

The background features a series of concentric blue circles of varying opacities, creating a ripple effect. Overlaid on this are several horizontal, semi-transparent blue stripes of different shades, creating a layered, geometric pattern.

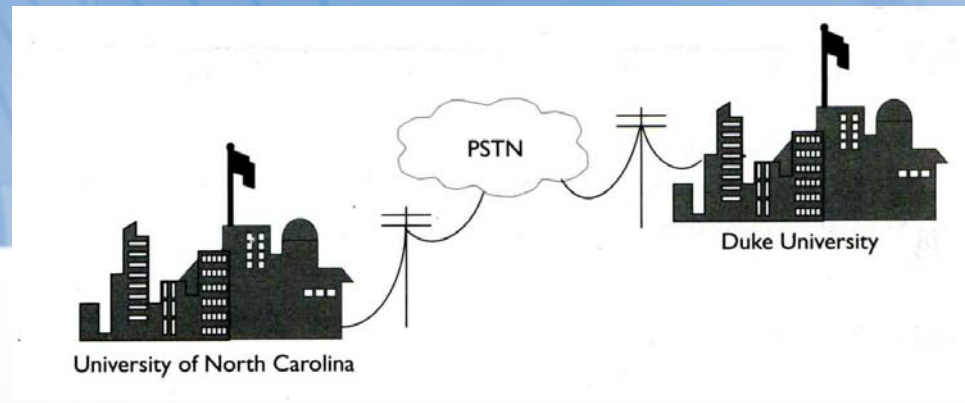
USENET

History (1)

- > The first USENET
 - In 1979
 - Tom Truscott, Jim Ellis, Steve Bellovin
 - Script-based software in the very first time
 - Communicate with UUCP via standard phone line and modems

- > The ANEWS version
 - In 1980
 - Rewrite with C language
 - Steve Bellovin, Tom Truscott, Daniels

- > The BNEWS version
 - In 1981
 - Mark Horton, Matt Glickman, Rick Adams
 - Rewrite ANEWS to handle more news traffic
 - Complied with RFC822 message format



History (2)

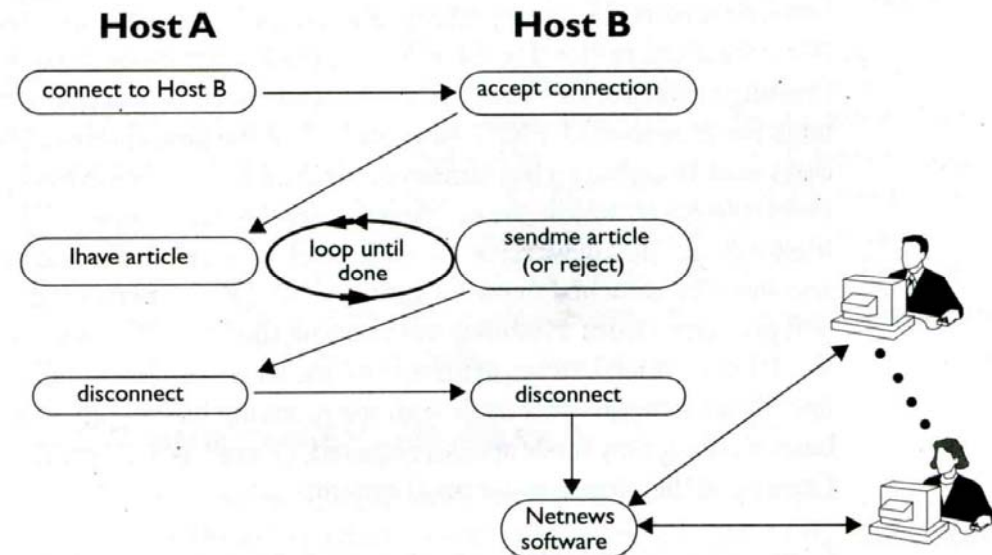
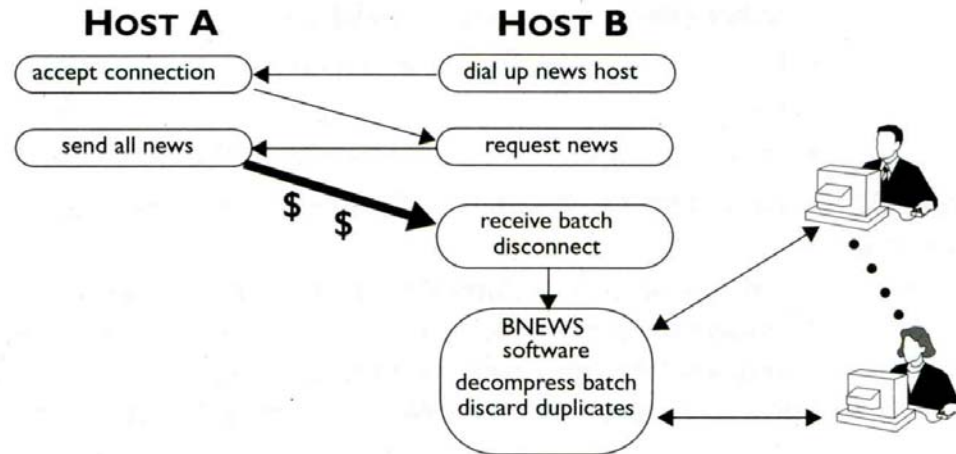
> UUCP vs. NNTP

