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# Justice Department's Role in Cyber Incident Response

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Specialist in Domestic Security

August 23, 2017

**Congressional Research Service**

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[www.crs.gov](http://www.crs.gov)

R44926

## Summary

Criminals and other malicious actors increasingly rely on the Internet and rapidly evolving technology to further their operations. In cyberspace, criminals can compromise financial assets, hacktivists can flood websites with traffic—effectively shutting them down, and spies can steal intellectual property and government secrets. When such cyber incidents occur, a number of questions arise, including how the federal government will react and which agencies will respond.

The Obama Administration, through Presidential Policy Directive/PPD-41, outlined how the government responds to significant cyber incidents. Responding to cyber incidents involves (1) threat response, (2) asset response, and (3) intelligence support. The Department of Justice (DOJ), through the Federal Bureau of Investigation (FBI, or the bureau) and National Cyber Investigative Joint Task Force (NCIJTF), is the designated lead on threat response, which involves investigating and attributing specific cyber activities to particular individuals or entities as well as facilitating intelligence and information sharing.

In investigating cyber incidents, the FBI's Cyber Division focuses on “high-level intrusions by state-sponsored hackers and global cyber syndicates, and the most prolific botnets.” In addition to conducting its own cyber investigations, the FBI

- leads the NCIJTF, a multiagency hub for coordinating, integrating, and sharing information on cyber threat investigations;
- heads up other task forces and law enforcement partnerships focused on cyber threat response, including cyber task forces with subject matter experts at each field office, cyber action teams that can rapidly deploy in response to specific incidents, and cyber assistant legal attachés positioned in certain foreign countries to work with U.S. counterparts;
- has established several initiatives to interface with the private sector regarding cyber incidents; these resources (such as the Internet Crime Complaint Center, IfraGard program, and National Cyber-Forensics and Training Alliance) collect and share information, build partnerships, and enhance cyber threat awareness;
- has been working to recruit and retain an appropriate cyber workforce and has developed a multilayered cyber training program for its agents; and
- has been discussing with the technology community and policymakers how evolving technology, such as encrypted communications and devices, affects investigations, particularly in cyber-related cases, and how law enforcement can develop tools to investigate these cases most effectively.

Relating to the FBI's work in combating and responding to cyber threats, one question policymakers may have is how the bureau *prioritizes* cyber threats. DOJ's Inspector General, while noting strides in this arena, has recommended that (1) the FBI should use a more data-driven, objective methodology to identify and prioritize cyber threats, and (2) the FBI should develop a means to track agent time spent on specific cyber threats. Policymakers may elect to conduct oversight of the FBI's efforts in these areas, examine whether any changes to cyber threat prioritization affect where cyber threats rank within the broader universe of threats confronting the nation, and debate whether or how to direct the FBI's use of funds allocated to combating cyber threats.

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Criminals and other malicious actors increasingly rely on the Internet and rapidly evolving technology to further their operations.<sup>1</sup> They exploit cyberspace, where they can mask their identities and motivations. In this domain, criminals can compromise financial assets, hacktivists can flood websites with traffic—effectively shutting them down, and spies can steal intellectual property and government secrets.

When such cyber incidents occur, a number of questions arise, including how the federal government will react and which agencies will respond. These questions have been raised following a number of high-profile breaches such as those against the U.S. Office of Personnel Management,<sup>2</sup> the Democratic National Committee,<sup>3</sup> and Yahoo.<sup>4</sup> Federal law enforcement has taken the lead in investigating cyber incidents, attributing certain malicious activities to specific perpetrators, and prosecuting cyber threat actors.

This report outlines the federal framework for cyber incident response, highlighting the Department of Justice's (DOJ's) role in this response. It also discusses challenges for federal law enforcement and potential policy issues for Congress.

