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Experiences with DApp

On Blockchain as a service

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Agenda Slide

1) What is DApp?
2) Where can we apply DApp/Blockchains?
3) DApp Architecture
4) DApp on private/consortium Blockchain!
5) Key takeaways

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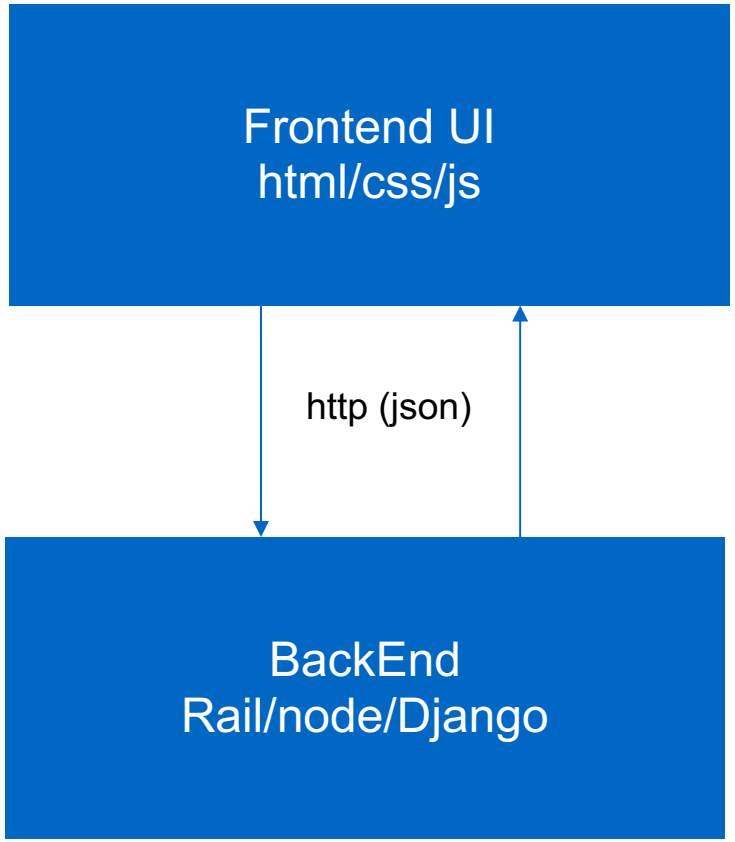
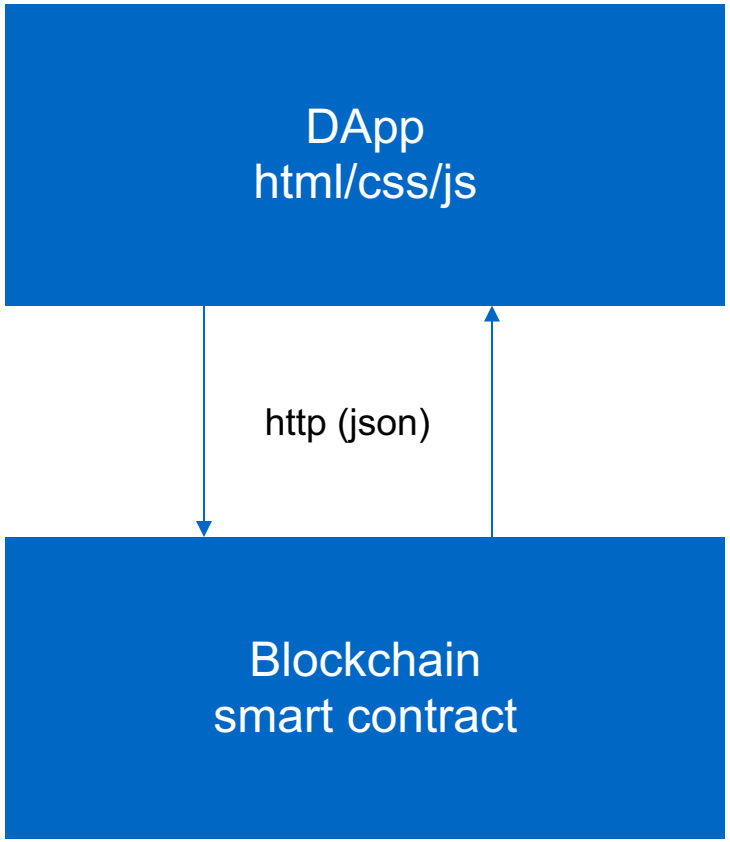
What is DApp?

