# P2P: At Duke And The World

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## I. Introduction

Peer-To-Peer (P2P) networks have become increasingly popular across college campuses in the last five years, as students have begun 'sharing' songs and other files amongst one another. P2P networks, for the purposes of this paper, are defined to be end-to-end networks that "are used for sharing content like audio, video, data or anything in digital format" (Wikipedia 2005). However, this presents a problem as Universities try to deal with the legal and moral problems of file sharing. Schools have proposed a variety of policies regarding P2P file sharing. Duke University has adopted a lassie faire policy towards those who use P2P systems. The policy at Duke is the best policy for the University as it protects its own, the students, to the fullest extent of the law and does not invade their privacy. Moreover, it protects its resources equally well.

This paper will look at how Duke students use P2P networks and how Duke has handled its network and system resources. To do this a survey was conducted of current freshman at Duke—all of whom own iPods. Statistics from the Office of Information Technology pertaining to bandwidth consumption will also be used to explain Duke's use. Finally, student use at Duke will be compared with the general Internet community's use of P2P networks and other methods of downloading. These three components will provide a characterization of Duke students' tendencies as it relates to digital music.

It will also examine the approaches used by three other major universities: University of California – Irvine, University of Florida, and Pennsylvania State University[1]. These three Universities, along with Duke, have implemented four diverse

[1] These three University policies, I believe, represent a spectrum of options available to schools. They are not by any means, a comprehensive list of schools, nor was an exhaustive search performed for all policies.

plans to best P2P use on campus with varying degrees of success. A comparison of the four Universities will allow for a recommendation of policy.

Finally, it will then make a recommendation to Duke University regarding the acceptable use policy and P2P. It will concur that the current policy at Duke is the most beneficial to both the students and the university. While there is no perfect policy, and while Duke's is not the most effective at preventing or deterring P2P use, it is the best solution offered at any University looked at. Duke should not make any substantial changes to its current policy and should continue to allow students the freedom to make their own decisions—but should also allow them to deal with the consequences of those decisions. On top of this, Duke should look at offering and promoting a legal means of downloading music to students.

**II. Duke University—A Look Around**

Three years ago, after the rise of Napster, the Duke residential network began to suffer from slow transfer speeds. It was determined that P2P networks were the culprit, as outbound data traffic was, on average, over 250 megabits per second, while inbound data rates were around 500 Mb/sec (Cramer 2005). These are the two types of bandwidth measured: inbound and outbound. Inbound refers to data coming from other sources into the Duke network—such as downloading a webpage. Outbound data, on the other hand, originates from Duke and travels elsewhere—such as uploading to a FTP server. To view a webpage, most data is inbound, but the server requests are outbound as are the

packet verifications[2]. Realizing that outbound traffic rates were slowing the network, Duke then implemented a policy outbound limiting bandwidth consumption by individual students, and by association P2P use, in the fall of 2003[3] (Cramer 2005). This policy greatly reduced the traffic. Immediately, rates dropped from peaking at over 250Mb/sec to consistently below 100Mb/sec (Cramer 2005). The entire network sped up as a result. The current situation regarding P2P use is a direct effect of the policy in place.

After a quick walk around the campus, today, and one will see that digital music is a pervasive way of life. Duke students are regularly seen listening to Apple iPods, the freshman class of 2008, even, was given iPods upon their arrival to campus. With digital music so prevalent, it begs the question: how do students obtain their music? Do students use online services like iTunes, Napster and MP3.com to purchase their music collection legally? Do students rip CDs onto their iPods? These are two legal means to procure music. However, they can also download songs by means of P2P software, such as Limewire, I2Hub, Bit Torrent, and KaZaA. Additionally, they can illegally transfer songs through such other means as iPod cracks and AOL Instant Messenger. These are the four main methods to obtain music for use on either an iPod or a computer. A survey was conducted to investigate these methods[4].

My survey found that Duke students regularly download via P2P systems. The following charts shows how many Duke freshmen regularly, ever and never download via the four primary methods. 'Regularly' is defined as at least once a week.

