ICNRG Fairness Discussion

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Motivation

- Blind use of AIMD may cause fairness issues when in-network caching is used

  - Less bandwidth available for less popular contents

- What is fairness in an Information-centric network?

  - How to measure this fairness (i.e., metric)?

Fairness in term of what?

- Bandwidth?

- Memory?

- Delay?

- ...?

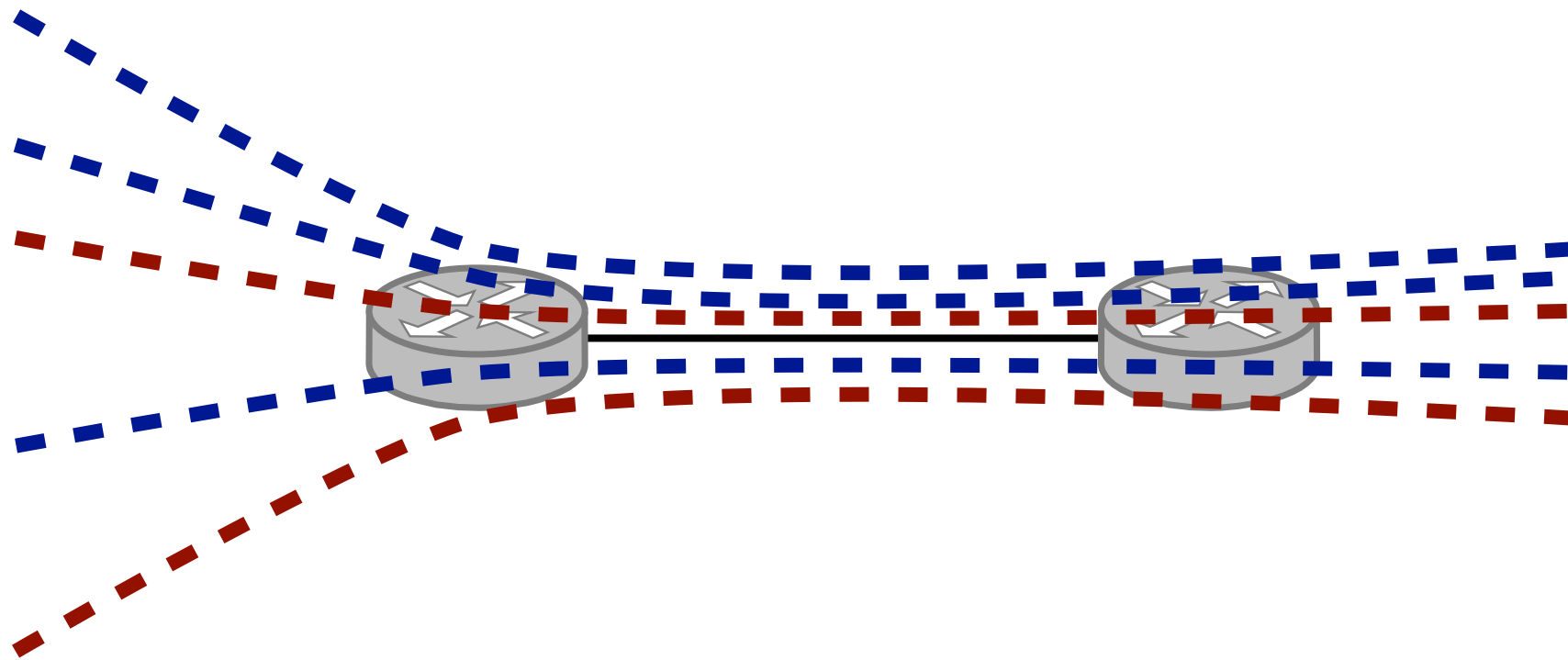- In the rest of the presentation, resource is simply written r

Flow fairness

- r_f, resources of flow f:

  - r / # flows (e.g., $r_f = r/5$)
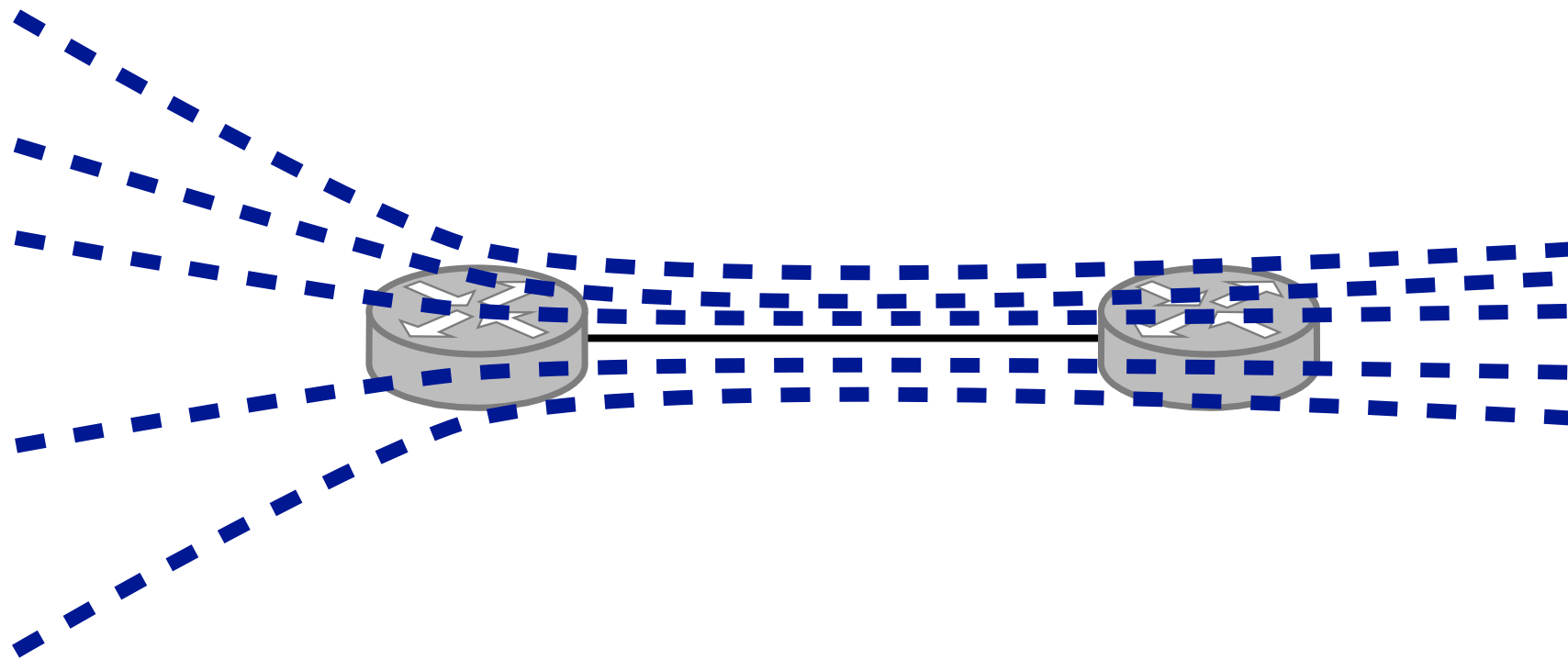
- - - Flow
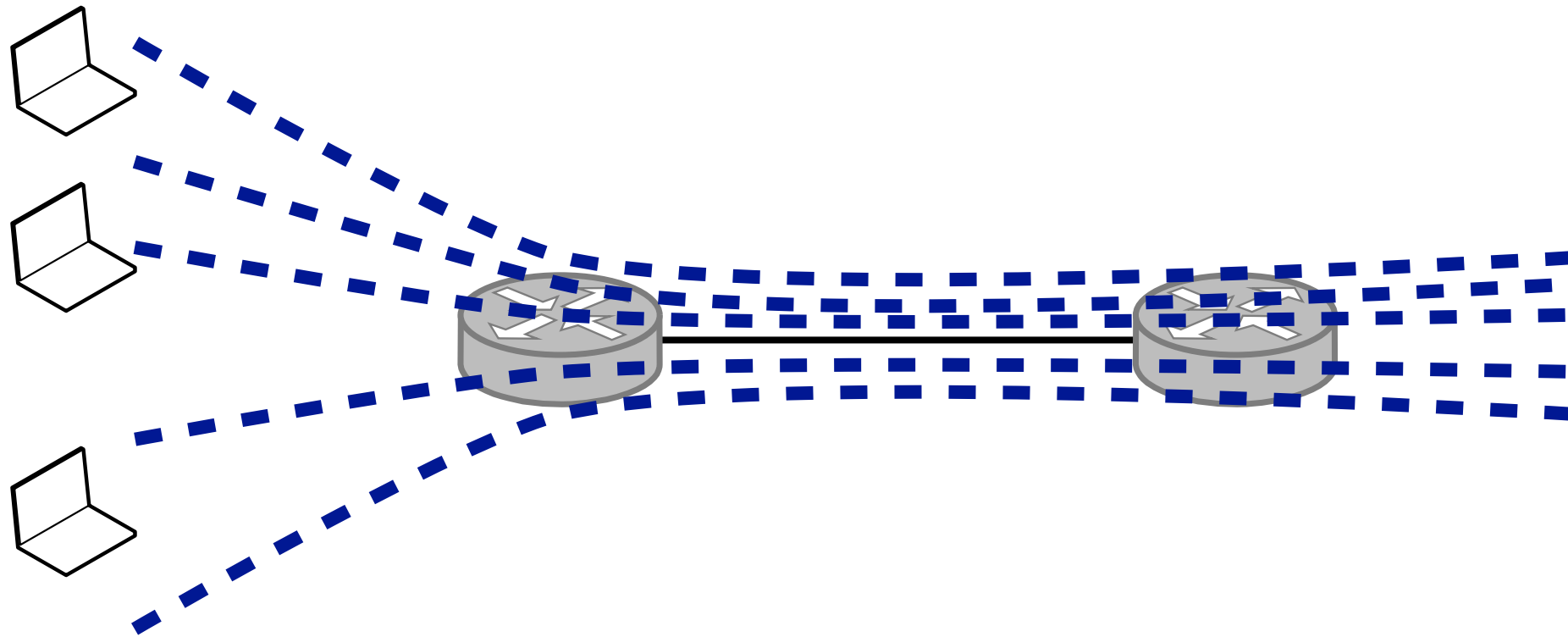
Content fairness

