

Comments by William L. Smith
Before the FCC's Independent Panel Reviewing the Impact of Hurricane Katrina
on Communications Networks
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I. Introduction

My name is Bill Smith, and I am the Chief Technology Officer for BellSouth. I am here today to address the impact of hurricane Katrina on BellSouth's network, the status of the network based on restoration completed to date, where we expect to go from here as we continue to restore communications to the hard hit Gulf Coast area, and what the federal government can do to assist in those efforts. Given the force of the hurricane, however, we are very pleased with the resiliency of our network, and with the significant progress that our employees, working with the larger communications industry, have made to restore service to date.

BellSouth's efforts in regard to hurricanes can be placed into three general categories: preparation, monitoring, and restoration. As is standard operating procedure for us during hurricane season, on August 23, 2005, BellSouth's network operations team began tracking Tropical Depression 12, then located over the southeastern Bahamas with thirty-five mile per hour winds and moving northwest at ten miles per hour. We continued monitoring the storm as the days progressed and began extensive preparations prior to Katrina making landfall in Florida. This is business as usual for us, but none could have imagined what was to follow. As Katrina worked its way across Florida toward the Gulf Coast, two integral pieces to this incredible story developed: the people, and the network. I plan to first walk you through the people side of this story, because without our people, we would have no company and no network. It is our employees who make BellSouth what it is.

II. Katrina's Impact on People

BellSouth has about 13,000 employees in the states of Alabama, Mississippi, and Louisiana, approximately 6,500 of whom were in the hardest hit areas affected by the storm. I am delighted to report that all our employees are alive and safe. This is in no small part due to the preparations BellSouth instituted well in advance of Katrina making landfall. For example, BellSouth already had in place an 800-number for BellSouth employees to call to report their status in the event of an emergency and a separate telephone number employees could call to get emergency information. Immediately prior to Katrina making landfall, we also took steps to ensure adequate supplies and services were on hand, sending non-perishable food to strategic areas where employees could be stationed, setting up structural materials including tents, showers, toilets, tables and chairs, and engaging janitorial and guard services. Our experience with prior hurricanes taught us that our employees will be called upon to work round the clock, and they can best perform the extraordinary tasks expected of them if their basic needs for food, shelter, and the safety of their family are addressed.

As Katrina hit the Gulf Coast on August 29th, we assessed potential locations for what we call BellSouth tent cities – stations where employees, and their immediate families, in affected areas could seek shelter, receive food, ice, water, showers, laundry services, air mattresses, linens and clothing, medical care and financial loans. In addition, we had on hand access to our employee assistance program to provide counseling services as needed. The first tent city was set up in Gulfport, Mississippi on August 30th, a second opened in Baton Rouge, Louisiana on September 1st, and a third on September 2nd in Covington, Louisiana. With the addition of tent cities in Hattiesburg

and Jackson, Mississippi, and Marrero, Louisiana on September 10th, BellSouth was, at the height of its restoration efforts, operating six tent cities that provided assistance for our employees and their families, including medical care, and serving over eight thousand meals daily.

III. Impact on Network Operations

Given where our network is located, BellSouth has dealt with hurricanes for years, and is proud of the resiliency our network has consistently demonstrated. Based in large part on experiences gained from past hurricanes, as a part of our prior overall network planning and preparation in the low-lying areas of the New Orleans bowl, BellSouth had located most of its switches on the second floor (or above) in the buildings in that area. This planning helped to avoid any major damage to BellSouth's switches and reduced restoration time from months to weeks. In the coastal areas of Louisiana and Mississippi, BellSouth built certain flood-prone buildings on pilings in order to elevate those buildings approximately ten feet above ground level. Even these precautions, however, were not enough to withstand Katrina's sustained winds in excess of 145 miles per hour and storm surges of 25-40 feet.

Prior to Katrina making landfall in Florida, we activated our standard hurricane procedures. These include ensuring that our 1000+ mobile generators are in working order and staged at the sites needed, fuel tanks are filled for our central office and key administrative office generators and vehicles, network supplies are relocated (including tents in the event tent cities need to be established for the safety and shelter of our employees), and support personnel are staged in nearby locations.

The tropical depression became Hurricane Katrina and first made landfall in South Florida as a Category 1 hurricane on Thursday evening, August 25th, causing considerable damage to the area. After passing over Florida and reaching the Gulf of Mexico, Katrina developed into a Category 5 hurricane and then dropped to a Category 4 just before making her second landfall in our operating area at about 2 p.m. on Monday, August 29th, east of New Orleans.

