

Introducing ClickHouse Cloud

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Speakers



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Agenda

ClickHouse Cloud webinar

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Tanya Bragin

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Dale McDiarmid

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Alexey Milovidov & Christoph Wurm

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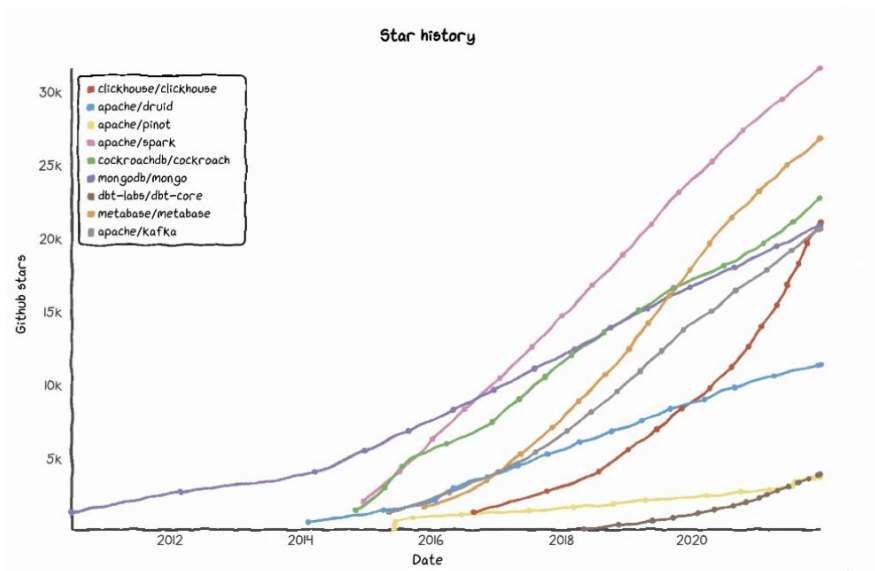
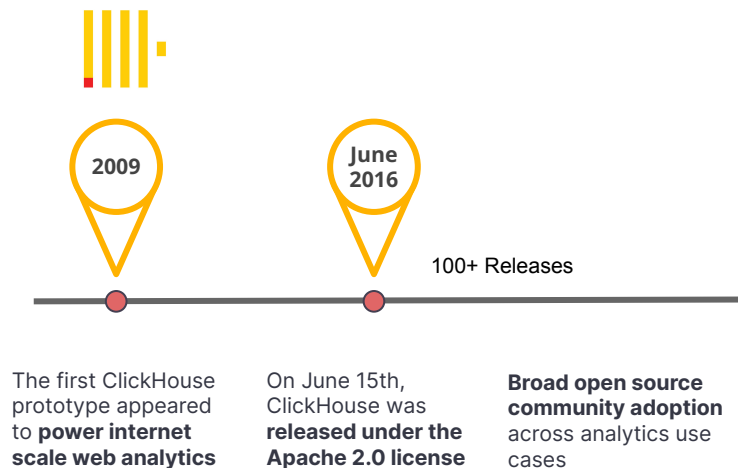
Q&A

All



The ClickHouse Journey

25,000+ GitHub stars
100,000+ commits
1,000+ contributors



The ClickHouse Difference

The fastest and most resource efficient real-time analytics database

1

Very fast OLAP queries

Analytical queries - aggregations on append-mostly data that grows over time

2

Highly resource efficient

Disruptive data compression - 10-100x storage efficiency over alternatives

3

Ease of use

Analyst-friendly SQL syntax, easy to get started, large ecosystem of integrations

System & Machine	Relative time (lower is better)
ClickHouse (c6a.metal, 500gb gp2):	×1.07
ClickHouse (c6a.4xlarge, 500gb gp2):	×2.46
ClickHouse (c5.4xlarge, 500gb gp2):	×2.61
Pinot (c6a.4xlarge, 500gb gp2) [†] :	×19.42
Greenplum (c6a.4xlarge, 500gb gp2):	×22.68
QuestDB (c6a.4xlarge, 500gb gp2):	×29.20
Elasticsearch (c6a.4xlarge, 1500gb gp2):	×49.81
Druid (c6a.4xlarge, 500gb gp2) [†] :	×101.47
MySQL (c6a.4xlarge, 500gb gp2):	×1739.49
MongoDB (c6a.4xlarge, 500gb gp2):	×2303.61

