Introduction to Altinity.Cloud

A platform for real-time analytics on ClickHouse

Robert Hodges and Alexander Zaitsev

Let's make some introductions

Us

Database geeks with decades of experience in DBMS and applications

You

App developers looking to build real-time analytics to solve business problems

ClickHouse support and services including Altinity.Cloud
Authors of Altinity Kubernetes Operator for ClickHouse
and other open source projects

What's Altinity.Cloud?

Altinity.Cloud is a zero-maintenance SaaS for ClickHouse

Complete automation of operations with baked in DBA support

Cost and performance optimized for real-time analytics

Supports all versions and features of ClickHouse (also experimental ones!)

Run in any AWS/GCP region or your own Kubernetes clusters

ClickHouse is a real-time analytic database

Understands SQL

Runs on bare metal to cloud

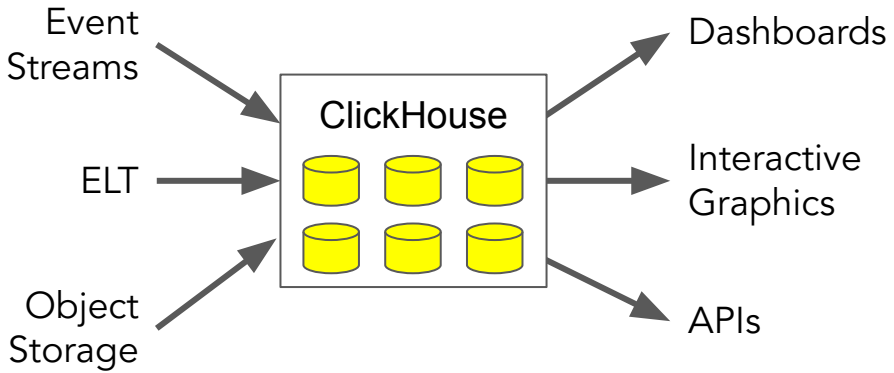
Shared nothing architecture

Stores data in columns

Parallel and vectorized execution

Scales to many petabytes

Is Open source (Apache 2.0)

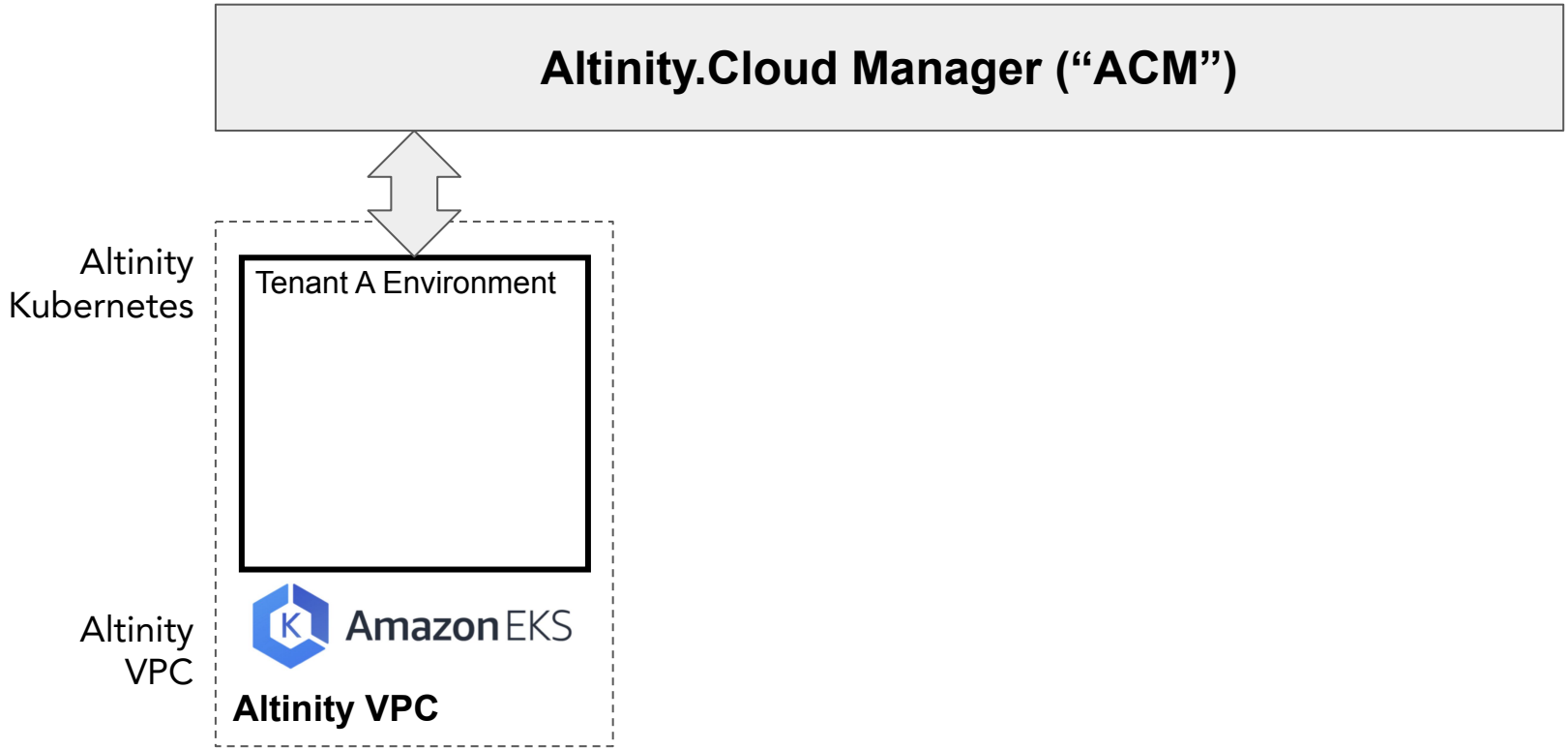


It's the core engine for low-latency analytics

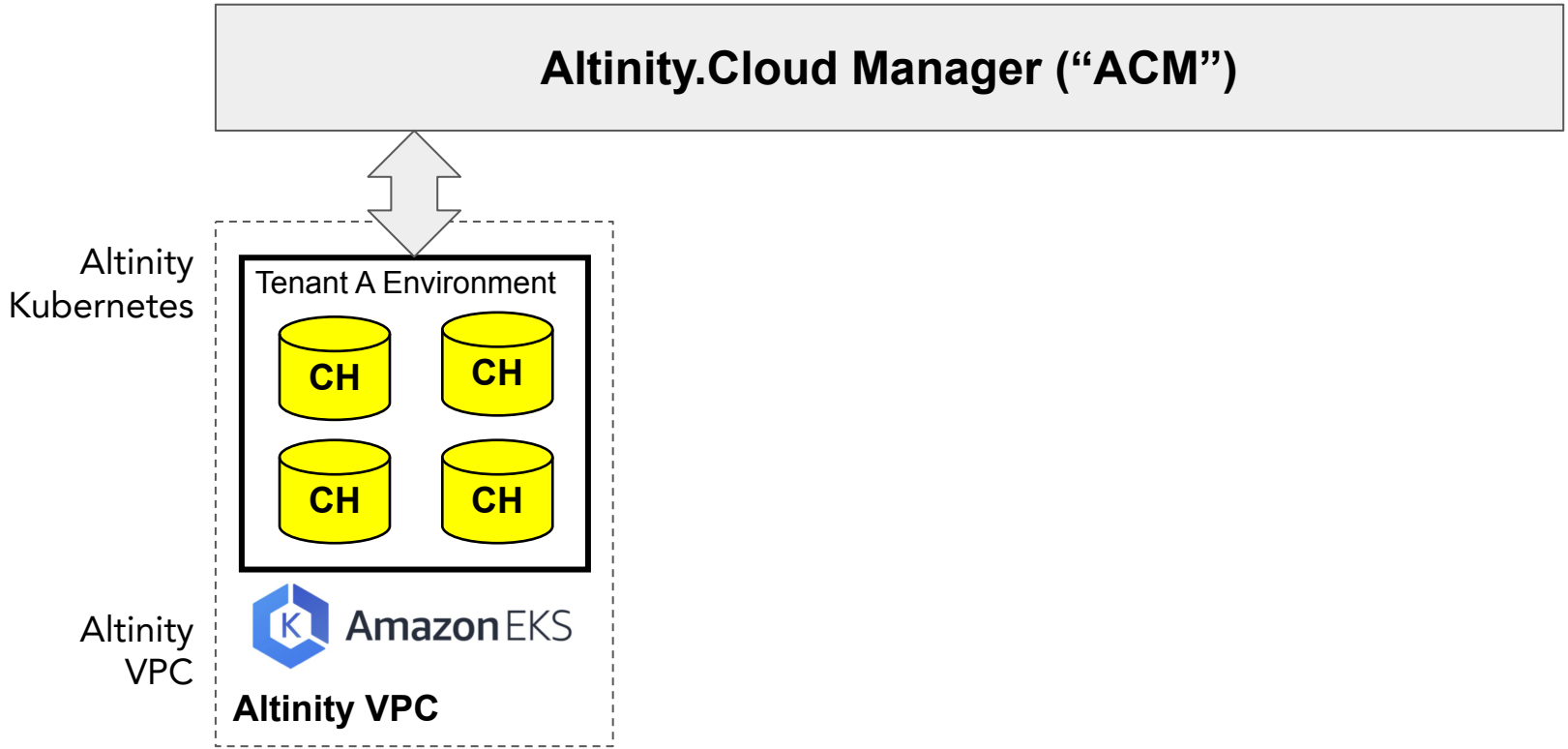
DEMO TIME!

How does Altinity.Cloud work?

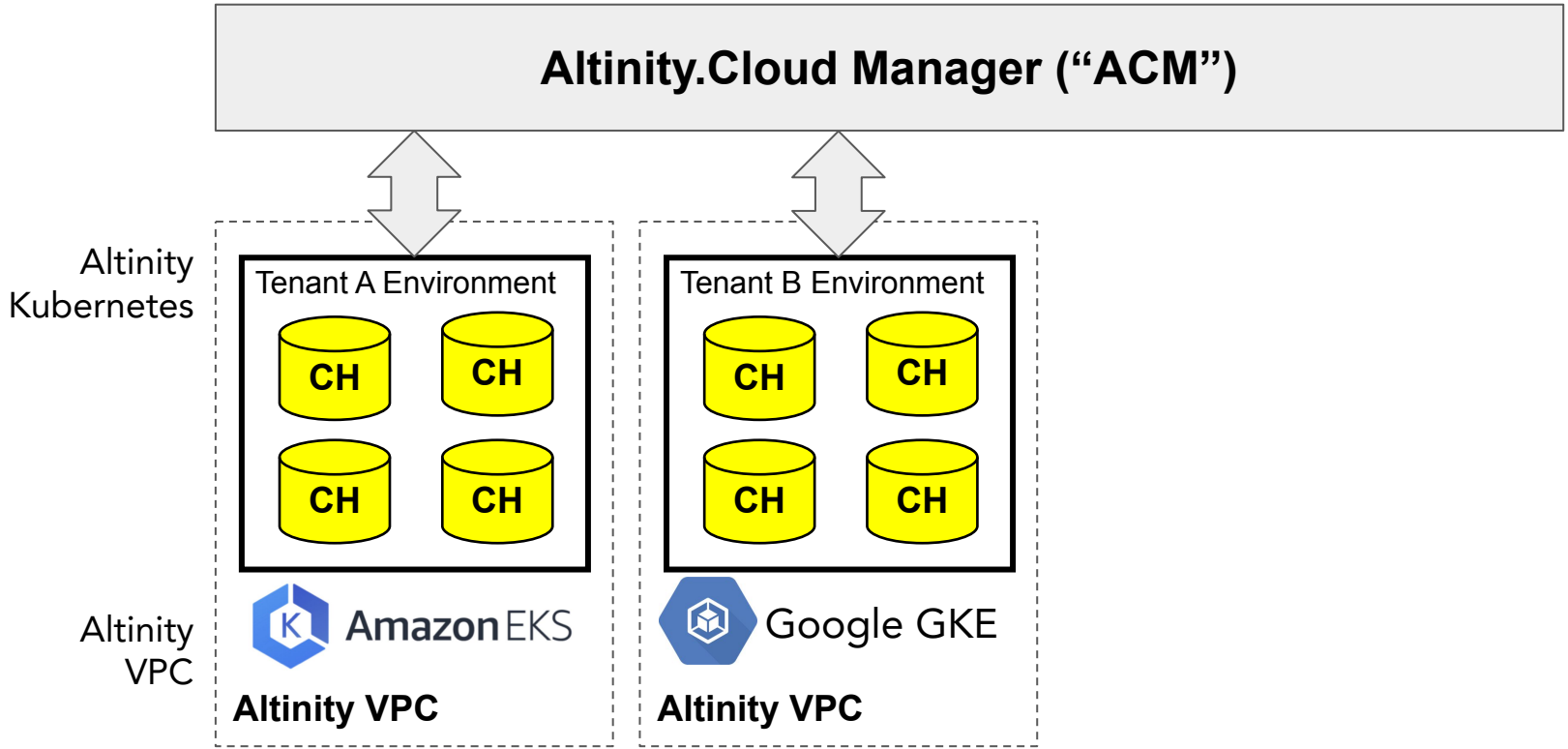
Environments allow ClickHouse to run anywhere



