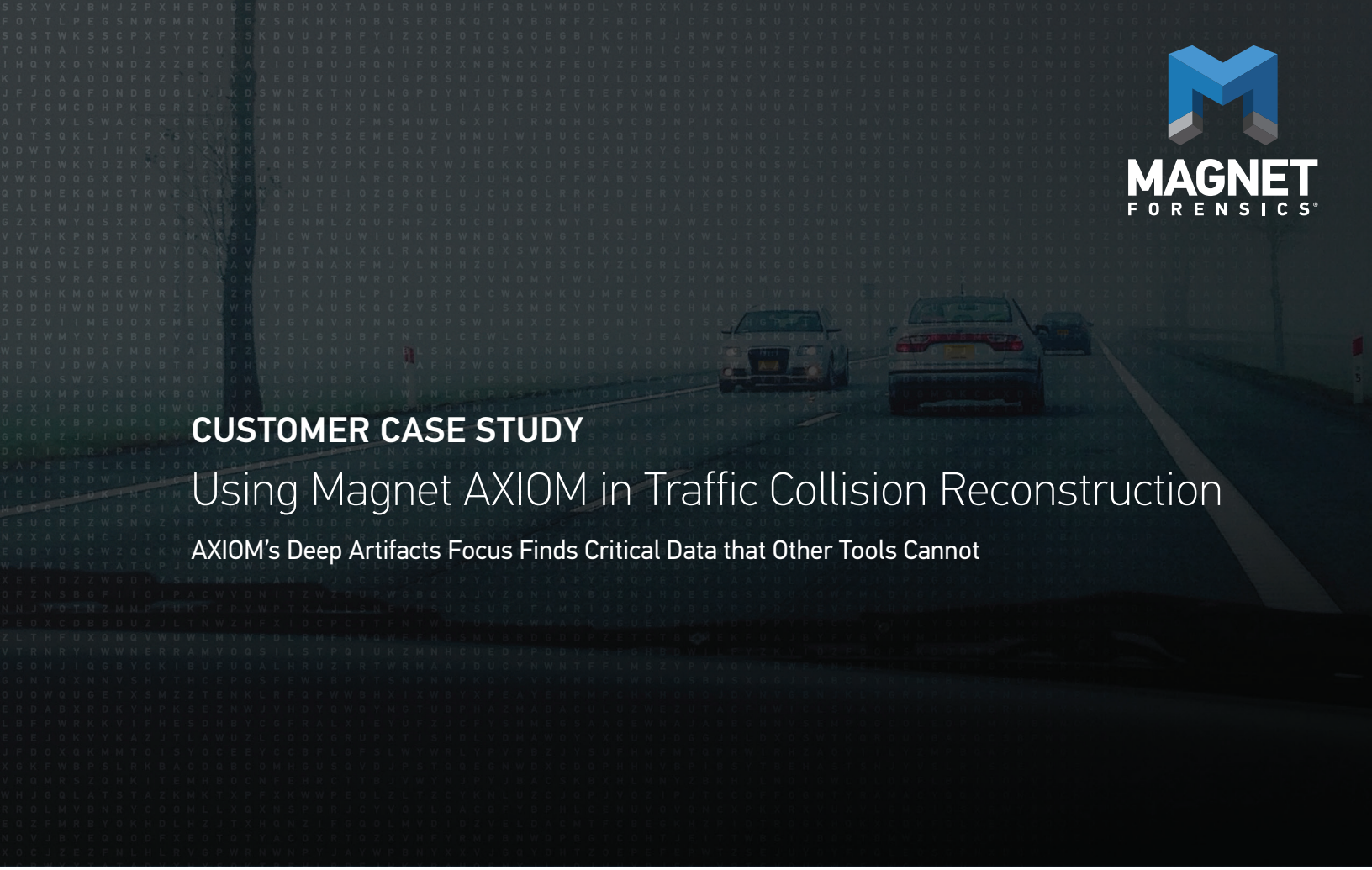

MAGNET FORENSICS®

CUSTOMER CASE STUDY

Using Magnet AXIOM in Traffic Collision Reconstruction

AXIOM's Deep Artifacts Focus Finds Critical Data that Other Tools Cannot

THE ISSUES

- Long latency time between collision and receiving the case that limited access to some forms of digital evidence
- Rethinking the official timeline and establishing a new timeline based on data unavailable from standard call detail records
- Data deleted after the fact, thus muddying the timeline

MAGNET FORENSICS TOOLS

- Finding pivotal data, not parsed by other mobile forensics tools, that defined a significantly different timeline and rendered unavailable evidence unnecessary

Investigation Type:
Civil Litigation Case

"I use AXIOM on every case, versus other tools. It parses in a more defined way, and has better search capabilities."

