# Postfix

# Postfix

❑Postfix v3.4.5

- /usr/ports/mail/postfix
- pkg install postifx

❑http://www.postfix.org

- http://www.postfix.org/documentation.html

## Postfix Documentation

### General configuration

- Basic configuration
- Small/home office hints and tips
- Standard configuration examples
- Address rewriting
- Virtual domain hosting
- SASL Authentication
- IP Version 6 Support
- SMTPUTF8 support
- TLS Encryption and authentication
- TLS Forward Secrecy
- Multiple-instance management
- Backwards-Compatibility Support
- Installation from source code

### Problem solving

- Bottleneck analysis
- Stress-dependent configuration
- Performance tuning
- Debugging strategies

### Content inspection

- Content inspection overview
- Stopping backscatter mail
- Built-in content inspection
- After-queue content filter
- Before-queue content filter
- Before-queue Milter applications

### SMTP Relay/access control

- Relay/access control overview
- Access policy delegation
- Address verification
- Per-client/user/etc. access
- Zombie blocking with postscreen
- ETRN Support
- LAN connected via UUCP

### Lookup tables (databases)

- Lookup table overview
- CDB Howto
- Berkeley DB Howto
- LDAP Howto
- LMDB Howto
- Memcache Howto
- MySQL Howto
- PCRE Howto
- PostgreSQL Howto
- SQLite Howto

### Mailing list support

- VERP Support

### Specific environments

- Linux issues
- NFS issues

### Other mail delivery agents

- Maildrop

### Other topics

- Architecture overview
- All main.cf parameters
- All Postfix manual pages
- Rejecting Unknown Local Recipients
- Address Classes
- Connection cache howto
- Postfix DSN support
- Guidelines for Package Builders
- Queue Scheduler
- XCLIENT Command
- XFORWARD Command
- Work-in-progress

# Role of Postfix

❑ MTA that

- Receive and deliver email over the network via SMTP
- Local delivery directly or use other mail delivery agent



- http://www.postfix.org/OVERVIEW.html
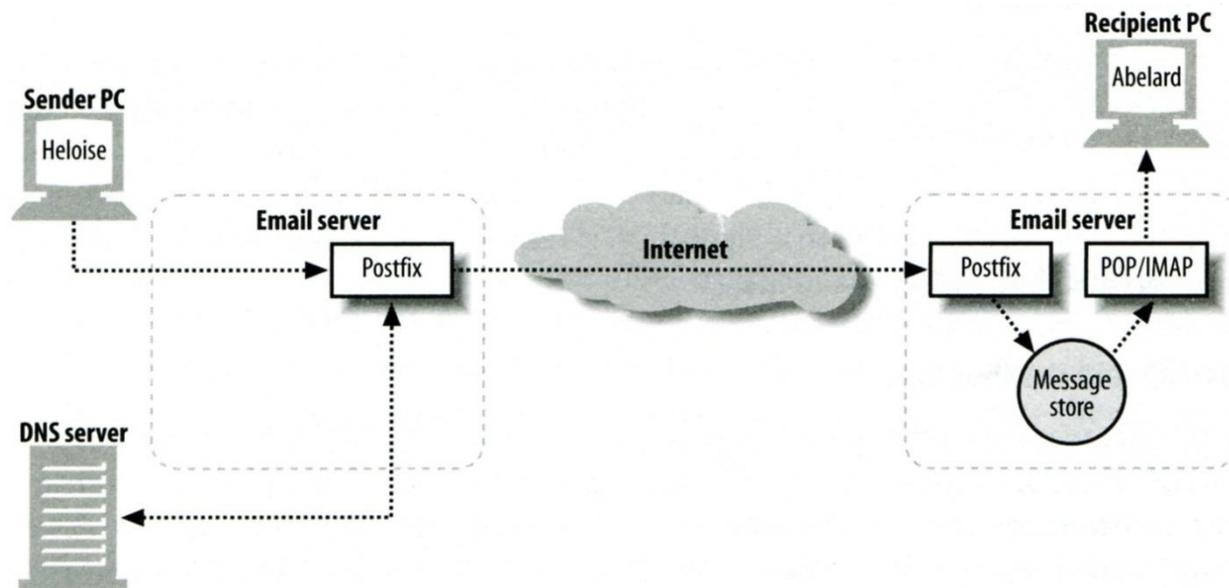
# Postfix Architecture

❑ Modular-design MTA

- Not like sendmail of monolithic system
- Decompose into several individual program that each one handle specific task
- The most important daemon: `master` daemon
  - ➢ Reside in memory
  - ➢ Get configuration information from master.cf and main.cf
  - ➢ Invoke other process to do jobs

❑ Major tasks

- Receive mail and put in queue
- Queue management
- Delivery mail from queue
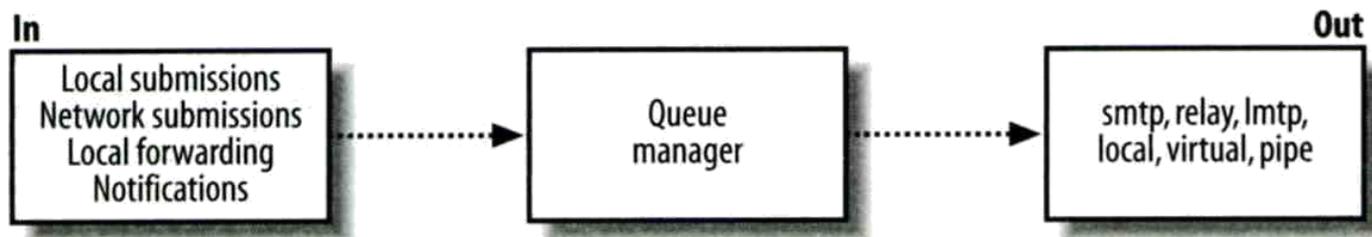
# Postfix Architecture – Message IN

