

“Security vs Interoperability” Arguments: Real Tension or False Dichotomy?

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What is antitrust?

Government regulation intended to promote competition

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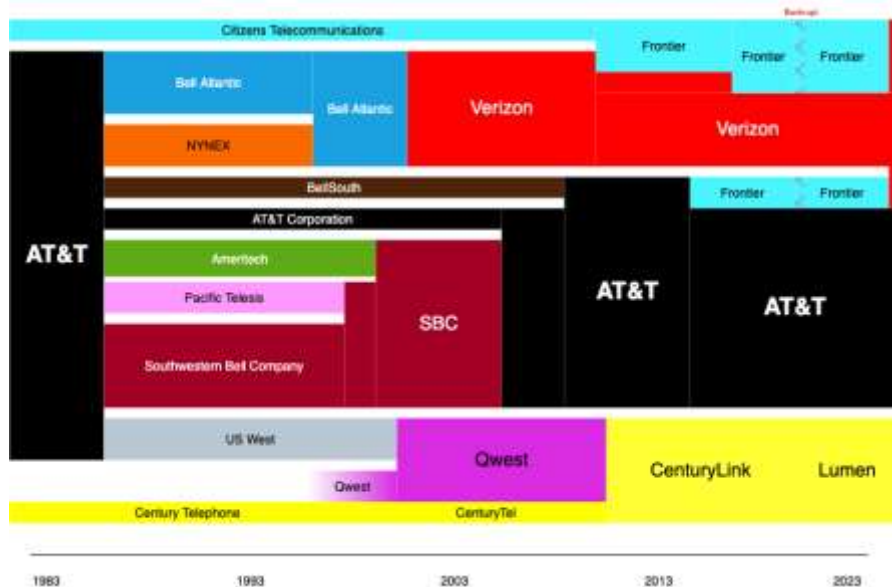
- Regulating mergers



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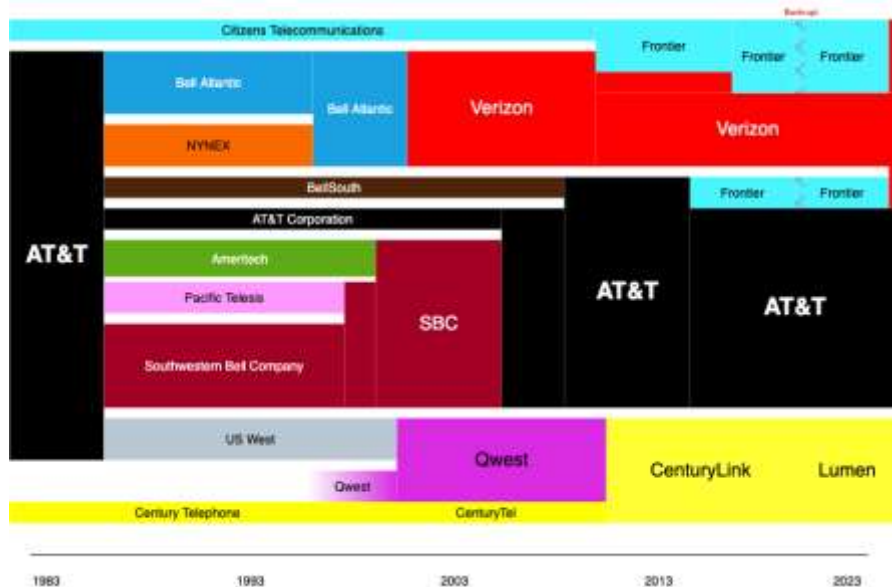
- Regulating mergers
- Reduce power of monopoly firms



What is antitrust?

Government regulation intended to promote competition

- Regulating mergers
- Reduce power of monopoly firms
- Abuse of market dominance



Why is antitrust important for people?

