



# Unstoppable RPC Endpoint

ETHBelgrade Hackathon, 5-7 June 2023

# Problem

ledgerwatch/erigon

## #3247 RPC Daemon Shuts Down and Closes Endpoint URL...

### Ethereum Nodes

<b>Infura</b> Freemium <b>Down</b> <a href="https://infura.io/">https://infura.io/</a> Visit website to get API key	<b>Alchemy</b> Freemium <b>Working</b> <a href="https://alchemyapi.io/">https://alchemyapi.io/</a> Visit website to get API key	<b>Moralis</b> Freemium <b>Down</b> <a href="https://moralis.io/">https://moralis.io/</a> Visit website to get API key	<b>MyCrypto</b> Free <b>Working</b> <a href="https://mycrypto.com/">https://mycrypto.com/</a> <a href="https://api.mycryptoapi.com/eth">https://api.mycryptoapi.com/eth</a>	<b>Flashbots</b> Free <b>Down</b> <a href="https://flashbots.io/">https://flashbots.io/</a> <a href="https://rpc.flashbots.net/">https://rpc.flashbots.net/</a>
<b>RIVET</b> Freemium <b>Working</b> <a href="https://rivet.cloud/">https://rivet.cloud/</a> Visit website to get API key	<b>Pocket Network</b> Freemium <b>Working</b> <a href="https://pokt.network/">https://pokt.network/</a> <a href="https://eth-mainnet.gateway.pokt.net/">https://eth-mainnet.gateway.pokt.net/</a>	<b>Cloudflare</b> Free <b>Working</b> <a href="https://cloudflare-eth.com/">https://cloudflare-eth.com/</a> <a href="https://cloudflare-eth.com/">https://cloudflare-eth.com/</a>	<b>Blockscout</b> Free <b>Working</b> <a href="https://blockscout.com/">https://blockscout.com/</a> <a href="https://mainnet-nethermind.blockscout.com/">https://mainnet-nethermind.blockscout.com/</a>	<b>MyEtherNode</b> Free <b>Working</b> <a href="https://myethernode.com/">https://myethernode.com/</a> <a href="https://node.me/">https://node.me/</a>
<b>LinkPool</b> Free <b>Working</b> <a href="https://linkpool.io/">https://linkpool.io/</a> <a href="https://main-rpc.linkpool.io/">https://main-rpc.linkpool.io/</a>	<b>AVADO</b> Free <b>Down</b> <a href="https://ava.do">https://ava.do</a> <a href="https://mainnet.eth.cloud.ava.do/">https://mainnet.eth.cloud.ava.do/</a>	<b>Quiknode</b> Paid <b>Working</b> <a href="https://www.quiknode.io/">https://www.quiknode.io/</a> Visit website to get API key	<b>AnyBlock</b> Freemium <b>Down</b> <a href="https://anyblock.tools/">https://anyblock.tools/</a> Visit website to get API key	<b>Chainstack</b> Free <b>Working</b> <a href="https://chainstack.com/">https://chainstack.com/</a> Visit website to get API key
<b>ArchiveNode</b> Free <b>Working</b> <a href="https://archivenode.io/">https://archivenode.io/</a> Visit website to get API key	<b>Flux</b> Free <b>Working</b> <a href="https://runonflux.io/">https://runonflux.io/</a> <a href="https://ethereumodelight.app.runonflux.io/">https://ethereumodelight.app.runonflux.io/</a>			

## Settings

RPC endpoint

Infura

RPC is down

### INFURA

**Arbitrum mainnet degraded service**

**Investigating** - We are currently investigating this issue.  
Feb 5, 14:42 UTC

**Eth1 mainnet degraded service**

**Investigating** - We are currently investigating this issue.  
Feb 5, 14:41 UTC

ethereum/go-ethereum

### #17254 Geth (web3 and RPC) error when response contains larg...

1 comment

Dormage opened on July 26, 2018

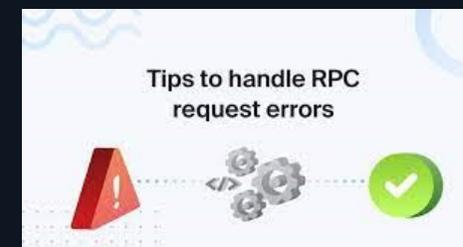
# Idea

**Global Load Balancer** for multiple RPC endpoints with ~~blackjack~~ and ~~courtesans~~ such checks:

- health check
- load checks
- block height checks
- latency checks

And get:

- Instant failover
- Allow list (by IP or Origin)
- Caching
- Universal RPC for both full and archive data behind

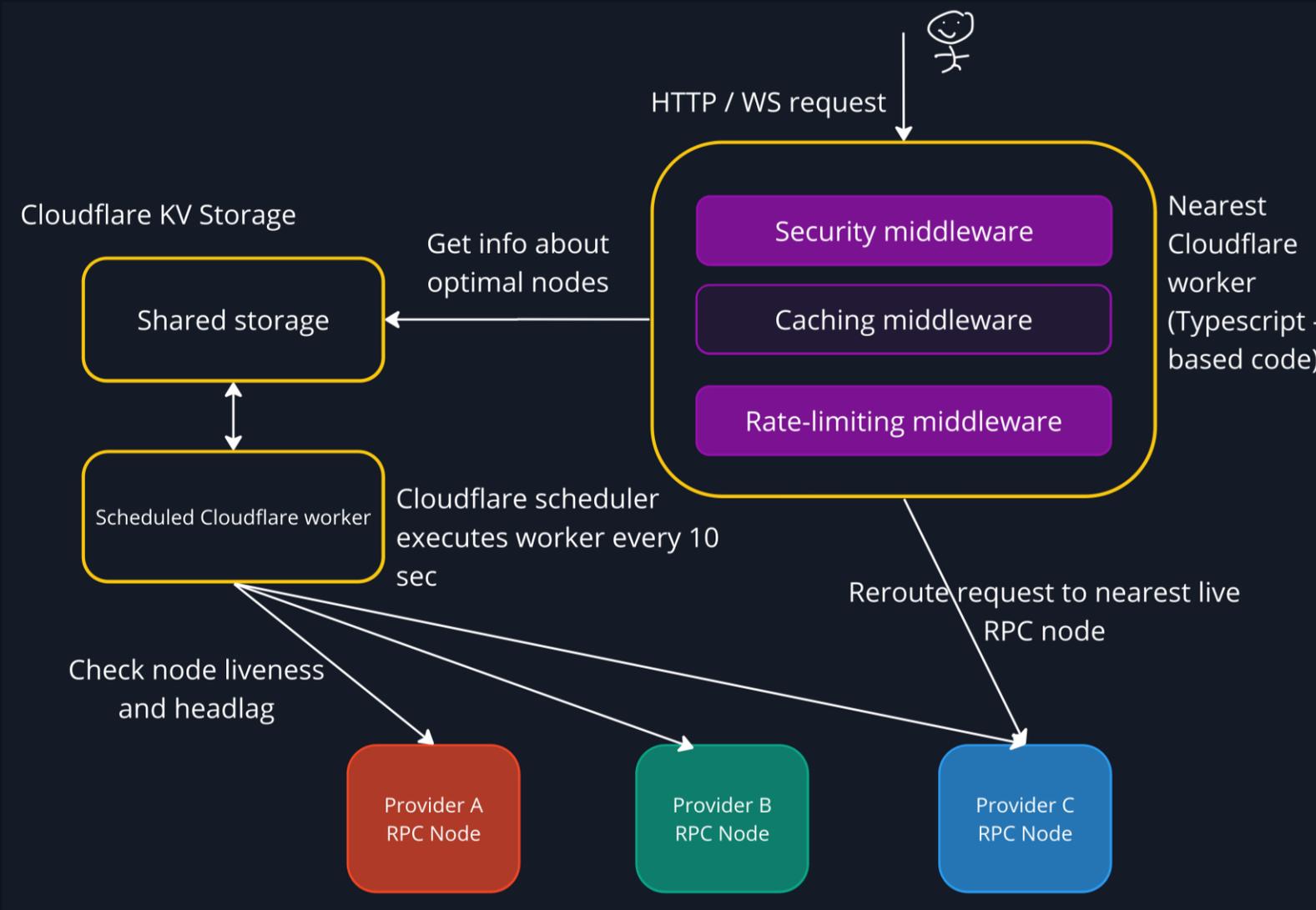


# Solution

1. Leverage Cloudflare Workers' serverless functions
2. Run a middleware layer between an end-user and a set of RPC endpoints
3. Detect what RPC endpoints are eligible to participate in load-balanced proxied traffic
4. Provide a custom logic how to serve traffic
5. Extend functionality for filtering by IP-addressed and HTTP Origin
6. Cache requests to minimize latency and utilization of nodes even better



# Architecture



# Why is it different?

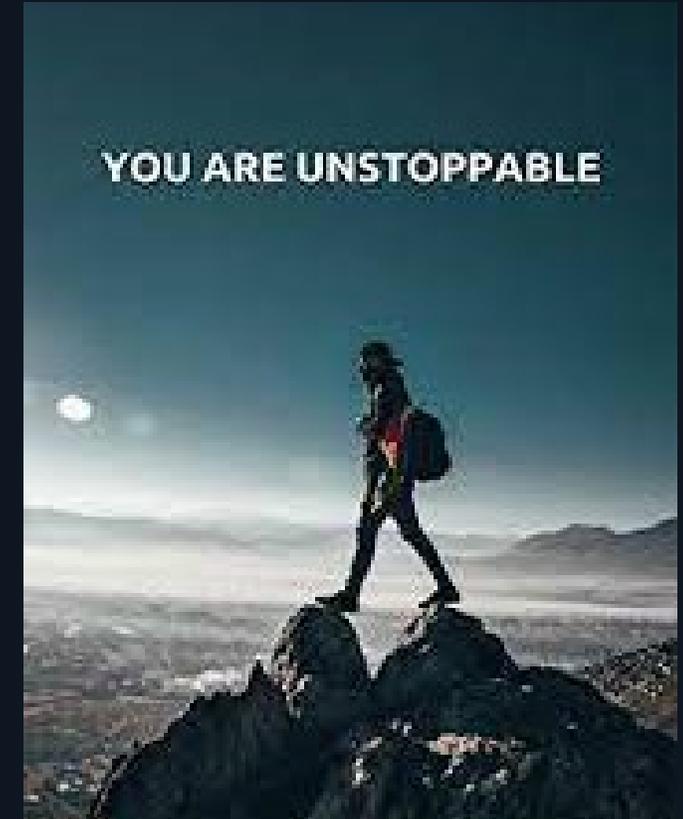
	dRPC	Omnia	Ankr	Blast API	Lava network	POKT	Unstoppable RPC
Node health	+	+	+	+	+	+	+
Custom list of RPC endpoints	+/-	-	-	-	-	-	+
Load check	-	-	-	-	-	-	+
Block height check	-	-	+	-	-	+	+
Latency checks	+	+	-	-	-	-	+
Flexible rate-limits	-	-	-	-	-	-	+
Caching	-	-	-	-	-	-	+
Allow list	-	-	-	-	-	+	+
Full and archive data	-	-	-	-	-	-	+

# Live Demo



# Future plans

1. Intelligent distributed caching, so the solution will share cached requests between all workers in each region
2. Integration with block builders for private transactions implementation (avoid MEV\sandwich\snipping)
3. Statistics for analytic firms to show end-users location and used methods
4. Securing txs by validating sender\receiver within databases of malicious actors
5. Checking if API methods have proper structure, so no useless\nonsense txs



# Team



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# Unstoppable RPC Endpoint

**for improved availability, low latency, and  
enhanced security.**

**Open source and accessible to all DApp projects.**

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<https://github.com/chainstacklabs/unstoppable-rpc>