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[2] With a TCP/IP network, to handle simple operations, such as viewing web pages, a slow outbound connection will slow down even a flawless inbound connection. Packets requests must be resubmitted (packets are often lost in transit) via outbound requests. The entire network at Duke slowed to a near standstill at times because of the slow outbound data rates associated with P2P traffic.

[3] It stated that any user who had outgoing traffic from his machine of over 5 gB/day would be given a 'ticket.' If a user accumulated three tickets in a semester, he would be effectively turned down to dial-up speeds. More detail will be given later.

[4] See Appendix A For More information regarding the survey.

| | Regularly | Ever | Never |
|---|---|---|---|
| Peer-To-Peer | 42.86% | 60.00% | 40.00% |
| Online Methods | 14.29% | 48.57% | 51.43% |
| Other Methods | 11.43% | 45.71% | 54.29% |
| Rip CDs | 20.00% | 74.29% | 25.71% |

(Cullen 2005) – Statistics are +/- 5% (Note: respondents could reply yes to more than one method)

Additionally, 25% of the freshmen do not regularly add music to their collection. The commonness with which P2P networks are used is high. For every five students who illegally download regularly, only three legally obtains their music. However more students have added music legally at some point than have added illegally. But a plurality of students use P2P regularly and a majority of students have, at some time, used it. While many Duke freshmen use P2P networks with regularity, they don't download from them in large quantities.

I surveyed how many songs each freshman has on his iPod (and as such, on his computer) and how many they add each week. These numbers are from any procurement method described above.

| | < 250 | 250-500 | 500-1000 | 1-2000 | 2-5000 |
|---|---|---|---|---|---|
| Songs On iPod | 5.71% | 20.00% | 20.00% | 28.57% | 22.86% |

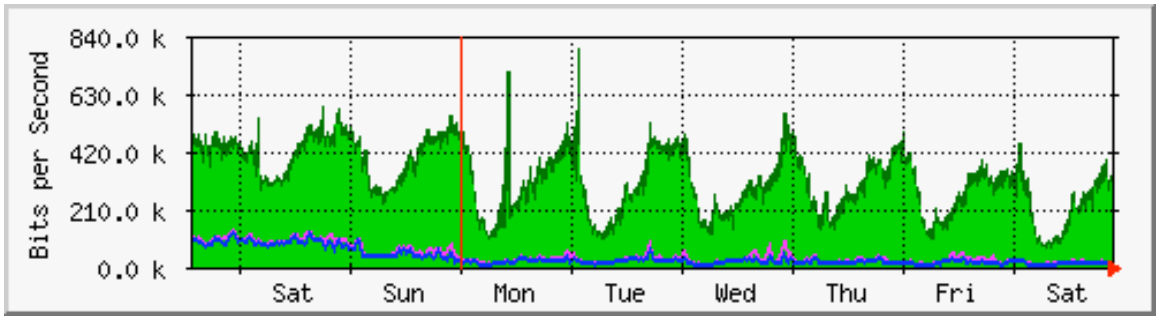
| | <10 | 10 to 25 | 25-50 | 50-100 | 100-200 |
|---|---|---|---|---|---|
| Songs Per Week | 48.48% | 39.39% | 3.03% | 3.03% | 6.06% |

(Cullen 2005)– Statistics are +/- 5%

The average student has about 1000 songs on his iPod. And the overwhelming majority adds less than twenty-five songs per week—half add less than ten songs. Yet, even with this an elite, small percentage do the bulk of the work. In terms of total songs, the top six percent (those who add more than 100 songs per week) of students add more music per week than the bottom fifty percent (those who add less than 10). Chris Cramer, Ph. D, a

Security Officer at OIT, says, “There is definitely a 95/5 rule. 95% of bandwidth will be consumed by 5% of the users” (Cramer 2005).

A look at the Duke’s bandwidth logs also helps diagnose how frequently students download from P2P networks.



