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RESEARCH REPORTS

The Cosmos Ecosystem Has Arrived

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Akash | Band Protocol | Cosmos | Gravity DEX | IBC | L1 / L2 | Osmosis | Terra | THORChain | Vega

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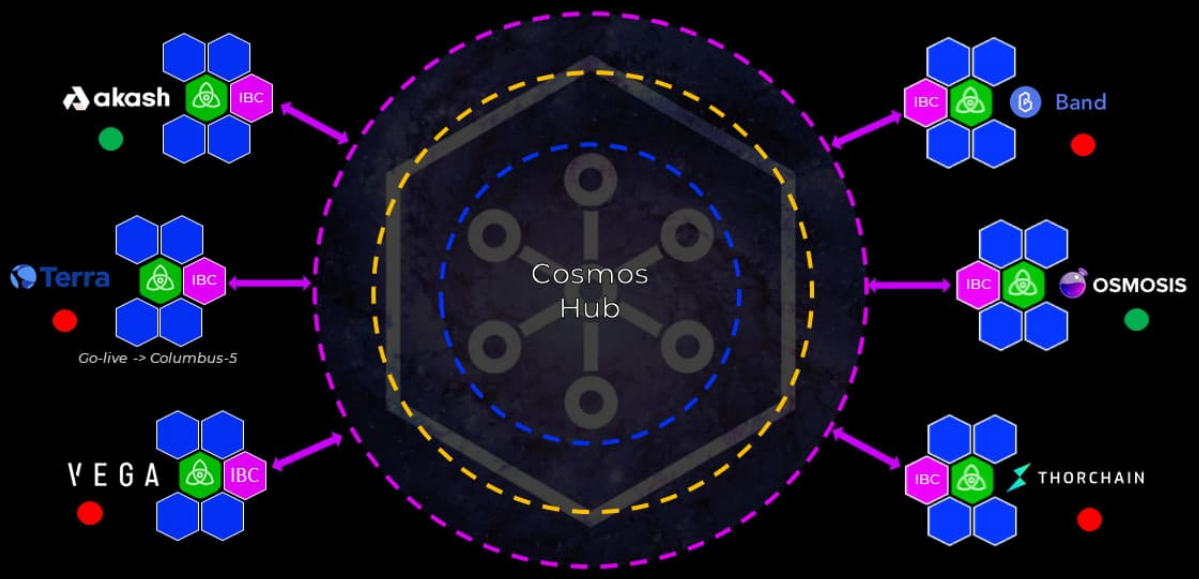


Key Takeaways

- The Cosmos ecosystem is comprised of several Application-Specific Blockchains (“App-Chains”), which are all optimized for their given use case. In the past, these App-Chains were siloed and unable to communicate with one another. Now, with IBC seeing increased adoption, that is starting to change.
- At the center of the ecosystem lies The Cosmos Hub, an App-Chain secured by validators staking ATOM, the native token of Cosmos. The Cosmos Hub offers three primary use cases which can accrue value to ATOM – 1) IBC, 2) Gravity DEX, and 3) Shared Staking. Only IBC is fully live at the moment. Emeris, the main Gravity DEX frontend, is still in Beta.
- Osmosis, which launched on June 19th, is an App-Chain that offers a customizable AMM. It was the first IBC-Native DEX to go live and has attracted a current TVL of ~$440m. Shortly after, it was unveiled that another IBC-Native exchange, Gravity DEX, would be launched directly on The Cosmos Hub.
- Osmosis and The Cosmos Hub are in a unique situation, where they complement, yet also compete, with one another. They both can act as Hubs, facilitating IBC transfers and they both will have DEXs as their primary application. One of the main differentiators for The Cosmos Hub is that it plans to offer Shared Staking in the future, which ultimately could be the wild card for ATOM value accrual.

- There are several important catalysts coming up for Cosmos, such as Columbus 5 on September 30th and Emeris fully launching to go along with Proposal 56 (Adding the IBC Router to the Cosmos Hub). Shared Staking may also debut on Testnet as early as Q4 and the Gravity Bridge is coming soon.

An Introduction To Cosmos

Competition amongst the various Layer 1s has never been hotter. Ethereum, Solana, Avalanche and others have continued to see their token values appreciate as more applications come online and liquidity deepens within their respective ecosystems. Cosmos, a promising ecosystem of its own, has made major strides over the past year but it is often misunderstood. Why? Well, to put it simply, Cosmos is built differently. To understand how, let's start with a basic comparison to Ethereum. Being the general purpose blockchain that it is, different types of applications are built directly on top of Ethereum. They all share the same security and they all compete for the same blockspace. This has its advantages, namely composability and strong security guarantees, but it also comes with drawbacks, such as high fees from network congestion.

