

# RSA® Conference 2018

San Francisco | April 16–20 | Moscone Center

SESSION ID: PDAC-R14

## #FAKENEWS AS AN INFORMATION SECURITY PROBLEM

**Dr. Daniel J. Rogers**

Co-Founder & CEO, Terbium Labs

Co-Founder & CTO, Global Disinformation Index

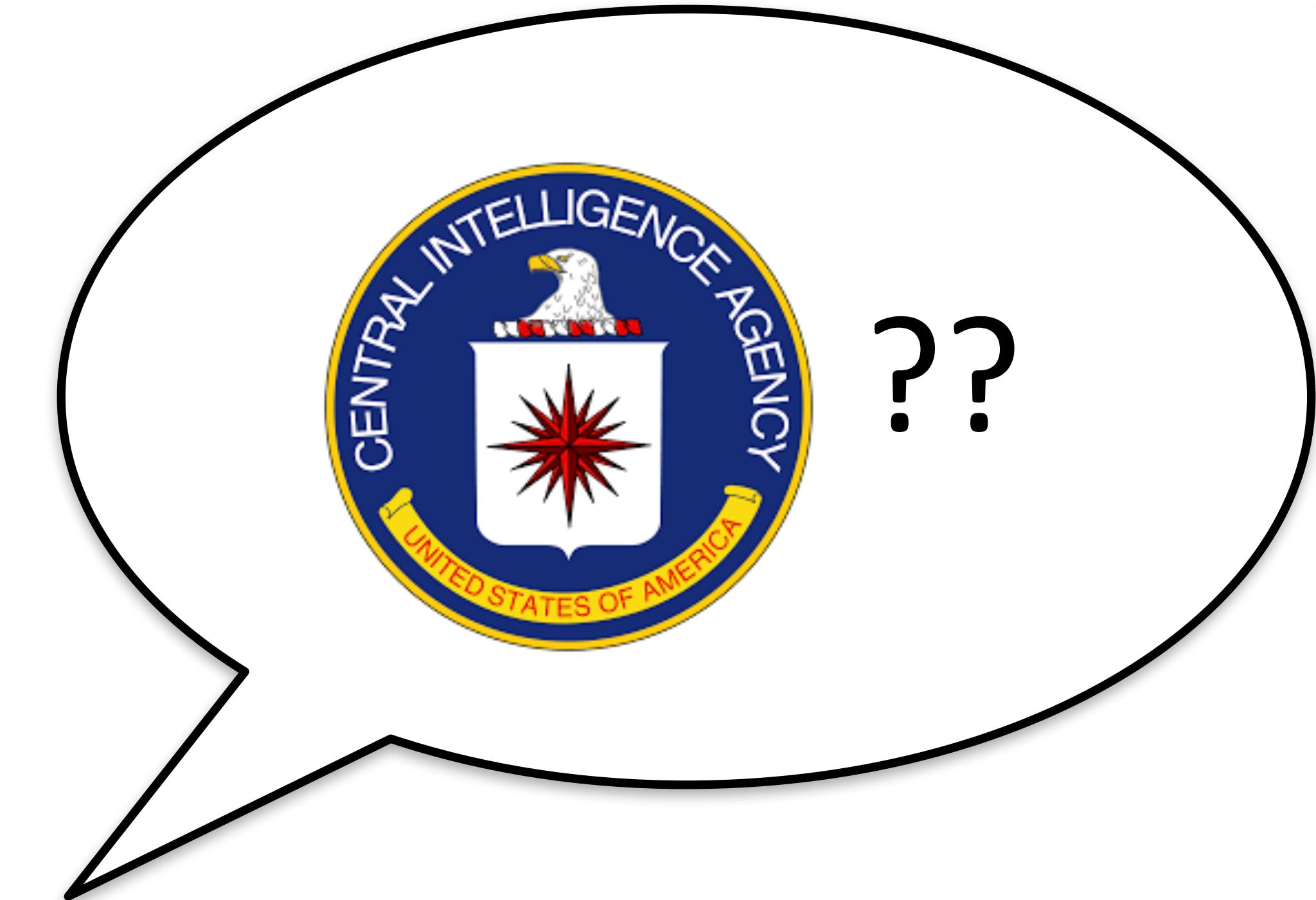
@veracitydotai @terbiumlabs @lookatmeimdanny



# The CIA



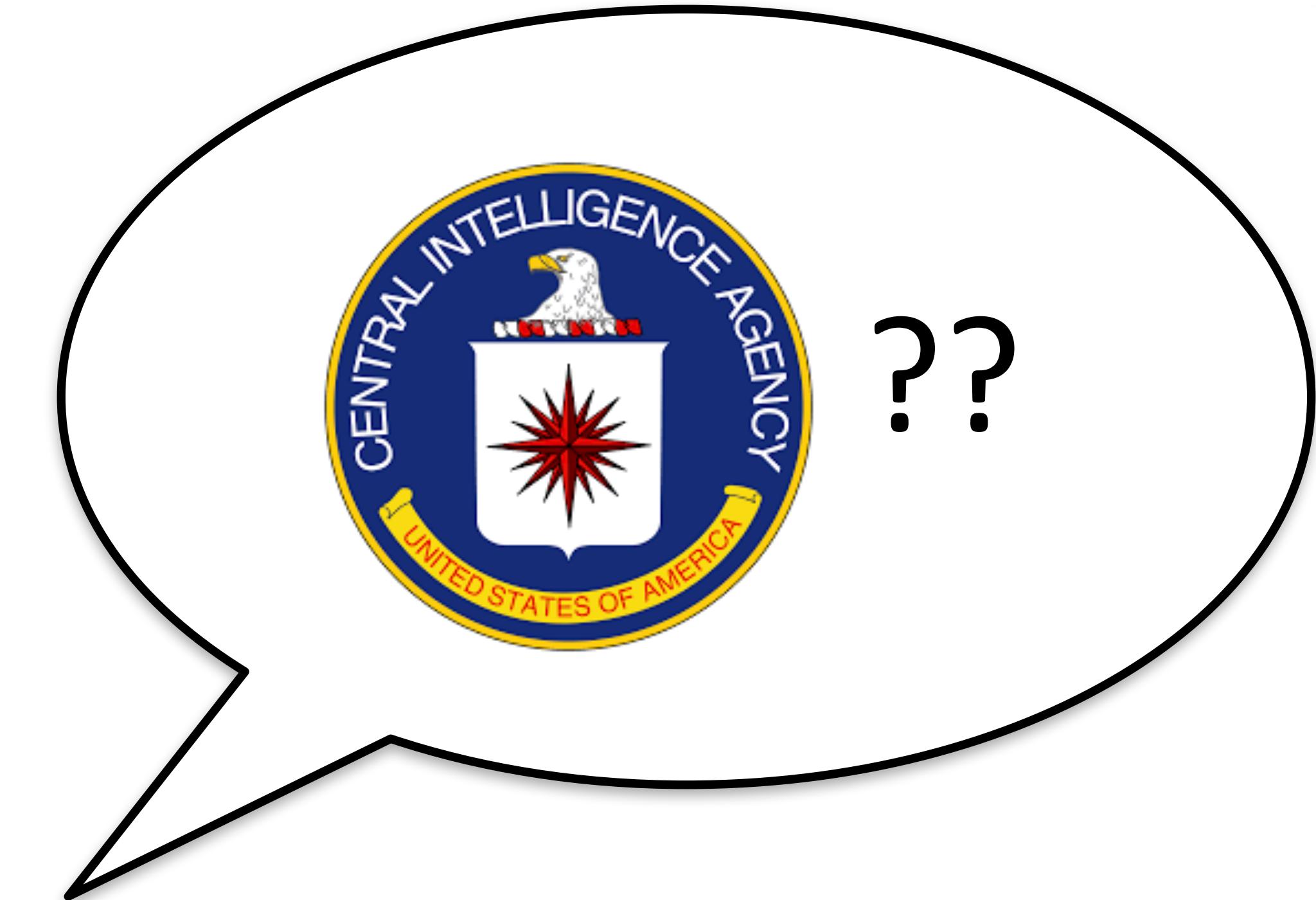
# The CIA



# The CIA



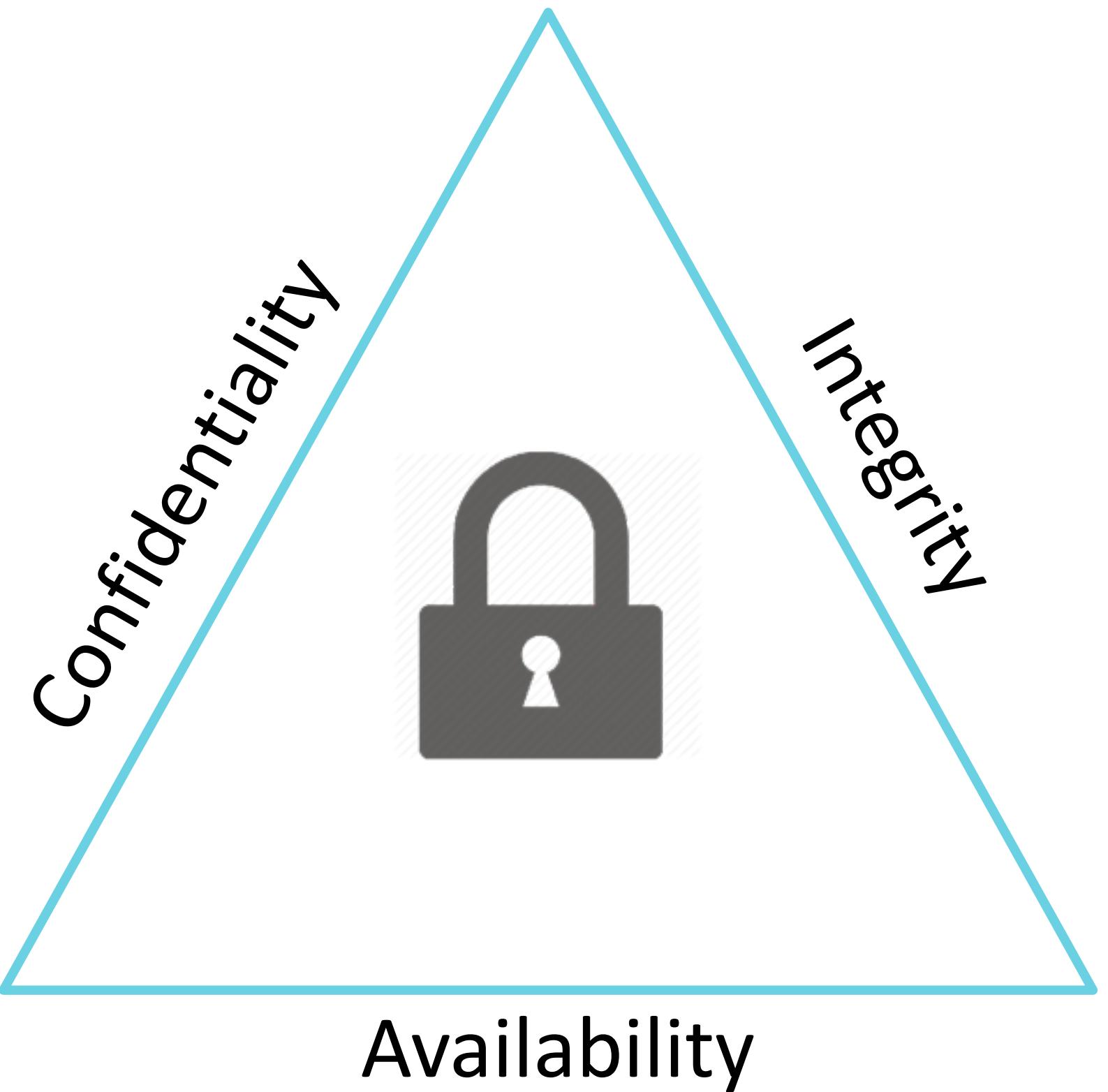
- No, not THAT CIA!



# The CIA



- This CIA!



# Confidentiality

The image is a screenshot of the CNBC website. At the top, there is a blue header bar with the NBC peacock logo and the word "CNBC". To the right of the logo is a search bar with the placeholder text "Search Quotes, News & Video" and a magnifying glass icon. Below the header is a navigation menu with links for "HOME", "NEWS", "MARKETS", "INVESTING", "TECH", "MAKE IT", "VIDEO", "SHOWS", and "MORE". The "TECH" link is highlighted. Underneath the menu, there is a secondary navigation bar with categories: "TECH", "MOBILE", "SOCIAL MEDIA", "ENTERPRISE", "CYBERSECURITY", and "TECH GUIDE". The main content area features a large, bold headline: "Credit reporting firm Equifax says data breach could potentially affect 143 million US consumers". Below the headline is a bulleted list of facts: "Equifax said data on 143 million U.S. customers was obtained in a breach.", "The breach was discovered July 29.", "Personal data including birth dates, credit card numbers and more were obtained in the breach.", and "Three Equifax executives sold shares in the company days after the breach was discovered." At the bottom of the article, there is a author bio: "Todd Haselton | @robotodd" and a timestamp: "Published 4:34 PM ET Thu, 7 Sept 2017 | Updated 3:25 PM ET Fri, 8 Sept 2017".

TECH

TECH | MOBILE | SOCIAL MEDIA | ENTERPRISE | CYBERSECURITY | TECH GUIDE

## Credit reporting firm Equifax says data breach could potentially affect 143 million US consumers

- Equifax said data on 143 million U.S. customers was obtained in a breach.
- The breach was discovered July 29.
- Personal data including birth dates, credit card numbers and more were obtained in the breach.
- Three Equifax executives sold shares in the company days after the breach was discovered.

Todd Haselton | @robotodd

Published 4:34 PM ET Thu, 7 Sept 2017 | Updated 3:25 PM ET Fri, 8 Sept 2017

# Availability

TRW LATEST INSIGHTS DISTRACT FULL STACK INVESTING 2.0

## A massive DDOS attack against Dyn DNS is causing havoc online (Update: Resolved)

by MATTHEW HUGHES — Oct 21, 2016 in SECURITY



# Integrity

??

# Integrity

The screenshot shows a news article from FOX 5 News. The header includes the FOX 5 logo, a 'Sections' menu, and links for Live, News, Weather, Good Day, I-Team, Health, Sports, Recipe Box, Video, and About. A secondary navigation bar below shows News, Local News, I-Team, Politics, Seen on TV, and Wednesday's Child. The main title of the article is 'Police: Former UGA student hacked into system to change grade'. Below the title, it says 'By: George Franco' and shows posting and video posting times. At the bottom, there is a summary: 'ATHENS, Ga. - The University of Georgia Police is trying to unravel a computer hacking case which, as of Monday, has landed one a now-former student in jail.'

**FOX 5** Sections Live News Weather Good Day I-Team Health Sports Recipe Box Video About

News Local News I-Team Politics Seen on TV Wednesday's Child

# Police: Former UGA student hacked into system to change grade

By: George Franco

POSTED: FEB 13 2018 01:40AM EST  
VIDEO POSTED: FEB 13 2018 01:01AM EST

**ATHENS, Ga.** - The University of Georgia Police is trying to unravel a computer hacking case which, as of Monday, has landed one a now-former student in jail.

