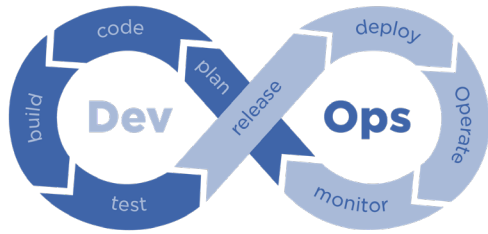


## What makes database DevOps approach necessary and specific ?

### Benefits of DevOps are clear to everyone



With its better organized and monitored flow between teams, DevOps brings

- More **agility** (better time to market with continuous deliveries, less downtime costs),
- More **security** (including compliance to standards, confidentiality protection, tracking);
- and **better collaboration**, leading to more efficiency inside the company within IT teams & with end-users.

### For the database, this approach is still under-developed , but mandatory

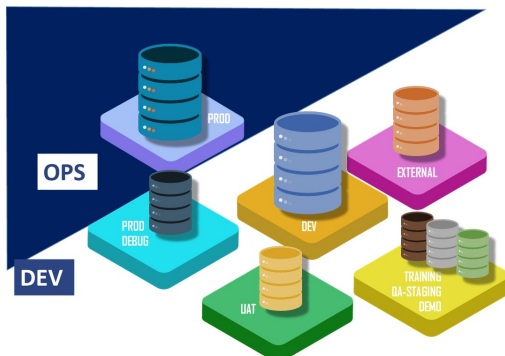
- Data being at the center of business, **database evolutions must be handled with the same agility as applications** (both on structure and content); releases must be simplified while preserving security
- There are increased interactions between applications & database (Data centric approach)=> if applications are managed in a DevOps process, the **database should not be the bottleneck**
- The **impact of database errors in the deployment** phase is often catastrophic resulting in loss of data and costly downtimes
- More collaboration is necessary between all the actors of the database in the Dev Environment to **smooth the deployment process** and avoid last minute DBA implication

The challenge that must be achieved : a right balance between



### What are the specific challenges faced on DevOps for database ?

#### The complexity due to multiple Dev environments



#### Specific technical constraints :

- The need for a Production-Like environment in Dev, both on structure and content (Preserving data complexity & integrity; cultural/ regional context)
- Volume and time constraints (Prod data cannot just be duplicated like a program)
- Data security and confidentiality must be enforced in the Dev Environment

The **multiple roles** in Dev Environment acting on the database, to whom we must bring better collaboration conditions, more personalized and independent environments, while ensuring data security.

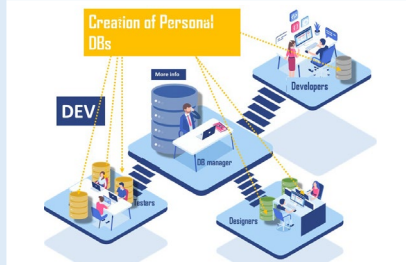
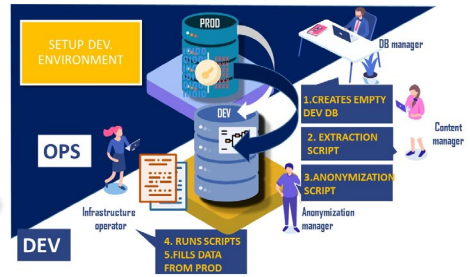


# How does XDO address these challenges ?

The result of 30 years of development, XDO is based on a database modeling graphical interface which automates all the database tasks in a modern DevOps environment :

## 1 It sets up the Dev environment

XDO automatically reverse engineers the Prod database into a model, and creates the Dev DB structure. It generates scripts to extract compact, coherent and representative data from Prod. It also generates scripts to anonymize the extracted data. The infrastructure operator runs those scripts to fill the Dev/Test databases with "Production like" compact data, which is regulation compliant.

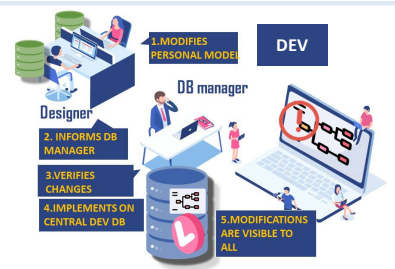
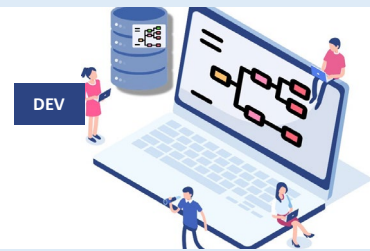


## 2 It manages personal databases

The DB Manager can generate personal Dev/Test databases allocated to the different stakeholders, allowing them to work without interfering one with each other. This ensures minimum volume of test DBs and stakeholders independence.