DApp overview

DApp: Decentralized Applications



WebApp Architecture



DApp Architecture

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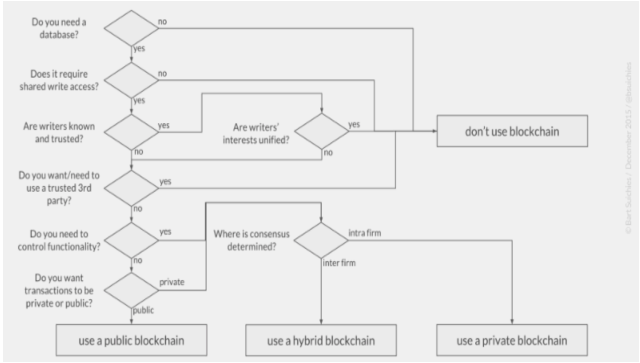
Where can we apply DApp/Blockchains?

Where can we apply DApp/Blockchains?

- If shared database with multiple non-trusting updaters &
- Decentralized trust among participants to update the ledger &
- Backed by value for assets represented on Blockchain

Where it should **not** be used?



- If traditional database meets the need ||
- Single participant updates the ledger ||
- All updaters trust one another ||
- All participants trust third party.

Source: https://teams.microsoft.com/l/channel/19%3a17436559c81441eca755003fbf111542%40thread.skype/Do%2520you%2520need%2520a%2520blockchain?groupId=d8d2483f-ad4a-40cf-943c-b4bff94a9e08&tenantId=4b0911a0-929b-4715-944b-c03745165b3a

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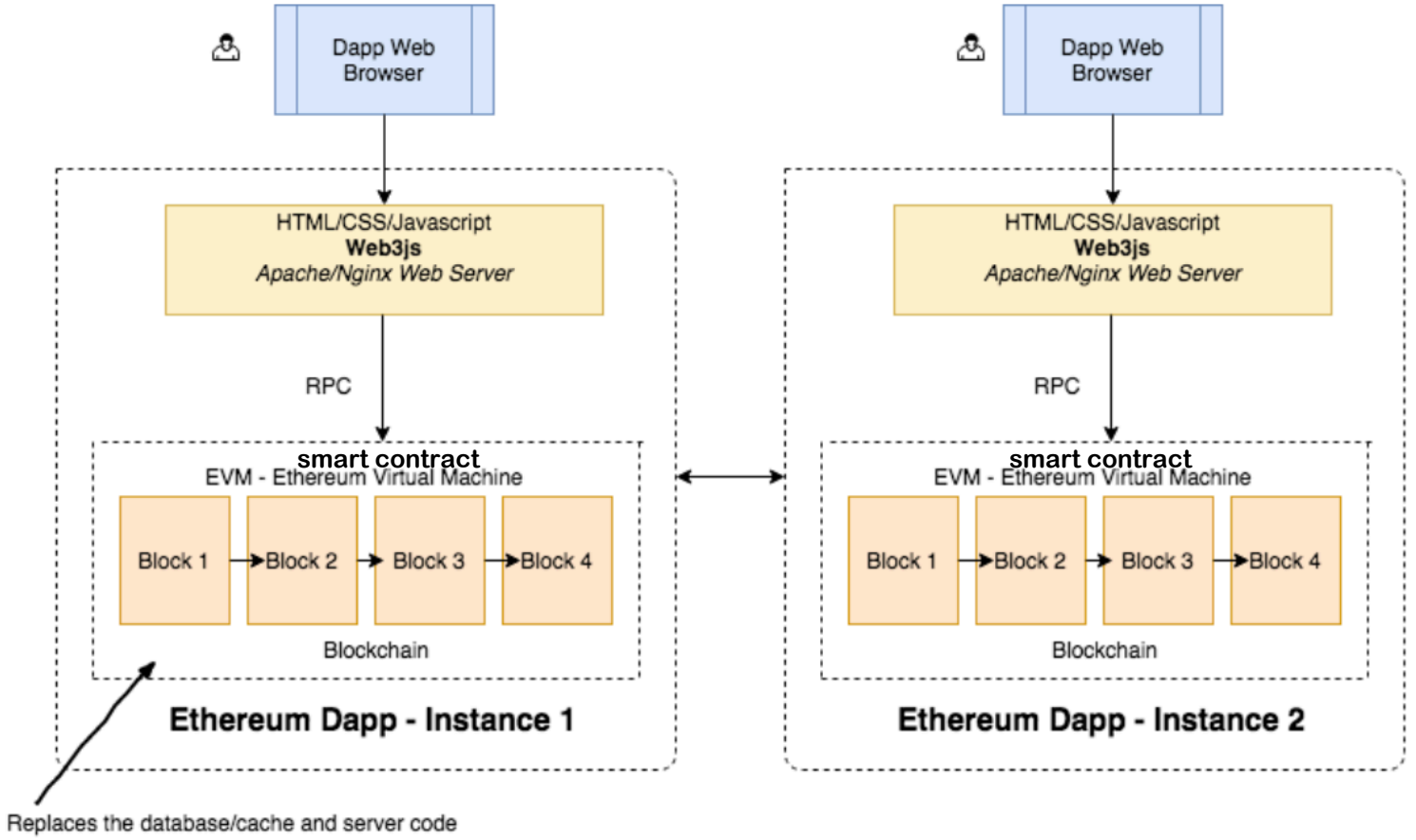
Industry verticals: Emerging Blockchain Applications

