



How to Save the Smart Home from Cyber Invasion

IoT DevCon 2017

Art Swift, President, prpl Foundation

Smart Home Security Report 2016



Research Findings

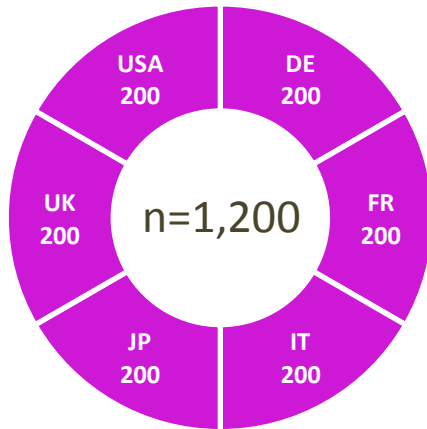
- ➔ *Smart device adoption has reached a tipping point - the smart home is already here*
- ➔ *The smart home is woefully insecure due to users' failure to follow best practices*
- ➔ *Smart home users prefer security to usability and are prepared to take more responsibility*

**A prpl Foundation Study
September 2016**

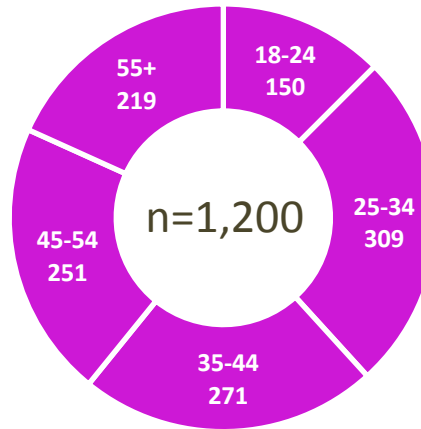
Source: Smart Home Security Report 2016, prpl Foundation, September 2016 - <https://prpl.works/smart-home-security-report/>

