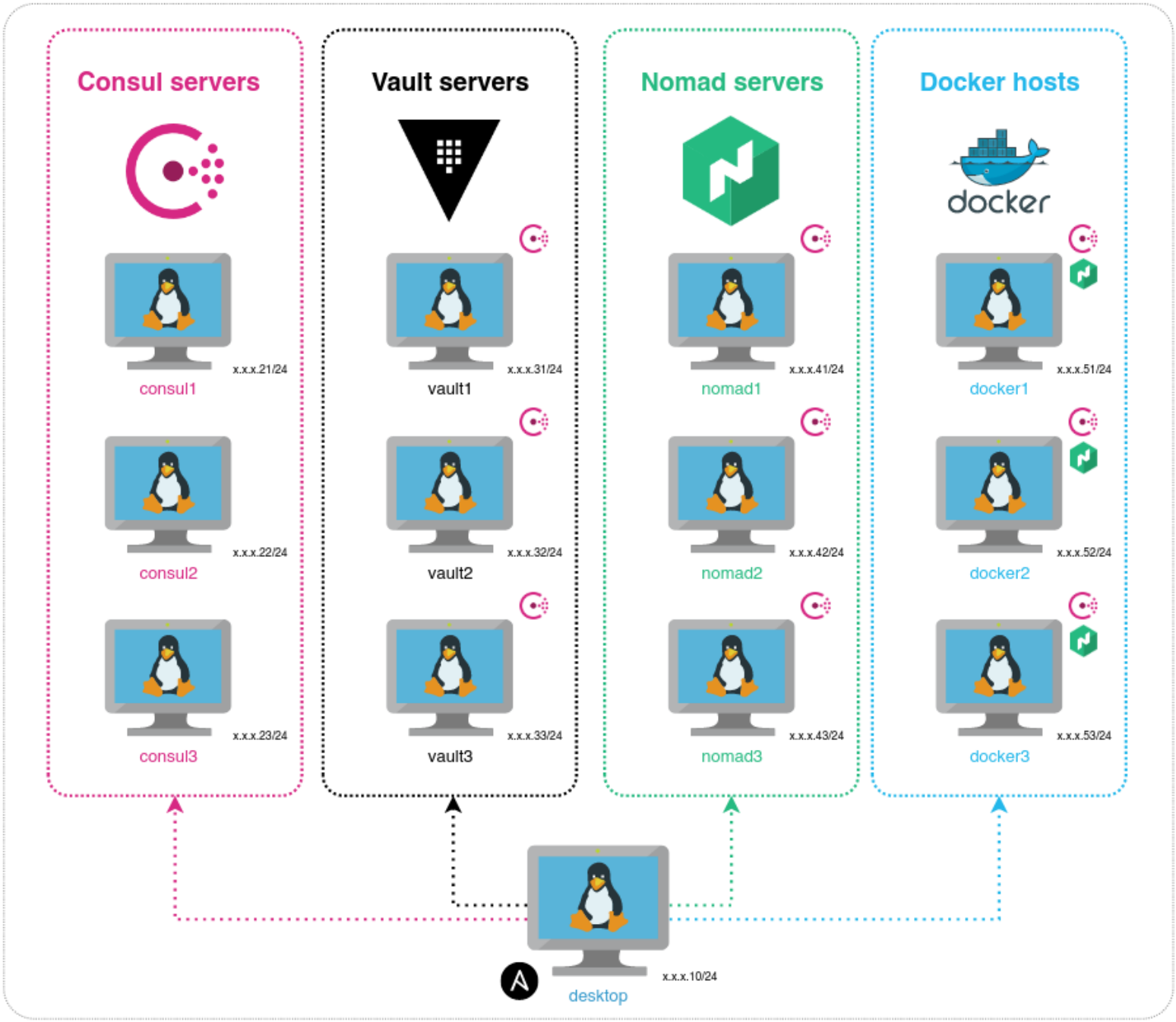

Consul servers
Vault servers
Nomad servers
Docker hosts
docker
consul1
x.x.x.21/24
consul2
x.x.x.22/24
consul3
x.x.x.23/24
vault1
x.x.x.31/24
vault2
x.x.x.32/24
vault3
x.x.x.33/24
nomad1
x.x.x.41/24
nomad2
x.x.x.42/24
nomad3
x.x.x.43/24
docker1
x.x.x.51/24
docker2
x.x.x.52/24
docker3
x.x.x.53/24
desktop
x.x.x.10/24

