ORACLE®
CLOUD

The Role of Data Integration in Public, Private, and Hybrid Clouds

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In today's information-driven economy, data is a fundamental asset to most businesses. As more and more of that data moves to the cloud, getting information and insight to the right people and the right applications at the right time becomes progressively more difficult. Many organizations are motivated to embark on big data analytics projects in the cloud. Others turn to the cloud as they adopt versatile software as a service (SaaS) applications, or simply to establish more versatile data backup strategies. There is a long list of reasons why organizations embrace cloud initiatives, but lack of an integration strategy may prevent many organizations from succeeding.

Consider the Statistics

According to a 2015 study conducted by Unisphere Research among Oracle users,[1] approximately one in four IT leaders cite application and data interoperability as one of the top three challenges of moving to cloud. Furthermore, approximately nine out of ten people said that data integration is important to their efforts going forward.

	Public	Private/Hybrid
Extremely important	29%	24%
Very important	45%	39%
Somewhat important	20%	27%
Not important at all	2%	6%
Don't know/unsure	4%	4%

Figure 1: How Critical is Data Integration to Cloud Initiatives?

Among non-cloud users, 19 percent said they believed data integration would be a challenge when they do embark on cloud projects. Among existing users of cloud services, the number rose to 42 percent, indicating the necessity to learn from this experienced user group and plan for it when devising a cloud strategy.

Among public cloud adopters, 76 percent said they have integrated data between the cloud and on-premises systems, while 73 percent of private and hybrid cloud users confirmed that integration. Most of the survey respondents who have not integrated their cloud data plan to proceed with data integration for cloud initiatives in the next three years, as shown in Figure 2.
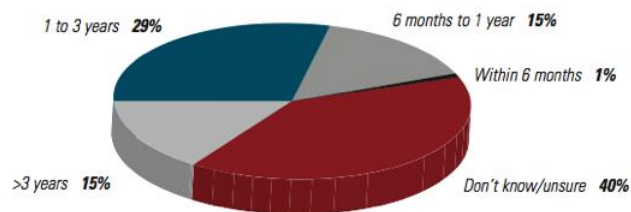

Figure 2: When do you plan to start cloud data integration initiatives?

TOP 10 CHALLENGES FOR PUBLIC CLOUD USERS IN MOVING TO CLOUD

- » Security 58%
- » Application Integration 42%
- » Data Integration 42%
- » Moving to Cloud Without Business Disruption 40%
- » Budget Constraints 29%
- » Big Data Management 19%
- » Management and Governance 29%
- » Cloud Latency Issues 18%
- » Uncertainty About Data Sources 13%
- » Data Quality 11%

Source: Unisphere Research

33 percent of IT leaders intend to pursue a "co-existence strategy," in which legacy on-premises systems will be extended with cloud systems.

—UNISPHERE RESEARCH 2015

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[1] The 2015 IOUG Data Integration for Cloud Survey, produced by Unisphere Research, A Division of Information Today, Inc.

ORACLE DATA INTEGRATION FOR CLOUD

ORACLE DATA INTEGRATION FOR CLOUD ENVIRONMENTS

» Perform zero downtime consolidation to cloud databases

» Initialize data for SaaS applications

» Feed on-premises data marts and data warehousing solutions with data from SaaS apps

» Load data from on-premises applications and data stores to cloud-based analytics systems

» Supply private PaaS solutions with data access, transformation and data quality services

Organizations that move some or all of their operations to the cloud often need reliable technology for real-time data synchronization. Within the whole survey group, 23 percent indicated the need for real-time or near real-time data synchronization. However when the researchers focused on cloud users, a larger portion—55 percent of private cloud users and 59 percent of public cloud users—said they require real-time or near-real-time data synchronization with other cloud or on-premises systems.
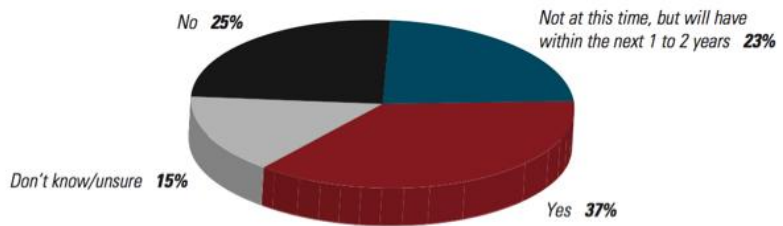
Figure 3: Do you have cloud systems that require near real-time or real-time data synchronization with other cloud or on-premises systems? (all respondents)

	Private/Hybrid	Public
Yes	55%	59%
Not at this time, but will have within the next year or two	15%	27%
No	27%	10%
Don't know/unsure	3%	4%

Figure 4: Do you have cloud systems that require near-real-time or real-time data synchronization with other cloud or on-premises systems? (cloud users)

The Need for Data Integration

To integrate data between public cloud services and data center solutions, organizations face two major challenges. First, they must be able to rapidly load large amounts of data securely so they can execute transactional or analytical processes across systems. Second, they must keep the data synchronized, often in real time, or in near real time.