<https://benchmark.clickhouse.com/>



Success in the market

Make any data fast

Internal Analytics



Migrations from legacy OLAP
and data warehouses

User-facing Analytics



Migrations from OLTP DBs not
optimized for real-time OLAP

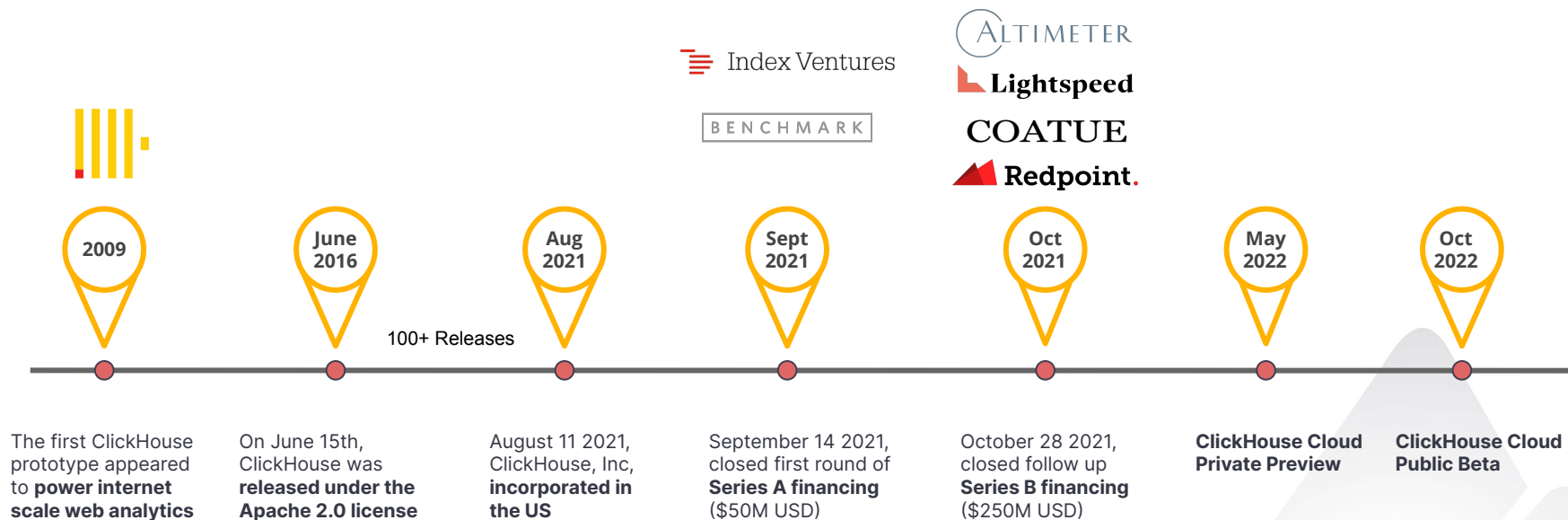
Observability



Migrations from legacy logging,
tracing, and time-series stores



The ClickHouse Journey



What we hear from ClickHouse users

400+
Companies

500+
Users

Feedback

- Would like to get out of the business of managing a distributed analytical database at scale
- Solution that scales with their workloads - no need to size upfront or resize / rebalance later
- Setup that ensures best practices - especially security and resilience - without manual config and maintenance
- Pay-as-you-go pricing - coupled with controls to reserve capacity and set caps on capacity



ClickHouse Cloud Difference

Current state

- ✓ Pick your instance type
- ✓ Pick your memory/disk size
- ✓ Pick your number of replicas
- ✓ Configure sharding and replication
- ✓ Configure secure settings
- ✓ ...
- ✓ **Load your data**
- ✓ **Run your queries**
- ✓ *And then*
- ✓ Monitor resource usage
- ✓ Scale your servers
- ✓ Rebalance your workload
- ✓ Ensure resilience
- ✓ Back up manually
- ✓ Upgrade manually (if at all)
- ✓ ...

