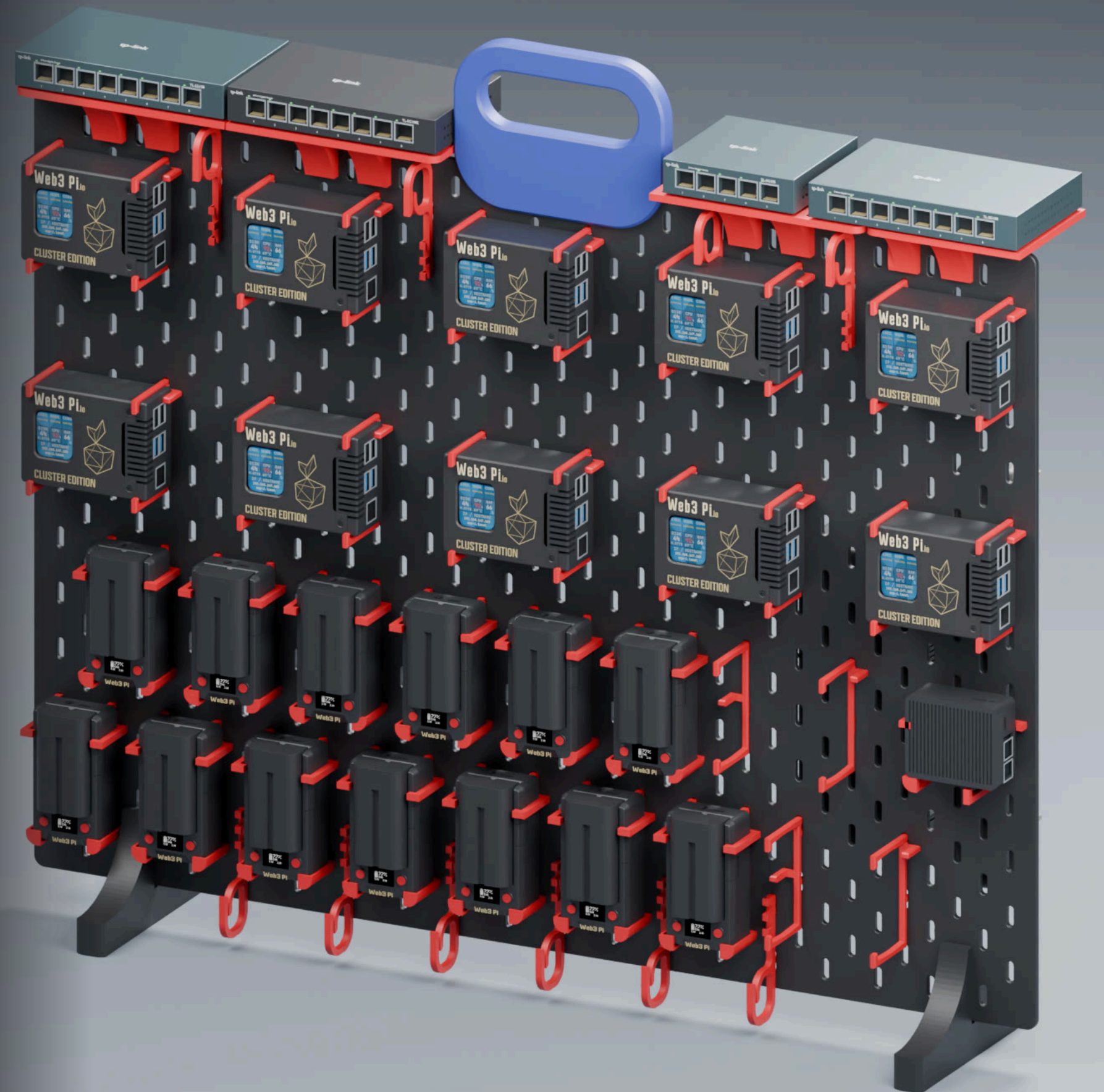


WEB3 PI · CLUSTER EDITION

x10 Raspberry Pi 5 Cluster

Ten nodes with NVMe storage, backup power and a dedicated network — all on a single board with a carry handle.

