Reviewing EIGRP Load-balancing

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Module Overview

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EIGRP Load-Balancing Basics

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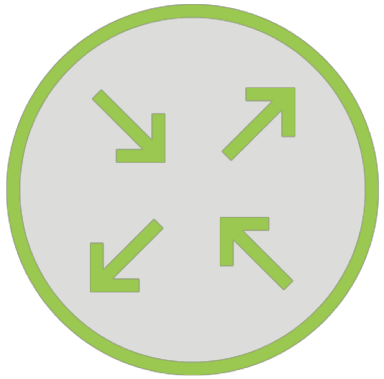
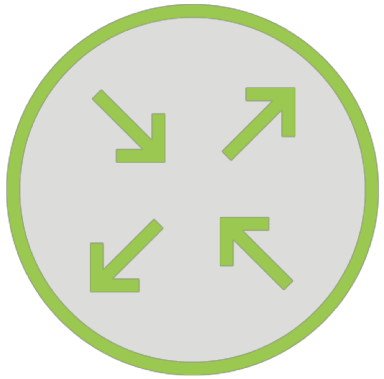
Implementing EIGRP Load-Balancing

Load-balancing



All routing protocols load-balance

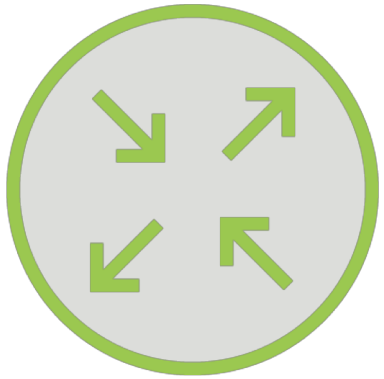
Load-balancing



All routing protocols load-balance

Most don't support unequal paths

Load-balancing



All routing protocols load-balance

Most don't support unequal paths

EIGRP supports unequal cost load-balancing

This module discusses this functionality

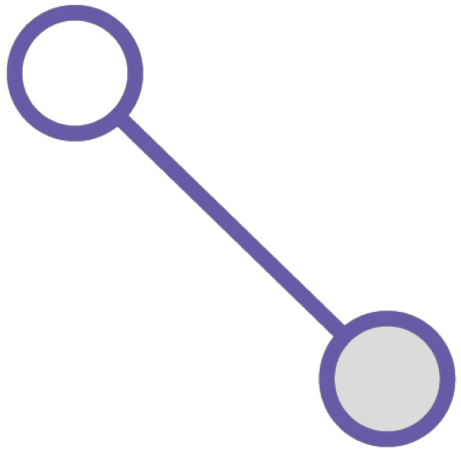
EIGRP Defaults

Only load-balance equally

EIGRP Defaults

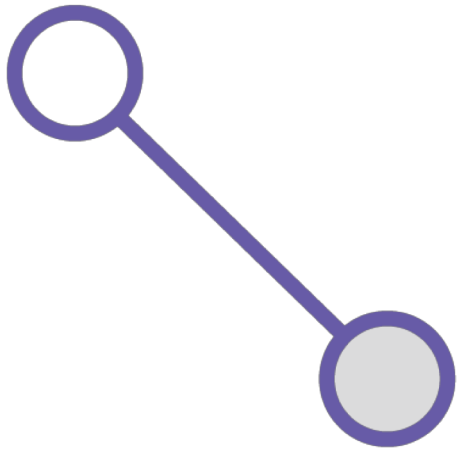
Must be explicitly configured

EIGRP Unequal Load-balancing Configuration



EIGRP Unequal Load-balancing Configuration

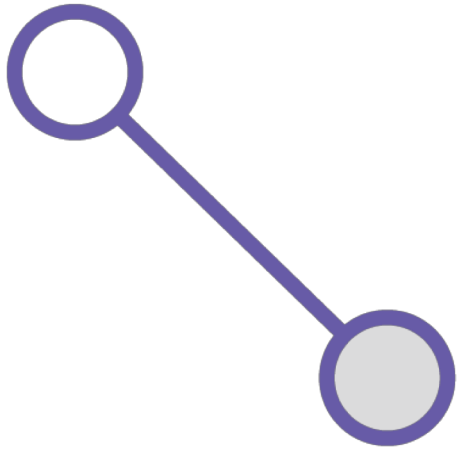
Variance multiplier must be configured

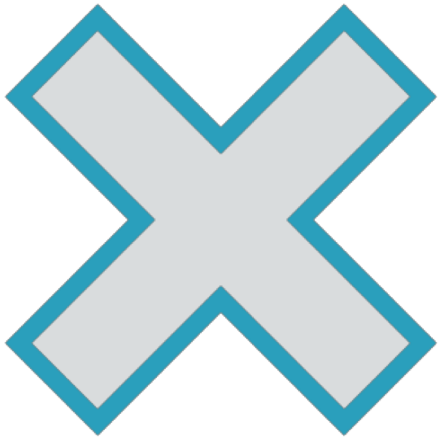


EIGRP Unequal Load-balancing Configuration

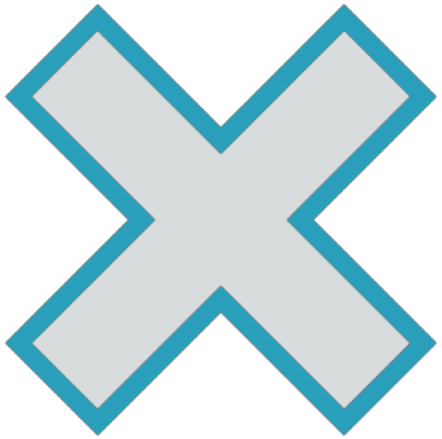
Variance multiplier must be configured

Set to 1 by default resulting in only equal load-balancing



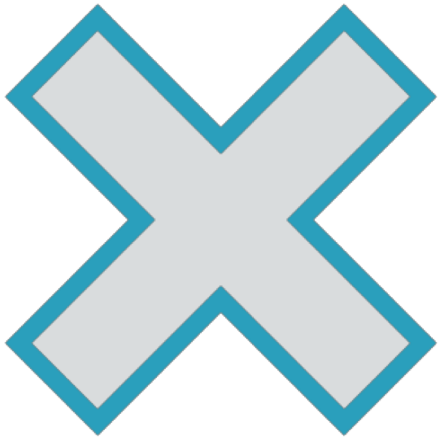


Variance Multiplier



Variance Multiplier

If set to 2:

