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Technology Terms that need better definitions.

PDF Version of the document can be download at [Link](#)

1. Terms

1.1. Data Lake

A data lake is a storage repository that holds a vast amount of raw data in its native format until it is needed. While a hierarchical data warehouse stores data in files or folders, a data lake uses a flat architecture to store data.

Any large data pool in which the schema and data requirements are not defined until the data is queried.

The term data lake is often associated with Hadoop-oriented object storage.

Data lake vs. data warehouse

DATA LAKE	DATA WAREHOUSE
Reason for storing data is undefined	Reason for storing data is pre-defined
Data is left raw until it is needed	Data is processed and ready to be queried
Used by data scientists	Used by business professionals
Emerging technology	Strong maturity model

Figure 1. Lake - Warehouse

Reference: <https://searchaws.techtarget.com/definition/data-lake>

1.2. Slowly Changing Dimensions

Very simply, there are 6 types of Slowly Changing Dimension that are commonly used, they are as follows:

- Type 0 – Fixed Dimension No changes allowed, dimension never changes
- Type 1 – No History Update record directly, there is no record of historical values, only current state
- Type 2 – Row Versioning Track changes as version records with current flag & active dates and

other metadata

- Type 3 – Previous Value column Track change to a specific attribute, add a column to show the previous value, which is updated as further changes occur
- Type 4 – History Table Show current value in dimension table but track all changes in separate table
- Type 6 – Hybrid SCD Utilise techniques from SCD Types 1, 2 and 3 to track change
- Type 7 - see [Type 1 and 2 Dimension]

Reference: <https://adatis.co.uk/introduction-to-slowly-changing-dimensions-scd-types/>

1.3. Type 1 and 2 Dimensions

A fact table can be accessed through a dimension modeled both as a **type 1** dimension showing only the most current attribute values, or as a **type 2** dimension showing correct contemporary historical profiles. The same dimension table enables both perspectives. Both the durable key and primary surrogate key of the dimension are placed in the fact table.

For the **type 1** perspective, the current flag in the dimension is checked to be current, and the fact table is joined via the **durable key**. For the **type 2** perspective, the current flag is not checked, and the fact table is joined via the **surrogate primary key**. These two perspectives would be deployed as separate views to the BI applications.

Reference: <https://www.kimballgroup.com/data-warehouse-business-intelligence-resources/kimball-techniques/dimensional-modeling-techniques/type-7/> window='_blank'

1.4. Wherescape

The Conventional Approach

- Overcomplicated
- Inefficient

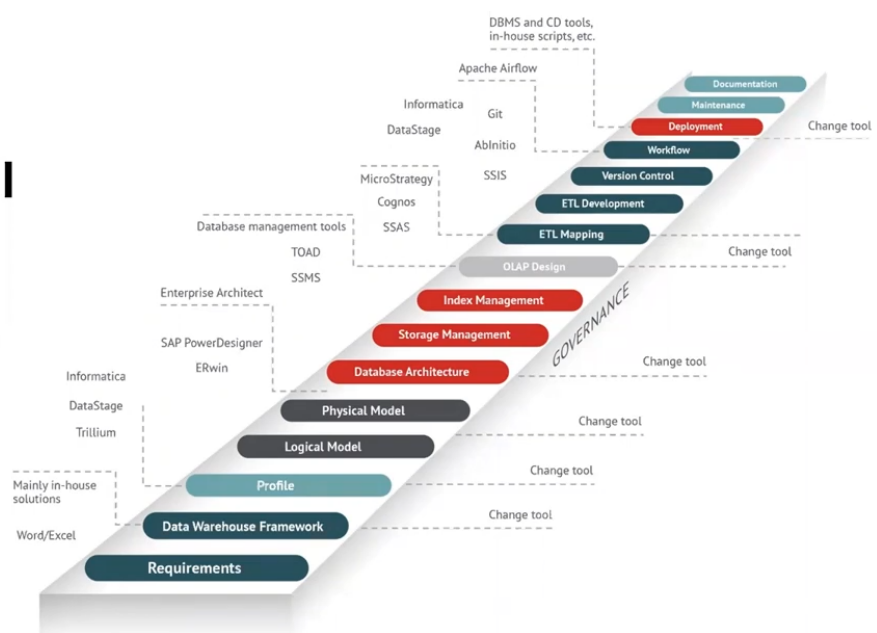


Figure 2. Wherescape DW Steps

What is WhereScape?

WhereScape® automation helps IT teams design, develop, document, deploy and operate data warehousing projects faster.

- ✓ Metadata-driven
- ✓ Built-in methodologies
- ✓ Best practices, industry standards
- ✓ Documentation and lineage
- ✓ Full lifecycle management



Figure 3. What is Wherescape

This video segment from a Wherescape presentation, just show the overview of their product.

[\[\] | Wherescape Overview](#)

Wherescape Overview

1.4.1. 3D

WhereScape 3D makes planning, modeling, designing and prototyping data warehouses, data vaults, data lakes and data marts easy, fast and effective.

