Independent Telephone Companies Find Revenue in the Cloud, Reduce "Sunny Day" Outage Exposure

Their Secret? Emergency Communications as a Service (ECaaS)

By: Philip N. Diehl and Leo A. Wrobel

It has been characterized as *"The most complicated machine ever constructed by human beings."*[1] As such, our public telephone system is constantly vulnerable to disruption. For emergency services, loss of communications often means loss of life. For most businesses today, when communications stops, so does the cash register. This is why today's organizations demand a level of sophistication and network resiliency in use only by the military just a generation ago.

Commercial and government organizations today have made significant investments in Information Technology (IT) and telecommunications (telecom) to increase productivity. *Frost and Sullivan* characterize IT and *telecom* as the two broad segments constituting a multi billion dollar disaster recovery market.[2] This is because in today's cloud computing environments, the two are inseparable.

Today, it is not only the Fortune 1000 that is a primary market for cloud services. Instead, Small to Medium Businesses (SMBs) are rapidly becoming the "go-to" group for IT and telecom expenditures. This is a lucky break for Independent Telephone Companies (ITCOs) for a number of reasons. The first reason is that sixty-nine percent of SMBs already use cloud-based applications to expand their IT investments. Examples include services like data hosting, data backup, Go-to-Meeting and WebEx, and hosted PBX. The cloud has leveled the playing field between SMBs and enterprise companies. Services available only to the Fortune 1000 a few years ago are now available to everyone. The second reason this is beneficial to ITCOs is that they really need it NOW. ITCOs must find and develop new sources of revenue quickly or they just *may not make it financially* in the next few years. The facts as they stand are sobering:

- Between 2009 and 2013, ITCOs lost 43 million landlines and VoIP subscriptions, equating to 37% of their local business. By the end of 2015 the loss will total half of their subscriber base.
- Historically, half of all revenue collected by ITCOs has been in the form of "access" charges paid by other carriers for use of ITCO networks. This revenue has plummeted by two-thirds.
- For decades, high-cost ITCOs have drawn support from the FCC Universal Service Fund. The FCC's decision to scale back this fund will cost ITCOs $5 billion by the end of the decade.
- The U.S. Department of Agriculture and commercial banks have a long history of lending to rural ITCOs. In light of these revenue losses, however, both have sharply reduced loan activity over the past five years. This has cut off access to capital for many ITCOs.

Since 1934, Universal Telephone Service has been the bedrock principle driving telecommunications policy in the United States. Now, after thirty years of deregulation and intensifying competition, the prevailing trends stand to upend Universal Service and relegate 80 million Americans to living in technological backwaters. Fortunately, solutions exist "in the cloud" that can stop the bleeding for many ITCOs. Emergency Communications as a Service (ECaaS) is one of them. Here is why.

- Industry experts forecast that the global Disaster Recovery-as-a-Service (DRaaS) market will grow at a Compound Annual Growth Rate (CAGR) of 55% percent over the period 2013-2018.
- A new and important subset of this market will be ECaaS.
- Landline and long distance attrition means ITCOs have spare capacity that can be re-deployed for ECaaS with little capital outlay. This capacity often bypasses major urban areas and network choke points that can be natural targets for terrorism.

1. J R Piece and AM Noll. 1990. Signals: The Science of Telecommunications.
2. White Paper by Frost & Sullivan entitled "Satellite-Based Business Continuity and Recovery

- ECaaS is a service that a rural ITCO can deploy both inside and outside its service area.
- Telecommunications and information technology are inseparable in "the cloud" One does not work without the other.
- Finally, ECaaS protects ITCOs from fines for "Sunny Day" outages affecting emergency services. This can save ITCOs from stiff fines being levied by the Federal Communications Commission.

