NEXT GENERATION BUSINESS INTELLIGENCE

WITH **ACE DEPLOY** FOR HIGH SOPHISTICATED DEPLOYMENT FRAMEWORK

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snowflake® initions

IT'S ALL ABOUT SPEED

INITIAL SITUATION AND CHALLENGES

There are many good reasons why just companies are increasingly deciding in favor of a data warehouse in the cloud.

In some cases, the starting situation is fundamentally different. Sometimes companies have a long history of business intelligence and have a historically grown and complex IT landscape. Or users are only at the beginning of their analytics journey and decide today for an initial DWH architecture.

Either way, the decision for a cloud-based data warehouse is both recommendable and challenging. Large companies that have a heterogeneous on-premise architecture proceed iteratively and have to think about the migration methodology. In addition, aspects of change management and investment protection should not be ignored.

On the one hand, smaller companies or BI newcomers have less legacy to migrate, but on the other hand they have to invest initial effort in knowledge, governance and organization.

However, one motivation for the Data Cloud from Snowflake unites the different companies in equal measure: an open cloud platform that includes many services, particularly with regard to operation and scalability. In addition, costs are only incurred for what is needed, when it is needed. Thanks to permanent updates, you always work in a state-of-the-art architecture and can take advantage of the latest features. And the intelligent cloud covers another key requirement: Speed.

IT and BI managers across all industries are confronted with the recurring demand for speed from their peers. This demand relates both to corresponding performance in data processing (backend) and, in particular, in the front end. In addition, new requirements and project initiatives must be implemented with the necessary speed in terms of project duration.

AN AGILE ORGANIZATION REQUIRES AN AGILE INFRASTRUCTURE

In terms of time-to-market, the speed with which companies are able to modify existing processes or implement new requirements is a differentiating factor compared to the competition. Therefore, the agile organization of today and tomorrow requires an equally flexible infrastructure in the data and analytics context.

Modern cloud architectures offer customers all the services they need to initialize projects, out-of-the-box. The free scalability of the Data Cloud also means that hardware is no longer a limiting factor. Thus, the focus can be directed to the concrete business process requirements and their implementation in the Cloud DWH.

LARGE COMPANIES WITH COMPLEX STRUCTURES REQUIRE CUSTOM APPROACHES

Even with all the prerequisites that a Data Cloud environment brings with it to ensure a lean implementation, complex business processes are still complex business processes. And especially in companies with many different and cross-departmental processes, a BI project in the Data Cloud can also become quite time-consuming.

From a quantitative point of view, the creation of numerous objects and tables can take up a lot of time - even if the ongoing scaling after the initial setup is no longer a conceptual challenge. Nevertheless, this hard work must either be covered by internal capacities, which are then lacking for other business-critical tasks. Or external resources have to be commissioned on a larger scale.

And even in the case of future change requests or further project engagements, the project duration in particular can be decisive in the project evaluation in the case of complex to highly complex framework conditions as to whether the initiative is carried out or not. Therefore, users and service providers are looking for solutions and tools to meet the requirements for speed in terms of execution as well.

SOLUTION: NEXT GENERATION WITH ACE DEPLOY BY INITIONS

With the Ace Deploy – Accelerating Deployment by initions, numerous accelerators are provided. As a set of best practices and lessons learned, concepts and solutions have been developed for many different issues that support Snowflake implementation and migration.

Ace Deploy delivers approaches to coordinate deployments when numerous developers are involved. Solutions for a practicable versioning of the Snowflake objects are offered. And also a validation of the created statements in the run-up to the deployment is supported with the Ace Deploy.

VISION AND FUNCTIONAL SCOPE OF ACE DEPLOY

At the heart of Ace Deploy is the deployment of database objects to a Snowflake database. This task is performed by a Python module that can be integrated into a CI/CD pipeline to enable a traceable development process and secure deployments.

A declarative approach is taken. Developers describe the desired state of the database to be in and Ace Deploy takes care of achieving that state. This eliminates the need to create and manage change scripts of an imperative approach, which is often prone to errors. In addition, it is usually difficult to test change scripts for runnability before a deployment. The files managed by Ace Deploy are best managed and versioned using Git. Since Ace Deploy understands standard SQL DDL statements, developers do not need to learn an additional language.

Furthermore, Ace Deploy offers a number of helpful features that perform automation tasks around Snowflake and integrate well with other processes. For example, database clones can be created or all differences between a database and the solution in the Git repository can be determined. It is also possible to determine and export all dependencies between the objects.

HOW-IT-WORKS: VALIDATION AND DEPLOYMENT

The deployment process consists of four general steps:

1) Analyze the files in the repository. Each SQL DDL is parsed to determine the object type and any dependencies this object has on other objects. Knowing the dependencies is crucial to determine the order in which the objects need to be created.