❑ Four ways
- Local submission
  - ➢ postdrop command
  - ➢ maildrop queue
  - ➢ pickup daemon
  - ➢ cleanup daemon
    - – Header validation
    - – address translation
  - ➢ incoming queue
- Network submission
  - ➢ smtpd daemon
- Local forwarding
  - ➢ Resubmit for such as .forward
  - ➢ Envelope "to" is changed
- Notification



Local submission



Network submission
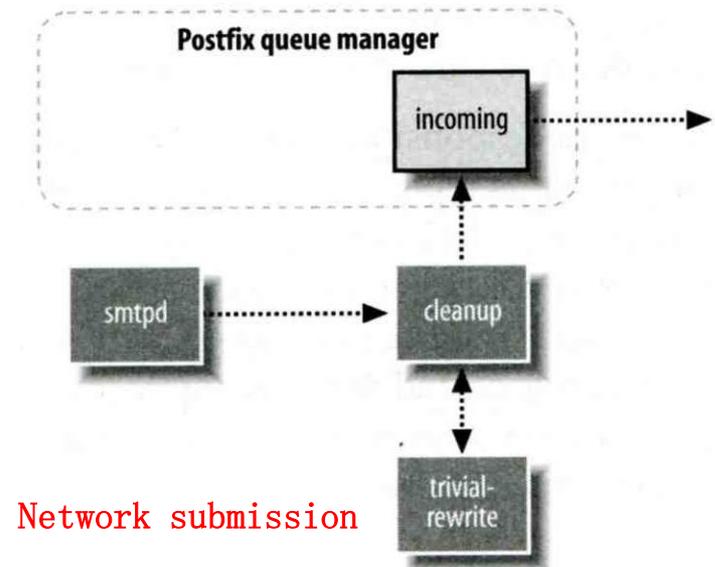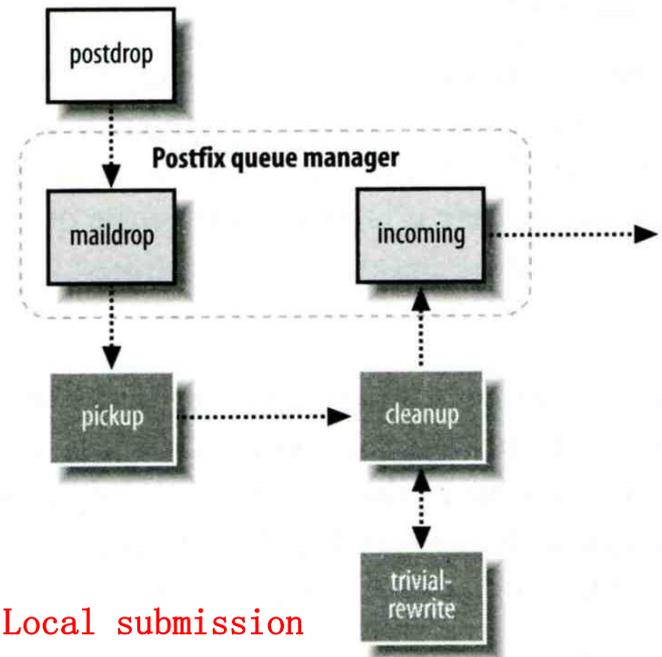
# Postfix Architecture – Queue

❑ Five different queues

- incoming
  - ➢ The first queue that every incoming email will stay
- active
  - ➢ Queue manager will move message into active queue whenever there is enough system resources
  - ➢ Queue manager then invokes suitable DA to delivery it
- deferred
  - ➢ Messages that cannot be delivered are moved here
  - ➢ These messages are sent back either with bounce or defer daemons
- corrupt
  - ➢ Used to store damaged or unreadable message
- hold

http://www.postfix.org/QSHAPE_README.html#queues

# Postfix Architecture –
## Message OUT – Part I

❑ Address classes

- Used to determine which destinations to accept for delivery
- How the delivery take place

❑ Main address classes

- Local delivery
  - ➢ Domain names in "mydestination" is local delivered
  - ➢ Ex:
    - – mydestination = nasa.cs.nctu.edu.tw localhost
  - ➢ It will check alias and .forward file to do further delivery
- Relay
  - ➢ Transfer mail for others to not your domain
  - ➢ It is common for centralize mail architecture to relay trusted domain
- Deliver mail to other domains for authorized user
  - ➢ The queue manager will invoke the smtp DA to deliver this mail
- Virtual alias
- Virtual mailbox

# Message Flow in Postfix (1)

❑ Example

- helene@oreilly.com ➔ frank@postfix.org (doel@onlamp.com)
- Phase1:
  - ➢ Helene compose mail using her MUA, and then call postfix's sendmail command to send it
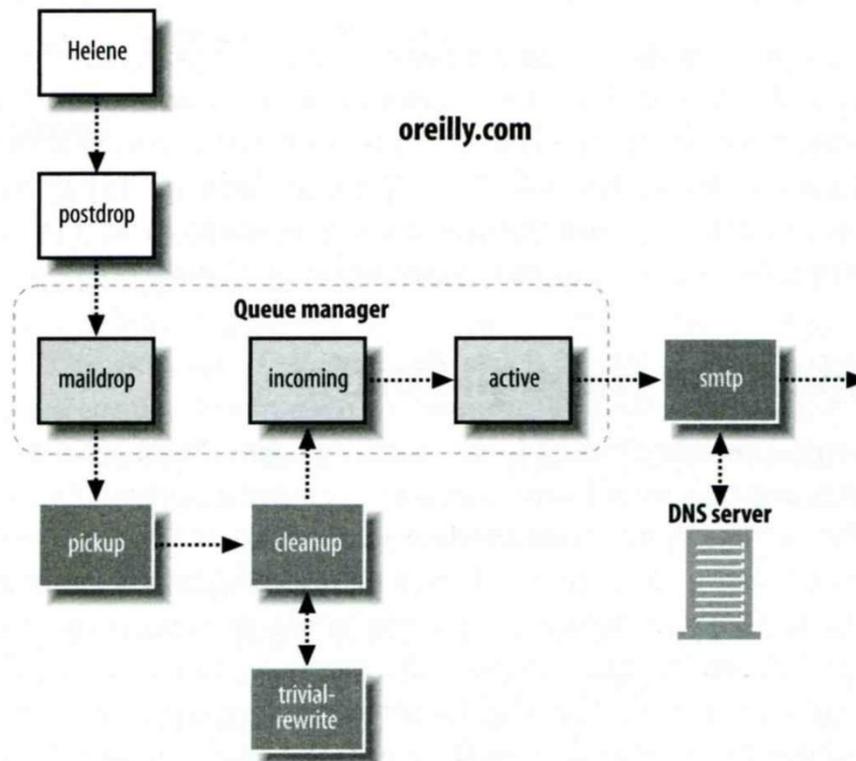
# Message Flow in Postfix (2)

