Protecting your web applications with the DNS

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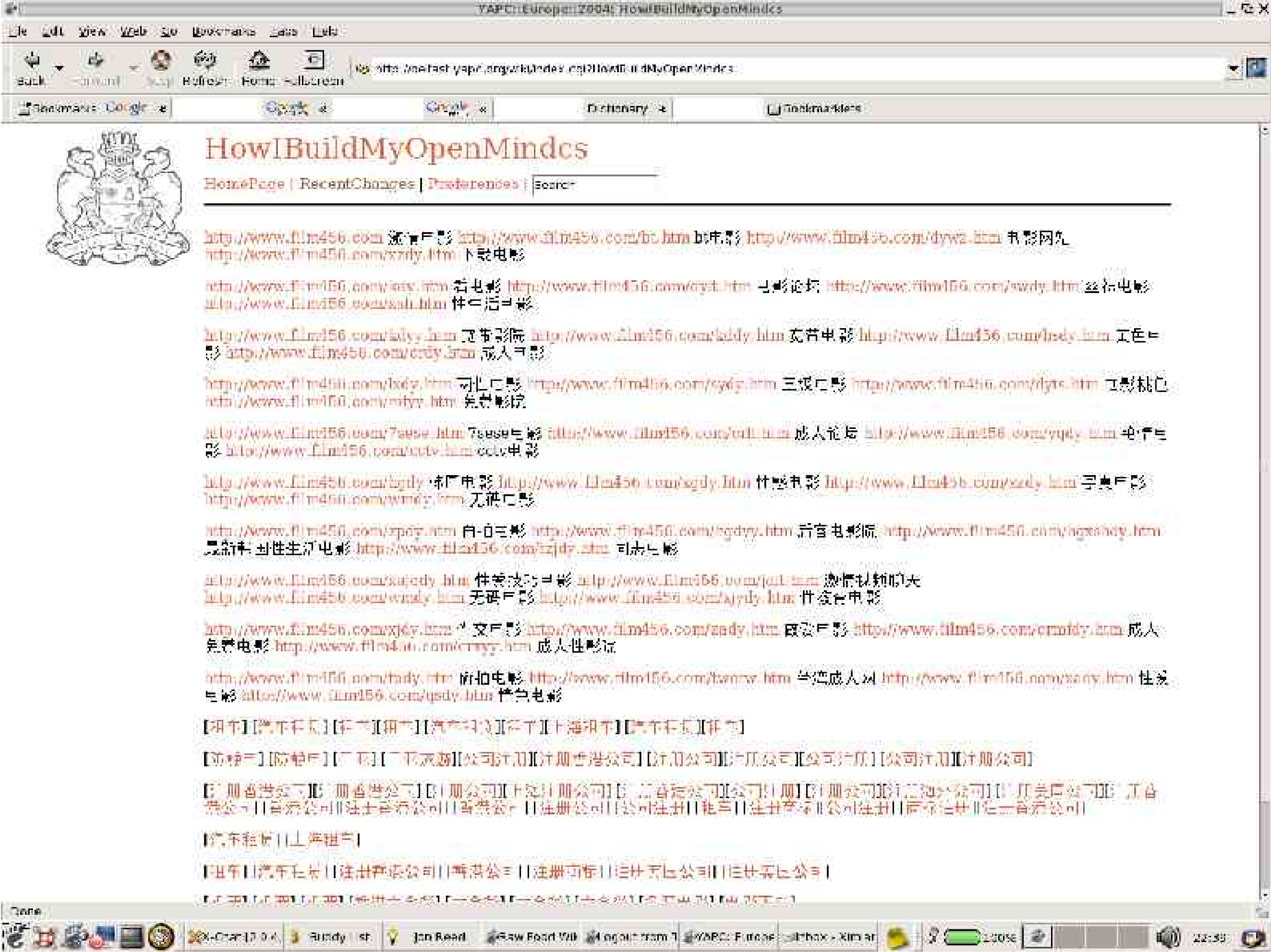
