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Explaining the rise and fall of the Warez MP3 scene: An empirical account from the inside

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Abstract

Warez is a virtual, global network of people copying, cracking and distributing copyrighted digital artifacts. This paper gives an empirical insider account of the waxing and waning of the Warez music sub-community known as the 'MP3 scene'. Afforded by the MP3 file format, this playful yet proficient piracy practice grew exponentially from 1995 to 2004–2005, and then withered. Our objective is to explain both the rise and the fall of the MP3 scene. We argue that a self-motivating virtuous cycle of passion in We-mode, supported by technological and organizational factors, was the engine for growth. Unforeseen and unintended side effects of the same factors, however, gradually made this engine of passion come to a halt. The dominant mode of sociality had slowly shifted from a "We-mode" to an "I-mode" technoculture. The communal spirit kindling in the early years was replaced by a more market-like form of sociality. Technological and organizational arrangements can connect people, but may also disconnect them.

Contents

Introduction

This paper tells an inside story of the waxing and waning of the music sub–community of Warez: the MP3 scene. Warez is a global, virtual network of people copying, cracking and distributing copyrighted digital material, such as movies, games and software. The history of this hypogeum of the Internet can be traced back to the early 1980s, when piracy occurred on bulletin board systems. The days of using telephones and modems to access these cumbersome systems ended in the 1990s with the availability of the http protocol, Internet relay chat (IRC) and the file transfer protocol (FTP). Disseminating digital objects and forming groups with worldwide reach had never been that easy. As a result, Warez evolved into a 'global microstructure', which is described as "forms of connectivity and coordination that combine global reach with microstructural mechanisms that instantiate self–organizing principles and patterns" [1]. The MP3 scene soon developed into the primary provider of most pirated artifacts on the Internet.

The MP3 scene emerged in 1995 shortly after the introduction of the MP3 file format, which could be played on every computer. Historically, the people involved were the first to share digital music

in an orderly, organized manner, preceding Napster and other music–sharing networks.

On the MP3 scene, music was ripped in the MP3 format by so–called release groups. These groups were either specialized on a particular genre (such as dance, electronics, pop, jazz and folk) and/or on a specific source (*e.g.*, compact discs, tapes, vinyl, radio broadcasts and live recordings). Release groups usually consisted of one or two founders, four of five senior members as staff and a varying number of rippers. The rippers were the actual suppliers of new releases, who habitually published just about everything they could lay their hands on from record shops, record labels, music studios, CD–pressing factories, music events or the artists themselves.

All release groups collaborated with each other to create a lively underground MP3 movement for music lovers to share their releases among themselves, even though eventually music leaking to other music–sharing networks could not be prevented. Driven by non–monetary rewards only, release groups were also constantly engaged in mutual competition to get releases up as fast as possible. Continuously being the first with the latest was the yardstick of pleasure and prominence.

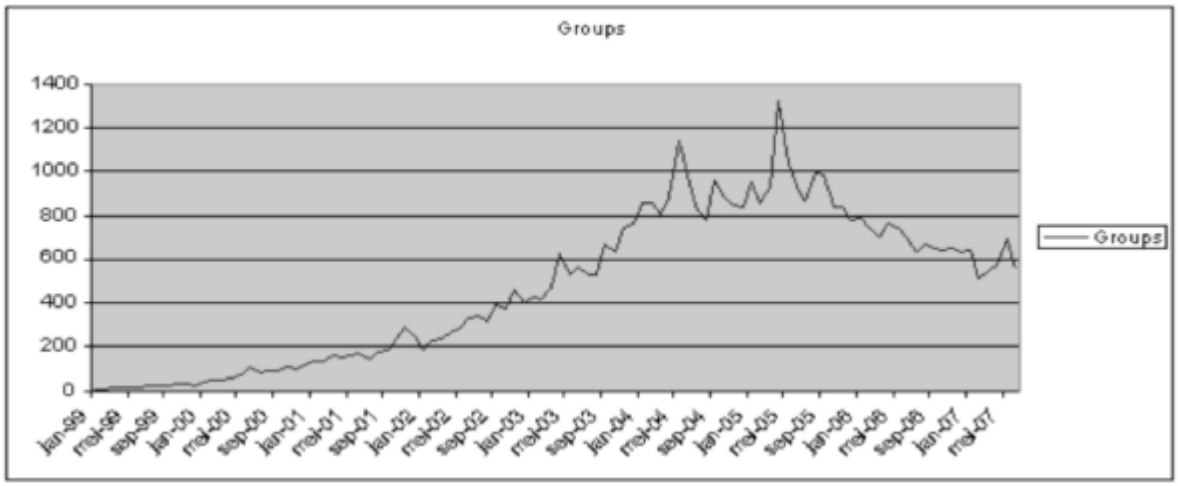

Figure 1: Number of groups releasing per month from January 1999 to May 2007.

In 2007, the database of Warez releases [2] that contains information about the 2.6 million files, released between January 1999 and May 2007, was accidentally leaked. We have statistically analyzed the information on the 1.2 million releases that originated from the MP3 scene, which resulted in Figures 1 and 2 (for more information on this analysis, see the next section).