# Integrity

**FOX 5** ≡ Sections [Live](#) [News](#) [Weather](#) [Good Day](#) [I-Team](#) [Health](#) [Sports](#) [Recipe Box](#) [Video](#) [About](#)

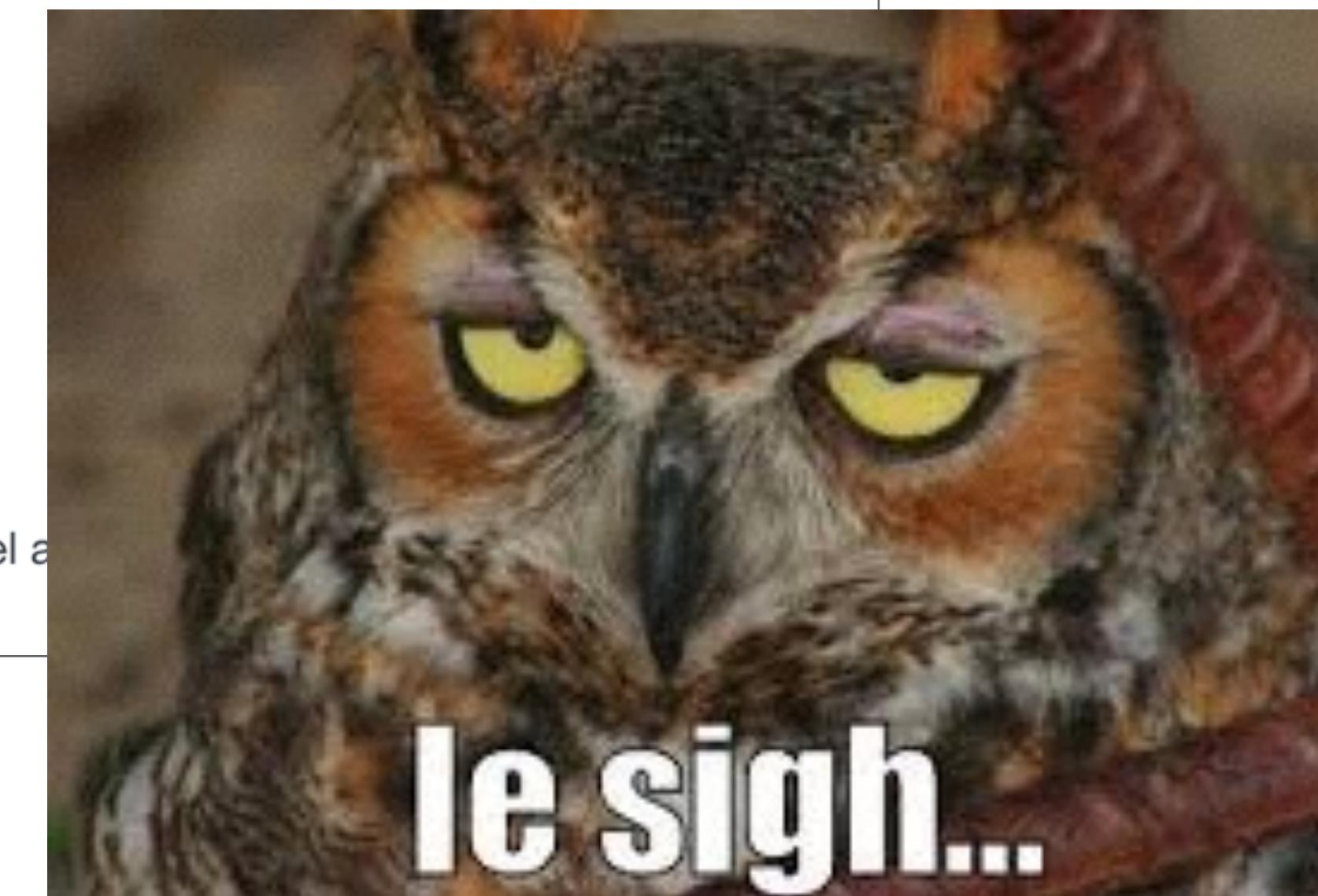
**News** [Local News](#) [I-Team](#) [Politics](#) [Seen on TV](#) [Wednesday's Child](#)

# Police: Former UGA student hacked into system to change grade

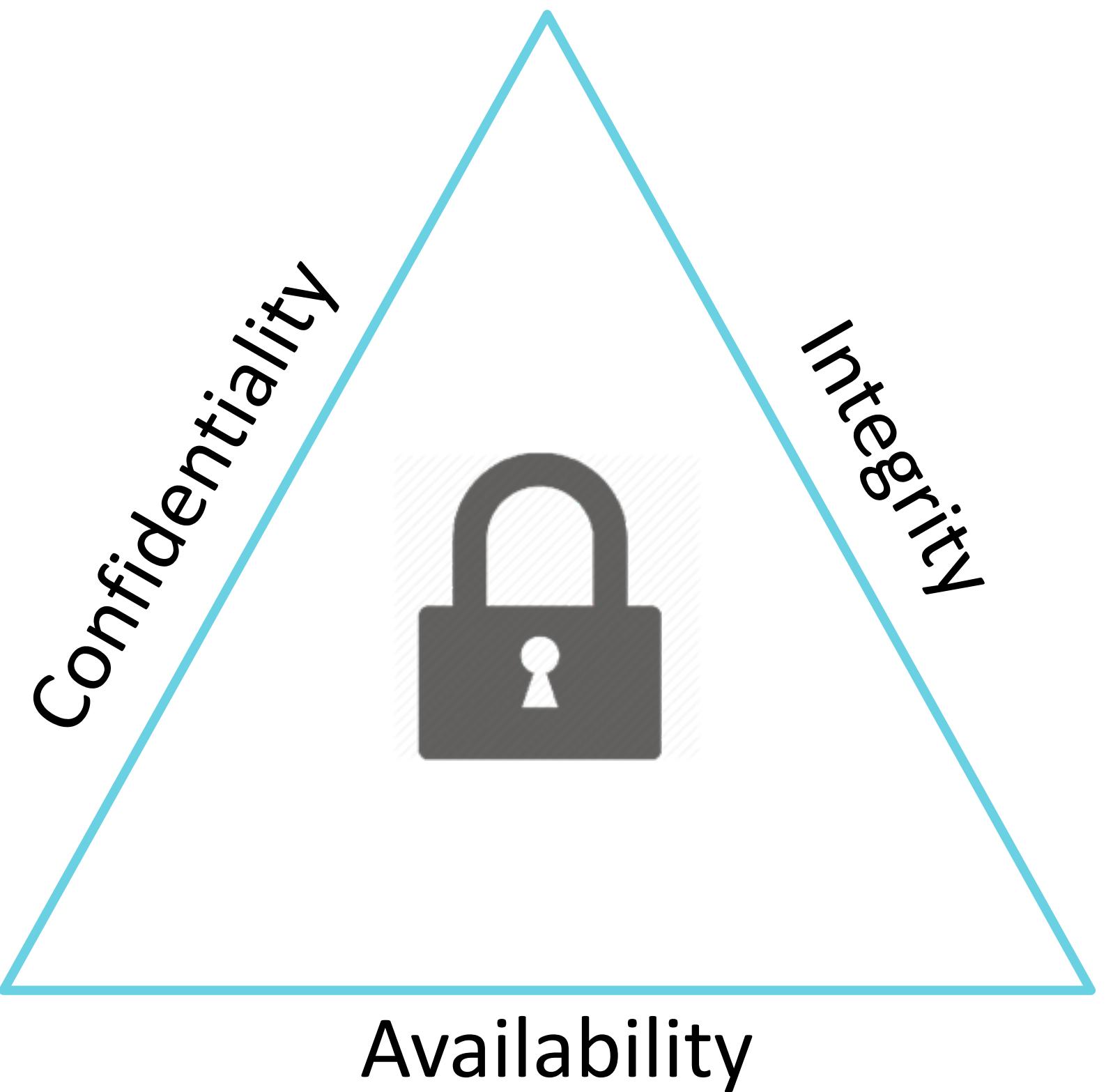
By: [George Franco](#)

POSTED: FEB 13 2018 01:40AM EST  
VIDEO POSTED: FEB 13 2018 01:01AM EST

**ATHENS, Ga.** - The University of Georgia Police is trying to unravel a mystery that has been plaguing the university for weeks. On Monday, has landed one a now-former student in jail.



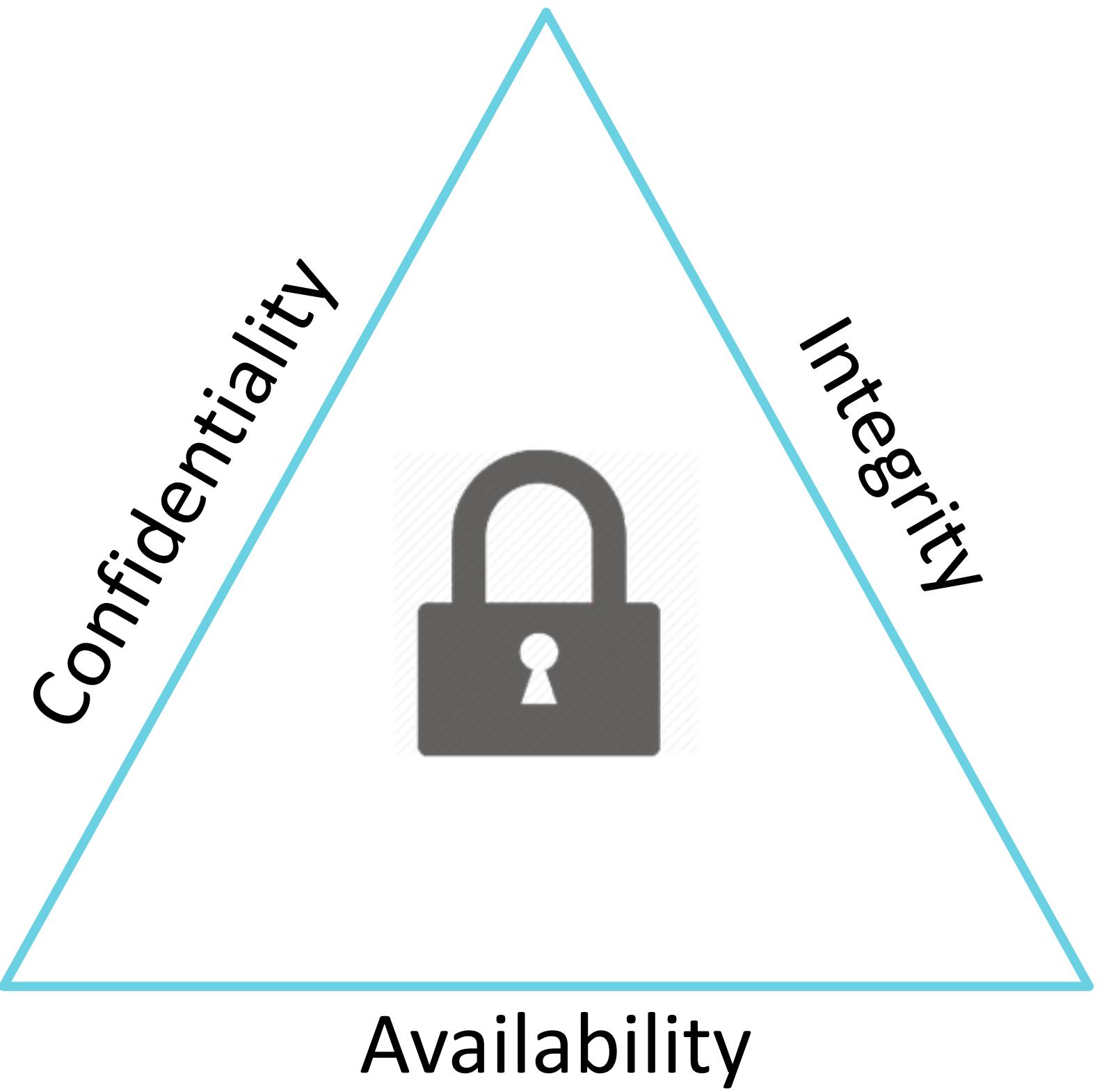
# The CIA



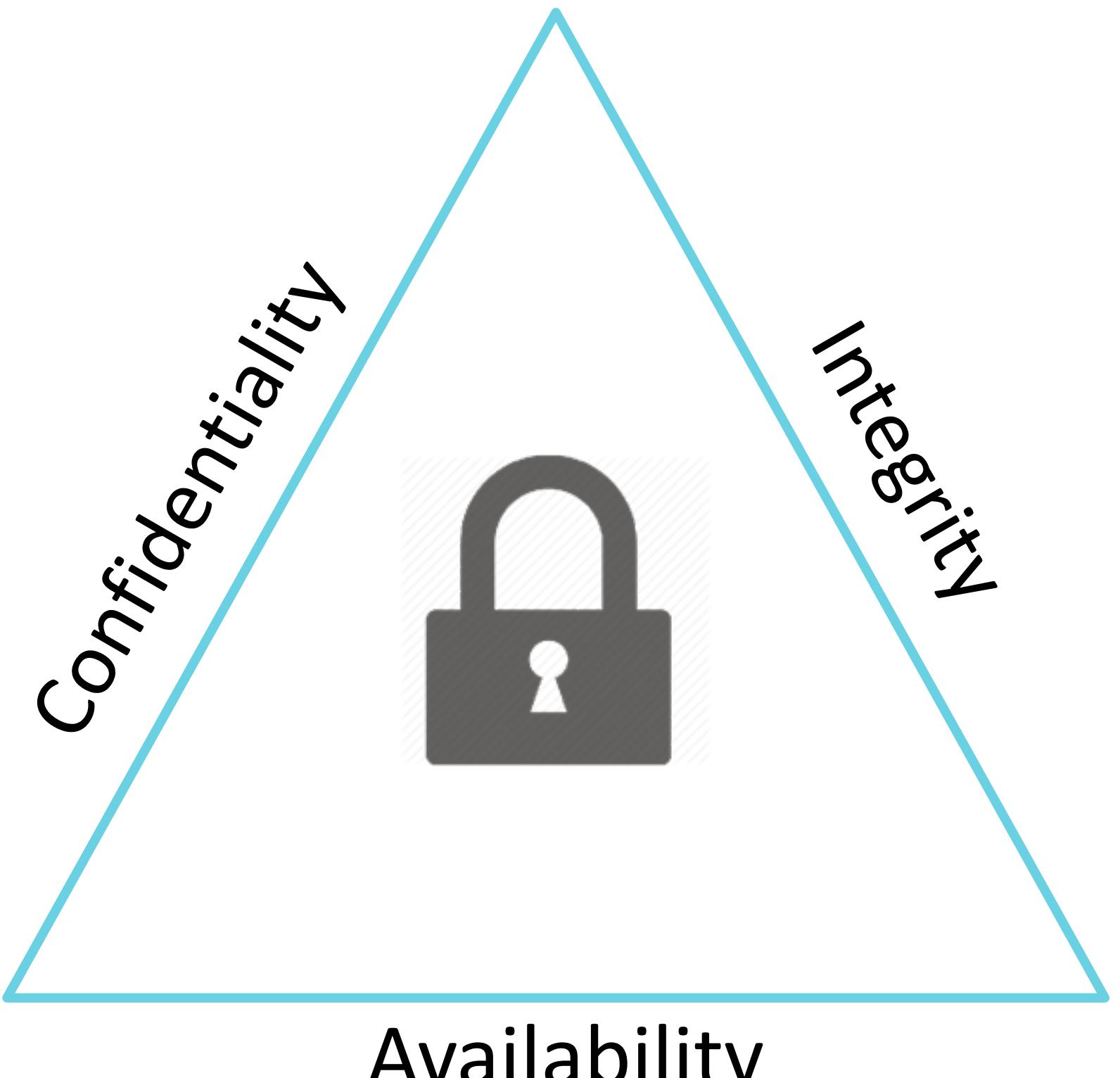
# The CIA



Data is generally either private or public.

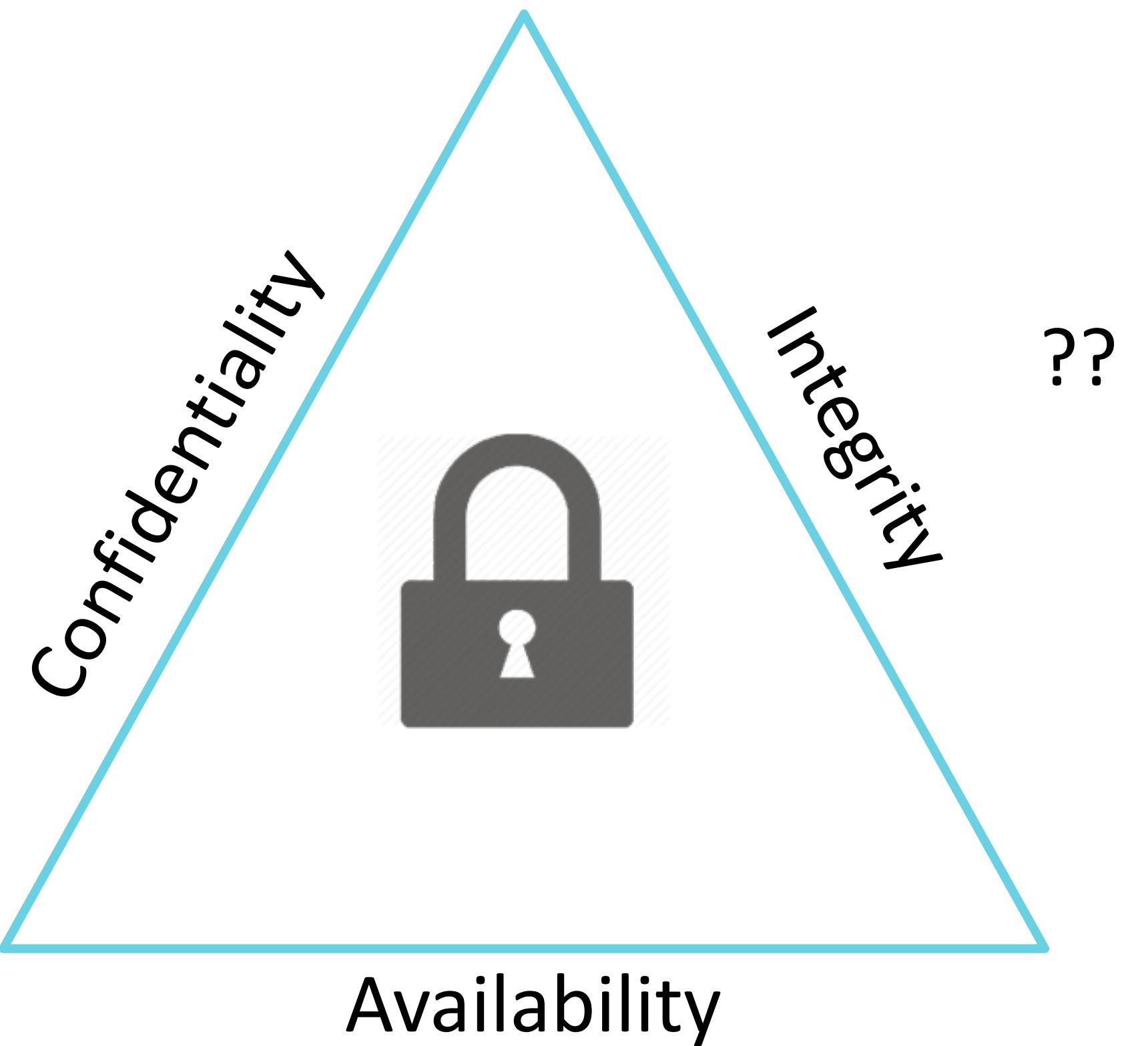


# The CIA



Servers are either up or down.

