

Secure your sensitive
data and sleep well



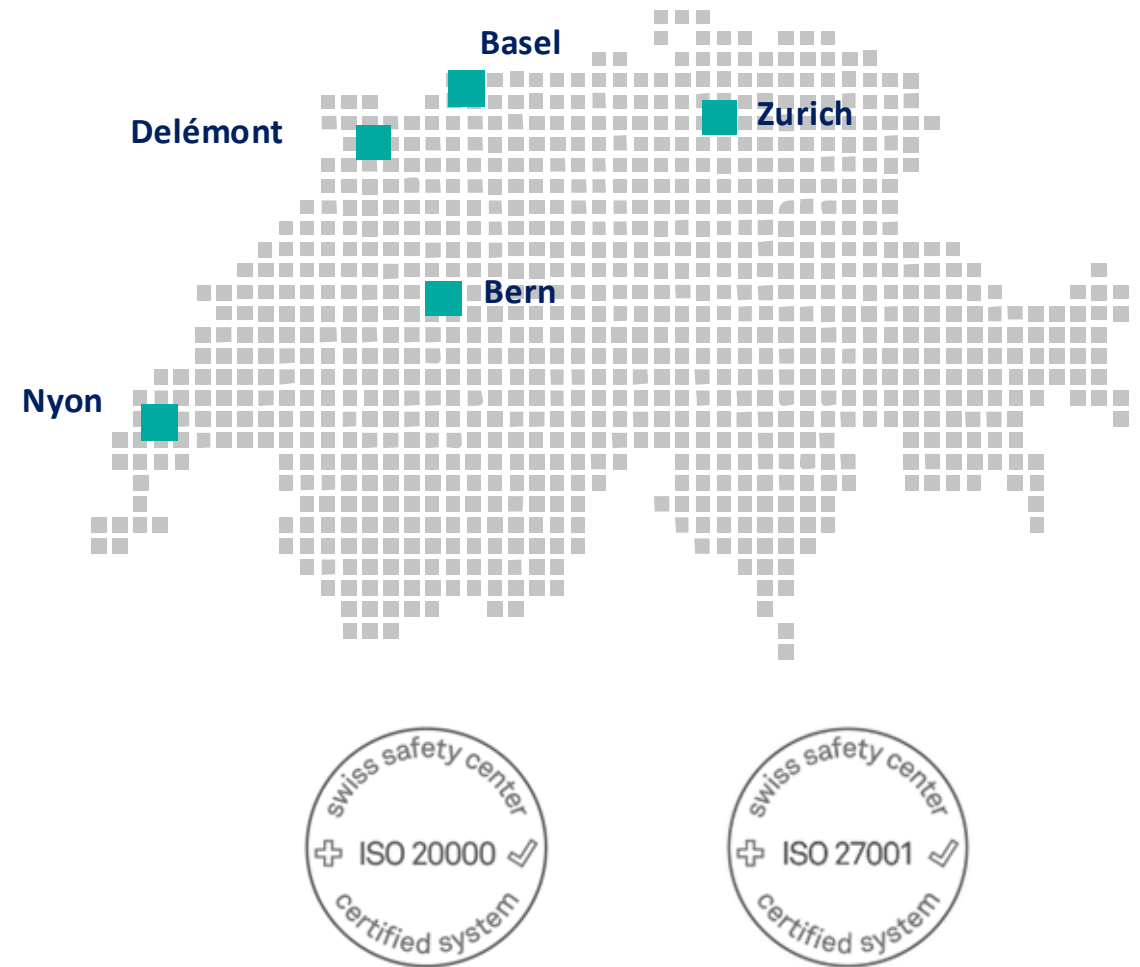
WHO WE ARE

The company

- Founded in 2010
- 80 employees
- Specialized in data infrastructure and platforms
- Customers in Switzerland and all over Europe

Our offer

- Consulting
- Service Level Agreements
- Trainings
- License Management
- Products



ABOUT ME

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1. An Attack just took place

- Now, What ?
- Real Breach Stories
- The Real Risk Is Not Where You Think
- Dynamic vs. Static Data Masking

2. Oracle Data Masking

3. Delphix Data Masking

4. Customer Feedback

5. Conclusion

An Attack just took place



An Attack just took place

Now what ?

