CSE 5004

COMPUTER NETWORKS

Mid-Term (Lab CAT)

April 12, 2021

L1+L2 | SJT418
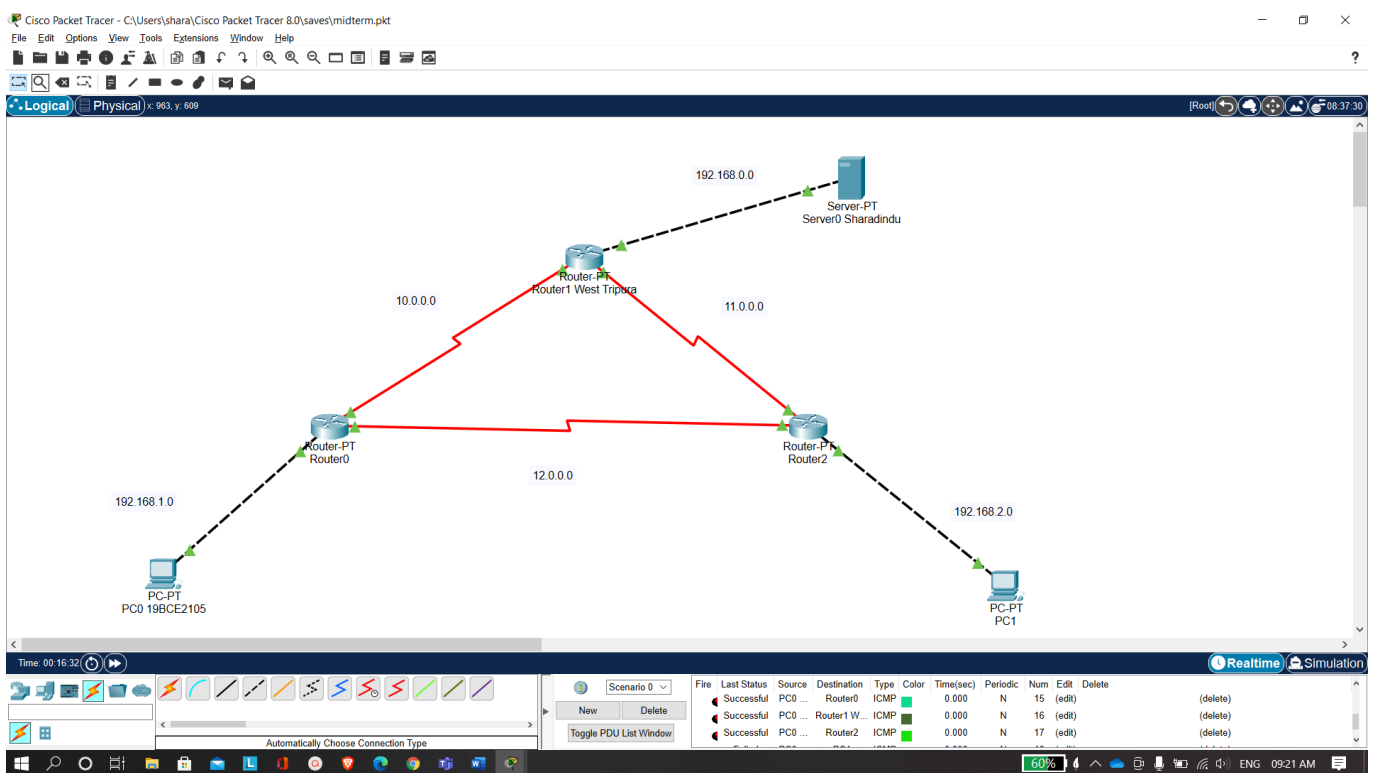WINTER SEMESTER 2020-21

by

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19BCE2105

Question

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5) A) Implement link state algorithm by having atleast 3 routers
   B) Simulate Traceroute Command between two PC.

