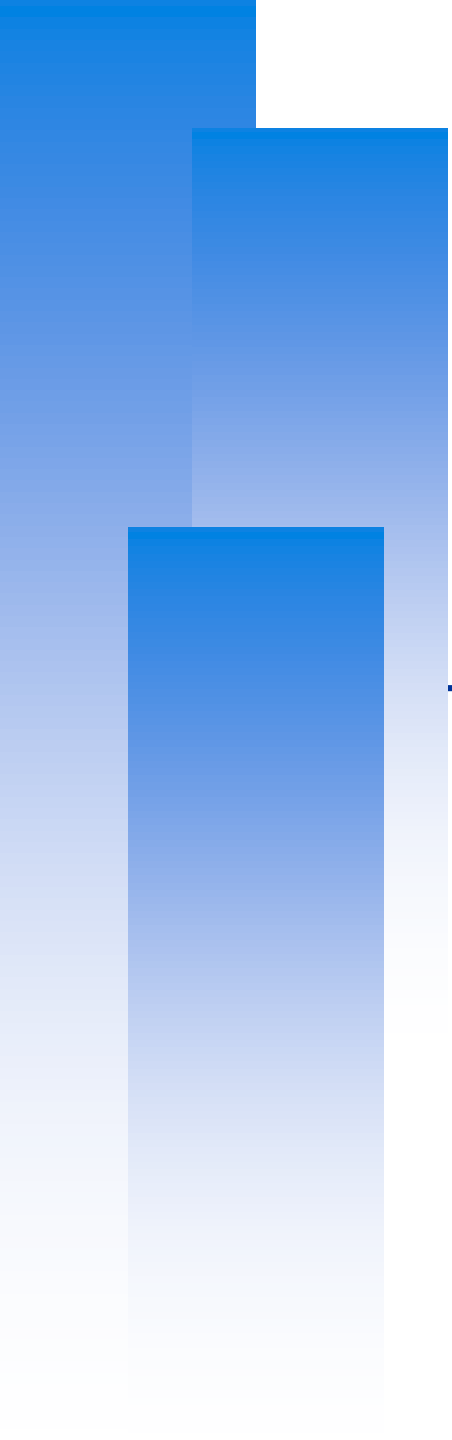




Postfix

Postfix

❑ Postfix v3.3.0

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

❑ <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](#)

