ECSE-6600: Internet Protocols

Informal Quiz #10

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OAM Functions (Slide set #11): Informal Quiz
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.