ClickHouse Cloud

- ✓ Push button to create a service
- ✓ **Load your data**
- ✓ **Run your queries**



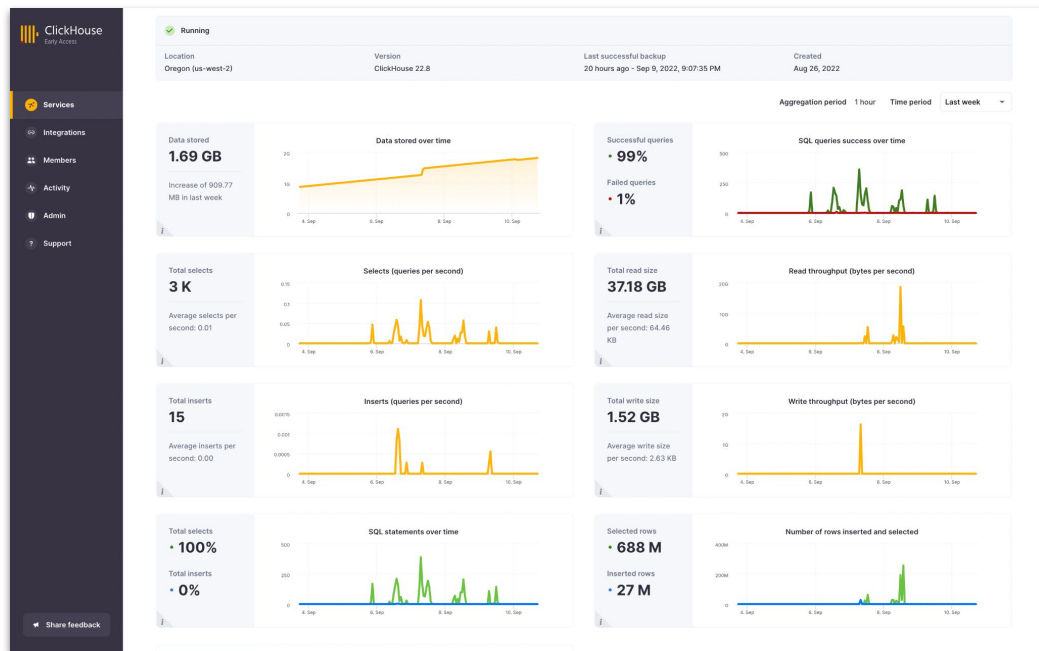
Simplicity - Onboard in 5 minutes

Faster time to value for new projects

- Start ClickHouse with a few clicks.
No need to worry about:

- Manual sizing upfront
- Cluster topology
- Network and security config
- Replication and sharding
- Distributed table setup
- Durability and fault tolerance

- **It just works!**



Simplicity - Ongoing administration

Dramatically lower ROI for ongoing use

- Use ClickHouse services with a lot less need for ongoing maintenance.

No need to worry about:

- Monitoring and alerts
- Resizing and scaling
- Workload rebalancing
- Backups and restores
- Manual upgrades

