# Qlik Cloud Data Services

# Architecture Guide

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- Qlik Cloud provides a comprehensive SaaS offering to deliver Active Intelligence with the only end-to-end real-time data integration and analytics platform

- Qlik's cloud-agnostic and hybrid deployment options provide maximum choice and flexibility

- Move on-prem data to cloud data warehouses or for use by analytics services with Hybrid Data Delivery Service

- Connect to cloud applications, integrate, and automate processes with Application Automation Service

- Accelerate and simplify data warehouse lifecycles or realize a faster return on data lake investments with Data Warehouse Automation Service

- Convert source format data to formats within data warehouses and other targets and refine to meet needs with Data Transformation Service

## Qlik Cloud® Overview

Qlik Cloud closes the gaps between data, insights, and action with the only cloud platform built for Active Intelligence. Turn raw data into informed action in one platform. Seize every business moment with Qlik's end-to-end data integration and analytics cloud platform that enables you to shift from a passive set of tools to an active system built to deliver real-time information and drive immediate action.

Qlik offers a cloud platform without cloud vendor lock-in. Users benefit from an open SaaS platform with cloud-agnostic and hybrid deployment options that provide maximum choice and flexibility in how and where you deploy, store and analyze data across one or multiple clouds.
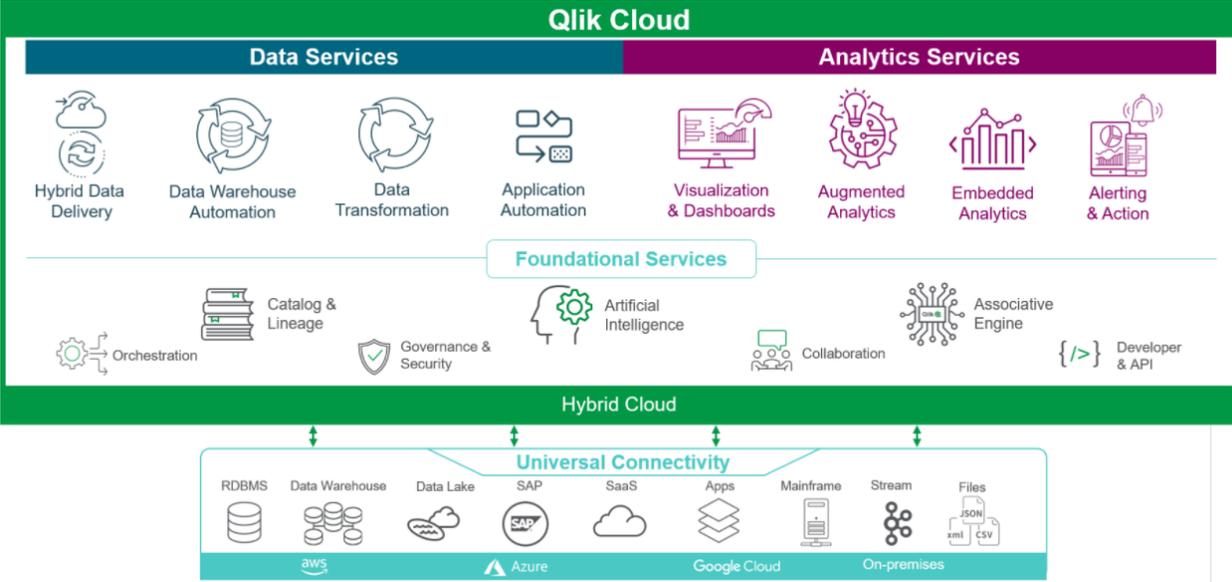


We group Qlik Cloud services into logical groups for data, analytics, and shared foundational services.

**Data Services**
Activate your data with market-leading integration and iPaaS capabilities with Qlik Cloud Data Services.