- r_c, total resources for flows of content c
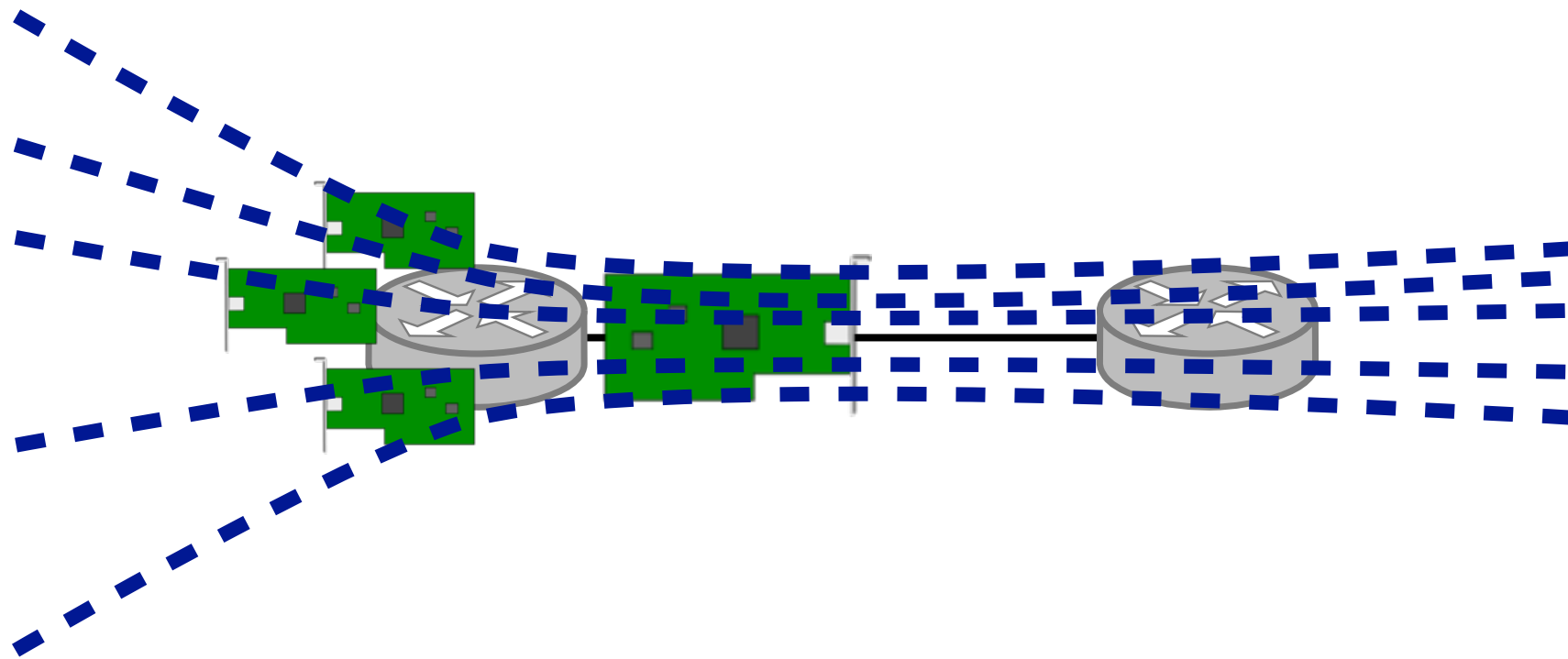
  - r / # contents (e.g., $r_c = r/2$)