Operations in Florida, Alabama, Mississippi and Louisiana, were all impacted by Katrina. Nevertheless, we have made significant strides towards restoration of communications capabilities. As I will describe in more detail below, we have three different types of restoration efforts underway. In places like Gulfport and Biloxi, Mississippi and New Orleans, Louisiana, the impact on our customers, our employees and our network were catastrophic.

IV. Network Status

In the Gulf region of Mississippi, Alabama, and Louisiana, BellSouth has 4.9 million access lines. A snapshot on August 30th, after the second landfall, estimated that 2.475 million lines, a little more than half of those in the area, were actually affected by the storm.

BellSouth has 1,591 central office buildings across its region. 578 of those central office buildings are located in Alabama, Louisiana and Mississippi. Throughout the storm, 545 of the 578 central offices in Alabama, Louisiana and Mississippi never lost service. As the loss of commercial power was widespread, many of these offices were running on batteries, supported by generators. Generators require fuel, and in the past, our network personnel have had access to the central offices where the generators are

housed in order to ensure their proper fueling and operations. This was not true with Katrina.

Katrina was different from any hurricane BellSouth has faced previously. It had three distinct phases – the Florida hurricane, the Gulf Coast hurricane, and the New Orleans flooding. Severe damage was associated with the storm’s landfall, but the flooding that followed when the levees broke created significant additional disruption. Generally, hurricanes have an initial surge, the water recedes, power restoration begins, and then we follow the power company with telecom restoration forces. When the levees broke in New Orleans, the water did not recede. Because of the continued flooding, and the unprecedented security issues, generator power was lost at several central offices due to our inability to refuel. The flooding also caused extensive damage to buildings and other structures in the flooded areas. BellSouth lost service at various times in a total of thirty-three of BellSouth’s central offices in the impacted area. We continue to work around the clock to restore service. Initially, we concentrated on restoration of highest priority circuits, specifically those which support public safety including hospitals, E-911 centers and law enforcement. Then we focus on supporting other carriers, including the wireless industry. I have listed these sequentially, but they are often worked simultaneously. Following the storm, in Florida and Alabama, there were no E-911 centers that incurred outages. For Mississippi, service was impacted to forty-three out of 138 E-911 centers, and service to all forty-three centers has been restored on site or by re-routing the calls to other centers. Many E-911 centers required the re-routing of traffic, and in most instances the re-routing was accomplished within hours after contact with the E-911 center officials. All of these centers were back in service by September 4th.

In Louisiana, thirty-five of ninety-one E-911 centers were impacted, and service was restored to thirty of the thirty-five centers within a few days. Of the five E-911 centers that remained out of service, all are in the New Orleans area. Three of the centers are located in Plaquemine and St. Bernard parishes, low lying parishes along the Mississippi River. The remaining two are located in New Orleans. The last of these centers was restored to service on October 7th.

BellSouth has also been extremely focused on the wireless industry in its network restoration efforts. Prior to the storm's landfall, we invited several key carriers to collocate at our emergency command center, recognizing the critical role that wireless plays in today's communications and also knowing the key role we play in enabling wireless service. Together with members of the wireless industry, we developed a joint wireless restoration plan, focused on interoffice rings, prioritizing cell site restoration, and the placement of microwave facilities. These carriers provided input for restoration priorities together with our team. We also conducted two daily calls – one with wireless carriers and one with wireline carriers. These collaborative efforts were very important in the restoration effort. I am also proud of our efforts to re-route traffic from New Orleans to Texas, Florida, and/or to switches and locations requested by the carriers in order to create communications capacity and restore service for wireless and wireline customers. In this new and dynamic age of communications, alternative technologies, such as wireless and VoIP, utilize and interconnect with the traditional wireline network. Thus, as BellSouth restores and re-builds our network, we are in fact enabling providers of such alternative technologies to re-institute their services as well.

BellSouth has continued to work collaboratively with the industry on the ongoing restoration efforts in the New Orleans and Gulf Coast areas. However, there have been challenges. As the New Orleans and Gulf Coast areas are restored, there has been a substantial amount of construction activity by utilities and their contractors, as well as other businesses and homeowners. This activity has caused damage to BellSouth's network that must also be repaired. Indeed, several major routes have already been cut multiple times. For example, on Monday, September 12th, a major fiber route from Hammond, Louisiana to Covington, Louisiana was cut by a tree trimming company. This had an impact on both wireline and wireless carriers. Even though we deployed damage prevention crews, it was not possible to prevent these types of occurrences given the level of construction activity in the area.

