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VERAE TIME × ZAPIER

## 03 nats cluster

site/overview/03-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

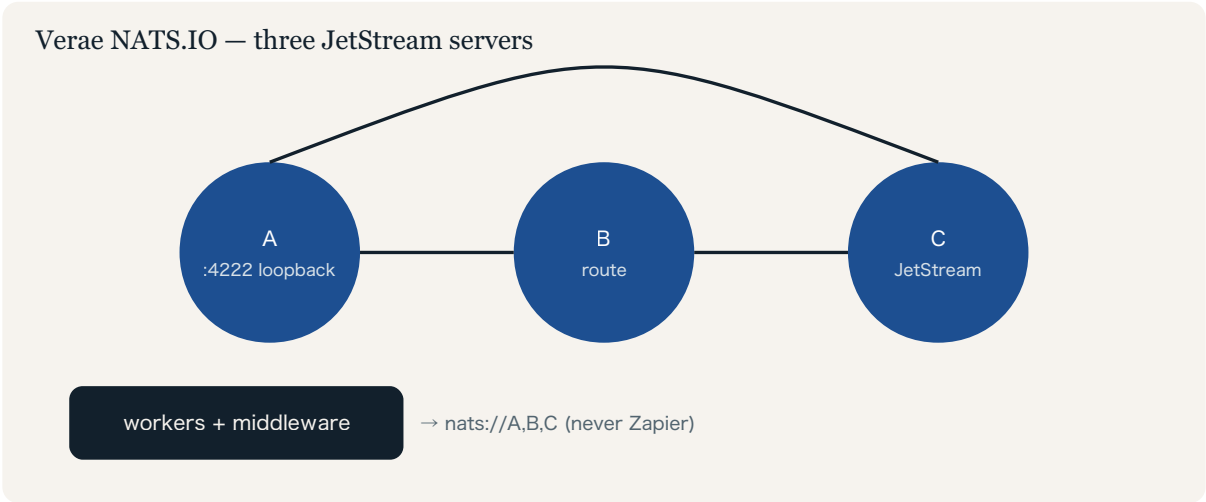
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Three `nats-server -js` nodes form the Verae cluster (routes between them, JetStream replication). Clients (middleware, poller, aggregator, WORM, tree nodes, account-balance, zappier-edge billing, CS/sales/accounting, and any new process cloned from `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`) already runs JetStream on `127.0.0.1:4222`. The **target** is three clustered nodes so losing one server does not lose the stream. Fleet SSH hosts (`ns1`, later `lan-134`) 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>                       | <b>broadcast</b> (no queue group) | every WORM and tree node  |
| <code>verae.archive.reply.&lt;correlationId&gt;</code> | replies                           | <b>only on bloom hit</b>  |

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