

# RSA<sup>®</sup>Conference2019

San Francisco | March 4–8 | Moscone Center



**BETTER.**

SESSION ID: SBX1-W4

## The Emerging Gray-App Threat: Mobile Kids' Apps

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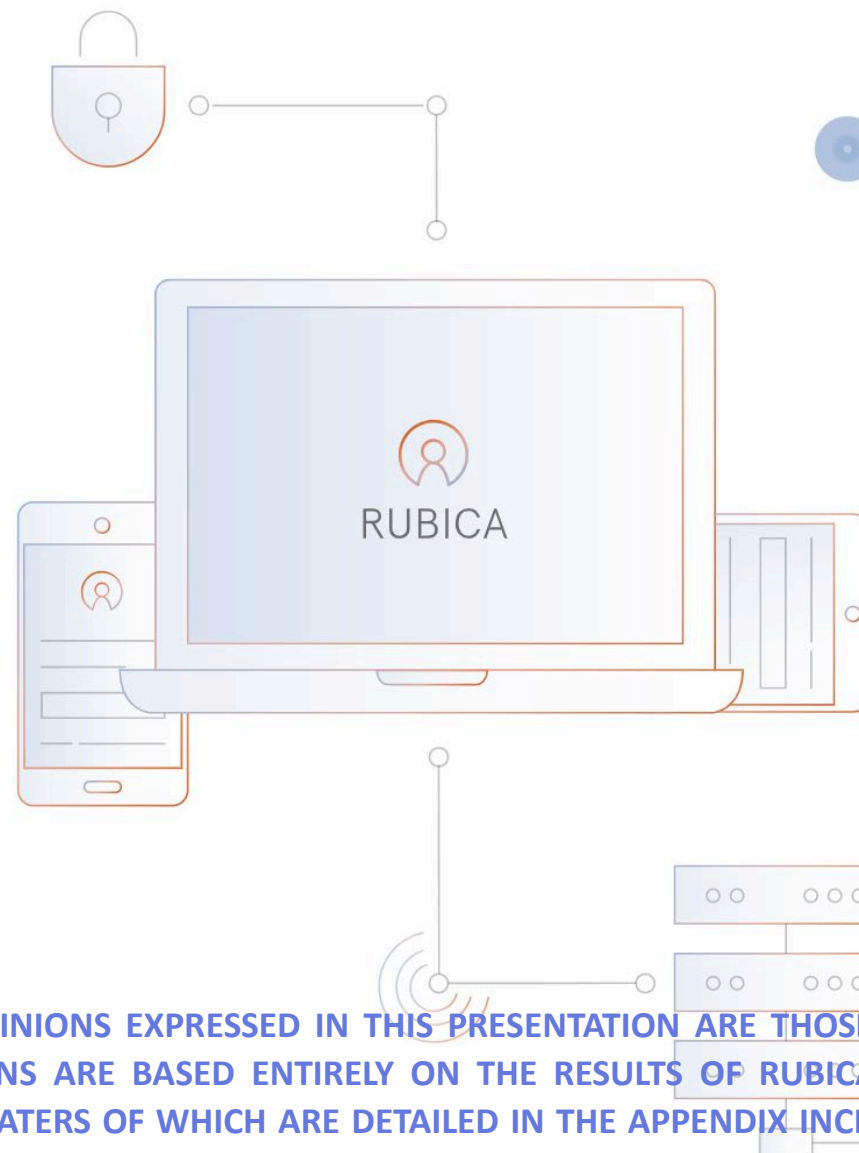
CEO  
Rubica Inc.  
@rubica



#RSAC



#RSAC



THE OPINIONS EXPRESSED IN THIS PRESENTATION ARE THOSE OF RUBICA, INC. THESE OPINIONS ARE BASED ENTIRELY ON THE RESULTS OF RUBICA'S INTERNAL STUDY, THE PARAMETERS OF WHICH ARE DETAILED IN THE APPENDIX INCLUDED IN RUBICA'S WHITE PAPER ENTITLED "A TRUE CYBERSECURITY REPORT (Q1-2019)".