40 cores · 160 GB RAM · 20 TB NVMe



INTRODUCTION

By the numbers

10

Raspberry Pi 5 nodes

each in an Argon NEO 5 NVMe case

40

Cortex-A76 cores

overclocked to 2.8 GHz (stock 2.4 GHz)

160 GB

of RAM

LPDDR4X-4267, 16 GB per node

20 TB

of NVMe storage

10 × Goodram PX700 2 TB

13

UPS modules

Web3 Pi UPS with Sony NP-F770 batteries

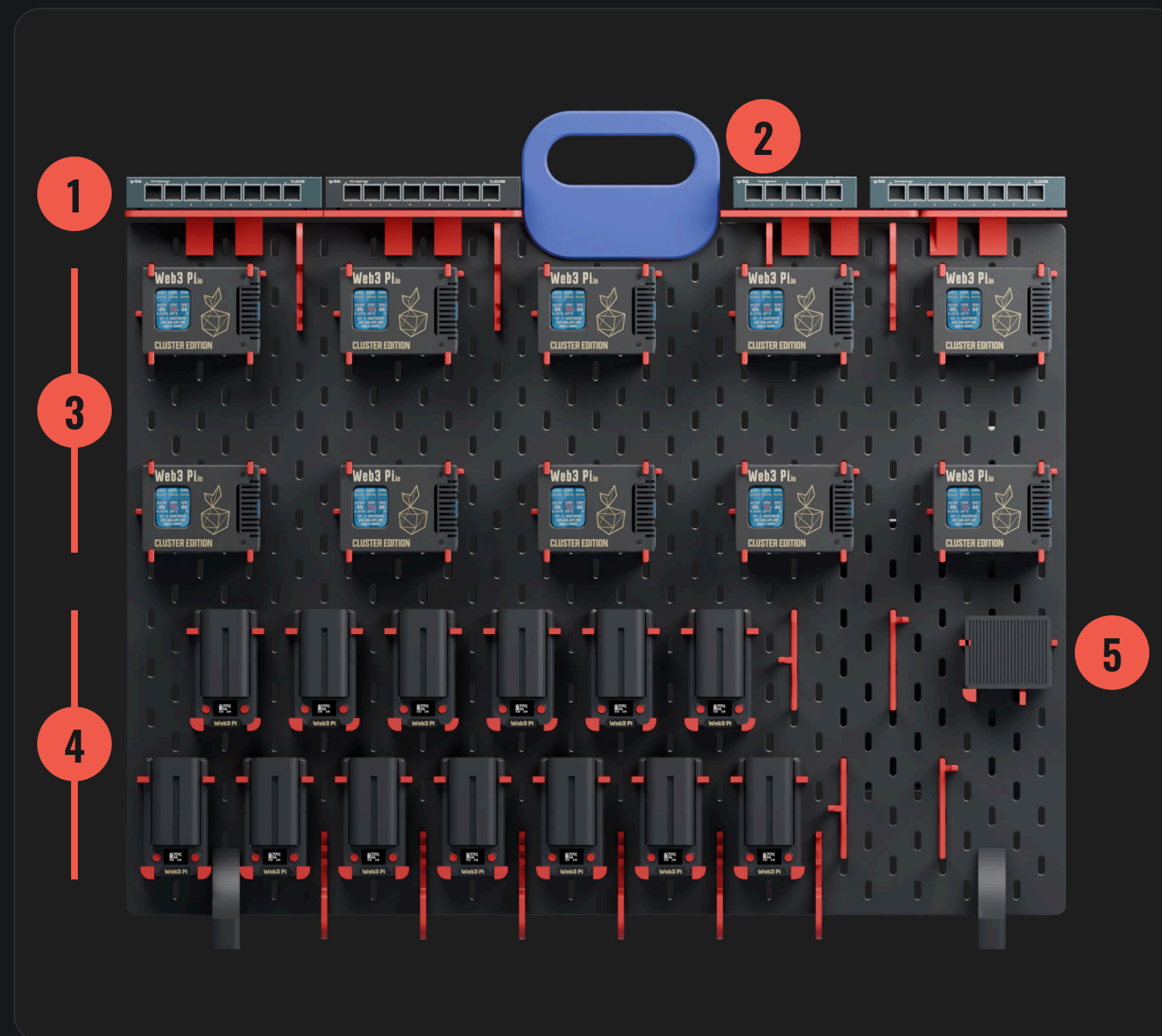
330 W

12 V DC power supply

plus a CM4 router and 4 gigabit switches

BUILD

Board layout



1

Network

4 TP-Link gigabit switches on the top shelf

2

Handle

the whole cluster carries as a single unit

3

Nodes

10 × Raspberry Pi 5 in Argon NEO 5 NVMe cases, two rows of five

4

Backup power

13 × Web3 Pi UPS with Sony NP-F770 batteries

5

Router

Raspberry Pi CM4 in a DFRobot aluminum enclosure

BUILD

Compute node



Board	Raspberry Pi 5 Model B, 16 GB
Processor	Broadcom BCM2712, 4 × Cortex-A76
Clock	2.8 GHz (stock 2.4 GHz)
RAM	16 GB LPDDR4X-4267
Storage	Goodram PX700 2 TB NVMe M.2
Storage link	PCIe Gen 3 ×1 (8 GT/s)
Display	1.69" IPS LCD, 240 × 280 px
Network	Gigabit Ethernet, full duplex
Power	Web3 Pi UPS, 5 V 5 A over USB-C

Enclosure: Argon NEO 5 NVMe with the Web3 Pi Cluster Edition cover.

