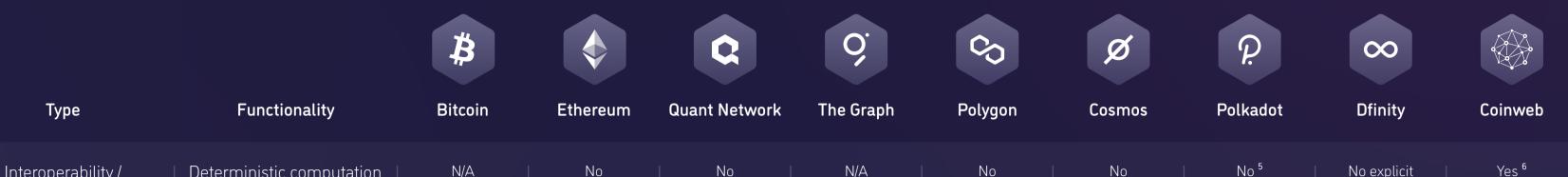


Cross-Chain Computation Platform

Positioning chart

Coinweb provides an **expanded solution space**¹ and **reduced platform risk**² for dApps by combining **unifying interoperability**³ with high capacity computation⁴. This chart shows how Coinweb is positioned compared to other systems based on key interoperability and computation functionality.



Interoperability / Execution model	Deterministic computation over multiple chains	N/A	No	No	N/A	No	No	No ⁵	No explicit interoperability	Yes ⁶
.⇔. 5	ill	×	×	×	×	×	×	×	×	<u>~</u>
Interoperability / Execution model	Smart contracts reacts to events on other chains	N/A	No	N/A	N/A	No	No	No	No	Yes
co co		×	×	×	×	×	×	×	×	<u>~</u>
Interoperability /	Smart contracts executes in	N/A	No	N/A	N/A	No	No	No	No	Yes
Execution model	parallel over multiple chains	×	×	×	×	×	×	×	×	<u>~</u>
Interoperability /	Smart contracts executes	N/A	No	N/A	N/A	No	No	No	Yes	Yes
Execution model	over multiple blocks	×	×	×	×	×	×	×	<u>~</u>	<u>~</u>
Interoperability /	Smart contracts emits	N/A	No	N/A	N/A	No	No	No	Yes	Yes
Execution model	transactions	×	×	×	×	×	×	×	<u> </u>	<u>~</u>
Interoperability /	Smart contracts holds	N/A	No	N/A	N/A	No	No	No	Yes	Yes
Execution model	gas balance	×	×	×	×	×	×	×	<u>~</u>	<u>~</u>
Interoperability /	Consensus from multiple	N/A	No	Yes, for on-chain	No ⁷	No	No	Shared security	No explicit	Yes
Security	underlying chains	×	×	messages	~	×	×	with relay chain	interoperability	~
Interoperability	Common interoperablity interface	No	No	Can connect to any	Can connect to any	No	Yes IBC	Yes XCMP	No	Can connect to any
÷Ģ:		×	×	<u>~</u>	<u>~</u>	×	<u>~</u>	<u> </u>	×	<u>~</u>
Interoperability	Cross-chain data visibility	No	Bridge	For on-chain	Medium ⁸	Bridge	Bridge	Bridge	Bridge	High
Ċ	of self-soverign chains	×	~	data	~	~	~	~	~	~
Execution model	Smart contracts executes in parallel on single chains	N/A	No	N/A	N/A	Not natively	Not natively	Not natively	Yes	Yes
ණි	_ ک	×	×	×	×	~	~	~	~	~
									·	
Execution model	Smart contracts	No	Yes	Centralized mapps ⁹	No	Yes	On individual zones	Supported by parachains	Yes	Yes
හි	G (×			×		<u> </u>	<u> </u>	<u> </u>	<u>~</u>
Evecution model	Computational	Low	Medium	N/A	High	Medium	Medium	Medium	Vorybigh	High
Execution model	Computational complexity								Very high	
2 ,2 ,2				×					<u> </u>	
Security	Correctness guarantee	51% of all nodes must be honest	51% of all nodes must be honest	N/A	Centralized arbitrator ¹⁰	2/3 of all validators must be honest	2/3 of all nodes must be honest	2/3 of all nodes must be honest	2/3 of all nodes must be honest	Only 1 honest node required
Ø	for computation			×						
Security	Network decentralization	High	High	Low	Low	Medium	Medium	Medium	Low	High
Q	\bigoplus	~	~	~	~	~	~	~	~	~
Security	Censorship resistance	High	High	Low	High	Medium	Medium	Medium	Medium	High
Ø	\otimes	<u> </u>	<u> </u>	✓ 	<u> </u>		<u> </u>	<u> </u>	<u> </u>	<u>~</u>
Security	Data redundancy	Thousands	Thousands	Thousands, for on-chain data	Very high / Medium ¹¹	Low guarantee	Max 200 validators	Min 14 validators	7 - 151	Very high / Medium ¹¹
Ø		~	~						~	
Scalability	Transaction processing efficiency ¹²	High	Low	N/A	Medium	Medium	Medium	Medium	Very high	Very high
	\$	~	~	×	~	<u>~</u>	<u>~</u>	<u> </u>	<u>~</u>	<u>~</u>

¹ The Coinweb protocol allows dApps to combine information, functionality and properties of multiple self-sovereign blockchains within a high capacity computational framework, dramatically increasing the solution space for dApps.

² Coinweb reduces the platform risk for dApps by providing an abstraction layer that eliminates the need to hard code dApps on specific low level protocols. dApps allowed to horizontally scale capacity and functionality over existing and new blockchains. ³ Coinweb's interoperability allows decentralized applications to combine a wide set of features from different blockchains under unified consensus.

⁴ Parallel execution model allows computation to scale horizontally on single chains and across multiple chains. This significantly reduces platform risk by preventing gas fee bottlenecks. It also allows for more powerful dApps with high computation requirements.
⁵ Block ordering in relay-chain is non-deterministic and based on a separate consensus.
⁶ Block ordering based on underlying consensus' timestamp and delay graph.

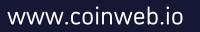
⁷ No ordering between blockchains. A subgraph is tied to a single chain.
⁸ The subgraph does not see cross-chain. A client of The Graph can see cross-chain.

⁹ Overledger Mapps are centralized applications that run on top of multiple chains, data input can be both onchain or offchain. Offchain data is hashed on underlying blockchains.

¹⁰ The indexes are deterministic, and GraphQL query results are signed by an indexer, but clients cannot check the results themselves currently.

 ¹¹ The underlying chain has very high data redundancy. The computed state might have less, but can be re-created deterministically in case of data loss.
¹² What is the required CPU and bandwidth for the average transaction for a given decentralization setup? Sequential execution models and complex computations drive this down. Simple transactions, parallel execution, or eliding computation from consensus drives it up.





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