Methodology and demographics

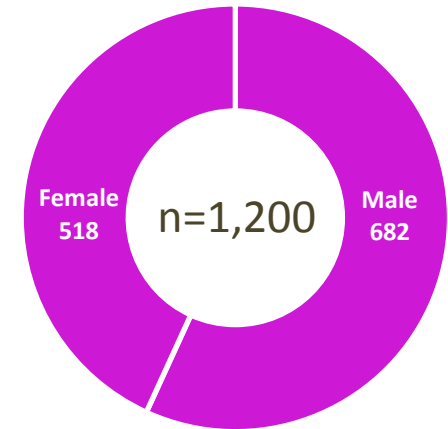
Sample by country



Sample by age group



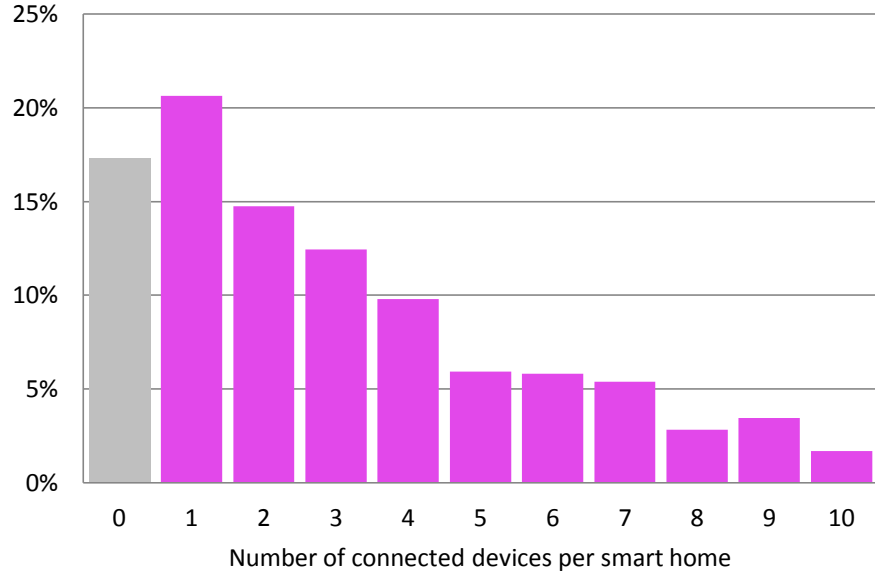
Sample by gender



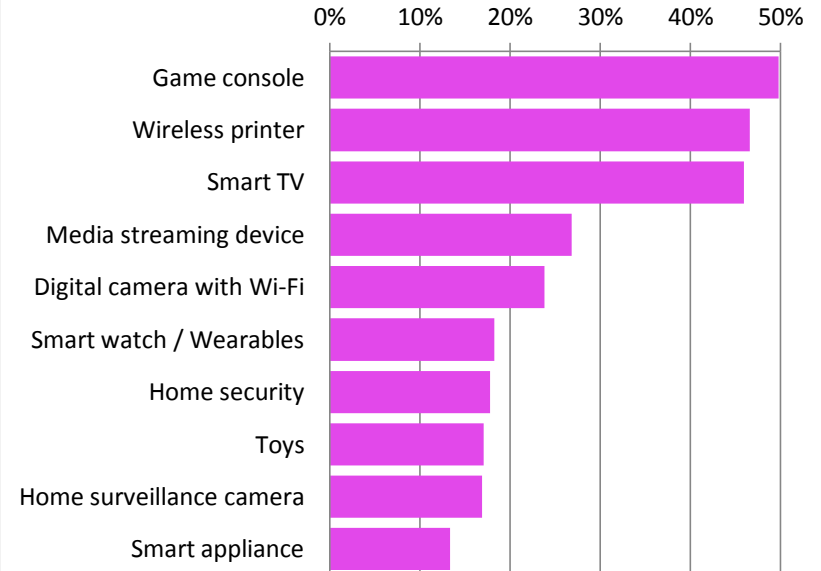
Survey conducted by OnePoll in accordance with the Market Research Society code of conduct - data collected between 22.06.2016 and 01.07.2016

Smart device adoption has reached the tipping point

Connected devices per Smart Home



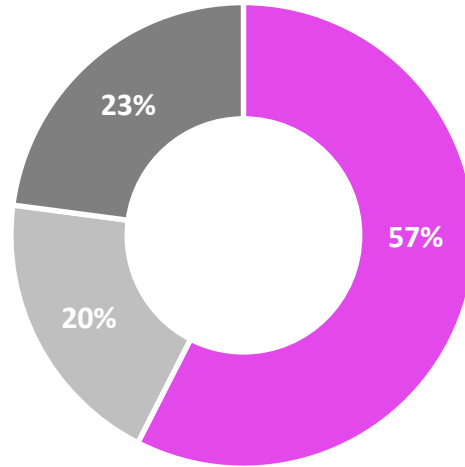
Top 10 Smart Home devices



Q1) Which connected devices do you use in your home?