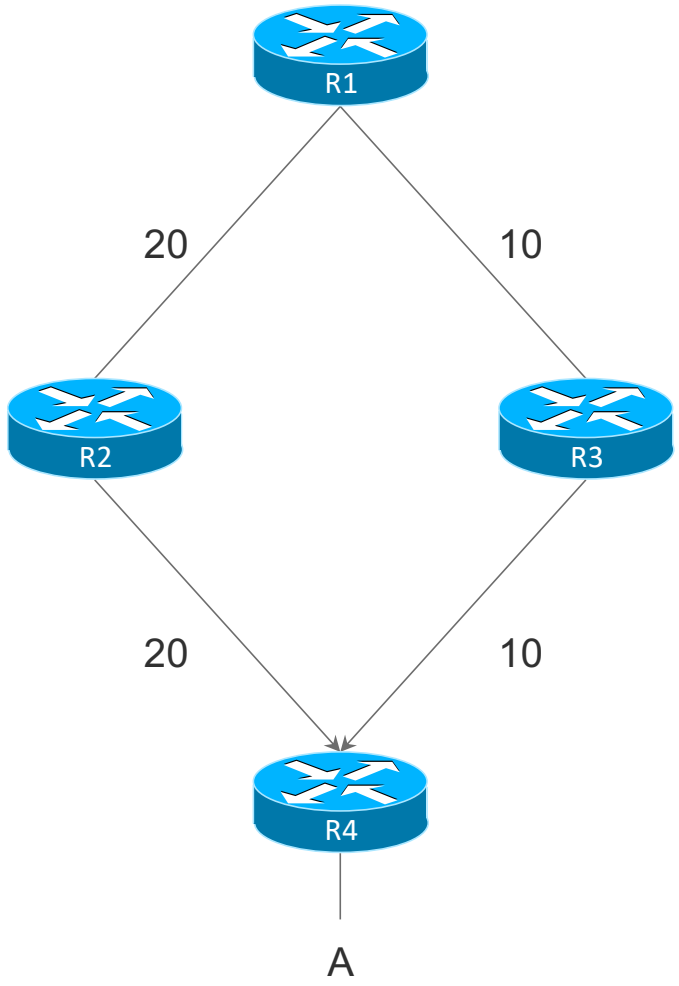


Variance Multiplier

If set to 2:

- Best metric x 2 entries will be used

Variance Example



Load-balancing

When feasibility not considered, R1 would have two route options

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Via R3 (20)

Load-balancing

When feasibility not considered, R1 would have two route options

Via R3 (20)

Via R2 (40)

Load-balancing

When feasibility not considered, R1 would have two route options

Via R3 (20)

Via R2 (40)