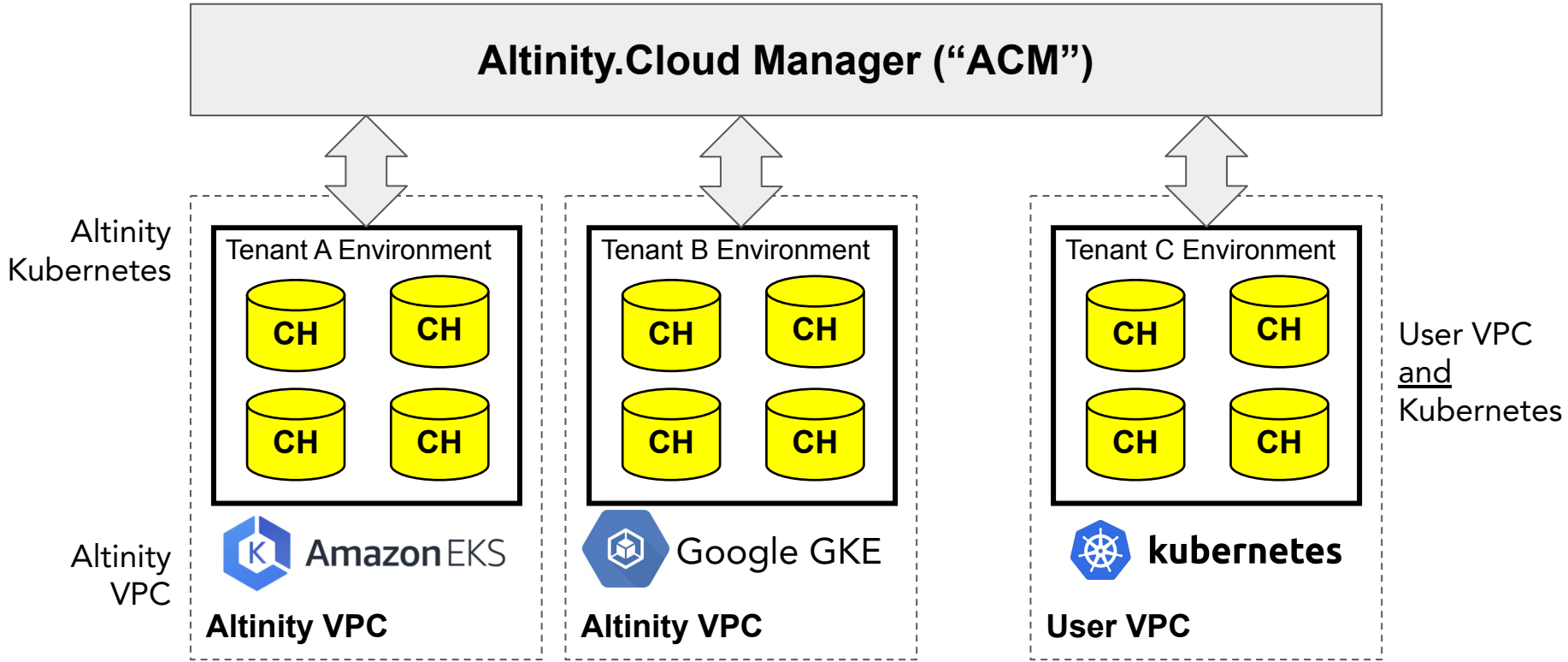
Environments allow ClickHouse to run anywhere



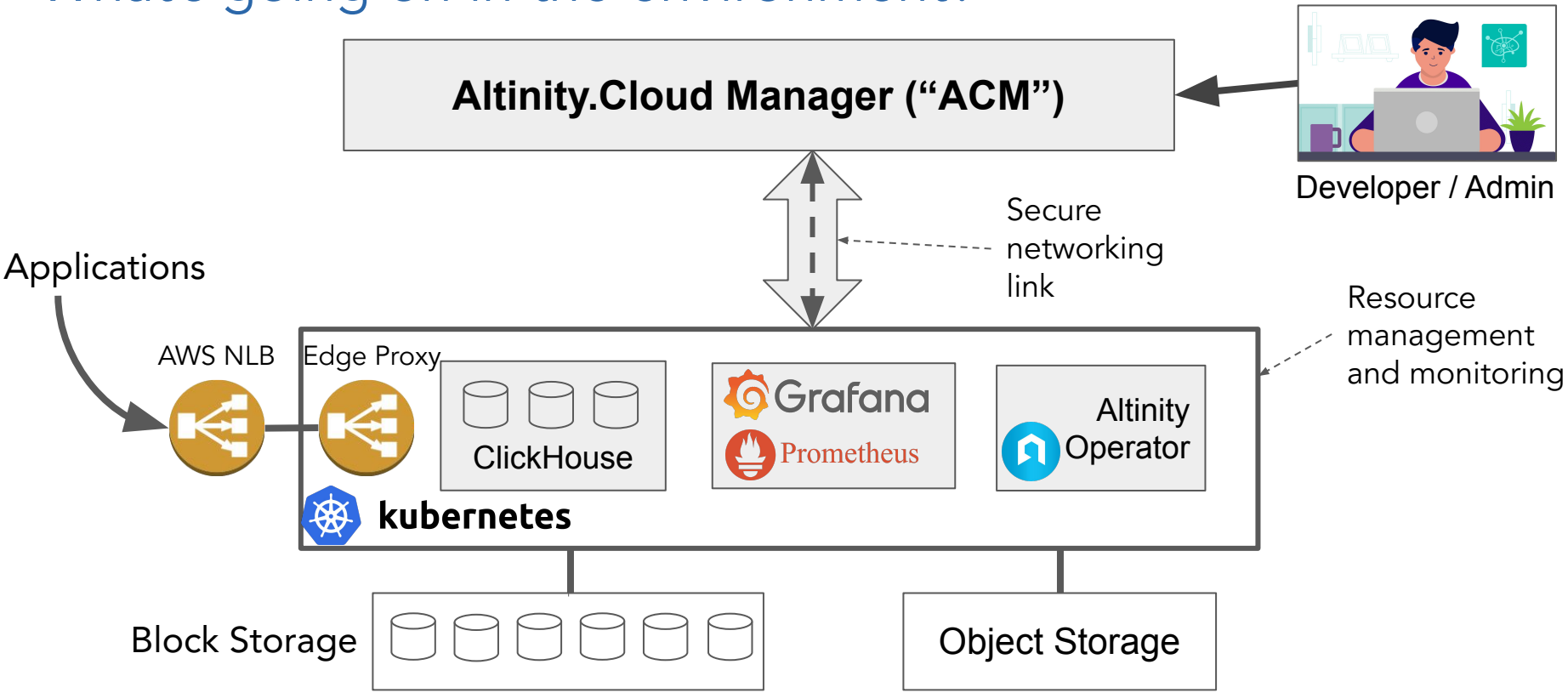
Environments allow ClickHouse to run anywhere



Environments allow ClickHouse to run anywhere



What's going on in the environment?



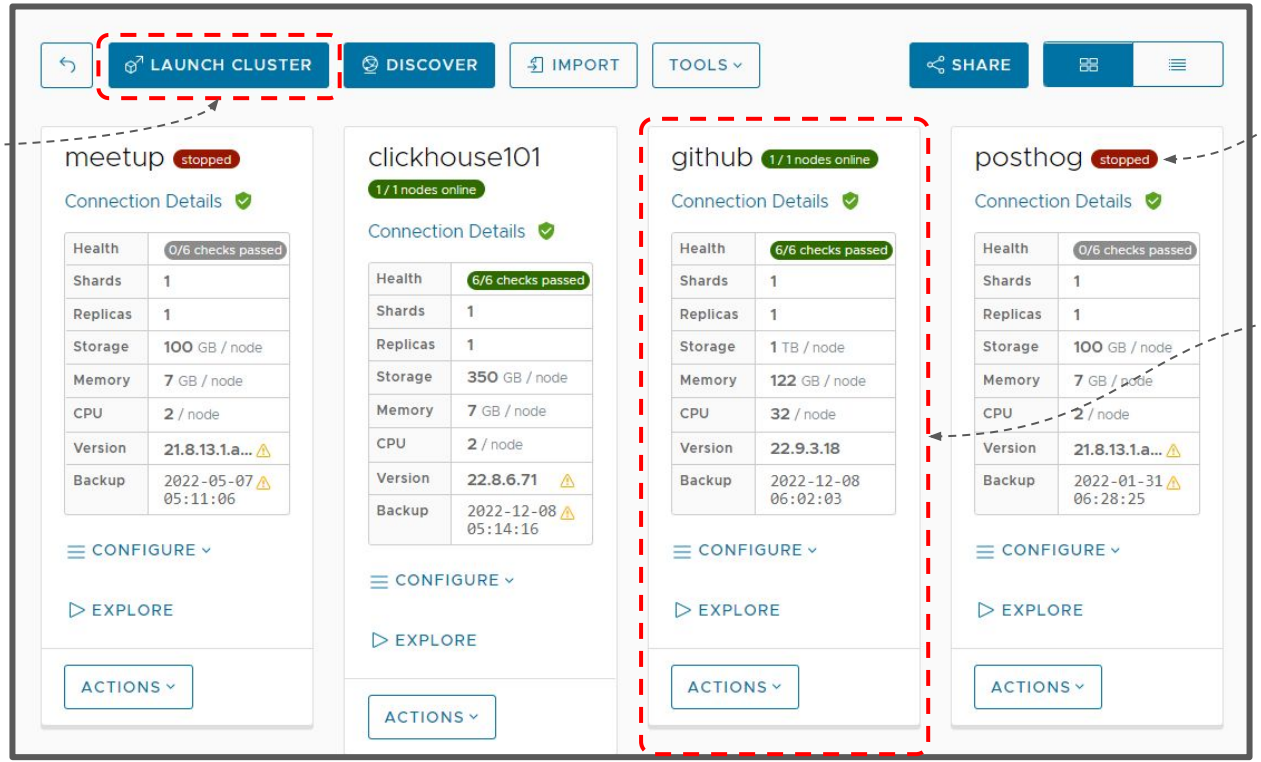
Altinity.Cloud operates the way you do at home!

- The analytic stack is 100% open source
- Run any version of ClickHouse
  - Use community versions to get new features during development
  - Use Altinity Stable builds for production deployments
- Use virtually all features
  - Including experimental features like Live Views and many others
- ClickHouse client libraries must support TLS with Server Name Indications (SNI)

Developing real-time analytics on Altinity.Cloud

Introducing the Altinity.Cloud cluster view

Create a new cluster



A stopped cluster

An active cluster

Deciding between Community and Altinity Stable Builds

ClickHouse Community Builds
Monthly builds
LTS builds every 6 months
(1 year of support)
https://clickhouse.com