DApp Architecture

DApp Architecture

Apps built on a blockchain-based, decentralized platform, mainly on Ethereum



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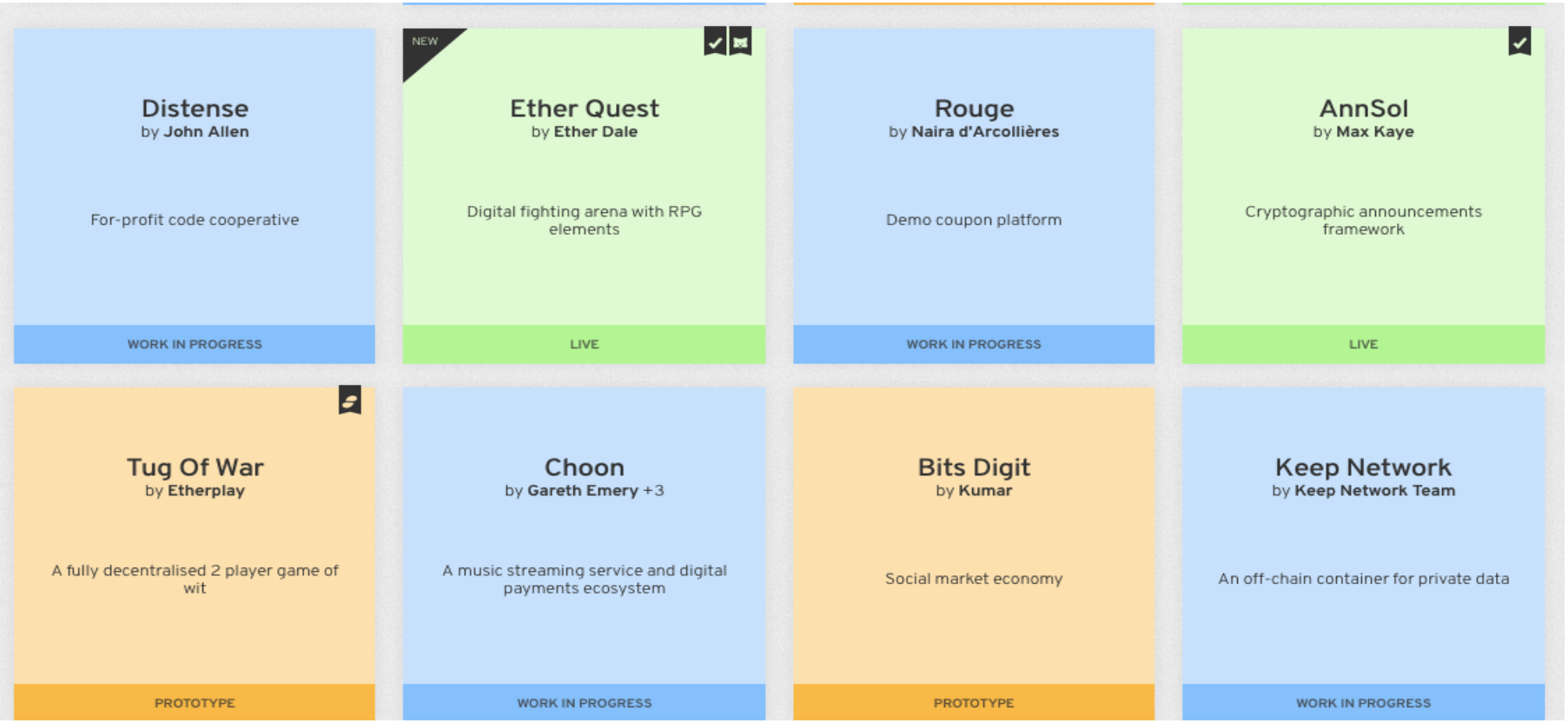
DApps