- **It just continues to work!**

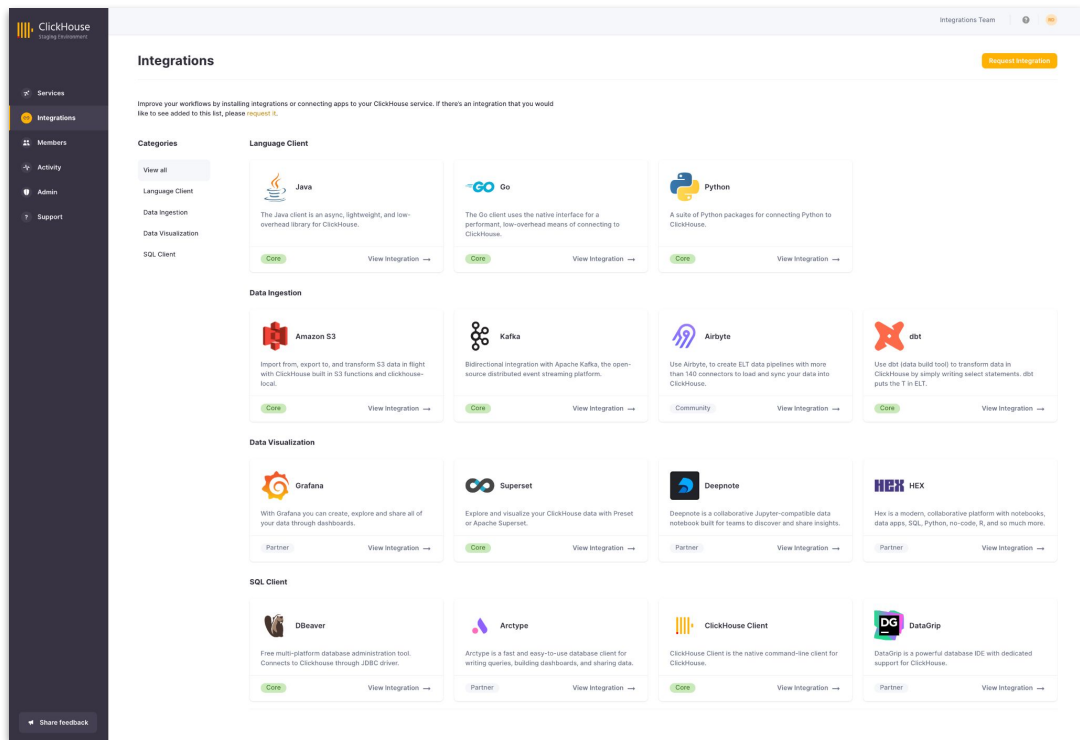
The screenshot displays the ClickHouse Beta Analytics dashboard. On the left is a dark sidebar with navigation links: Services, Integrations, Members, Activity, Admin, and Help. The main content area is titled 'Analytics' and has tabs for Summary, Backups (selected), and Security. Under the Backups tab, there are three summary cards: 'Last successful backup 13 hours ago', 'Next scheduled backup in 10 hours', and 'Backup frequency Daily'. Below these is a 'Backup history' section with a table of backup records.

Snapshot	Status	Started	Finished	Duration	Actions
22087bf4-bab4...	✓	13 hours ago	13 hours ago	50 secs	🔄 🗑️
9d5b8072-cfd7...	✓	Oct 24, 2022, 10...	Oct 24, 2022, 10...	1 min, 10 secs	🔄 🗑️