— UUCP

- UNIX-to-UNIX Copy
- Via telephone line
- Store-and-forward batch
- Duplicate articles

— NNTP

- Networks News Transfer
- Via TCP/IP connections
- Sending required articles



History (3)

> The CNEWS version

- **In 1987**
- **Geoff Collyer, Henry Spencer**
- **Rewrite of BNEWS to speed up news exchange and processing**

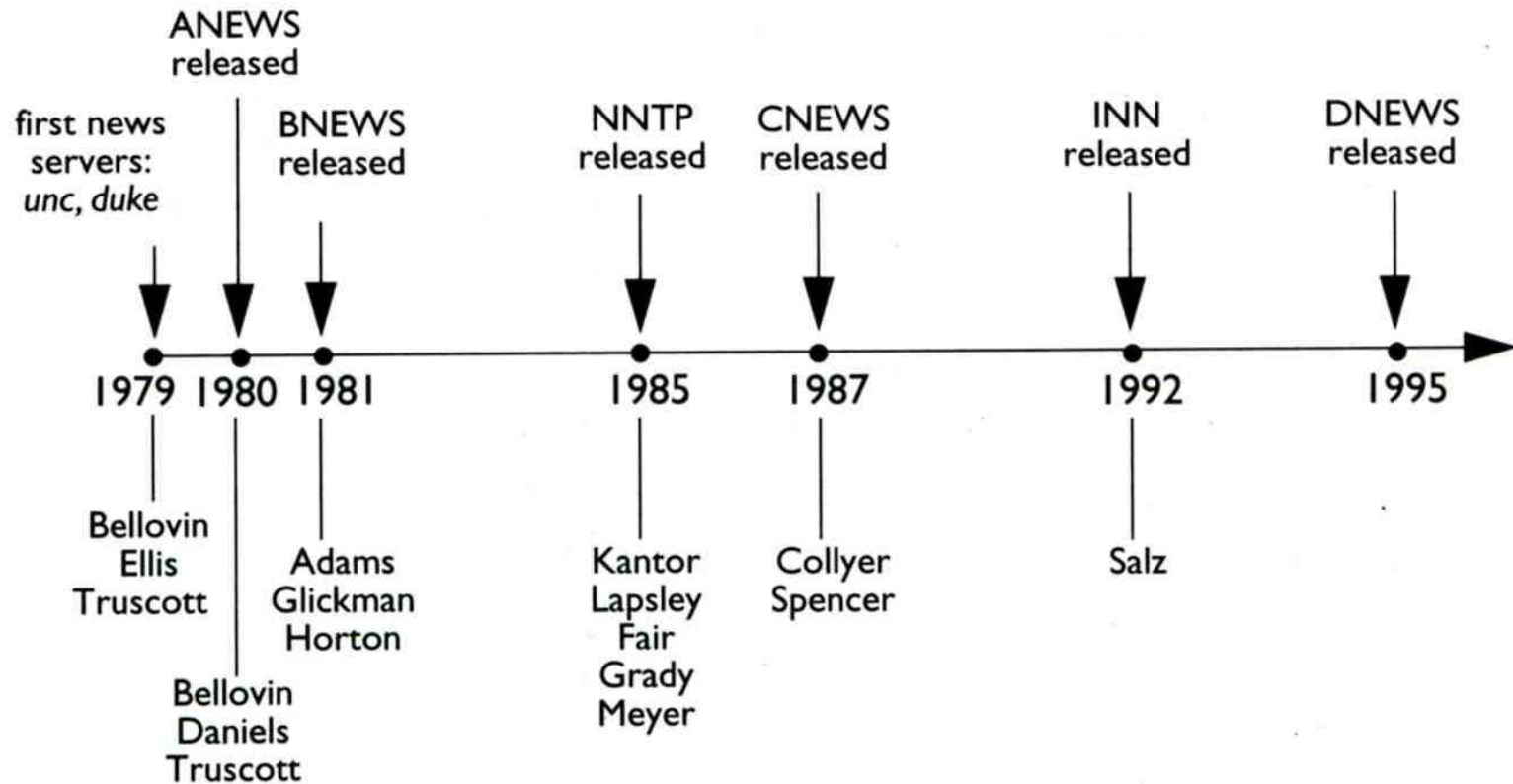
> INN (InterNet News)

- **In 1992**
- **Rich Salz**
- **NNTP and UUCP support**

> DNEWS

- **In 1995**
- **Commercial news software developed by NetWin Inc.**
- **Handle both Ihave-style and Sucking-style news feed**
 - Sucking-style feed pulls only those newsgroups actively being read

History (4)



News background – News Article

> Two components

- **Body**

- **Header**

- RFC1036

- > All USENET news messages must be formatted as valid Internet mail message (RFC822)

- > RFC1036 is more restrictive

Path: netnews2.csie.nctu.edu.tw!not-for-mail

From: Ya-Lin Huang <huangyl@csie.nctu.edu.tw>

Newsgroups: csie.help

Subject: 無法登入ccbsd8

Date: Mon, 28 Mar 2005 06:36:19 +0000 (UTC)

Organization: Computer Science & Information Engineering NCTU

Lines: 3

Sender: Ya-Lin Huang <huangyl@ccbsd1.csie.nctu.edu.tw>

Message-ID: <d28813\$29sa\$1@netnews2.csie.nctu.edu.tw>

NNTP-Posting-Host: huangyl@ccbsd1.csie.nctu.edu.tw

Mime-Version: 1.0

Content-Type: text/plain; charset=Big5

Content-Transfer-Encoding: 8bit

News background – Newsgroups

> Top-level newsgroups

- **comp, humanities, misc, news, rec, sci, soc, talk**
- **New sub-newsgroup will be created within the original newsgroup when articles get too specific**
 - New newsgroup creation may need to:
 - > subject a proposal and hold a vote.
 - > Final judged by news server administrators

> The alt top-level newsgroup

- **Alternative newsgroups**
- **Newsgroup creation requires little formality, maybe done by sending a control message to news server**