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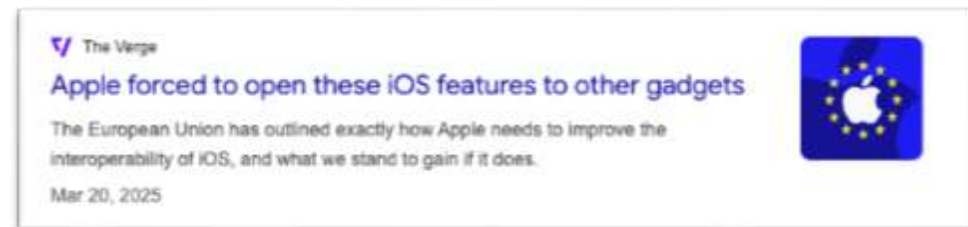
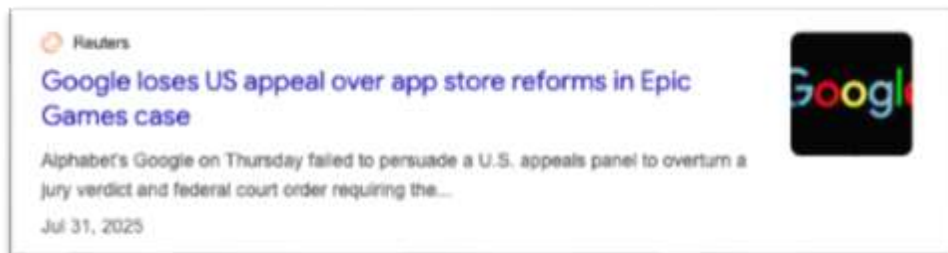
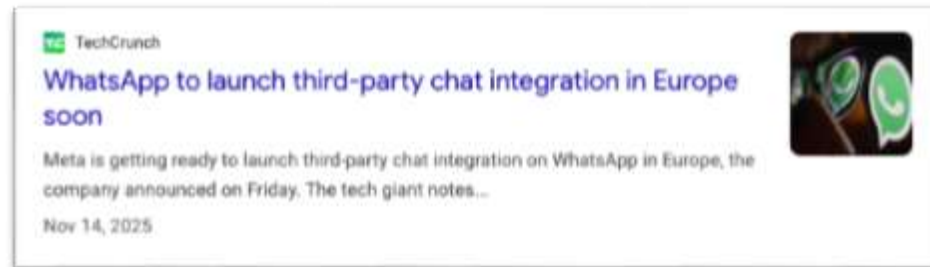
Why is antitrust important for people?

- Prices
- Competition and innovation*
- Options for consumers
- Companies in monopoly positions have control over those markets



Regulators are mandating interoperation

- In the name of antitrust
- Companies understandably push back
- Including by arguing it would undermine their **security**



“The new options we’re introducing to comply with the DMA necessarily mean we will not be able to protect users in the same way” – Apple 2024





“The new options we’re introducing to comply with the DMA necessarily mean **we will not be able to protect users in the same way**” – Apple 2024

“[t]he [interoperation] requirement ... effectively requir[es] Google to **endorse stores that might be full of harmful content**”
– Google 2025

We don't want security to be used as an excuse to dodge regulation



We don't want security to be used as an excuse to dodge regulation



But we also don't want regulators to ignore serious security threats

Our Contribution

A framework for analyzing “security vs interoperability” arguments





Three case studies





Three case studies



WhatsApp

- The EU has required that Meta allow other messaging apps to interoperate with WhatsApp



This is a complex security problem

One Protocol to Rule Them All? On Securing Interoperable Messaging

Jenny Blessing¹ and Ross Anderson^{1,2}

¹ University of Cambridge

² University of Edinburgh

Interoperability in End-to-End Encrypted Messaging

Julia Len
Cornell Tech

Esha Ghosh
Microsoft Research

Paul Grubbs
University of Michigan

Paul Rösler
FAU Erlangen-Nürnberg

- Key transparency
- Key retrieval
- Continuous Group Key Agreement
- Metadata hiding
- Message franking
- Differing guarantees

“While [Meta has] built a secure solution for interop that uses the Signal Protocol ... we cannot guarantee what a third-party provider does with sent or received messages, and we therefore cannot make the same promise.”

– Meta 2024



“While [Meta has] built a secure solution for interop that uses the Signal Protocol ... **we cannot guarantee what a third-party provider does** with sent or received messages, and we therefore cannot make the same promise.”

