

From: Andrew Grant [REDACTED]
Sent: Wed, 30 Jan 2019 19:05:48 +0000 (UTC)
To: Arjan Brussee [REDACTED]
Cc: Daniel Vogel [REDACTED]; Canon Pence [REDACTED]; Mark Rein [REDACTED]; Mike Atamas [REDACTED]; Tim Sweeney [REDACTED]
Subject: Re: Apple 30% At Risk_8.15.2018.pdf

And FB's certificate has now been revoked. It's really unfortunate that this was the first real test of someone attempting to sidestep Apple.

DEFENDANT	United States District Court Northern District of California
	Case No. <u>4:20-cv-05640-YGR</u>
	Case Title <u>Epic Games, Inc. v. Apple, Inc.</u>
	Exhibit No. <u>DX-4235</u>
	Date Entered _____
	Susan Y. Soong, Clerk
	By: _____, Deputy Clerk

“We designed our Storage as Developer Program solely for the internal distribution of apps within an organization. Facebook has been using this mechanism to distribute a data-collecting app to consumers, which is a clear breach of their agreement with Apple.”

“Any developer using their enterprise certificate to distribute apps to consumers will have their cert. revoked, which is what we did in this case to protect our users and their data.”

<https://appleinsider.com/articles/19/01/30/apple-has-revoked-facebooks-enterprise-developer-certificates-after-sideload-violations>

On Wed, Jan 30, 2019 at 9:27 AM Arjan Brussee [REDACTED] wrote:

Just imagine what data Google has on everyone. Terrible. However they haven't been able to leverage to make good social apps ;)
 -arjan

On Wed, Jan 30, 2019 at 08:14 Daniel Vogel [REDACTED] wrote:

I can't find the article, but I read a while ago that Facebook picked up on the success of Snapchat Stories due to having access to VPN traffic.
 They then copied it 1:1 for Instagram Stories and leveraged their network effect to be successful.

So their strategy was look what works, copy it 1:1 without innovating, and rely on an existing large user base to become more successful.

-- Daniel, Epic Games Inc.

On Tue, Jan 29, 2019 at 11:21 PM Tim Sweeney [REDACTED] wrote:

It's a shame this rogue means of distribution is being exploited for such a disgusting purpose by Facebook. Makes it harder to legitimize the approach for gold purposes.

Tim

On Jan 30, 2019, at 5:48 AM, Mike Atamas [REDACTED] wrote:

REDACTED FOR PRIVILEGE

On Tue, Jan 29, 2019 at 9:19 PM Andrew Grant [REDACTED] wrote:

Related and worth watching - Facebook have apparently been distributing their VPN/spyware app outside of the AppStore via their Enterprise certificate.

<https://techcrunch.com/2019/01/29/facebook-project-atlas/>

On Mon, Sep 3, 2018 at 9:05 PM Mike Atamas [REDACTED] wrote:

REDACTED FOR PRIVILEGE

On Mon, Sep 3, 2018 at 8:57 PM Tim Sweeney [REDACTED] wrote:

REDACTED FOR PRIVILEGE

Tim

On Sep 3, 2018, at 8:46 PM, Mike Atamas [REDACTED] wrote:

+Canon Pence for visibility.

I understand that we're still looking at this a bit from the technical side, but I wanted to update the group with a bit on the legal front.

REDACTED FOR PRIVILEGE

REDACTED FOR PRIVILEGE

On Thu, Aug 30, 2018 at 11:07 AM Tim Sweeney [REDACTED] wrote:

Their web flow (which I never completed but only looked at) proposes to install a profile, rather than a certificate:

The question is, what do these CA's do? Does Apple somehow allow certain kinds of certificates for app installation outside of their store and outside of the enterprise program (essentially making iOS an open platform, sans press release), or do they do https-bypassing MITM interception of queries to Apple's servers in order to block Apple's blacklist?

Tim

On Aug 30, 2018, at 10:55 AM, Mike Atamas [REDACTED] wrote:

REDACTED FOR PRIVILEGE

The creator of builds.io stated in an interview in 2015 that they don't rely on enterprise certificates. I'd be very curious to understand how builds.io works from a technical perspective.