BACKGROUND

The tragic consequences of texting while driving don't always involve fatalities. In many cases they result in life-altering traumatic injuries. Such was the case in a 2013 collision in a New Jersey subdivision, in which a 17-year-old girl crossed the center line and hit a car carrying an older couple. The crash was severe enough to cause all three parties to lose consciousness, among other injuries.

In this case, it was clear that the girl had been distracted, but witnesses were conflicted as to how. Because the collision happened near a lake where geese resided, some believed the geese had distracted her. Eventually the subdivision homeowners' association (HOA) was sued for its failure to adequately contain the geese.

The law firm representing the HOA engaged Raleigh, North Carolina-based National Digital Forensics Inc., owned by digital forensics examiner Giovanni Masucci, to determine whether another distraction—namely, the girl's cell phone—had been the root cause of the crash. Masucci has particular expertise in digital forensics related to traffic collisions.

THE LITERAL MISSING LINK THAT REDEFINED THE COLLISION TIMELINE

A longtime user of Magnet Forensics products, Masucci finds Magnet AXIOM particularly useful—"the best," he says—when it comes to social media. "I use AXIOM on every case, versus other tools. It parses in a more defined way, and has better search capabilities."

AXIOM's capabilities turned out to be pivotal for the HOA client's defense. While processing the collision scene, police had found a mobile device that had been thrown clear from one of the vehicles in the crash. It was still turned on when police seized it, and therefore still receiving messages.

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The police hadn't been able to access the messages because of its password protection, so they couldn't establish a timeline or pattern of activity that would prove whether the girl had been engaged in distracted driving. They declined to lay charges.

Masucci's first order of business was to research the case, including the timeline established by the police report, the witness statements, calls made to 911, and the mobile device. Because the collision had occurred in 2013, three years prior to the civil suit, this proved challenging. For one thing, the vehicle itself was long gone, which meant its event data recorder, Bluetooth radio, and other electronic data storage, were lost too.

The phone, in particular its own Bluetooth radio, turned out to fill in the missing pieces. Masucci had used another mobile forensics tool to extract the messages and other data from the mobile device. However, its parsing tool failed to pick up a Bluetooth connection to a Pioneer FH-X700BT receiver. AXIOM was the only tool to identify that connection, enabling Masucci to research the unit.

Even though the vehicle was no longer available to provide Bluetooth data, the phone's "last seen connections" data offered the receiver's MAC address and last time and date connected. Masucci was able to ascertain that the receiver model had been installed in the vehicle's make and model the year it was manufactured.

More important to the case, the unit was designed to disengage from the phone once the vehicle was shut off. While police had estimated the collision to have occurred shortly before 8:19 p.m. when the first call to 911 was made, the phone disconnected at 8:17 p.m. A bystander trying to help the victims had turned off the ignition on the teen girl's vehicle at that time, meaning the collision had to have occurred prior to that point.

AXIOM was the only tool to identify the phone's Bluetooth connection to the vehicle's Pioneer Bluetooth receiver, showing thatw the collision timeline was earlier than previously thought.

HOW COMMUNICATION PATTERNS FILLED OUT THE COLLISION TIMELINE

Another key part of the timeline were calls and text messages—in particular, says Masucci, the frequency of text messages and phone calls between the girl and her friends. "It was a consistent pattern up until the flow of sent messages abruptly stopped on her end," he explains. "After that point, incoming messages began to ask the girl whether she was okay."

This pattern would not have been discoverable without mobile forensics. The teen driver had used apps over Wi-Fi, not her data plan, to send calls and text messages, so carrier call detail records didn't display time and date stamps associated with them.

In addition, the device had been powered on 24 times after the police released it but before Masucci obtained it. Numerous messages had been deleted (an effort, it turned out, by the girl's father to protect his daughter).

Masucci was able to use the timestamps of both deleted and undeleted text messages and phone calls to provide an expert opinion, based on the time the vehicle was turned off and the phone disengaged, that it was likely the girl was on the phone at the time of the collision—and, based on the frequency and pattern of her communication habits, that she had been distracted by the constant flow of messages.

"The activity and communications were constant," says Masucci, "with an incoming call at 8:08 that lasted 34 seconds, a gap between 8:10—the last time she responded to a message—and 8:17, both of which were deleted, with still more messages incoming after that point." This moved the timeframe up by 10 minutes from the original timeline.

Even though no one could definitively prove that the phone was in the girl's hand at the time of the crash, the new timeline and the pattern of activity cast doubt on the plaintiffs' theory about the geese. In turn, they settled their case against the HOA.

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