# The CIA



# What do we mean by Integrity?



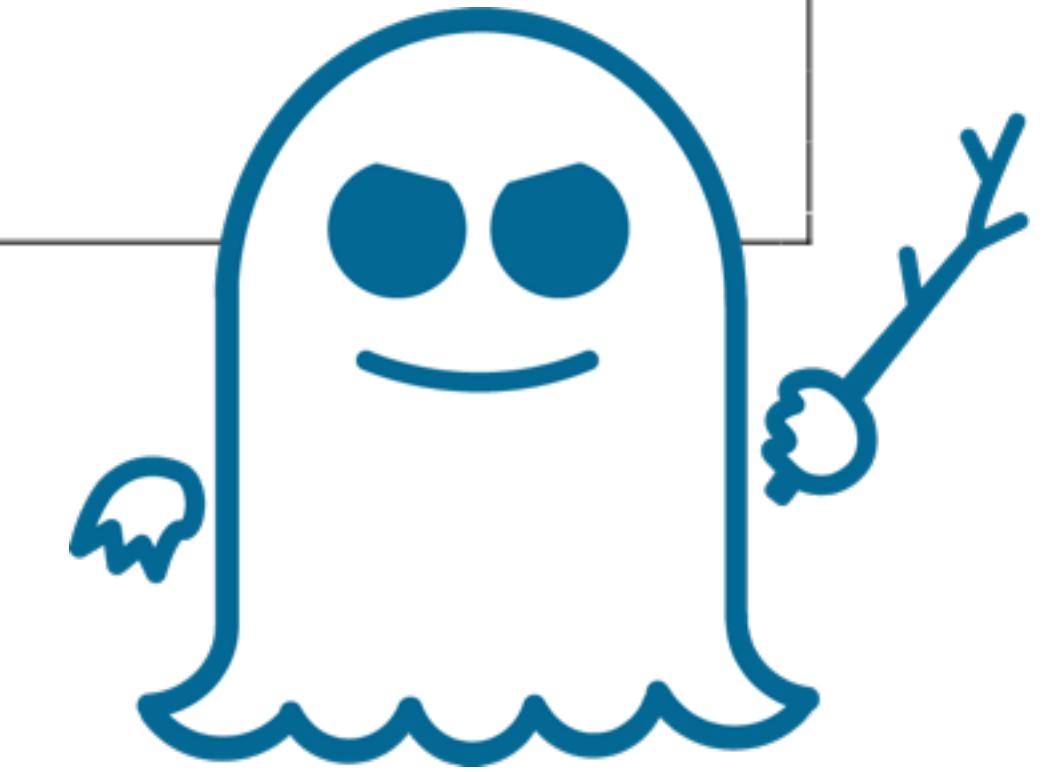
#RSAC

**“Integrity is the overall completeness, accuracy, and consistency of information.”**

# This is a hack.

```
1 if (index < simpleByteArray.length) {  
2     index = simpleByteArray[index | 0];  
3     index = (((index * TABLE1_STRIDE)|0) & (TABLE1_BYTES-1))|0;  
4     localJunk ^= probeTable[index|0]|0;  
5 }
```

Listing 2: Exploiting Speculative Execution via JavaScript.



# This is ALSO a hack.

Conrad Block  
@Mudd1waters

8 TWEETS    18 FOLLOWING    17 FOLLOWERS

**Tweets**

**MUDGY WATERS RESEARCH** Conrad Block @Mudd1waters 29 Jan  
@MerrillLynch SADNC AUDIENCE noise suppression company being investigated by DOJ on rumoured fraud charges [View conversation](#)

**MUDGY WATERS RESEARCH** Conrad Block @Mudd1waters 29 Jan  
\$ADNC noise suppression company being investigated by DOJ on rumoured fraud charges Full report to follow later [Expand](#)

@Citronresearch  
@citronresearc

Citron Research has been publishing columns for over 11 years, making it one of the longest-running online stock commentary websites.

NOV 5, 2015 @ 06:43 PM 7,278

2 TWEETS    13 FOLLOWING

**Tweets**

@Citronresearch SSRPT FDA steps are tainted and have [Expand](#)

@Citronresearch SSRPT FDA steps are tainted and have by FDA

## Fraudulent Stock Tweets Result In Civil And Criminal Charges For Scottish Man



**Jordan Maglich**, CONTRIBUTOR

I write about white-collar crime, with a focus on Ponzi schemes. [FULL BIO](#) ▾

Opinions expressed by Forbes Contributors are their own.

### TWEET THIS

Ironically, Craig's attempt to profit from the false tweets ultimately netted him less than \$100.

Craig faces a single count of securities fraud, which carries a maximum 25-year prison sentence and \$250,000 fine.

This is DEFINITELY a hack.



IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF COLUMBIA

UNITED STATES OF AMERICA

V

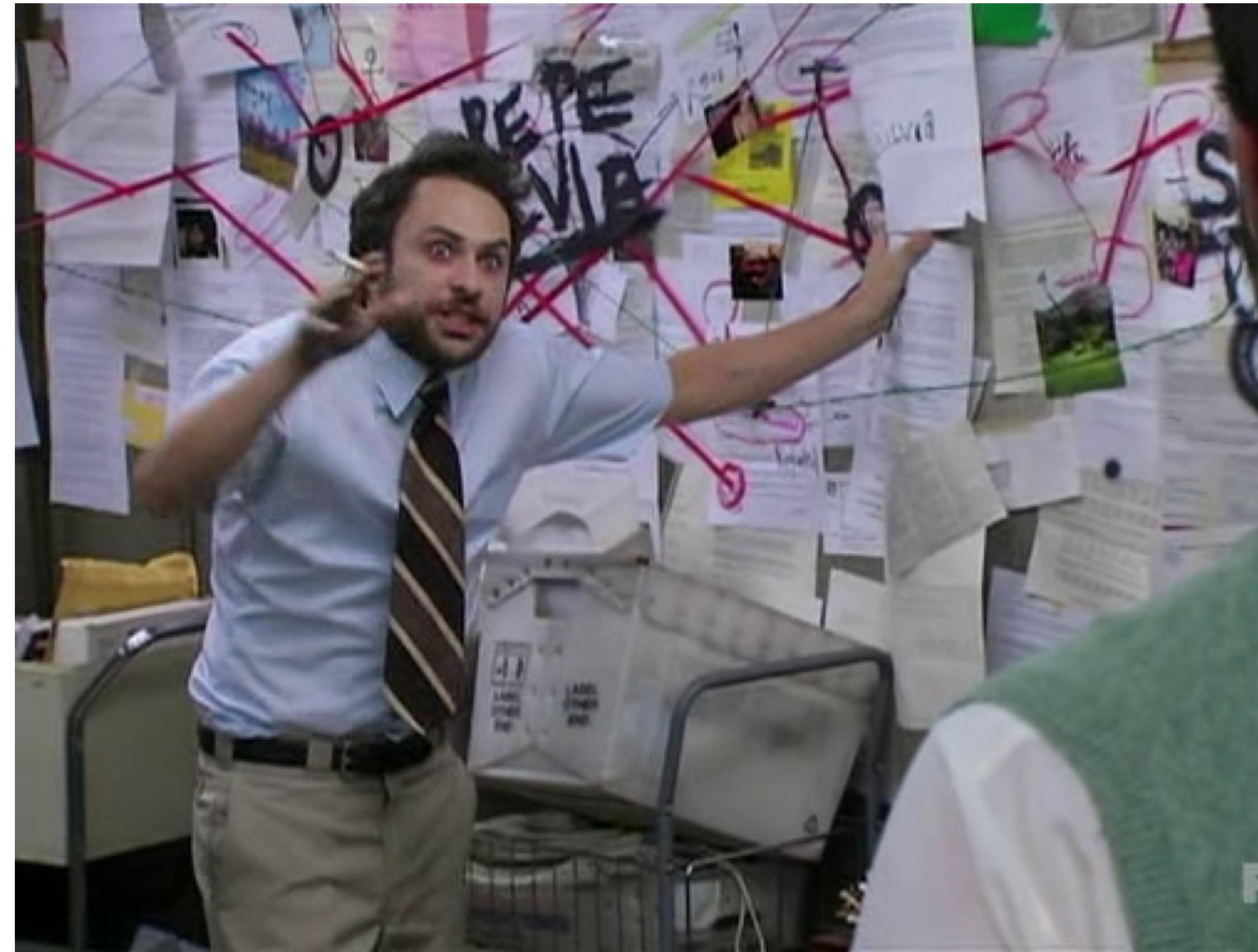
INTERNET RESEARCH AGENCY LLC  
A/K/A MEDIASINTEZ LLC A/K/A  
GLAVSET LLC A/K/A MIXINFO  
LLC A/K/A AZIMUT LLC A/K/A  
NOVINFO LLC,  
CONCORD MANAGEMENT AND  
CONSULTING LLC,  
CONCORD CATERING,  
YEVGENIY VIKTOROVICH  
PRIGOZHIN,  
MIKHAIL IVANOVICH BYSTROV,  
MIKHAIL LEONIDOVICH BURCHIK  
A/K/A MIKHAIL ABRAMOV,  
ALEKSANDRA YURYEVNA  
KRYLOVA,  
ANNA VLADISLAVOVNA  
BOGACHEVA,  
SERGEY PAVLOVICH POLOZOV,  
MARIA ANATOLYEVNA BOVDA  
A/K/A MARIA ANATOLYEVNA  
BELYAEVA,  
ROBERT SERGEYEVICH BOVDA,  
DZHEYKHUN NASIMI OGLY  
ASLANOV A/K/A JAYHOON  
ASLANOV A/K/A JAY ASLANOV,  
VADIM VLADIMIROVICH  
PODKOPAEV,  
GLEB IGOREVICH VASILCHENKO,  
IRINA VIKTOROVNA KAVERZINA,  
and  
VLADIMIR VENKOV.

CRIMINAL NO.

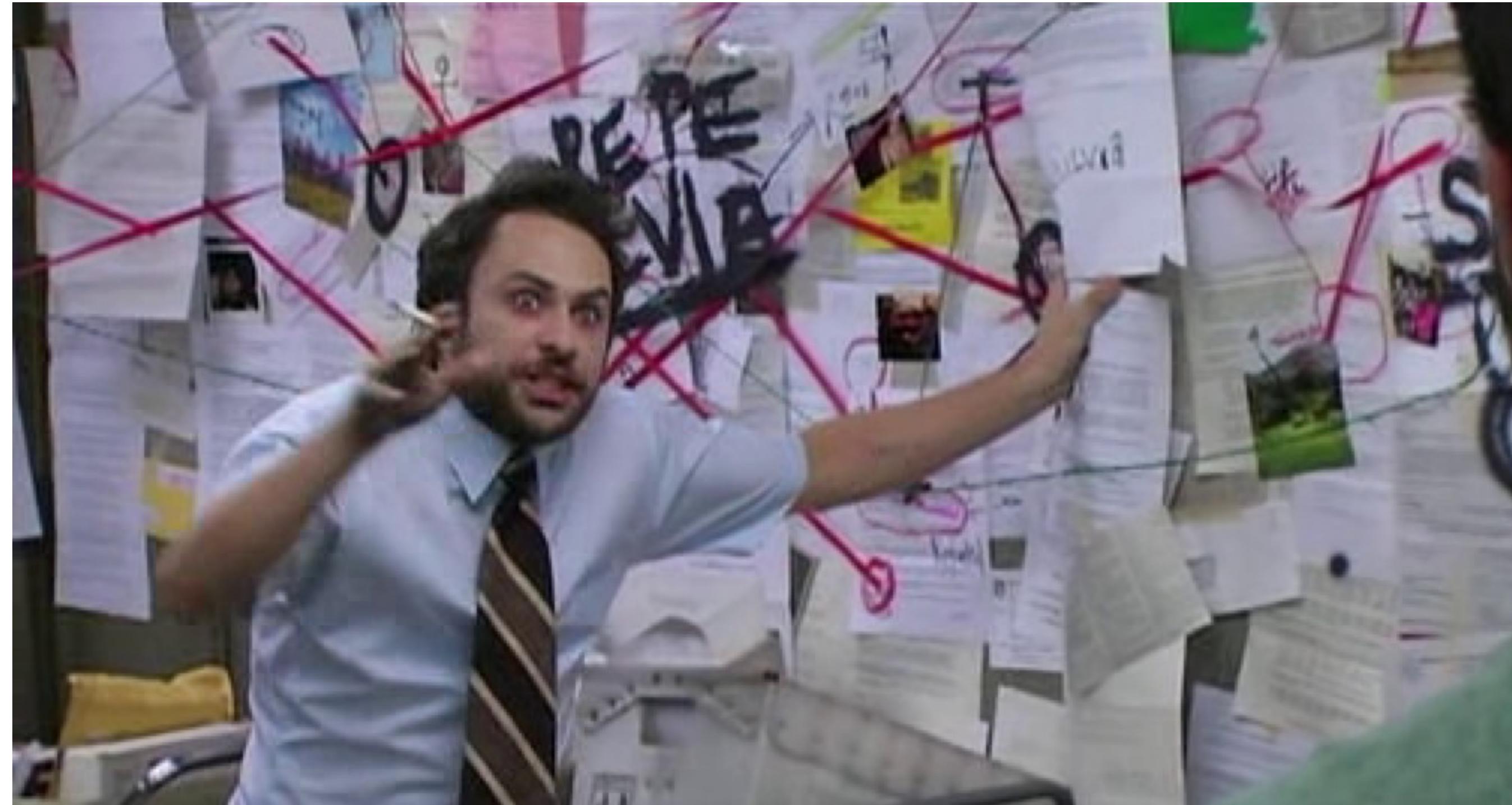
(18 U.S.C. §§ 2, 371, 1349, 1028A)

### Defendants.

# The convergence of fraud, information security, and disinformation...



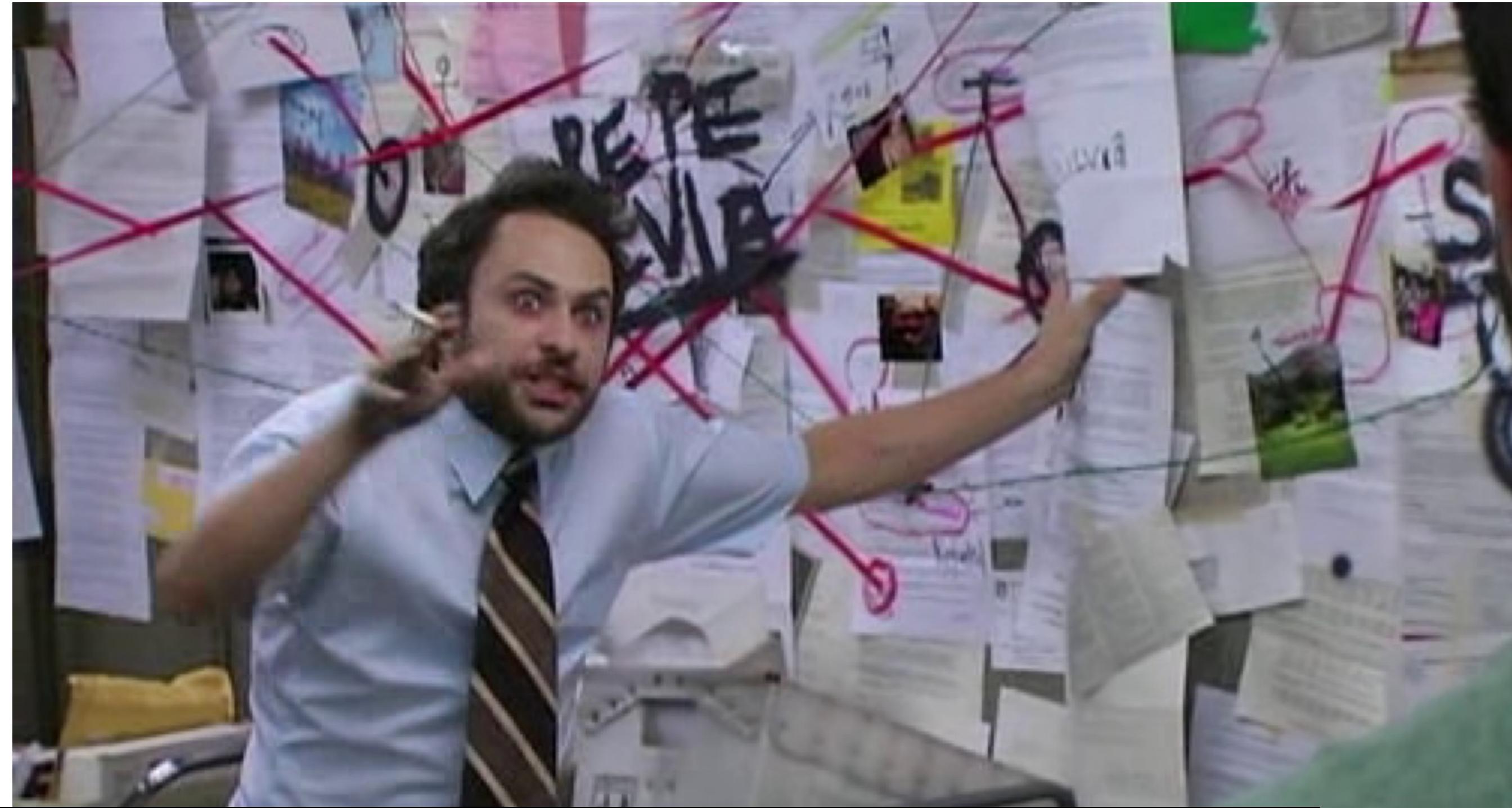
# The convergence of fraud, information security, and disinformation...