Many users never update their home gateway firmware

Home gateway firmware updates

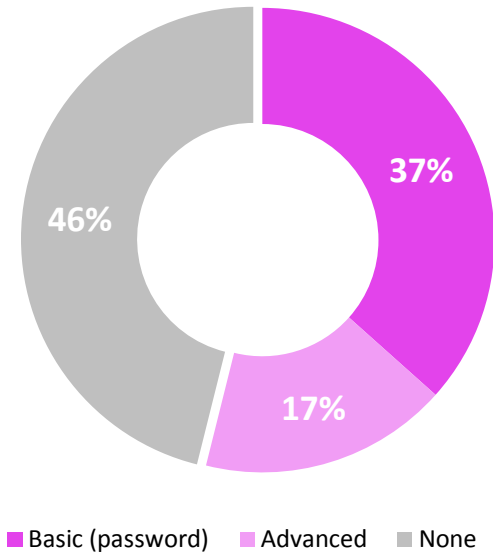


■ At least once a year ■ Never done ■ Didn't know was possible

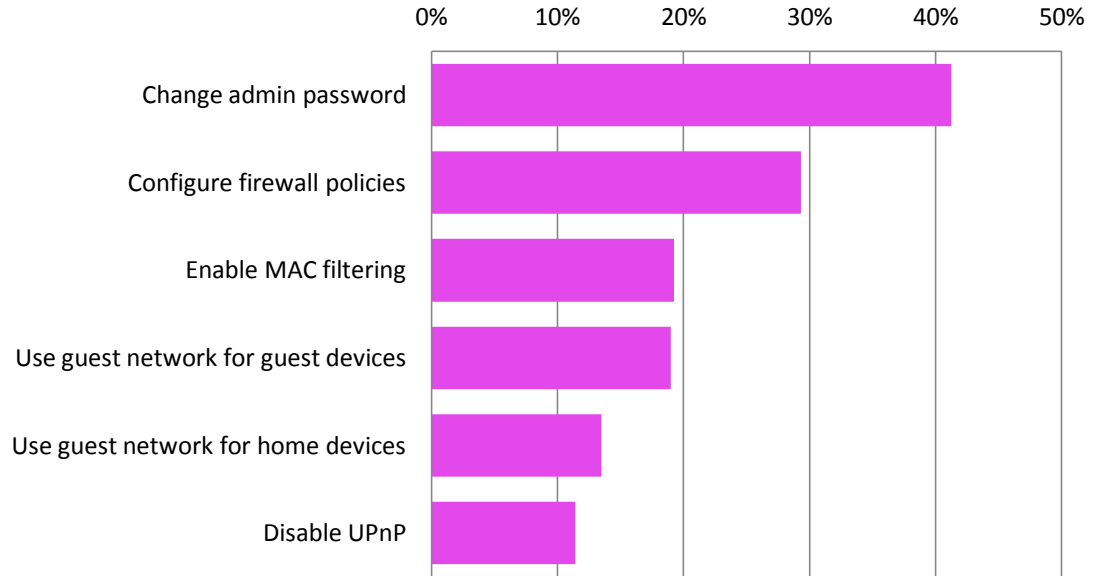
3) How many months has it been since the firmware on your router at home was last updated?

Many users never configure security settings

Home gateway security

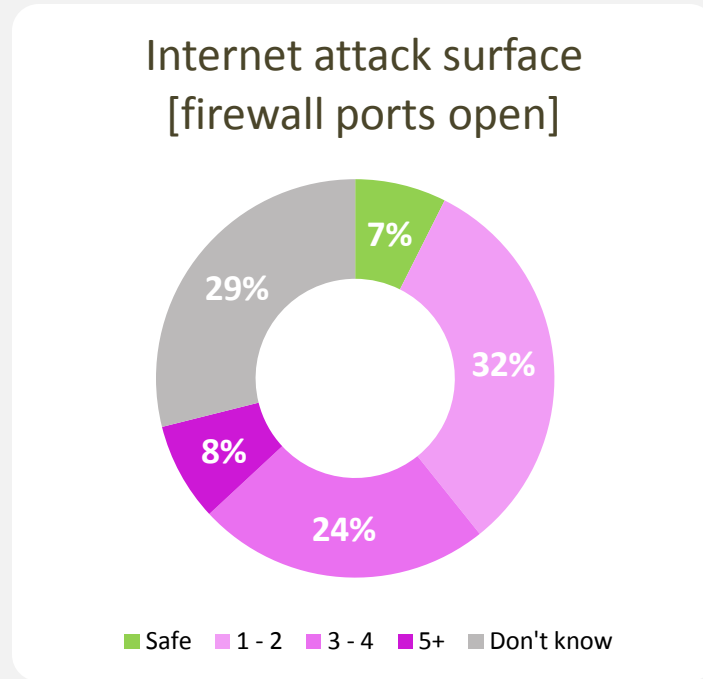


Measures taken to secure the home gateway



Q4) Do you or does anyone else in your household take the following measures to secure your home router?

Too many firewall ports are unnecessarily open

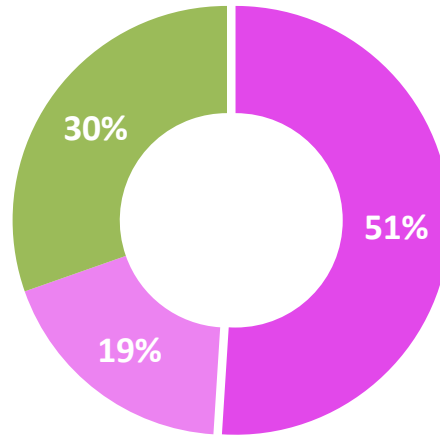


Q5) How many services in your home (such as games consoles, VoIP apps such as Skype, etc.) require open ports on your home router firewall?