BUILD

Status display on every node



EXEC · NODE · CONS

State of the execution client, the node and the consensus client

DISK · CPU · RAM

Disk usage, CPU load and temperature, memory usage

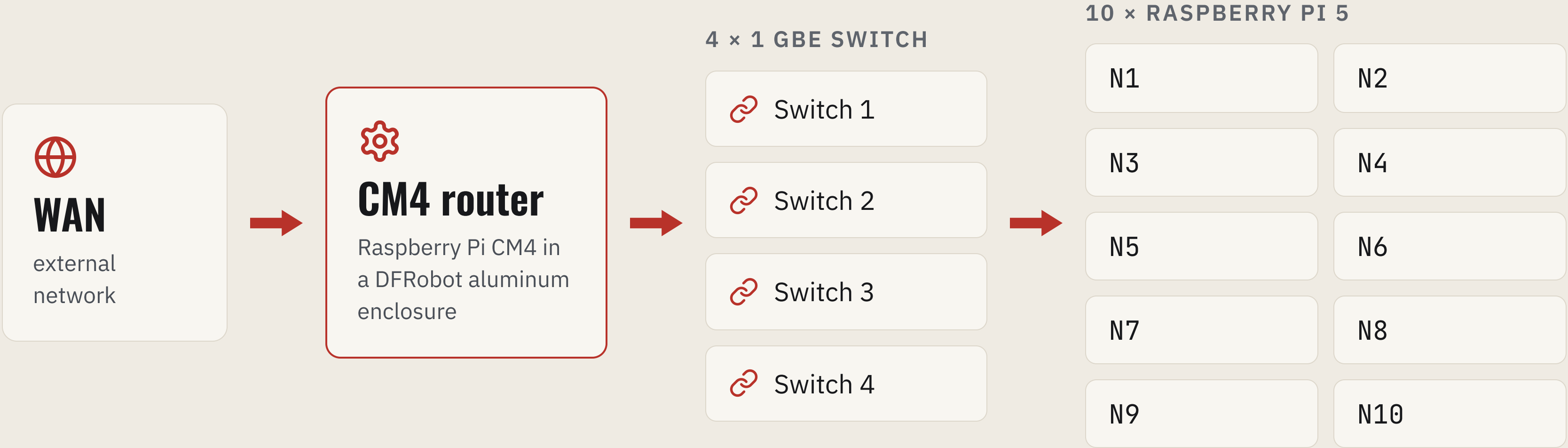
IP / HOSTNAME

Address and hostname: find any node on the network at a glance

1.69" IPS LCD · 240 × 280 px · Waveshare 24382

BUILD

Network



Every node: 1000 Mb/s, full duplex — confirmed on all 10.

POWER

Power chain



One 330 W supply for the whole board; a mains outage does not take the nodes down.

More than backup power



Uninterrupted power

Instant failover to the battery — the Pi never sees a power drop



Graceful shutdown

Clean OS shutdown on low battery and safe recovery when power returns — no database corruption



Remote monitoring

A built-in LTE-M link reports power events even when the router is down



Remote control

Restart node services, reboot the Pi or power-cycle it from panel.web3pi.io

Three power sources, zero interruptions

USB-C PD input

9–20 V, 45 W+ recommended

DC barrel jack

12–20 V, here from the 12 V supply

Sony NP-F battery

hot-swappable, user-replaceable



Web3 Pi UPS

Instant, uninterrupted failover

Battery bypassed when full to reduce wear

True DC UPS — no AC inverter



Raspberry Pi 5

5 V • 5 A • 27 W

Native Pi 5 power profile — no undervoltage warnings

Power and data over a single USB-C cable

SUPPORTED SONY NP-F BATTERIES

NP-F570

18.7 Wh

NP-F770

38.5 Wh — used in this build

NP-F970

71 Wh

Remote monitoring and control

Monitoring over LTE-M

Built-in modem with a pre-installed global SIM: the UPS keeps reporting even when the home router is down.

Instant

alerts on power loss, restore
and faults

30 s

regular telemetry interval

REPORTS TO

panel.web3pi.io

your own server (HTTP)

Arkiv (tamper-evident)

Control from the web panel

Claim the device to see live UPS, host and Ethereum client status, with full event history.



Restart node services



Reboot the Raspberry Pi



Power-cycle the output



Over-the-air firmware updates, rollback-safe

SOFTWARE

Identical configuration on every node

SYSTEM

Ubuntu 26.04.1 LTS (Resolute Raccoon)

