-side
- ❑ Allows for unique private key at each ALTO Server
  - Simplifies key provisioning, rollover

# Cost Type Registry

## ■ Fields included in registration

- Identifier (string)

- Intended Semantics

  - What rules should ALTO Service Providers follow?

  - What should / should not be expected by ALTO Clients using the cost type?

- Security Considerations

  - E.g., are there known privacy considerations for ISPs for exporting a particular type of cost?

## ■ Registrations require Expert Reviewer

## ■ Questions

- Is overhead to maintain registry too high?

- Language documenting what semantics must be specified?

# Remaining Issues

## ■ IPv4/IPv6

- Two (simple) possible solutions identified

  - 1) Provide cost from any IPv4 endpoint to any IPv6 endpoint (and vice versa)

  - 2) Provide no costs between endpoints of different address families

- Suggest (1)

  - Comments now?

  - Feedback on list

## ■ Register ALTO-\* message header fields

## ■ Exploratory draft with sketch of a REST-ful ALTO Protocol

- No progress thus far (does not appear to be push to do this)