(OIT 2005)

This chart shows the inbound and outbound data transfer for a week (Fri 4-8-05 through Sat 4-16) on the East Campus residential network. The green area refers to the inbound traffic rates. The blue line refers to outbound rates. The graph, implicitly, shows how little P2P software is in use on Duke’s network, relative to all traffic. The average outbound data rate over this period is 39.3 Kb/sec and the average inbound rate is 297.1 Kb/sec. While this is not as low as it would be without P2P use entirely, it is far from the rates, before the new policy, of over 250Mb/sec (Cramer 2005). This is an 8:1 ratio of inbound:outbound. Normal ISPs, for instance, will offer a 4:1 ratio on their high-speed services like DSL and cable (Cramer 2005). This is an abnormally high ratio, suggesting that there is minimal P2P traffic going across the network.

**III. Duke vs. The United States**

The Pew Internet & American Life Project conducted a survey in January 2005, to look at downloading tendencies. This is helpful to put the numbers from the Duke freshman class into some perspective with the rest of the Internet population. It should be noted that this survey includes those who download music OR video files from the following sources. But services like iTunes and ByMusic.com are primarily music services. People who use these services are likely to be downloading music. Similarly, people who use P2P Services are also likely to use them for music just as often as movies. Downloading files from an MP3 player is also going to involve almost exclusively music transfer. But on the flipside, I conjecture that the majority of files transferred over AIM will be movie files. Below is a chart depicting downloading tendencies:

**Sources for Current Downloaders**

*Do you CURRENTLY download music or video files from any of the following places? Have you EVER downloaded music or video files from this source?*

| | Yes, currently do | No, but have in the past | No, and never have | DK/Refused |
|---|---|---|---|---|
| An online music service like iTunes or BuyMusic.com | 27% | 8% | 64% | 1% |
| Email or instant messages you receive | 20 | 8 | 72 | 0 |
| Other music-related websites, such as online music magazines or musicians' homepages | 17 | 6 | 78 | 0 |
| A peer-to-peer network like Kazaa or Morpheus | 16 | 17 | 65 | 1 |
| Someone's iPod or other MP3 player | 15 | 4 | 80 | 0 |
| Other movie-related websites, such as online movie magazine or review sites | 7 | 2 | 90 | 1 |
| Music or movie blogs | 4 | 3 | 91 | 2 |
| An online movie download service like Movielink | 2 | 4 | 94 | * |

*Source: Pew Internet & American Life Project Tracking Survey, January 2005. Margin of error for current downloaders is ±6%.*

(Madden 2005)

Only 16% of the Internet community 'currently' (compares with 'recently' in the Duke survey) downloads via P2P and 33% have downloaded from P2P networks at some point. Duke freshman are downloading at about twice this rate from P2P networks. However, Duke students are almost twice as likely to have downloaded from online services, such

as iTunes, also. While Duke freshmen download illegally more often, they also download legally more often too.

This trend has multiple explanations. First, Duke students access the Internet via a high-speed network. This allows students to transfer songs and other files at rates not available to the general Internet community. Second, college students are more technically inclined, as a whole, than the general Internet community. Having grown up during the digital age, they are more likely to be familiar with these means. Only 27% of Internet users download music via some means (Madden 2005). At Duke, nearly every student has downloaded music over the Internet. Moreover, every Duke freshman owns an iPod and, as such, has a stronger reason to acquire music. While Duke freshmen do download music illegally at higher percentages, they also download legally at higher percentages.

**IV. P2P Policy Reviews**

There are a variety of ways Universities have chosen to handle the rush to Peer-To-Peer. Duke has taken up a basic 'don't ask, don't tell' policy where the University will protect its students from the RIAA and MPAA as much as possible, while not restricting transfers (Cramer 2005). The University of Florida implemented software, named ICARUS, which detects the presence of P2P traffic on the Florida network and sends warnings to the offending user (Byrne 2003). At University of California-Irvine, software also detects P2P traffic, but simply puts them at the bottom of the priority list of incoming and outgoing traffic (UCI 2002). On the other end of the spectrum, Penn St. offers Napster 2.0 service to all its on campus students—for free (Times 2003).

