

DHCP Migration: Cisco Pools → Centralized Windows DHCP

Case Study — Network Engineer I, Aston Technologies

OVERVIEW

DHCP services were administered locally on individual Cisco routers across a multi-site VLAN environment. This project migrated those services to a centralized, redundant Windows Server DHCP deployment integrated with Active Directory and DNS.

PROBLEM

Distributed router-based DHCP meant no centralized failover — a single router failure could take DHCP offline for that site — and scope changes had to be repeated router-by-router as VLANs grew, increasing administrative overhead and the chance of configuration drift between sites.

PROCESS

- Authored the full MOP and CAB change packet, including a documented backout plan and verification/test plan
- Backed up existing Cisco router configurations before making any changes
- Documented every existing DHCP pool: subnet, gateway, DNS servers, exclusions, and lease duration
- Built matching scopes on Windows DHCP with Active Directory and DNS integration
- Staged a phased, per-VLAN cutover — migrating one VLAN first to validate the approach before touching production-wide traffic

SOLUTION

Migrated DHCP services to centralized Windows Server DHCP with 50/50 load-balanced failover between two servers. Reconfigured Cisco VLAN interfaces with helper-addresses to forward client requests to the new servers, then validated lease assignment, DNS registration, and end-to-end connectivity at each stage before disabling the legacy router-based pools.

ROLLBACK PLAN

A full backout path was documented and ready throughout the maintenance window: re-enable the Cisco router DHCP pools, remove the helper-address changes, and confirm client lease acquisition reverted to the prior state — giving a clean path back if validation had failed at any stage.

OUTCOME

DHCP was no longer a single-router point of failure, administration was centralized into one console instead of per-router configuration, and the change left behind a documentation package detailed enough for another engineer to execute or roll back independently — the actual Change Request Form and MOP used are included as a companion document.

SKILLS DEMONSTRATED

Cisco IOS VLAN/helper-address configuration • Windows Server DHCP & Active Directory integration • DHCP failover design • Change management (MOP authorship, CAB documentation) • Phased migration planning • Rollback planning