

Clickonomics

Determining the Effect of Anti-Piracy Measures for One-Click Hosting

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Copyright Infringement

(a.k.a. digital “piracy”)

- Download your favourite [movie/game/etc.] for “free”
- Most common illegal activity on the Internet?
- Many protocols used/abused for file sharing
 - Focus on One-Click Hosting (OCH)
 - Most recent
 - Also most profit-driven?
- Regular topic in court cases, on political agenda, in the news...



Why do we care about “piracy”?

“Piracy” in the news



Why do we care about “piracy”?

WHO MUSIC THEFT HURTS

It's commonly known as “piracy,” but that's too benign of a term to adequately describe the toll that music theft takes on the enormous cast of industry players working behind the scenes to bring music to your ears. That cast includes songwriters, recording artists, audio engineers, computer technicians, talent scouts and marketing specialists, producers, publishers and countless others.

While downloading one song may not feel that serious of a crime, the accumulative impact of millions of songs downloaded illegally – and without any compensation to all the people who helped to create that song and bring it to fans – is devastating. One credible study by the Institute for Policy Innovation pegs the annual harm at \$12.5 billion dollars in losses to the U.S. economy as well as more than 70,000 lost jobs and \$2 billion in lost wages to American workers.

http://www.riaa.com/physicalpiracy.php?content_selector=piracy_details_online



Why do we care about “piracy”?

MPAA Urges Legislation Against 'Rogue' Sites

8:08 AM PDT 4/6/2011 by Georg Szalai

SHARE



Comments

Congressional action would "go a long way towards shutting down the unauthorized distribution of copyrighted works," executive vp, government affairs Michael O'Leary said.

<http://www.hollywoodreporter.com/news/mpaa-urges-legislation-rogue-sites-175629>



Why do we care about “piracy”?

2 ANTI-PIRACY BUDGETS

COSTS OF ENFORCEMENT



The copyright industries go to great — and expensive — lengths in enforcement advocacy and anti-piracy campaigns. While industry groups are reluctant to release their annual enforcement budgets, here are some estimates from a 2011 report:

\$120 million
(2009)



Int'l Federation
of the Phonographic
Industry

\$45-55 million



Recording Industry
Association of
America

\$60-75 million
(2009)



Motion Picture
Association of
America

\$55 million
(2007)



Business
Software Alliance

<http://www.backgroundcheck.org/cost-of-piracy/>



Why do we care about “piracy”?

The screenshot shows the MEGA Upload website interface. At the top, the logo "MEGAUPLOAD" is displayed in a bold, orange and black font. To the right of the logo are buttons for "Login", "Register", and "English". Below the logo is a navigation bar with links for "FREE MEMBERSHIP", "PREMIUM", "TOP 100", "MEGA TOOLS", "SUPPORT", and "FAQ". The main content area features a white box with the text "The easiest way to upload and share your files." and a large orange button labeled "Select Files...". Below this is a section titled "WATCH WHAT MEGA USERS SAY ABOUT US" which contains five profile cards: Kim Kardashian, Will.i.am, Mega Song (with a large 'M' icon), Swizz Beatz, and Alicia Keys. At the bottom of this section is a link that says "CLICK HERE TO SEE WHY MEGA IS THE BEST FILE HOSTER!".



Why do we care about “piracy”?



Why do we care about “piracy”?

19 January 2012 Last updated at 23:54 ET

Share  

Megaupload file-sharing site shut down

 COMMENTS (688)



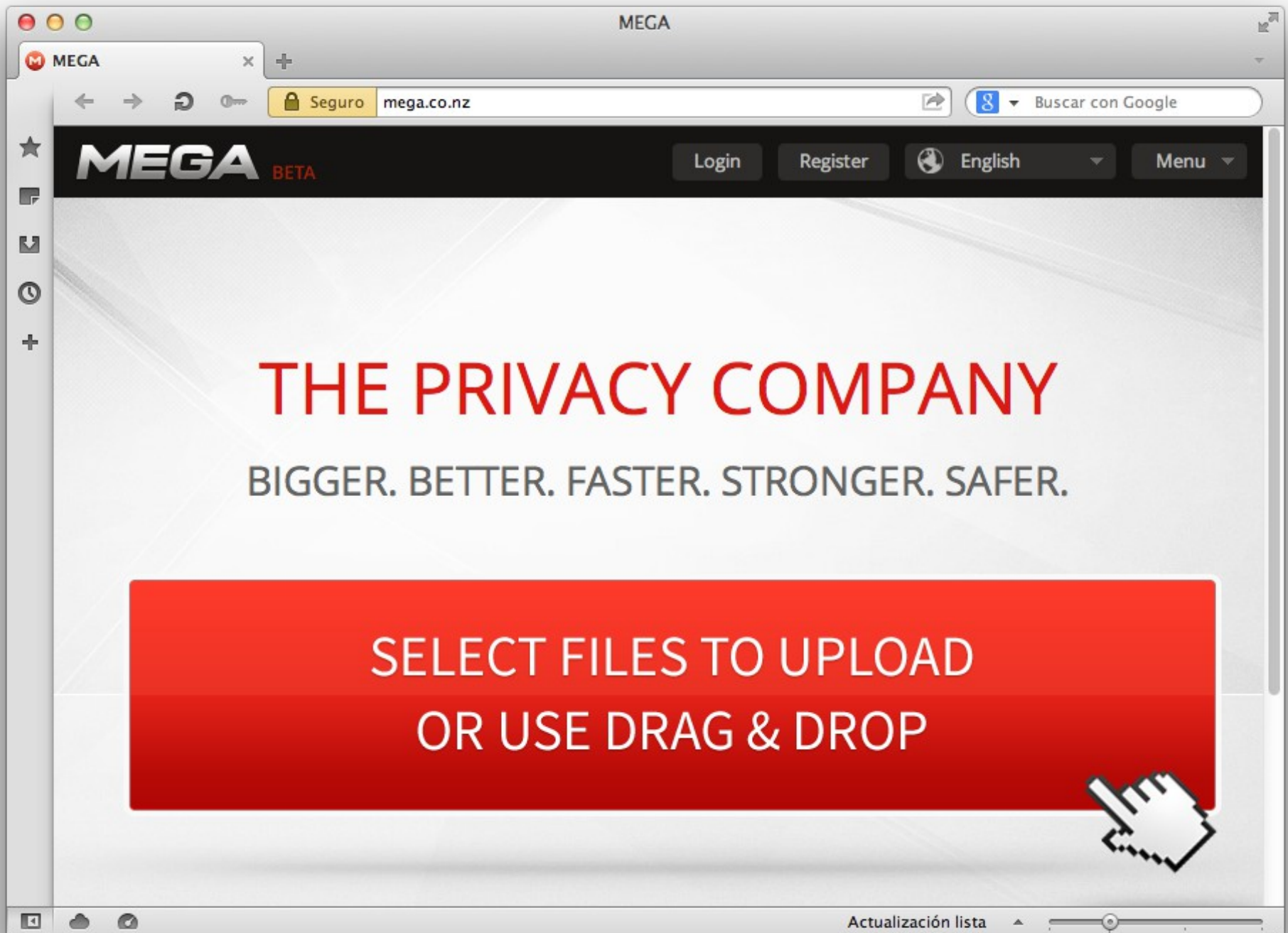
Georgina Ball of Radio New Zealand on the Megaupload court appearance

Megaupload, one of the internet's largest file-sharing sites, has been shut down by officials in the US.

[Related Story](#)

<http://www.bbc.co.uk/news/technology-16642369>





Why do we care about “piracy”?

**Anti-“piracy” measures
affect our daily online life.**

But we need data, not propaganda.



Research Question

Do current anti-“piracy” strategies work?



Research Question

Do current anti-“piracy” strategies work?

NO



Research Question

Do current anti-“piracy” strategies work?

NO

Why?



Research Question

Do current anti-“piracy” strategies work?

NO

Why?

Challenge: Large, evolving ecosystem

- How to quantify “effectiveness”?
- Results representative?



Outline

- The OCH Ecosystem/Related Work
- Measurement Methodology
- Effect(iveness) of Anti-Piracy Measures
 - DMCA takedown
 - OCH collaboration
 - Hardware seizure
- Discussion: Future Strategies