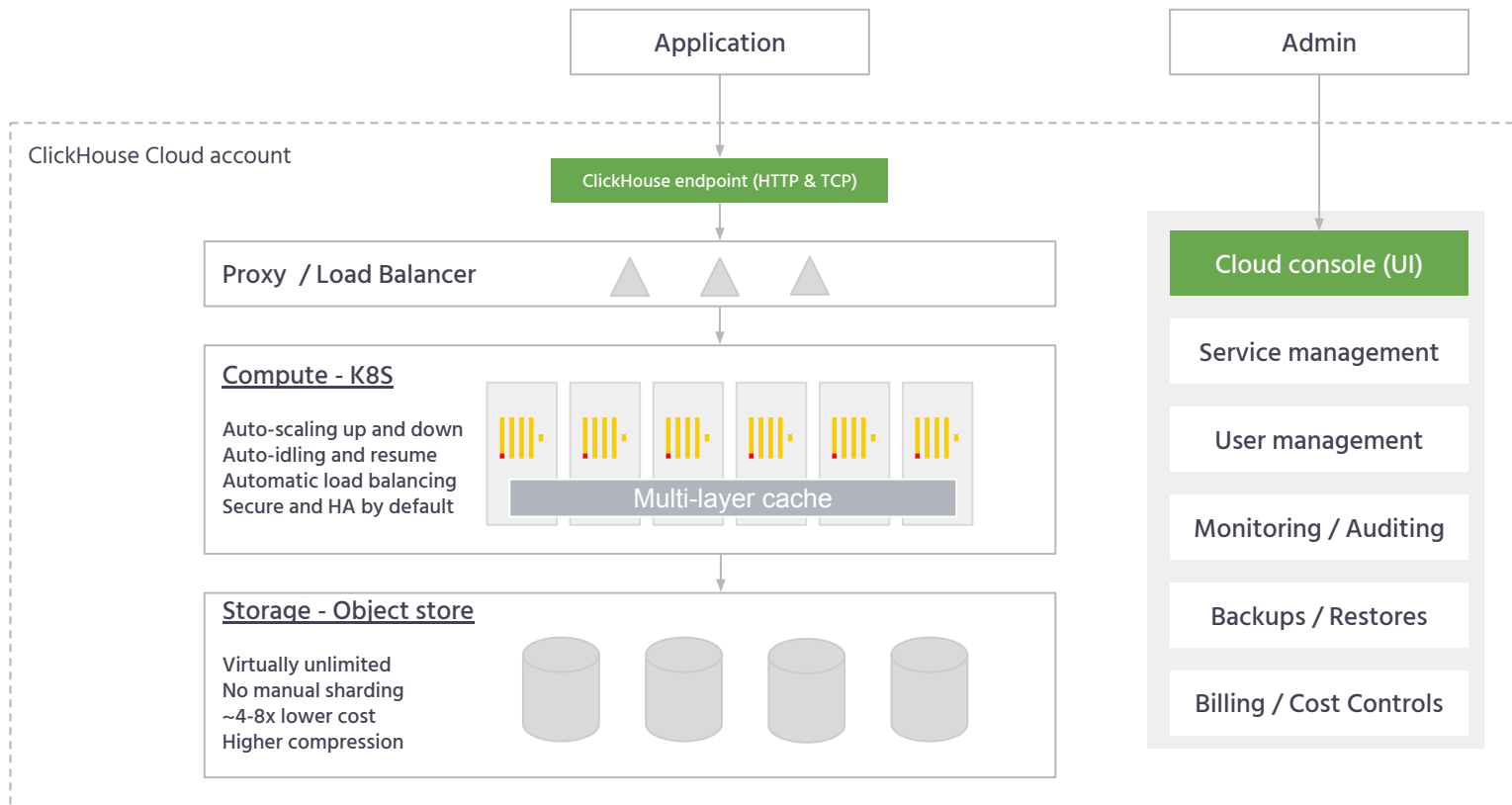


Ecosystem integrations

- Leverage an ever-growing, curated list of core, partner, and community integrations vetted to work with ClickHouse Cloud
- Add data sources, data visualization, and other ecosystem tools with a few clicks
- Enterprise grade security enforced on all integrations under our control



