



2019

# Cybercrime: **RANSOMWARE**

ADAM LIPPE

CHIEF, ECONOMIC CRIME | CYBERCRIME

BALTIMORE COUNTY STATE'S ATTORNEY'S OFFICE



# Adam Lippe

Chief, Economic | Cyber Crime Unit  
Baltimore County State's Attorney's Office

## ADMISSIONS

Maryland  
New Jersey

## EDUCATION

University of Maryland School of Law  
Johns Hopkins University

**NEW TITLE FOR NON-TECHNICAL PEOPLE**

**“SCARY STUFF THAT  
HAPPENS ON THAT  
COMPUTER THING”**





A person wearing a dark hoodie is centered in the frame. Their face is obscured by a complex, glowing blue digital overlay that resembles a circuit board or a network map. In the center of this overlay is a large, glowing blue dollar sign (\$). The person's right hand is raised, palm facing forward, with a glowing blue dollar sign (\$) superimposed over it. The background is dark and filled with a dense, glowing blue network of lines and nodes, suggesting a digital or cyber environment.

?

2019

**“SCARY STUFF THAT HAPPENS ON THAT  
COMPUTER THING”**





ASK

THE  
*Expert*



Senior Lecturer in the UMBC Department of Computer Science and Electrical Engineering, where he directs the UMBC Graduate Cybersecurity Program.

He helped to build the first formal cybersecurity program for the U.S. House of Representatives, serving as the first Chief Security Officer for Network Solutions (operator of the InterNIC), and co-founding the CyberMaryland conference.

## Richard Forno

Assistant Director, UMBC Center for Cybersecurity  
Director, Cybersecurity Graduate Program



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**Matthew A.S. Esworthy**  
Partner, Bowie & Jensen

## ADMISSIONS

Maryland

District of Columbia

Pennsylvania

U.S. District Court, Maryland

U.S. District Court, District of Columbia

U.S. Court of Appeals, Fourth Circuit

U.S. Supreme Court

U.S. Bankruptcy Court, Maryland

## EDUCATION

The Dickinson School of Law of the  
Pennsylvania State University

Skidmore College



The background is a dark blue field filled with a pattern of binary code (0s and 1s). Overlaid on this are several glowing blue lines that connect various points, creating a network-like structure. There are three prominent shield icons, each with a keyhole in the center, surrounded by a glowing blue circular aura. One shield is in the upper left, one in the lower left, and one on the right side. The text is centered in the middle of the image.

**How are you managing  
CYBERCRIME?**



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# Total dependence on computers

Total dependence on computers

Total dependence on internet



Total dependence on computers

Total dependence on internet

Total dependence on that IT guy?



