

4:20-cv-05640-YGR

Epic Games, Inc. v. Apple Inc.

Expert Testimony of Professor Aviel Rubin

May 19, 2021

Professor Aviel Rubin



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Electronic Frontiers Foundation (EFF) Pioneer Award



B.S., M.S.E., and Ph.D. in Computer Science and Engineering,
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Assignment

Evaluate Apple's App Review and App Store distribution

Research and evaluate real-world data

Summary of Conclusions



- Significant security benefits
- Lower infection rates
- Lower volume of malicious or untrustworthy apps

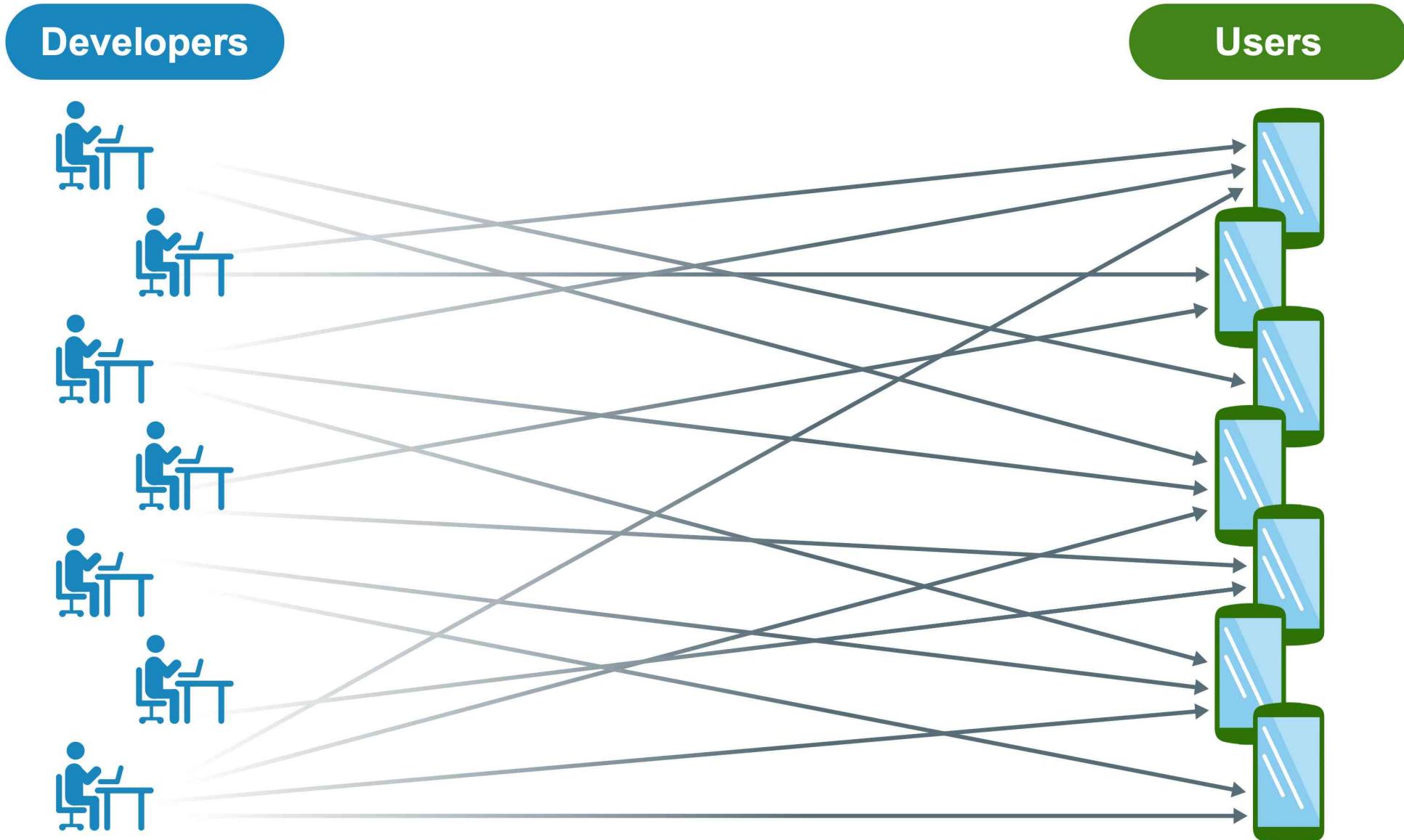
Safety

Privacy

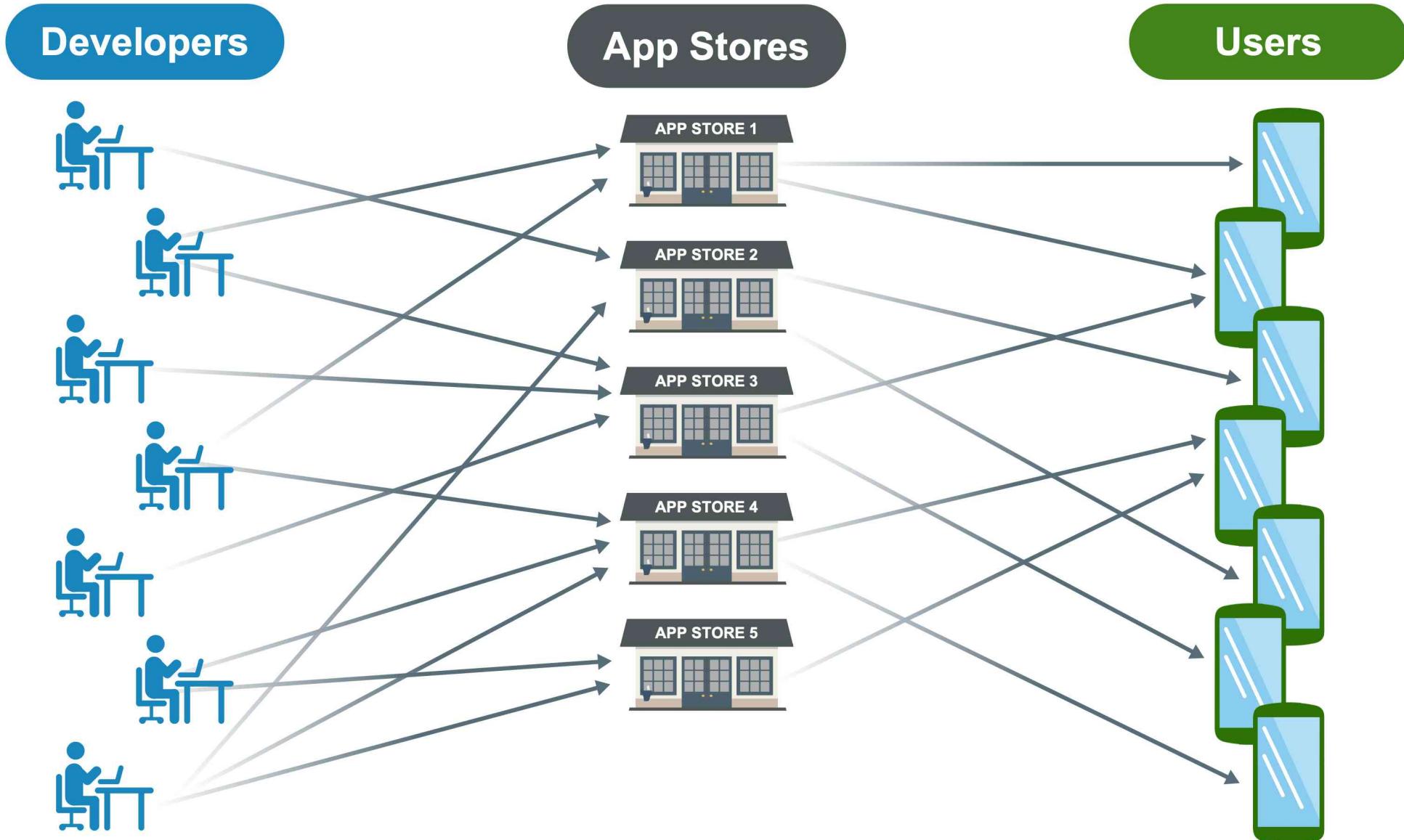
Reliability

Trustworthiness

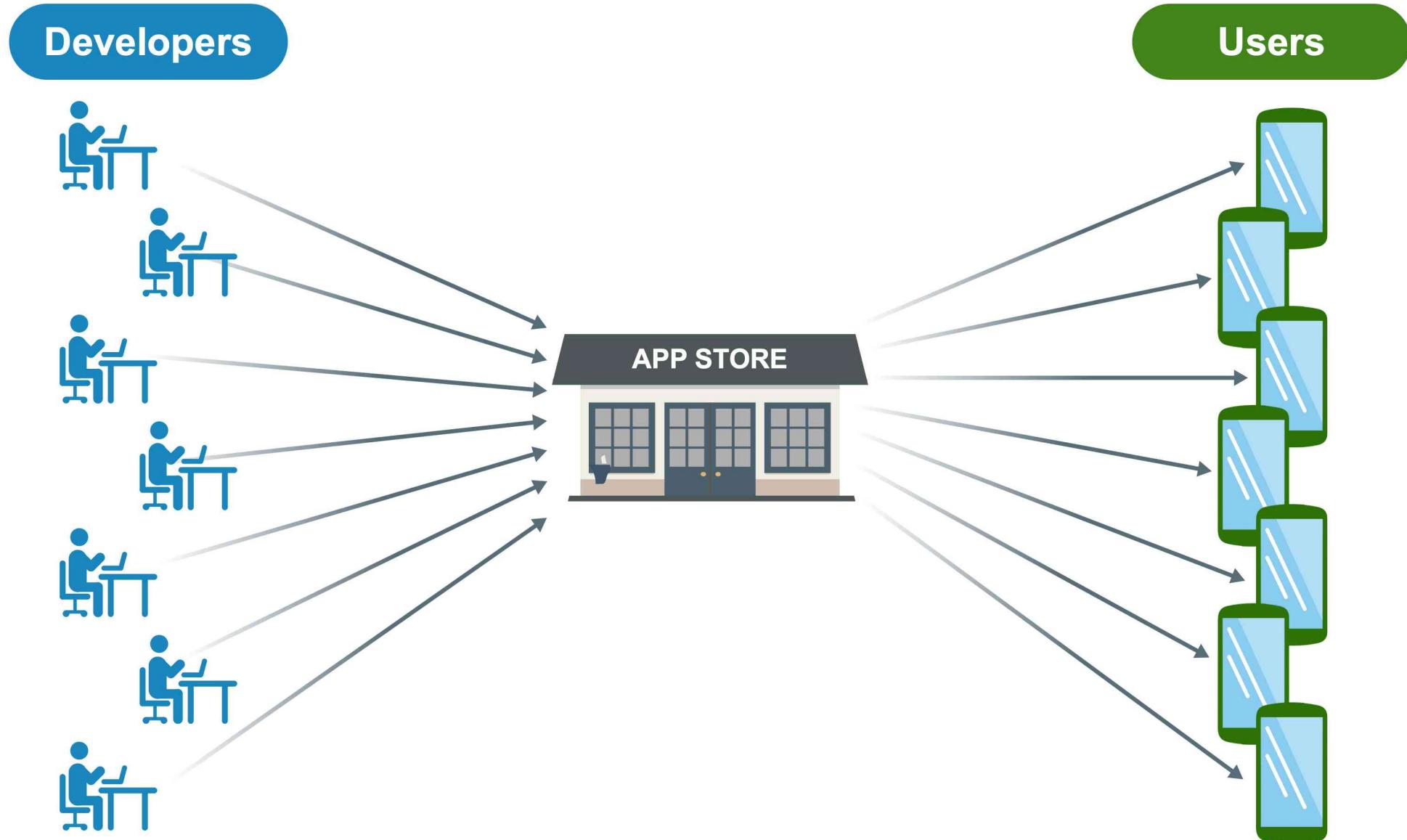
Direct Distribution



Multiple App Store Distribution

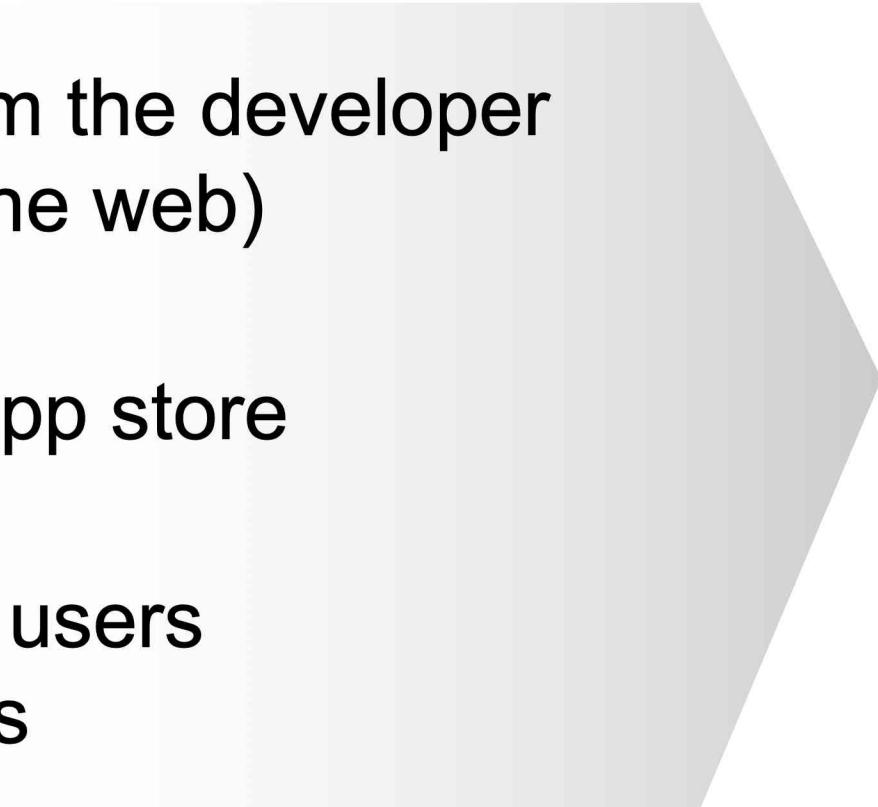


Centralized Distribution



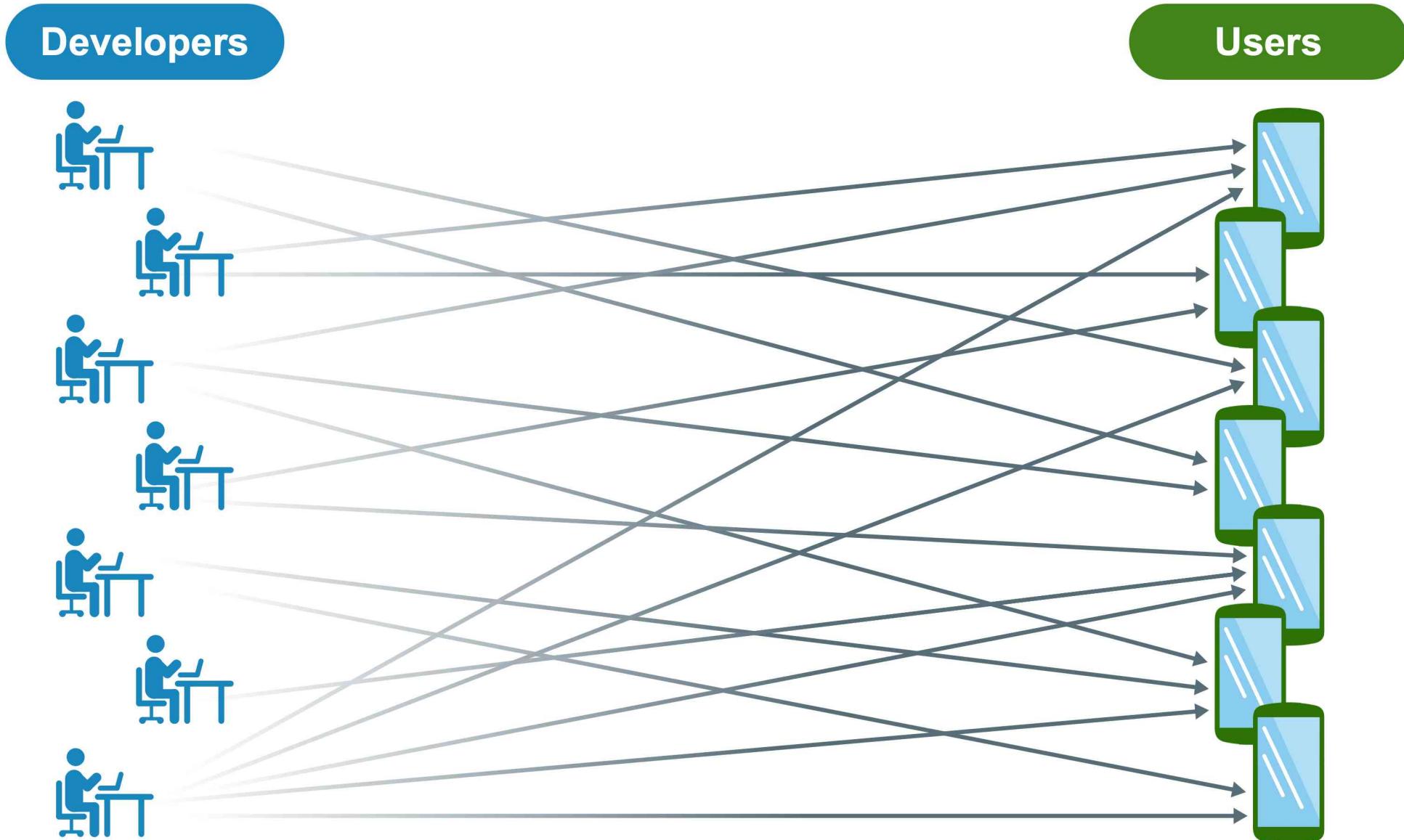
Sources of Apps

- From a specific app store
- Directly from the developer
(including the web)
- From any app store
- From other users
and sources