❑ Example

- frank@postfix.org → doel@onlamp.com

- Phase2:

  ➢ The smtpd on postfix.org takes this message and invoke cleanup then put in incoming queue

  ➢ The local DA find that frank is an alias, so it resubmits it through cleanup daemon for further delivery
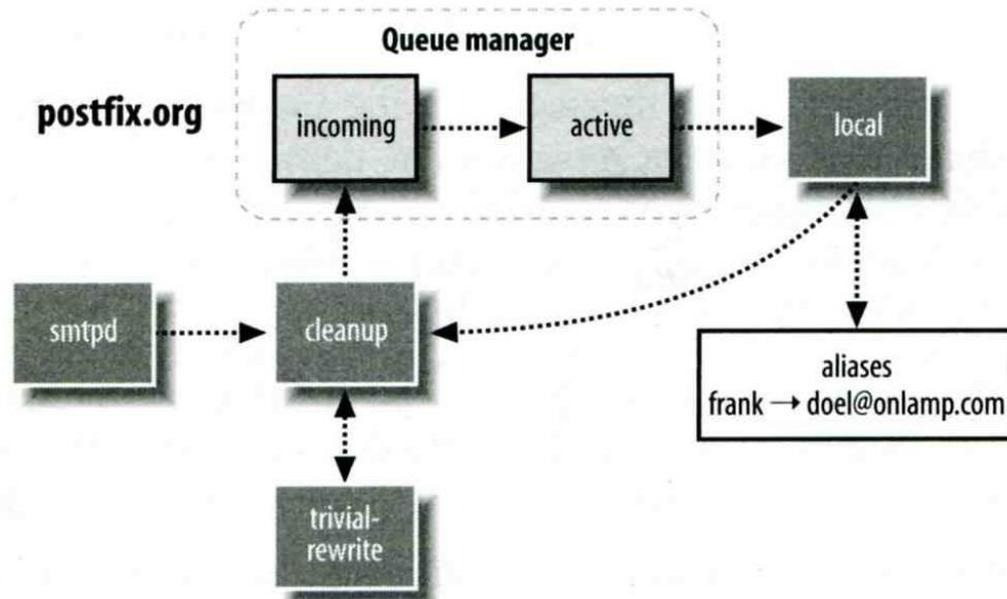
# Message Flow in Postfix (3)

❑ Example

- frank@postfix.org → doel@onlamp.com

- Phase3

  ➢ The smtpd on onlamp.com takes this message and invoke cleanup then put in incoming queue

  ➢ Local delivery to message store
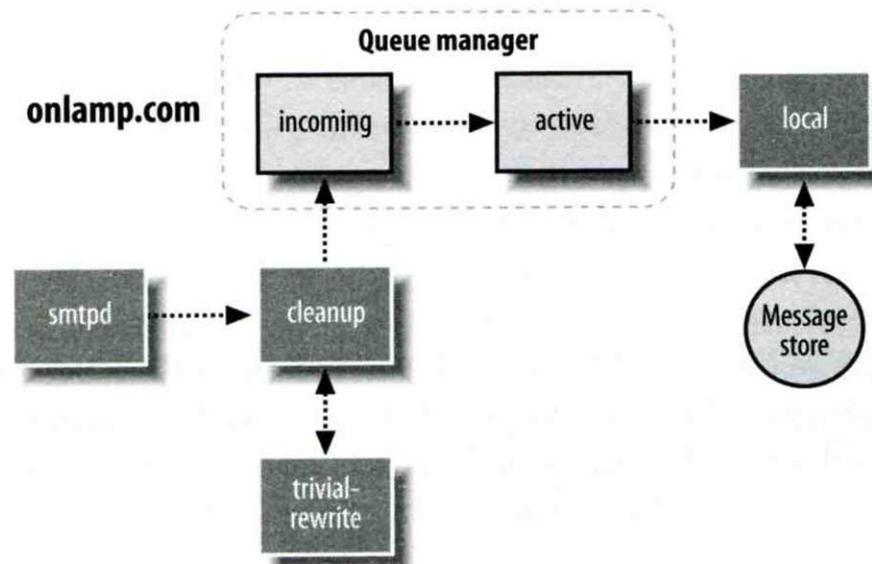
# Message Store Format

❑ The Mbox format

- Store messages in single file for each user
- Each message start with "From " line and continued with message headers and body
- Mbox format has file-locking problem

❑ The Maildir format

- Use structure of directories to store email messages
- Each message is in its owned file
- Three subdirectories - cur, new, and tmp
- Maildir format has scalability problem
  - ➢ locate and delete mails quickly, but waste amounts of fd, inodes, space
  - ➢ Problems of quota and backup

❑ Related parameters (in main.cf)

- mail_spool_directory = /var/mail              (Mbox)
- mail_spool_directory = /var/mail/              (Maildir)

# Postfix & POP3/IMAP

**Email server**

Postfix    POP/IMAP

Message store
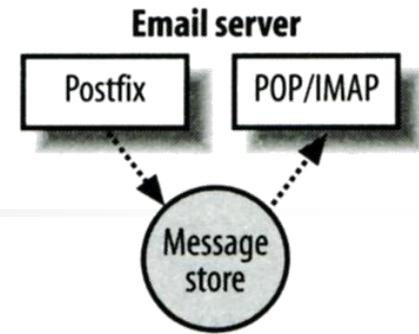
❑ POP3 vs. IMAP

- Both are used to retrieve mail from server for remote clients
- POP3 has to download entire message, while IMAP can download headers only
- POP3 can download only single mailbox, while IMAP can let you maintain multiple mailboxes and folders on server