By default, R3 route only used

Variance

Variance

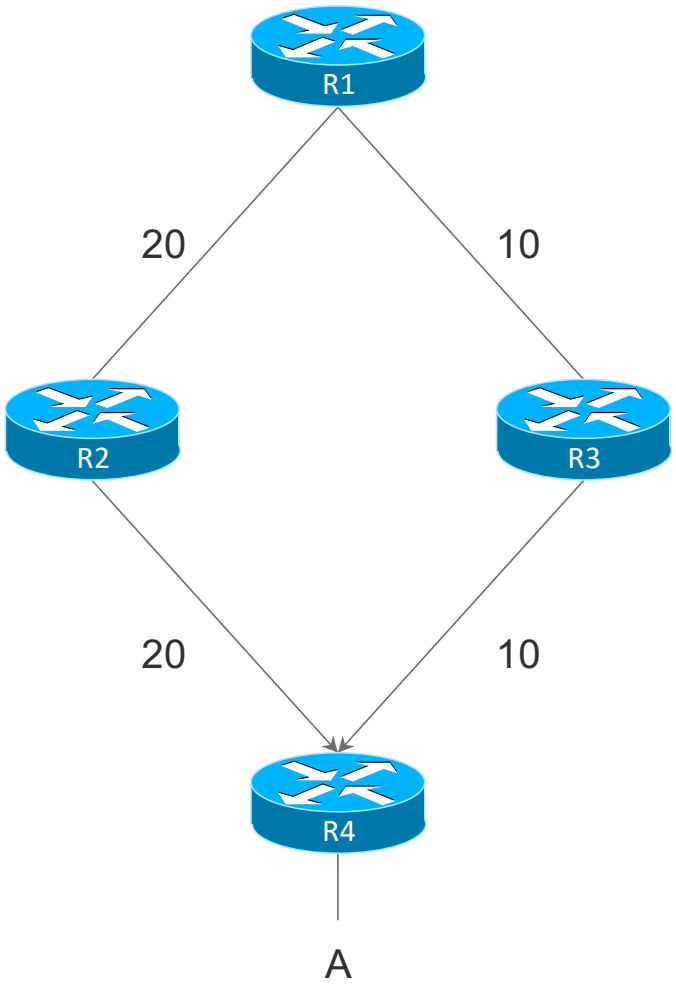
If altered to 2

Variance

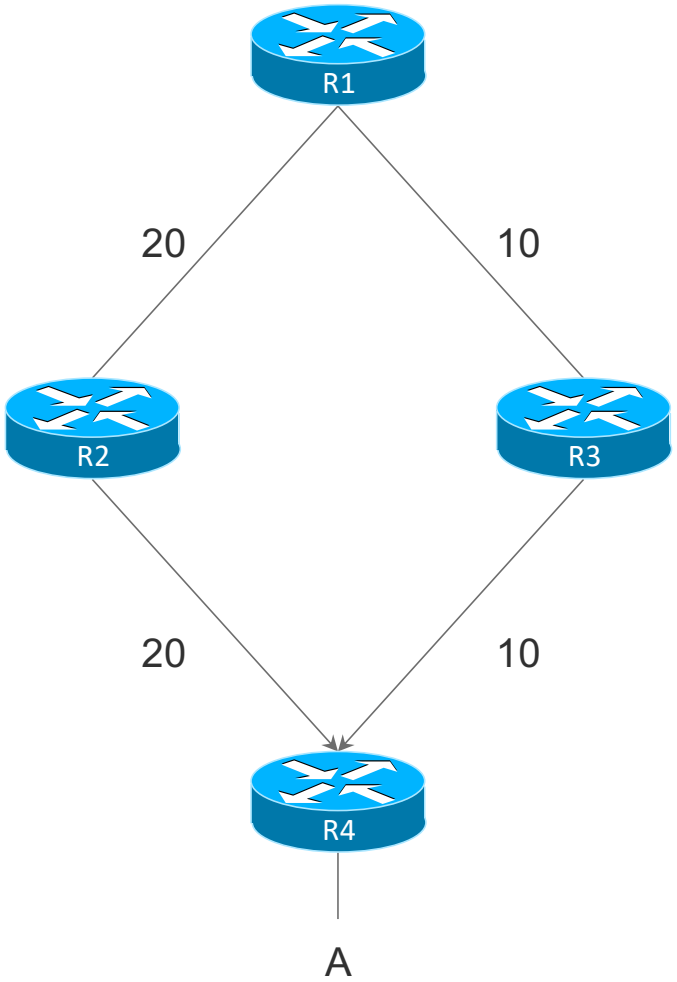