# We all know how we parent ....



## 70%

of kids share a  
device with a  
family member

## 77%

of kids with  
devices download  
games

*Source: RJI Mobile Media  
Research, Nielsen*



# Study: Free Mobile Apps are Gateway for Cybercrime



## Unsafe apps for kids have:

- Aggressive ads & prompts to download other third-party apps
- Invasive permissions
- Open up a gateway for malware

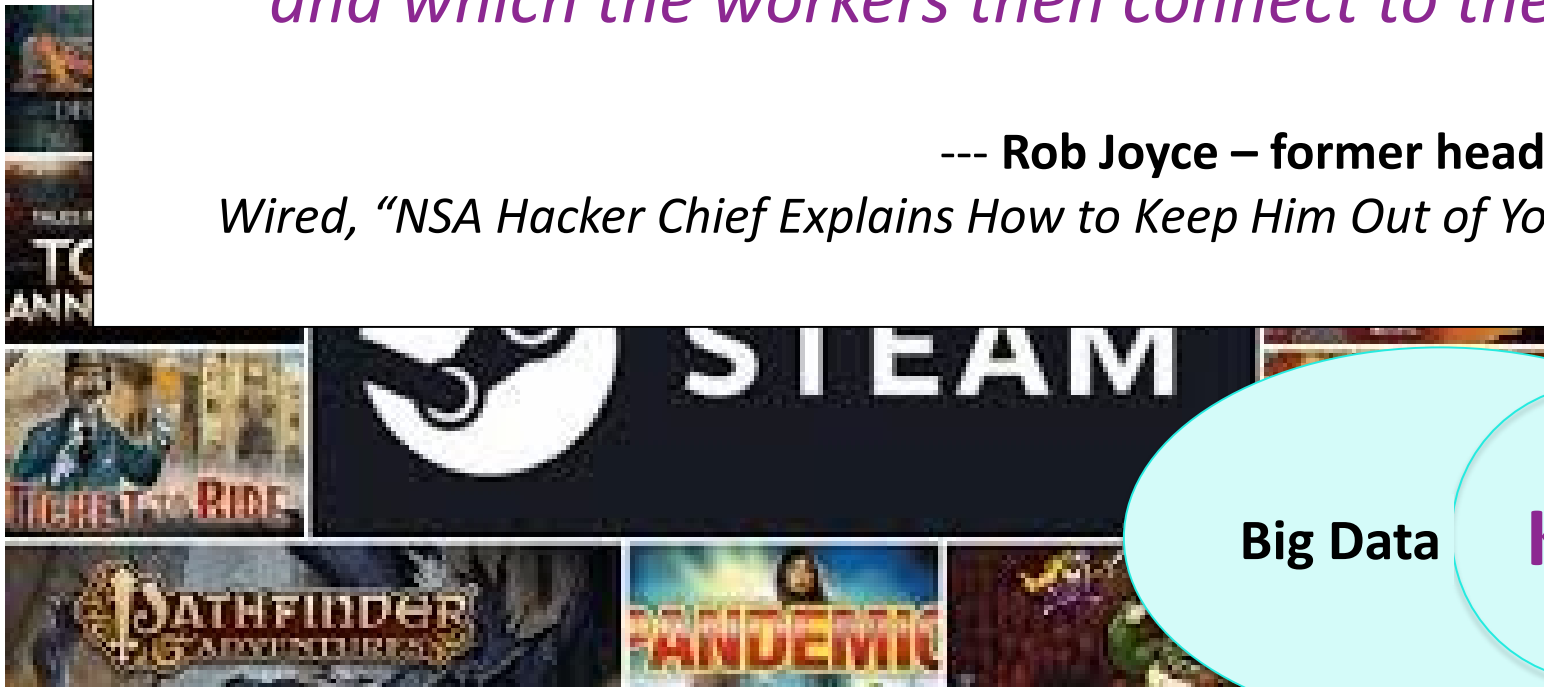
# Why Kids?

Favorite attack vector for nation states:

*“The personal devices employees bring into the office on which they’ve allowed their kids to load Steam games, and which the workers then connect to the network.”*