❑ Postfix works together with POP3/IMAP

- Postfix and POP3/IMAP must agree on the type of mailbox format and style of locking
  - ➢ Standard message store
  - ➢ Non-standard message store (using LMTP)
    - – Such as Cyrus IMAP or Dovecot

**Email server**

Postfix

Cyrus IMAP

Message store
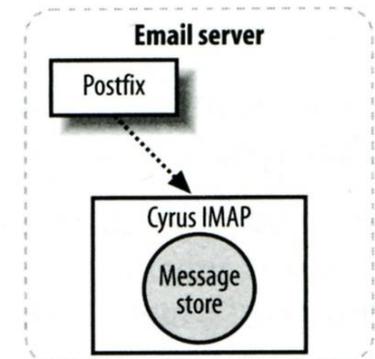
# Postfix Configuration

❑ Two most important configuration files

- /usr/local/etc/postfix/main.cf – postconf(5)
    - ➢ Core configuration
- /usr/local/etc/postfix/master.cf – master(5)
    - ➢ Which postfix service should invoke which program

❑ Edit main.cf

- Using text editor
- postconf
    - ➢ % postconf [-e] "myhostname = nasa.cs.nctu.edu.tw"
    - ➢ % postconf -d myhostname(print default setting)
    - ➢ % postconf myhostname          (print current setting)

❑ Reload postfix whenever there is a change

- # postfix reload

# Postfix Configuration – Lookup tables (1)

❑ Parameters that use external files to store values

- Such as mydestination, mynetwork, relay_domains
- Text-based table is ok, but time-consuming when table is large

❑ Lookup tables syntax

- Key        values

❑ Database format

- % postconf -m
  ➢ List all available database format
- In main.cf
  ➢ default_database_type

```
% postconf  default_database_type
default_database_type = hash
% postconf  -h default_database_type
hash
```

```
% postconf -m
btree
cidr
environ
hash
internal
proxy
regexp
static
tcp
texthash
unix
```

- http://www.postfix.org/DATABASE_README.html

# Postfix Configuration –
## Lookup tables (2)

❑ Use databased-lookup table in main.cf

- syntax

    parameter = type:name

- Ex:

    ➢ In main.cf
      canonical_maps = hash:/usr/local/etc/postfix/canonical

    ➢ After execute postmap
      /usr/local/etc/postfix/canonical.db

❑ postmap command

- Generate database

    ➢ # postmap hash:/usr/local/etc/postfix/canonical

- Query

    ➢ % postmap -q nctu.edu.tw hash:/usr/local/etc/postfix/canonical

# Postfix Configuration – Lookup tables (3)

❑ Regular expression tables

- More flexible for matching keys in lookup tables
  - ➢ Sometimes you cannot list all the possibilities
- Two regular expression libraries used in Postfix
  - ➢ POSIX extended regular expression  (regexp, default)
  - ➢ Perl-Compatible regular expression   (PCRE)
- Usage
  - ➢ /pattern/                            value
  - ➢ Do some content checks, such as
    - – header_checks
    - – body_checks
  - ➢ Design some features
    - – /(\S+)\.(\S+)@nasa\.cs\.nctu\.edu\.tw/       $1@nasa.cs.nctu.edu.tw

# Postfix Configuration – Categories

❑ Categories

- Server identities
  - ➢ my...
- Mail rewriting
  - ➢ for incoming/outgoing mails
- Access control
  - ➢ restrictions
- Mail processing
  - ➢ filter
- Operation details
  - ➢ …

# Postfix Configuration –
## MTA Identity

❑ Four related parameters
- myhostname
  - ➢ myhostname = nasa.cs.nctu.edu.tw
  - ➢ If un-specified, postfix will use 'hostname' command
- mydestination
  - ➢ List all the domains that postfix should accept for local delivery
  - ➢ mydestination = $myhostname, localhost.$mydomain $mydomain
    - – This is the CS situation that mx will route mail to mailgate
  - ➢ mydestination = $myhostname www.$mydomain, ftp.$mydomain

- mydomain
  - ➢ mydomain = cs.nctu.edu.tw
  - ➢ If un-specified, postfix use myhostname minus the first component
- myorigin
  - ➢ myorigin = $mydomain          (default is $myhostname)

# Postfix Configuration – System-wide aliases files

❑ Using aliases in Postfix (first-matching)

- alias_maps = hash:/etc/aliases

- alias_maps = hash:/etc/aliases, nis:mail.aliases

- alias_database = hash:/etc/aliases

  ➢ Tell newaliases command which aliases file to build

❑ To Build alias database file

- % postalias /etc/aliases

❑ Alias file format (same as sendmail)

- RHS can be

  ➢ Email address, filename, |command, :include:

❑ Alias restriction

- allow_mail_to_commands = alias, forward

- allow_mail_to_files = alias, forward

# Postfix Configuration – Virtual Alias Maps

❑ Virtual Alias Map

- It <u>recursively</u> rewrites envelope recipient addresses for all local, all virtual, and all remote mail destinations.

