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# Disaster Planning For Local Governments

Cloud computing, SaaS software solutions aid local governments in preparing for data disasters and emergencies caused by tornadoes and hurricanes



### **Author's Note**

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### **Sponsor**

CloudBench Applications, Inc. (TSX VENTURE: CBH) develops, sells and supports BasicGov, affordable web-based software used by cities and local governments to streamline their permits and inspections, code enforcement and planning processes. BasicGov is a reliable, secure solution delivered for an affordable price and the only web-based software for local governments built on Force.com, the cloud computing platform from Salesforce.com used by more than 55,000 organizations worldwide. 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. [www.basicgov.com](http://www.basicgov.com)

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## **Cloud Computing: Helping Municipalities recover From a Disaster**

In the aftermath of Hurricane Katrina, increasing emphasis has been put on the effects disasters can have on local government operations. In particular, these governments are focusing on protection of their important data, which is intricately connected to their revenue capabilities. Although many states now provide financial relief to local governments in the event of a disaster, these are often focused more on physical property instead of more ephemeral data. Also, disaster relief is often tied to measurable financial values, and data's value is not as easy to quantify.

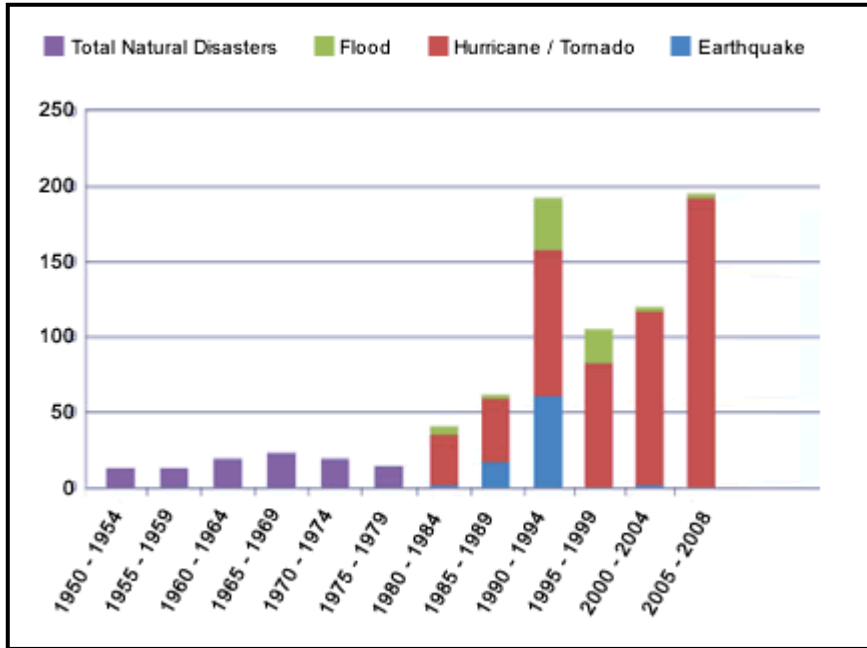
Such functions as taxation and fees, community development planning, zoning, and permitting and code enforcement tend to form the majority of small-municipality operations and their records are often vital to local government operation. These important records can easily be lost in the event of a disaster such as a hurricane or tornado.

Thus, today when records are increasingly computerized, data backup and protection is paramount for local governments. Most recently, a newly emergent solution for this protection that is simple, easy to install, and features lower costs is cloud computing, often known as software as a service (SaaS) or web-based software.

Cloud computing offers superior protection on a payment schedule that is friendly to local governments' often small budgets. Because cloud computing applications often use the subscription or utility payment model, there is no need to pay for expensive backup hardware and software. Also, because costs are spread over months or years, they become part of a local government's operating budget instead of its capital budget, and so avoid the depreciation costs common with capitalized computer equipment.

