

Recitation 9: RON₂ Performance

MIT - 6.033

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Plan

- Recap on Row
- The Evaluation Section
- Debate: Zoom should use Row to improve quality of our video chats.

Logistics

- * Mid-semester feedback form (see your email)
- * For Tuesday: Internet
- * Volunteers?

Recitation Qs

What is the goal?

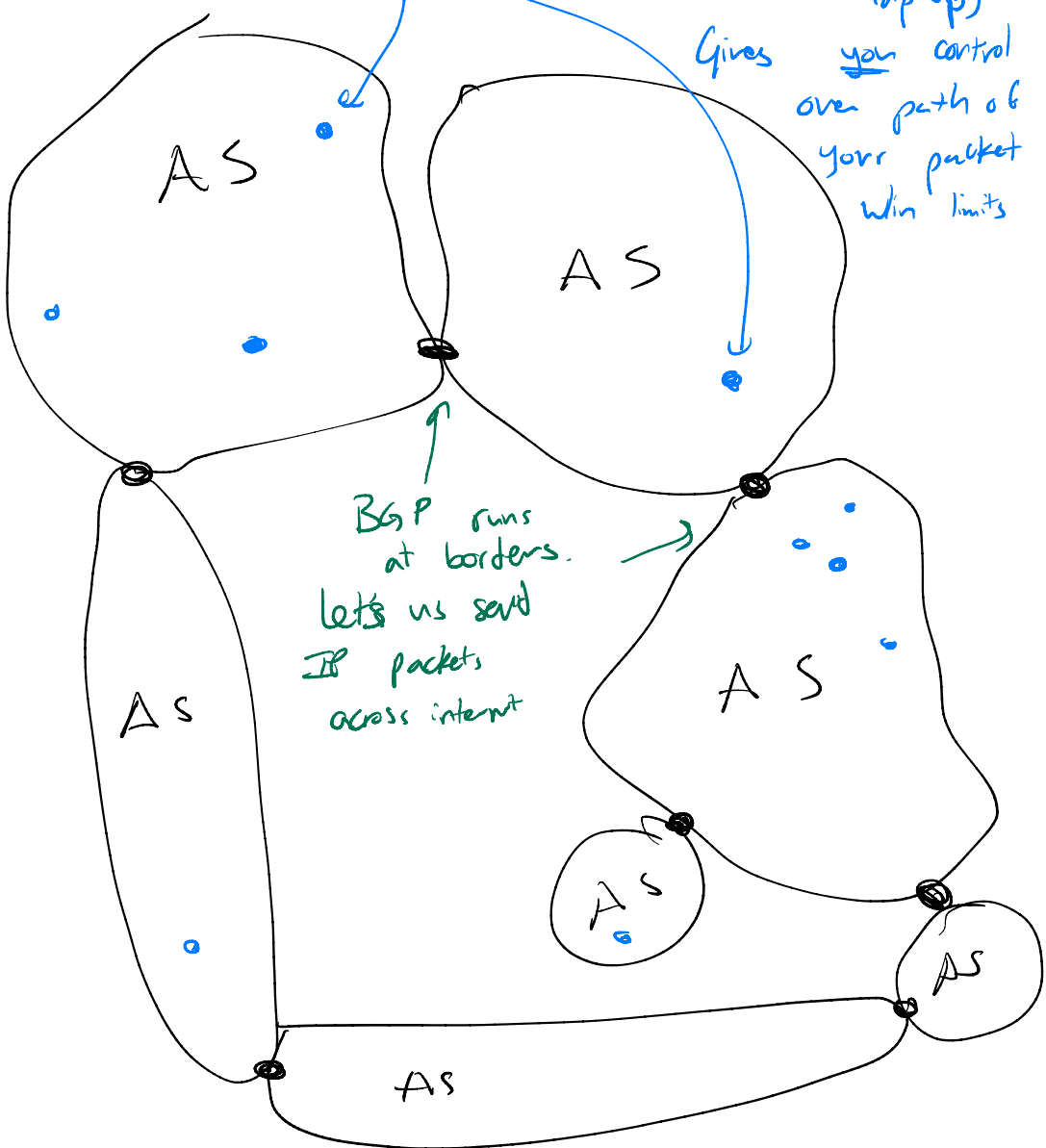
1. Route quickly around net failures
2. Application-specific metric in path selection
3. Expressive routing policies

Why do we need RON?

IF RON were in use today, who would be impacted?

Row runs on normal machines
in each AS (e.g. your laptop)

Gives you control
over path of
your packet
w/in limits



BGP runs
at borders.
lets us send
IP packets
across internet

In science, what is the goal of an experiment?

* Test a theory/hypothesis.

↳ Earth is flat

"Our system is a good idea"

* Measure a constant/quantity

↳ Speed of light, acceleration due to gravity

"Cost of our system in MB/\$/..."

* [In engineering] Compare costs to alternatives

↳ This engine uses 2x fuel than the other

"Our system is better than prior one."

* Others?

Which are happening here?

- Test a theory

↳ "Low improves throughput"

- Measure constant

↳ Loss rates / Low part

- Compare to alternative

↳ Plain internet

A Debate

Resolved: Zoom should implement RON to
improv video experience for our
120-person Zoom calls.


- Does RON solve our problem?
- Is it fast/cheap enough?
- What could go wrong?

Even Groups : In favor

Odd Groups : Against

- 1) Use paper to find points supporting your position.
- 2) Nominate one person to give persuasive short points in support
- 3) We'll alternate groups.

↳ Everybody wins! 😊



Breakout

Groups!

- Could ROW make ~~net~~ performance worse?

- Extra hops
- Extra processing
- Extra policy restrictions?
- "too clever"
- b/w consumption

- Scaling: Why doesn't ROW scale to thousands of nodes?

↳ Quadratic cost of probes!

- How costly are the probes?
↳ Worth it?

Why don't we use PON?

- Scaling is one major issue
- For whom is it worth the trouble?
 - ↳ Maybe Google, but they run their own fiber?
- Can you run PON w/ mutually distorting ^{parties}?
- How frequently do we see net outages of the kind that PON could fix?
 - ↳ worth the cost?

Example of one that is used: **Tor**

↳ Not for performance but for functionality