MIND THE GAP:
EXPANDING DATA ACCESS OPTIONS TO OPEN SAP ANALYTICS OPPORTUNITIES

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INTRODUCTION – MIND THE GAP

Digital transformations come in all shapes and sizes, but the one thing they all have in common is the need to expand and transform data connectivity. Analytics can be transformative, but only if analysts have access to all pertinent data sources.

The growth in the volume of data is unprecedented, as are the number of data source options. It has been estimated that 90% of all data that exists in the world today was created in the past two years.[1] Along with the growth of data, there are a growing number and diversity of data sources . In fact, fully half of organizations use five or more internal and three or more external data sources to support decision making, and the majority of big data and Analytics software market share comes from non-SAP data environments. [2] While we may debate the accuracy of such numbers, what is certain is that we face a massive proliferation in data and data sources that requires new approaches to data science and Analytics.

In our conversations with customers about their SAP Analytics initiatives, we see that organizations have data in many non-SAP sources that they need to leverage in their Analytics program. These data sources typically include:

We face a massive proliferation in data and data sources that requires new approaches to data science and Analytics.

- **Cloud-based data sources –** Organizations are adopting Cloud-based hyperscalers such as Snowflake, Google BigQuery, Microsoft Azure and Amazon Redshift to provide structure for high-volume data and high-velocity data access.
- **OLAP data sources –** OLAP cubes have been a staple of Analytics for a long time, and analysts need access to this data, and the associated measures and dimensions, to populate their SAP Analytics Cloud stories and visualizations.
- **Relational & legacy data sources –** Oracle, Microsoft SQL Server, and other relational databases remain important database management systems that have been around for a long time and organize important information well in certain categories.
- **Legacy data sources –** What has happened in the past informs the present and future, so this information needs to be available to analysts.
- **Application data sources –** Purpose-built data sources for applications such as Salesforce can be very important for Analytics exploration.

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[1] "90 Percent of the Big Data We Generate Is an Unstructured Mess," PC Magazine.

[2] Sources: BI-Survey, Statista, Solutions Review

DIGITAL TRANSFORMATION & SAP ANALYTICS CLOUD

SAP Analytics Cloud's capabilities are helping organizations to bring digital transformation to their Analytics, but these capabilities can be limited by lack of access to data for analysis. These organizations face obstacles to data connectivity such as live data connectivity to non-SAP data assets. Organizations need to connect to a variety of data sources for a complete Analytics.

For many of these assets, moving the data is impractical, because the data resides in purpose-built application databases, or because the data asset is too large, or resides within non-SAP big data or hyperscaler technologies.

Digital transformation aims to make organizations more responsive to data. To be more responsive, organizations need to analyze very current data, or in some cases real-time transactional data, so latency due to data movement can become a major issue. Being more responsive requires live data connectivity for high-velocity access to a wide variety of data sources containing a great volume of information.

Organizations face obstacles to data connectivity such as live data connectivity to non-SAP data assets. They need to connect to a variety of data sources for complete Analytics.

Without expanded live data connectivity, data sources are just so many unconnected islands (or lakes, if you like) of data. Bridging the gaps between a wide variety of data sources and your Analytics is critical to handling the increasing quantity of data, as well as the increasing complexity of data, and formulating a more nuanced and qualitative approach to Analytics.

Data connectivity presents challenges, as does data modelling, which is key to presenting a single version of the truth, to establishing robust self-service Analytics, and to reducing IT's workload and technical debt.

The digital transformation process can be complex, but **APOS Data Gateway** can help you meet your Analytics data connectivity and data modelling challenges and achieve better time to value in your quest for a complete, self-service, responsive, and responsible Analytics platform.

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DIGITAL TRANSFORMATION & NON-SAP DATA ASSETS

As companies work through their transitions from traditional BI to SAP Analytics Cloud, they realize there are many data sources they need to include for a more complete analytics deployment – an analytics deployment which will support their evolving business processes. The enterprise data they wish to include may reside in many non-SAP data sources, so they have decisions to make about how to make their analytics transformation possible.

