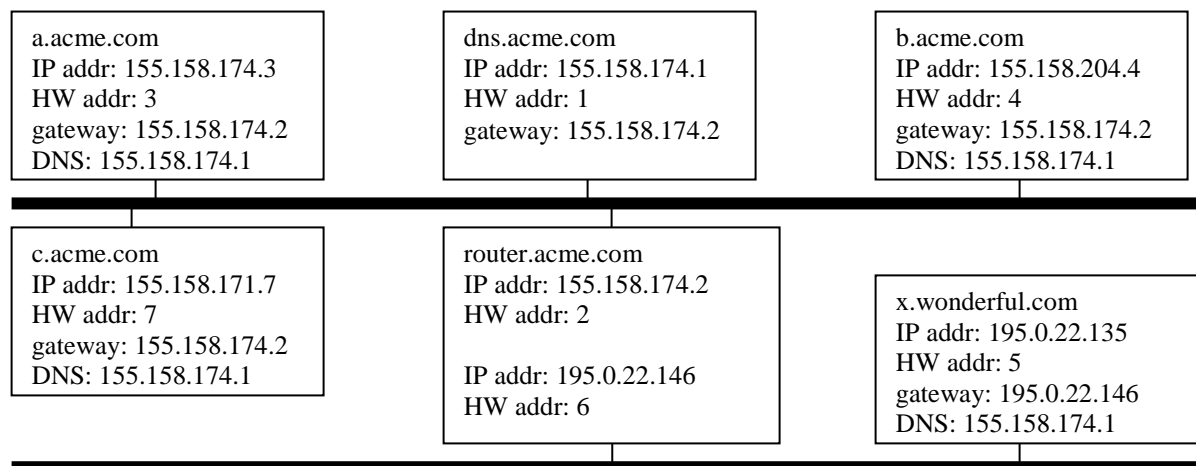


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Solutions to in-class routing examples



Consider the above network assuming that every node was just powered on and has no additional information beyond what is shown. Assume that the Domain Name Server knows the IP address of every node everywhere.

- In the table below, show all of the frames that will be sent to transfer a single data packet from **a.acme.com** to **b.acme.com**. For ARP frames, indicate the IP address of the desired host in the IP destination field. IP addresses may be abbreviated to their rightmost byte.

HW source	HW dest	IP source	IP destination	Purpose
3	Broadcast	.3	.1	ARP for DNS HW address
1	3	.1	.3	ARP reply
3	1	.3	.1	Ask DNS for b's address
1	3	.1	.3	Reply with b's address
1	Broadcast	.1	.4	ARP for b's HW address
4	1	.4	.1	Reply with b's HW address
1	4	.1	.4	Send message

Note: There may be more rows in the table than necessary.

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2. In the table below, show all of the frames that will be sent to transfer a single data packet from **a.acme.com** to **x.wonderful.com**. For ARP frames, indicate the IP address of the desired host in the IP destination field. IP addresses may be abbreviated to their rightmost byte. Assume that the computers have learned information from problem 1. In particular, you can assume that a.acme.com knows the HW address of the DNS and gateway.

HW source	HW dest	IP source	IP destination	Purpose
3	1	.3	.1	Ask DNS for x's address
1	3	.1	.3	Reply with x's address
1	2	.3	.135	Send message to router
6	Broadcast	.146	.135	ARP for x's HW address
5	6	.135	.146	ARP reply
6	5	.3	.135	Send message to x

Note: There may be more rows in the table than necessary.

3. In the table below, show all of the frames that will be sent to transfer a single data packet from **x.wonderful.com** to **a.acme.com**. For ARP frames, indicate the IP address of the desired host in the IP destination field. IP addresses may be abbreviated to their rightmost byte. Note that the DNS is on a different network. x.wonderful.com will have to send a message to the gateway to be forwarded to the DNS. To simplify the problem, assume all computers know the HW address of all other computers on their network.

HW source	HW dest	IP source	IP destination	Purpose
5	6	.135	.1	Ask DNS for a's address
2	1	.135	.1	Send request to DNS
1	2	.1	.135	Reply with a's address
6	5	.1	.135	Forward response to x
5	6	.135	.3	Send message
2	3	.135	.3	Forward message to a

Note: There may be more rows in the table than necessary.