KERNEL

7.0.0-1020-raspi, aarch64

BOOT

from NVMe; order SD → NVMe → USB

UPDATES

unattended-upgrades, 0 pending

FIRMWARE

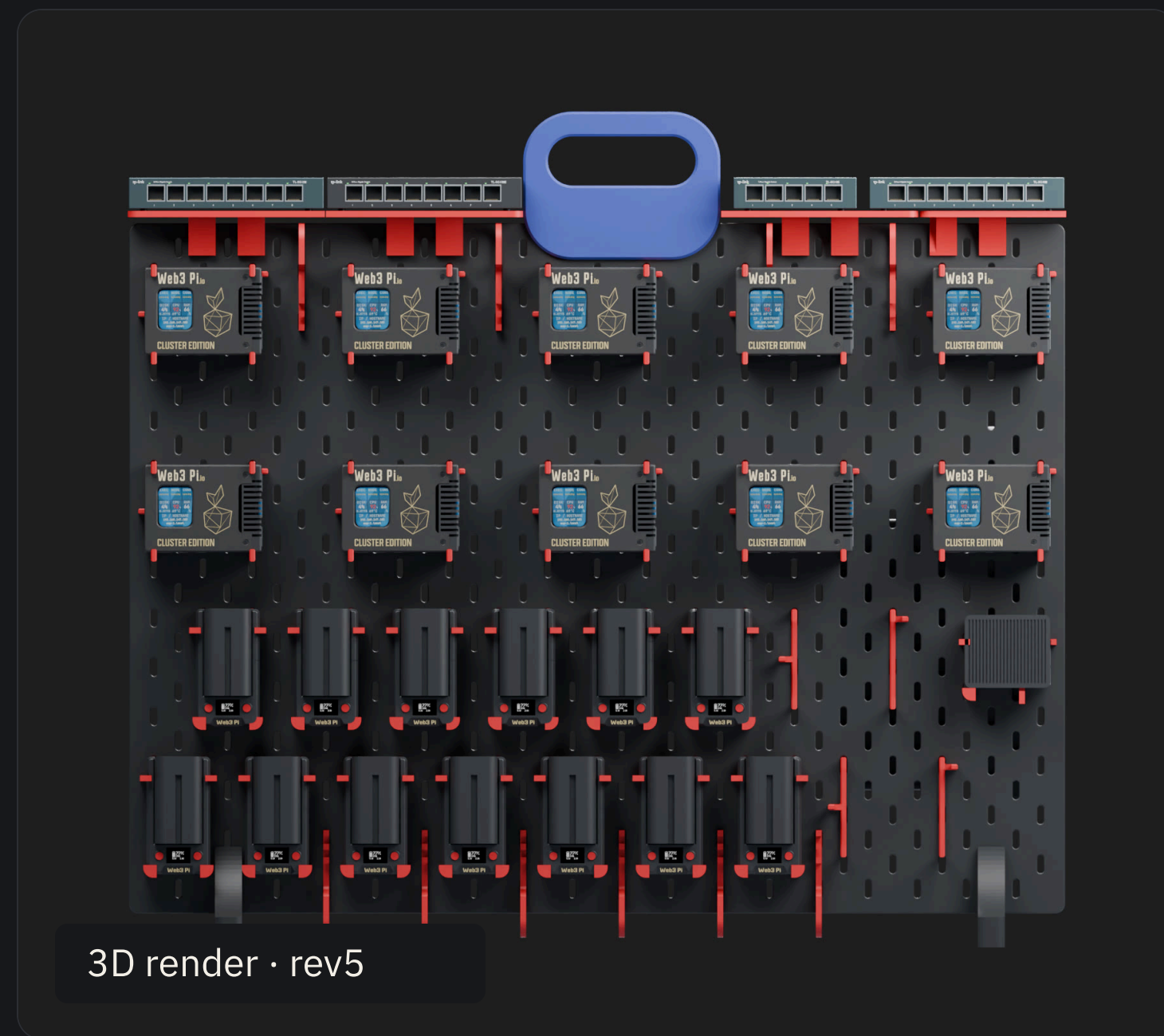
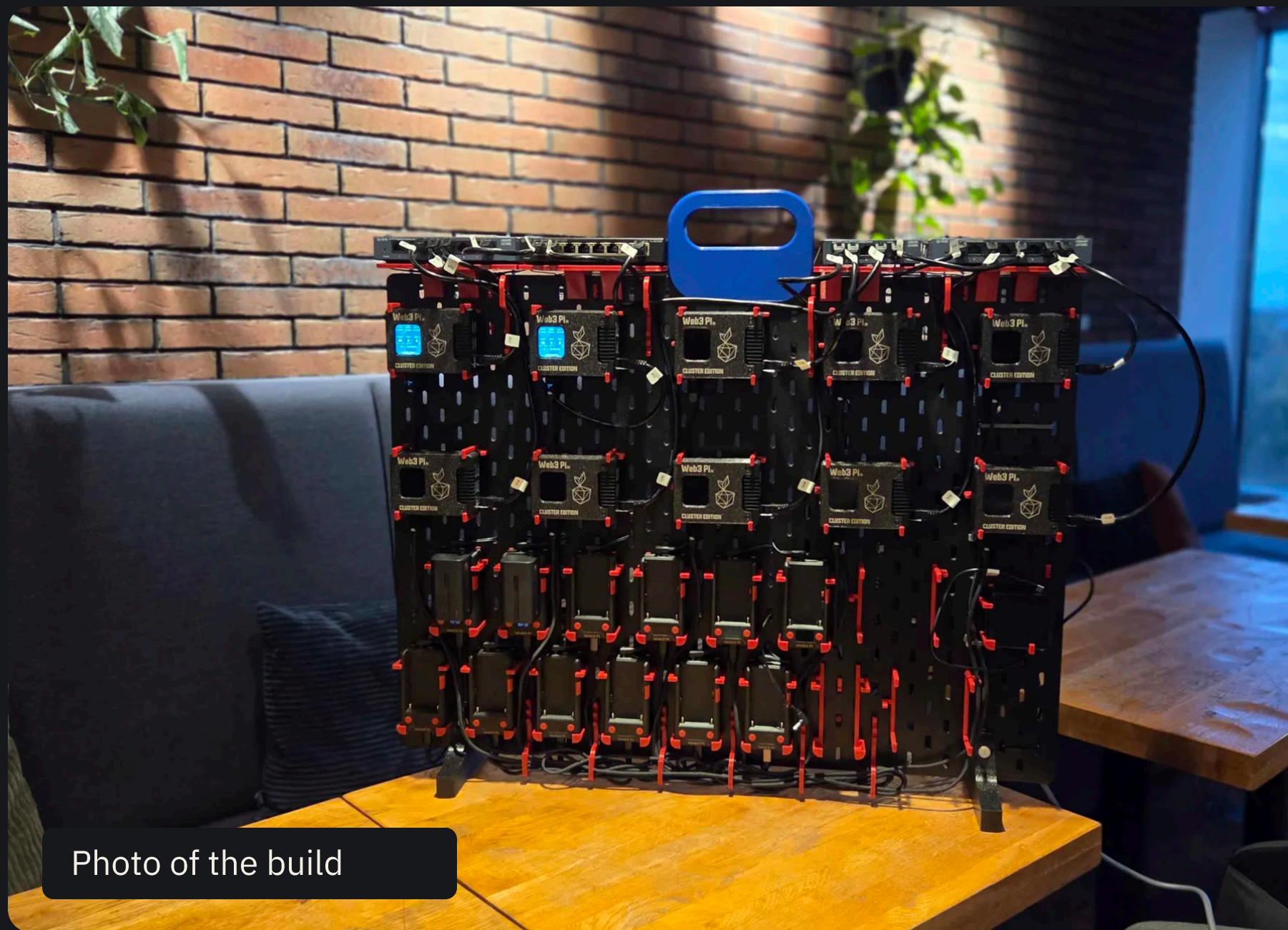
bootloader 2026-09-25, EEPROM up to date

```
# /boot/firmware/config.txt
arm_freq=2800 # stock 2400
over_voltage_delta=50000 # +50 mV
dtparam=pciex1
dtparam=pciex1_gen=3

# rpi-eeeprom-config
BOOT_UART=1
BOOT_ORDER=0xf461
NET_INSTALL_AT_POWER_ON=1
```

IN PRACTICE

3D model vs. reality



SUMMARY

Full specification

Component	Model	Qty
Computer	Raspberry Pi 5, 16 GB RAM	10
Case	Argon NEO 5 NVMe	10
Storage	Goodram PX700 2 TB, NVMe M.2	10
Display	1.69" IPS LCD, 240 × 280 px (Waveshare 24382)	10
UPS	Web3 Pi UPS with Sony NP-F770 batteries	13
Router	Raspberry Pi CM4 in a DFRobot aluminum enclosure	1
Switch	Gigabit, TP-Link	4
Power supply	330 W, 12 V DC	1
Power strip	4 × 230 V, 3 × USB-A	1

WEB3 PI · CLUSTER EDITION

Ten nodes. One board.

10 × RPi 5 · 40 cores · 160 GB RAM · 20 TB
NVMe · 13 × UPS

web3pi.io

