

Solving Multichain UX

Lessons from Cosmos for the Rollup Ecosystem

“a network of independent blockchains generally—but not always—built with the Cosmos SDK, and that interact with each other using the Inter-Blockchain Communication protocol (IBC)”



Building in a
heterogeneous environment

Why does this matter for the
Ethereum ecosystem?

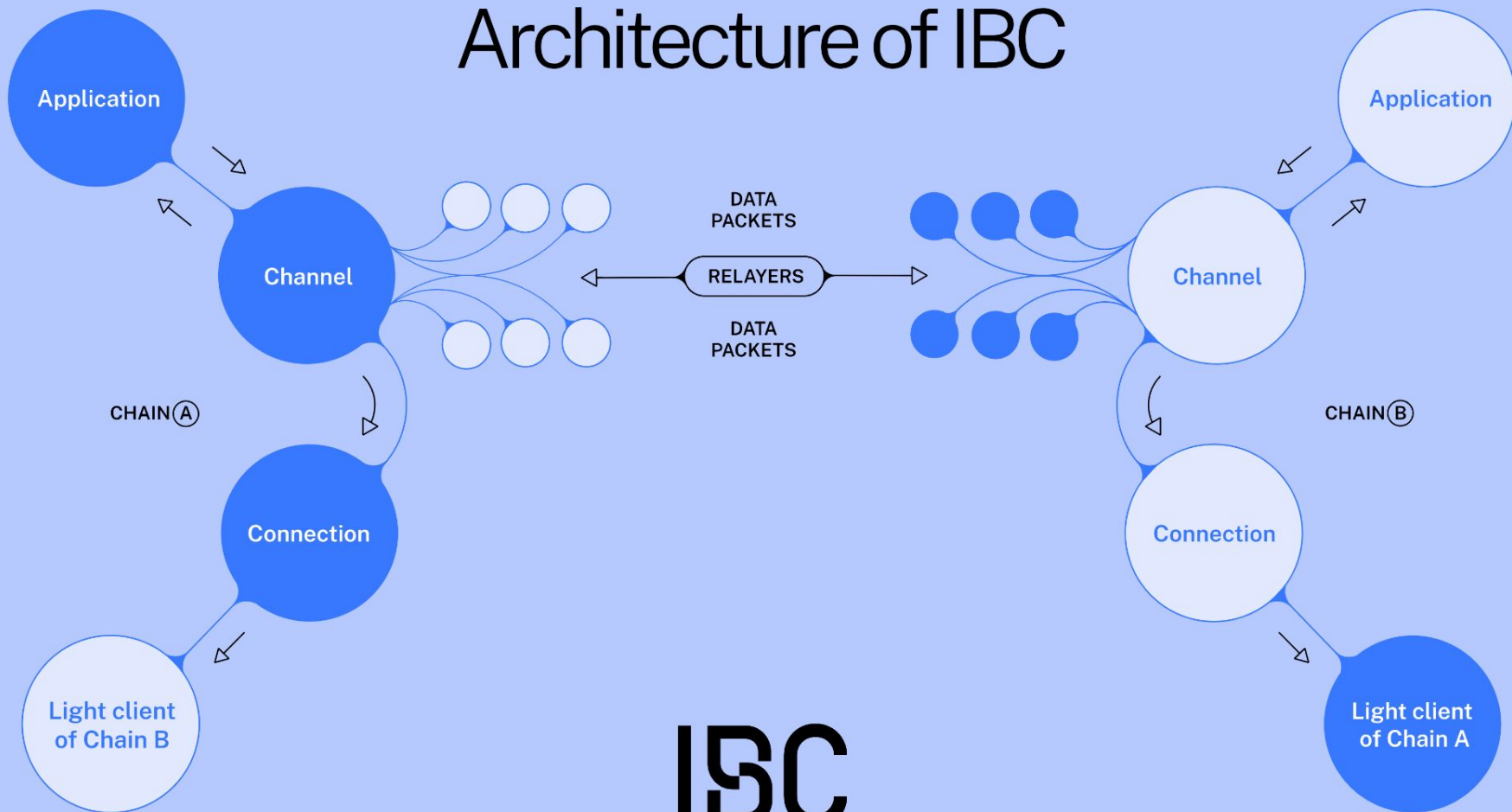
#	NAME	RISKS	TYPE	STAGE	TOTAL VALUE LOCKED	PAST DAY TPS
1	Arbitrum One		Optimistic Rollup	STAGE 1	\$13.39B $\sim 0.04\%$	22.79 $\sim 6.95\%$
2	Base		Optimistic Rollup	STAGE 0	\$7.86B $\sim 4.18\%$	81.68 $\sim 4.41\%$
3	OP Mainnet		Optimistic Rollup	STAGE 1	\$5.73B $\sim 3.20\%$	8.82 $\sim 0.92\%$
4	Mantle		Optimium	N/A	\$1.30B $\sim 3.24\%$	3.70 $\sim 2.51\%$
5	Blast		Optimistic Rollup	STAGE 0	\$1.30B $\sim 2.24\%$	5.93 $\sim 5.70\%$
6	Scroll		ZK Rollup	STAGE 0	\$1.00B $\sim 17.1\%$	1.53 $\sim 13.8\%$
7	ZKsync Era		ZK Rollup **	STAGE 0	\$825.58M $\sim 1.08\%$	1.81 $\sim 1.70\%$
8	Linea		ZK Rollup	STAGE 0	\$820.48M $\sim 3.23\%$	2.54 $\sim 21.7\%$
9	Starknet		ZK Rollup	STAGE 0	\$622.74M $\sim 0.53\%$	0.69 $\sim 2.26\%$
10	Manta Pacific		Optimium	N/A	\$485.43M $\sim 1.45\%$	2.86 $\sim 1.73\%$
11	Mode		Optimistic Rollup	STAGE 0	\$314.92M $\sim 7.07\%$	0.28 $\sim 2.38\%$
12	Metis		Optimium	N/A	\$283.53M $\sim 1.82\%$	0.59 $\sim 7.30\%$
13	Fuel Ignition		Optimistic Rollup	STAGE 0	\$269.57M $\sim 14.6\%$	No data
