```
5       struct in_addr inaddr;  /* Address in network byte order */
6       int rc;
7
8       if (argc != 2) {
9           fprintf(stderr, "usage: %s <dotted-decimal>\n", argv[0]);
10          exit(0);
11      }
12
13      rc = inet_pton(AF_INET, argv[1], &inaddr);
14      if (rc == 0)
15          app_error("inet_pton error: invalid dotted-decimal address");
16      else if (rc < 0)
17          unix_error("inet_pton error");
18
19      printf("0x%x\n", ntohl(inaddr.s_addr));
20      exit(0);
21  }
```

code/netp/dd2hex.c

11.4 下面是解决方案。注意，使用 inet_ntop 要困难多少，它要求很麻烦的强制类型转换和深层嵌套结构引用。getnameinfo 函数要简单许多，因为它为我们完成了这些工作。

code/netp/hostinfo-ntop.c

```
1   #include "csapp.h"
2
3   int main(int argc, char **argv)
4   {
5       struct addrinfo *p, *listp, hints;
6       struct sockaddr_in *sockp;
7       char buf[MAXLINE];
8       int rc;
9
10      if (argc != 2) {
11          fprintf(stderr, "usage: %s <domain name>\n", argv[0]);
12          exit(0);
13      }
14
15      /* Get a list of addrinfo records */
16      memset(&hints, 0, sizeof(struct addrinfo));
17      hints.ai_family = AF_INET;        /* IPv4 only */
18      hints.ai_socktype = SOCK_STREAM; /* Connections only */
19      if ((rc = getaddrinfo(argv[1], NULL, &hints, &listp)) != 0) {
20          fprintf(stderr, "getaddrinfo error: %s\n", gai_strerror(rc));
21          exit(1);
22      }
23
24      /* Walk the list and display each associated IP address */
25      for (p = listp; p; p = p->ai_next) {
26          sockp = (struct sockaddr_in *)p->ai_addr;
27          Inet_ntop(AF_INET, &(sockp->sin_addr), buf, MAXLINE);
28          printf("%s\n", buf);
29      }
30
31      /* Clean up */
32      Freeaddrinfo(listp);
33
34      exit(0);
35  }
```

code/netp/hostinfo-ntop.c

11.5 标准 I/O 能在 CGI 程序里工作的原因是，在子进程中运行的 CGI 程序不需要显式地关闭它的输入输出流。当子进程终止时，内核会自动关闭所有描述符。