

Data in the Cloud: The Changing Nature of Managing Data Delivery

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Extendible data integration strategies and capabilities will play an essential role in managing cloud-based data to ensure its ongoing value and relevance. Pivotal to determining if the internal business goals and those of the cloud initiative are complementary and compatible is ascertaining what provisions are made — and will be needed — for integrating and moving cloud-based data to support the information needs of the enterprise.

Key Findings

- The benefits achieved from the rapid speed-to-market of the adoption of cloud services and applications will deplete significantly if the result has an adverse impact on other operational areas and information needs, and if proper consideration is not paid to information governance.
- As cloud-based services become more available and diverse, businesses and consumers using them require extendible data integration strategies and capabilities, to interact and integrate with cloud-based data.
- Data integration technology provided "as a service," as an approach to integrating cloud-based data, is gradually being examined as a way to meet entry-level requirements.

Recommendations

When considering cloud applications, leaders of data management initiatives and information architects must:

- Ascertain the capabilities needed for more seamless ways to access, integrate and deliver data. Anticipate data challenges arising from multiple scenarios involving cloud-to-cloud, on-premises with cloud and multi-enterprises with cloud configurations.
- Develop a clear understanding of the data interdependencies and interoperability required between targeted cloud services and other applications in the broader IT environment. Plan to initiate data migration and integration in case of a cloud application retirement. Assess what sensitive data was in the cloud and who had access to it externally.
- Perform a data integration assessment and plan data delivery capabilities by extending present data integration infrastructure.

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- Seek deployment methods and tools that will combine present and emerging data delivery approaches, to complement your broader data management strategy and initiatives.

The Importance of Data Delivery in the Cloud Services Environment

Software companies and application providers are racing to create and deliver the IT capabilities required by adaptive enterprises. The adaptive enterprise seeks to react to changing events and corporate business environments quickly. Companies' pursuit of the capability offered by technology is no longer limited to internally managed ("homegrown" or purchased) IT infrastructure and applications, as seen in the growing market for cloud services (see "Forecast: Public Cloud Services, Worldwide and Regions, Industry Sectors, 2009-2014"). The adoption of public cloud-based services (see Note 1) is increasing as enterprises seek to — among other things — achieve greater speed-to-market, avoid lengthy application development and heavy reliance on internal support teams, off-load the systems administration burden, access technology capabilities and eliminate many capital costs. This is leading to increased demand for information management capabilities that support data held inside and outside the organization.

Enterprises using cloud services could risk their ability to leverage externally managed data to fulfill information delivery and analytics needs, and to provide the integration of and access to data required by other applications. The benefits achieved in the rapid speed-to-market of the adoption of cloud services and applications will significantly deplete if the result adversely affects other operational areas and information needs. To achieve lasting benefits, and for cloud services and the affected IT environment to remain agile in the long term, organizations must address data-related dependencies — to ensure that the ability to access, integrate and deliver data is essential when adopting cloud-based business applications.

When using cloud services, information-related challenges increase, unless essential capabilities are architected into the cloud initiative. Collaborations are growing among corporate and IT leaders to strategize the way they consider cloud services, and they are attempting to align information-related goals. As experience in using cloud applications develops, users will increasingly want to be assured of sufficient application services to get all the data they need out of the application. However, Gartner inquiries and interactions have often revealed that organizations using cloud services largely treat data delivery planning as an afterthought, so that provisions have not been adequately envisioned for the longer term, including the ability to exploit data. Enterprises' focus on and initiatives to extend data management and integration infrastructure to manage data beyond the firewall remain scarce (see "Data in the Cloud: Best Practices to Proactively Engage the Business in Data Management Planning").