They just ran !

```
SQL> select * from customers;
```

and downloaded everything!



Most companies focus on preventing attacks
But today I want to talk about something else
What happens after the breach ?

An Attack just took place

So, the real question here is not

“How can we protect against attacks?”

The real question is

“If someone gets access to our data...
is that data usable?”



Real Breach Stories

Xplain data leak – May 2023

- <https://www.ar.admin.ch/en/xplain-en>



- The attack did not target the government directly, it targeted a **software provider** and its systems, showing how third-party or non-production environments can become the weakest link



The Real Risk Is Not Where You Think

2025 – Data Compliance Security Report

Non-Production Breaches Are Real and Common

- **61 %** of organizations have experienced a data breach or data theft involving sensitive data in **non-production environments, an 11% increase from last year**, such as development, testing, **analytics, or AI/ML environments**.
- **91 %** of organizations are concerned about the expanded exposure footprint across lower environments, including dev/test, QA, and analytics
- **86%** of them plan to **invest in AI data privacy** over the next 1-2 years

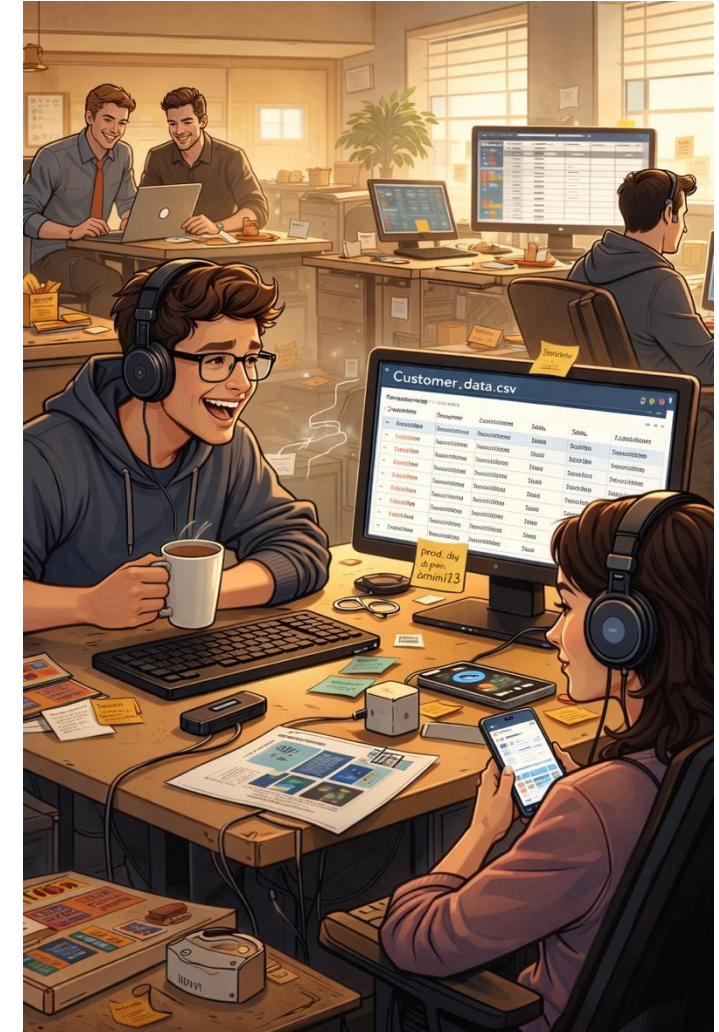
If you are interested, I can share the report, just send me an email



The Real Risk Is Not Where You Think

Non-production environment

- Are often ignored, but risky !
- Up to 10 copies of test or dev. data for each dataset
- Are less protected
- Datasets are frequently shared with external dev. companies
- The attack surface grows silently !