As mentioned earlier, the design of proprietary data sources is frequently purpose-driven, and that purpose is generally the collection and aggregation of data for non-Analytics usage. What this means in practice is that moving the data to a new DBMS may compromise the effectiveness of the data's primary use.

Copying data to an Analytics-friendly DBMS can also be problematic, creating data latency issues. Organizations rely so heavily on the currency of information for competitive advantage that data latency has now become as serious as data outages were in the past.

Data connectivity is one thing, but data modelling is quite another. **APOS Data Gateway** creates a semantic layer that respects the security of each individual data source and simplifies the creation of views on data by enabling business-friendly data-naming conventions.

Additional resource:

- **SAP Analytics Transformation and Non-SAP Data Assets**

Recent polling shows:

- 94% of organizations require access to multiple data sources to support decision making.

- Fully half of organizations surveyed use 5 or more internal and 3 or more external data sources to support decision making.

- 18% of organizations use 20 or more data sources for decision making.

- 90% of big data and Analytics software market share comes from non-SAP data environments.

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APOS DATA GATEWAY'S SEMANTIC LAYER

The primary objective for BI and Analytics teams has always been to present a single version of the truth, and the primary means of presenting a single version of the truth is ensuring that data is presented in a consistent manner across the organization's BI and Analytics landscape. BI and Analytics teams also need to promote self-service capabilities to build competitive advantage, and to lighten IT's workload and technical debt.

Achieving these objectives can be greatly simplified by using **APOS Data Gateway** to create a semantic layer. Essentially, a semantic layer functions as middleware between your data sources and your BI and Analytics platforms, providing virtualized connectivity, modelling, and other data manipulation capabilities. Because all BI and Analytics data is filtered through this semantic layer, all BI and Analytics users see the same data in the same way. All users see a single version of the truth, use the same measures and dimensions, and report on the same reality.

APOS Data Gateway simplifies data connectivity and creates a semantic layer for data assets, centralizing:

DATA MODELLING	SECURITY	SINGLE SIGN-ON (SSO)
Create business-user friendly views in APOS Data Gateway on your non-SAP data assets. Data modelling shields the end user from the complexities of data access enabling better self-service BI & Analytics, greater self-reliance for end users, and preventing misuse such as runaway queries, invalid data use, and forbidden data use. It holds legal, strategic and tactical importance for your organization.	APOS Data Gateway respects the existing security on your SAP and non-SAP data assets, ensuring business data can only be seen by the appropriate users, securing private or sensitive data per regulatory requirements.	SSO provides transparency and simplicity for SAP Analytics Cloud users who need data from non-SAP data assets. By leveraging your organization's existing SSO capabilities, APOS Data Gateway can both improve user experience and provide operational data governance.

Additional resource:

- **Semantic Layer – What Is It?**

APOS DATA GATEWAY:
CLOSE THE GAPS, OPEN THE OPPORTUNITIES

APOS Data Gateway is a middleware platform providing virtualized data connection and data transformation services to enable Live data connectivity, Import, and Export data connection options and expanded data source options for SAP Analytics Cloud and your broader Analytics initiatives. APOS Data Gateway is the ideal solution for organizations that need to connect SAP Analytics Cloud to a vast number of data assets, immediately opening new Analytics opportunities.

APOS Data Gateway provides high-performance data connectivity, the ability to build sharable views on data from connected data assets using consistent, business-friendly, data-naming conventions.

APOS DATA GATEWAY FOR SNOWFLAKE

APOS Data Gateway provides fast, efficient, and transparent live data access to valuable Snowflake Data Cloud data from SAP Analytics Cloud, providing easy self-service through existing APOS semantic layer views. Users can also conveniently define their own semantic layer views and freehand SQL queries against Snowflake Data Cloud data, all while respecting Snowflake security structure and schema. Special features for Snowflake allow APOS Data Gateway to handle and respect Snowflake roles while minimizing and automating administration and maintaining Single Sign-On (SSO) between Snowflake and SAP Analytics Cloud.