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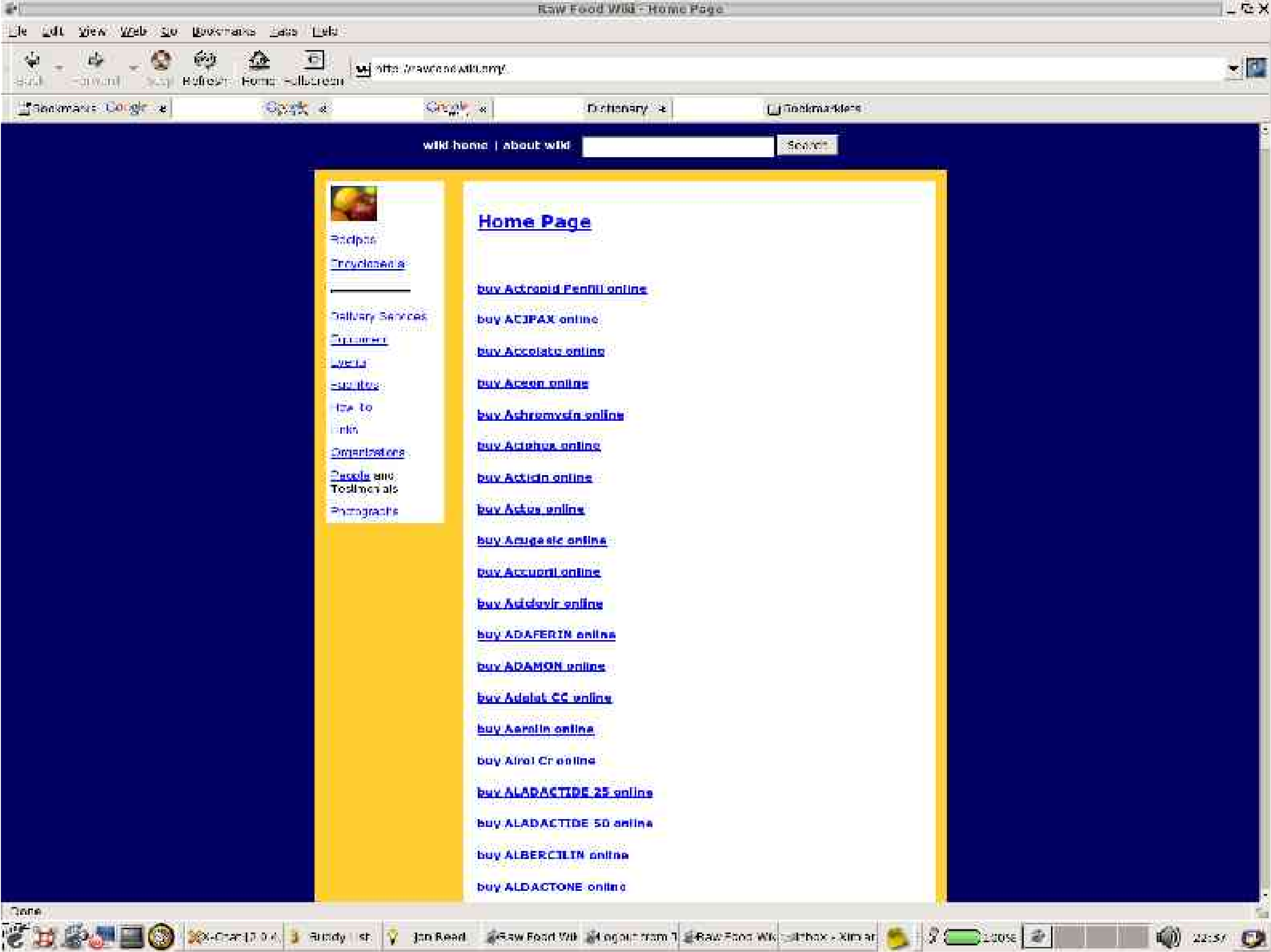
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What is the DNSBL?