Organizations collect vast amounts of data. But most of the data that can guide decisions and actions isn't analytics-ready or accessible. Qlik operationalizes DataOps for analytics, turning raw data into trusted, actionable data that's easy to find, current, and immediately available to Qlik Sense®, Tableau, PowerBI, and beyond — on any cloud you choose.

Qlik Cloud Data Services accelerates the delivery of DataOps for analytics by providing real-time data movement, application automation, and catalog capabilities that form the essential foundation of Active Intelligence.

Qlik Cloud Data Services includes SaaS and client-managed hybrid solutions that provide data movement and integration and includes Hybrid Data Delivery and Application Automation, available today, and Data Transformation and Warehouse Automation, available in the future.

**Analytics Services**
The current and future Qlik Cloud services can analyze data and include Visualization & Dashboards, Augmented Analytics, Embedded Analytics, and Alerting & Action. Qlik Sense powers these services to set the benchmark for a new generation of analytics. Empower users at any skill level to freely explore data with powerful AI combined with the industry's most powerful analytics engine. Bring actionable insights into every decision with the industry's most complete platform for modern BI – on our cloud or anywhere you choose.

**Foundational Services**
These services support data integration and analytics needs and enable users to create end-to-end analytical data pipelines.

The service most relevant to Qlik Cloud Data Service is the Catalog and Lineage service.

*Catalog and Lineage service*
This service is the central source to manage and discover all your datasets while maintaining security and compliance standards within Qlik Cloud. Users can:

- View business metadata and lineage to improve understanding and trust.
- Apply personalized tags, properties, and business metadata for greater utilization.
- Browse dataset samples and profile statistics to ensure that data sets contain the expected information.

# Hybrid Data Delivery Service

Replicate data in near real-time from on-premises data sources into Qlik Cloud or a cloud data warehouse. Automatically and continuously ingest data without the need for job scheduling or scripting. Data is automatically cataloged, transformed, and ready for consumption by Qlik analytics applications. Your analytics are continually updated without manual intervention whenever the source data changes to ensure you have the most up-to-date insights and seize those critical business moments.

This service automatically ingests on-premises data into your tenant, catalogs it, and transforms it into a QlikView Data (QVD) format within Qlik Cloud, a Qlik proprietary format for storing data tables in an indexed, highly compressed state. QVD files can be Qlik managed inside Qlik Cloud Service or customer-managed AWS S3 buckets. It is immediately ready for Qlik analytics consumption without job scheduling or scripting.

The service can also move data to the Snowflake cloud data warehouse and will soon expand to other popular cloud data warehouses.

Hence this service is primarily used for two use cases:
1. Move on-premises data to cloud data warehouses such as Snowflake
2. Move on-premises data to Qlik Cloud for use by Qlik Analytics Services