## Defining a Cyber Incident

A principal issue in understanding how the federal government *responds* to a cyber incident is the definition of a “cyber incident.” A host of terms are used in discussing malicious activity with a cyber, online, or technological component. These range from cyber attack and cyberwarfare to cybercrime, cyber espionage, and cyber terrorism. A key distinction between these malicious incidents is the actor's motivation. For instance, a criminal may be profit motivated, while a terrorist may be politically motivated. However, “[t]he speed and anonymity of cyber attacks makes distinguishing among the actions of terrorists, criminals, and nation states difficult, a task which often occurs only after the fact, if at all.”<sup>5</sup>

“Cyber incident,” therefore, is an umbrella term encompassing a range of malicious activity carried out by diverse actors with varying motivations and capabilities—all of whom exploit cyberspace.<sup>6</sup> The federal government has defined a cyber incident as

[a]n event occurring on or conducted through a computer network that actually or imminently jeopardizes the integrity, confidentiality, or availability of computers,

<sup>1</sup> For more information on cybercrime, see CRS Report R42547, *Cybercrime: Conceptual Issues for Congress and U.S. Law Enforcement*.

<sup>2</sup> For information on the OPM breach, see CRS Report R44111, *Cyber Intrusion into U.S. Office of Personnel Management: In Brief*.

<sup>3</sup> For more information on the hack of the Democratic National Committee, see Wired, *DNC-HACK*, <https://www.wired.com/tag/dnc-hack/>.

<sup>4</sup> For more information on the Yahoo hack, see Vindu Goel and Eric Lichtblau, “Russian Agents Were Behind Yahoo Hack, U.S. Says,” *The New York Times*, March 15, 2017.

<sup>5</sup> Department of Homeland Security, *National Strategy to Secure Cyberspace*, February 2003, p. viii.

<sup>6</sup> The National Security Presidential Directive 54/Homeland Security Presidential Directive 23 (NSPD-54/HSPD-23) defines cyberspace as “the interdependent network of information technology infrastructures, and includes the Internet, telecommunications networks, computer systems, and embedded processors and controllers in critical industries.” In other words, cyberspace is the “virtual environment of information and interactions between people.” National Security Agency, *Statement for the Record, Lieutenant General Keith Alexander, Commander, Joint Functional Component Command for Network Warfare*, Before the House Armed Services Committee, Terrorism, Unconventional Threats, and Capabilities Subcommittee, May 5, 2009.

information or communications systems or networks, physical or virtual infrastructure controlled by computers or information systems, or information resident thereon.<sup>7</sup>

As such, an incident could capture an array of activities carried out by malicious actors ranging from hacktivists and criminals to nation states and terrorists. Notably, the federal government has not developed official definitions for specific subsets of cyber incidents—such as cybercrime—that distinguish them from other subsets of cyber incidents.<sup>8</sup>

## U.S. Cyber Incident Response

Federal law enforcement has the principal role in investigating and attributing cyber incidents to specific perpetrators, and this responsibility has been established within the broader framework of federal cyber incident response.<sup>9</sup> The 2016 Presidential Policy Directive/PPD-41 outlined how the government responds to *significant* cyber incidents—those that are “likely to result in demonstrable harm to the national security interests, foreign relations, or economy of the United States or to the public confidence, civil liberties, or public health and safety of the American people.”<sup>10</sup> Responding to cyber incidents involves (1) threat response, (2) asset response, and (3) intelligence support. DOJ, through the Federal Bureau of Investigation (FBI) and National Cyber Investigative Joint Task Force (NCIJTF), is the designated lead on *threat response*.<sup>11</sup> Asset response and intelligence support responsibilities are led by other federal agencies.<sup>12</sup>

The concept of threat response, as outlined by PPD-41, involves

conducting appropriate law enforcement and national security investigative activity at the affected entity's site; collecting evidence and gathering intelligence; providing attribution; linking related incidents; identifying additional affected entities; identifying threat pursuit and disruption opportunities; developing and executing courses of action to mitigate the immediate threat; and facilitating information sharing and operational coordination with asset response.<sup>13</sup>

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<sup>7</sup> The White House, *Presidential Policy Directive—United States Cyber Incident Coordination*, PPD-41, July 26, 2016. The PPD noted that this definition could include vulnerabilities in information systems, system security procedures, internal controls, or implementation that could ultimately be exploited by a threat actor.

