

How do Countrywide Emergency Response Centers work? A visit to Costa Rica's 9-1-1 Emergency Center

By Germán Güendell Umaña

Background

Nestled in Central America between Nicaragua and Panama, Costa Rica boasts a population of 3 million inhabitants and a territory of 51,200 square kilometers—about ____ miles.

In 1988, Hurricane Juana slammed the coasts of Costa Rica. This national disaster compelled Mr. Jorge Manuel Dengo Obregón, First Vice President of the Republic, to address the issue and find solutions. He traveled throughout the United States to study the 9-1-1 emergency centers. Mr. Dengo brought back many ideas to help consolidate Costa Rica's emergency response systems.

In 1990, the National Commission of Emergencies (CNE) of Costa Rica, an independent governmental institution directly under the Presidency of the Republic of Costa Rica, took action. Its President (from 1990-1994), Dr. Humberto Trejos Fonseca, arranged a meeting with the various emergency response institutions to push further Mr. Dengo's work.

With the implementation of a 9-1-1 system for Costa Rica in mind, initiatives were taken to contact each emergency service organization involved in the coordination of emergency operations. The objectives were to reduce emergency response time for the Greater Metropolitan Area and to improve coordination between agencies and resources. Dr. Trejos requested a feasibility study for the implementation of a countrywide emergency communications system (the usage of the emergency number 9-1-1) in Costa Rica. Many elements were taken into consideration, such as each organization's needs, financial requirements and available human resources. The study was partially financed by the Canadian Project Preparation Facility, a program offered by the Canadian International Development Agency (CIDA).

An analysis of 9-1-1 systems operating in North America (Canada and the United States) allowed the CNE to assess needs, as well as level of demand. Following the comparative analysis, a thorough technological investigation of available products was conducted. Various suppliers were evaluated on the potential strengths and weaknesses of their system configuration and equipment options, and a system was installed.

In the first two years of operation, a number of problems emerged that did not permit full exploitation of the 9-1-1 emergency system. The population growth, social problems, lack of financing and legal issues emerged as obstacles to the system's seamless operation. The emergency center's administrators carried out a further analysis of the situation and it became obvious that a law needed to be passed, even after a decree. The *Law on the Creation of a 9-1-1 Emergency System (law 7566)* was therefore introduced, conferring a marked legal frame and defining its scope to the Costa Rican community. It encouraged the importance of state-of-the-art technology, nationwide service, emergency agencies roles and inter-agency coordination, financing, public education, quality control, training, as well as the progressive fusion of all emergency telephone numbers into one unique emergency number, 9-1-1.

In spite of the diversity and quantity of incidents that are treated in the Emergency Center, the system has always kept its innovative edge, offering a high level of service. The Emergency Center currently handles

10,000 to 14,000 calls per day from its locations spread across the country. Costa Rica has a total of 64 call taking positions.

Like in North America, Costa Rica needed to educate its citizens on the usage of the 9-1-1 emergency number. Since 1994, a significant effort has been extended to heighten public awareness of the use of 9-1-1 only when emergency situations occur in order to maximize existing resources within the response agencies. In that same period, urgent measures were taken to implement a high-level emergency response service for the Costa Rican population since the previous switching and data equipment needed to be replaced.

Before rendering the decision, substantial research on 9-1-1 system providers was made. Subsequently, a number of potential vendors were identified. Since financing was originating from user's contributions, the bid process was carefully monitored. Taking into account the best use of public funds with which the acquisition would be financed, a North American company that developed the original 9-1-1 system for Costa Rica, Positron Public Safety Systems, was awarded the contract to provide a fully integrated public safety solution.

Following a series of complex management steps, the interested vendors formed strategic alliances to be able to provide the corresponding input to successfully substitute the computer application, data equipment and telephony switch. At the core of the system is Positron's Power 911™ CTI call handling application integrated with a Nortel Meridian 1 PBX. In addition, a modular geographic information system (GIS) interfaced with the automatic location and number information (ANI/ALI) had to be part of the center's solution. Being able to locate the incident's position on the map would facilitate the tasks of response agencies.

Following is some information we want to share about the Costa Rica 9-1-1 Emergency Center.

The 9-1-1 Emergency Center's main objective

To participate, in an appropriate and effective manner, in emergency situation handling for the life, liberty, integrity and safety of its citizens or damage to their property belongings.

The 9-1-1 Emergency Center's main roles

1. Develop and maintain a system for receiving, treating and dispatching emergency calls to the corresponding response agencies. These tasks will be transmitted through a communications network with a unique database access for all entities. The network will manage with high technical level and optimum quality communication channels between organizations from the public and private sector.
2. Allow progressive fusion of all emergency agencies telephone numbers to 9-1-1, the national unique emergency number.
3. Maintain a permanent training program for the center's operators. Cooperation agreement will therefore be signed with public and private entities, within the country or outside.
4. Follow the procedures and formalities dictated by the Coordinating Commission as stipulated in article 4 of law 7566, to ensure efficiency and quality in emergency handling.

Financing

The *Instituto Costarricense de Electricidad* (which is both the Telco and the Power Company) will charge to every telephone subscriber a fee covering the operational costs of the 9-1-1 Emergency Center, for up to 1% of their total telephone bill.

Agencies associated with the 9-1-1 Emergency Center

1. Social Security Costa Rican Bank
2. National Poisoning Center
3. National Emergency Commission
4. Costa Rican Red Cross
5. Fire Fighting Corps
6. National Insurance Institute
7. General Management of Transportation
8. Ministry of Public Works and Transportation
9. National Women Institute
10. Ministry of Public Safety (Police)
11. Judicial Investigation Organization (Supreme Court)
12. Costa Rican Electricity Institute

9-1-1 Emergency Center Benefits

1. A unique emergency number (9-1-1) giving access to all participating emergency agencies.
2. Fast service
3. Free service from any public or private telephone
4. State-of-the-art technology
5. Bilingual service (English – Spanish)
6. 24 hour service, 365 days a year
7. Telecommunications Device for the hearing impaired (TDD)
8. Highly qualified call takers and dispatchers that will assess the situation and channel the request for assistance, allowing the appropriate response to arrive on the incident site as quickly as possible and provide the necessary aid.
9. Charge of a minimal fee on telephone bill to grant access to the service.

Geographic Coverage:

The 9-1-1 Emergency Center achieved national coverage in December 1999.

Conclusion

Costa Rica was a pioneer in Latin American emergency communications. The system, fruit of three years of obstinate effort of inter-agency coordination, was always strongly supported by the

Republic's government. The vision of the coordinating team convinced the country that modern service, technological quality, and human resources are key to the success of a highly advanced emergency communications center.

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***Positron Public Safety Systems** is a provider of end-to-end public safety solutions. For 30 years, Positron has been the pioneer in developing products that help save lives. Positron's integrated suite of applications include Power 911, Power CAD, Power RMS, Power MAP, Power RADIO, and Power MIS. Some of Positron's customers include Los Angeles, San Francisco, Denver, Philadelphia, Miami, Canary Islands-Spain, Cape Town-South Africa, Medellín-Colombia, and Costa Rica.*