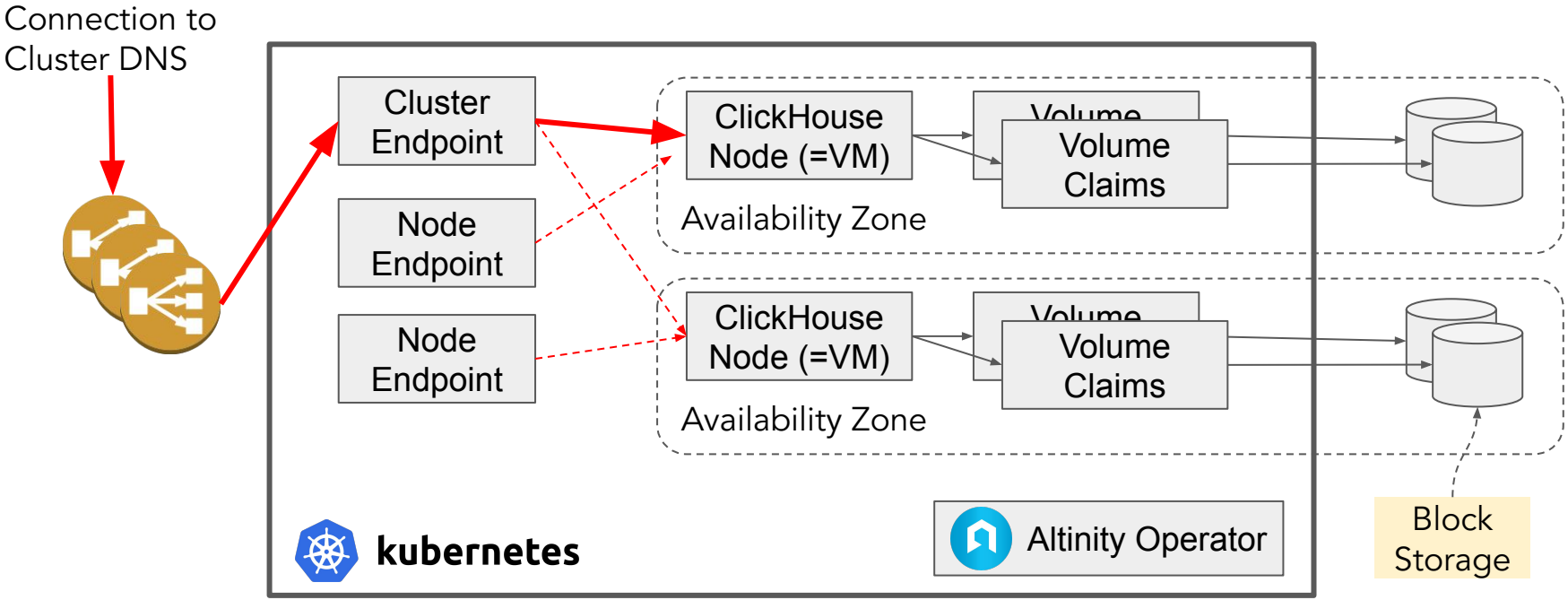
Rapidly evolving; great for development and experimentation

Altinity Stable Builds

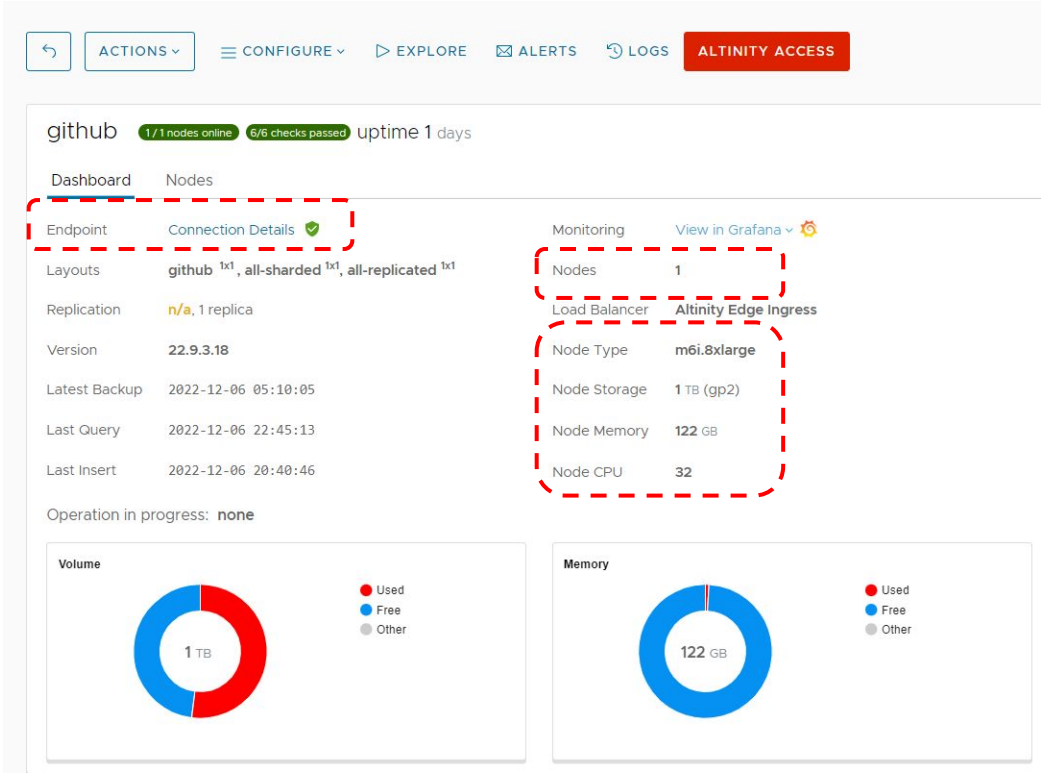
Prod-ready LTS builds only
(3 years of support)
https://docs.altinity.com

Slower-moving; certified for production operation with tested upgrade

What's going on under the covers in a ClickHouse cluster?

