DECADE Example
Solution Architectures

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Overview

- **Focus of Architecture WG work item:**
  - Identify relationship with existing protocols
  - Identify where new protocol is needed and what functions needed

- **What can DECADE look like?**
  - Chartering has purposefully stayed away from solution proposals

- **Purpose of this Presentation**
  - Provide examples of possible solution architectures
  - Give a flavor for what DECADE can look like
  - NOT meant to be restrictive
Functional Components

- **DECADE Server**
  - Manage user accounts (and resource sharing policies)
  - Manage users' apps (and resource sharing policies)
- **Storage Server (may be co-located with DECADE Server)**
  - Handle read/write/delete/etc requests
- **DECADE Client**
  - Define and update user's apps (and resource sharing policies)
- **Storage Client (may be co-located with DECADE Client)**
  - Send read/write/delete/etc requests
System Assumptions

- Following architectures make certain assumptions
  - Meant to illustrate some concrete design approaches
  - May change during course of WG

- A1: Resource Allocation Model
  - Storage provider allocates resources amongst one or more users
  - User allocates resources amongst one or more applications

- A2: Replication
  - Not provided by storage provider

- A3: AuthN/AuthZ for remote peers
  - Explicit separation of “client” and “resource owner” (a la OAuth)
  - But, tokens generated and distributed by P2P protocol by owner
Directly extend data transport protocol(s) with new operations

Would be done for each data transport wishing to use DECADE

Extended data protocol (e.g., NFS, WebDAV):
App Management
(e.g., negotiate key, set BW)

Note: Resource token indicates authorization and encodes allowed resources. Token signed using negotiated key.
Architecture 2

- New protocol managing user/application resource parameters
  - “Exports” resource control parameters to a data transport
  - Similar to IKE workflow

P2P Client

- DECADE Client
- Storage Client

P2P Peer

- DECADE Client
- Storage Client

DECADE Server

- DECADE Protocol: App Management (e.g., negotiate key, set BW)

Note: Resource token indicates authorization and encodes allowed resources. Token signed using negotiated key.