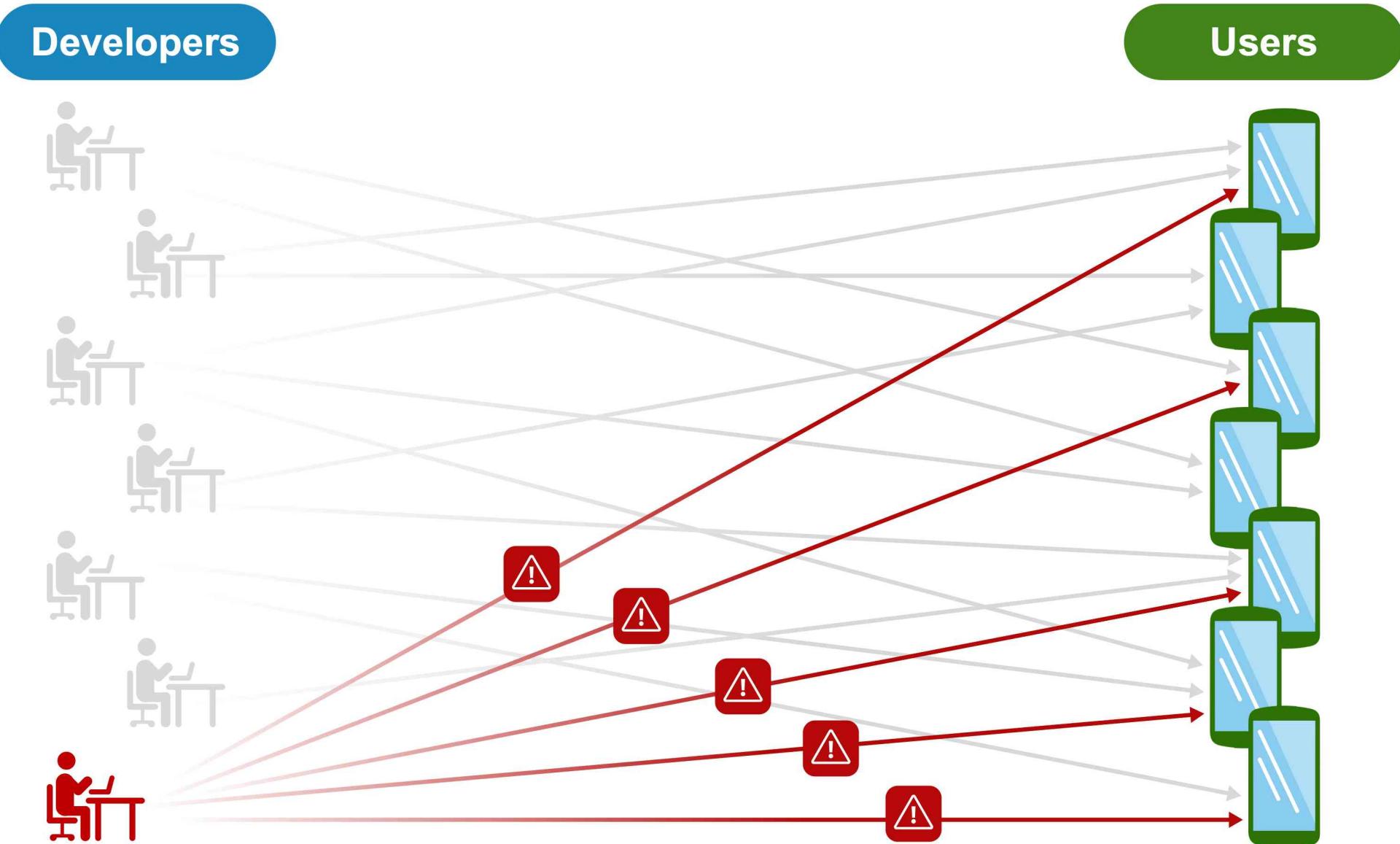


Non-Centralized

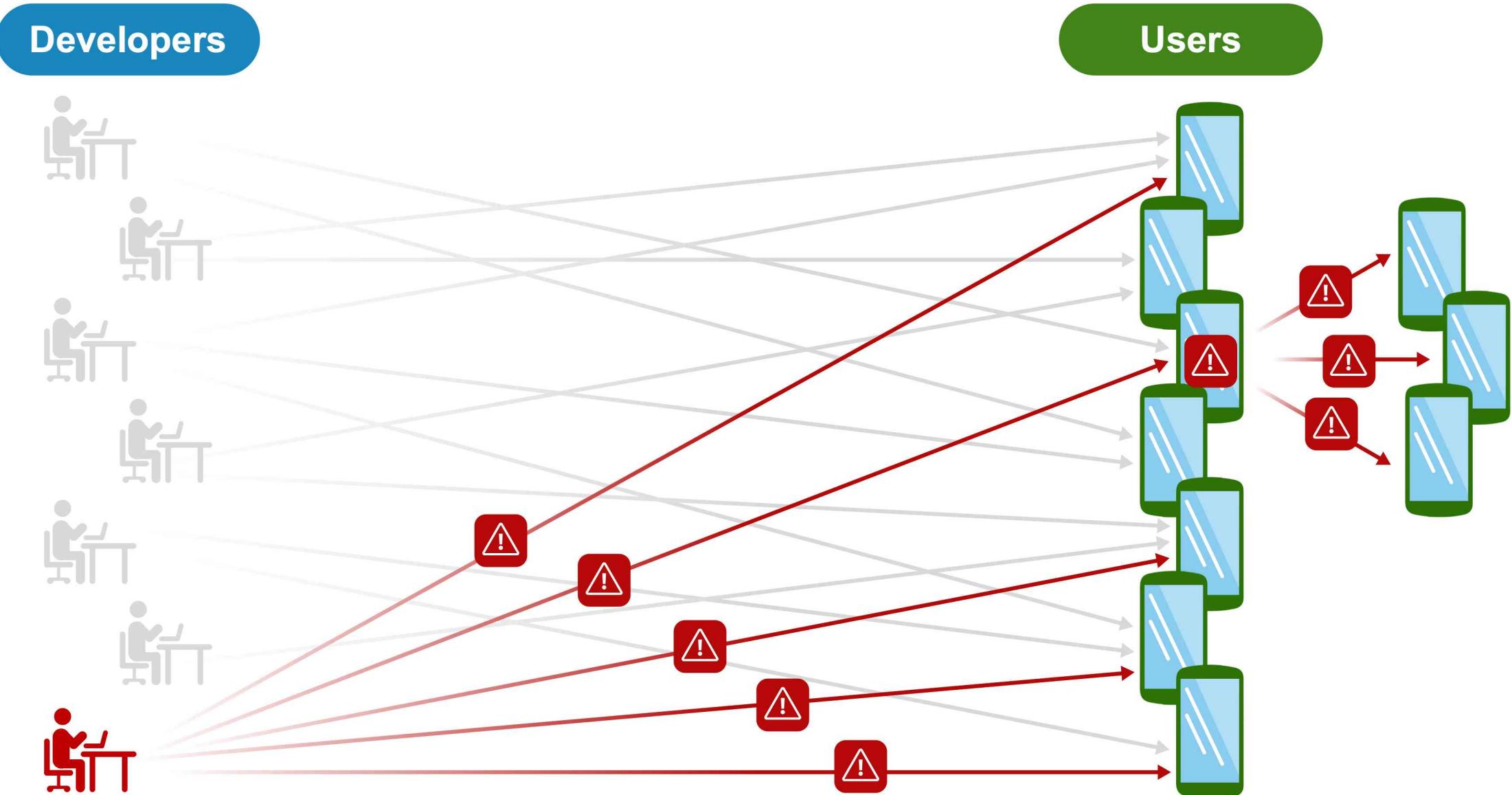
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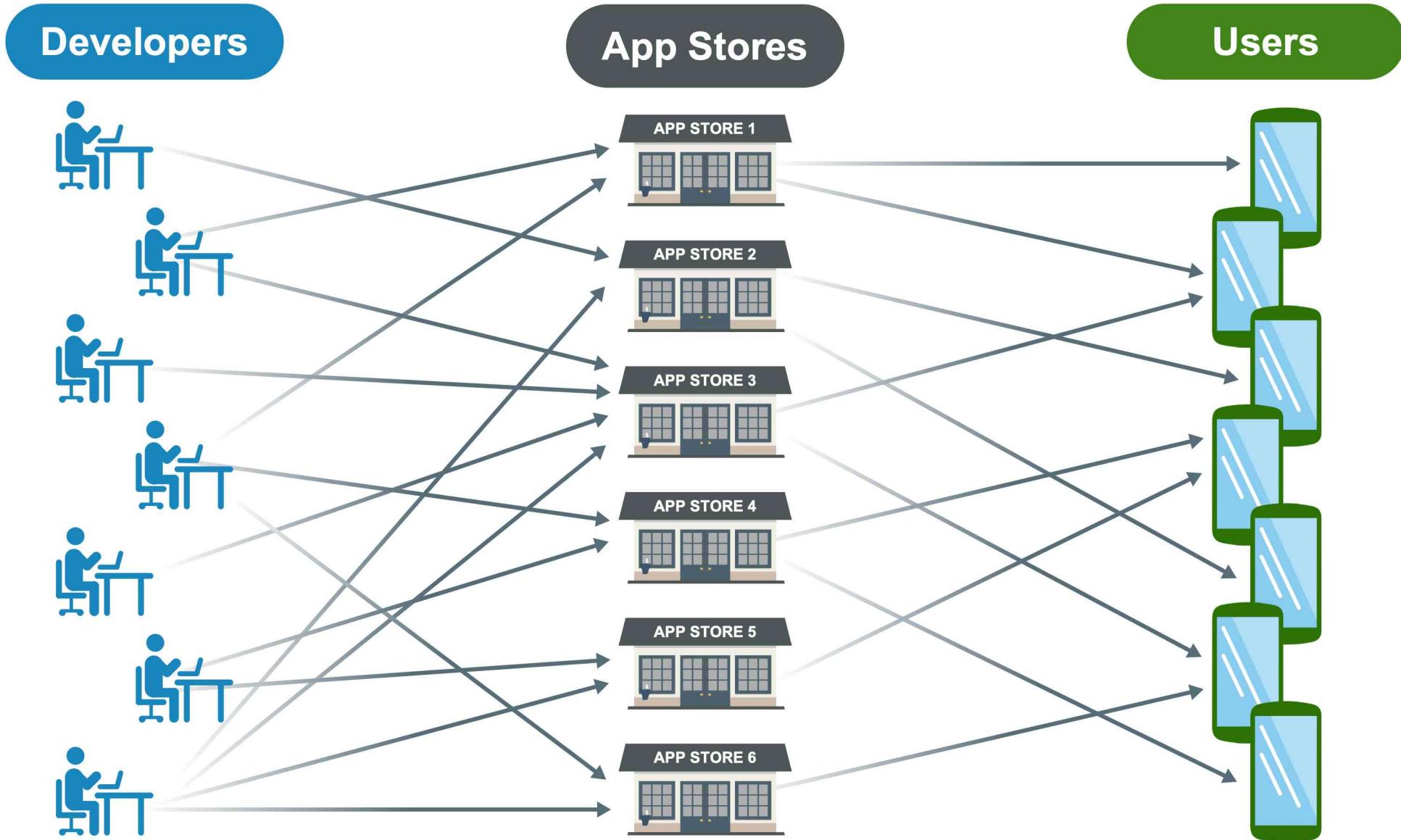
Direct Distribution