How ECaaS Solves ITCO Revenue Woes

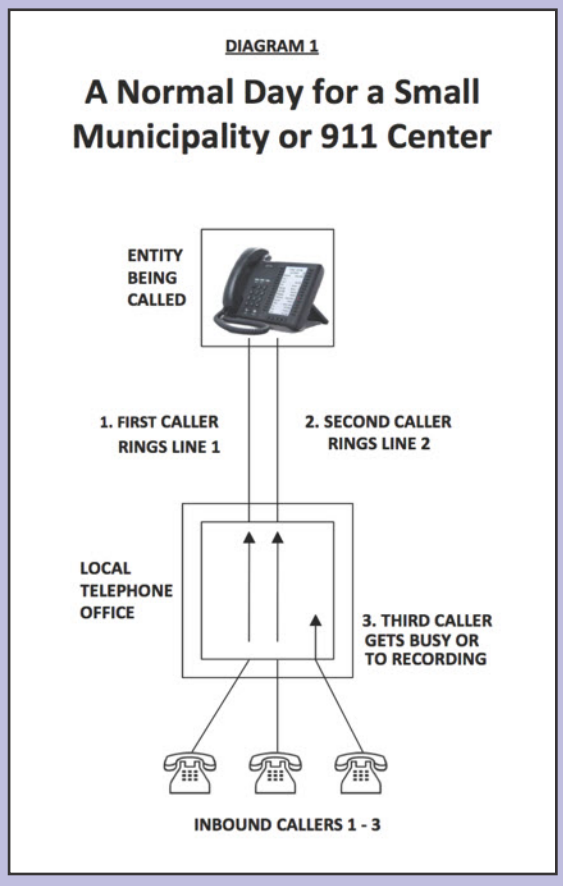
Unlike major carriers like AT&T and Verizon, new revenue opportunities for ITCOs are harder to find. "Triple Plays" that combine Phone, Internet and Cable TV are dominated by much larger companies than the typical ITCO. The key for the ITCOs will be to leverage the infrastructure they already have while they transition to the cloud.

Consider Dallas-based FailSafe Communications Inc. (FailSafe). FailSafe provides a cloud-based service that allows ITCOs to re-purpose under-utilized telecom assets to serve ECaaS customers. The patented FailSafe system is re-branded and sold by ITCOs to police, fire, 911, hospitals, call centers, banks, and others, both inside and outside their franchised service areas.

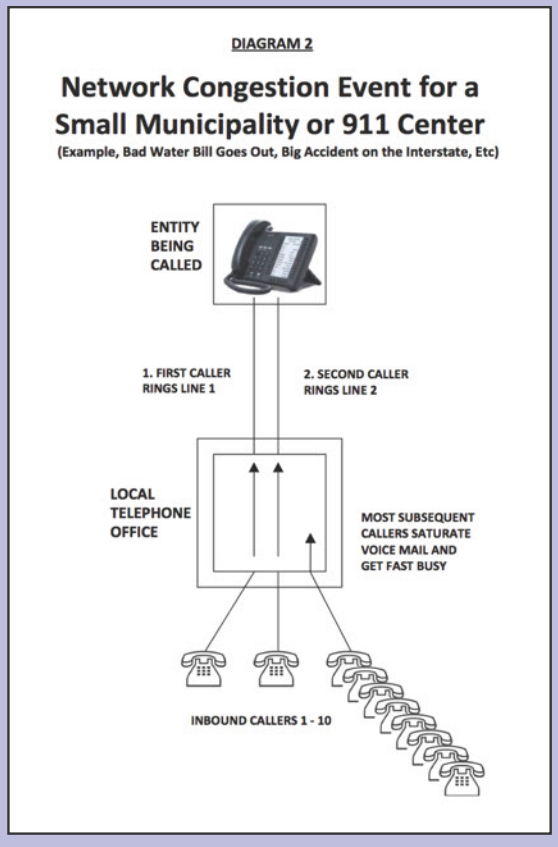
The FailSafe system duplicates the features of a high-end phone system in the cloud to restore inbound calls and to maintain command and control. It can replicate advanced PBX and call routing features. It can turn wired PBX phones into wireless or satellite phones. It operates without changing inbound numbers. There is no need for the end user to call the ITCO because they manage the system themselves. The system presently serves hundreds of banks, credit unions, hospitals, 911 centers and others but is only now being deployed to ITCOs to white label and resell to their customers.