If altered to 2

Routes with metric less than or equal to 40 will be used.

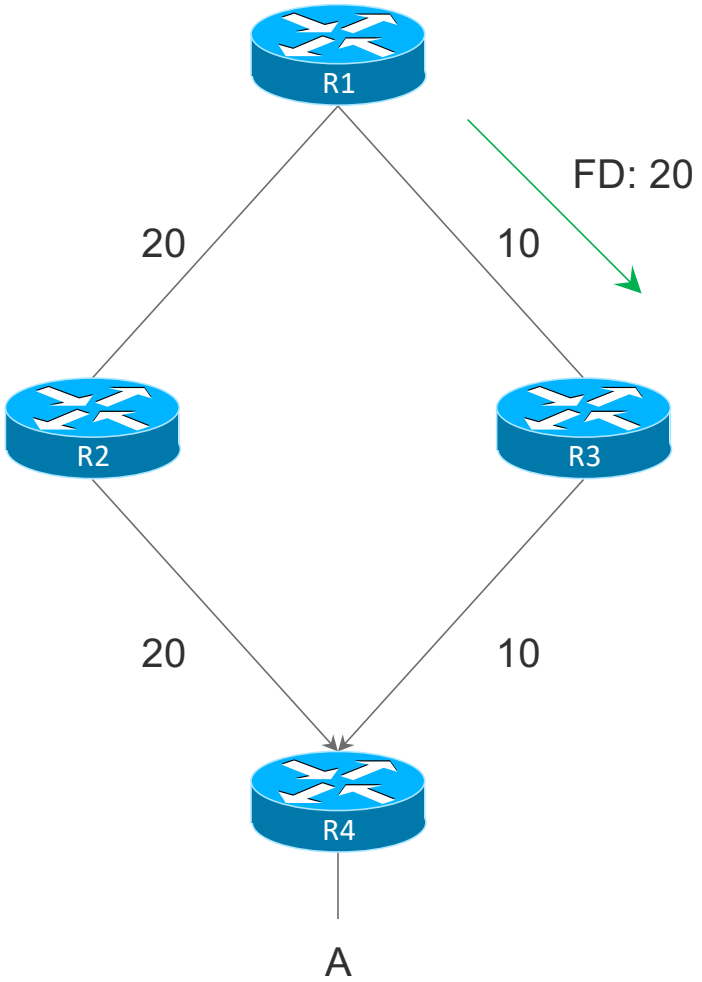
When feasibility not considered, both paths will be used



