

# 2014 Cybersecurity Forecast

The 2014 Cybersecurity Forecast identifies potential cybersecurity issues and trends that may occur in the upcoming calendar year. The Forecast represents a survey of cybersecurity predictions collected from independent security experts, cybersecurity news sources, cybersecurity service providers, and security research organizations. The Forecast focuses on those predictions that multiple sources address and is not intended to prioritize particular issues over others, including issues not discussed in the document. References link to individual sources, but the themes are derived from multiple sources.

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## Malware

- **Malware will increasingly focus on conducting targeted attacks.**<sup>1 2 3 4 5</sup> Malware will diversify as various authors increasingly target specific organizations, and these authors will increasingly add stealth capabilities to protect malware from detection and eradication.<sup>6 7 8</sup> One organization predicts that malware volume will decrease as malicious actors use less malware overall but make it much more targeted toward intended victims.<sup>9</sup> Another organization predicts that malicious actors will continue to use watering hole attacks as a targeted method of distributing malware.<sup>10</sup>
- **Ransomware will remain a problem.**<sup>11 12 13 14 15</sup> One organization predicts that ransomware developers may extend their reach to data stored in the cloud.<sup>16</sup> Another organization believes that the rise of cryptocurrencies, such as BitCoin, which do not require identification and are not regulated, provide operating conditions attractive to malicious actors spreading ransomware like CryptoLocker.<sup>17</sup>
- **Malware will increasingly target Windows XP.**<sup>18 19 20</sup> Because a significant number of users still have Windows XP installed, developers are likely to create malware designed to exploit any vulnerabilities resulting from the end of manufacturer support.<sup>21 22</sup> Experts also agree that the number of organizations likely to experience Windows XP-related vulnerabilities will be high, ranging from retailers' point-of-sale terminals to medical equipment.<sup>23</sup>
- **The suspected Blackhole developer's arrest will affect exploit kits.**<sup>24 25 26</sup> One research organization is unsure about the extent of impact of this arrest and whether other exploit kit developers will fill the gap of the Blackhole developer.<sup>27</sup> Other research organizations predict that other exploit kits, such as Redkit and Neutrino, will fill the gap left by Blackhole, but an increase in fragmented exploit kits will increase the overall amount of exploit kits.<sup>28 29</sup>

- **Mobile malware will continue to grow.**<sup>30 31 32 33</sup> Experts expect mobile malware to continue to grow as measured by the number of attacks, the types of malware used, and in complexity.<sup>34 35</sup> Experts anticipate that the Android operating system will see much of this growth.<sup>36 37 38 39</sup> Some experts report that ransomware targeting mobile devices will emerge this year.<sup>40 41 42</sup> Researchers expect that mobile malware targeting mobile banking applications will persist in 2014.<sup>43 44</sup>

## Third-Party Applications

- **Attacks on third-party applications will continue to be common.**<sup>45 46 47 48</sup> Organizations and users will continue to encounter attacks via newly discovered and unpatched vulnerabilities in third-party applications.<sup>49 50</sup> Researchers state that many of these attacks will continue to focus on older, unpatched versions of Java largely because of the recent end of developer support and security patching for Java version 6.<sup>51 52 53</sup> However, one source said that Java exploits will decrease either due to Java security warnings, publicized coverage by security researchers, or decreased interest among attackers because of decreased usage.<sup>54</sup> Some experts state that malicious actors will also look to expand their attacks on other non-Java third-party applications such as Adobe ColdFusion, and will use both Java and Adobe ColdFusion exploits to attack valuable entities.<sup>55 56</sup>

## Privacy

- **If passed, future privacy legislation will impact organizations.**<sup>57 58 59</sup> One expert predicts that as privacy legislation grows, awareness of and compliance with country-specific and industry-specific legislation will be challenging for organizations. Another expert expects that the European Union's General Data Protection Regulation will increase user privacy.<sup>60 61</sup> Experts also predict that there will be increased consequences for organizations that do not protect personally identifiable information.<sup>62</sup> In contrast, another expert predicts that the U.S. Congress will not be able to pass electronic privacy protection regulation because of lobbying by interested parties.<sup>63</sup>
- **Awareness of privacy issues will affect individual behavior.**<sup>64 65 66</sup> Given the news stories about government surveillance and identity theft in 2013, experts expect that many individuals will begin to care about privacy and begin to protect their own privacy.<sup>67 68 69</sup> More individuals will begin to use false usernames and applications that protect user anonymity, such as Tor, as well as virtual private networks and encryption capabilities.<sup>70 71</sup> Additionally, in response to the increased interest in protecting individual privacy, one expert predicts that privacy will become a competitive advantage with more privacy services and applications offered on the market.<sup>72</sup>