The One-Click Hosting Ecosystem



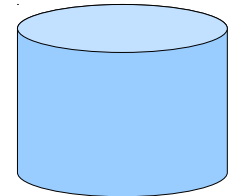
uploader



The One-Click Hosting Ecosystem



uploader



one-click hoster

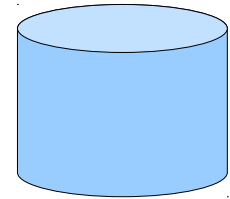


The One-Click Hosting Ecosystem



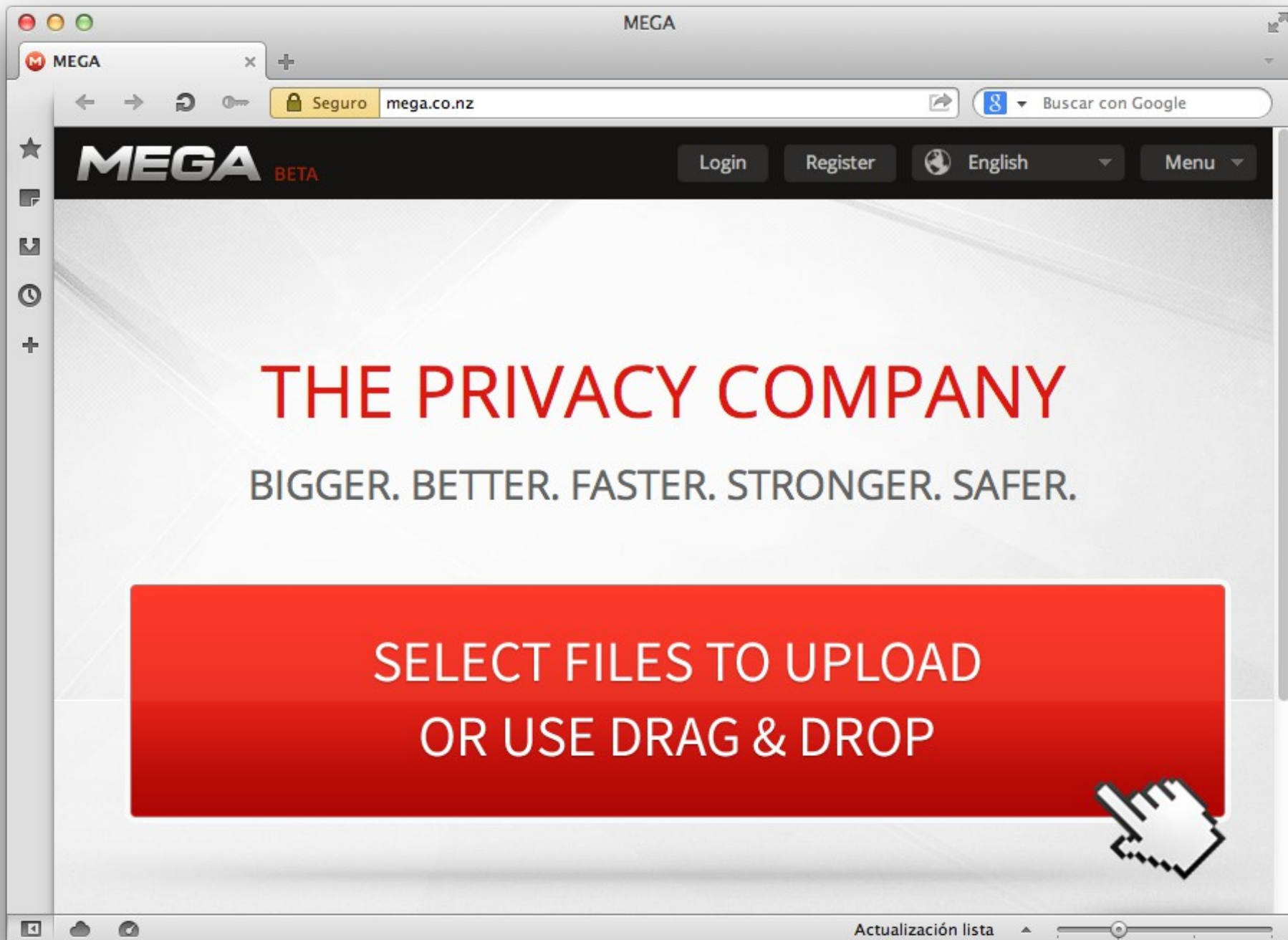
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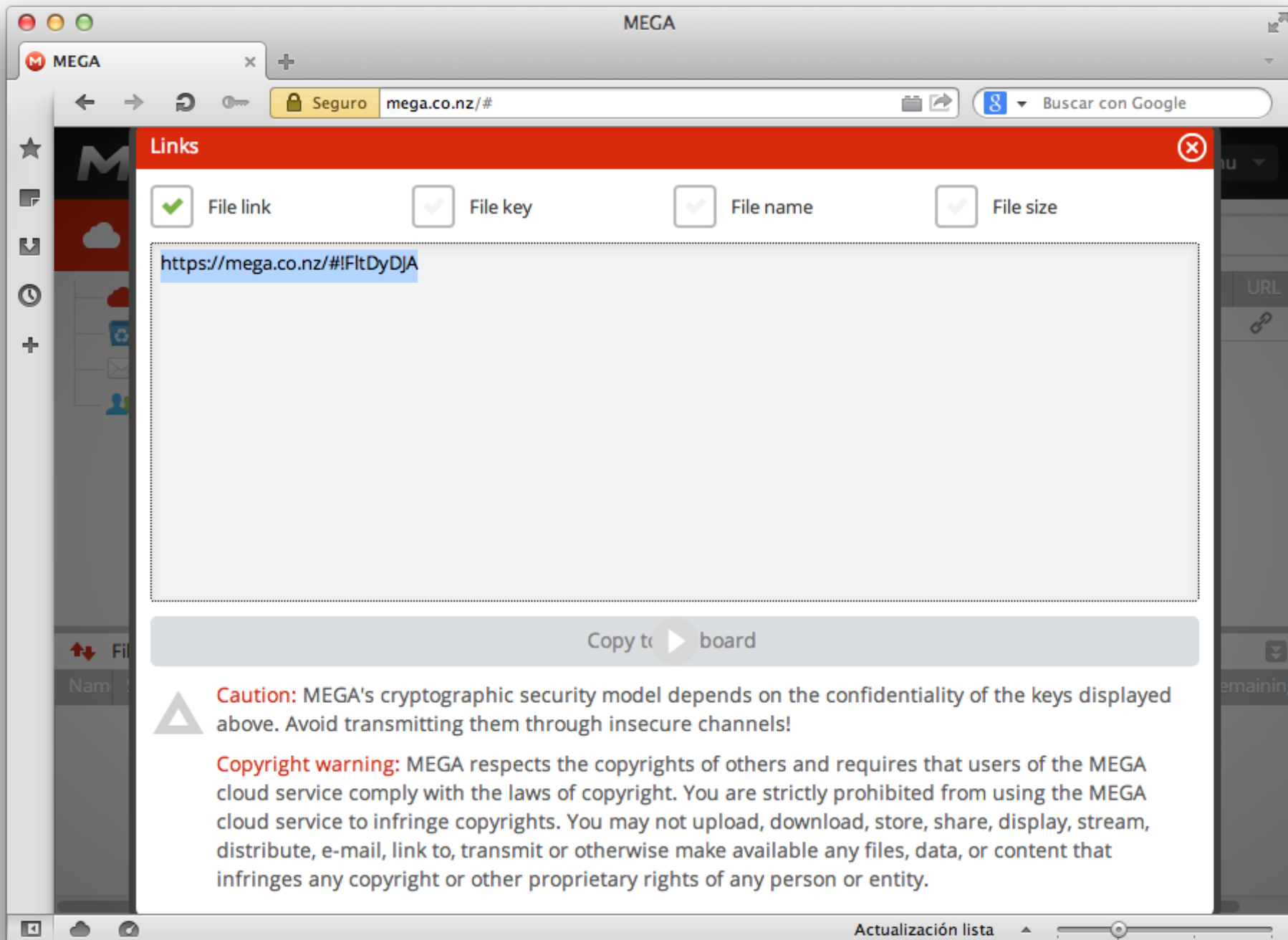
upload file



one-click hoster



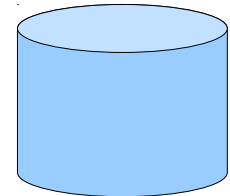




The One-Click Hosting Ecosystem



uploader



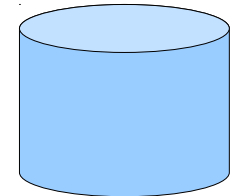
one-click hoster



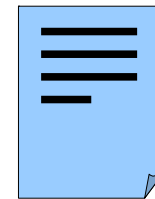
The One-Click Hosting Ecosystem



uploader



one-click hoster



indexing site



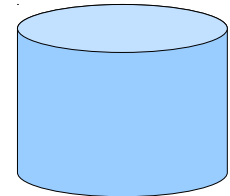
The One-Click Hosting Ecosystem



uploader

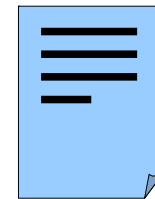
upload file

obtain download link



one-click hoster

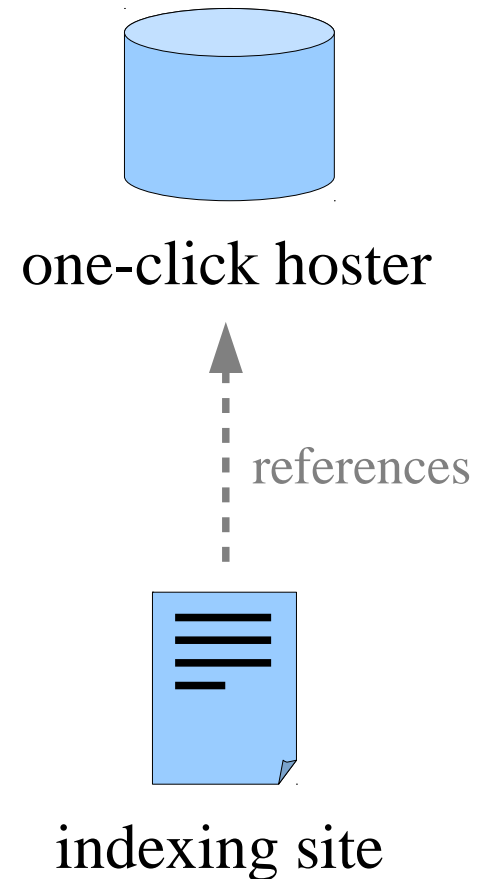
publish download link



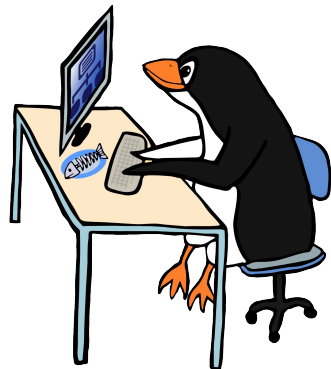
indexing site



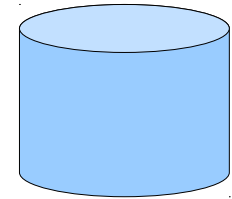
The One-Click Hosting Ecosystem



The One-Click Hosting Ecosystem



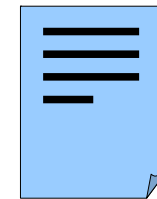
downloader



one-click hoster



references



indexing site

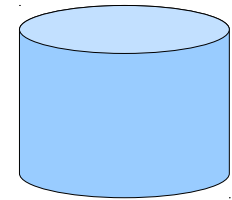


The One-Click Hosting Ecosystem



downloader

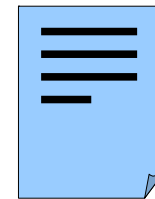
search for content



one-click hoster



references



indexing site





Computer speed test

Your current speed



c://user/desktop/application/desk.exe

No thanks

Solve

CF

Aliens Colonial Marines XBOX360-COMPLEX

Posted on 07.02.2013 at 14:29 in Games, XBOX360 by Lakai



Scene group COMPLEX just pre'd a region free release to the much awaited sci-fi/horror fps game "Aliens: Colonial Marines". This new title has been developed by Gearbox Software and has a co-op mode.. can't get any better than that. Enjoy.

Description: Bringing you a true sequel to James Cameron's classic Aliens, get tooled up with classic Marine weapons including pulse rifles, motion trackers and flamethrowers.

Buckle up, soldier! Welcome to Aliens: Colonial Marines. Created by Gearbox, the critically acclaimed and fan-favorite developers of Borderlands and Brothers In Arms, this first-person shooter is steeped in the eerie, claustrophobic and terrifying atmosphere that made the Aliens films

successful worldwide. You and your friends will become the most badass military outfit in the galaxy... the US Colonial Marines. It's down to you to not just survive but wipe out the

SEARCH

#RLSLOG IRC CHANNEL

CATEGORIES

- Applications (RSS)
 - Android (RSS)
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 - eBook (RSS)
 - Magazines (RSS)
- Games (RSS)
 - MAC (RSS)
 - PC (RSS)
 - PS3 (RSS)
 - PSP (RSS)



MEGA

Aliens Colonial Mari... x +

Web www.rlslog.net/aliens-colonial-marines-xbox360-complex/

g Buscar con Google

Comments

Feel free to post your Aliens Colonial Marines XBOX360-COMPLEX torrent, subtitles, samples, free download, quality, NFO, rapidshare, depositfiles, uploaded.net, rapidgator, filefactory, netload, crack, serial, keygen, requirements or whatever-related comments here. **Don't be rude** (permban), use only English, don't go offtopic and read **FAQ** before asking a question. Owners of this website aren't responsible for content of comments.