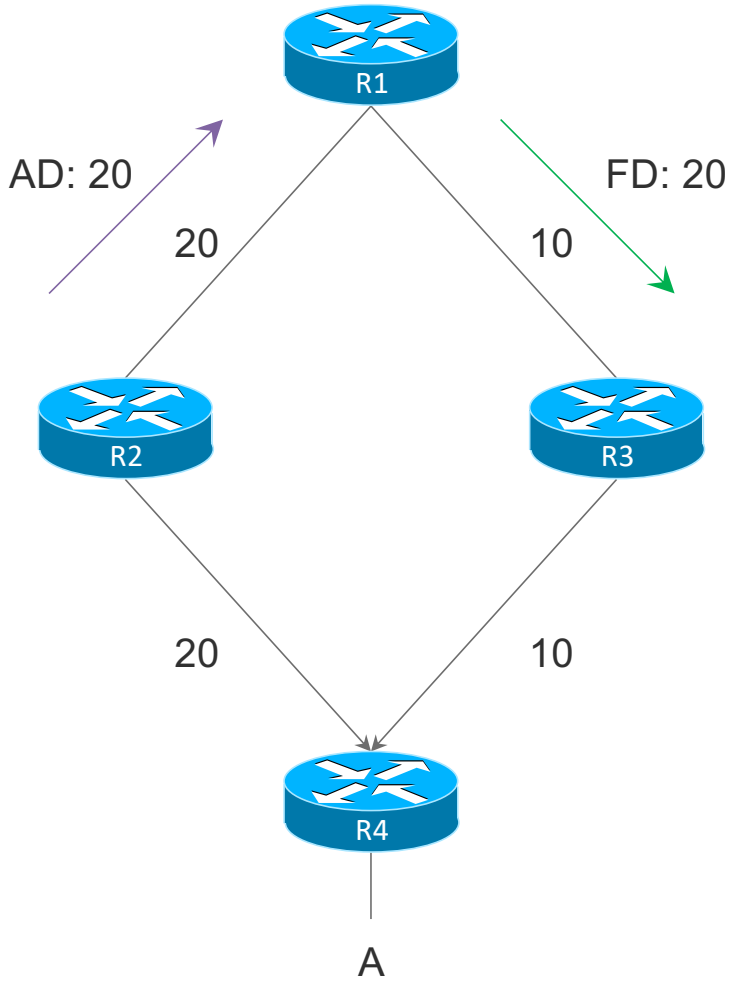
Variance Example



Variance Example



Variance Example



Maximum Paths

Cisco default is 4

Maximum Paths

Limits routes inserted to 4

Forwarding Behavior

How does unequal load-balancing affect forwarding?