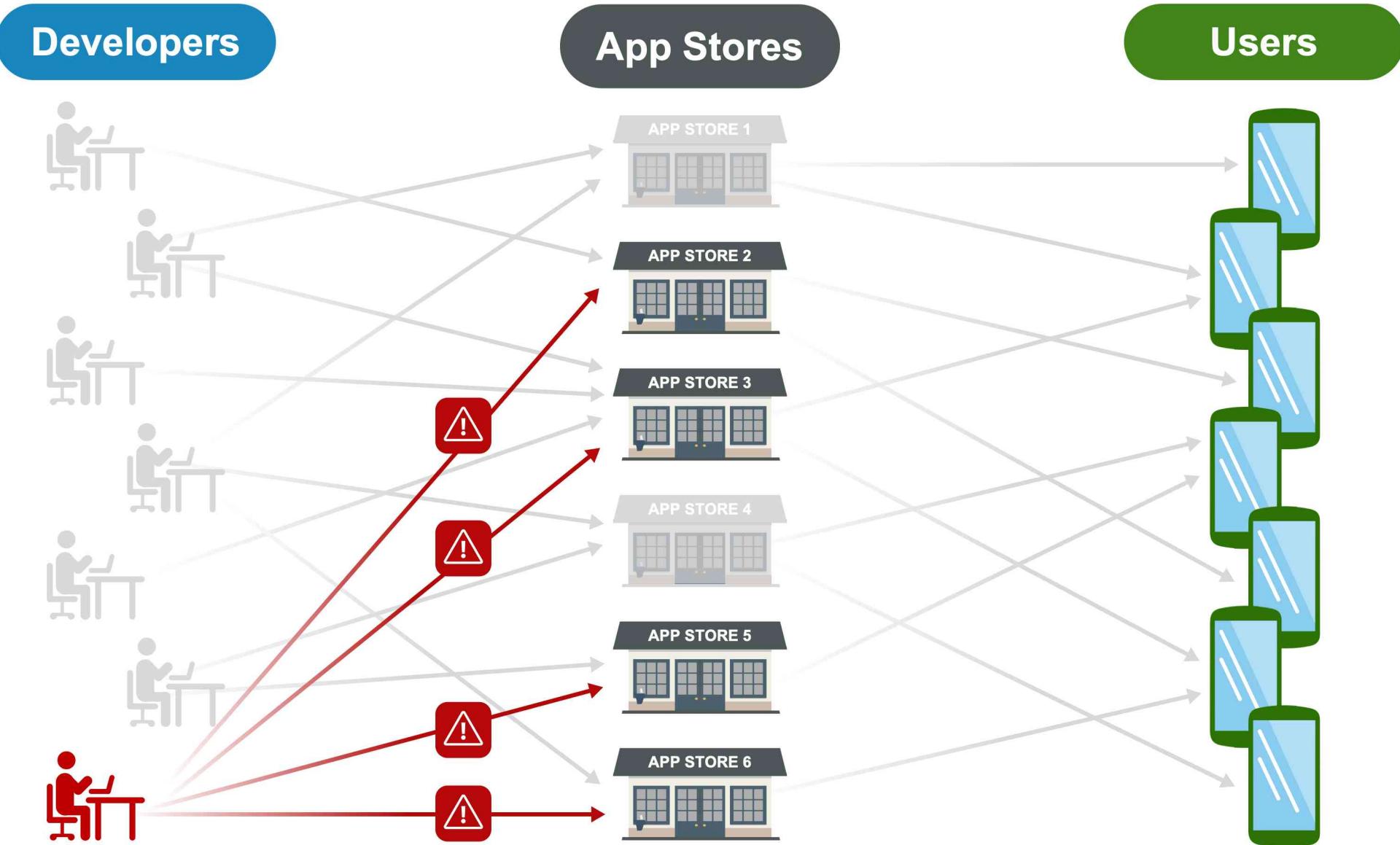
Direct Distribution



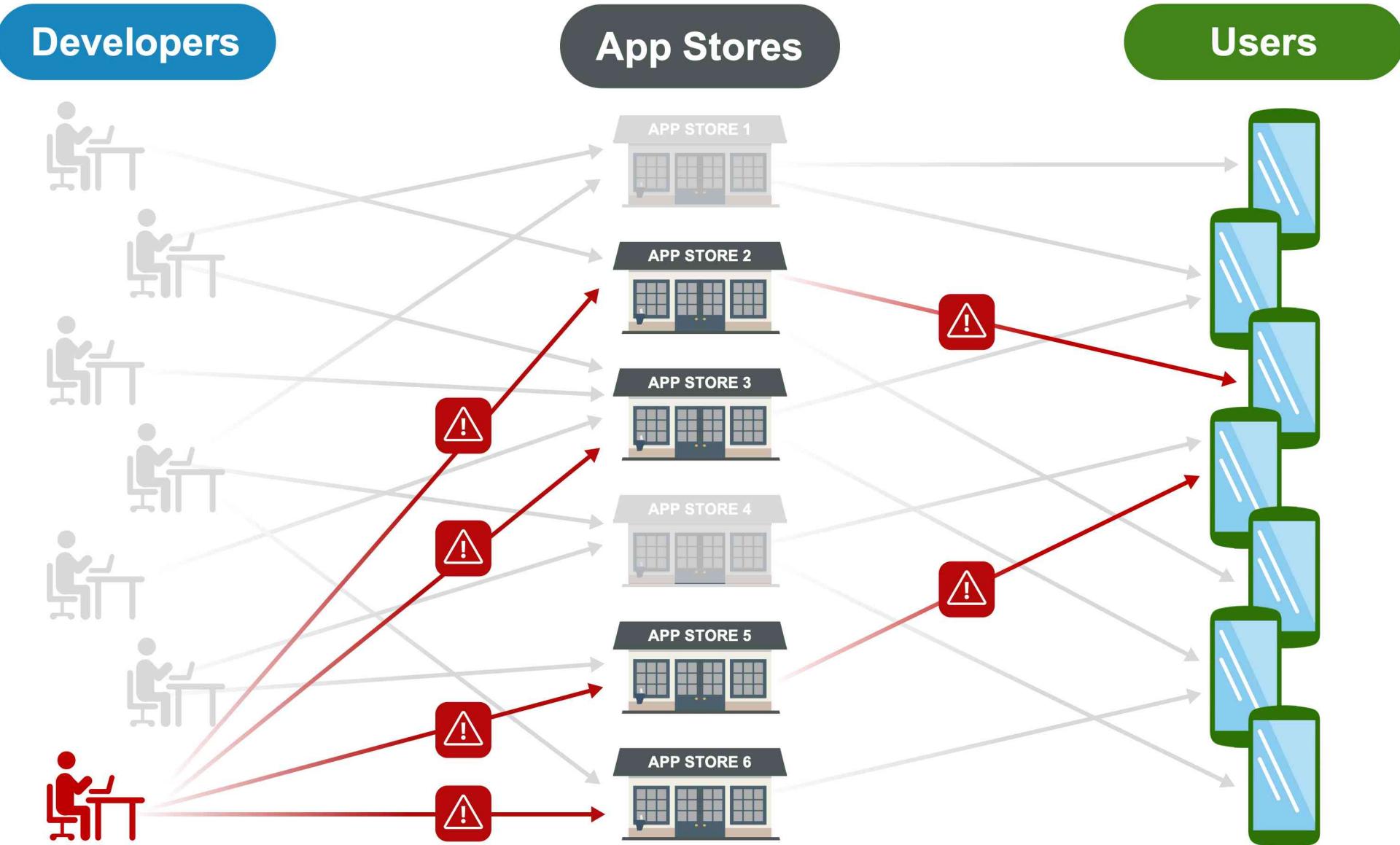
Multiple App Store Distribution



Multiple App Store Distribution



Multiple App Store Distribution



Attacker Tools



Multiple listings



Multiple listings with different variations



Listing in one and updating in another



Imposter apps

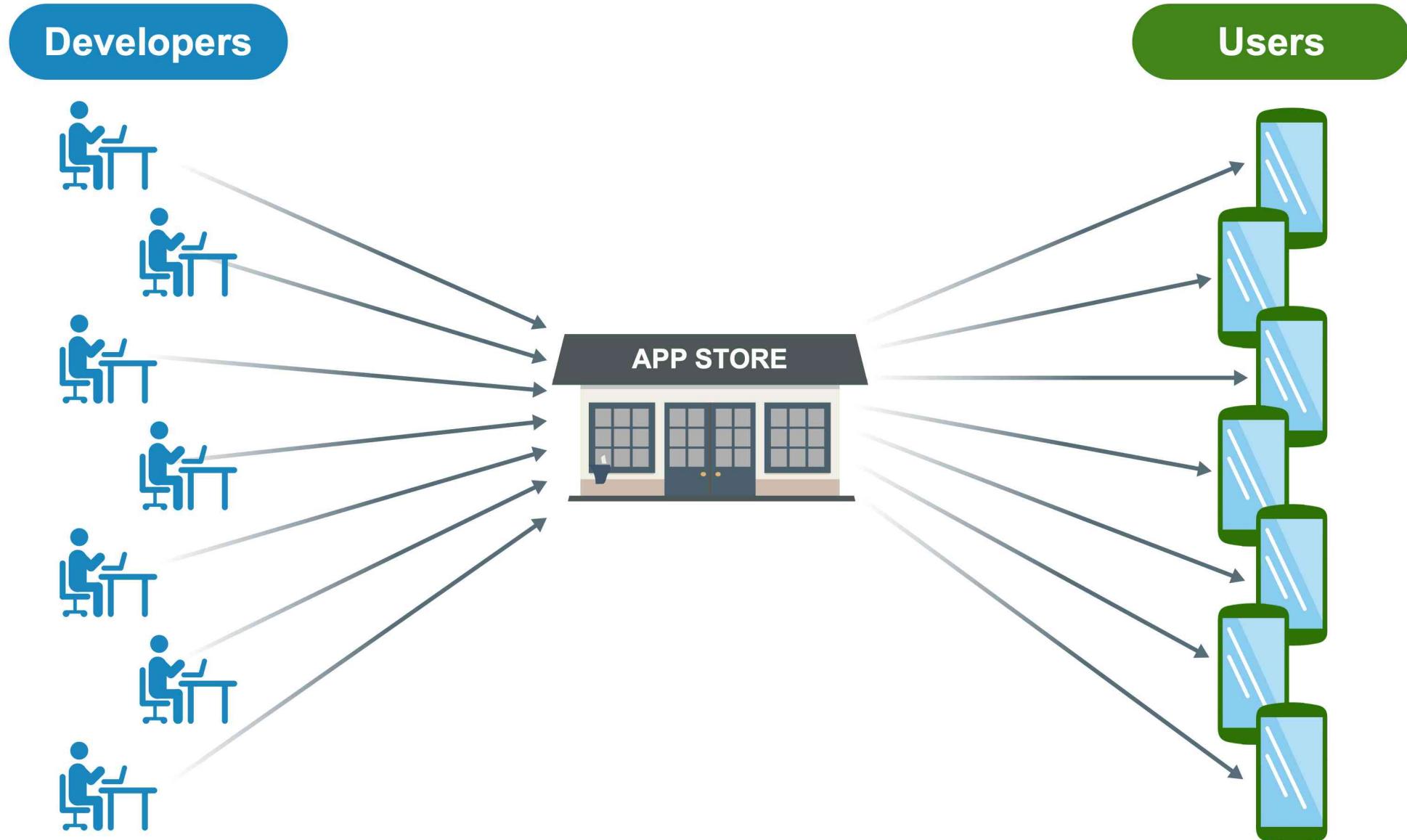


Imposter stores

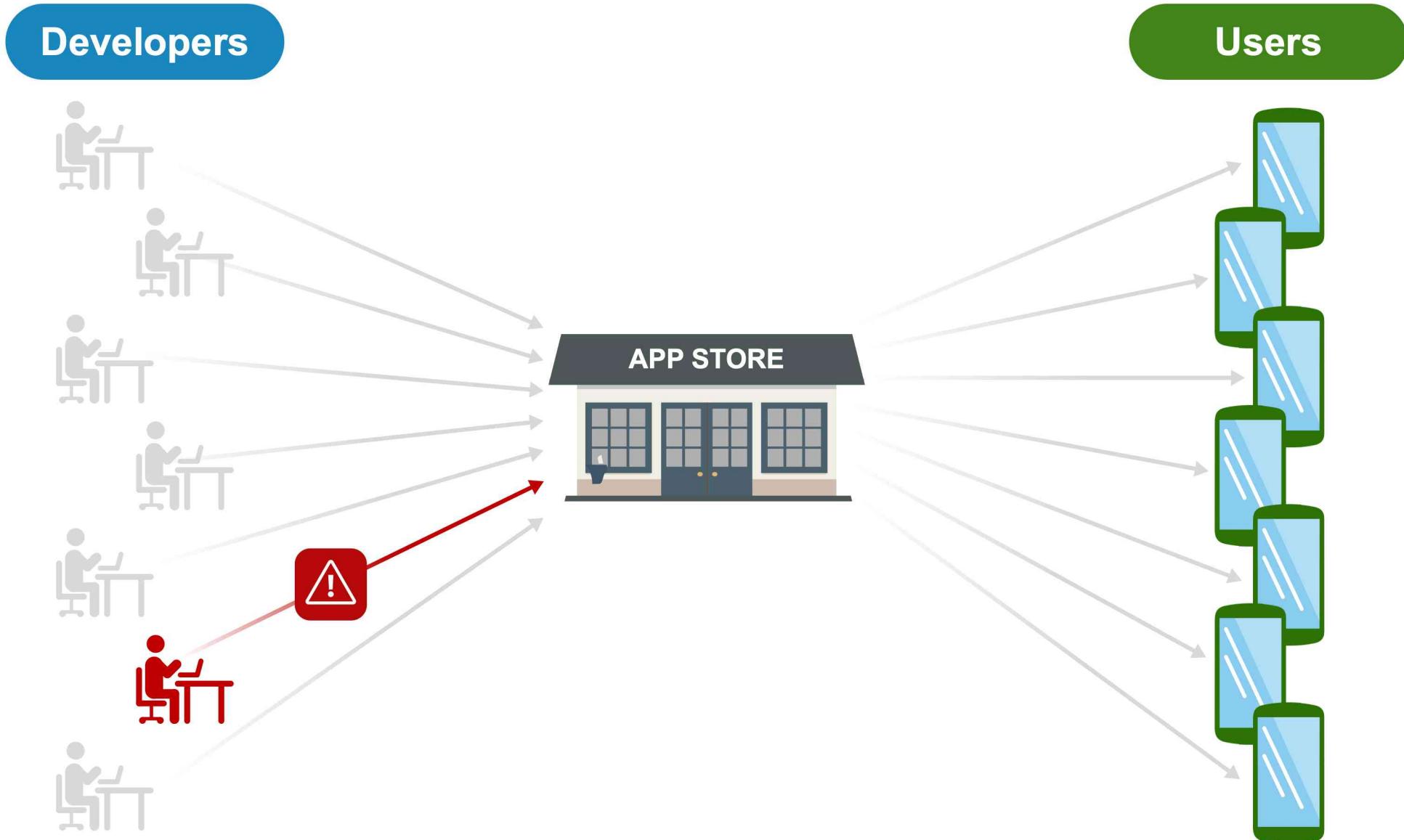


User infection

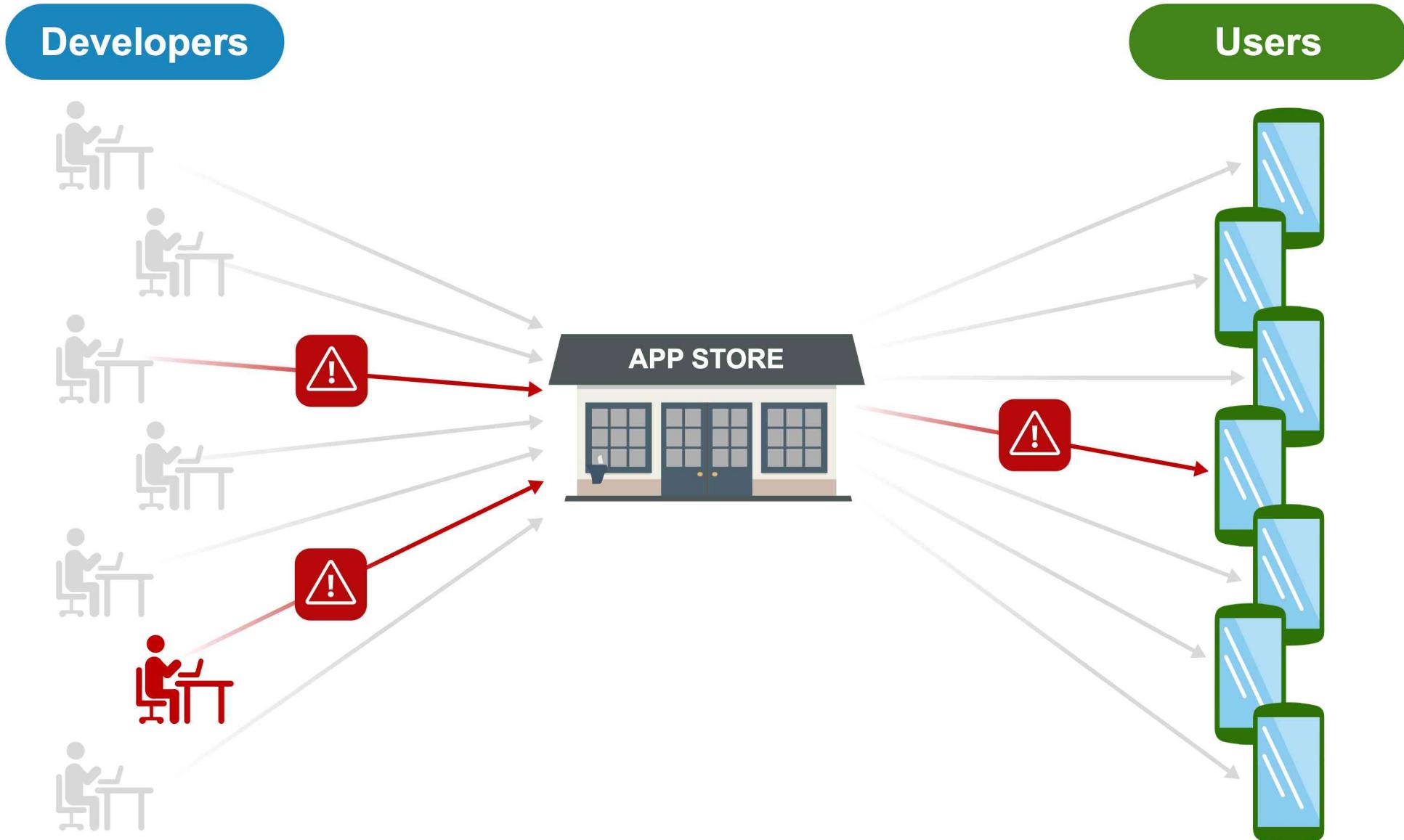
Centralized Distribution



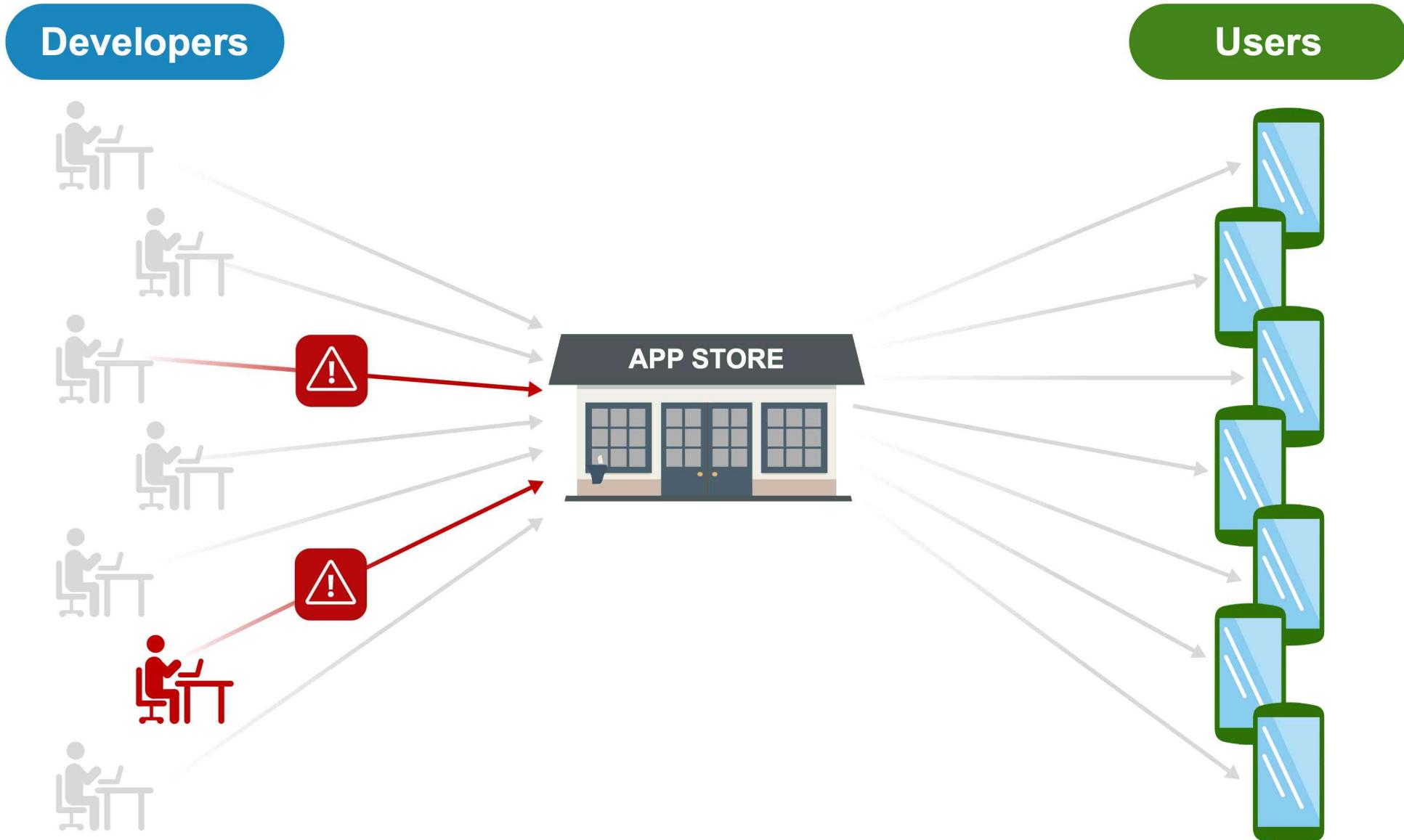
Centralized Distribution



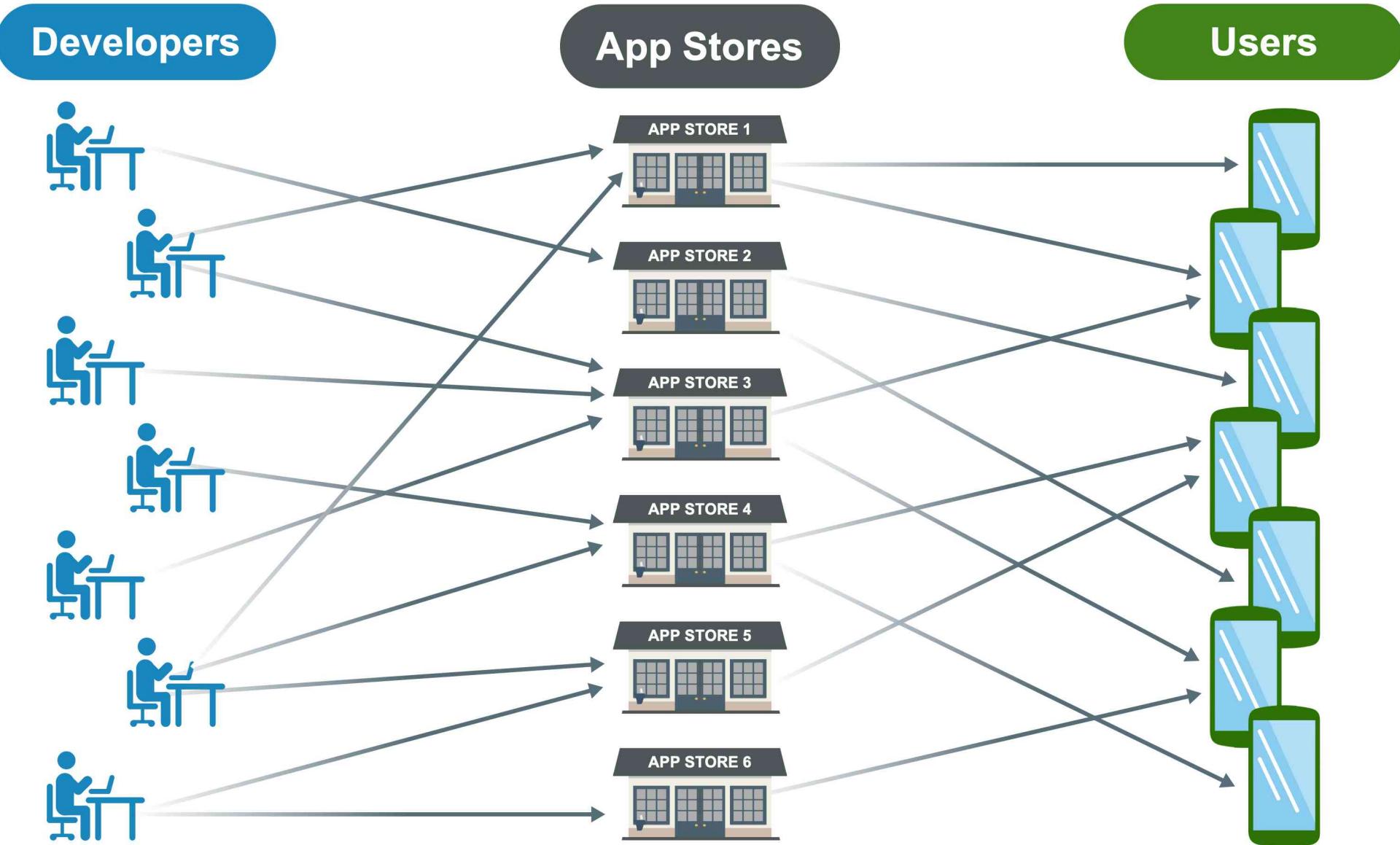