Solution

AIM: Simulation of link state and traceroute in a network of given constraints in Packet Tracer

Applying Link State:

Router0   —   □   ×

Physical   Config   CLI   Attributes

IOS Command Line Interface

```
PT 1001 (PTSC2005) processor (revision 0x200) with 60416K/5120K bytes of memory
.
Processor board ID PT0123 (0123)
PT2005 processor: part number 0, mask 01
Bridging software.
X.25 software, Version 3.0.0.
4 FastEthernet/IEEE 802.3 interface(s)
2 Low-speed serial(sync/async) network interface(s)
32K bytes of non-volatile configuration memory.
63488K bytes of ATA CompactFlash (Read/Write)

Press RETURN to get started!


%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state
to up

%LINK-5-CHANGED: Interface Serial2/0, changed state to up

%LINK-5-CHANGED: Interface Serial3/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial3/0, changed state to up

00:00:10: %OSPF-5-ADJCHG: Process 1, Nbr 192.168.2.1 on Serial3/0 from LOADING
to FULL, Loading Done

00:00:10: %OSPF-5-ADJCHG: Process 1, Nbr 192.168.0.1 on Serial2/0 from LOADING
to FULL, Loading Done
```

Ctrl+F6 to exit CLI focus   Copy   Paste

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Router1 West Tripura — □ ✕

Physical   Config   CLI   Attributes

IOS Command Line Interface

```
PT 1001 (PTSC2005) processor (revision 0x200) with 60416K/5120K bytes of memory
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63488K bytes of ATA CompactFlash (Read/Write)

Press RETURN to get started!


%LINK-5-CHANGED: Interface Serial2/0, changed state to up

%LINK-5-CHANGED: Interface Serial3/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state
to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial3/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up

00:00:10: %OSPF-5-ADJCHG: Process 1, Nbr 192.168.2.1 on Serial3/0 from LOADING
to FULL, Loading Done

00:00:10: %OSPF-5-ADJCHG: Process 1, Nbr 192.168.1.1 on Serial2/0 from LOADING
to FULL, Loading Done
```

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Router2

Physical   Config   CLI   Attributes

IOS Command Line Interface

```
PT 1001 (PTSC2005) processor (revision 0x200) with 60416K/5120K bytes of memory
.
Processor board ID PT0123 (0123)
PT2005 processor: part number 0, mask 01
Bridging software.
X.25 software, Version 3.0.0.
4 FastEthernet/IEEE 802.3 interface(s)
2 Low-speed serial(sync/async) network interface(s)
32K bytes of non-volatile configuration memory.
63488K bytes of ATA CompactFlash (Read/Write)

Press RETURN to get started!


%LINK-5-CHANGED: Interface Serial2/0, changed state to up

%LINK-5-CHANGED: Interface Serial3/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state
to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial3/0, changed state to up

00:00:10: %OSPF-5-ADJCHG: Process 1, Nbr 192.168.0.1 on Serial2/0 from LOADING
to FULL, Loading Done

00:00:10: %OSPF-5-ADJCHG: Process 1, Nbr 192.168.1.1 on Serial3/0 from LOADING
to FULL, Loading Done
```
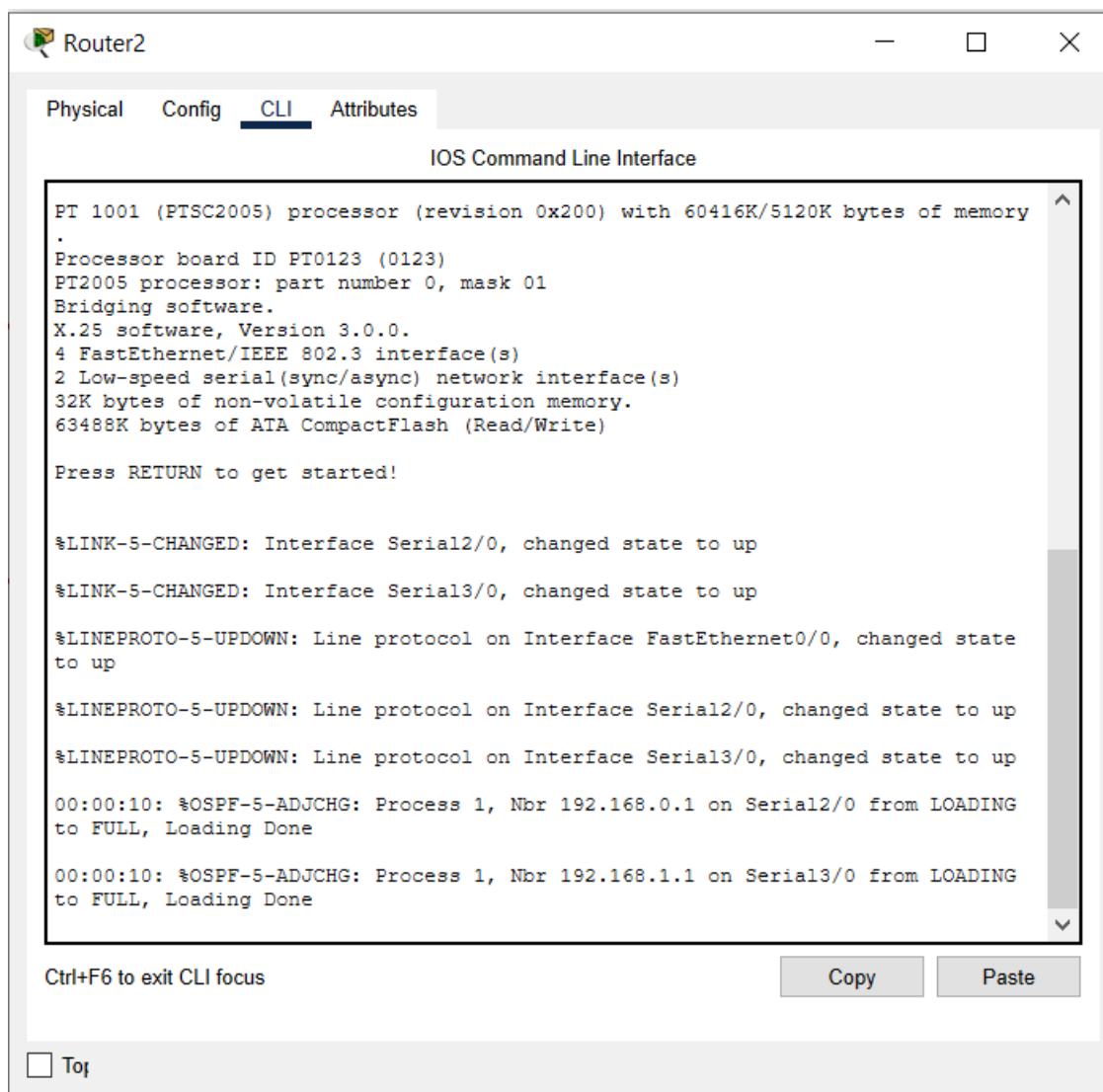
Ctrl+F6 to exit CLI focus   Copy   Paste