The policies of these four universities are thoroughly explained and then evaluated on three points of merit[5]:

A. **Copyright Holders' Rights**

This section analyzes how well the University's policy restricts users from infringing upon copyrights. This will be either via restrictions on student activity or positive reinforcement.

**B. Student Freedom Limitations**

This section discusses the policy as it relates to student privacy and freedom. It questions to what degree the University allows student autonomy to his computer.

**C. Policy Costs**

This section looks at both monetary expense of the program and policies implemented and the transaction costs involved with incorporating the policy.

**D. Overall conclusions.**

Finally, the three previous points will all be considered against each other allowing for the final conclusion based on each policy.

A final policy rating will be given to each of the four Universities based on these categories. This rating will be the basis of a policy recommendation to be given after the evaluations.

[5] Admittedly, there may be more criteria that are relevant to the AUPs than listed here. However, these three have been identified as the three I will use to evaluate the four school's policies.

**V. Policy 1: Duke University**

Duke has a very detailed Privacy Policy for users of the Duke network. However, almost all restrictions fall into the category of security restrictions. Duke, does not though, prohibit transferring copyrighted material across the networks. Specifically:

> Neither the University nor its agents restrict the content of material transported across its networks. While the University does not position itself as a censor, it reserves the right to limit access to its networks or to remove material stored or posted on University computers when applicable University policies, contractual obligations, or state or federal laws are violated. Alleged violations will receive the same academic due process as any other alleged violation of University policy, contractual obligations, or state or federal laws. (Duke 2004)

This policy is very lenient to students and allows them the ability to make their own decisions regarding their use of the network. They have the option of pursuing illegal means, with almost no risk of repercussions, or they can choose to use legal means. Duke's acceptable use policy focuses on security measures to ensure network reliability and security. It does prohibit the use of illegal or pirated software, but not illegal or pirated music.

However, Duke does have a policy regarding system resources. While Duke's Office of Information Technology will admit that P2P networks are the largest abusers of system resources, OIT views network resource consumption and illegal downloading, mainly through P2P, in two separate categories. "Using P2P networks is not illegal," says Cramer (Cramer 2005). OIT's policy for students who are using excessive bandwidth states that should a student have outgoing traffic that exceeds 5 gigabytes/day,

Duke will begin to take action. This 5 GB/day limit is strictly on outgoing data. A student may download (incoming) as much as he wishes with no restriction. Duke will issue four 'speeding tickets' as warnings to the owner of the computer. After the fifth ticket, the owner's network port will be significantly slowed—so as to prevent further excessive use of network resources (Cramer 2005). However, in a given semester, only a "handful" of students will be given a fifth ticket. Duke specifically makes sure to differentiate between prohibiting (and discouraging) P2P use and downloading copyrighted works and the monopolization of a valuable system resource: bandwidth.

**A: Copyright Holder's Rights**

Duke's policy protects copyrights as well as KaZaA or Grokster protects them. While it is within their right, Duke is entirely blind to what is being passed around on their networks. Duke also goes to the fullest extent of the law to protect its clients from lawsuits. Duke requires a subpoena to give the identity of the student at a given IP address, so that the RIAA or MPAA can pursue a lawsuit (Weston 2005).

**B: Student Freedom Limitations**

Duke's policy respects the students' rights and responsibility more than any other policy. It allows them the freedom to download what they want and almost however often they want. However, it also places the burden squarely on the student when he is targeted by the RIAA. This is the appropriate way to handle the situation—it allow the students, who are adults, to make their own decisions, right or wrong, as it comes to downloading music. It then places the consequences of those decisions on their shoulders too.

**C: Policy Costs**

Duke pays for its bandwidth through the NC Regional Educational Network. The bill is split between the three major triangle universities: Duke, UNC, and NC State (Cramer 2005). According to OIT, Duke has an almost unlimited inbound traffic rate and an insignificant outbound rate. Therefore, adding P2P use to campus does not significantly increase the cost of bandwidth. Moreover, the lassie faire policy Duke has adopted does not have a high transaction cost. It is simple to implement and does not require substantial work to maintain it.

