MS&E 235, Internet Commerce

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Lecture 15: Peer To Peer Networks and iTunes

Peer to Peer Networks Vs. Youtube

While it might appear that P2P networks are a great way for small bands to popularize their music, research by Hal Varian shows that small bands are worst hit by P2P networks. Large/Popular bands are able to make money despite illegal file sharing while small bands often have a hard time doing so.

Also, portals like Youtube.com where music videos are freely available are better than P2P file sharing as Youtube.com is maintained by a centralized entity (Google) and copyright violations can be brought to their notice. Furthermore, a band can upload a low quality/incomplete video on Youtube and offer the high quality/full version for sale on say iTunes.

iTunes

The music industry would like to sell all their music together in CDs. The reason they got forced to sell them individually, is because of Napster and Kazaa.

Pricing of digital media.

Why does iTunes sells songs for 99 cents? This is the average price for a song. What the music industry would like to have is variable pricing and control on pricing.

Arguments in favor of variable pricing:

1. More representative of user preferences.

2. Reflect variable costs.

3. Everybody else does it.

Arguments against variable pricing:

1. Users like simplicity.

2. Money can be made in volume.

3. Not everybody else does it (movies are fixed price in theaters, all the DVDs cost almost the same, most paperback fiction sells for the same price).

Why does music industry care? It wants control on pricing. Why does Apple care? It wants to sell iPods. They want to use iTunes for selling iPods. iTunes has sold around 1.5 billion songs. The belief is that Apple makes around 12

cents per song. So this results in a revenue of 200 million. Note that Apple needs to invest in maintaining the website and publicity. Apple has sold 67 million iPods. Assuming Apple makes 20 dollars for any iPod sold. This gives a revenue to the tune of 1 billion dollars. However, as iPod sales slow down and iTunes sales speed up, the incentives of the music industry and Apple get aligned which is to earn more revenue by selling music and richer pricing models might emerge as a consequence.

Digital Right Management

Music industry wants DRM (Digital Rights Management). Music industry could either sell:

1. mp3s (unprotected, people will share)

2. mp3s protected using other DRM.

Apple was quick to get the DRM working, hence, they are a strong player in the market. More importantly, Apple built an end-to-end DRM package. This mean't that someone could buy a song from their store through iTunes and then copy that song to their iPod and Apple's DRM would ensure that the song could not be copied/transferred illegally.

Software as a service

Software as a service (SaaS) is a software application delivery model where a software vendor develops a web-native software application and hosts and operates (either independently or through a third-party) the application for use by its customers over the Internet. Customers do not pay for owning the software itself but rather for using it (the software can also be free) (From Wikipedia).

An example of a software as a service model is the Amazon S3 (simple storage service) system which allows you to store data on Amazon's servers and you are charged based on how much data you store. Another example would be Google Documents which allows you to store documents on Google's servers and modify them from any computer connected to the internet. One advantage of this model is that your documents/data is accessible from any computer (provided internet access is available). Another advantage of this model is the elimination of software piracy. Since there are no high initial costs and the software is either free or you pay based on how much you use it, there is no motivation for software piracy. Also, the software resides on the vendor's servers and therefore it is not possible to distribute it through file sharing. There also disadvantages to this model such as requiring internet access to be able to access your data or issues of data privacy as data is now residing on a third party server.

Software as a service architecture has been made possible by the development of AJAX (asynchronous javascript and xml) which allows you to write small programs that run in the browser without requiring server access. Another trend that enables this is that of micro payments. Amazon's NetPay which is a

decentralized micro payment architecture is an example. While it is difficult to pay a few cents through a traditional VISA card every time you use a software, it is easy to do so using services like NetPay. Advertising can be thought of as a specific form of micro payment.