<sup>8</sup> For a policy discussion on potential benefits of cyber incident definitions (such as a definition of cybercrime), see CRS Report R42547, *Cybercrime: Conceptual Issues for Congress and U.S. Law Enforcement*.

<sup>9</sup> The White House, “Fact Sheet: Presidential Policy Directive on United States Cyber Incident Coordination,” press release, July 26, 2016.

<sup>10</sup> The White House, *Presidential Policy Directive—United States Cyber Incident Coordination*, PPD-41, July 26, 2016.

<sup>11</sup> For more information on the FBI's cyber investigations, see <https://www.fbi.gov/investigate/cyber/>. Information on the NCIJTF is available at <https://www.fbi.gov/investigate/cyber/national-cyber-investigative-joint-task-force>.

<sup>12</sup> The Department of Homeland Security, through the National Cybersecurity and Communications Integration Center, is the lead on asset response. The Office of the Director of National Intelligence, through the Cyber Threat Intelligence Integration Center, is the lead on intelligence support. Asset response activities include, among other things, “technical assistance to affected entities to protect their assets, mitigate vulnerabilities, and reduce impacts of cyber incidents; identifying other entities that may be at risk and assessing their risk to the same or similar vulnerabilities; [and] assessing potential risks to the sector or region ... and developing courses of action to mitigate these risks.” Intelligence support activities “facilitate the building of situational threat awareness and sharing of related intelligence; the integrated analysis of threat trends and events; the identification of knowledge gaps; and the ability to degrade or mitigate adversary threat capabilities.” See The White House, *Presidential Policy Directive—United States Cyber Incident Coordination*, PPD-41, July 26, 2016.

<sup>13</sup> The White House, *Presidential Policy Directive—United States Cyber Incident Coordination*, PPD-41, July 26, 2016.

Due to the nature of crime and other malicious activity in the technology era, a number of departments and agencies with law enforcement capabilities are involved in responding to cyber threats.<sup>14</sup> This section, however, highlights the activities led by DOJ—specifically, by the FBI.

## **FBI Cyber Investigations**

The FBI pursues cybercrime cases ranging from computer hacking and intellectual property rights violations to child exploitation, fraud, and identity theft. Its top priorities involve combating computer and network intrusions and investigating ransomware. While some of these cases may be significant cyber incidents, others may not. The FBI's Cyber Division focuses on “high-level intrusions by state-sponsored hackers and global cyber syndicates, and the most prolific botnets.”<sup>15</sup> One key challenge, acknowledged by Administration officials and others, involves moving away from reacting to malicious cyber events and toward preventing them.<sup>16</sup>

Indeed, cyber attack prevention is one of the main tenets of the FBI's Next Generation Cyber (NGC) initiative. Established in 2012, NGC has focused FBI resources on enhancing cyber capabilities by (1) strengthening the NCIJTF, (2) expanding Cyber Task Forces (CTFs) in all 56 field offices and focusing their efforts on computer/network intrusion investigations, (3) increasing information sharing and coordination with the private sector, and (4) bolstering the FBI's cyber workforce.<sup>17</sup>

## **National Cyber Investigative Joint Task Force**

The NCIJTF was established by National Security Presidential Directive-54/Homeland Security Presidential Directive-23 in January 2008. As established, the NCIJTF's mission is to “serve as a multi-agency national focal point for coordinating, integrating, and sharing pertinent information related to cyber threat investigations.”<sup>18</sup> Led by the FBI, the NCIJTF coordinates over 20 U.S. agencies including law enforcement, intelligence, and the military. It also collaborates with the private sector and international partners.

One major initiative of the NCIJTF, Operation Clean Slate, aims to disrupt and dismantle significant botnets threatening the United States. Of note, the FBI estimates that botnets infect about 378 million computers around the globe every year.<sup>19</sup> In one case under Operation Clean Slate, the FBI led an international law enforcement effort to disrupt the GameOver Zeus botnet.<sup>20</sup> GameOver Zeus was a variant of the Zeus botnet, which would steal online banking information

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<sup>14</sup> Notably, not all cyber incidents will be investigated by law enforcement. For instance, some intrusions on a private network may be evaluated by internal investigators or other private companies. Other cyber incidents may just be deemed nuisances and not investigated at all.

