Personal Digital Agent Protocol (pdap)

HotRFC
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Enabling a shift
from
proprietary platforms **to personal agents**

- Replace forced platform association with one's choice of community.

- My agent is **interoperable** by vendors and service providers.

- I can switch the host of my agent anytime. **No lock-in.**

- My agent's **policies are portable** across host communities.

  - Swarm and federated personal AI agents can be supported.

Foundational Principle

Universal Human Right of Freedom of Association and Assembly

- Individual choice of hosting and support communities for one's digital agent.

- Self-hosting is supported for those that have the skill and interest.

- Research perspective: https://datatracker.ietf.org/doc/draft-irtf-hrpc-association/
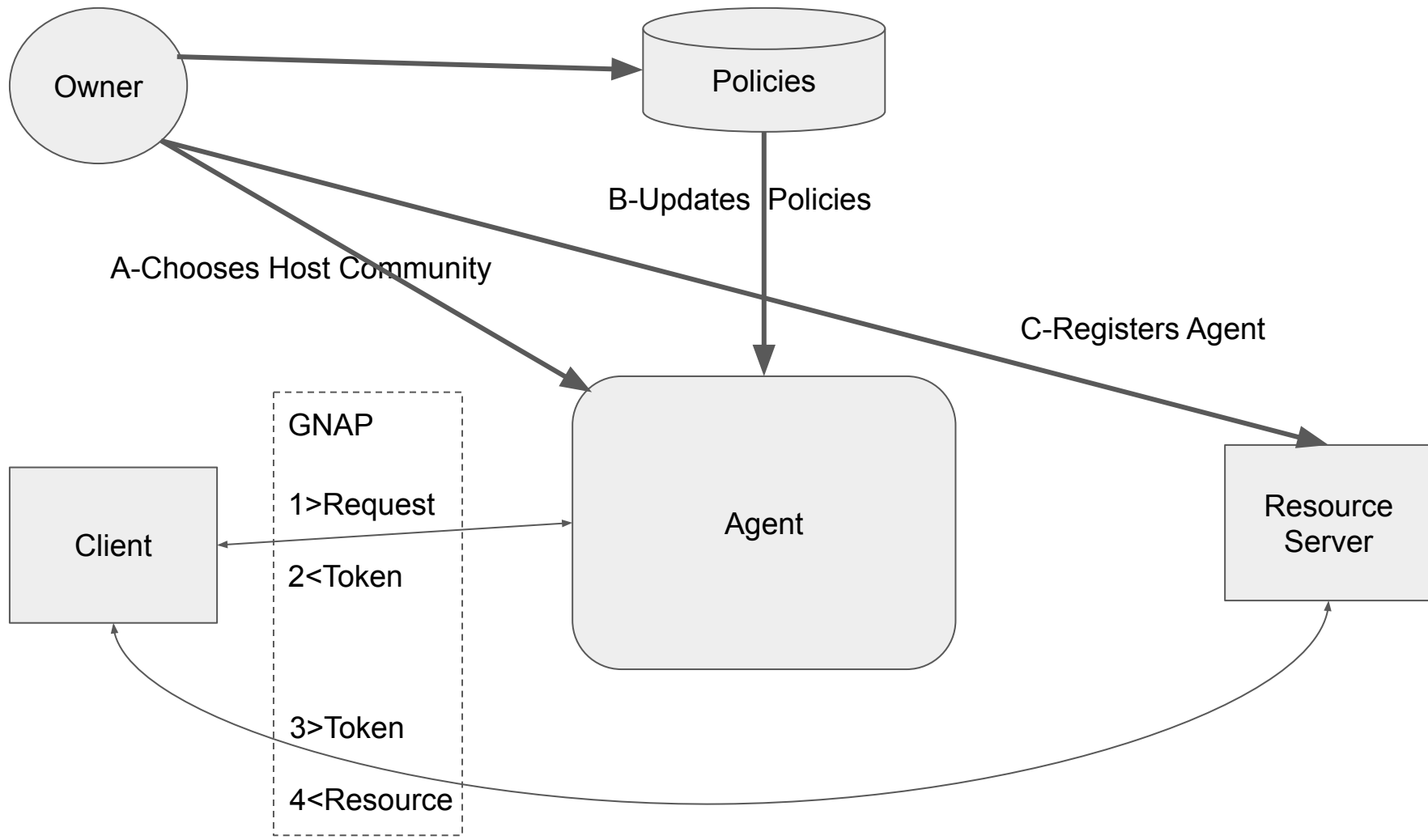
Platform Issues and Regulatory Responses