- virtual_alias_domains = $virtual_alias_maps (default)

- virtual_alias_maps = hash:/usr/local/etc/postfix/virtual

  ➤ src-address                           dst-address

  chwong@csie.nctu.edu.tw                 @chbsd.cs.nctu.edu.tw

  chwong                                  ch0nsi@gmai1.com

  @csie.nctu.edu.tw                       @cs.nctu.edu.tw

- Applying regular expression

  ➤ virtual_alias_maps = pcre:/usr/local/etc/postfix/virtual

  /^root(\..+)?@(t)?(cs|np)?bsd\d*\.cs\.nctu\.edu\.tw$/     bsdta@cs.nctu.edu.tw

  /^root(\..+)?@(t)?(cs|np)?linux\d*\.cs\.nctu\.edu\.tw$/   linuxta@cs.nctu.edu.tw

  /^root(\..+)?@(t)?csmail\w*\d*\.cs\.nctu\.edu\.tw$/       mailta@cs.nctu.edu.tw

# Postfix Configuration – Relay Control (1)

❑ Open relay

- A mail server that permit anyone to relay mails
- By default, postfix is not an open relay

❑ A mail server should

- Relay mail for trusted user
  - ➢ Such as liuyh@smtp.cs.nctu.edu.tw
- Relay mail for trusted domain
  - ➢ Ex. *smtp.cs.nctu.edu.tw* trusts *nctu.edu.tw*

# Postfix Configuration – Relay Control (2)

❑ Restricting relay access by mynetworks_style

- mynetworks_style = subnet
  - ➢ Allow relaying from other hosts in the same subnet, configured in this machine
- mynetworks_style = host
  - ➢ Allow relaying for only local machine
- mynetworks_style = class
  - ➢ Any host in the same class A, B or C

❑ Restricting relay access by mynetworks (override mynetworks_style)

- List individual IP or subnets in network/netmask notation
- Ex: in /usr/local/etc/postfix/mynetworks
  - ➢ 127.0.0.0/8
  - ➢ 140.113.0.0/16
  - ➢ 10.113.0.0/16

❑ Relay depends on the type of your mail server

- smtp.cs.nctu.edu.tw will be different from csmx1.cs.nctu.edu.tw

# Postfix Configuration – Receiving limits

❑ Enforce limits on incoming mail

- The number of recipients for single delivery
    - ➢ smtpd_recipient_limit = 1000
- Message size
    - ➢ message_size_limit = 10240000

# Postfix Configuration – Rewriting address (1)

❑ For unqualified address
- To append "myorigin" to local name.
  - ➢ append_at_myorigin = yes
- To append "mydomain" to address that contain only host.
  - ➢ append_dot_mydomain = yes

❑ Masquerading hostname
- Hide the names of internal hosts to make all addresses appear as if they come from the same mail server
- It is often used in out-going mail gateway
  - ➢ masquerade_domains = cs.nctu.edu.tw
  - ➢ masquerade_domains = !chairman.cs.nctu.edu.tw cs.nctu.edu.tw
  - ➢ masquerade_exceptions = admin, root
- Rewrite to all envelope and header address excepts envelope recipient address
  - ➢ masquerade_class = envelope_sender, header_sender, header_recipient

# Postfix Configuration – Rewriting address (2)

❑ Canonical address – canonical(5)

- Rewrite both header and envelope recursively invoked by cleanup daemon

- In main.cf

  ➢ canonical_maps = hash:/usr/local/etc/postfix/canonical

  ➢ canonical_classes = envelope_sender, envelope_recipient, header_sender, header_recipient

- In canonical

  /^(.*)@(t)?(cs)?(bsd|linux|sun)\d*\.cs\.nctu\.edu\.tw$/    $1@cs.nctu.edu.tw

- Simlar configurations

  ➢ sender_canonical_maps、sender_canonical_classes

  ➢ recipient_canonical_maps、recipient_canonical_classes

# Postfix Configuration – Rewriting address (3)

❑ Relocated users

- Used to inform sender that the recipient is moved
- In main.cf
  - ➢ relocated_maps = hash:/usr/local/etc/postfix/relocated
- In relocated

  andy@nasa.cs.nctu.edu.tw  andyliu@abc.com

  liuyh        EC319, NCTU, ROC

  @nabsd.cs.nctu.edu.tw   zfs.cs.nctu.edu.tw

❑ Unknown users

- Not local user and not found in maps
- Default action: reject

# Postfix Configuration –
# master.cf (1)

❑ /usr/local/etc/postfix/master.cf

- Define services that **master** daemon can invoke
- Each row defines a service and
- Each column contains a specific configuration option

```
# ========================================================================
# service type  private unpriv  chroot  wakeup   maxproc command + args
#               (yes)   (yes)   (yes)   (never)  (100)
# ========================================================================
smtp      inet  n       -       n       -        -       smtpd
pickup    fifo  n       -       n       60       1       pickup
cleanup   unix  n       -       n       -        0       cleanup
rewrite   unix  -       -       n       -        -       trivial-rewrite
smtp      unix  -       -       n       -        -       smtp
local     unix  -       n       n       -        -       local
virtual   unix  -       n       n       -        -       virtual
relay     unix  -       -       n       -        -       smtp
        -o smtp_fallback_relay=
lmtp      unix  -       -       n       -        -       lmtp
maildrop  unix  -       n       n       -        -       pipe
   flags=DRhu user=vmail argv=/usr/local/bin/maildrop -d ${recipient}
```

# Postfix Configuration – master.cf (2)

❑ Configuration options
- Service name
- Service type
  - ➢ inet, unix, fifo, or pass
- Private
  - ➢ Access to this component is restricted to the Postfix system
    - – inet cannot be private
- Unprivileged
  - ➢ Run with the least amount of privilege required
    - – y will run with the account defined in "mail_owner"
    - – n will run with root privilege
      - » local, pipe, spawn, and virtual

# Postfix Configuration – master.cf (3)

❑ Configuration options

- Chroot

  ➢ chroot location is defined in "queue_directory"

- Wake up time

  ➢ Automatically wake up the service after the number of seconds

- Process limit

  ➢ Number of processes that can be executed simultaneously

  ➢ Default count is defined in "default_process_limit"

- command + args

  ➢ Default path is defined in "daemon_directory"

    – /usr/libexec/postfix

# Postfix Architecture – Message OUT – Part II

❑ Local delivery

❑ Relay to the destinations

❑ Other delivery agent (MDA)
- Specify in /usr/local/etc/postfix/master.cf
  - ➢ How a client program connects to a service and what daemon program runs when a service is requested
- lmtp
  - ➢ Local Mail Transfer Protocol (Limited SMTP)
    - – No queue
    - – One recipient at once
  - ➢ Used to deliver to mail systems on the same network or even the same host
- pipe
  - ➢ Used to deliver message to external program

