

Searchable encryption-in-use for Clickhouse

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CipherStash





This is Sam.

**Sam is a data
engineer.**

**She works at
Health Co.**

Sam is responsible for managing health data in Clickhouse



id	name	email
101	Grace Hopper	grace@navy.mil
23	Alan Turing	alan@codebreaker.uk
77	Ada Lovelace	ada@helloworld.code

Every day she gets multiple requests for access to data

“Please may I have some data?”


“Gimme access, Sam!”

“I need to run some reports”

id	name	email
101	Grace Hopper	grace@navy.mil
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“Why you no access now? 🙄”

But Sam is smart.


 Australian Broadcasting Corporation

How Medibank allegedly ignored the warning signs in one of Australia's worst cybersecurity breaches

In what could be a costly blunder by health insurer Medibank, the Australian Information Commissioner alleges it knew about "serious..."

21 June 2024


But she knows that allowing full access can put sensitive data at risk.

 Tech Business News

Ticketmaster Data Breach Potentially Exposes 560 Million Hacked Customer Details

Ticketmaster Data Breach has potentially exposed 560 million hacked customer details. Hacker is demanding a \$500000 (\$752000 AUD) payment.

29 May 2024

 Home Affairs

MediSecure cyber security incident

12.9 million individuals may have had their personal and health information relating to prescriptions, as well as healthcare provider information exposed by a...

1 month ago

**Can data access be
provided in a safe,
secure way?**

Step 1: Identity

Each user must have their own username/password

Use 2FA

Clickhouse Cloud SSO

Clickhouse Cloud support Single-Sign On 

Step 2: Policies

Who can read what data?

By table? Column? ROW?

```
CREATE ROW POLICY pol1 ON mydb.table1  
USING b=1 TO mira, peter
```

Step 3: Audit

Record every access

Who. What. Where. When.

```
psql> SELECT name, dob FROM users;
```

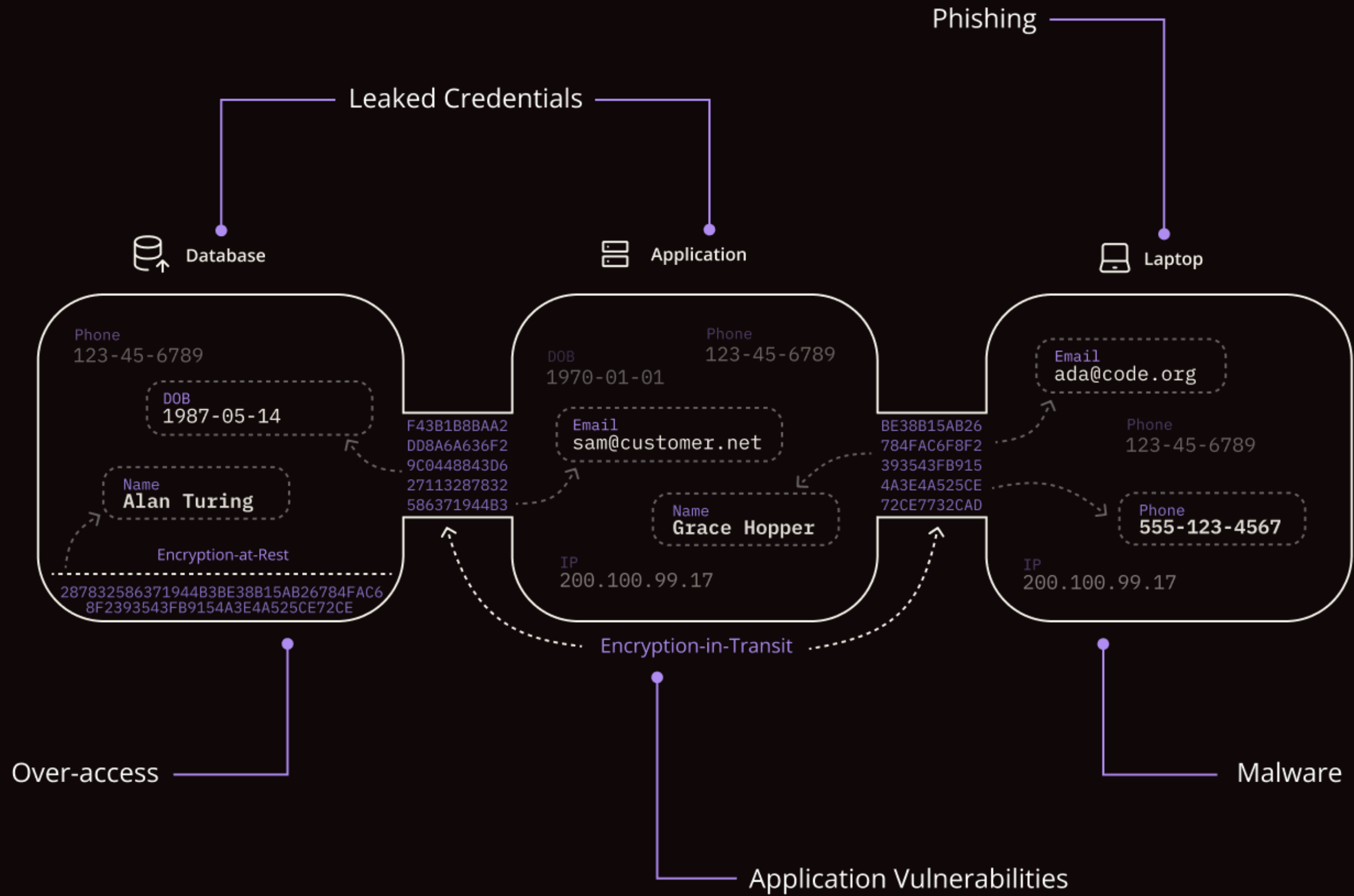
id	name	dob
101	Alexander Fleming	1881-08-06
23	Virginia Apgar	1909-06-07
77	Edward Jenner	1749-05-17

