GHOSTPROTOCOL WHITEPAPER

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Abstract

The contemporary internet (Web 2.0) is dependent on centralized servers, Internet Service Providers (ISP), and governmental oversight. Data is lost when a server crashes, and communication halts when a cable is cut. **GhostProtocol** is a **Proof-of-Work (PoW)** based blockchain with a **hybrid network topology (Mesh Network)**, designed to eliminate this fragility. It functions as a self-sustaining, censorship-resistant web ecosystem that can maintain data propagation via **Wi-Fi and Bluetooth** protocols even when the traditional internet connection is severed.

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1. Introduction and Vision

1.1. The Problems

1. **Centralization:** Websites are hosted on centralized servers. When major services like Amazon AWS or Google Cloud experience an outage, global services halt.
2. **Data Ownership:** Users lack full control over their data. Platforms can delete content or restrict access at will.
3. **Connection Dependency:** Existing blockchains (Bitcoin, Ethereum) cannot synchronize or function without consistent Internet Service Provider (ISP) access.

1.2. The Ghost Solution

GhostProtocol utilizes the blockchain not just for financial transactions, but for **website hosting** and **identity authentication**. Every "Node" also serves as a web server. Furthermore, the development of the "Offline Mesh Layer" allows devices to synchronize blocks with nearby peers (via Bluetooth/Wi-Fi) even without conventional internet connectivity.

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2. Technical Architecture

2.1. Blockchain Structure and Consensus

GhostProtocol employs the security-proven and ASIC-resistant **Scrypt** algorithm.

- **Algorithm:** Proof-of-Work (Scrypt).
- **Block Time:** Dynamic (Difficulty adjustment based on target time).
- **Database:** Lightweight and portable SQLite architecture (Distributed Ledger).

- **Signature Algorithm:** Military-grade encryption and digital signature using RSA-2048.

2.2. Hybrid Communication Layer (The Ghost Mesh)

GhostProtocol is not reliant on a single path for data transmission. The **"Fail-Safe" Protocol** operates in the following sequence:

1. **TCP/IP (Internet):** Connects to the global network if a standard internet connection is available.
2. **Wi-Fi UDP Broadcast:** If the internet is down, it discovers and synchronizes with other devices on the same local network (LAN) using a broadcast shout.
3. **Bluetooth RFCOMM:** If no local network is available, it uses the device's Bluetooth module to perform **"Chain Transfer"** with physically proximate devices.

2.3. Decentralized Web (.ghost)

The system uses a lightweight, XML-based markup language. This data is embedded in the blockchain and rendered as HTML5 on the client side.

- **Domain: .ghost** domains that are uncensorable and immutable.
- **Data Persistence:** Visual, audio, and video files are written to the chain in Base64 format.

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3. Tokenomics

GhostProtocol adopts a deflationary and **Utility-Driven** economic model to ensure network sustainability.

3.1. GHOST Coin Supply

- **Symbol:** GHOST
- **Maximum Supply:** 100,000,000 (100 Million)
- **Initial Reward:** 50 GHOST / Block
- **Halving:** The block reward is halved every 2,000 blocks. This rewards early miners and investors while creating long-term scarcity.

3.2. Utility and Burning Mechanism

1. **Domain Registration: 1 GHOST** is spent for every `.ghost` domain registration. A portion of this coin is **burned** (sent to a burn address) for network security and supply control.
2. **Storage Rent (Pay-to-Stay):** Storing data on the blockchain is costly.
   - **Fee: 0.01 GHOST** per MB of data, monthly.
   - This model prevents **"blockchain bloat"** and creates continuous demand for the coin.

3.3. Content Economy (Content Forking)

If a user wishes to utilize content uploaded by another user (e.g., a viral video) on their own site, they can **"Clone"** the content. The cloning process requires the new owner to pay a fee proportional to the size of the data from their wallet. This mechanism encourages data **redundancy** across the network.

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4. User Experience and Security

4.1. Identity Management (DID)

GhostProtocol goes beyond anonymous wallet addresses by offering an optional **Identity Verification Layer**. Users can recover their accounts and establish a trustworthy profile through phone and email confirmation.

4.2. "Pay-to-Stay" Mechanism

To prevent data from remaining on the chain indefinitely and creating "junk," the storage rent model is strictly enforced:

- Data belonging to accounts with depleted balances is **"Suspended"** after a **24-Hour Grace Period**.
- The content is reactivated on the network once the overdue payment is made.

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5. Roadmap

Phase 1: Genesis (Completed)

- Development of the Scrypt-based Core Node software.
- Wallet and RSA signature infrastructure.
- XML to HTML rendering engine.

Phase 2: Mesh & Discovery (Completed)

- Wi-Fi UDP Broadcast discovery protocol.
- Bluetooth offline synchronization module.
- Docker containerization.

Phase 3: Public Testnet (2026 Q1)

- Setup of initial public "Genesis Miner" servers.
- Mobile Wallet (Android/iOS) integration.
- Web Gateway (Access to .ghost sites from regular browsers).

Phase 4: Mainnet & Ecosystem (2026 Q4)

- Exchange listings.
- Release of API SDK for developers.
- Research and development of Smart Contract support.

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6. Conclusion

GhostProtocol is not merely a cryptocurrency; it is a **survival-oriented communication protocol.** It is a digital fortress that enables people to access information, trade, and communicate during natural disasters, internet outages, or censorship events.

Join us in building the decentralized future today.

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