100+ apps: https://www.stateofthedapps.com/



Storage DApps

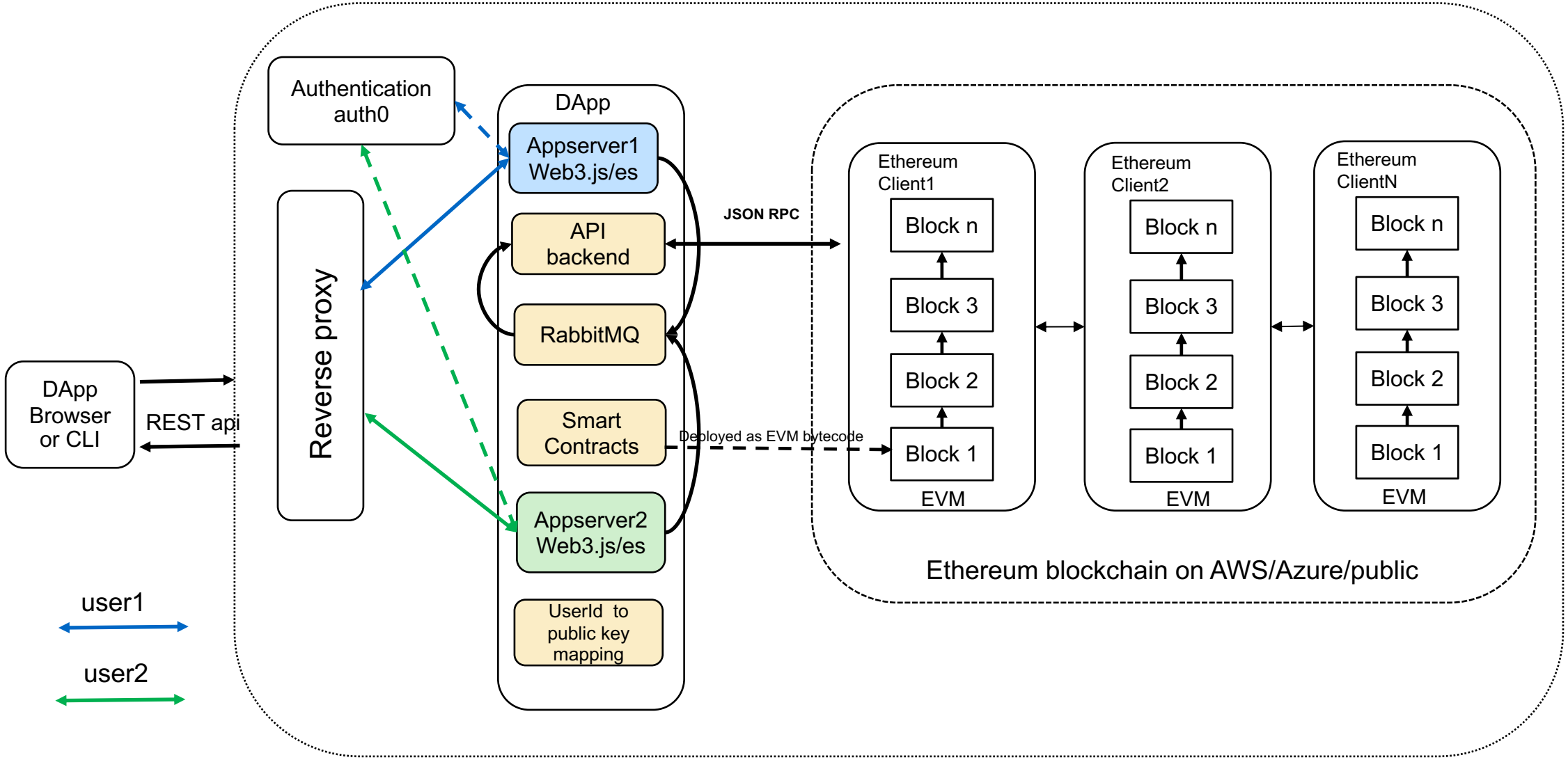
https://www.stateofthedapps.com/

	Platform	Category	Users (24h)	Volume (7d)	Dev activity (30d)	User activity (30d)
Storj Affordable, private, secure cloud storage	Ethereum	Storage	61 +19.61%	0 ETH 0 USD –	3,788 -19.83%	
X Cloud Secure and affordable cloud storage	Ethereum	Storage	5 +400.00%	0 ETH 0 USD –	101 -48.21%	
Sentinel dVPN Share and monetize your unused bandwidth and earn Sentinel tokens	Ethereum	Storage	6 -33.33%	0 ETH 0 USD –	65 +12.07%	
Insights Network The future of data is under your control	Ethereum	Storage	2 -84.62%	0 ETH 0 USD –	– –	
Numerai Hedge fund built by a network of data scientist	Ethereum	Storage	26 +188.89%	0 ETH 0 USD –	20 -37.50%	

DApp on private/consortium Blockchain!

Enterprise use-cases

DApp Architecture for ‘Blockchain service’ on cloud



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Performance Results

