

DISASTER PREPAREDNESS AND SERVICE USING COMMUNICATION TECHNOLOGY

2005 COMPUTERWORLD HONORS CASE STUDY

GOVERNMENT & NON-PROFIT ORGANIZATIONS

VOICE OVER INTERNET PROTOCOL TECHNOLOGIES ENABLE A MAJOR FIRE, RESCUE, AND DISASTER-RESPONSE ORGANIZATION TO BENEFIT FROM THE RICH FEATURE SET OF A BEST-OF-BREED PBX, AVAILABLE IN ANY LOCATION WITHIN ITS SERVICE AREA AS WELL AS IN A DISASTER RECOVERY SCENARIO ON ANOTHER CONTINENT ENTIRELY. [20055426]



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SUMMARY

The use of Voice over Internet Protocol (VoIP) technologies has allowed the rich feature set of a best of breed PBX to be made available in any location within our service area as well as in a disaster recovery scenario on another continent.

APPLICATION

In 1999 Miami-Dade Fire Rescue (MDFR) was completing its construction of a new headquarters facility. As part of this project a new Lucent telephone switch was purchased and installed. MDFR believed that the operation of that switch could be performed by a single employee versus the two and a half employees that the County's Telecom Department felt necessary. In part MDFR based this belief on the fact that the Lucent technology they were buying was much more user friendly and modern than the classic PBX's (large capacity phone switches – "Private Branch Exchanges") that the County was then utilizing.

After much discussion and analysis the County approved this implementation on a 'trial' basis, still not believing that it would succeed under the management of a department with no previous large PBX experience.

It did succeed. In fact the County's audit department who was engaged to assure that MDFR did all the things in accordance with its assumptions in the original analysis, stated that the success was so great that other major departments within the County should look at a similar implementation if the need arose for a new switch or facility.

Building on this success, MDFR in 2001 began to utilize the initial VoIP offerings of Lucent in an effort to support telephony at some of the Department's remote locations.

Although the implementation was cumbersome by today's standards, it worked flawlessly with little or no after installation support required. For the first time, all 500+ features of the PBX were now available at a remote location for a cost savings over what had previously been there.

The real driving force of VoIP was its potential to save money as the data network was used to carry voice traffic, i.e. the networks were 'converged'. For MDFR this actually worked. The data circuit to this remote location, a T1 provided by the local carrier, was now carrying all the voice traffic for that location. The previously 11 single phone lines could now be disconnected for a substantial savings. As an added benefit, Long Distance service could now be provided from HQ at much less cost than the service that was available on the 11 single phone lines. In addition the sophisticated call monitoring and accounting systems inherent with a state of the art PBX were now extended to all the calls made at that remote location.

MDFR calculated that pay back for the investment at this first remote location was about 2 years, just based on the avoided cost of the phone lines. Another installation was planned and implemented shortly thereafter.

At about this time the events of 9-11 stopped any progress on this VoIP implementation as resources, both human and financial, were redirected to confront the issues that became so important that morning.

By the time MDFR was ready to get back to its VoIP initiatives, meanwhile Lucent had become AVAYA. And AVAYA was now offering an upgrade to its newest line of 'server based' PBXs. A server based PBX uses "IP" as its native tongue so to speak. Now many more 'network' like features become available.

Based on these offerings, MDFR was able to financially justify upgrading their PBX to this new S8700 Server

based system. With it a plan developed to convert all 60 of MDRF's Fire Stations to VoIP based telephony. The cost savings still were significant.

With this new server based system working well, MDRF was able to host the County's Elections department as they moved to a new building. Co-located with Elections is the County's new 311 call center with about 100 agents. It also became a user of the S8700 system. Of note is during the 2004 General Election on November 2 over 80,000 calls were handled by the call center in support of that election. The server based system didn't even break a sweat (main processor running less than 15% capacity during the peak hour!)

One of the other missions at which MDRF has excelled in the past is its support of search and rescue activities after natural or manmade disasters. This disaster assistance has not only included the World Trade Center, the Oklahoma federal building bombing, but also the earth quakes in Turkey and floods in Mozambique, etc. So what couldn't the VoIP technology be applied to this as well.

With AVAYA's help it apparently can be done. Though their contact with USAID, FEMA and other such agencies the MDRF Tactical Communications Bureau ("T-Comm") was able to secure a commitment for a satellite based T1 sized circuit that would be available anywhere in the world. Avaya has designed a mobile 'switch in a shipping trunk' that can be deployed with the Search and Rescue team to one of these locations, as well as the interface equipment that needs to be added to the MDRF switch. The next time this team is deployed to one of these disasters, be it in the US or anywhere else in the world, the features and power of this system will go with them. To state it simply, at that command post in a distant land, one of MDRF's professionals can pick up the phone, dial the familiar number for the MDRF Supply Bureau and order much needed supplies and materials. Or retrieve voice mail, or call home and tell the family you are just fine.