<sup>15</sup> Statement of former FBI Director James B. Comey before the U.S. Congress, House Committee on the Judiciary, *Oversight of the Federal Bureau of Investigation*, 114<sup>th</sup> Cong., 2<sup>nd</sup> sess., September 28, 2016.

<sup>16</sup> *Ibid.*

<sup>17</sup> Department of Justice, Office of the Inspector General, *Audit of the Federal Bureau of Investigation's Implementation of Its Next Generation Cyber Initiative*, July 2015.

<sup>18</sup> The White House, *National Security Presidential Directive-54/Homeland Security Presidential Directive-23*, January 8, 2008.

<sup>19</sup> Testimony by Richard P. Quinn, Federal Bureau of Investigation, before the U.S. Congress, House Committee on Homeland Security, Subcommittee on Cybersecurity, Infrastructure Protection, and Security Technologies, *The FBI's Role in Cyber Security*, 113<sup>th</sup> Cong., 2<sup>nd</sup> sess., April 16, 2014.

<sup>20</sup> Testimony by Robert Anderson, Jr., Federal Bureau of Investigation, before the U.S. Congress, Senate Committee on Homeland Security and Governmental Affairs, *Cybersecurity, Terrorism, and Beyond: Addressing Evolving Threats to the Homeland*, 113<sup>th</sup> Cong., 2<sup>nd</sup> sess., September 10, 2014.

and transfer funds to money mules, U.S. residents with bank accounts who would move the money out of the United States. In this case, law enforcement was authorized to sever communication between infected computers and criminal-controlled servers. Officials also indicted an alleged administrator of GameOver Zeus, “charging him with conspiracy, computer hacking, wire fraud, bank fraud, and money laundering.”<sup>21</sup>

Early in its inception, there were concerns about the effectiveness of the NCIJTF. One was that “the NCIJTF was not always sharing information about cyber threats among the partner agencies.”<sup>22</sup> There were also criticisms that the NCIJTF was perceived as an extension of the FBI’s Cyber Division rather than as a multiagency effort—potentially hindering its collaborative mission. DOJ’s Inspector General noted in 2015 that these issues have improved.<sup>23</sup>

In combining resources of the NCIJTF with its own, the FBI runs a 24-hour cyber command center known as CyWatch. This center connects “federal cyber centers, government agencies, FBI field offices and legal attachés, and the private sector in the event of a cyber intrusion.”<sup>24</sup>

## Cyber-Related Task Forces and Partnerships

The FBI leads a variety of law enforcement task forces and partnerships focused on cyber threat response.

- There is a CTF at each field office. These CTFs focus on local cybersecurity threats, respond to incidents, and maintain relationships with companies and institutions. They also support the national effort to combat cybercrime by participating in national virtual teams on certain cyber issues and providing cyber subject matter experts or surge capability outside of their territories, when needed.<sup>25</sup>
- In 2006, the FBI established Cyber Action Teams (CATs) of agents and computer scientists that can be rapidly deployed around the country or the world to assist in computer-intrusion investigations. CAT members have expertise in various computer languages, forensic investigations, and analysis of malware.<sup>26</sup>
- In addition to domestic field offices pursuing international leads in investigations, the FBI has positioned cyber assistant legal attachés (ALATs) in some foreign countries. These ALATs work with law enforcement in host countries to share information, collaborate on investigations, and enhance relationships with partner agencies. They focus on “identifying, disrupting, and dismantling cyber threat actors and organizations.”<sup>27</sup>

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<sup>21</sup> U.S. Department of Justice, “U.S. Leads Multi-National Action Against GameOver Zeus Botnet and Cryptolocker Ransomware, Charges Botnet Administrator,” press release, June 2, 2014.