# THIS MODERN LIFE:

WORK



HOME



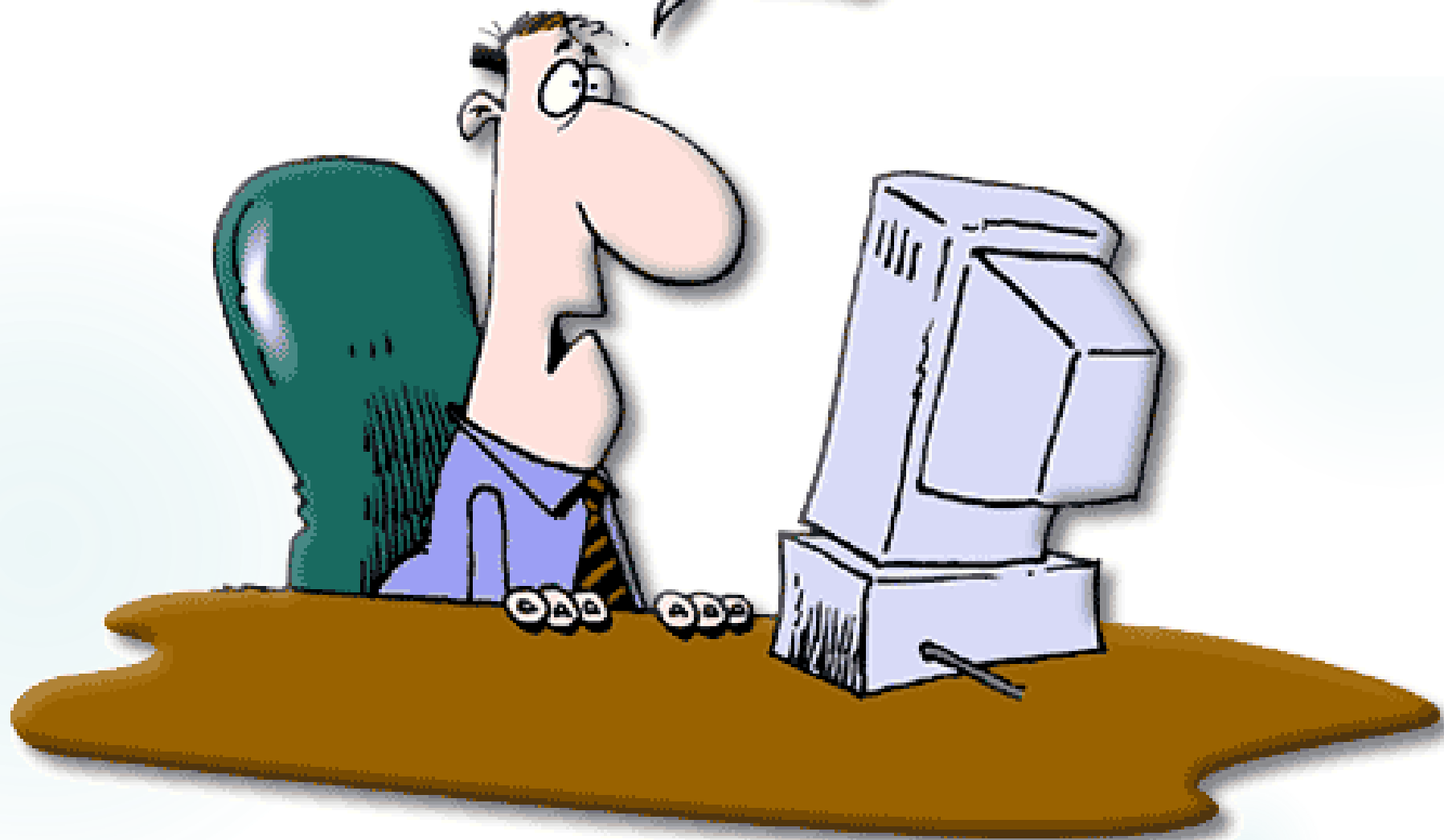
PLAY



SLEEP



YES MASTER...









A person wearing a dark hoodie is centered in the frame. Their face is replaced by a digital, pixelated representation of a human face. The person's right hand is raised, palm facing forward, in a 'stop' gesture. The background is a dark, teal-toned image featuring a city skyline on the left and a dense grid of binary code (0s and 1s) across the entire scene.

CYBER CRIME

# TYPE OF THE CYBER CRIME

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# Professor Forno!