## Hybrid Data Delivery Service
### QVD files and Snowflake
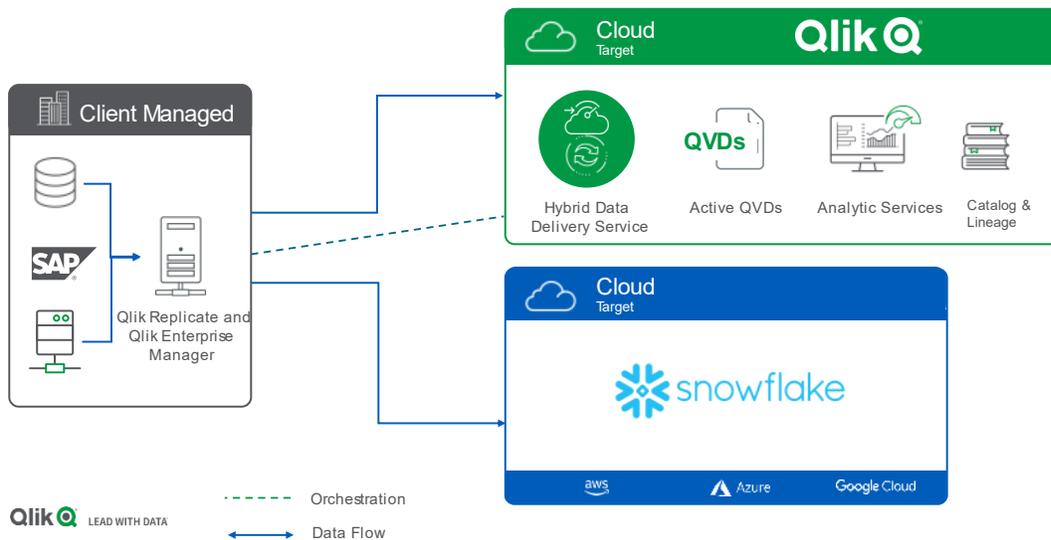


*Note: More details on Client Managed products shown in this architecture are available here - Qlik Replicate® and Qlik Enterprise Manager®*

**Benefits**

The service offers:

1. Real-time movement from all enterprise sources, including relational databases, SAP, mainframe, and SaaS applications

2. Point and click, no code analytic data pipeline configuration for rapid deployment

3. Integrated data cataloging and profiling for better efficiency and utilization

**Technical Summary**

- Connect *Qlik Cloud Services and Qlik Enterprise Manager* – To get started, you need to connect an on-premises Enterprise Manager resource to the Qlik Cloud tenant.

- *Replicate task* - Create a Replicate task in Qlik Enterprise Manager to transfer data continuously from the data source to a cloud landing area. The data source can be on-premises or in the cloud, including SAP, SQL Server, and various other sources.

> **Move on-premises data to cloud data warehouses or Qlik Cloud for use by Qlik Analytics services with Hybrid Data Delivery Service**

- *Landing data* - Create a Landing data asset in Qlik Cloud Data Services and associate it with the Replicate task. The Landing data asset controls the Replicate task that lands the data.

- *Generating and storing tables* - Create a storage data asset to generate tables from the landed data.

- *Consume the datasets in an analytics app.* - Create a Qlik analytics app using tables generated with Hybrid data delivery. Alternatively, use a business intelligence offering of your choice to use tables within Snowflake.

# Application Automation Service

Service to connect to cloud applications, integrate and automate processes by delivering concise, contextually relevant insights at key decision points

Easily create workflows with a no-code visual editor that streamlines and optimizes your data and analytics processes. Quickly integrate automated flows that span market-leading SaaS applications to trigger alerts and invoke downstream processes that react to changes in your business. Consequently, you spend less time programming back-office tasks that drive automated actions, leaving you more time for data analysis.

