The Future of Public Safety

How data and intelligence will transform law enforcement

Law enforcement leaders operate in a high-stakes environment that seems to grow more difficult by the day. In addition to localized criminal activity, they must contend with larger and more complex threats like increases in human trafficking, an intensifying opioid crisis, and acts of terrorism and mass violence.

Unfortunately, many public safety departments rely on outmoded and outdated information management processes that limit their ability to respond efficiently and effectively to criminal activity. For example, a recent assessment of one of the country's largest police forces by the National Police Foundation (NPF) found the department works with technologies that are no longer supported by software vendors — some of which are more than 20 years old.

NPF's report noted, "Many units within the department have become silos in which individuals have developed business processes that may or may not use certain information systems as intended or have created workarounds to complete analysis that the existing systems cannot do."

NPF also found the department's law enforcement records management system did not have all records in one place and did not interface with other databases used by department personnel.[1]

Additionally, an April 2019 report by the Office of the Inspector General noted another top five police department's "gang database" isn't so much an "effective crime-fighting tool as it is a disorganized hodgepodge of outdated and unverified information." The city has collected and stored gang data in more than a dozen places in just the last 10 years.[2]

The story is similar in law enforcement agencies throughout the country.

Unprecedented Data Growth – The Good and Bad

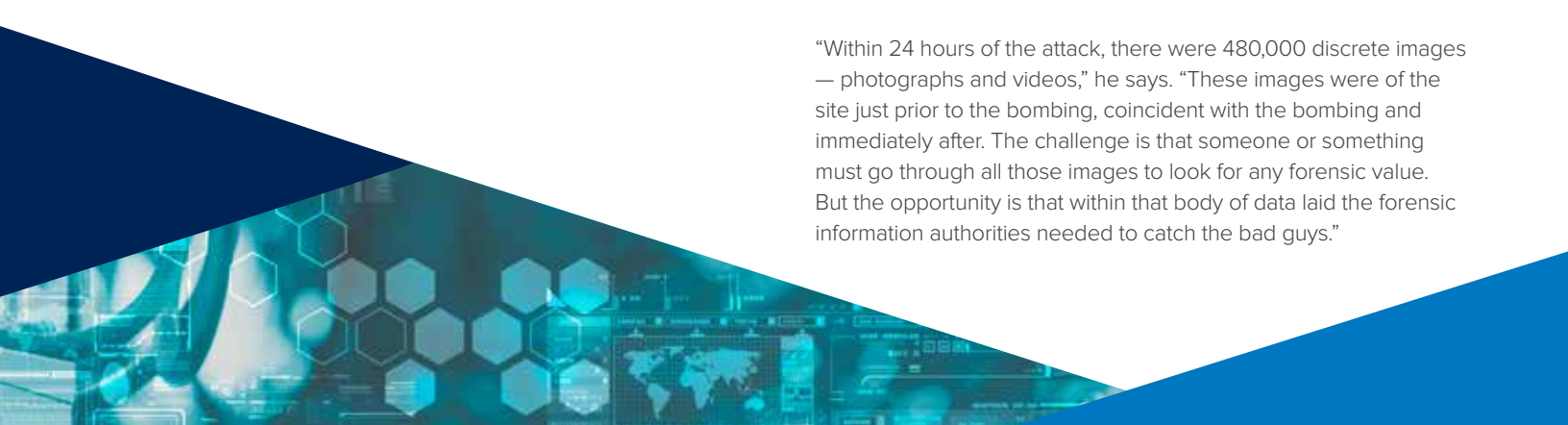
Against this backdrop, it's helpful to understand the scope and importance of data to public safety now and in the future — and why agencies must modernize their IT infrastructures to take advantage of it.

The exponential growth of data in the coming years is staggering. Already, society creates 2.5 quintillion bytes of data each day — 90 percent of the data in the world was generated in the last two years alone.[3] In 2018, IDC predicted the collective sum of the world's data would grow from 33 zettabytes to 175 zettabytes by 2025, a compounded annual growth rate of 61 percent.[4]

For law enforcement agencies, data growth is driven by technologies like body worn cameras, which create about seven terabytes of data per month for a typical police department (to put that in perspective, one terabyte is equal to about 1,500 old-school CD-ROMs), surveillance video, sensors and more.

Big data presents both challenges and opportunities, says Tim Paydos, Vice President of Worldwide Government Industry Solutions at IBM. As massive amounts of data flow into law enforcement agencies, the ability to manage that data and gain insights from it will change the way public safety departments respond to incidents and emergencies, resolve cases and work within their communities. Paydos points to the Boston Marathon Bombing and the quick apprehension of the perpetrators as an example.