Dynamic vs. Static Data Masking

Dynamic Data Masking

- Data masked in real-time
- Original data stay in the database
- Masking happens when queried
- sysadmin users still have access to the original data
- it's more obfuscation

DDM protects data only from
non-privileges users

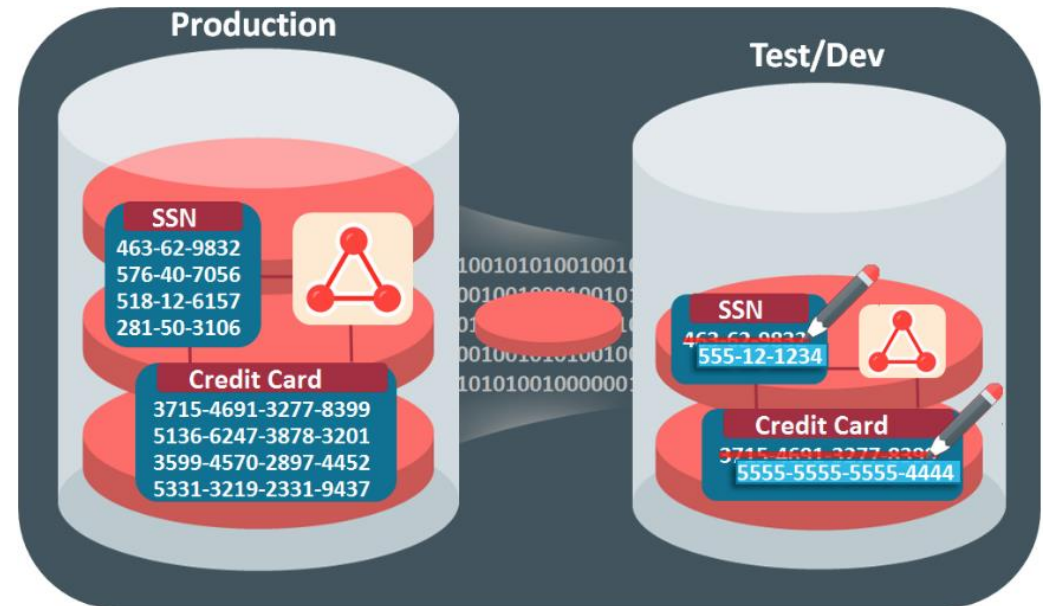
Static Data Masking

- Data permanently masked
- “alter data” for example
- Used for dev,test,etc.. environments
- Create safe database copies
- Realist data but useless

SDM protects data from
everyone, including hackers 😊

Oracle Data Masking

2



Oracle Data Masking

DDM and SDM Features

Oracle **Dynamic** Data Masking

- Data Redaction
 - Change Column data while querying it
- Virtual Private DBs
 - Change Column data while querying it or hide rows totally

Oracle **Static** Data Masking

- Data Masking (Oracle Security option)
 - Data Sub-Setting (Oracle Security option)
 - Only provide a sub-set of the data
- Data Safe (OCI)
 - Provides cloud-native security controls for masking data
- Manual Masking
 - Create a view and triggers

Oracle Data Masking

Data Masking and Subsetting Pack

Data Masking

- Integrated into Enterprise Manager
- Sensitive Data Discovery
- Define masking rules
- Select predefined or custom formats
- Run the masking job
- Validate results
- Monitor Performance

Data Sub-setting

- Extract only the necessary portions of a database



Figure 1. Oracle Data Masking and Subsetting Pack

Oracle Data Masking

Advantages vs Drawbacks



- ✓ Very powerful with many options
- ✓ Compliant with legal standards
- ✓ Can be automated through regular masking or in a CI/CD pipeline
- ✓ Preserve data integrity across Oracle databases



- ✗ Data Masking and Data Sub-setting Pack is a licensable option
- ✗ Only available for Oracle Database

Data Masking in your ecosystems

- ✕ **What about Masking Data in other database engines?**
SQLServer, Postgres, DB2, SAP, etc...
- ✕ **What about referential integrity across platforms?**
If *Roger Federer* is masked as *Jacques Dupont* in Oracle,
how do we ensure the same transformation occurs in SQL
Server?