**D: Overall Conclusions.**

The Duke policy is very student-friendly. It presumes the students will act in legal manners and does not ensure they are. Economically, it makes sense for Duke to pursue this option. This is the most advantageous policy available to the University.

**VI. Policy 2: University of California—Irvine.**

At the University of California at Irvine, there are no limitations regarding the nature of what is being transferred on the network. UCI does not prohibit or discourage the use of P2P systems. However, UCI has come up with a prioritizing scheme to combat excessive P2P use. Like Duke, UCI differentiates between the illegality of downloading copyrighted material and using P2P networks in general. If bandwidth were free, UCI would likely have no restrictions placed on the network (UCI 2002). However, bandwidth is a limited resource and must be regarded as such. UCI has developed software, which runs on their network, to detect P2P packets being sent out of their network.

> Peer to Peer (P2P) is given a lowest priority, and is limited to 10 mb/s, if the bandwidth is available. Therefore, of the 60 mb/s total bandwidth, only 10 mb/s is set-aside for P2P. We realize that this means extremely slow downloads and problems connecting with other peers; however, the P2P traffic is not "Educational" by its very nature…We found in the past that P2P traffic…consumed such quantities of bandwidth that the legitimate educational uses of not only the residential network, but also the total UCI network suffered. Further, the demands on bandwidth were driving the costs for our Internet Service out of control. (UCI 2002)

UCI sees this policy as a means to keep costs down on bandwidth and protect the network's reliability and speeds. Before this policy, network speeds were slowing because of massive P2P transfer rates.

**A: Copyright Holder's Rights**

This policy protects the rights of copyright holders only slightly better than Duke does. While it may make downloading illegal (or legal) material undesirable due to slow speeds, it does not in any way censor the material coming across the network. Still, though, it does slow down the people who would be generally transferring illegal material and it does make it undesirable to do so.

**B: Student Freedom Limitations**

UCI's bandwidth constraints are based on packet sniffing. UCI claims that they are only concerned "with network performance and which applications are running on the network, not the content of what residents are moving, reading or which web sites are

visited." (UCI 2002) Regardless, opening of packets on their way out of the network opens the door for further invasion and is questionable conduct.

**C: Policy Costs**

As UCI pays for bandwidth per-bit, this policy saves money for UCI. Irvine was spending an impractical amount on bandwidth before this implementation, and has been saving money since: "The more bandwidth used, the larger the cost. In the past, about 2% of the residents would use over 90% of the available bandwidth causing slowdowns and poor performance for everyone." (UCI 2002) It is not realistic to allow 2% of the community to use 90% of the available resources when everyone puts forth the same amount for access to the resources. For that reason, UCI made a good decision to limit the bandwidth of those who use excessive amounts.

**D: Overall Conclusions.**

The policy is somewhat effective at stopping the P2P traffic flow. That said, it is also potentially invasive into a student's affairs. However, the primary goal of network integrity is maintained, as it is impossible for one user to dominate the network traffic.

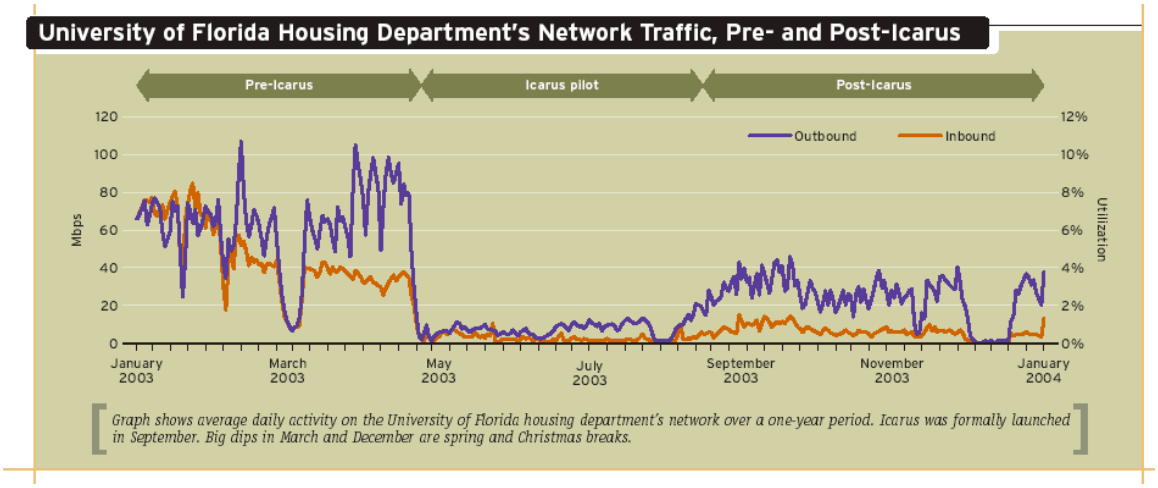
**VII. Policy 3: University of Florida.**

