The AT Protocol (atproto)

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at://dholms.xyz

Before We Start!

- The AT Protocol is currently developed by Bluesky and used for the Bluesky microblogging app
- Strongly considering bringing parts of the atproto stack to the IETF
- Common misconceptions
  - No Jack Dorsey or Twitter involvement for years
  - Not a blockchain
  - Atproto is not just for microblogging
- Written specifications, and MIT/Apache reference implementations
  - https://atproto.com
  - https://github.com/bluesky-social/atproto

Contrast with W3C ActivityPub

AT Protocol	ActivityPub
Decentralized Publishing	Message Passing
Global “Big World” Social	Interconnected Communities
"Manifestly Public" / Permissionless	Access Control
Schema system for social semantics	Social vocabulary in spec
git, Secure Scuttlebutt, P2P	RSS, WebFinger
CBOR	JSON-LD

Characterizing AT Protocol

- Signed location-independent “self-certifying data”
- Authority rooted in user identity
- Data can be rebroadcast & received from many hosts
- Split between *data hosting* and *application semantic* layers
- Prioritize **credible exit** over trustless/flat architectures

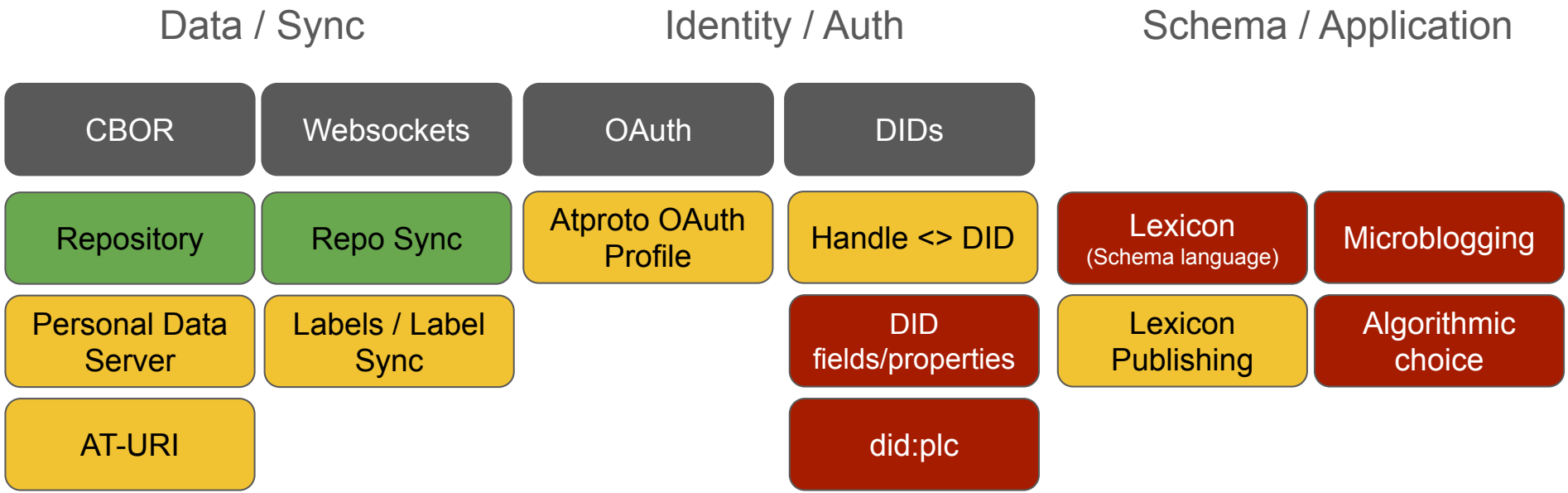
Repository

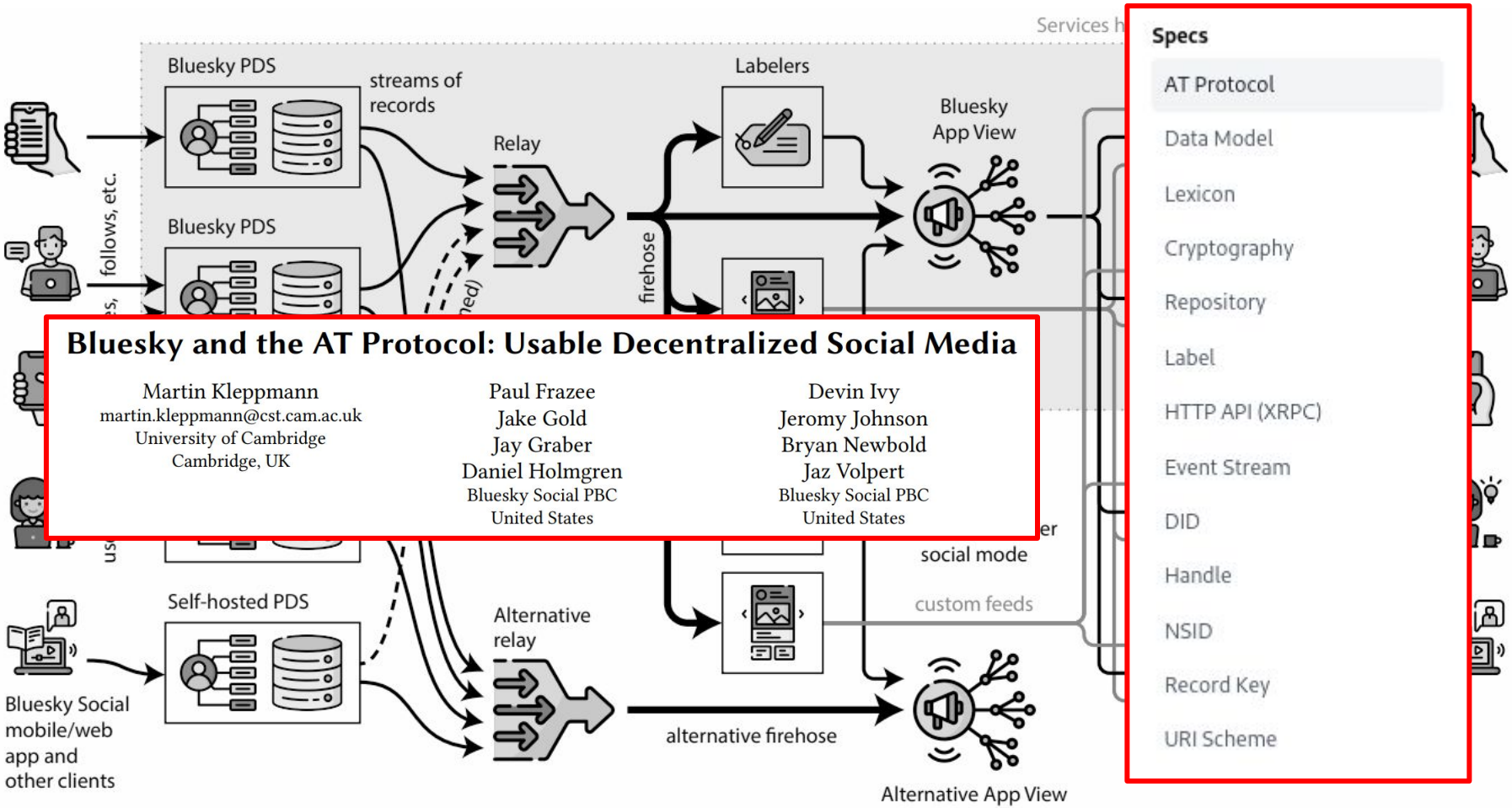
- Signed Merkle DAG (actually a Merkle Search Tree)
- Analogous to a git repository
- Hosted canonically on a user's PDS, but rebroadcast through network
- Updates are synced through a websocket stream of repository deltas
- Addressed by an AT URI

