EPIC GAMES

Epic Games, Inc.

Professor Susan Athey
Direct Examination

PDX-0142.1

Qualifications

Economics of Technology Professor
Stanford Graduate School of Business

Ph.D., Economics
Stanford

B.A., Economics, Computer Science, and Mathematics
Duke

Former Consulting Chief Economist
Microsoft

California Governor's Council of Economic Advisors
Member

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Assignment

Analyze whether Apple's conduct affects the competition faced by Apple's smartphone operating system platform.

Consider how middleware affects competition between mobile platforms and if Apple's conduct impedes the development of middleware.

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Summary of Opinions

1.   **Switching and mixing-and-matching costs lock users into the iOS ecosystem.**

2.   **Middleware can meaningfully reduce costs for users and developers.**

3.   **Apple's restrictions block users and developers from using middleware, which allows Apple to retain market power over users and developers.**

PDX-0142.4

User Switching Costs

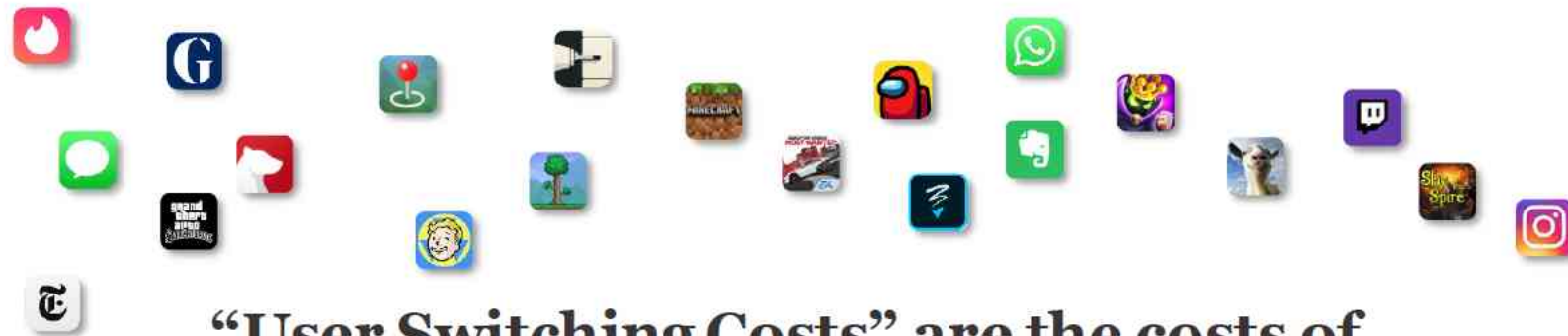**1** Check if apps are available on Android.