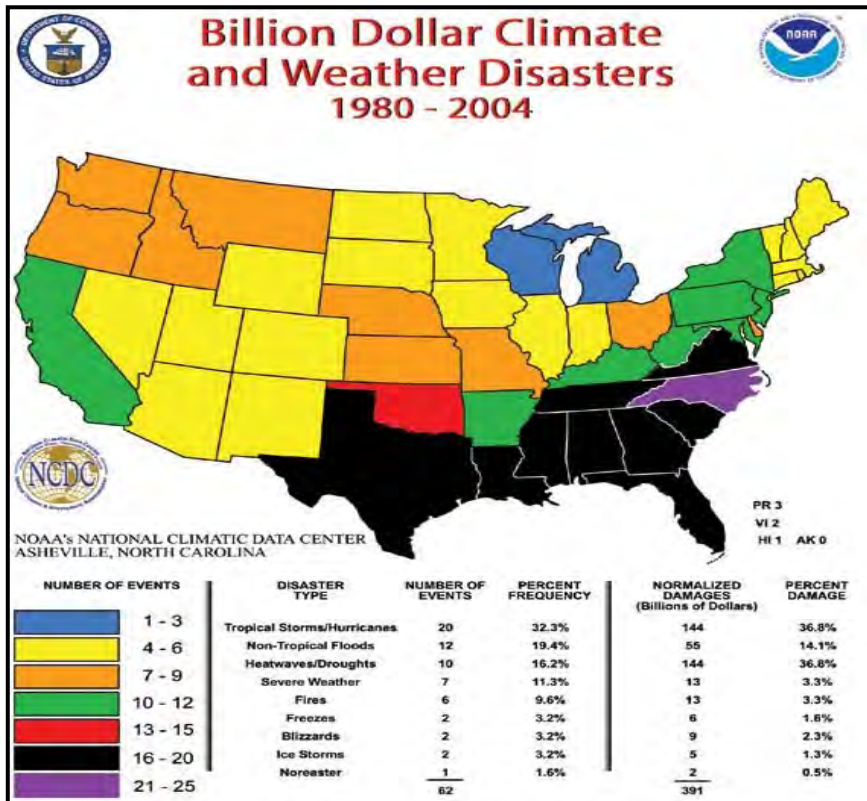
Because of these lower costs and higher data asset protection capabilities, hundreds of local governments across North America are turning to cloud computing applications. For example, municipalities such as Sonora, CA, Beaver, PA, Sweet Home, OR, and Waxhaw, NC have adopted BasicGov web-based software, not only for ease of use and lower costs, but also to ensure continual protection and easy retrieval of their vital data in the event of a natural disaster.

Natural Disasters Are On the Rise

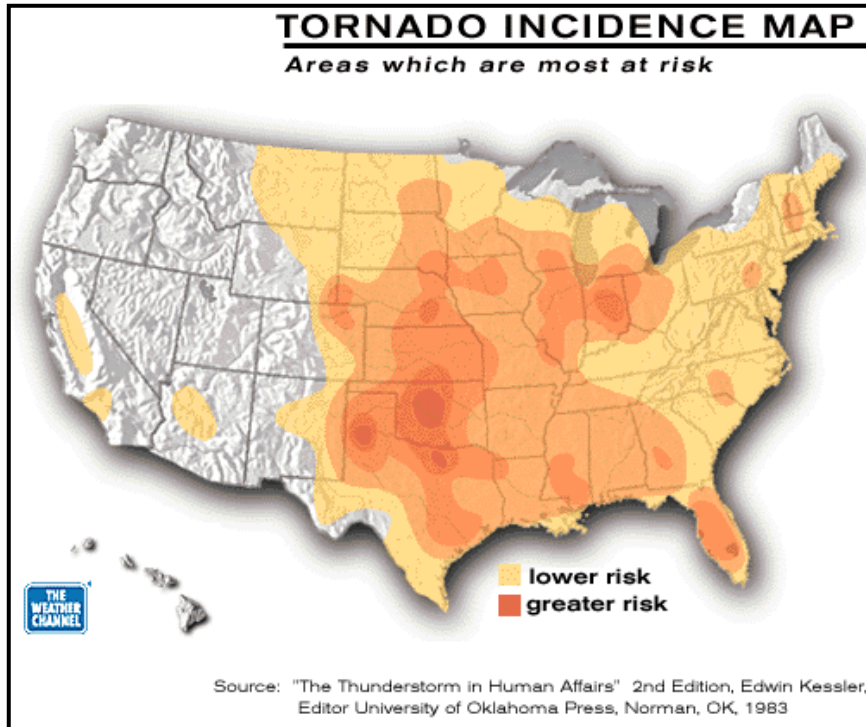


Source: American Geological Institute

Natural disasters include hurricanes, tornadoes, earthquakes, floods and fires, and they happen all over the nation. Hurricanes and tropical storms account for 47.5 percent of total catastrophe losses, followed by tornado losses at 24.5 percent. (Winter storms, terrorism, earthquakes and wind/hail/floods account for the remaining damage).



