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Case Study

CONNECTING DATA FOR MORE EFFICIENT, EFFECTIVE INVESTIGATIONS

How UFED Link Analysis Saves Investigators Time and Effort in Criminal Cases

WHO

Lehigh County
Regional Intelligence and
Investigation Center

WHAT

Lehigh County analysts use UFED Link Analysis to reduce time and effort detectives spend with the data

WHY

To reduce the risk of losing or missing relevant case data and solving cases faster

RESULTS

UFED Link Analysis saves time and allows analysts to focus on relevant case data, enhancing investigation efficiency

When a serious case goes to trial, investigators are required to go through evidence to be sure they aren't missing relevant data. To miss additional inculpatory data risks the loss of the chance to file additional, or more serious, charges; to miss exculpatory data risks the entire case.

These risks increase together with data volume, a trend which has impacted investigations over recent years. When mobile devices contain many gigabytes of data, investigators can spend hours correlating phone calls, text messages, and other data. Not only does this take time away from other investigative tasks; it also increases the risk of human error—of missing key inculpatory or exculpatory evidence.

In Lehigh County (Pennsylvania, US), analysts at the District Attorney's Regional Intelligence and Investigation Center (RIIC) use UFED Link Analysis software to reduce the amount of time and effort detectives have to spend with data. Kara Nyamuomba, Senior Criminal Intelligence Analyst with the RIIC, says a process that used to take days or sometimes weeks now takes a lot less.

The RIIC comprises sworn law enforcement and intelligence analysts that provide investigative case support and specialized analytic services, some of which requires the use of the UFED software. The RIIC's work focuses on after-incident case support for the County's 17 local police departments, eight specialized task forces, Pennsylvania State Police Troop M, and the FBI's Allentown field office.

> "The detectives are impressed by the way we use UFED Link Analysis to save them time and effort."

The region served by the RIIC is a less than two-hour drive from New York City and a one-hour drive from Philadelphia. "The close proximity to these metro areas have caused an increase in both population and criminal activity," says Nyamuomba. "The RIIC's analytical services help to combat violent crime, gang and drug activity, as well as theft and burglaries, by proactively identifying leads and patterns for local investigators."

Since it opened in early 2013, most of the 10-15 cases the RIIC has supported using UFED Link Analysis software were homicides, although Nyamuomba says the analysts have also helped investigators crack burglary and theft cases. Analysts are responsible for interpreting the data forensically extracted and analyzed by examiners at the Officer David M. Petzold Digital Forensics Laboratory, which is also a division of the Lehigh County District Attorney's Office, located on the campus of DeSales University.

The easy-to-use software enabled the analysts to figure it out for themselves, says Nyamuomba, in contrast to more complex analytical software that takes days of training to understand. Still, she adds, a short training course helped them to get even more out of the software.

It used to be that detectives worked more directly with the digital forensic examiners. "The lab would send extraction reports back to the detectives," Nyamuomba explains. "If they wanted to show a text-message or call-log conversation between two people, they would have to print the reports and go through the data by hand with a highlighter." Even narrowing the range of data to text messages from certain days, she adds, could result in a painstaking process that took detectives away from more productive uses of their time.

RIIC analysts were already supporting cases by bringing in call detail records to mapping software to help detectives demonstrate timelines and locations. Believing that they could use UFED Link Analysis to build out this capability and support detectives to an even greater extent, one investigator introduced the software to the team about two years ago.

Once the RIIC analysts started using UFED Link Analysis, investigators became aware of what type of data could be provided and began to show an interest in how it could support their cases. RIIC analysts demonstrated how they could get faster access to the critical data without having to spend hours to find it. "The detectives are impressed by the way we use UFED Link Analysis to save them time and effort," she explains, "by pulling out and showing in sequence that one conversation they need to build their case."

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Indeed, Nyamuomba says most of the work her unit does drills down on conversations between two specific people, or interactions that happened during a particular timeframe. Often investigators have been able to use other methods to determine key links between suspects, or between suspect and victim; it's establishing the nature of those links — their strength, frequency, and content — that's important as they prepare a case to go to trial.

"If we're investigating a homicide, we might have to go back so many days to see who the victim was talking to before the incident," says Nyamuomba. "If there's already a suspect, then focusing the data is relatively straightforward."

"If there isn't, though, we may need to go back further in time and look at additional data such as chats, messaging apps, emails, even photos and location data to get a better sense of what was going on in the victim's life prior to the incident," she adds. This might include perusing contact information on one device to try to identify a name or even just an alias attached to a phone number of interest.

Other types of data can be valuable, as well. In one of the burglary cases the RIIC has worked, recovered GPS devices allowed analysts to follow the suspects' GPS device journeys. "This was very valuable because the device hits satellites every few seconds and shows when and for how long the device stops," Nyamuomba says. "With cell phones, if location services aren't enabled on a suspect's phone, you might only be able to see journey data based on what towers the phone hit—and only if they made calls or sent text messages."

Even when detectives don't have a narrow focus, Nyamuomba says that UFED Link Analysis enables RIIC analysts to work with them to determine what might be important to a case. "We use the report file they get from the forensic lab to identify what kind of data they need most, but we also look at other data to be sure we're not missing anything," she explains. "If we think there are things they need to be aware of outside the time and date range or content type they specify, we let them know. That way we don't have to worry that they might have missed something buried in thousands of pages of text."

"UFED Link Analysis saves us time by allowing us to turn off what we don't want to look at, and focus on what we do," says Nyamuomba. "It's much quicker than a PDF read-through, and by giving us the responsibility for the analysis, the detectives can spend their time working other crucial parts of the case." To that end, the consistent use of UFED Link Analysis enhances not only investigative efficiency, but also the likelihood of a positive outcome to investigations and trials alike.

ABOUT CELLEBRITE

Cellebrite is the world leader in delivering cutting-edge mobile forensic solutions. Cellebrite provides flexible, field-proven and innovative cross-platform solutions for lab and field via its UFED Pro and UFED Field Series.

The company's comprehensive Universal Forensic Extraction Device (UFED) is designed to meet the challenges of unveiling the massive amount of data stored in the modern mobile device. The UFED Series is able to extract, decode, analyze and report data from thousands of mobile devices, including, smartphones, legacy and feature phones, portable GPS devices, tablets, memory cards and phones manufactured with Chinese chipsets. With more than 30,000 units deployed across 100 countries, UFED Series is the primary choice for forensic specialists in law enforcement, military, intelligence, corporate security and eDiscovery.

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