Delphix Data Masking



Delphix Data Masking

Overview

1. ASDD – Data Profiling

- Automated Sensitive Data Discovery
 - Scan Sample Data
- Associate Automatically an Algorithm on the sensible datas
- Review the proposed inventory

2. Run Data Masking

- Based on the configured DataSet

3. Keep the Referential Integrity

- Preserve Data Relationships

Delphix Data Masking

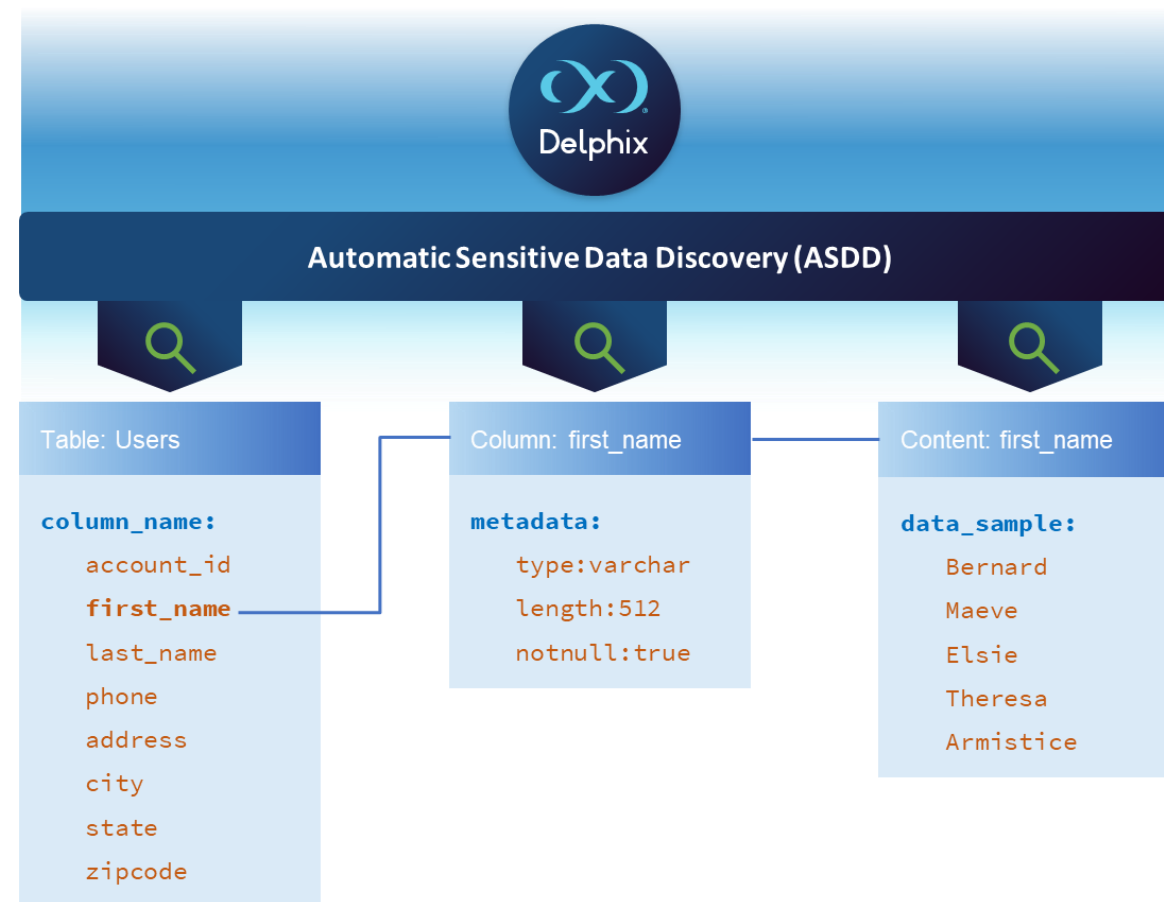
1. ASDD – Data Profiling

Profiling

- Define which tables and columns to examine for sensitive data
- Created based on metadata (e.g., column names, types)

Execution

- Scans sampling data using predefined rule sets
- Identifies sensitive information by analyzing metadata and actual data



2. Run Data Masking with defined algorithm



Substitution

- Replaces real data with realistic fictitious data, e.g., real names swapped with predefined random names



Shuffling

- Randomly shuffles data within the same column, e.g., reordering dates of birth



Number and Date Variance

- Modifies numbers or dates by a random percentage, e.g., adjusting salary by $\pm 10\%$