2) Deploy the objects to a temporary database. Either the complete solution can be deployed or only the changes since the last deployment. If only the changes are deployed, the runtime of the deployment can be significantly reduced, depending on the size of the solution. If the validation fails, the developer receives feedback from Ace Deploy that, for example, syntax or referencing errors are the cause.

SQL DDLs

temporary database

(2) deploy

(1) analyze files

(3) compare

(4) deploy required changes
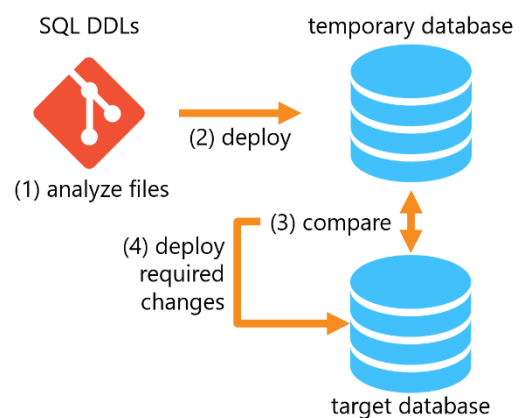
target database

3) Query the metadata from the temporary database and the target database for all objects. Then, compare the metadata to determine the SQL statements that need to be executed to get the target database into the desired state. For objects containing (meta-)data, ALTER statements are generated.

4) Execute the SQL statements on the target database. Dependent views are also updated, if necessary, so that they have the latest metadata information. If the deployment fails, an automated rollback can restore the state before the deployment.

OTHER TOOLS AND FUNCTIONS

In addition to deployments, Ace Deploy offers useful tools that make day-to-day operations easier.

- *Comparison of repository and database:* In most cases, you want the files in the repository to contain a complete description of the database. A function for comparing a database with files in the version management can be used to identify whether there were manual changes on the database that were not transferred to the version management. This makes it possible to monitor whether the repository and the database differ from each other.

- *Clone job automation:* The cloning feature of Snowflake makes it possible to test developments independently of other systems. At the same time, however, it may not be desirable for individual developers to create new database clones at will. In order for them to be able to do this independently, there is a pipeline that takes care of the cloning and adheres to certain conventions. Ace Deploy provides useful functions for such and similar tasks.

- *Dependency analysis:* In a complex database solution, it is often difficult to keep track of everything. Ace Deploy can resolve and export the dependencies of all objects among each other. This makes it possible to quickly analyze view layers that build on each other and to track down problems.

EXAMPLE OF USE CASES

Ace Deploy automates all deployment and validation steps, enabling quick development with short iteration cycles and robust deployments. This is a Python module designed to be included in a CI/CD process. A typical workflow consists of several steps. For example:

1) Every change that a developer pushes into the version control is automatically checked for syntax errors. This is achieved by deploying the solution to a temporary database.

2) If a feature branch is ready to be merged to the release branch, the production database is cloned. The code is deployed to the clone. This makes sure that the code is always deployable to production.
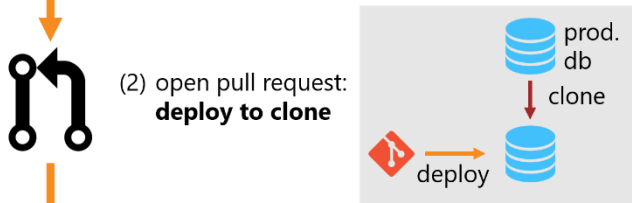
3) When the merge is completed, code from the release branch can be deployed to the production database.

WHY SNOWFLAKE AND INITIONS

initions has specialized in Business Intelligence (BI) and Data Warehousing (DWH) for 20 years. As a leading Snowflake Elite partner in Europe and SAP Silver Partner, initions has extensive expertise in the migration and modernization of on-premises Data Warehouse systems. It combines deep technical skills in Snowflake, SAP and cloud technologies, process understanding, data warehouse expertise, and a broad practical experience cross industry, and especially in the Energy & Utilities space.

Snowflake delivers the Data Cloud — a global network where thousands of organizations mobilize data with near-unlimited scale, concurrency, and performance. Inside the Data Cloud, organizations unite their siloed data, easily discover and securely share governed data, and execute diverse analytic workloads.

In the combination of Snowflake and initions, the customer benefits from a state-of-the-art cloud solution that is implemented and customized to the customer's individual needs by technically skilled and highly experienced consultants and architects.

INTERESTED TO KNOW MORE?

Want to learn more about how initions' Ace Deploy can help you optimize and automate your Snowflake development processes?

Contact snowflake@initions.com to schedule a demo.