Figures 1 and 2 illustrate the rise and fall of the MP3 scene. In terms of the number of active release groups per month and the number of monthly releases, the MP3 scene grew exponentially from its emergence to 2004–2005. After these peak years, both indicators demonstrate a strongly declining involvement with the scene. The number of active release groups per month more than halved in two years, and in 2007 the number of monthly releases had dropped by almost 40 percent compared to its all–time high in 2004. More importantly, many of the music fans who had shaped the scene abandoned the network, sometimes disillusioned, as interviews with our informants indicate. Their dissatisfaction with how the MP3 scene evolved suggests that more was going on than what can be read from Figures 1 and 2.

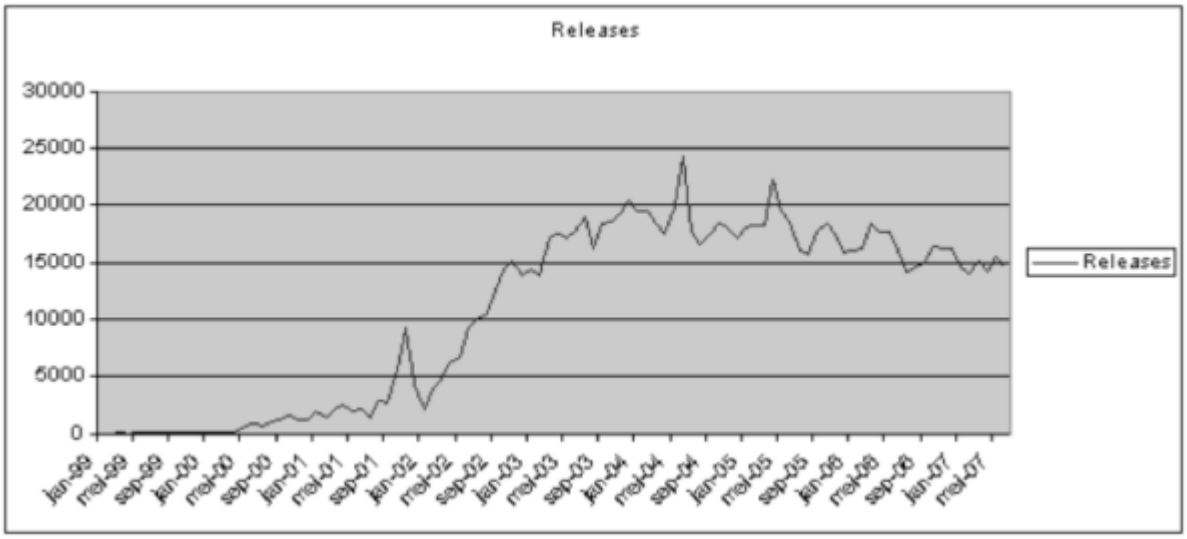

Figure 2: Number of monthly releases from January 1999 to May 2007.

The objective of this article is to find explanations for both the rise and the fall of the MP3 scene. What are the underlying dynamics explaining the scene's waxing and waning over time? In this way, we aim to provide insights into the inner workings of a piracy practice in the middle of a period of cultural change. In what follows, we first briefly present the research methodology used in our ethnographic study. We then consecutively explain the scene's waxing and waning over the years. Finally, this paper ends with some concluding remarks about its contributions to the research traditions that study alternative forms of organizing and sociality found on the Internet.

Research methodology: A connective ethnography

To shed light on what caused the MP3 scene to wax and wane over time, we have conducted a connective ethnography (Hine, 2000; Dirksen, *et al.*, 2010). Warez and the MP3 scene have been studied before (Tetzlaff, 2000; Rau, 2004; Rehn, 2004) but to the best of our knowledge never 'from within'.

Traditionally, the objective of ethnographic studies is to build "theories of cultures — or explanations of how people think, believe and behave — that are situated in local time and space" [3]. Computer–mediated social interaction, however, is not restricted to geographical locales, but also connects people, texts and other digital artifacts across time and space. For this reason, Hine has coined the term 'connective ethnography' to revise the traditional concept of ethnography and open the way for "designing a study which is based on the connections within and around the Internet" [4]. The objective of ethnographic studies remains, however, to describe and explain how cultures are shaped by people's understandings and expectations.

Our connective ethnographic study combined four research methods: statistical analysis, online semi–structured interviews, online participant observation and literature study.

As noted earlier, we have statistically analyzed the information of the 1.2 million MP3 files that was part of the leaked database of Warez releases. The entire database contains information about 2.6

million files released between January 1999 and May 2007, which implies that music accounted for the largest and most active practice of Warez in these years. Two PHP scripts were specifically written to extract the number of monthly releases per release group, the groups' total releases, the number of group's releases that had been rejected (so–called 'nukes' [5]) and the dates of the first and last release per group. The outputs of these scripts were converted into a dataset that suited the statistical software used, which resulted in Figures 1 and 2. Significant peaks and valleys in these figures reflecting the rise and fall of the MP3 scene were subsequently discussed in interviews with our informants.

Second, the online semi–structured interviews entailed five in–depth discussions with seasoned 'sceners' on their personal stories of, and motives for, participation in the MP3 scene, the historical development of this network of people, the critical events determining its course and on plausible futures for the scene. Interviews with 15 other sceners illuminated specific topics that needed better understanding. All informants, carefully selected on the basis of experience, age and the role played on the scene, were guaranteed anonymity. The interviews were held on IRC and varied in length from 30 minutes to five hours. When an issue remained unclear, the informants were approached a second time.

