



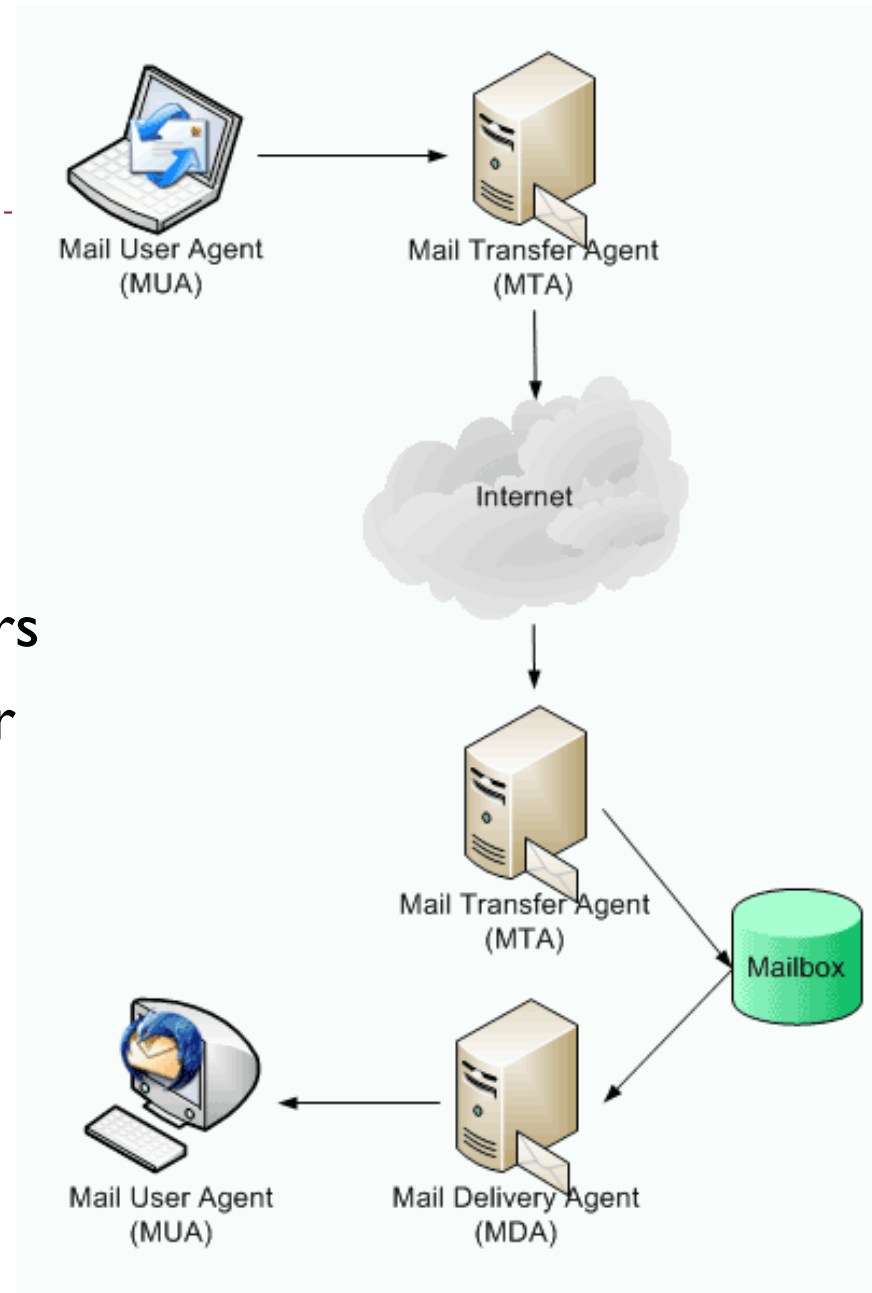
mail and DNS



Katharina Hembach
4.6.2013

Mail transfer agent (MTA)

- ▶ software that receives email from MUA
 - ▶ e.g. mozilla tunderbird
- ▶ transfers email between servers using SMTP (simple mail transfer protocol)







<http://www.linuxmail.info/how-email-works/>

internet message access protocol (IMAP)

- ▶ protocol that allows MUAs to retrieve email from a remote server
- ▶ leave mail on server until user explicitly deletes them
- ▶ allows simultaneous access by multiple MUAs
- ▶ supports flags (new, read, replied, deleted)

- ▶ alternative: POP3 (post office protocol 3)
- ▶ downloads new email and deletes them from server
- ▶ no flags

popular MTAs

MTA	strength	weakness
Sendmail (1982) 	<ul style="list-style-type: none"> • Backwards compatible • good documentation • default on most Unix systems • windows → portability 	<ul style="list-style-type: none"> • Bad security • performance not that good • experience needed
Qmail (1996) 	<ul style="list-style-type: none"> • high security • simplicity • efficiency 	<ul style="list-style-type: none"> • unmaintained (since 1997)
Postfix (1997) 	<ul style="list-style-type: none"> • high security • easy to use • efficient 	<ul style="list-style-type: none"> • no regular releases • not as flexible as exim • not ported to windows
Exim (1995) 	<ul style="list-style-type: none"> • general purpose → high flexibility, extendable • performance • Windows (cygwin) 	<ul style="list-style-type: none"> • security not a goal

procmail

- ▶ is a MDA
 - ▶ sorts incoming mails into directories
 - ▶ filters spam
- ▶ can call spam filter, e.g. SpamAssassine
- ▶ uses **recipes** to determine where to deliver the mail

procmail recipes

- ▶ They consist of:
 - ▶ flag
 - ▶ condition (optional)
 - ▶ action
- ▶ first matching recipe is used
- ▶ no match → send mail to default folder

