

# H.Q.

Winter 2019/20

## *Tackling the Digital Evidence Tsunami*

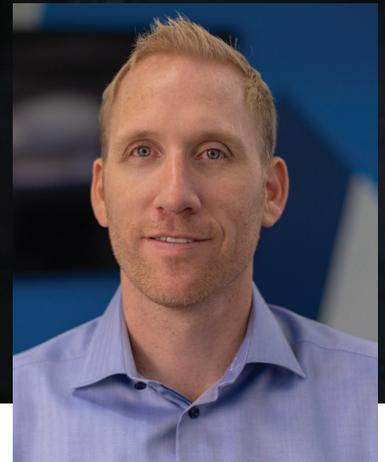


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# A Shield to Help Tackle the Digital Evidence Tsunami



By Chief Bryan Larkin, Waterloo Regional Police Service, and Adam Belsher, CEO, Magnet Forensics

**D**isruption in the digital age is something that affects every industry, including policing. In fact, the challenges facing front-line officers, investigators, police leaders and all members of the policing profession are evolving at an unprecedented rate. A case in point is cyber-enabled crimes and investigations with digital evidence.

Historically, this area of policing was the purview of a small group of highly trained, specialized officers working in digital forensics or high-tech crime units. At the advent of these units, most of their investigations pertained to child sexual exploitation where the critical evidence was found being traded online from a computer. Fast-forward

to today, where almost every investigation involves some sort of digital evidence, most often found on a smartphone.

Digital forensics labs in Ontario are facing the same pressures surfacing around the world: the fact that the volume and complexity of digital evidence is growing exponentially. This, in turn, creates significant backlogs while funding for new personnel to address it is growing incrementally. Even when there is funding for new digital investigators, finding qualified candidates for such roles is difficult given the market demand for digitally savvy personnel. Further, such roles have a relatively high burnout rate given the overtime and continued exposure to child sexual exploitation content.

Unfortunately, police services have to make difficult trade-offs to manage this reality. Some agencies are prioritizing major crime-related digital evidence. Other agencies may not collect digital evidence in the field from certain types of calls for service, such as cyberbullying and domestic disputes. Backlogs that result in delays to investigations, as well as cases that don't get access to digital forensics labs, can create public trust issues for police services. Front-line officers who may not be able to address the concerns of citizens may create an erosion of confidence. There is also a greater risk in Canada, given the Supreme Court's Jordan ruling, prescribing the allowable time for criminal trials to conclude. Justice in cases with complex investigations are, and will continue to be, at risk should digital forensics labs maintain their current trajectory. These issues have been a regular topic of discussion in two boardrooms that are located just a few kilometres apart – the Waterloo Regional Police Service (WRPS) and Magnet Forensics.

### Digital Evidence Realities

The WRPS has not been immune to the digital evidence realities. Given that the agency serves one of Canada's most innovative communities – with leading universities, colleges and technology-intensive businesses – its leadership believes it must be at the forefront of addressing the digital evidence challenge, among other digital transformations of policing.

Magnet Forensics is similarly tackling the digital evidence challenge in a global context. Their founder and Chief Technology Officer Jad Saliba was a constable with WRPS when a serendipitous life event landed him on the high-tech crimes team a decade ago. In that role, he developed software to acquire and analyze evidence from emerging Internet evidence sources. He made the difficult decision to leave policing and focus on developing digital forensics tools full time.

The company has since grown to include more than 275 professionals who focus on leveraging the most modern technologies, such as artificial intelligence and automation, to help police agencies get to critical digital evidence in a timely manner. Their software tools are used by more than 5,000 police, national security and other agencies, with investigative authorities in 94 countries.

Both organizations have a clear mandate to tackle the digital evidence tsunami. However, in isolation, the likelihood of creating and sustaining a viable solution is low. As an example, among the Magnet Forensics technology roadmap has been a tool to enable front-line personnel to collect certain types of digital evidence from smartphones in the field. In its initial prototyping, the tool was a scaled down version of existing digital forensics tools. After introducing the concept to a number of agencies, it was clear that this solution wouldn't work, as the tool was too technical and would require officers to be trained

and regularly re-trained on the tool, creating new costs and risks.

