

# INTERNET OF THINGS: CONSUMER LANDSCAPE

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Federal Trade Commission

The views expressed are those of the speaker and not necessarily those of the FTC or any one of its Commissioners

# FTC Background

- Independent law enforcement agency
- Consumer protection and competition mandate
- Privacy and data security are a consumer protection priority
  - Enforcement
  - Policy initiatives
  - Consumer education and business outreach

# FTC Background

- **FTC Act** (15 U.S.C. §§ 41-58, as amended)
  - Prohibits unfair or deceptive acts or practices.
    - **Unfairness**
      - Acts or practices that cause or are likely to cause substantial injury to consumers which is not reasonably avoidable by consumers themselves and not outweighed by countervailing benefits to consumers or to competition.
    - **Deception**
      - A material representation, omission or practice that is likely to mislead the consumer acting reasonably in the circumstances, to the consumer's detriment.

# FTC Background

- **Children’s Online Privacy Protection Act of 1998 (“COPPA”)**  
(15 U.S.C. §§ 6501-6506)
  - Protects children’s privacy.
- **Gramm-Leach-Bliley Act**  
(Pub. L.106-102, 113 Stat.1338, codified in relevant part at 15 U.S.C. §§ 6801-6809 and §§ 6821-6827, as amended)
  - Protects consumers’ personal financial information.
- **Fair Credit Reporting Act**  
(15 U.S.C. §§ 1681-1681x, as amended)
  - Protects consumers’ information collected by reporting agencies, such as credit bureaus, for eligibility decisions.

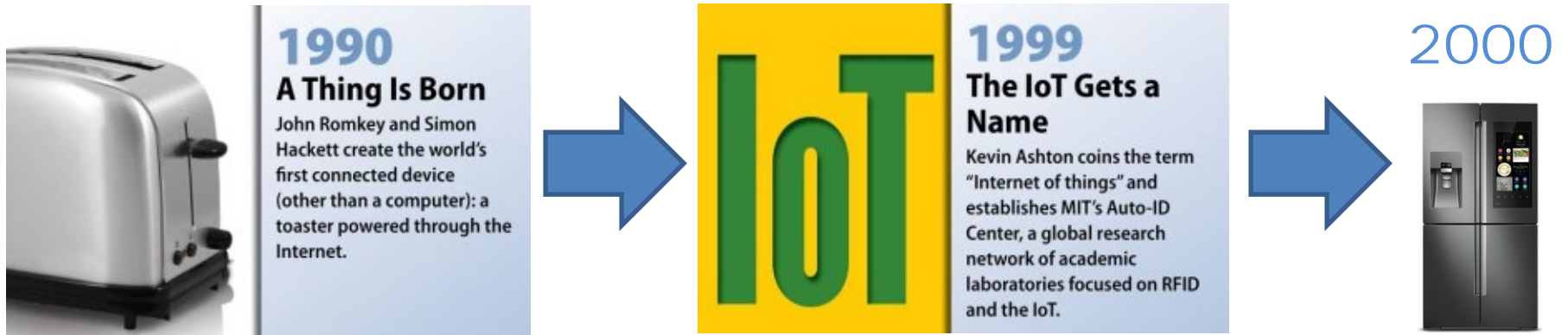
# FTC Data Security Cases



# FTC Privacy Cases



# What is the “Internet of Things”?



The Internet of Things “refers to ‘things,’ such as devices or sensors – other than computers, smartphones, or tablets – that connect, communicate or transmit information with or between each other through the Internet.”

# FTC IOT Publications

## CAREFUL CONNECTIONS

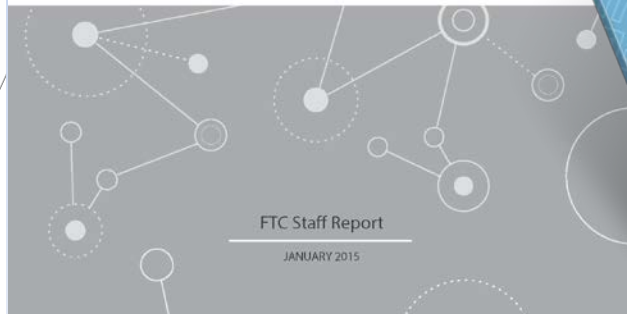
Building Security in the Internet of Things



