DHCP Server Selection Option

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Requirements Statement

- **A DHCP administrator has no control over which lease is selected by a client**
  - RFC1541 states that the decision is client policy
  - most common implementation is “first offer received”
  - makes it difficult to administer policy across several DHCP servers (e.g., for service redundancy)
- **Administrative control over offer selection by clients has the following possible applications:**
  - server segregation
  - server introduction and deprecation
  - server aggregation
  - DNS address mapping stability
  - others?

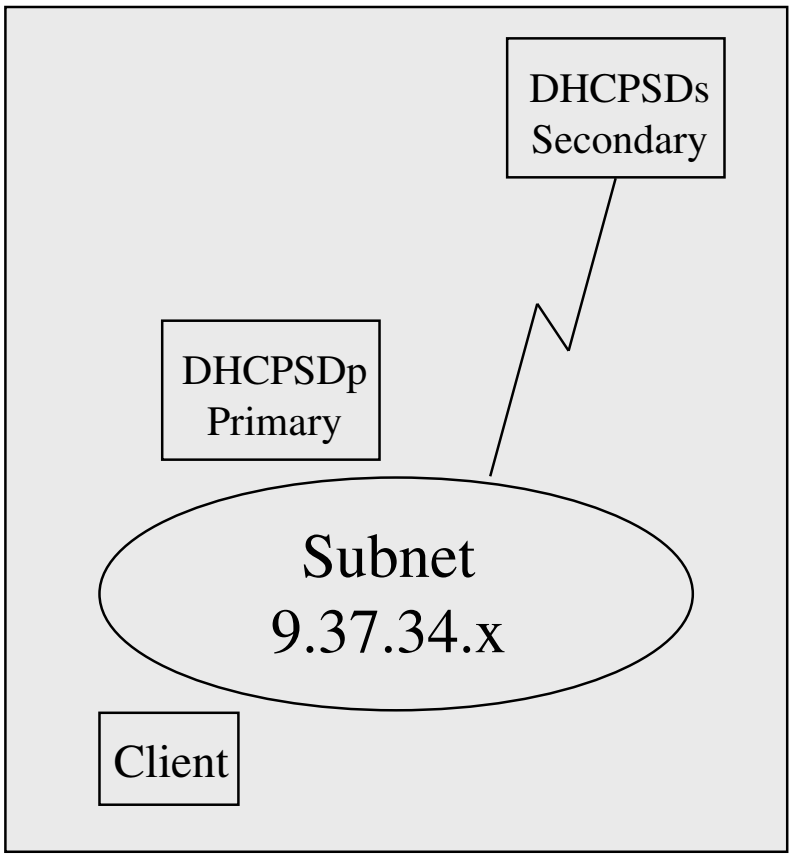
DHCP SSO Proposal

- **Client logic to select server is simple**
  - select DHCPOFFER with highest “priority”, as indicated by the value in the SSO field
- **Servers set the SSO value according to policy selected by administrator**
  - SSO values must be orchestrated across all DHCP servers serving a particular subnet in order to achieve a desired system behavior for that subnet
- **Option format:**

opcode=tbd	length=2	“priority”

E.g., Primary-Secondary

- **Two DHCP servers, one preferred and one "backup":**
  - DHCPSDp (SSO=100)
  - DHCPSDs (SSO=50)
- **Client broadcasts a DHCPDISCOVER and then waits "t" seconds, receiving DHCPOFFERs from (first) DHCPSDs and then DHCPSp**
- **Since DHCPSDp has the highest SSO value of all offers received, it's lease is selected by Client**



Changes for draft-01

- **Removed rqmt for DHCP server identification to a separate draft (ref. Server Identification Option)**
  - conflicting rqmt
  - confused and overloaded semantics
- **Removed the notion of option usage "profiles":**
  - too complicated for vendors to implement and customers to administer
  - the remaining simple priority scheme addresses 90% of current requirements
  - server-to-server protocol can provide coordination of priority field usage across servers to address more sophisticated administrative requirements

Some Issues

- **DHCP client behavioral consistency**
  - Required to enable customers to realize full value for which DHCP is popular:
    - i.e., centralized, aggregated control of client host configuration
  - Some thoughts here...
    - Should the DHCP standard specify a DHCP client's default DHCPOFFER selection behavior?
    - If so, how many seconds should a client wait to receive offers before making a selection decision? How should it make the decision?
  - Specifying or recommending default behavior implies changes to client policy set forth in RFC1541