- Perform DNS lookup of a host in a particular format
- Returns a result if the queried host is of interest to the creator of the 'block list'
- Some lists return different values to indicate the nature of the entry.
- May also have TXT records containing further information about the entry.

Why use a block list

- Automated comment spam
- Open proxies, 'zombies' and other known abusive hosts are listed in various DNSBL
- Logs submitted by NMS guestbook users suggest that 50% of abusive hosts listed.
- Dynamic and more flexible than application or server configuration based on static lists.

How to use the DNSBL

- DNSBL query is for a DNS 'A' record in the form

  ```
  4.3.2.1.dnsbl-zone
  ```

  Where the host IP is 1.2.3.4 and dnsbl-zone is the zone being queried.

- Corresponding BIND zone file record will look like:

  ```
  4.3.2.1  IN    A  127.0.0.1
  ```

How to use the DNSBL

The simplest of Perl code:

```
sub rbl_check
 {
    my ( $ip, $zone ) = @_;


    my $rc = 1;


    if ( $ip =~ /(\d+)\.(\d+).(\d+)\.(\d+)/ ) {
       my $query = "$4.$3.$2.$1.$zone.";
       my $res   = gethostbyname($query);
       if ( defined $res ) {
             $rc = 0;
       }
    }




    return $rc;
 }
```

How to use the DNSBL

Using it in a CGI program:

```
if (!rbl_check($ENV{REMOTE_ADDR},'xbl.spamhaus.org')
{
    print "Status: 403 Forbidden\n\n";
    exit;

}
```

Testing

- Get yourself in a block list
- Alternatively create your own block list
  - Local DNS server (such as BIND)
  - Add zone to DNS Server configuration
  - Create zone file containing your host
  - Point resolver at your DNS server
  - Query against your new zone

Testing

BIND configuration to add zone:

```
zone "test.relay" {
   type master;
   file "test.relay";
};
```

Testing

Create zone file “test.relay” :

```
$TTL 1d
@       IN      SOA     localhost. root.localhost.   (
                                              1997022700
                                              28800
                                              14400
                                              3600000
                                              86400 )
            IN   NS       localhost.

1.0.0.127   IN   A  127.0.0.2
```

Which DNSBL to use?

- Select a DNSBL zone that lists the appropriate hosts
  - e.g xbl.spamhaus.org lists open proxies and other exploited machines
- Check that the policy of the DNSBL permits this kind of usage. Some may want to be notified before you use them.
- Investigate the reliability of the service.

Taking it further

- Use Net::DNS to retrieve TXT record from lists that provide this, in order, for example, to give a message indicating the reason for refusing access.
- Create a mod_perl access handler that can protect a whole site or part of a site.
- Maintain your own private DNSBL.

The Abusive hosts blocking list.

- Lists and categorizes hosts that are known to have been used in abusive actions on the internet.
- Returns a different value dependent on the kind of “abuse” the host was engaged in.
- Not all entries are appropriate for protecting applications
- Has a “comment spam” category.

The Abusive hosts blocking list.

```
127.0.0.2 - Open Relay
127.0.0.3 - Open Proxy
127.0.0.4 - Spam Source
127.0.0.5 - Provisional Spam Source Listing block (will be removed if spam stops)
127.0.0.6 - Formmail Spam
127.0.0.7 - Spam Supporter
127.0.0.8 - Spam Supporter (indirect)
127.0.0.9 - End User (non mail system)
127.0.0.10 - Shoot On Sight
127.0.0.11 - Non-RFC Compliant (missing postmaster or abuse)
127.0.0.12 - Does not properly handle 5xx errors
127.0.0.13 - Other Non-RFC Compliant
127.0.0.14 - Compromised System - DDoS
127.0.0.15 - Compromised System - Relay
127.0.0.16 - Compromised System - Autorooter/Scanner
127.0.0.17 - Compromised System - Worm or mass mailing virus
127.0.0.18 - Compromised System - Other virus
127.0.0.19 - Open Proxy
127.0.0.20 - Blog/Wiki/Comment Spammer
127.0.0.127 - Other
```

http://www.ahbl.org/docs/dnsbl.php