Oracle offers the industry's most complete data integration platform, with comprehensive capabilities for cloud and on premises integration scenarios. This mature middleware solution includes technology for real-time and bulk data movement, high-performance data transformation, bi-directional data replication, metadata management, data services, and data quality solutions for customer and product data.

Oracle Data Integrator and **Oracle GoldenGate** anchor the Oracle data integration product portfolio. These stalwart integration products allow you to connect your on-premises information systems to a cloud environment by moving data in bulk or as real-time transactions across geographies, heterogeneous systems, and firewalls. Oracle simplifies ongoing data synchronization and data access between systems and also streamlines the

- » **Oracle Data Integrator** - high-performance bulk data movement and transformation across heterogeneous sources and targets

- » **Oracle GoldenGate** - real-time data integration, transactional data replication, and online database comparison for heterogeneous sources and targets

- » **Oracle Enterprise Data Quality** – data standardization, match-merge, analysis, and cleansing for product and customer data

- » **Oracle Enterprise Metadata Management** – data governance via exploring, reporting and analyzing enterprise data movement

- » **Oracle Data Service Integrator** - data virtualization to quickly develop and manage federated data services

initial consolidation effort to populate cloud databases. You can leverage Oracle GoldenGate and Oracle Data Integrator to consolidate public or private cloud database infrastructures and to keep data stores consistent between on premises and cloud environments.

Popular Use Cases for Public Cloud Deployments

In Unisphere's study with IOUG, about 30 percent of cloud users said they valued an integration platform that could connect SaaS apps to an on-premises data warehouse. Conversely, for organizations that wish to place a data warehouse or data mart in the cloud, a sizable number say they will be looking for integration tools to load those cloud-based data stores from on-premises information systems (29 percent of public cloud users and 25 percent of private cloud users). Other important use cases include loading bulk data from on-premises applications to SaaS applications, real-time data synchronization between cloud and on-premises databases, real-time data replication as a service, and data preparation/enrichment as a service.

Oracle supports these popular integration use cases for cloud with its market leading data integration platform. Oracle enables customers to synchronize cloud and on-premises databases in real time, facilitates the loading of on-premises data warehouses with cloud application data, and loads cloud-based analytical environments with timely data from enterprise and cloud applications. Oracle is also launching a cloud-based data preparation service for big data analytics solutions.

Moving to Cloud Without Downtime

Worries about system downtime during migration to cloud environments troubled many of the respondents in the Unisphere study: 47 percent of the organizations moving data to public clouds and 43 percent of organizations moving data to private clouds said they were leery about system reliability and downtime.

Oracle has all their bases covered, with industry-leading technology for synchronizing on premises data and cloud data in real time. Oracle GoldenGate delivers zero downtime consolidation from heterogeneous data sources with minimal risk. It works with Oracle Database Cloud Service as well as Amazon cloud services to deliver zero-downtime migrations, synchronizations, and updates of cloud data stores.

Data Integration for Private Clouds

Data integration and real-time synchronization play a critical role in private and managed cloud environments because legacy systems need to be consolidated to new cloud-based environments, and kept in-sync with other enterprise systems. Similarly, organizations that build private platform as a service (PaaS) environments need to be able to offer data access, transformation, and data quality services. Oracle's data integration platform provides data services for service-oriented architecture and business process management solutions that enable agile application delivery and shared data services for organizations. With real-time bidirectional data replication capabilities Oracle supports highly available private cloud environments that easily meet strict availability SLAs.

Single Technology for Cloud and On Premises

Another theme that came through loud and clear in the Unisphere study can be summed up in a word: standardization. Customers prefer to use one universal set of ETL and data replication tools for all types of data integration projects—for public, private, and on-premises systems. Oracle satisfies these needs with a unified data integration platform that streamlines traditional on-premises integration scenarios as well as connecting with cloud environments. Customers don't need to purchase separate data integration tool to connect their existing apps or data stores with on premises systems. They can standardize on one data integration platform. This type of universal platform is important to 71 percent of private/hybrid cloud users and 65 percent of public cloud users, according to the Unisphere study.

Figure 5: Oracle offers a universal data integration platform for on-premises and cloud deployments.

The Benefits of Seamless Integration

Many companies that have already embarked on the "journey to cloud" report outstanding benefits, including increased business agility (33 percent public, 32 percent private), application interoperability (31 percent public, 32 percent private), lower costs (31 percent for both), and faster movement of data to target applications and systems (30 percent for public cloud, 32 percent for private).

Oracle's proven and comprehensive data integration platform delivers these results, and more, for a growing number of customers around the world. For more information about Oracle's Data Integration portfolio, please visit www.oracle.com/goto/dataintegration.

Hardware and Software, Engineered to Work Together

Oracle is committed to developing practices and products that help protect the environment

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