Laborbericht - NVS - 5CHIF

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HW-Beschreibung: Packettracer Übungen 1.1.1.2 & 1.2.3.6

Ziel: Erfüllung der Aufgabenstellung

Packet Tracer 1.1.1.2

Part 1

Step 1 - Send a Ping from one end to the Network to the other end.

Pinging PC3 (10.1.0.2) from PC1
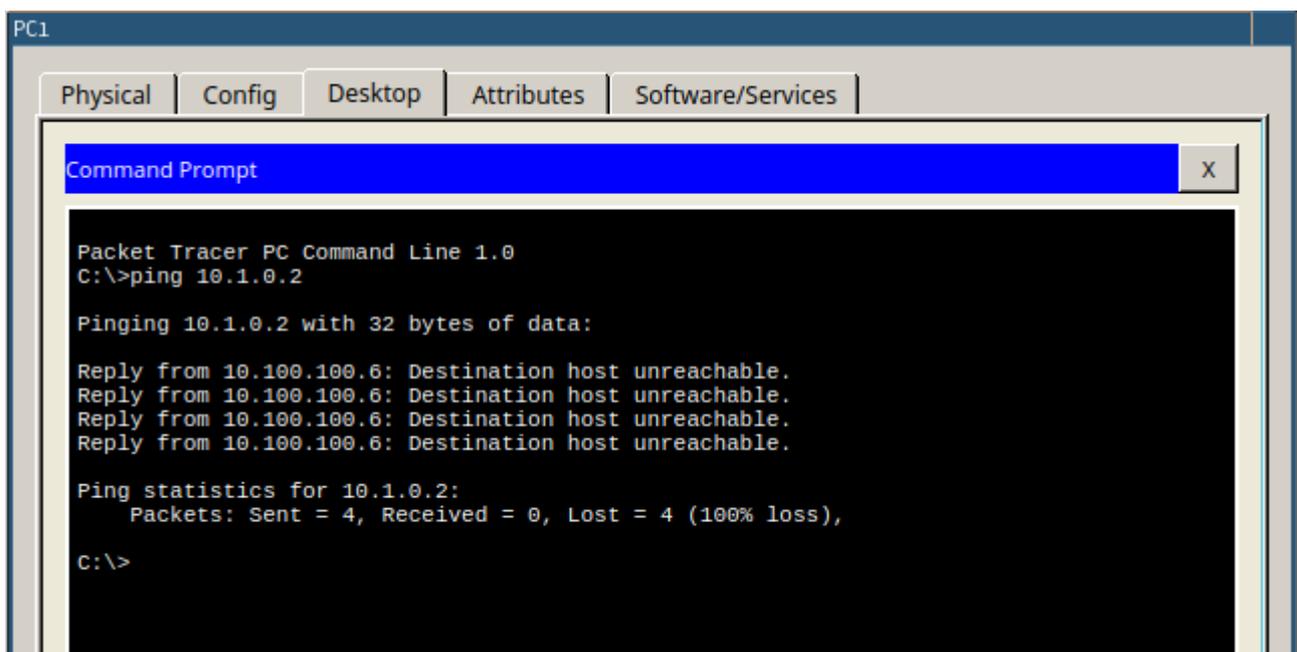
Step 2 - Trace the route from PC1 to determine where in the path connectivity fails.

Use the Tracert Command, targeting the IP of PC3

Step 3 - Correct the Network Problem

The furtherst reachable Ip is 10.100.100.6, and is assigned to RouterC

```
%LINK-5-CHANGED: Interface Serial0/0/1, changed state to up

%LINK-5-CHANGED: Interface Serial0/0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/1, changed state to up
```

The Interfaces on RouterC are all enabled and up

```
!
interface Serial0/0/0
 ip address 10.100.100.17 255.255.255.252
 clock rate 64000
!
interface Serial0/0/1
 ip address 10.100.100.6 255.255.255.252
```

The IP Address 10.100.100.17 is outside the 10.100.100.8/30 Network and therfore invalid. The Host Range for this Network is 10.100.100.9 - 10.100.100.10. Since RouterD already uses 10.100.100.10, we assign RouterC the ip Adress10.100.100.9 on the Serial0/0/0 interface.

```
Enter configuration commands, one per line.  End with CNTL/Z.
RouterC(config)#int se0/0/0
RouterC(config-if)#ip add
RouterC(config-if)#ip address 10.100.100.6 255.255.255.252
% 10.100.100.4 overlaps with Serial0/0/1
RouterC(config-if)#ip address 10.100.100.9 255.255.255.252
RouterC(config-if)#
```

