

Music & the Internet

MUMT301

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Plan

- Syllabus and guidelines
- NIN Ghosts I-IV and the New Music Economy
- Class-by-class overview
- UNIX/Linux commands
- Questionnaire / Homework

NIN's Ghosts I-IV

- <http://ghosts.nin.com>
 - free listening and high quality partial download (email required)
 - different alternatives (formats and packages)
 - [album's art for free](#) (email required)
 - “The end result is a wildly varied body of music that we're able to present to the world in ways the confines of a major record label would never have allowed—from a 100% DRM-free, high-quality download, to the most luxurious physical package we've ever created.” (T. Reznor, March 2, 2008)

NIN's Ghosts I-IV

- “Ghosts I-IV is licensed under a Creative Commons Attribution Non-Commercial Share Alike license.”
- <http://remix.nin.com>
- <http://www.ninwiki.com/Multitracks>
- <http://www.ninremixes.com/multitracks.php>
- <https://soundcloud.com/zardonic/nine-inch-nails-35-ghosts-iv-zardonic-remix-2008>
- https://archive.org/details/10-ghosts-iinin-remix-by-antuan_graftio
 - Pioneering “stem mixing”
 - Arcade Fire’s Colin Stetson and Sarah Neufeld

NIN's Ghosts I-IV

- The Ghosts Film Festival
- Example of NIN Ghosts final submission
- NIN's business model and the future of music
- Trent Reznor Digg Dialogg interview

NIN's Ghosts I-IV

- The core of the *Ghosts I-IV* project is not the set of tracks recorded in Reznor's studio, but the **relationship of the artist with his fans**, and the thousands of remixes, videos, comments and blog posts that his community of fans uploaded to his website

Transformations in the music industry

- Several **transformations** in the media environment have had tremendous **impact** on the structure and logic of the **music industry**
 - Phonograph recordings by end of 19th century
 - Broadcast radio programming in the 1920s
 - Magnetic tape in the 1930s
 - Compact cassette in the 1970s
 - Deregulation of media ownership in the 1990s
 - Shift from physical to virtual in the 2000s
 - Streaming in the 2010s

The “Cloud”

- Used as a metaphor to denote the Internet since the late 60s
- Used as a useful and vague **metaphor** to summarize all the resources, cables and gadgets **connecting computers** at the nodes of a network

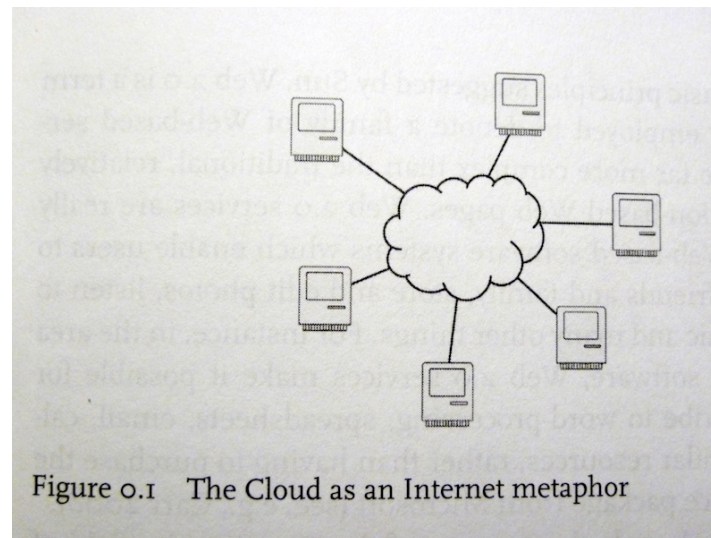


Figure 0.1 The Cloud as an Internet metaphor

Figure taken from Wikstrom, P. 2013. The music industry. Digital media and society series. 2nd edition. Polity Press, Cambridge, UK.