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PDU:

PDU List Window

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	Delete	
●	In Progress	PC0 19...	Router2	ICMP		0.000	N	24	(edit)		(delete)
●	In Progress	PC0 19...	PC1	ICMP		0.000	N	25	(edit)		(delete)
●	In Progress	PC0 19...	PC1	ICMP		0.000	N	26	(edit)		(delete)
●	In Progress	PC0 19...	Router0	ICMP		0.000	N	27	(edit)		(delete)
●	In Progress	PC0 19...	Router1 West ...	ICMP		0.000	N	28	(edit)		(delete)
●	In Progress	PC0 19...	Server0 Shara...	ICMP		0.000	N	29	(edit)		(delete)
●	In Progress	PC0 19...	Router2	ICMP		0.000	N	30	(edit)		(delete)

Time: 00:03:31.283   PLAY CONTROLS |◄ ► ►| Event List   Realtime   Simulation

Tracert:

PC0 19BCE2105

Physical   Config   Desktop   Programming   Attributes

Command Prompt   X

```
Packet Tracer PC Command Line 1.0
C:\>tracert 192.168.2.2

Tracing route to 192.168.2.2 over a maximum of 30 hops:

  1    0 ms      0 ms      0 ms       192.168.1.1
  2    4 ms      1 ms      5 ms       12.12.0.3
  3    0 ms      1 ms      1 ms       192.168.2.2

Trace complete.

C:\>
```

Top

PC1

Physical   Config   Desktop   Programming   Attributes

Command Prompt   X

```
Packet Tracer PC Command Line 1.0
C:\>tracert 192.168.1.2

Tracing route to 192.168.1.2 over a maximum of 30 hops:

  1    0 ms      0 ms      0 ms       192.168.2.1
  2    4 ms      0 ms      4 ms       12.12.0.2
  3    4 ms      3 ms      1 ms       192.168.1.2

Trace complete.

C:\>
```

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