



Classifying PUs in the Mobile Environment

Sean McDonald & Vanja Svajcer



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Classifying PUAs in the Mobile Environment

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Classifying Mobile PUAs

Set up the context

Mobile PUA taxonomy

Recommendations

Context

PUA concept well known

How are mobile PUAs (if at all) different?

Which criteria to use when classifying?

Motivation - stakeholders

Users

App developers

Ad framework developers

Testers

Researchers



Motivators



Testers

Common criteria for classification

Choice of test sets influences industry

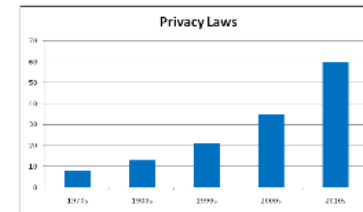
Trusted source of classification

Multi stakeholder approach required



External sources for criteria

Legislation - privacy laws



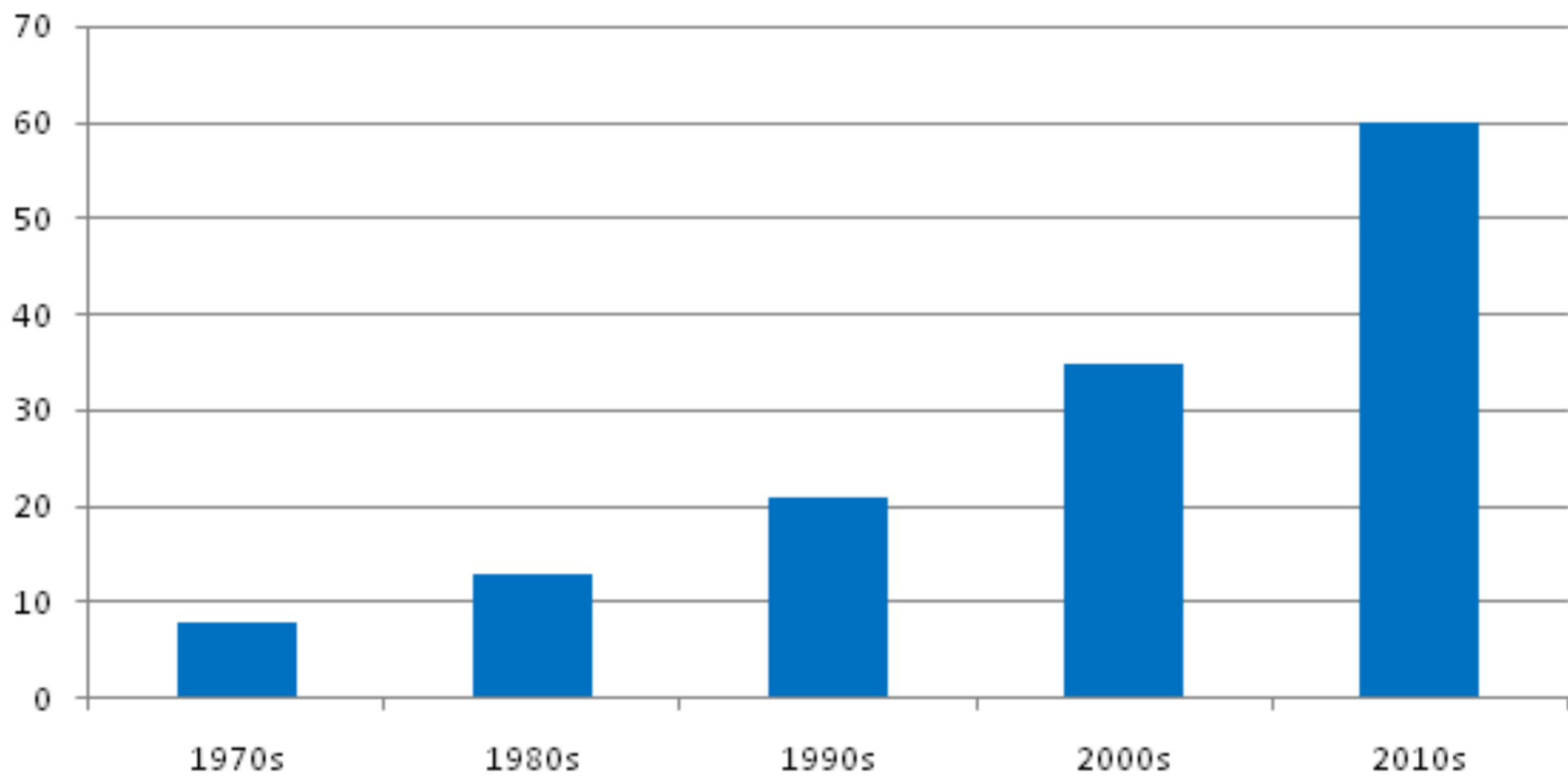
EU data protection

- App developers should be educated
- Poor security measures for securing data
- More data is collected than necessary
- Consent (what is consent, when?)

US Consumer Privacy Bill

- Individual control
- Transparency
- Focused data collection
- Accountability

Privacy Laws



EU data protection

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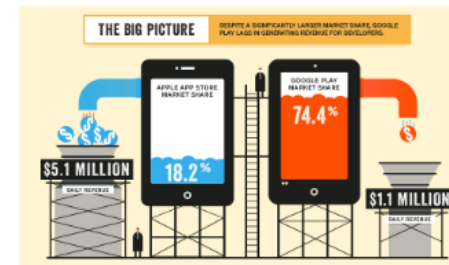
Mobile PUA taxonomy



Advertising frameworks
Existing PUA classification
Proposed PUA classification
Full taxonomy

Advertising frameworks

Monetize
Free(mium)



