



The Illusion of Privacy

Disclaimer: The thoughts and opinion expressed in this presentation are those of the author and not of his employer.

Definition of Privacy

p r i · v a · c y

/ ' p r ī v ə s ē /

noun

the state or condition of being free from being observed or disturbed by other people.

"she returned to the privacy of her own home"

synonyms:

seclusion, privateness, solitude, isolation, retirement, peace, peace and quiet, peacefulness, quietness, lack of disturbance, lack of interruption, freedom from interference;

PEOPLE IN THE 60s

I better not say that
or the government
will wiretap my house.

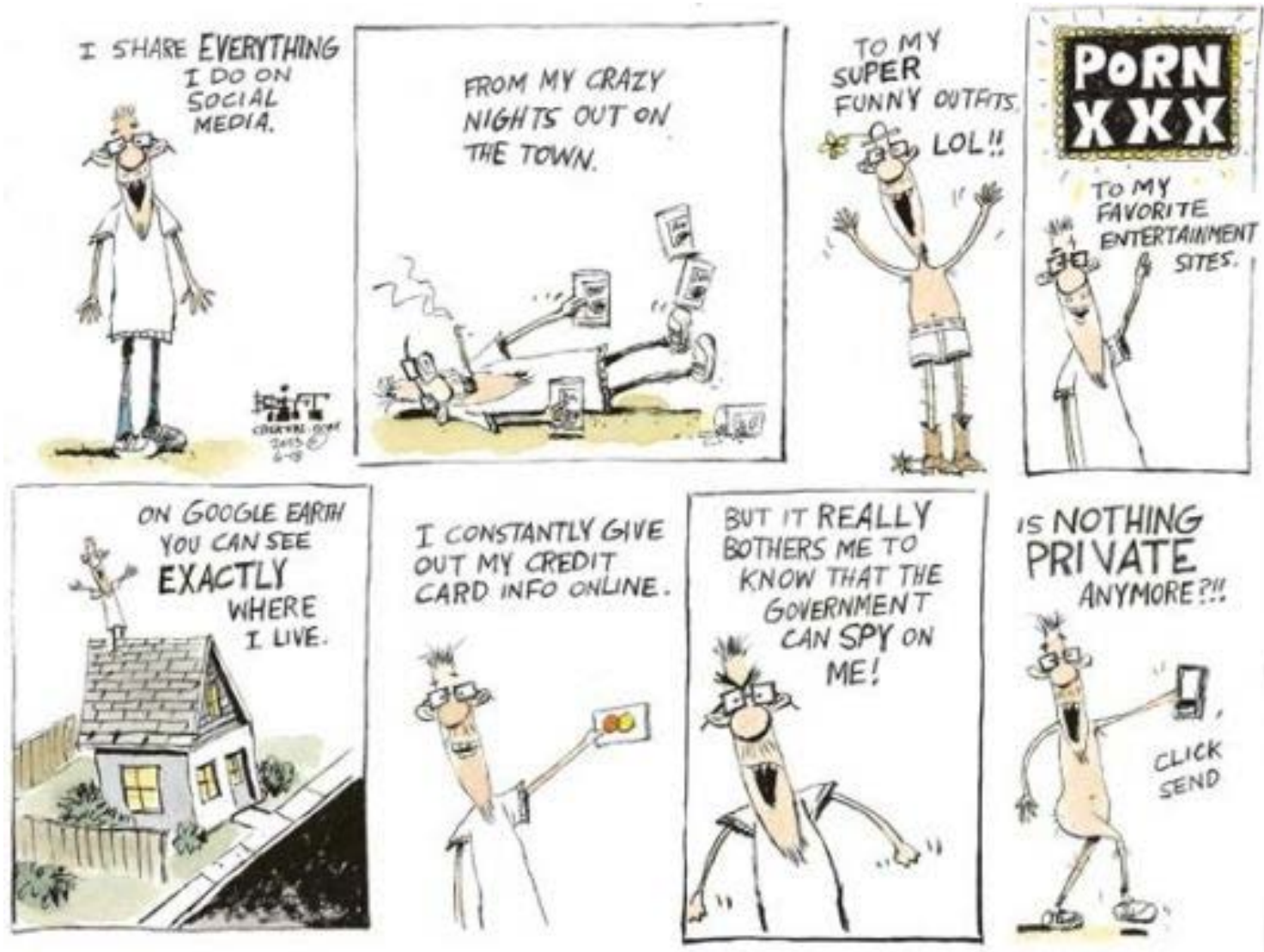




People Today



Is NOTHING Private Anymore

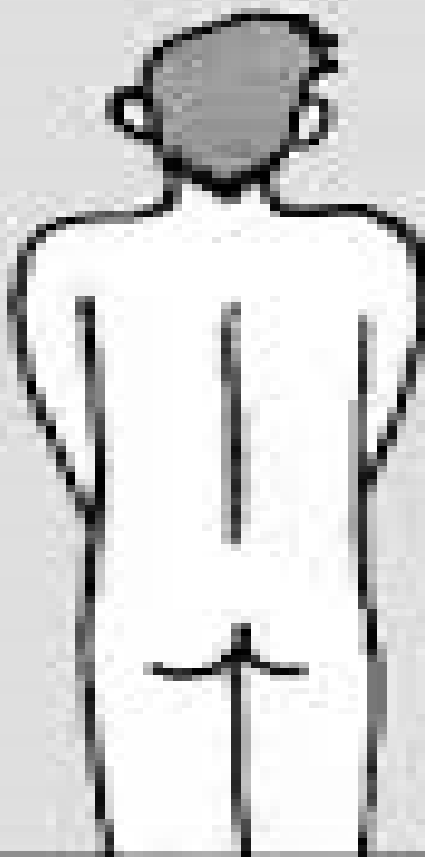


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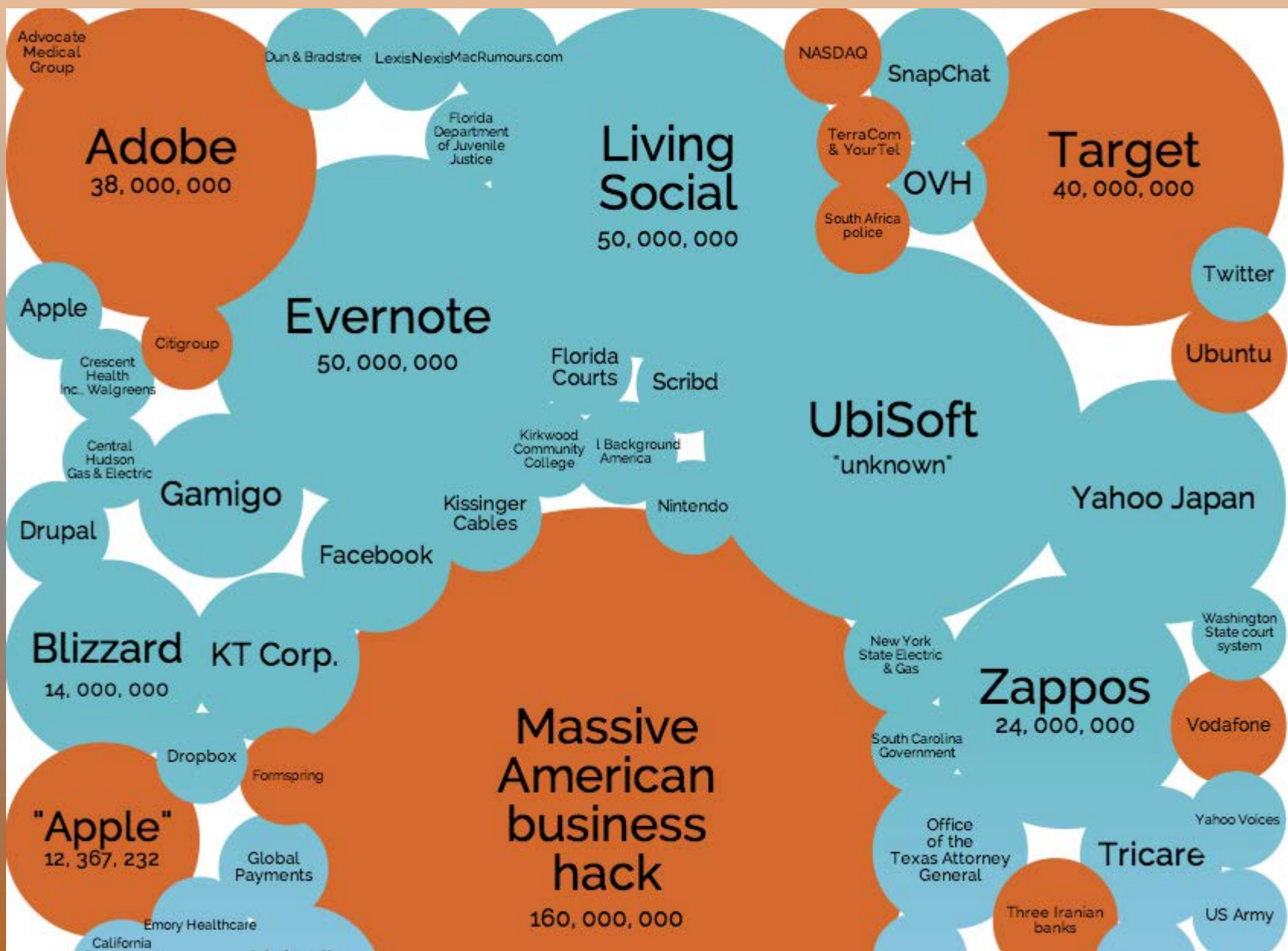
YouTube