Nomad

- Workload orchestrator
  - Containerized applications
  - Non-containerized applications

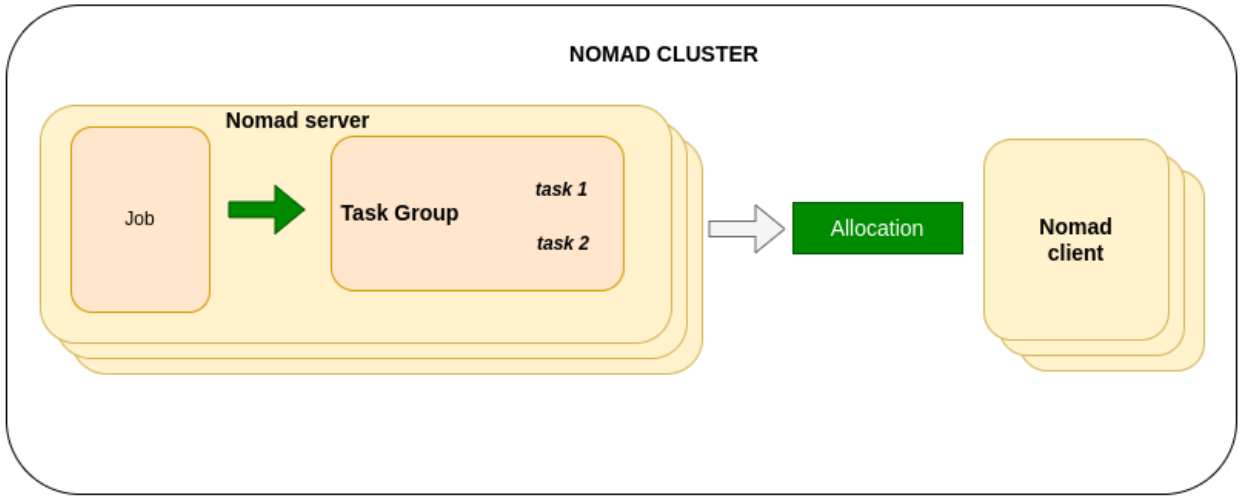
- Single binary

- Drivers (built-in)
  - Docker
  - Isolated Fork/Exec (exec) → chroot
  - Raw Fork/Exec (raw_exec) → no fs isolation! disabled by default
  - Qemu, Java

- Job (declared workload)
  - Task group(s)
    - task(s) → smallest unit of work