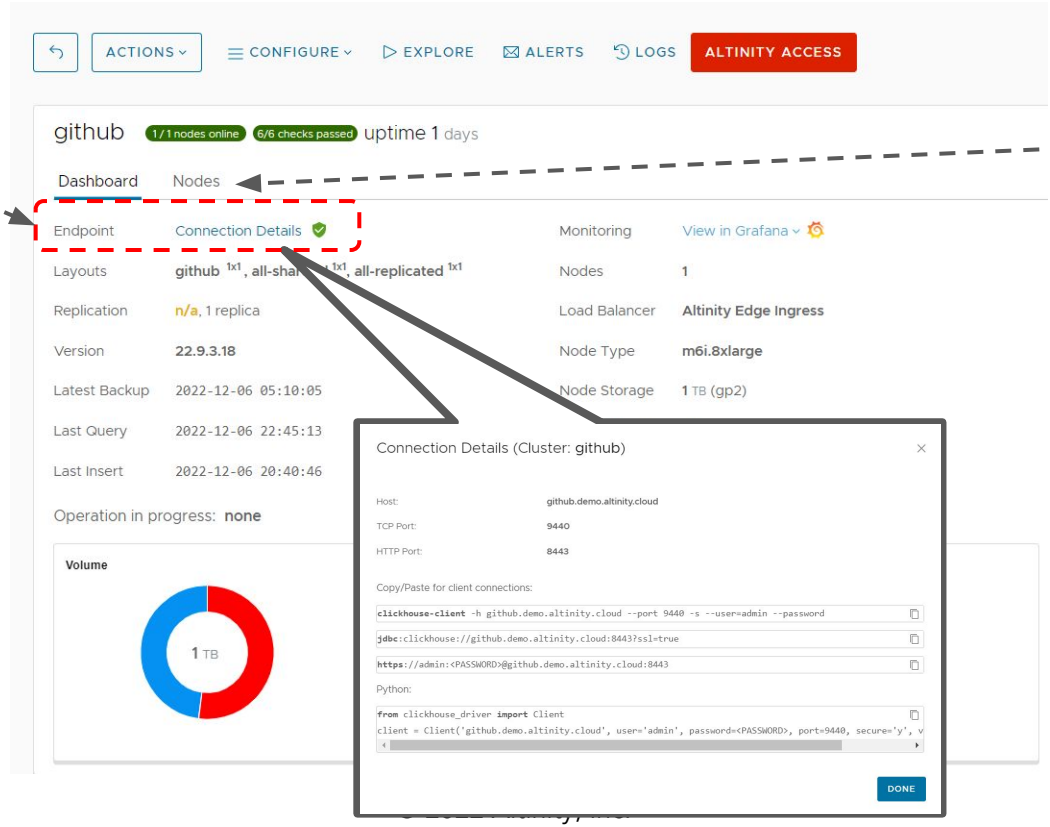


Key information on the cluster dashboard



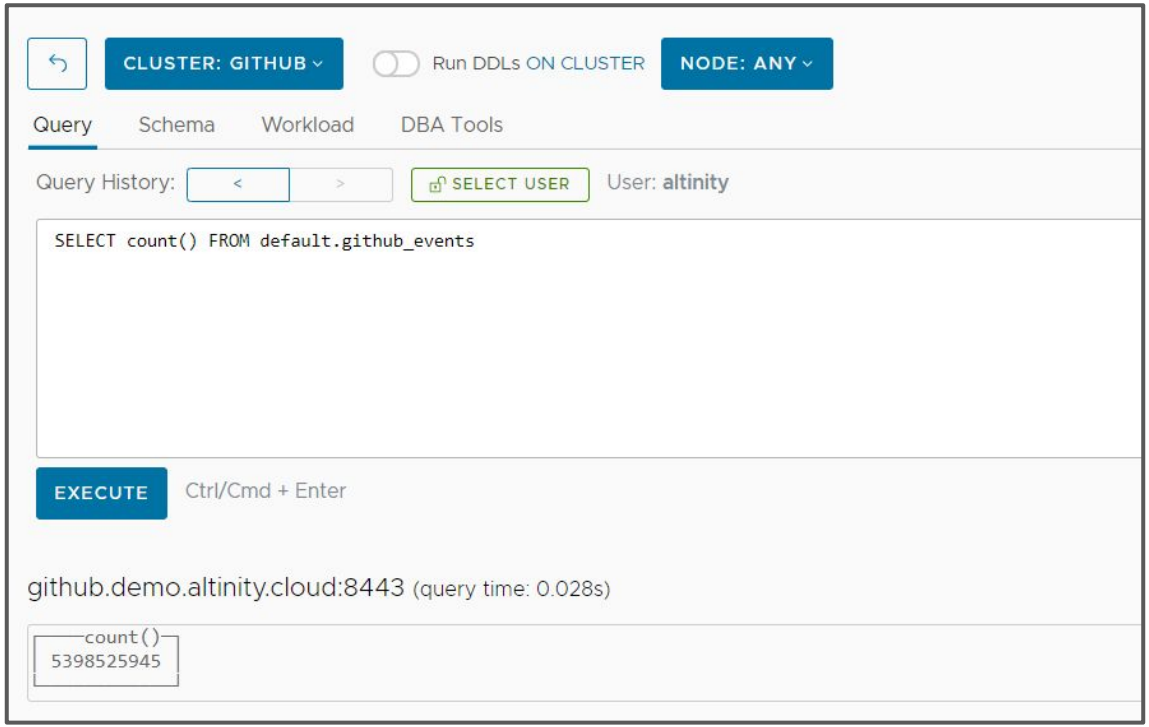
Getting cluster connection details

Connection info for cluster

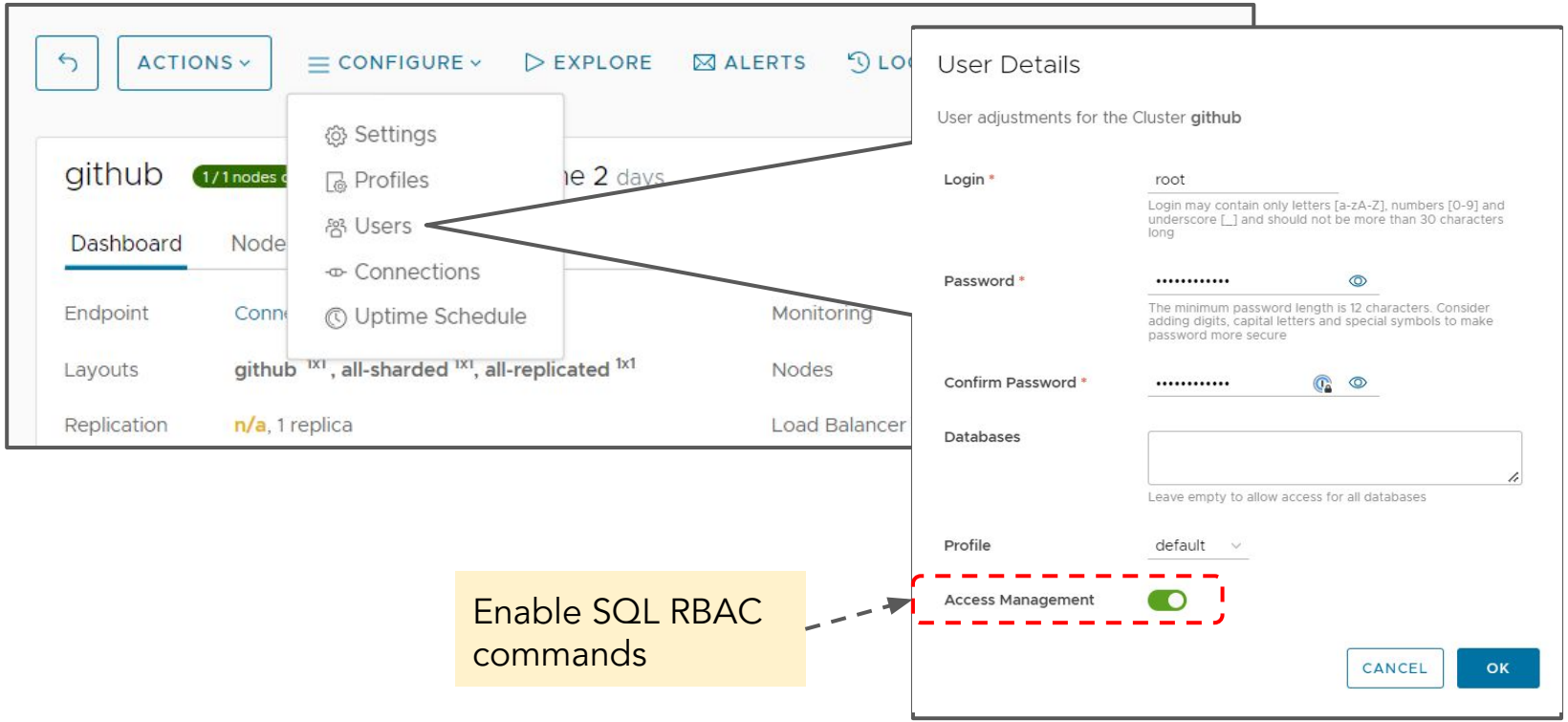


Connection info for nodes

Use dashboard EXPLORE tab to run queries



Add users with the CONFIGURE->Users panel



Create additional users using SQL RBAC commands

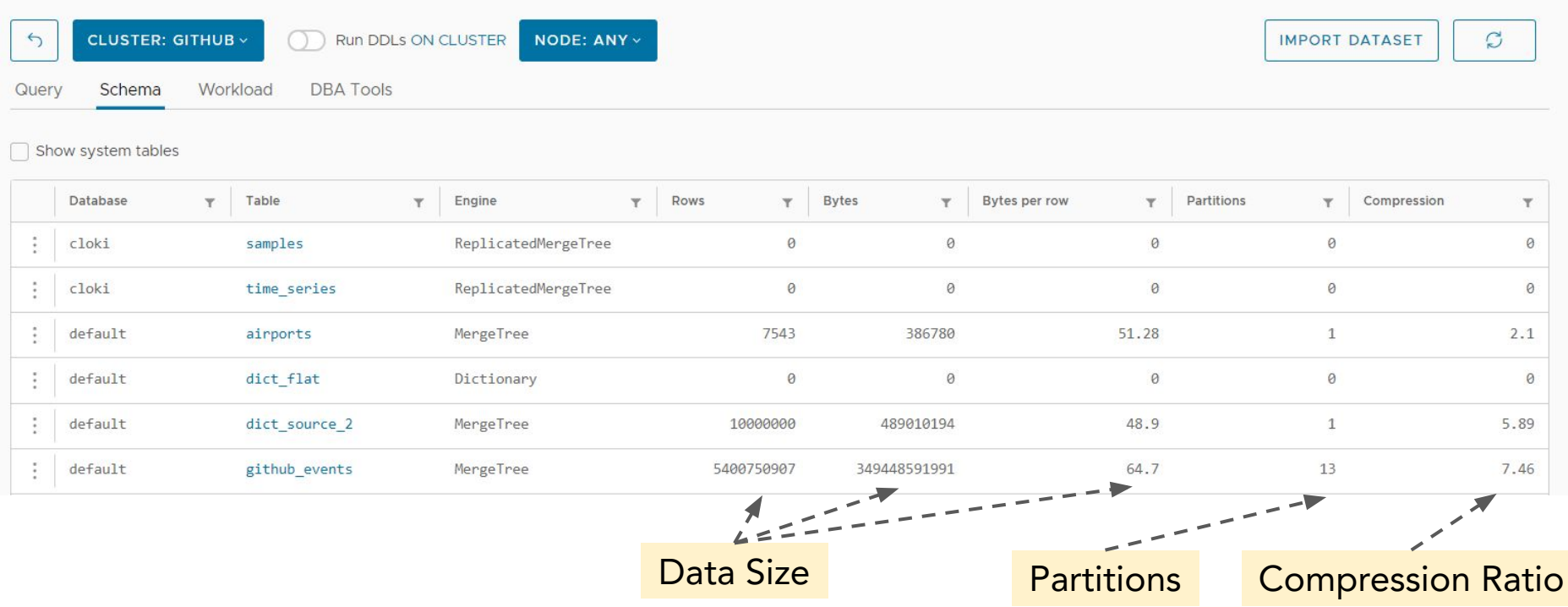
```
clickhouse-client -h github.demo.altinity.cloud --port 9440 -s
--user=root --password

github :) CREATE USER IF NOT EXISTS example IDENTIFIED WITH
SHA256_PASSWORD BY 'secret672355tzdb';

CREATE USER IF NOT EXISTS example IDENTIFIED WITH sha256_hash BY
'5A746DBA1C3B5A4CBBAD60AEEED64F164A8BA1AE1C13988A88CAAFBA46EE7C5B'
SALT
'463A7B30786D2108C3D56289875B3305BC034218C7A884F64C169A3B2F86882A'

Ok.
```

Use EXPLORE->Schema tab to see current schema



Building your analytics stack on Altinity.Cloud

Event streaming

- Apache Kafka
- Apache Pulsar
- Vectorized Redpanda

ELT

- Apache Airflow
- Rudderstack
- Apache Spark

Rendering/Display

- Apache Superset
- Cube.js
- Grafana

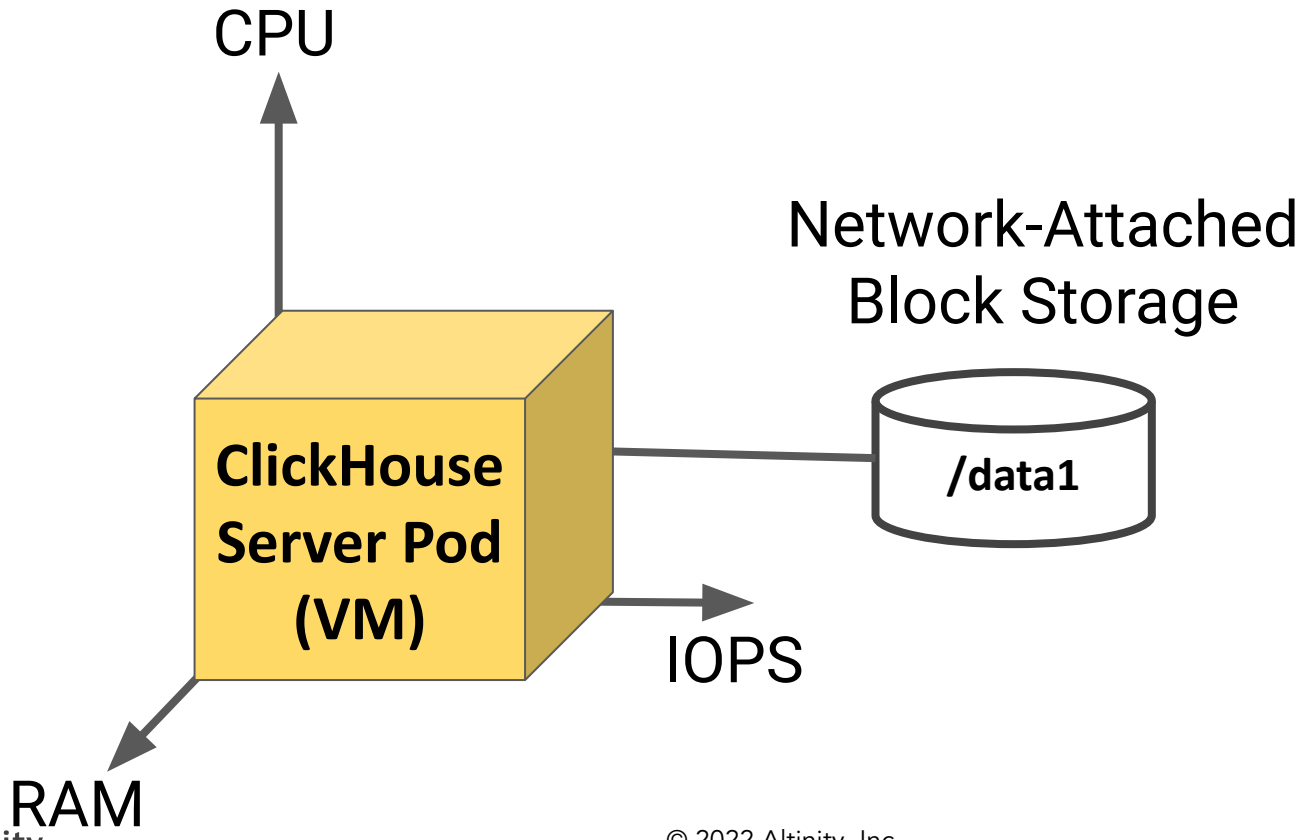
Client Libraries

- C++ - ClickHouse CPP
- Golang - ClickHouse Go
- Java - ClickHouse JDBC
- Javascript/Node.js - Apla
- ODBC - ODBC Driver for ClickHouse
- Python - ClickHouse Driver, ClickHouse SQLAlchemy