Third, online participant observation of different release groups and individuals interacting on IRC was applied for six months. IRC connects all participants of the MP3 scene in chat channels. For our participant observations, we have used the IRC networks EFnet and LinkNet. In general, active and prolonged engagement in real–time virtual interaction and making field notes of our observations gave us more insight into the scene's computer–mediated piracy practice and its dynamics of producing and transforming culture. Combining the field notes with the interview data enabled us to connect and compare 'what people say they do' in interviews with 'what they actually do' online.

In the case of data analysis, starting with the broad themes 'rise' and 'fall' of the MP3 scene, the collected interview texts and field notes were marked with initial codes. In next rounds of analysis codes evolved into sensitizing concepts, which assisted in further data gathering and analysis. Going back and forth between data collection and analysis as well as between the different research methods applied added layers of understanding to our study. We continued to validate preliminary findings until we found plausible explanations for the patterns depicted in Figures 1 and 2.

Lastly, a literature study was performed at all stages of our study to get more information on the scene itself, to enrich our understandings of the sensitizing concepts guiding our study and to substantiate our research findings. Sources that inspired us the most mainly came from social theory, analytic philosophy, psychology, organizational theory and IS/IT literature.

Explaining the rise of the MP3 scene

The release groups of the MP3 scene were commonly composed of participants coming from different geographical regions and living in various time zones. One informant gave an example:

> "My group had members from all over the world, the biggest percentage being from Sweden, but generally all over like U.S., U.K., Germany, Denmark, Canada and others."

How did internationally dispersed people, mostly male youngsters, managed to cooperatively create and sustain a non–commercial piracy practice? Our study proposes that the rise of the MP3 scene is explained by a combination of relational, technological and organizational factors.

Relational factors

In the early days of the MP3 scene, ripping, releasing and distributing a MP3 file was a time–consuming and knowledgeable activity, prone to mistakes and duplicate work that required a joint effort of many different sceners. After discovering new music, a ripper ripped the tracks and converted them into MP3 files. He then checked the scene's database to verify if the music had already been released by another group. If not, the ripper packaged the file by giving it a correct file name, filling the MP3 tags with accurate information, applying a Simple File Verification (.SFV) to verify the file's integrity and including a .NFO file for contact details and credits.

The next step was to upload the release to fast topsites or FTP servers, which acted as the hosts and distribution centers of Warez (Bounie, *et al.*, 2006). Topsites, usually located at a university, campus, Internet service provider, private company or hosting provider somewhere in the world, attracted release groups by providing them with access accounts that could be given to groups' members. The best topsites were connected to the best release groups. A higher status and ranking for topsites meant that they could increase their hardware donations and improve their specifications, which in turn attracted more of the higher ranked release groups.

Topsites were generally managed by a link operator providing the Internet connection, a box operator taking care of funding, assembly and transportation of the required hardware, a coder scripting, configuring and securing the site and a trustee as the marketer to attract release groups. Being the ideal targets for police investigations and actions, security was always high on their priority list. Moving topsites around different links throughout the year to mask their existence was, for instance, regular practice.

After a release group had uploaded a file to a topsite, it was checked by other group members and 'nukers' for duplicates and quality before being distributed to the group's private domain on affiliated servers throughout the world. When the release was completed on all these sites, the file was moved to the group's public domain, a process called 'pre–ing'. Finally, the new release was announced on site channels and disseminated by couriers to non–affiliated Warez servers.

In short, the production and distribution of contraband music involved a lot of time and thought from rippers, other members of their release groups, and technicians, operators, suppliers, nukers and couriers managing topsites. Additional time and energy was spent on chatting online, providing, for example, assistance or sharing excitement over winning a new release. There is no exact data on the average time spent on Warez activities, but it is estimated that 40 to 60 hours per week was not uncommon (McCandless, 1997; Rehn, 2004). What drove sceners to voluntarily engage themselves to such degrees?

Indicating a willingness to sacrifice time and effort, passion is a prerequisite for voluntary and intensive involvement on the MP3 scene. While it is highly underrated in the management literature, passion is a strong predilection for any endeavor (Gherardi, *et al.*, 2007). As our informants explained, sceners experienced strong feelings of enthusiasm and excitement for not only music and musicians, but also for online conversations over their activities. It is in these conversations that participants acquired and developed a 'taste' (Gherardi, 2009) for the practice, which enabled identification with the MP3 scene and distinction from others (Bourdieu, 1984). The passion of participants was mediated by technologies that allowed them to connect and socialize with a distinct, global community, leading to emotional attachment, commitment and identity (Benzecry, 2012). As one informant told us:

> "I think the scene in some way saved my life. It gave me a solid reliable brick in my life while in my real life, nothing positive was happening."

The main motivation for being passionate about the scene can be best described as the experience of a flow state and the pleasure that derived from it. Being in a flow is an optimal state of intrinsic motivation where the person is so intensely immersed in the activity at hand that everything else is temporarily ignored (Csikszentmihalyi, 1990). Feelings of focused concentration and full absorption in what people are doing are accompanied by spontaneous pleasure in the process of the activity, such as when preparing a hard–to–get rip for release. Self–motivating flow states occur when the task is challenging and matches the skills of the person involved. When a mismatch occurs, boredom or anxiety ensues. If both the levels of challenge and skills are low and matched, apathy is the outcome.