## What are the different types of cybercrime?

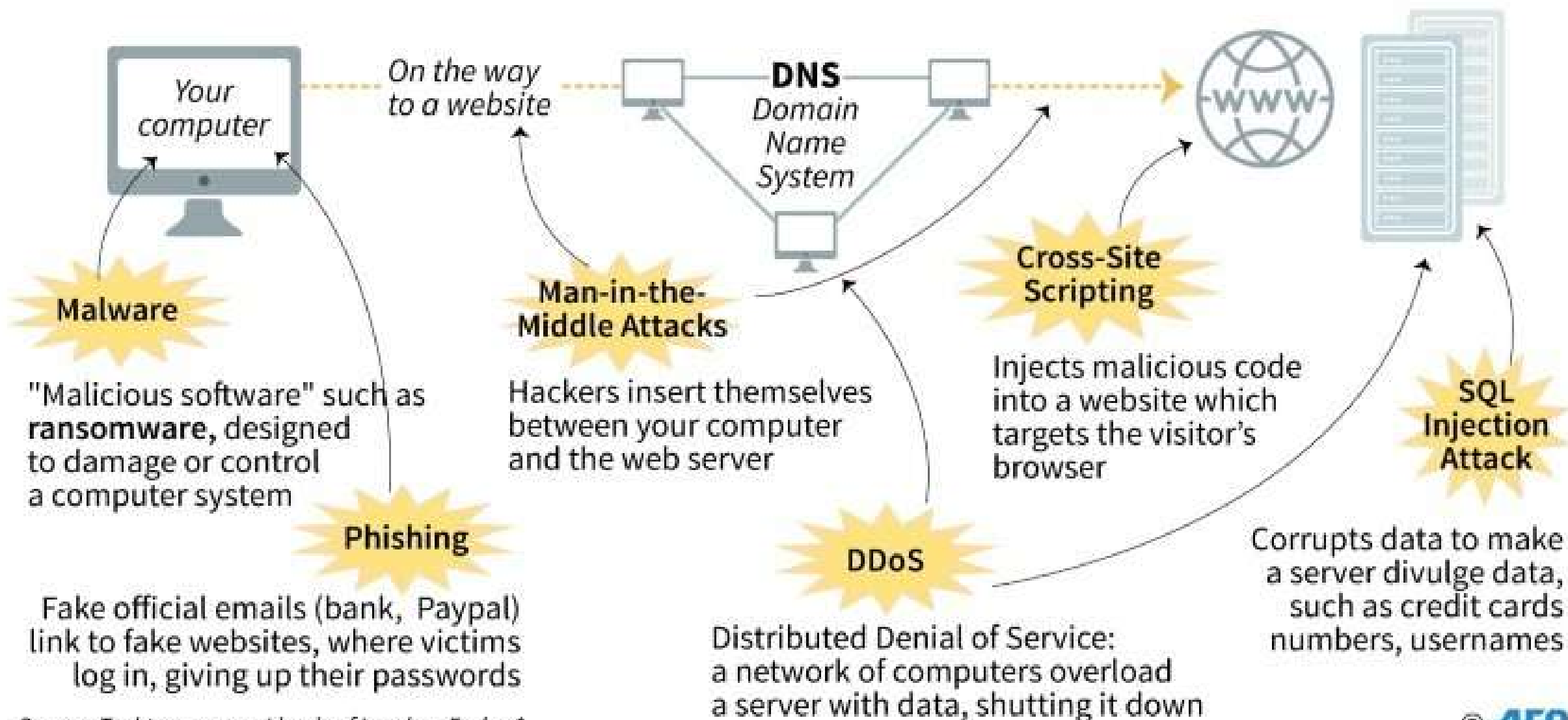
# Professor Forno!

## What are the different types of cybercrime?

This guy is really smart!