This fully live data access allows SAP accounts to unlock greater value from their Snowflake Data Cloud data, yielding better and faster business analytics and decisions.
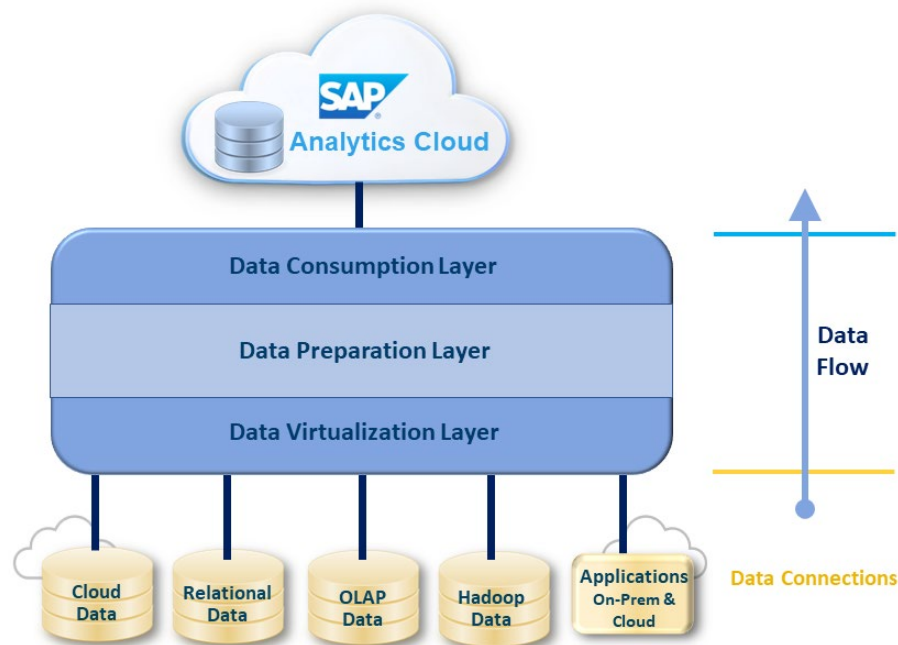
- Leverage existing Snowflake security
- Data stays in Snowflake
- Snowflake Data Cloud data is always current
- Unified Semantic Layer
- Leverage existing data modelling
- "Push" Import for SAP Analytics Cloud Planning

APOS Data Gateway's architecture consists of three layers:

- Data Virtualization Layer
- Data Preparation Layer
- Data Virtualization Layer

DATA VIRTUALIZATION LAYER

The Data Virtualization layer of APOS Data Gateway is the connection point into the many data sources that are supported – Cloud Data, Relational Data, OLAP Data, Hadoop Data, Applications (On-Premise and Cloud). All connectivity is managed through this single virtualized data connection point, meaning that no database drivers or other connections mechanisms are required by any consuming application or user environment, instead Live Data Gateway manages all of these connection details. The primary connection protocol is JDBC; however connection via OData, XMLA, JSON, REST, and API is also supported.

DATA PREPARATION LAYER

The Data Preparation Layer of APOS Data Gateway enables important data transformation steps, and provides a simplified semantic layer for business users to easily navigate data and be shielded from the complexities of the underlying data structures. This semantic layer produces very strong benefits for both self-service Analytics and self-service modelling.

Within the semantic layer, data views are created which define what data should be exposed, define measures and dimensions, manage data linking complexities, and rename data fields to meaningful business terms. With these data complexities managed centrally, the end users of the semantic layer can quickly and easily build reports and visualizations, all while the strong data control and governance mechanism is protecting against inappropriate data access.

Three types of data views can be utilized within the Data Preparation Layer:

Semantic Layer View – non-technical users can select tables and fields and joins in APOS Data Gateway's Web UI.

Freehand SQL View – technical users can create views based on SQL queries in APOS Data Gateway's Web UI.