"Within 24 hours of the attack, there were 480,000 discrete images — photographs and videos," he says. "These images were of the site just prior to the bombing, coincident with the bombing and immediately after. The challenge is that someone or something must go through all those images to look for any forensic value. But the opportunity is that within that body of data laid the forensic information authorities needed to catch the bad guys."



A New Era of Data with the Cloud and Cognitive Analytics

"We have reached a real inflection point where [law enforcement agencies] know they need to transform how they manage information," says Paydos.

However, this transformation is easier said than done. Agencies are hamstrung by siloed legacy systems that don't easily integrate and share data. On top of this, many of the analytics systems they have deployed to date lack agility, require manual intervention and need staff with specialized skills to get the data leaders want. They're also costly — agencies must make large upfront capital investments to procure a system with the capabilities they need, which puts the technology out of reach for all but the largest police departments.

"There are 18,000 law enforcement agencies in the U.S.," says Paydos. "If you take out the top 50 and the bottom 2,000 extremely small departments, you are still left with nearly 16,000 agencies — all of whom have the same needs as an NYPD or a LAPD but they don't have the huge capital expense budgets or the technical skills to manage these systems on site."

Paydos says the cloud is an obvious solution for agencies that are looking for agility and flexibility, and that don't have the budget to procure an on-premises system. Cloud-based solutions also allow them to benefit from the latest features and functionalities as analytics technology continues to rapidly evolve.

"Analytics have become more and more sophisticated over the last several years, especially as cognitive systems have emerged," says Paydos. "It's a completely different way of thinking about data and the insight we can extract from it."

Cognitive systems move beyond traditional analytics because they understand data in its natural state, regardless of whether that data is a video, a photograph, a recording or something else. They reason — much like a human does — and create a hypothesis to provide an answer to the query. They also learn and improve by interacting with humans.

"A human being says, 'No, you are wrong on that particular hypothesis and here's why.' Or, the human says, 'You're right on this particular hypothesis and here's why.' The system remembers the answer, but it also learns the algorithm it used to arrive at that answer," says Paydos.

IBM is creating a cloud-based law enforcement investigative platform that is built on an ecosystem of data sources to which IBM pre-connects. These data sources include government agency internal data; government shared sources like the National Crime Information Center (NCIC), Tri State Enforcement (TSE) and more; external commercial data; and open source data.

The subscription-based platform also provides out-of-the-box visualization and analytics capabilities that help agencies quickly pull information together to more efficiently solve crimes. The speed of information flow and the ability to make connections and gain insights is a game-changer. For example, the Missouri Information Analytic Center (MIAC) — part of the Missouri Highway Patrol — recently had multiple analysts and detectives investigating a gang that operates in the Midwest. The goal was to better understand gang members, how they relate to each other, where they live and how they intersect with other gang members across the United States.

"The analysts and detectives had been working on this for about nine months," says Paydos. "In two hours, we had surpassed the work they had done with the platform and out-of-the-box functionality."

The Path to Success

Paydos urges agency leaders to take a deliberate and thoughtful approach to their data and analytics initiatives.

"Do not go out and try to build an intergalactic enterprise analytic architecture, stick it in the cloud and expect to get value right away," he says.

Instead, leaders should start with a burning business requirement, identifying one thing that, if it was done better, would provide real value back to the agency. Once they have that win under their belts, they should develop a roadmap of cases that are high value and continue until they build trust across their organizations.

Says Paydos: "The irony is that while cognitive intelligence and the cloud will be transformative and revolutionary, the path to success is iterative and evolutionary."

ENDNOTES:

1. https://arstechnica.com/information-technology/2018/06/baltimore-police-study-mandated-by-feds-finds-massive-tech-fails/
2. https://chicago.suntimes.com/news/chicago-police-gang-database-inspector-general-report/
3. https://www.forbes.com/sites/bernardmarr/2018/05/21/how-much-data-do-we-create-every-day-the-mind-blowing-stats-everyone-should-read/#2c7bee8560ba
4. https://www.networkworld.com/article/3325397/idc-expect-175-zettabytes-of-data-worldwide-by-2025.html

This session is part of the IBM Government Cloud Virtual Summit, a free, online event featuring 17 sessions with insightful keynotes, illustrative case studies and deep dives into job-critical topics for government leaders. To view any of these sessions, visit: www.govtech.com/ibmvirtualsummit