1. SKIDROW

February 7th, 2013 | 14:35

NETLOAD + UPLOADED + CLOUDZER

<http://freetexthost.com/lqqowhmr3a>

2. trueortrue

February 7th, 2013 | 14:35

Aliens Colonial Marines XBOX360-COMPLEX

<http://ul.to/f/zdk4j5>

enjoy 😊

soon one link!

→ Raaz 3: The Third Dimension
(2012) 720p BRRip 725MB
(Single + Multiple) Links

http://ul.to/f/zdk4j5

Actualización lista



24. mmk

February 7th, 2013 | 17:03

Aliens Colonial Marines XBOX360-COMPLEX

<http://extabit.com/file/2daev7j6g4ioa/cpx-als.part1.rar>

<http://extabit.com/file/2daev7j6g4lsa/cpx-als.part2.rar>

<http://extabit.com/file/2daev7j6g4lru/cpx-als.part3.rar>

<http://extabit.com/file/2daev7j6g5qxm/cpx-als.part4.rar>

<http://extabit.com/file/2daev7j6g5qy2/cpx-als.part5.rar>

<http://rapidgator.net/file/76858340/cpx-als.part1.rar.html>

<http://rapidgator.net/file/76858549/cpx-als.part2.rar.html>

<http://rapidgator.net/file/76858693/cpx-als.part3.rar.html>

<http://rapidgator.net/file/76858889/cpx-als.part4.rar.html>

<http://rapidgator.net/file/76859738/cpx-als.part5.rar.html>

<http://turbobit.net/7dabo3d71ofp/cpx-als.part2.rar.html>

25. sssddd7

February 7th, 2013 | 17:44

<http://bitshare.com/files/2iszg0bw/Aliens.Colonial.Marines.XBOX360-COMPLEX.part1.rar.html>

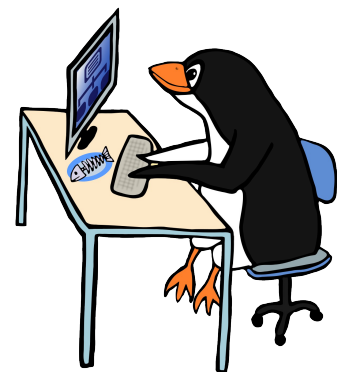
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<http://bitshare.com/files/1me23fl6/Aliens.Colonial.Marines.XBOX360-COMPLEX.part3.rar.html>

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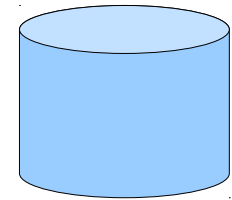


The One-Click Hosting Ecosystem



downloader

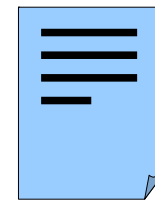
search for content



one-click hoster



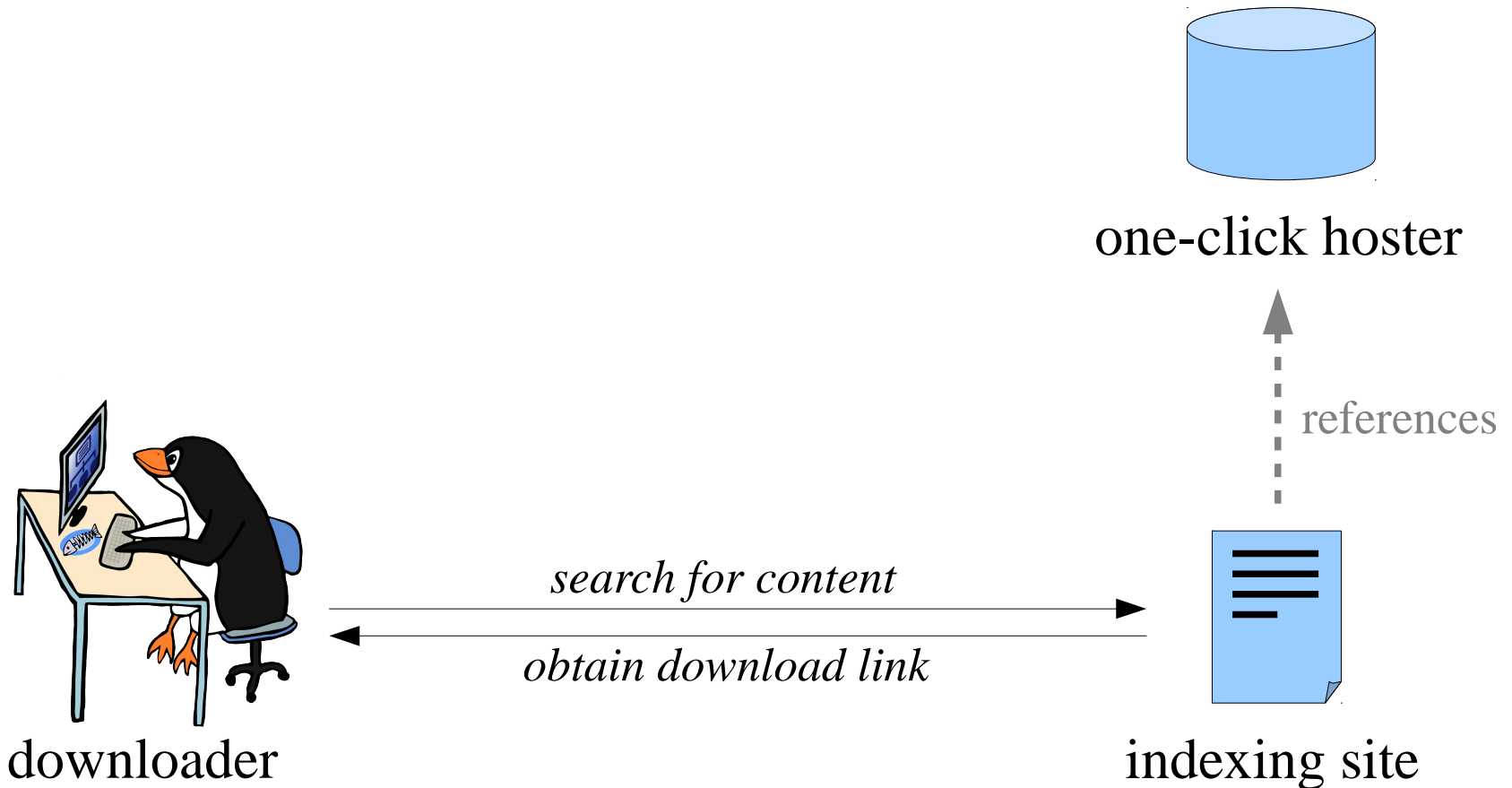
references



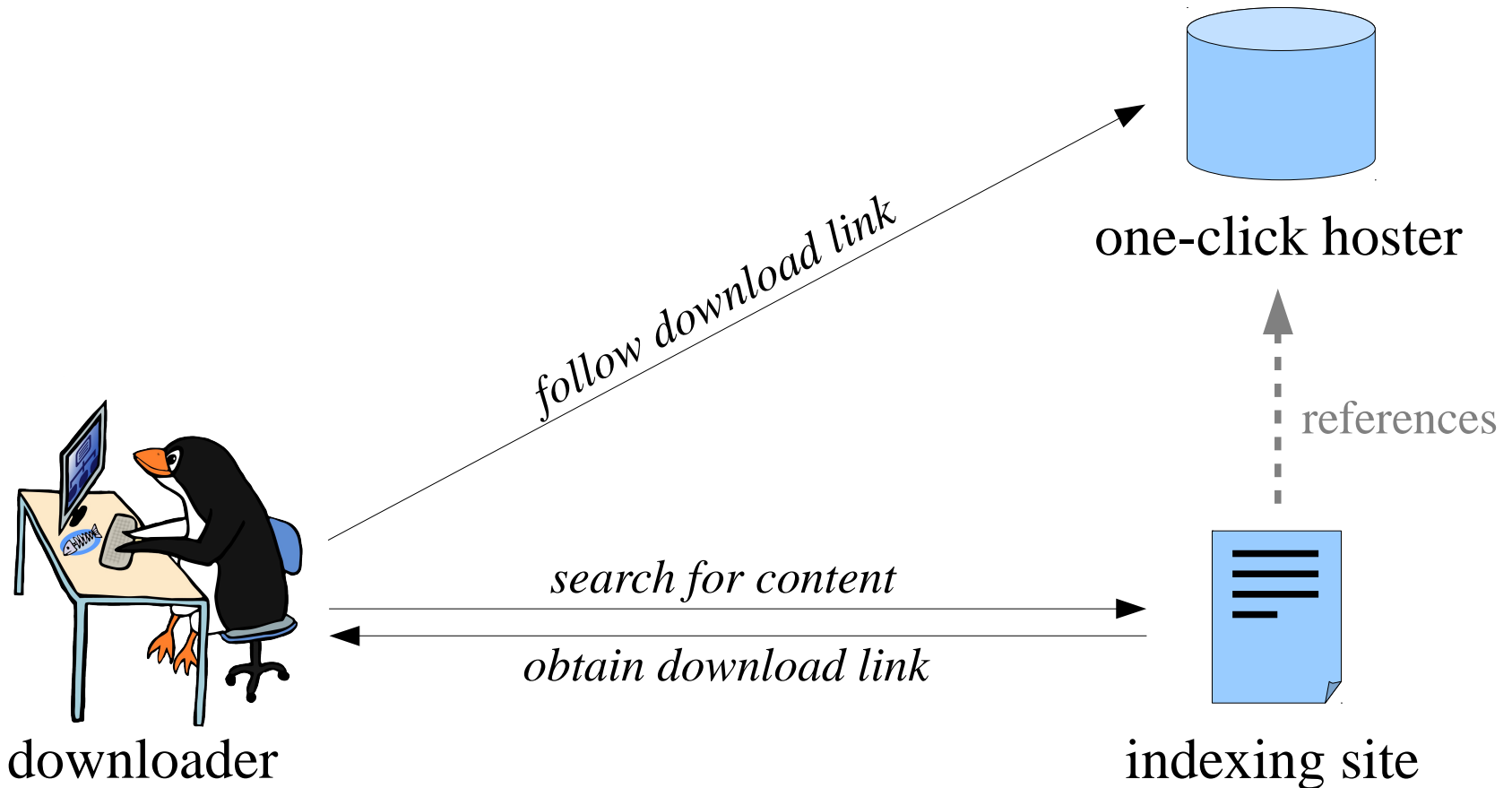
indexing site



The One-Click Hosting Ecosystem



The One-Click Hosting Ecosystem



DOWNLOAD



Downloading: **cpx-als.part1.rar**

File size: **1.46 GB**



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Upgrade to premium to have opportunity to download files up to 5 GB!



