Recitation: RON

Pre-Recitation

What is the goal of RON?

- RONs quickly detect and recover from failure, disconnection, or interference
- Goals:
    1. failure detection/recovery in less than 20 seconds
    2. allow for tighter integration of routing and path selection
    3. expressive policy routing

How was it designed to meet this goal?

1. RON permits groups of nodes to monitor and communicate about the various Internet paths connecting the nodes RON nodes will exchange information about the complication among each other and determine whether to reroute the packet by way of other RON nodes.
2. RON allows separate applications to classify failures differently, by allowing them to place more or less importance on metrics like throughput, latency, etc.
3. RONs usually run on powerful machines, so it makes is well suited to provide fine graded policy routing

Why do we need RON? (Or why do the authors believe that we need RON?)

1. Existing BGP-4 protocol takes a long time to converge to a new valide route after a link failure
    - it can't detect problems like packet floods or persistent congestion
2. This makes RON much more of a unviversal solution across all applications, because different applications have different requirments. For example, TCP might classify a system failure from over 30% packet loss, while UDP would do so for over 10% loss, because the protocols have separate requirements.
3. BGP-4 is incapable of expressing fine grained plicies aimed at users/hosts
    - impossible to announce a BGP route only to particular users