

# TCB and DRM

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Martin Häcker

“If we understood this  
change, I believe we would  
resist it.”

- Lawrence Lessig



“Free as in speech,  
not free as in beer.”

- FSF



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What if DRM worked?

# Some new business models?

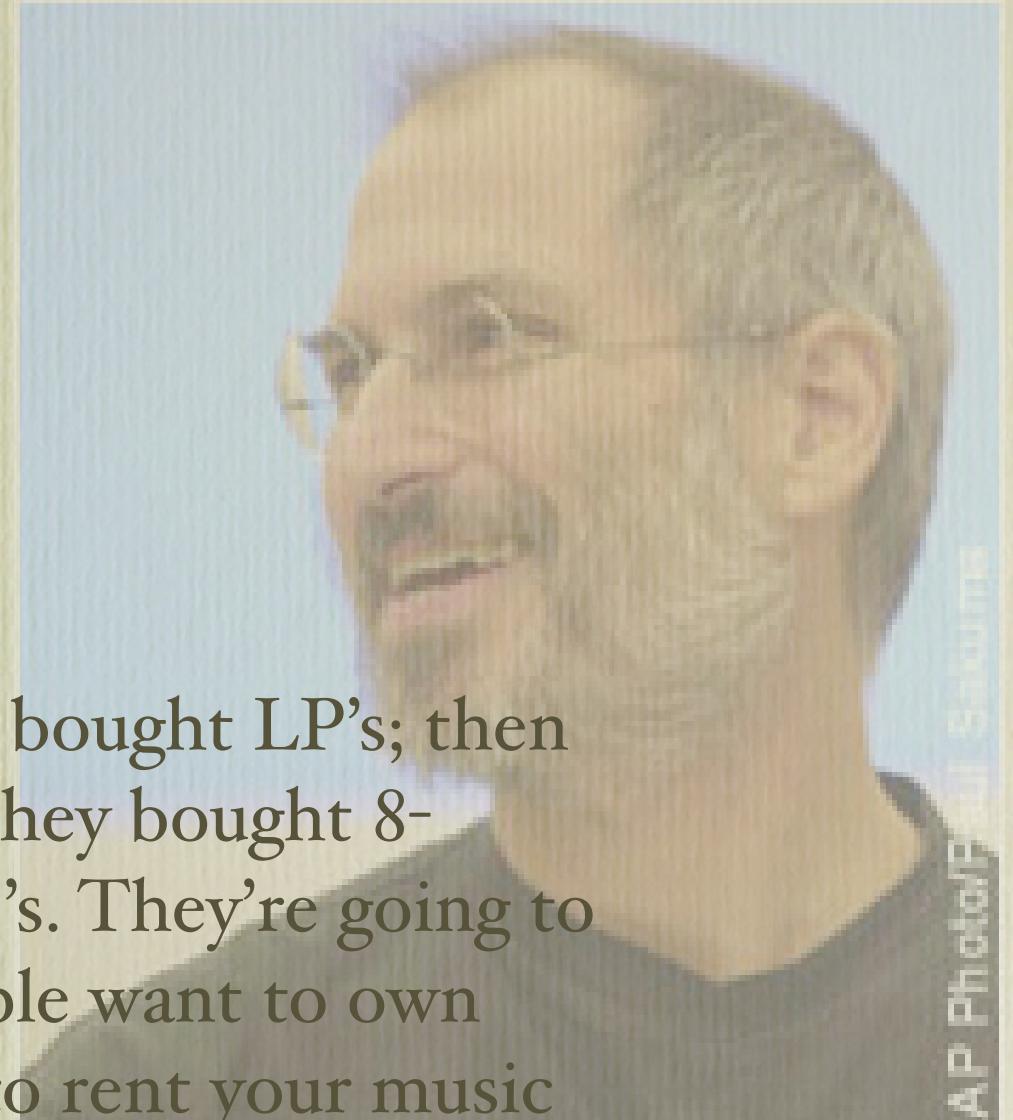
- Club / Subscription
- Renting Content
- Pay per view



but...