Choose download type

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Download type:

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Download speed:

Limited

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SLOW SPEED DOWNLOAD

HIGH SPEED DOWNLOAD

Download type:

Free

Premium

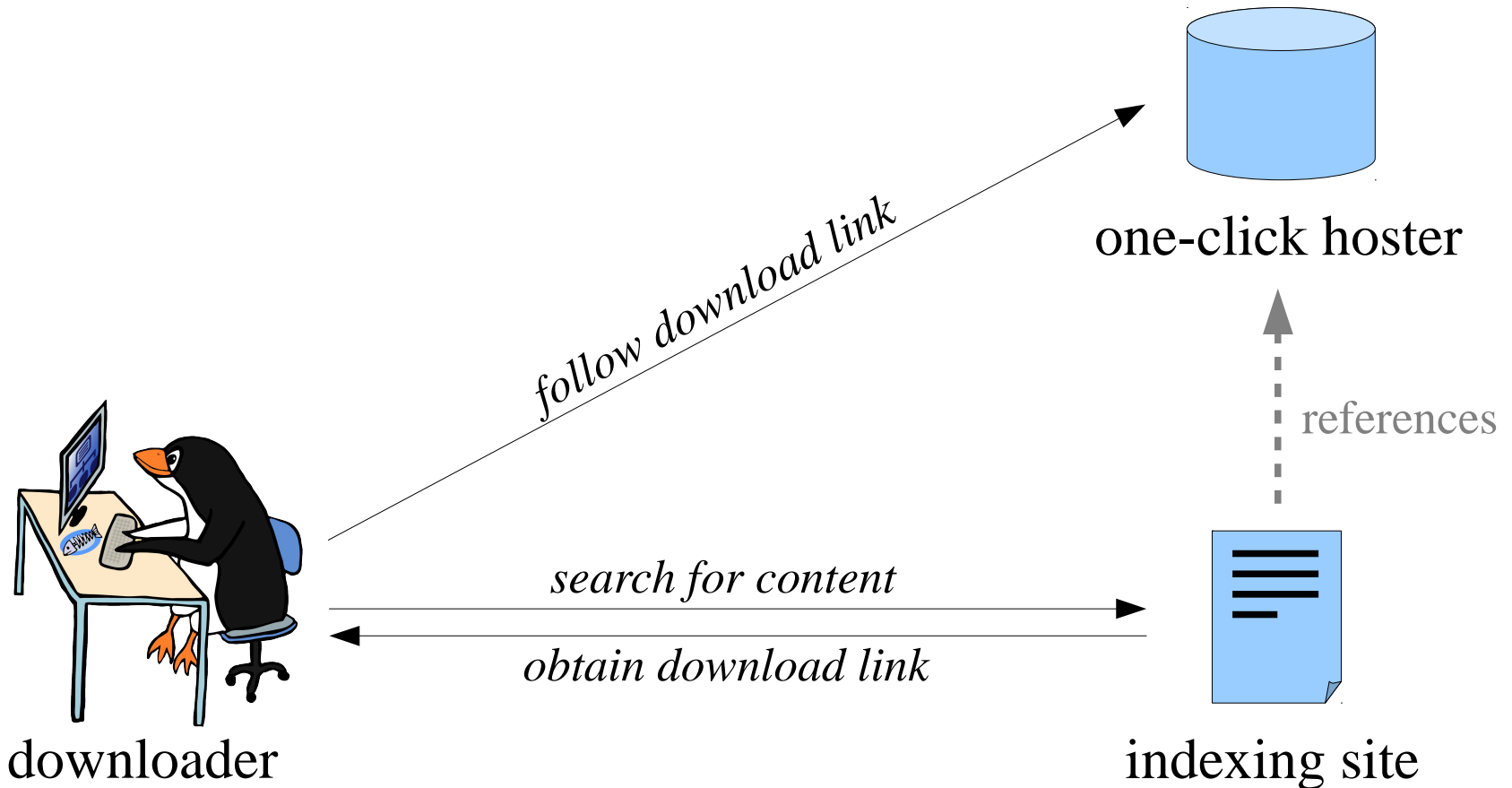
Download speed:

Limited

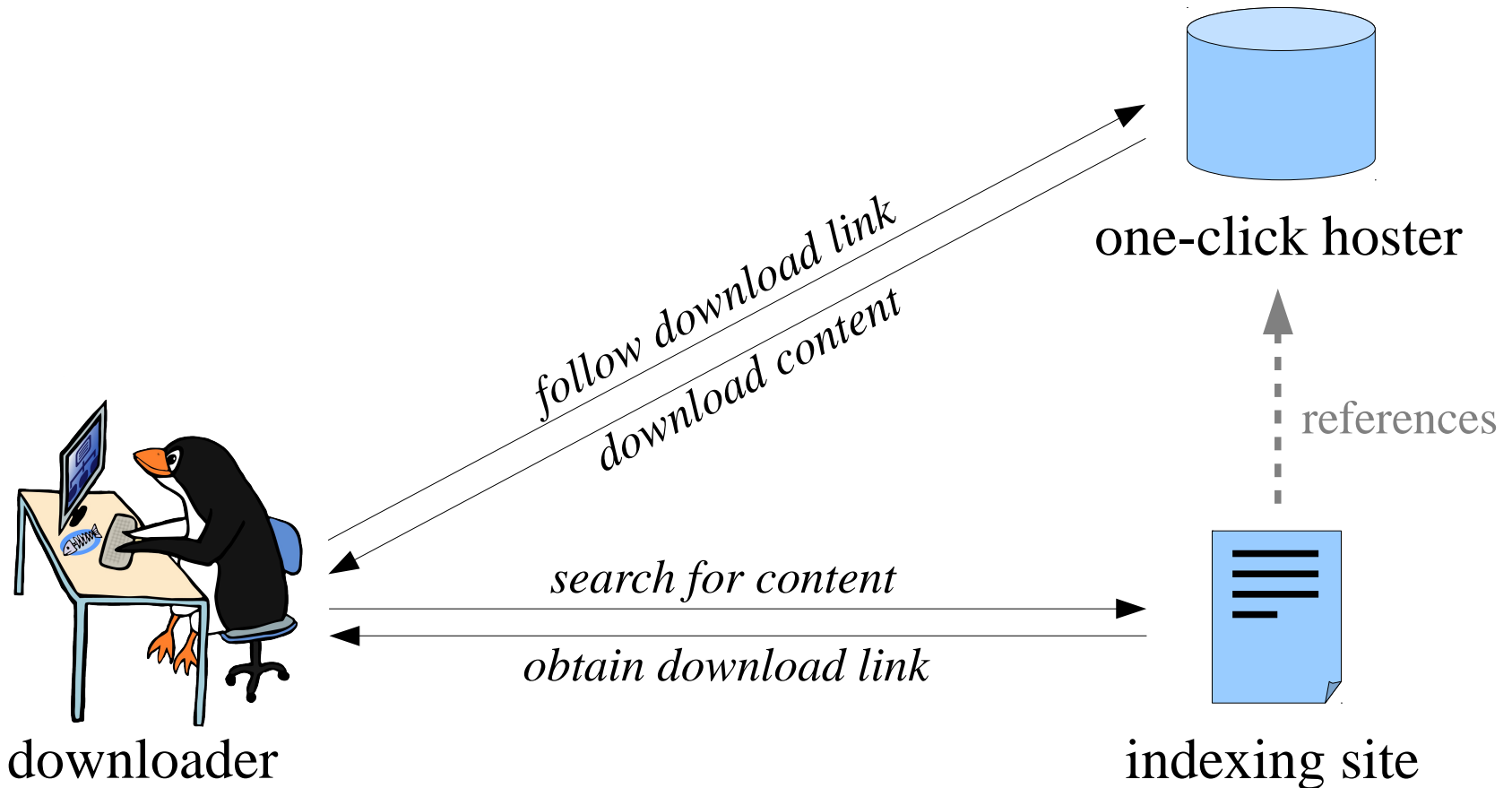
Unlimited



The One-Click Hosting Ecosystem



The One-Click Hosting Ecosystem



Prior Research in One-Click Hosting

- Antoniades et al. [2009]: *OCH “better” than BitTorrent, infringing content available, Rapidshare system architecture*
- Mahanti et al. [2011], Sanjuàs-Cuxart et al. [2011]: *OCH workload characteristics in university (network trace)*
- Mahanti et al. [2012]: *How users discover and share content*
- Nikiforakis et al. [2011]: *Privacy issues on some OCHs*
- Lauinger et al. [2012], Jelveh et al. [2012]: *Uploader income*

Little data about anti-“piracy” strategies



Our Data Sources



Our Data Sources

- **Crawled 14 indexing sites**
 - Extracted 6 million links (300 OCHs)
 - Regexp for links and metadata, basic de-obfuscation, ...
- **Checked lifetime of 1.2 million links**
 - During 12 months on 50 OCHs
- **Uploaded test files to six OCHs**
 - During 19 months every 30 minutes



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Methodology



Methodology

- Made sure files were infringing & authentic
 - *Infringing*: copyrighted content not intended to be shared (blockbuster movies, commercial software, ...)
 - *Authentic*: File contains what is advertised, i.e. file is not fake
- Measure **availability** of content and sites
 - Sufficient to look at subset of ecosystem (manageable size)



Effect(iveness) of Anti-Piracy Measures

I. DMCA Takedown Notices



Effect(iveness) of Anti-Piracy Measures



The file you are trying to download is no longer available.

This could be due to the following reasons:

- ▶ The file has been removed because of a ToS/AUP violation.
- ▶ Invalid URL - the link you are trying to access does not exist
- ▶ The file has been deleted by the user.

I. DMCA Takedown Notices

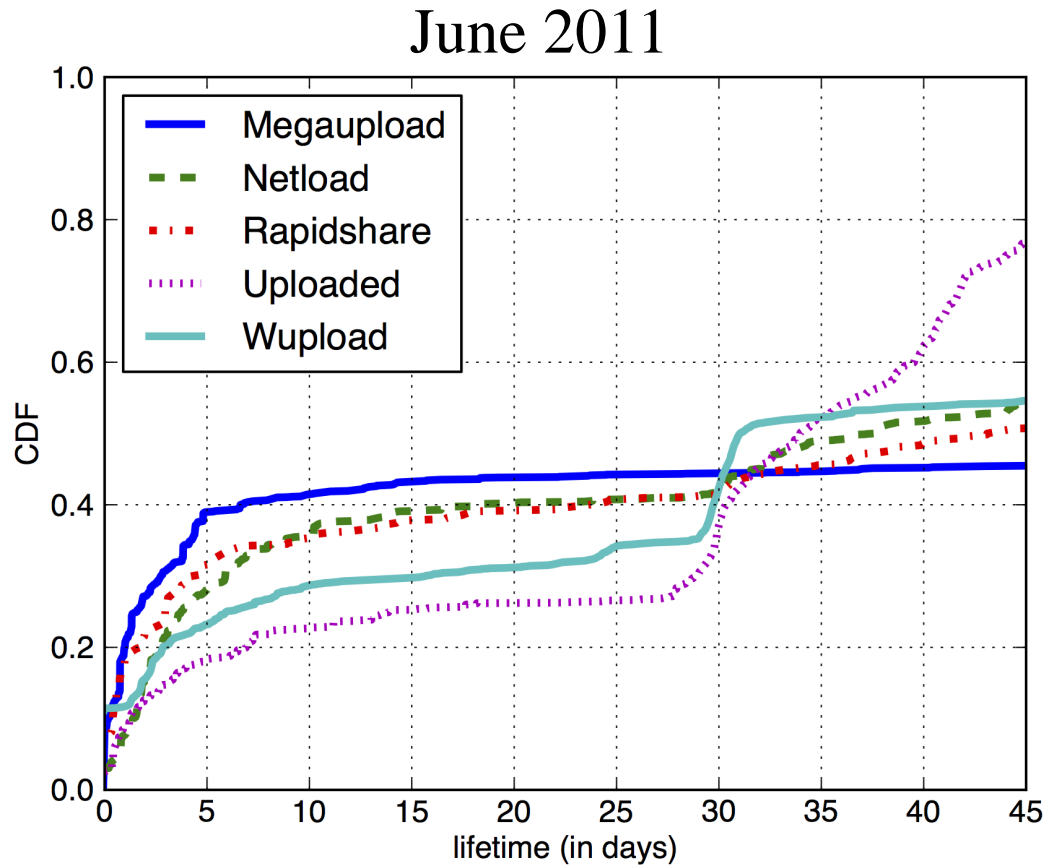
File Lifetime on OCHs

How long do infringing files stay online?