In addition to a monthly service fee, the ITCO benefits from new CABS (Carrier Access Billing System) as well as a noteworthy bump in long distance. The FailSafe system also helps landline retention. Since SMB customers are often too small for dedicated T1 but too large to use only cell phones, this makes them perfect landline customers. Oh, and by the way, Federal and State Universal Service Fund (USF) subsidies for ITCOs are still largely tied to landlines so they increase too.

It is not necessary for the end user to have an actual disaster for the ITCO to make money. Network Congestion Events are far more prevalent than disasters. Each time circumstances cause an end user to overflow their phone lines, the ITCO earns revenue for carrying those calls as illustrated in the facing column:



Businesses install lines for inbound calls based on the typical number of calls expected on a given day, but sometimes the number of inbound calls exceeds the number of available lines.



Inbound callers can greatly exceed the number of available lines. This happens millions of times daily for reasons as dramatic as an earthquake, as common as a telephone cable cut, or as mundane as a radio station contest. In the diagram above, a municipality has sent out a bad water bill to the whole town, causing a spike in calls as hordes of people call in to complain. This is Network Congestion.

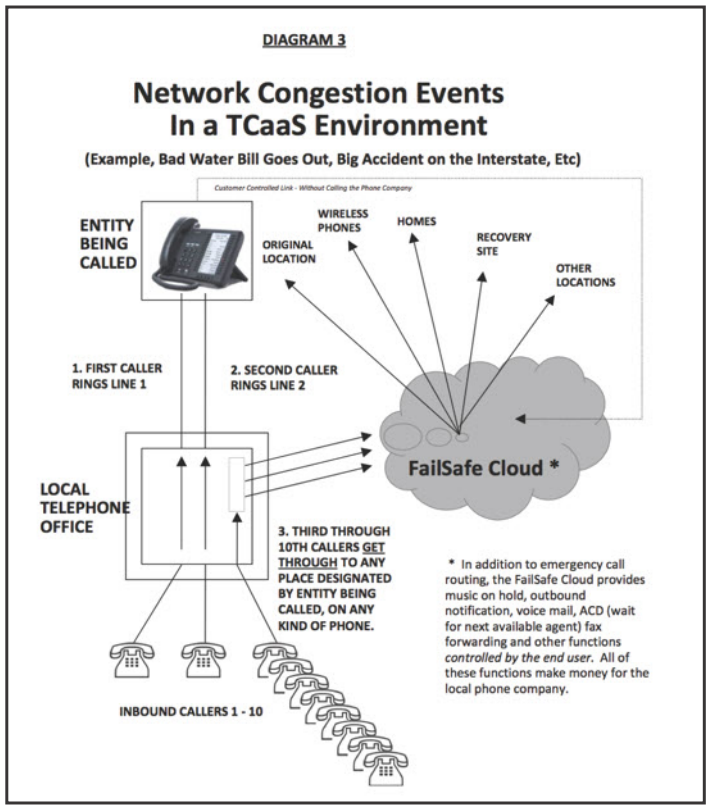


Diagram 3 illustrates how FailSafe addresses Network Congestion by diverting calls through the cloud. For example, recording can be set up almost instantly: "If you are calling about your water bill, press 1 for recorded instructions, otherwise press 0." In more serious disasters, the end user can redirect calls to wireless or satellite phones, disaster recovery sites, or the even homes of employees. Each time the customer uses the system, the ITCO earns revenue.

Potential Customers for ECaaS

ITCOs can tap multiple markets for ECaaS. The following types of end users all have different needs and responsibilities. The common theme between each of them, however, is an almost ever-present need for emergency communications.