The pleasure residing in flow leads to a recurrent desire for more (Linstead and Brewis, 2007; Kaiser, *et al.*, 2007). There was always more to discover and learn on the MP3 scene about, for example, new artists coming up, new songs appearing, new events to cover, new, more efficient technologies to master or new skills to acquire. As one informant articulated:

> "I joined SE [a release group], because their releases were the best quality compared to everyone else. I wanted my rips to be the best quality too and I had to learn a lot before they were!"

Passion is expressed in such ongoing desire that stimulated sceners to increase their engagement in activities they were passionate about. Moreover, investing more knowledge, skills and time on the MP3 scene intensified rather than diminished the effects of flow experiences. Success begot success, for instance, in the form of getting more topsites affiliated to a release group.

Beyond the intrinsically rewarding flow experiences, we can report that socially extrinsic factors amplified the passion witnessed on the MP3 scene. Different sceners played different roles, but they were all involved in 'a competitive game' (Rehn, 2004). Seniors managing a release group, for instance, aimed to get more topsites affiliated, thereby enhancing the group's status (Hennion, 1997, 2001). As one of them asserted in an interview: "Topsites are like currency in many ways."

Rippers, to give another example, were ranked according to their ability to continuously release new files before anyone else, preferably before the official commercial release (a pre–release or 0day release), which gained them credits and access to topsites. If the new release turned out to be a duplicate or was of dubious quality, however, this 'dupe' was 'nuked' and erased from the servers, which negatively affected the ranking and, hence, the status of the responsible ripper and his release group.

Whatever the role played, sceners were generally signaling their competences by actively participating in the piracy practice and its often knowledge–intensive conversations on IRC, which, if successful, resulted in social recognition and reputation among peers (Rehn, 2004; Kaiser, *et al.*, 2007). On their turn, these extrinsic rewards fuelled their passion and their willingness to engage themselves in the scene.

The last passion–eliciting factor following from online participant observation and interviews is the copyfight culture shared on the MP3 scene. The illegal infringement of copyrighted music soon caught the attention of the traditional music industry and its institutions, such as the Recording Industry Association of America (RIAA), which tried to protect their commercial interests by actively opposing piracy. Several international investigations by the police, FBI and CIA, amongst others, followed.

Conversely, the MP3 scene accused the music industry of merely using defensive and outdated tactics not in line with the possibilities afforded by novel technology and fought the suppression and criminalization of downloading music. The MP3 scene resembled what Lash (2002) calls 'disorganizations', the non–organizational and often non–institutional forms of sociality that are

made possible by the information society. In his eyes, the emergence of these new forms of sociality does not imply the absent of conventional organizations, but their decline. Disorganizations "are the unintended consequences of the rational choices of organizations" [6]. Hence, following Lash, the emergence of the MP3 scene was a direct, albeit unforeseen effect of the defensive strategies and tactics of the music industry itself. The industry's defensiveness towards the future together with the idealistic belief shared on the MP3 scene that music should be freed from commercial interests and the threat of criminal sanctions (Goldman, 2005) deepened the relational bonds among the scene's 'disorganizers'.

In summary, the dynamic underlying the MP3 scene was a self–motivating virtuous cycle of intrinsic flow experiences, extrinsic rewards, and a 'copyfight' culture stimulating feelings of spontaneous pleasure and a recurrent desire for more that powered participants' passion for music and knowledge, and their emotional attachment to and identification with the scene, which, on their turn, reinforced members' intrinsic and extrinsic motives for participation.

In this way, passion living on the MP3 scene weaved together the individual sceners, their evolving piracy practice, their communal groups, relational media, MP3 files as desirable objects and the environment in which these tight relations emerged. Discussing the role of music in sociality, Schütz [7] put forward that the sharing of each other's flux of experiences establishes "the mutual tuning–in relationship; the experience of the 'We', which is at the foundation of all possible communication". While Schütz was writing in a different era, a similar kind of We–mode sociality typified the scene's sharing technoculture.

Sociality can be defined as "social forms of binding self and others" [8]. Seeking the primary source of sociality in contemporary times, Knorr Cetina stresses the inherent incompleteness of epistemic objects that are always simultaneously ready–to–use and in–the–making, in conjunction with people, who desire to continuously refine and develop these 'affiliative objects' (Suchman, 2005), such as music and MP3 files. According to Knorr Cetina (1997), the passion of knowledge, of what we do not know yet, is what binds us in what she calls 'object–mediated sociality'. People flock together around the objects they like to live with, as on the MP3 scene.

Our data suggest that this passion in We–mode (Psarros and Schulte–Ostermann, 2007; Gilbert, 2000) was the defining feature of the MP3 scene's sociality that attracted many kindred spirits from all over the world. In the words of an informant:

> "Needless to say I got more topics to talk about with many people on IRC than with most of the people I know in 'real' life. 'Real' life, because IRC is real too."

And many sceners formed tight friendships with each other, as another informant exemplified:

> "I consider them the real people — yeah — they are friends. We all make time for each other. If one person is having a bad time, we listen. It's a great thing having someone you can talk to that is totally removed from your life. You don't have to mince words. It's a great thing, I mean, that is what defines real friendship for me, being able to be totally honest with someone."