Encryption

- Encrypts data, requiring a specific key for decoding



Nulling Out

- Replaces sensitive data with null values

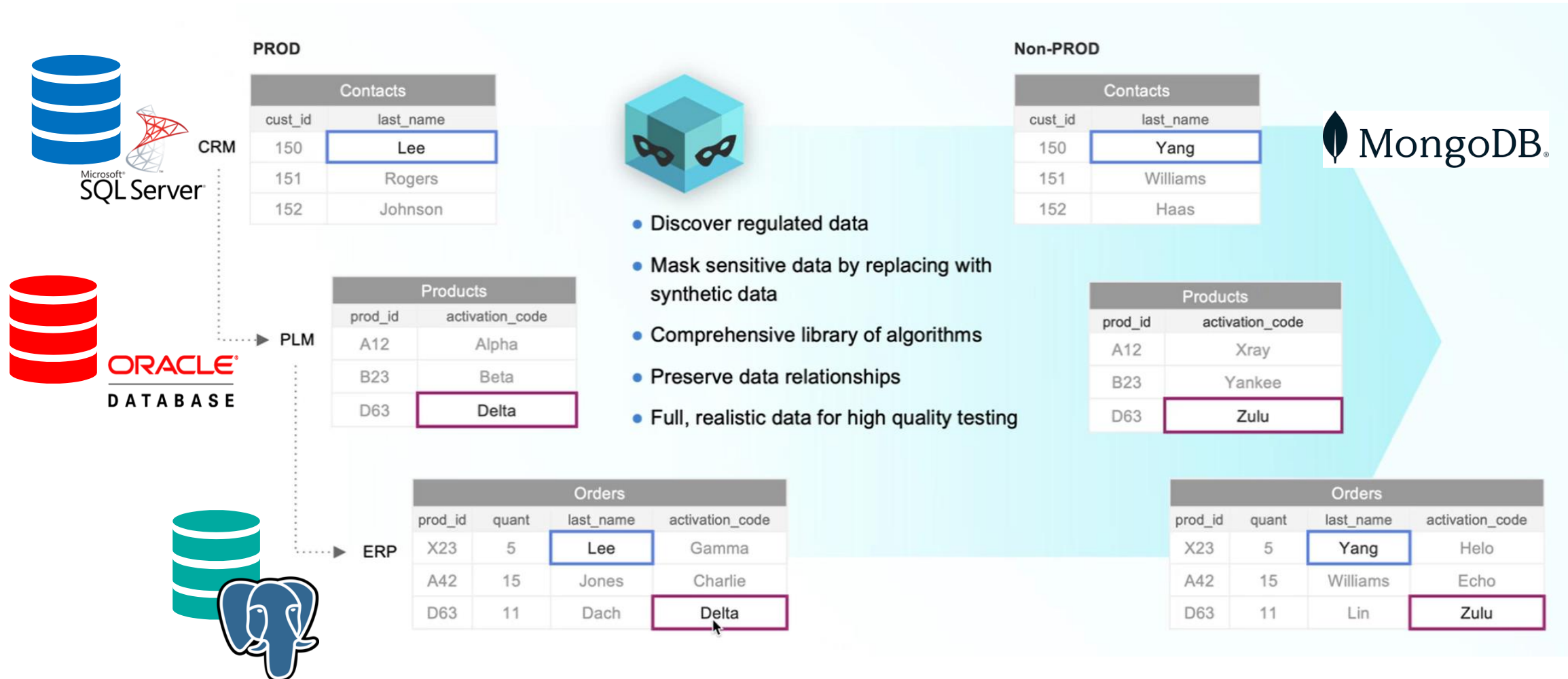


Masking out

- Masks data by revealing only partial information, e.g., last four digits of a credit card