- Sun Microsystems: “The Network is the Computer.”
- All you need is a **dumb device attached to a smart network**
- Web 2.0 followed the path of the Sun Microsystems’ slogan

Web 2.0

- Term usually employed to denote a **family of web-based services** which are more complex than the traditional, static information-based Web pages
- Fully-fledged Web-based software systems enable users to do **word processing, create spreadsheets, synchronize calendars, socialize with friends, store and edit photos**, and ...
- **listen to music, produce and remix music, distribute music**, etc.
- instead of purchasing standalone software packages

Web 2.0 and the music industry

- Allowed to **shift** the centre of gravity of the music industry **from the physical to the virtual**
- **CDs to MP3s to Web-based music services** (YouTube, Spotify, Google Play, Apple Music, Tidal, Pandora, ...)
- Music is not longer owned and collected by mainstream audiences—**music is in the Cloud**
- **New music industry**

New music economy

- Three dimensions (tensions) between the old music economy (OME) and the new music economy (NME)
 - **Connectivity vs. control**
 - **Service vs. product**
 - **Amateur vs. professional**

New music economy (connectivity vs. control)

- The **new communication technologies** have a **different structure** from the previous **hierarchical media**
- **Connectivity** indicates how well members of a network are connected. **Higher level of connectivity** in a network indicates that most of its members are connected to each other

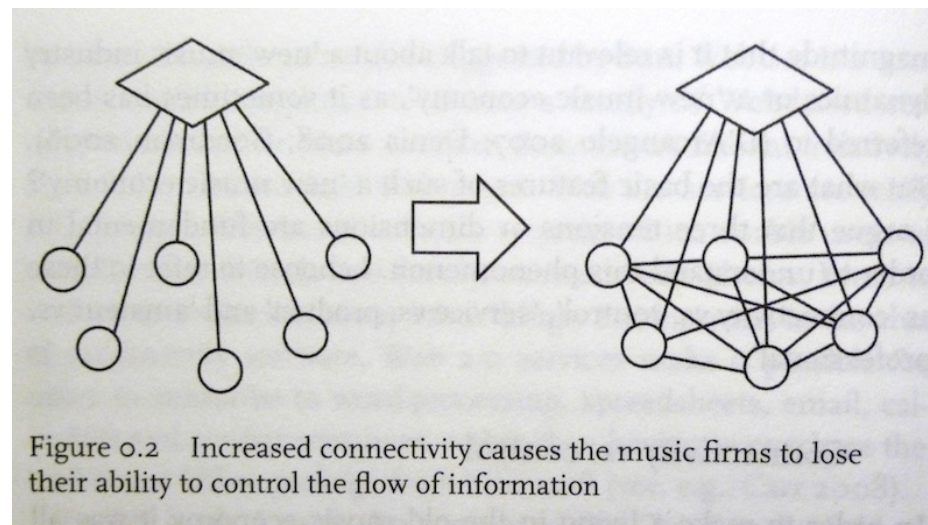


Figure taken from Wikstrom, P. 2013. The music industry. Digital media and society series. 2nd edition. Polity Press, Cambridge, UK.

- In the **OME** there was **low level of connectivity**, everything was about **control**
- The **NME** dynamics is characterized by **high connectivity and little control**

New music economy (service vs. product)

- The OME industry was clearly made up of **physical goods**. Content (music) and medium (disc) were inseparable
- In the NME, as soon as any kind of information is uploaded to the Cloud, it is instantly **universally accessible** to everyone connected to the Cloud
- In the NME, it is difficult to charge the audience for **discrete chunks of information**. The economic value of providing access to an individual track is close to zero
- However, people may be **willing to pay for services** allowing them to help in searching and discovering in large amounts of information
- Music industry nowadays can be seen as a *service* **valuable for both, audience and artists**

New music economy (amateur vs. professional)

- The talented, creative artist is still **the centre of gravity** in the music industry
- But in the NME the relation between the artists, their art, and their audience has changed
- Increased connectivity of the audience and various kinds of **music production tools** have enabled “non-professionals” to create, remix, and publish content online
- Not everyone is a musician, but there is a larger share of the **audience creating and uploading music**

New music economy

- These changes have been driven primarily by the development of **digital information and communication technologies**
- The music industry entered into the “digital age” by means of digital technologies introduced:
 - in music production and recording during the 70s
 - in music distribution, by means of the compact disc in the 80s
 - in music promotion, talent development, and every remaining part of the music business since the 2000 by means of web-based technologies

Course outline

- [MyCourses](#)
- Final project
 - Software project with description
 - Music project with description
 - Research paper
- Review of some previous final projects
 - Chris Middleton's Drum Sequencer: [site](#)
 - Nehir Akdag's audio visualizer suite: [site](#)
 - Saul Backer's database of hip-hop instrumentals: [site](#)
 - Andrew Ames's Dungeon Soundtracker: [site](#)
 - Jackson Hoffart's Soundcloud Mixer: [site](#)
 - Olivier Guertin's album with Internet music tools: [release](#)
 - Carlos Maldonado's web-based mixer for stems: [webpage](#)
 - Samuel Solaro's research paper on impact of digital technology and the Internet on the market structure of modern music industry: [paper](#)

