

Manage IP Addressing in On-Premises and Hybrid Scenarios



Tim Warner

Principal Author Evangelist, Pluralsight

@TechTrainerTim TechTrainerTim.com



Overview



Implement and manage IPAM

- Resolve IP address issues in hybrid environments

Implement and configure the DHCP server role (on-premises only)

- Create and manage scopes
- Create and manage IP reservations
- Implement DHCP high availability



Implement and Manage On-Premises and Hybrid Networking Infrastructure

Implement On-Premises and Hybrid Name Resolution

Manage IP Addressing in On-Premises and Hybrid Scenarios

Implement On-Premises Network Connectivity

Implement Hybrid Network Connectivity



IP Address Management (IPAM)



IP Address Issues in Hybrid Environments

**IP address range
overlap**

**Misuse of Azure
public IP addresses**

**Rogue DHCP
servers**

**Rogue DNS
servers/updates**

**Azure has no IPAM
solution**

**Third-party
solutions
(EfficientIP)**



Windows Server IPAM

IP Address Management

Discover DC, DHCP, DNS, NPS

IP address space management

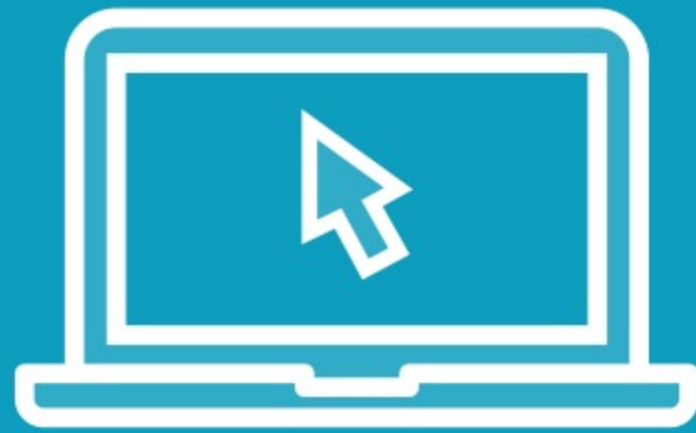
Multiserver management and monitoring

Operational auditing

No communication among IPAM servers



Demo



1

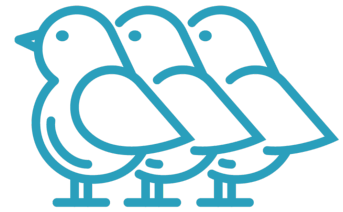
IPAM



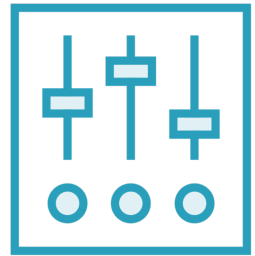
Dynamic Host Configuration Protocol (DHCP)



DHCP Scopes and Reservations



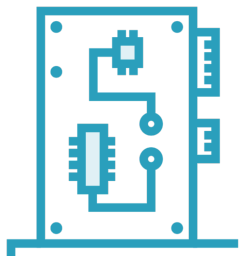
Scope: Administrative IP address grouping



Server and scope options



User and vendor classes



Reservation: MAC address-to-IP address mapping



IPAM can be instrumental in managing reservations



DHCP High Availability (Historical)

Failover clustering

**Split scopes
(70/30)**



DHCP Failover



Primary DHCP server replicates IPv4 scope data to a failover partner server

- Relationship servers need persistent connection on TCP 647

Modes:

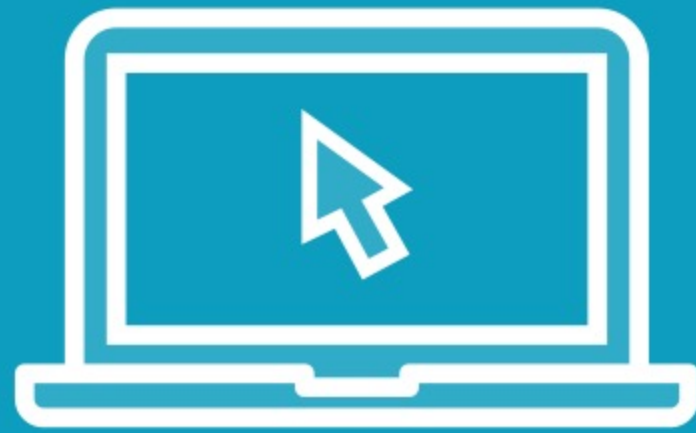
- Hot standby
- Load balancing

Replication is manual and bi-directional

- Be careful to verify source server because partner server's DHCP settings will be overwritten



Demo



2

DHCP config

DHCP failover



Summary



It would be really nice if Microsoft gave us IP address management in Azure virtual networks

- Platform-as-a-Service (PaaS) nearly always includes trade-offs

Third-party solutions are wonderful, but it's "All Microsoft, all the time" on the cert exams



Up Next:

Implement On-Premises Network
Connectivity