Customer fairness

- r_u, total resources for flows of customer u:
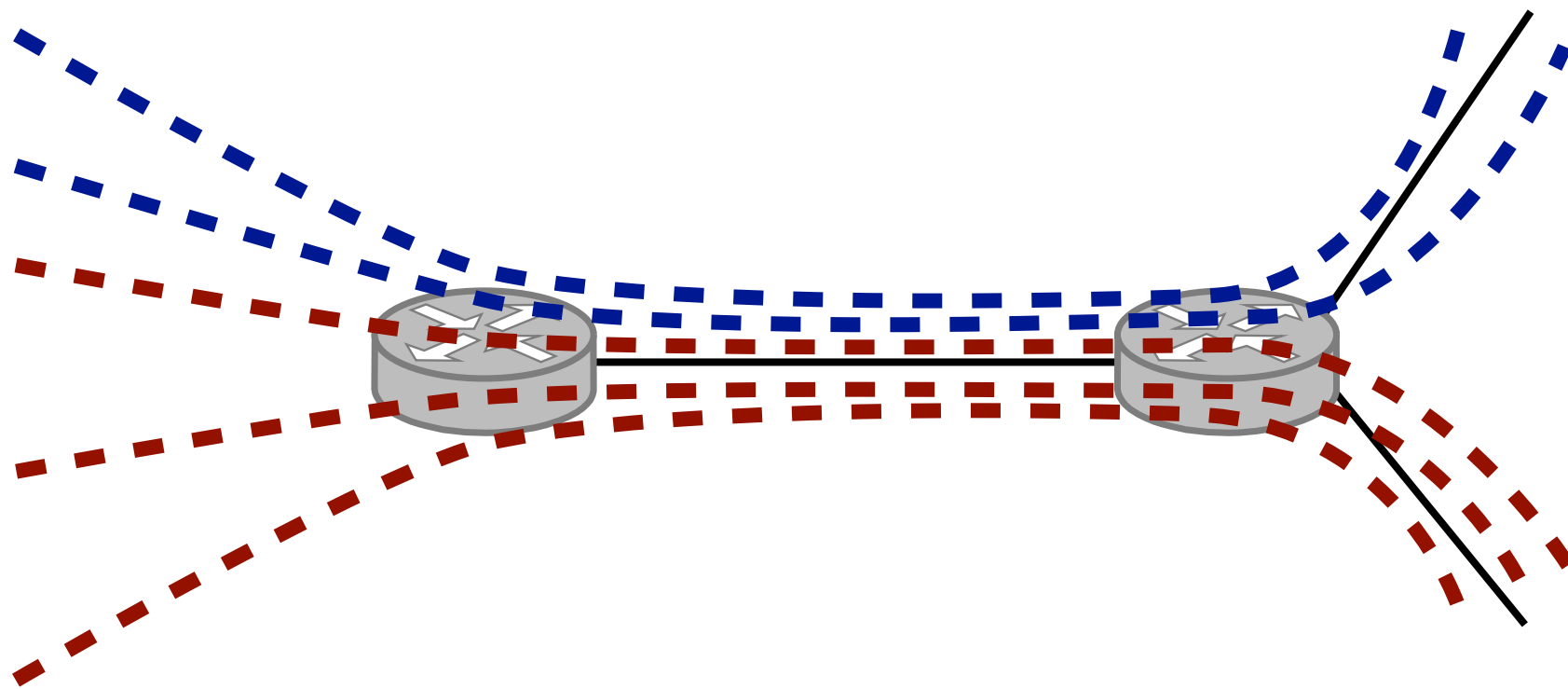
  - r / # customers (e.g., $r_u = r/3$)

Flow

Link/interface fairness

- r_i, total resources for interface i:

  - *r / # incoming interfaces (e.g., $r_i = r/3$)*

- - - Flow

Network fairness

- *r_f, resources of flow f on path p:*

  - *r / # flows on p*

Flow (one color per path)

Two options to enforce fairness

- End-to-end

  - consumers deal with rate control

- Hop-by-hop

  - routers deal with rate control

- How to cope with demand aggregation that hides consumers?

Summary

- What is a flow?

- What is a resource?

- What fairness do we want to reach and how to measure it?