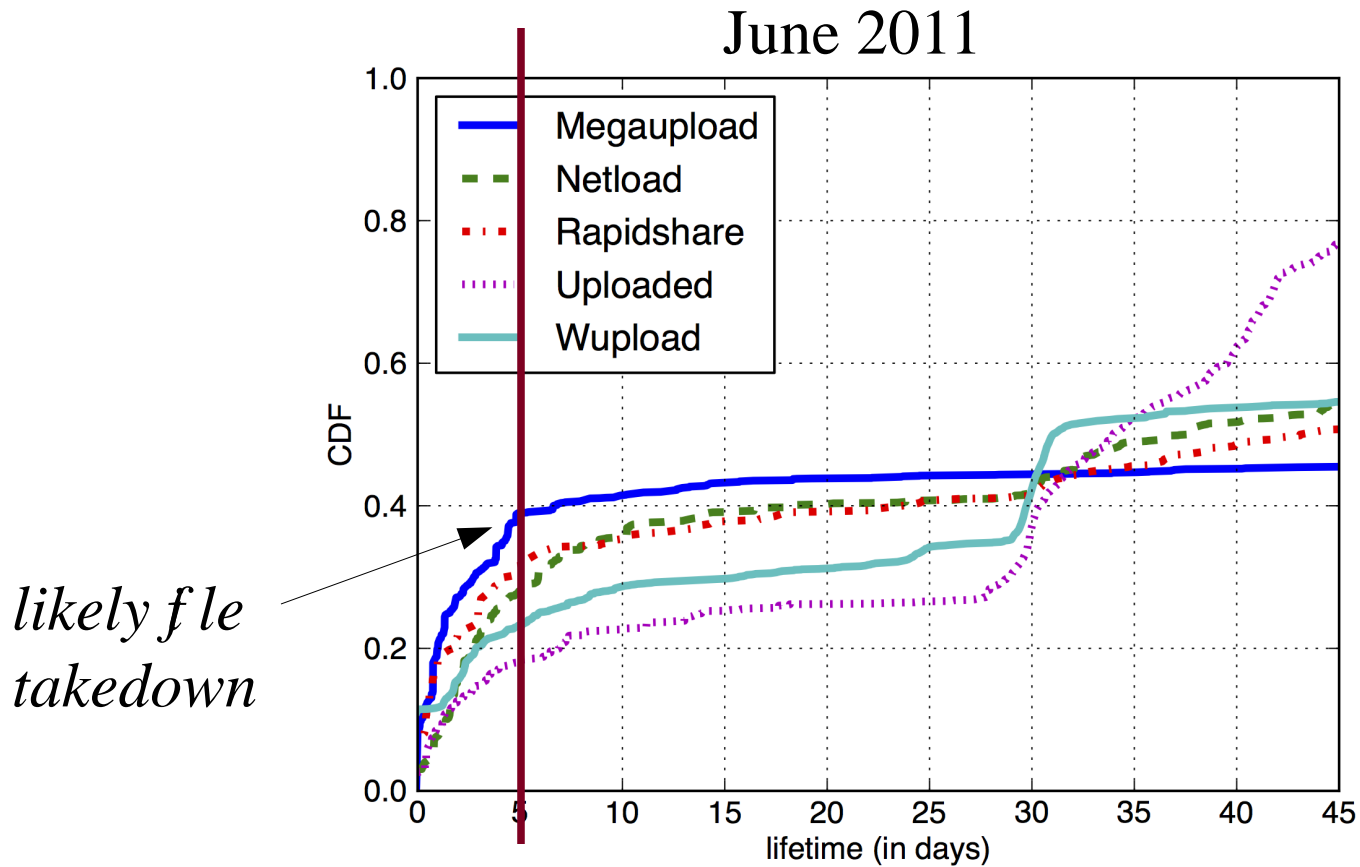
What are likely reasons for deletion?