Similarly, WRPS believed there was a need to equip front-line officers and investigators with a simple tool to collect rudimentary digital evidence in the field. The purpose is to reduce tasks in the digital forensics lab and the costs associated with overtime. However, they do not have the capacity to develop such a tool in-house and the cost of outsourcing to a software-as-a-service vendor would be prohibitive.

Given the close proximity, familiarity between the organizations and a shared mission, WRPS and Magnet Forensics negotiated a principles-based Memorandum of Understanding (MOU) to enable collaboration. This partnership gives Magnet Forensics an understanding of such things as the operating environment, training requirements, fiscal pressures and legal obligations that WRPS, and other similar police agencies, operate under. In turn, Magnet Forensics is committed to utilizing its resources to develop tools that address these broad challenges and business models that are both sustainable for them and that contains police services' long-term costs.

Tackling the global digital evidence tsunami is an audacious goal. Many ideas emerged as potential opportunities for collaboration. However, both sides agreed to channel the approach espoused by U.S. Army General Creighton



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Abrams, who once said, “When eating an elephant, take one bite at a time.”

The first challenge tackled under the auspices of the MOU was another attempt at developing a tool to allow front-line officers and investigators to collect digital evidence in the field. After a series of interviews and focus groups, it was deemed that such a tool could have its greatest impact on the organization if it was focused on digital evidence emanating from witnesses and victims. The tool was focused on capturing digital evidence such as text messages, social media information, pictures, and video footage from mobile phones, dashcams and CCTV systems. Paramount among the requirements was that the tool had to be simple, with an intuitive interface and workflow with limited training requirements. Workflow functions like embedding the witness or victim’s consent right on the device reduced the overall time and costs associated with collecting digital evidence in the field.

After a series of additional consultations, features were developed for specific case types such as human trafficking, bar and nightclub incidents and child bullying cases. The feedback loops have been tight, with WRPS identifying features that could

make the tool more effective, and providing advice as to how training could be rolled out as more individuals in the agency test the prototypes. The tool that has been developed is now known as Magnet SHIELD. The tool has helped police services modernize and improve their service levels with their communities. The early results have been positive.

### Early Successes

One of the first used cases of SHIELD was at a large festival where an assault occurred. The patrol officer dispatched was able to capture a video of the suspect fleeing from the victim’s phone. They were able to create a report for the prosecutor on the scene within minutes. “I got everything I needed to support the case” was the officer’s immediate reaction after using SHIELD for the first time.

Another early use case pertained to a domestic dispute. A patrol officer was dispatched to a call for service where a victim had threatening messages on their smartphone. The officer stated, “It saved a lot of time and allowed us to have that evidence for the show cause, where traditional methods would not have allowed us to be that prepared.”

SHIELD has been successfully used in the field on a number of different types of calls for service and investigations such as illicit material being traded at a school, traffic calls where bystanders get pictures and videos of a suspect leaving the scene of an accident as well as human trafficking investigations.

Beyond the successful deployment of the technology, SHIELD has demonstrated how such a purpose-built solution can reduce costs to the agency and improve the public’s trust, as officers can now support victims and witnesses in the field when digital evidence is involved. A total of 88 per cent of WRPS officers surveyed stated that SHIELD reduced the time spent on calls for service. Officers reported that it saved them on average 30-60

minutes on the reporting of digital evidence. Additionally, 70 per cent of officers reported that it was easier to get witnesses and/or victims to consent to providing digital evidence with the tool.

The overarching lesson from the experience of co-developing SHIELD has been that the partnership brought together two mission-oriented organizations whose leaders are focused on the same challenge. The structure of the partnership allows the development to not only address the core technical challenge, but to anticipate downstream implications like ensuring a repeatable and efficient officer workflow.

Unlike traditional procurement, partnerships are key to finding solutions to the technology challenges faced by the policing profession. Software-based solutions require highly iterative, agile development processes and regular feedback loops. Private partners not committed to the overall mission often thrive in the short-term by billing their clients for every individual development. A partner sees a different route to financial sustainability. If done thoughtfully and methodically, such software solutions can ultimately be exported globally.

The successful innovation of this experience goes well beyond a simple tool that allows an officer to capture digital evidence in the field from witnesses and victims. It’s partnerships like the one between WRPS and Magnet Forensics that will enable the long-term innovation required to ultimately address the digital evidence tsunami, as well as the many other digital transformations required for policing in the 21st century.

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