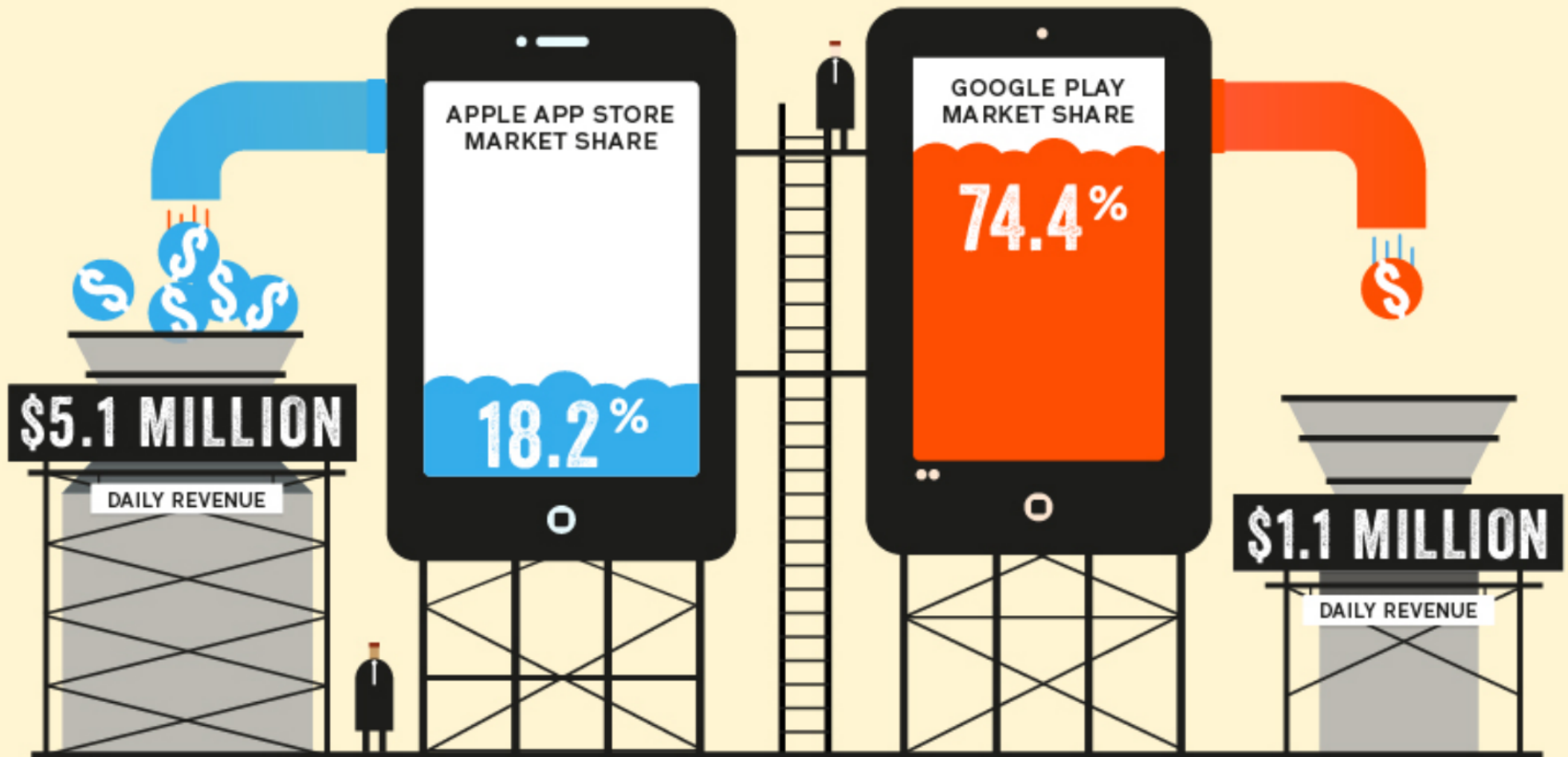
Permissions

Every advertising SDK
requires additional manifest
permissions



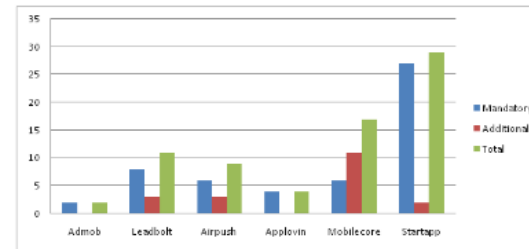