**U.S. Charges Russian FSB Officers and Their Criminal Conspirators for Hacking Yahoo and Millions of Email Accounts**

**FSB Officers Protected, Directed, Facilitated and Paid Criminal Hackers**

# The convergence of fraud, information security, and disinformation...



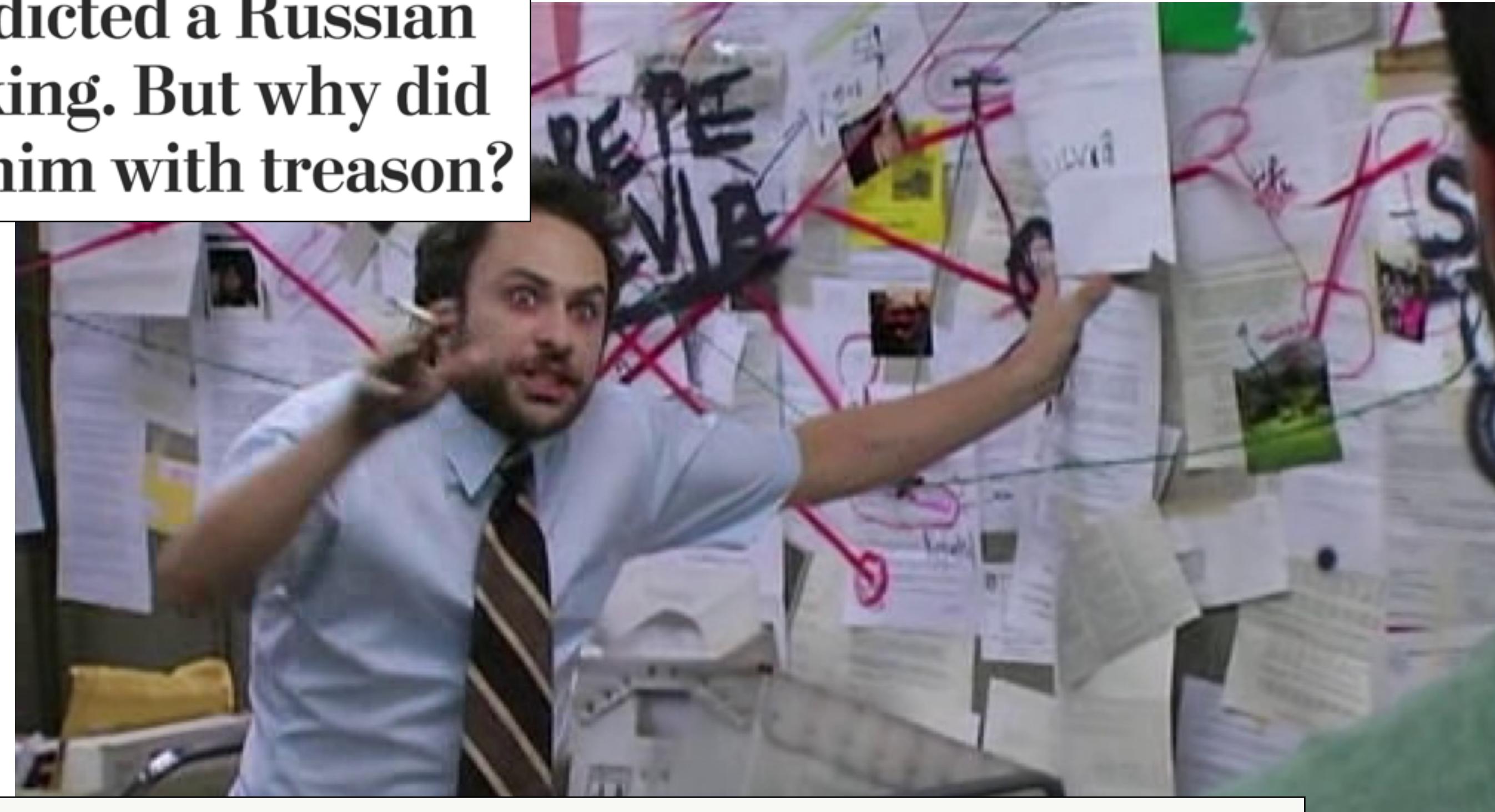
## **U.S. Charges Russian FSB Officers and Their Criminal Conspirators for Hacking Yahoo and Millions of Email Accounts**

**FSB Officers Protected, Directed, Facilitated and**

The defendants used unauthorized access to Yahoo's systems to steal information from about at least 500 million Yahoo accounts and then used some of that stolen information to obtain unauthorized access to the contents of accounts at Yahoo, Google and other webmail providers, including accounts of Russian journalists, U.S. and Russian government officials and private-sector employees of financial, transportation and other companies. One of the defendants also exploited his access to Yahoo's network for his personal financial gain, by searching Yahoo user communications for credit card and gift card account numbers, redirecting a subset of Yahoo search engine web traffic so he could make commissions and enabling the theft of the contacts of at least 30 million Yahoo accounts to facilitate a spam campaign.

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**The FBI just indicted a Russian official for hacking. But why did Russia charge him with treason?**



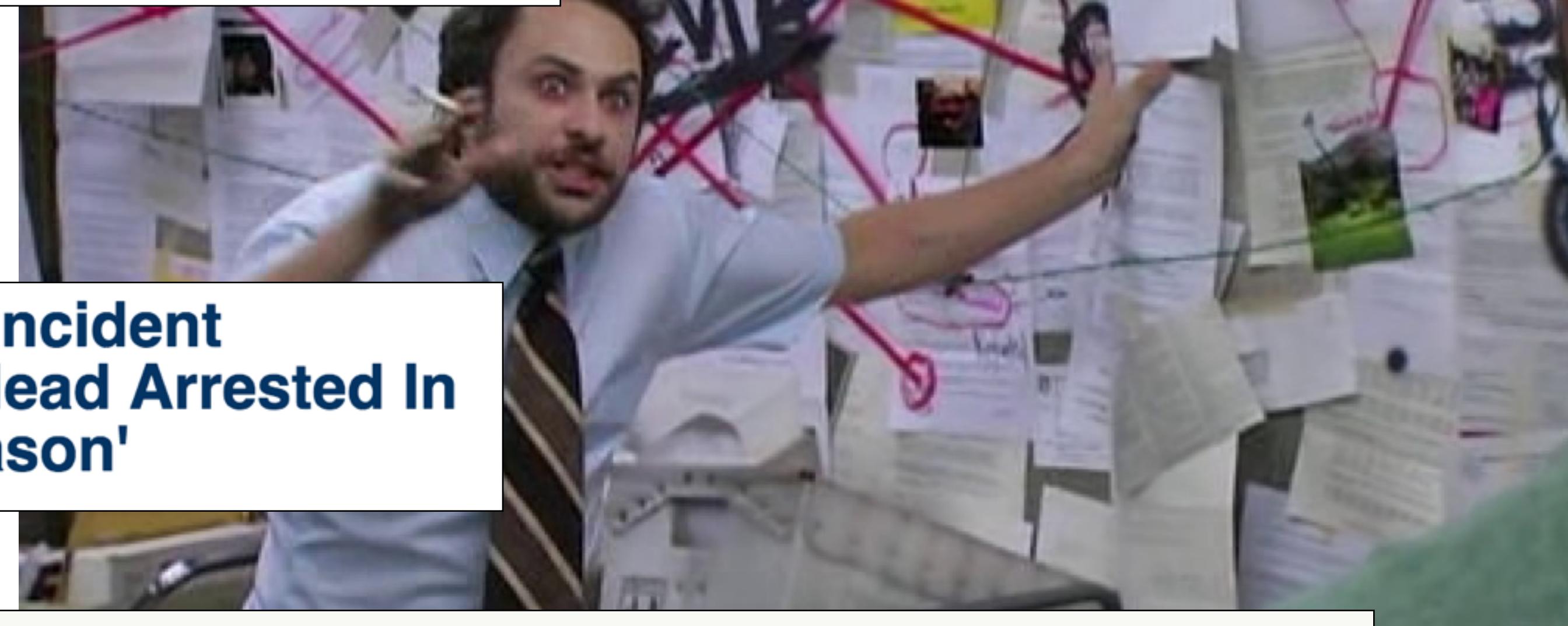
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**Kaspersky Lab Incident Investigations Head Arrested In Russia For 'Treason'**

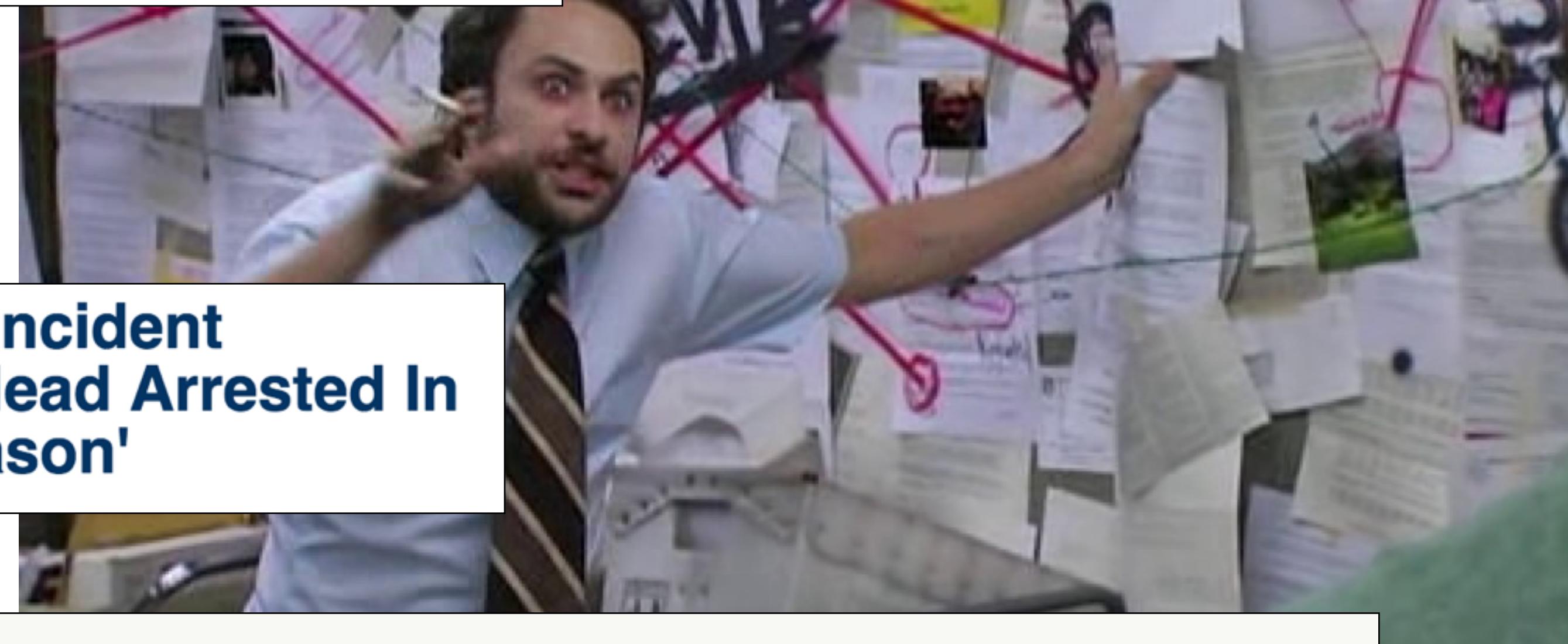
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Operators used social media to pitch fake business directories, petitions in return for information

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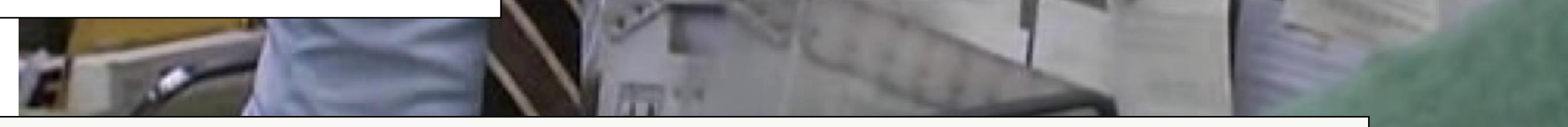
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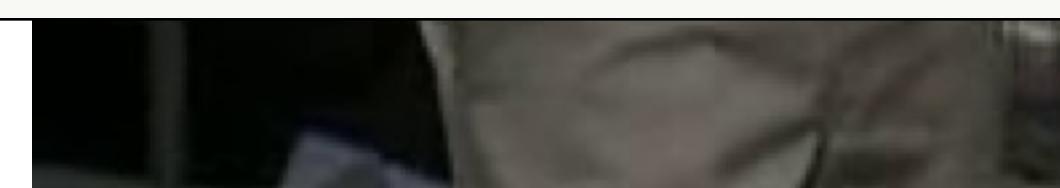


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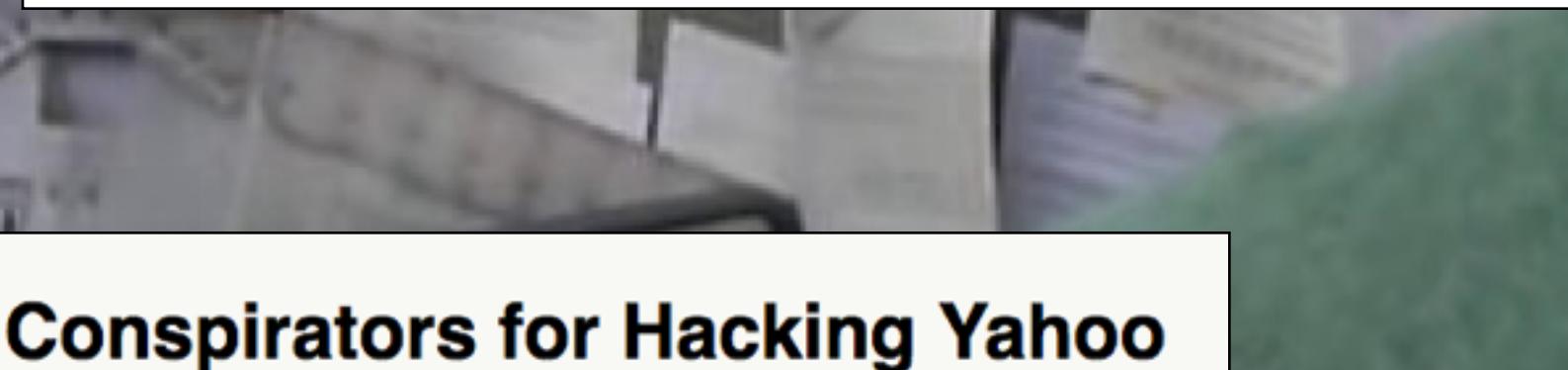