> Thread

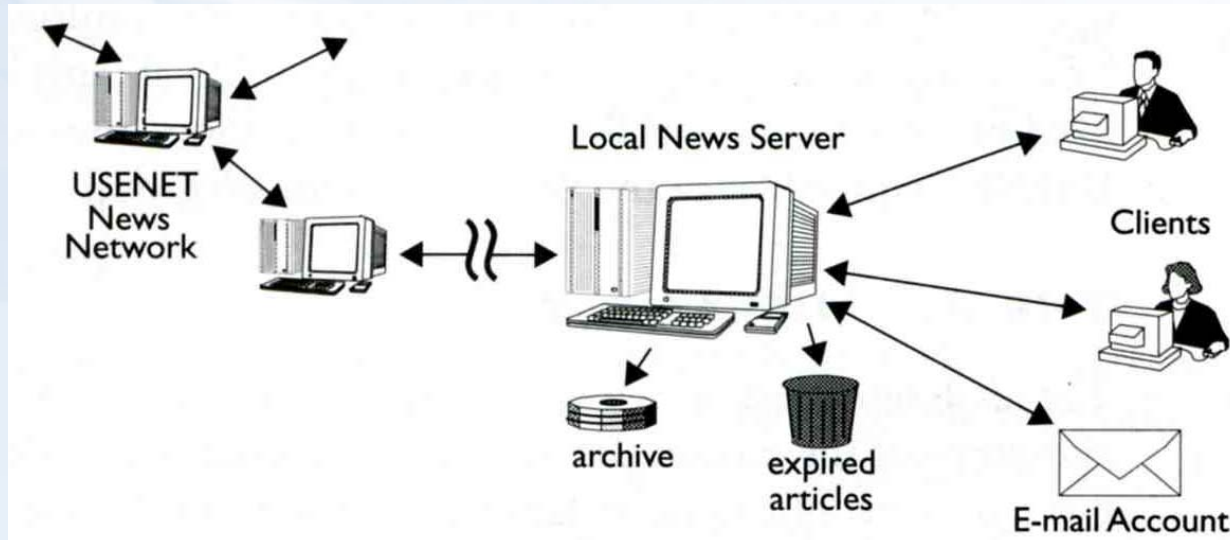
- **Back-and-forth conversation**

> News moderation

- **Messages will be diverted to a moderator for further processing**

News background – News Server

- > Primary role
 - Receive and send news to and from other news server
 - Store news in database
 - Delete or archive old news articles
- > Common news server
 - INN, DNEWS



News background – News Reader

- > Client software that used to
 - **Read and post news**
 - **Filter news**
 - **Navigate news thread**
- > Common news reader
 - **tin, outlook express, rn, trn, strn, nn, xrn, ...**

NNTP (1)

> Command and response

– **Response can be textual or status code**

– **Ex:**

- 2xx means command ok
- 3xx means command ok, but need rest information
- 4xx means command ok, but couldn't be performed
- 5xx means command unimplemented, incorrect

> Commonly used commands

– **GROUP [newsgroup]**

- 211 n f l s
- 411

group selected

no such news groups

– **ARTICLE <message-id>**

– **ARTICLE [nnn]**

- 2xx
- 412
- 420
- 423
- 430

no newsgroup has been selected

no current article has been selected

no such article number

no such article found

– **HEAD, BODY, STAT commands**

NNTP – GROUP and ARTICLE

```
tytsai@mailgate:~> telnet netnews2 119
Trying 140.113.209.3...
Connected to netnews2.
Escape character is '^]'.
200 netnews2.csie.nctu.edu.tw InterNetNews NNRP server INN 2.4.1 ready (posting ok).
ihave <d28813$29sa$1@netnews.csie.nctu.edu.tw>
502 Permission denied
group csie.test
211 5745 31503 37524 csie.test
article <d28813$29sa$1@netnews.csie.nctu.edu.tw>
220 0 <d28813$29sa$1@netnews.csie.nctu.edu.tw> article
path: netnews2.csie.nctu.edu.tw!netnews.csie.nctu.edu.tw!tytsai
From: tytsai@csie.nctu.edu.tw <Tsun-Yi Tsai>
Newsgroups: csie.test
Subject: post demol
Date: 25 May 2005 15:30:28 GMT
Message-ID: <d28813$29sa$1@netnews.csie.nctu.edu.tw>
Xref: netnews2.csie.nctu.edu.tw csie.test:37524

Test From Tsun-Yi Tsai
.
quit
205 .
Connection closed by foreign host.
```