- ▶ format:
 - :0 [*flags*] [: [*lock-file*]]
 - zero or more *conditions*
 - one *action* line

procmail recipes

flag	meaning
:0	start of recipe
:0 :	use lockfile
:0 B:	scan only body of mail (default header)
:0 HB:	scan header and body
condition	meaning
* pattern	filter mail that matches “pattern“ (regular expression)
action	meaning
foo/mail/kathi	deliver mail to folder foo/mail/kathi
! lkajan@rostlab.org	forward mail to Laszlo

example procmail recipes

- ▶ lock all mails from Tim and send them to folder \$HOME/mail/tim:

```
:0 :  
* ^From: Tim  
$HOME/mail/tim
```

- ▶ forward all mails that contains the words “cinema“ or “movie“ in the mail body to friend@web.de:

```
:0 B  
* (cinema|movie)  
! friend@web.de
```

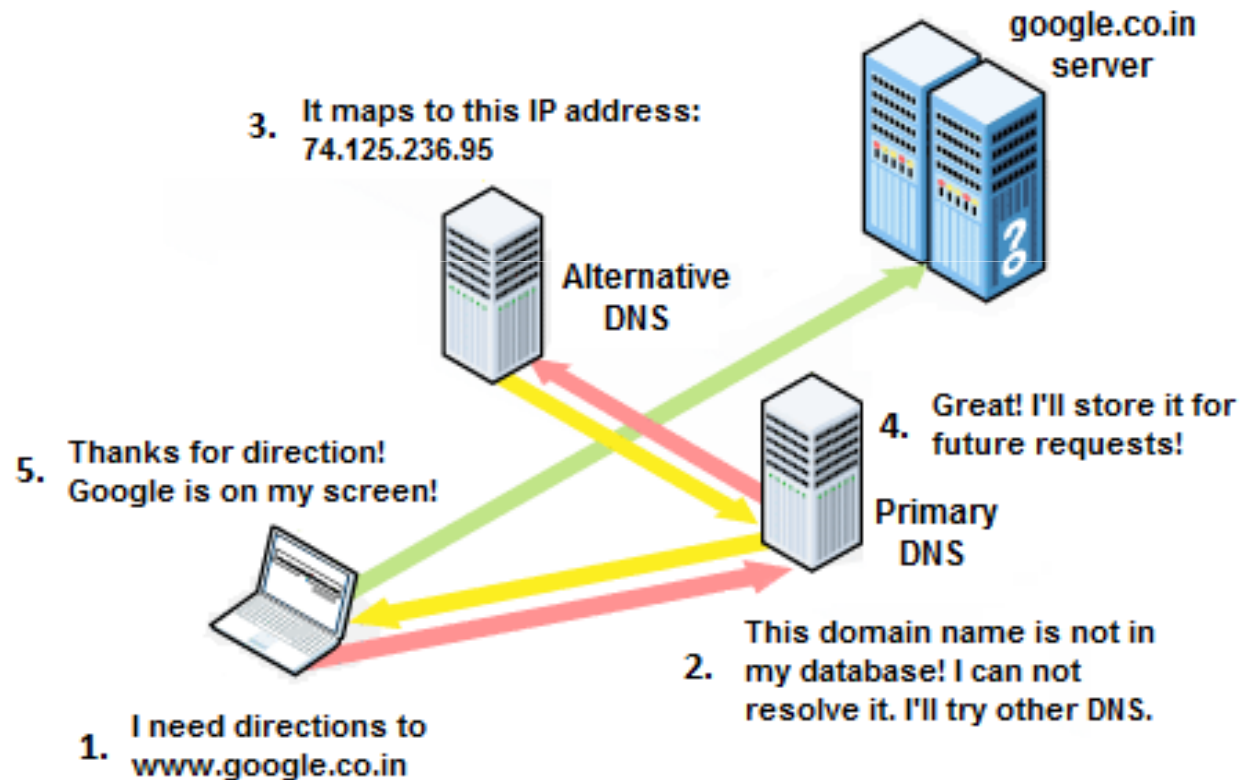

example procmail recipes

- ▶ look at header, if mail is from Bob and has the subject “work“ then check if it is about “nonsense“ and delete it:

```
:0
* ^From: Bob
* ^Subject: work
{
    :0 B
    * nonsense
    /dev/null
}
```

domain name sever (DNS)