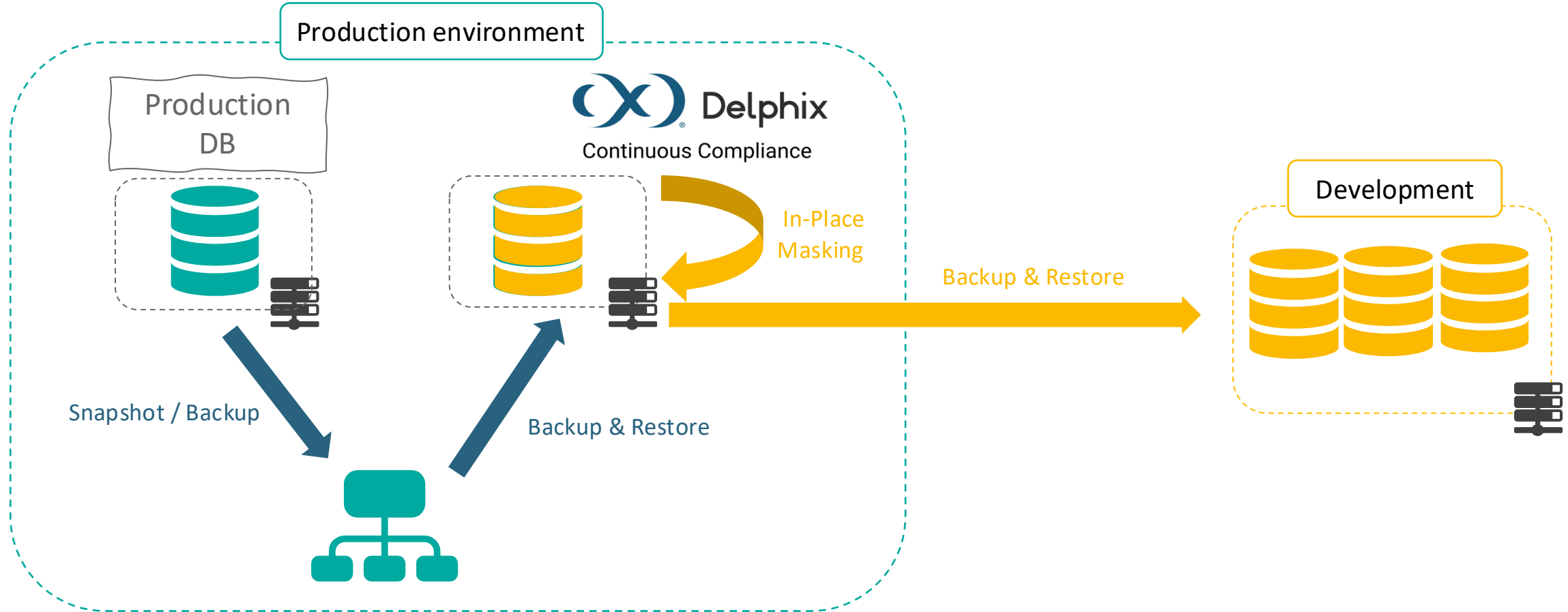
Delphix Data Masking

3. Keep the referential integrity



Delphix Data Masking

Architecture



Delphix Data Masking

Benefits

Reduce Risk

- Using masked data suitable for a **large number** of business activities

Identifies Sensitive Data

- Identifying location of sensitive data **automatically**

Large Dictionary of Algorithms Available

- Also **Swiss specific** based

Masks Data Quickly

- Fast Engine who directly mask the data without unloading (update command)

Maintains Referential Integrity

- With the help of patented, repeatable and **deterministic algorithms**

Enables Data Sharing

- Central source of masked data available
- **Delphix Continuous Data (Virtualization)**
 - Near zero downtime masking
 - Speed up the availability

