The Library Cloud Pros and ConsThe Library Cloud Pros and Cons

By The Digital Shift on March 5, 2012

Also in this article:

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By Edward M. Corrado & Heather Lea Moulaison

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Why the cloud?

There are many uses for cloud-based systems in libraries, from discovery layers to citation management to mobile apps (see "What's in the Cloud?" p. 51), and the future holds even further possibilities. Cloud-based offerings such as the HathiTrust digital repository, discovery layers, and library management systems implemented on top of large, shared, community bibliographic databases have the potential to revolutionize library systems. In a September 2011 Computers in Libraries article (ow.ly/8OAhW), Vanderbilt University director for innovative technology and research Marshall Breeding predicted the upcoming demise of the integrated library system (ILS) and its replacement with a "library services platform" that will be cloud-based and, supposedly, egalitarian. Any size library will be able to implement such cloud solutions, if they can afford them. From a technological and access standpoint, a large portion of what a library does could be done in the cloud, freeing librarians' time for other pursuits. For some libraries this may be a boon, but one size may not fit all. Some libraries will want to make sure they can mitigate any potential downside of the cloud by simultaneously hosting everything locally. Outsourcing mundane operations to the cloud, however, could allow librarians to provide more access to local and unique content.

Cloud pros and cons

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The cloud is also touted for its flexibility and scalability. While most libraries do not have the same high peaks in usage that, say, an online retailer might have during the holidays, they can take advantage of the same flexibility. For instance, if they are implementing new software in the cloud, they can quickly add computing resources if the services become more popular, instead of ordering and installing new servers. Cloud computing's flexibility may also be used for testing upgrades or new services. Instead of purchasing servers for testing, a virtual server can be started in the cloud

and operated only as long as needed.

Cloud computing also allows for new uses of data that may not have been possible before. An article recommender based on data from one library might not be very valuable, but Ex Libris's bX combines usage data from millions of researchers to create a scholarly recommender service. Ex Libris soon plans to offer Hot Articles, a free service employing bX data that shows what articles are trending in a particular subject.

Hosted cloud solutions offer a way to deal with the lack of technical expertise or a small systems staff. The vendor can take care of hardware, operating system upgrades, and software upgrades, for example, and do this at scale with shared hardware. As a result, in many cases cloud computing may be less expensive than traditional computing methods.

For nonlibrary-specific programs such as email, cloud-based solutions like Google's gmail may be available for low or no cost. (Los Angeles Public Library is the largest system currently using gmail as its in-house email service.) That said, cloud computing is not always cheaper when all factors are considered, so libraries should be careful to evaluate all of the costs involved, such as network bandwidth, transition costs, and backup storage costs, when considering a migration to the cloud.

Library vendors that provide cloud-based solutions strive to maintain low downtime. At the 2011 European Library Automation Group (ELAG) conference, representatives from OCLC and Ex Libris stated that they try to have at least 99.5 percent uptime. This may be better than local computing staff would be able to provide. Conversely, after a migration to the cloud, local staff may lose control over when planned downtime occurs and be restricted in what they can do when unplanned downtime takes place. Access to high-speed broadband is becoming more common, but if a library does not have a reliable high-speed Internet connection, it might be a detriment to some cloud computing services.

Many librarians moving data to the cloud are concerned about security and privacy. This is a real issue, and librarians need to do their due diligence before moving data—especially patron data—to the cloud, but most cloud computing providers go to great lengths to ensure security. Iowa State University researcher Qing Hu told the Iowa State News Service (ow.ly/8OzDF) in July 2009 "that internal computer fraud is a more significant issue than external hacking." Libraries in the United States may also have data that falls under Health Insurance Portability and Accountability Act (HIPAA) or Family Rights and Accountability Act (FERPA) privacy regulations, and other countries have similar laws.

In almost all cases, taking the proper precautions can minimize risk. Rackspace Server Backup, for instance, offers robust encryption; numerous other businesses offer Amazon-cloud-based services for medical records, which must conform to strict HIPAA regulation.

Data ownership is an important matter in the library cloud. What rights do the library and the vendor have to cloud-based data? Can the vendor "mine" patron data? If the library chooses to leave a cloud-based service, what data, in what format, will be returned? What happens if a vendor goes out of business or if a library doesn't pay its bills on time? Will the library be cut off from its data? These are important questions to ask before migrating to the cloud, which should be addressed in a service-level agreement (SLA). Concerns about uptime, response time, system speed time, maintenance schedules, and support should also be included. Librarians will likely have an easier time negotiating an SLA with a library vendor than with an Internet giant like Amazon or Google. But even if they cannot negotiate SLA terms with a cloud provider, librarians should make sure they understand the terms, and can live with them, before signing.

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via location tracking, this service is less dynamic but nonetheless useful.

Lastly, backups to the cloud can protect all kinds of library data—from repository contents to blog posts—from loss owing to fire, flood, local power blackouts, or other natural or computer-related disasters that could cause data to disappear. Amazon's Elastic Compute Cloud (EC2) platform is a cloud service in the technologist's sense of the term: it is scalable, metered, dynamic, and completely hosted by the bookselling giant. Libraries with technology staff can use EC2 to implement virtual servers.

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