Federal Trade Commission | [business.ftc.gov](http://business.ftc.gov)

## internet of things

Privacy & Security in a Connected World



FTC Staff Report  
JANUARY 2015





# Consumer Benefits

- Healthcare
  - Reduce healthcare costs while giving consumers the ability to record, track, and monitor their own vital signs
- Home Automation
  - Greater energy efficiency and reduced costs
- Transportation
  - Safety and convenience benefits
- Societal Benefits
  - Aggregation of big data can lead to research and breakthroughs.

# Consumer Risks: Privacy

- Direct collection of sensitive personal information
- Collection of personal information, habits, locations, and physical conditions over time, leading to inferences or unanticipated consequences
- Lack of consumer knowledge or consent
- Lack of accuracy of the data
- Amalgamation of various sources of data

# Consumer Risks: Security

- Enabling unauthorized access and misuse of personal information
- Facilitating attacks on the consumer's network or other systems
- Risks to personal and physical safety

# Internet of Things: Privacy

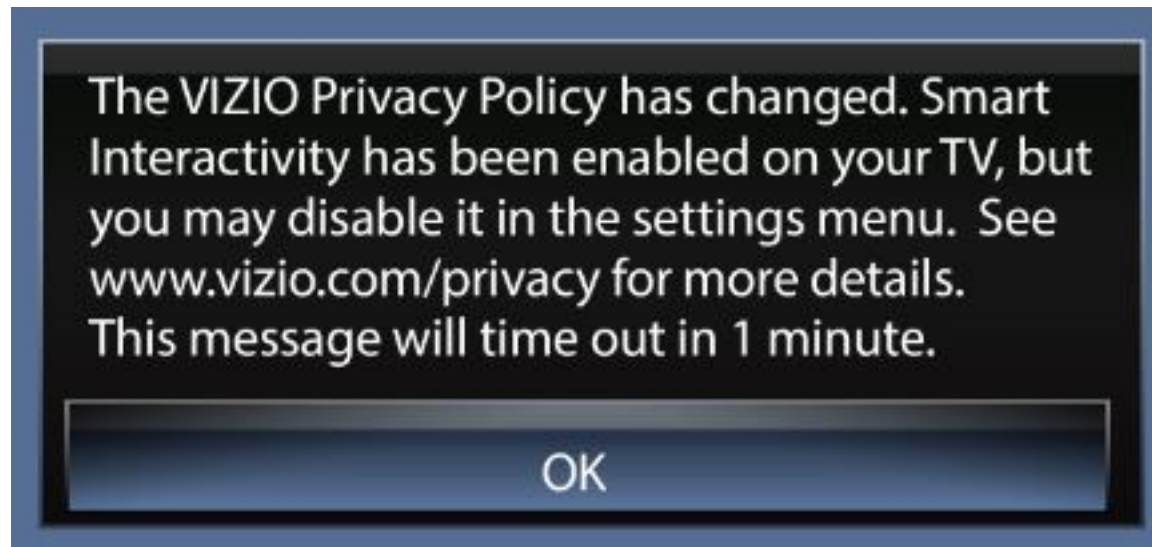
## User *Experience* Design

Many connected devices may not even have a traditional user interface, so companies must think holistically about the information and expectations that are conveyed through the broader user experience:

- Choices at point of sale
- Tutorials
- Codes on the device
- Choices during setup
- Management portals or dashboards
- Icons
- “Out of band” communications requested by consumers
- General privacy menus
- A user experience approach

# Lessons Learned from FTC Cases

- Vizio: Deceptive User Interface Design



# Internet of Things: Security

“The first step is remarkably hard: understanding that you have a problem. More precisely, it’s understanding that you’re in the networked software business, with all that implies, rather than in the phone, thermostat, printer, light bulb, or what have you business.”