- US: FTC vs. Amazon
  - Bundling of Search and Logistics - drives up cost for vendors
  - Most-favored-pricing clauses drive up cost for customers
- EU: Payment Services Directive PSD-2
  - Opens interface between payment services and banks
  - Increased competition for both payment services and banks
- EU: Digital Services Act
  - Customer lock-in and lack of transparency and customer agency
  - Very Large Online Platforms (VLOP) and Very Large Online Search Engines (VLOSE)
- India: Aadhaar, UPI, India Stack, beckn protocol
  - Avoid US / EU style platform oligopolies
  - Support essential digital tools as a public good (Aadhaar, India Stack)
  - Enable customers and vendors to choose their agents (UPI, beckn protocol)

Personal Digital Agent

- Self-Sovereign (independent of any jurisdiction or federation)
- Community-Hosted (self-hosted option for pure self-sovereignty)
- Semi-autonomous
- Intelligent (adaptable, learning, context-aware, conversational)
- General across all types of vendors, service providers and jurisdictions
- Accepted by most service providers and resource servers
  - Standardized
  - Fair
  - Cost-effective
  - Secure

Scope of a Personal Digital Agent Protocol

- Separate choice of Authorization Server (as agent) from Resource Server (as vendor)
  - IETF GNAP - **Last Call** - multiple implementations available
  - https://datatracker.ietf.org/doc/draft-ietf-gnap-core-protocol/
- Standardize Request Presentation and Authorization Tokens
  - OAuth 2.0 Rich Authorization Requests https://datatracker.ietf.org/doc/html/rfc9396
  - Message Signature https://datatracker.ietf.org/doc/draft-ietf-httpbis-message-signatures/
  - Authorization and Revocation Capabilities - TBD - Consider https://github.com/ucan-wg/spec
- Standardize the Service Endpoint for a personal digital agent Authorization Server
  - Support both URIs and DIDs
- Scope of the Authorization Server Policy Management Interface
  - TBD - Consider CEDAR https://www.cedarpolicy.com/en

Owner

Policies

B-Updates Policies

A-Chooses Host Community

C-Registers Agent

GNAP

1>Request

2<Token

Client

Agent

Resource
Server

3>Token

4<Resource

Steps toward a Personal Digital Agent Standard

- 2015-on: Kantara UMA 2 Protocol Standard
  - OAuth-based
  - "Open World" Authorization Server
- 2020-on: IETF GNAP Protocol Standard
  - Not OAuth-based
  - Open world user request state machine
- 2022: W3C Verifiable Credentials Data Model Standard
  - Validation and Verification as a commodity service
  - Supports open world, decentralized, and self-sovereign flows
- 2023: Personal Digital Agent Discussion Group
  - Define the scope of a vendor standard for interoperable personal agents
  - Excellent vendor and customer experience without platform lock-in
  - https://docs.google.com/document/d/19GU6L1QxaVsIfm9iBKg9T2qV9y0zttRmtIQuPireMMU/edit
- 2024: IETF Standard Workgroup Established

Join our Signal Group

Invite link and meeting notes at:

https://docs.google.com/document/d/19GU6L1QxaVsIfm9iBKg9T2qV9y0zttRmtlQuPireMMU/edit

Suggest vendors and implementers to participate.

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Thank you.