1. ***Executives in Charge.*** In a world of near-instantaneous communications, problems go "viral" in minutes via social media. News helicopters arrive on scene before the hapless organization even knows what happened. Executives and Incident Commanders demand the capability to communicate instantly with key first responders, and stay in control of any emergency.
2. ***Business and Commerce.*** Major telecommunications accidents occur 80 times a day in the United States. For businesses including call centers, airlines, banks, and retailers, when the phones stop, so does the cash register. Business customers would embrace a system that assures businesses that inbound callers will get through to them, no matter what happens.
3. ***Hospitals and Health Care.*** A large Regional Medical Center in California is one of the first hospitals to use satellite service to assure emergency calls get through in a disaster. According to one EMS specialist, "We have numerous redundancies in place, but nothing that's going to be as instantaneous as this satellite backup that will automatically take over for our phone system." ITCOs have roof space for satellite dishes, allowing them to extend their footprint nationwide for ECaaS.
4. ***911 Centers and Emergency Responders.*** 911 outages occur almost daily in the U.S. due to power failures, cable cuts, or antiquated infrastructures. Prior to implementing a ECaaS system, one Pennsylvania 911 center experienced two major outages. They are not alone. 7,665 other 911 centers share the same risks that cause 911 calls to fail to reach emergency services. These systems have taken on even more criticality over the past year – financially. Regulators have been dolling out stiff fines for outages affecting emergency services as described below.

The Issue of "Sunny Day Outage" Liability

In the last 12 months the FCC has levied fines totaling some $35 Million for "Sunny Day Outages." One example is a series of outages last year that prevented T-Mobile customers from reaching 911 on August 8, 2014. The outages that day lasted for about three hours, and blocked nearly 27,400 calls per hour to 911. As a result, on July 17, 2015 the Federal Communications Commission's Enforcement Bureau levied a $17.5 million fine (settlement) against T-Mobile. [3]

In the FCC's official statement, the following comments are expressed:

"The Commission has no higher priority than ensuring the reliability and resilience of our nation's communications networks so that consumers can reach public safety in their time of need. Communications providers that do not take necessary steps to ensure that Americans can call 911 will be held to account."

- FCC Chairman Tom Wheeler

A ECaaS system can help protect an ITCO against liability for these Sunny Day Outages:

"The availability of an affordable service that can turn two "911" trunks into 100 in time of need should have a significant bearing on an ITCO's liability. It seems to me that the ITCO would be in a more defensible position if a customer weighs a modest monthly fee from their phone company against the risk, but still says "no."

- Eddie M. Pope, former Chief of Staff to the Chairman, Texas P.U.C.

3. Source: Federal Communications Commission. (FCC) The FCC has fined phone companies nearly $35 million in the past 12 months for this issue. See also: CenturyLink Intrado, and Verizon

Summary and Conclusions

- ITCOs are ideally suited to provide ECaaS. Not only can their existing infrastructures be put back to work generating new revenue, but many ITCOs have an additional advantage as well. With a largely rural footprint, they often bypass major metropolitan areas and network choke points that could be natural targets for terrorism.
- Any unexpected event can generate an intense human need for communication to coordinate a response and convey information about affected groups and individuals. A user does not have to experience a disaster for an ITCO to make money.
- VoIP is not the answer. SIP trunks do not always grant users immunity to the problem of network congestion. Quite the contrary, VoIP networks are increasingly subject to attacks based on creating congestion. Such "distributed denial of service" (DDOS) attacks, combined with a physical strike are widely hypothesized as a future tactic of terrorist organizations. Undiscovered bottlenecks of all kinds also exist in the Internet that only become apparent under crisis conditions.
- Despite their importance, thousands of "911" centers in the U.S. often have only two call paths to connect in bound callers to the help they need. When a large accident occurs on the Interstate and ten people call 911 at once, eight out of ten receive a fast busy signal. That should never happen considering the technology available today.

ECaaS provides a profitable new service to ITCOs and a solution to many of these issues. ECaaS has the potential to generate new revenue for ITCOs in a way that is familiar to them and straightforward to implement. ECaaS also provides a cost-effective stepping stone into the cloud, and to future services that go beyond basic telephony. Finally, ECaaS provides protection from fines and peace of mind in terms of Sunny Day Outage liability.

For more details from the authors, you may contact them directly at (214) 888-1300 or by email at info@fs-comm.com. Thanks for reading.

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