Flying to the Cloud: Governments Seek Gains from Cloud Computing

World Bank Toolkit Helps Countries Assess Their Readiness for Emerging Technologies

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The transition to cloud computing broadly means shifting programs and data from personal or office hardware to shared hardware that many individuals and organizations access over the Internet. That migration is happening fast. By 2019, according to the information technology company Cisco, 83% of all global data center traffic will come from cloud services. And the profitability of the cloud services unit of Amazon, the leader in the worldwide cloud computing market, has been growing strongly. Relative to conventional computing, the cloud can offer more efficiency, scalability, and flexible real-time service to employees, customers, and citizens. Cloud computing, a fast-growing business, appeals to governments that want to provide more accessible, secure, and cost-effective public services. However, putting government data in the cloud—that is, on remote, Internet-connected devices owned by another, typically private, organization—poses the question of readiness to handle issues that are inherent in the technology, including security, dependability, and the scope of control that might be exercised by the owner of the cloud hardware and the Internet service provider. The World Bank’s ICT unit (hosted in the Transport and ICT Global Practice), in collaboration with Accenture Consulting, recently developed a toolkit that can assess government readiness for cloud migration. It is now conducting pilot studies to improve and refine the ability of the toolkit to provide recommendations to interested national policy makers and digital leaders.

Moving to the Cloud

The flexibility and power offered by cloud computing is illustrated by the difference between dedicated GPS navigation devices for the automobile and mobile phones delivering maps and directions in real time. The GPS device stores maps, which are updated only when the device is plugged into an Internet device. In contrast, the mobile phone uses a small application to download current maps over the Internet on demand—along with related data, such as traffic congestion, from various other sources—to provide a continuously updated itinerary (see Connections notes #4 and #27, 2015).

More and more governments are looking to move their computing and digital services to a cloud system (platform). When correctly implemented, cloud platforms offer important advantages:

- More flexibility in allocating and managing personnel and computer resources
• Simplified maintenance and easier development of custom applications
• Greater opportunities to share data and applications across government
• Better value for money when compared with the costs and support of in-house alternatives
• More opportunity for governments to build up technical competence

The last point warrants emphasis. Cloud computing has the ability to level the technological playing field and enable countries with limited digital infrastructure to leapfrog countries that have a traditional, less-flexible infrastructure and a large number of legacy applications.

However, while cloud computing can be a great enabler, it does not replace needed strategic initiatives or overcome existing regulatory or procedural bottlenecks. Moreover, the rapidly evolving cloud computing environment and outstanding concerns such as security make it daunting to implement a cloud platform.

Assessing Readiness

The first step in using the World Bank Cloud Readiness Assessment Toolkit is for participants to answer a series of questions that will help them (1) assess a country’s overall readiness to shift activity to the cloud and (2) identify a deployment model the government may wish to use given the current regulatory environment.

The toolkit uses the answers to generate automated recommendations on how the government can better position itself to take advantage of cloud computing. Recommendations for various activity categories are aligned with progressive phases of readiness (“walk,” “run,” “fly”). A matrix format helps give public sector decision makers a sense of how the recommendations in different categories work in parallel to build a cloud platform. Once a government is ready to implement cloud computing, the second step in using the toolkit—the assessment of applications and infrastructure—can generate a roadmap both at both the government level and the application level.

The World Bank selected the Philippines, Serbia, and Zambia to pilot the use of the toolkit. Although on paper these three countries appear to be very different from each other, the final scores resulting from their use of the toolkit showed similarities in their important readiness gaps, which included a large number of paper processes and limited skills capacity.

Refining the Toolkit

Sharing the preliminary findings with the pilot participants led to a refinement of the algorithms that translate the country assessment into automated recommendations.

For the second step—the more detailed application and infrastructure assessment—departments were generally reluctant to share the needed data but saw the value in the assessment; they may incorporate it in future planning initiatives (see Connections notes #14, 2015; and #2016-5).

One message needed emphasis: the toolkit can be used repeatedly to update assessments. Individuals in all three countries were quick to note internal activities that were soon to change, and clarifying that answers to questions could be updated as conditions evolve helped elicit more accurate responses during the interviews.

Some questions drew answers that had more gray areas than expected, and some questions were simply interpreted completely differently from their intended meaning. The review of the toolkit indicated that some queries required additional information or were not self-explanatory and that some completely new questions were needed. For example, the possibility that existing law might require preserving some documents in paper form had to be incorporated into the toolkit; so did the potential impact of an upcoming election.

The World Bank plans to continue refining the toolkit and assessment process through more pilots conducted in varied socioeconomic settings. Thereafter, the toolkit will be posted on a World Bank portal as an open-source document. In that format, it can be used and further modified through a process that will allow public sector organizations to learn from each other and, eventually, fly to the cloud.

For more information on this topic:
Cisco Global Cloud Index Forecast