<sup>22</sup> Department of Justice, Office of the Inspector General, *The Federal Bureau of Investigation’s Ability to Address the National Security Cyber Intrusion Threat*, April 2011.

<sup>23</sup> Department of Justice, Office of the Inspector General, *Audit of the Federal Bureau of Investigation’s Implementation of Its Next Generation Cyber Initiative*, July 2015.

<sup>24</sup> Testimony by former FBI Director James B. Comey before the U.S. Congress, Senate Committee on Homeland Security and Governmental Affairs, *Threats to the Homeland*, 114<sup>th</sup> Cong., 1<sup>st</sup> sess., October 8, 2015.

<sup>25</sup> Federal Bureau of Investigation, *Cyber Task Forces: Building Alliances to Improve the Nation’s Cybersecurity*.

<sup>26</sup> Federal Bureau of Investigation, *The Cyber Action Team: Rapidly Responding to Major Computer Intrusions*, March 4, 2015.

<sup>27</sup> Federal Bureau of Investigation, *National Cyber Security Awareness Month: FBI Deploys Cyber Experts to Work Directly With Foreign Partners*, October 26, 2016. ALATs have been placed in locations including London, England; (continued...)



## Private Sector Information Sharing and Collaboration

In addition to its partnerships with law enforcement, the FBI has established several initiatives to interface with the private sector regarding cyber incidents. They collect and share information, build partnerships, and enhance awareness.

- The FBI stood up the Internet Crime Complaint Center (IC3) in 2000. Its mission is two-fold: (1) act as a reporting mechanism for the public to submit information on potential criminal activity facilitated by the Internet, and (2) foster law enforcement and industry alliances. Information is shared with law enforcement to bolster investigative and intelligence activities and with the public to enhance awareness.<sup>28</sup> Law enforcement can remotely search the IC3 database through the FBI's Law Enforcement Enterprise Portal.<sup>29</sup>
- InfraGard is a collaboration between the FBI and private sector partners. These partners include business executives, entrepreneurs, computer professionals, academia, the military, law enforcement, and other government officials. The program facilitates information sharing with the goal of protecting U.S. critical infrastructure.<sup>30</sup> There are 84 InfraGard chapters around the country with more than 43,000 members.<sup>31</sup> The alliance originally focused on cyber threats and has since expanded to include other threats that might impact critical infrastructure. InfraGard members have access to iGuardian, a tool that the FBI specifically developed for the private sector to report cyber incidents.<sup>32</sup> Members can see information and intelligence surrounding incidents that may be similar to their own. Information submitted through iGuardian is also sent directly to CyWatch, where agents and analysts can use the information to deconflict information, build cases, and notify potential victims.
- The National Cyber-Forensics and Training Alliance (NCFTA) is a nonprofit information-sharing organization bringing together subject matter experts from law enforcement, the private sector, and academia to target cybercrime.<sup>33</sup> The NCFTA produces unclassified intelligence assessments and develops strategies to mitigate cyber threats. The FBI can use this information to initiate or bolster law enforcement investigations.<sup>34</sup>

While mechanisms have been developed to share information between the FBI and the private sector, a number of barriers to effective sharing have been highlighted. These include “(1) a perception by the private sector that information flows in one direction—to the FBI; (2)

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(...continued)

The Hague, Netherlands; Tallinn, Estonia; Kyiv, Ukraine; and Ottawa, Canada, among others.

<sup>28</sup> Federal Bureau of Investigation, Internet Crime Complaint Center, *2016 Internet Crime Report*, June 2017.

<sup>29</sup> For more information on this portal, see <https://www.fbi.gov/services/cjis/leep>.

<sup>30</sup> There are 16 critical infrastructure sectors: chemical, commercial facilities, communications, critical manufacturing, dams, defense industrial base, emergency services, energy, financial services and banking, food and agriculture, government facilities, healthcare and public health, information technology, transportation systems, water and wastewater treatment systems, and nuclear reactors, materials, and waste. 42 U.S.C. §5195c(e).

<sup>31</sup> For more information on InfraGard, see <https://www.infragard.org/>.