The University of Florida has stopped P2P use dead in its tracks. It has implemented a program called Icarus, Integrated Computer Application for Recognizing User Services, to stop P2P entirely. Icarus is a program that sniffs the network for any P2P data transmission:

> If a student tries using a P2P application, Icarus will automatically send an E-mail and an immediate pop-up warning to the offending user and disconnects the user

> from the network for 30 minutes. A second offence will result in a network cut-off period of five days. A third office will result in an indefinite cut-off and the user is subject to the school's judicial process. (Byrne 2003)

Icarus caught, when it was first implemented in the summer of 2003, 769 first time users. Only 90 dared try a second time to use P2P software, and a miniscule three were caught for a third time. During the fall of 2003, only 300 P2P users were detected, a 90% drop from the year before (Joachim 2004). The graph below shows the bandwidth used on the University of Florida networks:




(Joachim 2004)

While the data over the summer should not be compared with the rest, it is evident how much Icarus has helped in limiting bandwidth and P2P transfer. Data flowing in and out of Florida is a mere fraction of its levels the spring before.

**A: Copyright Holder's Rights**

University of Florida's policy is as restrictive as possible. It shuts off almost all P2P transfer, which makes transferring files illegally much more difficult. While students undoubtedly will find ways around this problem, it is nonetheless a much larger

inconvenience than other policies. This policy would be very suitable to the entertainment industry.

**B: Student Freedom Limitations**

Florida opens each packet going around the network. Just as it did at UCI, this leaves open the possibility for more invasive uses than simply verifying whether or not a packet is P2P transmissions. While not only looking into each file that leaves the campus, it prohibits students from exploring the possible legal uses of P2P systems. While predominantly used for illegal uses, at Florida it is impossible to download material legally via P2P networks without special permission. Restricting every user's freedom to solve a problem that is caused by, admittedly, a fraction of users on campus is not a proper way to solve the problem (Cramer 2005). This policy heavily restricts user freedom and a student's ability to exercise his will on the Internet.

**C: Policy Costs**

Icarus, while it must be maintained and monitored, saves University of Florida a considerable amount of money. They are spending less than half as much as pre-Icarus on bandwidth across their residential network.

**D: Overall Conclusions.**

Florida's system is far too restrictive. It does not allow students to make their own mistakes nor does it allow them to use P2P networks for legal uses—while these may be few and far between, they do exist. A blanket is cast over the network and anything possibly illegal is prohibited. I do not believe such a system is desirable in any scenario.

**VII. Policy 4: Pennsylvania State University.**

Penn State's policy is the final one to be discussed. It is also the most innovative and most different from the first three policies. Penn St, along with a number of other schools[6], have contracted Napster to provide music to all 83,000 students, at no charge (Gardner 2003). Graham Spanner, President of Penn St, says "This will be the first step in a new, legal approach designed to meet student interest in getting extensive digital access to music." (Times 2003) This system is not entirely a free lunch, however. Users will be able to download tethered songs and stream them.