NNTP (2)

— **ihave <message-id>**

- Inform the server that client has an article
- Used to transform already-posted article
- Used by news server to propagate articles to peer
- Response
 - > 235 article transfer ok
 - > 335 send article to be transferred
 - > 435 article not wanted
 - > 436 transfer failed
 - > 437 article rejected

NNTP – ihave command

```
[tytsai@netnews]/home/inn/news/db> telnet netnews2 119
Trying 140.113.209.3...
Connected to netnews2.
Escape character is '^]'.
200 netnews2.csie.nctu.edu.tw InterNetNews server INN 2.4.1 ready
ihave <d28813$29sa$1@netnews2.csie.nctu.edu.tw>
435 Duplicate
ihave <d28813$29sa$1@netnews.csie.nctu.edu.tw>
335
path: netnews.csie.nctu.edu.tw!tytsai
From: tytsai@csie.nctu.edu.tw <Tsung-Yi Tsai>
Newsgroups: csie.test
Subject: post demol
Date: 25 May 2005 15:30:28 GMT
Message-ID: <d28813$29sa$1@netnews.csie.nctu.edu.tw>

Test From Tsung-Yi Tsai
.
235
quit
205 .
Connection closed by foreign host.
```

NNTP (3)

— post

- Post a new article
- Used for client to post a new article via news reader software
- Response
 - > 240 article posted ok
 - > 340 send article to be posted
 - > 440 posting not allowed
 - > 441 posting failed

NNTP – post command

```
tytsai@mailgate:~> telnet netnews2 119
Trying 140.113.209.3...
Connected to netnews2.
Escape character is '^]'.
200 netnews2.csie.nctu.edu.tw InterNetNews NNRP server INN 2.4.1 ready (posting ok).
post
340 Ok, recommended ID <d71imt$1fj4$1@netnews2.csie.nctu.edu.tw>
From: test@test.from.mailgate
Newsgroups: csie.test
Subject: post demo2

Test
.
240 Article posted <d71imt$1fj4$1@netnews2.csie.nctu.edu.tw>
quit
205 .
Connection closed by foreign host.
```

NNTP (4)

- **LIST [active|active.times|newsgroups|...]**
 - List the db files
- **NEWSGROUPS YYMMDD HHMMSS [GMT]**
 - List newsgroups created since date and time
- **NEWNEWS newsgroups YYMMDD HHMMSS [GMT]**
 - List message-ids of articles to specified newsgroup since date and time



**INN –
InterNet News**

What is INN (1)