5x Improvement from switching pow to poa + queues

Test	RPS	Avg latency (ms)	Median latency (ms)	Config
BC (pow)	4.1	2623	2200	config1
BC(poa)+rabbitmq	**22**	**250**	**264**	config2

config1: 5 blockchain nodes, aws t2 large(6cpus total)

config2: 5 blockchain nodes, aws c4 large(16 cpus total)

BC: Ethereum Blockchain

RPS: Requests per second

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Key Takeaways

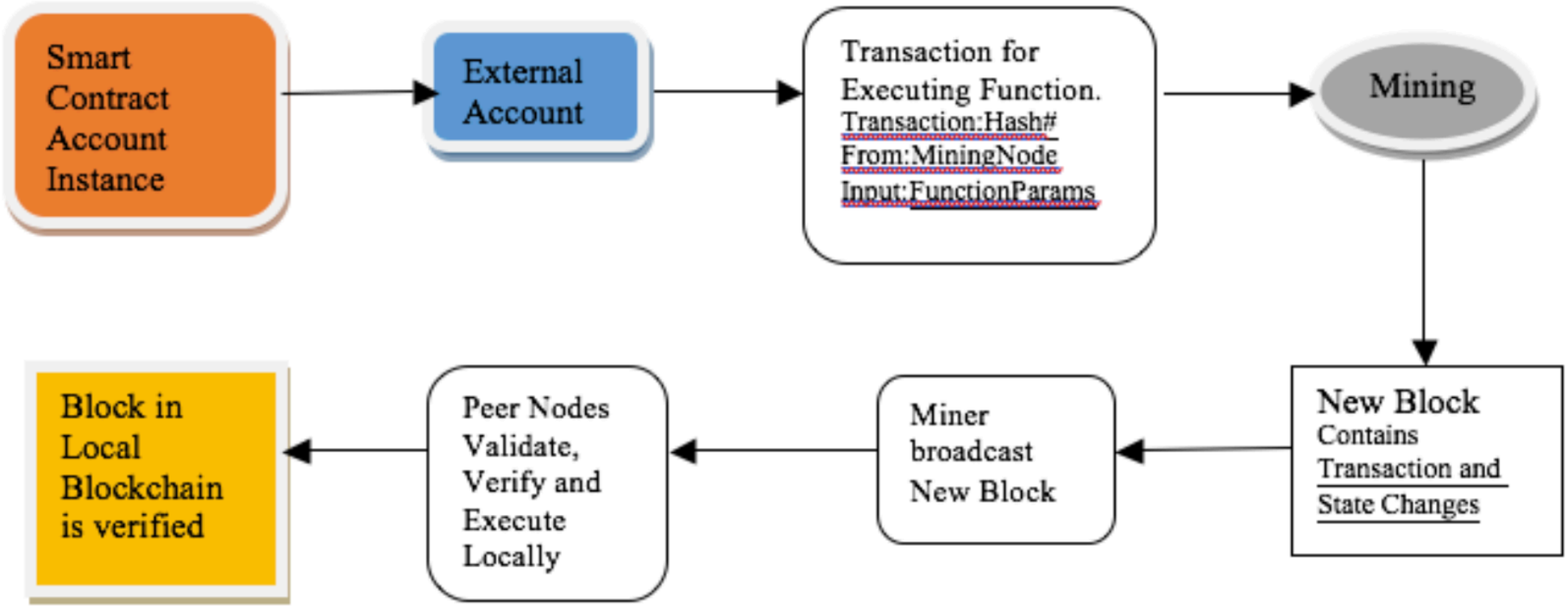
- Blockchain/DLT is a disruptive technology applicable across many verticals
- Public/hosted blockchains weighed down by scalability issues
  - Transactions/second is a real concern: PoS (Proof of Stake) consensus can enable scaling.
- Adoption of blockchains will exponentially increase after scalability bottlenecks are erased!
- Do not use beyond 5 nodes in a private/hosted blockchain/Ethereum.
- Use for applications which need below 30 Requests per second on Ethereum