## 3 It allows personalized common view

Each stakeholder is granted a common yet customizable graphical vision of the database via personalized diagrams. They are automatically notified on changes in the Central Dev database structure. This enforces collaboration and flexibility, with all actors sharing a common understanding of the DB.



## 4 Modifications on Dev DB are coordinated

Each Designer can modify his personal database model, and inform the DB manager about changes. The DB manager reconciliates modifications and decides which elements to import in the central Dev model by merging his model with the designer model. When a stakeholder opens his model, he is notified about the central changes. Changes to Meta Data are coordinated and secured, documentation is dynamically generated.

## 5 It eases application testing

Before testing an application, testers can save data from affected tables into a snapshot, and then compare it with the altered data after running the application. They can restore data from the snapshots, after modification of the application, allowing repetitive regression tests, for more convenience and efficiency.

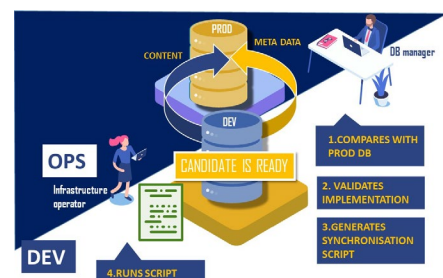


## 6 Debug Prod issues are simplified

The snapshot mechanism allows to incorporate specific data made available from prod for debugging purposes. The snapshot definitions can be made available to other stakeholders so that they can update their database. This leads to agile "guerilla" debugging and lower downtimes.

## 7 It manages Dev cycle & Prod deployment

During the Dev cycle, designers continuously modify their personal model, developers create synthetic data, testers run tests on their personal DB. The DB manager validates changes and implement them on the central Dev model and DB. When Dev DB is ready, compared to the Prod and validated, XDO automatically generates a synchronization script, ran by the infrastructure operator to implement meta data and content changes on Prod. The process is both automated and secured for agile deployments.



# XDO is a complete but modular solution that can be implemented gradually



## Viewer

- Allows a common yet customizable graphical vision of the database
- Stakeholders are automatically notified on changes in the database structure



## Designer

- State-of-the-Art database graphical modeling tool greatly facilitating the design of databases
- Generates the SQL script needed to Synchronize the Database with the modified model



## Content

- Generates the SQL script needed to extract compact yet coherent and representative data from Prod, into Test Databases
- Generates Synthetic data to augment the extracted data for new tables and cases
- Generates the SQL script needed to extract specific and correlated data from Prod to reproduce bugs occurring in Prod



## Snapshots

- Manages Snapshots of the personal database to allow repetitive regression tests
- The data content of the Snapshots can be compared and shared among the different stakeholders



## Anonymizer

- Generates the SQL script needed to anonymize data extracted from prod in order to comply with regulatory and security requirements
- Data is coherently anonymized within the database to handle redundancies and even across multiple RDBMS

## What else should you know about XDO ?

- It is model driven
- It generates Pure, Non Proprietary, SQL Scripts
- It is security and regulation compliant
- It is a complete solution but allows gradual implementation
- It is modular, allowing to provide each stakeholder with the required functionality
- It is SaaS based

## What will XDO bring to your organization ?

### Methodology & Automation

- Time Savings:** more reactive to market needs
- Improved Quality:** running multiple tests improves quality
- Better Efficiency:** collaboration, technical staff and customer satisfaction
- Higher Availability:** reduced number of outages and shorter time to fix bugs
- Overall cost savings:** less resources and higher staff retention

### Anonymization

Protection of business data and compliance with personal data regulations

### Right balance

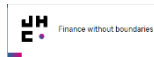
Between personalization and collaboration  
Between freedom and security



## About Resolution Software

- We are a more than 30 years' experienced company
- We are DATABASE experts (Software Solutions & Project Management)
- We developed database design best practices: Our rich history of customization for specific database environments has resulted in tightly-integrated solutions with unmatched functionality and value
- We have a continuous improvement approach based on vision, customer feedback and projects implementation
  - State of the Art Graphical interface
  - Support of the complete lifecycle of the DB
  - Advanced multi-platform DB Anonymization Solution
  - Database DevOps Integration

## They trust us :



ASK FOR A DEMO

+972-52-311-5418  
info@xcase.com

Resolution Software, Reuven 1  
Jerusalem Israel