2024-05-01 16:54:13	101	name, dob	clinic 123
2024-05-01 16:54:13	23	name, dob	clinic 123
2024-05-01 16:54:13	77	name, dob	clinic 123

Audit Trace

Trusted Data Access

Encryption in Use





Database

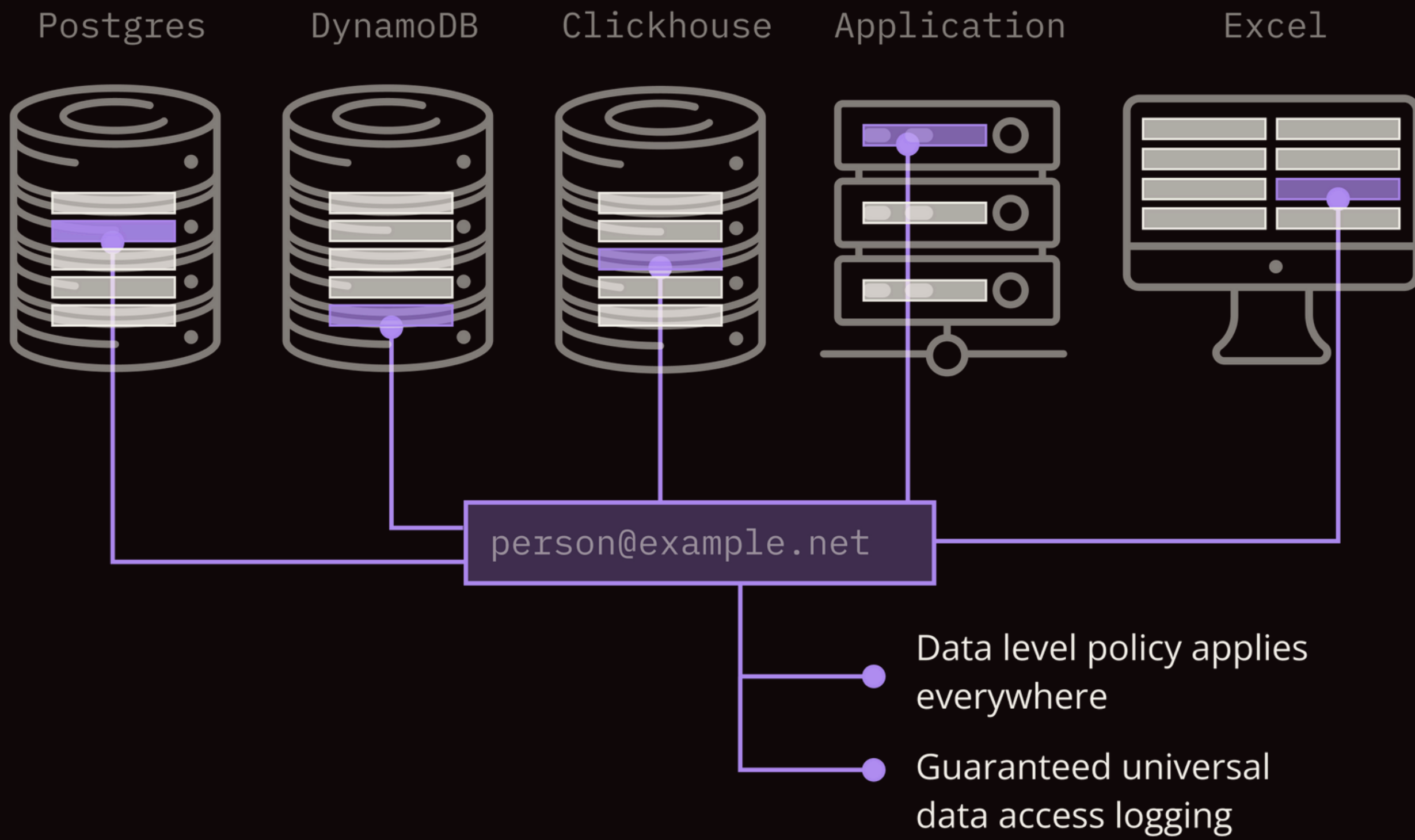


Application



Laptop





Demo

Benefits

Works everywhere (even beyond clickhouse)

Fast! Sub-millisecond overhead

Supports almost all queries

Allows partial decryption or zero knowledge query-sets

Use Cases

Multi-tenancy

Data sovereignty

Safe training for AI models

Encrypted CDC and ETL

Thanks ...and don't be a stranger!



Follow for updates
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cipherstash.com



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