THE BIG PICTURE

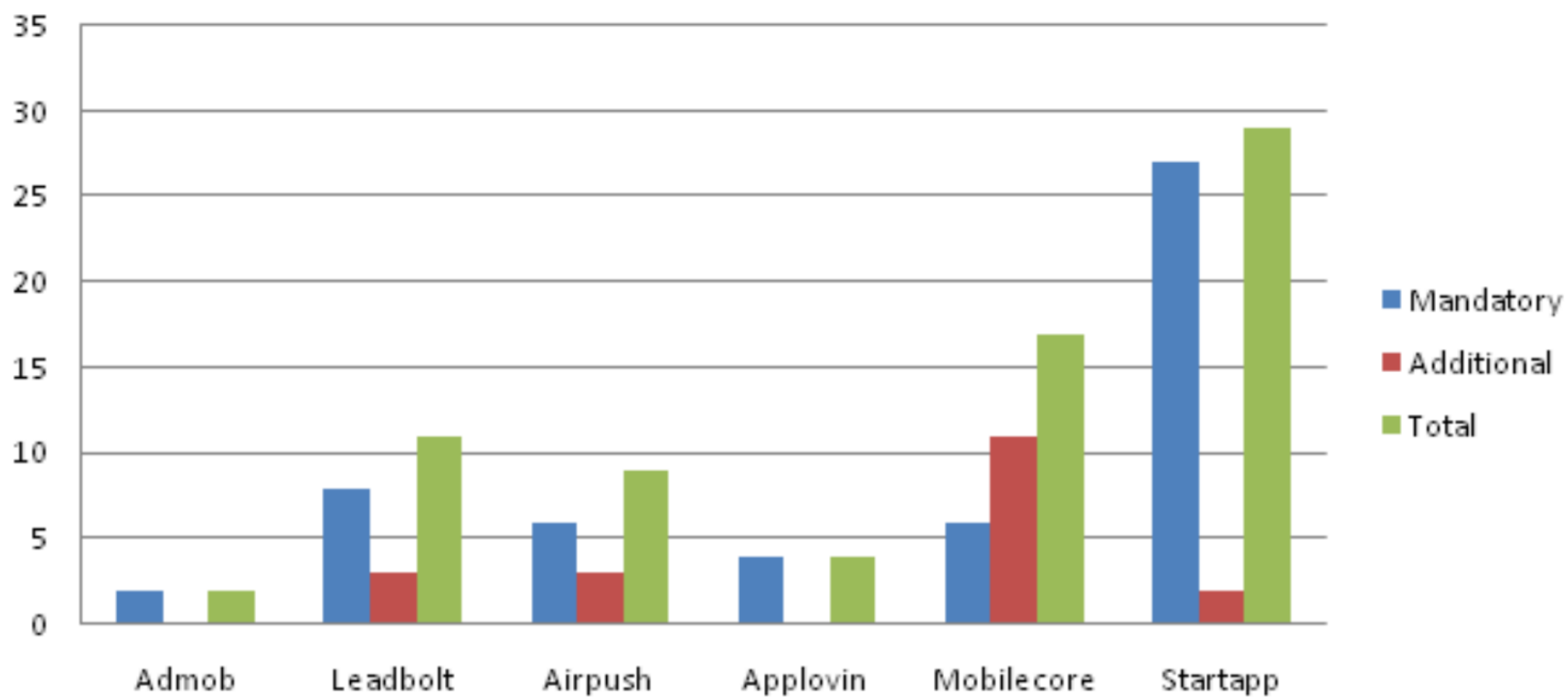
DESPITE A SIGNIFICANTLY LARGER MARKET SHARE, GOOGLE PLAY LAGS IN GENERATING REVENUE FOR DEVELOPERS.