# The different types of cyber attacks

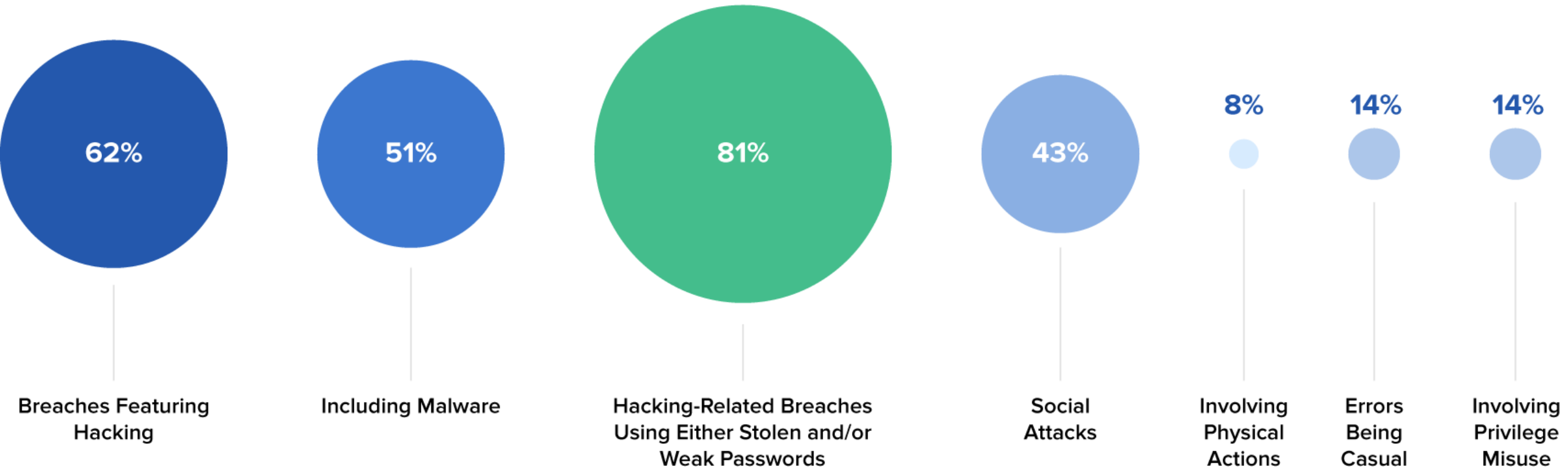
Cyber crime worldwide cost \$400 billion in 2015 and is forecast to reach \$2 trillion in 2019\*



Source: Techterms.com, Lloyds of London, Forbes\*



# WHO'S FAULT IS IT?



Matt!

**How big a problem is  
cybercrime for business and  
government?**

Matt!

How big a problem is  
cybercrime for business and  
government?

Lawyers always tell  
you the **bad** news!





# HOW DOES RANSOMWARE WORK? (AND IS IT STILL A THREAT)?



*Trick or Treat?*

# Professor Forno!

## What is “ransomware”?



2019

# Professor Forno!

## What is “ransomware”?

This guy is  
really smart!



# RANSOMWARE

## BEHIND THE SCENES

By the time victims see the ransom note, it's already too late—ransomware has already encrypted files before they know it's there.

Here's what happens between infection and the ransom demand.







# **YOUR FILES ARE ENCRYPTED**

**Your photos, documents and other important files have been encrypted with unique key, generated for this computer.**

**NEXT**

Professor Forno!

**How common is “ransomware”?**



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# Professor Forno!

## How common is “ransomware”?

Wow \$\$\$ !!!



*Ransomware attacks are becoming more targeted, sophisticated, and costly, even as the overall frequency of attacks remains consistent.*



The 2016 State of Ransomware report, conducted by Osterman Research and sponsored by Malwarebytes, surveyed 540 CIOs, CISOs, and IT directors in four countries. Here's what we found.