Delphix Data Masking

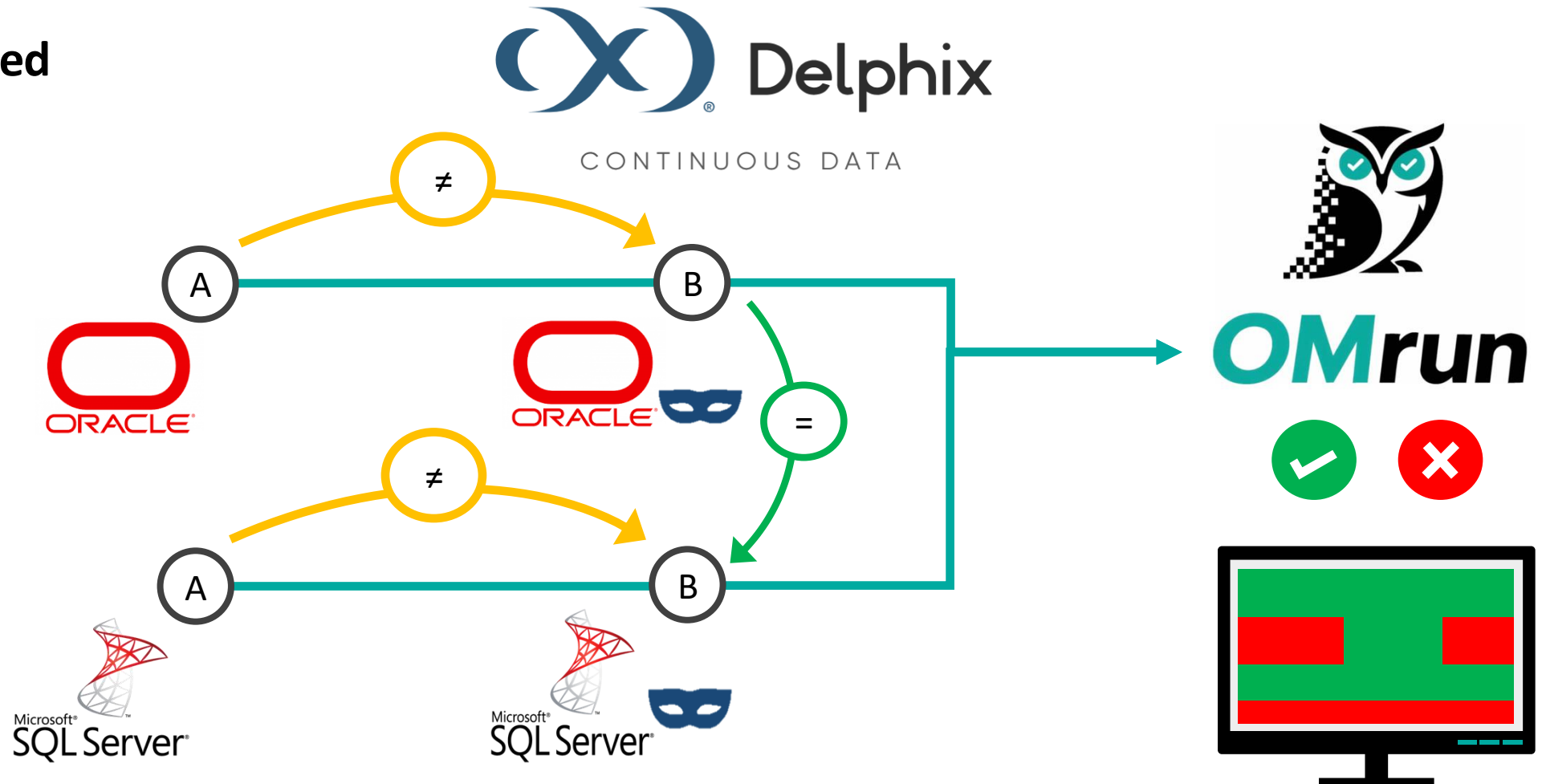
Demo



Continuous Compliance

Demo setup

A – Unmasked
B – Masked



Advantages vs Drawbacks



- ✓ Very powerful with many options
- ✓ Compliant with legal standards
- ✓ Can be automated through regular masking or in a CI/CD pipeline
- ✓ Guarantee the referential integrity across a large panel of engines



- ✗ It's not open source 😊
A license is required, based on the size of production databases. Minimum is 3 TB, but not per engine !

Customer Feedback



Complex masking dependency

Managing Swiss data type formats (1)

Mixed real addresses

Original Data

Name:

John

Example

Street:

Balmweg

55

City:

3001

Bern

Telephone:

+41 79

625 25 25

Masked Data



Name:

Paul

Muster

Street:

Jurastrasse

3

City:

4600

Olten

Telephone:

+41 79

235 42 97

Preserve first segments & mask all other digits

Complex masking dependency

Managing Swiss data type formats (2)

Preserved Data Parts

Original Data

Credit Card:

4435

2310

9145

8721

CH AHV/AVS:

756

7984

3642

53

Customer loyalty ID:

12345

458721

Masked Data



Credit Card:

4435

4231

7582

9031

CH AHV/AVS:

756

2833

4751

27

Customer loyalty ID:

12345

912305

Preserve first segments & mask all other digits

Delphix USP's



Your benefits gained by Delphix



- **Shorten delivery time to end user**

Create regulation conform test data by performant masking methods within minutes (not days).



- **Keep referential integrity**

Users will find same names consistently used across your whole system landscape.