Technological and organizational factors

Apart from the relational factors just discussed, technological and organizational factors help explain the rise of the MP3 scene. These factors supported the self-reinforcing virtuous cycle of passion in We–mode described in the previous section. According to our informants, the following

five events were critical in the historical development of the scene: standard setting by BeatForge, the formation of the MP3 Council, the enforcing of Dupecheck, the adoption of prebots and accepting the Web as a valid source of new releases.

In the first years after the MP3 format was introduced in 1995, life on the MP3 scene was chaotic. There were no structure to speak of, no rules, no quality standards and no system registering which groups had released what music. It was therefore common practice that different individuals or groups released the same music, using dissimilar methods and quality levels.

In 1998, BeatForge was the first group to systematically work according to self–imposed standards.

> "I see BeatForge as the first truly organized group. They started setting standards. Their existence prompted the beginnings of the MP3 scene. If it wasn't for all the BeatForge rips, I think it would have taken another year or two to take off the way it did."

This first attempt to organize the MP3 scene was followed by the formation of the MP3 Council. Established in 1998 by senior members of experienced release groups, the Council became the authorized unit to regulate the piracy practice with the purpose of uniting and ordering the MP3 scene, increasing its efficiency and security and promoting cooperation and competition among the release groups.

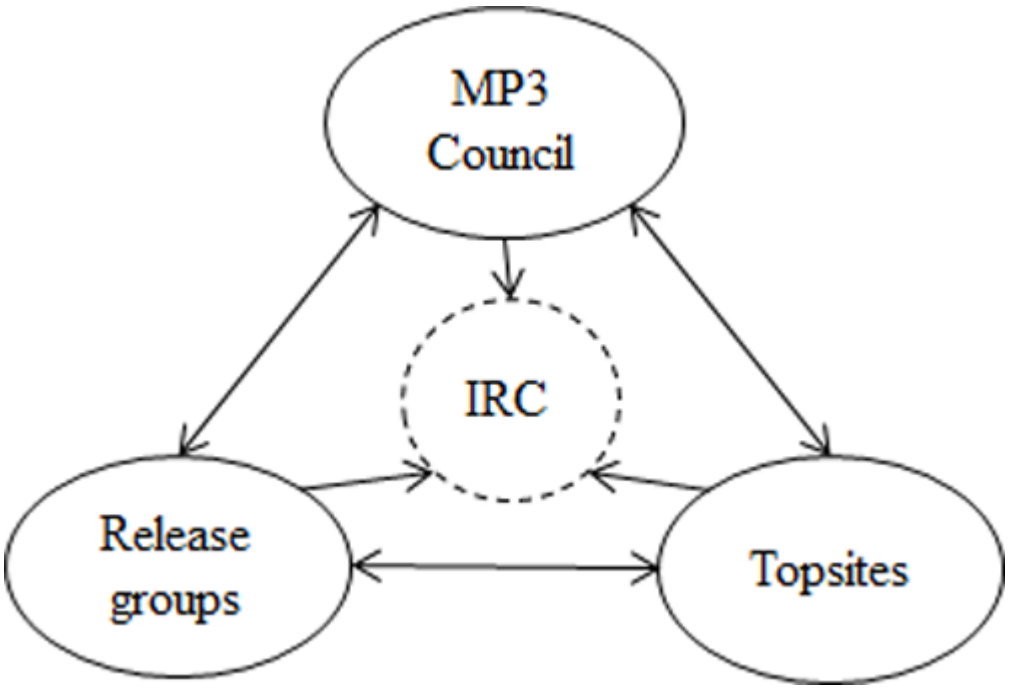

Figure 3: Structure of the MP3 scene.

The regulatory unit improved the Scene's structure, which now consisted of the following elements: the MP3 Council regulating the minimum organizational measures needed, the release groups ripping and releasing music, topsites hosting and distributing new releases and IRC as the communication channels for all participants of the MP3 scene (see Figure 3).

The greatest efficiency gain sought after by the MP3 Council was to be found in avoiding duplicate releases so that release groups could focus themselves on making truly original music available. For release groups to accept and trust each other's work, two improvements needed to sort effect.

First, a small set of standards, rules, guidelines and procedures was created and enforced to maintain a minimum release quality level. For instance, releases had to be encoded and compressed in MP3 at a certain bit rate by an approved MP3 encoder, such as LAME, had to contain a .NFO file containing information about the release and the release group and a .SFV file to check the validity of files after transfer.

Second, a central registration system was needed to check and prevent the release of duplicates, that is, MP3 files duplicating previous releases of other groups. This system — Dupecheck — was implemented in 1999. Dupecheck is a robot or script that monitors the IRC channels of connected topsites for new releases, which are then stored in its database. The robot is also connected to a control channel from where it is possible to control the bot and search its database of validated releases. If a duplicate had been released, authorized 'nukers' marked it as such, after which it was erased from the server.

Release groups and couriers used Dupecheck to verify if particular music had already been released, or not. It could also be queried for detailed information, such as file content and date. Hence, Dupecheck was instrumental in turning the MP3 scene into a competitive game, because as of its implementation only the first and fastest group could be credited with novel releases. Who came second was duped and gained no credits.

The increased competition among release groups created the need to release music faster and more efficiently, which resulted in the adoption of the prebot in 2000. Prebots automatically distribute new releases to affiliated topsites, which solved geographical and time zone related issues. For instance, a senior in the U.S. did not have to set his alarm clock anymore to spread, pre and win the release of a Dutch ripper.