40%

of businesses  
were hit by  
ransomware in  
the last year

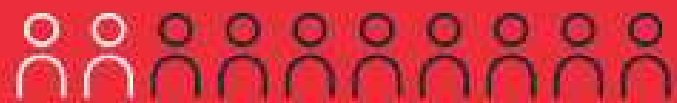
30%

of business  
victims lost  
revenue



20%

of victims  
had to cease  
operations  
immediately

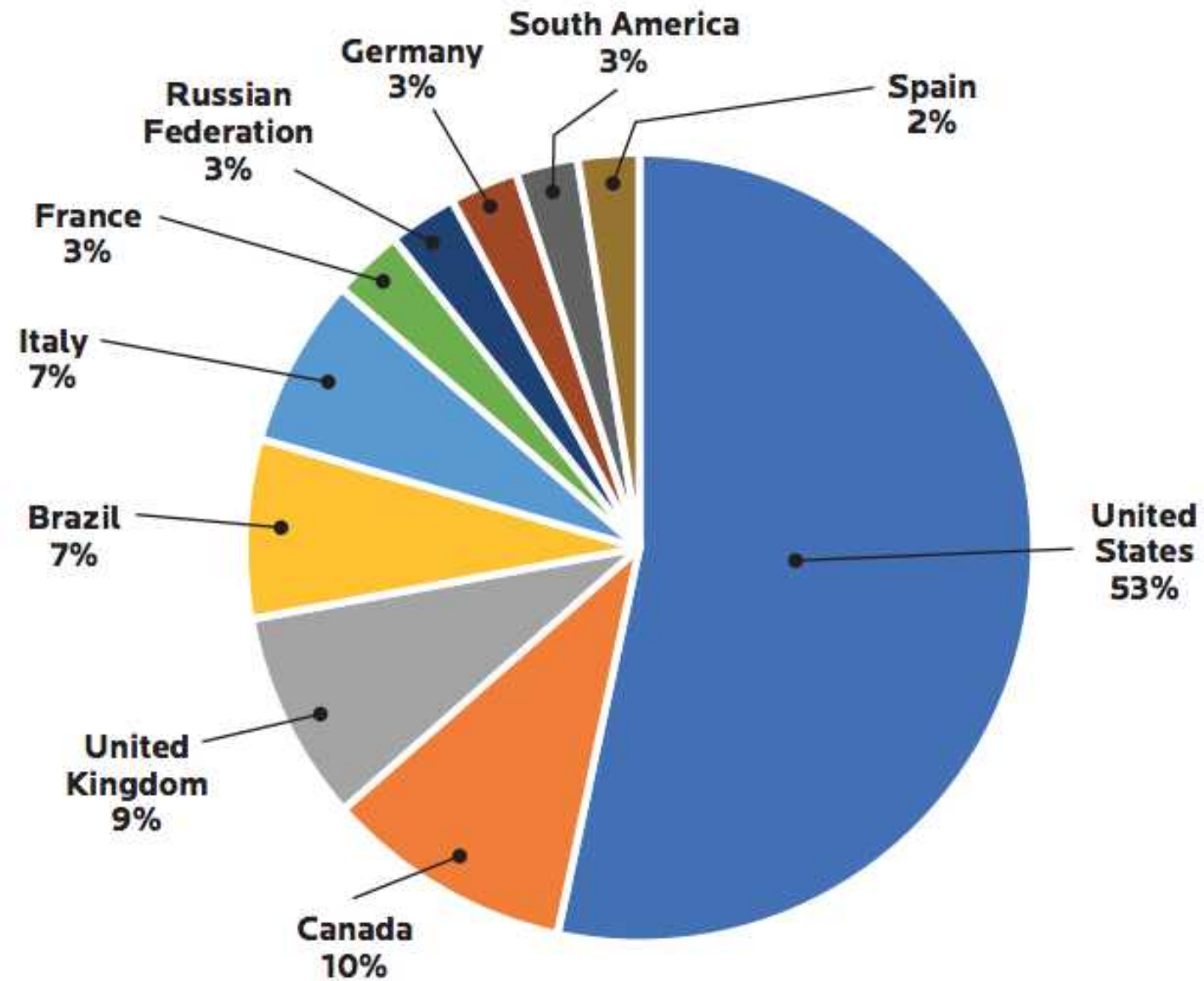


## Country Rank by Ransomware Detections | June 2018 - June 2019

Consumer & Business Products

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Matt!

**Should victims pay the ransom?**



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Matt!

**Should victims pay the ransom?**

Yes, no, or  
maybe?





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THE NEW  
HARVARD

WORLD AFFAIRS  
JOURNAL

EDITED BY  
CHRISTOPHER MELLON, PETER ROSSINI, AND DAVID STEINBERG

# TO PAY RANSOM OR NOT TO PAY RANSOM?

An Examination of Western Hostage Policies



Ethical Question?