# Mail Relaying – Transport Maps (1)

❑ Transport maps – transport(5)

- It override default transport method to deliver messages

- In main.cf

  ➢ transport_maps = hash:/usr/local/etc/postfix/transport

- In transport file

  ➢ domain_or_address         transport:nexthop

  csie.nctu.edu.tw         smtp:[mailgate.csie.nctu.edu.tw]
  cs.nctu.edu.tw         smtp:[csmailgate.cs.nctu.edu.tw]
  cis.nctu.edu.tw         smtp:[mail.cis.nctu.edu.tw]

  example.com         smtp:[192.168.23.56]:20025
  orillynet.com         smtp
  ora.com         maildrop
  kdent@ora.com         error:no mail accepted for kdent

# Mail Relaying –
## Transport Maps (2)

❑ Usage in transport map

- MX → Local delivery mail server

- mailpost to bbs/news

- Postponing mail relay

  ➢ Such as ISP has to postpone until customer network is online

  ➢ In transport:
    abc.com              ondemand

  ➢ In /usr/local/etc/postfix/master.cf
    ondemand   unix   -   -   n   -   -   smtp

  ➢ In /usr/local/etc/postfix/main.cf
    defer_transports = ondemand
    transport_maps = hash:/usr/local/etc/postfix/transport

  ➢ Whenever the customer network is online, do

    – # postqueue -s abc.com

# Mail Relaying −
## Inbound Mail Gateway (1)

❑ Inbound Mail Gateway (MX)

- Accept all mail for a network from the Internet and relays it to internal mail systems
- Ex:
  ➢ csmx1.cs.nctu.edu.tw is a IMG
  ➢ csmailgate.cs.nctu.edu.tw is internal mail system
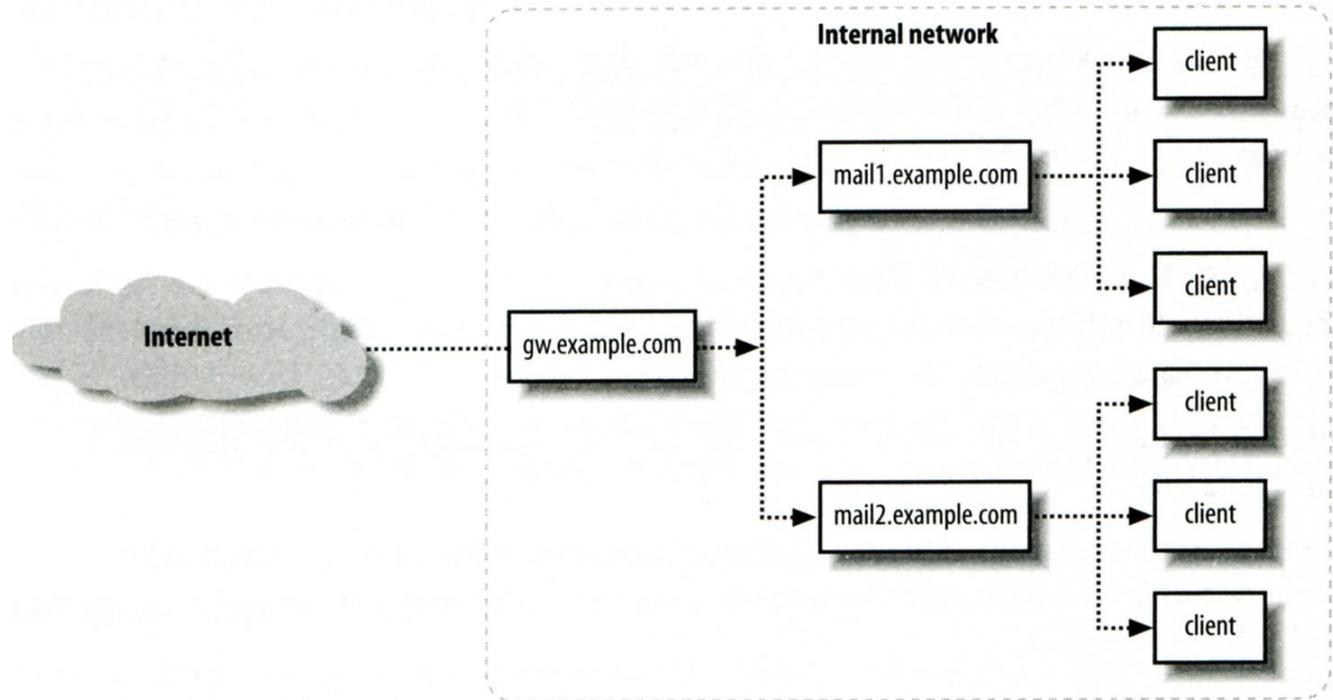
# Mail Relaying –
## Inbound Mail Gateway (2)

❑ To be IMG, suppose

- You are administrator for cs.nctu.edu.tw

- You have to be the IMG for secureLab.cs.nctu.edu.tw and javaLab.cs.nctu.edu.tw

  ➢ Firewall only allow outsource connect to IMG port 25

1. The MX record for secureLab.cs.nctu.edu.tw and javaLab.cs.nctu.edu.tw should point to csmx1.cs.nctu.edu.tw

2. In csmx1.cs.nctu.edu.tw,

   relay_domains = secureLab.cs.nctu.edu.tw javaLab.cs.nctu.edu.tw

   transport_maps = hash:/usr/local/etc/postfix/transport

   secureLab.cs.nctu.edu.tw          relay:[secureLab.cs.nctu.edu.tw]

   javaLab.cs.nctu.edu.tw          relay:[javaLab.cs.nctu.edu.tw]