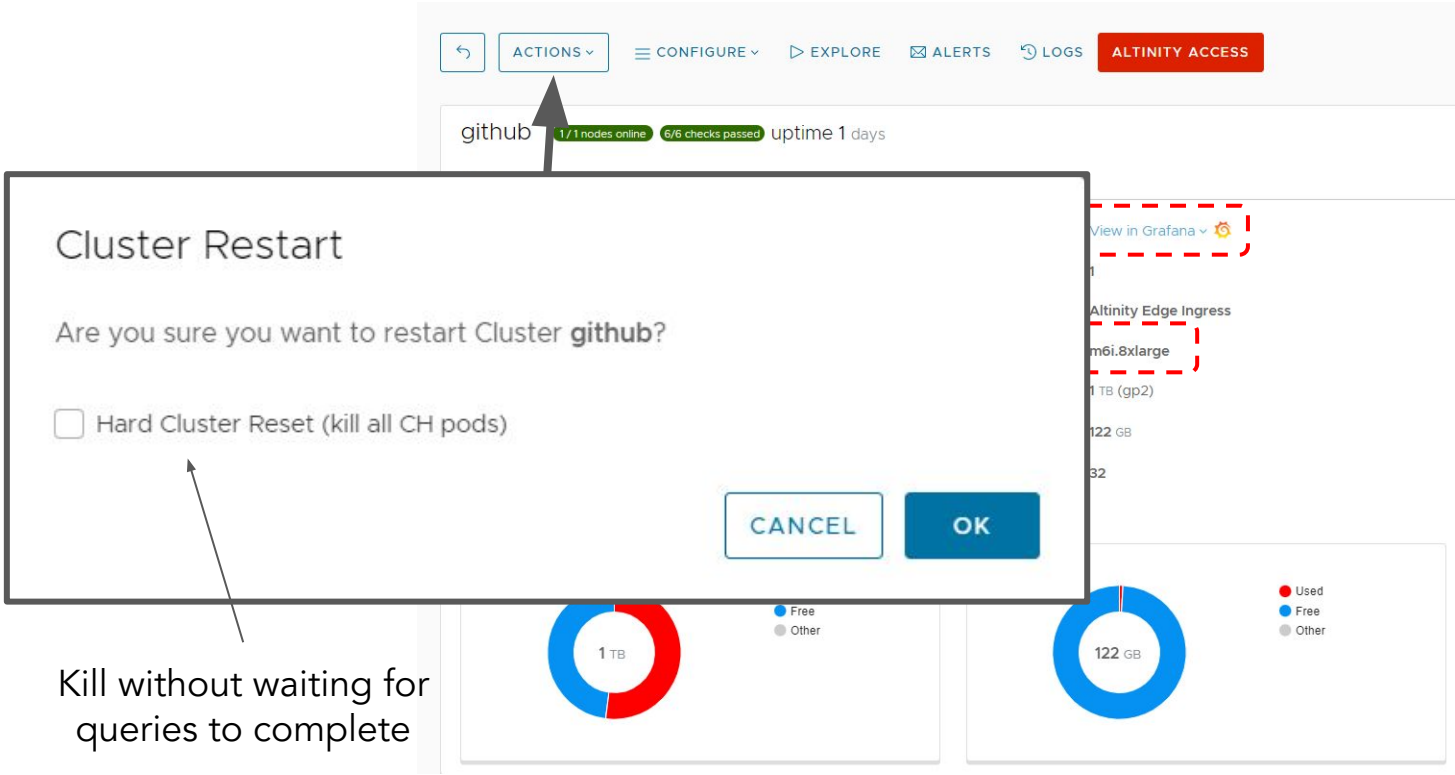
More client library links HERE

Operating your application on Altinity.Cloud

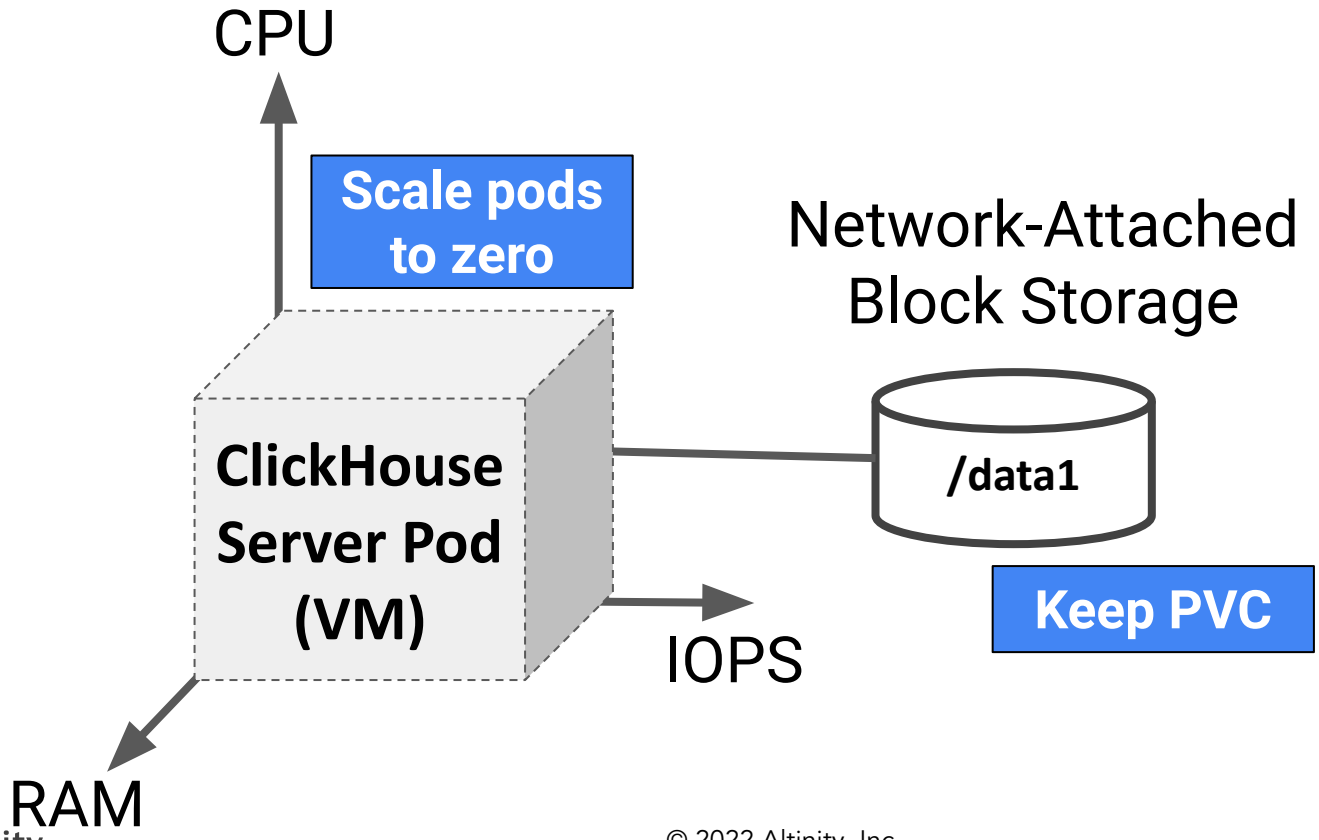
What does a ClickHouse server look like?



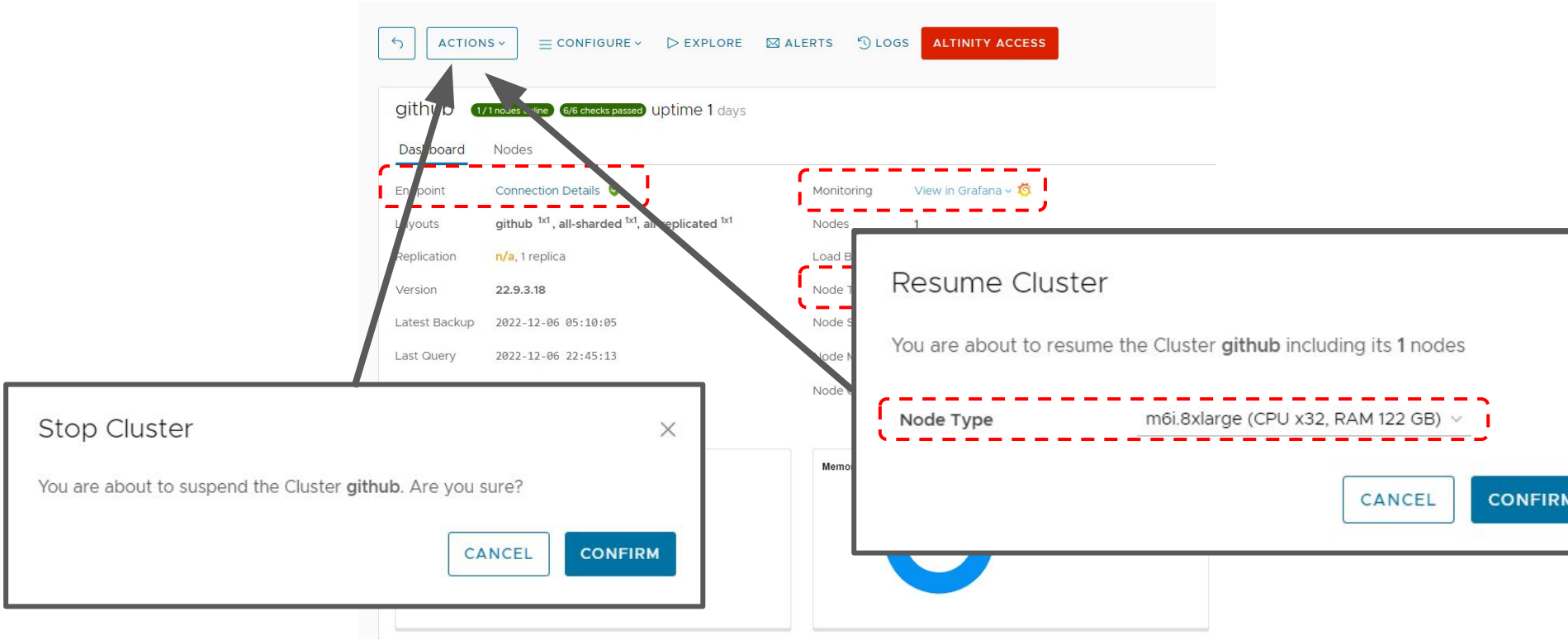
Use ACTIONS drop-down to restart the server at any time



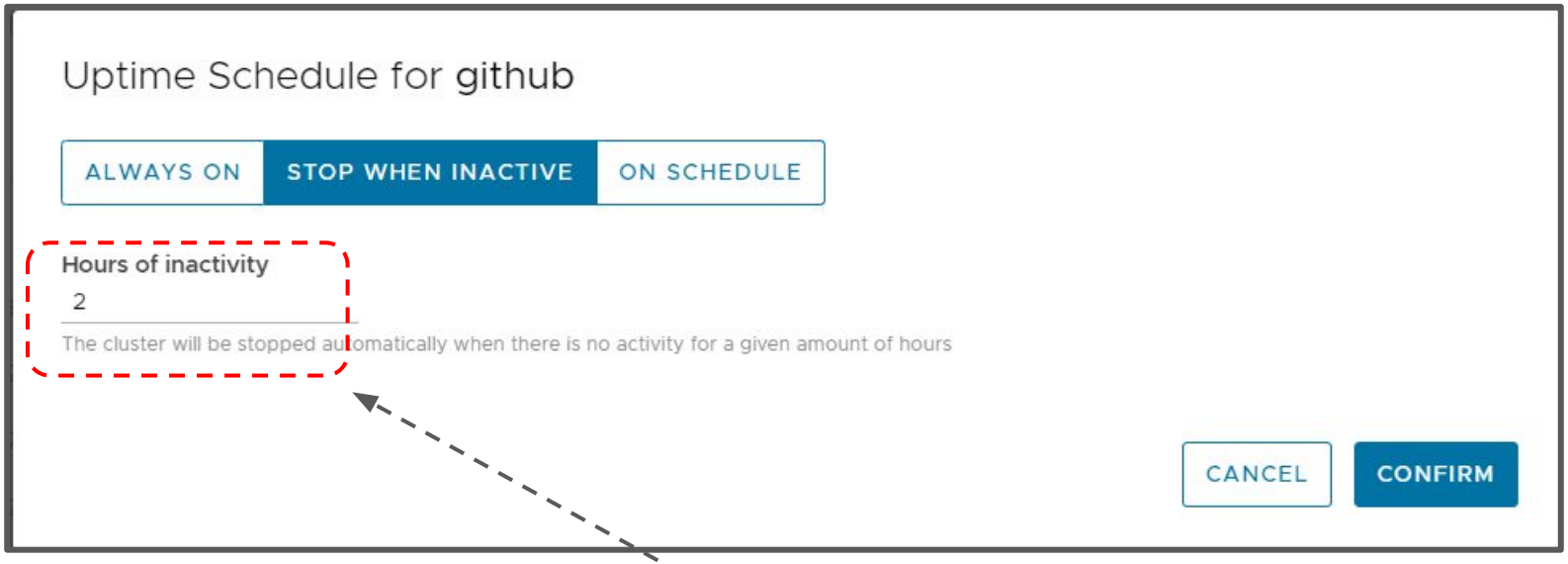
We can also turn off compute to save money