<sup>32</sup> For more information on iGuardian, see <https://www.fbi.gov/resources/law-enforcement/iguardian>.

<sup>33</sup> For more information on the NCFTA, see <https://www.ncfta.net/>.

<sup>34</sup> Department of Justice, Office of the Inspector General, *Audit of the Federal Bureau of Investigation's Implementation of Its Next Generation Cyber Initiative*, July 2015.



information, when provided by the FBI, is often not useful because it lacks context or is outdated; and (3) private sector concerns regarding how the FBI will use the information that is shared.”<sup>35</sup>

With respect to the concern about unidirectional information flow, some of the information becomes part of ongoing investigations and is thus marked as law enforcement sensitive or otherwise classified, which prevents its sharing. The FBI has developed two unclassified products that it *can* share with private sector partners: (1) FBI Liaison Alert System Reports with technical indicators and information private entities can use to bolster protection for their networks, and (2) Private Industry Notification Reports with contextual information on current threats posed by cyber criminals.<sup>36</sup> Some private sector entities have noted that the information they receive from the FBI might not actually be current, and is instead outdated or lacking substance. When the FBI receives information on cyber threats, it may take time to scrub sensitive or classified information from reports that it can share with its private sector partners. In a similar vein, private entities may be reluctant to share information with the FBI out of concerns surrounding how the FBI may handle—or potentially release—proprietary information and personally identifiable information from companies’ records.<sup>37</sup> The FBI has noted that, even after a breach, a majority of private sector partners do not automatically engage federal investigators and instead turn to private firms for attribution and remediation.<sup>38</sup> For instance, the Democratic National Committee retained a firm named CrowdStrike to secure its network when it discovered a breach—attributed to the Russian government—in the spring of 2016.<sup>39</sup> The FBI has been encouraging private companies and organizations to reach out directly to law enforcement to help investigate, attribute, and mitigate breaches.

Congress has, for some time, shown an interest in cyber information sharing; in the context of examining the FBI’s response to cyber threats, policymakers may specifically look into information sharing between the private sector and federal law enforcement. They may debate whether Congress can or should help reduce barriers to information sharing. While some have noted potential benefits of increased information sharing, there have also been concerns that such sharing—specifically in the direction of public to private—could potentially compromise law enforcement investigations and national security.<sup>40</sup>

## Cyber Workforce

In addressing the cyber threat, the FBI faces challenges in both recruiting and retaining an appropriate cyber workforce.<sup>41</sup> On the recruitment side, former FBI Director James Comey noted that it can be challenging to find agents with integrity, fitness, intelligence, *and* specialized cyber knowledge. One solution might be rethinking whether there should be multiple classes of agents

<sup>35</sup> Department of Justice, Office of the Inspector General, *Audit of the Federal Bureau of Investigation’s Implementation of Its Next Generation Cyber Initiative*, July 2015, p. 19.

<sup>36</sup> Ibid.

<sup>37</sup> Ibid.

<sup>38</sup> Federal Bureau of Investigation, *The FBI and Cyber Crime: New Perspectives, New Partnerships, and New Ways of Doing Business*, March 29, 2017.

<sup>39</sup> Ellen Nakashima, “Russian Government Hackers Penetrated DNC, Stole Opposition Research on Trump,” *The Washington Post*, June 14, 2016. For more information on the attribution, see Schneier on Security, *Attributing the DNC Hacks to Russia*, January 9, 2017; as well as Laura Hautala, “How US Cybersleuths Decided Russia Hacked the DNC,” *CNet*, May 3, 2017.

<sup>40</sup> For more information on the broad issue of cyber information sharing, see CRS Report R43941, *Cybersecurity and Information Sharing: Legal Challenges and Solutions*.

