

My Head is Full of Stuff

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This Presentation

- What ideas am I going to cover?
 - BitTorrent Exploitation
 - Anonymous Uploading
 - Xanadu for code
 - Predictive Adaptive Algorithms for refrigeration
 - Some confused ramblings about the computer music

BitTorrent Exploitation

- Multiple Colluders
 - Have a network you upload to. Peers will see that you upload a lot of parts that you receive. This makes you more attractive to a seeder.
 - Don't let this network upload to anyone but themselves. Preferably they always forget blocks.
 - Lets have clients A and B. A is normal client with a predisposition to upload to B. B can only communicate with A and will download as much as possible from A. Globally A will look like it's uploading a lot of data. Supposedly this will make it more attractive to seeders and give it higher priority in the various ranking algorithms. Thus faster download speeds for less upload.

BitTorrent Exploitation

- Tracker Traffic Trust
 - The tracker cannot track all the data being sent. You can lie to the tracker how much data you have uploaded and downloaded.
 - By lying about upload you can be more attractive as a client who can download.
 - Very easy, get the peer id, the port and the hash, post to a webserver.

BitTorrent Exploitation

- Status:
 - Experiments have been done but are rather inconclusive. Parameter testing needs to be done. It'd be nice to access to a few computers. Scientific Method needs to be followed thus a clean room environment would be good to allow comparison between using the exploit and not using the exploit.
 - Researched, found very little, one message about colluding groups in a different context.

Anonymous Uploading

- In a P2P network how can we protect uploaders identity?
 - Middle man technique (like the tracker)
 - Along the lines of BT
 - * Tracker
 - * Seeders
 - * Leeches
 - To receive file chunks a leech posts to the tracker a few blocks they want.
 - Seeders then spoof the source of their upload packets, usually just to the local subnet and thus send anonymous packets to the leeches.
 - Leeches report to the tracker what they received and what they want.

Anonymous Uploading

- Issues:
 - Redundancy
 - Packet Corruption
 - Packet loss and filtering
 - Abuse avoidance (e.g. flooding someone)
 - * using hashes and keys we can avoid heavily flooding clients.
 - Middle man makes it easy - but less secure can we avoid reliance on middle man?
 - Downloader authentication is much more important than uploader authentication.
 - Flooding downstream.
 - Testing

Anonymous Uploading

- Benefits:
 - We can have people signed up watching the file and have it so the middle man doesn't know who sent the block.
 - We can avoid litigation, if traffic is sniffed it'll require many subpoenas. It is not economically viable to track all the way. For instance if you spoof a whole subnet. No one is going to file 100 subpoenas for information.

Anonymous Uploading

- Status:
 - Currently in the idea and requirements phase
 - No research done.

Xanadu For Code?

- Store Code line by line?
 - Source files are just linked lists of line ids.
 - When we need to make the program we just write out the current source to the filesystem.
 - Drag and drop / cut and paste programming but if we change something we can figure out who else references it.

Xanadu For Code?

- Issues:
 - Storage
 - by line .. by group? How do we deal with groups of lines
 - Multiple Modules etc?
 - How do we record and document code snippets?
 - Search is a little stranger.
 - Revisions of groups..?

Xanadu For Code?

- Benefits:
 - Lower Level Libraries (code snippets)
 - by line .. by group? How do we deal with groups of lines
 - Multiple Modules etc?
 - Revisions of lines / Revisions of groups.

Xanadu For Code?

- Status:
 - Currently in the idea and requirements phase
 - No research done.

Predictive Adaptive Algorithms For Refrigeration

- Problem:
 - Behavior in a restaurant can affect the refrigeration of food. A employee moving large objects from the freezer could leave the door open for an extended period of time. This could result in raising temperatures and more load on the refrigeration machinery.

Predictive Adaptive Algorithms For Refrigeration

- Possible Solution:
 - If perhaps the periodic and predictable behavior of busy periods was noticed by the unit, it could predict that the system would heat up so in turn it could pre-cool the fridge to reduce the load on the system.
 - Seems quite patentable.

Predictive Adaptive Algorithms For Refrigeration

- Issues:
 - Is related to my summer job.
 - * I can't remember if I signed anything about it.
 - It'd be better if we found a different but similar system to use this on.

Predictive Adaptive Algorithms For Refrigeration

- Status:
 - Currently in the idea and requirements phase
 - No research done.
 - Possible Legal fun? (Company has no money !)

Computer Music Stuff

- I'm thinking how I make my instruments and prototyping. I have a lot there.
 - I have some hints of ideas of describing the instruments or providing an example of easy implementation using high level constructs..
 - On the computer the UI is all powerful for music..
 - Very unclear about this one.
 - Was thinking how awesome a directed studies course making instruments would be (e.g. force me to make music software :-))

References