ClickHouse Cloud Architecture

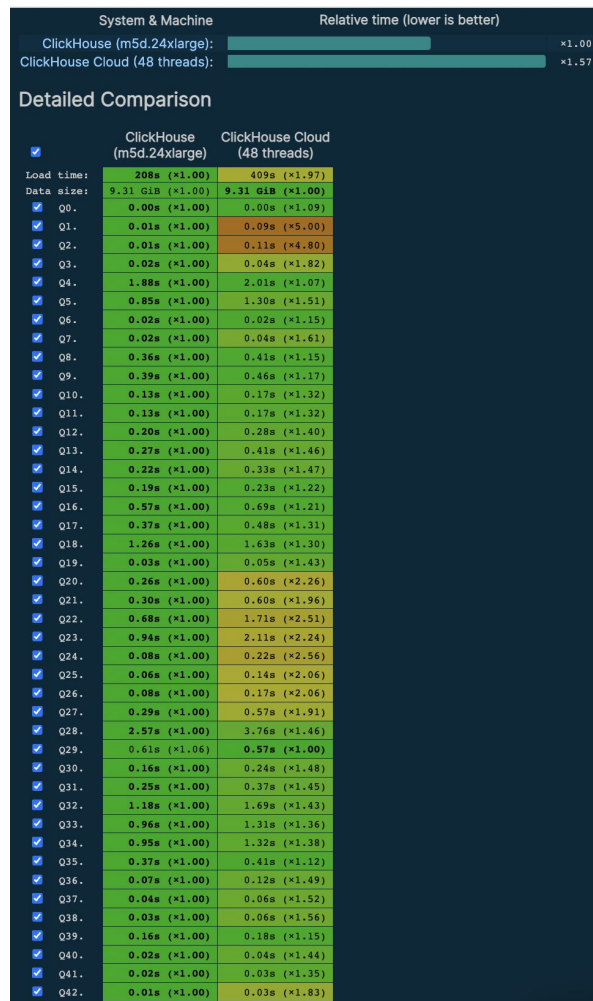


ClickHouse Cloud Benchmark

Are queries still fast on top of object store?

<https://benchmark.clickhouse.com/>

- Object storage but similar bandwidth to local storage, and query concurrency is not affected
- Object storage has slower access latency, compared to attached SSD
- There is some slowdown, but only for short queries
- ClickHouse Cloud multi-layer cache ensures fast analytical query results despite slower access latency of the underlying store
- The fact that data is not replicated can be used to speed up certain queries



Pricing model

Pay as you go pricing for storage and workload

■ Data storage

- ◇ \$0.056 per GB of data stored in ClickHouse tables, after compression
- ◇ 2 free nightly backups included

■ Workload

- ◇ \$0.00243 per compute unit * minute
- ◇ \$0.0010 / \$0.0125 per read / write unit of object store access

Prices in us-east-1, will vary by region

<https://clickhouse.com/docs/en/manage/billing/>



Cost controls

Advanced scaling controls - optimize for your use case with one simple slider

- Set auto-scaling min: for always-on user-facing applications that need **reserved compute capacity for peak performance**
- Set auto-scaling max: for internal application where **limits on compute can prevent unexpected bills** due to un-optimized ad-hoc queries

Advanced scaling

By default, ClickHouse Cloud automatically scales compute capacity to accommodate the needs of your workload. The default behaviour is to scale down your compute instances after a period of inactivity and vertically scale available memory until it reaches the maximum vertical limit.

In situations where you would like to reserve capacity or set a lower vertical scaling threshold, you can change the default settings below.