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Google



THE REALITY OF DATA BREACHES

DATA RECORDS COMPROMISED IN FIRST HALF OF 2018

4,553,172,708

25,155,650
records lost or stolen
every day

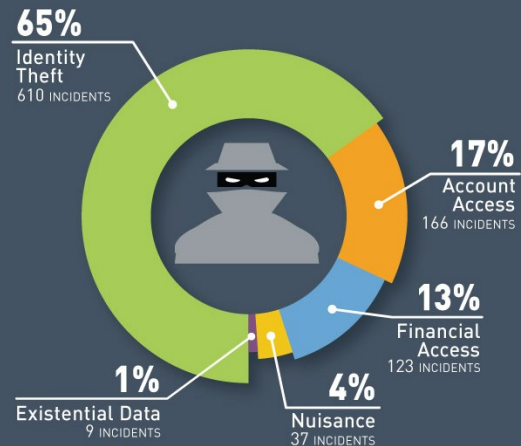
1,048,152
records
every hour

17,469
records
every minute

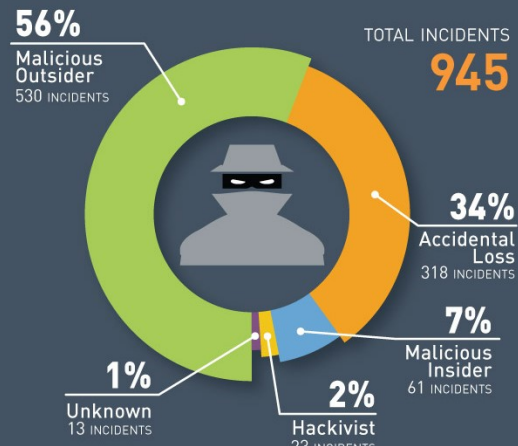
291
records
every second

LESS THAN 3% of breaches were "Secure Breaches" where encryption rendered the stolen data useless

Number of Breach Incidents by Type



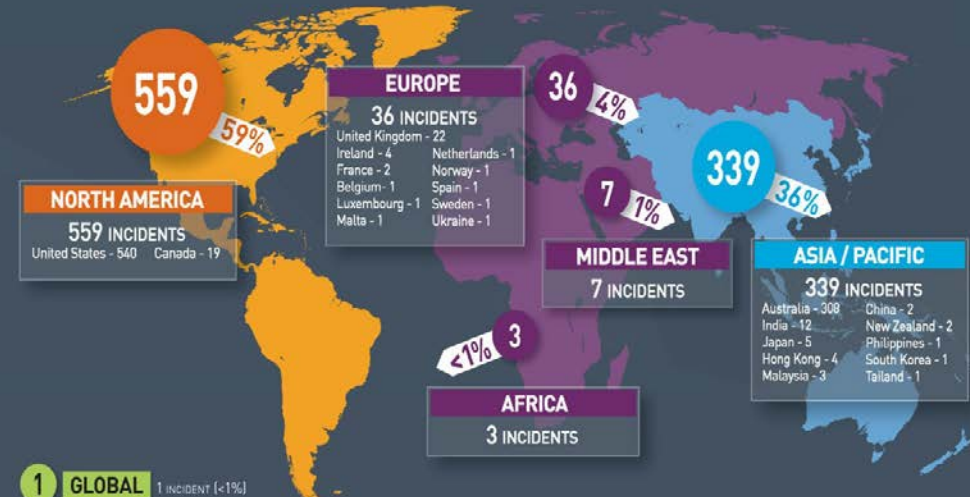
Number of Breach Incidents by Source

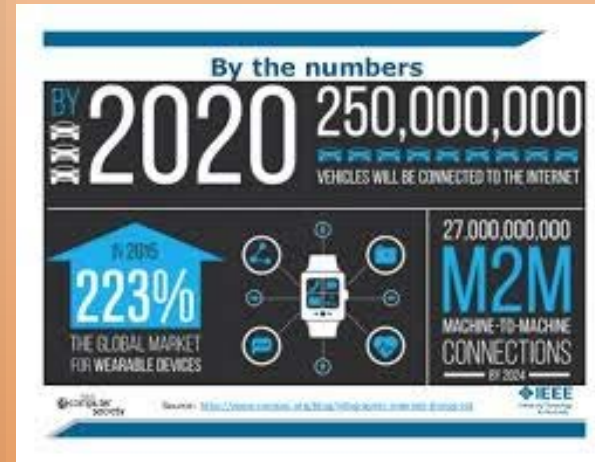
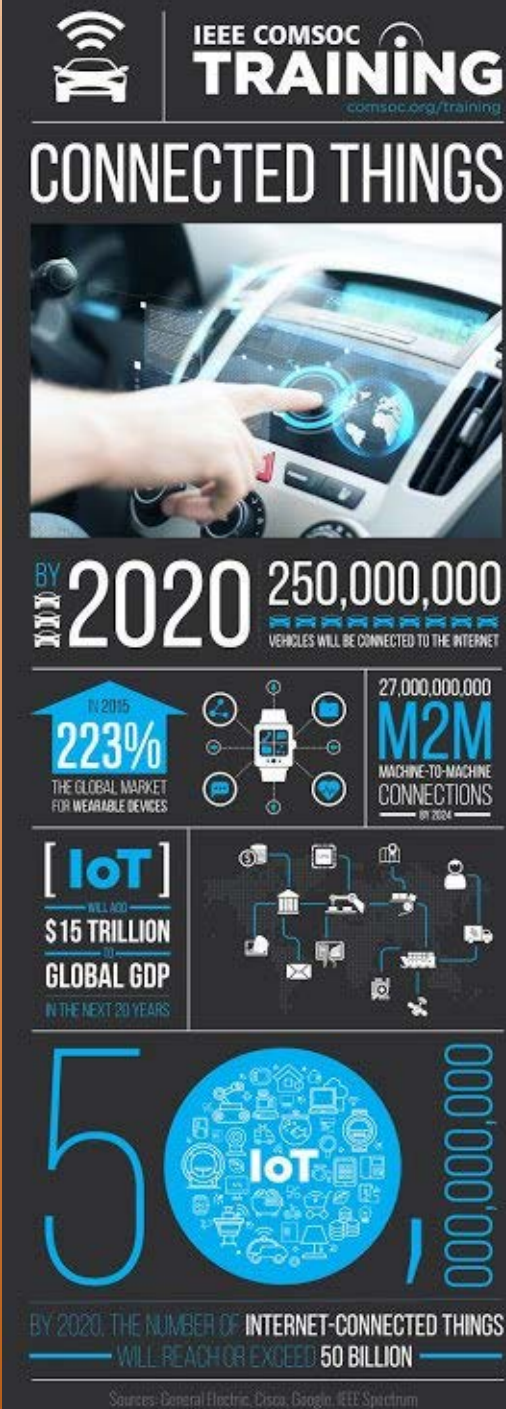