– Meta 2024

“Currently, working with Facebook Messenger, iMessage, WhatsApp, or even a Matrix service would mean **a deterioration of our data protection standards.**” – Signal 2024



An aside on federated systems

- Fully federated models come with challenges
- But this is not what the EU requires
- What about the dictator model?

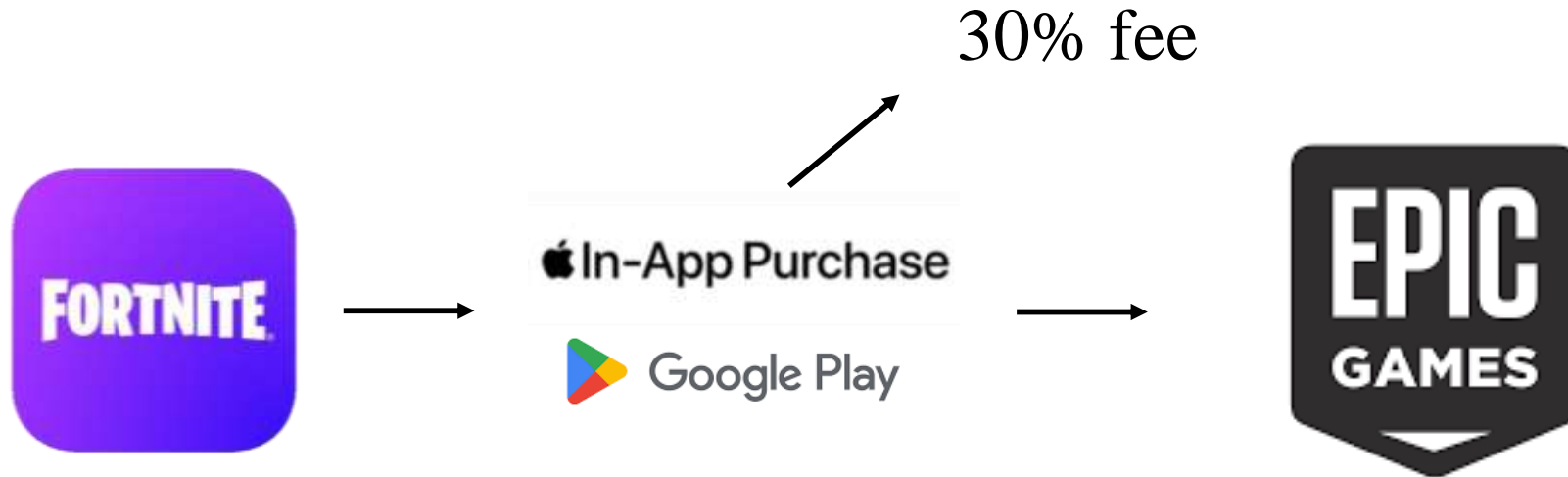




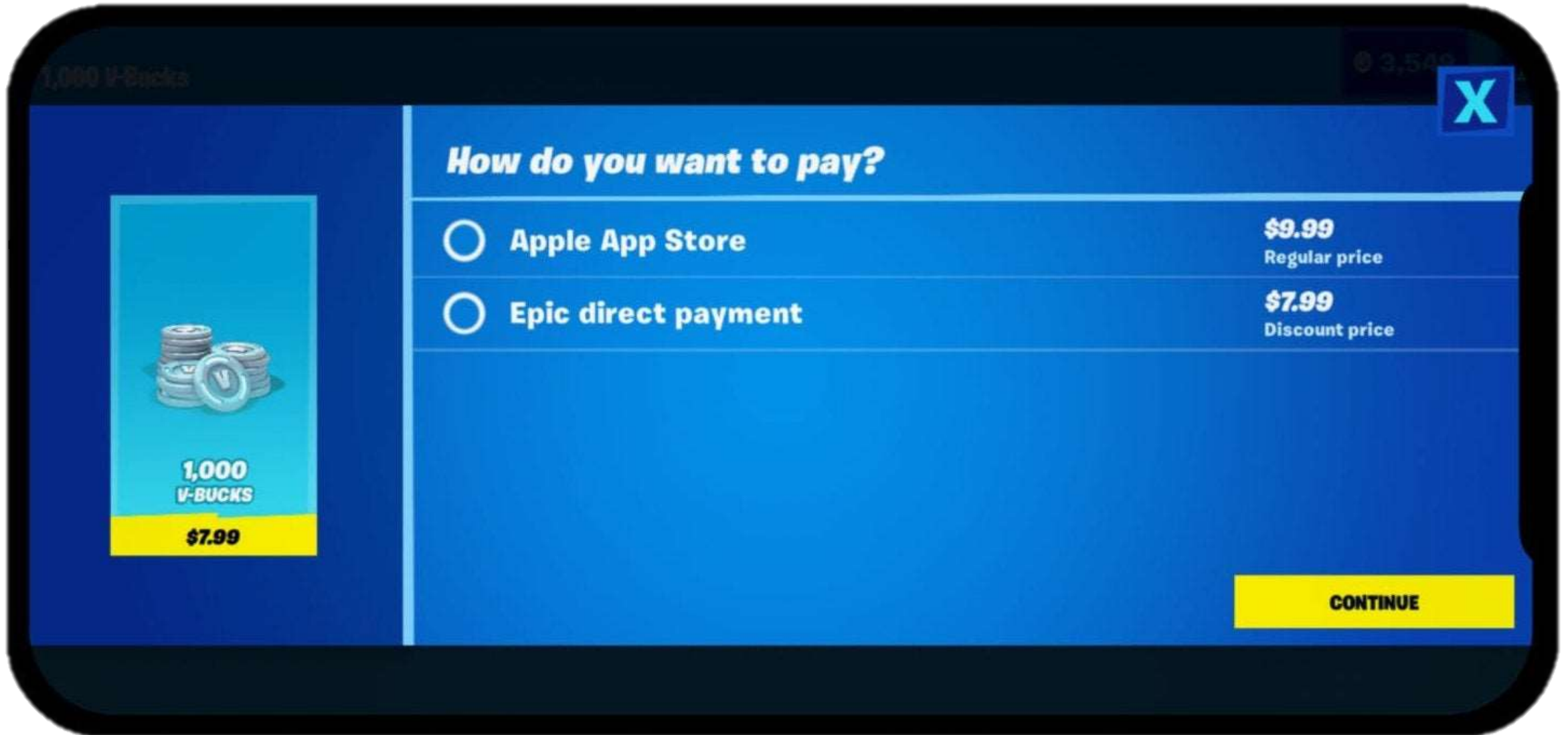
Three case studies



The old fee structure extracted high fees



Thanks to regulations, companies can link out



“The new options for processing payments and downloading apps on iOS open new avenues for malware, fraud and scams, illicit and harmful content, and other privacy and security threats.” – Apple 2024



“The new options for processing payments and downloading apps on iOS open new avenues for malware, fraud and scams, illicit and harmful content, and other privacy and security threats.” – Apple 2024

“The iOS App Store’s monopoly protects only Apple profit, not device security.” – Epic Games 2020



There is a parallel and similar case involving the Google Play store



Three case studies



Tap-and-go payments

- Tap-and-go payments require access to NFC and host card emulation
- This was not previously available to third-party developers

 TechCrunch

DOJ's Apple antitrust case neatly aligns with EU on one key point: NFC and mobile payments

There is overlap in the issues the DOJ and Europe are addressing with Apple, but digital wallets are where they are most neatly aligned.

Mar 21, 2024



Tap-and-go payments

- Tap-and-go payments require access to NFC and host card emulation
- This was not previously available to third-party developers

“If Apple is forced to allow access to sensitive technologies that it has no ability to protect, the security risks would be substantial and virtually impossible to mitigate.” – Apple 2024





Are these examples the same phenomenon?