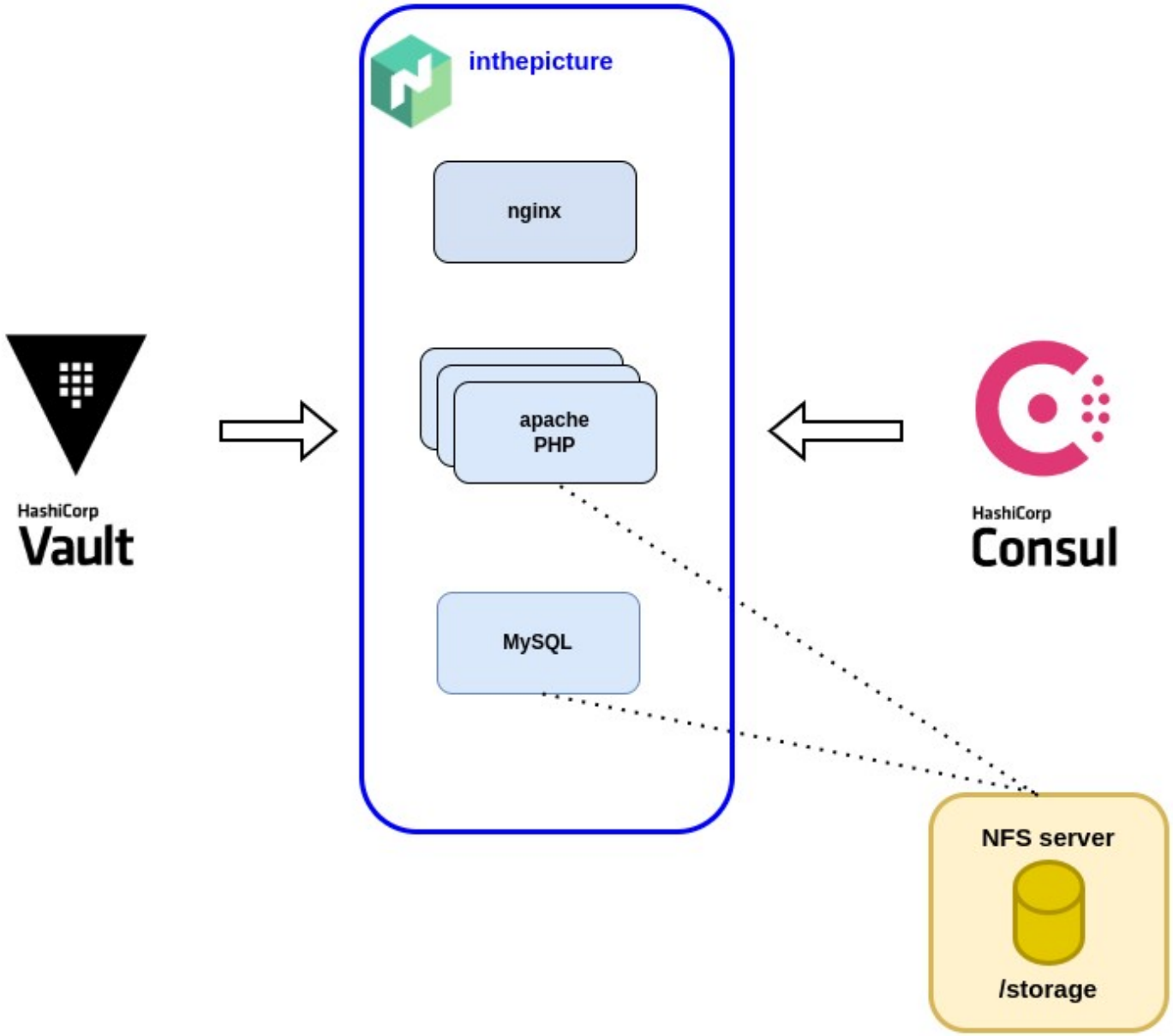
Nomad cluster

- Nomad servers
  - Brains of the cluster
  - Manage jobs
  - Run evaluations
  - Create allocations



- Nomad clients
  - Register themselves with the servers
    - Resources
    - Available drivers
  - Watching for any work to be assigned
  - Executing tasks (workload)

