

ECSE-6600: Internet Protocols

Informal Quiz #10

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OAM Functions (Slide set #11): Informal Quiz

OAM: ICMP, SNMP, BOOTP etc

- ❑ ❑ ICMP uses IP to forward its error information
- ❑ ❑ When ICMP packets are dropped, they are retransmitted by the originating ICMP source router
- ❑ ❑ The ping tool uses the timestamp request/response feature of ICMP
- ❑ ❑ Modern TCP congestion control is based upon the ICMP Source Quench message to get explicit congestion notifications
- ❑ ❑ PathMTU discovery is based upon the fragmentation required error messages of ICMP
- ❑ ❑ The “TimeExceeded” ICMP message is sent in response to a retransmission timer expiry at the source host
- ❑ ❑ Traceroute uses the record route IP option field to discover routes
- ❑ ❑ The purpose of configuration is to specify critical parameters of protocols
- ❑ ❑ ”Auto-configuration” has to be done through a server-based approach (eg: like DHCP)
- ❑ ❑ RARP requires a server, but ARP does not require one.
- ❑ ❑ BOOTP extends RARP functionality and makes it independent of the link layer technology.
- ❑ ❑ BOOTP runs directly over IP (without needing a transport layer)
- ❑ ❑ The key difference between BOOTP and DHCP is that the latter can lease out addresses dynamically and for short periods

- The NAT function does not touch transport or higher layers.
- NAT allows the change of IP addresses (private/public) in a transparent way to the application
- 10.15.20.31 is a public IP address
- NAT, DHCP, subnetting and CIDR together allow better multiplexing of the IPv4 address space
- RSIP is like NAT, except that the end-system is directly allocated a public address temporarily, I.e., the function is not transparent.
- SNMP implements a complex database abstraction where network managers can issue complex queries that can be resolved by the SNMP protocol
- SNMP uses an local agent at each monitored node that is queried by the network management station using the SNMP protocol
- SNMP is designed to fetch any subtree in a MIB in a single transaction
- The “SEQUENCE OF” constructor in ASN.1 syntax is used to define the equivalent of a “struct” in the C language.
- SNMP is only the message exchange protocol for network management.
- MIB is a database.
- RMON defines both a new MIB and a new protocol
- RMON allows the calculation of local network level statistics to be computed and stored in the (extended) MIB to be accessed by the (unchanged) SNMP protocol
- Proxy SNMP helps interface SNMP to non-IP and sub-layer 3 devices.