


Cloud Engines — what you get today, and what's coming

A plain-English guide from someone coming off Rust backend canisters. The one idea: an engine is a **place**, not an app — essentially a **dedicated subnet you own** (min. 4 nodes), where you choose the hardware and geography. Your canisters run *on* it, unchanged.

Status honesty (mid-2026): two flagship features — **SEV confidentiality** and **owner-controlled upgrades** — are announced but **not live yet** (checked the OpenCloud node picker: **0 SEV-SNP nodes** available today; upgrades are still NNS-driven). They're flagged  below. Don't build a launch on them yet.

✓ REAL TODAY

1

Sovereignty — choose country & operators LIVE

You pick which countries your computers sit in and which companies run them. On the shared network, placement is automatic. "EU-only" becomes enforced by architecture, not a contract clause.

2

Single-tenant — all yours LIVE

No strangers' apps sharing your computers. The whole subnet's compute + storage is yours — steady, predictable performance.

3

No lock-in — move freely LIVE

Shift your app between operators/countries *within ICP* — no rewrite, no downtime (`migrate-id` keeps the canister ID). Note: freedom within ICP, not an AWS→ICP importer.

4

Hardware & size by choice LIVE

Pick the node class (small → dense) — including *less powerful, cheaper* specs if that's all you need. Bigger nodes = more storage/power per copy. (One canister still maxes ~500 GB; split across several for more.)

5

Node count & predictable cost LIVE

Set replication / fault tolerance (min. 4; more = more safety, not more capacity). Pay a flat per-node monthly, prepaid — no surprise metered bills (80% to providers / 20% burned).



ANNOUNCED — NOT LIVE YET

6

Encrypted computers (SEV-SNP) ROADMAP

The intended moat: the chip encrypts memory so *no operator can read your data*, provable via attestation. **But there are 0 SEV-SNP nodes available today** (verified in the node picker) — it needs Gen-2 nodes with SEV enabled, which aren't offered yet. Treat as near-term roadmap, not a shippable guarantee.

7

Owner-controlled upgrades ROADMAP

Today the NNS upgrades your engine like any subnet — you don't control timing yet. Owner-controlled upgrades are planned later (with a catch: upgrades are only tested for consecutive versions, so a long gap means many upgrades to catch up).

8

GPU / on-chain AI ROADMAP

Engines are CPU-only. On-chain AI inference needs the "Gyrotron" milestone (GPU nodes, AI subnets) — announced, not shipped. For now: keep the app on ICP, run models off-chain via HTTPS outcalls.



DOESN'T CHANGE (SAME AS ANY CANISTER)



- Canister model · ~4 GiB heap / ~500 GiB stable per canister · instruction limits
- **vetKeys** for app-layer encryption — works on the public IC today, no engine needed
- **WASM only** — no Docker / Python / native processes; you still rebuild web2 stacks as canisters

THE HONEST SUMMARY

Today a cloud engine = a *dedicated subnet you own*: choose the geography, keep it single-tenant, move freely, size the hardware, pay flat. The headline privacy (SEV) and owner-upgrades are *coming*, not here. An engine changes *where* your app runs and *who* runs it — never the app.

A builder's field guide · ICP Sovereign Cloud Engine · status as of mid-2026, corrections welcome