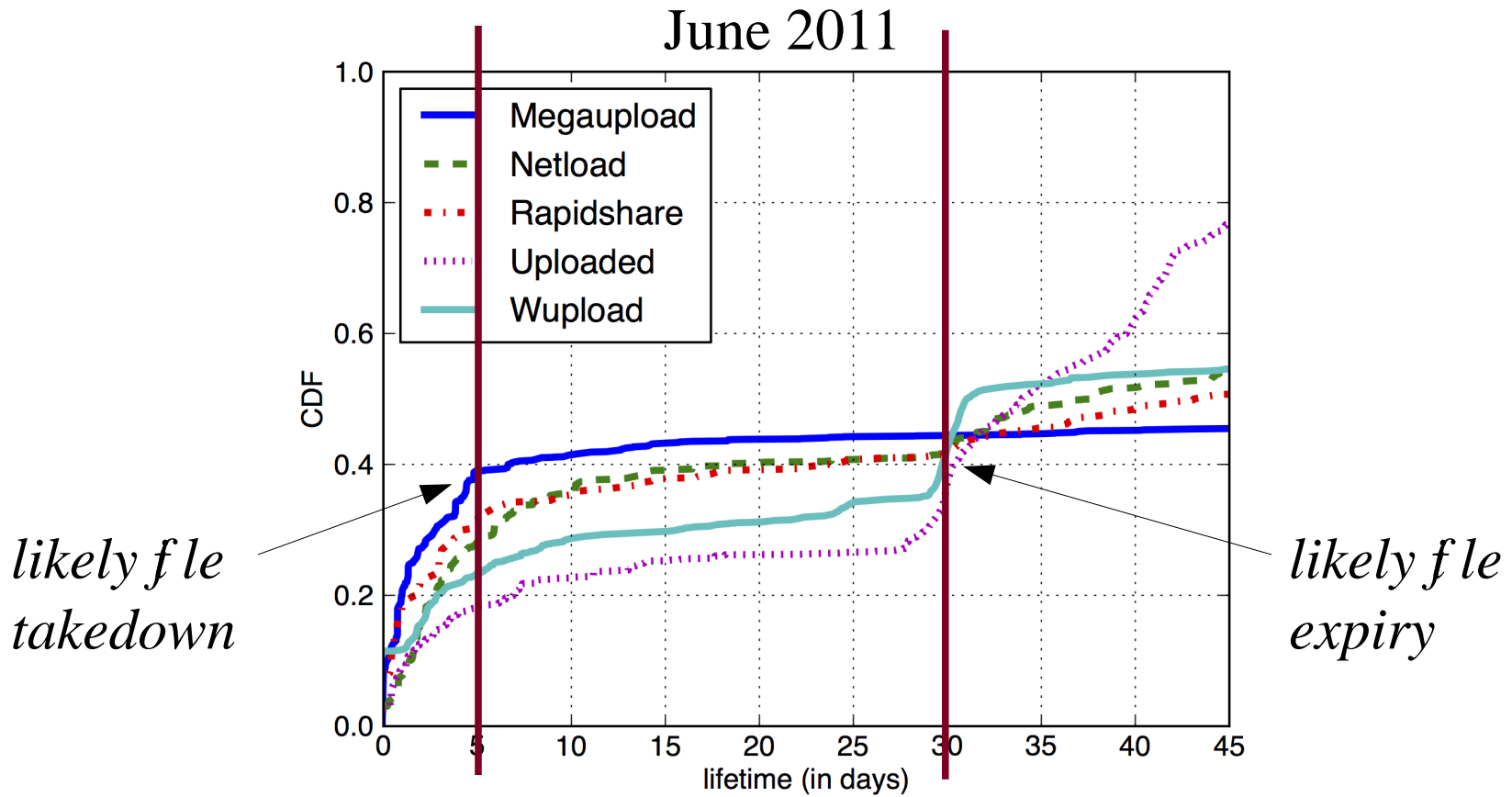
File Lifetime on OCHs



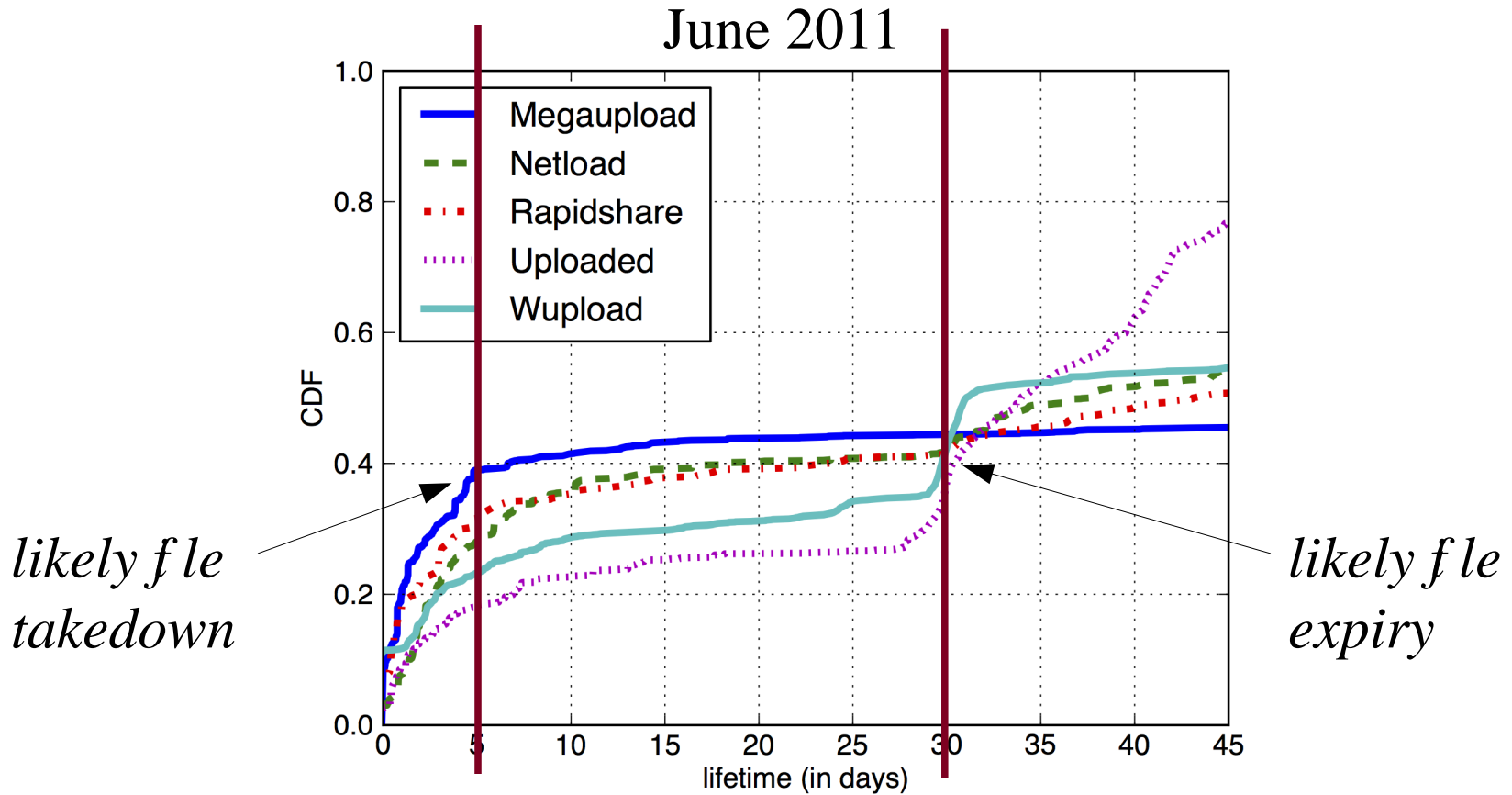
File Lifetime on OCHs



File Lifetime on OCHs



File Lifetime on OCHs



- Many files apparently deleted due to expiry, not DMCA takedown



File Redundancy



File Redundancy

If a file is deleted on a One-Click Host, how many alternative download links remain available on an indexing site?

- In 2011, median of 48 download links over all content on rlslog.net
- Typically a valid copy can be found



Effect(iveness) of Anti-Piracy Measures

II. Effects on Cooperative OCHs



Effect(iveness) of Anti-Piracy Measures



Nom

[He ob](#)

RapidP

Reward programme: RapidPoints and RapidDonations to be discontinued

Publicado el: 2010.06.18

As of July 1, 2010 RapidShare's RapidPoints programme will be discontinued. This decision by the company rewards the uploading of contents that are protected by copyright.

We feel it is necessary to undertake this step as we do not wish RapidShare's users to be exposed to such remains to provide users with a fast, secure and reliable service.

What will the changes mean for our users?

Firstly, we will give you an opportunity to convert a Collector's account into a free Premium account and to transfer your points

Unfortunately, we must also give up the RapidDonation scheme. An amount of 10,000 Euros was collected introduced. We would like to take this opportunity to thank all the donors for their contributions!

II. Effects on Cooperative OCHs



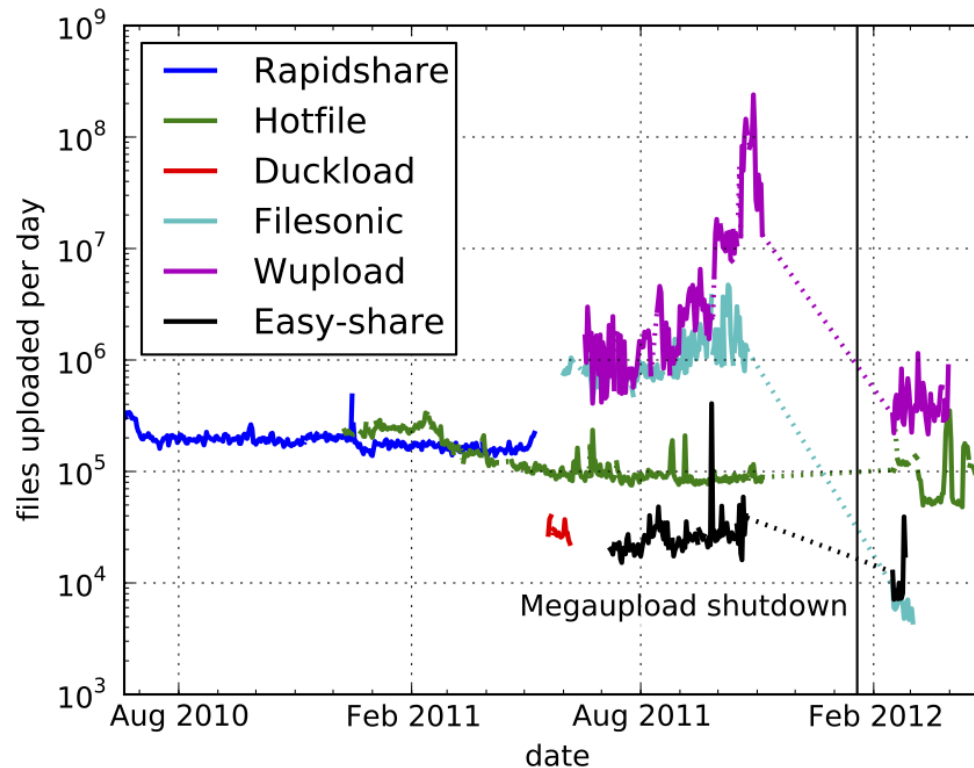
Global File Uploads

What happens to OCHs' upload traffic when they toughen their anti-“piracy” policies?