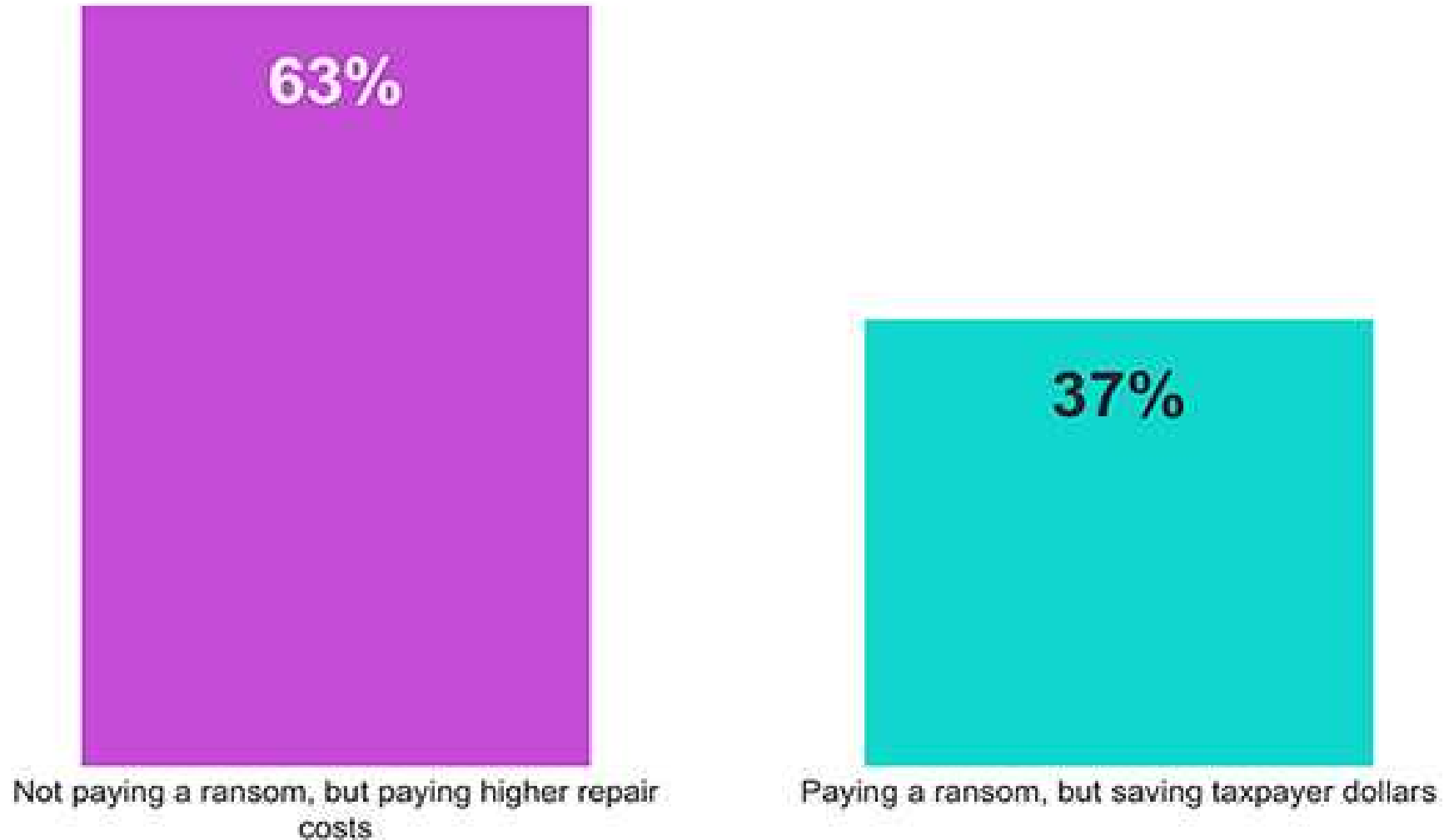


Professor Forno!