Security vs Interoperability Arguments

Engineering Concerns



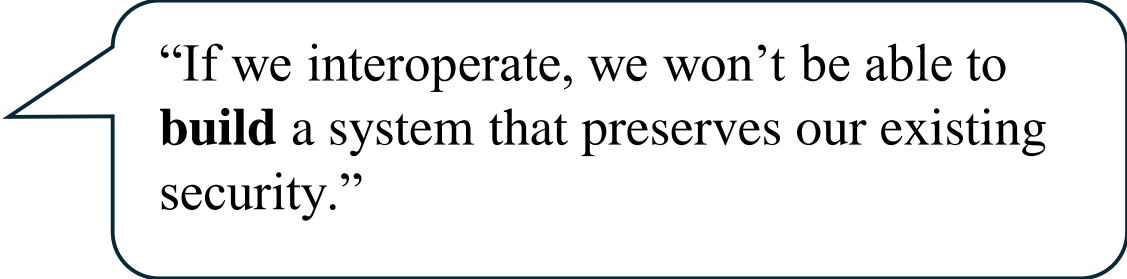
Vetting Concerns



Hybrid Concerns

Security vs Interoperability Arguments

Engineering Concerns



“If we interoperate, we won’t be able to **build** a system that preserves our existing security.”

Security vs Interoperability Arguments

Engineering Concerns

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Vetting Concerns

“If we interoperate, we won’t be able to **vet** third parties in a way that preserves our existing security.”

Security vs Interoperability Arguments

Engineering Concerns

“If we interoperate, we won’t be able to **build** a system that preserves our existing security.”

Vetting Concerns

“If we interoperate, we won’t be able to **vet** third parties in a way that preserves our existing security.”

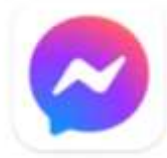
“If we open new functionalities, we won’t be able to **build** access and **vet** third parties so that it’s as safe as when we alone had access.”

Hybrid Concerns

Engineering Concerns



iMessage



Messenger



WhatsApp

Vetting Concerns

Apple In-App Purchase



Google Play



App Store



WebKit

fitbit



AirDrop



Hybrid Concerns

Nice framework, now what?

There are different incentives at play in each of the three buckets



Security economics already exists

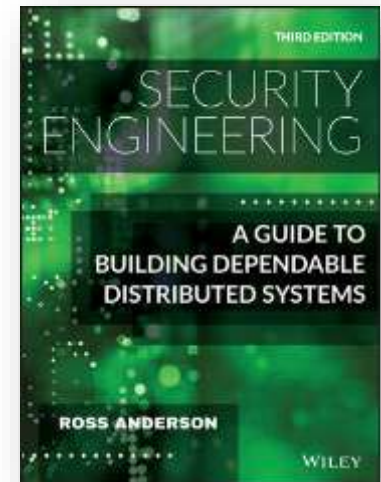
We are looking specifically at
the antitrust context

Why Information Security is Hard
– An Economic Perspective

Ross Anderson

Information Security Economics – and Beyond

Ross Anderson and Tyler Moore



Different incentives in each bucket

Engineering – keep the advantage of network effects

Different incentives in each bucket

Engineering – keep the advantage of network effects

Vetting – walled garden to keep the fees

Different incentives in each bucket

Engineering – keep the advantage of network effects

Vetting – walled garden to keep the fees

Hybrid – keep competitors out completely

Maybe there should be some standards?

- notifications
- high-bandwidth peer-to-peer Wi-Fi connection
- proximity-triggered pairing feature
- background execution feature
- close-range wireless file transfer
- automatic Wi-Fi connection
- media casting
- automatic Bluetooth audio switching
- NFC controller in Reader/Writer mode

Norms beyond just standards

The Landscape of Offline Finding Protocols: Privacy, Safety, Problems

Akshaya Kumar, Carolina Ortega Perez, Anna Raymaker, Joseph Jaeger, Michael Specter, Thomas Ristenpart

Georgia Institute of Technology, Cornell University, Cornell Tech

Untangling Privacy and Competition

Forthcoming, Iowa Law Review, Volume 111 (2026)

Bar Ilan University Faculty of Law Research Paper No. 5567858

77 Pages • Posted: 6 Oct 2025

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AirCatch: Effectively tracing advanced tag-based trackers

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Name	Detecting Unwanted Location Trackers
Acronym	dult
Area	Security Area (.sec)
State	Active

Conclusion

- Mandated interoperation is here!
- Not all security vs interoperability arguments are the same
- This could be an opportunity to improve interoperability



<https://arxiv.org/abs/2502.04538>