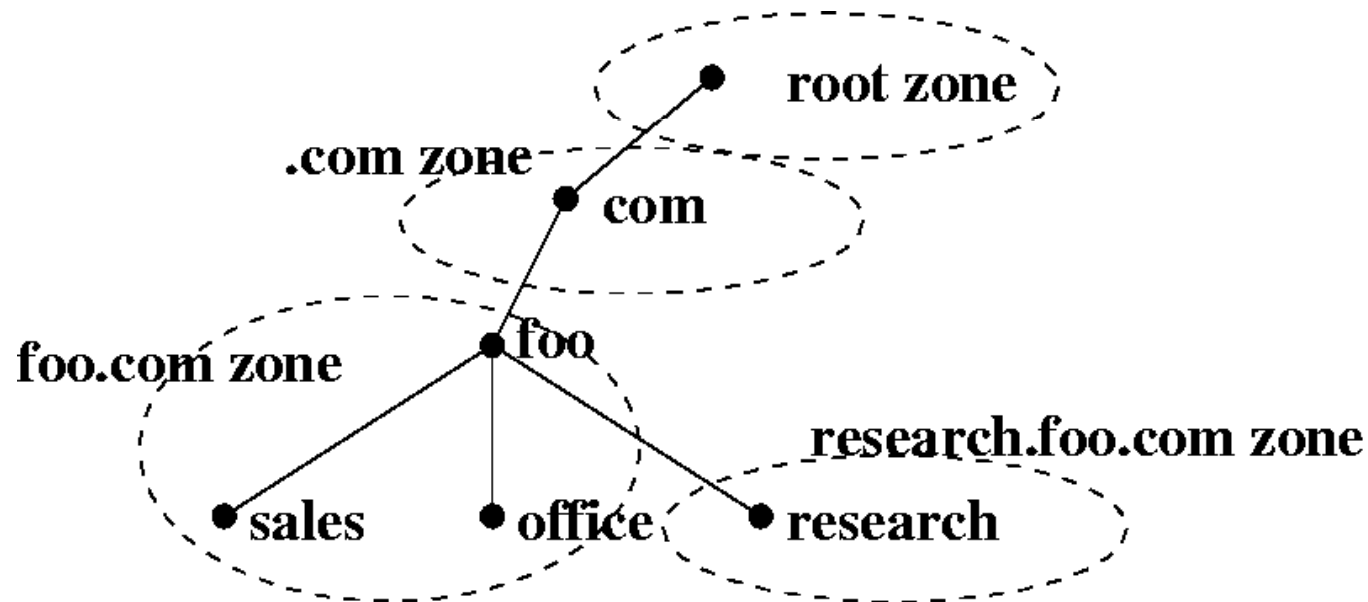
- ▶ translates the human-memorable **domain names** into the equivalent numerical **IP** (internet protocol) addresses



<http://technoassert.com/2013/04/06/make-internet-faster-reliable-secure-with-better-dns/>

DNS zone

- ▶ domain name system has hierarchical structure
- ▶ divided into zones for administrative purpose
- ▶ all DNS zones together form the DNS namespace



<http://bio3d.colorado.edu/tor/sadocs/dns/dns.html>

How to add zones to your DNS server's configuration?

- ▶ create a DNS zone file
- ▶ add it to the config file of the BIND server (/etc/bind/named.conf):

```
zone "localhost" {  
    type master;  
    file "/etc/bind/db.local";  
};
```

Zone file for localhost

▶ /etc/bind/db.local:

```
;
; BIND data file for local loopback interface
;
$TTL      604800
@         IN      SOA     localhost. root.localhost. (
                        2          ; Serial
                        604800     ; Refresh
                        86400      ; Retry
                        2419200    ; Expire
                        604800 )   ; Negative Cache TTL
;
@         IN      NS      localhost.
@         IN      A       127.0.0.1
@         IN      AAAA    ::1
```

default "time to live"

start of authority , defines certain timeouts for the zone

zone origin

authoritative name server

comment after ";"

resource records

zone class: internet

IPv6

DNS resource records

- ▶ name (ttl) class type data

- ▶ A (forward address resolution)
 - ▶ IPv4 address of host zone file:
 - ▶ `kath` IN A `192.168.16.6`

- ▶ PTR (reverse address resolution)
 - ▶ domain name pointer:
 - ▶ `6` IN PTR `kath.tbl`

- ▶ MX (mail exchange)
 - ▶ name class type priority mail host
 - ▶ `@` IN MX 10 `mail`

Thank you 😊

Any questions?

resources

1. <http://www.linuxmail.info/how-email-works/>
2. http://en.wikipedia.org/wiki/Mail_user_agent
3. https://en.wikipedia.org/wiki/Message_transfer_agent
4. http://shearer.org/MTA_Comparison
5. <http://www.perlcode.org/tutorials/procmail/proctut/proctut1.pod>
6. <http://userpages.umbc.edu/~ian/procmail.html>
7. <http://www.bind9.net/manuals>
8. <http://bio3d.colorado.edu/tor/sadocs/dns/dns.html#resource%20records>
9. <https://help.ubuntu.com/community/BIND9ServerHowto>
10. <http://www.tech-recipes.com/rx/305/dnsbind-create-a-basic-zone-file/>
11. <http://www.darian-brown.com/add-zone-and-domain-to-dns-bind-server/>