Economics of DRM

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Econ 101: content

- How much a user is willing to pay for content depends on...
  - What he can do with it (intrinsic value)
    - Display it once, display it many times, copy it, loan it, rent it, sell it, etc...
  - What substitutes are available (competition)
    - Identical copies and/or similar items

- DRM affects both dimensions
  - Value: what the user can do with content
  - Competition: availability of substitutes due to copying, reuse, rental, etc.
Profit maximization

- Seller wants to choose price and bundle of rights offered to maximize profits
  - More rights means...
    - More value to users: higher price
    - More competition from copies: lower price
    - Either effect could dominate

- Baseline case: full neutrality
  - No copies: set price and quantity
  - Allow one perfect legitimate copy of each unit sold: seller can sell half as much at twice the price
  - This is borderline case; normally one effect or other will dominate
Example: backup copies

- Compare following examples
  - DVD allows for 1 backup and sells for $20
  - DVD allows for no backups and sells for $10, but you can only buy 2 at a time

- Moral: if originals are cheap enough, who cares about right to backup?
  - Willingness to pay will depend on set of rights offered…
Points to keep in mind

- No one ever made a profit by setting a price higher than people were willing to pay
  - Issue is not just availability of content, but price
  - Price ultimately depends on competition

- DRM can provide additional rights
  - E.g., lifetime access

- Restricting rights isn’t necessarily bad if low prices compensate for reduced rights
  - E.g., single-play DVDs and CDs
Lots of reason for optimism

Technological progress has dramatically reduced cost to create and distribute content

“Freedom of the press is available to those who own one.” But now everyone owns one.

Now: print, audio, photos, video, etc.

Primary challenge is to make sure entry has low cost and industry remains competitive. Moore’s Law is on our side.

So what is the major *policy* problem in content industries?
Transactions cost

- Biggest economic problem in content industry is transactions costs for rights clearance
- Relatively easy to solve technologically with online registry
  - Benefits both buyers and sellers
  - But benefits small players more
- But registry problem not received focus it deserves in public policy discussion
  - Perhaps due to public good nature of registry
  - Perhaps possible side benefit of DRM will be reducing transactions costs of rights acquisition…
Safe harbor

- If you cannot find rights in registry, need safe harbor rule
  - E.g., deposit default license fee in escrow
  - Similar to mechanical reproduction rights
- This is win-win situation in the vast majority of cases since it facilitates trade that would otherwise not happen
- Orphan works proposal from Copyright Office
Summary so far

- Monopolization in content industry is unlikely
  - Tech progress increases supply of content
  - Restrictive DRM can be balanced by competition
  - Challenge is reducing transactions cost of rights acquisition

- But there are significant worries about monopolization in *DRM technology*
Economics 101: technology

- If you are going to have DRM, want a standardized system
  - This means no competition in the provision of the DRM system!

- But a proprietary system could provide huge leverage to those who control it
  - Non-proprietary, open system facilitates competition; closed system inhibits competition
  - DRM standards should be open like Internet/GSM standards, providers build to these standards
  - But watch out for capture, even with open system! Need a lot of checks and balances.
Benefits and costs of standardization

Benefits are obvious
- Produce to one standard
- Complementarities: device manufacturers want lots of content (in their format), content providers want lots of devices compatible with their format
- May be a standards war, but eventually one standard will merge (remember Beta-VHS)

Costs of standardization
- Premature standardization
- Collective switching costs: very costly for single party to switch
- Gives huge power to whoever controls standard
  - Regulators are subject to capture
Standards battle could derail DRM

- Standards battle could be so disruptive that DRM is derailed
- If copies are free need other cost recovery mechanisms
  - Advertising – introduces its own distortions
  - Media tax – very difficult to make work
  - Subscriptions – newspapers, NetFlix, etc
  - Etc., etc.
Nightmare scenario: bait and switch

- A middleman provides DRM that offers buyers and sellers a seemingly open platform
- But it retains enough proprietary pieces to exercise control over development and future evolution of system
- Leads to “creeping lock-in”
- Collective switching costs would be very large due to network effects
- Middleman extracts all the surplus!
Avoiding nightmare scenario

- A fully open system with no proprietary extensions
- A governance system with lots of checks and balances to avoid capture by any party (firm, industry, government, special interest group)
- A mechanism for ensuring interoperability, compliance, evolution of system
  - Think TCP/IP, WWW, GSM
Evolution of rights

- Eventually, are likely to have default sets of rights offered, which can be extended
- But markets and societies need ability to experiment in which are most useful, balancing out the interests of various parties
- Process of standardization
  - Watch out for collusion in default rights setting: can be a way to avoid competing
  - Be careful of premature standardization
  - Always ask: what will allow for most competition?
Summary overall

Content industry
- Competition is at work
- Transactions costs of rights management are biggest problem for efficiency

Device industry
- Danger of capture by proprietary DRM technology
- Danger of capture by special interests (even with open systems)
- Default set of rights will emerge
- Need ongoing system of checks and balances to maintain open platform