## Use Case #1 – Application Integration

Orchestrate applications in different clouds to share data with the Qlik Application Automation service.
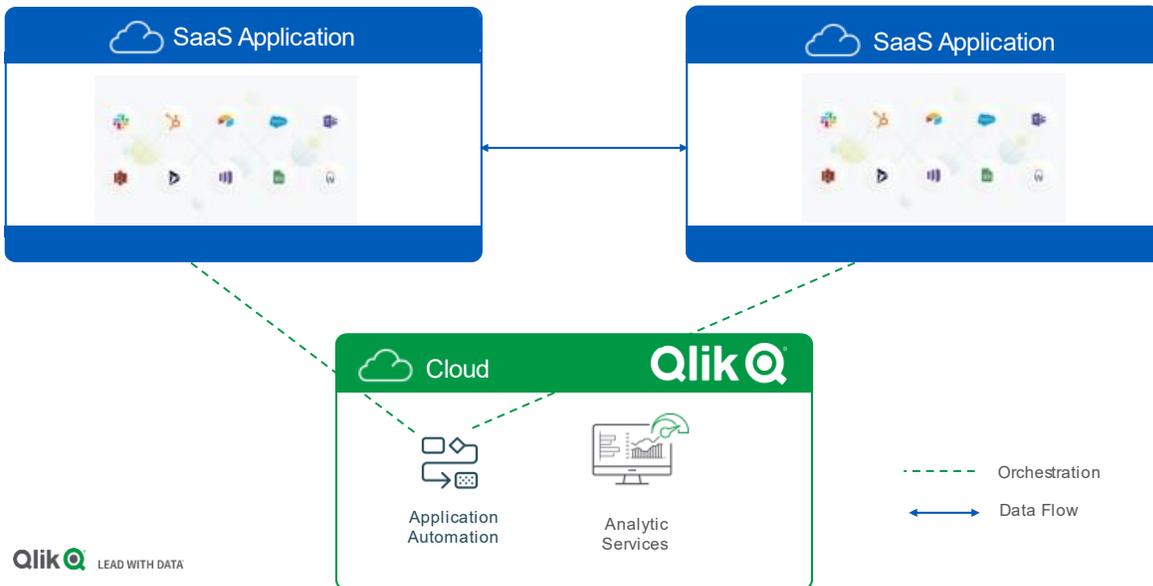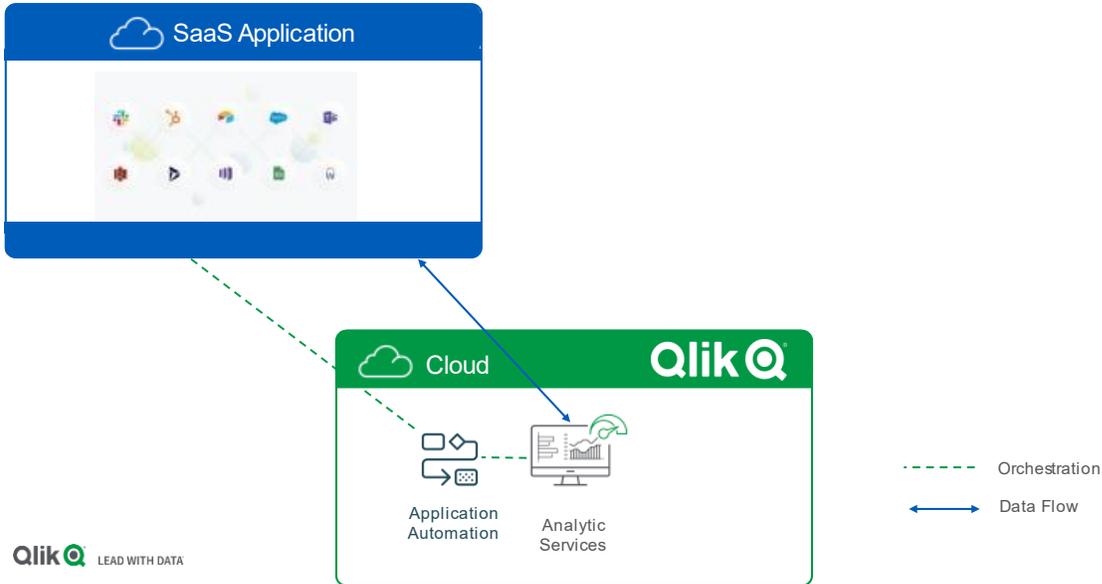


*Note: No client managed products are needed in this architecture*

## Use Case #2 – Insight to Action

Orchestrate SaaS applications to share data with Qlik Analytics Services available on Qlik Cloud.