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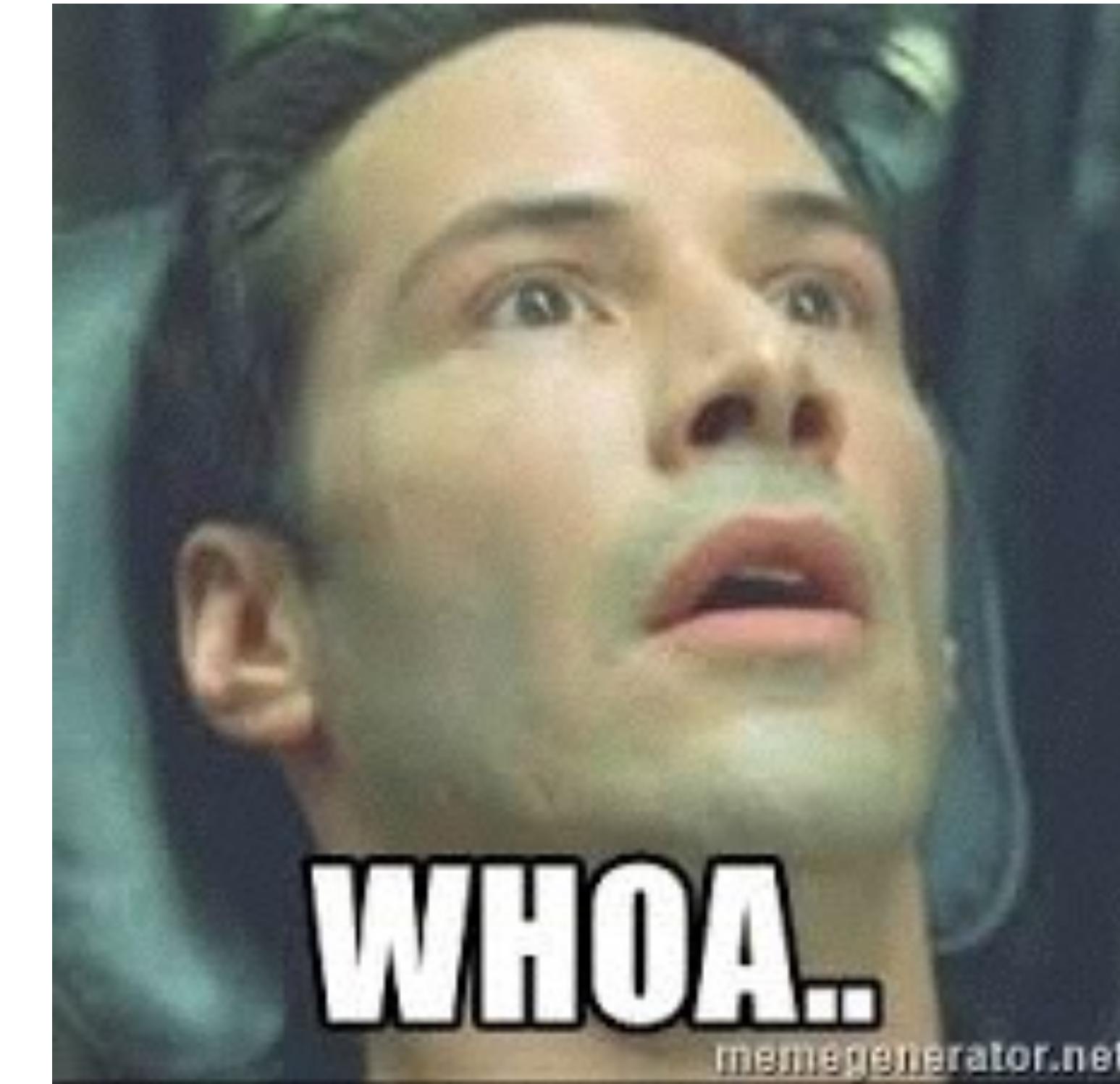
**Russians Bought Bank Accounts From California Man, Mueller Says**

By NICHOLAS FANDOS FEB. 16, 2018



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It's all the same thing.



**RSA®** Conference 2018



**#FAKENEWS**

**Let's talk about it....**

# #FakeNews is dead...



...but Disinformation is not.

**FM 3-05.30**

MCRP 3-40.6

## **Psychological Operations**

**April 2005**

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**Headquarters, Department of the Army**

## 7 Types of Mis- and Disinformation

### False Connection

When headlines, visuals or captions don't support the content

### False Context

When genuine content is shared with false contextual information

### Manipulated Content

When genuine information or imagery is manipulated to deceive



### Satire or Parody

No intention to cause harm but has potential to fool

### Misleading Content

Misleading use of information to frame an issue or individual

### Imposter Content

When genuine sources are impersonated

### Fabricated Content

New content, that is 100% false, designed to deceive and do harm

## 7 Types of Mis- and Disinformation

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SATIRE FROM THE BOROWITZ REPORT

### MILITARY REFUSES TO PARTICIPATE IN TRUMP'S PARADE, CITING BONE SPURS



By Andy Borowitz February 7, 2018



# 7 Types of Mis- and Disinformation

# False Connection

## When headlines

vis  
capt  
sup

HOM

OPINION

False  
Context

• [View](#)

# Manipulated Content

## Satire or Parody

No intention to cause harm but has potential to fool

**AMERICAN STRENGTH** | **PUBLISHED:** 7:03 PM 30 JAN 2017 | **UPDATED:** 10:06 PM 30 JAN 2017

# **Trump Declares Globalist Soros As “National Security Threat”... Using Obama’s 2014 Executive Order**

**by Matthew Bernstein**

## frame an issue or individual

## Impersonated

# Fabricated Content

New content,  
that is 100%  
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# 7 Types of Mis- and Disinformation

## False Connection

When two or more things are connected by a false link

## Satire or Parody

No intention to cause harm but has potential to fool

## False Context

Face2Face: Real-time Face Capture and Reenactment of RGB Videos

*Justus Thies<sup>1</sup>, Michael Zollhöfer<sup>2</sup>,  
Marc Stamminger<sup>1</sup>, Christian Theobalt<sup>2</sup>,  
Matthias Nießner<sup>3</sup>*

<sup>1</sup>University of Erlangen-Nuremberg

<sup>2</sup>Max-Planck-Institute for Informatics

<sup>3</sup>Stanford University

CVPR 2016 (Oral)

individual

## Manipulated Content

When genuine information or imagery is manipulated to deceive

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QUESTION MORE

LIVE

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USA

UK

Russian politics

Business

Sport

Op-

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## Cock up: Malaysian govt mocked for printing barking rooster in Year of the Dog ad

Published time: 19 Feb, 2018 02:12

Edited time: 19 Feb, 2018 09:13

[Get short URL](#)

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## 5.9 magnitude quake shakes Oaxaca, Mexico — USGS

Published time: 19 Feb, 2018 07:20

Edited time: 19 Feb, 2018 09:07

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## Britain had more motivation to kill Aleksandr Litvinenko than Russia, brother claims

Published time: 22 Jan, 2016 12:22

Edited time: 22 Jan, 2016 15:35

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## Dutch journalists criticize MH17 probe results after finding 'many pieces' still at crash site

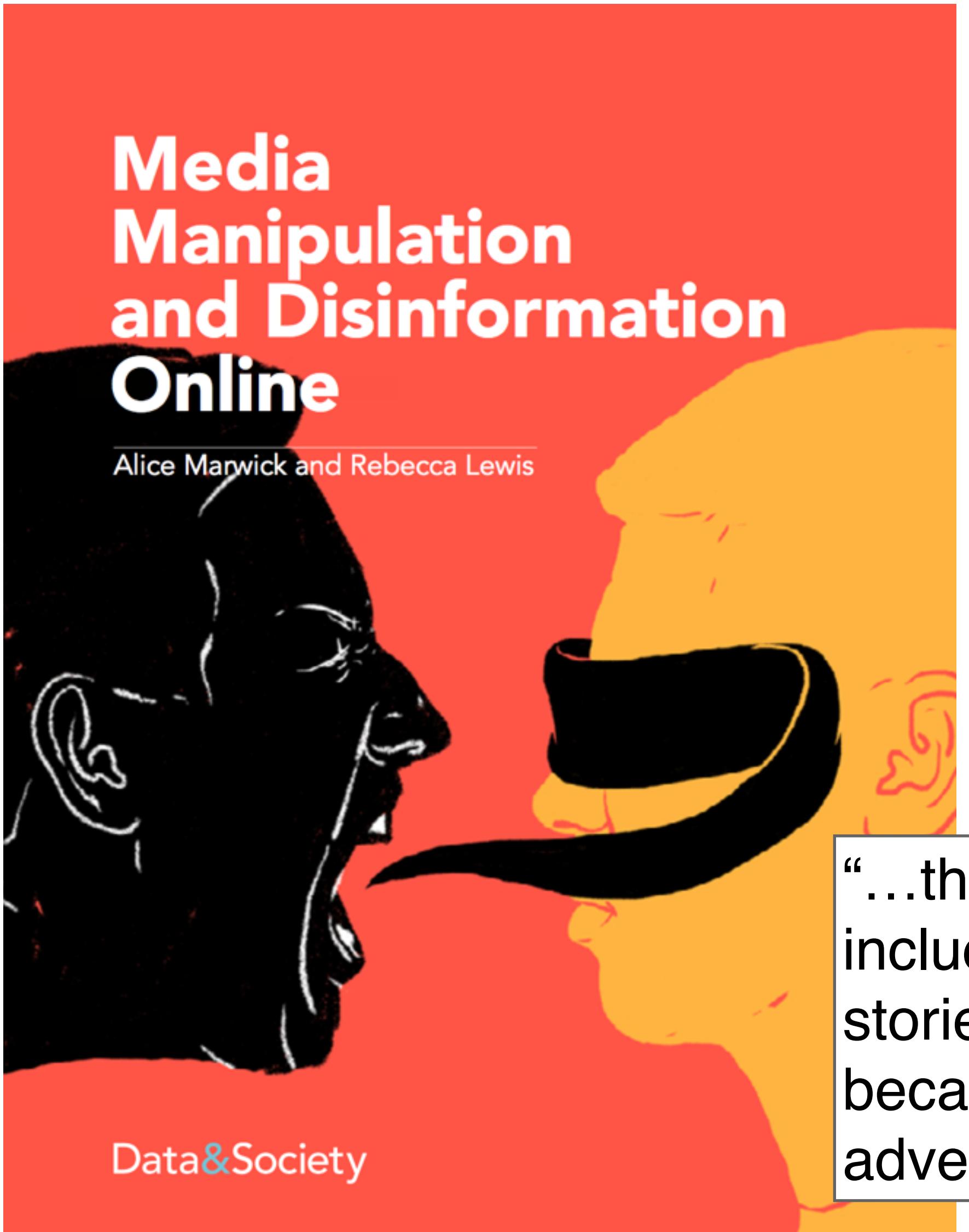
Published time: 9 Jan, 2017 16:37

Edited time: 9 Jan, 2017 18:10

[Get short URL](#)

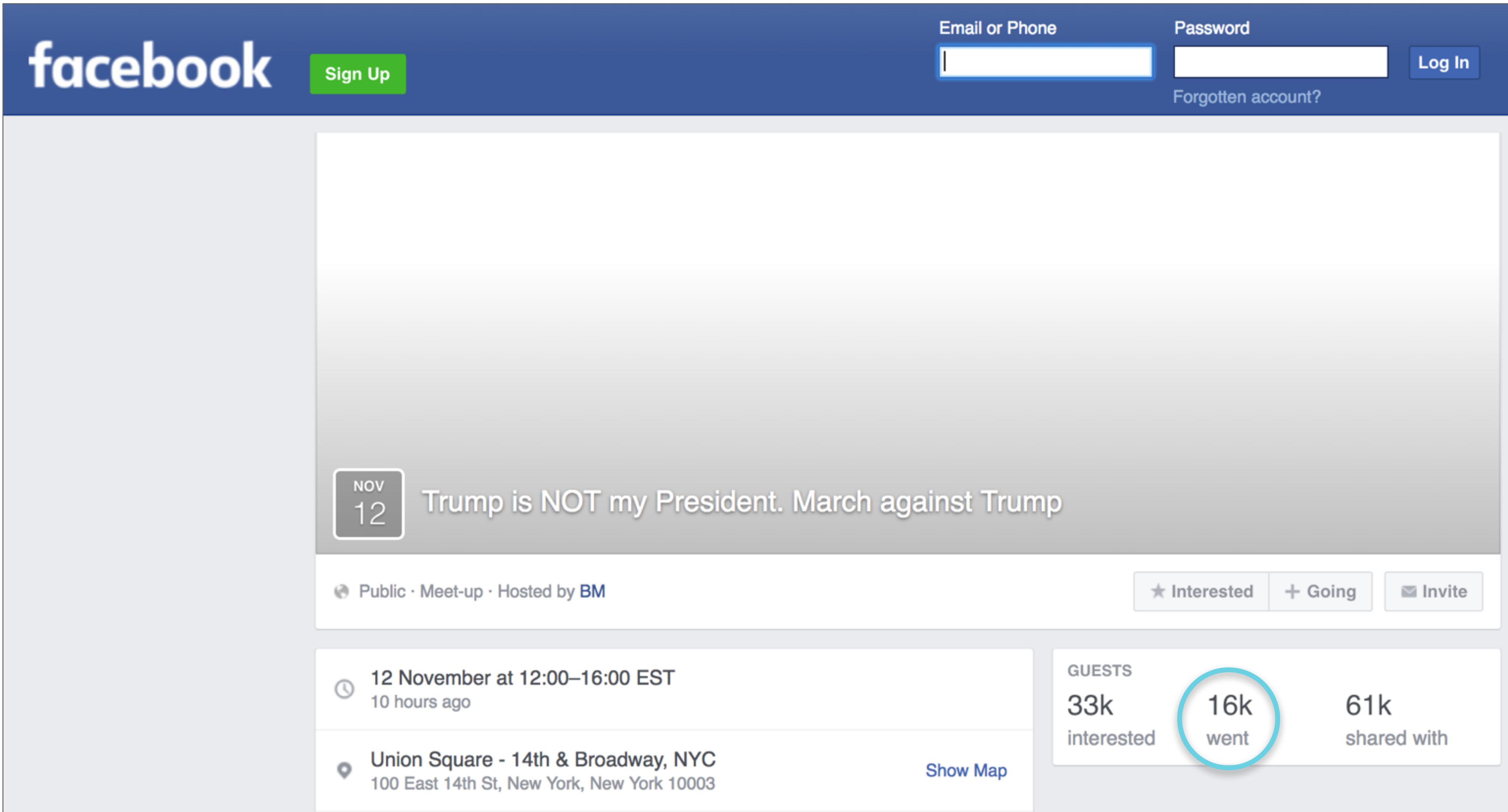
Wait, but why?

# Wait, but why?



“...the two young men behind LibertyNewsWriters.com include rumors, hyperbole, and exaggeration in their stories to appeal to a pro-Trump, anti-liberal audience because it nets them more than \$40,000 a month in advertising revenue.”

# Wait, but why?



A screenshot of a Facebook event page. The event is titled "Trump is NOT my President. March against Trump". It is set for NOV 12, is public, and is a meet-up hosted by BM. The event has 33k interested guests and 16k who went (the latter is circled in blue). It was posted 10 hours ago and is located at Union Square - 14th & Broadway, NYC, 100 East 14th St, New York, New York 10003. A "Show Map" link is available. The top of the screen shows the Facebook login interface.

facebook

Email or Phone

Sign Up

Password

Log In

Forgotten account?

NOV 12

Trump is NOT my President. March against Trump

Public · Meet-up · Hosted by BM

Interested Going Invite

12 November at 12:00–16:00 EST  
10 hours ago

Union Square - 14th & Broadway, NYC  
100 East 14th St, New York, New York 10003

Show Map

GUESTS  
33k interested  
16k went

61k shared with

# Wait, but why?

facebook

ord  
Log In  
ten account?

ACTIVISM POLICE BRUTALITY RACISM YOUR VOICES ENTERTAINMENT B

Police Brutality

Missouri White Ex-Cop Acquitted Of Killing Anthony Lamar Smith

September 15, 2017 Ken Patterson

6k 61k  
shared with



# Wait, but why?

facebook

TP ThinkProgress

f Log In

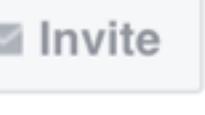
## EXCLUSIVE: Website targeting black Americans appears to be elaborate Russian propaganda effort

The mystery of Black Matters US.