Number of Breach Incidents by Industry

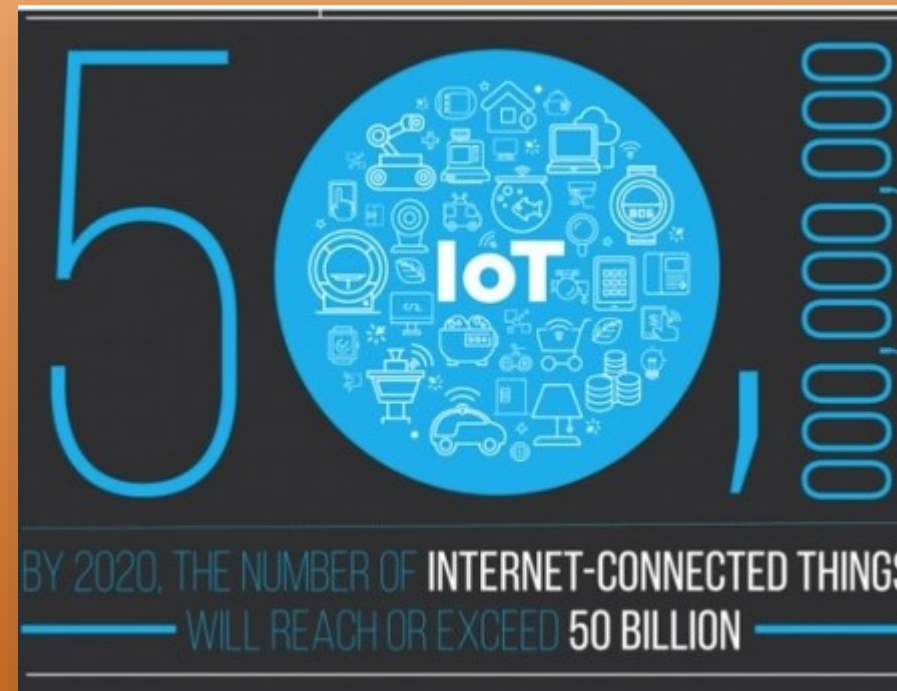


Breach by Region*





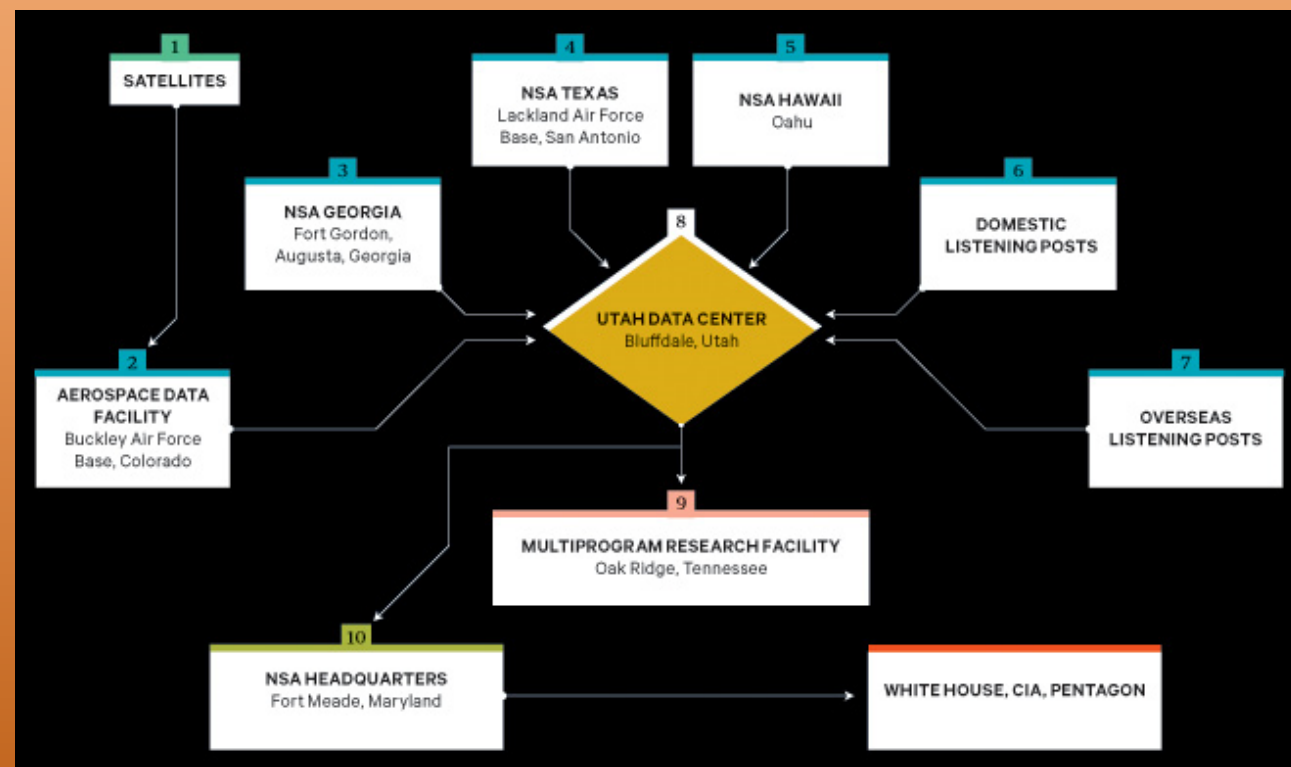
Advancements in technology far outpace our abilities to cope with the moral and legal ramifications.





- 1 Visitor control center
A \$9.7 million facility for ensuring that only cleared personnel gain access.
 - 2 Administration
Designated space for technical support and administrative personnel.
 - 3 Data halls
Four 25,000-square-foot facilities house rows and rows of servers.
 - 4 Backup generators and fuel tanks
Can power the center for at least three days.
 - 5 Water storage and pumping
Able to pump 1.7 million gallons of liquid per day.
 - 6 Chiller plant
About 60,000 tons of cooling equipment to keep servers from overheating.
 - 7 Power substation
An electrical substation to meet the center's estimated 65-megawatt demand.
 - 8 Security
Video surveillance, intrusion detection, and other protection will cost more than \$10 million.
- Source: U.S. Army Corps of Engineers Conceptual Site plan

NSA UTAH Data Center



NSO Pegasus

Pegasus can infect fully up-to-date Android and iPhone devices, and siphon a target's emails, Facebook chats, and photos; pick up their GPS location and phone calls, and much more.



“If you are not paying for it,
you’re not the customer; you’re
the product being sold.”

Andrew Lewis on MetaFilter





What can you DO?

Consent: to be informed consumers we need to understand and evaluate the trade offs

Educate yourself and consider the risks

IoT and Big Data
A DAY IN A CONNECTED LIFE

SHARE



INTRODUCTION
Wearable Wristband

Cyma can provide a wearable wristband to track workouts. The wristband is assigned to a user and can track heart rate, amount of weight lifted and duration of the exercise. The wristband can also give access to classes with a tap of the wrist.

IEEE EXPERT'S OPINION
About Your Data


How could your data be used?