# Application Automation Service
## Insight to Action



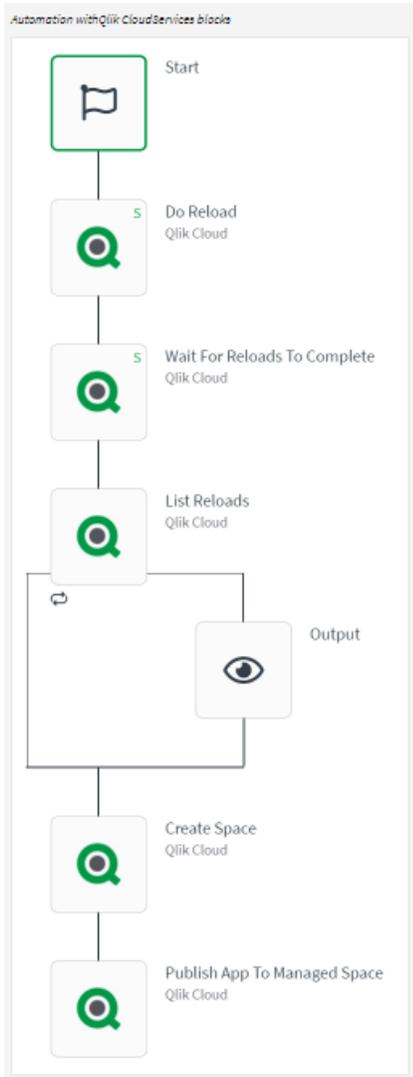*Note: No client managed products are needed in this architecture*

**Benefits**

With this service you can:

1. Drive insights to action by embedding integrations to other applications directly in your Qlik Sense application and trigger context-aware downstream processes.

2. Simplify SaaS integrations without the need to understand their low-level APIs through drag and drop of smart blocks to build powerful workflow logic.

3. Increase analytics DevOps productivity by orchestrating both your tenant administration and Qlik Sense app development tasks with ease.

**Connect to cloud applications, integrate, and automate processes with Application Automation Service**

**Technical Summary**

Quickly build automation within Qlik Cloud that leverage powerful APIs to automate your analytics and integration processes. Operationalize tenant administration, streamline application development, intelligently respond to events, and improve collaboration processes.



*Automation withQlik CloudServices blocks*

Start

Do Reload
Qlik Cloud

Wait For Reloads To Complete
Qlik Cloud

List Reloads
Qlik Cloud

Output

Create Space
Qlik Cloud

Publish App To Managed Space
Qlik Cloud

# Data Warehouse Automation Service

Currently, a client-managed offering to create and maintain data warehouses and data lakes across various cloud data warehouses and cloud data lakes, this offering as a Qlik Cloud data service will be coming soon.
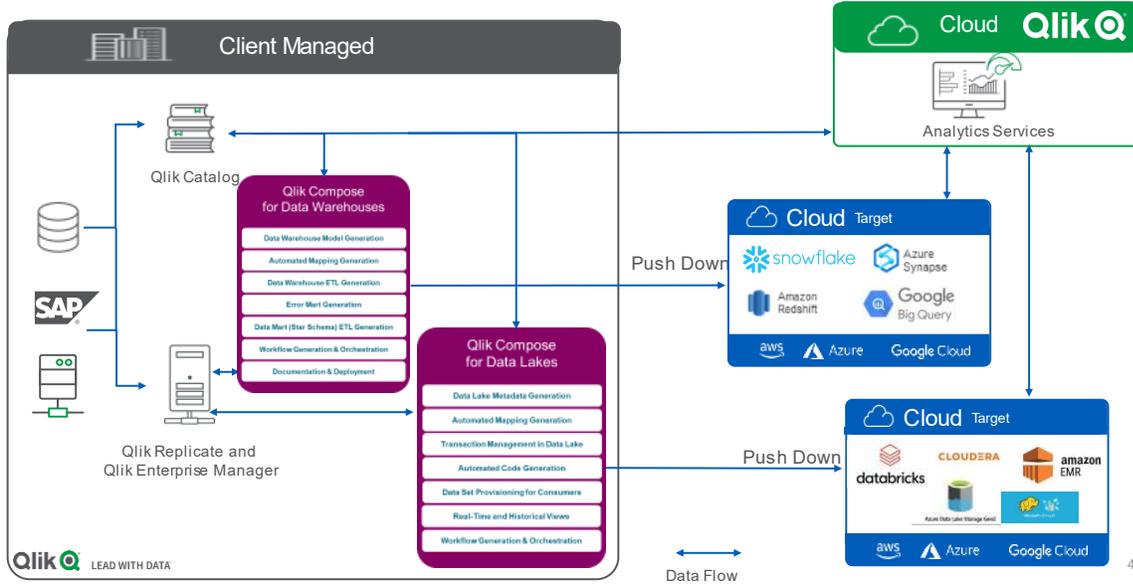