Steve Bellovin, former FTC Chief Technologist, “Shipping Security”

- ❑ Is the software offered to consumers (e.g., device firmware, companion app, backend services) secure?
  - ❑ Does it store data securely?
    - ❑ FTC Cases: *Credit Karma*, *HTC America*, *TRENDnet*
  - ❑ Does it transmit data securely?
    - ❑ FTC Cases: *Fandango*, *Credit Karma*, *TRENDnet*
  - ❑ Are the APIs secure?
    - ❑ FTC Case: *Snapchat*

# Lessons Learned from FTC Cases

- TRENDnet: Lack of Security by Design

Direct Video Stream Authentication:  Enable

**TRENDnet** Wireless Internet Camera Server  
TV-IP110W  
Location: 2006/12/31 11:42:29

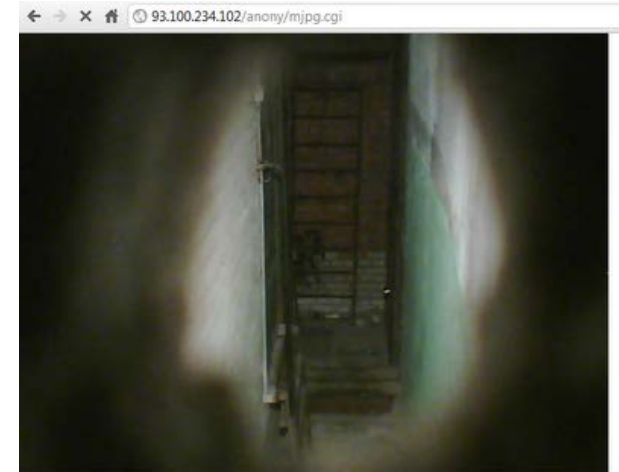
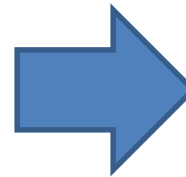
**Basic > User**

**User Accounts**

|                |                   |                                    |   |
|----------------|-------------------|------------------------------------|---|
| Administrator: | Password:         | <input type="text"/>               |   |
|                | Confirm Password: | <input type="text"/>               | <input type="button" value="Modify"/>     |
| General User:  | User Name:        | <input type="text" value="user"/>  |   |
|                | Password:         | <input type="text"/>               | <input type="button" value="Add/Modify"/> |
|                | UserList:         | <input type="text" value="user"/>  | <input type="button" value="Delete"/>     |
| Guest:         | User Name:        | <input type="text" value="guest"/> |   |
|                | Password:         | <input type="text"/>               | <input type="button" value="Add/Modify"/> |
|                | UserList:         | <input type="text" value="guest"/> | <input type="button" value="Delete"/>     |

Direct Video Stream Authentication:  Enable

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# Internet of Things: Security

