OSA CON 23

The Future of Analytics Is OPEN SOURCE, CLOUD NATIVE, and CHEAP

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Quick introductions

Robert Hodges

Database geek with 30+ years on DBMS. Kubernaut since 2018. Day job: Altinity CEO

Altinity Engineering

Database geeks with centuries of experience in DBMS and applications

Altinity

ClickHouse software and services: Altinity.Cloud and Altinity Stable Builds
Authors of Altinity Kubernetes Operator for ClickHouse

Why does technology change?

Time

Flexibility

Resource Utilization

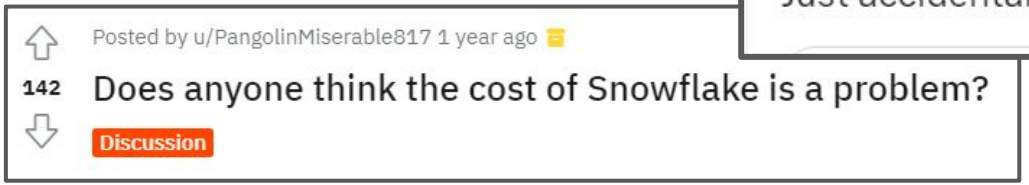
Elasticity

COST

Price

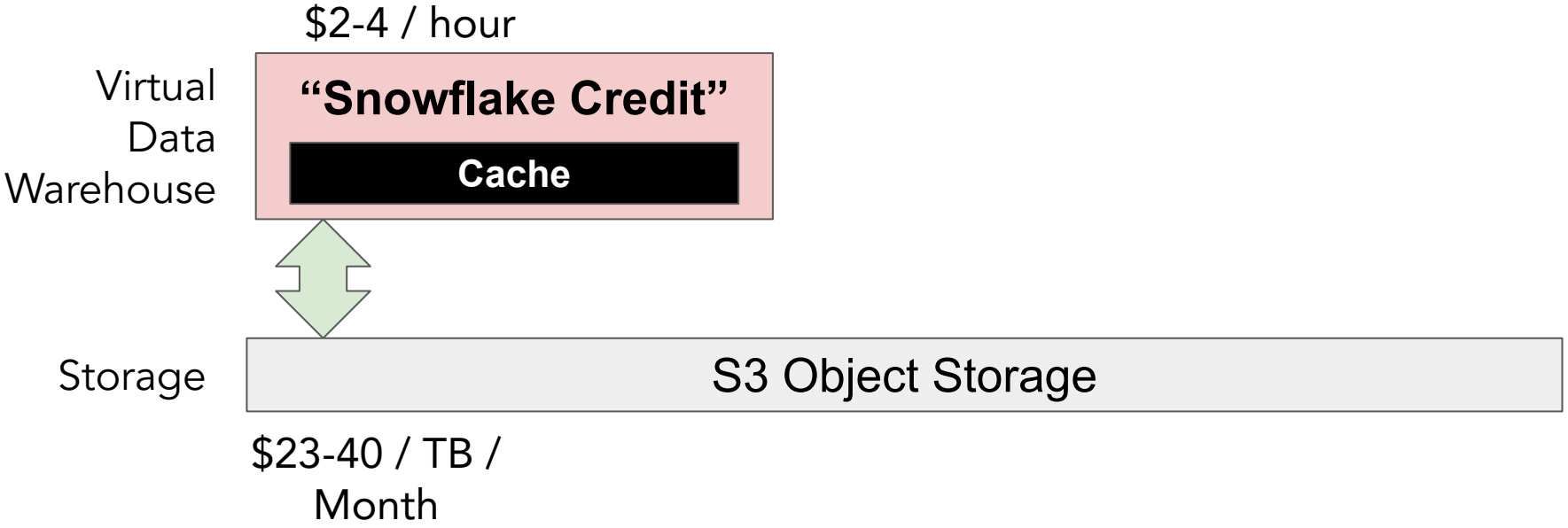
Risk

Proprietary cloud analytic databases have a cost issue

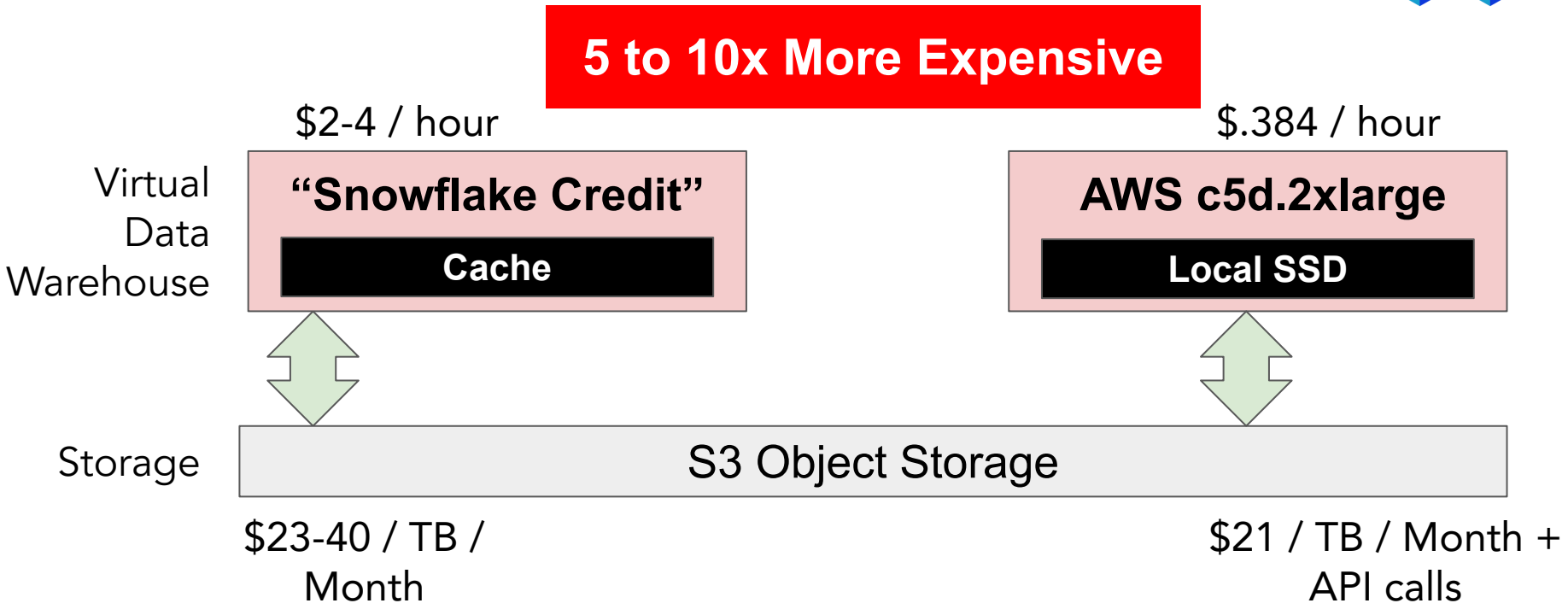


Did you know that Snowflake bills CPU at up to 60x over cost?

How does Snowflake work?



Let's compare it to running a VM directly

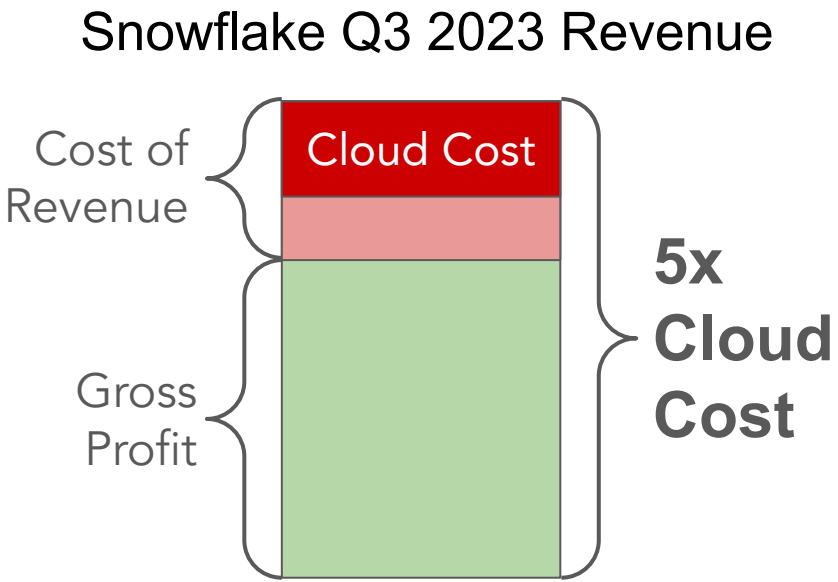


Let's drill into the cost of compute

	$2-4 / hour	$0.066 / hour
Virtual Data Warehouse	**"Snowflake Credit"**	**Hetzner AX41-NVME**
	Cache	**Local SSD**