Hurricanes are among the most devastating and destructive of natural disasters and generally affect communities located near the Atlantic and Gulf Coasts in the southern U.S. About 1,000 tornadoes hit the US every year, primarily in the Midwest, which is commonly called Tornado Alley because of the numerous tornadoes that work their way up from the Southwest to the Great Lakes area in early summer.



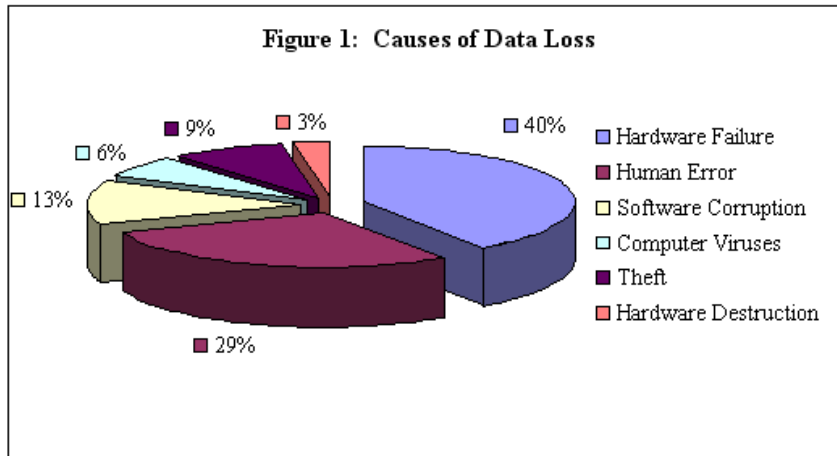
According to the NOAA (National Oceanic and Atmospheric Administration) National Climatic Data Center, the U.S. has sustained 70 weather-related disasters over the past 27 years in which overall damages and costs reached or exceeded \$1 billion. It has suffered through many more with lower damage totals.

No part of the nation is immune to natural disasters but many are more prevalent in certain locations. Before Katrina, hundreds of thousands of businesses from Florida to the Appalachian Mountains went more than a week without power and suffered damage to tens of thousands of buildings as a result of Hurricanes Charley, Frances, Ivan and Jeanne. In August 2009, a tornado touched down on two suburban townships near Toronto, Canada causing damage that amounted to millions of dollars.

What's worse, these natural disasters are on the rise. Some 61 of the weather related disasters on NOAA's list occurred during the 1988-2006 period, with total unadjusted damages/costs exceeding \$430 billion.

## Disaster and Data Loss

Data loss can result from several events in a natural disaster. For example, if a building housing computers containing data is damaged, there can be physical damage to those computers. However, a more common impact on local government data by a tornado, flood, or earthquake results from sudden power outages and surges that can wipe away data.



**Source:** Author's estimates based on data from Safeware, The Insurance Agency, Inc., "2000 Safeware Loss Study," 2001; and ONTRACK Data International, Inc., "Understanding Data Loss," 2003.

**Source:** David M. Smith, Pepperdine University

Since data usually forms the core of local government operations, the blood that allows the organizational body to function, catastrophic data loss can devastate a local government, just as it can bring a business to its knees.

As an example, in 1994, what was eventually called the Northridge Earthquake ripped through the San Fernando Valley near Los Angeles. The Northridge quake proved to be the most costly earthquake in United States history, damaging up to 1,000 buildings and knocking out power and water service for tens of thousands of people. The quake cut power to most municipalities in the region that were not only served by large power and water companies, but also by smaller municipalities like Glendale and Burbank that provided their own power and water services.

