Dynamic host configuration protocol (dhcp)

`Running Head: Dynamic Host Configuration Protocol Dynamic Host Configuration Protocol: A Research Paper goes here Professional Specialization Name of you professor Dynamic Host Configuration Protocol Dynamic Host Configuration Protocol (DHCP) is an elementary topic for understanding how networks all around us allow host machines to join them and what distinguishes a computer from the rest of machines on a network. DHCP is an essential and important protocol of TCP/IP suit of protocols and its basic aim is to manage and simplify the addressing scheme of a network. The management of addressing scheme for networks without DHCP is a complex and tiresome job for IT professionals. " However, defining an addressing system and setting up the correct address on each workstation and server is far from trivial. Dynamic Host Configuration Protocol can be a great help." (Richards, 1997, p. 11). The address assignment of machines on a network is a core issue of network administration and management and is considered a major cost contributor in managing client server environments. There are two options available to network administrators, either they may address each machine on the network themselves, or they may go for a DHCP server to assign IP addresses to all requesting hosts on the network. A DHCP server has a pool of assignable IP addresses and depending on the implementation may also have a pool of IP addresses to be assigned to the restricted users on the network. The address assignment process of DHCP Server, normally called the Lease Process, is an important part of understanding how actually DHCP work and how it can be troubleshoot in case of an address assignment problem. The first step of Lease Process is a DHCP Discover request from a client, which is broadcasted on the network to locate a DHCP server. On receiving this request all DHCP servers on the

network respond with a broadcast DHCP Offer message that contains an IP address, which is yet not leased to any other client on the network. As there may be more than one DHCP servers on a network and multiple responses to a DHCP Discover request thereby, a client usually accepts the first DHCP Offer it receives. A DHCP Request is then sent, usually through a unicast message, to the offering DHCP server by the client machine. In the last step of this Lease Process DHCP server broadcasts a DHCP Ack message to confirm the leased address assignment to the client. (Microsoft, 2003). Initially, Dynamic Host Configuration Protocol (DHCP) was derived from Bootstrap Protocol (BOOTP) which was used to assign static IP address during booting up process of client machines. Today, DHCP is not only used as an address assignment mechanism it performs many other important network management tasks. Nearly all clients' specific network information are now kept on the central DHCP servers and are issued, renewed and validated through its messaging mechanism. Moreover, in wireless network environments where clients with their laptops join and leave the network frequently the DHCP server plays a vital role in their management. The efficient use and distribution of available IP addresses while keeping the cost of management low are the core benefits of using Dynamic Host Address Protocol in distributed client network environments. (SUN, 2002). References

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