Total memory

Min 48 GB

24 GB 48 GB 96 GB 192 GB 360 GB

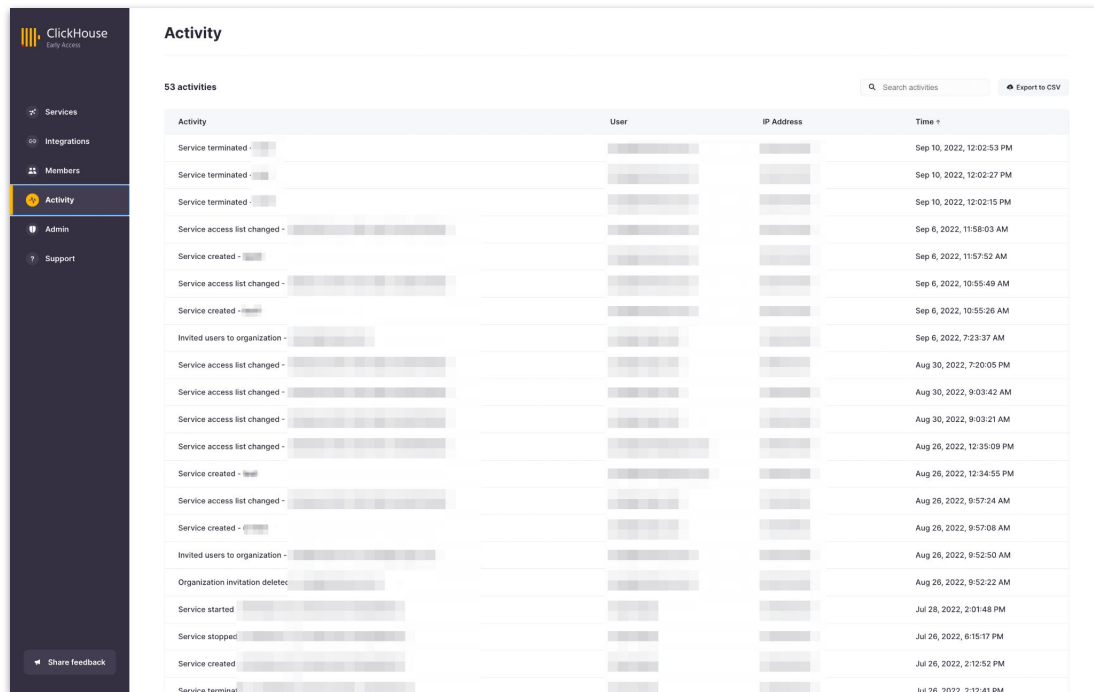
Max 192 GB

☒ Pause service after a period of inactivity



Secure and reliable by default

- Dedicated security team
- Cloud service built with a “security first” mindset at its core
- Cloud platform native security tools monitor for common threats and misconfigurations
- Code and 3rd party vulnerability detection tools run continuously, active Bug Bounty program
- Strong network access control and encryption at rest and in transit



Activity	User	IP Address	Time
Service terminated			Sep 10, 2022, 12:02:53 PM
Service terminated			Sep 10, 2022, 12:02:27 PM
Service terminated			Sep 10, 2022, 12:02:15 PM
Service access list changed			Sep 6, 2022, 11:58:03 AM
Service created			Sep 6, 2022, 11:57:52 AM
Service access list changed			Sep 6, 2022, 10:55:49 AM
Service created			Sep 6, 2022, 10:55:26 AM
Invited users to organization			Sep 6, 2022, 7:23:37 AM
Service access list changed			Aug 30, 2022, 7:20:05 PM
Service access list changed			Aug 30, 2022, 9:03:42 AM
Service access list changed			Aug 30, 2022, 9:03:21 AM
Service access list changed			Aug 28, 2022, 12:35:09 PM
Service created			Aug 26, 2022, 12:34:55 PM
Service access list changed			Aug 26, 2022, 9:57:24 AM
Service created			Aug 26, 2022, 9:57:08 AM
Invited users to organization			Aug 26, 2022, 9:52:50 AM
Organization invitation deleted			Aug 26, 2022, 9:52:22 AM
Service started			Jul 28, 2022, 2:01:48 PM
Service stopped			Jul 26, 2022, 6:15:17 PM
Service created			Jul 26, 2022, 2:12:52 PM
Service terminated			Jul 26, 2022, 2:12:41 PM

Compliance

GDPR and SOC 2 Type I compliant.
SOC 2 Type II targeted for December 2022.

ClickHouse Cloud supports many security features, such as IP filtering, AWS Private Link, user activity logging, federated authentication, and more



Automatic upgrades

We keep your ClickHouse services up to date!

- Rolling upgrades with no downtime
- “SET compatibility” mechanism to ensure backward compatibility

If you missed yesterday’s **22.10 release webinar**:

<https://www.youtube.com/watch?v=sz9SES5-mdc>

- composable protocols
- statistical functions
- backups to S3



Demo



How does this help?

Developers

Chat with Alexey



How does this help?

Achieving business objectives

Chat with Christoph



Roadmap



ClickHouse Cloud: Road to GA

GA is coming soon!

Tweaks based on your feedback - Keep it coming :)

- Optimizations in the underlying infrastructure
- Simplification and tuning of the pricing model
- Streamlined onboarding UX

Additional capabilities

- SOC 2 Type II certification
- Uptime SLA
- AWS marketplace integration



ClickHouse Cloud: Expansion to more cloud providers

Let us know if you are interested in private preview!