--- Rob Joyce – former head of NSA’s TAO division

Wired, “NSA Hacker Chief Explains How to Keep Him Out of Your System” 1/28/2016



Big Data

Kids

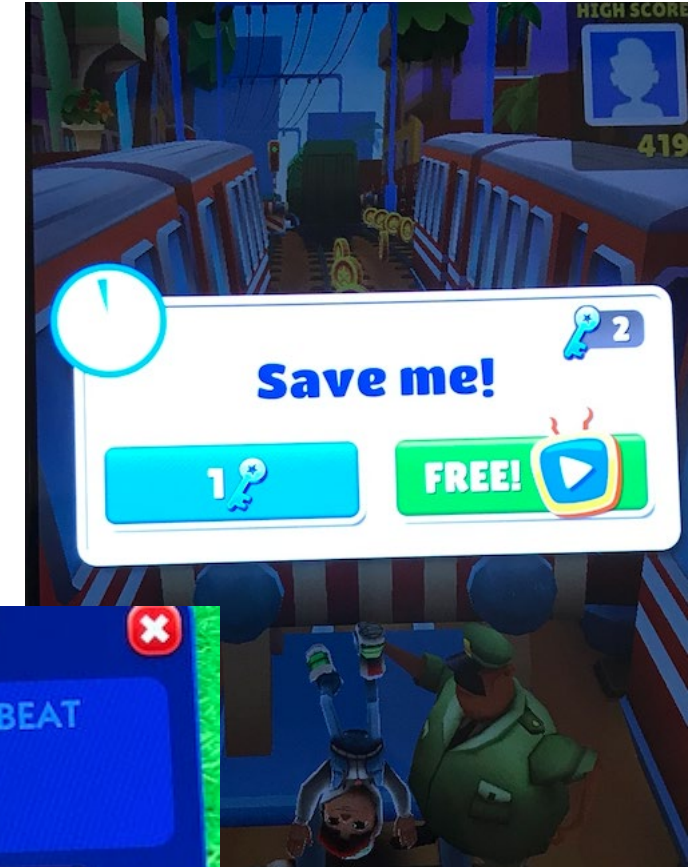
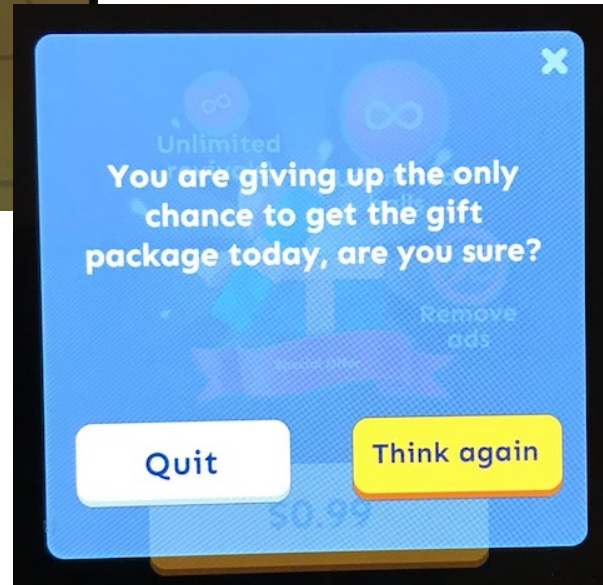
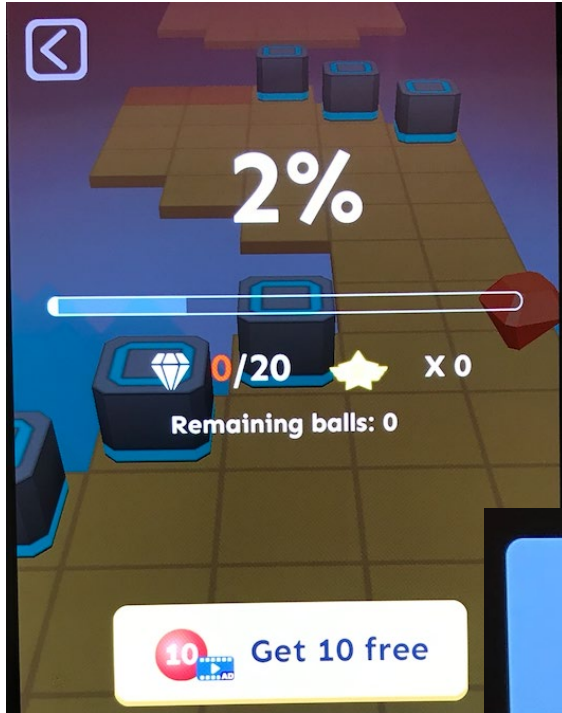
Parents’  
Devices





# Why Free Apps?

- Advertisements & in-app purchase or upgrade options
- Kids click on everything
- Deceptive tactics targeting young players



