How does Fractal work exactly?

Fractal is an engine that enables us to scale and descale our network when required. It uses the Xnodes to increase and decrease the transactions per second (TPS) of the network when required.

How does that work then?

The Xnode is capable of launching their own sidechain on which they can store data. This can be permanent or "temporary" data.

Permanent data is data that will stay on this side chain and will not be archived in the main chain. It will always be its "own" chain and will be used for NFT's, tokens and site on chain.

"Temporary" data is data which will be archived with the main chain eventually. This side chain will exist as long as it is required. This need will be determined based on how many TPS are done on the network.

The Xnode will launch a sidechain when the maximum TPS for the main chain is reached. Each sidechain can handle the same amount of TPS as the main chain. If the TPS keeps growing the Xnode can issue another sidechain and keep doing this until the available TPS exceeds the required TPS. When the required TPS drops, sidechains will be automatically closed and archived into the main chain. The number of sidechains is unlimited, so this process can go back and forth whenever it's required. So the network can scale and descale whenever this is required. This will be seamless because the network will start scaling before the maximum is reached.

Can you put that in numbers?

Ofcourse! We will use small and easy numbers, these do not reflect true values.

Let's say our main chain can handle 10 TPS. When the network is using 9 TPS, the Xnodes will see that the main chain is nearing its maximum capability and will open up an sidechain. This sidechain will then also be registered on other Xnodes, so that consensus and transaction verification will remain the same.

Let's make an more in depth example:

- Network TPS: 1.000.000
- Main Chain TPS : 10
- X nodes : 2000

The main chain has 10 TPS, but we have a current need of 1.000.000 TPS. This means we will need the X nodes to launch side chains to cover the 999.990 TPS which the main chain falls short. So each X node will have launched 50 side chains. This results in 2000*50*10 = 1.000.000 TPS. When the required TPS drops to 100.000 and the Xnodes will then close and archive 90.00 sidechains and keep the other 10.000 active. This way the main chain includes the archived side chains. This can go back and forth as many times as required.