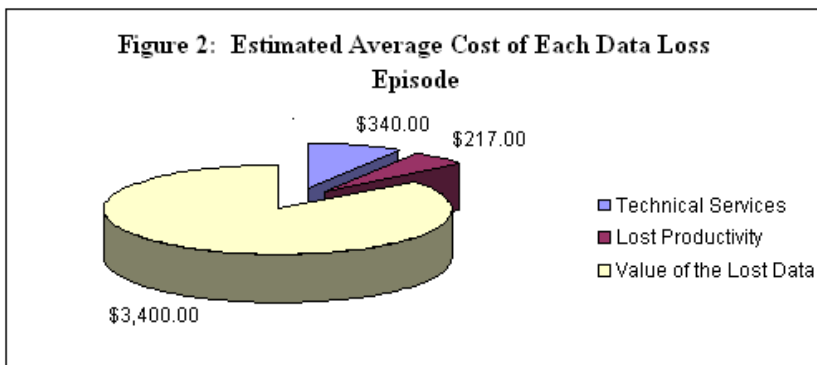
While municipal records at the time were primarily paper-based and were thus relatively unaffected, it is a simple equation to determine the devastating effects that could have occurred if the local governments' record keeping was largely digital as it is today. One way to make this determination is to view the results of the Northridge quake on businesses that were operating in the region.

For example, Robert "Bob" Lorsch, who operated a public relations company in a high-rise building in the region, saw his business wiped out in an instant. Every piece of information his company had amassed was on computers in his office and were not backed up offsite. The data on receivables, payment regimes, works in progress, and the knowledge gained from past

projects was all gone. This was all essential information he needed to continue. What hadn't been destroyed was inaccessible for weeks because the building was declared structurally unsafe.

Although it can be imagined what would happen if a municipal government lost all its records in a disaster and was unable to rebuild its revenue and expenditure capabilities, no study exists on the cost to municipalities stemming from data loss. But an understanding of its potential can be determined by comparison with the effect on private businesses, which are often used as organizational surrogates for municipal operations in terms of budgeting. According to David M. Smith, PhD, of Pepperdine University's Graziadio School of Business and Management (<http://gbr.pepperdine.edu/033/dataloss.html>), this loss is substantial.

From his research, Smith "conservatively" estimates that data loss by U.S. businesses results in an annual accumulated financial loss of \$18.2 billion. This figure was attained by averaging data loss costs, which include technical services, lost productivity, and the value of lost data across the annual 4.6 million episodes of "severe" data loss. Costs of data loss incidents ranged widely, however: In some cases they were only a few hundred dollars, while for some businesses, they cost hundreds of thousands of dollars.



**Source:** <sup>1</sup> David M. Smith - based on data from Denise Deveau, "Lost all your data? Time to Call the Experts," *The Globe and Mail*, February 25, 2000; Bureau of Labor Statistics, *Employer Costs for Employee Compensation*, March 2003; and Bureau of Labor Statistics *Occupational Employment Statistics Survey*, 2001.

## Preparing For a Data Loss Catastrophe

In the 1990s, following a series of disasters, the world's insurers encouraged businesses and governments to install "continuity planning" – a process to prepare an organization to continue operations after a disaster, whether manmade or natural. These plans guide businesses' and governments' reactions to situations and create provisions for the necessary emergency responses and recoveries.

Encouraged by FEMA, the Federal Emergency Management Association, many governments have been busy drawing up government continuity plans at all levels. But this planning can be problematical for chronically under-resourced local governments. For smaller organizations and local governments, this can involve large expenditures for data backup and loss prevention. Small organizations typically employ one of two solutions: They purchase the hardware and software required to install backup systems themselves, most often off site; or they contract with a data centre for these services.

In the first case, added IT management costs can climb quickly, and so, in practice, many smaller organizations hand the task over to their regular IT management teams. Because these teams are often overtaxed, backup and recovery planning and tactics can be haphazard. For example, many IT departments fail to routinely test their data recovery processes to ensure that they will perform optimally in the event of a data loss episode.