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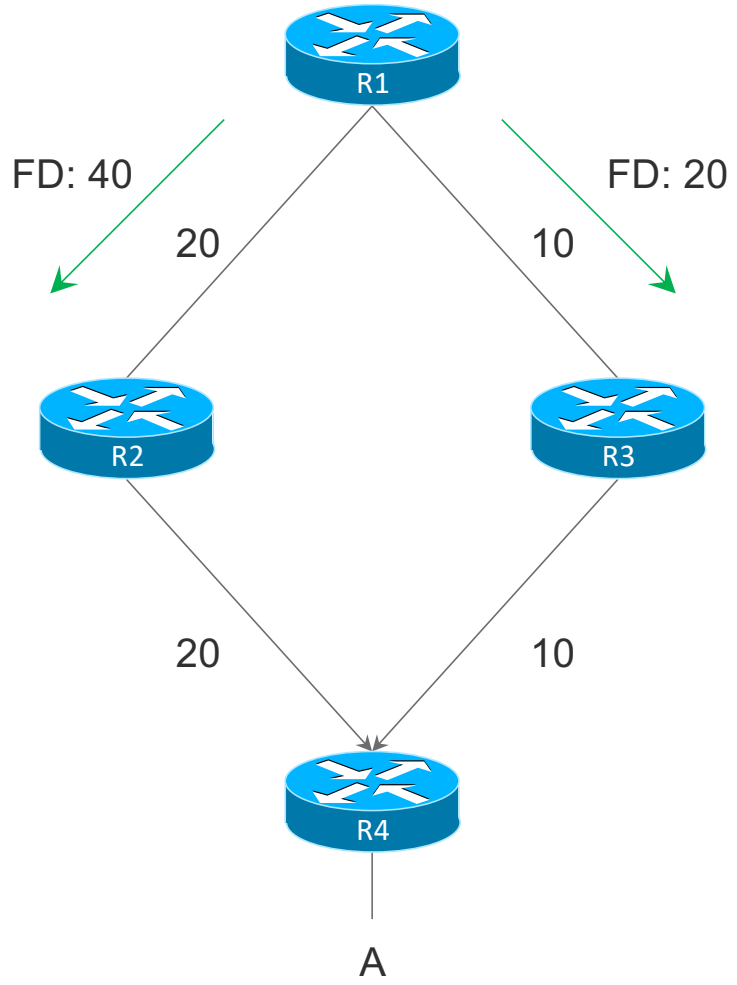
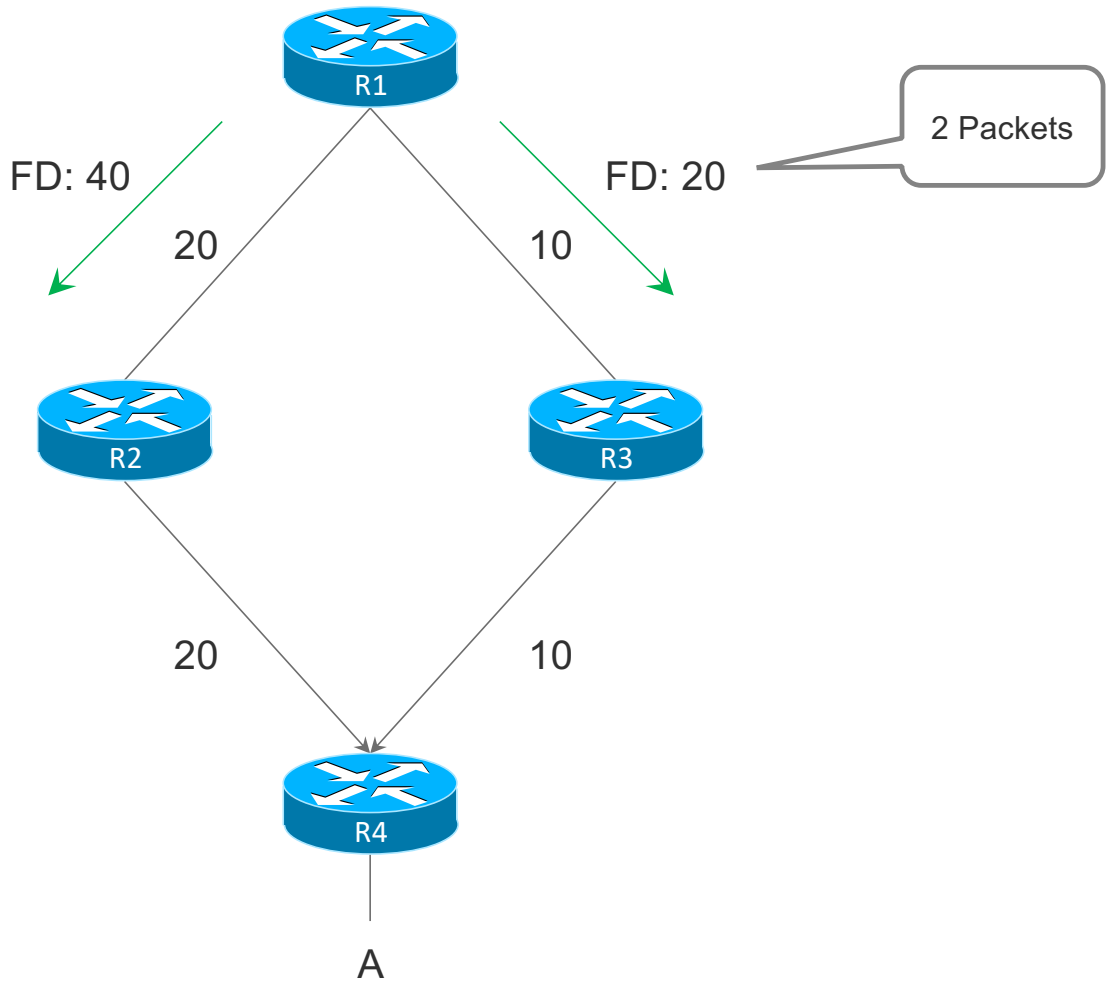
How does unequal load-balancing affect forwarding?

