Solution notes

Advanced Systems Topics 2005 (JAC) Paper 9 Question 5

(*a*) *Compare and contrast the request routing mechanisms of gnutella and pastry.* [10 marks]

we're looking at the maintenance – find and talk to neighbours plus (i) flooding, (ii) Distributed Hash Table mechanisms here – this is discussed in first 2 of my lectures. Contrast is in network traffic, latency of lookup, and so forth.

(*b*) *It has been said: "Unstructured peer-to-peer systems are better than structured peer-to-peer systems because they implement searching and complex queries." Describe how a structured system might be able to implement search.* [10 marks]

This is (hopefully) to be in a guest lecture from MSR (Rowstron) (or else I will give the lecture) – an overlay on a DHT can implement a multicast scheme – this can be used to propagate searchers (Scribe). Various techniques to reduce maintenance traffic are also possible. In the end, what a DHT does (structured p2p) is to ignore elements of the structure. We might have also discussed CANs – There we could use several different CANs to implement alternates – this (as with similar proposals in Chord and Pastry) doesn't scale too well for wildcards, or even just slightly mis-typed keys.