Also, outsourced data backup and recovery services are often located in the same region as the source point, and so, in a disaster, can suffer from the same problems as the originator of the data. Further, since data backup is usually priced according to use, costs for extra-region services can climb exponentially for organizations such as local government that manage large masses of data.

However, a third option has emerged in recent years for local governments that want to prepare for emergencies that may compromise their data management capabilities. Web-based software, generally described as cloud computing or Software-as-a-Service (SaaS), presents a cost-effective and secure method of data storage for smaller and cash-strapped organizations.

SaaS and cloud computing applications are accessed over the Internet and usually employ a subscription model, so cost far less than traditional backup solutions. Typically, acquisition costs are five to ten times lower than on-premise backup.

With cloud computing, smaller municipalities can plan for emergencies to which they may be exposed. In his paper, *Budgeting for Disaster*, James F. Smith points out that broad essential disaster preparation tasks include, planning, preparedness, mitigation, response, recovery, remediation and reconstruction. These also apply to municipalities' information technology systems.

One example of this kind of planning involved a small municipality on the Gulf Coast that was in the path of Hurricane Katrina. The municipality had undergone a previous computer malfunction and had learned the value of redundancy. The county's emergency management director, who was a strong component of continuity, insisted that every municipal computer system be backed up and the backup stored in a safe location offsite. Also, in a case of double redundancy, original copies of all inspections, incident logs and other records were filed with another separate

department. The municipality escaped the worst ravages of the hurricane, but was well aware that even if it had been submerged as had neighboring counties, it would still have been in relatively good shape. “We may have lost our hardware, but we wouldn’t have lost everything,” the county’s emergency preparedness officer reported.

For a smaller municipality struggling with few resources, cloud computing can facilitate this IT disaster planning and provide these kinds of data redundancies at a lower cost and without impacting resources. Signing on with a cloud computing operation such as BasicGov and using its distributed backup systems is a simple method that addresses the need to design complex plans and also addresses other government continuity tasks such as preparedness, mitigation, recovery, and reconstruction.

### **Cloud Computing as Disaster Protection**

In cloud computing, data is housed off-site on multiple servers that are co-located in several geographically dispersed locations. Therefore, web-based software provides extensive protection and ease of data recovery. This is a key consideration for any organization that wants to ensure its data will not be compromised in a disaster scenario.

The mirrored data centers provide extensive backup, data archiving 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’s Force platform 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. If a municipality that uses cloud computing to manage a department has its computer system compromised by a disaster such as a tornado or flood, it can begin the rebuilding process by relocating instantly to a nearby uncompromised region and using laptops and an Internet connection.

### **BasicGov: An Elementary Part of Disaster Readiness**

BasicGov, located in Vancouver, Canada, near Seattle WA, provides web-based software for cost-conscious municipalities and local governments. BasicGov software applications ease and enhance common municipal tasks such as planning, code enforcement, and management of permits and inspections – processes that are critical to the functioning of a municipality.

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’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 or localized disaster.

For further information visit [www.basicgov.com](http://www.basicgov.com)

## Conclusion

Disasters happen. No matter what the organization, it could be affected by some kind of disaster, whether man-made or natural such as a tornado, earthquake, flood, fire or a hurricane like Katrina.

No one can accurately predict the date, time and location of a natural or unnatural disaster. So, being prepared for such events makes good sense on many levels. This preparation involves the creation of a sound data recovery plan that will allow a municipality to function in the wake of a disaster.

The best data protection plan focuses on backing up data off-site at mirrored sites in multiple locations that are easily accessed via the Internet after a disaster hits. The most cost-effective way to implement this plan is through cloud computing, which features lower-cost subscription-based software applications that reside on the Web.

Not only does cloud computing lower traditional IT costs, it ensures data protection through multiple and secure servers that are dispersed throughout many regions. Local governments that use web-based software are thus in a better position to manage through the aftermath of a tornado, earthquake, flood, fire or other unforeseen disaster.

BasicGov combines ease of software use with critical data protection that will allow municipalities' community development departments to bounce back from disaster immediately and from any location and Internet connection.

If disaster strikes, community development staffs that are using web-based software will be able to swiftly start working with federal and state agencies to start rebuilding their community.