*Note: More details on Client Managed products shown in this architecture are available here - Qlik Replicate, Qlik Enterprise Manager, Qlik Compose® for Data Warehouses, Qlik Compose for Data Lakes, and Qlik Catalog™*

## Use Case #1 - Warehouse Automation

Data warehouse automation is a client-managed offering that accelerates and simplifies the data warehouse lifecycle for faster insights. This service enables users to quickly design, build, deploy, manage and catalog purpose-built data warehouses (especially cloud-based) faster than traditional solutions. Consequently, data engineers can meet or exceed the demands for analytics-ready data marts that enable data-driven insights at the speed of change.

**Benefits**

1. Increases data availability for analytics, machine learning, digital transformation, and cloud migration.
2. Improves data engineer productivity with no-coding data mart creation
3. Improves operational efficiency via data warehouse automation
4. Establishes best practices for keeping data marts fresh and up to date.
5. Future-proof flexibility that adapts to changing data environment.
6. Greater resiliency by rapidly propagating source or model changes through the data warehouse environment.
7. Understand the content and quality of your data warehouse for regulations like GDPR and CCPA
8. Improve data consumers' ability to find, understand, and gain insights from their data warehouse.

## Use Case #2 - Managed Lake Creation

Managed Lake Creation Service helps enterprises realize a faster return on their data lake investment by continuously providing accurate, timely, and trusted transactional data sets for business analytics. This service automates the entire data pipeline from real-time data ingestion to creating and provisioning analytics-ready datasets, eliminating the need for manual scripting. Data engineers can now meet growing demands for analytics-ready data sets in real-time with confidence.

**Benefits**

1. Immediate availability of transactional data for analytics
2. Trusted data that provides analytics-ready certainty
3. Improves operational efficiency with re-usable, automated pipelines
4. Establishes best practices for keeping data in the lake fresh and up to date
5. Future-proof flexibility that adapts to changing data lake technology
6. Greater resiliency by rapidly propagating source or model changes through the data lake environment
7. Understand the content and quality of your data for regulations like GDPR and CCPA
8. Improve data consumer's ability to find, understand, and gain insights from their data in the data lake

**Technical Summary**
The solution supports virtually all industry-standard data sources and targets, profiles & catalogs all the data in the data lake. It maintains end-to-end lineage to ensure data confidence.

**Accelerate and simplify data warehouse lifecycles and realize a faster return on data lake investments with Data Warehouse Automation Service**