Centralized Distribution



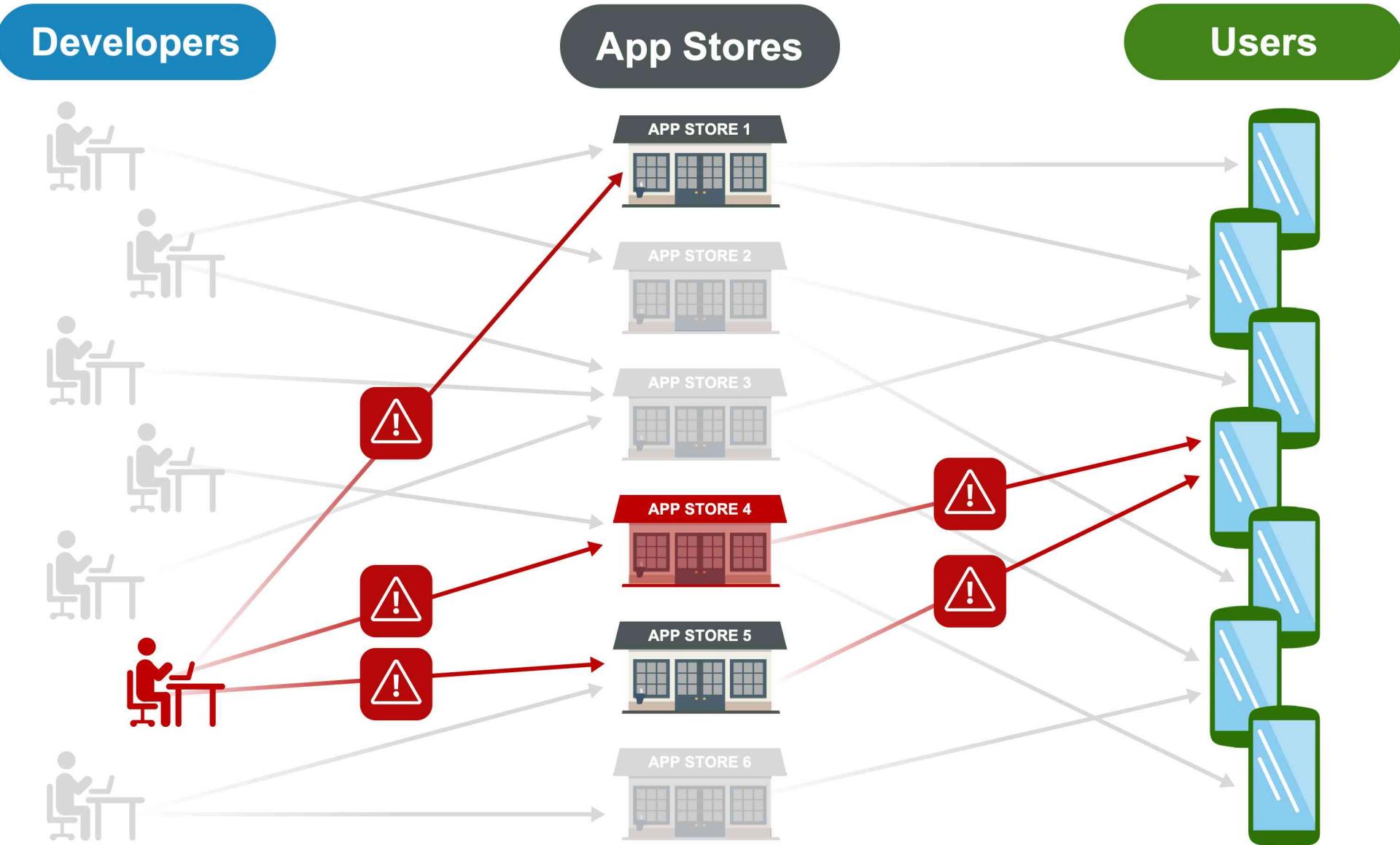
Centralized Distribution



Multiple App Store Distribution



Multiple App Store Distribution



iOS Distribution Model





Threat Intelligence Report 2020

DX-4975

The cover of the RISKIQ Threat Landscape Report 2020 features the RISKIQ logo at the top. Below it is a dark background image of a person's hands interacting with a smartphone. A blue rectangular box in the top right corner contains case details: "United States District Court Northern District of California", "Case No. 4:20-cv-05640-YGR", "Case Title Epic Games, Inc. v. Apple, Inc.", "Exhibit No. DX-4934", "Date Entered", and "Samantha Y. Seong, Clerk Deputy Clerk". At the bottom, the text "DX-4934.001" is visible.

