



— ARKIV RPC · PROXY & LOAD BALANCER

Many nodes. One endpoint.

Web3 Pi turns many Raspberry Pi 5 nodes into one high-throughput Arkiv RPC endpoint — on your own infrastructure, with no third-party rate limits.

● WORKING PROOF OF CONCEPT

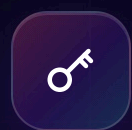
ARKIV TIRAMISU TESTNET

OCTOBER 2026



Public RPC has a ceiling.

Every Arkiv app reaches the chain through RPC. Shared public endpoints have to ration their capacity — sooner or later, your app hits a rate limit.



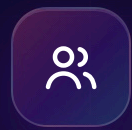
Access keys

Sign up, get a key, keep an eye on your quota.



Rate limits

Throttled just when your app starts to grow.



Shared capacity

Everyone's traffic hits the same backends.



A black box

No view of which node answers — or how healthy it is.



```
public Arkiv RPC · test log

# anonymous access · stage 2 · 10 req/s
→ arkiv_query      200 OK
→ arkiv_getEntity  200 OK
→ arkiv_query      429 Too Many Requests
    ratelimit:    limit=10000, remaining=0, reset=3573
    retry-after:  3573
```

Excerpt from our test log, 16 October 2026: anonymous access to the public Arkiv RPC (selected headers). The next request is allowed in about an hour.

Start with one Pi. Grow into a fleet.

Two ways to run Arkiv RPC on your own hardware — both built on Web3 Pi.

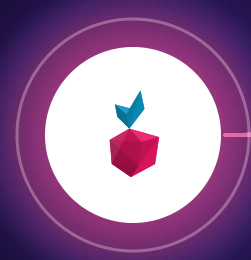


MODEL 01 · SINGLE NODE

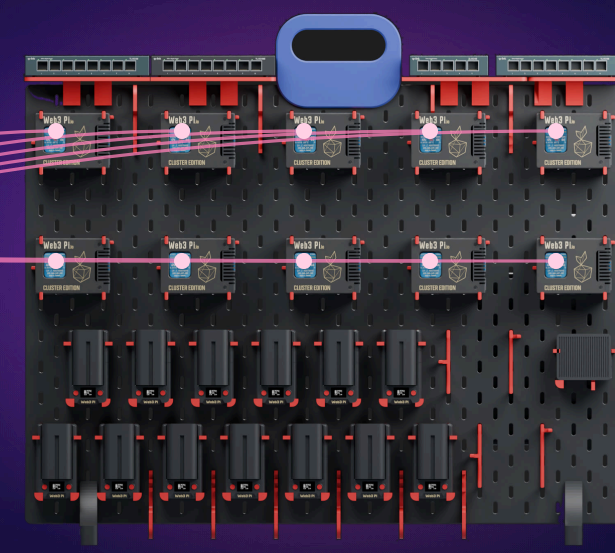
Arkiv node on one Raspberry Pi 5

Run an Arkiv node with a local RPC endpoint. A compact starting point for your application, on infrastructure you own.