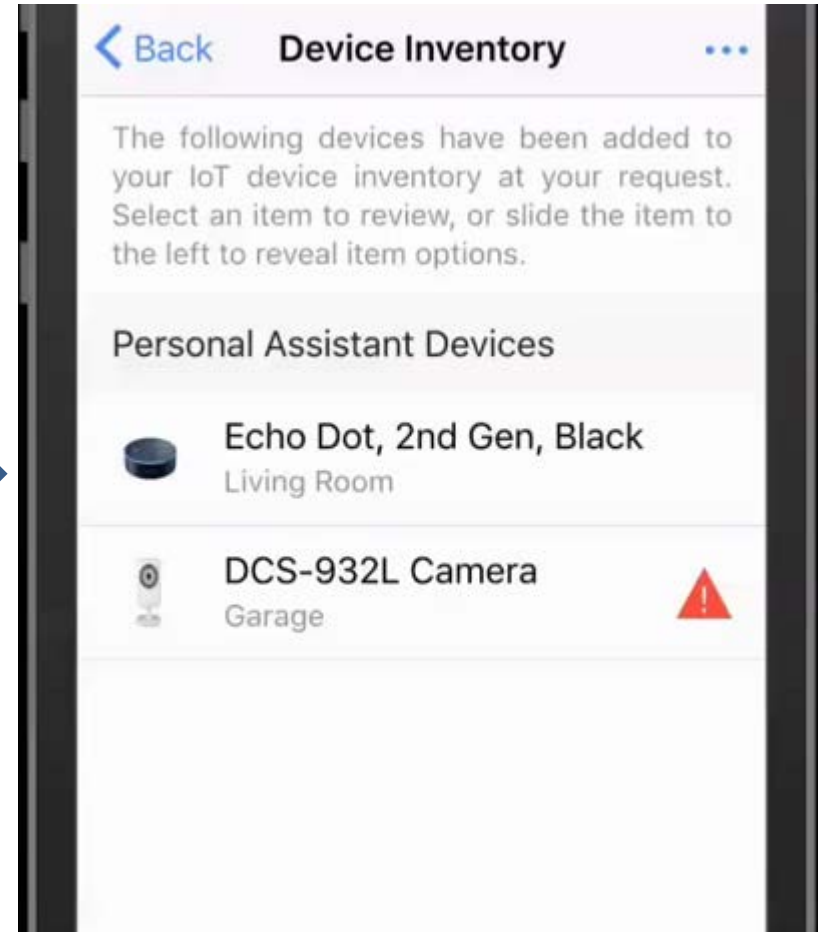
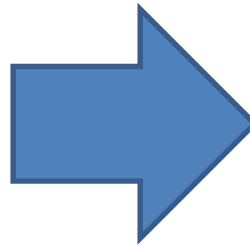
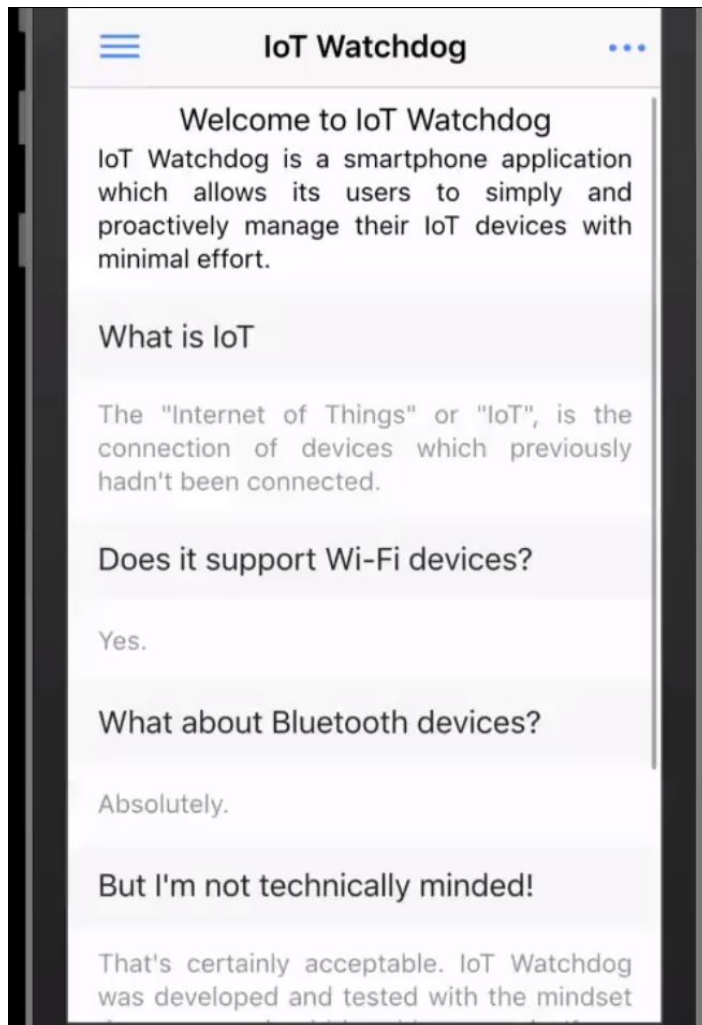
“What will be the level of security and support [IoT devices receive] while under warranty? If a critical vulnerability is discovered, will an update be provided? What happens after the warranty expires? Should modern refrigerators have a shelf-life, much like the food contained within?”

Ashkan Soltani, Former FTC Chief Technologist, “What’s the security shelf-life of IoT?”