The last critical event mentioned by our informants that helps clarify the rise of the MP3 scene was the acceptance of the Web as a valid source of new releases. In 2003, online music stores, such as Beatport and DisCogs, appeared on the market, which offered new releases that could be directly bought in MP3. These Web releases were originally banned from the MP3 scene, but after internal discussion and an increase of MP3 quality they were allowed in late 2004.

In our opinion, these five critical events have contributed to a sharp increase in new releases per month and active release groups over the years 1999 to 2004–2005, as can be seen from Figures 1 and 2.

Explaining the fall of the MP3 scene

Figures 1 and 2 also inform us that active participation on the MP3 scene and the amount of new releases significantly dropped after the peak years of 2004–2005. In this section, we will indicate that unforeseen and unintended consequences of the same relational, technological and organizational factors as mentioned in the previous section caused the MP3 scene to decline.

We take Figure 4 as the starting point for discussion. The MP3 scene is located at the top of the depicted pyramid, meaning that it has the highest degree of We–ness, the highest degree of time spent on music activities and the smallest user base compared with private torrent networks, newsgroup binaries and peer–to–peer networks. Figure 4 also visualizes the process of distributing MP3 files leaking from the MP3 scene: from top to bottom.

We argue that sceners generally spent more time on getting a MP3 file than the music downloaders of the alternative networks, because they were also actively involved in creating new releases for which they collaborated in groups with a strong sense of We–ness. Private torrents and newsgroups were located in the middle and peer–to–peer networks at the bottom, because personal involvement in these networks is mostly restricted to launching a favorite client and downloading releases. Usually, peer–to–peer users were mainly interested in obtaining particular MP3 files, which was the reason for sceners to ignore and sometimes even oppose those networks.

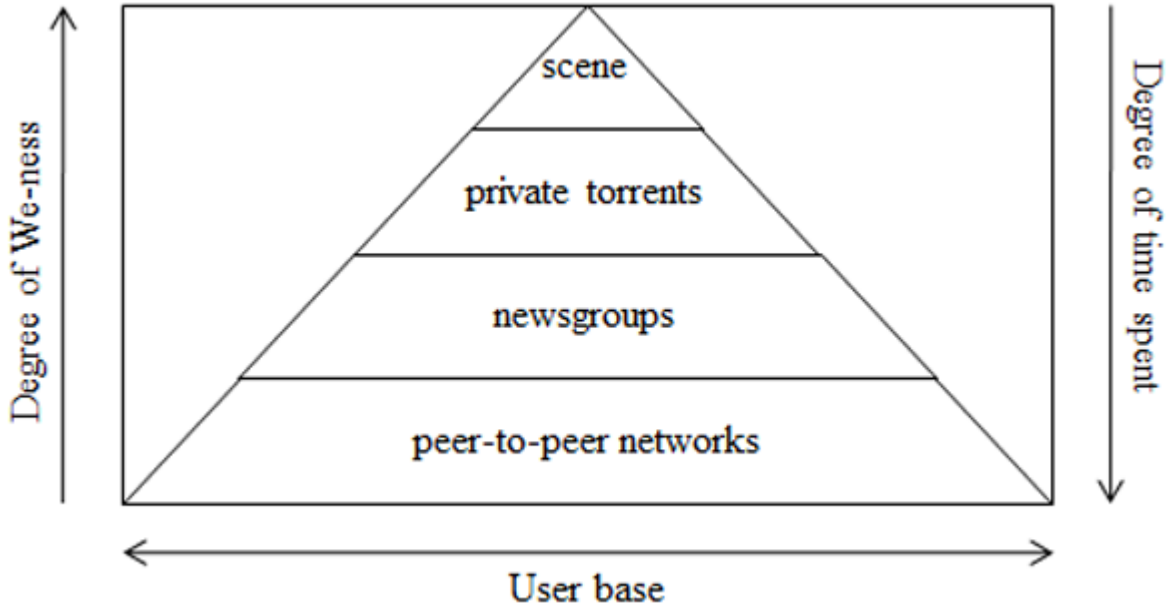

Figure 4: The scene versus other networks.

The pyramid of Figure 4, however, gradually began to crumble, which started with new technologies arriving over the years. Some examples of technological inventions with smaller and larger ramifications on the pyramid were developed within the MP3 scene: prebots, advanced proxy servers (a security measure used to hide identities and encrypt traffic as a result of increased attention by FBI and other governmental agencies), zipscripts for giftpd (to get additional features on topsites) and eggdrop tcl scripts (eggdrop is an IRC robot to observe channels and react to triggers; tcl is a programming language used to script services such as ripper status and private databases).

More generally, the overall technological development in society resulted in faster Internet connections, larger hard drives, lower costs, increasing bit rates leading to MP3 files of higher quality and, most importantly, a more efficient and less complicated process of ripping, releasing and distributing new releases. Over time, this process became less prone to error and re–work, required less specialized knowledge and skills, demanded less time and effort and individual sceners needed less assistance from others to fulfil their tasks. This de–skilling of sceners' tasks considerably reduced the social interaction on IRC. All informants noticed this drastic change.

We discussed with our informants the effects of the implementation of Dupecheck, adoption of prebots and acceptance of Web releases on the intensity of social interaction in chat channels. With regard to embracing prebots one informant said:

> "Before the prebot, members were really excited and waited for a particular ripper to finish his upload so that the seniors could distribute it to the sites faster than another group. During that process all the members were very chatty and excited about winning this release. After I introduced the prebot, things sped up, but I noticed less social activity in the channel."