- 1 × RASPBERRY PI 5
- LOCAL RPC
- NO THIRD-PARTY LIMITS



RPC PROXY
LOAD BALANCER



MODEL 02 · FLEET

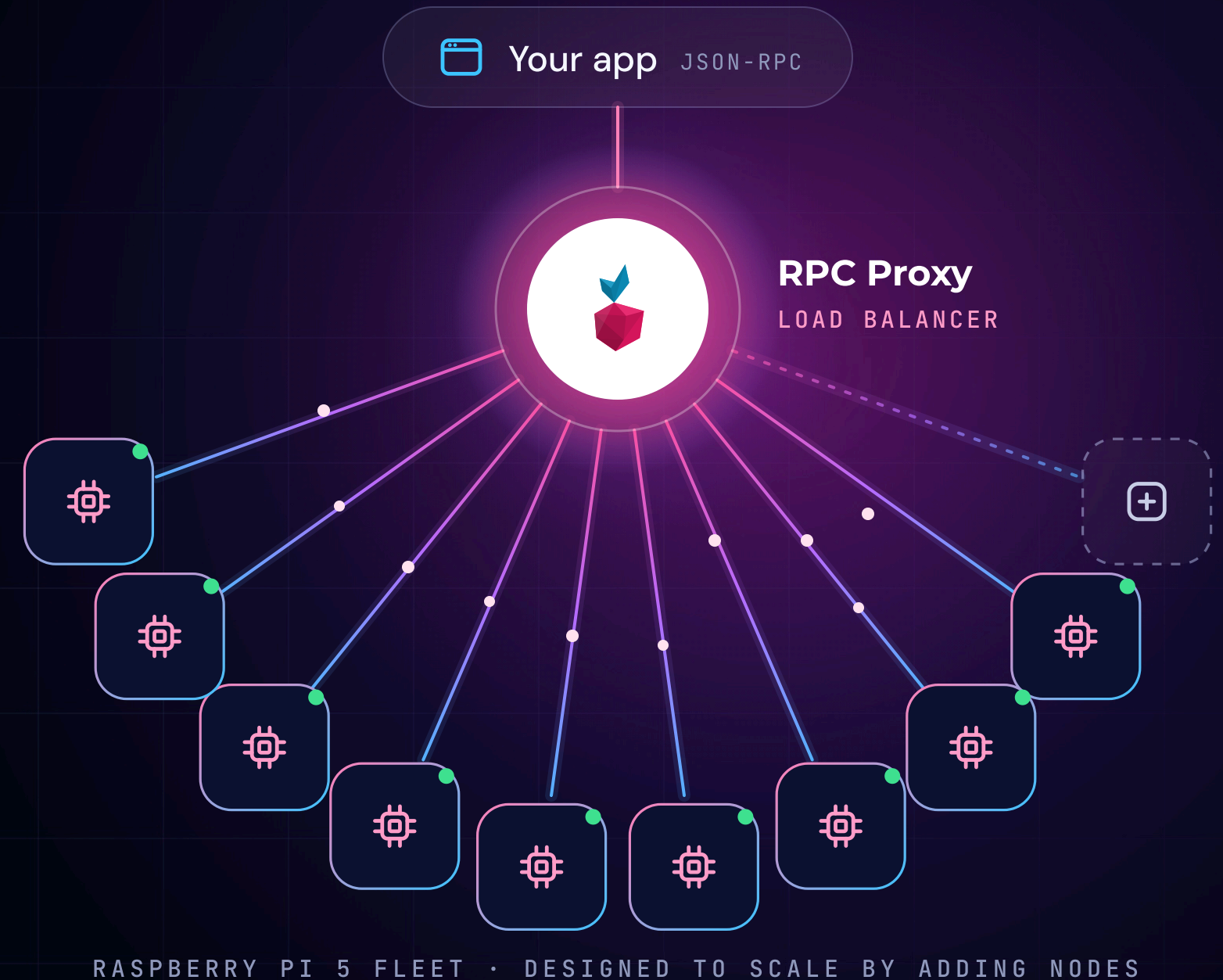
Arkiv RPC Proxy / Load Balancer

Many small devices behind one endpoint. The Web3 Pi proxy load-balances every request across healthy nodes for high throughput.

- MANY NODES
- ONE ENDPOINT
- LOAD BALANCING

Many small nodes. One powerful endpoint.

The Web3 Pi Arkiv RPC Proxy puts a fleet of Raspberry Pi 5 nodes behind one endpoint and load-balances every request across the healthy ones.



One endpoint

Apps connect to a single URL. The fleet stays behind it.

Load balancing

Each request goes to the least busy healthy node.