30 to 60x More Expensive

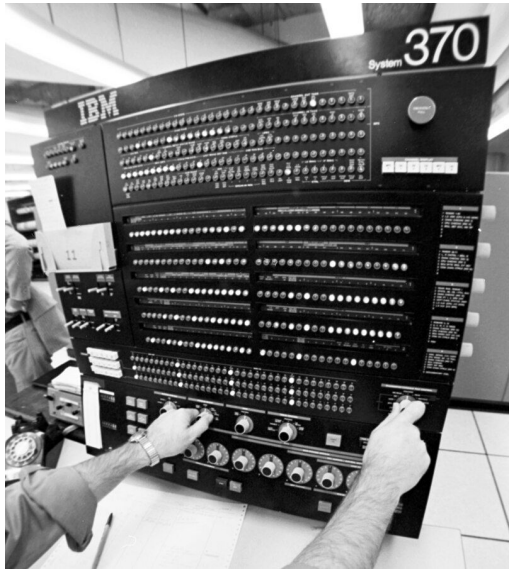
It's difficult to fix compute price differentials



Reducing compute means increasing something else

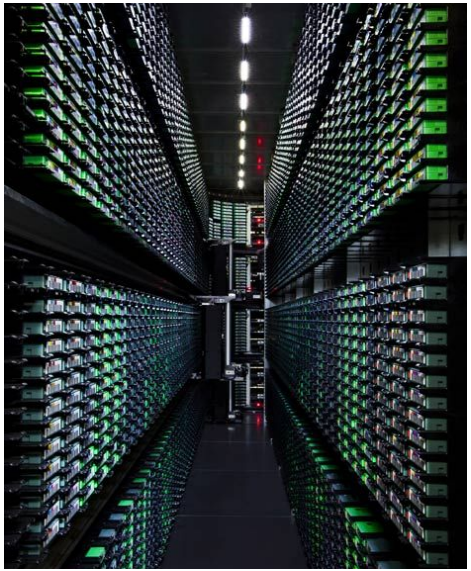
How do tech markets route around excessive cost?

Would you build a new system on…



Mainframe Computer

OR



Commodity Servers

Would you build a new system on…

VMware vSphere®

OR

Proprietary virtualization

Kubernetes

Would you build a new system on…

OR

?