Efforts are ongoing as we search collectively to overcome the unique problems caused by flood waters that blocked access to switches and cellular sites in need of restoration. Escorted teams traveled by boat to several of the sites to survey accessibility and status to determine what equipment was needed to restore service. Microwave antennas were placed in New Orleans to enable communications from two of these sites. The first one, at Florida Boulevard, serves T-Mobile, AllTel, and Sprint/Nextel; the second, at Franklin Road near Lake Airport, serves Verizon, Sprint/Nextel and Cingular. A third microwave antenna was placed in Biloxi, Mississippi. Wireless broadband data service has also been deployed in New Orleans and Biloxi.

The significant progress towards restoration is due to the tireless and often heroic efforts of our employees who are working around the clock with a single minded mission of restoring communications to these hard hit areas, and to the efforts of our wireless and

wireline industry colleagues who have partnered with us with an unwavering commitment to enable communications.

Our experience in the New Orleans Main Central Office at 840 Poydras Street gives a sense of the situation on the ground. BellSouth employees began staffing an Emergency Operations Center (EOC) on the 12th Floor of the building on Sunday, August 28th. The office lost power and engaged generators when the storm hit on Monday, but occupants breathed a sigh of relief that there was no flooding. Then, the levee broke and conditions rapidly deteriorated on Tuesday. Technicians and engineers in the office were trying to re-establish service and maintain power by keeping the generators fueled and running. As the situation in New Orleans deteriorated with violence and looting, the New Orleans police and the Louisiana State Police told us to evacuate the building. There was gunfire in the area and we were told it was unsafe for our employees to remain. At 3:00 p.m. CST, the Louisiana State Police arrived and provided us with an armed escort so we could leave the building. We moved to Baton Rouge and, concerned for the security of the building, we arranged for FBI agents to take occupancy of the building at approximately 9:00 that evening. By Friday morning, the Louisiana State Police and the FBI occupied the building. At that time, we began armed and escorted caravans to the building to bring fuel for the generator, water for the chillers, BellSouth personnel, as well as personnel from other carriers (at BellSouth's open invitation). In spite of these harrowing facts, this key switch, which serves as a regional hub for multiple carriers, remained in operation. And, of course, some of the Poydras Street personnel, as well as personnel assisting in restoration efforts across the impacted area, are putting forth Herculean efforts in trying circumstances. Many of them have lost everything, yet they

continued to demonstrate commitment and resolve to rebuild the communications network expected by their fellow citizens.

V. Government Cooperation and Needs

The cooperation and assistance from local, state and federal agencies overall has been good. The FCC, along with its Staff members, was extraordinarily helpful. The FCC reached out to offer assistance in many areas: waiving rules that will help customers who are without service; taking actions that have and will allow for the quick restoration of network facilities (including the emergency routing of traffic over whatever facilities are available for use); and helping with the publication of “find me” numbers to help locate BellSouth employees. Because of this, BellSouth was able to make its interLATA corporate communications network available to companies like Sprint and Telapex, a Mississippi wireless carrier, for use in emergency routing of their traffic impacted by Katrina. BellSouth was also in constant communication with other federal agencies and received strong support from the White House Executive Office of the President.

As we began to restore service to the area, several things were critical. First, we needed safe access to our network facilities. When the flood waters receded, we needed adequate security measures to ensure the safety of our technicians trying to assess and conduct repairs.

Second, we will need flexibility and patience. It will take many months for BellSouth to permanently repair the damage caused by Katrina and restore service to residents in all areas. We have worked around the clock to restore service to our customers as they re-build and become ready to be served. BellSouth has experienced

twenty-two hurricanes since 1992, storms such as Andrew, Hugo and now Katrina. Congress and the private sector alike should be cautious about building unrealistic expectations about how long it takes to fully recover from a storm packing the furor of a Katrina. Also a key difference in this storm is the amount of social dislocation experienced by the fact that nearly one million people have been moved because of the storm. Many of the population patterns may never return as they were. Residents of many of the hardest hit areas are reluctant to begin rebuilding their homes until the future of their neighborhoods and the city in general is more clear. At the same time, other cities like Baton Rouge, Memphis, and LaFayette have experienced significant population growth with the attendant stress on all infrastructures, including the communications. Building capacity will take time.

