

Telecommunications recovery in New York City

America has learned that disasters can take many forms and have varying degrees of severity. When disaster strikes, we count on communications—both telephones and the Internet—to reach our friends and family members. The physical damage to the World Trade Center and catastrophic loss of life that took place on September 11 are known worldwide. Less well known was the damage to the communications infrastructure, including many of the telephone switches, cables, and facilities that support critical services, such as fire and emergency medical services, law enforcement, hospitals, and critical government agencies. Additionally, telephone service to many of the businesses in New York, some of whose offices were destroyed, was also interrupted. The ramifications of these losses were felt far beyond the borders of New York City, as calls to friends and relatives remained uncompleted.

Disaster recovery using number portability

Immediately after the attacks on September 11, there were many unknowns. For NeuStar, what was known was that the destruction of the World Trade Center towers would severely affect the telecommunications industry. As individuals and corporations throughout the United States evaluated what they could do to help in the recovery effort, NeuStar saw an opportunity to use number portability and number pooling technology to help the telecommunications industry repair its infrastructure in New York City and begin the critical process of service restoration. Almost immediately, NeuStar assembled a disaster recovery team, which began evaluating ways to assist service providers using these technologies.

NeuStar consulted with communications service providers and federal and state regulators and contacted the FCC for permission to provide emergency services in a manner that fell outside of current porting and pooling guidelines. NeuStar would comply with any service provider's request that would not jeopardize other service providers or the network itself. We sent e-mail to carriers throughout the United States with descriptions of the services we could provide and how to request these services. Copies of our memos were also placed on our Web sites, and individual phone calls were made to regulators in New York and surrounding states to let them know what we were capable of doing.

As requests were received, local number portability was used to port telephone numbers from the affected switches to working switches, and pooling functionality was utilized to port blocks of 1,000 numbers in the same manner. As a result, calls to and from Manhattan could be completed by routing them through switches physically located in Brooklyn, Staten Island, and even New Jersey. Calls to companies that had moved to new offices, whether in Manhattan, the outer boroughs, or New Jersey, could be completed using the same telephone numbers they had used in their original offices.

When number portability was developed in 1996, it was not perceived as a method of disaster recovery, but the technology has proven extremely effective. Local number portability, together with number pooling, allowed the porting of tens of thousands of telephone numbers so that calls could once again be completed.

LNP defined

Local number portability is a capability that changes telephone numbers from physical addresses to virtual addresses so that telephone numbers are no longer physically associated with a switch. This allows us to move telephone numbers from one switch to another electronically. Number portability is normally used to allow telephone customers to keep a specific phone number when switching to a new service provider. Pooling is a number administration function that uses this same technology to move numbers in blocks of 1,000. These changes are immediately and simultaneously reported to all telecommunications service providers throughout the country, so that all service providers always have the same critical information for routing of calls.

Why number portability worked

Number portability, as prescribed by the FCC, has been implemented by the vast majority of telephone service providers in the United States. The US and Canada are the only countries that have implemented this solution to

this extent, and the US is the only country that has implemented number pooling. Because of these technologies, the United States is the only country where telephone service could have recovered so quickly. In fact, as recently as five years ago, restoring service to this extent would have entailed manually rerouting traffic, rebuilding equipment, and providing foreign exchange service, an effort that would have taken weeks or months to complete.

Instead, the nationwide deployment of number portability technology and the implementation of number pooling in New York allowed the restoration of service to begin almost immediately. Because phone numbers are no longer physically associated with a switch, both local number portability and number pooling can be used even when a switch has been completely destroyed by a natural or man-made disaster. Furthermore, because NeuStar is the administrator for both of these services, there was no need for additional coordination between administrators, and NeuStar was able to take action immediately. NeuStar's redundant data centers and systems and own disaster recovery plans ensure that, even in the event of a catastrophic loss of one of these centers, our services would suffer no downtime, and we would be able to focus our attention on providing solutions for the industry's recovery.

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Number portability allowed calls to be completed and service to be restored by porting numbers from affected switches to working switches outside of lower Manhattan.

Planning for the Future

The communications industry's efforts represent only one of the thousands of efforts required to respond to the events of September 11. The industry did what was necessary to get the telecommunications infrastructure working again, and number portability and number pooling helped it to happen. As the administrator of these services, NeuStar will continue with this effort and continue to answer the needs of service providers as long as those needs exist.

Number portability played a tremendous part in restoring critical telephone services to New York. Starting in November 2002, portability will expand to include wireless phone numbers, making this technology even more flexible. The experience that the industry has gained together with the lessons that we have learned will allow us to revisit and improve our disaster recovery plans. NeuStar will meet with federal and state government officials as well as industry groups to evaluate our response to this disaster and to plan and coordinate so that, as an industry, we will be able to improve our response in the future.