IPv6 Address Type - Multicast

Overview:

As part of your assigned readings and material covered in class lecture, you have learned about IPv6 address types, including unicast and multicast addresses. For this assignment, you will expand your knowledge of the use of multicast addresses compared to the use of broadcast addresses in IPv4.

Required Resources:

* Textbook and lecture notes
* Internet access

**Research Resources:**

* IPv6 multicast address – overview
  + <http://www.tcpipguide.com/free/t_IPv6MulticastandAnycastAddressing.htm>
* IPv6 subnet scanning RFC
  + <http://www.ietf.org/rfc/rfc5157.txt>

**Deliverables**

* Perform additional research to understand the use of multicast addresses in IPv6 protocol compared to IPv4 broadcast addresses with emphasis on:
  + Neighbor discovery
  + All nodes address
  + All routers address
* Describe the process of neighbor discovery including the use the all nodes address for achieving the same result as the IPv4 ARP protocol.
* Include the IPv6 multicast address for all routers and all hosts.
* Perform research to determine:
  + Are you able to perform subnet “scanning” by simple sending an ICMP echo packet to the “all hosts” multicast address? Similar to the concept of sending an ICMP echo packet to the broadcast address on an IPv4 subnet.
  + Provide an estimate of how long it would take to scan, through a tool similar to NMAP, an entire /64 IPv6 subnet to find every possible host, not using the multicast “all host” address. Use an Internet search engine to aid in this response.

Provide citations for the Internet resources you used.