1. global, “open system” view

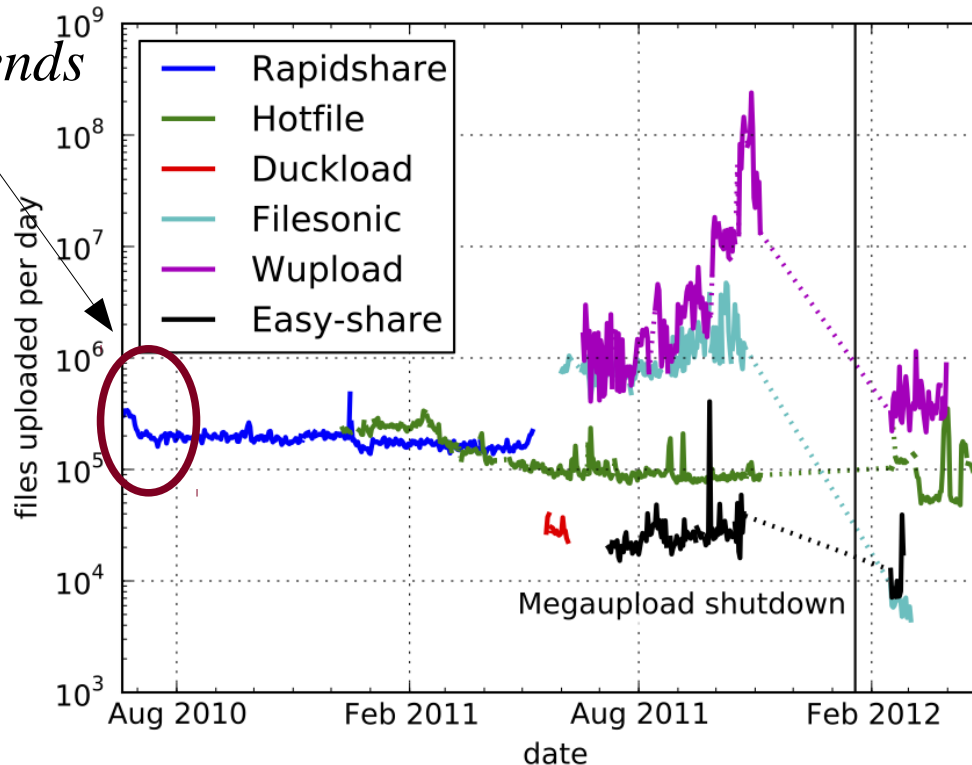


Global File Uploads

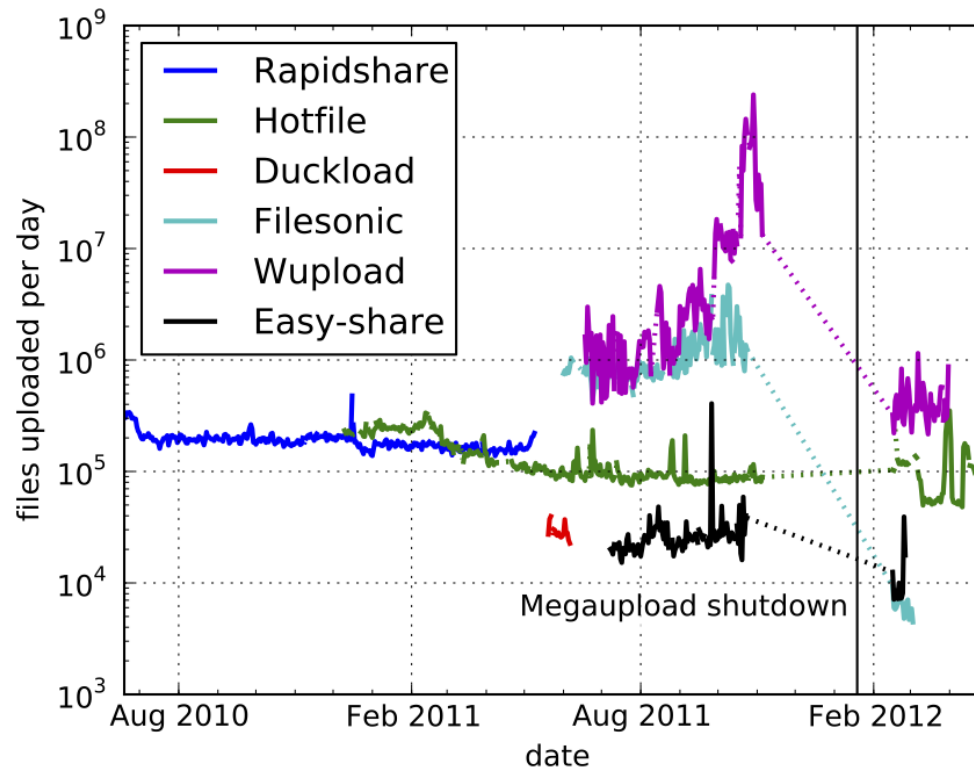


Global File Uploads

*June 2010:
Rapidshare ends
uploader
rewards*

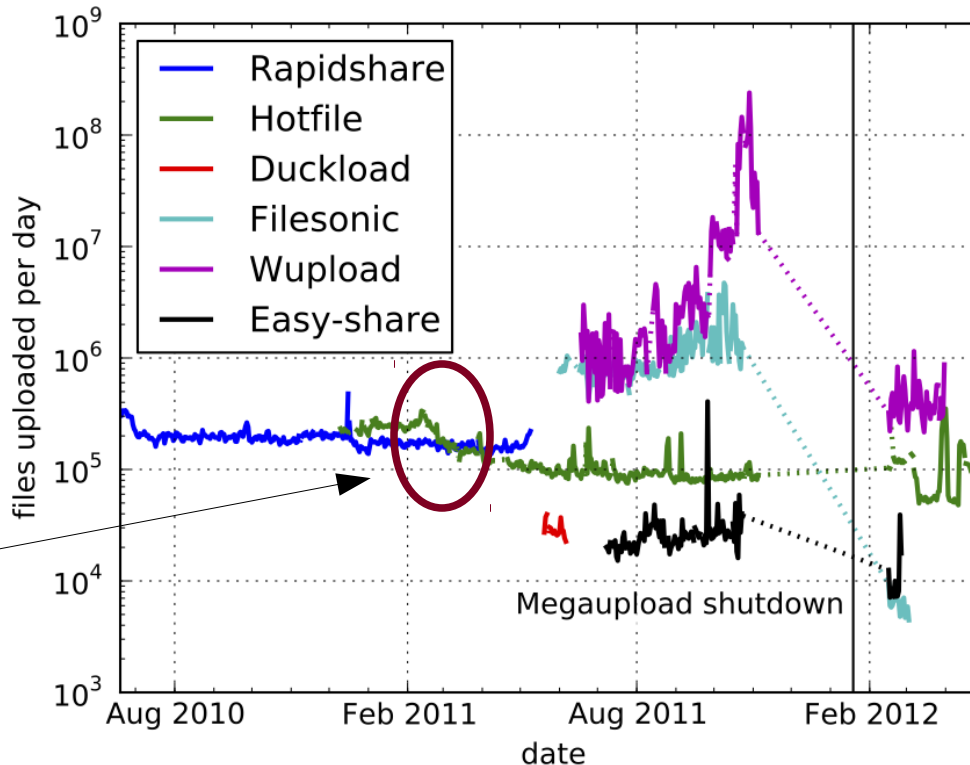


Global File Uploads

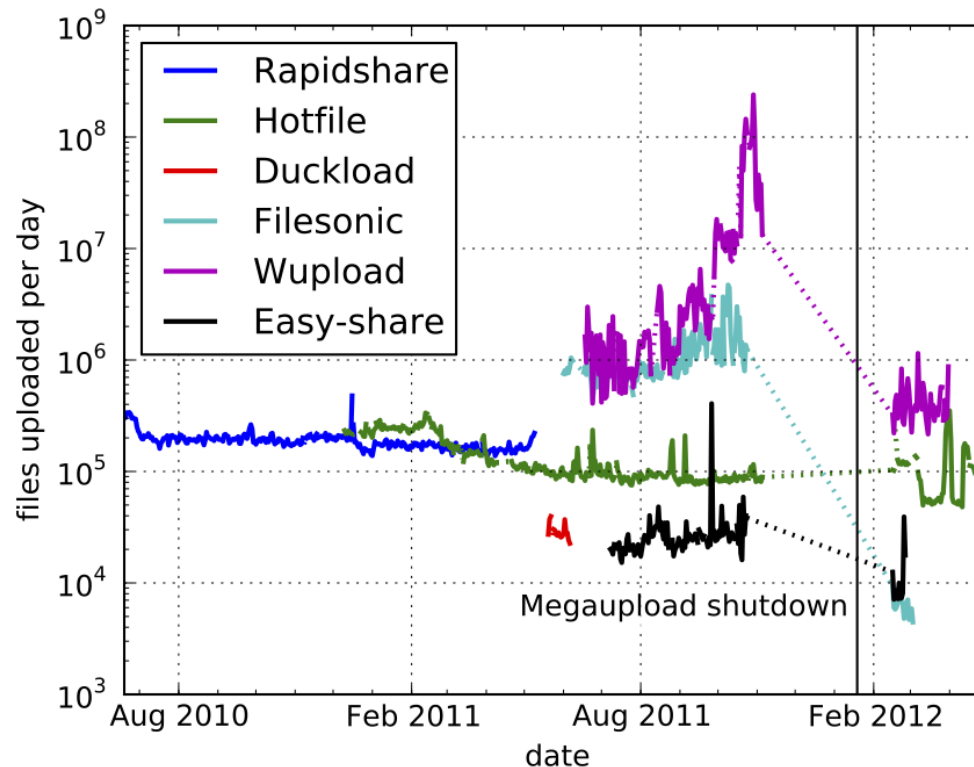


Global File Uploads

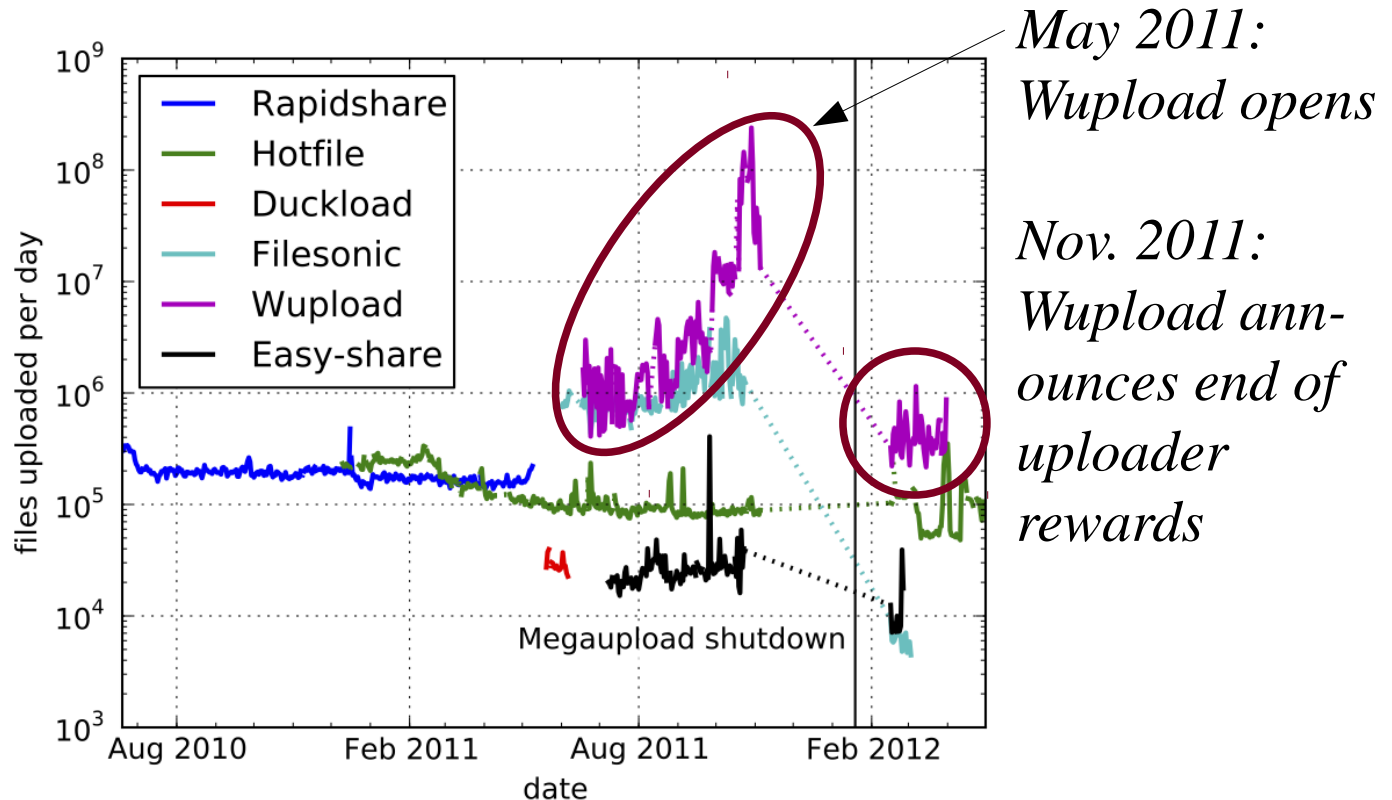
*Feb. 2011:
Hotfile
excludes
repeat
infringers*



