Recitation 9 — RON

Basics
- **Overlay network:** A network layered on top of another network. Typically provides functionality that is not available in the underlay. There's usually a trade-off for this functionality (in RON's case, one trade-off is scale).
- RON's aim is to respond to failures: endpoints that take too long to respond, or links that have too many dropped packets.
- RON's claim is that BGP doesn't react to failures quickly enough

How it works
- RON nodes are scattered around the Internet. Take measurements between them to detect failures that BGP cannot.
  - Can monitor a variety of different attributes on a path. Different applications have different needs (e.g., some are latency-sensitive; some are throughput-sensitive).
- Works because of path-redundancy on the Internet. There are typically multiple ways to get from one source to one destination. BGP doesn't expose them all. (see Figure 3 in the paper)
- **Drawback:** Doesn't scale! The RONs described in the paper are ~50 nodes.

Questions for Discussion
- Is it fair of RON to expose paths that BGP doesn't?
- Are you convinced by the evaluation section of this paper? Take a look at Figures 9 and 11; they use the same data but for different purposes. What does each figure illustrate?