



Easy, secure 9-1-1 call tracking in real time

Written by Tim Burke

Seven-hundred PSAPs can't be wrong. That's how many Emergency Call Tracking Systems (ECaTS) for short, are currently installed at 9-1-1 call centers in the states of California, Oregon and Florida—and more are on the way. Basically, ECaTS is a system that helps managers maintain all their 9-1-1 call data in an easy way—better than ever before. A "PSAP" is a Public Safety Answering Point, or what we used to call a good 'ole telephone operator.

"Utah is in the process of doing a sole source," related Fred Michanie, founder and president of Sacramento-based [Direct Technology](#), manufacturer of ECaTS and one of the largest privately held custom software development firms on the West Coast. "Montana is looking at kicking off a pilot of five sites as a proof-of-concept for them. We will exceed 1,000 PSAPs by the end of the year if all the current leads become contracts," Michanie said.

ECaTS was developed by Direct Technology in 1997. Originally, the product was developed to solve a critical business need for the 9-1-1 Program Office in California. The Program Office was seeking a product that could provide universal 9-1-1 Call Statistics Analysis across the entire state regardless of the type of Customer Premise Equipment (CPE) installed at each PSAP. Direct Technology developed and deployed the first version of the product in late 1997. According to a white paper produced by the firm, ECaTS was the first product to abstract the complexity of collecting, reporting and managing 9-1-1 Call Statistics using a Web browser and some creative technology.

With ECaTS, emergency communications managers in states and counties can log in to a secure Web site and have access to call data such as number of calls, time of day, hold times and answering times. This information is updated in nearly real time and can be manipulated into reports, then used to study the effectiveness of all PSAPS within the state or county. An ECaTS user would be any 9-1-1 professional who is responsible for managing a number of PSAPs in a large jurisdiction or an entire state.

How it Works

The system was built on the concept of simplicity. Its reporting module provides the user with simple three-click reporting options. Authorized users are able to generate in real time (or near real time, depending on the implementation) by simply selecting the report, and selecting the timeframe and PSAP (or collection of PSAPs) to be used in the report. The system then accesses the high-speed Microsoft® SQL Enterprise Servers to render the report directly over the Internet using nothing more than their Internet browser.

Training on how to use the system is minimal, and according to Michanie, "Most training can be done remotely using a collaboration tool like WebEx. The ad-hoc reporting tool is the most complex part, and even that is done with checkboxes and drop-down lists so anyone with basic 9-1-1 understanding can generate very complex reports and business intelligence analytics without any development or SQL skills."

In regards to installation of hardware and software, Michanie said, "Our reps install the buffer boxes which we refer to as RDDM, which stands for 'Remote Data Distribution Module.' The software is all Web-based, so there is nothing for clients to install. They just go to the URL and, using a secure ID and password, they get access to their information."

As 9-1-1 calls are completed, the local CPE equipment generates a CDR record and outputs this information using a serial or parallel port. Direct Technology's customized RDDM box connects to this output port and dynamically stores each and every CDR port entry, compressing it into a secure database running within the device. On a predetermined time frequency (anywhere from five to 30 minutes), the database is encrypted by the RDDM, and the data is delivered to Direct Technology's Data Center for processing.

Benefits

But what do call center managers do with the information? Each user has the ability to change the graph type before the report is generated. Currently, ECaTS supports line bars, pie charts, life graphs and stackable bars. The system brings a wide range of Management Reports. These types of reports specifically address the analytical requirements of PSAP, county and state managers across the industry. Reports such as the Trunk Group Utilization Report provide an in-depth analysis of call volume per trunk and trunk group. PSAP managers and state/county coordinators can review and determine if PSAP trunks are being utilized at appropriate rates, for example, if they are hunting correctly, or if they are reaching capacity resulting in possible busy signals.

The Speed of Answer Report provides a clear scorecard of PSAP answering performance while clearly isolating those PSAPs that meet the NENA 90/10 rule: 90 percent of the calls should be answered by each PSAP in 10 seconds or less. The Daily and Monthly Outage Reports give information regarding up-time and availability for data collection. The Redirected Wireless Calls Report offers a statistical analysis on all wireless tower faces. More than 75 percent of calls picked up by a particular wireless face are consistently being transferred to another

PSAP. This information is typically symptomatic of misrouted wireless calls.