Part 2 - Compare Tracert to the Traceroute Command

```
RouterA>en
RouterA#traceroute 10.1.0.2
Type escape sequence to abort.
Tracing the route to 10.1.0.2

  1   10.100.100.2    6 msec    1 msec    0 msec
  2   10.100.100.6    2 msec    3 msec    1 msec
  3   10.100.100.10   1 msec    2 msec    3 msec
  4   *       2 msec    3 msec
RouterA#
```

The Command finished sucsessfully

```
C:\>tracert 10.1.0.2

Tracing route to 10.1.0.2 over a maximum of 30 hops:

  1   1 ms     0 ms     0 ms      10.0.0.254
  2   1 ms     0 ms     1 ms      10.100.100.2
  3   0 ms     1 ms     1 ms      10.100.100.6
  4   2 ms     2 ms     2 ms      10.100.100.10
  5   1 ms     2 ms     2 ms      10.1.0.2

Trace complete.
```

The only notable differnece is, that on the output of the router, the target device Ip is not shown.

Part 3 - Extended Traceroute

```
RouterA#trace
RouterA#traceroute
Protocol [ip]: ip
Target IP address: 10.1.0.2
Source address: 10.100.100.1
Numeric display [n]: n
Timeout in seconds [3]: 3
Probe count [3]: 5
Minimum Time to Live [1]: 1
Maximum Time to Live [30]: 30
Type escape sequence to abort.
Tracing the route to 10.1.0.2

  1   10.100.100.2    4 msec    0 msec    1 msec    0 msec    1 msec
  2   10.100.100.6    2 msec    1 msec    1 msec    1 msec    2 msec
  3   10.100.100.10   3 msec    1 msec    2 msec    1 msec    2 msec
  4   10.1.0.2        1 msec    3 msec    2 msec    4 msec    2 msec
RouterA#
```

The only values without the default options chosen are the target IP address (10.1.0.2) and the Source address (10.100.100.1)

```
RouterA#traceroute
Protocol [ip]:
Target IP address: 10.1.0.2
Source address: 10.100.100.1
Numeric display [n]:
Timeout in seconds [3]: 7
Probe count [3]:
Minimum Time to Live [1]:
Maximum Time to Live [30]:
Type escape sequence to abort.
Tracing the route to 10.1.0.2

  1   10.100.100.2    5 msec    0 msec    1 msec
  2   10.100.100.6    2 msec    1 msec    1 msec
  3   10.100.100.10   2 msec    2 msec    1 msec
  4   10.1.0.2        0 msec    1 msec    2 msec
RouterA#
```

The timepout value adjustes how long the Systems waits for an answer before reporting a timeout.

The timeout parmeter needs to be adjusted to test special, extremely slow networks. Otherwise, the command will always report a timeout

Packet Tracer 1.2.3.6

Step 1 - Determine the connectivity issue between PC-01 and web server.

```
FastEthernet0 Connection:(default port)

    Link-local IPv6 Address.........: FE80::2
    IP Address.....................: 172.168.1.3
    Subnet Mask....................: 255.255.255.0
    Default Gateway................: 172.16.1.1
```