2020 Mobile App Threat Landscape Report

Tumultuous Year Bred New Threats,
But the App Ecosystem Got Safer

DX-4934

The cover of the PURPLESEC 2021 Cyber Security Statistics report features the PURPLESEC logo at the top. Below it is a dark background image of a person's hands interacting with a smartphone. A blue rectangular box in the top right corner contains case details: "United States District Court Northern District of California", "Case No. 4:20-cv-05640-YGR", "Case Title Epic Games, Inc. v. Apple, Inc.", "Exhibit No. DX-4956", "Date Entered", and "Samantha Y. Seong, Clerk Deputy Clerk". At the bottom, the text "DX-4956.001" is visible.

2021 Cyber Security Statistics: ... 2021 Cyber Security Statistics: ...

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2021 Security Trends Report

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2021 Cyber Security Statistics The Ultimate List Of Stats, Data & Trends

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General Cyber Stats
Social Engineering
Vulnerabilities
Government
Small Business

Recent Cyber Attacks
Healthcare
Finance
Education
FAQs + Sources

Cybercrime Up 600% Due To COVID-19 Pandemic

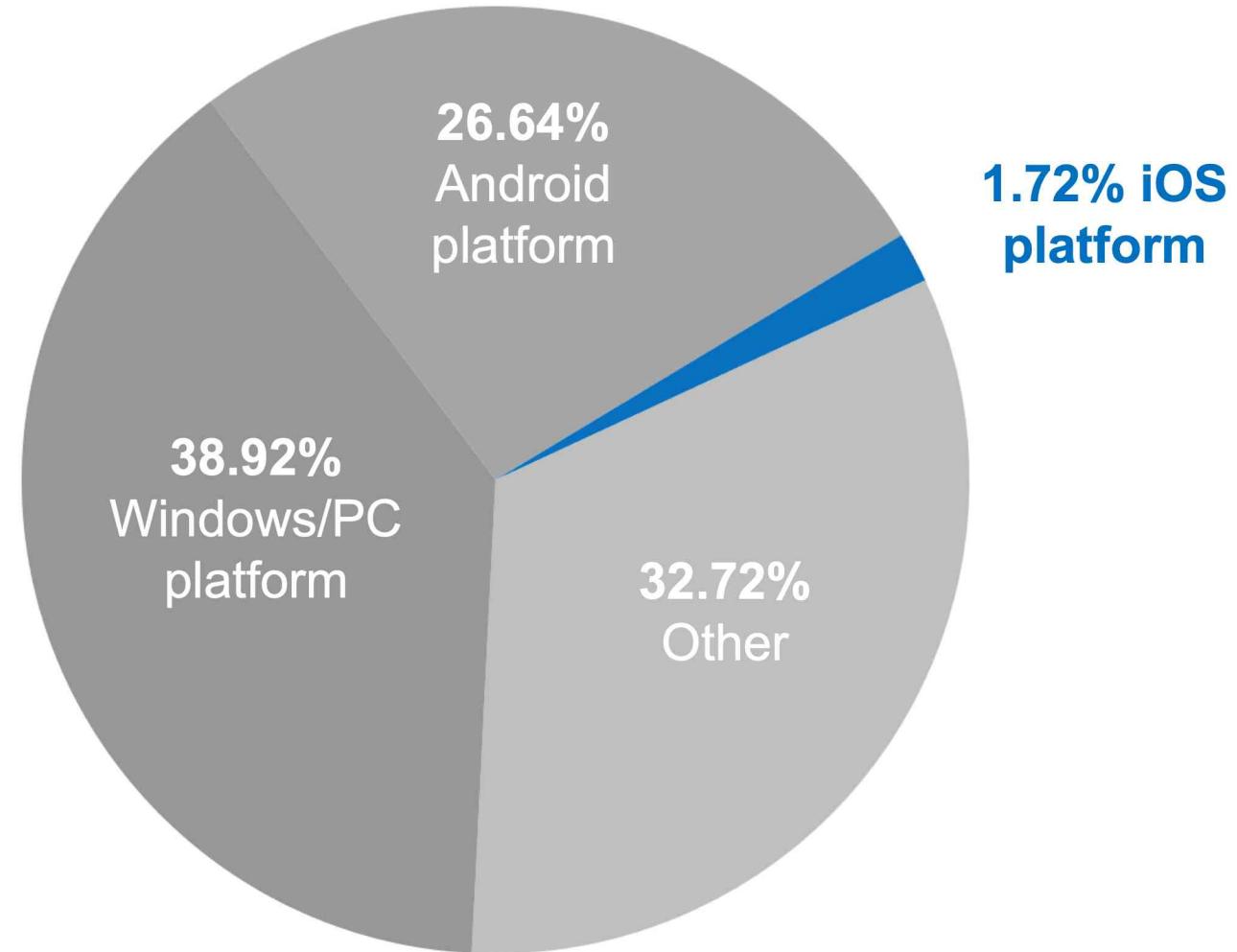
Due to the COVID-19 outbreak, there has been an uptick in sophisticated phishing email schemes by cybercriminals. Malicious actors are posing as the Center for Disease Control and Prevention (CDC) or World Health Organization (WHO) representatives.

<https://purplesec.us/resources/c...> <https://purplesec.us/resources/c...>
DX-4956.001

DX-4956

Infections by Device

Total infections between various devices (2020)



China Android Marketplace



乐商店

中国移动
China Mobile

搜狗手机助手



酷安



应用商店



三星应用商店



PP助手

小米应用商店
APP.MI.COM百度手机助手
有 颜 又 有 货

PConline

太平洋下载

AppChina.com
应用汇

腾讯应用宝

360
手机助手OPPO软件商店
放 心 下 安 心 用安智
ANZHI

华为应用市场



豌豆美

Attack Trends