3. In secureLab.cs.nctu.edu.tw ( and so do javaLab.cs.nctu.edu.tw)

   mydestination = secureLab.cs.nctu.edu.tw

# Mail Relaying –
## Outbound Mail Gateway

❑ Outbound Mail Gateway

• Accept mails from inside network and relay them to Internet hosts

❑ To be OMG, suppose

• You are administrator for cs.nctu.edu.tw

• You have to be the OMG for secureLab.cs.nctu.edu.tw and javaLab.cs.nctu.edu.tw

1. In main.cf of csmailer.cs.nctu.edu.tw

   mynetworks = hash:/usr/local/etc/postfix/mynetworks

       secureLab.cs.nctu.edu.tw

       javaLab.cs.nctu.edu.tw

2. All students in secureLab/javaLab will configure there MUA to use secureLab/javaLab.cs.nctu.edu.tw to be the SMTP server

3. In main.cf of secureLab/javaLab.cs.nctu.edu.tw,

   relayhost = [csmailer.cs.nctu.edu.tw]

# Queue Management

❑ The queue manage daemon

- qmgr daemon

- Unique queue ID

- Queue directories (/var/spool/postfix/*)

  ➢ active, bounce, corrupt, deferred, hold

❑ Message movement between queues

- Temporary problem → deferred queue

- qmgr takes messages alternatively between incoming and deferred queue to active queue
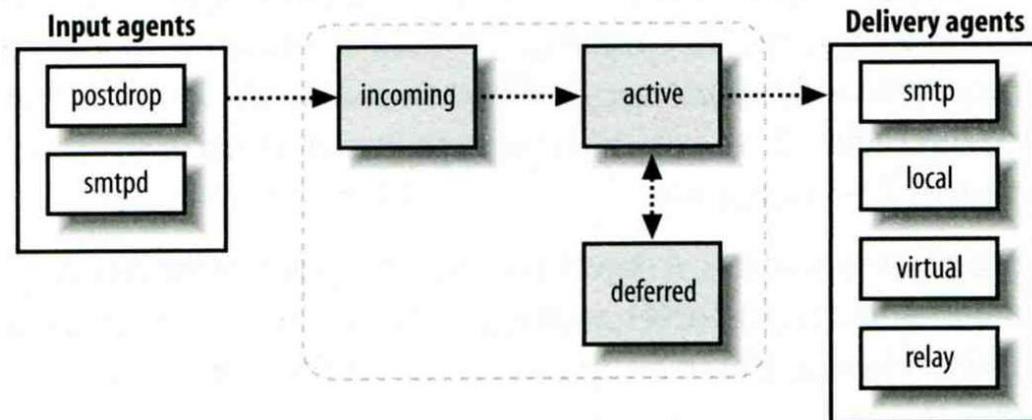
# Queue Management –
## Queue Scheduling

❑ Double delay in deferred messages

- Between

  ➢ minimal_backoff_time = 300s

  ➢ maximal_backoff_time = 4000s

- qmgr daemon periodically scan deferred queue for reborn messages

  ➢ queue_run_delay = 300s

❑ Deferred → bounce

- maximal_queue_lifetime = 5d

# Queue Management −
## Message Delivery

❑ Controlling outgoing messages

- When there are lots of messages in queue for the same destination, it should be careful not to overwhelm it

- If concurrent delivery is success, postfix can increase concurrency between:

  ➢ initial_destination_concurrency = 5

  ➢ default_destination_concurrency_limit = 20

  ➢ Under control by

    – maxproc in /usr/local/etc/postfix/master.cf

  ➢ You can override the default_destination_concurrency_limit for any transport mailer:

    – smtp_destination_concurrency_limit = 25

    – local_destination_concurrency_limit = 10

- Control how many recipients for a single outgoing message

  ➢ default_destination_recipient_limit = 50

  ➢ You can override it for any transport mailer in the same idea:

    – smtp_destination_recipient_limit = 100

# Queue Management –
## Error Notification

❑Sending error messages to administrator

- Set notify_classes parameter to list error classes that should be generated and sent to administrator
  - ➤ Ex: notify_classes = resource, software
- Error classes

| Error Class | Description | Noticed Recipient (all default to postmaster) |
|---|---|---|
| bounce | Send headers of bounced mails | bounce_notice_recipient |
| 2bounce | Send undeliverable bounced mails | 2bounce_notice_recipient |
| delay | Send headers of delayed mails | delay_notice_recipient |
| policy | Send transcript when mail is reject due to anti-spam restrictions | error_notice_recipient |
| protocol | Send transcript that has SMTP error | error_notice_recipient |
| resource | Send notice because of resource pro. | error_notice_recipient |
| software | Send notice because of software pro. | error_notice_recipient |

# Queue Management –
## Queue Tools (1)



❑ postqueue command

- postqueue –p
  - ➢ Generate sendmail mailq output
- postqueue –f
  - ➢ Attempt to flush(deliver) all queued mail
- postqueue –s cs.nctu.edu.tw
  - ➢ Schedule immediate delivery of all mail queued for site

❑ postsuper command

- Delete queued messages
  - ➢ postsuper –d E757A3428C6       (from incoming, active, deferred, hold)
  - ➢ postsuper –d ALL
- Put messages "on hold" so that no attempt is made to deliver it
  - ➢ postsuper –h E757A3428C6       (from incoming, active, deferred)
- Release messages in hold queue
  - ➢ postsuper –H ALL
- Requeue messages into maildrop queue (maildrop → pickup → cleanup → incoming)
  - ➢ postsuper –r E757A3428C6
  - ➢ postsuper –r ALL
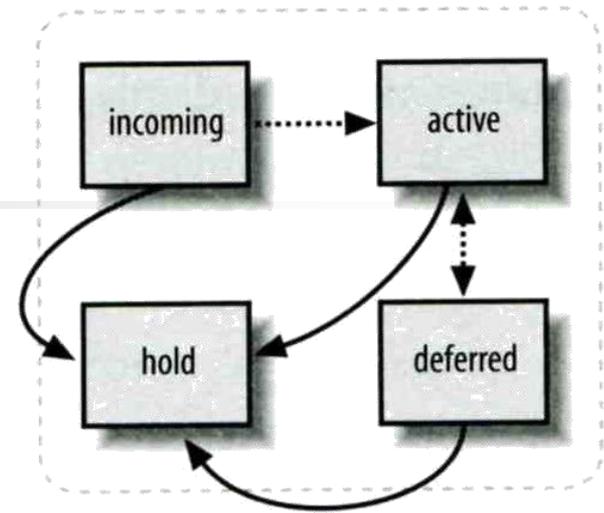
# Queue Management –
## Queue Tools (2)