By default, path selection based on metric ratio

Variance Example



Variance Example



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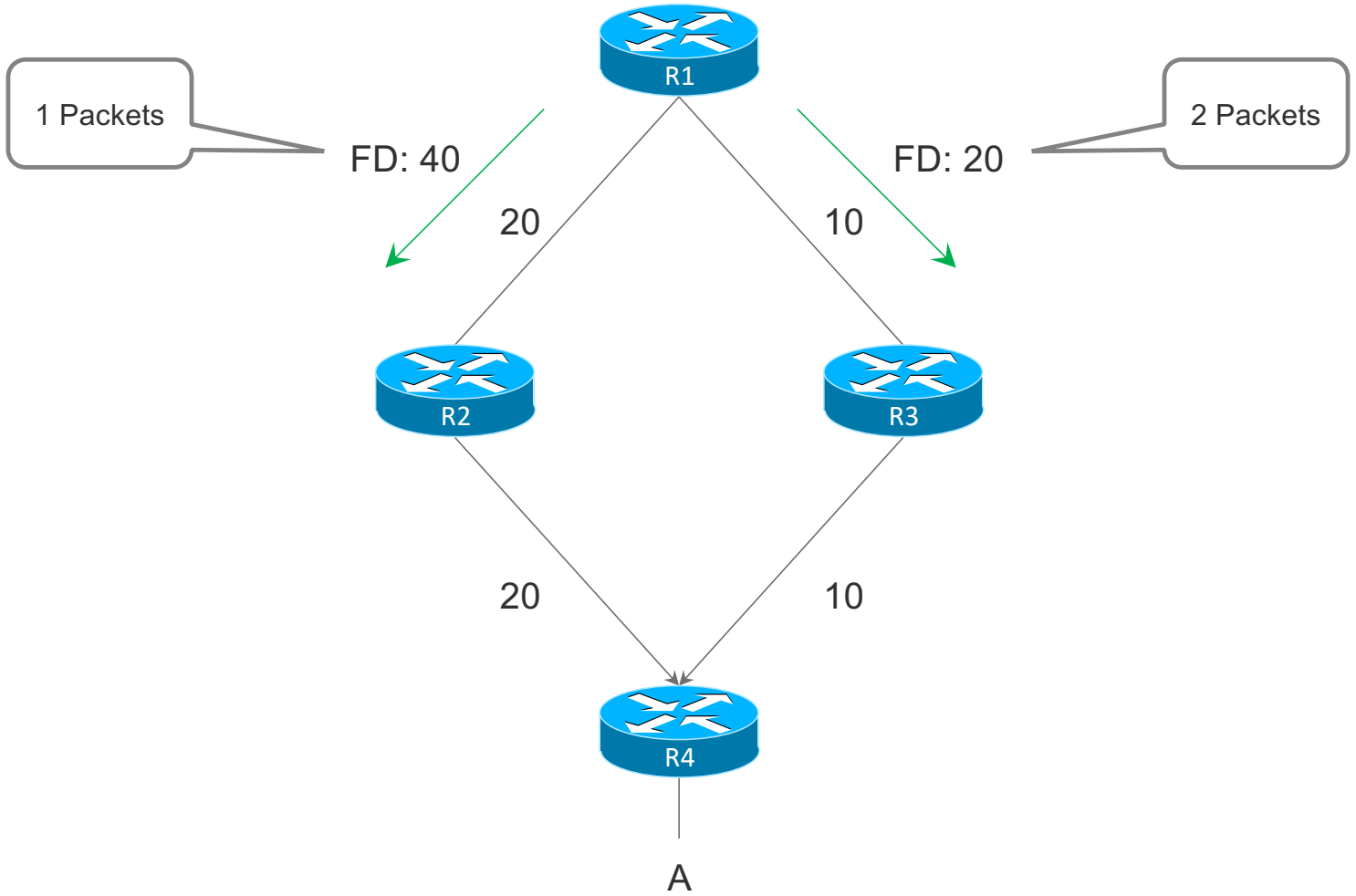