Use ACTIONS drop-down to stop and resume manually

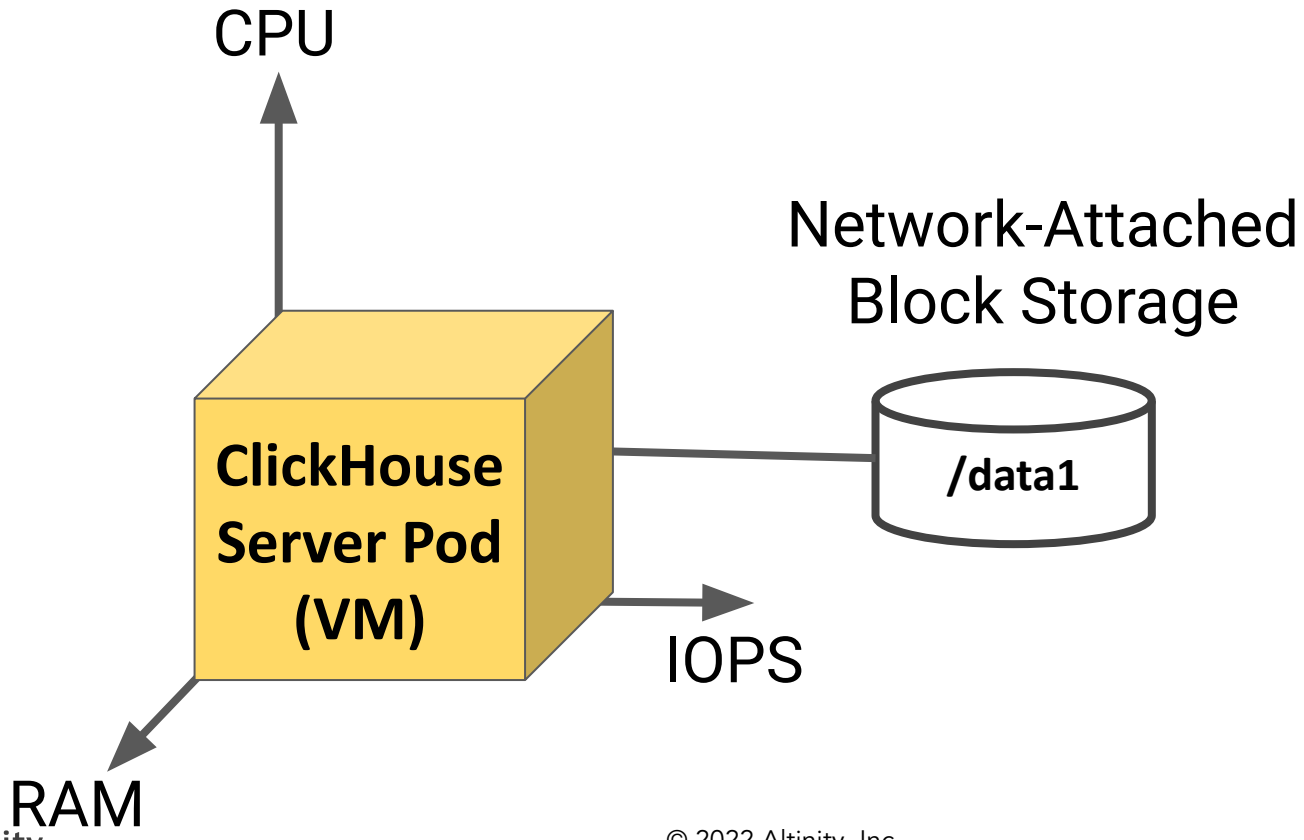


Use CONFIGURE->Uptime Schedule to stop automatically

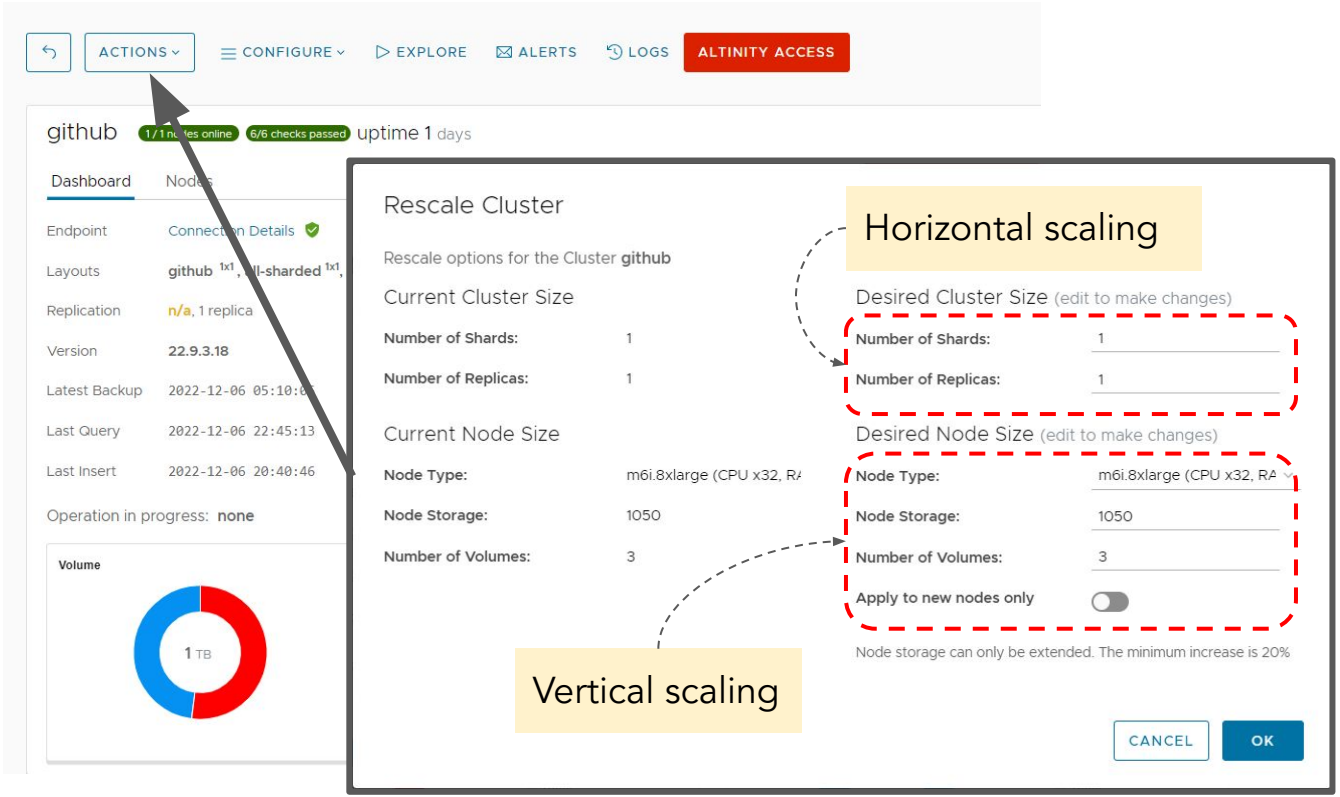


Pause idle cluster after two hours

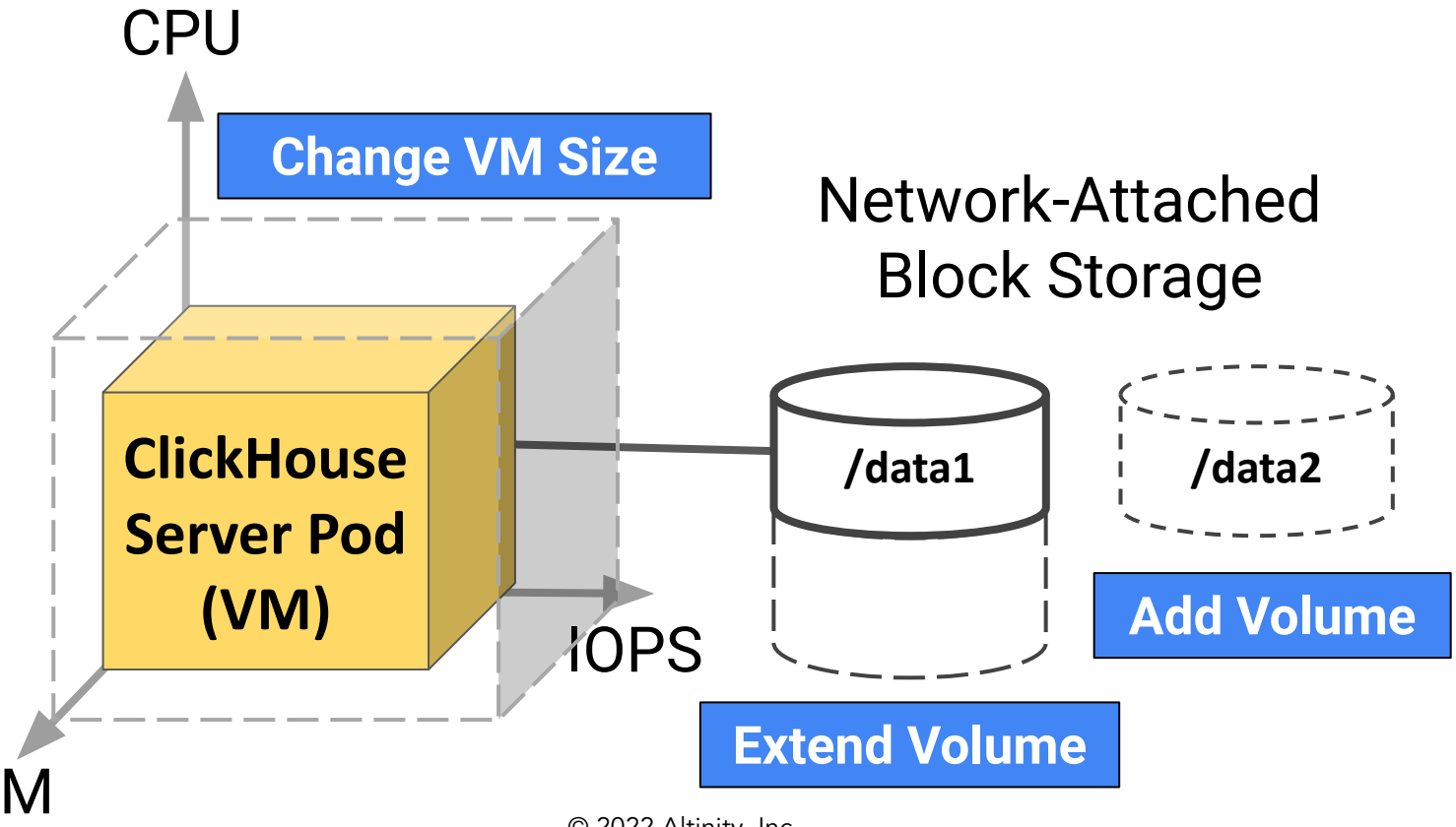
Altinity.Cloud makes it easy to scale clusters



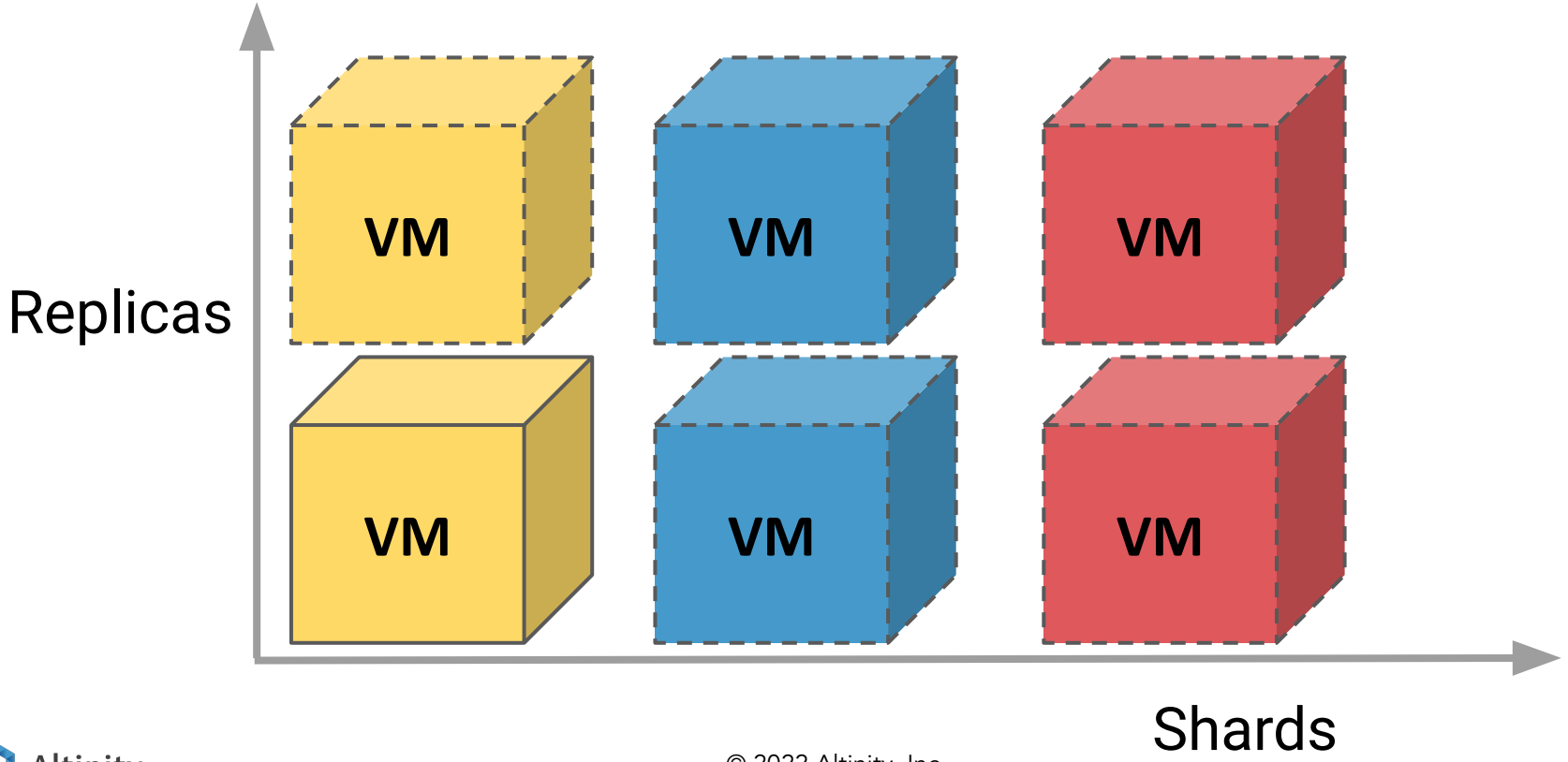
Use ACTIONS->Rescale to scale clusters up and down