Thank You

Backup

Smart contract execution

POA (Proof of Authority) as consensus algorithm by miners for scalability and high performance



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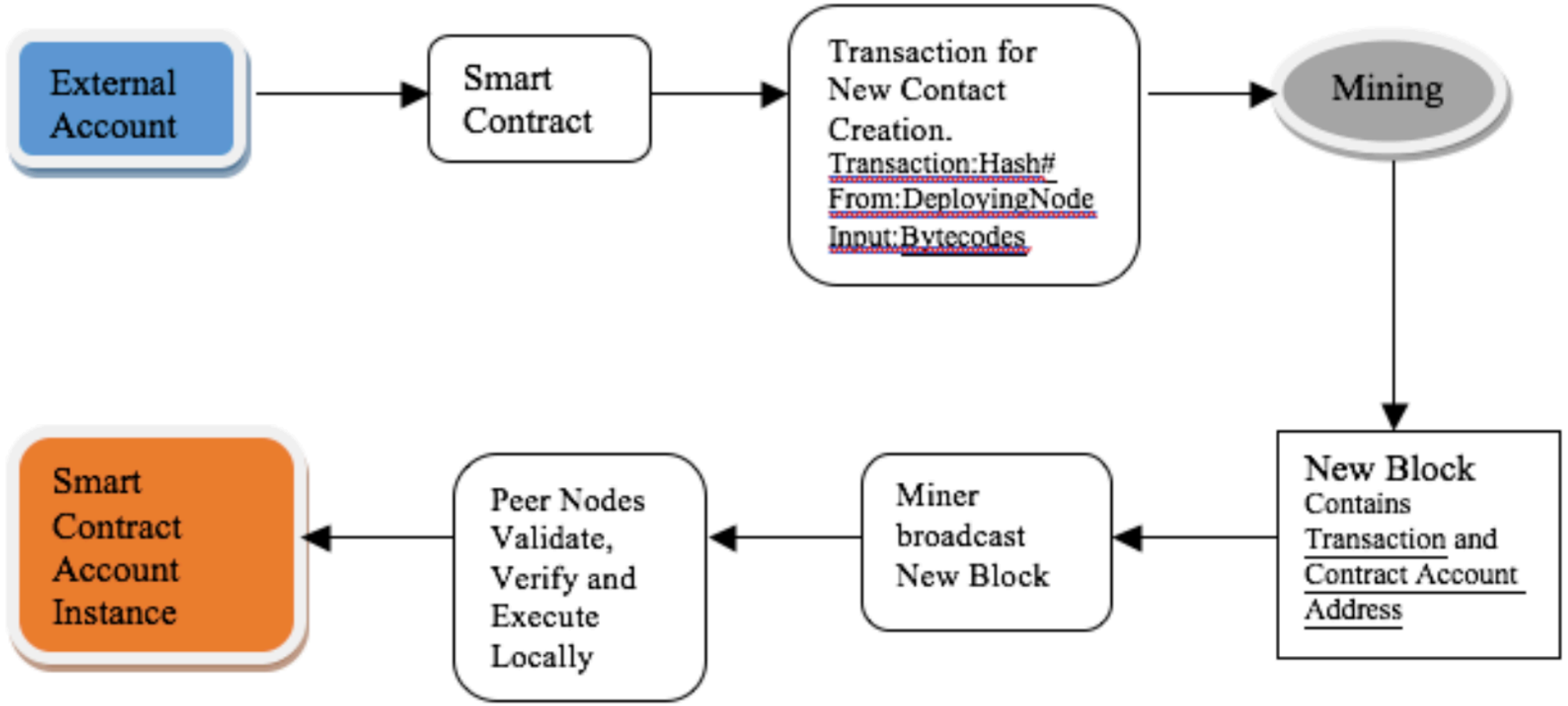
Smart contract deployment

Smart Contracts are compiled to bytecodes. These bytecodes are deployed as instances of Smart Contracts in the Ethereum Virtual Machine (EVM).



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