“They bought 45's; then they bought LP's; then they bought cassettes; then they bought 8-tracks; then they bought CD's. They're going to want to buy downloads. People want to own their music. You don't want to rent your music -- and then, one day, if you stop paying, all your music goes away.”

- Steve Jobs, Rolling Stone interview



AP Photo/Evan Agostini

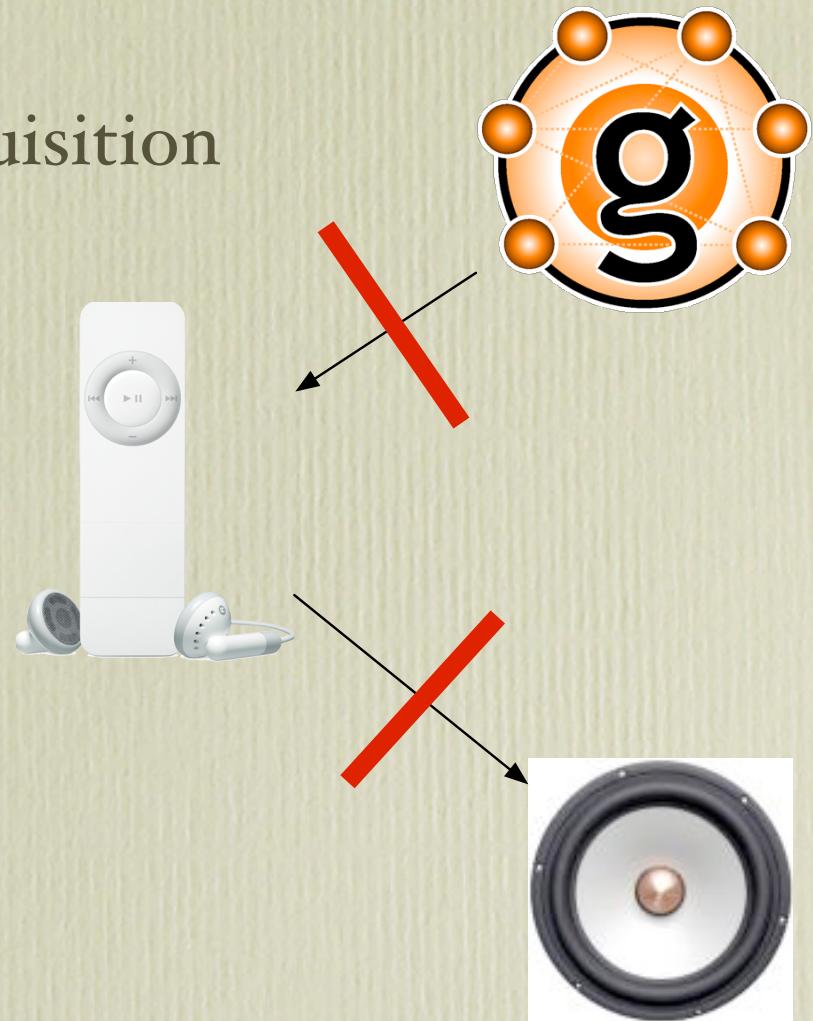
# DRM though enables ...

- to control who creates
- to control markets



# How does DRM work?

- Unauthorized use and acquisition
- Three approaches
  - Watermarking
  - Fuzzy hashing
  - Secure containers



# Watermarking

- “Embedded” signal
- Protects against:
  - Unauthorized use
  - Unauthorized acquisition (somewhat)

# Fuzzy Hashing

- The content becomes the hash
- Protects against:
  - Unauthorized use
  - Unauthorized acquisition (somewhat)

Hash Table(strings)	
0	(null)
1	(null)
2	(null)
3	"Steve"
4	(null)
5	(null)
6	(null)
7	(null)
8	(null)
9	(null)
10	(null)
11	(null)

# Secure Containers

- Encrypting the content
- Protects against:
  - Unauthorized use only



“We claim [...] this would have little effect on piracy.”