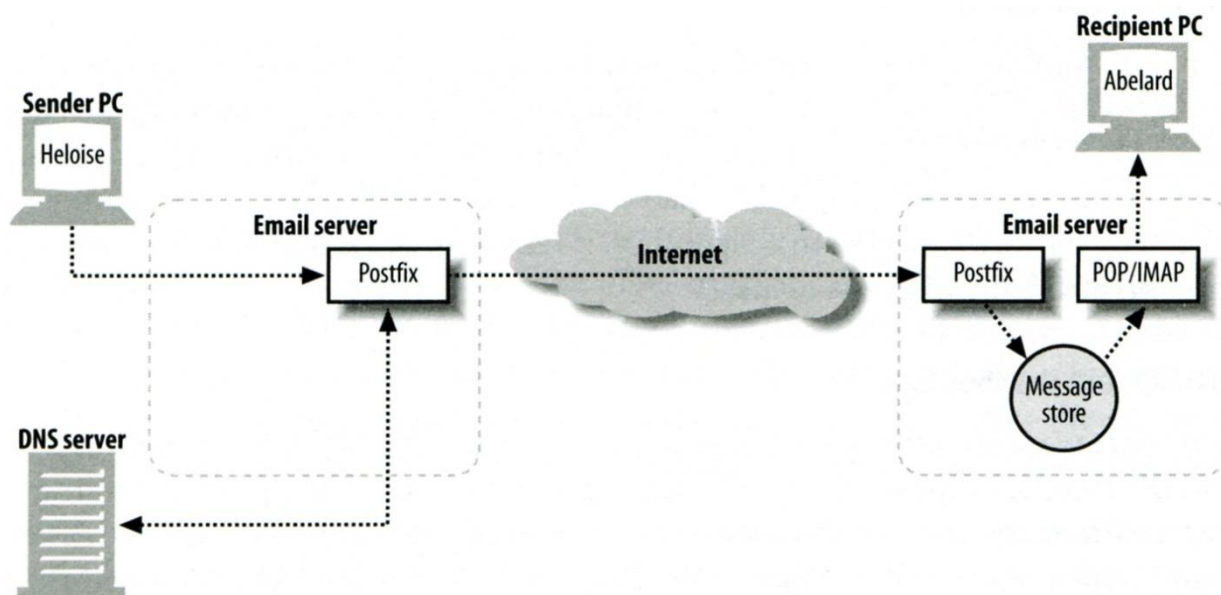
Other topics

- [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>

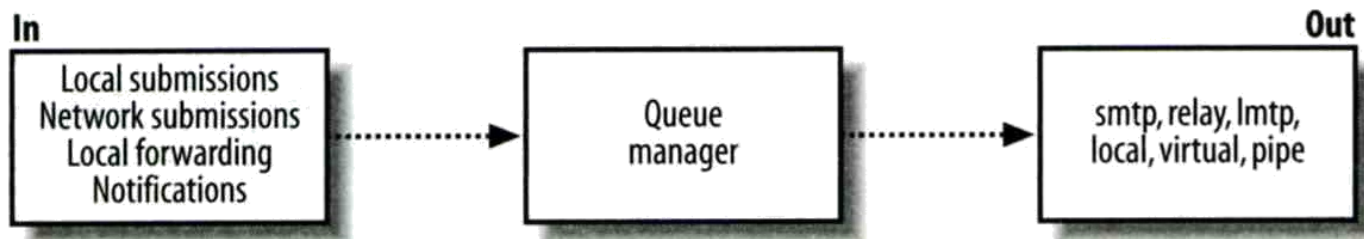
Postfix Architecture