Scale out

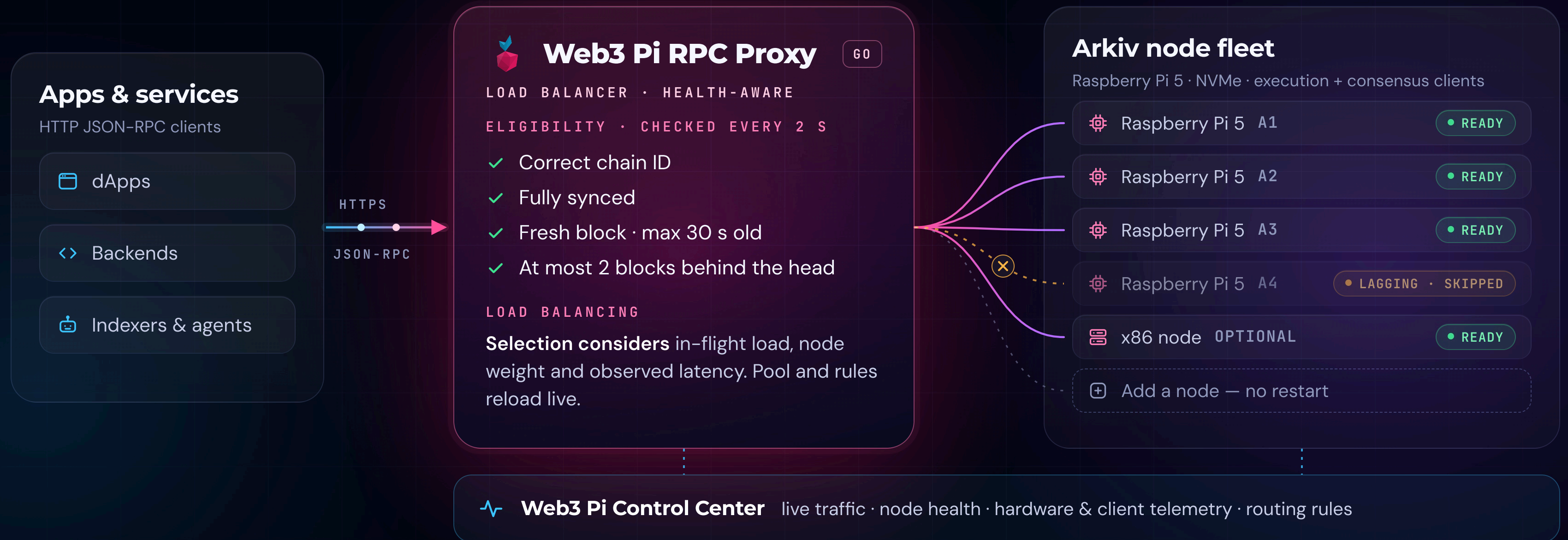
Designed to scale by adding nodes — no restart.

Your infrastructure

Your capacity. No third-party rate limits.

One proxy. A whole fleet.

The Web3 Pi Arkiv RPC Proxy load-balances requests across the nodes. Monitoring runs on its own, separate path.





Ten nodes. One board.

Web3 Pi Cluster Edition puts ten Raspberry Pi 5 nodes, NVMe storage, battery backup and a dedicated network on a single board — one you can carry by the handle.

