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FACULTY OF ENGINEERING & TECHNOLOGY

DCS-503 Computer Networks

Lecture-38

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OUTLINE

- TROUBLESHOOTING YOUR NETWORK
- TROUBLESHOOTING TECHNIQUES
- APPROACHES TO TROUBLESHOOTING
- UTILITIES USED TO VERIFY TCP/IP CONNECTIVITY
- THE PING COMMAND
- THE TRACERT COMMAND

TROUBLESHOOTING YOUR NETWORK

1) **Step 1 – Gather information**
    1) Question the individual who has the problem
        1) end user experiences
        2) observation by the user
        3) error messages
2) **Step 2 – Collect information about affected equipment**
    1) look at log files
    2) changes
    3) warranty information
    4) network monitoring tools
        1) used for larger networks

TROUBLESHOOTING TECHNIQUES

Use OSI layered approach

Top-down

– start at application layer

– work down until faulty error occurs

Bottom-up

– start at physical layer and work up

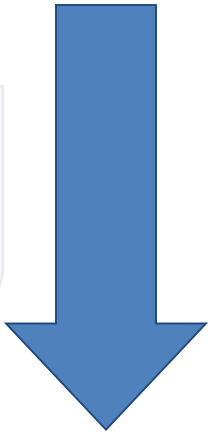
– hardware, cabling, etc problems

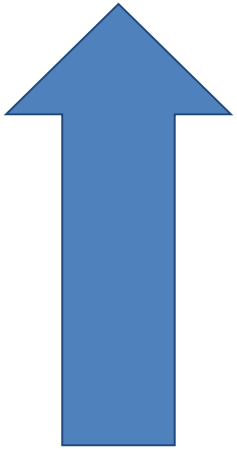
– more complex

Divide and Conquer

– begins in the middle layers

– based on experience





APPROACHES TO TROUBLESHOOTING

Trial and Error

– relies on an individual's knowledge

– educated guess based on past experiences

– if it doesn't work, try, try again

Substitution

– problem assumed to be caused by a specific part

– the solution – replace the part

– used for inexpensive items

• cables, etc

UTILITIES USED TO VERIFY TCP/IP CONNECTIVITY

Use CLI

IP Config

– checks to make sure correct IP and subnet mask

Ping

– verifies connectivity to other hosts

Tracert

– traces the route of the packet

Netstat

– show what networks are active

Nslookup

– asks the name server for information

THE PING COMMAND

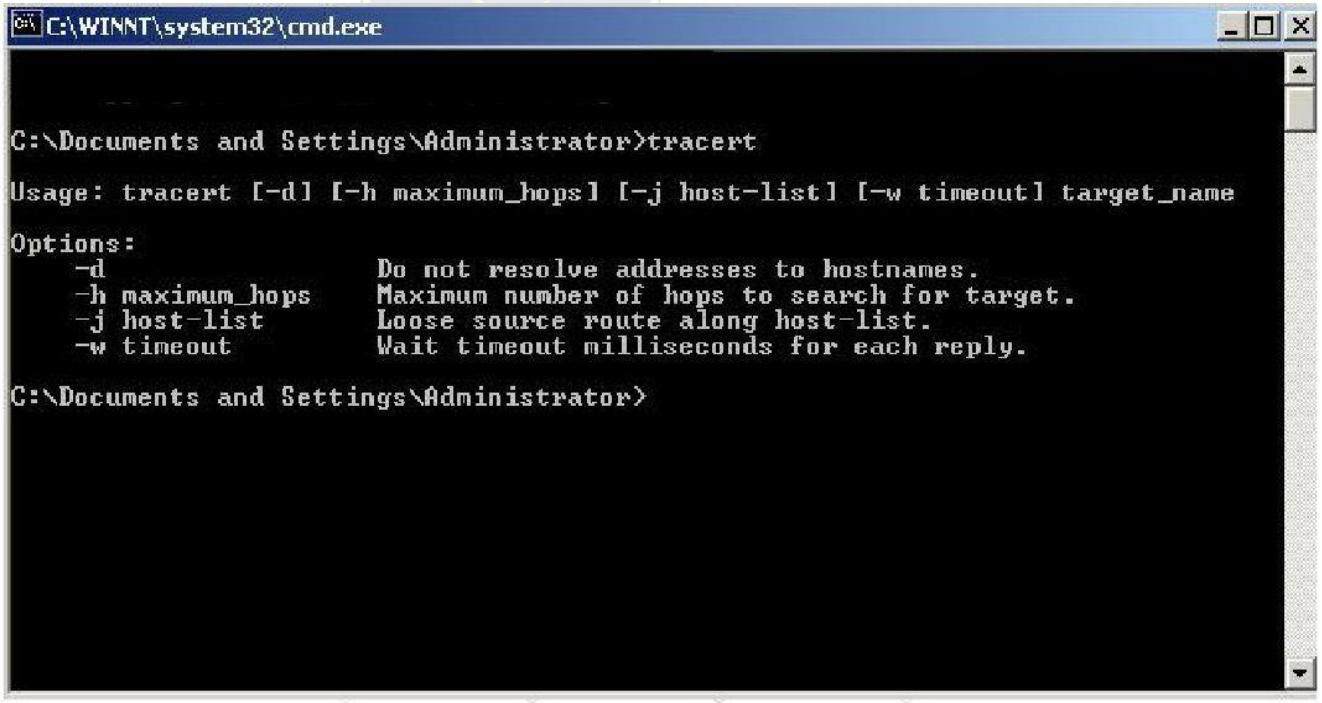
- Used to determine whether or not the host is reachable
- Can be used with either an IP address of name of destination
- **Echo request** – ping sent
- **Echo reply** – destination host responds
- **Ping issues**

1. able to ping both IP and name, but unable to access application
2. problem likely at destination host
3. Unable to ping both IP and name
4. network connectivity problem
5. if able to ping default gateway, problem not at local level

THE TRACERT COMMAND

- shows each hop along the way
- tells how long it takes for the packet to be sent and get a response (round trip time)
- 30 hops – network/user deemed unreachable

1. default settings
2. can be changed



Multiple Choice Question

MUTIPLE CHOICE QUESTIONS:

Sr no	Question	Option A	Option B	OptionC	OptionD
1	Which one of the following is an architecture paradigms?	Peer to peer	Client-server	HTTP	Both Peer-to-Peer & Client-Server
2	Application developer has permission to decide the following on transport layer side	Transport layer protocol	Maximum buffer size	Both Transport layer protocol and Maximum buffer size	None of the mentioned
3	Application layer offers _____ service.	End to end	Process to process	Both End to end and Process to process	None of the mentioned
4	E-mail is _____	Loss-tolerant application	Bandwidth-sensitive application	Elastic application	None of the mentioned
5	Pick the odd one out.	File transfer	File download	E-mail	Interactive games

REFERENCES

- http://www.engppt.com/2009/12/networking-fourozan-ppt-slides.html