2 Identify alternatives to unavailable apps.

3 Purchase, repurchase, and reinstall apps.

4 Transfer app-related data where available.

"User Switching Costs" are the costs of ending an affiliation with one mobile platform (iOS) and starting an affiliation with another mobile platform (Android).
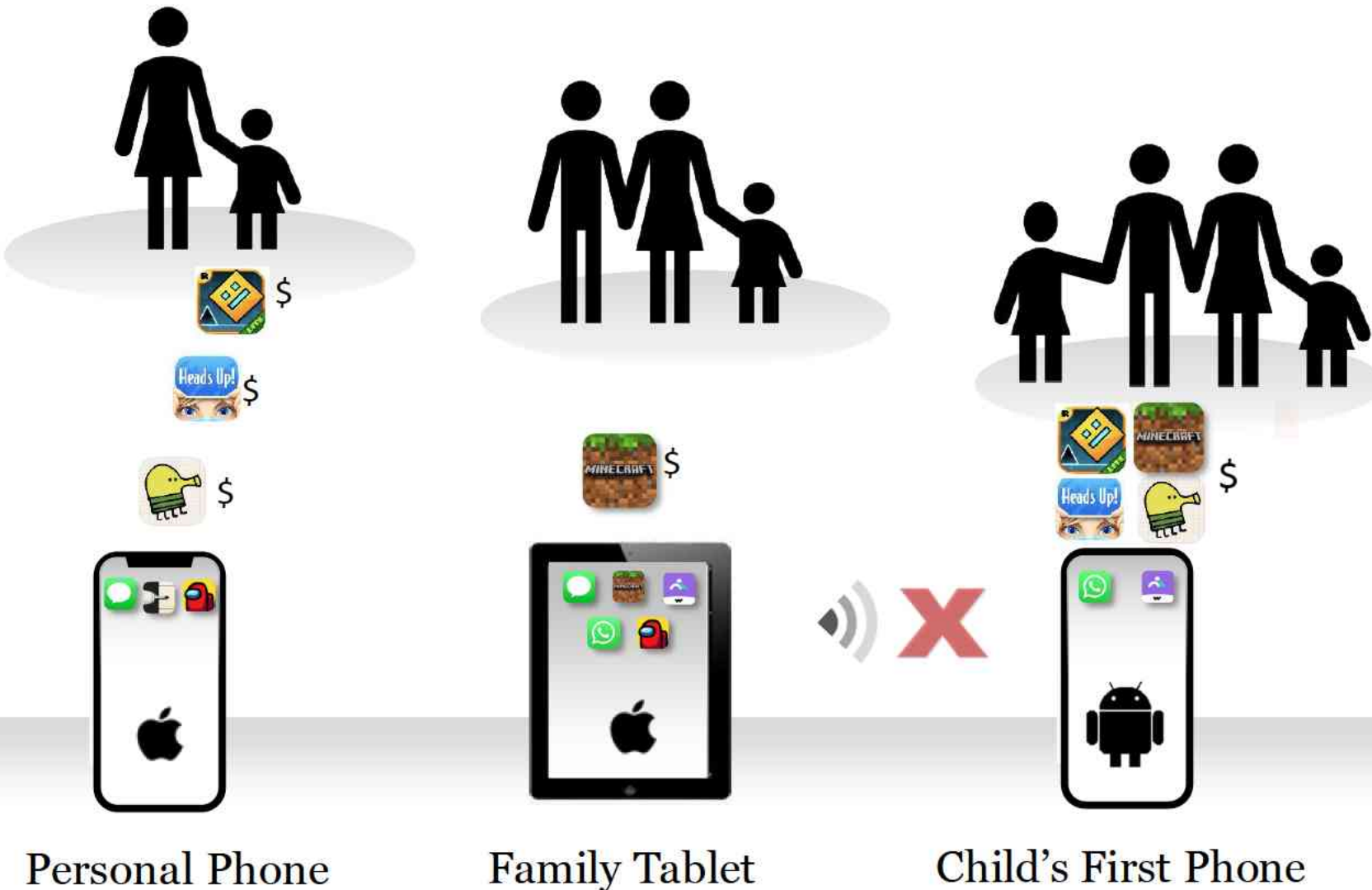
PDX-0142.5

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Mixing-and-Matching Costs

Mixing-and-matching:

Cost to users of accessing apps and services on multiple devices with incompatible OSs.

- Identifying and locating cross-platform apps

- Repurchasing apps

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Mixing-and-Matching Costs Within Groups

Personal Phone

Family Tablet

Child's First Phone

- Identifying and locating cross-platform apps

- Repurchasing apps

- Family sharing

- Parental Controls

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Developer Multi-Homing Costs

Accounts

Support

Sync

Family Sharing

Challenges for Developers in Reducing User Switching and Mixing-and-Matching Costs

- Developing an account management infrastructure.

- Implementing a cross-platform payment infrastructure.

- Reduction in engagement from users who abandon the services if it requires account registration.

- No one-stop shop.