"Appropriate and accurate sensor data can enable and support the improvement of user health, as a motivation or to quantify progress along the path to achieve their fitness and wellness goals. In environments where real-time performance assessment can be done, the data can be used in social engagement around a group or shared set of metrics and goals."

What are the security and privacy concerns with this device?

"This data can be perceived to provide personal, health or confidential information to unauthorized parties without the user's authorization. While there is a variable degree of sensitivity to the privacy of such data, there is always a concern about the intentional or inadvertent combination of data gathered being compromised or used without consent."

KAREN LAWSON
IEEE SENIOR MEMBER





IEEE

Can you think of some risk that might come from health information, including your blood pressure, heart rate, weight, workout routine, sleep patterns and much more?

Can you think of some risk that might come from sharing your shopping habits, taste, behaviors and patterns?

IoT and Big Data
A DAY IN A CONNECTED LIFE

SHARE



Shopping Connected App

While at the supermarket, IoT devices embedded in shelving or products can offer money saving coupons and offers. A connected app can offer customers money-saving coupons and promotions by using location-based tracking.

IEEE EXPERT'S OPINION
About Your Data


How could your data be used?

"By sharing information about an individual's shopping taste, behavior and pattern, a truly tailor-made purchasing experience can increase buyer loyalty and sales flow. Data can make retail therapy a solely consumer-centric experience, allowing access to new services that are favorable to customers, vendors and manufacturers."

What are the security and privacy concerns with this device?

"Hackers or cyber criminals can use a connected device to virtually invade a person's privacy and security domain, tapping into the massive data collected on consumers' personal details, location, shopping behavior, home address, etc."