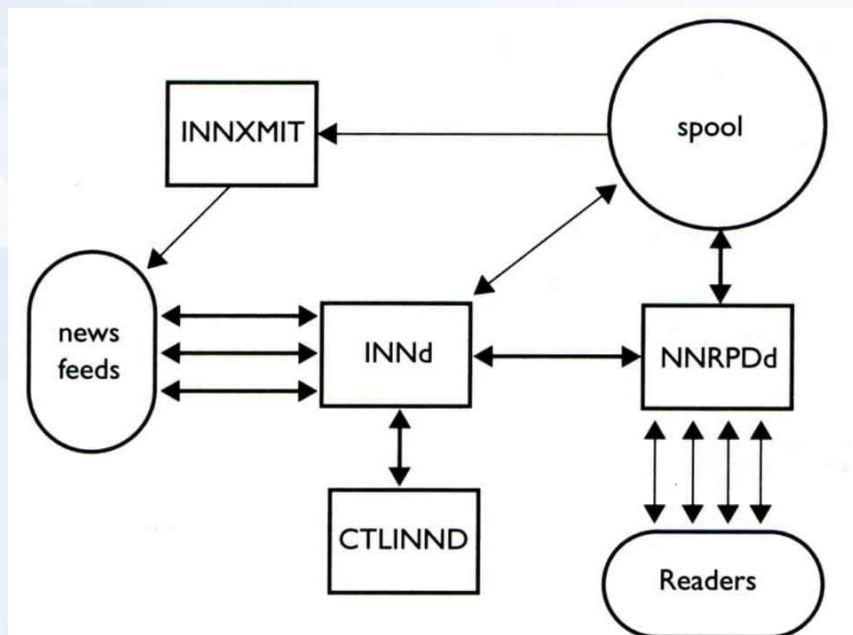
> InterNetNews

- **Written by Rich Salz**
- **Flexible and configurable Usenet news server**
 - **Accept articles** from other servers and store on disk
 - **Send articles** to other servers and readers
 - **Delete** or archive old news articles
- **Support NNTP and UUCP**
 - **innd**: handle NNTP incoming feeding connections directly
 - **rnews**: hand articles via UUCP off to innd
 - **innfeed**: handle outgoing feeding articles
 - **nntpsend, innxmit**: send batches of news via TCP/IP
 - **nnrpd**: handle connections from news readers

What is INN (2)

> Interactions between INN components

- **innd**
 - It would spawn NNRPD process for news readers
- **ctlinnd**
 - Handle all communications with innd
 - > Such as shutdown, pauses, newgroup ...
- **nnrpd**
 - Handle sending and receiving articles to and from news readers



What is INN (3)

> Newsgroup db (under ~news/db directory)

— active

- List of newsgroups carried by INN
- Syntax

```
<name> <high-mark> <low-mark> <flag>  
csie.course.sysadmin    0000006093 0000005728 y  
csie.cp91                0000002005 0000001672 y
```

— active.time

- List of local creation times of newsgroups
- Syntax

```
<name> <time> <creator>  
csie.cp91 1027602994 jwwang@mailgate.csie.nctu.edu.tw
```

— newsgroups

- List of newsgroup description
- Syntax

```
<name> <description>  
csie.announce [重要公告] Announcing Bulletin for CSIE
```


What is INN (5)

- > When an articles is received
 - **Check “active” file to see if this newsgroup is allowed**
 - If it does not exist, send to junk or reject
 - If it does exist, write this article in to “spool” directory with a highest number as file name
 - > This number is maintained in active file
 - **Add an entry into “history” file**
 - **Add an entry into a batch file for feeding other site**

Installing INN

> <ftp://ftp.isc.org/isc/inn/inn-2.4.1.tar.gz>

- **./configure --help**
 - --prefix=/home/inn/news
 - --enable-largefiles
 - --with-perl
- **make and make install**

Installing INN – Choosing article storage format (1)

> 4 supported formats

– tradspool

- Articles are store as individual text files and named as article number
 - > Ex: news/software/nntp/12345

– timehash

- The same as “tradspool”, but files are divided into directories based on arrival time

– timecaf

- Similar to “timehash”, but multiple articles are put in the same file

– cnfs

- Articles are stored sequentially in pre-configured buffer files.
- When buffer end is reached, new articles are stored from the beginning of the buffer.
 - > Adv:
 - no need to create files to store articles
 - No need to maintain expiration
 - Disk space will not be a issues
 - > Disadv:
 - Hard to control file expiration
 - Flooding messages may cause wanted articles disappeared

Installing INN – Choosing article storage format (2)

- > Which is best
 - **Transit news server**
 - Just accept news and send it out to other servers
 - CNFS
 - **Newsgroups that no need to keep very long**
 - CNFS
 - **Others**
 - timehash, timecaf, tradspool