10

Raspberry Pi 5 nodes

40

Cortex-A76 cores
at 2.8 GHz

160_{GB}

RAM in total

20_{TB}

NVMe storage

13

Web3 Pi UPS modules

1_{Gb/s}

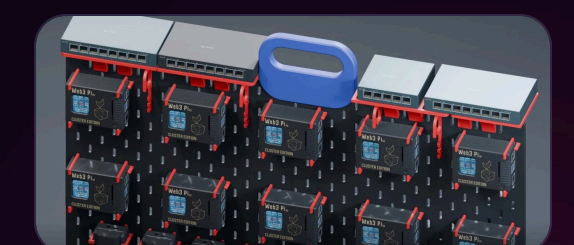
per node, on its
own network



Status display on every node



Web3 Pi UPS — battery backup



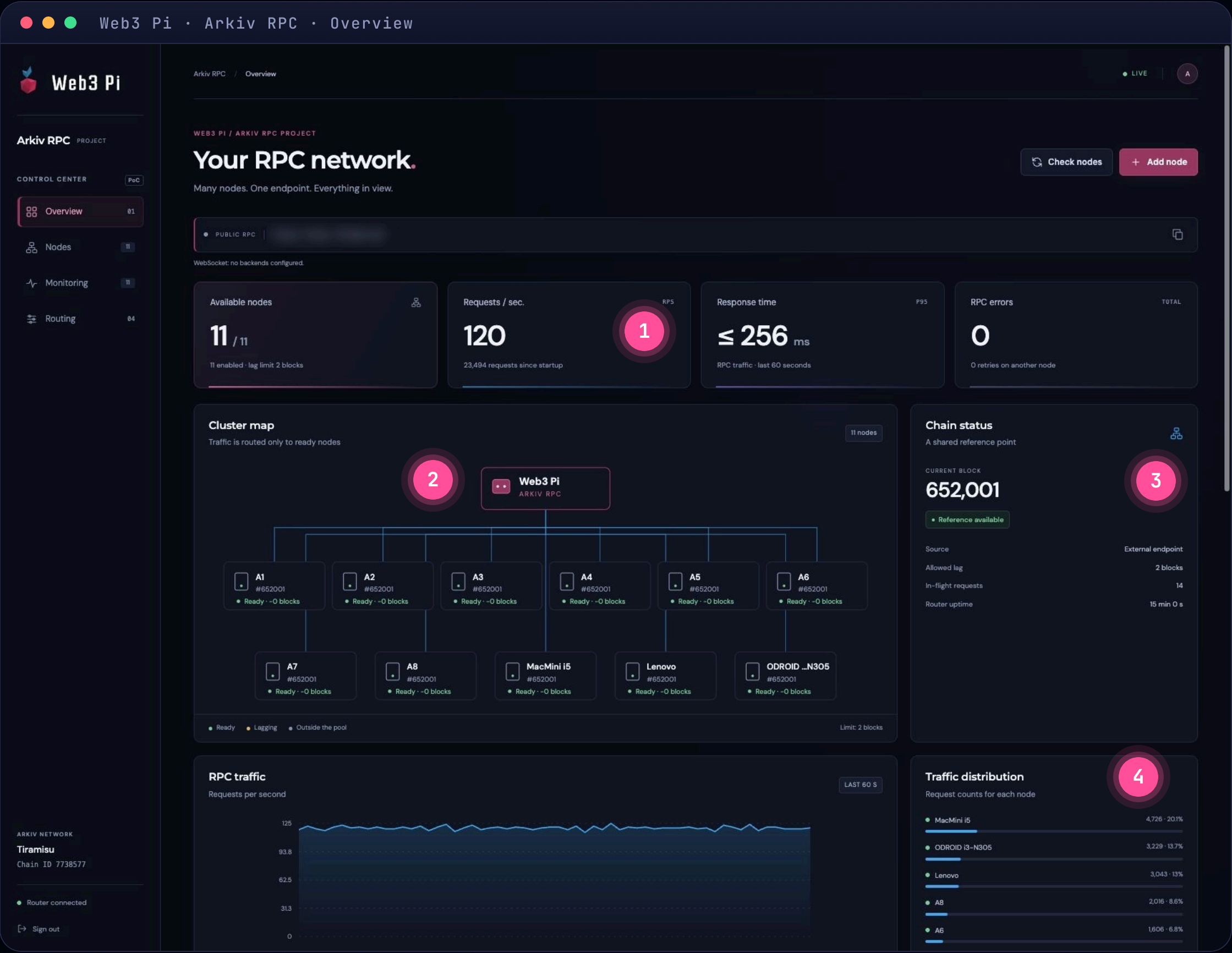
On-board gigabit network

Cluster Edition hardware platform. RPC tests: 8 Raspberry Pi 5 + 3 x86 nodes.

Everything in view.

One Web3 Pi dashboard for the whole fleet — live, with real data from the running proof of concept.

- 1 Live traffic
- 2 Cluster map
- 3 Chain status
- 4 Load distribution



Run the fleet from one panel.



Nodes

Add, edit, pause or remove nodes. Changes apply instantly — the proxy keeps running.



