Homework 11

Classless Inter-Domain Routing (CIDR)

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Points: 20

For due date, please see Canvas.

Suppose P, Q, and R are network service providers with respective CIDR address allocations C1.0.0.0/8, C2.0.0.0/8, and C3.0.0.0/8.

Each provider’s customers initially receive address allocations that are a subset of the provider’s.

P has the following customers:

* PA, with allocation C1.A3.0.0/16
* PB, with allocation C1.A4.0.0/20

Q has the following customers:

* QA, with allocation C2.0A.10.0/20
* QB, with allocation C2.0B.10.0/20

R has the following customer:

* RA, with allocation C3.0C.0.0/16

Assume there are no other providers or customers.

1. Give routing tables for P, Q, and R assuming each provider connects to each other.
2. Now assume P is connected to Q and Q is connected to R, but P and R are not directly connected. Give routing tables for P, Q, and R.

a.

P’s table

Address Next Hop

C2.0.0.0/8 Q

C3.0.0.0/8 R

C1.A3.0.0/16 PA

C1.A4.0.0/20 PB

Q’s table

Address Next Hop

C1.0.0.0/8 P

C3.0.0.0/8 R

C2.0A.10.0/20 QA

C2.0B.10.0/20 QB

R’s table

Address Next Hop

C1.0.0.0/8 P

C2.0.0.0/8 Q

C3.0C.0.0/16 RA

b.

P’s table

Address Next Hop

C2.0.0.0/8 Q

C3.0.0.0/8 Q

C1.A3.0.0/16 PA

C1.A4.0.0/20 PB

Q’s table

Address Next Hop

C1.0.0.0/8 P

C3.0.0.0/8 R

C2.0A.10.0/20 QA

C2.0B.10.0/20 QB

R’s table

Address Next Hop

C1.0.0.0/8 Q

C2.0.0.0/8 Q

C3.0C.0.0/16 RA