

Cloud Computing – Emergency Preparedness for Local Government

**Improving data protection and recovery from natural disasters with
cloud computing, SaaS and web-based software**

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Each year about 10 tropical storms develop over the Atlantic Ocean, Caribbean Sea, or Gulf of Mexico and six of these storms become hurricanes. Many such storms remain over the ocean, however, a major hurricane strikes the United States coastline every other year (<http://oem.cob.us/DisasterHurricane.asp>). Hurricane Katrina created serious challenges for Gulf Coast communities that included problems with data recovery and restoring IT services. While well-prepared organizations had backed up their data at remote sites or had the foresight to ensure that local back-ups were completely safe, many IT managers were left with submerged computers and no way to recover lost data and restore service.

Organizations with traditional on-site premise software generally back up data critical to their operations using tapes, DVDs and portable hard drives. In practice, many IT departments store their data on-site and fail to test their data recovery processes to ensure that they can recover quickly from a disaster. Gartner estimates that a single data loss incident can cost a company an average of \$10,000. If a city or county government lost its information services as a result of a natural disaster, its direct IT costs would be minor compared to the economic consequences of delayed recovery.

Cloud Computing as a Secure Alternative

Web-based software, generally described as cloud computing or Software as a Service (SaaS), has three characteristics:

- SaaS applications are accessed over the Internet;
- Data and servers are housed at data centers off-site; and
- Users pay for applications on a subscription basis.

Several layers enable cloud computing to deliver solutions over the Internet: the Application Layer of SaaS applications (e.g. BasicGov, Gmail) and the Platform Layer (e.g. Force.com, Google App Engine) which is the cloud equivalent to an operating system.

A key feature of cloud computing is that users' information is housed in multiple, geographically dispersed data centers that provide extensive backup, data archive and failover capabilities. This includes a multi-level backup strategy of disk-to-disk-to-tape data backups which ensure maximum recovery speed with minimum potential for data loss. Major suppliers of cloud computing infrastructure such as Salesforce.com provide very high levels of service availability through virtualized servers at multiple data centers. Users of

web-based services have both their data and server availability protected in the event of a natural disaster.

Recovering data after a disaster costs typically twice as much as replacing compromised hardware and software. In the case of cloud computing, recovery costs are considerably lower since only local computers used to access the Internet are at risk and user data and cloud servers are protected far from the disaster site. In the case of a disaster striking a cloud computing data center, user data will not be lost since suppliers of cloud infrastructure replicate user data and cloud servers across multiple data centers. If a city that uses cloud computing to manage its community development department had the misfortune to lose all its IT equipment in a hurricane or tornado, it could start the task of rebuilding the next day from any location using laptops and an Internet connection.

On-Premise Software vs. Cloud Computing

IT Solution	Acquisition Cost	Time to Implement	Cost of Upgrades	Customer Training & Support	Data Security & Recovery
On-Premise Software	High: Includes hardware, IT support and infrastructure	Long: months or longer	High: Cost of license upgrades and maintenance	Typically requires extensive on-site training at cost; additional fees for support	Stored on-site; risks associated with sub-standard security practices and natural disasters; high cost to recover data and resume service
Cloud Computing, SaaS, Web-Based Software	Low: Five to ten times less expensive than on-premise	Short: days to weeks	None: Upgrades included with monthly service fees	Simple web-based interface is easy to learn; support included with subscription	Stored off-site with sophisticated backup and rigorous security systems; data protected in disasters; ability to get back up and running quickly with any computer and Internet connection

A common concern about using a cloud computing application is that data will be less secure. In practice, however, entrusting information assets to a recognized cloud computing provider generally increases the safety of those assets since on premise IT security practices are often sub-standard. Given that smaller IT departments struggle to design, fund and maintain secure systems while cloud computing providers deliver IT

infrastructure as their primary business and competence, moving to cloud computing and SaaS will almost certainly increase security for the majority of IT users.

Government Adoption of Cloud Computing

Fortune 500 organizations have been adopting cloud computing for the past several years and more recently government. Leading technologists forecast that within five to 10 years between 80% and 90% of the world's computing and data storage will occur "in the cloud". (<http://www.issues.org/25.4/nelson.html>)

Federally, President Obama's administration is supporting cloud computing. "The cloud computing investment in the 2010 budget reflects the administration's desire to drive down costs, drive innovation across the federal government, and make sure we're making available technologies to the workforce that may be available to them elsewhere," Federal CIO Kundra said in a recent interview.

(<http://www.informationweek.com/news/showArticle.jhtml?articleID=217900204>)

Cloud computing applications cost five to ten times less than on-premise enterprise IT solutions. Today, there are already hundreds of early adopter local governments across North America recognizing the benefits of moving into cloud computing applications for processes such as community development planning and zoning. For example: City of Sonora, CA; Borough of Beaver, PA; City of Sweet Home, OR; Town of Waxhaw, NC; to name a few. These local governments have adopted BasicGov web-based software from CloudBench Applications.

The BasicGov software application is built on Force.com, the cloud computing platform from Salesforce.com used by more than 55,000 organizations worldwide. Like other cloud computing applications, BasicGov software requires only an Internet connection and a browser. Users pay a monthly subscription fee of \$119 per module and no capital investment is required.

BasicGov as Part of an Emergency Preparedness Plan

Local governments that use web-based software are in a better position to manage through the aftermath of a hurricane or other unforeseen disaster. With BasicGov, not only will cities' important data be protected but community development departments can get back up and running immediately from any location with only a computer and Internet

connection. Community development staff will be able to swiftly start working with federal agencies and citizens to start rebuilding their community.

Data entered using BasicGov is housed on the Force.com platform in multiple, geographically dispersed data centers to provide extensive backup, data archive and failover capabilities. This includes a multi-level backup strategy that ensures maximum recovery speed with minimum potential for data loss.

BasicGov's platform, Force.com from Salesforce.com, ensures that data is protected with physical security, data encryption, user authentication, application security and more. Seamless disaster recovery results from fully mirrored, global, data centers. Force.com maintains full-scale backup facilities to deliver consistent performance and reliability even in the event of a regional disaster. The Force.com platform recently invested in three new data centers to ensure the highest availability and service quality.

For more information visit www.basicgov.com