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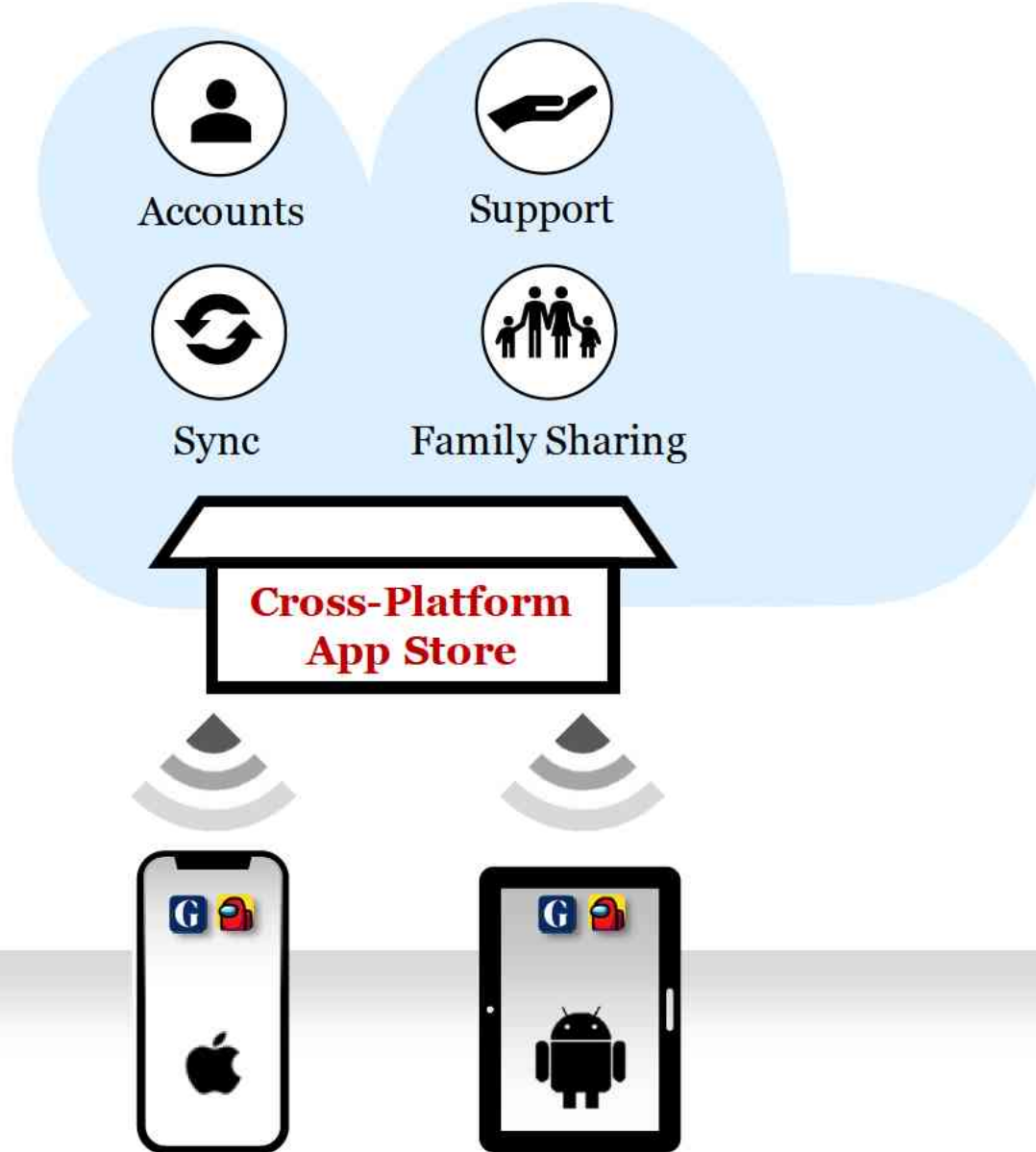
8

Developer Porting Costs

Accounts

Support

Sync

Family Sharing

Porting

Making software available on different operating systems

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Cross-Platform Stores Lower User Costs

Accounts

Support

Sync

Family Sharing

**Cross-Platform
App Store**

**Cross-platform stores operate
across multiple platforms**,
and therefore allow users to migrate
and synchronize their apps on all of
those platforms.