OLAP View – create a subset of existing measures and dimensions from an OLAP cube data source in APOS Data Gateway's Web UI.

DATA CONSUMPTION LAYER

The Data Consumption layer enables the communication of data requests into APOS Data Gateway and the serving of the requested data. The simplified view into your data created in the data preparation layer allows for consumers to easily understand the data in business terms. Being able to consume data presented in business terms is a strong enabler of self-service. The semantic data of Live Data Gateway is served for consumption by SAP Analytics Cloud through the SAP Native protocol, but can also be consumed via OData, JDBC and ODBC.

EXPANDING CONNECTIVITY TO CLOSE THE GAP

The key to achieving time to value with your SAP Analytics Cloud deployment and your digital transformation lies in assembling your data assets and making them quickly and reliably available to your stakeholders, analysts, and business users. By streaming these data assets through APOS Live Data Gateway, you create a semantic layer that your Analytics users can employ to create and share consistent views on your KPIs and other data.

APOS Data Gateway lets you:

- Expand live, import, and export data connectivity
- Use live data from its existing location
- Use live data that is always current
- Keep data behind the corporate firewall
- View data consistently using a unified semantic layer
- Leverage existing security
- Use views to leverage existing data modelling
- Work with large data sets with high-performance connectivity
- Connect live, import from, or export to an **extensive array of data assets**, both SAP and non-SAP

APOS Data Gateway consists of:

- **Live Data Gateway**

- **Import Data Gateway**

- **Export Data Gateway**
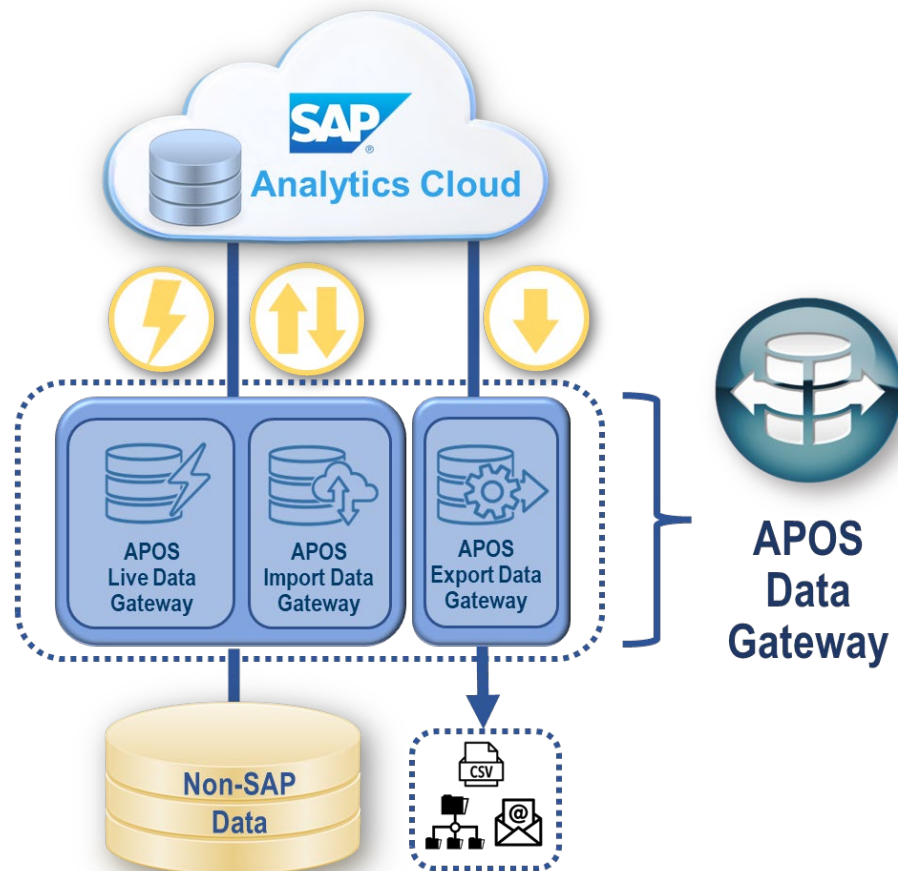
LIVE DATA GATEWAY

Live Data Gateway expands, simplifies and unifies your data connectivity for SAP Analytics Cloud. This middleware platform provides virtualized data connectivity which enables live data connectivity to a vast range of non-SAP data sources. With Live Data Gateway, you can leverage the unique benefits of live data connections in SAP Analytics Cloud, including your valuable non-SAP data.

