FTPChat Project

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Research Summary

FTPChat is a Python-based messaging protocol that replaces traditional socket communication with FTP-based message relays. It repurposes FTP servers, such as those embedded in ZTE routers or hosted on platforms like SFTPCloud.io, into secure, decentralized messaging hubs.

Instead of maintaining persistent socket connections, FTPChat enables clients to exchange messages by downloading a shared file from the FTP server, decrypting its contents, appending their own message, re-encrypting the updated content using a 24-layer mono-alphabetic cipher, and uploading it back. This cycle allows each client to act as both a reader and a writer, maintaining a synchronized message flow across all participants.

The protocol supports both asynchronous and synchronous communication, making it ideal for environments where socket access is restricted, blocked by firewalls, or technically infeasible. Its layered encryption ensures that all messages remain secure during transit and storage, even on publicly accessible FTP servers.

Short Abstract:

FTPChat is a Python-based messaging protocol that replaces sockets with FTP-based encrypted message relays.

It uses FTP servers as secure hubs, enabling asynchronous communication even in firewall-enabled PCs or legacy networks.

Messages are encrypted with a 24-layer cipher and exchanged via upload/download cycles which is ideal for environments where sockets are blocked or unreliable.

The Problem

In many restricted or legacy network environments, such as those behind firewalls, on home routers, or in educational settings, traditional socket-based communication is blocked or unsupported. This makes it difficult to build real-time messaging systems or peer-to-peer applications.

FTPChat solves this by replacing socket communication with FTP-based message relays. Instead of direct connections, clients use FTP servers to exchange encrypted messages by uploading and downloading a shared file. This allows secure, asynchronous or synchronous communication even in networks where sockets are unavailable, unreliable, or intentionally disabled.

Results

FTPChat was designed to solve the problem of blocked or unsupported socket communication in restricted network environments. In many cases, such as school networks, legacy routers, or firewall enabled systems, real-time messaging via sockets is not possible due to technical limitations or security policies.

FTPChat replaces sockets with FTP-based message relays. By using FTP servers as intermediaries, clients can exchange encrypted messages asynchronously or synchronously without needing direct connections. This makes FTPChat ideal for environments where traditional networking protocols fail, while still maintaining secure and reliable communication.