In the Ad-Hoc Report, an intuitive interface with checkboxes and drop-down lists generates analytical reports directly out of the high-speed SQL databases. For example, a PSAP county manager may want to analyze the impact of voice-over-Internet (VoIP) calls within his county. This report can be generated by simply selecting those fields that need to be included in the report.

"Call managers don't have to generate reports to send to their county or state management groups. The system creates the analytical reports and then e-mails them to the appropriate party. If you are a county supervisor or state analyst, now you don't have to collect many reports from each of the PSAPs in your jurisdiction. The system does it for you automatically. You just open your Inbox, and a secure link to the report is waiting there for you to read. Some of our clients report that what used to take them weeks of manual data collection and aggregation is now done in seconds. That's the type of return on investment our clients are talking about," Michanie noted.

How do 9-1-1 managers then make use of this data? "They use the analytics to determine or justify funding, manage resources, manage their telecommunication and CPE assets. The larger the jurisdiction, the greater the benefit," Michanie said. "For instance, we are now selling the product in counties of five to eight PSAPs, and they love the functionality. When you get to counties or states that have more than 20 PSAPs, the power of data aggregation at the click of a button becomes a 'Where have you been all my life?' type benefit."

With this sort of ease of use, he further indicated that counties can look at all their PSAPs' activities and ask themselves: Who is compliant with the 90/10 rule? Who may need additional trunks? Who may need additional funding or equipment? From a PSAP perspective, ECaTS simplifies their reporting up the chain and provides them with clear and unbiased justification for their funding, equipment and telecommunication trunks.

System features include the Trouble Ticket Management Database, which has a fully functional database for the state and counties to track outstanding issues with any PSAP. Tickets are automatically generated and escalated to management staff and Telcos when something wrong is detected by the application, or they can be manually generated by authorized personnel.

The system's health is checked through a county or statewide view of all the PSAPs in the region using a map interface. Each location is dynamically colored green, yellow or red. Yellow PSAPs are locations where call detail record information is being collected, but the system believes there may be a problem with the data stream, or the volume of calls does not match previous volume trends collected since the PSAP was first brought into the application. PSAPs with a red color indicate that data is not being reported.

Other features include a module for scheduling a variety of standard or ad-hoc reports. This way the system can automatically run reports on a pre-determined schedule and e-mail the results of those reports directly to the user's personal e-mail address. ECaTS also allows authorized users to share reports generated in the ad-hoc reporting tool with other users of the application. For instance, a user may develop an ad-hoc report that yields specific or interesting analytics regarding 9-1-1 call volumes in his county or state. He can then share the report with other authorized users.

The benefits of the system are obvious: the ability to generate simple and complex reports with the click of a button directly over a Web browser with no specialized software installed at any machine; the ability to generate those reports from anywhere with an Internet connection; and the ability to obtain 9-1-1 call statistics information at all levels, from the call itself, to the PSAP, to the county or the entire state, in a matter of seconds.

"Simplicity of getting data from one location," Michanie emphasized when discussing the top benefits. "Pulling near real-time statistics for an entire jurisdiction with a click of a button. For the county managers and state analysts, now all the statistics reside in one homogeneous database, regardless of whether it is a large, small, expensive or inexpensive set of equipment at each PSAP. The architecture of the product creates a universal reporting platform that converts multiple types of reports into one database that can be accessed 24/7 from any Web browser with the appropriate credentials," he continued.

ECaTS can analyze a state's overall 9-1-1 answer-time performance to determine if PSAPs are performing at acceptable levels, for example: Are calls being answered appropriately? Are calls being placed on hold excessively? Are they being transferred inefficiently? This information is available immediately and objectively.

What it really seems to do best is help managers fully understand the 9-1-1 landscape. They get the big picture. The system provides a unique view of call volume and handling across an entire state with a simple interface. "That boils down to real 9-1-1 statistical intelligence in a ready access format," Michanie stated. |

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