- **Reduce personnel costs**

Relieve your database admins from time consuming and repeated data delivery tasks.



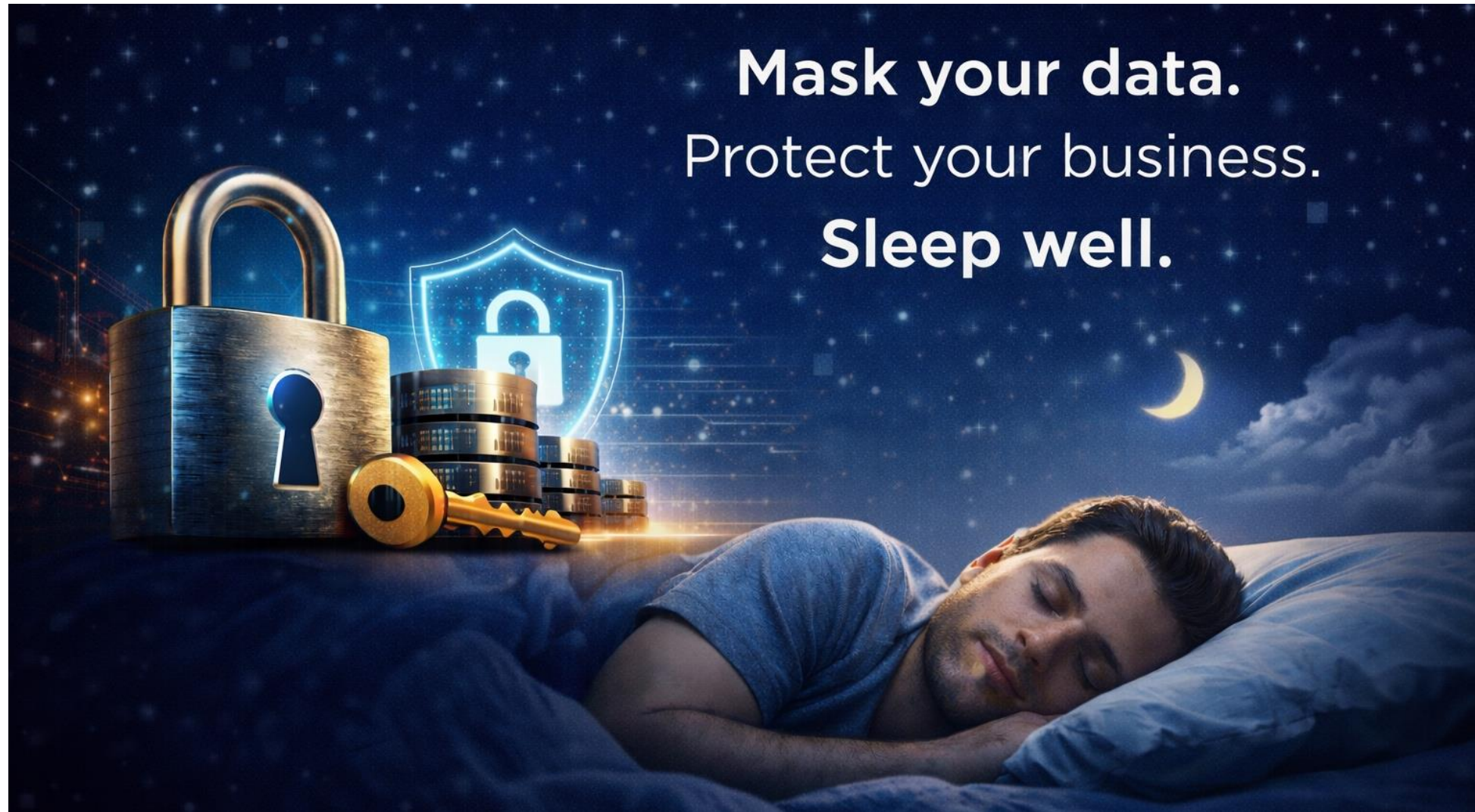
- **Rise data security**

automate secure data delivery pathways into your non-production environments.

Conclusion



Conclusion



Mask your data.
Protect your business.
Sleep well.



THANK YOU!

ANY QUESTIONS? PLEASE, DO ASK

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