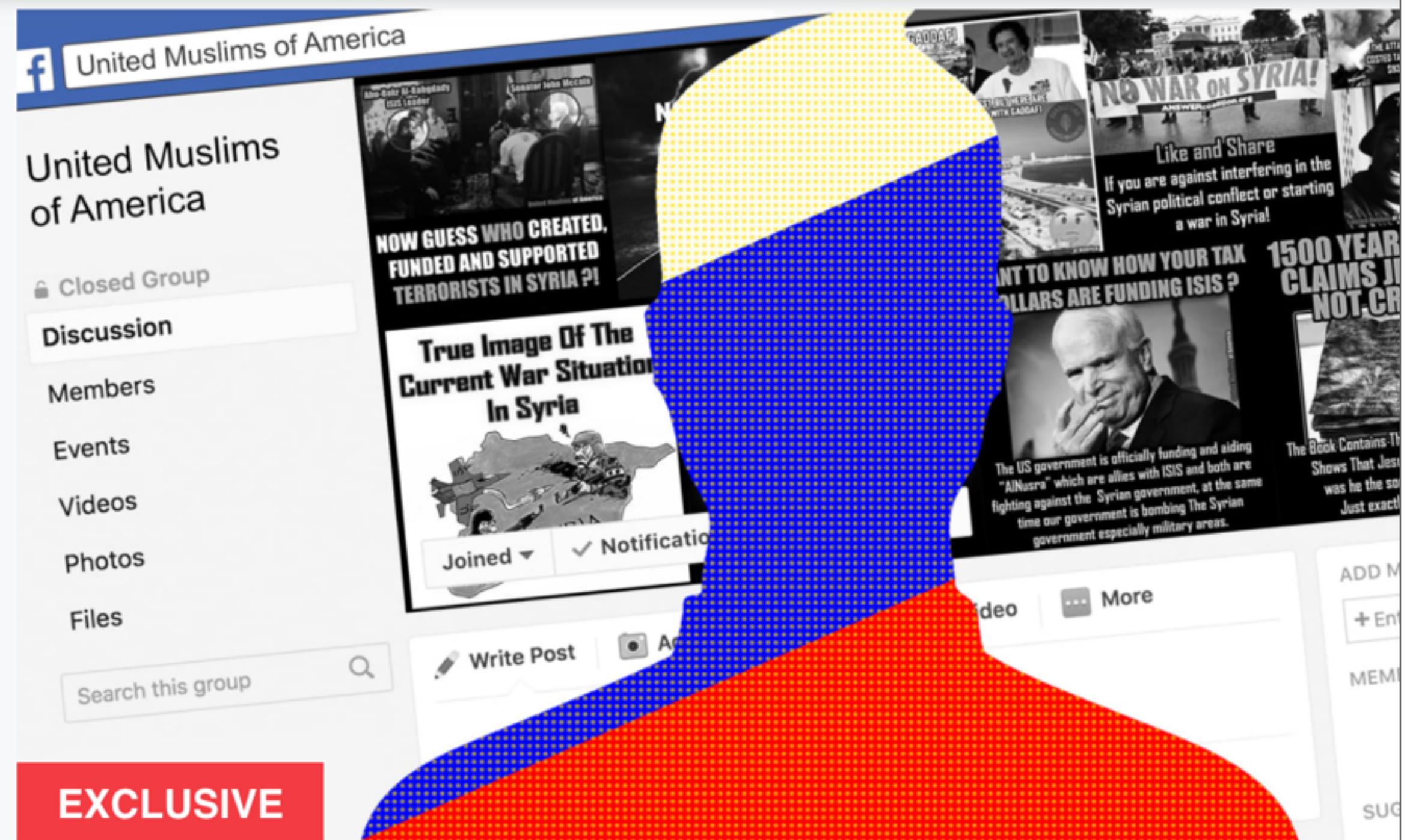
CASEY MICHEL OCT 12, 2017, 3:37 PM

SHARE   



Going  61k shared with

A screenshot of a Facebook post from ThinkProgress. The post features a large, bold headline about a website targeting black Americans as a Russian propaganda effort. Below the headline is a subtitle about the mystery of Black Matters US. The post is attributed to Casey Michel and includes a timestamp of October 12, 2017, at 3:37 PM. A share button with icons for Facebook, Twitter, and Email is present. On the right side of the post, there are standard Facebook interaction buttons for 'Going' and 'Invite', and a '61k shared with' count. The overall layout is characteristic of a news article shared on a social media platform.

f United Muslims of America

United Muslims of America

Closed Group

Discussion

Members

Events

Videos

Photos

Files

Search this group

EXCLUSIVE

PHOTO ILLUSTRATION BY ELIZABETH BROCKWAY/THE DAILY BEAST



ПОД ЛОЖНЫМ ФЛАГОМ

## Exclusive: Russians Impersonated Real American Muslims to Stir Chaos on Facebook and Instagram



Kremlin trolls stole the identity of an authentic U.S. Muslim organization—first to smear John McCain and Hillary Clinton, then to sing her praises.

# Anatomy of a Influence Operation



- Find a divisive issue
  - You can't convince someone of something they don't already want to believe.
- Amplify extremes
  - Associate targets with each side.
  - Appeal strongly to base emotions.
- Preemptively claim victimhood.
- ...
- Profit!



# Anatomy of an Influence Operation

- Find a divisive issue
  - You can't win
- Amplify existing issues
  - Associate with celebrities
  - Appeal strongly to emotions
- Preemptive strikes
  - ...
- Profit!

BAD NEWS

From fake news to chaos!  
How bad are you? Get as  
many followers as you  
can.

PLAY THE GAME



t to believe.



# Anatomy of a Influence Operation



- Find a divisive issue
  - You can't convince someone of something they don't already want to believe.
- A
- “I learned some tricks from the Ipswich witch,  
If you want to win a vote scratch a bigot’s itch.”
- F ~ Gilbert & Sullivan, HMS Pinafore, 1878
- ..
- Profit!



Screenshot/Senate Intelligence Committee

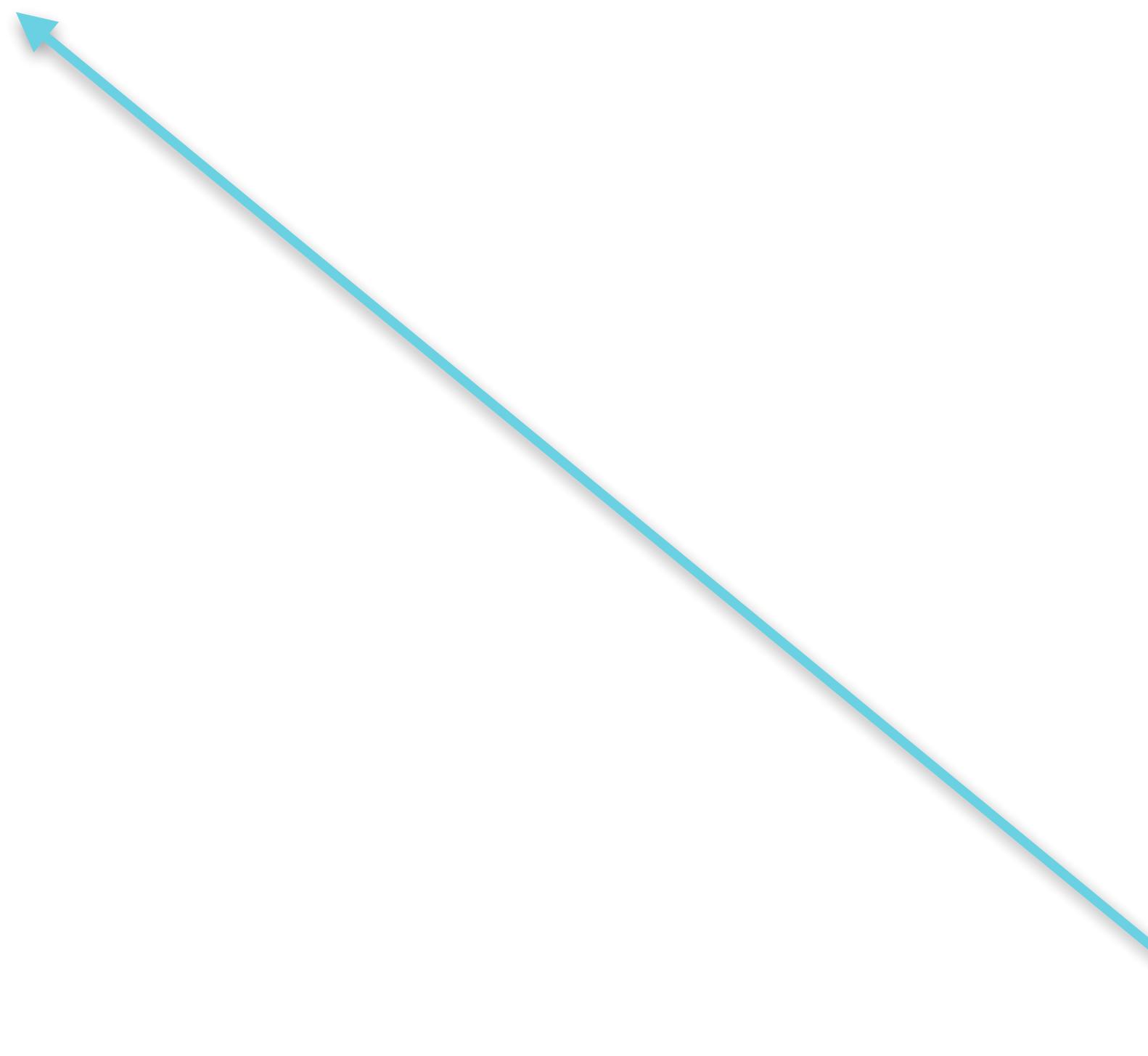
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  - ...
- Profit!

The screenshot shows a web browser window with the URL [getbadnews.com](https://getbadnews.com). The page has a yellow background. At the top center is the word "BAD" in large red letters, followed by "NEWS" in smaller red letters. Below this, the text reads: "From fake news to chaos! How bad are you? Get as many followers as you can." At the bottom center is a blue button with the text "PLAY THE GAME". The browser interface includes standard controls like back, forward, and search.



Politically Motivated



Financially Motivated

Integrity Threat Models

Politically Motivated

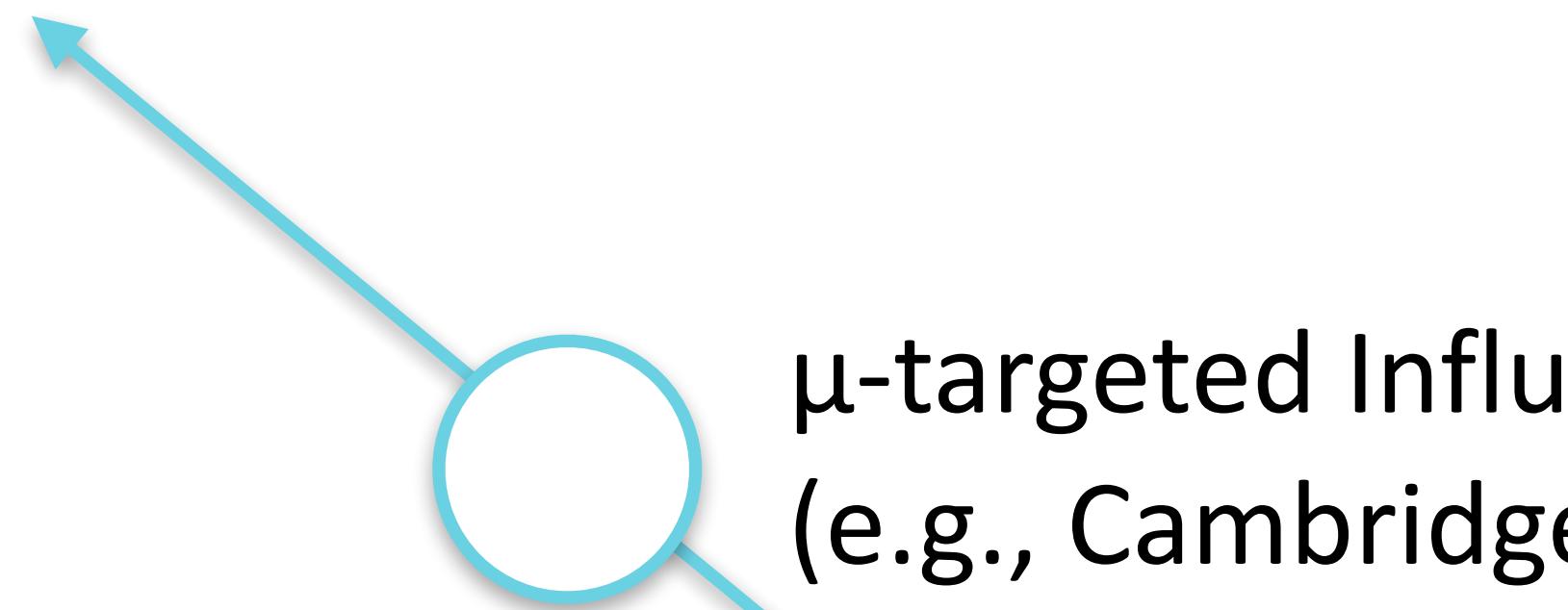


State Propaganda (e.g., Sputnik)

Financially Motivated

Integrity Threat Models

Politically Motivated

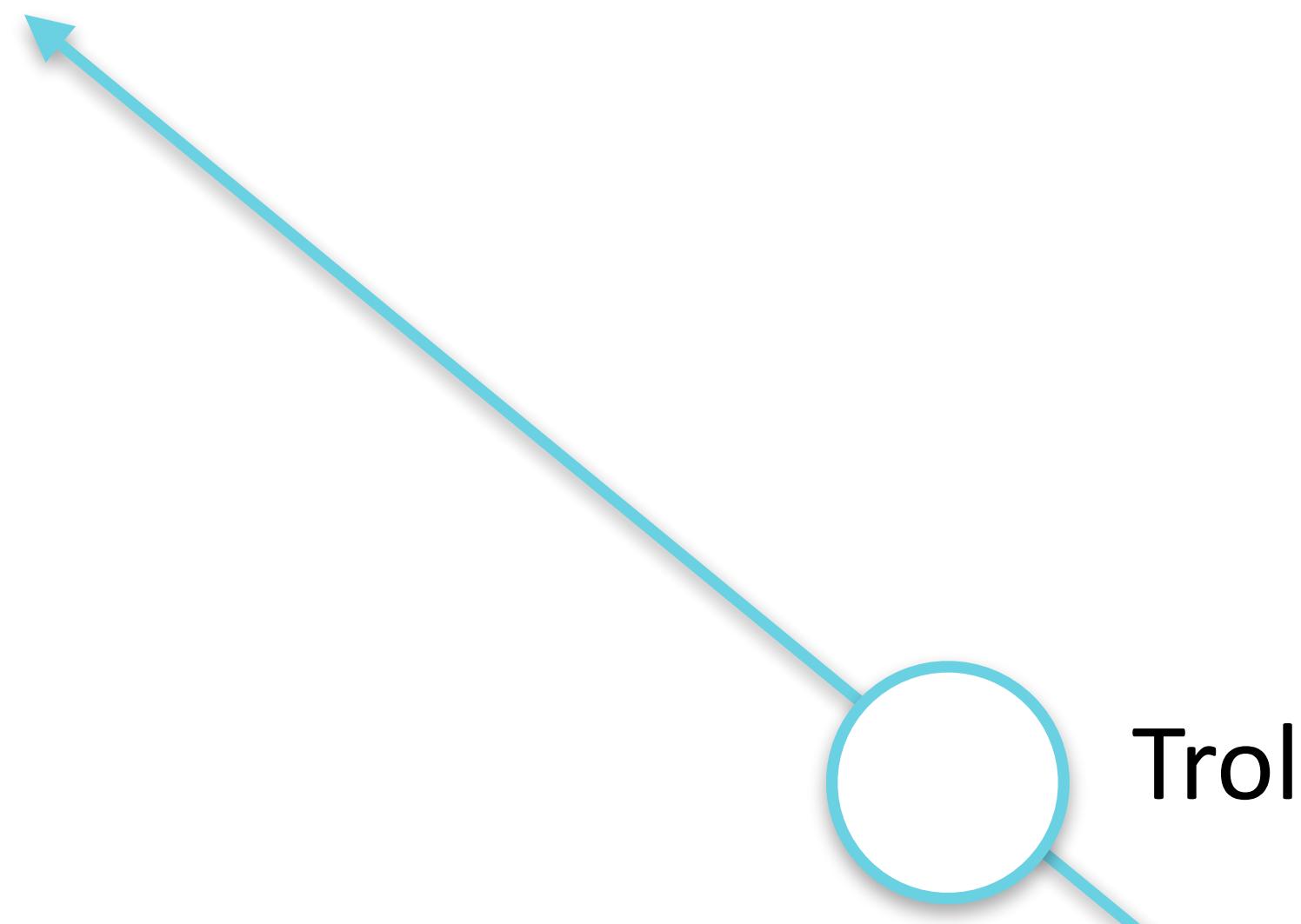


$\mu$ -targeted Influence Operators  
(e.g., Cambridge Analytica)