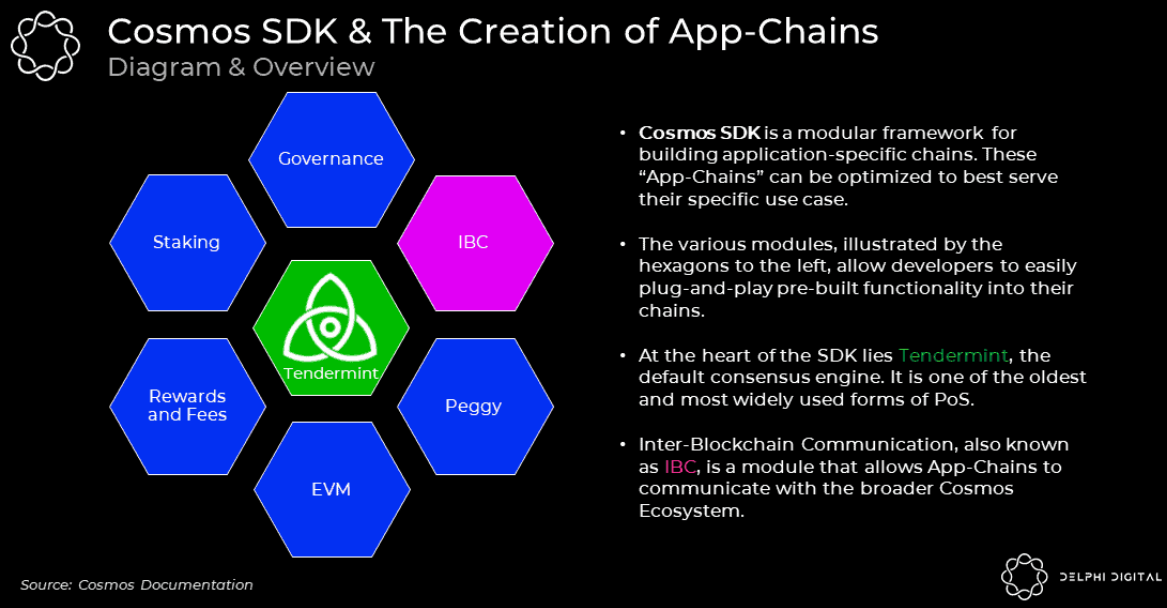
In contrast to this, "Cosmos" is not a single blockchain where all of the applications exist. Rather, it is an ecosystem of many blockchains, all optimized for their specific application. Historically, one of the main things holding the Cosmos ecosystem back was the simple fact that these "App-Chains" couldn't communicate with one another. The composability between applications, which played such a vital role in Ethereum's success, was lacking. Importantly, however, this is no longer the case now that the Inter-Blockchain Communication Protocol (aka "IBC") is live. Even though IBC was launched in February 2021, it hasn't been implemented by all of the major App-Chains yet. Being such a new and important piece of technology, the hesitation from development teams has mostly centered around a desire to see it functioning as intended out in the wild, for a period of time, before plugging into it. But that is now finally starting to change and the Cosmos ecosystem seems poised to blossom as a result.

In this report, we'll walk you through how Cosmos works, analyze its traction thus

far, and speculate about what the future has in store for it. Before we jump into the more complex points, let's start by clearly outlining a few key terms that you'll see repeatedly throughout this post.

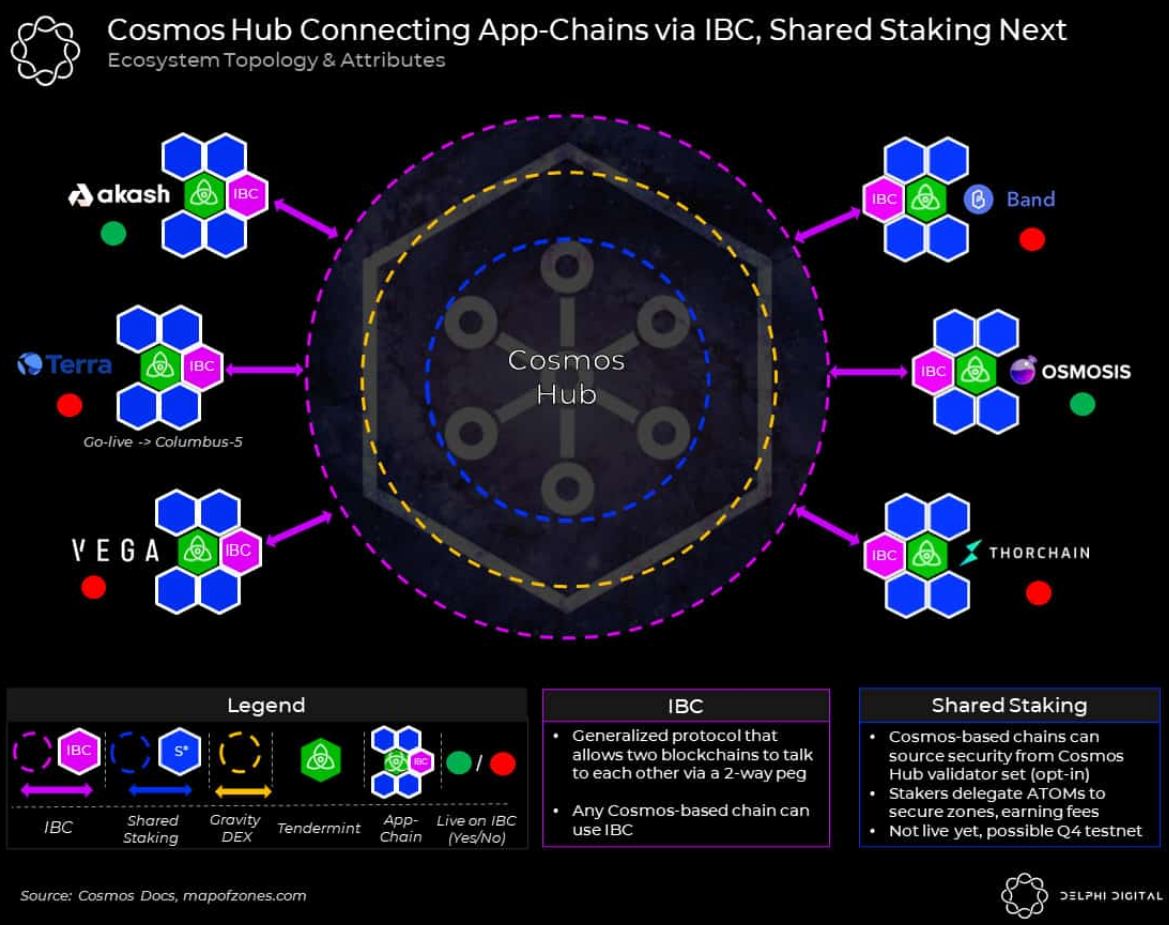
A. **App-Chain:** An independent blockchain optimized for a specific use case / application. They are built using Cosmos SDK, which allows developers to plug-and-play modules with different functionality (e.g. IBC) when constructing their blockchain. In the absence of Shared Staking, which we'll cover later on in this post, App-Chains have their own sovereignty and security assumptions.
B. **Zone**: An App-Chain, or independent non-Cosmos chain, that has an integration for IBC established. IBC modules communicate with each other by sending data packets over channels.
C. **Hub:** In the most basic sense, a Hub is a Zone that has a lot of channels connected to it, allowing it to facilitate IBC between them. While any Zone could theoretically act as a Hub, this language is most often used in the context of the The Cosmos Hub in particular. We'll revisit the implications of this later in the post.