**If you pay the ransom, how can you “guarantee” that your data will be returned safely?**

## Nearly 2 in 3 respondents would prefer to pay higher repair costs and not pay a ransom rather than using taxpayer dollars to pay for a ransom

*Given an option between not paying a ransom, but paying higher repair costs to get systems up and running, or paying a ransom and saving taxpayer dollars, which would you prefer, even if neither exactly describes your feelings?*





Professor Forno!

**What can you do to avoid  
ransomware?**



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# AVOIDING RANSOMWARE

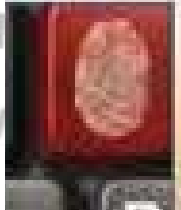
Professor Forno!

Is there any institution that can help with a ransomware issue?

# CYBERSECURITY AT UMBC



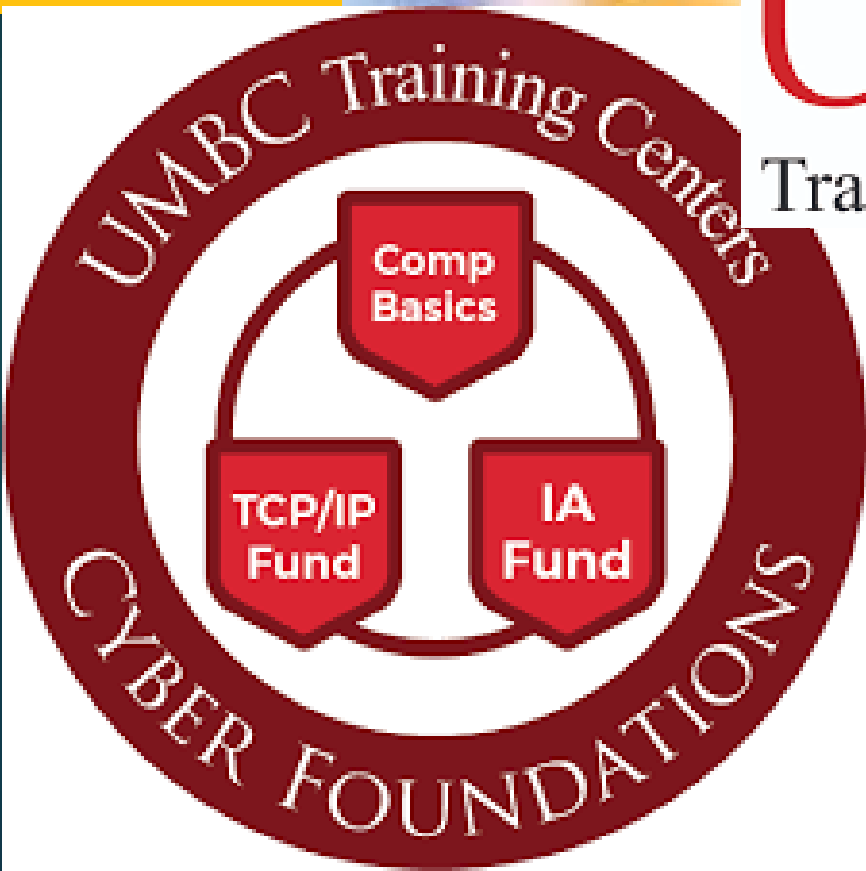
UMBC  
CYBER SCHOLARS PROGRAM



# UMBC

Training Centers

CENTER FOR  
CYBERSECURITY TRAINING



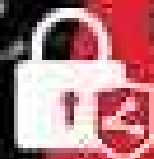
## TRAINING IN TRADECRAFT.

BECOME A CERTIFIED  
CYBER ANALYST/OPERATOR.

UMBC  
Training Centers

CYBERSECURITY  
ACADEMY

GET ALL THE DETAILS



Matt!

**Tell us a lawyer story about a recent case of “ransomware”!**



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**Matt time  
is nap time!**



ARE YOU  
PREPARED FOR

**RANSOMWARE?**

*Trick or Treat?*





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# Cybercrime: RANSOMWARE

ADAM LIPPE ..... *the HOST*

RICK FORNO ..... *the EXPERT*

MATT ESWORTHY ... *that GUY*