14	Fractal		Optimium	N/A	\$175.06M $\sim 1.48\%$	0.06 $\sim 21.0\%$
15	Zircuit		Optimistic Rollup	STAGE 0	\$146.93M $\sim 6.54\%$	0.10 $\sim 15.0\%$
16	World Chain		Optimistic Rollup	STAGE 0	\$133.03M $\sim 4.42\%$	6.02 $\sim 2.83\%$
17	Re.ai		Optimium	N/A	\$132.74M $\sim 35.2\%$	0.11 $\sim 21.8\%$
18	Gravity		Optimium	N/A	\$132.70M $\sim 2.35\%$	20.46 $\sim 14.8\%$
19	Link		Optimistic Rollup	STAGE 0	\$126.03M $\sim 0.07\%$	0.07 $\sim 3.01\%$
20	BOB		Optimistic Rollup	STAGE 0	\$106.17M $\sim 2.02\%$	0.35 $\sim 25.9\%$
21	Talko		Optimistic Rollup	STAGE 0	\$101.26M $\sim 4.38\%$	48.14 $\sim 6.31\%$
22	Immutable X		Validium	N/A	\$86.61M $\sim 30.4\%$	2.92 $\sim 3.22\%$
23	ApeX		Validium	N/A	\$79.41M $\sim 0.25\%$	0.77 $\sim 11.3\%$
24	zkLink Nova <small>L3 on Linea</small>		Validium	N/A	\$71.87M $\sim 5.18\%$	0.37 $\sim 2.82\%$
25	RSS3 VSL		Optimium	N/A	\$60.84M $\sim 2.79\%$	0.63 $\sim 28.8\%$
26	Polygon zkEVM		ZK Rollup	STAGE 0	\$60.52M $\sim 1.87\%$	0.13 $\sim 3.82\%$
27	dYdX v3		ZK Rollup	STAGE 1	\$53.63M $\sim 50.4\%$	0.00 $\sim 0.00\%$
28	DeGate V1		ZK Rollup	STAGE 2	\$50.69M $\sim 0.62\%$	0.17 $\sim 8.32\%$
29	Aevo		Optimium	N/A	\$49.80M $\sim 0.65\%$	0.23 $\sim 2.93\%$
30	ZKsync Lite		ZK Rollup	STAGE 1	\$48.79M $\sim 0.80\%$	0.01 $\sim 76.8\%$
31	Derive		Optimium	N/A	\$48.52M $\sim 0.74\%$	0.08 $\sim 13.8\%$
32	Cronos zkEVM		Validium **	N/A	\$43.78M $\sim 0.93\%$	0.06 $\sim 33.3\%$