  `at://dholms.xyz/app.bsky.feed.post/3llz56wmk522o`

  `at://did:plc:yk4dd2q kboz2yv6tpubpc6co/app.bsky.feed.post/3llz56wmk522o`

Atproto stack




Services h
Bluesky PDS
streams of records
Relay
Labelers
Bluesky App View
follows, etc.
Bluesky PDS
firehose
Bluesky and the AT Protocol: Usable Decentralized Social Media
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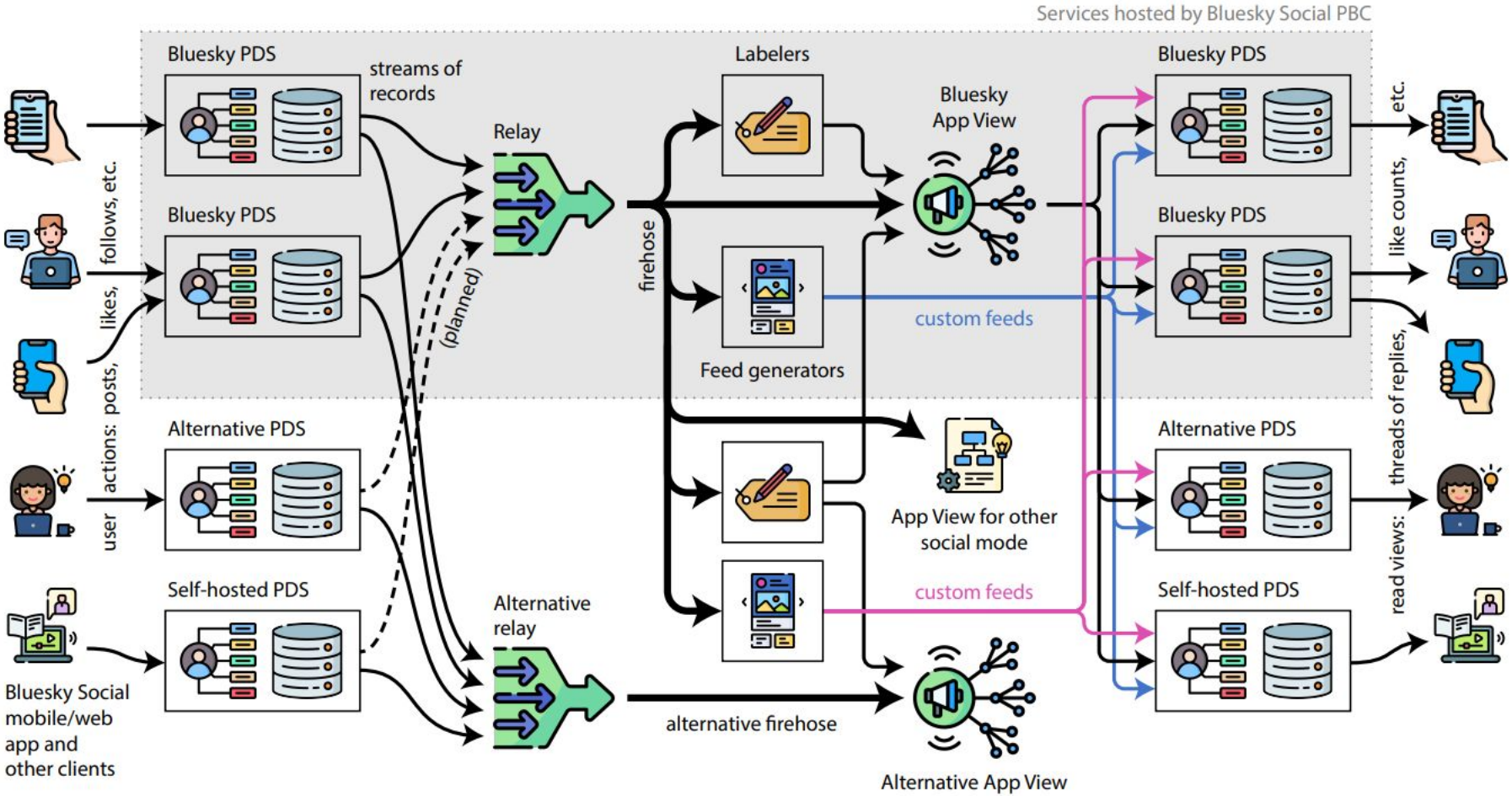
social mode
custom feeds
Self-hosted PDS
Alternative relay
Bluesky Social mobile/web app and other clients
alternative firehose
Alternative App View
Specs
AT Protocol
Data Model
Lexicon
Cryptography
Repository
Label
HTTP API (XRPC)
Event Stream
DID
Handle
NSID
Record Key
URI Scheme



From **Bluesky and the AT Protocol: Usable Decentralized Social Media** (https://arxiv.org/abs/2402.03239)