BREAK

UNIX introduction

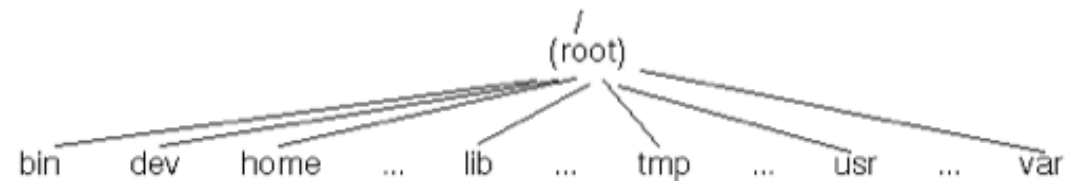
- Operating system first developed in the 60s and under constant development since
- Suite of programs which make the computer work
- Many different versions: Sun Solaris, GNU/Linux, and MacOS X
- Made of three parts: the kernel, the shell, and the programs

UNIX hierarchical structure

- The UNIX/Linux Directory/File Hierarchy
 - UNIX/Linux maintains directories and files in a **hierarchical structure**, called a tree structure.
- When you first open a terminal window, the UNIX shell expects that you are in your home directory. At the start, this is called your current "**working directory**" (i.e., your position within the directory tree)
- Pathnames can be **relative** or **absolute**
 - An *absolute pathname* includes the file's **complete path** starting with the system's "root" directory, which is always named "/"
 - A *relative pathname* for a file is a name that is given **relative to your current working directory**
- Each directory in a Linux system contains two special files "." and ".." that can be useful when constructing relative pathnames. The file named "." means "**the current directory**," and the file named ".." means "**the parent directory**"

UNIX hierarchical structure

- Is organized by a root directory and its subdirectories
 - taking a look at the files in a Linux root directory “/”



- Each subdirectory is organized by having files and folders for different purposes:
 - `/bin`: these are the executable programs that comprise the GNU/Linux utilities.
 - `/lib`: home of many libraries
 - `/usr`: application programs and libraries not part of the UNIX/Linux system
 - `/home`: user accounts
 - ... and many other folders

UNIX command line crash course

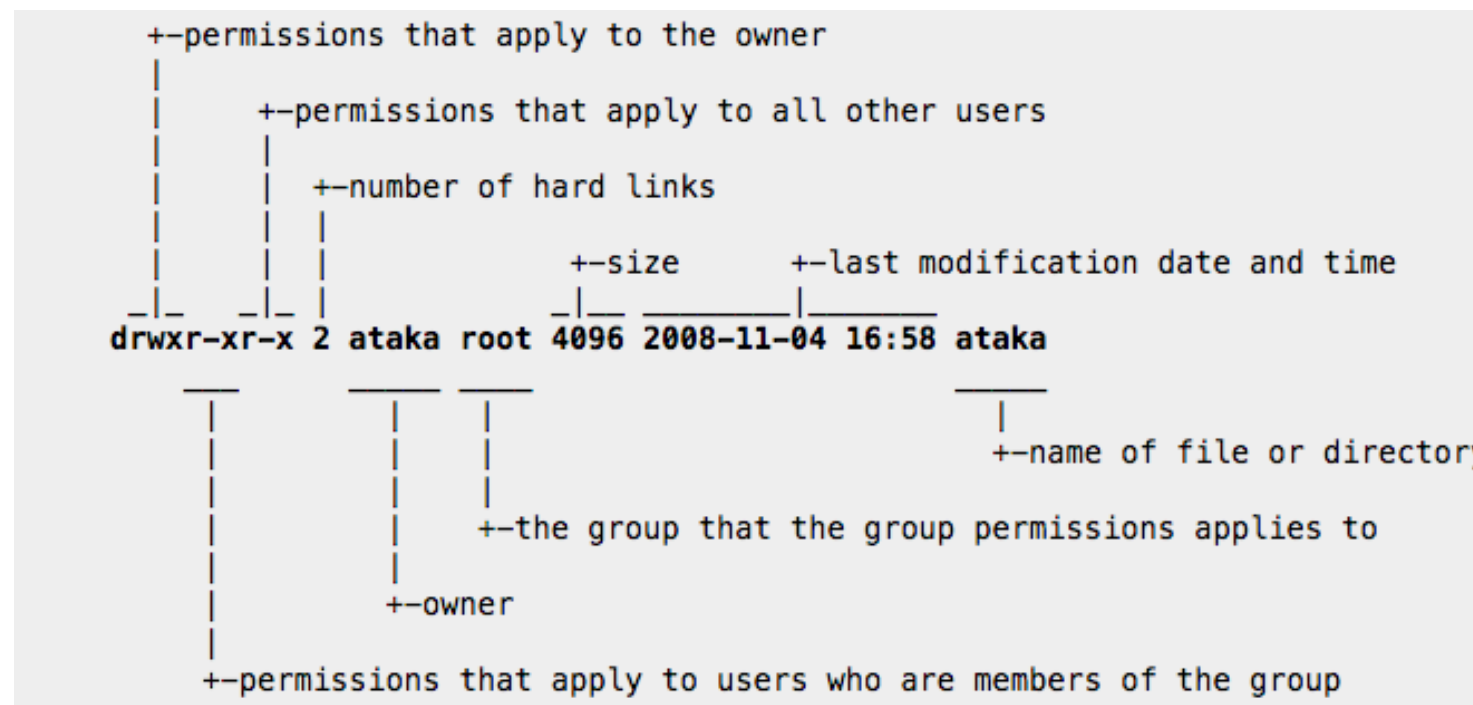
(for those who never have used a command line)

