



Usman Institute of Technology
Department of Computer Science Fall 2022

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Course: DCCN (CS-222)

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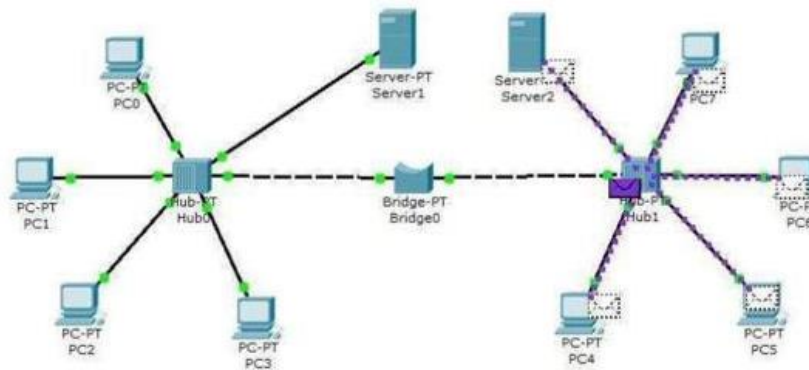
Date: 16-Oct-2022

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Lab#06

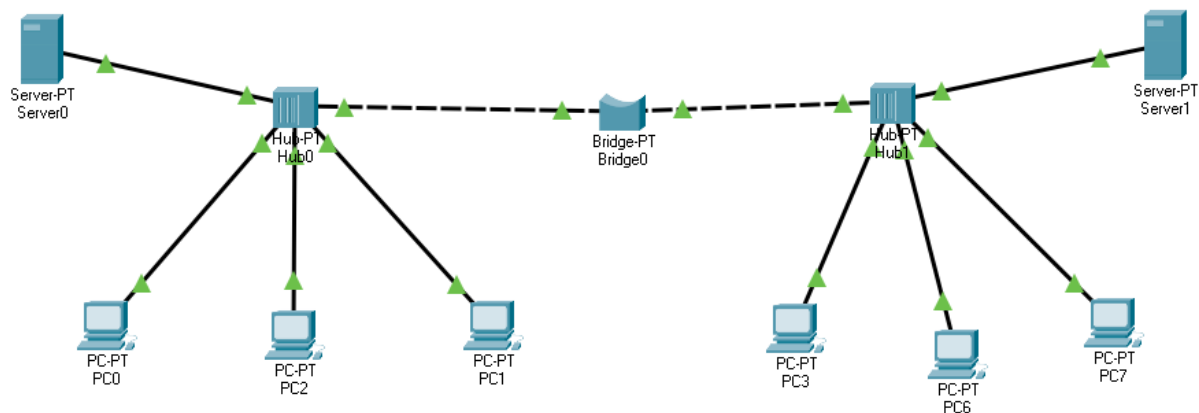
Lab Tasks:

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:

Server0

Physical Config **Services** Desktop Programming Attributes

SERVICES

- HTTP
- DHCP**
- DHCPv6
- TFTP
- DNS
- SYSLOG
- AAA
- NTP
- EMAIL
- FTP
- IoT
- VM Management
- Radius EAP

DHCP

Interface: FastEthernet0 Service: ☒ On ☐ Off

Pool Name: serverPool

Default Gateway: 0.0.0.0

DNS Server: 0.0.0.0

Start IP Address: 10 0 0 0

Subnet Mask: 255 0 0 0

Maximum Number of Users: 5

TFTP Server: 0.0.0.0

WLC Address: 0.0.0.0

Add Save Remove

Pool Name	Default Gateway	DNS Server	Start IP Address	Subnet Mask	Max User	TFTP Server	WLC Address
serverPool	0.0.0.0	0.0.0.0	10.0.0.0	255.0.0.0	5	0.0.0.0	0.0.0.0

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Server1

Physical Config **Services** Desktop Programming Attributes

SERVICES

- HTTP
- DHCP**
- DHCPv6
- TFTP
- DNS
- SYSLOG
- AAA
- NTP
- EMAIL
- FTP
- IoT
- VM Management
- Radius EAP

DHCP

Interface: FastEthernet0 Service: ☒ On ☐ Off

Pool Name: serverPool

Default Gateway: 0.0.0.0

DNS Server: 0.0.0.0

Start IP Address: 10 0 0 6

Subnet Mask: 255 0 0 0

Maximum Number of Users: 10

TFTP Server: 0.0.0.0

WLC Address: 0.0.0.0

Add Save Remove

Pool Name	Default Gateway	DNS Server	Start IP Address	Subnet Mask	Max User	TFTP Server	WLC Address
serverPool	0.0.0.0	0.0.0.0	10.0.0.6	255.0.0.0	10	0.0.0.0	0.0.0.0

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PC Configuration of Server0:

PC0

IP Configuration	
<input checked="" type="radio"/> DHCP	<input type="radio"/> Static
IPv4 Address	10.0.0.7
Subnet Mask	255.0.0.0
Default Gateway	0.0.0.0
DNS Server	0.0.0.0

PC1

IP Configuration	
<input checked="" type="radio"/> DHCP	<input type="radio"/> Static
IPv4 Address	10.0.0.2
Subnet Mask	255.0.0.0
Default Gateway	0.0.0.0
DNS Server	0.0.0.0

PC2

IP Configuration	
<input checked="" type="radio"/> DHCP	<input type="radio"/> Static
IPv4 Address	10.0.0.10
Subnet Mask	255.0.0.0
Default Gateway	0.0.0.0
DNS Server	0.0.0.0