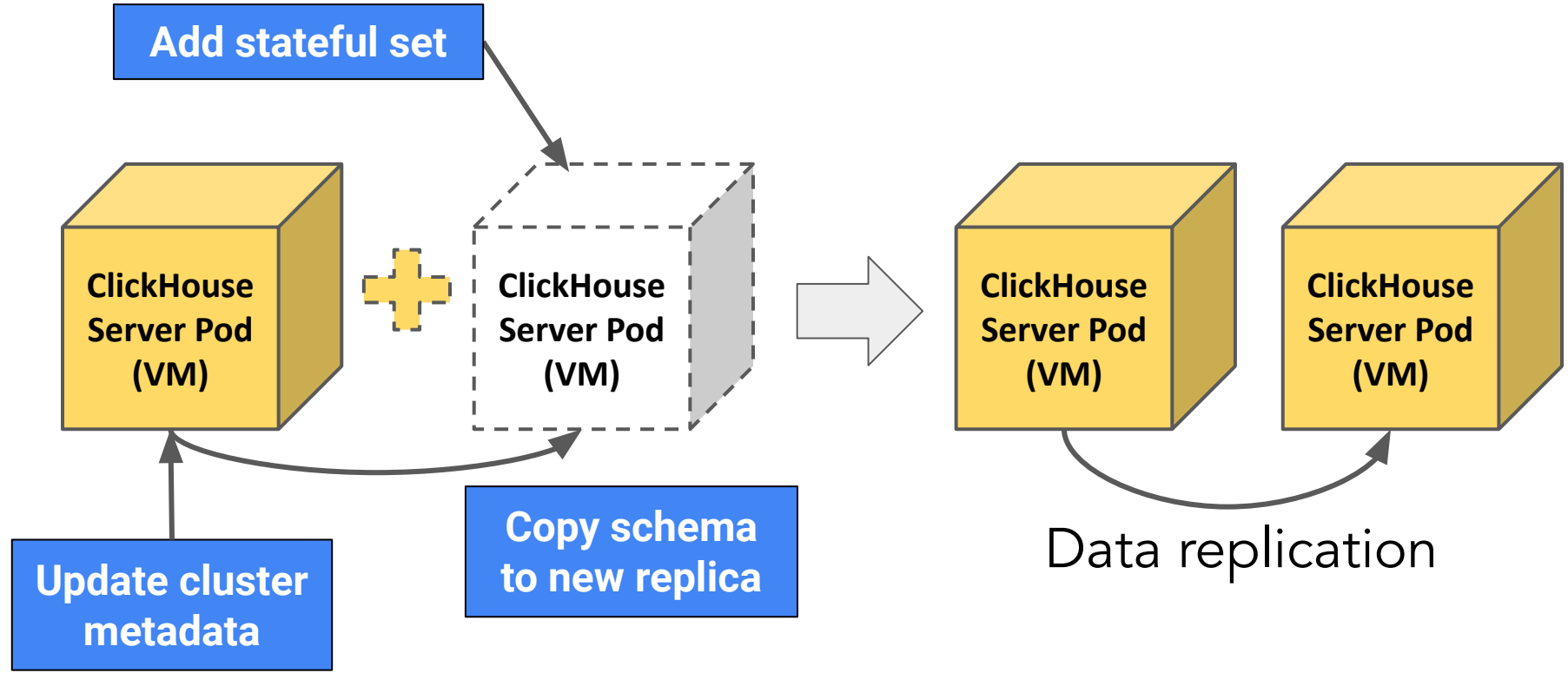
We can scale individual replicas vertically



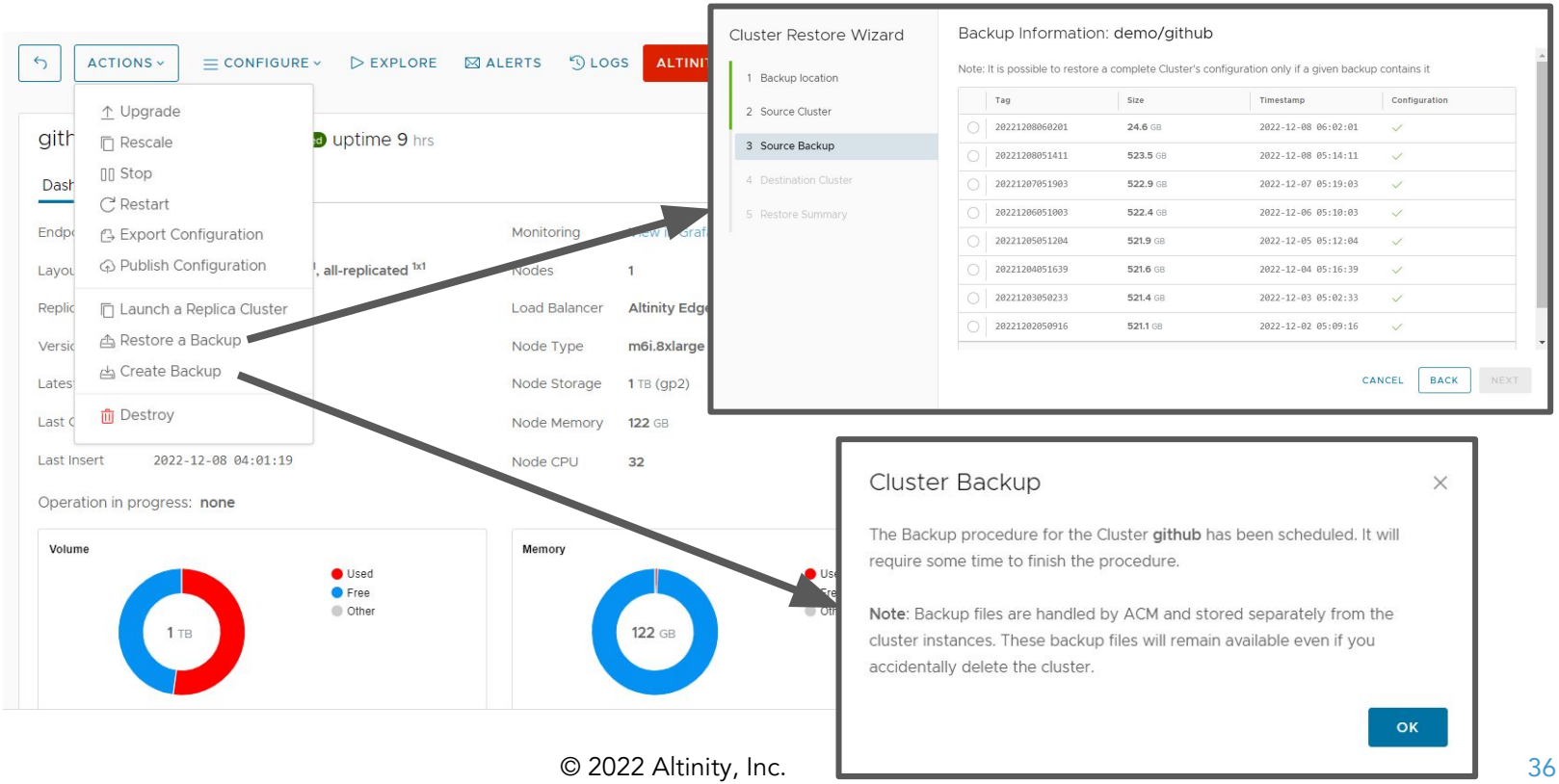
We can scale clusters horizontally



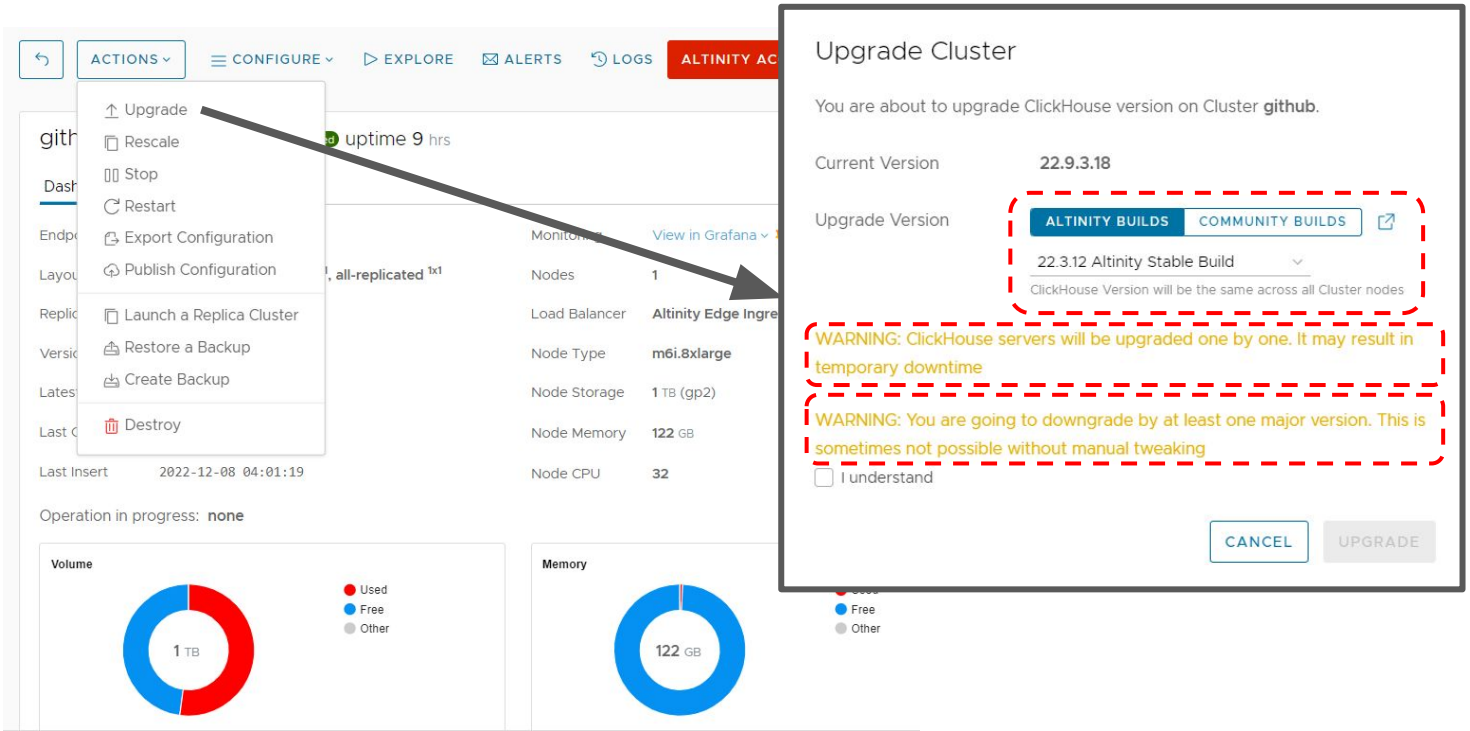
Altinity.Cloud magic to add a ClickHouse replica



Altinity.Cloud backups run every 24 hours or on demand



Altinity.Cloud also automates upgrade/downgrade



Best practices for ClickHouse upgrade on Altinity.Cloud

Use Altinity Stable builds for production systems (not community builds!)

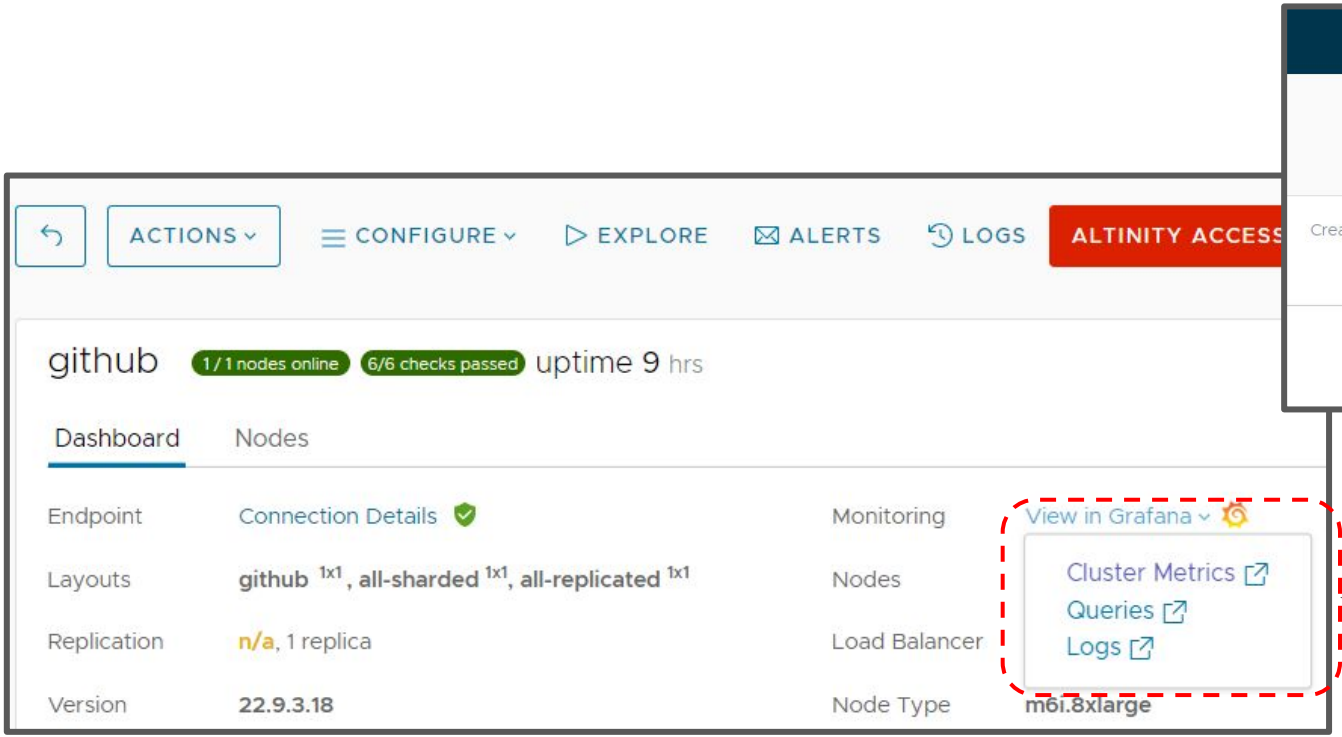
Check the upgrade notes carefully!