- OS with a set of simple tools that each perform a limited, well-defined function, with a unified filesystem, and a shell command language
- `ssh` is a program (short for Secure Shell) for logging into a remote machine and for executing commands on a remote machine. Logging in using SSH:
 - `ssh firstlettername.lastname@www.xxx.yyy.zzz`
 - `ssh gvigliensoni@132.206.14.130` pass: changeme
- `passwd` is a tool on most Unix and Unix-like operating systems used to change a user's password
 - `passwd`
- `man` A `man` page (short for manual page) is a form of online software documentation
 - `man command`
- `pwd` the `pwd` command (print working directory) is used to output the path of the current working directory
 - `pwd`

UNIX command line crash course

(for those who never have used a command line)

- `ls` list directory contents, the “-a” flag list all files in the current directory, the “-l” flag shows the contents as a list
 - `ls`; `ls -a`; `ls -al`; `ls -alh`



- `cd` also known as `chdir` (change directory), is a command-line OS shell command used to change the current working directory
 - `cd dirname`; `cd .`; `cd ..`; `cd ~`; `cd /`

UNIX command line crash course

(for those who never have used a command line)

- `mkdir` The `mkdir` (make directory) command is used to make a new directory.
 - `mkdir dirname`
- `rmdir` (short for remove directory) is a command which will remove an empty directory
 - `rmdir dirname`
- `mv` (short for move) is a Unix command that moves one or more files or directories from one place to another.
 - `mv myfile mynewfilename`
- `cp` (short for copy) copies files and directories.
 - `cp sourcefile targetfile`
 - You can copy entire directory trees with a single command using the '-r' flag
 - `cp -r Folder1/ Folder2/`
- `rm` (short for remove) is a basic UNIX command used to remove objects such as files, directories, device nodes, symbolic links, and so on from the filesystem.
 - `rm filename; rm -i filename`

UNIX command line crash course

(for those who never have used a command line)

- **cat** (short for catenate) is a standard utility that outputs the contents of a specific file and can be used to concatenate and list files.
 - `cat questionnaire.txt; cat questionnaire.txt questionnaire2.txt`
- a pipeline is the original software pipeline: a set of processes chained by their standard streams, so that the output of each process (stdout) feeds directly as input (stdin) to the next one.
 - `command1 | command2`
 - `ls -l | grep gabriel`
- The character `>` will redirect input into or output from a command
 - `command > outfile`
 - `cat questionnaire.txt questionnaire2.txt > all_questionnaires.txt`
- **scp** (secure copy) allows to securely transfer files between a localhost and a remote machine, or two remote machines
 - `scp SourceFile user@host:directory/TargetFile`
- Text Editors: `nano`, `vim`

Review

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- Course outline
- UNIX/Linux commands
- Resource links in MyCourses
- Assignment1 / Questionnaire