E-Guide

CLOUD DATABASES LESS OF A LEAP, BUT BARRIERS REMAIN

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Cloud Databases
Less of a Leap, but
Barriers Remain

CLOUD DATABASE TECHNOLOGIES and services have proliferated, making deployments much more feasible. There are plenty of pluses to running databases in the cloud—but issues to consider as well.

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By Rick Sherman

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With the growing adoption of cloud-based applications, it's natural that cloud-based databases would follow. Not that long ago, cloud database offerings were very limited—so much so that organizations really didn't have a compelling reason to embrace them, other than for exploratory purposes. But in recent years, the landscape has changed: The number of available products and services has expanded significantly, as have their capabilities, reliability and application support.

Initial cloud offerings often were nothing more than a service provider running a database for an organization in a virtual machine on the provider's network. That shifted the database system off-premises, eliminating the capital costs associated with it and converting the outlay still required to operating expenses—i.e., the service provider's charges for hosting the system. The benefits were purely economic in nature, and the user organization typically still needed to manage the database itself.

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Now there's a large variety of cloud database options for IT managers and data management professionals to consider. Database market leaders Oracle, Microsoft and IBM make their software available for deployment in private clouds or on public cloud services, including their own platforms and the Amazon Web Services cloud. Database as a service offerings from them and other vendors let users set up databases in the cloud without having to install or manage any software. Managed hosting services blend those two approaches: Service providers deploy database instances on their systems for users and manage the environments as well.

Both commercial and open source databases are available for use in the cloud; the choices also include a mix of mainstream SQL-based relational databases and schema-less NoSQL technologies that increasingly are being embraced for use in big data analytics applications. Even data warehouses can be stood up in the cloud, a point embellished by Amazon's announcement of its Redshift data warehousing service in late 2012 and subsequent rollouts of cloud data warehouse technologies by IBM, Microsoft, Snowflake Computing and others.

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CLOUD EQUATION: ADDITION BY SUBTRACTION

The primary business drivers for adopting cloud-based databases are anticipated cost savings, increased flexibility and reduced database administration and systems management requirements. Another common driver is a decision by corporate and IT executives that deploying and managing database technologies in-house isn't strategic to a company's business and can be farmed out to a service provider.

The vendor sales pitch that cloud databases are more cost-effective and less resource-intensive than on-premises products, resulting in a lower total cost of ownership, may well be true. But cloud services and tools do cost money (as they should), so it's incumbent upon IT managers to do a return on investment (ROI) calculation comparing the various options—including sticking with on-premises software.

The deployment flexibility made possible by cloud computing can factor into the ROI equation. With cloud services, organizations can scale their database instances and processing capacity up or down as business requirements dictate, paying for additional technology resources only when they're needed instead of having to worry about buying new hardware and software, installing it in time to meet increased demands and then being saddled with it if those demands dissipate. The diminished admin burden is another potential ROI

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booster: Database configuration, backups, mirroring, uptime and disaster recovery procedures, software updates and other tasks can all be redirected from internal database administrators to cloud service providers, as can systems management workloads.

Of course, there are some issues to take into account as well. Data security, privacy and regulatory compliance concerns needn't be the cloud show-stoppers they often were treated as in the past, but they still need to be addressed before taking the leap and putting databases in the cloud.

RESTRICTED MOVEMENT

Many IT managers remain reluctant to send important business data outside the corporate firewall. In addition, privacy laws and security regulations, particularly in Europe, restrict where data can be kept—a possible complication with cloud services that run on systems distributed across data centers in various locations, including different countries. As the use of cloud databases has increased, so too has the ability of service providers to support the levels of security and privacy needed by almost all enterprises. In fact, cloud services may well be more secure than many corporate networks are—after all, a cloud provider's business reputation rides on having robust security and privacy

protections. But companies looking to take advantage of the cloud need to determine their security and compliance requirements up front and work closely with providers to ensure successful implementations.

Other issues that must be addressed beforehand include integration with on-premises databases and applications and ensuring that sufficient network bandwidth is available to support the data needs of business users. If a company is primarily running cloud-based applications, or is looking to collect big data and other information from external sources, cloud databases are an attractive option and integrating them with existing systems might not be a big hurdle to get over. But if most applications are still on in-house systems, the integration demands could be high—and keeping databases in-house as well might be the more appropriate way to go.

Similarly, if network bandwidth is limited and users need to download significant amounts of data for business intelligence and analytics applications, on-premises databases likely are called for. Database location must be transparent to end users; all they care about is being able to access data when they need it, no matter where it's coming from. Assuming that there is enough bandwidth and the other issues can be dealt with, there's no reason why that place can't be the cloud.

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