GCP



Azure



Built-in SQL Console for ClickHouse

Fully-featured workbench for running queries and analyzing results

- Database schema browsing
- Ad-hoc and saved queries
- Auto-complete, always up to date with latest ClickHouse syntax
- Query history and sharing
- Query result visualization
- UI-driven data editing
- ... and more!

default

gh_issues

pp_complete

telegram_msg

+

Search tables

Insert Row

Filter

Sort

Create Query

Export

CSV_Test

cell_towers

gh_issues

pp_complete

telegram_msg

telegram_msg_ru

Filter by column

Criteria

Value

gh_issue_state

equals

closed

Apply

#	gh_issue_s...	gh_issue_c...	gh_issue_r...	gh_issue_n...	gh_issue_u...	gh_issue_t...	gh_issue_s...	gh_issue_l...	gh_issue_c...	gh_issue_a...	gh_issue...	
1	2022-08-13...	2016-06-08...	clickhouse	1	Repair sub...	https://gi...	pull	closed	[]	6	signal + z...	0
2	2022-08-13...	2016-06-...	Copy	2	Repair sub...	https://gi...	pull	closed	[]	0		0
3	2022-08-13...	2016-06-...	Inspect Cell	3	BaseDaemon...	https://gi...	pull	closed	[]	0		0
4	2022-08-13...	2016-06-15...	clickhouse	4	doc: fix t...	https://gi...	pull	closed	[]	0		0
5	2022-08-13...	2016-06-15...	clickhouse	5	Extra incl...	https://gi...	pull	closed	[]	2	Hi. I was ...	0
6	2022-08-13...	2016-06-15...	clickhouse	6	fix docs	https://gi...	pull	closed	[]	0		0
7	2022-08-13...	2016-06-15...	clickhouse	7	Error fetc...	https://gi...	issue	closed	[]	2	I loaded e...	0
8	2022-08-13...	2016-06-15...	clickhouse	8	Add Docker...	https://gi...	pull	closed	[]	0	With this ...	1
9	2022-08-13...	2016-06-15...	clickhouse	9	Aggregatio...	https://gi...	issue	closed	["feature"]	3	As a comp...	8
10	2022-08-13...	2016-06-15...	clickhouse	10	some doc t...	https://gi...	pull	closed	[]	0		0
11	2022-08-13...	2016-06-15...	clickhouse	11	UDF support	https://gi...	issue	closed	["feature"]	9	It would b...	46
12	2022-08-13...	2016-06-16...	clickhouse	12	Include no...	https://gi...	issue	closed	[]	7	I have bui...	0
13	2022-08-13...	2016-06-16...	clickhouse	13	Update Doc...	https://gi...	pull	closed	[]	2	Could you ...	0
14	2022-08-13...	2016-06-16...	clickhouse	14	Comparison...	https://gi...	issue	closed	["st-fixed...	24	Great work...	4
15	2022-08-13...	2016-06-16...	clickhouse	15	dbms: fix ...	https://gi...	pull	closed	[]	0		0
16	2022-08-13...	2016-06-16...	clickhouse	16	make clean...	https://gi...	pull	closed	[]	0	Fix releas...	0
17	2022-08-13...	2016-06-16...	clickhouse	17	data load ...	https://gi...	issue	closed	[]	6	cat /tmp/d...	0

1



Want to learn more?

Start a **ClickHouse Cloud Trial**

<https://clickhouse.cloud/signUp>

- **\$300 in free credits**, to use during your 14-day trial
- **\$500 in additional credits for 1 year**, if you join us as a customer before Nov 15

Register for an **Onboarding workshop on November 10**

<https://clickhouse.com/company/events/clickhouse-onboarding-workshop>

Meet us at **AWS Re-Invent in December**

<https://clickhouse.com/company/events/aws-reinvent>

AWS
re:Invent



Q & A





Thank You!

The End