With this jargon in mind, let's now walk through each component with diagrams that illustrate how the various pieces come together. Let's start with one of the most important building blocks, Cosmos SDK, and how it's used to create App-Chains, as seen below.



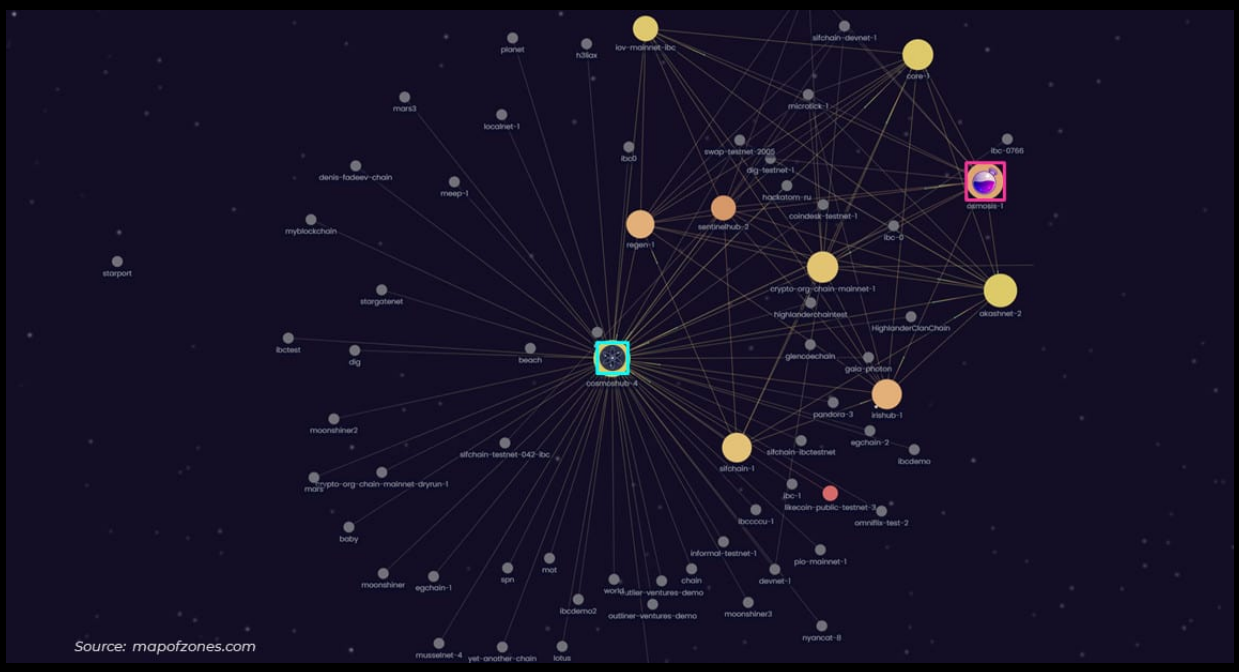
It can be easy to underestimate the number of blockchains that have already been built using Cosmos SDK. If you venture over to cosmos-cap.com, you'll certainly notice some recognizable names. Over time, we expect the proliferation of App-Chains to increase, particularly as new modules are added to the SDK, while existing ones are battle hardened / improved. At the time of writing, the combined market cap for all Cosmos-based blockchains is ~$110B.

Now, a single App-Chain is useful on it's own but it's full capabilities aren't truly unlocked until it connects to the broader Cosmos ecosystem. In the diagram below, we've depicted how this ecosystem is intended to come together. **At the center lies The Cosmos Hub, an App-Chain secured by validators staking ATOM, the native token of Cosmos.** The Cosmos Hub area of the diagram is comprised of three distinct rings, which we use to illustrate the three different use cases it supports – 1) IBC, 2) Gravity DEX and 3) Shared Staking. For our explanation we'll start with the outer ring, IBC, and work our way in.



