Altinity

What the heck is ClickHouse tiered storage?

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Brief Intros

Robert Hodges - CEO

30+ years on DBMS plus virtualization and security.

ClickHouse is DBMS #20

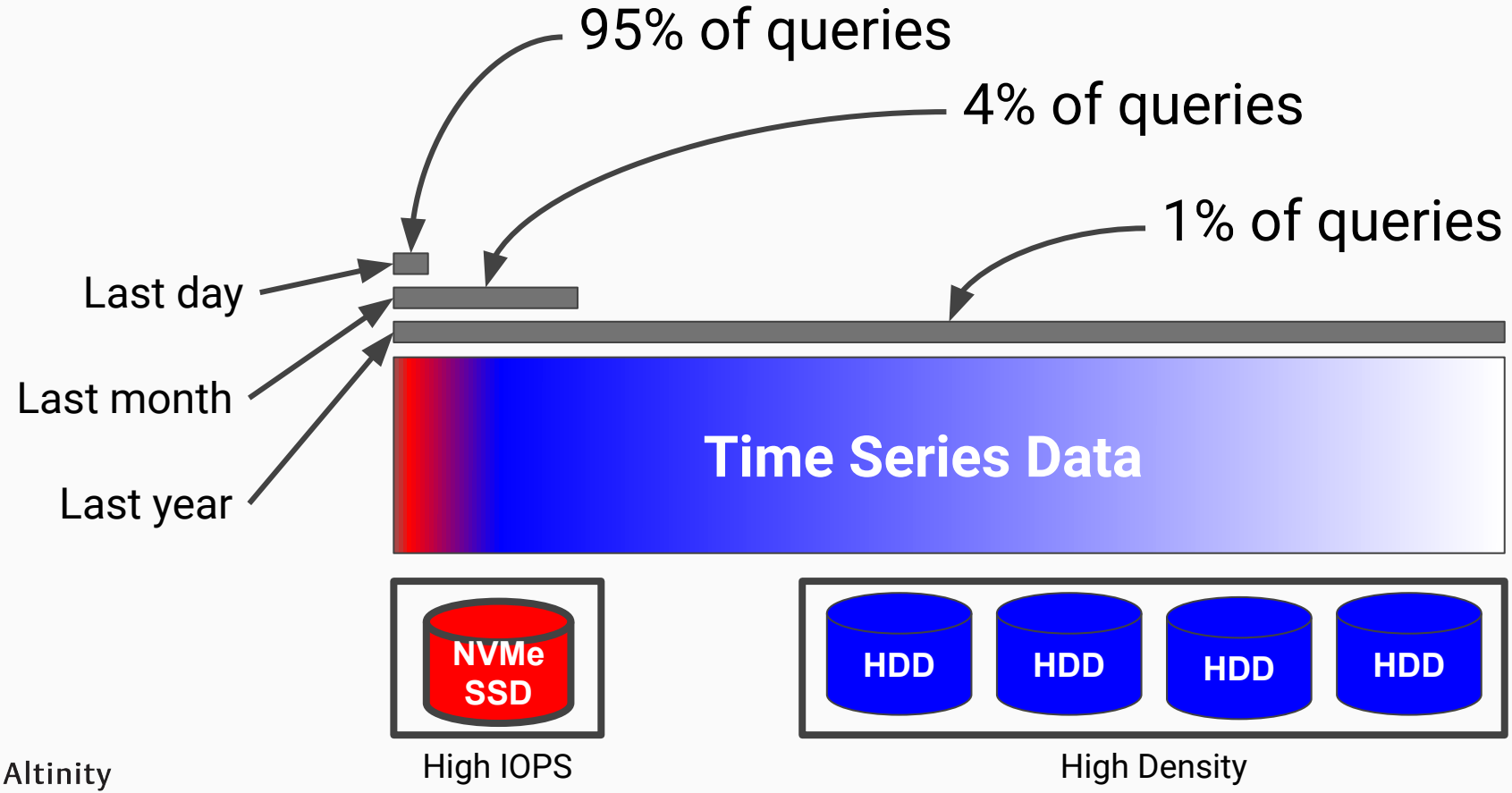
Altinity

www.altinity.com

Leading software and services provider for ClickHouse

Major committer and community sponsor in US and Western Europe

Tiered storage matches storage to access



Disks tag lists your devices

```
<yandex>
<storage_configuration>
  <disks>
    <default>
      <keep_free_space_bytes>1024</keep_free_space_bytes>
    </default>
    <data2>
      <path>/data2/clickhouse/</path>
    </data2>
    <data3>
      <path>/data3/clickhouse/</path>
    </data3>
  </disks>
</storage_configuration>
```