On Thu, Aug 30, 2018 at 10:29 AM Andrew Grant [REDACTED] wrote:

> Is there anyone at Epic who can dig into the details and figure out what approach [Builds.io](https://builds.io) is taking to avoid being banned by Apple?

> Is it a software solution? A business strategy for obtaining enterprise certificates from shell companies, which is / isn't clearly in violation of T&C?

Would it be an option for you or Mark to reach out to the build.io people and just enquire about their technique and how it's been received by Apple? Their interests are very much aligned with ours and I'm sure they are aware we recently bypassed the Play store with Fortnite

I can also work with Josh/Pete/JoeB to see if we can figure out what they're doing. Between us we probably know the most about the murky world of app signing but it appears to be something cleverer than the other grey-market app stores.

Other build.io alternatives do take the route of obtaining enterprise certificates via dubious means though they are prone to being revoked. Build.io appear not to use enterprise certs. If I had to guess, and because they charge a per-device fee, they are doing something like on-demand ad-hoc signing using multiple \$99 developer accounts. Ad-hoc signing is where a developer registers a device's UUID on Apple's website, adds it to a profile, and then puts the profile in the app bundle.

> **REDACTED FOR PRIVILEGE**
Agreement attached. **REDACTED FOR PRIVILEGE**

On Thu, Aug 30, 2018 at 9:31 AM Tim Sweeney [REDACTED] wrote:

Adding Mike Atamas in. Mike is investigating what exactly the Apple terms say about all of this. The goal here isn't some scheme to siphon money away from the iOS App Store but to find a way to truly treat iOS as an open platform.

REDACTED FOR PRIVILEGE

Is there anyone at Epic who can dig into the details and figure out what approach Builds.io is taking to avoid being banned by Apple? Is it a software solution? A business strategy for obtaining enterprise certificates from shell companies. **REDACTED FOR PRIVILEGE**

Tim

On Aug 30, 2018, at 8:30 AM, Andrew Grant [REDACTED] wrote:

The key point here is that although we have an enterprise certificate it can be revoked at anytime and we'd no longer be able to create installable builds.

Whatever the builds.io signing bypass is* we should also assume it's something Apple can patch when they have the incentive.

Doing the same Netflix A-B test where a cohort of users can only purchase V-Bucks via a website (that we can't directly link to) to measure impact would be interesting.

Pulling all purchases out of the app feels like the only way to ensure we don't end up with the app being removed from sale or in a Spotify-2016 situation where we can no longer update it until Apple consider us compliant.

<https://arstechnica.com/gadgets/2016/06/spotify-accuses-apple-of-anticompetitive-behavior-after-app-update-is-blocked/>

(*They are understandably coy about what exactly they are doing, but it does appear that they do not need an enterprise cert like other side-loading websites)

On Thu, Aug 30, 2018 at 7:56 AM Daniel Vogel [REDACTED] wrote:

Adding Andrew Grant -- it looks like the information gathered never made it back to you, Tim. D'oh!
From back in May:

 Andrew

Andrew Grant

Tim pointed me to builds.io who seem to have a way to install software on your phone, without it being jail broken, using certificates.

Curious where this is going.

This form of sideloading combines iOS's built-in ability to install apps via links with an Enterprise certificate that allows apps to be installed on devices without requiring that their UUID be in the profile. Search 'ios OTA app distribution' for lots of details on how to set this up and what the manifests look like.

We used exactly this method (just with internal websites) at Lucasfilm & ILM to distribute internal apps and for testing things like the Star Wars app so we didn't have to continually manage UUIDs or device loaners. In the early days of Bacchus we talked about getting an enterprise certificate for similar reasons but it turned out to just be too much effort (on our side) to get done.

The problem is that using an Enterprise account for external distribution like this is firmly against Apple's T&C. Technically I don't think you're even supposed to use them for testing. There are quite a few sites like builds.io and they are continually having their profiles revoked as Apple plays whack-a-mole with them.

 Daniel

Daniel Vogel

can you point out to links discussing Apple revoking their profiles?