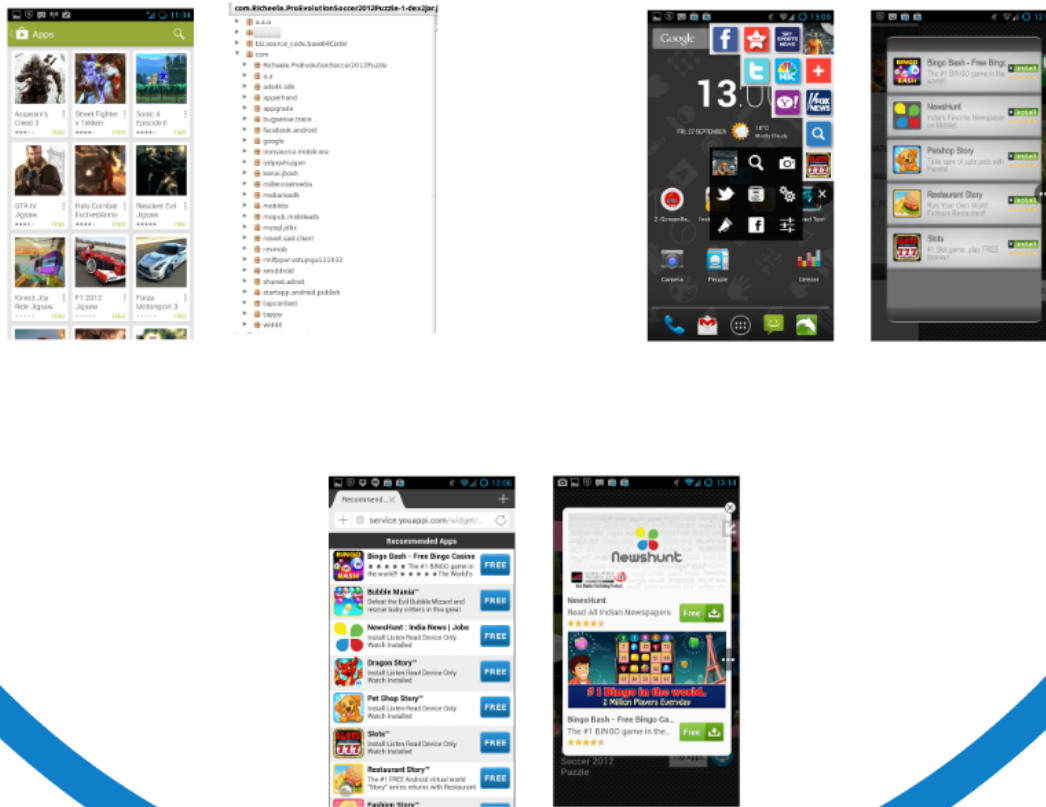
Permissions

Every advertising SDK requires additional manifest permissions





Often ends like this



Apps



Assassin's Creed 3
★★★★★ FREE



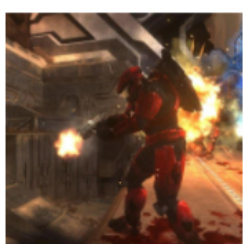
Street Fighter x Tekken
★★★★★ FREE



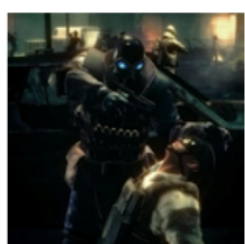
Sonic 4 Episode II
★★★★★ FREE



GTA IV Jigsaw
★★★★★ FREE



Halo Combat EvolvedAnniv
★★★★★ FREE



Resident Evil Jigsaw
★★★★★ FREE



Kinect Joy Ride Jigsaw
★★★★★ FREE

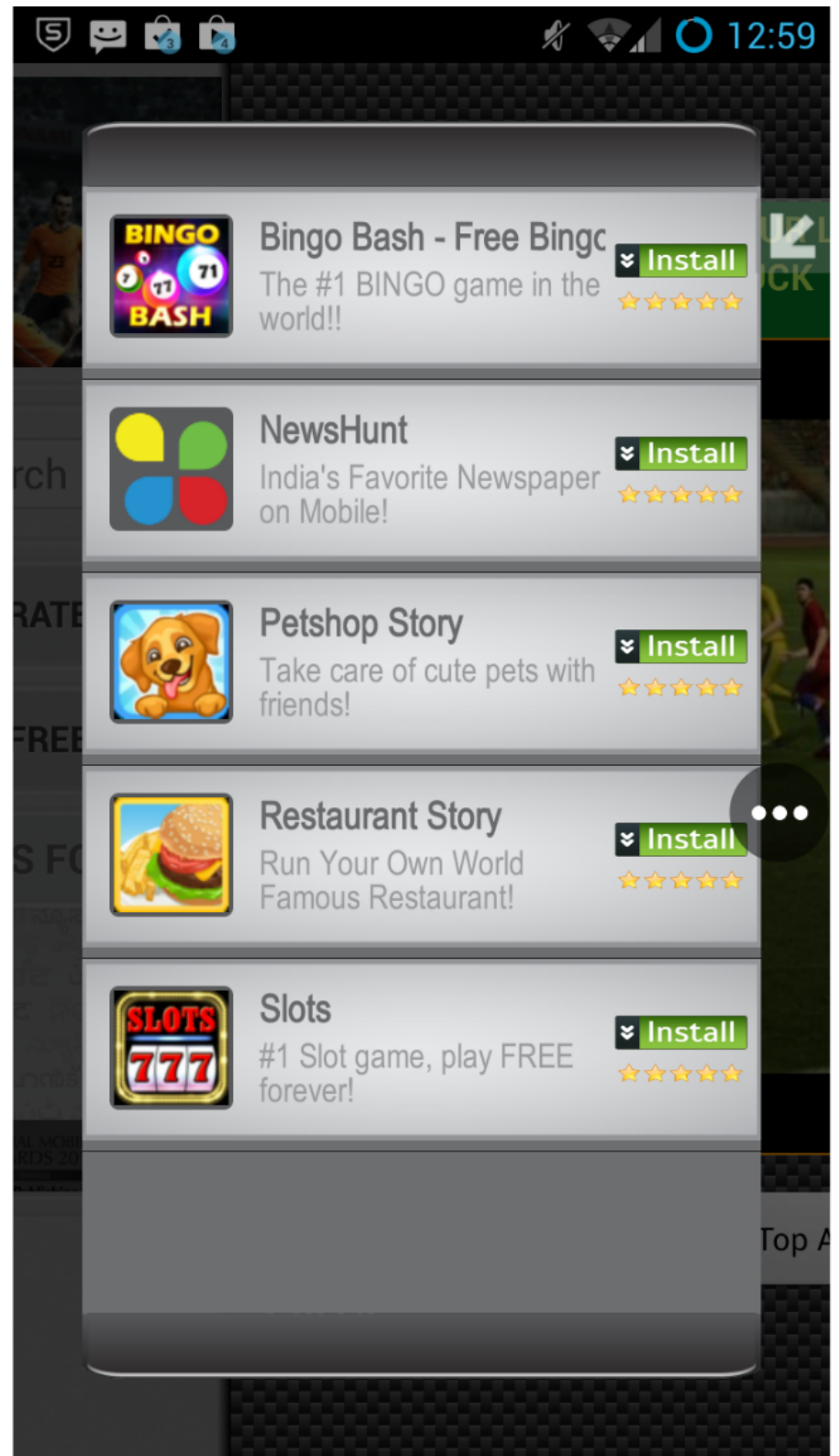


F1 2012 Jigsaw
★★★★★ FREE



Forza Motorsport 3
★★★★★ FREE

- ▶ a.a.a
- ▶ android
- ▶ biz.source_code.base64Coder
- ▼ com
 - ▶ Richeele.ProEvolutionSoccer2012Puzzle
 - ▶ a.a
 - ▶ adsdk.sdk
 - ▶ apperhand
 - ▶ appgrade
 - ▶ bugsense.trace
 - ▶ facebook.android
 - ▶ google
 - ▶ ironsource.mobilcore
 - ▶ izdpqvhujgxn
 - ▶ kenai.jbosh
 - ▶ millennialmedia
 - ▶ mobariosdk
 - ▶ mobilda
 - ▶ mopub.mobileads
 - ▶ mysql.jdbc
 - ▶ novell.sasl.client
 - ▶ revmob
 - ▶ rmlfppxr.vstujnga121032
 - ▶ senddroid
 - ▶ shared.adnet
 - ▶ startapp.android.publish
 - ▶ tapcontext
 - ▶ tapjoy
 - ▶ widdit



Recommend... X



service.youappi.com/widget/...

Recommended Apps



Bingo Bash - Free Bingo Casino

★★★★★ The #1 BINGO game in the world!! ★★★★★ The World's

FREE



Bubble Mania™

Defeat the Evil Bubble Wizard and rescue baby critters in this great

FREE



NewsHunt : India News | Jobs

Install Listen Read Device Only Watch Installed

FREE



Dragon Story™

Install Listen Read Device Only Watch Installed

FREE



Pet Shop Story™

Install Listen Read Device Only Watch Installed

FREE



Slots™

Install Listen Read Device Only Watch Installed

FREE



Restaurant Story™

The #1 FREE Android virtual world "Story" series returns with Restaurant

FREE



Fashion Story™

GLOBAL MOBILE AWARDS 2013
Best Mobile Publishing Product

NewsHunt

Read All Indian Newspapers

Free



★★★★★



1 Bingo in the world.
2 Million Players Everyday

Bingo Bash - Free Bingo Ca...

The #1 BINGO game in the...