Know the Level of Data Support That the External Party Can Realistically Provide

Concerns about data delivery deficiencies arise in virtual environments when an organization's internal applications need to work in concert with cloud-based applications. The danger that this will affect corporate or service performance will force enterprises to re-evaluate their strategy for data and cloud-based applications. Be upfront in reviewing these data delivery concerns and determine what the cloud application service can and cannot provide. A clear understanding of data use in the enterprise and interdependencies for data access must be established as part of an examination of vendors' cloud-based offerings. Careful review of the impact on data-related opportunities and challenges will help determine what mitigations are needed in each area of dependency. It will also help establish the basis or the business case for adjacent data management projects that will be required in conjunction with the cloud initiative. Anticipate how future functional needs for the application will affect data, and on that basis draw up criteria for

the long-term usefulness of the new service. Ensure that any service updates that might impact the future cost of use are disclosed upfront by the provider. Delivering raw data from cloud applications to client organizations will burden them with the task of assimilating the data for their internal use. Meanwhile, cloud service providers may be unwilling to work on data integration issues if significant effort or customization is required, unless the provider has ready tools or configuration-based capability available in the application.

Plan for Cloud-Related Data Delivery Scenarios

Business initiatives that require effective use of information form the basis for understanding where data dependencies exist between a cloud service and the internal enterprise. The demand for cloud-related data delivery is been driven by a range of business scenarios that could use cloud-based data delivery, including cloud-to-cloud, on-premises with cloud and multi-enterprises with cloud.

Cloud-to-cloud: morphing data from one cloud service to another. General growth in the use of cloud services will lead to increasing business requirements to work with data in the cloud in one or multiple cloud services. Sales management initiatives often require capabilities from multiple application services, and will need to share data — for example, between a demand-planning application (such as Eloqua) and a CRM application (such as salesforce.com). In addition, an enterprise might choose to use data from one cloud service to cross-reference and streamline data with another cloud service. For example, a large list of unqualified opportunities generated from a cloud-based demand planning application forms the input to a CRM cloud service containing a qualified dataset, to ascertain a smaller but qualified target list. Information increases in value when an enterprise needing to harness an external data source (potentially intelligence) is able to sift and identify results from sets of associated data in multiple cloud services.

Action: Plan data delivery in preparation for bulk data movement to and from the cloud, federated/virtualized views of data (such as combining on-premises and cloud-based data for dashboards), and message-oriented movement of event-based data. Establish and enforce processes for ensuring the reuse of cloud-based data.

On-premises with cloud: connecting data in the enterprise and the cloud service. Uses of cloud services support projects that will create data that needs to be stored, organized, cleansed and integrated for broader usage across the enterprise. The enterprise will need to connect what it does and what it learns in the cloud back to internal activities, validations and reuse. For example, when a campaign management service provider reports on consumers' responses to a marketing project, the client enterprise that owns the campaign will want to analyze that data in conjunction with internal information about those consumers. This analysis may lead to the need for a set of the cloud-based data to be maintained in the internal data warehouse. Data integration services would provide a way to connect external and internal sources.

Action: Plan data delivery in preparation for bulk data movement, data replication/synchronization, and message-oriented movement, such as integrating data from the cloud with on-premises data for an occurred transaction. Manage the supportability of comprehensive views of diverse data, with a life cycle management plan to maintain and refresh the data.

Multi-enterprises with cloud: creating value on top of external sources of data. Traditionally, enterprises created value by amassing data from internal and external sources, which is kept and controlled inside the boundaries of the organization for further exploitation. Information provider services offer search services or other mechanisms to provide access to external data or content, where such information could be valued by not only the internal enterprise but the enterprise's

customers and partners as well. Your enterprise could well be required to integrate external data sources (for example, data sources in the cloud such as marketing and financial services) into your business to produce valuable information/insight, where some of it will be delivered to other external parties such as a business partner or your customers. The maturing of Internet technologies makes it easier for enterprises and workers to: use and generate data involving interenterprise transactions; collaborate with business partners, customers and suppliers; and contribute to industry initiatives. These types of activities combine data to create value for enterprises and/or consumers, where data volume is potentially diverse and poses data integration challenges. Industry groups and government agencies can create data exchange platforms where many separate parties involved in a certain domain can pool and share data.

