

# The NORTHSTAR 250-Node Qualification Challenge

A bounded proposal to qualify 1 Commander + up to 249 workers across local, private, and FRONTIER cloud infrastructure.

NORTHSTAR is being engineered for one accountable executive synthesis—not 250 votes. This brief describes the environment, test plan, evidence, recovery, and publication boundaries required to qualify that initial-release target.

| YOU BRING                                                                                                                                                                                                                                    | WE BRING                                                                                                                                                                                                                               | TOGETHER WE PROVE                                                                                                                                                                                                                   |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>Racks, accelerators or approved cloud capacity</div> <div>Network isolation and observability</div> <div>Frontier-model or managed-inference access</div> <div>An engineering point of contact</div> <div>An approved test window</div> | <div>NORTHSTAR and the 250-node constellation design</div> <div>Admission, identity and mission controls</div> <div>Failure injection and recovery procedures</div> <div>Provenance, execution receipts and acceptance framework</div> | <div>Node admission and scheduling</div> <div>Local-to-cloud dispatch</div> <div>Churn, partitions and quota pressure</div> <div>Cancellation and ambiguous outcomes</div> <div>Evidence preservation, synthesis and rollback</div> |

**Qualification boundary.** No customer data. No uncontrolled production access. No performance, compatibility, partnership or release claim without evidence and mutual approval.

# One Commander. Multiple bounded contributors.

A NORTHSTAR node is an admitted participant in a constellation—not necessarily one physical server, GPU, model or process. Physical topology, model identity, provider, trust domain and logical role are recorded separately.

| LOCAL / LAN                                                                                                                                                                                           | PRIVATE / INSTITUTIONAL                                                                       | FRONTIER CLOUD                                                                             |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| Old laptops<br>CPU/GPU workstations<br>Native workers<br>Local models                                                                                                                                 | Private clusters<br>Institutional model endpoints<br>Restricted datasets<br>Sovereign domains | Cloud accelerators<br>Managed inference<br>Frontier-model endpoints<br>Queued GPU capacity |
| <div>↓ AUTHORIZED CONTRIBUTIONS ↓</div> <div>NORTHSTAR COMMANDER</div> <div>Authority · Mission control ·<br/>Provenance · Evidence admission ·<br/>Executive synthesis · Final<br/>publication</div> |                                                                                               |                                                                                            |

## Constellation capacity is not simultaneous concurrency.

Active execution remains independently bounded by mission budgets, deadlines, provider quotas, hardware capacity, privacy constraints and safety policy. A 250-node constellation can contain admitted contributors that are idle, queued, specialized, unavailable or reserved for a later stage.

## FRONTIER cloud compute

High-capacity cloud accelerators, managed inference, frontier-model endpoints and queued compute admitted under explicit mission authority, budget, locality and evidence requirements. The term is descriptive, not a separate product tier or certification.

# Scale only after the previous stage earns it.

| STAGE | CONSTELLATION           | PRIMARY EVIDENCE                                                                                     |
|-------|-------------------------|------------------------------------------------------------------------------------------------------|
| 1     | 1 Commander + 3 workers | Identity, dispatch, evidence return, cancellation, final publication                                 |
| 2     | 16 nodes                | Mixed CPU/GPU capacity, roles, budgets, worker loss, model diversity                                 |
| 3     | 64 nodes                | Segments, quotas, churn, degraded links, restart and reconciliation                                  |
| 4     | 250 nodes               | Control-plane pressure, failure domains, sustained observability, publication integrity and rollback |

## Test families

- Admission, identity, provenance and revocation
- Heterogeneous scheduling and local-to-cloud dispatch
- Model/provider independence and correlated-failure analysis
- Node loss, worker churn, partitions and degraded links
- Rate limits, quotas, budgets and cancellation
- Ambiguous outcomes, recovery, reconciliation and rollback
- Evidence volume, executive synthesis and publication integrity
- Operator usability, observability and reproducible receipts

Every stage receives an explicit status: Planned, Locally implemented, Locally qualified or Externally qualified. Percent-complete claims are avoided when the evidence is categorical.

# A useful result—even when something fails.

## A qualification partner receives:

- A documented 250-node evaluation and failure-injection plan
- Environment-specific integration and capacity findings
- Failure, recovery and rollback analysis
- Reproducible execution and provenance receipts
- A limitations and unresolved-gates report
- A joint technical summary only if mutually approved

## Provider-neutral disclosure

Third-party company and product names are used only to identify potential interoperability and qualification environments. No affiliation, endorsement, access agreement, certification or partnership is implied.

### DISCUSS HOSTING THE QUALIFICATION

hello@mainlycode.com

Subject: NORTHSTAR 250-Node Qualification

Include: organization, infrastructure, approximate node/accelerator capacity, private/cloud/hybrid topology, available frontier-model access, preferred test window and technical contact.

**Current boundary.** Support for 250-node constellations is an initial-release capability being engineered and must complete final qualification before release. This brief is an invitation to produce that evidence—not a claim that it already exists.

**[mainlynorthstar.com/qualification](https://mainlynorthstar.com/qualification)**