

Decentralized Platforms

Comprehensive Comparative Analysis

Master Report — Version 3.0

16 August 2026

Nostr · Peergos · Solid · IPFS · Secure Scuttlebutt · Syncthing · Matrix · ActivityPub

This master PDF provides the unified table of contents, executive framing, master feature comparison, Peergos encrypted-filesystem value analysis, architectural decision guidance, and consolidated references. Full platform deep profiles (history, architecture, cryptography, clients, status) are in the individual segment Markdown and PDF files under segments/, and in the complete Master Markdown file.

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Complete text of all segments: Decentralized_Platforms_Master_Report.md (same directory). Individual segment PDFs: segments/01_*.pdf ... segments/13_*.pdf.

Platforms at a Glance

Platform	Characterization	Best-fit use
Nostr	Minimal event protocol + keypair + relays	Censorship-resistant social / notes
Peergos	Vertical encrypted FS + social + sandboxed apps	Private quantum-resistant storage & sharing
Solid	User-owned Pods + WebID + WAC/ACP	Personal data ownership & app interop
IPFS	Content-addressed blocks + DHT + gateways	Verifiable distribution & permanent links
SSB	Local-first signed feeds + gossip	Offline-capable social graphs
Syncthing	Continuous block-level folder sync	Multi-device file consistency
Matrix	Federated rooms + events + Olm/Megolm	Secure team & community messaging
ActivityPub	W3C federated social activities (Fediverse)	Open public social web across many apps

Master Feature Comparison

Legend: Y = strong/native · ~ = partial · n = weak/absent

Feature	Nostr	Peergos	Solid	IPFS	SSB	Sync	Matrix	AP
Crypto user identity	Y	Y	~	n	Y	n	~	n
Default E2EE content	n	Y	n	n	~	~	Y	n
PQ sharing deployed	n	Y	n	n	n	n	n	n
Strong metadata protect.	n	Y	n	n	~	n	n	n
Content addressing	n	~	n	Y	n	n	n	n
Continuous file sync	n	~	n	n	n	Y	n	n
Federated servers	n	~	n	n	n	n	Y	Y
Rich multi-client	Y	n	~	Y	~	Y	Y	Y
Offline / local-first	~	~	~	~	Y	Y	n	n
Public social network	Y	n	n	n	~	n	~	Y
Self-hostable	Y	Y	Y	Y	Y	Y	Y	Y

Peergos Private Encrypted Filesystem — Why It Matters

Peergos provides a **private, encrypted, capability-controlled filesystem** on top of content-addressed (or ordinary) storage. Data is encrypted on the device before it leaves. The storage layer — including any IPFS node or S3 bucket — only ever sees ciphertext. Access is granted by cryptographic capabilities. Only the author or people they explicitly share with can decrypt. Sharing uses hybrid post-quantum key exchange (X25519 + ML-KEM-1024).

vs IPFS alone: IPFS gives addressing and distribution, not confidentiality. Peergos is the layer that turns content-addressed blocks into a private capability-controlled filesystem.

vs Syncthing: Excellent multi-device sync among trusted devices; not a global capability-addressable encrypted FS for selective third-party access.

vs Solid: Strong authorization; encryption at rest on the Pod is not mandatory — the server remains in the confidentiality trust boundary. Peergos removes the server from that boundary for content.

vs Matrix / Nostr / ActivityPub / SSB: Messaging or social protocols; not a general encrypted hierarchical filesystem.

One-sentence summary: Peergos turns content-addressed (or ordinary) storage into a private, capability-controlled, client-encrypted filesystem that remains unreadable to the storage layer and to anyone you have not explicitly shared with — a property none of the other systems in this survey provide as a first-class, integrated design.

Architectural Decision Guidance (Condensed)

Primary data shape: Public notes → Nostr/ActivityPub · Real-time chat → Matrix · Private files → Peergos · Continuous folders → Syncthing · Personal structured data → Solid · Verifiable content → IPFS · Offline social → SSB.

Confidentiality: Max content+metadata → Peergos · Strong messaging E2EE → Matrix · Transit+device trust → Syncthing · Public by design → Nostr/AP/IPFS.

Common hybrids: Private files + public social (Peergos/Syncthing + Nostr/AP) · Team chat + file sync (Matrix + Syncthing) · Content + social (IPFS + AP/Nostr).

Consolidated Official Links

- Nostr: nostr.com · github.com/nostr-protocol/nips
- Peergos: peergos.org · book.peergos.org · github.com/Peergos
- Solid: solidproject.org · solidproject.org/TR · github.com/solid/specification
- IPFS: ipfs.tech · docs.ipfs.tech · specs.ipfs.tech · github.com/ipfs
- SSB: scuttlebutt.nz · ssbc.github.io/scuttlebutt-protocol-guide · github.com/ssbc
- Syncthing: syncthing.net · docs.syncthing.net · github.com/syncthing/syncthing
- Matrix: matrix.org · spec.matrix.org · element.io
- ActivityPub: w3.org/TR/activitypub · activitypub.rocks · codeberg.org/fediverse/fep

How to Use the Full Corpus

1. Master Markdown (complete text of all 13 segments): **Decentralized_Platforms_Master_Report.md**
2. Individual segment MD + PDF files: **segments/01_*.md|pdf** through **segments/13_*.md|pdf**
3. This master PDF: executive framing, comparison matrices, Peergos value analysis, decision guidance, and links.
4. For production architecture: re-check live primary sources listed in Segment 12; prototype top candidates; consider hybrids early.