SANDHYA TARAR
IEEE MEMBER

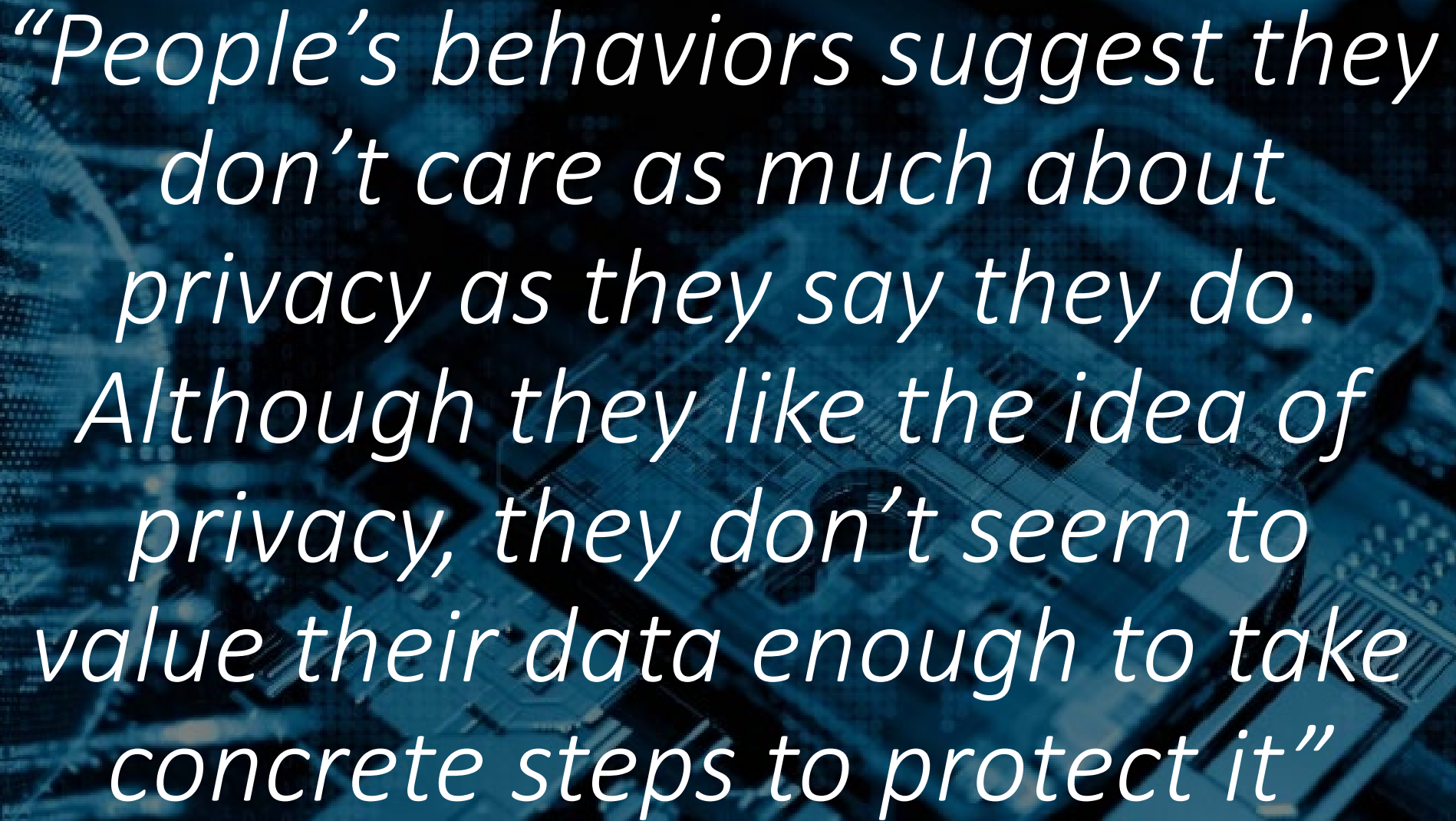


IEEE

Consider the cost of privacy in today's society

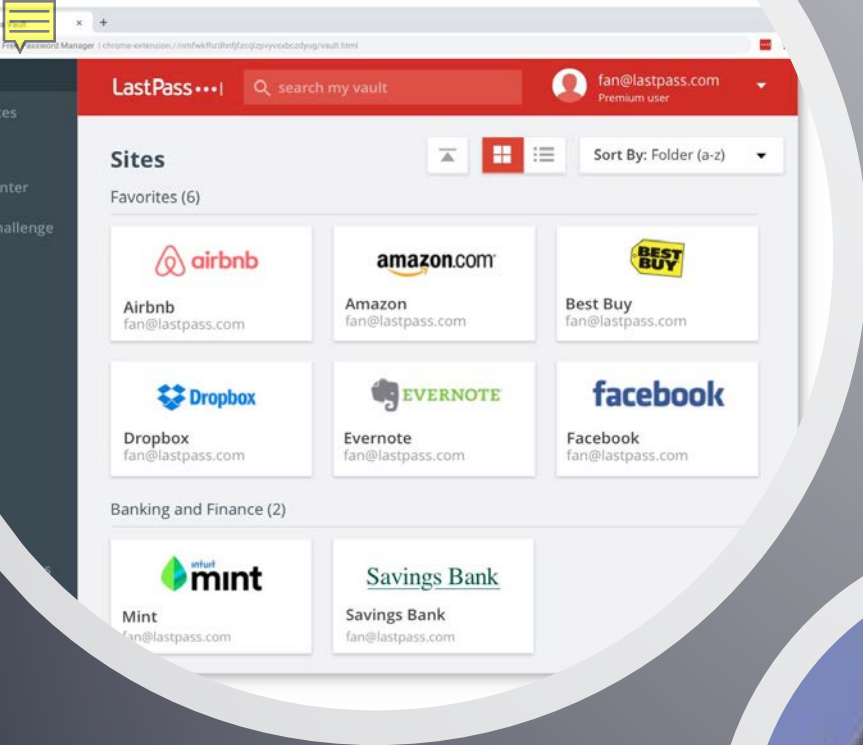
According to Mary Awailes, a strategy and insight consultant

- ❖ We routinely choose “free” services over paid models
- ❖ We’ve become conditioned to expect personalization (and the related efficiencies)
- ❖ We reward entities that deliver “radical convenience with our loyalty and word of mouth



“People’s behaviors suggest they don’t care as much about privacy as they say they do. Although they like the idea of privacy, they don’t seem to value their data enough to take concrete steps to protect it”

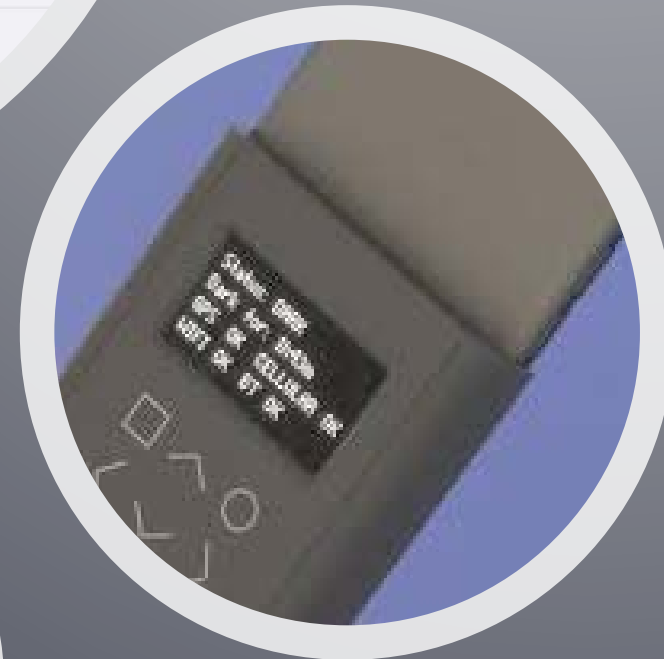
-Harvard Business Review, 12/2017



Privacy has become a commodity

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- ❖ Use a password manager like LastPass or KeePass
- ❖ Use secure platforms like the Solarin Sirin Smartphone (\$999-\$14k)
- ❖ Edward Snowden and Andrew Huang designed a phone case that connects to the radio transmitter of the phone and when the cellular, Wi-Fi, or Bluetooth connection is being used.



Personal cybersecurity priorities depend upon where the risks originate

Hackers (objective: Money) - **Lock up your data**, make it harder to use

Marketers/Corporations (objective: To drive behavior) - **Hide your identity**, and use encrypted platforms (e.g. Google Incognito Windows)

Other People (objective: various, e.g., 75%* of all data breaches are internal) - **Use Privacy settings**, encrypted platforms, encrypted data

Governments (objective: various) – **Requires “intense” technology** to erase your digital footprints

* Not all are intentional. <https://securityintelligence.com/news/insider-threats-account-for-nearly-75-percent-of-security-breach-incidents/>

In the meantime...

1. Put a credit freeze on your credit report

<https://advocacy.consumerreports.org/research/consumers-unions-guide-to-security-freeze-protection-2/>

2. Print and review your credit reports quarterly

<https://advocacy.consumerreports.org/research/consumers-unions-guide-to-security-freeze-protection-2/>