## Regulation

- **Cybersecurity standards will increase.**<sup>73 74</sup> Organizations will adopt voluntary standards and best practices, including the National Institute of Standards and Technology's Cybersecurity Framework, and will comply with both current and upcoming regulations in order to increase cybersecurity.<sup>75 76</sup> Cyber resilience measures designed primarily for critical infrastructure companies are predicted to become the norm for all industries.<sup>77</sup> One expert predicts that cybersecurity regulations for the finance industry will increase, including increased regulation around third-party data sharing.<sup>78</sup> New Payment Card Industry and Health Insurance Portability and Accountability Act standards are predicted to increase cyber risk management among payment card and healthcare stakeholders, respectively, according to one source, but may also result in an increase in reported incidents and create challenges as the healthcare industry implements the new requirements.<sup>79 80</sup>
- **Regulation at different levels of jurisdiction is likely to develop.**<sup>81 82</sup> One expert predicts that due to the lack of Federal guidance or legislation for breaches, many state and local

governments will begin to regulate and work to prevent cyber incidents within their jurisdiction.<sup>83</sup> Another expert predicts that new government regulation will be extreme.<sup>84</sup>

## Encryption

- **Use of encryption, including single socket layer (SSL), will increase.**<sup>85 86 87 88</sup> Three sources state that usage of encryption will increase, and another source predicts more attention will be paid to encryption in 2014.<sup>89 90 91 92</sup> Encryption will be analyzed for vulnerabilities, and cryptographic block modes, authenticated modes, and encryption offered by cloud security brokers will be popular.<sup>93 94</sup> Cyber attacks using SSL to get through firewalls will increase.<sup>95</sup>

## Identity Verification

- **Identity verification will become more robust.**<sup>96 97 98</sup> Services will increasingly offer two-factor authentication, including on mobile devices, and more customers will adopt it.<sup>99 100</sup> Password alternatives will increase in response to consumer demand, including: heartbeats, facial recognition, biometrics, iris scanning, tattoos, and pills.<sup>101 102</sup>

## Cloud

- **Securing business data in the cloud will continue to be a challenge for organizations.**<sup>103</sup> Consequently, one expert predicts that corporate policies for cloud usage will increase.<sup>104</sup>
- **Organizations will be increasingly concerned about the security and privacy of cloud computing.**<sup>106 107 108 109 110</sup> Business and consumer confidence in the security and privacy of cloud storage has decreased, and concern increased about the location of the cloud's data storage facility and foreign legislation governing data privacy.<sup>111 112 113</sup> Organizations will seek to increase use of encryption for cloud data.<sup>114 115 116</sup> One source says that more customers will retain encryption keys rather than let their vendors keep them, and there will be an increase in split key encryption.<sup>117</sup>
- **Sources disagree over the prevalence of hybrid vs. public clouds.**<sup>118 119 120</sup> One source says organizations will deploy private clouds, while two other sources predict organizations will move to public or hybrid cloud models, which are a mix of public and private clouds.<sup>121 122 123</sup>
- **Cloud data will be increasingly targeted.**<sup>124 125 126 127</sup> Data stored within the cloud is more appealing to cyber criminals because of more widespread cloud usage.<sup>128 129</sup> The cloud will be an easier target for attackers than organizations are, but one source cautions that organizations will still be targeted for the purposes of securing access to cloud vendors.<sup>130 131</sup> User vulnerabilities are a concern, and one source says that attackers will target endpoints, mobile devices, and user logon credentials to breach the cloud.<sup>133 134</sup>

## Internet of Things

- **Internet-connected objects and devices will increase and have more security vulnerabilities.**<sup>135 136 137</sup> Security vulnerabilities are compounded by several factors: the lack of awareness among hardware manufacturers of vulnerabilities, manufacturers' inability to patch vulnerabilities or communicate with consumers when vulnerabilities are discovered, consumers not updating software, and the lack of incident response activities to address exploited vulnerabilities.<sup>138 139 140 141</sup>
- **Experts disagree on the severity of upcoming threats to and attacks on Internet-connected objects and devices.**<sup>142 143 144 145 146</sup> Some sources agree that attacking the Internet-of-Things, in part because of its novelty, increased presence, and low security and maintenance, will be appealing in particular to cyber criminals as well as other malicious actors.<sup>147 148 149</sup> Experts also predict new threats to emerge, with one source predicting the emergence of Android malware on Internet-connected devices.<sup>150 151</sup> Other sources argue that while the increased concern over the security of the Internet-of-Things will be a widely

discussed topic and area of increased focus, it will not be a serious issue this year, and a large-scale Stuxnet-like attack on Internet-connected devices is unlikely to occur. <sup>152 153 154 155</sup>  
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