Financially Motivated

Integrity Threat Models

Politically Motivated

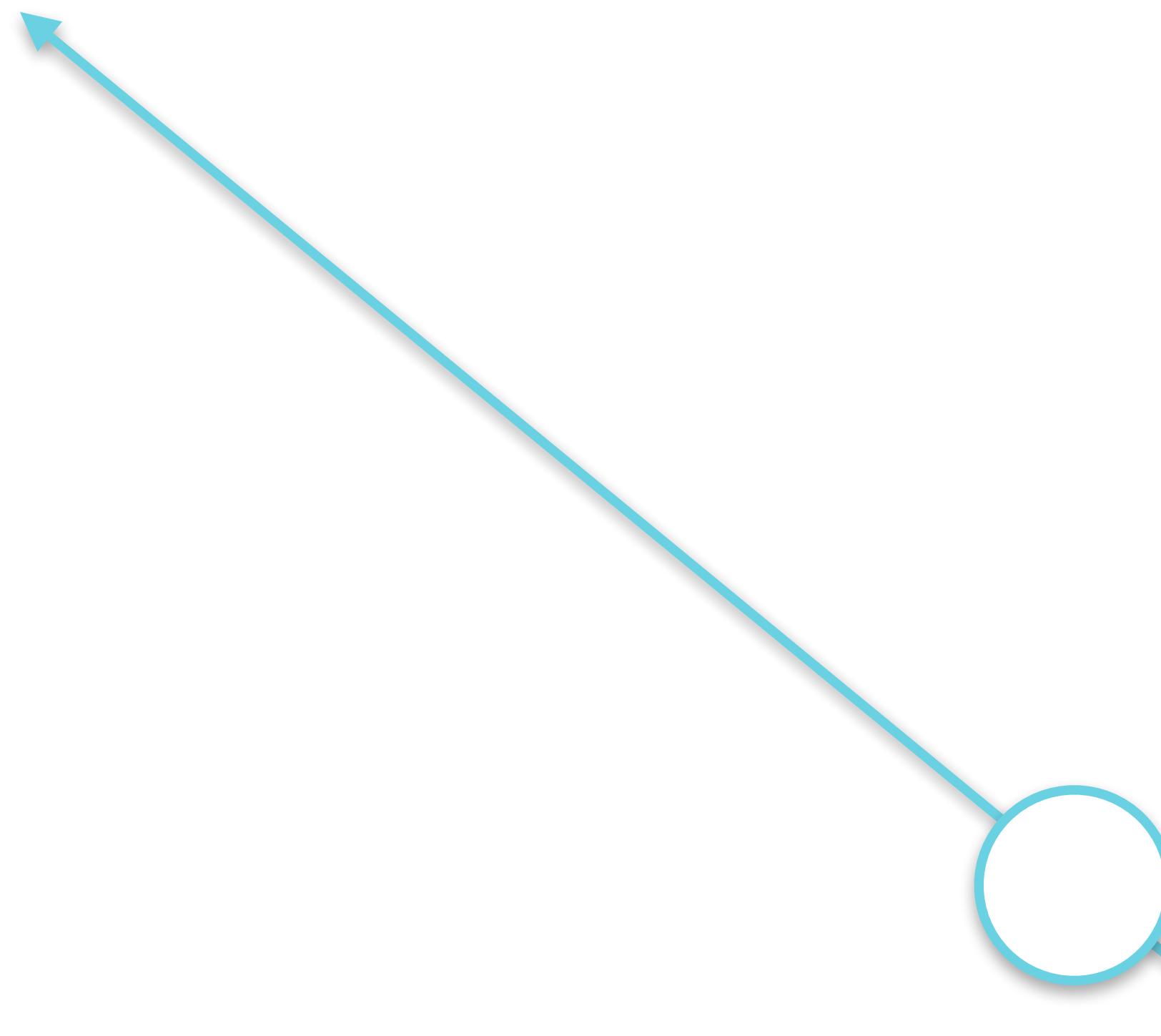


Trolls (e.g., #gamergate)

Financially Motivated

Integrity Threat Models

Politically Motivated



\$-motivated Affiliate Marketers

Financially Motivated

Integrity Threat Models

**RSA®** Conference 2018



#RSAC

**SO WHAT CAN WE DO ABOUT IT?**

# First, what \*won't\* work

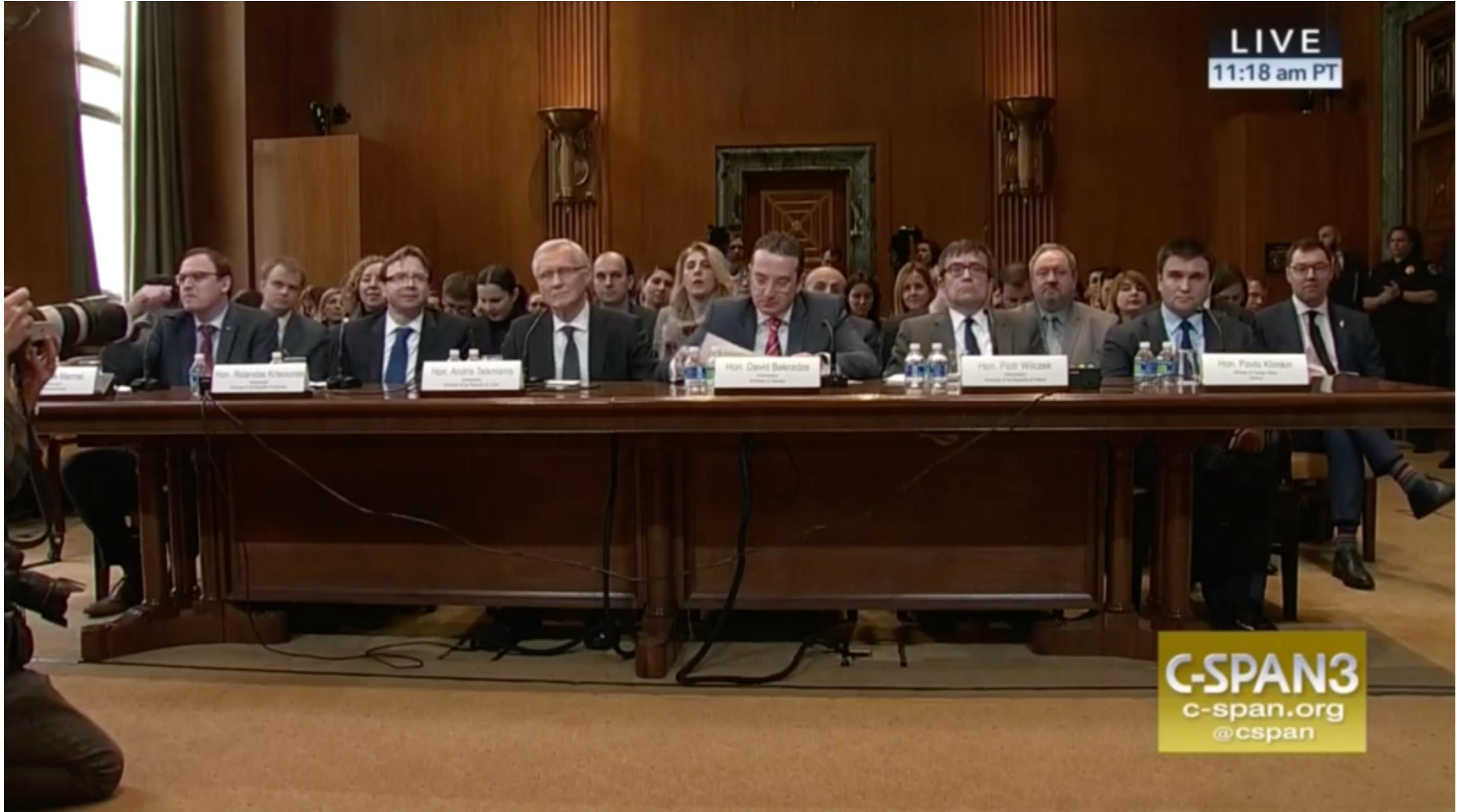


- News literacy programs
- Browser plug-ins
- External arbiters of “truth” or government regulation of speech
- Generally, anything that requires consumers to be smarter.

“No one ever went broke underestimating the intelligence of the American public.”

~ H. L. Mencken

# Second, ask those who have been fighting this for a while...



Ambassadors from Ukraine, Poland, Georgia, Latvia, Lithuania, and Estonia testify at a Congressional hearing in March of 2017.

# Second, ask those who have been fighting this for a while...



Ambassadors from Ukraine, Poland, Georgia, Latvia, Lithuania, and Estonia testify at a Congressional hearing in March of 2017.

# Call it out!



- Fact checking & journalism tools
- Tools to eliminate ad support to “junk news”
- Tools to track and expose misinformation online



The  
Trust  
Project

CUNY GRADUATE SCHOOL OF JOURNALISM  
**NEWS INTEGRITY INITIATIVE**

# Apply: If you run an ad platform...



- Aggressively block ad buy on sites that traffic in misinformation, clickbait, or hate speech, EVEN IF IT MEANS A HIT TO YOUR BOTTOM LINE.



# Apply: If you run a social network...



- Aggressively go after bots and bot armies used to disseminate misinformation and state propaganda.

facebook

twitter

Big Data  
Volume 5 Number 4, 2017  
© Mary Ann Liebert, Inc.  
DOI: 10.1089/big.2017.0038

## ORIGINAL ARTICLE

### Detecting Bots on Russian Political Twitter

Denis Stukal<sup>1,2</sup> Sergey Sanovich<sup>1,2</sup> Richard Bonneau<sup>2–4</sup> and Joshua A. Tucker<sup>1–3,\*</sup>

#### Abstract

Automated and semiautomated Twitter accounts, bots, have recently gained significant public attention due to their potential interference in the political realm. In this study, we develop a methodology for detecting bots on Twitter using an ensemble of classifiers and apply it to study bot activity within political discussions in the Russian Twittersphere. We focus on the interval from February 2014 to December 2015, an especially consequential period in Russian politics. Among accounts actively Tweeting about Russian politics, we find that on the majority of days, the proportion of Tweets produced by bots exceeds 50%. We reveal bot characteristics that distinguish them from humans in this corpus, and find that the software platform used for Tweeting is among the best predictors of bots. Finally, we find suggestive evidence that one prominent activity that bots were involved in on Russian political Twitter is the spread of news stories and promotion of media who produce them.

**Keywords:** bot detection; ensemble methods; machine learning; Russia; Twitter

# Apply: If you run a content platform...



- Stop enabling the organized dissemination of extremely divisive messaging. Create community standards. ENFORCE HATE SPEECH AND ABUSE POLICIES!

facebook

twitter

DISQUS

# Apply: If you run a content platform...



- Stop actively helping autocratic, extremist, and repressive regimes wage information war on the world.

**facebook**

**Q Palantir**

## How Facebook's Political Unit Enables the Dark Art of Digital Propaganda

Some of unit's clients stifle opposition, stoke extremism.

By Lauren Etter, Vernon Silver, and Sarah Frier

December 21, 2017, 5:00 AM EST

**WORLD**  
This Country's Leader Shut Down Democracy – With A Little Help From Facebook

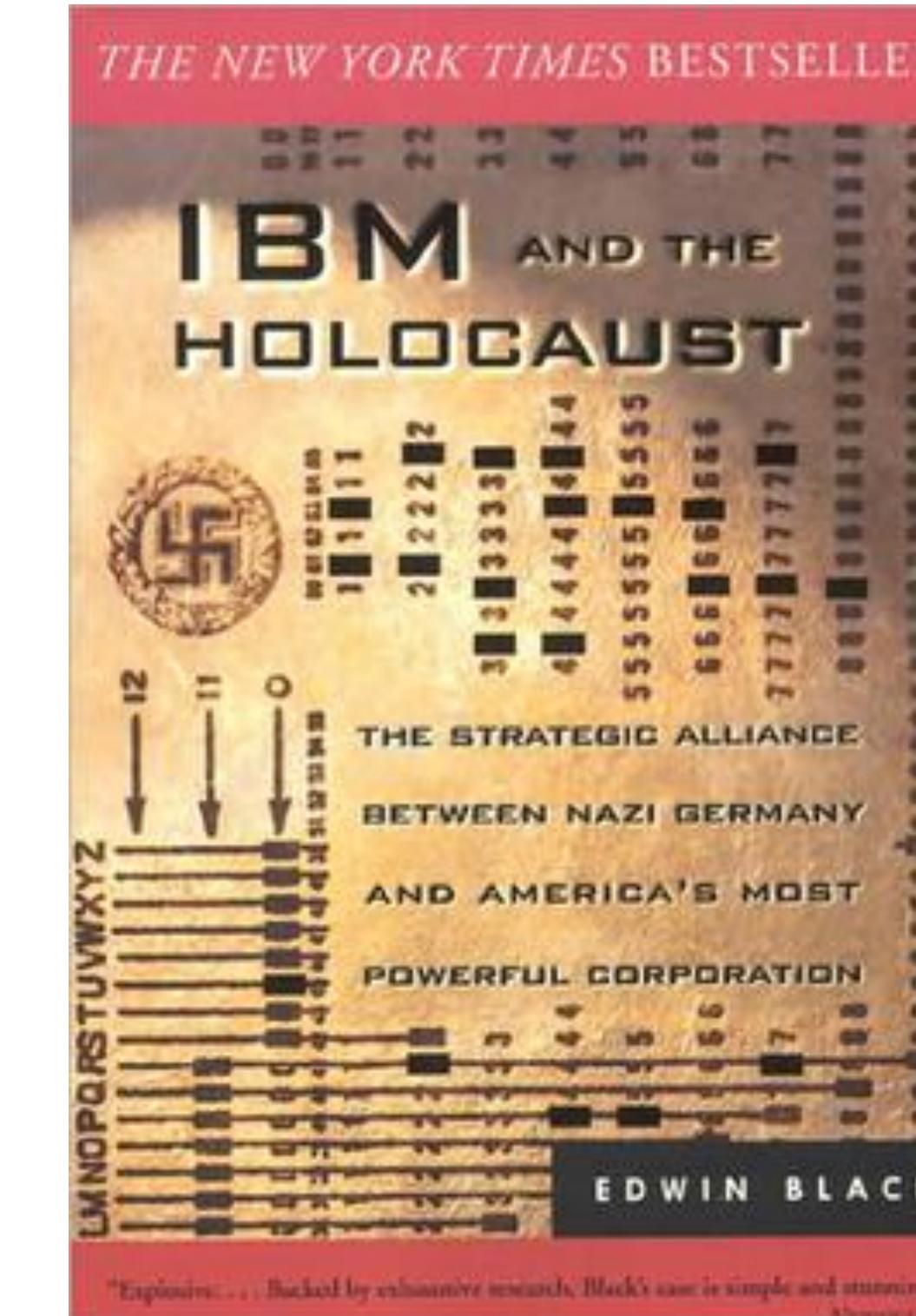
Facebook was supposed to open up societies like Cambodia. But it's doing just the opposite — with disastrous consequences for its fragile politics.

Posted on January 21, 2018, at 10:05 a.m.

