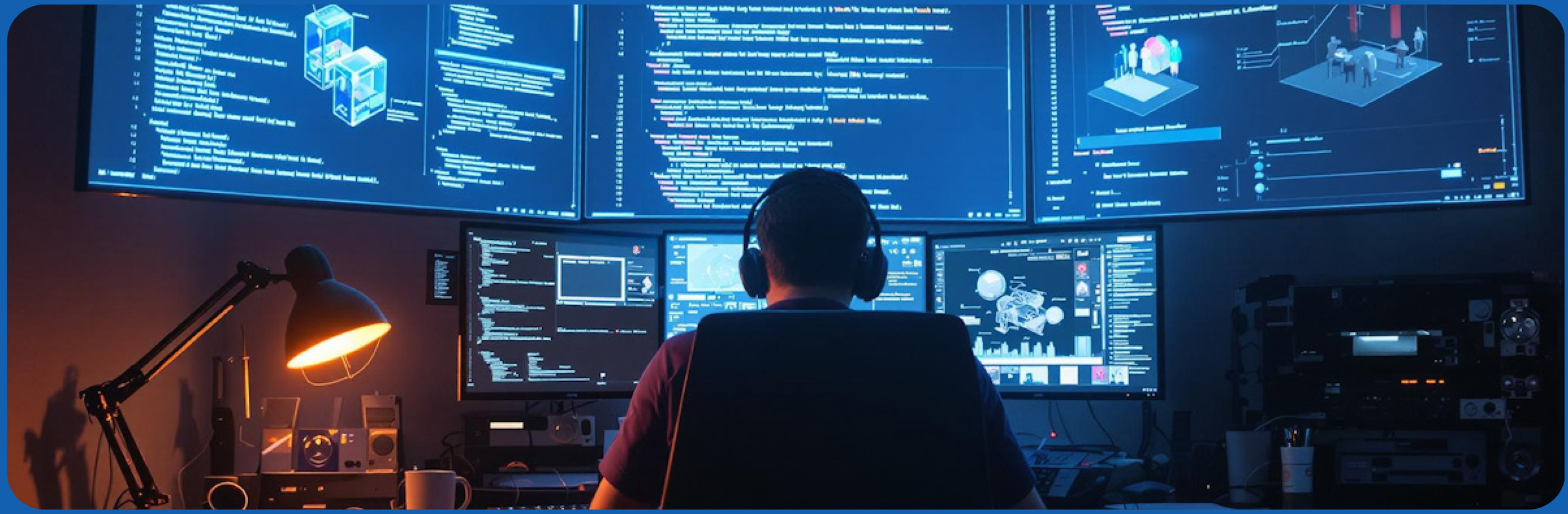
Building the NFT Layer of Web3:

Interoperability, Modularity, and the Web3 Stack Protocol



Summary

As the Web3 ecosystem evolves, the need for **standardized, modular, and interoperable** NFT infrastructure becomes critical.

This paper explores how the Web3 Stack Protocol offers a blueprint to structure NFT ecosystems :

from minting and metadata to identity and display

in a way that is **composable, sustainable, and portable** across chains and apps.

NFT Stack Layers in Web3 Stack Protocol

Layer	Function	Examples
Wallet & Identity Layer	Manages ownership and identity	WalletConnect, Smart Wallets, ERC-4337
Asset Layer (NFT)	Defines and mints NFTs	ERC-721, ERC-1155, Soulbound, Lazy Minting
Metadata Layer	Stores and retrieves token data	IPFS, Arweave, NFT.Storage
Display Layer	Renders NFTs in apps/platforms	OpenSea, Zora, custom UI libraries
Interoperability Layer	Enables NFT use across ecosystems	Lens Protocol, Wallet-bound NFTs, Cross-chain bridges

Use-Cases Enhanced by Structured NFT Stack

Education NFTs (e.g. iBLOOMING)	Gaming & Collectibles	Reputation Systems	Decentralized Publishing
Modular identity, badge minting, and proof-of-progress tracking	Plug-and-play with different wallets, marketplaces, and display apps	Combine ERC-725/735 identity + NFT progress badges	NFT-based authorship, licensing, and proof-of-creation

iBLOOMING Application

iBLOOMING can use the Web3 Stack Protocol to:

01

Separate user wallet identity from claimable NFTs

02

Modularize NFT types (learning badge, mentor role, content license)

03

Standardize metadata for cross-platform compatibility

04

Future-proof the system for L2 or multichain deployment

Recommendations

Area	Stack Protocol Advice
Minting	Use modular minting services (ThirdWeb, Manifold)
Metadata	Store off-chain via IPFS + fallback JSON structure
UX Layer	Implement flexible NFT viewers with display fallback
Interoperability	Define metadata schema that maps across platforms

The NFT layer is not a silo *it's a protocol*

By adopting the Web3 Stack Protocol, NFT ecosystems become more resilient, interoperable, and composable. This enables long-term value, especially in education, identity, and cultural memory.

Background

The early NFT boom was marked by fragmentation — different metadata schemas, isolated platforms, and vendor lock-ins.

The Web3 Stack Protocol aims to address this by defining **a layered approach to Web3 architecture,** enabling clear modular boundaries for each component.