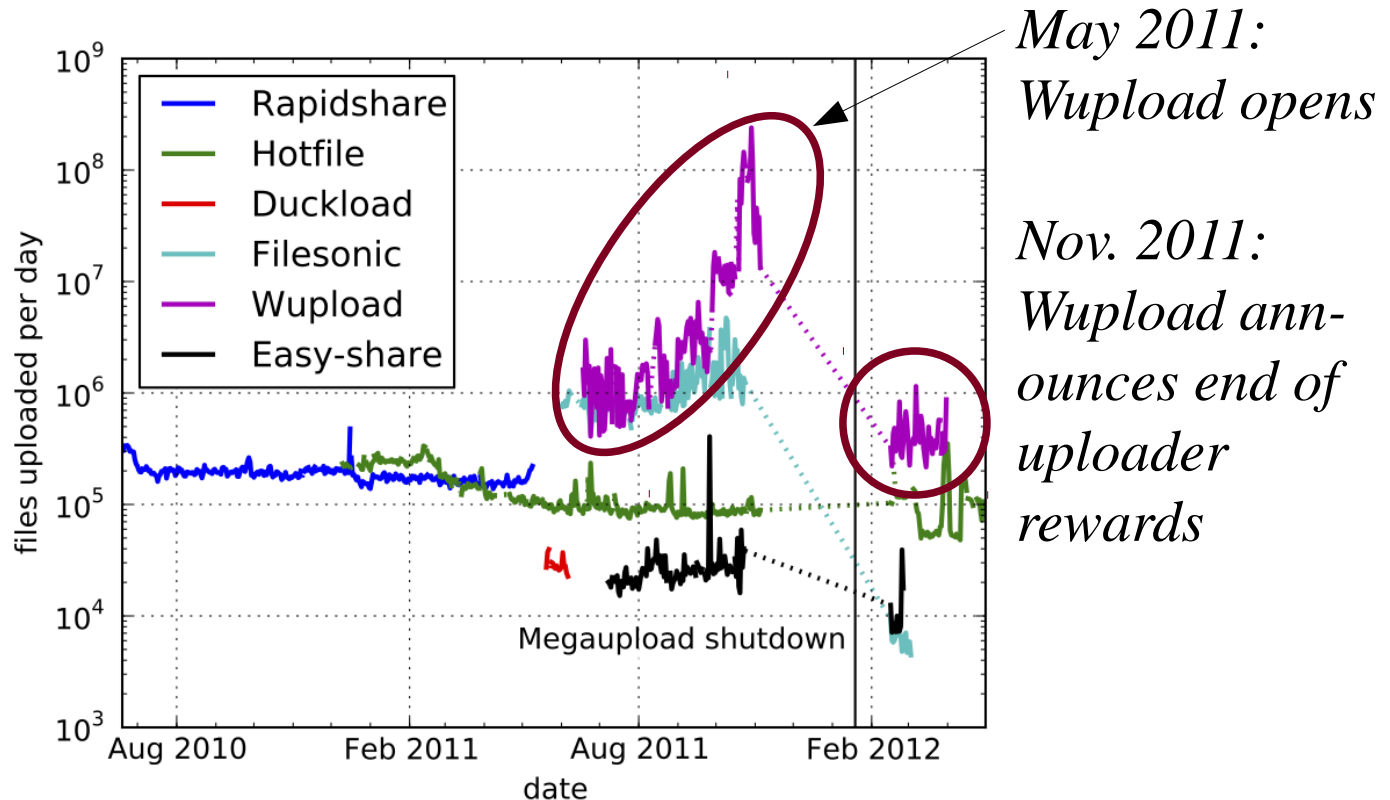
Global File Uploads



Global File Uploads



Global File Uploads



- Compliant OCHs lose uploads



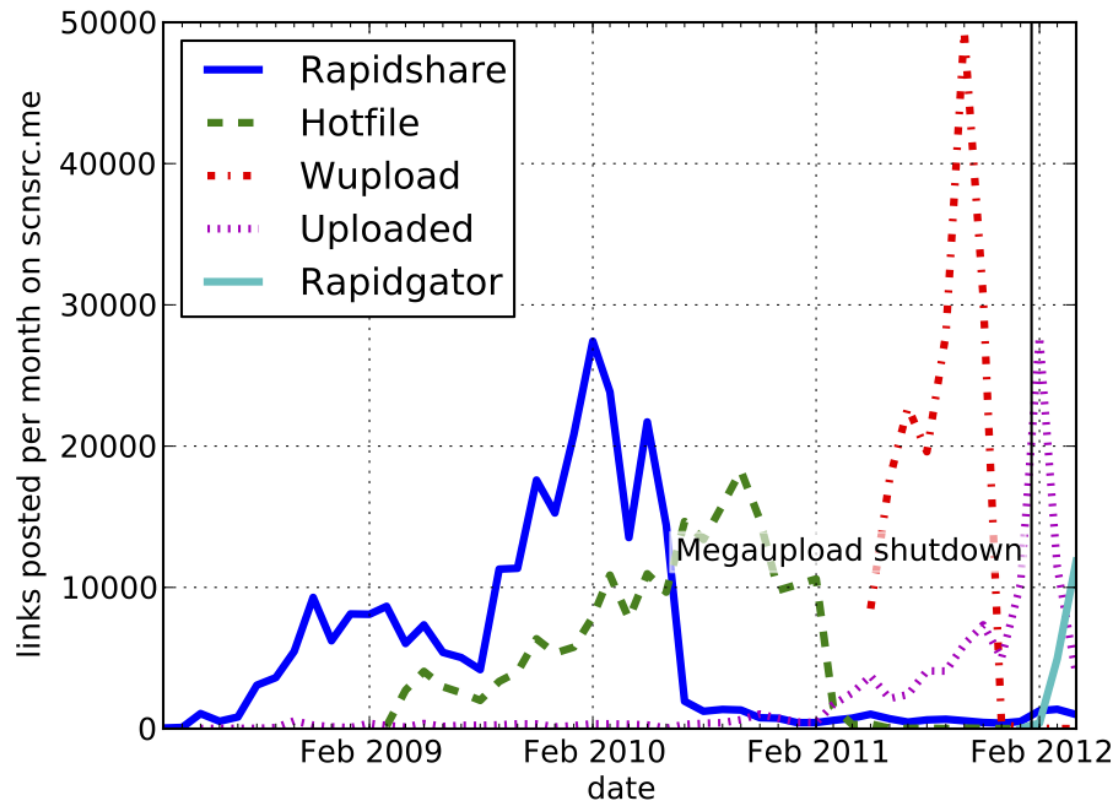
Indexing Site File Uploads

Where does the “lost” upload traffic go?

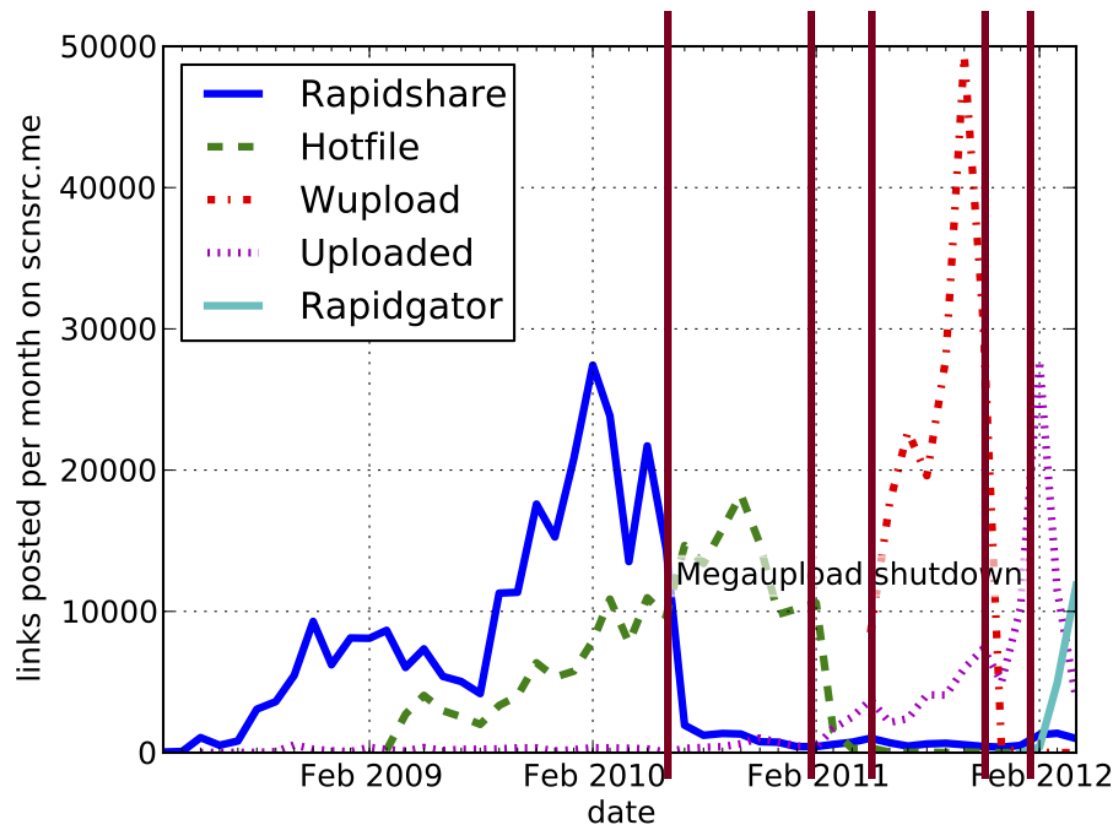
2. local, “closed system” view



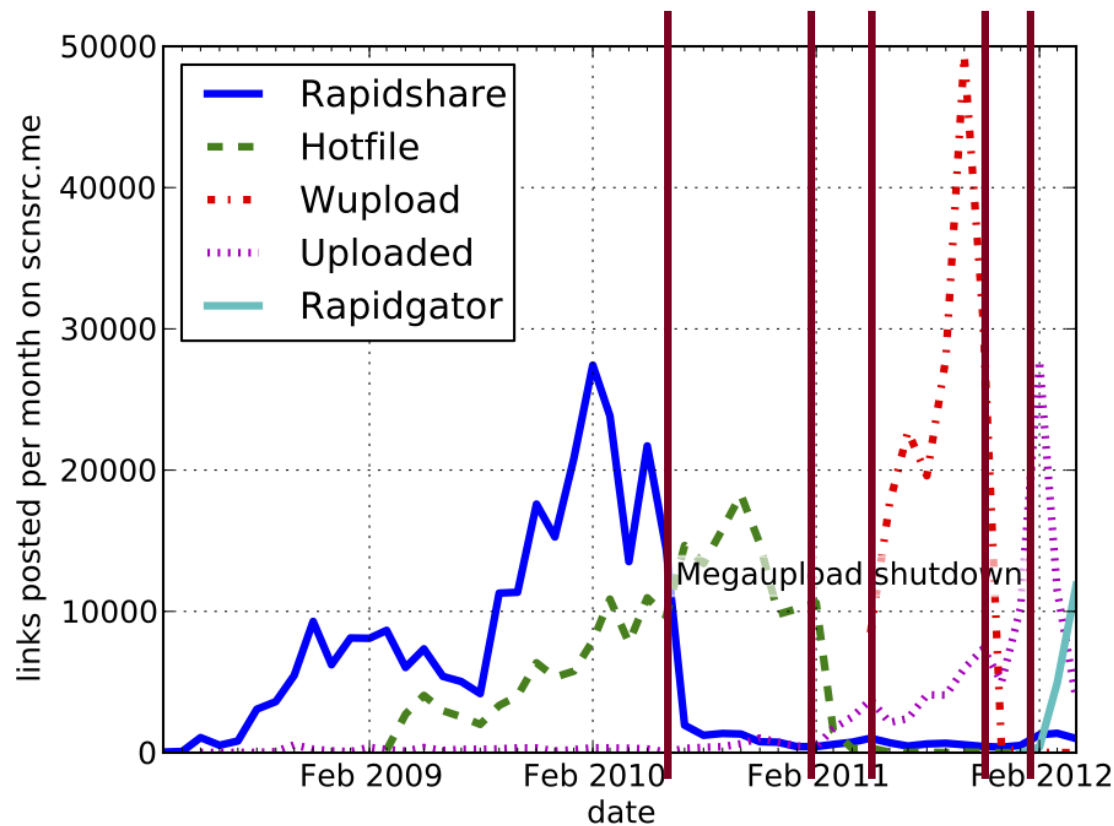
Indexing Site File Uploads



Indexing Site File Uploads



Indexing Site File Uploads



- Uploaders indeed move to other, more attractive OCHs



Effect(iveness) of Anti-Piracy Measures

III. Hardware Seizure



Effect(iveness) of Anti-Piracy Measures



This domain name associated with the website Megaupload.com has been seized pursuant to an order issued by a U.S. District Court.

A federal grand jury has indicted several individuals and entities allegedly involved in the operation of Megaupload.com and related websites charging them with the following federal crimes:

Conspiracy to Commit Racketeering (18 U.S.C. § 1962(d)), Conspiracy to Commit



Ecosystem Diversity



Ecosystem Diversity

If a One-Click Hoster closes down, how many alternatives do uploaders have?

- Since June 2009, rlslog.net has been using at least 50 different OCHs each month
- In April 2010, has used 300 OCHs so far
- Opening a new OCH is relatively cheap (\$200+), taking one down is not



Ecosystem Diversity

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Effect(iveness) of Anti-Piracy Measures

Summary

Current Anti-Piracy Strategies

- Long lifetime of infringing files
- Diligent OCHs only displace infringement
- Diverse ecosystem without single point of failure



Implications



Implications

- Current methods: infringing content remains accessible (may take longer to locate)
- New methods proposed (e.g., SOPA)
- *In the paper:* looked at likely effect of new methods... probably quite limited

Can there be any really effective law against copyright infringement (modulo “free society”)?



Implications

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- New methods proposed (e.g., SOPA)
- *In the paper:* looked at likely effect of new methods... probably quite limited

Can there be any really effective law against copyright infringement (modulo “free society”)?



Conclusion

- A few content producers vs. many “pirates”
- More content uploaded than taken down
- Current anti-“piracy” methods apparently failing to make infringing content unavailable
- Mass copyright infringement unlikely to end any time soon