If you recall the definitions from earlier, an App-Chain that implements the IBC module would subsequently be classified as a Zone. Now, imagine a Zone that

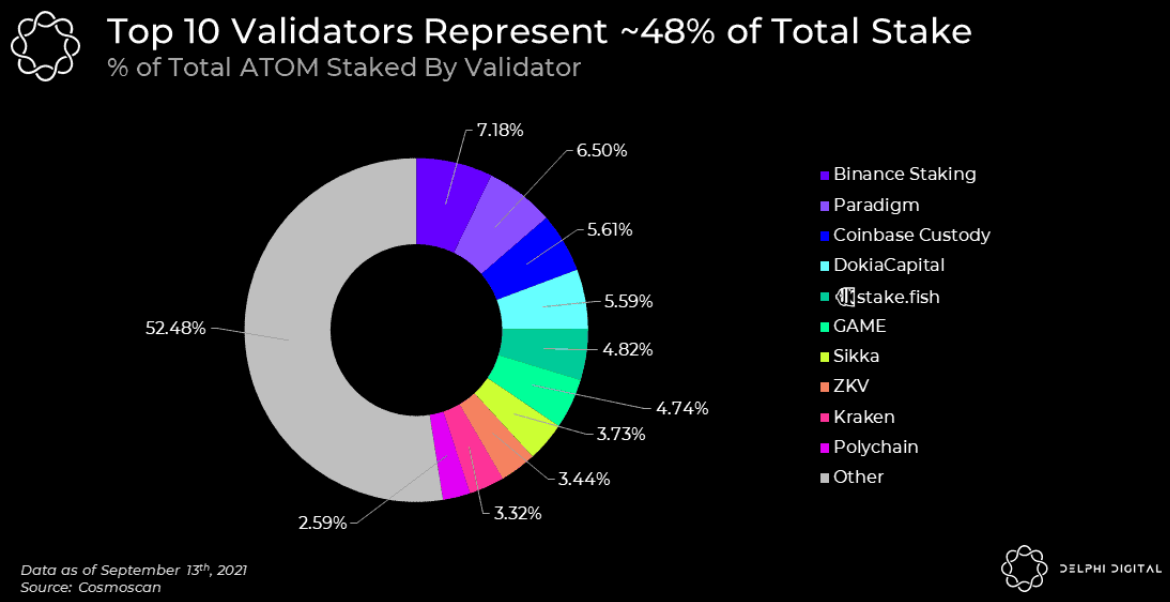
opens communication channels with all of the other Zones. What we just described is essentially a Hub. As you can imagine, if there are hundreds or thousands of Zones out there, having each of them connect to one another directly would be cumbersome, resource intensive and perhaps inefficient. Contrasting that approach, if a Zone simply opens a communication channel with a Hub, which has already done all of the heavy lifting from a networking perspective, they can easily interoperate with all of the other Zones connected to said Hub. This is the rationale for why Cosmos uses a "hub-and-spoke" model, which can be seen in the graphic below from mapofzones. Note the two Zones that we've highlighted in the map below, more on them soon.



Once interoperability is established, liquidity begins to flow. Where liquidity flows, there exists an opportunity for a decentralized exchange to capitalize on it. Since this is Cosmos, that DEX application would be its own blockchain. Which brings us to Osmosis, the first IBC native DEX in Cosmos. If you've been a long time Delphi member, a cross-chain, Cosmos-based DEX may sound familiar. And you'd be right, we first wrote about this topic in our THORChain report from December 2020. In that post, we highlighted how a cross-chain DEX would offer meaningful utility and could accrue significant value. We even took subtle shots at the ATOM token on slide 6 of the report because, despite THORChain being built using Cosmos SDK, the ATOM token didn't stand to directly benefit from its usage. We probably weren't the first, nor the last, to levy that type of critique on the ATOM token.

Interestingly enough, Cosmos' development team recently decided to build an exchange – Gravity DEX – directly into The Cosmos Hub, likely to the chagrin of the Osmosis development team. While Gravity DEX improves the value accrual of the ATOM token, it does hurt claims that The Cosmos Hub is credibly neutral. Before we move on, we should note that the main difference between Osmosis / Gravity DEX and THORChain is that the latter is focused on facilitating trades between non-Cosmos-based chains (e.g. Bitcoin & Ethereum) while the former are focused on the Cosmos ecosystem specifically, at least at this stage.