Most users prefer security over ease of use

Consumer choice - security vs. ease of use

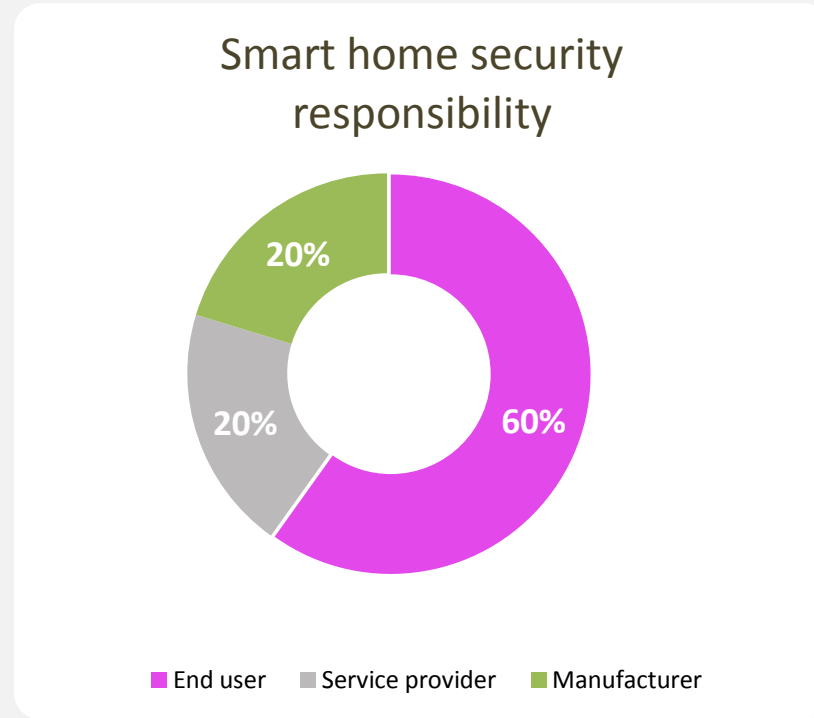


■ Security ■ Configurable usability vs. security ■ Ease of use

Q6) When thinking about connected devices, what do you think is the most important out of the following?



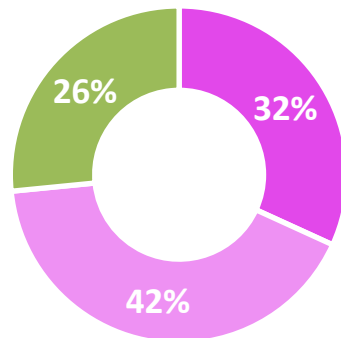
Most users want to be responsible for security



Q7) From the following, who do you think should be most responsible for the security of your connected devices?

... and would pay a premium for more secure devices

Would pay a premium for more secure devices



- Security concerns keep me from buying more smart devices
- I would pay a premium for more secure devices
- I am not concerned about the security of smart devices

Q8) Which of the following statements best describes your views on connected devices?



Top 10 tips for better smart home security

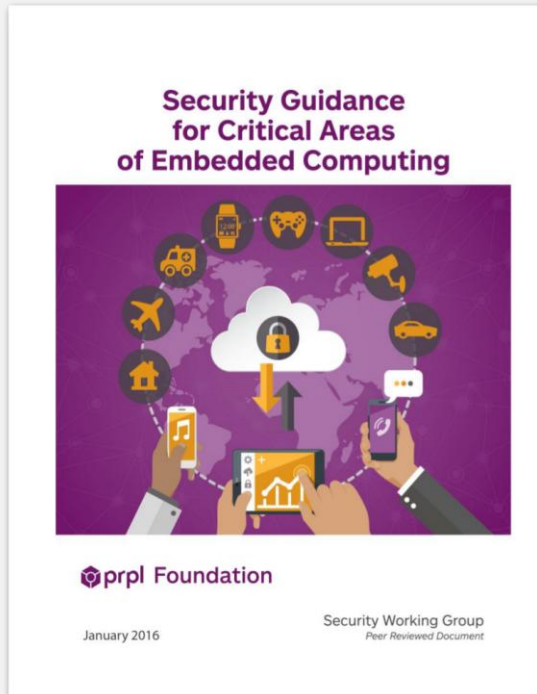


Top tips for better smart home security

- 1 Regularly check router firmware updates
- 2 Change default admin password on router
- 3 Configure firewall policies – close all ports
- 4 Enable MAC filtering
- 5 Use guest network for guest devices
- 6 Use guest network for all home devices
- 7 Enable wireless isolation
- 8 Disable DNS setting via DHCP
- 9 Disable USB file sharing
- 10 Disable UPnP