- ❑ Security is an Ongoing Process
  - ❑ IoT companies need to have a process for receiving, managing, and addressing security vulnerability reports
    - ❑ FTC Cases: *HTC America*, *Fandango*
- ❑ Security Updates and End-of-Life
  - ❑ Deploy and inform users about security updates
  - ❑ Informing consumers about minimum support periods and end-of-support



# Home Inspector Challenge



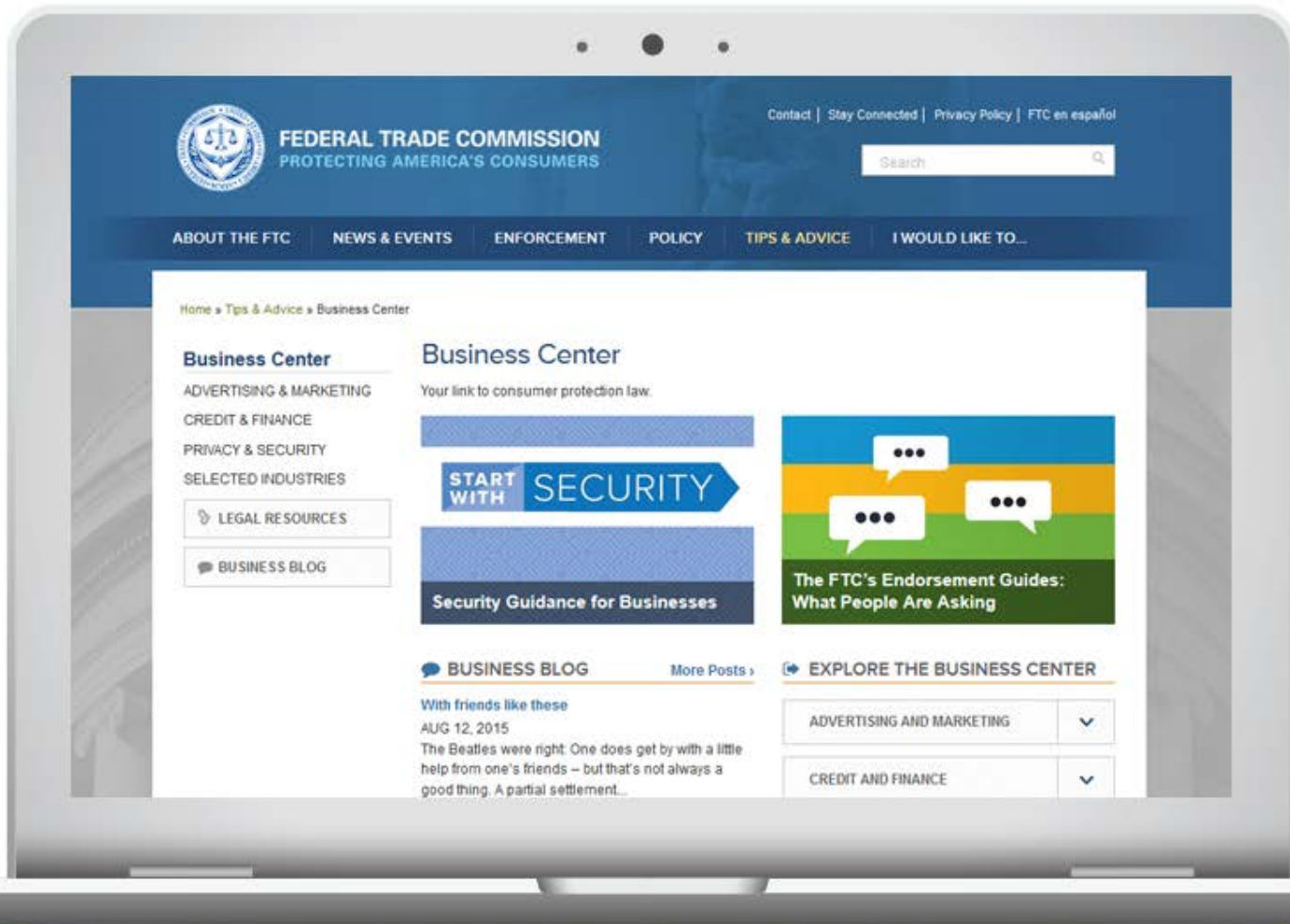