33	Loopring		ZK Rollup	STAGE 0	\$42.87M $\sim 0.48\%$	0.01 $\sim 5.60\%$
34	Kinto		Optimistic Rollup	STAGE 0	\$35.66M $\sim 0.85\%$	<0.01 $\sim 0.00\%$
35	Arbitrum Nova		Optimium	N/A	\$35.45M $\sim 1.18\%$	0.45 $\sim 38.1\%$
36	X Layer		Validium	N/A	\$27.98M $\sim 3.03\%$	0.13 $\sim 28.5\%$
37	Reya		Optimium	N/A	\$27.61M $\sim 9.91\%$	0.78 $\sim 16.4\%$
38	Karak		Optimium	N/A	\$26.07M $\sim 6.20\%$	<0.01 $\sim 0.00\%$
39	Cyber		Optimium	N/A	\$22.74M $\sim 4.91\%$	0.24 $\sim 36.6\%$
40	Zora		Optimistic Rollup	STAGE 0	\$19.73M $\sim 3.23\%$	1.65 $\sim 26.0\%$
41	Orderly		Optimium	N/A	\$18.75M $\sim 1.51\%$	0.07 $\sim 15.5\%$
42	Sanko <small>L3 on Arbitrum One</small>		Optimium	N/A	\$18.61M $\sim 1.16\%$	0.08 $\sim 22.4\%$
43	Kroma		Optimistic Rollup	STAGE 0	\$18.01M $\sim 2.96\%$	2.53 $\sim 14.7\%$
44	Sorare		Validium	N/A	\$17.21M $\sim 3.56\%$	0.80 $\sim 4.56\%$
45	ZKFair		Validium	N/A	\$15.98M $\sim 0.58\%$	0.12 $\sim 6.77\%$
46	Paradex		ZK Rollup	STAGE 0	\$13.85M $\sim 2.34\%$	No data
47	SX Network		Optimium	N/A	\$12.92M $\sim 10.5\%$	0.11 $\sim 4.23\%$
48	Silicon		Validium	N/A	\$12.67M $\sim 0.85\%$	<0.01 $\sim 0.00\%$
49	Binary		Optimistic Rollup	STAGE 0	\$11.43M $\sim 27.1\%$	0.00 $\sim 0.00\%$
50	Boba		Optimistic Rollup	STAGE 0	\$11.42M $\sim 1.22\%$	0.02 $\sim 25.2\%$
51	rhino.fi		Validium	N/A	\$10.86M $\sim 7.97\%$	0.04 $\sim 41.7\%$
52	WINR <small>L3 on Arbitrum One</small>		Optimium	N/A	\$6.33M $\sim 7.30\%$	4.64 $\sim 26.7\%$
53	Degen Chain <small>L3 on Base</small>		Optimium	N/A	\$4.04M $\sim 27.8\%$	0.08 $\sim 14.6\%$
54	Shape		Optimistic Rollup	STAGE 0	\$3.52M $\sim 19.7\%$	0.02 $\sim 11.7\%$
55	Astar zkEVM		Validium	N/A	\$3.45M $\sim 2.14\%$	0.04 $\sim 11.0\%$
56	Xai <small>L3 on Arbitrum One</small>		Optimium	N/A	\$2.24M $\sim 15.0\%$	No data
57	Mint		Optimistic Rollup	STAGE 0	\$2.20M $\sim 1.81\%$	1.74 $\sim 7.75\%$
58	Polynomial		Optimistic Rollup	STAGE 0	\$2.18M $\sim 0.47\%$	0.01 $\sim 11.7\%$
59	ZKSpace		ZK Rollup	STAGE 0	\$1.99M $\sim 14.4\%$	No data
60	Redstone		Optimium	N/A	\$1.73M $\sim 6.79\%$	1.30 $\sim 39.1\%$
61	Ancient8		Optimium	N/A	\$1.36M $\sim 13.1\%$	0.04 $\sim 32.4\%$
62	tanX		Validium	N/A	\$1.27M $\sim 0.44\%$	0.53 $\sim 18.8\%$
63	XCHAIN		Optimium	N/A	\$1.19M $\sim 0.98\%$	0.25 $\sim 3.81\%$
64	Term Structure		ZK Rollup	STAGE 0	\$1.08M $\sim 1.20\%$	No data
65	HYCHAIN		Optimium	N/A	\$1.07M $\sim 17.0\%$	0.10 $\sim 1.93\%$
66	AllenX		Optimium	N/A	\$889K $\sim 1.26\%$	1.14 $\sim 357\%$