Source: Smart Home Security Report 2016, prpl Foundation, September 2016 - <https://prpl.works/smart-home-security-report/>

prpl Foundation Reference Publications





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<http://prpl.works>

Smart device adoption has reached the tipping point

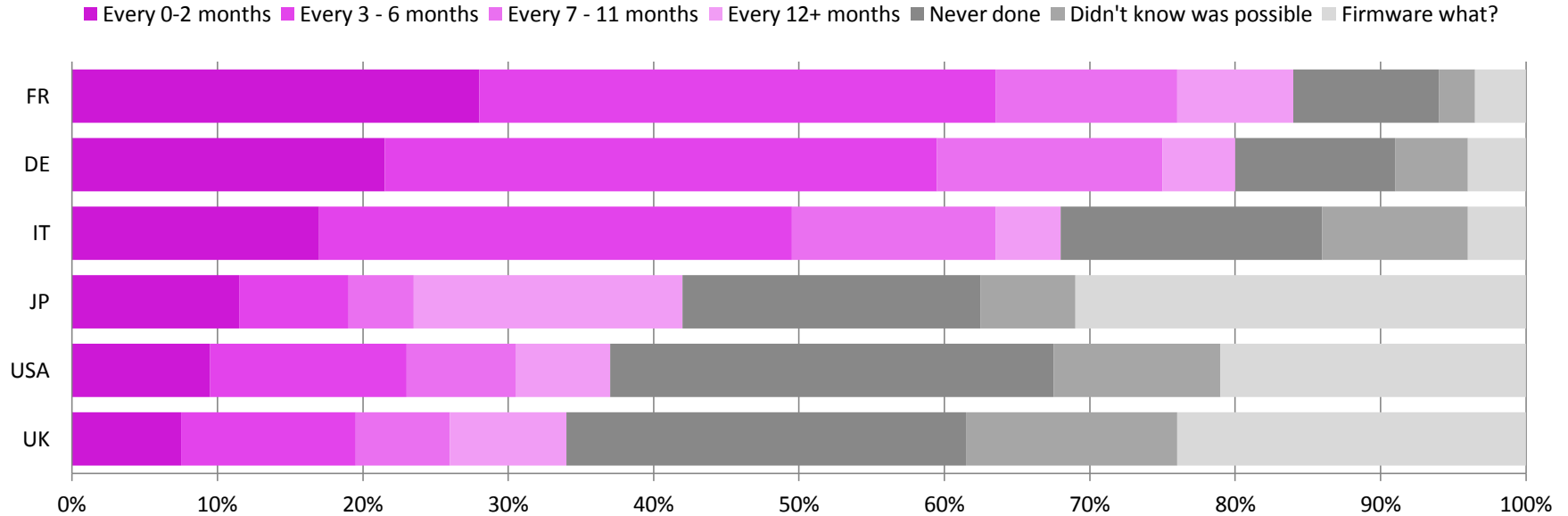
Smart devices per household by country



Q1) Which connected devices do you use in your home?