# Approach to the Study

✓ **Top 20 apps**

✓ **Rated E for Everyone**

✓ **Android & iOS**, with and without parental controls

✓ **Clean devices & distinct user profiles** (gender, age)

✓ **Rubica security monitoring** for threat indicators

✓ **Recorded:**

- Prompts
- App & Ad behavior
- Requests
- Timestamps
- Developer notes
- Permission details
- Resulting permissions







# Scoring

<b>Frequency &amp; aggressiveness of ads</b>	Every 1-2 minutes, 3-5 minutes, 6-8 minutes Every time player dies or completes level
<b>Inappropriate content in ads</b>	Gambling, sexual/dating, excessive violence
<b>Deceptive tactics in ads/prompts</b>	Offers rewards/enticements; difficult to exit; pop-up unexpectedly when about to click something else; seems to be part of the game, etc.
<b>Privacy concerns</b>	Permission to device settings & information that is excessive, intrusive, or inappropriate for game function
<b>Security concerns</b>	App installs suspicious program without warning; evidence of malware/IOCs; data exfiltration; access to sensitive device controls
<b>Secondary app concerns</b>	Privacy or security concerns with secondary app prompted for download during primary game play
















KIDS APPS	DANGER RATING	PRIVACY + ADVERTISING SAFETY RISKS
	UNSAFE 130	 
	UNSAFE 95	 
	UNSAFE 75	 
	UNSAFE 62	 
	NOT RECOMMENDED 45	 
	NOT RECOMMENDED 43	 
	NOT RECOMMENDED 43	 
	PARENT SUPERVISION 27	 
	PARENT SUPERVISION 16	 
	PARENT SUPERVISION 15	 
	PARENT SUPERVISION 15	 
	PARENT SUPERVISION 15	 
	SAFE 10	 
	SAFE 5	 
	SAFE 0	 
	SAFE 0	 
	SAFE 0	 
	SAFE 0	 
	SAFE 0	 
	SAFE 0	 

DANGEROUS

SAFE

# Rubica's Safety Index of the 20 Most Popular Free Apps for Kids



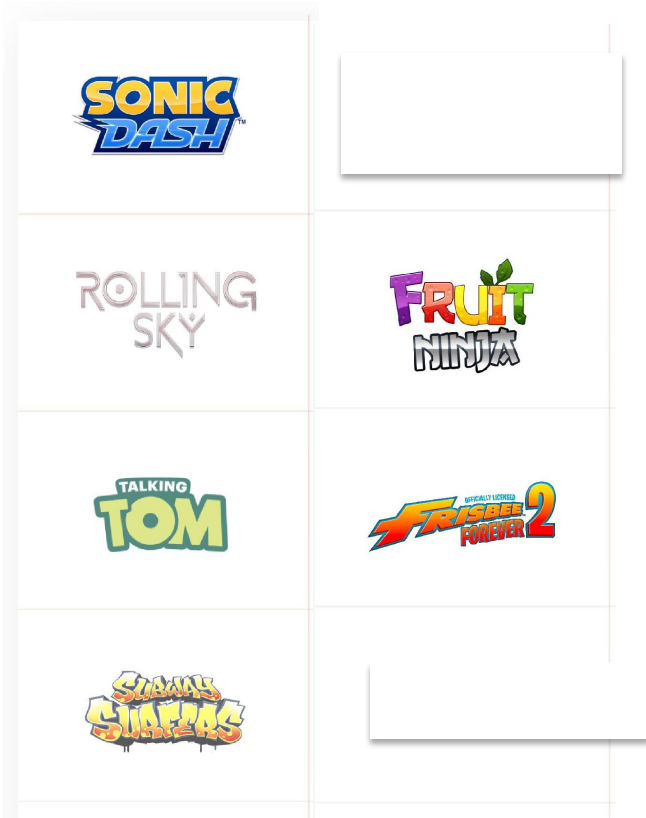
KIDS APPS	DANGER RATING	PRIVACY + ADVERTISING SAFETY RISKS
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	UNSAFE 75	 
	UNSAFE	 

