



## Time Proves the Crime

*In October 1999, 48-year-old Susan Fassett of Poughkeepsie, New York, left choir practice at the Pleasant Valley Methodist Church. Fassett never returned home. She was shot to death as she got into her car. It would take months to unravel the facts surrounding her murder.*

*First, it was a case of murder for hire, which meant the mastermind was not immediately evident. Second, almost all of the hard evidence was electronic, buried in thousands of cell phone calls, pager communications, and e-mail correspondence.*

*But with the assistance of the National Law Enforcement and Corrections Technology Center (NLECTC)—Northeast and its Law Enforcement Analysis Facility (LEAF), Fred Andros went to prison. He was convicted of second-degree murder and sentenced to 25 years to life.*

This complicated story paints Andros as a small-town Lothario with enough magnetism to attract numerous sexual partners and enough power to persuade one of them to kill another. Such was the case with Fassett, one of Andros' lovers, and 50-year-old Dawn Silvernail, Fassett's killer and another of Andros' paramours. But for all its seeming complexity, the plot was simple: Fassett ended her affair with Andros, who then sent Silvernail to kill Fassett—a deed that would absolve Silvernail of the thousands of dollars she owed Andros. It also would keep Fassett from testifying in a separate conspiracy case against the 60-year-old Andros. He had previously been indicted for stealing money from city coffers, which ended his tenure as superintendent of the Poughkeepsie water board. According to investigators, Andros feared that Fassett, also a city employee, had information that could ruin him.

Andros was undoubtedly the most likely suspect. He was questioned by police, but investigators could not find evidence to indicate his complicity in the crime. Instead, Andros turned the spotlight on Silvernail. Authorities investigated and ultimately arrested and charged Silvernail, who then confessed. In return for leniency, Silvernail promised to testify against Andros.

But even with Silvernail's offer of testimony, there was not enough evidence to mount a compelling case against him. The problem lay in a New York State law that forbids a conviction based solely on a co-conspirator's testimony and in the fact that Andros claimed the murder resulted from a rocky relationship between the two women.

New York State Police Senior Investigator Tom Martin turned for help to NLECTC—Northeast's LEAF, which has expertise in analyzing audio, video, and electronic evidence. According to Martin, the murder investigation had revealed thousands of communications—telephone, pager, and cell phone calls as well as e-mail correspondence—among Andros, Fassett, and Silvernail that could connect the three and establish Andros' involvement. The problem was sorting through the information to find the connections.

"Our job was to input all those communications into a computer and analyze it," says James J. Hepler, a law enforcement analyst for LEAF. "There were 4,000 [records], all in paper form and on different types of paper. We had to enter them all by hand. It took us 6 weeks."

But the result of LEAF's work was an easily understandable picture of the thousands of communications among Andros, Fassett, and Silvernail. It showed that Silvernail and Fassett had no independent communication and therefore no relationship, and it corroborated Silvernail's testimony regarding times, dates, and locations of her contacts with Andros.

The Web Enabled Timeline Analysis System, or Web-TAS, a computerized program developed by the Air Force Research Laboratory/Information Directorate in Rome, New York, made the analysis possible. After the information was entered, Hepler says, it was sorted and analyzed to show connections and relationships. "You can query on specific types of relationships. You can tell the computer to show you all the calls from Fassett to Andros on a certain date that lasted a specific duration of time and were made from her place of work. Andros admitted to

having a sexual relationship with Fassett in the past, but he claimed he did not know her well. The number of calls we found showed that wasn't true."

"WebTAS graphically plots criminal events and presents visual and statistical data on timelines, graphs, tables, and maps," Helper says. "The timeline developed for this case showed links among those involved. Maps were created with data from Andros' electronic toll road access card that showed where he was when he made certain calls."

LEAF provided Investigator Martin and Dutchess County Assistant District Attorney Ned McLoughlin with 16 timeline slides. "It enabled the investigators to better understand the links, instead of having to sift through all that paper. This kind of tool also helped the jury visualize the relationships between the people involved," Hepler says.

Martin adds, "I think it was the crux of the whole prosecution. My experience is that today's science is so advanced. It's one step of the process to produce evidence; it's another step to get someone to understand it. The work LEAF did allowed us to present something that helped people understand. It was a huge part of the case."

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According to Hepler, WebTAS also can be used as a predictor of behavior or events. By using an algorithm called the Temporal Transition Model, analysts take information about a suspect's behavior and use it to predict what the suspect might do next. This technique can be used to show commonalities across data in cases of organized or financial crime or with drug offenders or serial killers. The LEAF team currently is testing the program's capabilities in a pilot project at the Syracuse (New York) Police Department and the Connecticut State Forensic Science Laboratory. Investigators will use the software to analyze cold cases and to help set up surveillance.

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