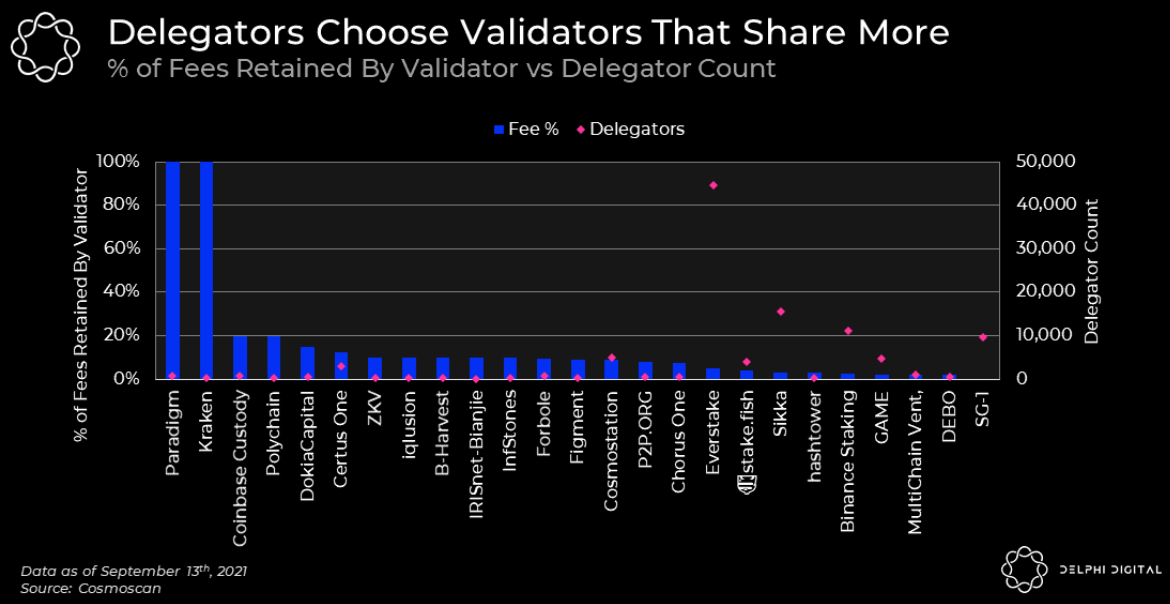
The final ring from the diagram, in blue, is for Shared Staking (Interchain Security), which may come to testnet as early as Q4 this year. Historically, we've seen App-Chains bootstrap their validator sets on their own. For a new chain starting out, with a low token price, this can be difficult due to the weak security it has at that stage. But what if new apps were able to offload this resource intensive endeavor to an external party and instead focus on building the core product? You know, like on Ethereum. We'd see a faster time to market with new apps and a more rich ecosystem connected via IBC. This is where shared security comes into play. It places ATOM validators, from The Cosmos Hub, on the forefront where they are able to lease out security to multiple App-Chains that opt-in, for a price. **This is an attractive proposition for validators because they can earn more fees supporting multiple "child chains", instead of only staking The Cosmos Hub (i.e. the "parent chain").**



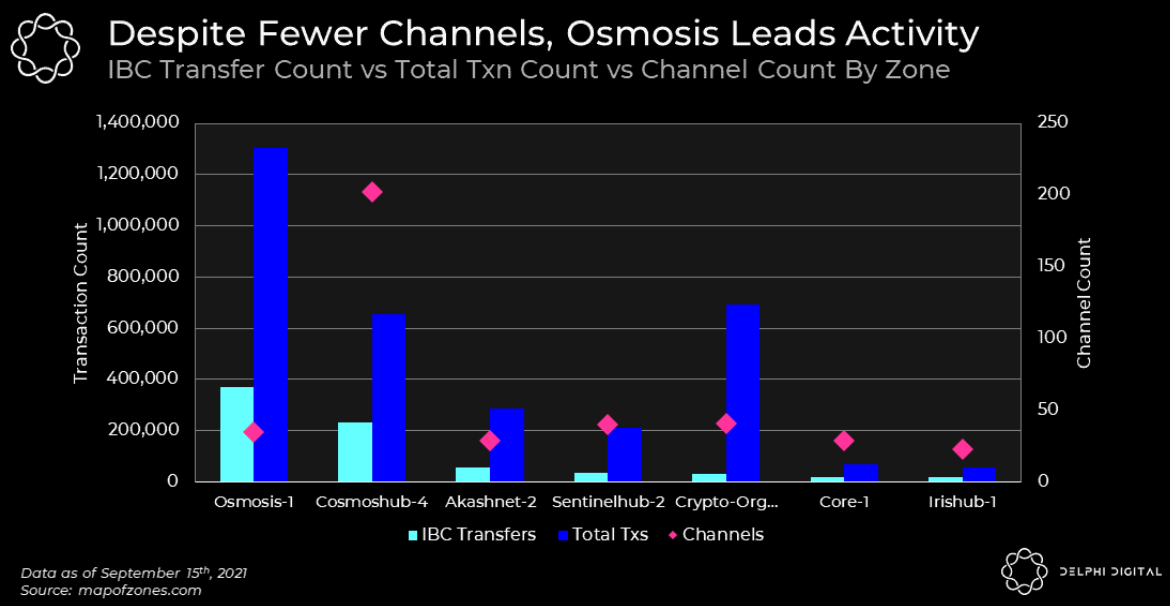
With Shared Staking still fresh in your minds, let's shift our focus and evaluate the

current state of the Cosmos Hub's validator set (i.e. ATOM stakers). As seen in the pie chart above, the top 10 validators account for 48% of all the ATOM staked. For context, the total number of validators is 144 currently. Previously, this had been capped at 125 validators but a governance proposal a few weeks ago voted to raise the maximum to 150.

Importantly, The Cosmos Hub implements DPoS meaning that passive ATOM holders can delegate their staked tokens to active validators in return for a portion of the yield. The exact amount of revenue that is shared varies by validator (you can monitor it here). The greater the revenue share, the more delegators that validator should logically have. When combining the amount of ATOM staked by validators / delegators, 67.8% of all ATOM is currently bonded. While this is down from 70.6% in July, we should note that it's just north of The Cosmos Hub's target bonded ratio of 66%.



ATOM stakers earn a return from two primary sources – 1) new ATOM issuance and 2) transactions fees from The Cosmos Hub. Regarding the first point, ATOM's current annualized inflation rate is ~7%. Regarding the latter point, fees can be derived from several different sources. As we prefaced earlier, The Cosmos Hub supports IBC, Gravity DEX, and Shared Staking, all of which it stands to earn fees from. Since IBC is the only one of those sources that is fully live, let's quickly recap its recent activity.