DANGEROUS

# Findings in Primary apps

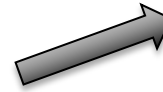
## 8

*primary apps*



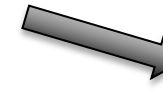
## 50+

secondary app  
downloads



## 17

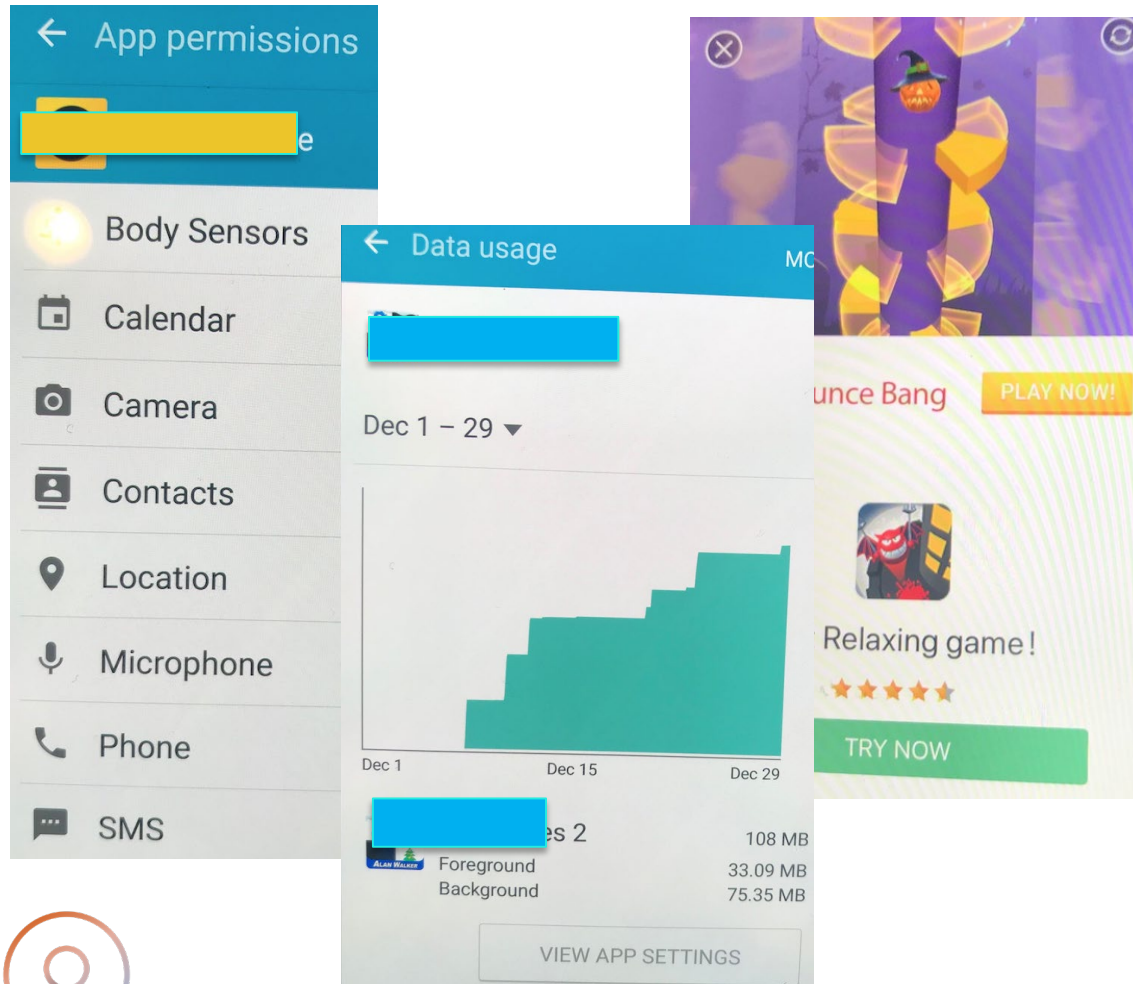
of secondary  
apps prompted  
in multiple  
primary apps



## 22

secondary apps  
with invasive  
permissions

# Further Investigation: Secondary Apps



## PERMISSIONS:

Invasive permissions and privacy concerns in primary or secondary app:

### Ability to:

- *Download files without notification*
- *Retrieve list of all running apps*
- *Position prompts over top*

### Access to:

- *Sensitive log files*
- *Browsing history*
- *Precise GPS location*
- *Camera/microphone*