Another informant argued that the prebot caused an increase in interaction on IRC:

> "I found increased interest, it was exciting. Seeing the prebots spreading all day doing release after release. It actually promoted talk about each release. As a release would be listed, people would ask about it, download it, talk about how shit it was or how special."

Taking both perspectives into account, it seems that the introduction of the prebot stimulated interaction around the release groups, but decreased the groups' internal conversations.

One informant was brief, when asked to explain the decreasing interaction among peers on the MP3 scene:

> "Well, that's the result of Dupecheck and all the new groups starting up after we accepted Web releases."

After analyzing data from interviews and participant observations, we argue that it is unfruitful to pinpoint one technology or one organizational action as the turning point in interaction intensity within or among release groups. Instead, we hold that overall technological development in general and critical events, discussed in the previous section, specifically reinforced each other and resulted in a gradual process of cultural change on the MP3 scene.

This change entailed first of all, the commodification of the MP3 file. Producing a MP3 file had become much less knowledgeable and time–consuming and the product an economic good as any other. A winning release was once a trophy to be celebrated with peers, now it had turned into a commodity embedded in an economic calculation that could be bought at online music stores or easily downloaded from peer–to–peer networks. A cognizant craft had slowly turned into a de–skilled routine. "The brighter the software, the dimmer the user." [9]

Contributing to the commodification of the MP3 file was a technological trend leading to faster Internet connections. Faster connections implied that the time between a new release becoming available on the MP3 scene and its availability on peer–to–peer networks significantly reduced. This development negatively influenced rippers' motivation to participate. Rippers, usually dedicated music lovers well connected to music sources and topsites, had lost their 'competitive advantage' and the status that once came with their work.

Second, the cultural change on the MP3 scene involved a large influx of new release groups and a MP3 overload that mainly resulted from the decision to allow Web releases. At the risk of stereotyping, these newcomers entering the scene usually had a different mindset and different motives for participation. Generally, they were less passionate about music, less committed to the scene and peers, less emotionally engaged, less interested in interaction with others and more self–interested. Consequently, the virtuous cycle of passion in We–mode slowly but surely dissolved as a result of social erosion.

A MP3 file that can be so easily obtained was not interesting any longer for ‘old school’ sceners. Their proficient skills did not match reduced challenges, hence boredom ensued as predicted by Csikszentmihalyi (1990). If bored, people start looking the other way, which is precisely what happened with many sceners. They went silent or left the scene. Technological and organizational arrangements can connect people, but may also disconnect them. Here is one of those who detached himself from the MP3 scene:

> “Back in 2001, in the time we’ve been talking, there would have been 20–30 pages of chat in group channel, now there’s been none. In 2001, I’d wake up and read the backlogs of chat. It’d take about 30–45 minutes. I used to get a great laugh out of it seeing people talking about good releases — so I knew what was worth getting, none of that happens anymore. Nowadays I don’t even bother to scan a daydir ... It started to die off in 2002–2003. I haven’t downloaded a MP3 in six months.”

When we asked a former member of the MP3 Council if anything could have been done about the cultural change taking place, he reflected with the wisdom of hindsight:

> “The biggest mistake we made in the MP3 council was not putting major restrictions on groups, like we should have said, these groups are accepted; any others that pre — we nuke or steal and re–rip. If we had have done that, I think things would still be great in that sense of sharing. [Interviewer: Restricting groups from joining?] Yep, creating a whitelist of groups that can pre any others, they don’t count. That would have stopped it though, those people would have gotten on small sites, sure, but not real ones.”

Institutionalization is needed in any practice that aspires to professionalize itself (Gherardi, *et al.*, 2007). The creation of the MP3 Council regulating the piracy practice and implementing systems was such an act of institutionalizing. A key characteristic of global microstructures, however, is that they are institutionally ‘light’ (Knorr Cetina, 2005), meaning they are viable only if complex institutional structures are avoided. What the above quote implies is that the MP3 scene remained too institutionally light. Nobody can tell for sure what would have happened if access to the scene had been restricted, but a smaller disorganization would have at least counterbalanced the cultural change to some degree.

This observation corresponds to research by Asvanund, *et al.* (2004), examining network externalities in peer–to–peer music–sharing networks. Using an economic perspective, their findings propose that the optimal size of a peer–to–peer network is bounded: when the network reaches a certain size, the costs that a marginal user imposes on the network will be larger than the value he brings to the network. Many newcomers to the MP3 scene in the years 2003–2005 were ‘marginal users’.

Different researchers have studied the notion of sociality in the context of, amongst others, blogging (Kaiser, *et al.*, 2007), Linux developers (Lash, 2002) and Warez (Rehn, 2004). According to Rehn, the primary feature of the sociality of the Warez software community is gift–giving behavior, a perspective also mentioned in Kaiser, *et al.* (2007). Rehn avows that software releases given as a gift to peers is a symbolic way to establish hierarchical relations in a community. The ripper who produces the most and best releases will be found at the top of the hierarchy of status. Rehn’s conclusion is that the very existence of this Warez sub–community evidences “the *possibility* for gift

economies, even in modern societies, and thus act(s) as a counterpoint to the belief that hegemony of the market economy is total and final." [10]

Fiske (1992) identified four archetypal modes of sociality, of which the communal mode found on the MP3 scene is one. The point here is that he predicts that anything of value will be commoditized sooner or later and that the market mode of sociality will prevail.