Default disk gets path from config.xml

Storage reserve

Other disks provide a path

Use simple policies for TTL movement

```
<yandex>
<storage_configuration>
  . . .
  <policies>
    <tiered_ttl>
      <volumes>
        <fast>
          <disk>default</disk>
        </fast>
        <slow>
          <disk>data2</disk>
          <disk>data3</disk>
        </slow>
      </volumes>
    </tiered_ttl>
  <policies>
</storage_configuration>
```

Writes go to default if there's no priority specified

TTL clauses take care of movement automatically

Add TTL move and delete rules to table

```
CREATE TABLE fast_readings (
    sensor_id Int32 Codec(DoubleDelta, LZ4),
    time DateTime Codec(DoubleDelta, LZ4),
    date ALIAS toDate(time),
    temperature Decimal(5,2) Codec(T64, LZ4)
) Engine = MergeTree
PARTITION BY toYYYYMM(time)
ORDER BY (sensor_id, time)
TTL time + INTERVAL 1 DAY TO VOLUME 'slow',
  time + INTERVAL 1 YEAR DELETE
SETTINGS storage_policy = 'tiered_ttl'
```

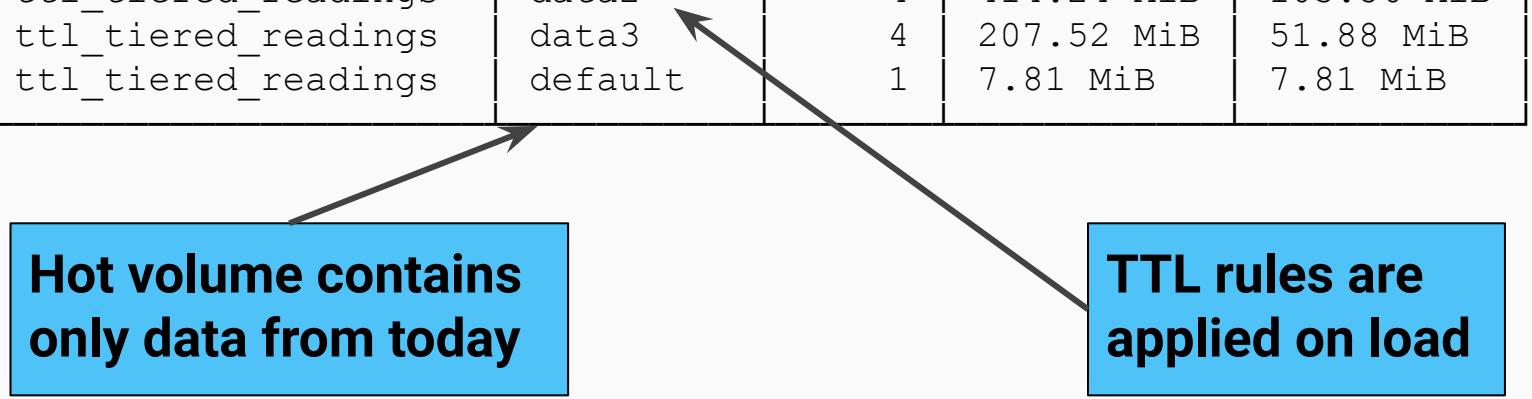
Available in version 20.1.x

Load data and check distribution

```
-- Load data...

-- Check parts after merge
```

table	disk_name	parts	total_size	avg_size
ttl_tiered_readings	data2	4	414.24 MiB	103.56 MiB
ttl_tiered_readings	data3	4	207.52 MiB	51.88 MiB
ttl_tiered_readings	default	1	7.81 MiB	7.81 MiB



Thank you!

We’re hiring!

Presenter:
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ClickHouse:
https://github.com/yandex/ClickHouse

Altinity Blog:
https://www.altinity.com/blog