Usman Institute of Technology

Department of Computer Science Fall 2022

Name: Muhammad Waleed

Roll no: 20B-115-SE

Course: DCCN (CS-222)

Course Instructor: Engr. Fauzan Saeed

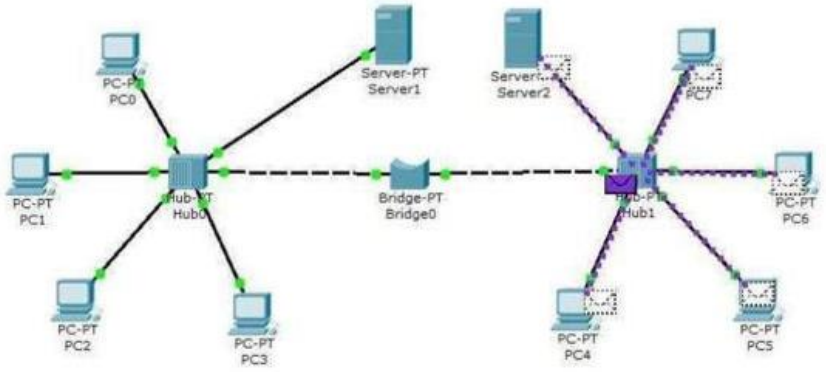
Date: 16-Oct-2022

Muhammad Waleed
20B-115-SE
DCCN
Lab#06

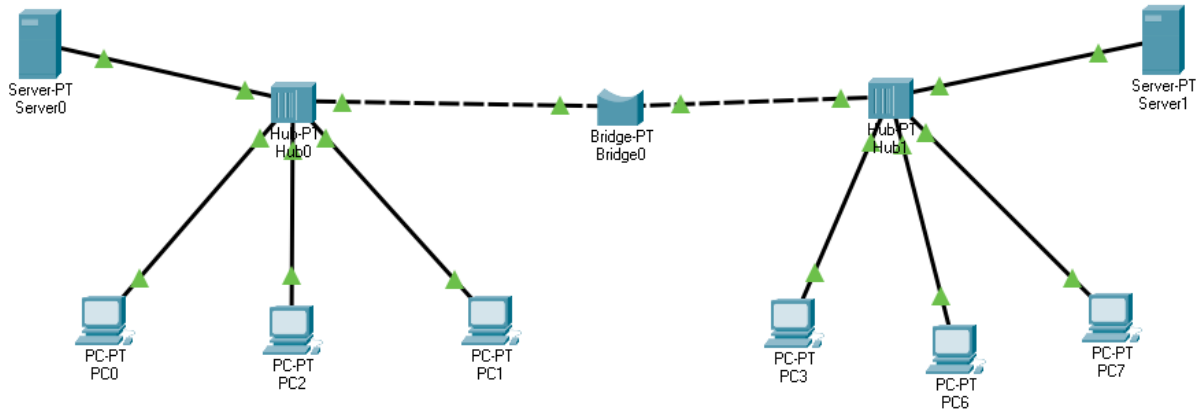
Lab Tasks:

TASK1:

1. Create a network using Packet Tracer having eight PC with 4 of them in one broadcast domain and remaining 4 in other broadcast domain achieve this by using HUB and Bridge. [HINT: HUB has single Broadcast and collision domain; broadcast domain mean all devices connected will receive data of every transaction, USE 2 HUB and 1 Bridge having 8 PCs in Network] show steps in form of screen shots also explain the working of bridge.



Arrangement of a Network:



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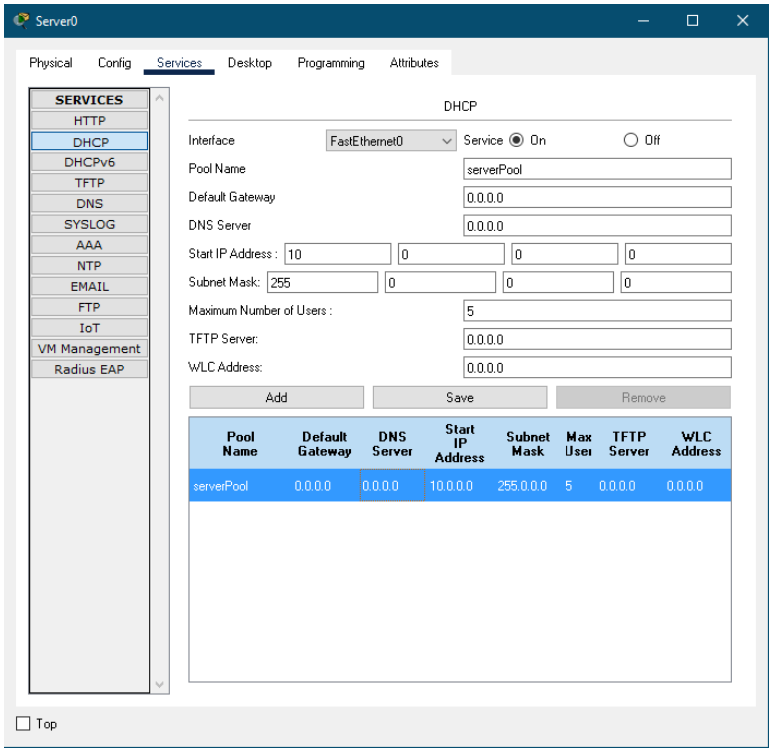
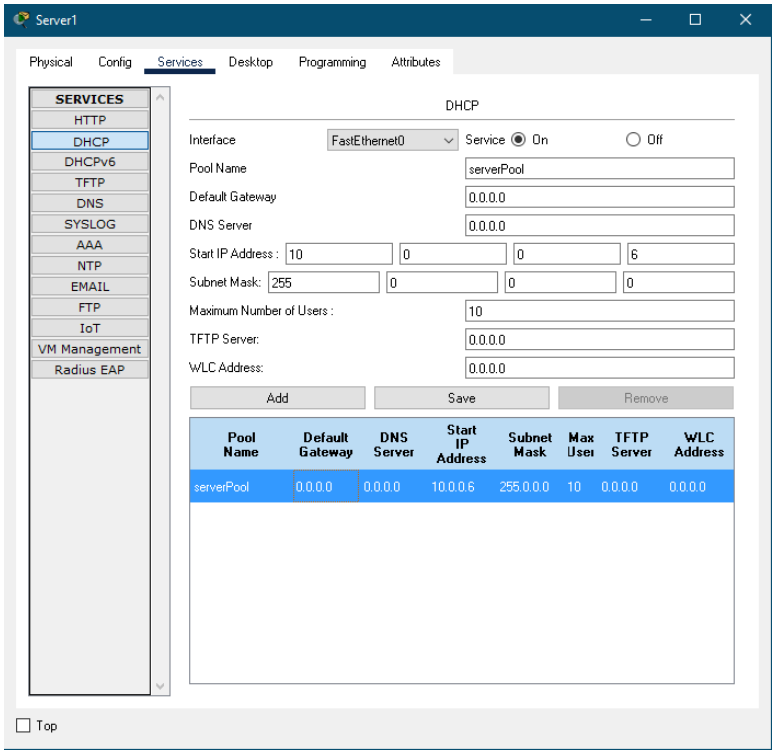
Configuration of Servers:





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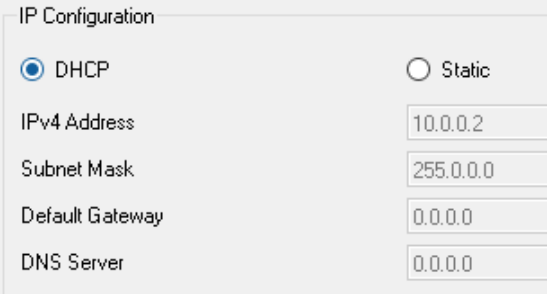
PC Configuration of Server0:

PC0

PC1



PC2

PC Configuration of Server1:

PC3

PC6

PC7

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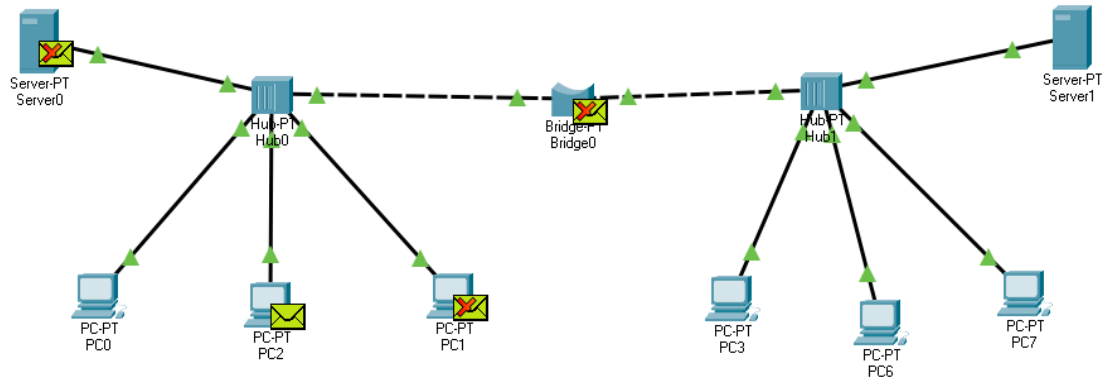
Message Delivering:

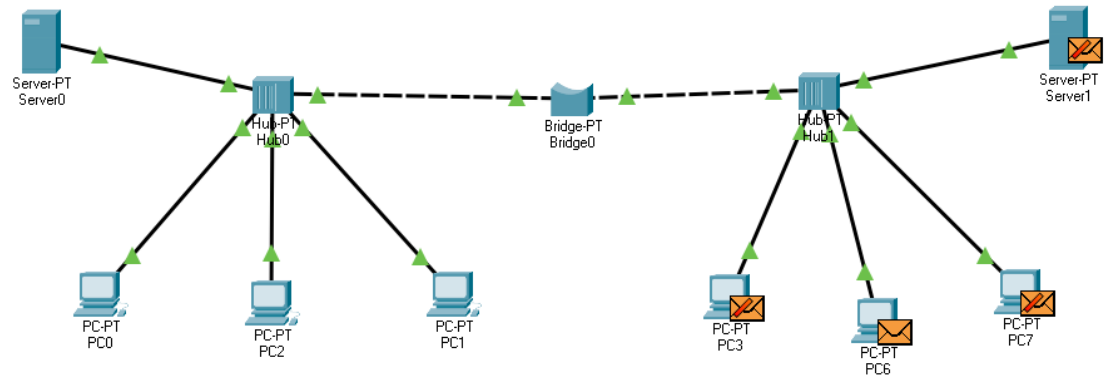
Within One Network:

From PC0 to PC2

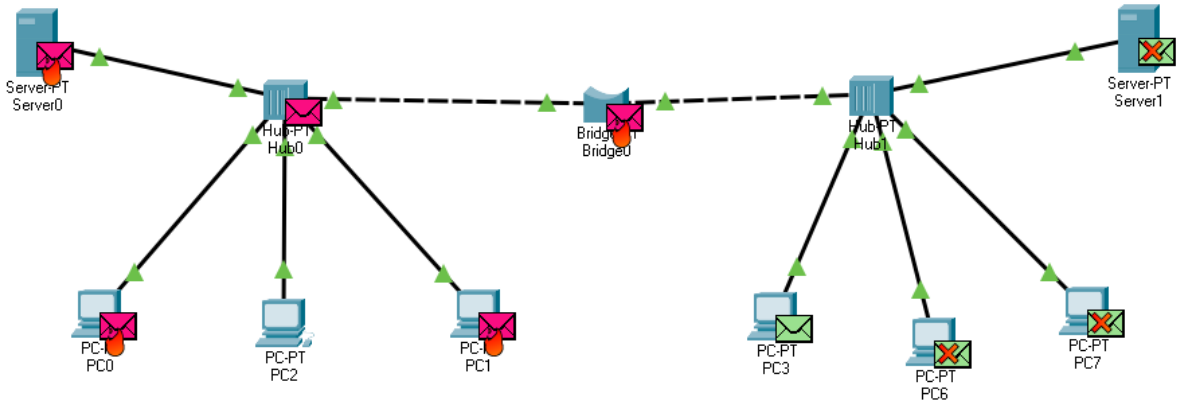


To Other Network:

From PC0 to PC6



Collision:



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PDU:

PDU List Window

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit
	Successful	PC0	PC2	ICMP		0.000	N	0	(edit)
	Successful	PC0	PC3	ICMP		0.000	N	1	(edit)
	Successful	PC0	PC1	ICMP		0.000	N	2	(edit)
	Successful	PC0	PC6	ICMP		0.000	N	3	(edit)
	Successful	PC0	PC7	ICMP		0.000	N	4	(edit)

Task2:

2. Solve the following IP Address exercises:

Change the following IP address from binary notation to dotted-decimal notation.

10000001 00001011 00001011 11101111

Change the following IP address from dotted-decimal notation to binary notation:

111.56.45.78

Conversion of binary notation to dotted-decimal notation:

Step 1:
$(10000001)_2 = (1 \times 2^7) + (0 \times 2^6) + (0 \times 2^5) + (0 \times 2^4) + (0 \times 2^3) + (0 \times 2^2) + (0 \times 2^1) + (1 \times 2^0) = (129)_{10}$

Step 2:
$(00001011)_2 = (0 \times 2^7) + (0 \times 2^6) + (0 \times 2^5) + (0 \times 2^4) + (1 \times 2^3) + (0 \times 2^2) + (1 \times 2^1) + (1 \times 2^0) = (11)_{10}$

Step 3:
$(00001011)_2 = (0 \times 2^7) + (0 \times 2^6) + (0 \times 2^5) + (0 \times 2^4) + (1 \times 2^3) + (0 \times 2^2) + (1 \times 2^1) + (1 \times 2^0) = (11)_{10}$

Step 4:
$(11101111)_2 = (1 \times 2^7) + (1 \times 2^6) + (1 \times 2^5) + (0 \times 2^4) + (1 \times 2^3) + (1 \times 2^2) + (1 \times 2^1) + (1 \times 2^0) = (239)_{10}$

Step 5 (Net result):
129.11.11.23

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Conversion of dotted-decimal notation to binary notation:

111.56.45.78

Step 1:

0	1	1	0	1	1	1	1
	111-64=47	47-32=15		15-8=7	7-4=3	3-2=1	1
128	64	32	16	8	4	2	1

01101111

Step 2:

0	0	1	1	1	0	0	0
		56-32=24	24-16=8	8-8=0			
128	64	32	16	8	4	2	1

00111000

Step 3:

0	0	1	0	1	1	0	1
		45-32=13		13-8=5	5-4=1		1
128	64	32	16	8	4	2	1

00101101

Step 4:

0	1	0	0	1	1	1	0
	78-64			14-8=6	6-4=2	2	
128	64	32	16	8	4	2	1

01001110

Step 5(Net result):

01101111 00111000 00101101 01001110