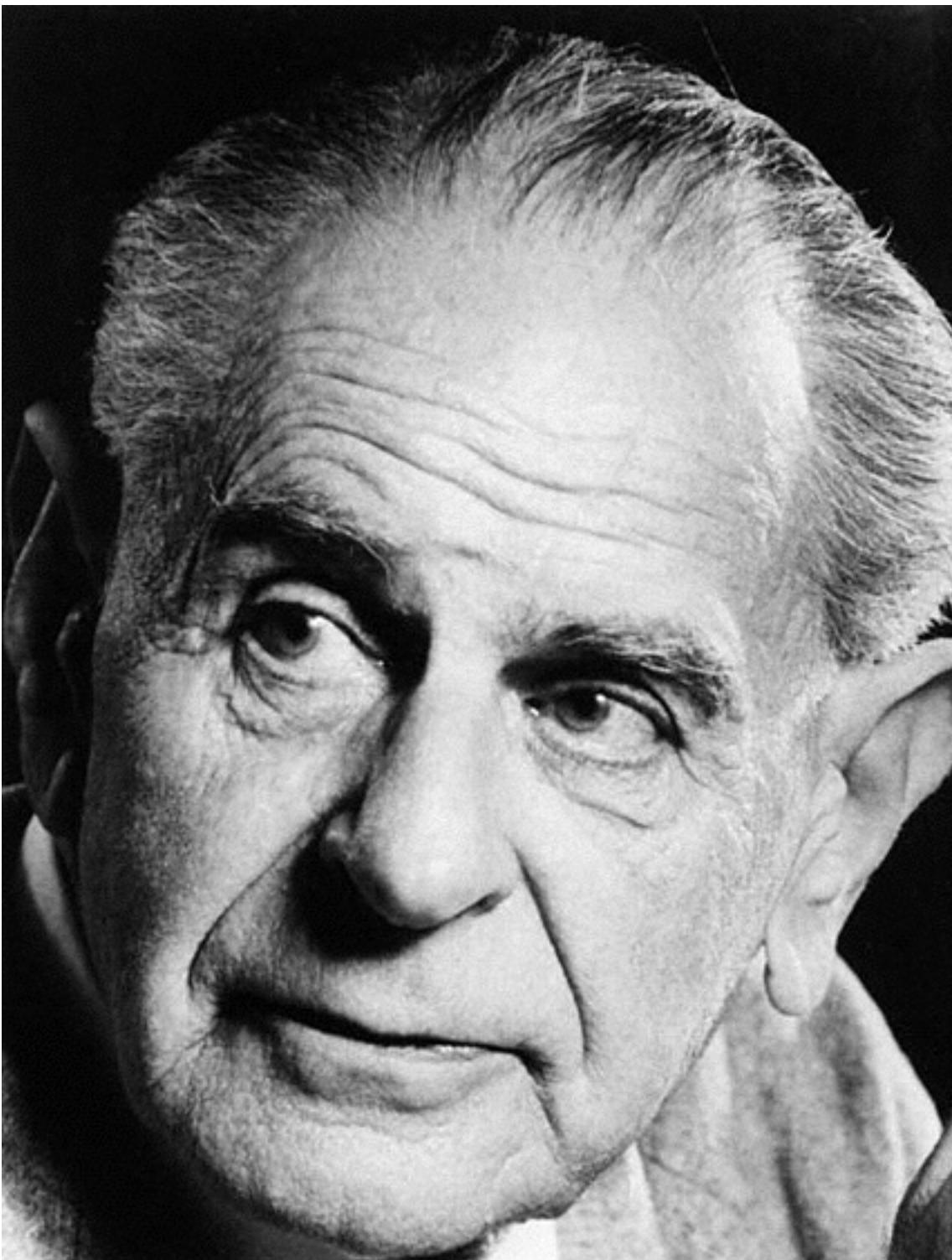
 **Megha Rajagopalan**  
BuzzFeed News Reporter

 Reporting From Phnom Penh, Cambodia

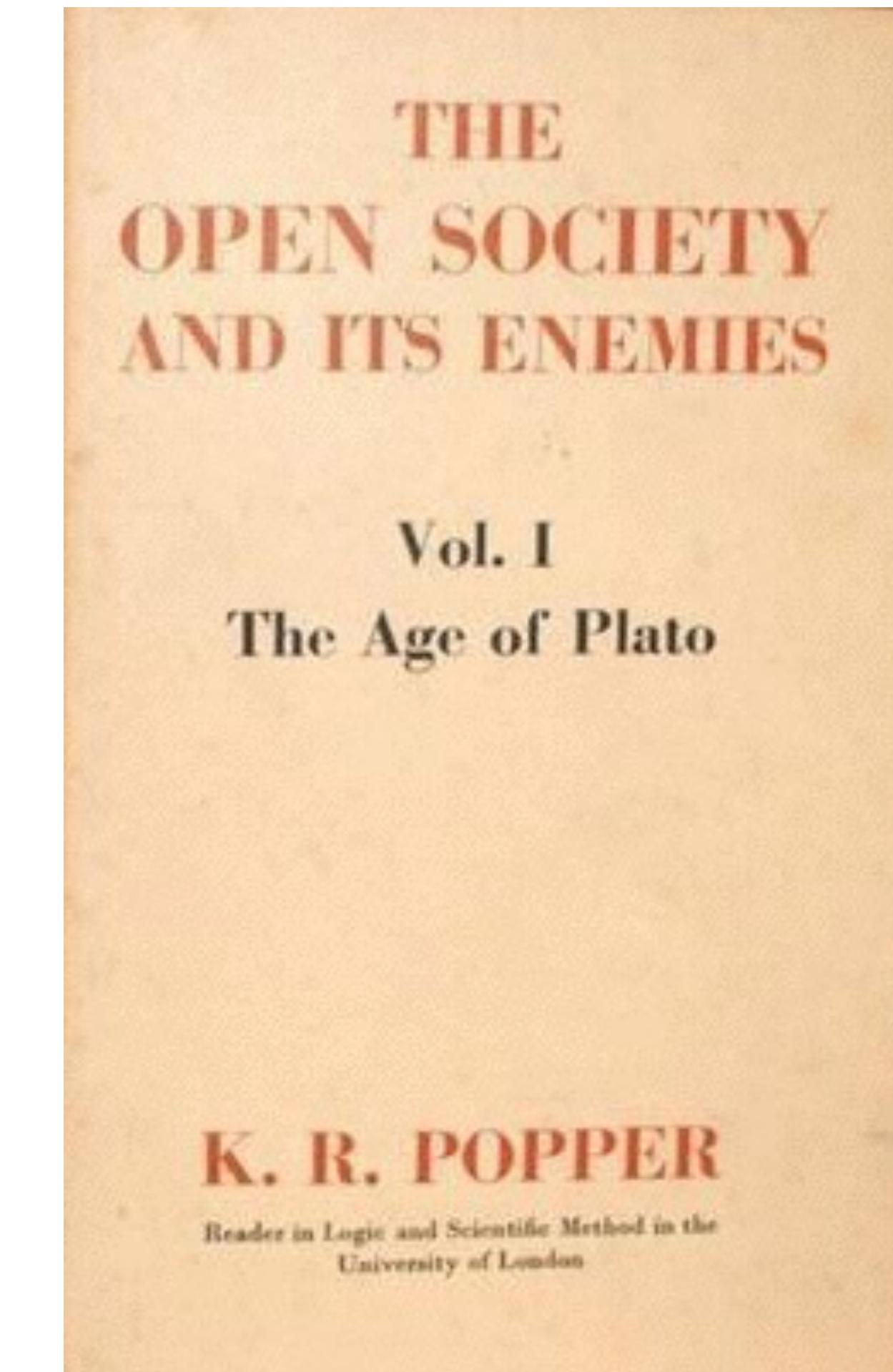
"History does not repeat itself, but it does rhyme,"  
— Mark Twain



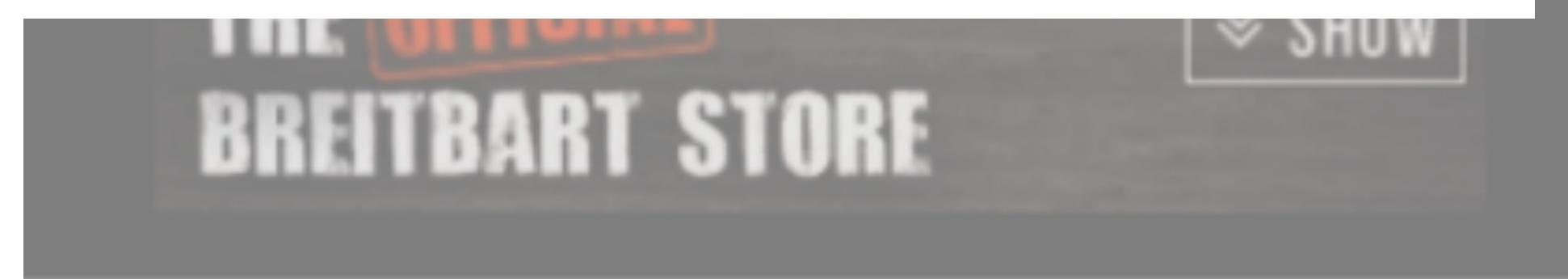
You MUST take a side.



Karl Popper, 1902-1994

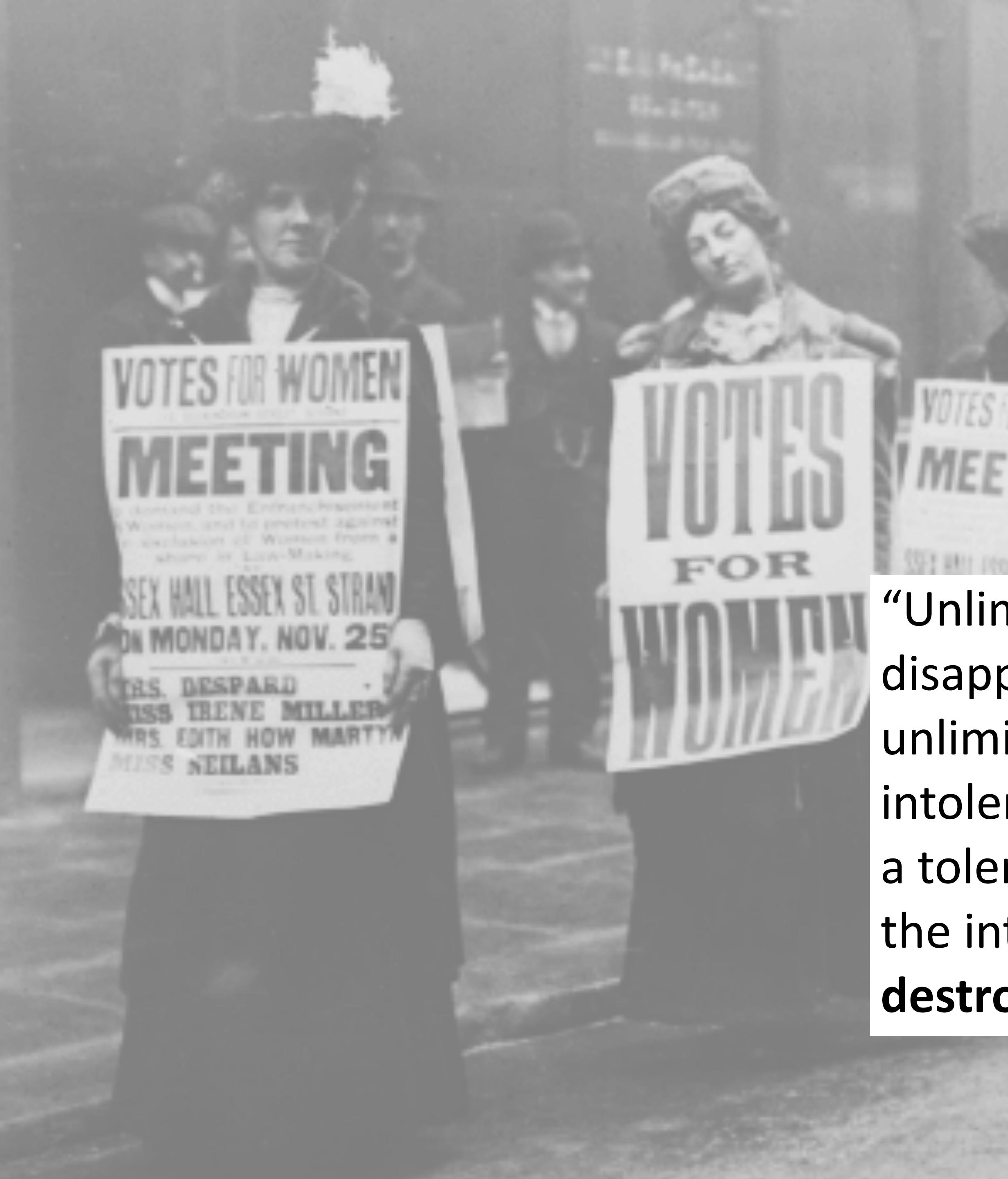


“The so-called paradox of freedom is the argument that freedom in the sense of absence of any constraining control must lead to very great restraint, since **it makes the bully free to enslave the meek.**”



**HOIST IT HIGH AND PROUD: THE CONFEDERATE FLAG PROCLAIMS A GLORIOUS HERITAGE**





THE SOLUTION TO ONLINE ‘HARASSMENT’ IS SIMPLE: WOMEN SHOULD LOG OFF

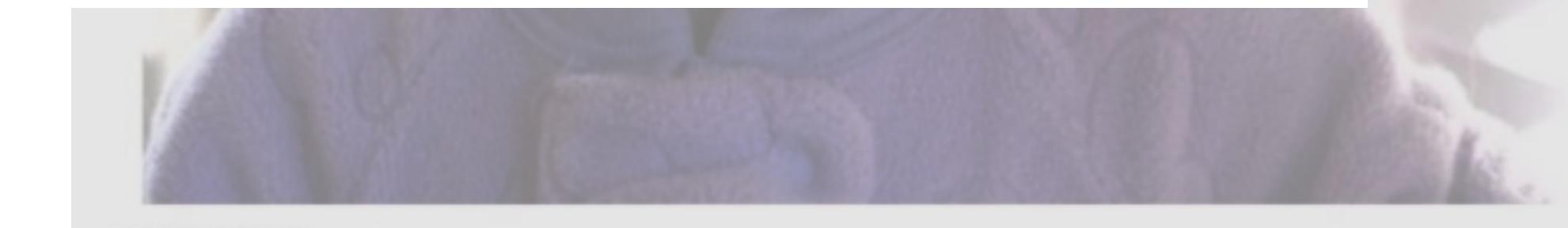
f SHARE 7205

e EMAIL

g+ SHARE

t TWEET

“Unlimited tolerance must lead to the disappearance of tolerance. If we extend unlimited tolerance even to those who are intolerant, if we are not prepared to defend a tolerant society against the onslaught of the intolerant, then **the tolerant will be destroyed, and tolerance with them.**”



BREITBART



# BILL KRISTOL: REPUBLICAN SPOILER, RENEGADE JEW - BREITBART

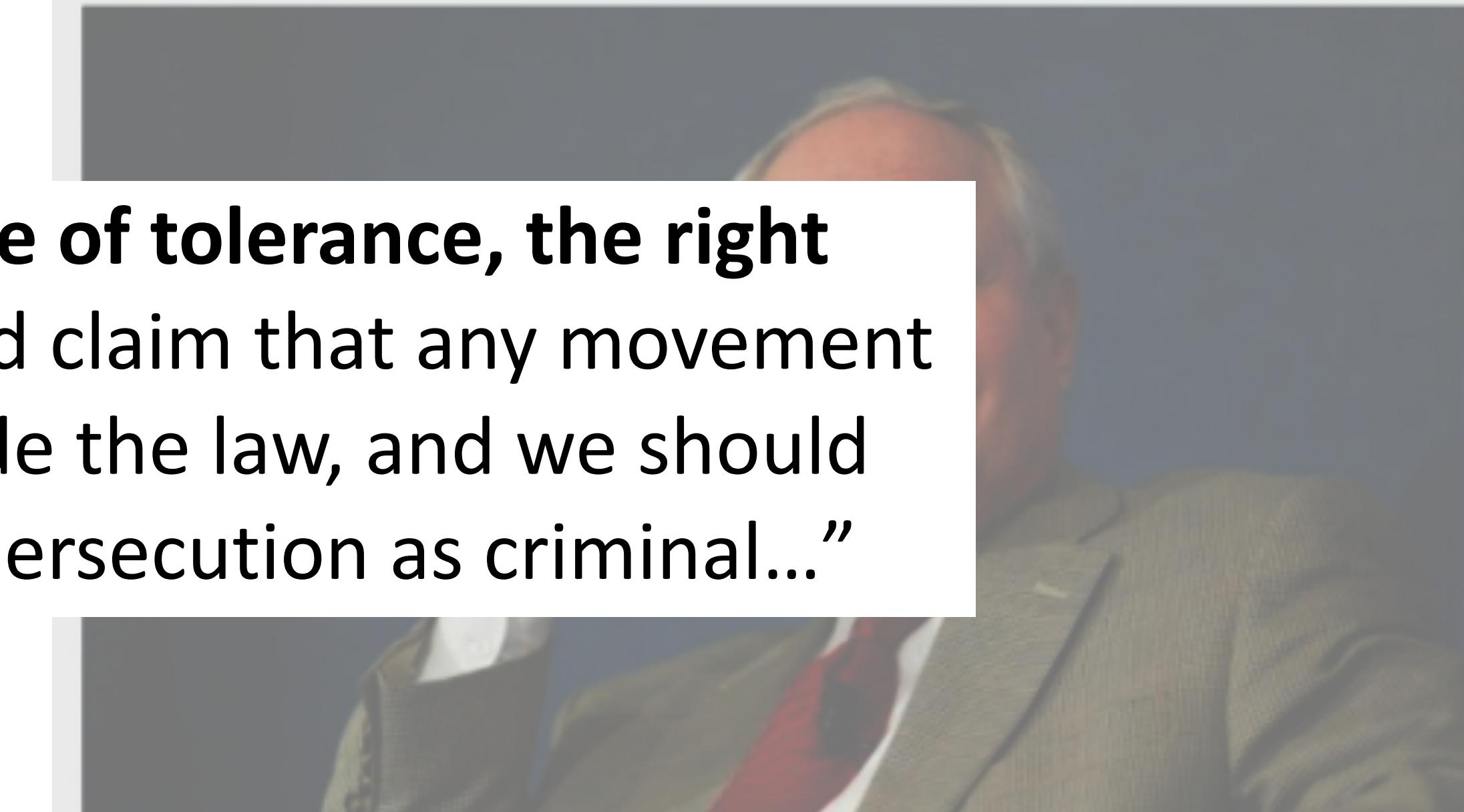
f



G+



**“We should therefore claim, in the name of tolerance, the right not to tolerate the intolerant. We should claim that any movement preaching intolerance places itself outside the law, and we should consider incitement to intolerance and persecution as criminal...”**





Thank You.

**Dr. Daniel J. Rogers**

Co-Founder & CEO, Terbium Labs

Founder and CTO, Global Disinformation Index

@veracitydotai @terbiumlabs @lookatmeimdanny