This, in turn, reduces their switching
and mixing-and-matching costs.

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Epic Games Store (EGS) Reduces Users' Switching and Mixing And Matching Costs

Available on

Windows PC

Mac OS

Account
Access EGS account on all supported devices

Library
Stores users' apps cross-platform

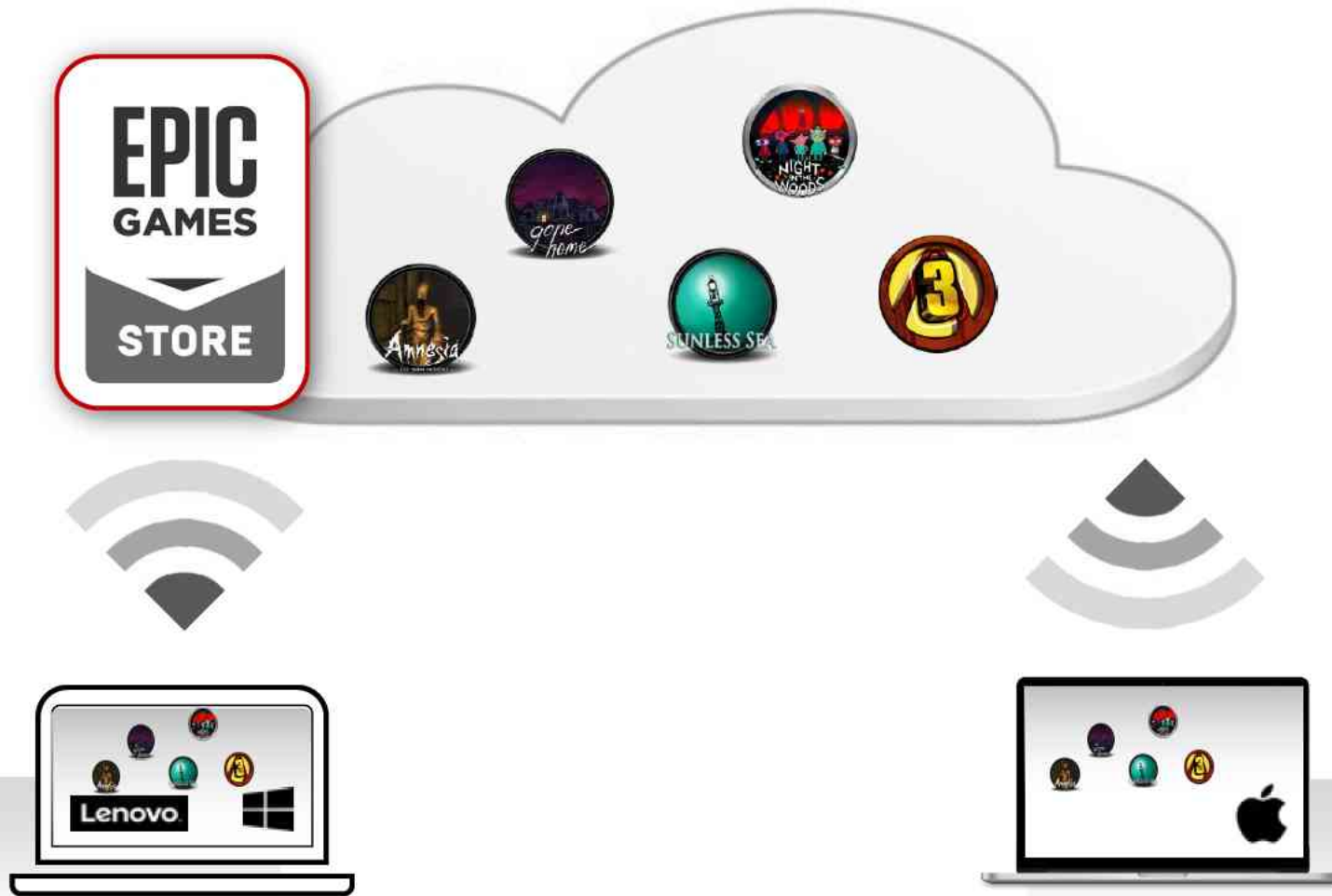## Cloud
Synchs apps, purchases and app data cross-platform