 Andrew

Andrew Grant

Here is a link to one of the services that offers to prevent sideloaded apps from having their permissions revoked. I think they are all some form of VPN that intercepts that traffic to Apple's servers

<https://igeeksradar.com/nesstool-ios/>

Here is FAQ entry from a site that switched to 'BuildStore' and talks a little how the BuildStore service is different from existing methods. It sounds like they have some form of exploit that differs from the usual Enterprise cert hacks. I assume it'll be patched in iOS12*

<http://iemulators.com/#collapseFAQ>

https://drive.google.com/open?id=1LMWHC5GinM3jGnyfeQf73O01G_M-9pyA

(*there have been other exploits that relate to enterprise certificates

<https://blog.trendmicro.com/trendlabs-security-intelligence/ios-masque-attack-spoof-apps-bypass-privacy-protection/>

https://www.theiphonewiki.com/wiki/Misuse_of_enterprise_and_developer_certificates)

 Andrew

Andrew Grant

Also - if we're looking at ways to reduce the 30% cut that Apple take then we should consider a) what either removing all purchases from within the app might look like, or b) Whether the subscription model (drops to a 15% cut after Y1) could be interesting.

-- Daniel, Epic Games Inc.

On Fri, Aug 24, 2018 at 8:46 PM, Tim Sweeney [REDACTED] wrote:

I don't think the web store is something we could feasibly resource this year given competing Diesel and other priorities.

If we were feeling bold, we could port the launcher to iOS and ship a web-installable using the builds.io approach. I don't think we'll be able to resource that this year, but could potentially do it in early 2018. It sounds like there's significant pressure on Apple to legitimize this or a similar approach.

Tim

On Aug 24, 2018, at 8:31 PM, Arjan Brussee [REDACTED] wrote:

Ok

This webstuff is currently not on engineering radar, but perhaps likely a component of kairos anyway

We have an enterprise certificate finally now, and have been using it to sign internal Epic apps with that, eg I hear for Kim's movie workflow things. I'll dig up my previous investigation

-arjan

On Sat, Aug 25, 2018 at 08:27 Tim Sweeney [REDACTED] wrote:

Let's dig into it.

Having Battle Pass and V Bucks purchasing on the web would be doable. For console, where there's subsidized hardware etc, we could explicitly revenue-share back with Sony and Microsoft.

Let's also dig into the enterprise certificate approach. First question: Does Epic have an enterprise certificate compatible with iOS?

Tim

On Aug 24, 2018, at 7:21 PM, Arjan Brussee [REDACTED] wrote:

Hey

So I had a thought about this, after the Netflix news.

<https://www.marketwatch.com/story/netflix-is-the-latest-company-to-try-by-passing-apples-app-store-2018-08-23>

So Spotify does not allow you to create an account in their app, but you have to do it on website.

We already do this, but in an embedded browser. If we just open Safari, that might be a way to bypass in a similar way.

Then, what if we would enable buying vbucks on our website, or a battlepass "subscription"? A subscription is the same as Netflix is doing. But, this only works on website (or our PC version) not in app

In 2015 Netflix sent people emails to this effect:

The emails said the monthly fees through [Spotify.com](https://www.spotify.com) would be \$9.99 versus \$12.99 through the App Store.

Discounting could also be an approach to drive people to the extra friction of paying on a website. We could "sell it" as well since our battlepass frequency does not fit inside

standard subscription models.

Anyway if you are interested we can dig in and see what's possible here

-arjan

On Sat, Aug 18, 2018 at 00:44 Tim Sweeney [REDACTED] wrote:

Wow, (a) industry financial analysts are on this, and (b) the "major publisher CEO" (Bobby Kotick?) is speaking anonymously.

Tim

Begin forwarded message:

From: "benfeder(BenFeder)" [REDACTED]
Date: August 16, 2018 at 2:10:01 PM PDT
To: Paul Meegan [REDACTED]
Cc: "dw(David Wallerstein)" [REDACTED]
Subject: Apple 30% At Risk_8.15.2018.pdf

In case you missed this...

Ben

<image1.jpeg>

<image2.png>

<image.png>

<Apple_Developer_Enterprise_Program_License_Agreement_20180604.pdf>

<Apple_Developer_Program_License_Agreement_20180604.pdf>

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-arjan