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COLEMAN INSTITUTE FOR COGNITIVE DISABILITIES

About Cloud Computing

Introductory Roundtable Notes

What is it? Cloud computing refers to people getting computing services by connecting over the Internet to computers operated by other people, rather than by using their own computers. For example, if you use Gmail, your mail is stored "in the cloud" on computers operated by Google, rather than on your own computer. You access your mail by using your Web browser to interact with Google's computers.

An agency that provides services to people with developmental disabilities may use Therap, a cloud-based service, to support a wide variety of administrative tasks, such as billing or managing staff training (see <http://www.therapservices.net/>). Because data and programs needed for these tasks are stored on Therap's computers, the agency needs only computers capable of running a Web browser. The agency does not have worry about backing up data, planning for increases in data storage, updating software when bugs are fixed, or any of many other responsibilities associated with traditional software deployment.

Why is it important? As the Therap example shows, cloud technology makes it much easier to get computing services. Because chores like backup are handled by the service provider, not by all the people and agencies using the service, costs are greatly reduced, and quality is increased, because the service provider can afford to hire well-trained staff to perform these tasks. Because the many of the costs of providing services, for example, developing the necessary software, are independent of how many people use the service, costs can be further reduced as the number of users increases. This happens because the costs are divided up among more and more users, so each pays less and less.

The way Therap offers its services is called Software as a Service, SaaS. The cloud offers additional benefits in another paradigm, Infrastructure as a Service, IaaS. In this paradigm, Therap could choose not to own and operate its own computers and data storage. Rather, they could contract with a provider like Amazon to use Amazon's computers as the infrastructure for the services Therap offers. This would mean that Therap would not need to employ staff to manage these computers, buy new ones when needed, and so on, potentially securing additional cost savings. These savings originate in Amazon's ability to deliver the needed storage and computing power more cheaply by dividing the costs of support among many customers.

Cloud computing brings some challenges as well as advantages. Because organizations don't have physical control of their data, there can be security and privacy concerns (though cloud providers may be able to provide better protections than some organizations can provide for themselves.) There may also be legal issues triggered when information passes out of the direct control of a user.

As the Gmail and Therap examples show, cloud computing is already with us. The changes it has brought may not seem revolutionary, helpful as it is to have reduced cost and increased quality.

But many observers believe that the evolution of the cloud will bring truly transformative change. More and better services will be available more and more cheaply, in more and more places, with more convenience, to more people. Some of the costs that used to be needed simply to offer a service at all can now be used to make the service easier to understand and use, and to present information in more flexible ways, both developments of special importance for people with disabilities. And the cost of all these useful changes will themselves continue to fall.

At last year's Coleman-SF preconference workshop, Bill Coleman looked beyond these changes to project an inflection point, "an exponential increase in quantity and quality of communication and rate of knowledge creation," comparable in impact to the invention of printing. (You can access video and audio recordings of Bill's talk, and his slides, at http://colemaninstitute.org/Conferences/Coleman2010/workshop_agenda_10.php) In Bill's vision, the ecology of information services enabled by the cloud will develop so as to support life as a mixed existence in the physical and virtual worlds, so that "our abilities transcend our disabilities."

How can cloud computing be used to provide improvements in residential services and supports? The aim of the roundtable is to articulate these opportunities. To seed our discussion, we'll have presentations of a few examples. Here are some links that you can explore before the meeting:

Rest Assured real time monitoring service: http://restassuredsystem.com/video_disabilities.cfm, http://www.restassuredsystem.com/services_briefDescription.cfm

VizWiz (<http://www.vizwiz.org/>), created by Jeff Bigham of the University of Rochester, lets blind users send images of their surroundings, with questions, to sighted people who provide answers. Can this approach be adapted to serve people with cognitive disabilities?

Texthelp Web Applications: http://texthelp.com/page.asp?pg_id=10152&id=771, video at <http://www.youtube.com/user/TexthelpSystemsUS?feature=mhee - p/u/6/f3pBJirEK8s>.