Proprietary Data Warehouses

Would you build a new system on…

snowflake OR

QuestDB

presto

timeplus

StarRocks

DuckDB

ClickHouse

Proprietary Analytic Databases

Open Source Analytic Databases

Pick any database and build a complete stack

Open Source Modern Analytic Stack

Kubernetes makes the stack feasible to operate

Automation

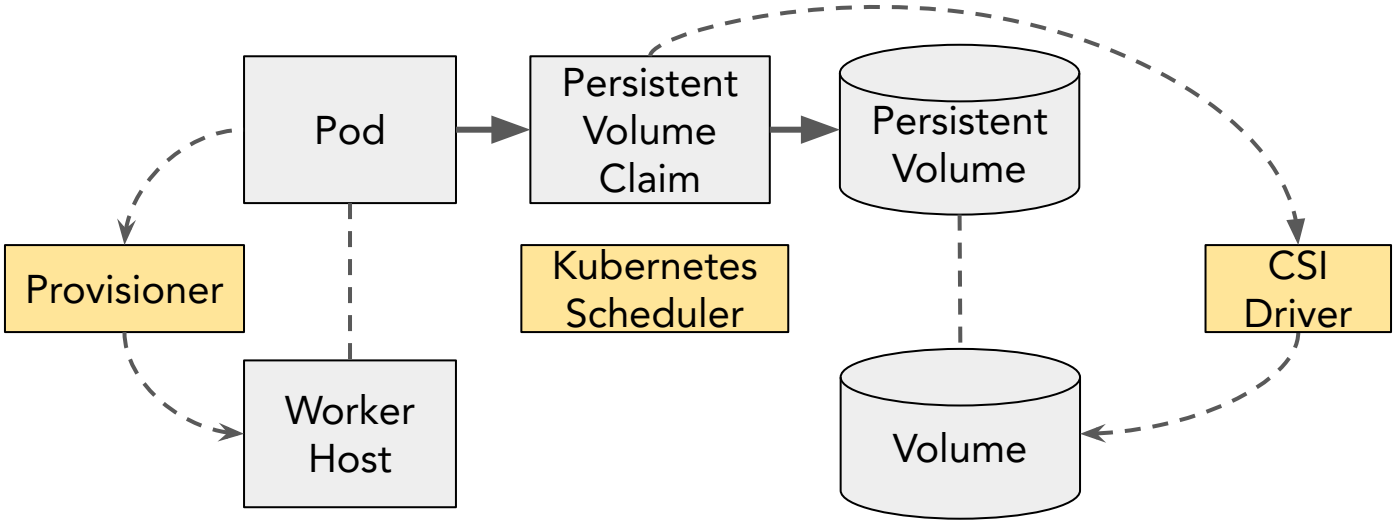
Portability

Stack Construction

Scheduling and Autoscaling

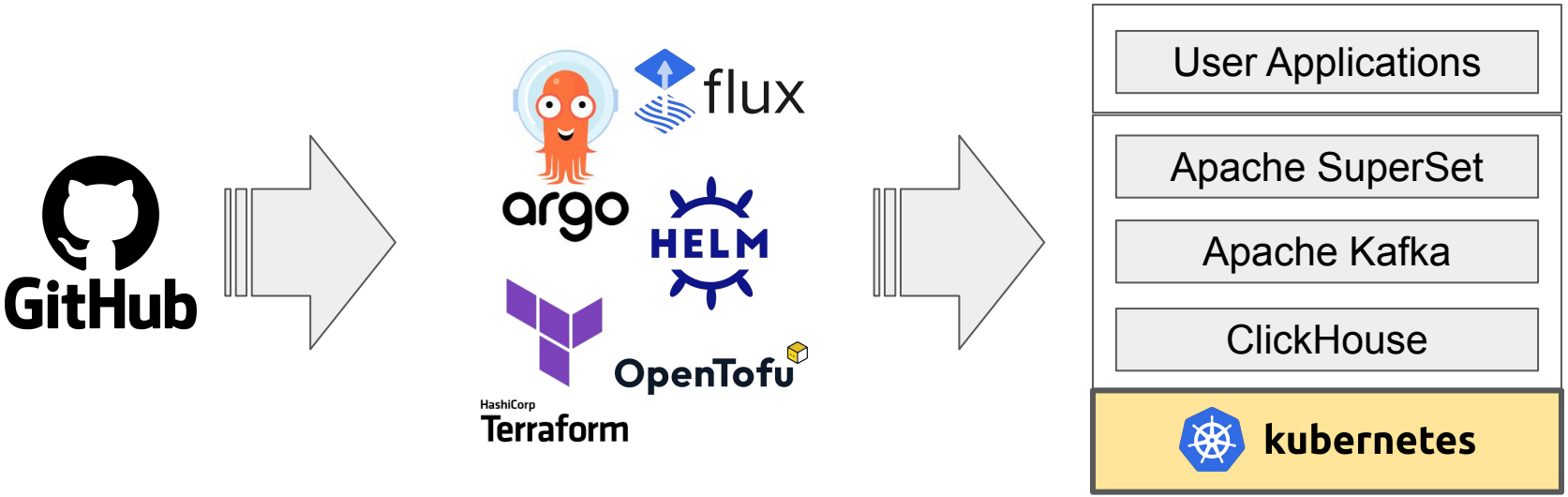
"An open source platform for managing container-based applications"

Kubernetes makes cost economics work



Dynamic Compute | **Bin Packing** | **Storage/Compute Separation** | **Dynamic Storage**

Small teams can build big stacks with GitOps



There is no shortage of Kubernetes expertise

Fortune 100 Adoption
Default containerization platform for > 50%

SMB Adoption
Adopted by 78% of small/medium-sized orgs

Number of GitHub Stars
> 104K

Number of Devs Using K8s
> 5.6M

Managed Kubernetes is now a commodity

Google
Kubernetes Engine

AZURE KUBERNETES
SERVICE

Price: $0.10/hour per cluster	Price: $0.10/hour per cluster	Price: $0.10/hour per cluster

$73.00 a month – Less than 1% of the average US IT salary

Expensive incumbents

+

10x cheaper substitutes

+

Viable path to capture savings

The revolution is happening now…

The OSA CON mission:

Create a community to share innovation on open source analytics

Your mission:

Build your next analytic project on open source and Kubernetes

Extra Credit:

Drive the innovation that utilizes 30x cheaper compute

Come back in 2024 and tell us how it went

Q&A

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Are you a revolutionary? We're hiring

Homework exercise: Snowflake cloud costs

snowflake	Q3 2023
Total Revenue	$ 734,173.00
Cost of Revenue	$ 228,948.00
Gross Profit	$ 505,225.00

Source: Snowflake Q3 '23 Form 10-Q, Numbers in 1000s

Approx. Cloud Spend*	
AWS	$125,000
Other Clouds	$ 23,810
Total	$ 148,810

Source: crm.com, "Snowflake To Spend $2.5B On The AWS Cloud Over Five Years"

Average markup on Cloud Costs: **5x**