# FTC Resources

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

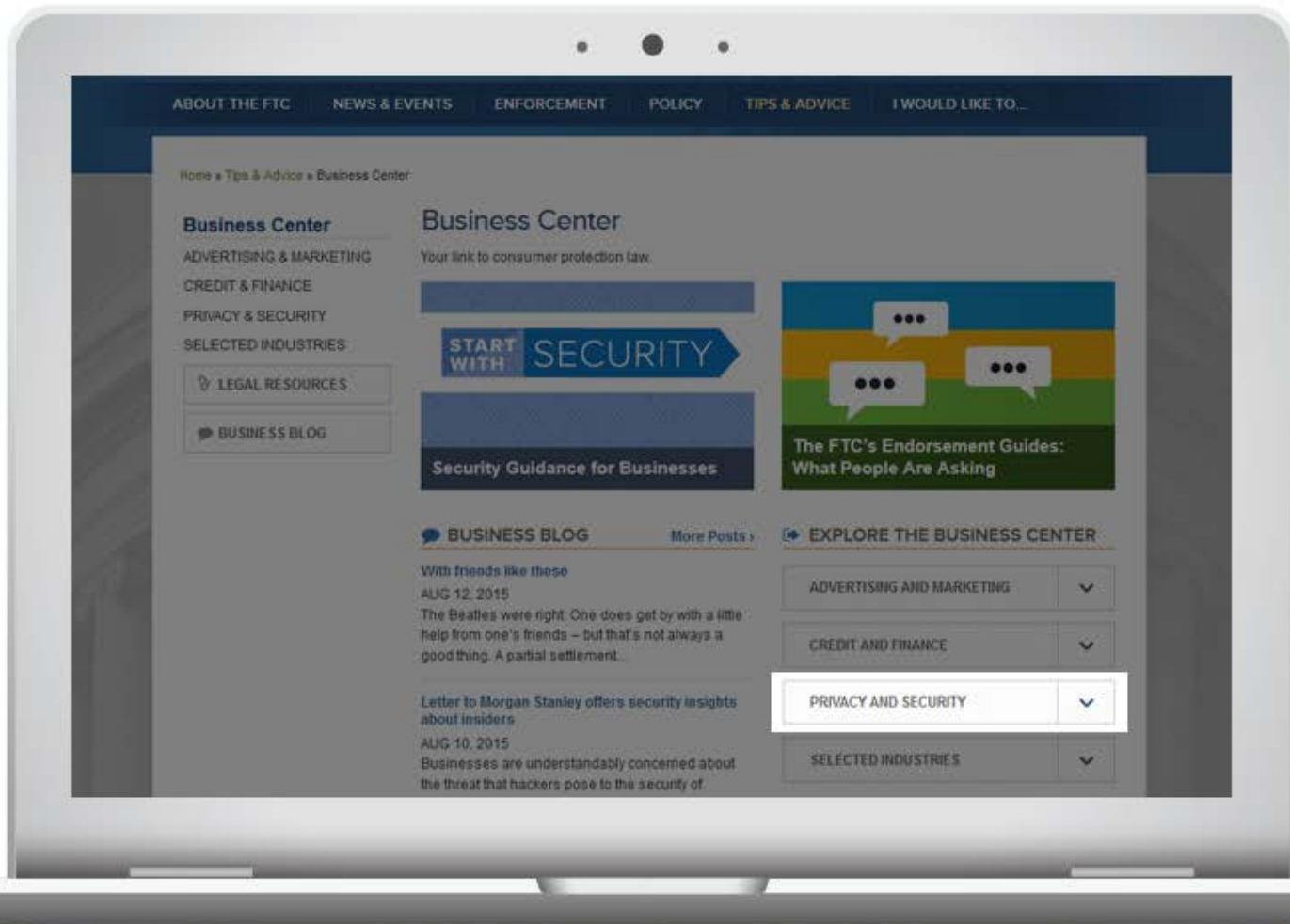
[www.business.ftc.gov](http://www.business.ftc.gov)

- Internet of Things Report
- Start with Security: A Guide for Business
- Careful Connections: Building Security in the Internet of Things
- Cross-Device Tracking Report

# business.ftc.gov



# business.ftc.gov



# Questions?

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