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

Competition in content

- 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