Free



★★★★★

Soccer 2012
Puzzle

Top Apps



Including

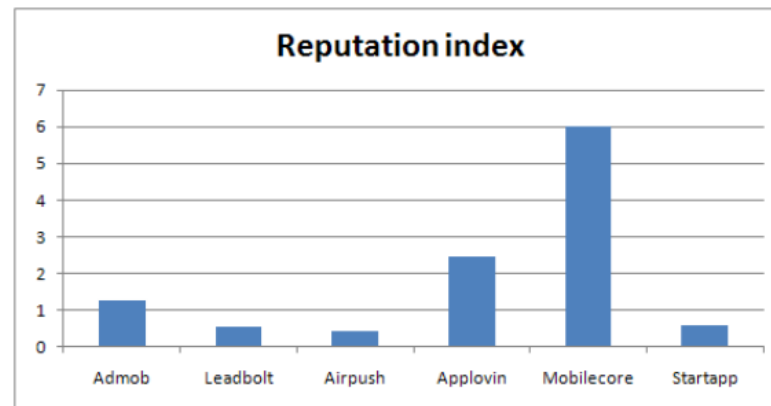
44 <uses-permission>

13 <receiver>

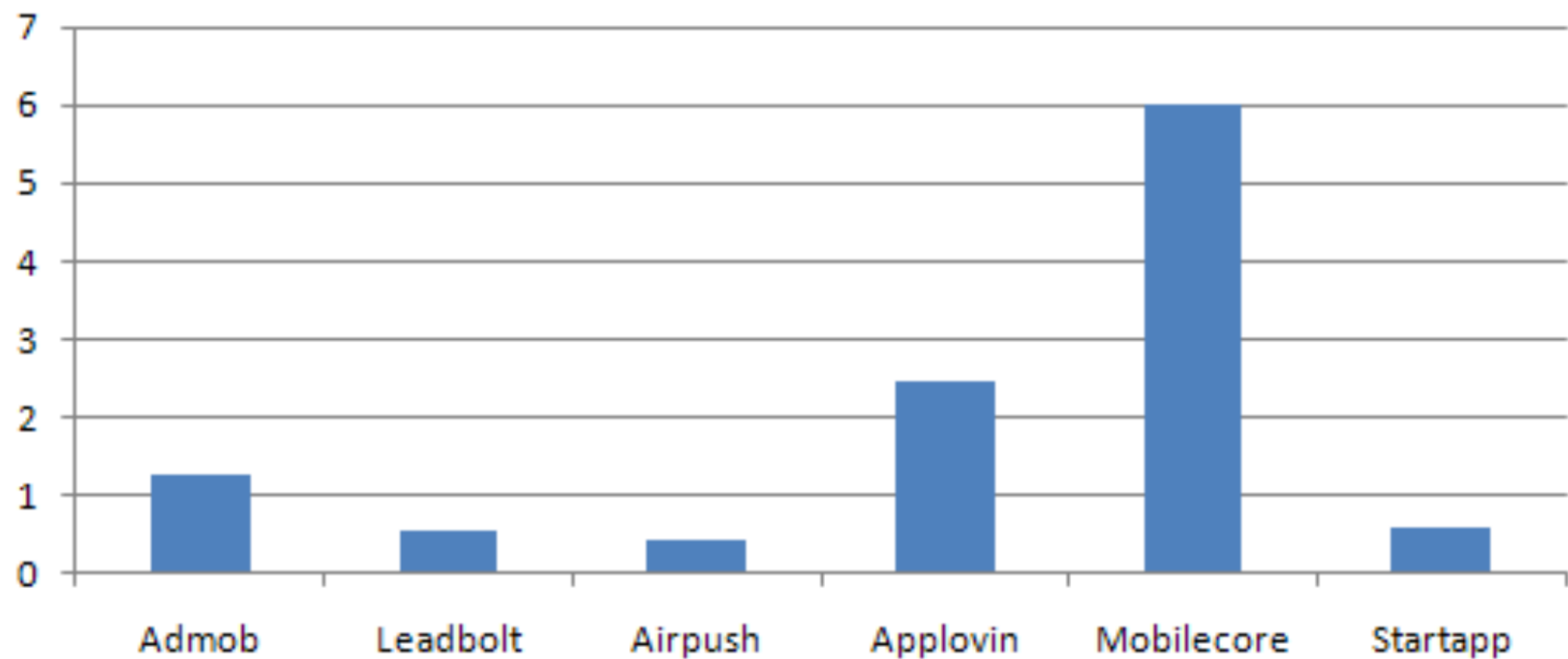
Framework reputation index

Measure install base vs availability (Appbrain)

Rep = Installed % / Implemented %



Reputation index



An app is a PUA if it...