One finding of our study is that we cannot refute Fiske's hypothesis. Technological improvements invented by sceners and overall technological development led to a de–skilling of the once knowledge–intensive process of ripping, releasing and distributing music. As Carr [11] asserts: "Software can end up turning the most intimate and personal of human activities into mindless 'rituals'." As a result of these technological developments, MP3 files became commodities, economic goods that were consumed with no participation in their production.

Our second finding relates to another aspect of the scene's changing technoculture. The dominant sociality mode of the early days was what we have called 'passion in We–mode', the dynamic underlying the rise of the MP3 scene. However, the organizational decision to accept the Web as a valid source of new releases led to a MP3 overload on the scene. Moreover, the de–skilling of sceners' jobs caused a large influx of new release groups with different, more self–interested motives for participation. Consequently, the scene's dominant mode of sociality shifted over the years from passion in We–mode to a more market–like sociality in which the "I" increasingly supplanted the "We", as predicted by Fiske (1992).

These cultural transformations explain the scene's fall as well as affirm Fiske's theory of sociality. This outcome of our study could not have been found if we had taken gift–giving as the main feature of sociality. If we examine the MP3 scene today, we would still see a gift economy. Gift–giving behavior has not changed on the MP3 scene, instead there has been a change in the passion in We–mode.

Our last conclusion is that the rise and the fall of the MP3 scene can be explained with the same relational, technological and organizational factors. The deliberate actions taken by sceners and the Council to improve the scene's technology and organization help explain the scene's waxing until 2004–2005. Paradoxically, these actions also help clarify its waning after 2005. The difference is that the 'success factors' produced foreseen and intended effects, whereas the 'fail factors' led to unforeseen and unintended side effects. The most significant of these side effects was that the virtuous cycle of passion in We–mode, once the engine of the MP3 scene, vanished.

Concluding remarks

In this paper we presented an insider perspective on the Warez MP3 scene and elucidated how this illegal piracy practice was influential in the global rise of digital music sharing. The MP3 scene was the first with organizing digital music in an orderly fashion and remained the main provider of contraband music on the Internet for years.

We illustrated that a mixture of relational, technological and organizational factors caused the MP3 scene to grow and decline. A distinct We–technoculture arose, thanks to a shared passion for music and knowledge, viewing MP3 files as epistemic and affiliative objects, all in terms of a copyfight spirit. It then started to wither. Technological developments that led to a de–skilled process of ripping, releasing and distributing new music and to a commodification of MP3 files were pivotal for both the music industry in general and the MP3 scene in particular. On the one hand, these developments paved the way for music sharing to become a mass phenomenon, supported by

Napster and other music–sharing networks. On the other hand, for the MP3 scene, these technological developments, along with an organizational decision to admit the Web as a valid source of new releases, amounted to an unforeseen and unintended cultural change. Many newcomers came and even more people left the scene, as the patterns in Figures 1 and 2 demonstrate.

This paper contributes to those fields of research examining new and alternative forms of organizing and sociality inhabiting the Internet. It supports, for example, Knorr Cetina's (2005) notion of global microstructures and Lash's (2002) concept of disorganizations. Studying al–Qaeda, Knorr Cetina promotes 'institutional lightness' as a prominent feature of global microstructures. Our study indicates that there is a limit to institutional lightness if a global microstructure will preserve its unique identity. As the former member of the MP3 Council implied in retrospect, the biggest mistake by the Council was keeping the organizational structure of the MP3 scene too light. In his eyes, erecting barriers to entry could have stopped a cultural change that was unsolicited by many original sceners.

Our study affirms Fiske's (1992) claims that in the end anything of value will be commoditized and that the market will prevail as the dominant mode of sociality. These claims are challenging for those who examine viable alternatives to market–driven modes of sociality. For instance, our study questions Rehn's (2004) findings that gift economies are such sustainable alternative.

Finally, most networks on the Internet are called 'social networks'. Many debate the meaning of 'social' in 'social networks' (Wittel, 2001, 2011; Latour, 2005). As Wittel (2011) states, social networks do not guarantee that anything social is produced. What is social, what is sociality? And how can a focus on sociality help us better understand many of the social networks active on the Internet? The notion of sociality enabled us to capture the cultural transformation that took place on the MP3 scene. Our study of sociality can also be read as an empirical example of how drastically the dominant mode of sociality can alter in a short time. Sociality in organizational settings is negotiable, or so it seems. FM

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Notes

1. Knorr Cetina, 2005, p. 214.

2. The leaked database can be found at http://cyberside.net.ee/docs/DATABASE.READNFO.tar.gz.

3. LeCompte and Schensul, 1999, p. 8.

4. Hine, 2000, p. 61.

5. Nukers are individuals who are in charge of ensuring that MP3 files are released according to the rules of the topsite. When a release does not conform to these rules, it is 'nuked' by a nuker, meaning it is marked as a bad release and erased from the topsite.

6. Lash, 2002, p. 40.

7. Schütz, 1951, p. 173.

8. Knorr Cetina, 1997, p. 1.

9. Carr, 2010, p. 216.

10. Rehn, 2004, p. 371.

11. Carr, 2010, p. 218.

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