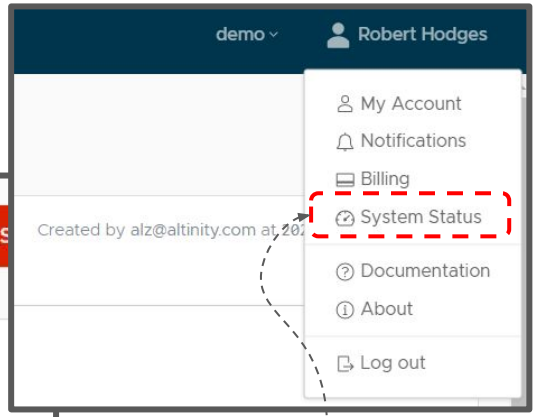
Test the upgrade before running on production systems

1. Restore cluster from backup
2. Upgrade to new version
3. Connect event streams and apps to the new cluster
4. Discard upgrade test cluster after use

Check with Altinity Support! (Let us know about major upgrades in advance.)

Altinity.Cloud has lots of monitoring!



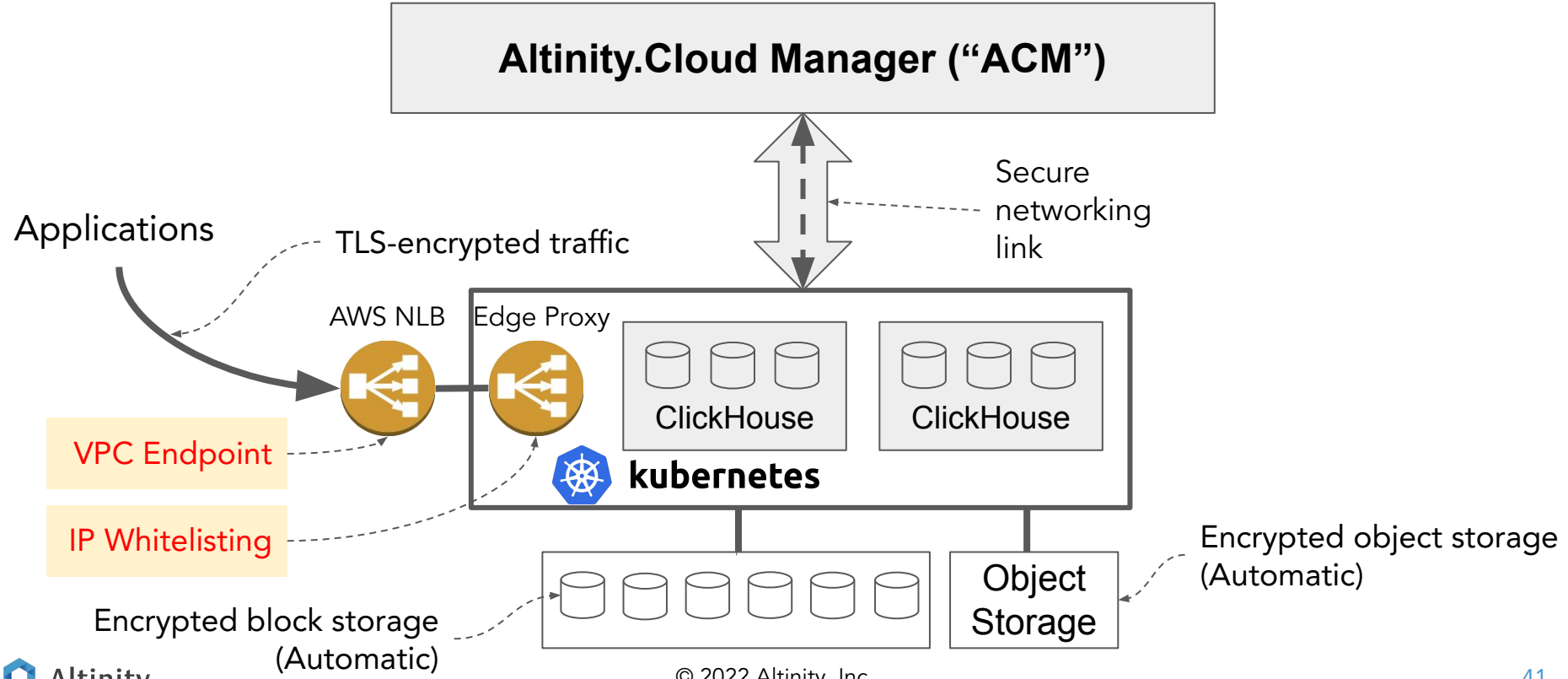


Link to environment status page

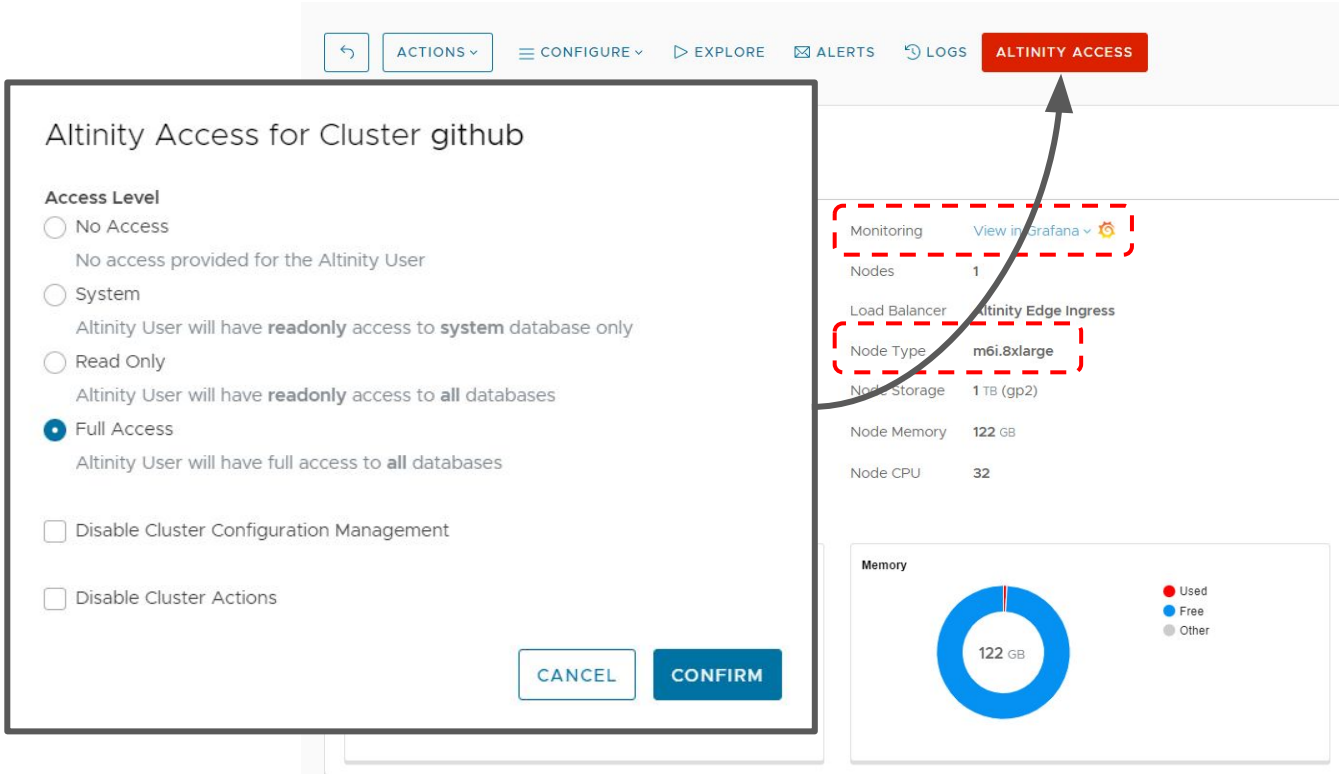
Monitoring pages

Altinity.Cloud security model

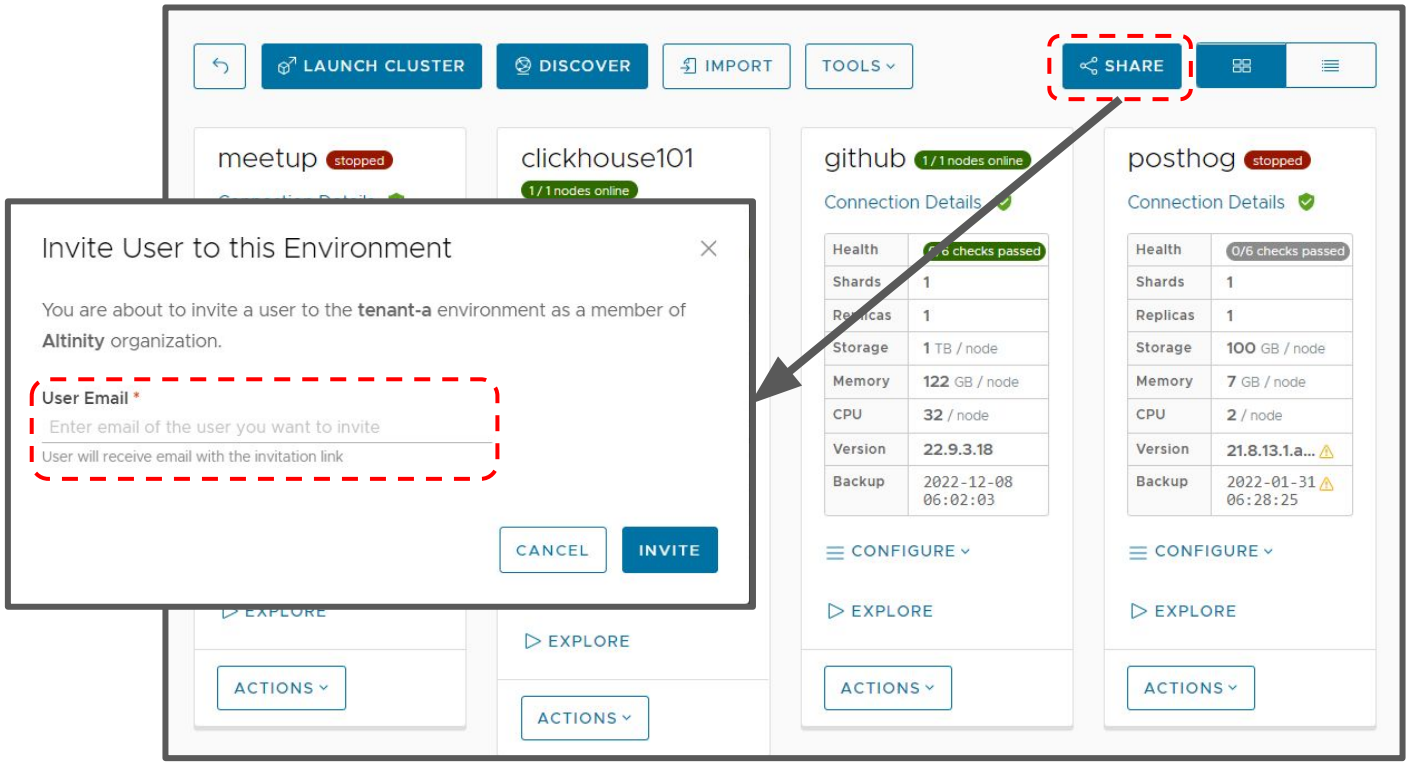
Security protection mechanisms for endpoints



Restricting Altinity access to your data is easy



Inviting new users to your Altinity.Cloud account



How enterprise support works

Altinity.Cloud includes enterprise support!

- Schema design
- Performance optimization
- Troubleshooting
- Upgrades
- Capacity planning
- Integrations (Kafka, BI, librarise.)
- And random questions

Ways to access support

- Slack - shared slack channel
- Zendesk - email to support at altinity dot com

How to get the most out of Altinity.Cloud support

- Log production issues in Zendesk, not Slack
  - Makes it easier to track progress
- Contact us in advance prior to:
  - ClickHouse version upgrades
  - Scale-out operations that may require us to raise AWS or GCP quotas
- Don’t wait for problems. We can help you with migration, design and capacity planning and many other topics
  - Just ask if you have questions!
  - We also can do regular check-in calls to help you make progress

Thank you!
Questions?

Website: https://altinity.com
Email: info@altinity.com
Slack: altinitydbworkspace.slack.com

Altinity.Cloud

Altinity Support

Altinity Stable Builds

Free 2 week trials