❑ 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

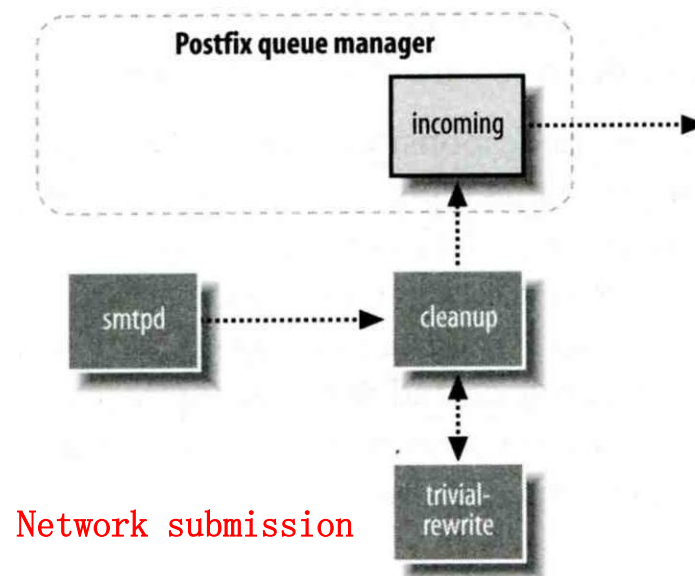
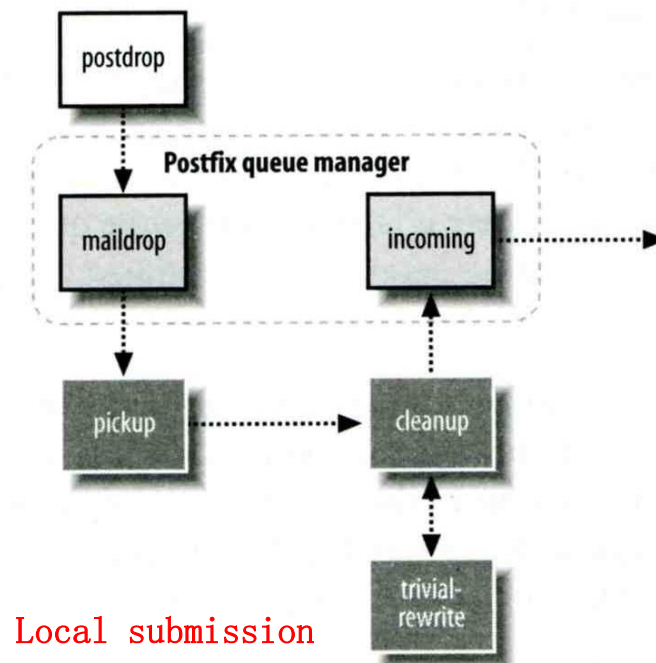
- Receive mail and put in **queue**
- Queue management
- Delivery mail from queue