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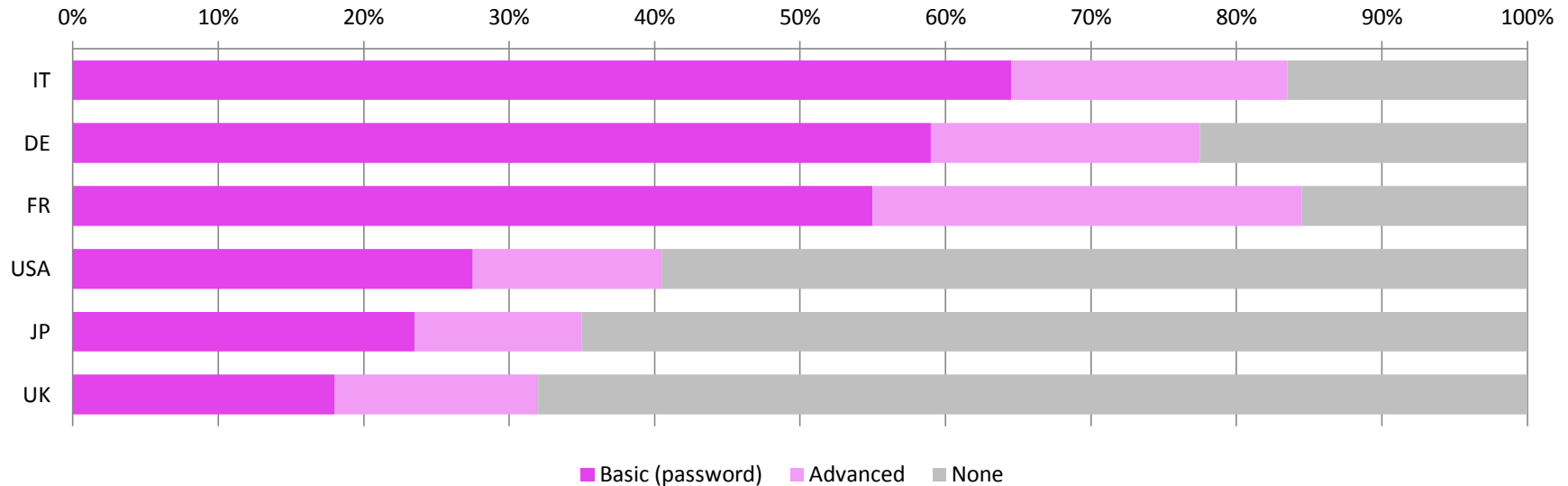
Home gateway firmware updates by country



3) How many months has it been since the firmware on your router at home was last updated?

Many users never configure security settings

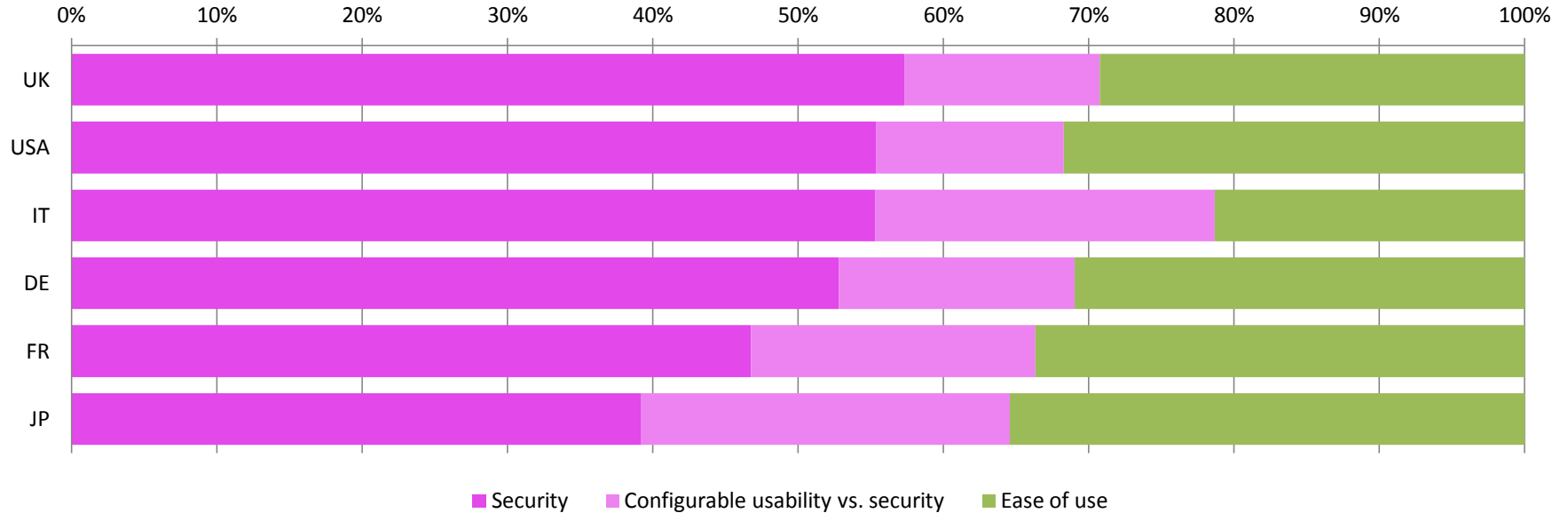
Users managing the security of their home gateway by country



Q4) Do you or does anyone else in your household take the following measures to secure your home router?