Third, the government needs to recognize that the cost to BellSouth to restore the communications infrastructure will be significant. BellSouth has estimated that the cost to restore our network as a result of hurricane Katrina will be between \$700 and \$900 million. By comparison, the cost to BellSouth of the damage caused by the four hurricanes that hit Florida in the 2004 hurricane season was approximately \$200 million. Legislative incentives, such as tax credits, would be tremendously helpful as companies re-build areas devastated by Katrina.

Restoration of our near-ubiquitous infrastructure will demand that we deploy capital, not as a cost-plus utility, but as a company re-building its network in a very competitive industry. We will be expected to rebuild without knowing what our ultimate demand will be. And, we will rebuild this network in an environment where many companies depend on our network for providing service to their customers, but where

policy doesn't equally distribute the burden of restoration among all players. The FCC has been very helpful in waiving rules that hamper restoration. We will, however, need continued focus from the policy community on rules and regulations that hamper access to capital. Timely restoration requires that we spend this money now, well in advance of knowing what people and businesses will actually return to affected areas, and when, and that we add capacity in areas like Baton Rouge, or even state parks where tent cities have emerged, without having any expectation of long term continued service revenues out of that installed capacity.

VI. Path Forward and Lessons Learned

So what are the lessons learned thus far? Because we are still in the midst of restoration, it is difficult to create an exhaustive list of lessons learned as a result of the unique circumstance that has been presented by Hurricane Katrina and the consequent flooding in New Orleans, but the following are some of our more significant experiences to date.

First, both network providers, as well as customer/consumers, have become more and more dependent on commercial power. As networks deploy more advanced technology in the more remote parts of the network (remote terminals, DLC systems), these systems require power to operate, and thus introduce more potential points of failure in the event of an extended power outage. Consumers are using more cordless phones, which also require commercial power to operate. And the vast proliferation of cellular phones, which could potentially use automobile batteries for recharging, also becomes an issue when your automobile is six feet under water. As a result, many "communications" failures flow from the loss of power to customer premises equipment

(CPE) and other power driven applications, not from a fundamental loss of connectivity in the telecommunications network.

Second, the communications industry and government bodies need to work more closely together to establish, well in advance, multiple alternate retreat points and paths for the routing of E-911 traffic in the case of a catastrophe. BellSouth has a proud history of service to E-911 centers and will continue its commitment to find new and better ways to ensure that emergency traffic can be successfully routed and handled during emergencies. We believe that Katrina has reinforced the need for ubiquitous E-911 by all communications providers.

Third, emergency personnel need radio equipment that can access a common frequency. Many of the first responder issues in Katrina arise from the use of dedicated radio emergency communications equipment. As we saw in 9/11, oftentimes different departments (*i.e.*, police and fire), or different jurisdictions (*i.e.*, state and city or Louisiana and Arkansas), have equipment based on different frequencies and thus can not communicate with each other. This needs to be resolved, probably by the promulgation of national standards.

Fourth, carriers should be mindful of, and plan for, flooding when locating their switch equipment in flood prone areas, locating them, where practical, above flood lines. As I previously mentioned, BellSouth has taken this step in the vast bulk of its offices, locating both switches and generators on upper floors of buildings. In addition, the location and availability of fuel needs to be addressed in a way that ensures that fuel can be available for emergency generators no matter the circumstance. This likely will have

some environmental questions attendant to it that will require flexibility and engagement to resolve.

Fifth, critical telecommunications infrastructure owners and operators should be designated as first responders in the event of a major disaster and should be included in preparations or responses to such events. Unfortunately, that is not the case today, which has impeded response capabilities and undermined restoration efforts. The importance of restoring telecommunications networks during a disaster cannot be underestimated.

Sixth, the supply chain for our industry was severely tested by Hurricane Katrina. “Just in time” inventory practices that are common today do not accommodate extreme demands, making it difficult to get the quantity of material needed for restoration in a timely fashion. This issue applies to a wide range of material, from utility poles to fiber optic systems.

Seventh, BellSouth established a Hazardous Material (HazMat) team in 2004. This team was very effective in responding to contamination situations associated with Hurricane Katrina.

Eighth, the FCC’s Network Reliability and Interoperability Council (NRIC) has developed an extensive set of “Best Practices” for our industry. Hurricane Katrina presented us with unique challenges, and we would recommend that the next NRIC include an agenda to review those best practices and make any modifications associated with lessons learned from this new experience.

Finally, industry cooperation throughout the recovery from Katrina has been extraordinary. This should be used as a template to build industry-wide emergency response and restoration plans for future catastrophes of this kind.