Earlier in this report, we outlined how Zones open communication channels between one another to facilitate IBC transactions. The more channels that are open, the more transactions that can happen. With that context in mind, it may come as a surprise to see The Cosmos Hub, which greatly leads total channel count, with fewer IBC transfers than Osmosis, in the chart above. Let's explore this more.

Osmosis: The First IBC-Native DEX

Osmosis launched on June 19th, with a go-to-market strategy that focused on attracting native IBC assets into its liquidity pools. Osmosis isn't your typical one-size-fits-all AMM. It offers customizability such as supporting different price curves and self-governing liquidity pools. It supports LBPs, similar to Balancer, which will likely be attractive to new projects launching in Cosmos. The development team is also working on superfluid staking, which will allow Osmosis LPs to delegate their LP tokens to validators. This will enable them to earn liquidity mining rewards and staking rewards at the same time. Notably, 23% of the Osmosis circulating supply is staked and it has 100 bonded validators with an APR of 186%.

Osmosis Has First Mover Advantage

IBC-Native DEX Overview

	Token	TVL ($)	24hr Vol ($)	Security	DEX Model	Value Accrual
OSMOSIS	OSMO	$440m	$24.8m	Osmosis Chain (OSMO Validators)	Customizable AMM Curves	Transaction Fees to OSMO Stakers*
Gravity DEX	ATOM	$44m	N/A	Cosmos Hub (ATOM Validators)	Hybrid AMM-Orderbook	Transaction Fees to ATOM Stakers

Data as of September 13th, 2021
Source: Osmosis Documentation, Gravity DEX Blog

**Note: Osmosis' Superfluid Staking will also let LPs earn LM pool and staking rewards at the same time*

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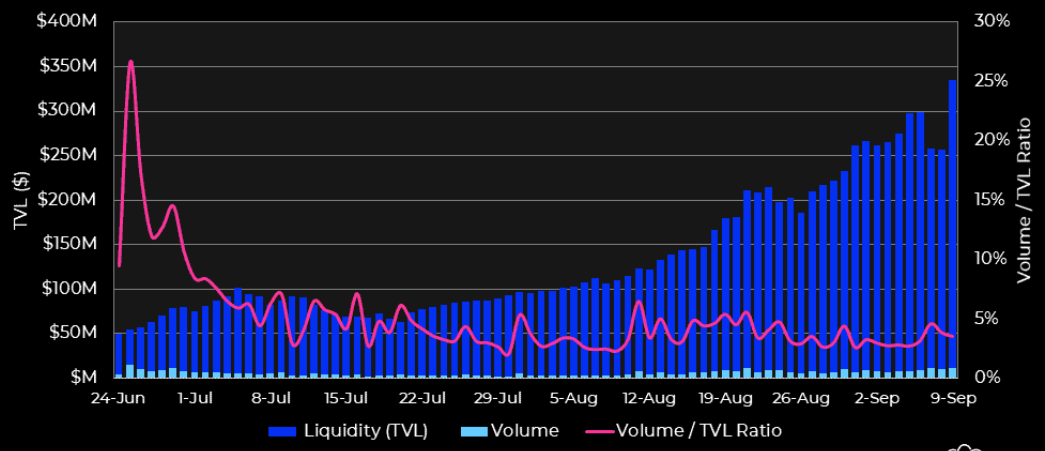
Earlier we teased the competition between Osmosis and Gravity DEX. In the table above, we've provided a quick comparison of the two. There are several reasons why Osmosis is currently in the lead. To start, and perhaps most importantly, it's the only one which is fully live, so there's that. But it has also benefited from leveraging its token supply to liquidity mine traction, attracting a current TVL of ~$440m. This is an impressive amount of liquidity to attain in only a few months and in such a nascent ecosystem.

Osmosis Liquidity Rises, Utilization Remains Flat

TVL & Trading Volume in USD vs Ratio



Data as of September 9th, 2021
Source: osmosis.imperator.co

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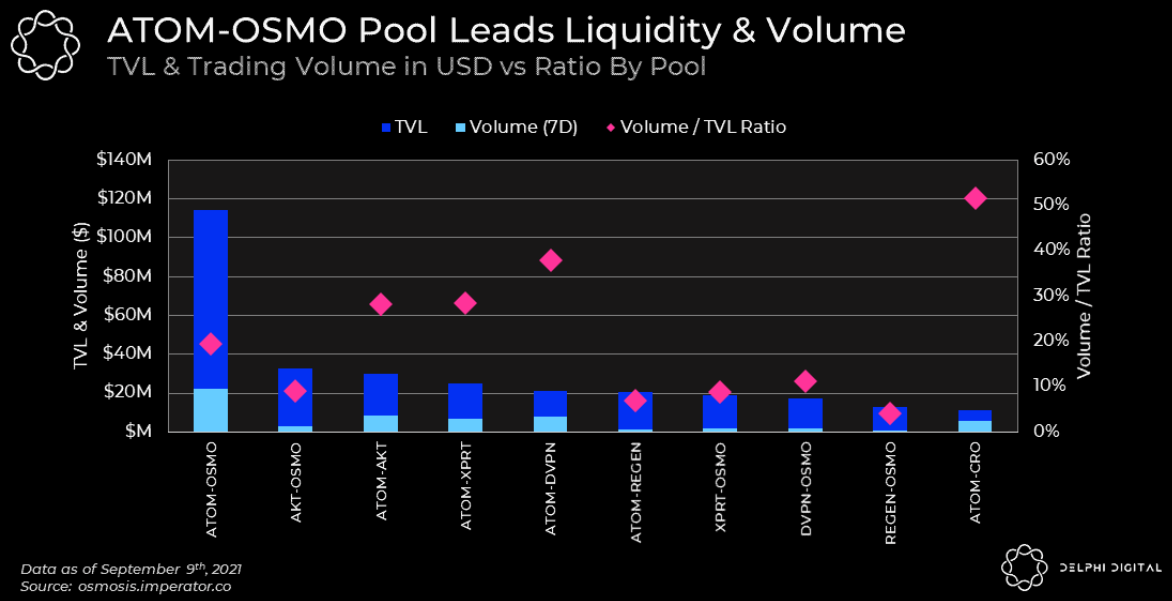
At a technical level, Gravity DEX is primarily differentiated from Osmosis due to its hybrid orderbook design. It remains to be seen how / if Gravity DEX will offer liquidity mining incentives similar to what Osmosis did. The ATOM token has