- Utilize data from existing location

- Data is always current

- Data never leaves the firewall

- Unified Semantic Layer

- Leverage existing security

- Leverage existing data modelling

IMPORT DATA GATEWAY

Import Data Gateway expands, simplifies and unifies your data connectivity for SAP Analytics Cloud. This middleware platform enables you to enrich SAC Planning with data imported from non-SAP sources, without the need to use the SAC Cloud Connector. Strategically move data in and out of SAC Planning from all supported sources and into target relational databases.

"Push" data from non-SAP data sources for import to SAP Analytics Cloud on a scheduled basis without the need for the SAC Cloud Connector. Load SAC Planning with data from sources such as Salesforce, Exasol, Workday, Microsoft Dynamics.

Although SAP Analytics Cloud currently supports import from Salesforce, this functionality is due to be deprecated at the end of 2024. APOS, in collaboration with SAP, has developed this functionality in the Import Data Gateway to fill this gap.

- Extend data source options for SAP Planning

- Extract SAP Planning data

- Simplify data connection

- Schedule data imports

- Full and delta data uploads

- Unify data management

EXPORT DATA GATEWAY

Export Data Gateway is designed to meet strategic requirements for data exports from a data source, which are then saved to a static file (CSV) and distributed to a targeted location or user. These capabilities provide effective automation to meet common requirements where a static data file is needed to fuel a separate data process, a regulatory requirement, or other strategic information need.

This means that APOS Export Data Gateway enables scheduled processes to export SAP Analytics Cloud Planning data to a CSV file and send to a strategic user or file location.

It also means that APOS Export Data Gateway can export data from an extensive range of relational, OLAP, Hadoop and Cloud sources to CSV files and send to various destinations for further processing.

APOS Export Data Gateway respects database security: users can only export data that they have rights to access, and a self-service end user interface simplifies the extract process.

- High volume data exports to CSV format
- Schedule recurring exports – hourly, daily, weekly, monthly
- Automated delivery to network file shares, FTP, secure FTP, SharePoint, email
- On-demand data exports enabling secure self service

Learn how and why APOS customers have implemented **APOS Live Data Gateway**:

**WR Grace:
Extended Live
Connectivity**

WR Grace needed fast, live data connectivity from SAP Analytics Cloud to important data within Oracle, Microsoft SQL Server, and Google BigQuery for quick and complete month-end financial analyses.

**Aspris:
Live data connectivity
from SAP Analytics Cloud
to Azure SQL**

Digital transformation has taken Aspris from static Web Intelligence reports with SAP BusinessObjects to real-time dashboards with SAP Analytics Cloud, combining 21 SaaS business applications plus core MIS operational systems, a Databricks ETL to Azure SQL warehouse, and an SAP Analytics Cloud front end.

**Salling Group:
Live data access to
Snowflake Data Cloud
from SAP Analytics Cloud**

A large, Europe-based retailer running multiple chains of retail stores had consolidated legacy financial data from decades of corporate activities and acquisitions in Snowflake Data Cloud. They needed their analysts to have access to this data in SAP Analytics Cloud to extract KPI and other comparative data to drive better business decisions moving forward.

Visit the **APOS blog** to view other use cases and customer success stories for **APOS Data Gateway**.

SUMMARY

Big Data is only getting bigger, and digital transformation will present many data connectivity and modelling challenges. **APOS Data Gateway** delivers a unified semantic layer and the ability to manage your data connectivity and modelling centrally and consistently.

