

By Denise Ernst, Vice President; Jennifer Kent, Senior Director; Weijun Lee, Research Partner; Chris O'Dell, Research Analyst; and Brad Russell, Research Director, Parks Associates

Synopsis	Consumer Privacy Concerns																								
<p>This report examines the challenges in securing the smart home and new opportunities for security solution providers. The report also assesses common and potential attacks in the connected landscape as new connected solutions, such as 5G technologies, are implemented. It profiles companies offering data security solutions for the connected home and product and service providers who are leading the way on securing the smart home.</p>	<p style="text-align: center;">Consumer Concerns on Security/Privacy Issues</p> <p style="text-align: center;">US Broadband Households</p> <table border="1"> <caption>Consumer Concerns on Security/Privacy Issues (US Broadband Households)</caption> <thead> <tr> <th>Concern</th> <th>Percentage (Approximate)</th> </tr> </thead> <tbody> <tr> <td>Identity theft</td> <td>55%</td> </tr> <tr> <td>Virus or spyware infection</td> <td>45%</td> </tr> <tr> <td>Hackers gained access to device</td> <td>45%</td> </tr> <tr> <td>Your private information made public</td> <td>40%</td> </tr> <tr> <td>Companies selling personal data to other companies</td> <td>35%</td> </tr> <tr> <td>Data theft over home network</td> <td>30%</td> </tr> <tr> <td>Companies tracking online activity for marketing purposes</td> <td>28%</td> </tr> <tr> <td>Data theft over public Wi-Fi</td> <td>28%</td> </tr> <tr> <td>Device theft</td> <td>25%</td> </tr> <tr> <td>Unwanted recording of voice, images or activities by devices</td> <td>22%</td> </tr> <tr> <td>Device loss</td> <td>18%</td> </tr> </tbody> </table> <p style="text-align: right;">© Parks Associates</p>	Concern	Percentage (Approximate)	Identity theft	55%	Virus or spyware infection	45%	Hackers gained access to device	45%	Your private information made public	40%	Companies selling personal data to other companies	35%	Data theft over home network	30%	Companies tracking online activity for marketing purposes	28%	Data theft over public Wi-Fi	28%	Device theft	25%	Unwanted recording of voice, images or activities by devices	22%	Device loss	18%
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<p>Publish Date: 4Q 19</p>	<p>Questions Addressed by this Report:</p> <ul style="list-style-type: none"> What are the typical incidences/challenges/solutions in protecting data security & privacy in smart homes? What are the current and upcoming regulations related to data security and privacy in smart homes? What should smart home manufacturers do to comply with regulations and meet consumer expectations? How should data security solution providers educate smart home consumers about their responsibilities to keep their homes safe? What new innovations are offered by best-in-class data security solution providers? How do data/privacy issues and concerns impact the growth of the smart home market? 																								
Contents																									
	<p>Research Objectives</p> <ul style="list-style-type: none"> Research Approach Companies Interviewed or Researched <p>Executive Summary</p> <ul style="list-style-type: none"> Industry Insight Data Security & Privacy Trends - User Experiences Data Security & Privacy Trends - Technologies 																								

Data Security & Privacy Trends – Marketing & Sales Channels
Connected Home Data Security and Privacy Ecosystem
Key Findings and Recommendations

Defining Data Security and Privacy

Data Security vs. Data Privacy
Trade-offs for Consumers
Classification of Data Security and Privacy Attacks
Targets and Objectives of Data Security/Privacy Attacks
Direct and Indirect Attacks
Privacy Vulnerabilities

Consumer Insights

Security/Privacy Concern and Problems (Q4/18)
Consumer Concerns on Security/Privacy Issues (Q4/18)
Actions Taken to Prevent Unauthorized Access to Devices (Q4/18)
Smart Home Devices: Purchase Inhibitors (Q4/18)
Appeal of Cybersecurity Services (Q4/18)
Appeal of Cybersecurity Services by Introduction Text (Q4/18)
Desirability of Cybersecurity Services (Q4/18)
Preferred Provider of Cybersecurity Services (Q4/18)

Data Breach Incidences and Vulnerabilities

Status of Data Breaches in Connected Homes
The 2016 Mirai Attack by Exploiting Default Username/Password
The 2017 Fish Tank Attack Showed Much Bigger Lateral Damages
The 2019 Nest Cam Hacking due to Credit Stuffing Attacks
Supporting Consumers: An Academic Study on Privacy Vulnerabilities in Smart Home
Turning Data Attacks into Physical Attacks
Data Privacy/Security Ecosystem Opportunities for Action

Regulatory Analysis on Data Security and Privacy

Legislations on Smart Home Data Security and Privacy
Leading Legislation: The EU General Data Protection Regulation (GDPR)
GDPR: The Smart Home Manufacturers Respond
Data Protection Laws in the US
Passed and Pending US Regulations and Standards
Federal Standards: Defining Cybersecurity and Privacy Risks for Organizations
Federal Standards: IoT Device Manufacturers
Pending Federal Legislation: IoT Device Manufacturers Selling to Government
State Legislation: California SB-327 Information Privacy: Connected Devices 2018
State Legislation: CCPA Affects Businesses Using Consumer Data
CCPA vs. GDPR - Summary
CCPA vs. GDPR - Details
Cybersecurity Impacts: Brand Perception and Fines

Business Models and Services

Business Models in Smart Home Data Security and Privacy
Interest in Security/Privacy Services (Q4/18)
A Taxonomy of Cybersecurity Solutions
B2C Business Model by Smart Home Service Provider
B2C Business Model by Broadband Service Provider
B2B Business Models
B2C and B2B Example: F-Secure

	<p>Business Models: B2B + B2B2C CUJO AI Security Profile CUJO AI: Unique Advantages The Public/Private Partnership Model</p> <p>Technology Opportunities Technologies to Protect Data Security and Privacy in Smart Home Tradeoff between Security and Convenience: TFA and MFA Privacy Enhancing Technologies (PET) Typical Privacy Enhancing Technologies AI and ML Become Essential for Cybersecurity Where and How to Apply AI/ML in Cybersecurity Example: Cybersecurity AI Platform Privacy by Design (PbD) Impact of 5G to Smart Home Data Security and Privacy</p> <p>Appendix Glossary of Security Threats Definition of Adversary/Threat Model Capability Levels of Adversary & Threat Models</p>
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