> Streaming downloads are the equivalent to listening to the radio through a computer. The so-called tethered downloads allow users to save songs on as many as three computers. Penn State students will be able to burn downloaded music onto compact discs or transfer them to portable devices for 99 cents each. (Times 2003)

To use the songs on a portable device, fully purchasing them is required. This is seemingly a primary reason to download songs. Moreover, Napster 2.0 is not available on either Macintosh OSX or Linux. The program is funded through an existing $160 per student technology fee. Penn State believes that it can be continually funded without increasing this fee and hopes to expand it to alumni in the future.

**A: Copyright Holder's Rights**

Penn State aggressively pushes legal means to get music. This is different than aggressively stopping illegal downloading. It puts a more positive spin on the issue and encourages good behavior rather than punishing bad behavior. The RIAA and MPAA are

[6] These schools include the University of Rochester, University of Southern California, University of Miami, Cornell University, George Washington University, Wright State University, and Middlebury College. (Kirkpatrick, 2004)

firmly behind this decision and emphatically support Penn State's measures (Gardner 2003).

**B: Student Freedom Limitations**

Since policy encourages downloading music legally and using it within the terms of the license, the Penn State Acceptable Use Policy explicitly prohibits the use of P2P networks to transfer copyrighted material. However with no active features in place to detect P2P transfers, it is very malleable in a technical sense (Hadelman 2005).

**C: Policy Costs**

The policy is paid for out of existing funding. This makes it advantageous to University administrators. However this money must have been diverted from going elsewhere. While there are not publicly available numbers describing how much the agreement costs, it must be over one million dollars are there are 85,000 students for whom the service is being provided. Additionally, it will cut down on outgoing bandwidth use—as all files will be incoming, likely saving the University money.

**D: Overall Conclusions.**

Penn State has taken an interesting approach to the issue of P2P transfer. Encouraging students to download music legally may in fact prove to be the best way to prevent them from downloading it illegally. However, it has the potential to grow in cost and yet still does nothing to prevent illegal downloading other than act as deterrence.

**IX. Recommendation**

The four policies mentioned above all have benefits to different communities. However, Duke's policy stands above the rest as the model for Acceptable Use Policies for three principle reasons. First, it provides students with the autonomy to make their own decisions when it comes to acquiring songs. Second, while does not actively protect the rights of copyright holders, Duke is not expected to fill that role. Duke has a responsibility to its students, not the Recording Industry Association of America. Finally, the plan saves the University a considerable amount of money as students who use excessive bandwidth are dealt with on an individual basis, not a sweeping one.

More so than other schools, Duke's policy gives complete freedom to the students. Both UCI and Florida open packets as they move on the network and investigate what is being transferred. Duke and Penn St. leave the burden of responsibly on the student. It is his job to act lawfully and not download copyrighted works without permission. If there were reasons to suspect a certain student, it would be perfectly acceptable to check his transmissions, but blindly checking every student's email, uploads, downloads, and web activity is not fair to the students. Unless there is reason to believe otherwise, the ISP must assume innocence with its client.

Moreover, when a student is accused of possessing copyrighted works, the University stands idle while the legal system in the United States does its job. This makes sense. If a student is already being prosecuted for, potentially, millions of dollars in court or being charged with a state or federal crime, it is just not decent for a school to continue punishing the student.

This reiterates with who the University should be: the students. The University should be supporting its students and protecting their basic right to privacy and not supporting the Recording Industry or Motion Picture Association. While Duke needs not aid a student after he has been proven guilty, Duke should and does assume innocence. Duke rightly requires appropriate legal measures to reveal the identity of an IP address to an accuser (Weston 2005).

Duke's means of keeping costs down targets only those who use and unwarranted amount of resources. Allowing students unlimited incoming data and limiting them to 5GB/day of outgoing traffic allows students to fulfill every academic and education necessity and near every non-academic use possible. It only, realistically, limits P2P users who upload extremely high amounts of material. As a result of this policy, bandwidth usage dropped less than half of its former rate.