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IBC

Architecture of IBC



IBC

Token Transfers

```

// transfer v1 example: sending ATOM from Cosmos Hub -> Osmosis
FungibleTokenPacketData {
    Denom: "transfer/channel-141/uATOM",
    Amount: "10",
}

// transfer v2 example: sending ATOM and FOO from Cosmos Hub -> Osmosis
FungibleTokenPacketDataV2 {
    Tokens: [
        {
            Denom: {
                BaseDenom: "uATOM",
                Trace: [
                    {PortID: "transfer",
                     ChannelID: "channel-141"},
                ],
            },
            Amount: "10",
        },
        {
            Denom: {
                BaseDenom: "uFOO",
                Trace: [
                    {PortID: "transfer",
                     ChannelID: "channel-141"},
                ],
            },
            Amount: "10",
        },
    ],
}

```

Accounts

0x4f3a120e72c76c22ae802d129f599bfdbc31cb81

osmo1zprf2th5m03f4mpnweqkfqx2m0vhmh67k6qt4v
noble1zprf2th5m03f4mpnweqkfqx2m0vhmh67kzxnms

...

eth:0x4f3a120e72c76c22ae802d129f599bfdbc31cb81
pol:0x4f3a120e72c76c22ae802d129f599bfdbc31cb81

Determining who **actually** controls an account



'Wintermute
HACK
HACK

'Wintermute' Hack'
Unclaimedes braddaddress
laivleen unnaaiinedd: anobmies
a unitialized multisig wallet