- S. Haber, B. Horne, J. Pato, T. Sander, R. E. Tarjan

managed vs. unmanaged  
content



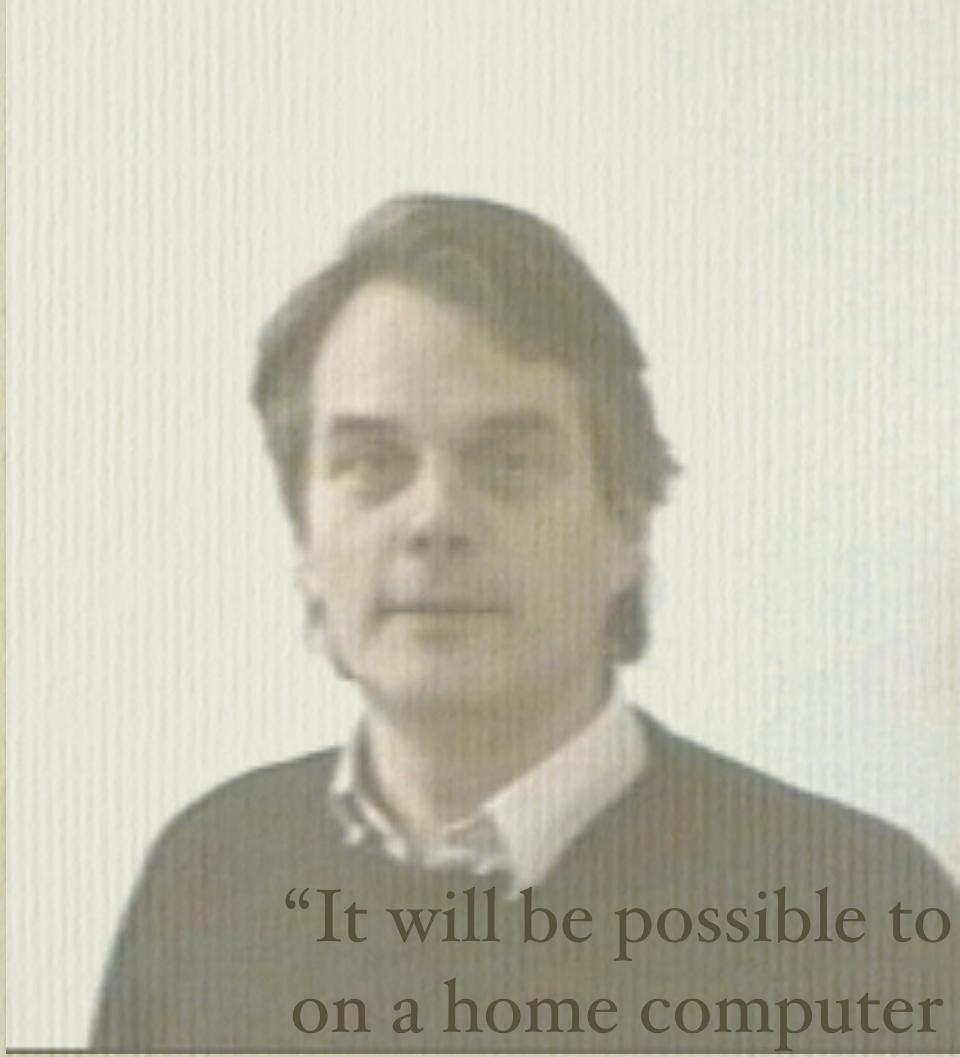
Draconian DRM to the  
rescue...

# Some Problems

- New devices
- License authority
- Public content
- Private content

TOP  
SECRET

XXX?



“It will be possible to compute arbitrary collisions  
on a home computer in one evening.”

- Prof. Dr. Ernst-Günther Giessmann (HU-Berlin)

Piracy could be managed if  
we are willing to give up  
autonomy / freedom of use.

?

# Not Feasible:

- Technically
- Economically
- Socially





“... we would resist it!”  
- Lessig

What could we do then?

# Is competing possible?

- 40% of all software is pirated
- Solarium vs. self tanner vs. sunbathing
- Water bottlers vs. city waterworks



# Here's how!

- Content management
- Content delivery
- Business models