Duke's policy is inexpensive, reliable and hands the students the responsibility to make the best decision for themselves. It also does not hand control to the entertainment industry. One addition to the policy could make it much more appealing. If it were possible to implement a policy where Duke could offer students a low-cost alternative to downloading via P2P networks. An Opt-In plan where students can download songs and albums at iTunes (not Napster's tethered service) would be beneficial to the University. It would encourage students to obtain music legally and would offer a simple means of acquiring them. I believe that a discounted rate from Apple, combined with a subsidy from Duke, would lower prices to a level where students would be willing and able to download them. iTunes would be the method of choice as many students, and all of the freshmen, already have iPods and use iTunes as a media player. Students given the

opportunity to get in at a discounted rate would also be more likely to purchase from the iTunes store after graduating. This kind of policy would be available to all students and might prove to be enough incentive to bring some of the P2P users to the iTunes side.

**X. Final Conclusion**

While Duke's freshman population downloads P2P music at abnormally high rates compared with the rest of the country, the rates for all means are higher than the national population. And compared with the bandwidth rates what which students used three years ago, these numbers are miniscule. The simple policy Duke implemented two years ago, giving out 'speeding tickets', has cut P2P rates down to an almost unnoticeable and entirely tolerable level. Combined with Duke's Acceptable Use Policy, this sets the priorities straight and places the students where they belong: first. It does not try to do the job of the RIAA and it does not invade students' private transmissions. It also does not limit all student activity and only punishes those students who have abused the system. Yet, Duke would be well served by adding a legal mechanism to download music, like iTunes. It would encourage good decisions by the students and if marketed properly could be a very popular service.

Nonetheless, Duke is currently on the right path and making wise decisions. Duke should not change their AUP or modify their current network restrictions. These two policies, combined, offer the best option to both administrators and students alike.

**Appendix A: East Campus Download**

This is a carbon copy of the survey

***Digital Music Survey***

*1) How Often Do You Use Your iPod?*

*Daily Weekly Monthly Bi-Monthly Never*

*2 ) I Download Music From P2P Systems (ex KaZaA, Bit Torrent, Limewire):*

*Daily Weekly Monthly Bi-Monthly Never*

*3 ) I Download Music From The Web(ex MP3.com, iTunes):*

*Daily Weekly Monthly Bi-Monthly Never*

*4 ) I Download Music From Other Methods (ex AOL Transfer, iPod Transfer):*

*Daily Weekly Monthly Bi-Monthly Never*

*5 ) I 'Rip' Compact Disks to my iPod:*

*Daily Weekly Monthly Bi-Monthly Never*

*6) How Many Songs Do You Have On Your iPod?*

*7) How Many Songs Do You Add To Your Collection Per Week?*

*Thank you for completing The Survey!*

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All Of The Data Used Was Shortened from The Following Data. This Was Done To Make It Correspond To The Pew Survey.

| | Daily | Weekly | Monthly | Bi-Monthly | Never | |
|---|---|---|---|---|---|---|
| Use iPod | 23 | 9 | 3 | 0 | 0 | |
| Use: | Daily | Weekly | Monthly | Bi-Monthly | Never | |
| P2P | 4 | 11 | 4 | 2 | 14 | |
| iTunes | 2 | 3 | 8 | 4 | 18 | |
| Other | 0 | 4 | 7 | 5 | 19 | |
| Rip CD | 1 | 6 | 11 | 8 | 9 | |
| | < 250 | 250-500 | 500-1000 | 1000-2000 | 2000-5000 | >5000 |
| Songs on iPod | 2 | 7 | 7 | 10 | 8 | 1 |
| | <10 | 10 to 25 | 25-50 | 50-100 | 100-200 | >200 |
| Songs Per Week | 16 | 13 | 1 | 1 | 2 | 0 |

The survey was conducted with thirty-five random freshmen. This was accomplished by selecting two floors, one in Gilbert Addoms—the other in Blackwell, to place a survey under their door. Students are randomly assigned to their dorms. Students were required to return the survey to an RA on that floor. One hundred sixty three surveys were distributed. Thirty-five were returned. This results in a +/- 5% statistical margin of error to compare to the entire freshman population.

**Works Cited**

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