WhereScape® 3D for data- or model-driven design

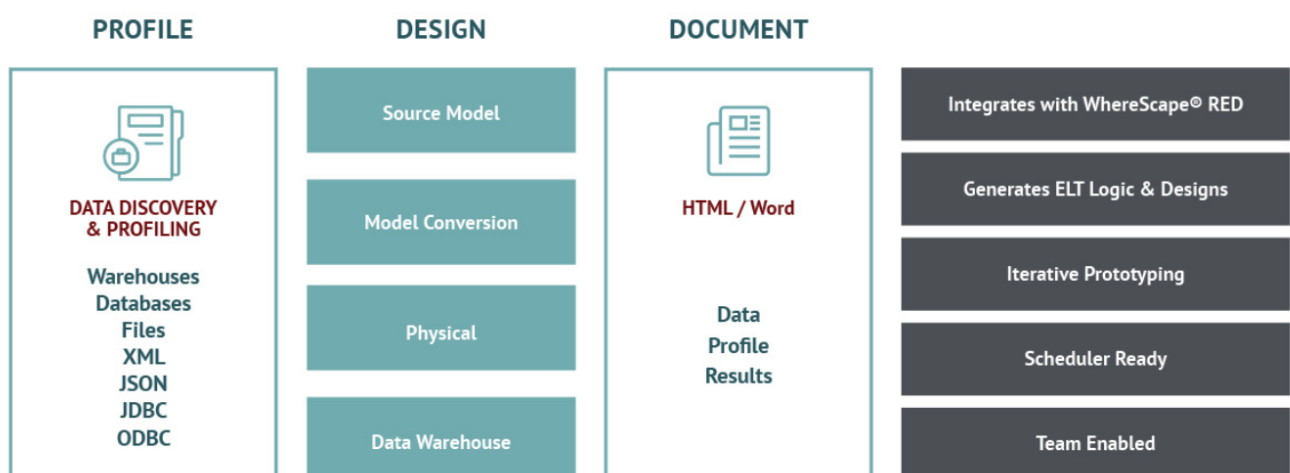


Figure 4. Wherescape 3D

1.4.2. Red

Whether on-premises or in the cloud, deliver data warehouses, data vaults, data lakes and data marts quickly with the WhereScape RED integrated development environment and integration

tools.

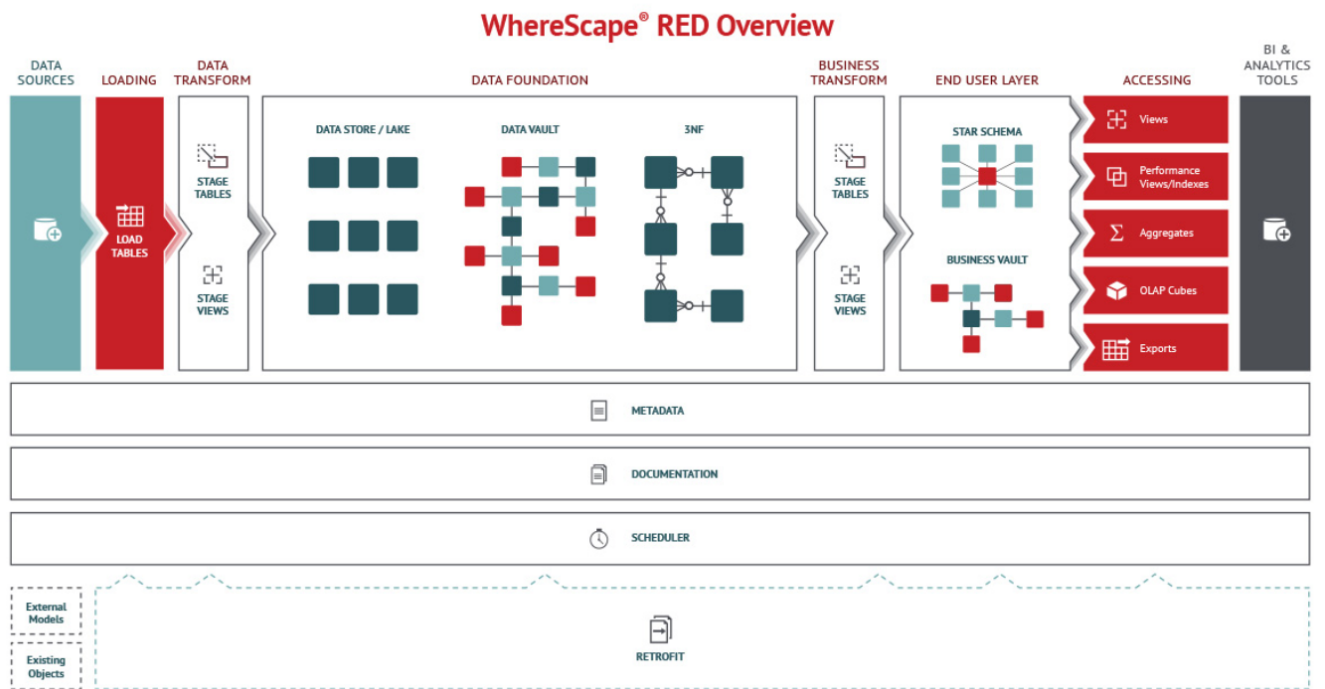


Figure 5. Wherescape Red

2. Document History

Table 1. Document History

Date	Version	Author	Description
12/13/2019	V2.1b	JHRS	Initial version