# Data Transformation Service

Currently, a client-managed capability of the Hybrid Data Delivery Service to convert data from the source system format into the required structure of a destination system such as data warehouses and other targets to meet data demands. Expanded capabilities will be available soon.
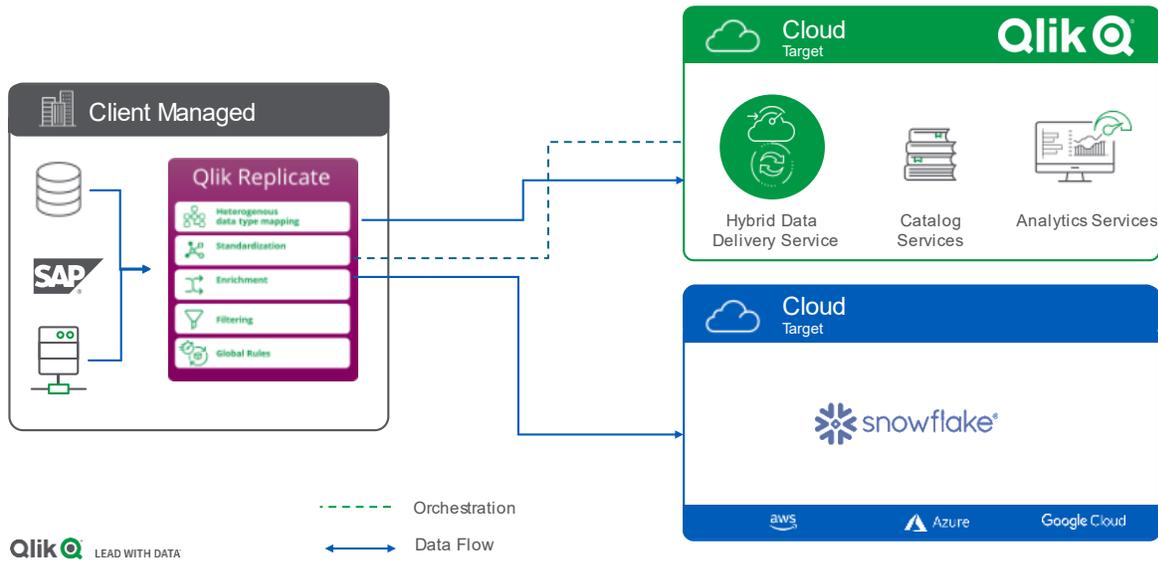


Note: More details on Client Managed product shown in this architecture is available here - *Qlik Replicate*

**Benefits**

The service offers users:

1. Immediate production data available for analytics and microservices
2. Continuous, real-time data transformation with minimal impact on production operations
3. Ability to address new real-time and modern analytics use cases

**Convert source data into the optimal format for the target system and refine to meet business needs with Data Transformation Service**

**Technical Summary**
Deliver common transformations of data moved to cloud targets. Examples of such changes include:

- *Heterogeneous data type mapping* – Enables you to migrate data from one vendor's data store to another vendor's data store of the same or different technology by mapping different data types or column names
- *Standardization* – Expression based data transformations include adding a new column, modifying an existing column, renaming table and column names to allow data consumers to research, utilize and analyze the data
- *Enrichment* – Add new calculated columns to existing data or do primary lookups against third-party data to obtain relevant context for existing data to become more valuable and insightful.
- *Filtering* – Apply row filters or exclude individual columns with sensitive data to improve quality and govern data for viewing or analysis.
- *Global rules* – Make changes or filter data across multiple tables and columns in the same task

# Conclusion

Qlik Cloud Data Services will continue to evolve in the next 12 – 24 months with more choice between client-managed products and cloud services to architect for data gravity and various use cases within client environments. More information on Qlik's latest innovation and strategic direction for the future is available here.

# Resources

For more information about Qlik Cloud Data Services, check out:

- Qlik Continuous Classroom has a variety of self-paced courses addressing various topics, from overviews of Qlik Replicate to introductions to Qlik Compose for Data Lakes and more.

- Qlik Training has all the expertly designed coursework and training materials you'll need to adopt Qlik products faster and maximize their capabilities.

- Qlik Community is the global online community for Qlik Inc. employees, experts, customers, partners, developers, and evangelists to collaborate.

- Data Literacy Project is a global community dedicated to making the language of data understood and communicated effectively by all.

- Active Intelligence™ is our vision for creating in-the-moment awareness about every aspect of the business. It delivers a state of continuous intelligence from real-time, up-to-date information designed to trigger immediate actions.

**Qlik Q** LEAD WITH DATA™

### About Qlik

Qlik's vision is a data-literate world, where everyone can use data and analytics to improve decision-making and solve their most challenging problems. Our cloud-based Qlik Active Intelligence Platform delivers end-to-end, real-time data integration and analytics cloud solutions to close the gaps between data, insights and action. By transforming data into Active Intelligence, businesses can drive better decisions, improve revenue and profitability, and optimize customer relationships. Qlik does business in more than 100 countries and serves over 50,000 customers around the world. .

**qlik.com**