<sup>41</sup> Federal Bureau of Investigation, *The FBI and Cyber Crime: New Perspectives, New Partnerships, and New Ways of Doing Business*, March 29, 2017.

recruited to work on cyber cases. For instance, some of these individuals might have specialized knowledge but do not need to carry a firearm. Another option that has been floated involves easing the current requirement that agents who leave the FBI and wish to return after two years or more must go through the FBI's training academy again.<sup>42</sup> Policymakers may consider how such changes to the hiring structure could impact the FBI's budgetary resources needed for hiring, training, and retaining cyber-focused agents. Of note, for FY2018 the Administration requested an additional \$41.5 million and 36 positions—including 20 agents—to bolster the FBI's cyber program.<sup>43</sup> This would be in addition to the \$328.3 million and 1,651 positions (881 agents) currently allocated.

On the retention side, DOJ's Inspector General recommended that the FBI, among other things, "evaluate the effectiveness of the step-by-step training course for FBI agents on how to investigate national security intrusion cases; reconsider the rotation policy for cyber agents and ensure that agents skilled and experienced in cyber intrusions are available to FBI field offices; and consider developing regional hubs with agents that are experts in investigating national security intrusions."<sup>44</sup> The FBI has evolved its strategy on assigning computer-intrusion cases. These cases are now assigned to the field office that has demonstrated the greatest strength in investigating a particular type of intrusion, rather than to the field office in the area where the intrusion occurred.<sup>45</sup> The bureau has noted this fosters competition between field offices to bolster agents' knowledge and skills.

The FBI has a multifaceted cyber training program for agents, and this training has been revised based on results of an internal survey the bureau conducted on it.<sup>46</sup> FBI cyber training includes (1) a High Technology Environment Training initiative to bolster the technical skills and technological knowledge of the full FBI workforce, (2) SANS Institute<sup>47</sup> training courses for cyber personnel, and (3) opportunities for certain personnel to earn a Master of Science degree in information technology.<sup>48</sup>

## Technology and Investigations

FBI investigators seek to use every tool in their cyber investigative toolkit to combat a range of threats and attribute activities to specific threat actors. One concern in this domain has been whether investigators' capabilities may be outpaced by the speed of technological change, a phenomenon that the FBI has termed "going dark."<sup>49</sup> Factors influencing law enforcement's ability to obtain information, and thus contributing to the going dark debate, include strong, end-to-end encryption; provider limits on data retention; bounds on companies' technological

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<sup>42</sup> Ibid.

<sup>43</sup> See the Department of Justice, Federal Bureau of Investigation, *FY2018 Authorization and Budget Request to Congress*, 2017. The FBI has also requested funding for programs that are cyber-related, such as for combatting foreign intelligence and insider threats as well as for its going dark initiative.

<sup>44</sup> Department of Justice, Office of the Inspector General, *Audit of the Federal Bureau of Investigation's Implementation of Its Next Generation Cyber Initiative*, July 2015, p. ii.

<sup>45</sup> Federal Bureau of Investigation, *The FBI and Cyber Crime: New Perspectives, New Partnerships, and New Ways of Doing Business*, March 29, 2017.

<sup>46</sup> Department of Justice, Office of the Inspector General, *Audit of the Federal Bureau of Investigation's Implementation of Its Next Generation Cyber Initiative*, July 2015.

<sup>47</sup> The SANS Institute is a private entity that offers cyber security and information security training.

<sup>48</sup> Department of Justice, Office of the Inspector General, *Audit of the Federal Bureau of Investigation's Cyber Threat Prioritization*, July 2016.

<sup>49</sup> For more information on going dark, see CRS Report R44481, *Encryption and the "Going Dark" Debate*.

capabilities to produce specific data points for law enforcement; tools facilitating anonymity online; and a landscape of mixed wireless, cellular, and other networks through which individuals and information are constantly passing. A central element in the public discourse on going dark is end-to-end, or what investigators have called “warrant proof,” encryption.<sup>50</sup> Notably, law enforcement supports strong encryption to protect networks, devices, and information. However, they note that malicious actors also exploit the widespread use of strongly encrypted communications and devices. Experts have generally recommended that the FBI deploy resources to strengthen its investigative competencies—rather than asking technology companies to build exploitable weaknesses or “backdoors” into their products—so that it can best respond to cyber and other threats.<sup>51</sup>