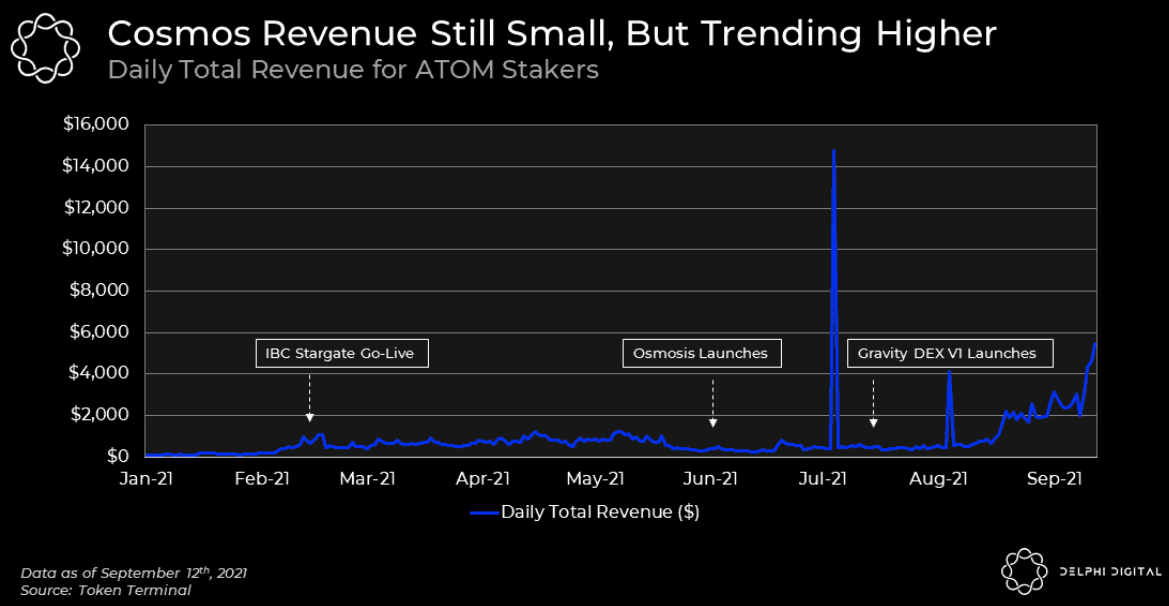
been around much longer than the OSMO token, so there might be less flexibility in how it could be used as a carrot. The main thing Gravity DEX has going for it is the fact it's built directly on The Cosmos Hub, putting it in a strong position to directly benefit from the continued adoption of IBC. **Although, as an earlier chart showed, channel count isn't everything and there's nothing stopping Osmosis' Zone from being a Hub itself.**



Osmosis' liquidity has been built up entirely using IBC without CEX support. This means, to purchase OSMO, traders have had to use one of the OSMO pairs, like ATOM/OSMO, on the DEX itself. The ATOM/OSMO pool continues to have the deepest liquidity, representing 37% of total TVL.

Increased pool utilization leads to more trading fees being generated. As seen in the chart above, the ATOM/OSMO pool has a 7D volume / liquidity ratio of ~0.20x, which is low relative to other major DEXs like Uniswap V3.

Cosmos Value Accrual



Since its launch, Cosmos has only generated ~$215k in total fee revenue and currently trades at a P/S ratio of 9,072x, according to Token Terminal. To be fair, however, this low level of revenue is to be expected given how new IBC is as a technology, and how metered its implementation has been on the part of App-Chains. On the bright side, revenue growth is trending in the right direction and there are a number of upcoming catalysts primed to pour fuel on its growth.

Upcoming Catalysts for Cosmos

- **Columbus 5 –** The highly anticipated Mainnet upgrade to Terra scheduled for September 30th, which will see Terra add support for IBC. While this is arguably more bullish for Terra itself, there should be a trickledown impact that benefits ATOM stakers. Stablecoins are vital for users and the added support for IBC should open the door for UST to become the leading stablecoin within the Cosmos ecosystem.

- **Gravity Bridge** – This is a Cosmos <> Ethereum bridge that will run on The Cosmos Hub and may debut as early as Q4. It could play a key role, tapping into all of the TVL on Ethereum. As we saw with Avalanche's upgraded bridge, a smooth UX can make a big difference.