❑ postcat
  - Display the contents of a queue file

```
nasa [/home/liuyh] -liuyh- mailq
-Queue ID- --Size-- ----Arrival Time---- -Sender/Recipient-------
3314234284A     602 Sat May 19 04:16:20  root@nasa.cs.nctu.edu.tw
   (connect to csmx1.cs.nctu.edu.tw[140.113.235.104]:25: Operation timed out)
                       liuyh@cs.nctu.edu.tw


nasa [/home/liuyh] -liuyh- sudo postcat -q 3314234284A
*** ENVELOPE RECORDS deferred/3/3314234284A ***
message_size:          602         214         1         0         602
message_arrival_time: Sat May 19 04:16:20 2012
create_time: Sat May 19 04:16:20 2012
sender: root@nasa.cs.nctu.edu.tw
named_attribute: rewrite_context=local
original_recipient: root
recipient: liuyh@cs.nctu.edu.tw
*** MESSAGE CONTENTS deferred/3/3314234284A ***
Received: by nasa.cs.nctu.edu.tw (Postfix)
     id 3314234284A; Sat, 19 May 2012 04:16:20 +0800 (CST)
Delivered-To: root@nasa.cs.nctu.edu.tw
Received: by nasa.cs.nctu.edu.tw (Postfix, from userid 0)
     id 2CB713427A5; Sat, 19 May 2012 04:16:20 +0800 (CST)
To: root@nasa.cs.nctu.edu.tw
Subject: nasa.cs.nctu.edu.tw weekly run output
Message-Id: <20120518201620.2CB713427A5@nasa.cs.nctu.edu.tw>
Date: Sat, 19 May 2012 04:16:20 +0800 (CST)
From: root@nasa.cs.nctu.edu.tw (NASA Root)

Rebuilding locate database:

Rebuilding whatis database:
   …
```

# Multiple Domains

❑ Use single system to host many domains
- Ex:
  - ➢ We use csmailgate.cs.nctu.edu.tw to host both
    - – cs.nctu.edu.tw
    - – csie.nctu.edu.tw
- Purpose
  - ➢ Can be used for final delivery on the machine or
  - ➢ Can be used for forwarding to destination elsewhere

❑ Important considerations
- Does the same user id with different domain should go to the same mailbox or different mailbox ?
  - ➢ YES     (shared domain)
  - ➢ NO       (Separate domain)
- Does every user require a system account in /etc/passwd ?
  - ➢ YES     (system account)
  - ➢ NO       (virtual account)

# Multiple Domains –
## Shared Domain with System Account

❑ Situation
- The mail system should accept mails for both canonical and virtual domains and
- The same mailbox for the same user id

❑ Procedure
- Modify "mydomain" to canonical domain
- Modify "mydestination" parameter to let mails to virtual domain can be local delivered
- Ex:
  ➢ mydomain = cs.nctu.edu.tw
  ➢ mydestination = $myhostname, $mydomain, csie.nctu.edu.tw

  ※ In this way, mail to both chwong@cs.nctu.edu.tw and chwong@csie.nctu.edu.tw will go to csmailgate:/var/mail/chwong

❑ Limitation
- Can not separate chwong@cs.nctu.edu.tw from chwong@csie.nctu.edu.tw

# Multiple Domains –
## Separate Domains with System Accounts

❑ Situation
- The mail system should accept mails for both canonical and virtual domains and
- Mailboxes are not necessarily the same for the same user id

❑ Procedure
- Modify "mydomain" to canonical domain
- Modify "virtual_alias_domains" to accept mails to virtual domains
- Create "virtual_alias_maps" map
- Ex:
  - mydomain = cs.nctu.edu.tw
  - virtual_alias_domains = abc.com.tw, xyz.com.tw
  - virtual_alias_maps = hash:/usr/local/etc/postfix/virtual

  - In /usr/local/etc/postfix/virtual
    - CEO@abc.com.tw                andy
    - @xyz.com.tw                    jack

❑ Limitation
- Need to maintain UNIX account for virtual domain user

# Multiple Domains –
## Separate Domains with Virtual Accounts (1)

❑ Useful when users in virtual domains:
- Do not need to login to system
- Only need to retrieve mail through POP/IMAP server

❑ Procedure
- Modify "virtual_mailbox_domains" to let postfix know what mails it should accepts
- Modify "virtual_mailbox_base" and create related directory to put mails
- Create "virtual_mailbox_maps" map
- Ex:
  - ➢ virtual_mailbox_domain = abc.com.tw, xyz.com.tw
  - ➢ virtual_mailbox_base = /var/vmail
  - ➢ Create /var/vmail/abc-domain and /var/vmail/xyz-domain
  - ➢ virtual_mailbox_maps = hash:/usr/local/etc/postfix/vmailbox

  - ➢ In /usr/local/etc/postfix/vmailbox
    - – CEO@abc.com.tw        abc-domain/CEO        (Mailbox format)
    - – CEO@xyz.com.tw        xyz-domain/CEO/        (Maildir format)

# Multiple Domains –
## Separate Domains with Virtual Accounts (2)

❑ Ownerships of virtual mailboxes

- Simplest way:
  - ➢ The same owner of POP/IMAP Servers
- Flexibility in postfix
  - ➢ virtual_uid_maps and virtual_gid_maps
  - ➢ Ex:
    - – virtual_uid_maps = static:1003
    - – virtual_gid_maps = static:105

    - – virtual_uid_maps = hash:/usr/local/etc/postfix/virtual_uids
    - – virtual_uid_maps = hash:/usr/local/etc/postfix/virtual_uids  static:1003

    - – In /usr/local/etc/postfix/virtual_uids
      - » CEO@abc.com.tw            1004
      - » CEO@xyz.com.tw            1008