Roots/Jailbreaks

Remotely monitors user or device

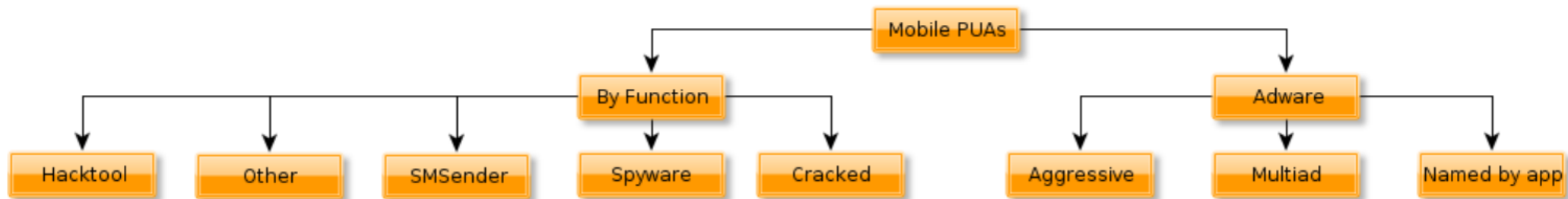
Cracked or repackaged

Abuses third party service

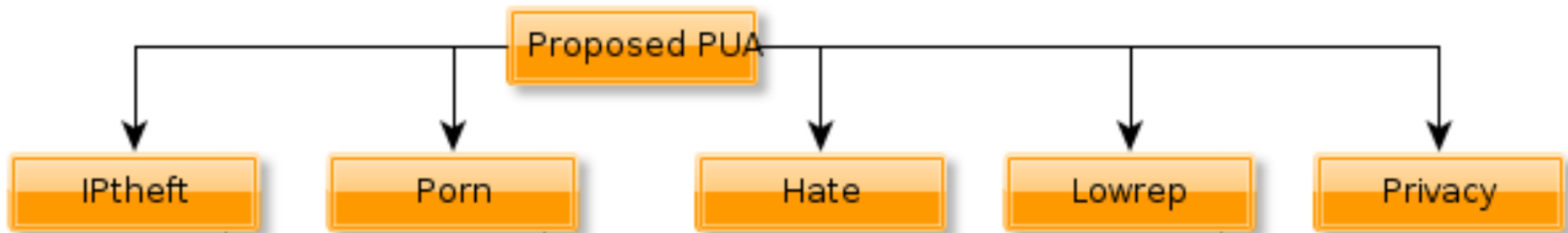
Compiled from open source to include ads

Has more ads than functionality

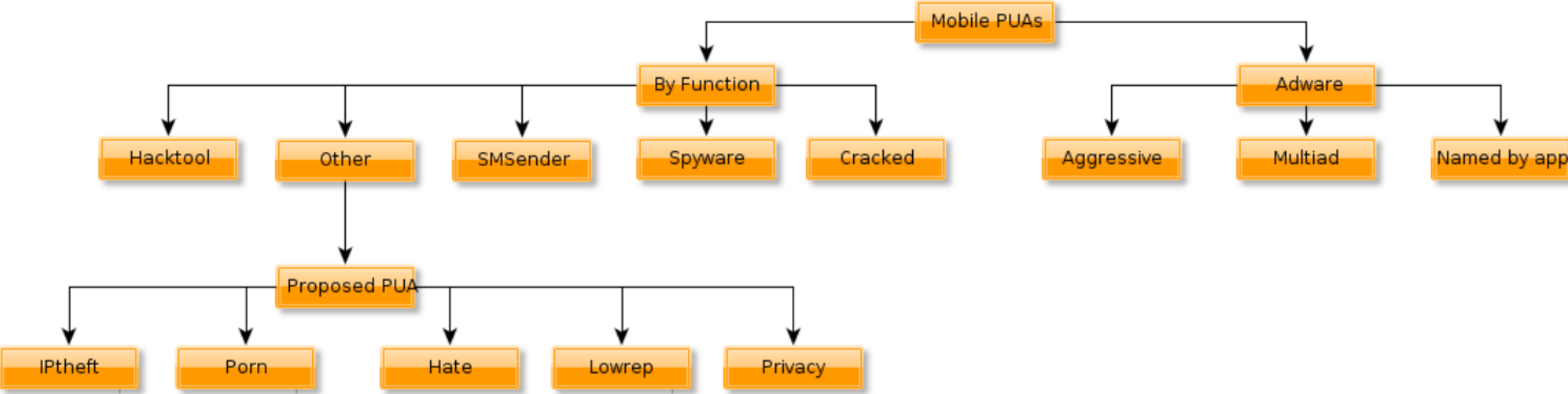
Existing classification



Proposed categories



Proposed taxonomy



GDCP- System interference (August)

"Apps and their ads must not display advertisements through system level notifications on the user's device"

GDCP - System interference

🚫 "Apps must not encourage, incentivize, or mislead users into removing or disabling third-party apps except as part of a security service provided by the app."

GDCP - System interference

"Apps and their ads must not add homescreen shortcuts, browser bookmarks, or icons on the user's device as a service to third parties or for advertising purposes."

GDCP - System interference



"Apps must not encourage, incentivize, or mislead users into removing or disabling third-party apps except as part of a security service provided by the app."



ANDROID DEFENDER

PLATINUM EDITION TRIAL

3.79

FINISHED



100%

**14 critical threats was
found**

REMOVE ALL THREATS NOW

VIEW ALL THREATS FOUND



PROTECTION



SETTINGS



REGISTRATION

GDCP - System interference

"Apps and their ads must not add homescreen shortcuts, browser bookmarks, or icons on the user's device as a service to third parties or for advertising purposes."

To summarize

Classifying Mobile PUAs is not easy
Legislation is still being developed
Google guidelines have been improving
Extension of desktop PUA classification proposed
Future trends



Thank you

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