BENEFITS

MDRF's implementation of VoIP technology has directly and indirectly benefited the citizens of Miami-Dade County. It has significantly facilitated the members of its Fire Rescue Service, Elections Department and 311 Contact Center in the the performance of their day to day jobs.

As the 311 Center grows, almost every citizen will have the opportunity to speak to one of its agents. Using the VoIP technology the County can efficiently utilize its employees to handle these calls in the most professional way, regardless of where the employees happens to sit, even if that employee is at home due to illness or some sort of natural disaster (remember, Florida DOES have the occasional hurricane...). During the recent General Election, each voter that needed to call in for whatever reason was able to reach an agent with little or no waiting as VoIP let the County maximize the resource it could dedicate to those calls that day without specifically setting up and paying for services that would be have been needed for such a day in a stand alone environment.

The employees of the Fire Rescue service now have a unified number plan, where any station can be called from another station by dialing 79 followed by the station number. 7941 gets station 41, 7902 gets Station 2, and so on. This is a great advantage as many of them are moved around daily and have valid needs to call other stations for assignments. Miami-Dade County is so large geographically; it's a 'long distance' call to call from many places in the County from many locations. This is no longer an issue to the Firefighter as he makes his daily call home (they are on 24 hour shifts) as VoIP has given them centralized calling with no toll charges, so no forms for them to fill out, none for their supervision to approve and no small checks for accounting to process... everyone is happy!

As this VoIP system the County can much more efficiently utilize its facility and human resources as world class telephony can be made available to them anywhere, even in their home offices if that is the best solution.

As our Task Force deploys for its next mission, they can go with the assurance that no longer will they have to wait for time on the limited satellite phones, but instead the T-Comm organization can set up a fully functional command center in a few hours.

IMPORTANCE

Without informational technology the benefits described herein would have been virtually impossible. The convergence of telephony and network data has allowed much improved management and deployment of telephone in locations not previously economically attractive for state of the art telephony.

The use and deployment of VoIP now allows organizations to have one less constraint on how they do their

business, the telephony can now be as robust as they need and be changed easily.

Many organizations that got their start in the 'brick and mortar' days are somewhat cautious of new applications of technology such as VoIP. MDRF has shown the way in Miami-Dade County with its initial and continuing implementation of this technology. While VoIP is not in itself 'new technology' its ability to extend state of the art telephony functions to remote locations give them access to new technology to apply to their business processes.

As an example, during a recent election the Elections department needed to track the status of some 500+ voting locations as to when they opened the morning of an Election. Without a staffed call center this is difficult to do in the short time between 6:00 AM and the official opening time of 7:00 am. Using MDRF's VoIP based system, 5 voice mail boxes were established, call control software was written to randomize the incoming calls to those 5 mail boxes. A message was recorded that instructed the caller from the voting place as to what to say when they got to the voice mail system about their status. Finally those voice mail boxes were set up to deliver the voice messages automatically to 5 mail boxes in Outlook (the County's email program). 5 agents would get those email messages, click on one of them, hear the status as reported by the Election worker and update a master spreadsheet, then click on the next one. They weren't even near the phone! It went quickly, smoothly and utilized minimum resources in the call center for the 'non-problem' voting locations. Those locations that had a problem would push "0" and get an agent to help them instead of leaving the message that all was well. The overall election went much better because of the availability and implementation of this technology.

ORIGINALITY

Miami-Dade County's Telecom department had experimented with VoIP during this time, but only within a structure on the LAN not within the County on the WAN. Even that limited experimentation was not completely successful.

The exceptional part of this project was the intellectual courage to attempt this across the WAN, while not being thought of as even able to manage the basic phone system.

This was the first, and is still the most extensive implementation of this converged technology in Miami-Dade County government.

With the success of this project now history, the County in general is moving towards similar implementations for other services.

SUCCESS

The MDRF VoIP project has more than achieved its initial goal of offering state of the art telephony to our 60 stations while achieving budgetary savings. Although all ~60 fire stations are not yet fully implemented, the project is moving forward as manpower permits. The addition of the entire Elections Department and the County's new 311 center to this system were never envisioned initially.

The substantial benefits to the Elections department have already been discussed herein.

The 311 call center can normally work in its new facility until the advent of a hurricane or other manmade or natural disaster. Using the flexibility of VoIP, the center can within a few minutes relocate to the MDRF HQ building and continue to function, with no loss in functionality.

Almost weekly MDRF gets a call from some other organization within the County or the US in general asking about our experiences with VoIP as implemented by AVAYA. It would seem the presence and continuance of such calls are the single best indicator of our success.

DIFFICULTY

VoIP is a new world for the telephony professionals as well as the LAN/WAN professionals in any organization. Getting those resources to work together towards a common goal was the most difficult part of this evolution.

However, while being the most difficult, it really was not very difficult. MDRF is blessed with possibly the best LAN/WAN manager on earth, Ms. Carmen Lotti. Her willingness to move forward with the LAN/WAN implementations required was key to the success of this project.

The only unanticipated challenge was the acceptance of the end product and the clamoring for more that was and is still a constant.