- **Emeris** – A cross-chain DeFi aggregator, starting with Gravity DEX, whose

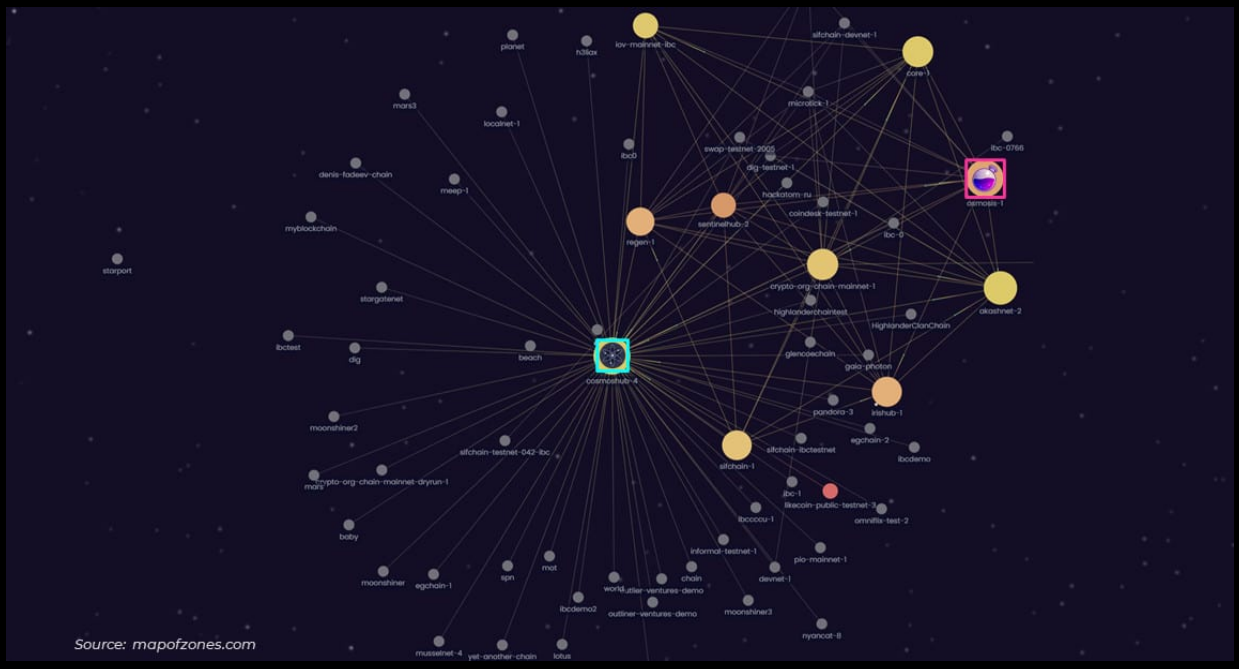
beta launched on August 17th.

- **Add IBC Router to the Hub (Proposal 56)** – The IBC Middleware module will enable the hub to play the role of IBC Router. Through governance, a fee can be added over time to benefit ATOM stakers.
- **Shared Security / IBC / Gravity DEX** – Please refer to previous sections.
- **Future Airdrops** – On October 1st, Juno Chain is scheduled to go live and will airdrop its tokens to ATOM stakers who were active during the February 18th Stargate launch. If this trend continues, it would be similar to the ecosystem airdrops we saw succeed on Terra. You can monitor for potential airdrops coming to ATOM stakers here.

Each of these catalysts has the potential to attract deeper liquidity and more users, while also enhancing the overall utility of the Cosmos ecosystem. Ultimately, they are net positive for ATOM stakers who stand to benefit from the increased transaction fees that would result.

Closing Thoughts

Let's revisit this graphic.



In the center, we have The Cosmos Hub highlighted in blue and to the right, we have Osmosis' Zone in pink. Recall that any Zone, if it has enough channels

connected to it, could be deemed a Hub. This raises the question – **will the Cosmos ecosystem revolve around a single mega Hub or will it have several large Hubs?** We're inclined to lean towards the latter, as it is already playing out between Osmosis and The Cosmos Hub. Both can facilitate IBC and both have native DEXs built into them. **The main differentiator for the Cosmos Hub is that it plans to offer Shared Staking in the future, which is unique and ultimately could be the wild card for ATOM value accrual.**

Is Cosmos a Layer 1? Technically, yes The Cosmos Hub is a blockchain. But unlike the other major Layer 1s (Ethereum, Solana, etc.), Cosmos has to quasi-compete against the applications within its own ecosystem, at least with regards to other DEXs now. There is a possible, albeit less likely, scenario where the Cosmos ecosystem continues to grow and flourish, even if The Cosmos Hub itself doesn't retain staying power. This type of situation is simply not possible on other networks. Of course, the more App-Chains there are, the more activity there will be within the Cosmos ecosystem, which ATOM stakers could benefit from.

At the time of writing, OSMO's fully diluted valuation is ~66% that of ATOM's ($6.2b vs $9.3b, respectively). Now, you could compare ATOM's valuation to that of Ethereum and Solana and say "hey, this looks cheap" relatively speaking. That would be a fair conclusion to reach. The question we'll leave you with, however, is this – "by that same train of logic, wouldn't Osmosis, Terra, and all the other App-Chains look cheap as well?" After all, they are Layer 1s too, and they were built using the same SDK. Indeed, **perhaps the real differentiator regarding valuations is that a network like Ethereum stands to benefit from all the applications that exist on top of it, while App-Chains only benefit from the single/few applications they directly support.**

The Cosmos Hub is an App-Chain. To thrive, it will need to find its own killer app. Maybe that's Shared Staking, maybe that's Gravity DEX, or maybe it's simply being the best IBC hub out there.