3. Opt out of credit card offers

<https://www.optoutprescreen.com/>

4. Consider the risk

5. Educate yourself

6. Vary your online behavior, use incognito browsers

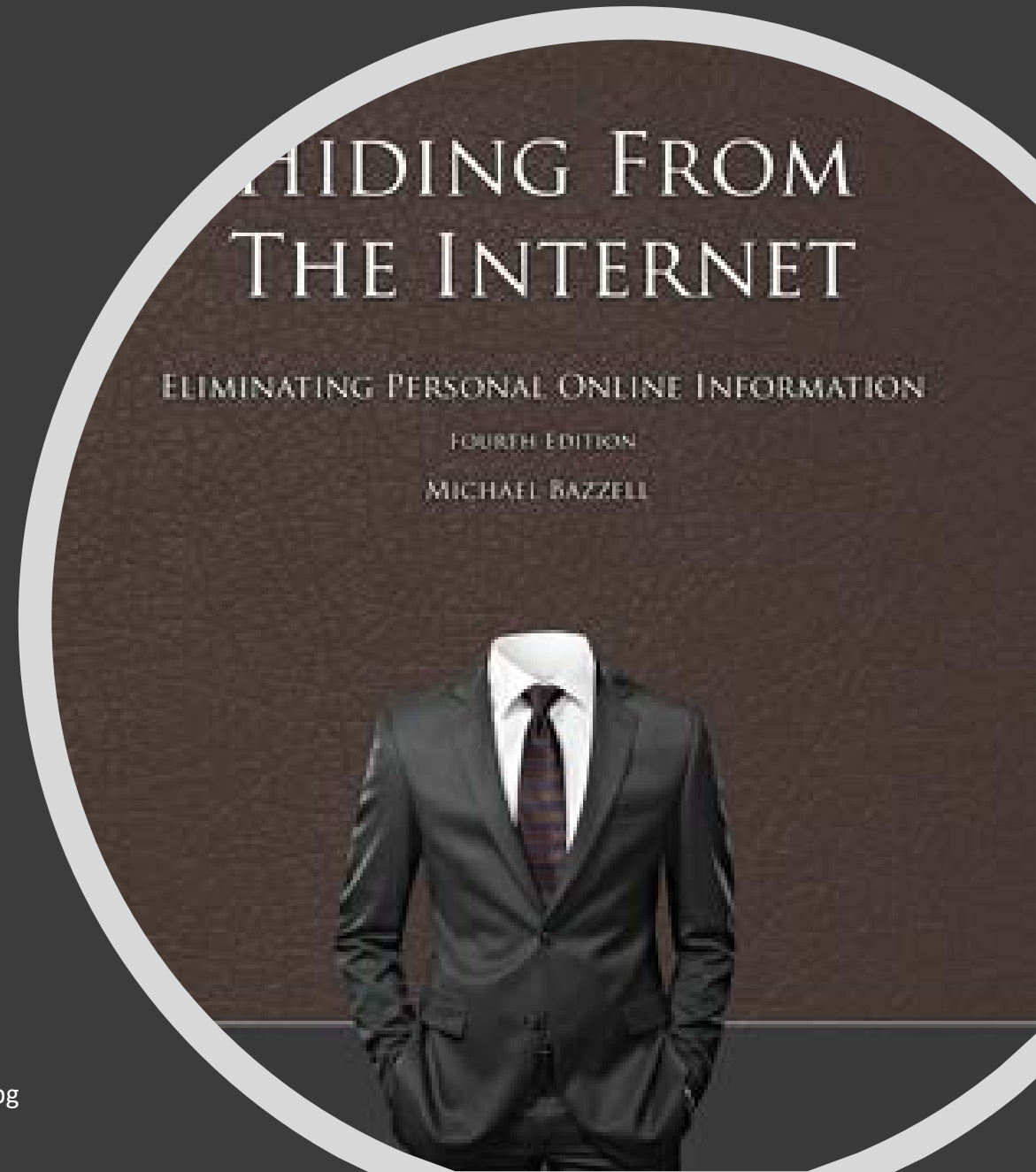
7. Don't use public Wi-Fi to access sensitive sites (any site that requires a password)

8. Only use HTTPS encrypted site when in public

9. Buy an unlimited data plan and stay off Wi-Fi completely

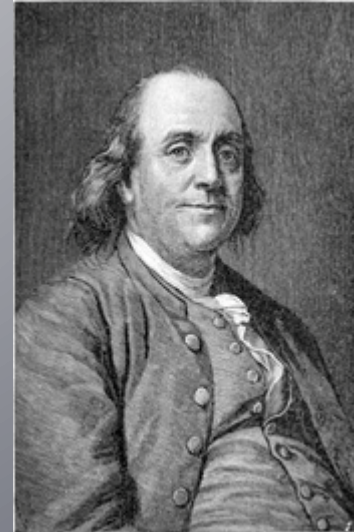
Personal Data Removal

According to Michael Bazzell's *Hiding From The Internet - Eliminating Personal Online Information Workbook* you can remove your personal data from most websites, although it is not as easy as he makes it sound.



“They who can give up essential liberty to obtain a little temporary safety deserve neither liberty nor safety.”

— Benjamin Franklin



References

- ❖ <https://www.wired.com/2012/03/ff-nsadatacenter/>
- ❖ <https://www.cbsnews.com/news/interview-with-ceo-of-nso-group-israeli-spyware-maker-on-fighting-terror-khashoggi-murder-and-saudi-arabia-60-minutes/>
- ❖ <https://www.lastpass.com/business-password-manager>
- ❖ <https://keepass.info/>
- ❖ <https://www.fastcompany.com/40466986/edward-snowden-bunnie-huang-built-a-privacy-surveillance-add-on-case-for-smartphones-iphone>
- ❖ <https://sirinlabs.com/shop/>

THANK YOU



Ivan Gil



+1 (804) 632-8365



Ivan.igil@gmail.com