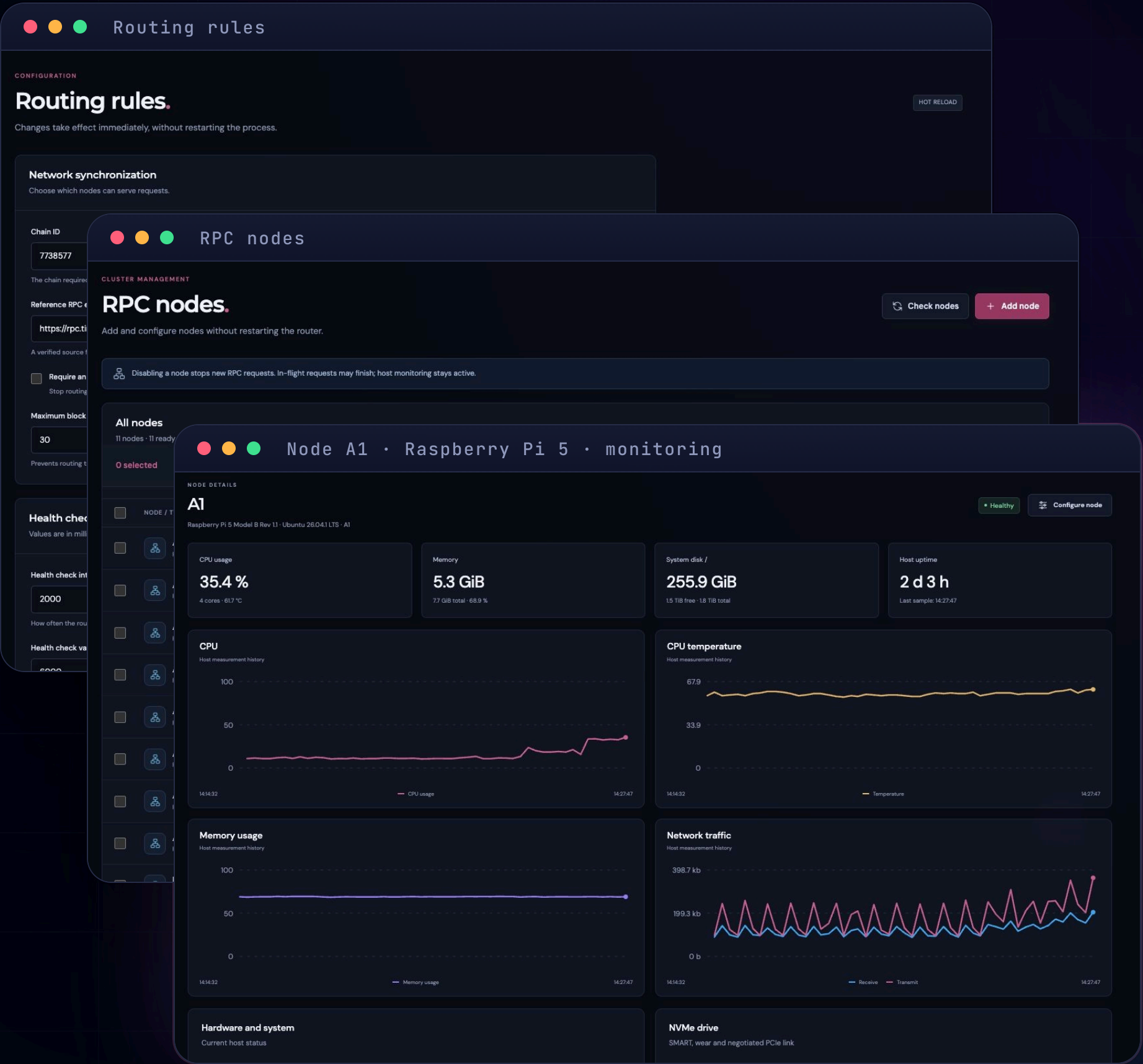
Monitoring

CPU, temperatures, memory, NVMe health, network, execution and consensus clients.