PC Configuration of Server1:

PC3

IP Configuration	
<input checked="" type="radio"/> DHCP	<input type="radio"/> Static
IPv4 Address	10.0.0.11
Subnet Mask	255.0.0.0
Default Gateway	0.0.0.0
DNS Server	0.0.0.0

PC6

IP Configuration	
<input checked="" type="radio"/> DHCP	<input type="radio"/> Static
IPv4 Address	10.0.0.9
Subnet Mask	255.0.0.0
Default Gateway	0.0.0.0
DNS Server	0.0.0.0

PC7

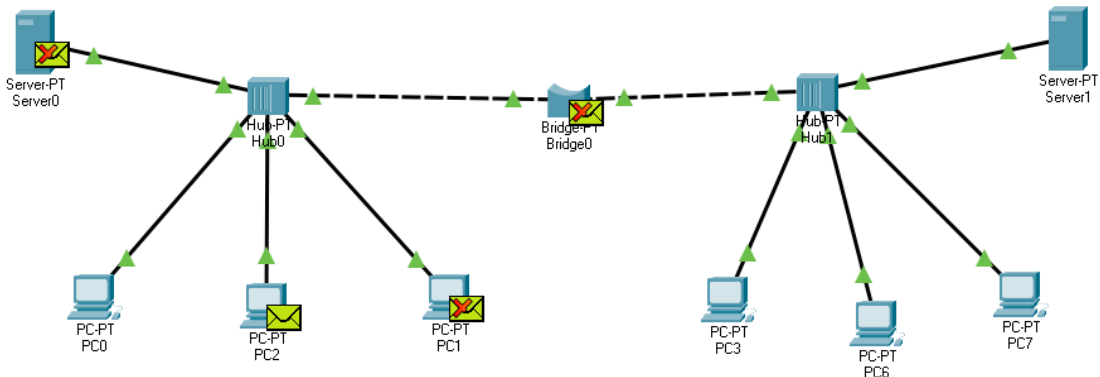
IP Configuration	
<input checked="" type="radio"/> DHCP	<input type="radio"/> Static
IPv4 Address	10.0.0.8
Subnet Mask	255.0.0.0
Default Gateway	0.0.0.0
DNS Server	0.0.0.0

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Message Delivering:

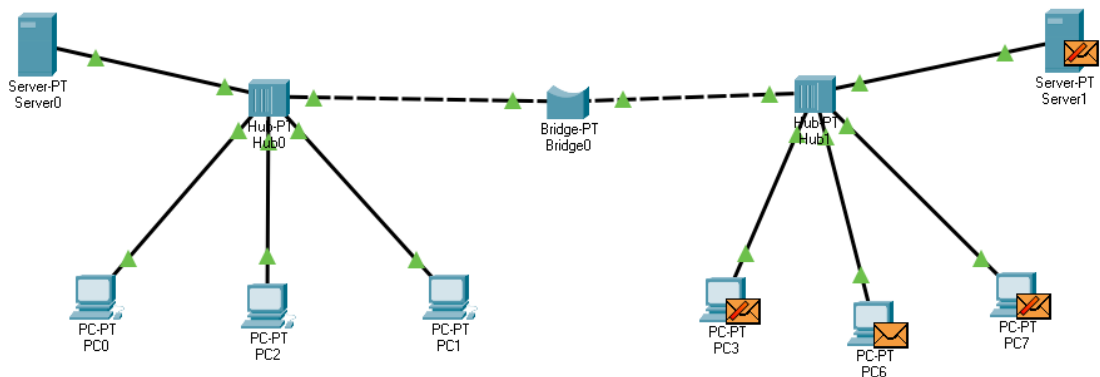
Within One Network:

From PC0 to PC2

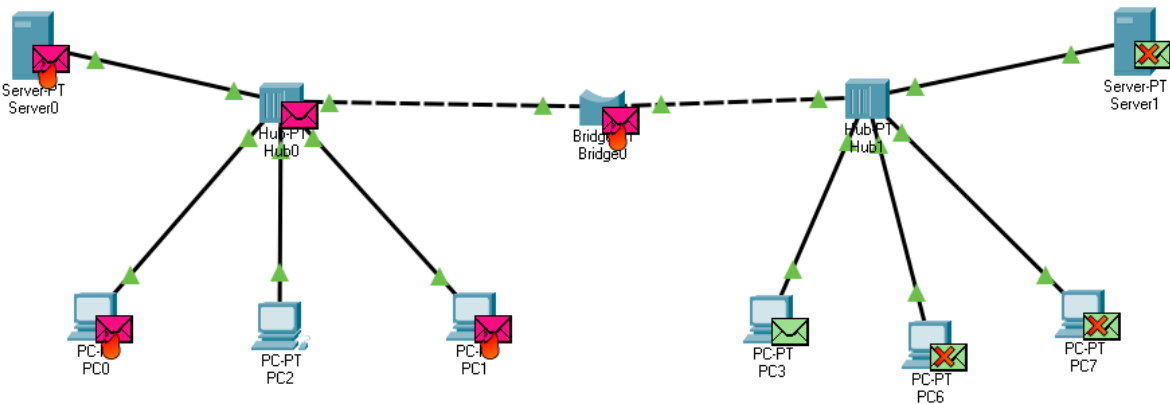


To Other Network:











From PC0 to PC6



Collision:



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