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



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

Postfix Architecture – Message OUT – Part I

❑ Address classes

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

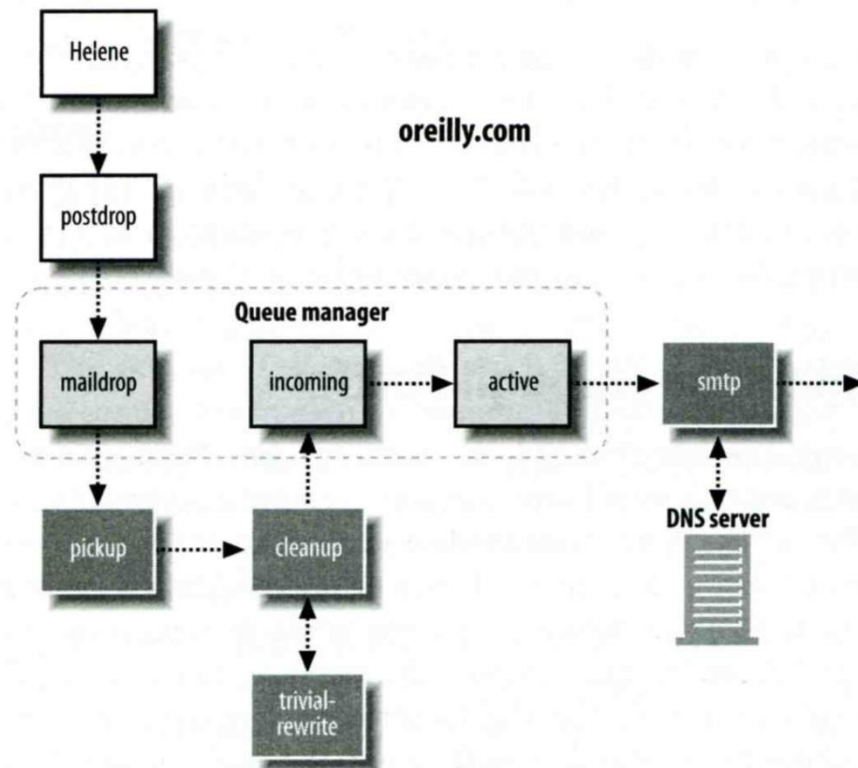
❑ Main address classes

- 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

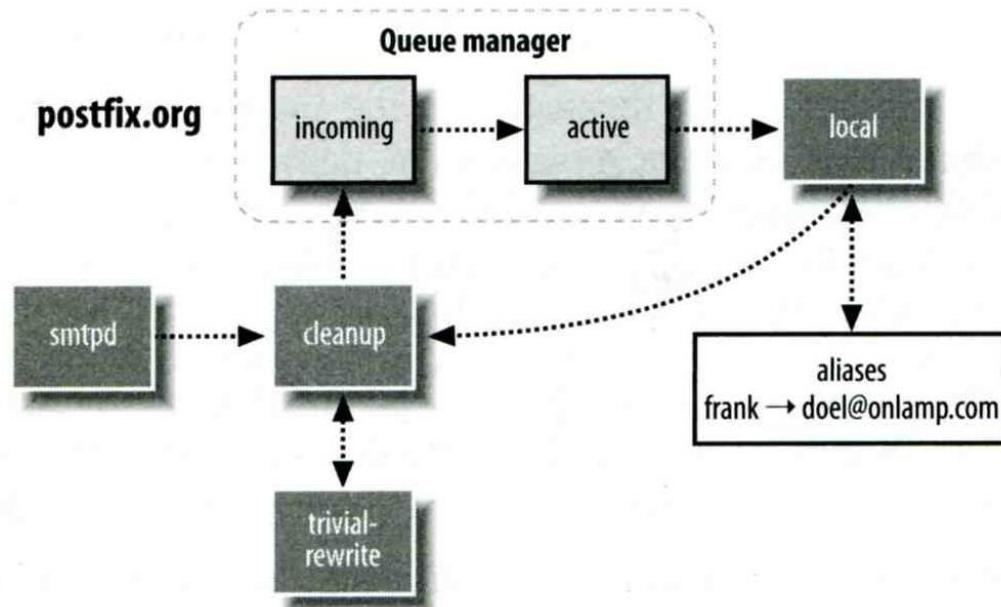
- `helene@oreilly.com` → `frank@postfix.org` (`doel@onlamp.com`)
- Phase1:
 - Helene compose mail using her MUA, and then call postfix's `sendmail` command to send it



Message Flow in Postfix (2)

❑ Example

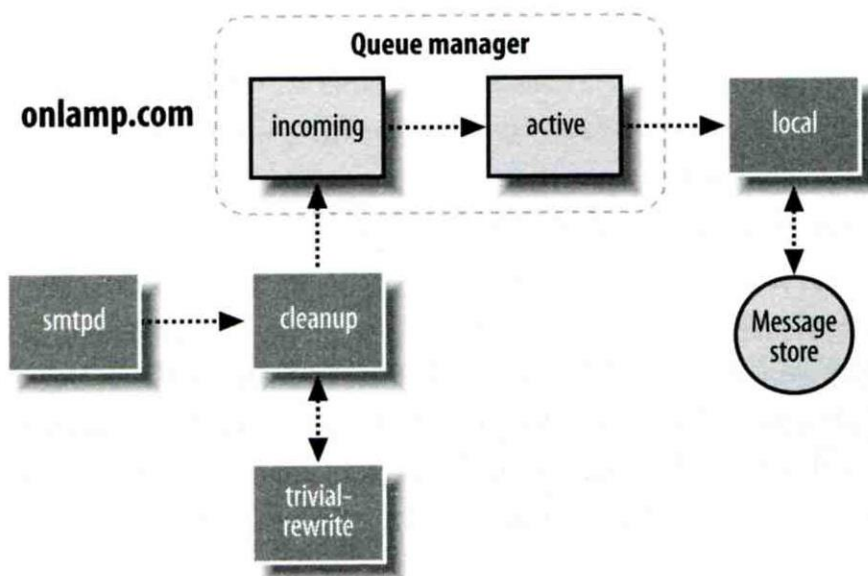
- `frank@postfix.org` → `doel@onlamp.com`
- Phase2:
 - The smtpd on postfix.org takes this message and invoke cleanup then put in incoming queue
 - The local DA find that frank is an alias, so it resubmits it through cleanup daemon for further delivery