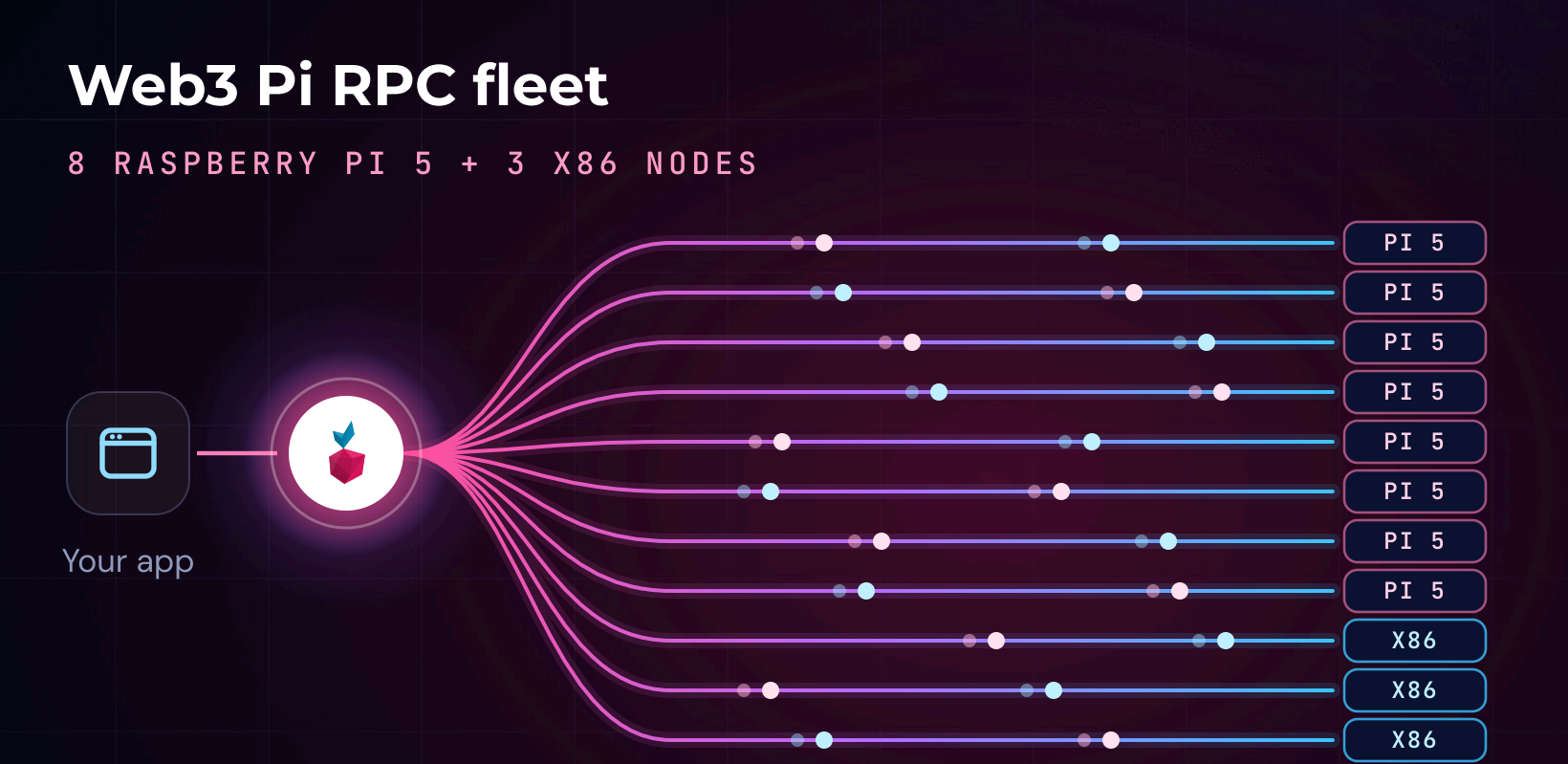
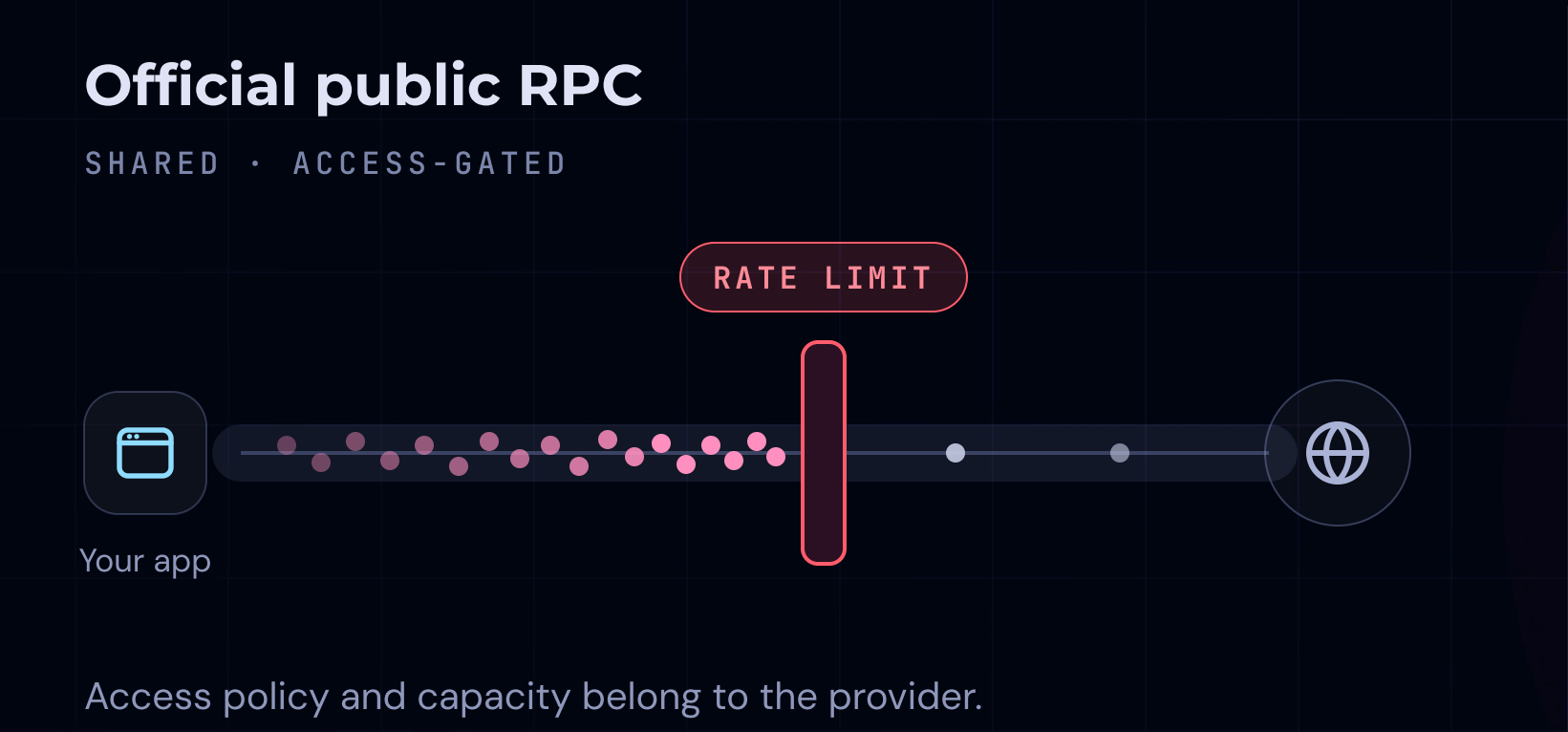
Routing rules