Action: Plan data delivery in preparation for federated view, message-oriented movement and data replication/synchronization. Tap into external data sources, where appropriate for your enterprise, to fill information and knowledge gaps, augmenting new strategies with enriched, proprietary trade information to gain business advantages.

Extend the Enterprise's Data Integration Infrastructure to Manage Cloud-Related Data Delivery

The readiness of information infrastructure is key to fully managing and supporting required operational and analytical data and information across the span of diverse data sources, including cloud application data, information services, platform services and infrastructure in the cloud. Data must be managed to deliver the required resilience, security, accessibility and availability, across all usage areas. It is crucial to review where present data integration tools will be able to support the cloud service's data definitions and standards related to data acquisition requirements and data access supported by the cloud service provider. Scenarios and abilities for data federation, batch data delivery and messaging, replication and synchronization should be reviewed and tested where possible, to understand how comprehensive the provisions for data needs are.

It is not adequate to merely build customized access to external, limited-scope source data on an as-needs basis. It is crucial to address all definitions and standards related to data acquisition from the partner's data services and abilities with data federation, and leverage application integration to ensure that an architected approach is enabled, to provide or bring back strategic or critical information to the internal organization. In ensuring that data will interoperate between the internal and external enterprises, enterprises will need data delivery planning and provisioning to facilitate access and movement of data in the cloud service. Cloud-based strategy and information management goals need to be compatible to ensure that essential components of data delivery support adaptive, extensive and integrative capabilities for cloud service adoption, enhancement and replacement. Corporations that must rely on ad hoc integration of information systems and infrastructure to accommodate changing business demands will be left behind by more agile competitors.

Assess the Applicability of Data Integration Services

Common concerns among data management teams include the lack of internal expertise to work with cloud-based data (such as developing connections to cloud data sources), ensuring reliable data delivery from source to targets, and keeping pace with data-related changes when cloud providers modify applications. Some organizations have turned to using data integration tool capabilities available "as a service," offered by providers via cloud-based or software as a service (SaaS) models (see "Magic Quadrant for Data Integration Tools").

Among enterprises deploying data integration tools in 2010, the delivery model continues to evolve toward more of a services orientation, exploiting alternative delivery models to acquire

capabilities. A recent Gartner survey (see Note 2) shows that data integration delivery approaches vary: 4% were cloud-based and 7% SaaS deployments. While alternative methods of data integration deployment are growing, adoptions are small and early. Leaders of data management and integration initiatives pursuing data integration as a service must understand which use scenario is applicable, and what it means for their businesses, before assessing whether to adopt the service. Based on client interactions, early adopters are primarily in the mid-market and at the departmental level of enterprises, where implementations relate to well-defined physical data movement (for example, the synchronization of selected data between a cloud-based service with on-premises applications, and in cloud-related data sharing).

RECOMMENDED READING

Some documents may not be available as part of your current Gartner subscription.

"Findings: Survey Shows The Changing Nature of Data Integration Demanded 'As a Service'"

"Toolkit: Understanding the Impact of Alternative Delivery Models on Data Management"

"Data In the Cloud: Adaptations of Data Management Technologies and Providers"

"Application Infrastructure for Cloud Computing: A Growing Market, 2010"

Note 1.

Types of Cloud Computing

Cloud computing refers to a style of computing where scalable and elastic IT-enabled capabilities are delivered as a service to customers using Internet technologies. As cloud computing evolves, a growing number of IT providers will emerge to offer public cloud services. However, the requirements of some organizations demand private cloud services. Private cloud computing is a form of cloud computing where service access is limited, or the customer has some control/ownership of the service implementation.

Note 2.

Survey Information

The data cited in this report came from a survey on the adoption and use of data integration tools, which was conducted in the third quarter of 2010 as part of the process to update Gartner's "Magic Quadrant for Data Integration Tools." The Web-based survey included 363 organizations that use software from the technology providers included in the Magic Quadrant. They answered a set of questions about how they use the tools, their level of satisfaction with various aspects of the tools' functionality and their relationships with the technology providers. The organizations represent a mix of industries in countries across North America, Europe and Asia/Pacific.

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