

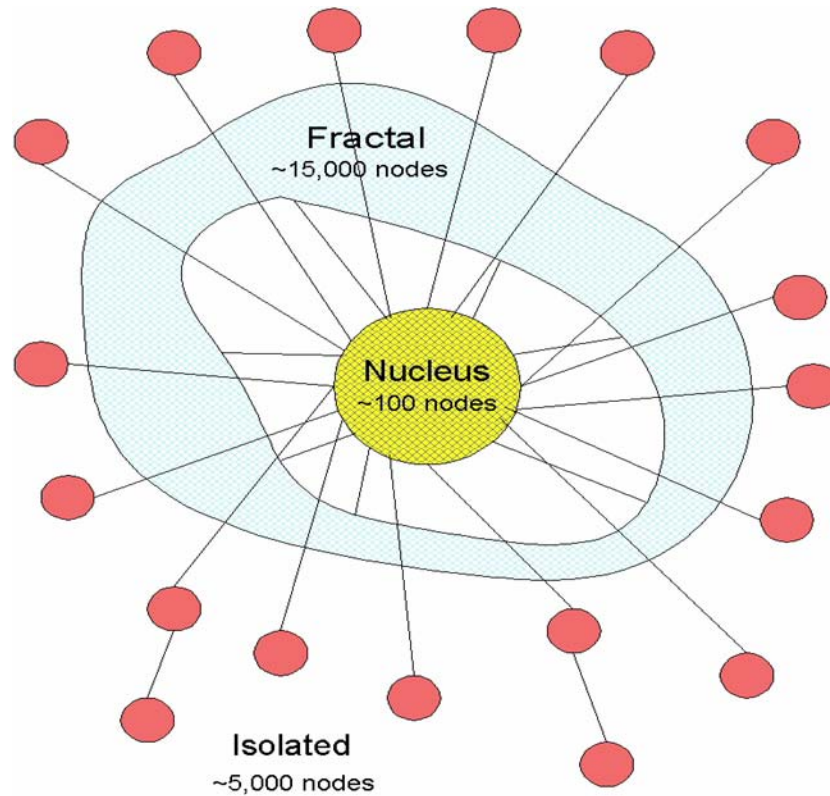
Building monitoring into the wide-area network

Scott Kirkpatrick
HUJI

Extended active measurement exposes BGP secrets, “dark matter”

- DIMES with 5500 volunteers, 12500 agents, 2.2B measurements so far finds (in Aug 2006)
 - 1/3 of edges traversed in Traceroute experiments are not published by BGP speakers (in RouteViews)
 - Meaningful delay statistics can be gathered on >80% of links (more than 10 visits per week during global coverage)
- So why shouldn't the net start to measure itself?
- You all know why not!
 - Proprietary information, no competitive advantage, yada, yada...
- So change the package of information, restrict range of disclosure in WAN to AS-AS immediate neighbors.

Who talks to whom?



Medusa model

Where to start?

- Mesh networks have not frozen into minimum information-exposing configuration yet, can benefit if this leads to more robust, higher bandwidth cells.
- As customer requirements move from QOS to SLAs, exchange of response time and capacity information to immediate customers and peers, who already have an economic relationship, becomes a means of advertising for and incenting additional business.
- Will it work? One random hop is a powerful smoother in routing. One bit of information obtains 80% of the benefit in several online and auction algorithms. My hunch is that one hop of improved information is sufficient to expose the dark matter to productive use.