# The Grayware Problem

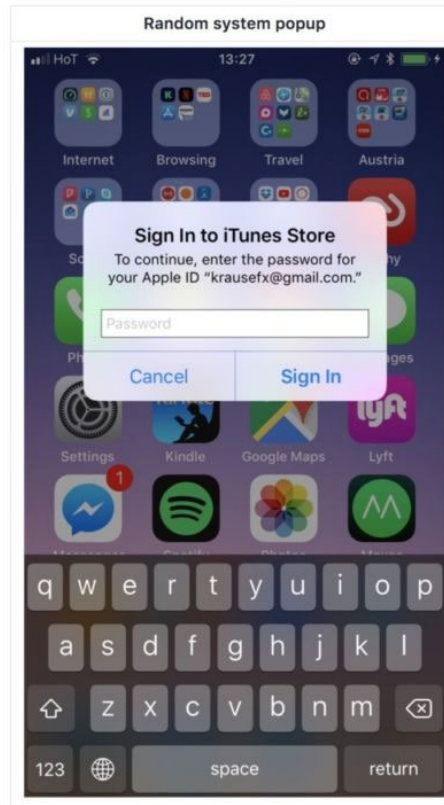


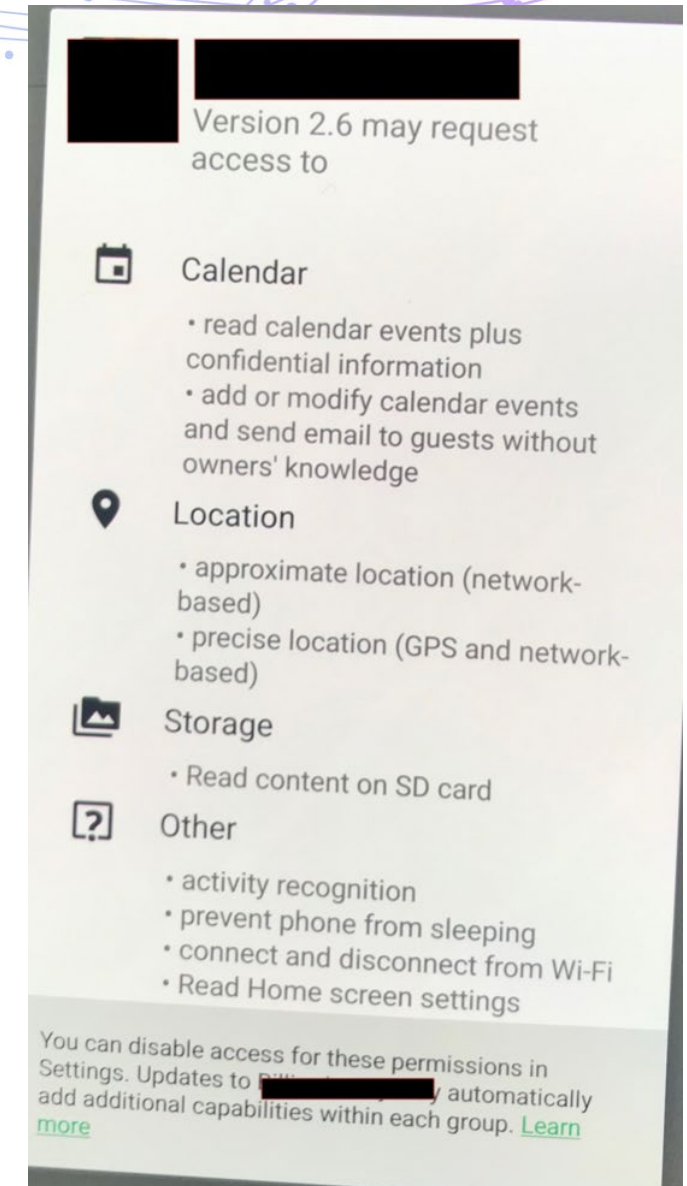
Image: ArsTechnica.com

Highlights larger issue in cybersecurity –  
PUPs, adware, grayware

Hard to detect and police

Little oversight or control over 3<sup>rd</sup> party ad  
networks & ad content providers

Remember: Data itself is sometimes the  
target – its valuable!



# What You Can Do

As a parent:

1. Use parental controls...the right way.
2. Review App permissions, esp. on Android.
3. Educate your kids not to click. (Show them what can happen.)



# What You Can Do

As a cybersecurity professional:

1. Don't forget the kids as a weak link when securing your executives
2. Extend protection to family and personal devices





# Learn More

Download the full white paper:

[www.rubica.com/cyber-safety-for-kids](http://www.rubica.com/cyber-safety-for-kids)