The Ip Address of this computer is set to 172.168.1.3 instead of 172.16.1.3

The Issue is beeing corrected, and connectivity is tested avterwards

connectivity Testing

```
C:\>ipconfig

FastEthernet0 Connection:(default port)

    Link-local IPv6 Address.........: FE80::2
    IP Address......................: 172.16.1.3
    Subnet Mask.....................: 255.255.255.0
    Default Gateway.................: 172.16.1.1

C:\>ping 172.16.1.1

Pinging 172.16.1.1 with 32 bytes of data:

Reply from 172.16.1.1: bytes=32 time=1ms TTL=255
Reply from 172.16.1.1: bytes=32 time<1ms TTL=255
Reply from 172.16.1.1: bytes=32 time<1ms TTL=255
Reply from 172.16.1.1: bytes=32 time<1ms TTL=255

Ping statistics for 172.16.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>ping 209.165.201.2

Pinging 209.165.201.2 with 32 bytes of data:

Request timed out.
Reply from 209.165.201.2: bytes=32 time=1ms TTL=126
Reply from 209.165.201.2: bytes=32 time=1ms TTL=126
Reply from 209.165.201.2: bytes=32 time=1ms TTL=126

Ping statistics for 209.165.201.2:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 1ms, Average = 1ms

C:\>ping 172.16.1.4

Pinging 172.16.1.4 with 32 bytes of data:

Reply from 172.16.1.4: bytes=32 time=1ms TTL=128
Reply from 172.16.1.4: bytes=32 time<1ms TTL=128
Reply from 172.16.1.4: bytes=32 time<1ms TTL=128
Reply from 172.16.1.4: bytes=32 time<1ms TTL=128

Ping statistics for 172.16.1.4:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>ping 172.16.2.3

Pinging 172.16.2.3 with 32 bytes of data:

Reply from 209.165.200.225: Destination host unreachable.
Reply from 209.165.200.225: Destination host unreachable.
Reply from 209.165.200.225: Destination host unreachable.
Reply from 209.165.200.225: Destination host unreachable.

Ping statistics for 172.16.2.3:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>ping 172.16.2.4

Pinging 172.16.2.4 with 32 bytes of data:

Reply from 209.165.200.225: Destination host unreachable.
Reply from 209.165.200.225: Destination host unreachable.
Reply from 209.165.200.225: Destination host unreachable.
Reply from 209.165.200.225: Destination host unreachable.

Ping statistics for 172.16.2.4:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```

The Website is accessible using the Domain

```
Web Browser                                                        X
 <    >   URL  http://www.cisco.pka              Go          Stop
                   Cisco Packet Tracer
──────────────────────────────────────────────────────────────────
Welcome to Cisco Packet Tracer. Opening doors to new opportunities. Mind Wide
Open.

Quick Links:
A small page
Copyrights
Image page
Image
```
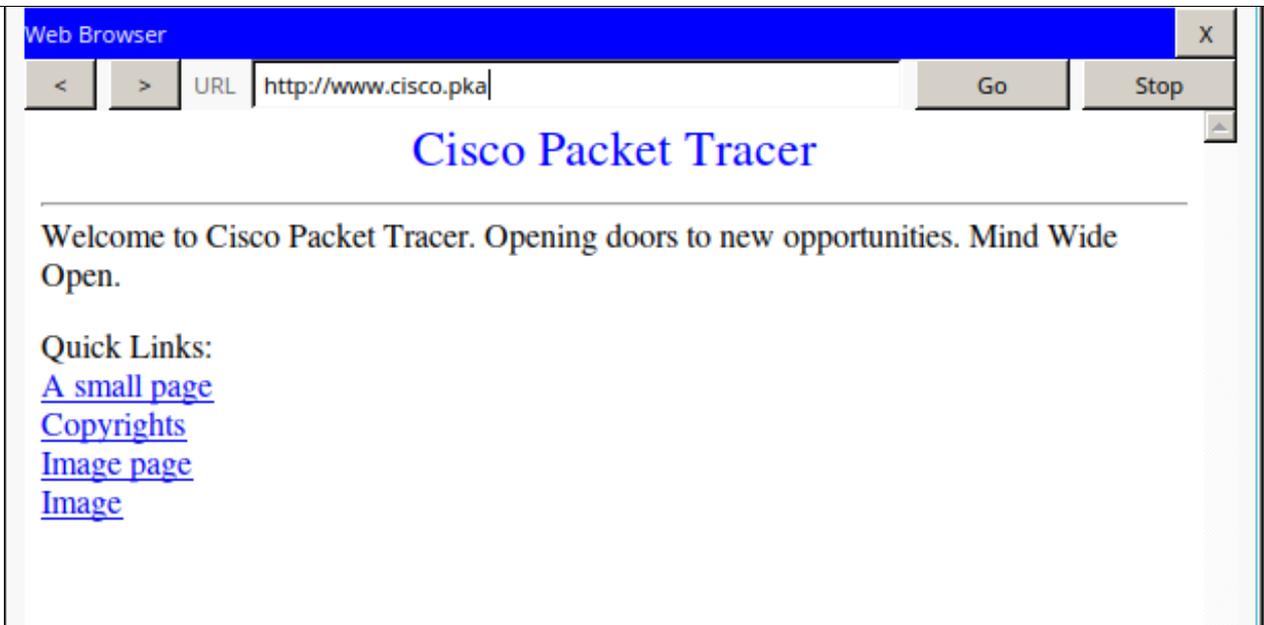
Step 2 - Determine the connectivity issue between PC-02 and web server.

