Why you shouldn't believe in magic*

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* = Formerly: "Anycast is not loadbalancing"
How do you scale a service?
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- Start with one server
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- Start with one server
- Add more servers
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- Tell clients about more servers
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- Get bored of telling clients about more servers
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- Talk to your network team/search the web
How do you scale a service?

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- Talk to your network team/search the web
- Anycast!
What is anycast?
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- Not unicast!
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- Each device/serving node has a unique IP.
- Clients get handed out different IPs (or all of them, and pick between them).
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- Network magic!
- Configure the same IP address on multiple devices.
- Let "the network" decide which client goes to which instance of your anycast service.
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Anycast is great!

- **Simple client configuration**
  - "Connect to this IP address!"

- **Simple horizontal scaling**
  - Add nodes, don't need to reconfigure clients.

- **Low dependency**
  - Doesn't need naming.
Anycast is good for...

- Stateless* services
  - DNS
  - NTP
  - Databases
- Simple high availability
  - No client changes required

* = yes, even over TCP, with caveats.
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- Mitigation: overprovisioning. :(

- Load balancing distribution
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- Monitoring/alerting
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Who are you?
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Who are you?

I'm the RED server.
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- Interesting failure modes
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- The perils of blackbox probing.
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"N+K redundancy isn't helpful if you don't notice K decreasing."

-- Ben Treynor Sloss, VP, Google SRE

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- Mitigation: hybrid blackbox probing.

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Don't believe in magic
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- Anycast is a useful tool for some problems
  - Know what those problems are
- Anycast works fundamentally differently to unicast
  - Load balancing distribution
  - Monitoring
  - Failure modes
- Think about what you need to change.
  - Designs
  - Operational procedures
  - Monitoring
Don't believe in magic

- When it comes to technology, there's no such thing as magic.
- If something sounds like it will solve all your problems, go and learn about it.
- Make sure you know what new problems you'll be trading off for.