DHCP cluster

draft-bourdais-dhcp-cluster-00

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Context

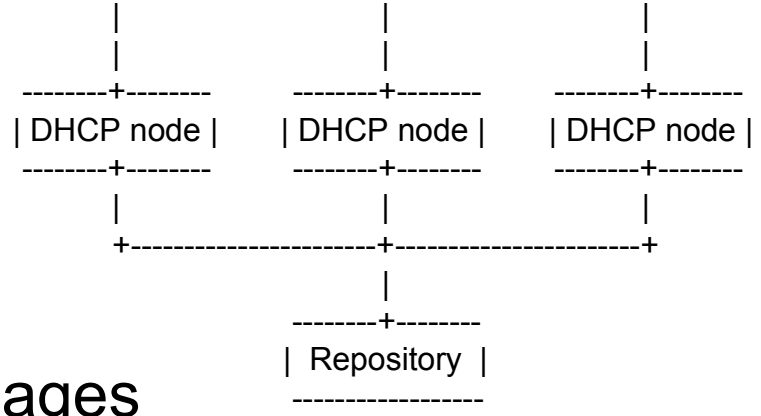
- Use of DHCP broadens to large IP networks to ensure plug&play network configuration
  - New services: TVoDSL, VoIPoDSL
  - (New) constraints:
    - Heterogeneity of terminals to deal with
    - Multiple pairs of DHCP servers must be managed
- Many existing deployments where DHCP servers are interworking with directories or databases
- Some examples of DHCP server built "in-house"

Motivation

- A design where multiple DHCP message processing nodes are running simultaneously and interact with a centralized repository
  - Limited storage on nodes: they process DHCP messages and refer to the repository for bindings
  - Central repository is the unique entity that manage the IP addressing scheme

- Applicability: centralized DHCP platform for networks that connect a large number of IP terminals (think over 1M)

Trade Off



- Decoupling processing and storage means distributed architecture:
  - Nodes process DHCP messages
  - The centralized repository manages bindings

- Consequences:
  - The repository becomes the main bottleneck/POF: node-repository interactions should be limited
  - All nodes must have similar configurations
  - No need for failover protocol

Design examples

- Several designs with different options on load distribution
  - Use of DHC load balancing: application of RFC3074 on nodes
  - Hardware load balancing appliance:
    - Used as the target by the client and relays
    - Any operation on nodes is transparent.
  - Anycast architecture

Any question/comment ?

Thank you