Volume, velocity, variety, and veracity[3] are Big Data's key descriptors, and **APOS Data Gateway** supports all of them:

- **Volume –** support for all major Big Data hyperscalers
- **Velocity –** high-performance live data connectivity
- **Variety –** control over the measures and dimensions needed for each type of data and data asset
- **Veracity –** control over the way data is presented to self-service users

APOS Data Gateway consists of:

Live Data Gateway

Live connectivity from SAP Analytics Cloud to non-SAP data

Import Data Gateway

Import and export connectivity supporting the full cycle of SAP Analytics Cloud Planning

Export Data Gateway

High-volume, secure, data exports to network file shares, FTP, secure FTP, SharePoint, email

To learn more, visit the **APOS website**, make a **Solution Inquiry**, or **contact** your APOS account manager.

Additional resources:
- **Data Connectivity Challenges**
- **Data Modelling Challenges**
- **Self-Service Semantic Layer for SAP Analytics**
- **Leveraging Data Connection Gateways to Harness Full Value from Analytics Investments**

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[3] "Big Data's Fourth "V,"" Well Managed BI.

![APOS Extend Analytics logo]

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APPENDIX: APOS SOLUTIONS FOR SAP ANALYTICS CLOUD

APOS Publisher for Cloud

Automated broadcasting and distribution of personalized SAC reports to target user groups. Distribute reports to the right people, at the right time, to the right location, in the right format

APOS Data Gateway for SAP Analytics Cloud

Expanded Live data connectivity, Import, and Export data connection options and expanded data source options for SAP Analytics Cloud

APOS Data Gateway for Snowflake

Specialized Live, Import, and Export data connectivity for SAP Analytics Cloud and Snowflake Data Cloud

APPENDIX: APOS SOLUTIONS FOR SAP BUSINESSOBJECTS

APOS Insight

- BI System Auditing
- BI System Monitoring
- BI Query Surveillance
- BI Report Testing

APOS Administrator

- Object Management
- Schedule Management
- Instance Management
- Web Intelligence Migration

APOS Storage Center

- System Backup
- Content Archiving
- Content Versioning
- Automated System Clean Up

APOS Publisher

- Systematic Content Delivery
- Advanced Document Bursting
- Enhanced Content Distribution
- Security and Encryption

APOS Web Intelligence Migrator

- Bulk Convert from UNV to UNX
- High-Volume Web Intelligence Repointing
- Success Validation
- Controlled Workflow

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ABOUT APOS SYSTEMS

Since its beginning in 1992, APOS Systems has evolved from a custom business application development shop to a global provider of solutions promoting Well Managed Business Intelligence and Analytics.

APOS provides software products which deliver enhanced capabilities and strong agility in the management and administration of SAP BusinessObjects and SAP Analytics Cloud platforms, across the SAP solution landscape, and beyond. APOS well managed BI, well managed analytics, and hybrid BI and analytics products improve return on investment and time to value for our global base of customers. APOS solutions simplify, automate, complement, enhance and extend BI practices, and focus BI processes for greater agility in your organization's decision-making capabilities.
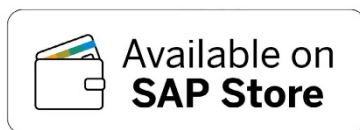
APOS is a long-time SAP Partner with over 20 years of success in providing software solutions to enhance and extend SAP Analytics and Business Intelligence capabilities. APOS Data Connectivity solutions provide live, virtualized data connectivity for SAP Analytics Cloud to non-SAP data sources, including a wide range of relational and OLAP sources, and the vital cloud data platforms. APOS enables simplified Analytics data processes for SAP Applications, such as SAP Ariba, SuccessFactors, Fieldglass and Concur. APOS Publishing solutions enable broadcasting and delivery of SAP Analytics Cloud and S/4HANA Analytics reports to targeted recipients. APOS BI Management solutions automate administration, testing, auditing, monitoring, and archiving for SAP BusinessObjects and SAP Analytics Cloud.

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