Peer-to-peer networks

Ashok Argent-Katwala

Imperial College London

`http://aesop.doc.ic.ac.uk/`

December 20, 2004

a.argent-katwala@doc.ic.ac.uk

What is P2P?

- Focussed on peers

- Resources at the edges

- Typically unreliable individuals

How much centralisation?

Central coordination e.g. Napster, IRC/`fservs`, BitTorrent

Hierarchical e.g. DNS

Fully decentralised e.g. Freenet, Gnutella

Central coordination

- +Server behaviour well understood

- +Much simpler to build

- −Centres can become the bottleneck

- −Centres are vulnerable to failure / overloading / takedown

Example : BitTorrent

Hierarchy of peers

- Some are more equal than others

- $+$Scales better

- $+$Relatively well understood

- $-$May be vulnerable to failure or attack

Example : DNS

Decentralised

- Fully equal peers

- No single point-of-failure

a.argent-katwala@doc.ic.ac.uk

Examples : Freenet, Gnutella

a.argent-katwala@doc.ic.ac.uk

News

- BitTorrent/SuprNova analysis by Johan Pouwelse et al

- SuprNova dead

Links

```
<http://logicwand.com/torrent/>
<http://aesop.doc.ic.ac.uk/>

...

<http://peer-2-peer.org/>
<http://www.theregister.co.uk/2004/12/18/bittorrent_
measurements_analysis/>
<http://yro.slashdot.org/yro/04/12/19/1712258.shtml>
```