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VERAE TIME × ZAPIER

NATS.IO 3-server cluster

<site/packages/overview/83-nats-cluster.md>

3. Central Verae NATS.IO 3-server cluster

All durable messaging for this product is **NATS JetStream**, not Zapier queues and not a public TCP API.

Cluster

Three `nats-server -js` nodes form the Verae cluster (routes between them, JetStream replication). Clients (middleware, poller, aggregator, WORM, tree nodes, account-balance, zappier-edge billing, CS/sales/accounting, and any new process cloned from `verae-nats-process`) connect with a **cluster URL list**, for example:

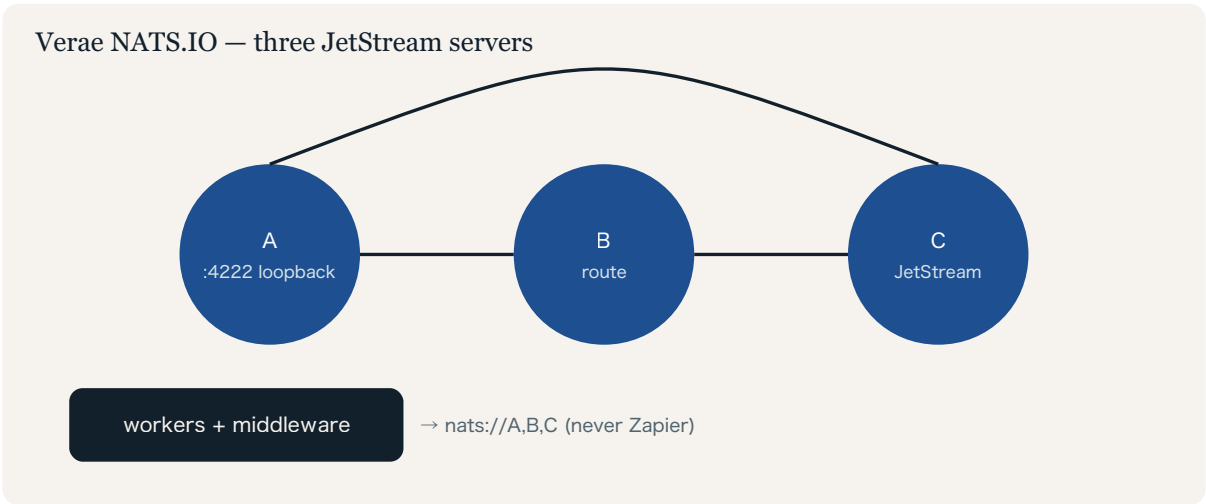
```
nats://127.0.0.1:4222,nats://127.0.0.1:4223,nats://127.0.0.1:4224
```

On a given machine the listener stays on **loopback** (or a private interface). Operators reach it with `scripts/nats-tunnel.sh / ssh -L 14222:127.0.0.1:4222`. **Do not bind 4222 on 0.0.0.0 without auth.**

Today's NS1 box (`NS1.GEORGELAMBERT.ORG`, `70.88.205.138`) still runs the **lab** JetStream on `127.0.0.1:4222` (keep/fleet/middleware). The **test cluster** is three distinct Proxmox LXC guests on `vmbr1` (`verae-nats-cluster`):

```
nats://10.10.10.21:4222,nats://10.10.10.22:4222,nats://10.10.10.23:4222
```

(`nats-a` VMID 511, `nats-b` 512, `nats-c` 513). Cluster routes on `:6222`. Nothing on `vmbr0`. **Test env is cut over:** fleet/keep/middleware `NATS_URL` lists all three; product streams `ZAPIER_*` and `VERAE_ARCHIVE` are `replicas=3`. Same configs later move to separate hardware. Fleet SSH hosts run **workers**, not extra public NATS listeners.



NATS cluster

Who may connect

Allowed	Forbidden
access-authz, access-leaf (after token), middleware, fleet workers, WORM, tree, account-balance, access planes, CS/sales	Zapier cloud, customer browsers (HTTPS to access-web / access-api / access-zapier only)

Address families already in use

Address	Kind	Notes
<code>verae.zapier.jobs.watch</code>	work queue	poller
<code>verae.zapier.jobs.events</code>	events	wait + webhooks
<code>verae.zapier.webhooks.deliver</code>	work queue	HTTPS to Zapier REST Hook
<code>verae.zapier.usage</code>	optional	metering
<code>verae.billing.statement.get</code>	request-reply	portal, CS, sales, admin
<code>verae.billing.balance.adjust</code>	request-reply	CS credits, portal reload
<code>verae.billing.usage.recorded</code>	pub	zappier-edge meter
<code>verae.archive.put</code>	JetStream	splitter / merkle builder
<code>verae.archive.query</code>	broadcast (no queue group)	every WORM and tree node
<code>verae.archive.reply.<correlationId></code>	replies	only on bloom hit

New functions get new `verae.<area>.<resource>.<action>` addresses — see [o6-address-routing.md](#).