Wallet
Allows user to manage subscriptions and refunds across platforms

PDX-0142.11

Epic Games Store Lowers Developer Multi-Homing Costs

- Makes apps available across platforms

- Cross-platform account management and authentication

- Cross-platform cloud storage

- Cross-platform in-app payment system

PDX-0142.12

Steam Reduces Users' Switching and Mixing And Matching Costs

STEAM®

Available on

Windows PC

Mac OS

Linux PC

Account
Access account on all supported devices

Library
Stores users' apps cross-platform

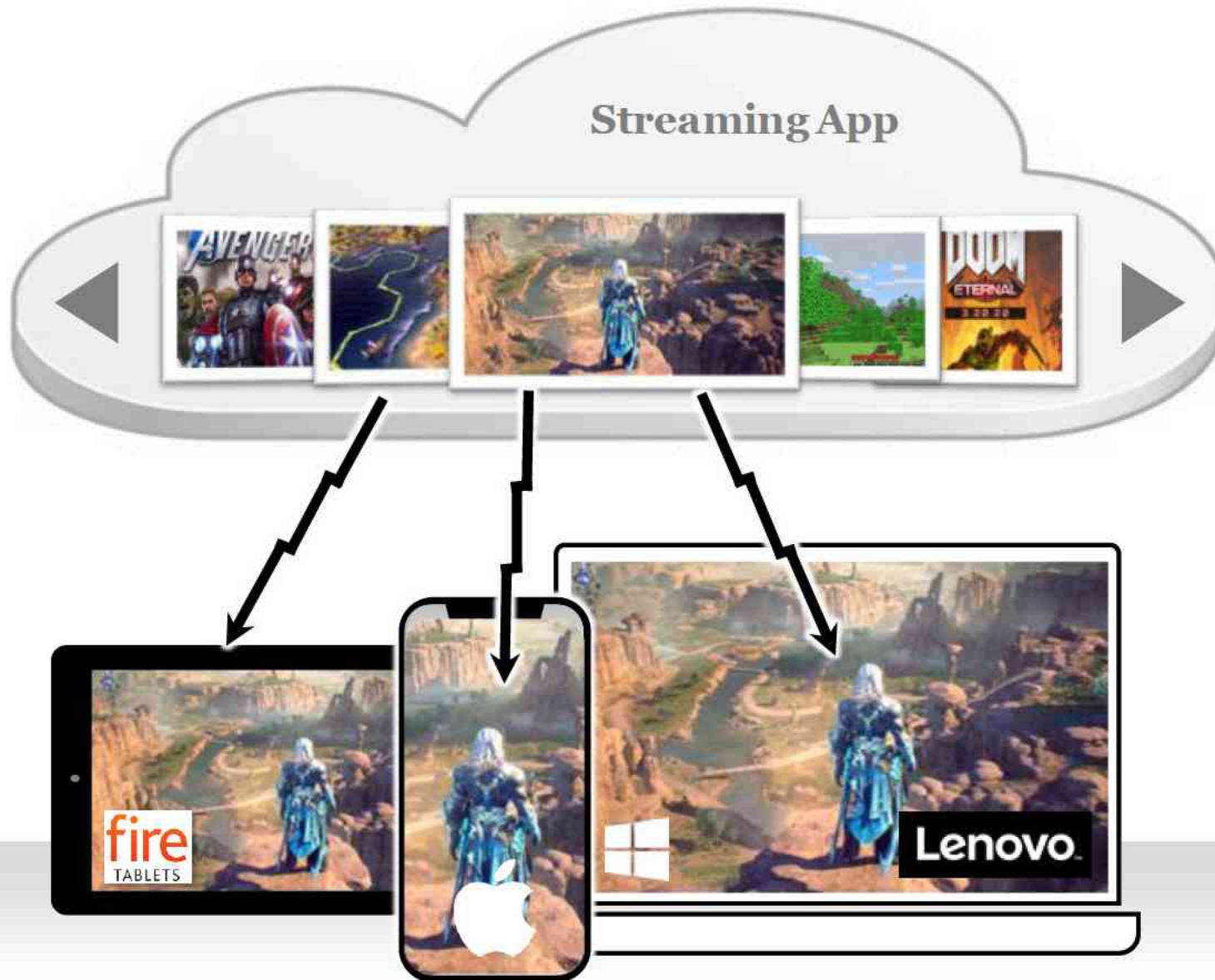## Cloud
Synchs apps, purchases and app data cross-platform