```
C:\>ipconfig

FastEthernet0 Connection:(default port)

    Link-local IPv6 Address.........: FE80::2
    IP Address.....................: 172.16.1.4
    Subnet Mask....................: 255.255.255.0
    Default Gateway................: 172.16.1.11

C:\>
```

PC-02 has an invalid default gateway (172.16.1.11 instead of 172.16.1.1)

The issue is beeing corrected.

Connectivity Testing

```
PC-02

  Physical | Config | Desktop | Attributes | Software/Services

Web Browser
  <    >   URL  http://www.cisco.pka              Go          St
                   Cisco Packet Tracer
──────────────────────────────────────────────────────────────────
Welcome to Cisco Packet Tracer. Opening doors to new opportunities.
Mind Wide Open.

Quick Links:
A small page
Copyrights
Image page
Image
```
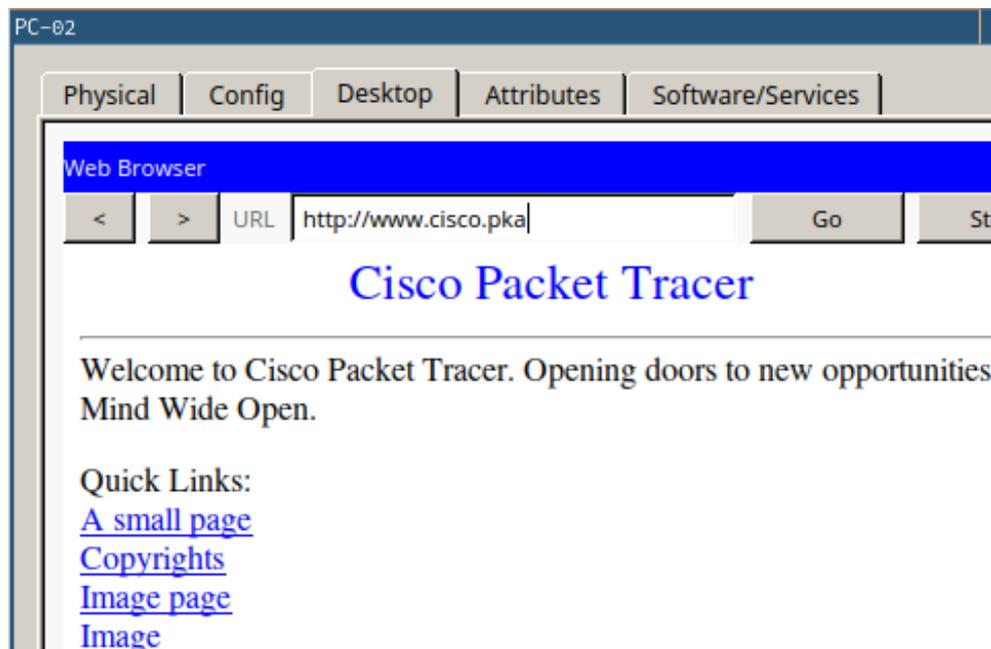
PC-02 is fully connected to the Network

Step 3 - Determine the connectivity issue between PC-A and web server.

```
C:\>ipconfig

FastEthernet0 Connection:(default port)

   Link-local IPv6 Address.........: FE80::2
   IP Address......................: 172.16.2.3
   Subnet Mask.....................: 255.255.255.0
   Default Gateway.................: 172.16.2.1
```

The Computer is correctly configured, so the router configuration will be checked.

Connect to the Router

Choose a PC with a fully working connection and connect to the router using ssh

```
C:\>ssh -l Admin01 172.16.1.1
Open
Password:

Warning: Unauthorized Access is Prohibited.

R1#
```

```
Top
```

Checking the Ip Configuratio for the Router

```
!
interface GigabitEthernet0/1
 ip address 172.16.3.1 255.255.255.0
 ip nat inside
 duplex auto
 speed auto
 ipv6 address FE80::1 link-local
 ipv6 address 2001:DB8:ACAD:1::1/64
```

The Ip Address configured on Interface G0/1 is invalid. It should be 172.16.2.1 instead of 172.16.3.1

```
R1#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
R1(config)#int g0/1
R1(config-if)#ip add
R1(config-if)#ip address 172.16.2.1 255.255.255.0
R1(config-if)#
```

Testing Connectivity

```
PC-A
 Physical   Config   Desktop   Attributes   Software/Services

Web Browser
  <    >    URL  http://www.cisco.pka              Go         St

              Cisco Packet Tracer
    ─────────────────────────────────────────────────────
    Welcome to Cisco Packet Tracer. Opening doors to new opportunities
    Mind Wide Open.

