DHCP

AUTOMATIC ASSIGNING OF HOST CONFIGURATION TO TO THER MACHINES

DHCP CLIENT AND SERVER OPERATIONS:

DHCP DISCOVER->

<-DHCP OFFER

DHCP CLIENT DHCP REQUEST-> DHCP SERVER

<-DHCP ACK

IP ADDRESS ARE OF 2 TYPES:

REGISTERED IP ADDRESS : IT IS UNIQUE

NON REGISTERED IP ADDRESS(STATIC IP):

HOW TO CALCULATE RANGE OF IP ADDRESS

PRIORITY BIT FOR CLASS A IS 0

PRIORITY BIT FOR CLASS B IS 10

PRIORITY BIT FOR CLASS C IS 110

FOR CLASS A

0 0000000= 0 MIN VALUE

0 1111111= 127 MAX VALUE

FOR CLASS B

10 000000= 128 MIN VALUE

10 111111= 191 MIN VALUE

FOR CLASS C

110 00000= 192 MIN VALUE

110 11111= 223 MAX VALUE

FOR CLASS D

1110 0000= MIN VALUE

1110 1111= MAX VALUE

FOR CLASS E

1111 0000=

1111 1111=

RANGE OF CLASS A IS 0 TO 127

USABLE RANGE OF CLASS A IS 1 TO 126

127 IS LOOP TESTING

127.0.0.1 TO 127.255.255.254 IS USED FOR LOOP BACK TESTING

DHCP SERVER:

THREE MECHANISMS TO ALLOCATE IP ADDRESS TO HOSTS.

* AUTOMATIC ALLOCATION:
  + ASSIGNS A PERMANENT IP ADDRESS TO A CLIENT
* DYNAMIC ALLOCATION:
  + ASSIGNS AN IP ADDRESS TO A CLIENT FOR A LIMITED TIME OR UNITL THE CLIENT EXPLICITLLY RELIQUISHES THE ADDRESS
* MANUAL ALLOCATION:
  + NETWORK ADMINSTRATOR ASSIGNS A CLIENT’s IP ADDDRESS.
  + DHCP IS JUST TO CONVEY THE ASSIGNED ADDRESS TO THE CLIENT.

NAME RESOLUTION:

NAME RESOLUTION IS USED TO FIND A LOWER LEVELE ADDRESS (SUCH AS AN IP ADDRESS) THAT CORRESPONDS TO A GIVEN HIGHER LEVEL ADDRESS (SUCH AS A HOSTNAME).

TCP/IP

HOST FILE (WINDOWS AND LINUX)

DNS

NETBIOS

LMHost FILE (WINDOWS)

WINS

**DNS**

THE DOMAIN NAMESPACE IS THE NAMING SCHEME THAT PROVIDES THE HIERARCHICAL STRUCTURE FOR THE DNS DATABASE. EACH NODE, REFERRED TO AS A DOMAIN, REPRESENTS A PARTITION OF THE DNS DATABASE.

THE DNS DATABASE IS INDEXED BY NAME, SO EACH DOMAIN MUST HAVE A NAME. AS YOU ADD DOMAINS TO THE HIERARCHY THE NAME OF THE PARENT DOMAIN IS ADDED TO ITS CHILD DOMAIN. CONSEQUENTLY, A DOMAIN’s NAME IDENTIFIES ITS POSITION IN THE HIERARCHY.

**WHAT ARE ZONES?**

A ZONE REPRESENTS A DISCRETE PORTION OF THE DOMAIN NAMESPACE.

ZONES PROVIDE A WAY TO PARTITION THE DOMAIN NAMESPACE INTO MANGEABLE SECTIONS.

MULTIPLE ZONES. FOR EXAMPLE, FOLLOWING FIGURE DEPICTS THE MICROSOFT.COM DOMAIN NAMESPACE DIVIDED INTO TWO ZONES. THESE ZONES ALLOW ONE ADMINISTRATOR TO MANAGE THE MICROSOFT AND SALES DOMAINS, AND ANOTHER ADMINISTRATOR TO MANAGE THE DEVELOPMENT DOMAIN.

**THE RESOLUTION PROCESS:**

STEP 1: THE WORKSTATION DESK9 ASK ITS CONFIGURED NAME SEVER, DC01 FOR [WWW.GOOGLE.COM](http://WWW.GOOGLE.COM) ADDRESS

STEP 2: ASK THE IP ADDRESS OF .COM SERVER

STEP 3: HERE IS A LIST OF THE COM NAME SERVERS, ASK ONE OF THEM

STEP 4: ASK WHAT IS THE IP ADDRESS OF THE GOOGLE.COM NAME SERVER.

STEP 5: HERE IS A LIST OF THE GOOGLE.COM NAME SERVERS. ASK ONE OF THEM

STEP 6: WHAT IS THE IP ADDRESS OF [WWW.GOOGLE.COM](http://WWW.GOOGLE.COM)

STEP 7: HERE IS THE LIST OF IP ADDRESS FOR [WWW.GOOGLE.COM](http://WWW.GOOGLE.COM)

STEP 8: HERE IS THE IP ADDRESS FOR WWW.GOOGLE .COM

RESOLUTION PROCESS(CACHING):

AFTER THE PREVIOUS QUERY, THE NAME SERVER DC01 NOW KNOWS:

1. THE NAMES AND IP ADDRESSES OF THE COM NAME SERVERS.
2. THE NAMES AND IP ADDRESSES OF THE GOOGLE.COM NAME SERVERS.
3. THE IP ADDRESS OF [WWW.GOOGLE.COM](http://WWW.GOOGLE.COM)

LETS LOOK AT THE RESOLUTION PROCESS AGAIN:

**DNS: ADDRESSING RECORDS:**

FOUR MAJOR TYPES OF ADDRESSING RECORDS A, AAAA, CNAME, PTR

A, AAAA : TRANSLATE A TEXT NAME INTO AN IP ADDRESS (A : IPV4, AAAA: IPV6)

ONE HOSTNAME CAN HAVE MULTIPLE A AND/OR AAAA RECORDS (EG. [WWW.CNN.COM](http://WWW.CNN.COM))

CNAME: ALIASES FOR A CERTAIN HOSTNAME

EG. RESCOM.STANFORD.EDU IS JUST AN ALIAS FOR RESCOMP.STANDFORD.EDU

NOTE THAT CNAMEs POINT TO HOSTNAMES NOT IP ADDRESSES

PTR: TRANSLATES FROM AN IP ADDRESS TO A HOSTNAME

EACH IP ADDRESS CAN ONLY HAVE 1 PTR RECORD

NOTE THAT PTR AND A/AAAA RECORDS DO NOT TO BE SYMMETRICALL

EG. FOO.SAMPLE.COM CAN HAVE ‘A’ RECORDS FOR 10.0.0.2 AND 10.0.0.3 WHILE 10.0.0.2 CAN

HAVE A PTR RECORD FOR BAR.SAMPLE.COM

System-config-network used for configuring network

Select device conf

Lan card select n enter

Ok

Save

Save and quit

Now run command for restarting the services:

Service network restart