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

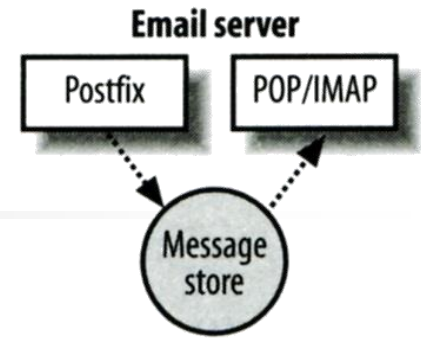
❑ The Maildir format

- 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

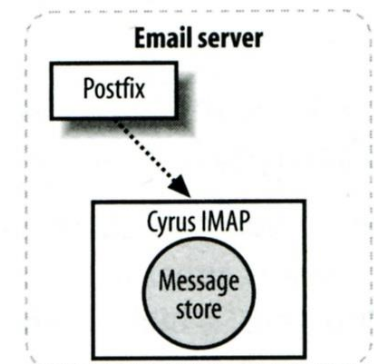


❑ POP3 vs. IMAP

- 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



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 recursively 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 |
|--------------------------------------|------------------------------------|
| <code>chwong@csie.nctu.edu.tw</code> | <code>@chbsd.cs.nctu.edu.tw</code> |
| <code>chwong</code> | <code>ch0nsi@gmail.com</code> |
| <code>@csie.nctu.edu.tw</code> | <code>@cs.nctu.edu.tw</code> |
- Applying regular expression
 - `virtual_alias_maps = pcre:/usr/local/etc/postfix/virtual`

<code>/^root(\..+)?@(t)?(cs np)?bsd\d*\..cs\.nctu\.edu\.tw\$/</code>	<code>bsdta@cs.nctu.edu.tw</code>
<code>/^root(\..+)?@(t)?(cs np)?linux\d*\..cs\.nctu\.edu\.tw\$/</code>	<code>linuxta@cs.nctu.edu.tw</code>
<code>/^root(\..+)?@(t)?csmail\w*\d*\..cs\.nctu\.edu\.tw\$/</code>	<code>mailta@cs.nctu.edu.tw</code>

