Using IP anycast for HA webapps

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How?
● Use routing protocol to advertise same IP address in multiple locations simultaneously.

Why IP Anycast routing for HA services?
● Provides "shortest"-path routing (lowers latency)
● "transparent" failover in case of instance failure
● network partition resilience (if app is also partition tolerant)
● load-distribution

if done right!
Anycast auto-routes to "nearest" instance of app
Anycast auto-reroutes on failure of an app instances
network anycast routing is worth deploying if your network and routing are more stable than the server infrastructure and application

- typically used for short-lived, session-less services
- used to great effect for DNS recursive and auth service, both intra- and inter-domain
- used occasionally for inter-domain CDNs for HTTP, over TCP
- we use it intra-domain for HTTP/S web applications for all the advantages it provides
Our Enterprise web directory HTTP rtt on average

red vertical lines are route switches, almost all due to planned maintenance
Anycast Problems

- harder to debug if there are routing oscillations
- Coordinate multiple instances -- client might hit multiple versions
- generally more complexity, needs better operator training
- Need better tools to monitor, catch and fix problems

All said, based on our experience, worth doing!

- Rolled out IP anycast routing for our LMS just 2 weekends ago, so far, so good.