Chain ID, maximum lag, block age and health-check timing — with hot reload.



More throughput. Your capacity.

In our tests, the mixed Web3 Pi fleet served more Arkiv RPC traffic than the official endpoint used with an access key. **No third-party rate limits.**



Internal tests on Arkiv Tiramisu, 16 October 2026. 8 Raspberry Pi 5 + 3 x86 versus the official endpoint with an access key, using the same historical read workload. Local-origin HTTPS for the proxy, WAN for the reference. Indicative results under tested conditions, not an SLA.

Not a render. It's running.

The proof of concept is live on Arkiv Tiramisu testnet, serving real HTTPS traffic through one public endpoint.

1

public HTTPS
RPC endpoint

Live on Arkiv Tiramisu testnet

11

nodes in one pool

8× Raspberry Pi 5 + 3× x86

100%

valid responses in
the latest demo run

28,800 of 28,800 requests
40 / 80 / 120 RPS · 120 s per stage
p95 217–221 ms

0

restarts to change
the node pool

Add, pause or remove a node.
Changes apply live.

✓ Health-aware load balancing ✓ Web3 Pi control center ✓ Hardware & client telemetry ✓ Hot-reload pool & rules ✓ Validated benchmarks

Demo run, 16 October 2026: historical Arkiv read workload (replay) sent through the public HTTPS endpoint from the local network. A bounded demonstration, not a maximum-capacity test.

Built for builders. Valuable to Arkiv.

FOR BUILDERS

Own your endpoint.

Keep control of access and infrastructure capacity as your application grows.

ONE URL FOR YOUR APP

FOR NODE RUNNERS

Put compact hardware to work.

Operate Arkiv nodes with routing and telemetry in one Web3 Pi stack.

YOUR NODES, IN ONE FLEET

FOR THE ARKIV ECOSYSTEM

More independent RPC capacity.

A practical reference for community-operated infrastructure alongside public RPC.

COMMUNITY INFRASTRUCTURE

From proof of concept to plug-and-play.

NOW

01

Proof of concept

RPC proxy & load balancer
Web3 Pi control center
Fleet & client monitoring
Live on Tiramisu testnet

NEXT

02

Prove it at scale

Scaling curve from one to many Pi nodes
Long-run endurance and thermals
Node failure and recovery

THEN

03

Production-ready

High-availability proxy
Persistent metrics
WebSocket subscriptions

VISION

04

Plug-and-play RPC

Arkiv on a single Pi in minutes
Cluster Edition as a turnkey RPC appliance
Power on, join the fleet

Indicative roadmap — scope and timing will follow validation results.



Many nodes. One endpoint. Your capacity.

Web3 Pi Arkiv RPC — from one Raspberry Pi to a load-balanced fleet.

Web3 Pi Arkiv RPC Project

Working proof of concept
on Arkiv Tiramisu testnet

Robert Mordzon

Project lead
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THANK YOU