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
```
- Similar 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

<code>andy@nasa.cs.nctu.edu.tw</code>	<code>andyliu@abc.com</code>
<code>liuyh</code>	<code>EC319, NCTU, ROC</code>
<code>@nabsd.cs.nctu.edu.tw</code>	<code>zfs.cs.nctu.edu.tw</code>

❑ 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)

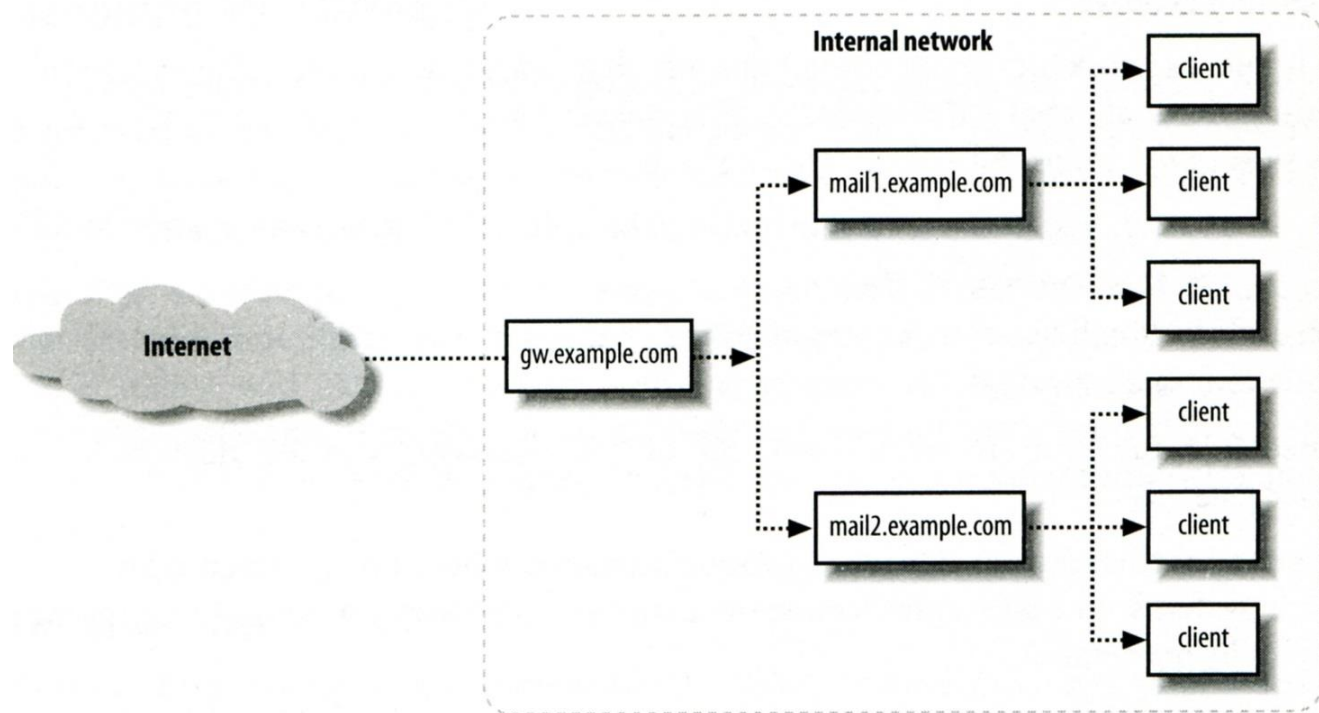
❑ Usage in transport map

- 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]

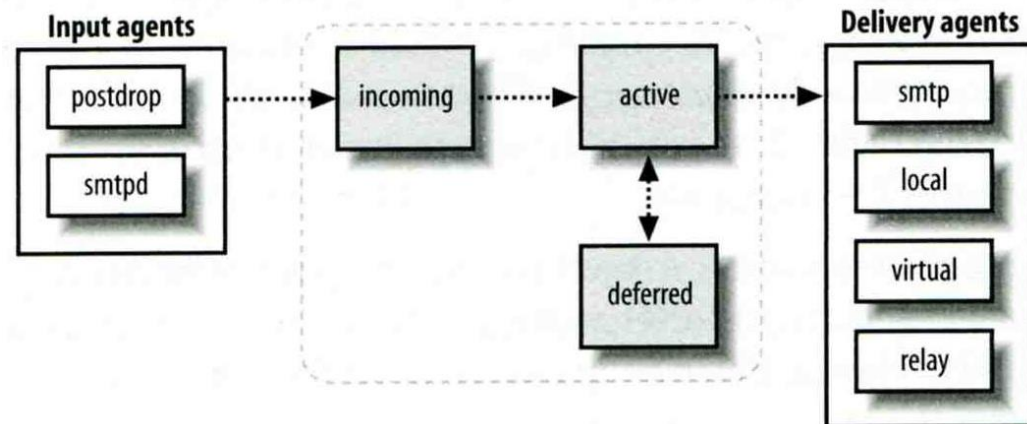
Queue Management

❑ 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

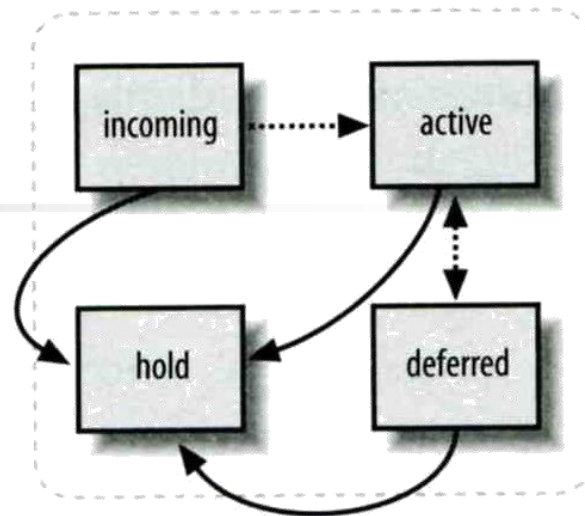
Queue Management – Queue Tools (1)

❑ 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_gid_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