



Layers of the Crypto Universe

**Decentralized
& Scalable
& Secure**

Layer 1
Foundation

Layer 2
Scaling

Layer 3
Web 3.0
App

Layer 4
Interface



Ethereum

Polygon



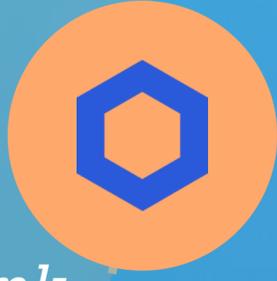
Bitcoin

Lightning
Network



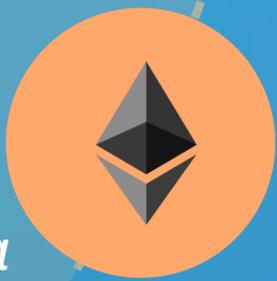
Polkadot

Chainlink



Algorand

Plasma



Osprey Funds

Layers of the Crypto Universe

Blockchain technology is complicated and there are a lot of moving parts.

Experts have organized the broad field in layers to categorize the different assets and how they function within the larger system.

We've begun playing around with an astronomy metaphor to visualize these layers of blockchain and organize them in an approachable way.

So let's organize blockchain by layers in conjunction with the graphic.

The sun represents the fundamental attributes of blockchain. These include decentralization, scalability, and security.

There are other important attributes like interoperability but we are sticking with [the classic trilemma](#) for now.



Layer 1: *Foundation Layer*

Layer 1 protocols enable the decentralization of data, which is the foundation of [Web 3.0](#).

Bitcoin is the original Layer 1 Protocol, the Big Bang, though newer protocols like Ethereum, Polkadot, and Algorand are enhancing functionality.

Layer 1 protocols offer some combination of speed, scale, and other functionalities. The larger these networks grow, the more secure they become.



Layer 2: *Scaling Layer*

Layer 2 focuses on the things necessary to successfully link protocols to applications.

Cross chain communication is a good example of this. For example, [Polygon](#) connects Ethereum-compatible blockchain networks to each other allowing them to communicate and interact.

Layer 2 is [middleware](#) for Web 3.0. Boring but important.



Layer 3: *Web 3.0 App Layer*

Layer 3 is the Web 3.0 Application.

This is the stuff we're hearing a lot about because it's so exciting even though most of the applications are not yet fully developed or ubiquitous.

DeFi (Decentralized Finance) is an early major use case. Think about being able to do financial things like buy insurance or save and borrow money but without the need for a bank or centralized insurer.

NFTs are another example and have been a cultural phenomenon even as real-world functionality is only scratching the surface.

It is very early in the applications of Web 3.0 so we will see a lot more here. Speaking of early...



Layer4: *Interface Layer*

The user interfaces people utilize to do things become more important as blockchain technologies get applied to real world solutions. Users will come to think less if at all about the technology and more about doing the things they want to do.

An iPhone user sends a text without pondering the chips built into the hardware.

It's early in the development of the user interfaces of Web3.0, but some first movers in this space include [MetaMask](#) and [Brave Browser](#).

Over time, we expect the evolution of Layer 4 to really unlock the potential of the Internet of Things or [Metaverse](#).





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