Datagram to be transmitted to that address

Datagram has a destination address

T. SK
Upper layer (transport layer) gives datagrams 64k, usually
Protocol to run on many different physical layers

IP design

Blank chapter 4 and last chapter
Hall chapter 2
Comer chapter 3 and 4

Reading

2001-10-11
http://openg. org/Home/Knittel
Thomas Knittel
LIS556 Lecture 3
depends on the class of the network

is expressed by the network mask

Division between the two parts

each address has a network part, and then a host part. The

usually written as four decimal number

Example 192.0100 0000 0101 0100 0111

32 bit address

The IP address

— your postal address is an example

eager at the moment

— assigned by the network administrator where the host op-

— logical address of the host

The IP number

in host-to-host protocols.

It's how control, sequencing, and other services commonly found

there are no mechanisms to achieve end-to-end data reliable

...
network mask is 255.255.000.000

- 16 bits for host
- 14 bits network

- starting with 10
  Class B

network mask is 255.255.000.000

- 24 bits for host
- 7 bits network

- starting with 0
  Class A

Classes

The network mask is in address of the form

1111 1111 1111 1111 1000 0000 0000
le. starts with 1s only and the switches to 0s only

1...10...0

The network mask
until you have 8 numbers.
Reverse the remainders to get the result 100100. Fill up with 0's.

1/2 = 0 remainder 1
2/2 = 1 remainder 0
4/2 = 2 remainder 0
9/2 = 4 remainder 1
18/2 = 9 remainder 0
37/2 = 18 remainder 1
74/2 = 37 remainder 0
148/2 = 74 remainder 0
1. Convert 148

Example address 148.4.2.31

Converting the address to binary

- Reserved for testing purposes
  
  Class E •

- Multicast address
  
  Class D •

- Network mask is 255.255.255.000
- 8 bit for host
- 21 bit for network
- Starting with 110

Class C

continued
- Loopback
- 127 anything
- broadcast to a remote network
- 255.255.255.255 means a host on this network
- 0.0.0.0 Host
- means this host
- Special addresses

1001 0100 0000 0000 0000 0000 0000 0000
So the complete number is
Revers the remainders to get the result 010011

1/2 = 0 remainder 0
3/2 = 1 remainder 1
7/2 = 3 remainder 1
14/2 = 7 remainder 0
28/2 = 14 remainder 0
56/2 = 28 remainder 1
112/2 = 56 remainder 1
224/2 = 112 remainder 1
448/2 = 224 remainder 1
992/2 = 448 remainder 1
1984/2 = 992 remainder 1
3968/2 = 1984 remainder 1
So have 8 numbers, 00000001
Revers the remainders to get the result 0111 up with 0 or until

1/2 = 1 remainder 1
3/2 = 1 remainder 1
15/2 = 7 remainder 1
30/2 = 15 remainder 0
60/2 = 30 remainder 0
120/2 = 60 remainder 0
240/2 = 120 remainder 0
480/2 = 240 remainder 0
960/2 = 480 remainder 0
1920/2 = 960 remainder 0
4800/2 = 2400 remainder 0
9600/2 = 4800 remainder 0
19200/2 = 9600 remainder 0
38400/2 = 19200 remainder 0
So have 8 numbers, 00000000
Revers the remainders to get the result 0000 up with 0 or until

1/2 = 0 remainder 0
2/2 = 1 remainder 0
4/2 = 2 remainder 0
8/2 = 4 remainder 0
16/2 = 8 remainder 0
32/2 = 16 remainder 0
64/2 = 32 remainder 0
128/2 = 64 remainder 0
256/2 = 128 remainder 0
512/2 = 256 remainder 0
1024/2 = 512 remainder 0
2048/2 = 1024 remainder 0
4096/2 = 2048 remainder 0
8192/2 = 4096 remainder 0
16384/2 = 8192 remainder 0
So have 8 numbers, 00000000
Revers the remainders to get the result 0000 up with 0 or until

Example address 148.2.231

Example address 148.2.231
... 193.168.2. with 0110 0000. \textcolor{red}{193.168.2} 193.168.2. with 0110 0000. \textcolor{red}{193.168.2} 193.168.2. with 0110 0000. \textcolor{red}{193.168.2} 193.168.2. with 0110 0000. \textcolor{red}{193.168.2} 193.168.2. with 0110 0000. \textcolor{red}{193.168.2}

The first network has the address 0\textcolor{red}{1111 1111 1111 1110 0000} or in decimal 255.255.255.244

need three bits is the subnet mask. Convert to binary, 6 is 110. This number is three bits long. we add 1 to the number of subnets that are needed.

Example: You have a class C network. You wish to divide it into 5 subnets. What is the subnet mask?

In order to avoid sending all the outgoing packets to the same network packet that does not go to the local network is sent to a gateway for internet routing.

Submitting
then replace one occasion of .0:. with .

First, remove all leading 0s:

Example:

Shortening the address

```
EFDC:B4A2:7654:0:EFDC:B4A2:7654:3210
```

If one block has 0000 contents, it is replaced by 0:

```
```

Written as 8 blocks of 4 hex numbers

Face:

```
6655:7039:8069:4389:8999
```

per square meter of the earth's sur-

```
3402823693094369345346074317622456 different numbers.
```

If IPv6 had 128 bit addresses,

```
```

use of 128 bit addresses

```
```

Transition to last 10 years.

Test backbone „6Bone“ operating since 1998.

Similar functionality and design.

Initially drafted in RFC172.

IPv6 or IPv4
means "this host"?

0000::0000:0000:0000:0000:0000:0000:0000

means "no address"

0000::0000:0000:0000:0000:0000:0000:0000

example

special addresses