    Quick Links:
    A small page
    Copyrights
    Image page
    Image
```
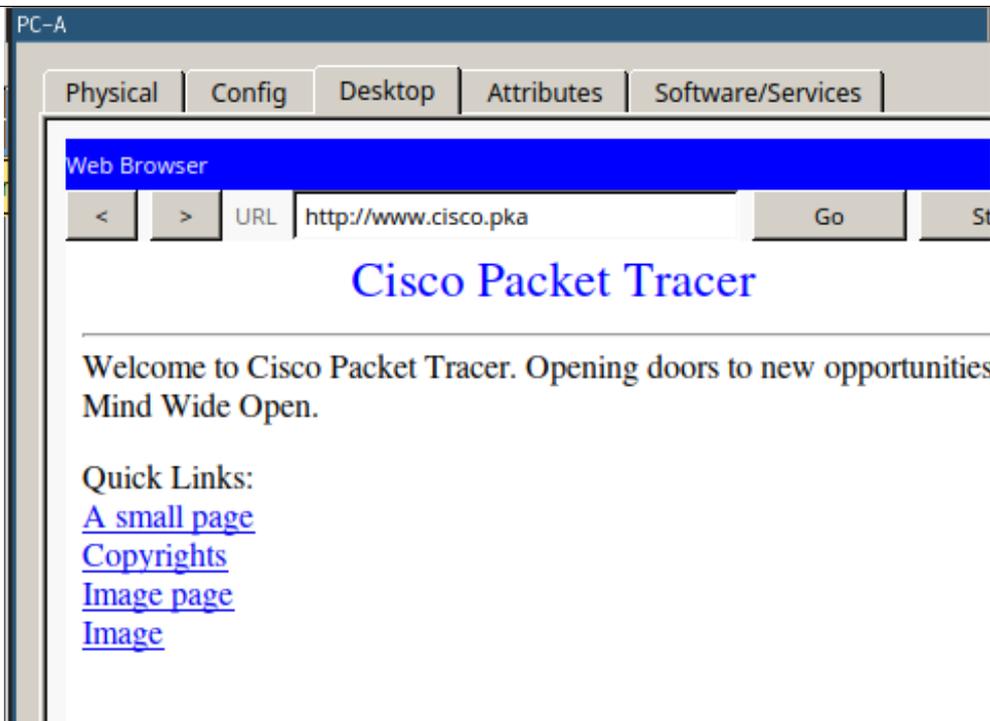
PC-A can now connect to the Network

Step 4: Determine the connectivity issue between PC-B and web server.

```
FastEthernet0 Connection:(default port)

   Link-local IPv6 Address.........: FE80::4
   IP Address.....................: 172.16.2.4
   Subnet Mask....................: 255.255.255.0
   Default Gateway................: 172.16.2.1
```

The IP COnfiguration seems fine.

```
C:\>ping 209.165.201.2

Pinging 209.165.201.2 with 32 bytes of data:

Reply from 209.165.201.2: bytes=32 time=2ms TTL=126
Reply from 209.165.201.2: bytes=32 time=1ms TTL=126
Reply from 209.165.201.2: bytes=32 time=1ms TTL=126
Reply from 209.165.201.2: bytes=32 time=1ms TTL=126

Ping statistics for 209.165.201.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 2ms, Average = 1ms

C:\>ping www.cisco.pka
Ping request could not find host www.cisco.pka. Please check the name and try again.
C:\>
```

Pinging the Webserver using the IP Adress works, bot not using the domain. This looks like an issue of DNS Server COnfiguration.

The DNS Server is changed to 209.165.201.3

PC-B

| Physical | Config | Desktop | Attributes | Software/Services |

Web Browser

| < | > | URL | http://www.cisco.pka | | Go | S |

Cisco Packet Tracer

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Mind Wide Open.

Quick Links:
A small page
Copyrights
Image page
Image

PC-B is now fully connected to the Network

http://nvs.schreib.at/NVS/5CHIF_20161128_Schreib/