'WINTERMUTE
HACK

'WINTERMUTE' Hack
Hacker

'Wintermute hack
an unitialized multisig wallet

Unclaimed

Registries

degen.someone.eth

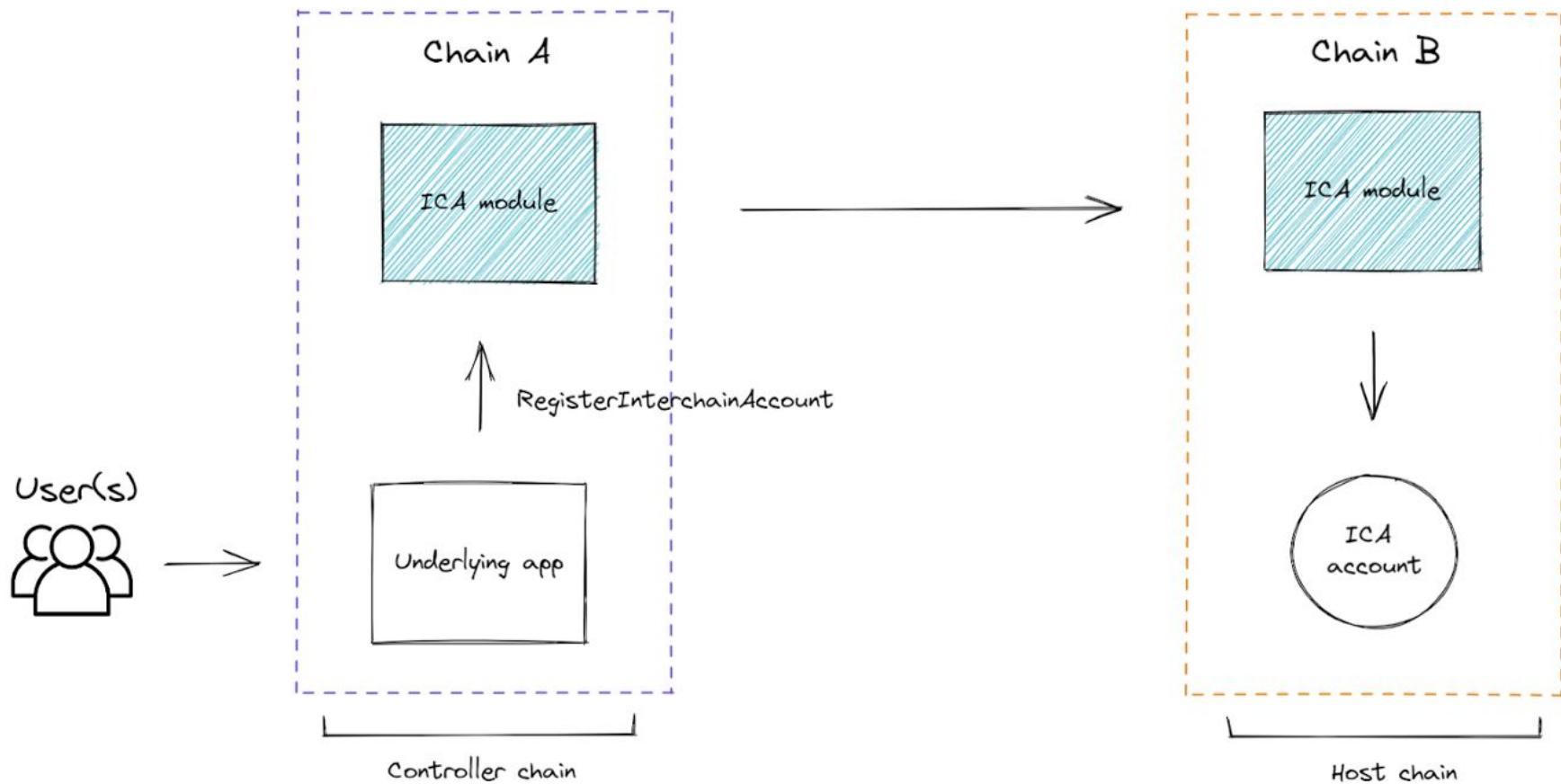
eth://degen.someone

degen.someone@eth

Asymmetric names

Abstract Accounts

One solution:
Interchain Accounts



Latency

Other UX Problems

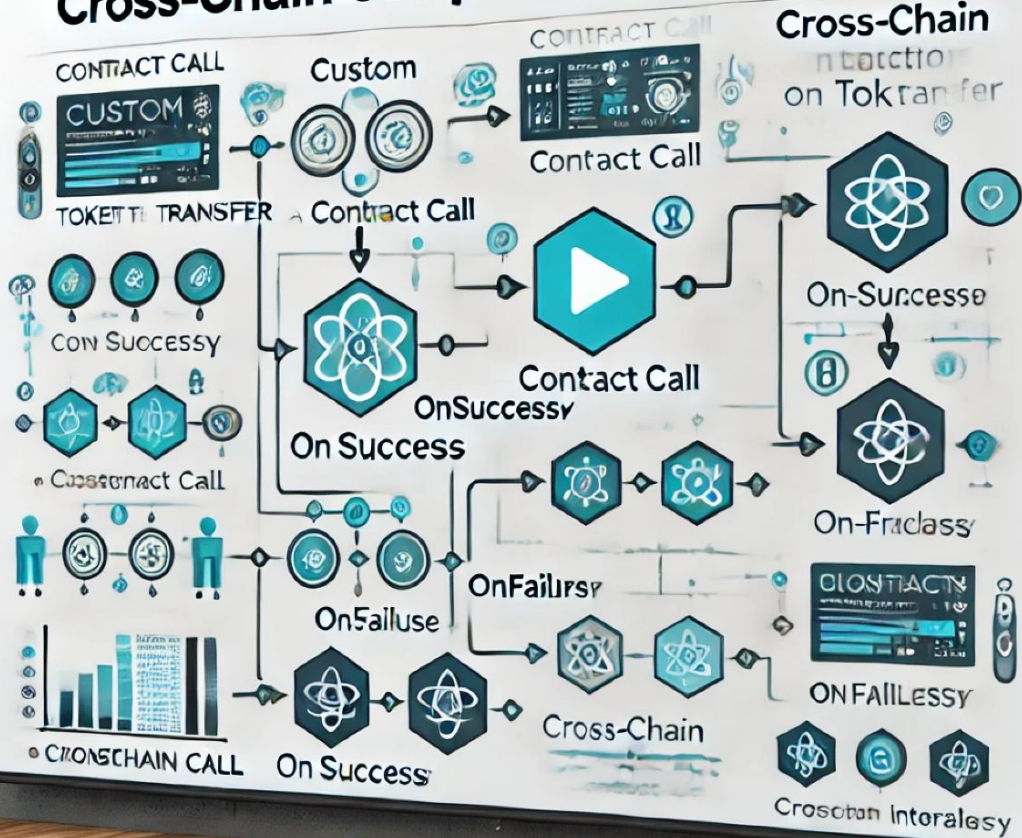
- Initialization
- Composability

A general model of cross-chain execution



```
{
  "forward": {
    "receiver": "osmo1uwk8xc6q0s6t5qcpr6rht3sczu6du83xq8pwxjua0hfj5hzcnh3sqxwvxs", // XCS contract
    "port": "transfer",
    "channel": "channel-141", // Osmosis channel on gaia
    "next": {
      "wasm": {
        "contract": "osmo1uwk8xc6q0s6t5qcpr6rht3sczu6du83xq8pwxjua0hfj5hzcnh3sqxwvxs", // XCS contract
        "msg": {
          "osmosis_swap": {
            "output_denom": "ibc/46B44899322F3CD854D2D46DEEF881958467CDD4B3B10086DA49296BBED94BED", // .
            "receiver": "juno1tfu4j7nzfhtex2wyp946rm02748zxu8wey0sqz", // temp receiver
            "slippage": {
              "twap": {
                "slippage_percentage": "20",
                "window_seconds": 10
              }
            },
            "next_memo": {
              "forward": {
                "receiver": "cosmos1tfu4j7nzfhtex2wyp946rm02748zxu8w0kvt87", // final receiver
                "port": "transfer",
                "channel": "channel-1" // gaia's channel on juno
              }
            },
            "on_failed_delivery": "do_nothing"
          }
        }
      }