Ratio uses integers, results are rounded down

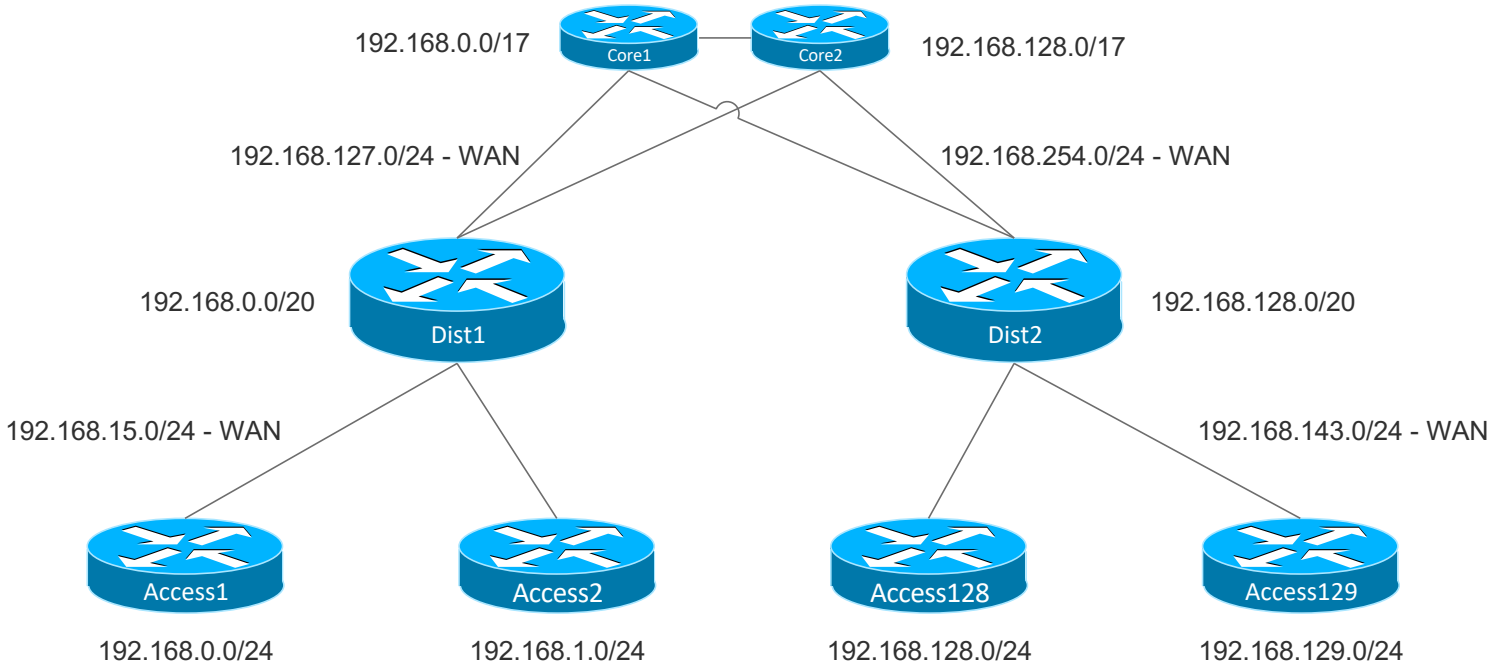
Odd Behavior

Cisco's use of CEF can alter load-balancing behavior

Odd Behavior

Look at CEF mode if behavior not as expected

Lab Topology



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