Most users prefer security over ease of use

Consumer choice - security vs. ease of use

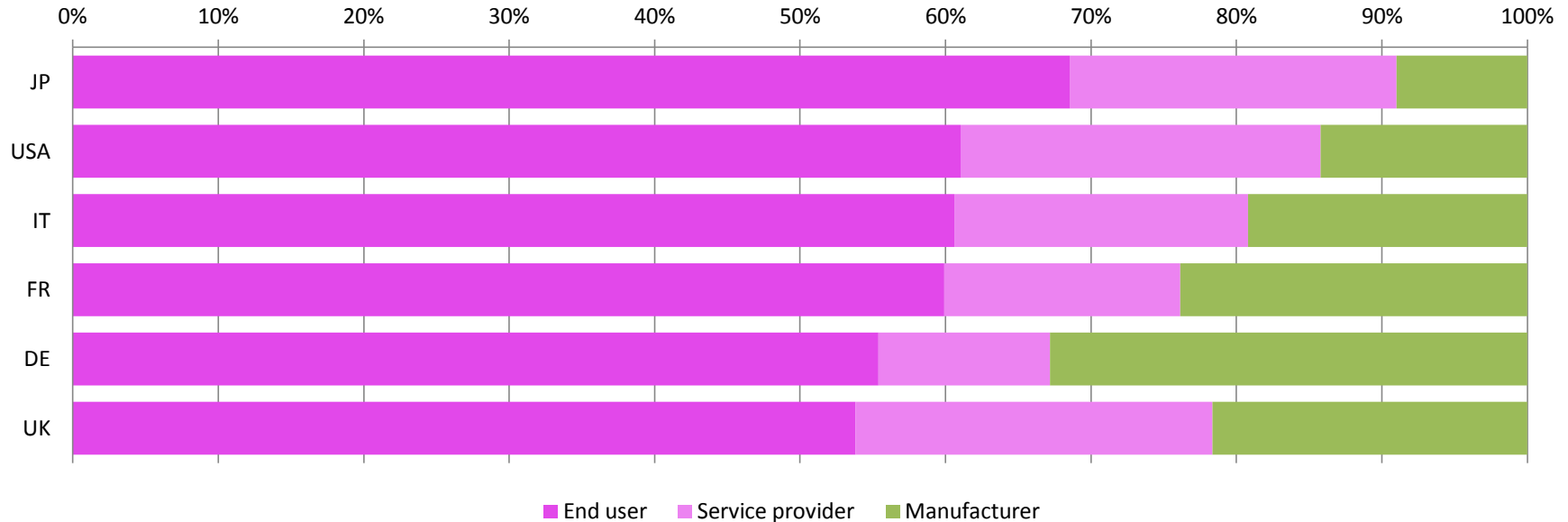


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Most users want to be responsible for security