Application



- Requirements
  - Scalable
  - Stateful
  - HA

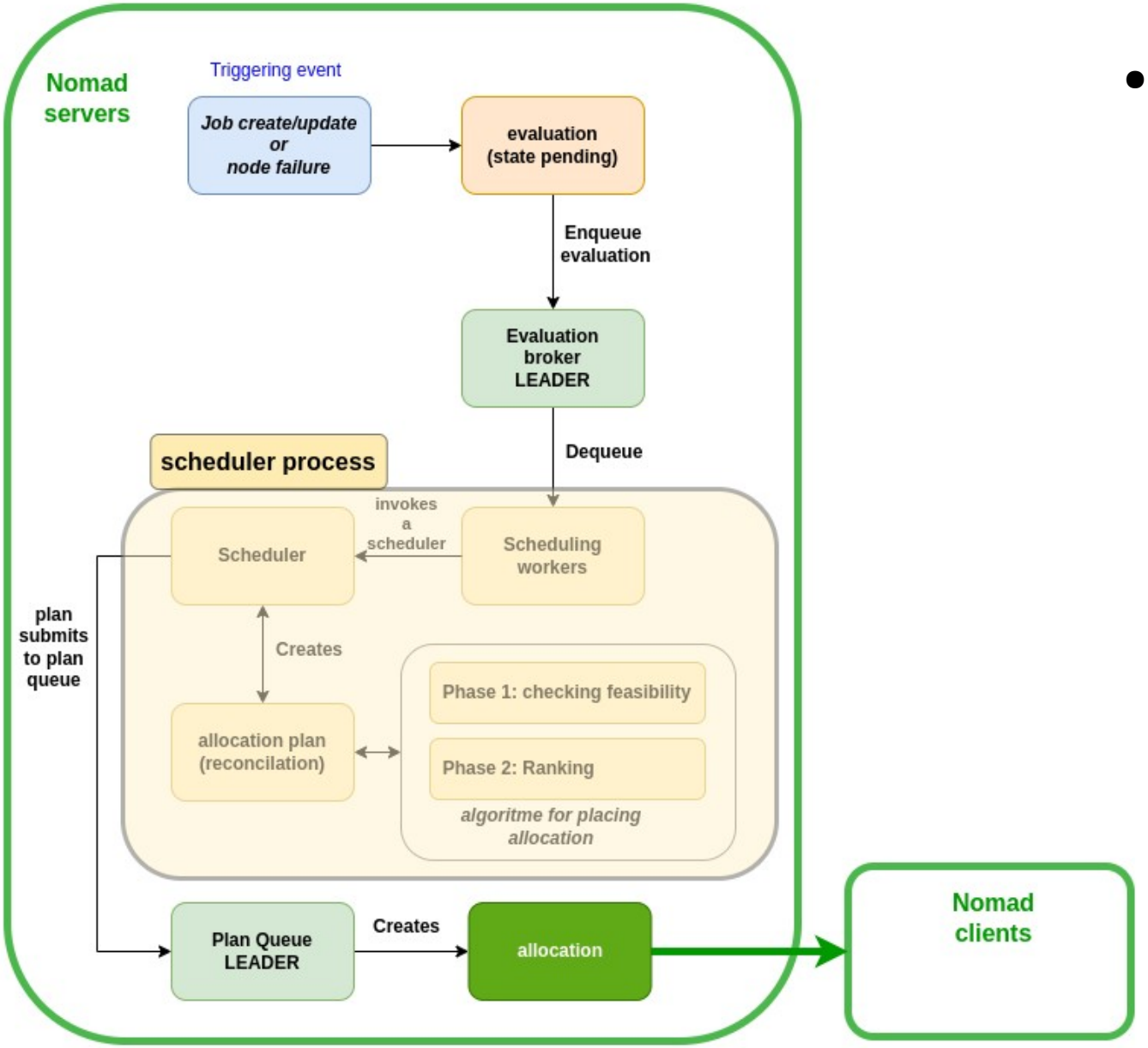
Nomad - Storage

- Nomad storage (built-in)
  - *ephemeral_disks*
  - *host_volume* (nomad client config)

- Docker volumes (docker driver)

- CSI plugins
  - Third party plugins
  - Manage external storage volumes
  - Types
    - Controller plugins → create volumes
    - Node plugins → create bind mounts on the Nomad client
    - Monolith (controller & node in same instance)
  - Requires privileged containers

Nomad - Scheduling



- Schedulers
  - Batch
  - Service
  - System
  - System batch