    }
  }
}
```

CONTACT CALL



Challenges

- Who's doing the execution?
- Who's paying for it?
- Execution data on-chain
- Dynamic information
- Cross-chain latency
- MEV / Privacy

ERC-7683 + EIP-7702



Cross chain Intents + Authorizations




Asset Fragmentation

Balances

Tokens

Networks

 **Ethereum** **\$76.02**
 wstETH, ETH, +2 more 9 balances

USDC		Hide Balances
	USDC on Osmosis	\$17.19 17.199419
	USDC on Arbitrum	\$7.44 7.438713
	USDC on Optimism	\$6.55 6.552636
	USDC on Noble	\$4.56 4.561946
	USDC.e on Polygon	\$4.47 4.467204
	AXLUSDC on Polygon	\$2.46 2.463293
	AXLUSDC on Optimism	\$1.00 0.998607
	AXLUSDC on Base	\$1.00 0.998327
	USDC on Base	\$0.95 0.95454
	USDC on Cosmos Hub	\$0.48 0.48

 **Bitcoin** **\$13.46**
 nBTC, AXLWBTC, +1 more 3 balances



4 Token Pool

Pool #1868 0%

Better standards

HOW STANDARDS PROLIFERATE:

(SEE: A/C CHARGERS, CHARACTER ENCODINGS, INSTANT MESSAGING, ETC.)

SITUATION:
THERE ARE
14 COMPETING
STANDARDS.

14?! RIDICULOUS!
WE NEED TO DEVELOP
ONE UNIVERSAL STANDARD
THAT COVERS EVERYONE'S
USE CASES.



SOON:

SITUATION:
THERE ARE
15 COMPETING
STANDARDS.

A user-centric view of blockchains

- Safe accounts, easily identifiable and shared across chains
- A unified view of all assets for a user
- Better cross-chain protocols for managing transaction lifecycles
- Cross-chain protocols for asset identity
- Advanced account permissions shared between chains



Enter the Token Portal

All tokens. All chains. One app.





Thank you!

Osmosis
@osmosiszone

Polaris
@polaris_app