Who should be most responsible for security

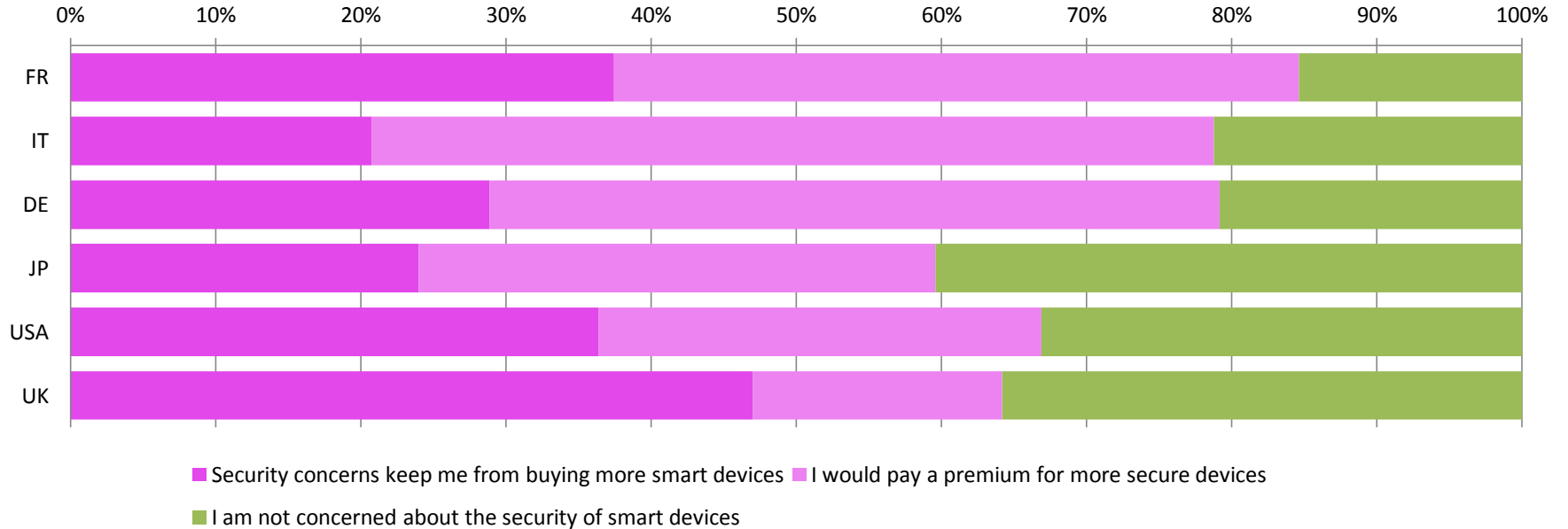


Q7) From the following, who do you think should be most responsible for the security of your connected devices?



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Consumers would pay a premium for more secure devices

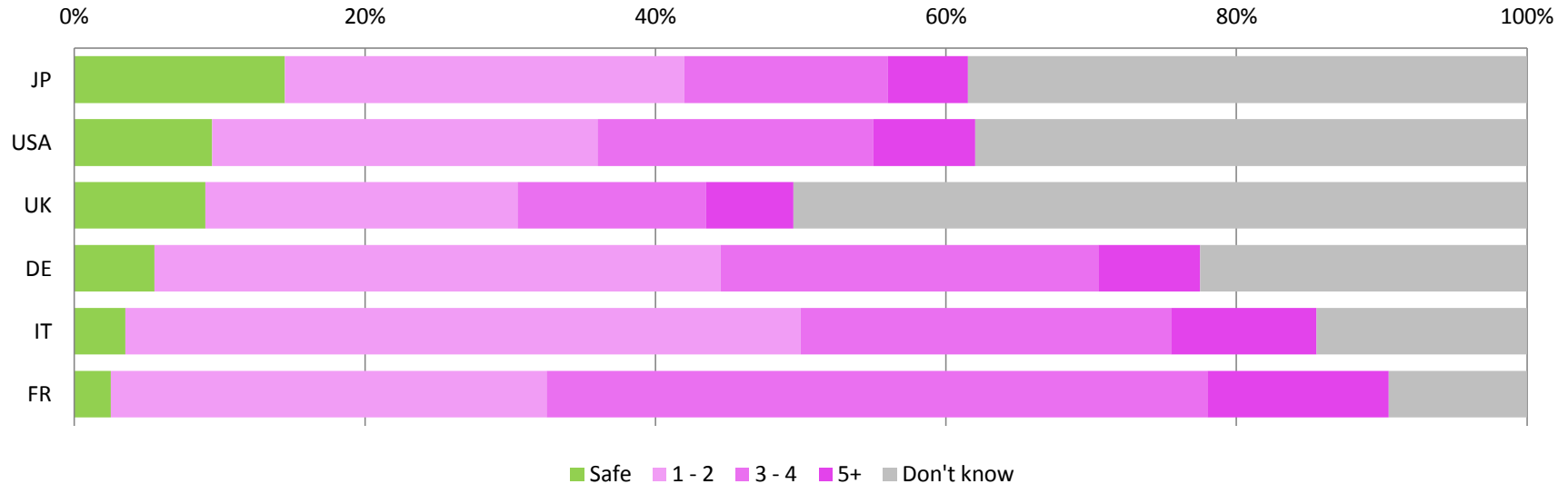


Q8) Which of the following statements best describes your views on connected devices?



Too many firewall ports are unnecessarily open

Internet attack surface by country
[number of services requiring open ports on the firewall]



Q5) How many services in your home (such as games consoles, VoIP apps such as Skype, etc.) require open ports on your home router firewall?