Wallet
Allows user to manage subscriptions and refunds across platforms

Family Sharing
Users can share apps and purchases cross-platform

PDX-0142.13

Potential Benefits of Streaming Platforms

Streaming App

fire
TABLETS

Lenovo

For Developers:

- Eliminates porting and multi-homing costs

For Users:

- Operates like a cross-platform app store

- Reduces the friction of consuming services across platforms.

PDX-0142.14

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PLAINTIFF
U.S. District Court - NDCA
4:20-cv-05640-YGR-TSH
Epic Games, Inc. v. Apple Inc.
Ex. No. **PX-0405**
Date Created: _____
By: _____

Subject: Re: Back to School next year...
From: "Philip Schiller"
Received(Date): Fri, 15
To: "Eddy
Cc: "Tim C
Date: Fri, 15

I reiterated to the team
card we did last year and
proposals

I do think the new propos
better when you have ma
apps and iCloud ecosyste
not only sell Macs and iP
young people as well. Th
iPhone).

On Feb 14, 2013, at 6:45

Great, I was told that BTS

And yes BTS is unrelated
card margin and therefore

Let me know if you need

Sent from my iPhone

On Feb 14, 2013, at 6:57

Sounds like you have iss
don't do for BTS
We had our very first me
proposed (for a bunch of
jumps the gun and reacts to a proposal that hasn't been made yet). The team is going to model
the idea and come back to discuss it.

On Feb 14, 2013, at 5:51 PM, Eddy Cue [ ] wrote:

I understand that we have tentatively decided for a discount of $100/$50/$50 for
Mac/iPad iPhone. Did we think that customers would buy significantly more if we gave them a
straight discount instead of an iTunes card? If this isn't a huge difference, I think we are making
a mistake. We are discounting our product instead of adding value to them. Getting customers
using our stores (iTunes, App and iBookstore) is one of the best things we can do to get people

**Exhibit
PX 405**

PX-0405.1
APL-EG_06356325

Mr. Eddy Cue:

Senior Vice President, Internet Software and Services

I understand that we have tentatively decided for a discount of $100/$50/$50 for
Mac/iPad/iPhone. Did we think that customers would buy significantly more if we gave them a
straight discount instead of an iTunes card? If this isn't a huge difference, I think we are making
a mistake. We are discounting our product instead of adding value to them. Getting customers
using our stores (iTunes, App and iBookstore) is one of the best things we can do to get people
hooked to the ecosystem. The more people use our stores the more likely they are to buy
additional Apple products and upgrade to the latest versions. Who's going to buy a Samsung
phone if they have apps, movies, etc already purchased? They now need to spend hundreds
more to get to where they are today.

PX-0405.1-.2

PDX-0142.15