It appears that lawmakers and officials are still deciding how best to simultaneously protect the privacy of encrypted devices and communications as well as support legitimate law enforcement access. In the 114<sup>th</sup> Congress, for instance, members of the House Judiciary Committee and Energy and Commerce Committee established an Encryption Working Group to “identify potential solutions that preserve the benefits of strong encryption—including the protection of Americans’ privacy and information security—while also ensuring law enforcement has the tools needed to keep us safe and prevent crime.”<sup>52</sup> Four points from the working group’s year-end report may contribute to policy discussions in the 115<sup>th</sup> Congress: (1) any measure that weakens encryption would work against the nation’s security interests, (2) encryption technology is widely used and increasingly available worldwide, (3) there is no one-size-fits-all solution to the encryption and going dark challenge, and (4) Congress should promote cooperation between the law enforcement and technology communities.<sup>53</sup>

## FBI Cyber Threat Prioritization

Relating to the FBI’s work in combating and responding to cyber threats, one question policymakers may have is how the bureau *prioritizes* cyber threats. The FBI conducts an annual Threat Review and Prioritization (TRP) to delineate the top threats—cyber and other—and direct resource allocation. Within the broader threat prioritization framework, DOJ’s Office of the Inspector General looked specifically at the FBI’s prioritization of cyber threats from FY2014-FY2016.<sup>54</sup> The OIG’s report made two recommendations:

- The FBI should use an “algorithmic, data-driven, and objective methodology” to identify and prioritize cyber threats.<sup>55</sup> This recommendation is based on the OIG’s findings that the TRP criteria are subjective and open to interpretation.

<sup>50</sup> Warrant-proof communications are those where only the end user has access and thus may hinder a lawful court order or search warrant. See Andrea Peterson, “The Government and Privacy Advocates Can’t Agree on What ‘Strong’ Encryption Even Means,” *The Washington Post*, October 7, 2015; Herb Lin, “The Rhetoric of the Encryption Debate,” *Lawfare*, October 12, 2015.

<sup>51</sup> See, for example, testimony by Susan Landau before U.S. Congress, House Committee on the Judiciary, *The Encryption Tightrope: Balancing Americans’ Security and Privacy*, 114<sup>th</sup> Cong., 2<sup>nd</sup> sess., March 1, 2016.

<sup>52</sup> House Judiciary Committee, “Goodlatte, Conyers, Upton, and Pallone Announce Bipartisan Encryption Working Group,” press release, March 21, 2016.

<sup>53</sup> House Judiciary Committee and House Energy and Commerce Committee, Encryption Working Group, *Encryption Working Group Year-End Report*, December 20, 2016.

<sup>54</sup> Department of Justice, Office of the Inspector General, *Audit of the Federal Bureau of Investigation’s Cyber Threat Prioritization*, July 2016.

<sup>55</sup> *Ibid.*, p. 17.

Changing the methodology may give the FBI a better view of the threat landscape and help the bureau accurately prioritize threats.

- The FBI should “[d]evelop and implement a record keeping system that tracks agent time utilization by threat.”<sup>56</sup> The bureau currently tracks agent time by case classification (such as public corruption or counterterrorism), not specific threats. As such, it may not be able to evaluate resources dedicated to any given threat and evaluate whether a specific cyber threat has been appropriately prioritized.

The FBI concurred with both recommendations. It has reportedly been bolstering its Cyber Division’s Threat Examination and Scoping (TExAS) tool, which relies on specific data and a weighted algorithm rather than subjective rankings to prioritize cyber threats. The bureau is also reportedly looking into potential changes to its record-keeping system to track agent time utilization.<sup>57</sup> Congress may elect to exercise its oversight to examine whether (and if so, how) the FBI has made any adjustments to its cyber threat prioritization regimen. They may also question whether any changes to this regimen could affect where cyber threats fall within the broader framework of threats facing the nation. This could, in turn, have implications for how Congress directs the FBI to use its appropriated funds.

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<sup>56</sup> Ibid.

<sup>57</sup> Ibid., p. 22.

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