- > INN can support all four at the same time

Installing INN – Choosing overview storage format

> Overview

- **Summary information about articles in a newsgroup**
- **Let readers to review summary information before taking time to download entire article**
 - nntp XOVER command
- **Items in overview**
 - Subject, From, Date, References, Message-ID, byte count, line count

> Overview storage methods

- **tradindexed**
- **buffindexed**
- **ovdb**
 - Store overview data in Berkeley DB database

Installing INN – configurations (1)

> Configuration files

- **Under ~news/etc/**
 - All configuration files has man page under ~news/man
 - Set MANPATH to include ~new/man
- **inn.conf**
 - General configuration files for all InterNetNews programs
- **newsfeeds**
 - How to distribute articles to others, including
 - > News servers, local program, local file
- **incoming.conf**
 - Specify which machines are permitted to feed us news
- **storage.conf**
 - Determine where and how incoming articles will be stored
- **expire.ctl**
 - Set the expiration policy
- **readers.conf**
 - nnrpd uses this to determine whether a given connection is allowed
- **control.ctl**
 - Specify how to handle Usenet control messages

Installing INN – configurations (2)

- **overview.fmt**
 - Format of news overview database
- **innfeed.conf**
 - Configuration file for innfeed
- **cycbuff.conf**
 - Configuration file for INN CNFS storage method
- **buffindexed.conf**
 - Configuration file for INN buffindexed storage method
- **ovdb.conf**
 - Configuration file for OVDB overview method

Installing INN – configurations (3)

- > INN outgoing feeds
 - **newsfeeds, nntpsend.ctl, innfeed.cnf**
- > INN incoming feeds
 - **incoming.conf, readers.conf**
- > Article storage methods
 - **storage.conf, cycbuff.conf**
- > Overview storage methods
 - **overview.fmt, buffindexed.conf ovdb.conf**
- > Expiration control
 - **expire.ctl**
- > Control message
 - **control.ctl**
- > Moderators
 - **moderators**

INN Configuration

Configure INN – inn.conf (1)

> news/etc/inn.conf

- **General configuration file for all INN programs**
- **Each line is a <key: value> pair**
- **Categories**
 - General Settings
 - Feed configuration
 - Article storage
 - Reading
 - Posting
 - Monitoring
 - Logging
 - System tuning
 - Path and File names

Configure INN – inn.conf (1)

> General

- **domain:** csie.nctu.edu.tw
- **pathhost:** netnews.csie.nctu.edu.tw
- **server:** netnews.csie.nctu.edu.tw
- **mailcmd:** /home1/inn/news/bin/innmail
- **mta:** "/usr/sbin/sendmail -oi -oem %s"

> Feed

- **artcutoff:** 14 (articles older than this are dropped)
- **maxartsize:** 1000000
- **pathalias:** (before pathhost)
- **port:** 119
- **sourceaddress:** (outgoing NNTP sockets)
- **bindaddress:** (what innd binds)
- **verifycancels:** true
- **remembertrash:** yes (record rejected articles in mem)
- **wantrash:** false (file articles posted to unknown)

Configure INN – inn.conf (2)

> Article storage

- **enableoverview**
- **ovmethod: tradindexed**
- **hismethod: hisv6**

> Reading

- **allownewnews**
- **initialtimeout: 10**
- **clienttimeout: 600**
- **noreader: false**
- **readerswhenstopped: false**
- **nnrpdloadlimit: 16**

> Posting

- **addnntppostingdate: true** (NNTP-Posting-Date header)
- **addnntppostinghost: true** (NNTP-Posting-Host header)
- **moderatormailer: ta@csie.nctu.edu.tw**
- **organization: netnews.csie.nctu.edu.tw** (Organization header)

> Path

- **pathoutgoing: /home/inn/news/spool/outoing**
- **pathoverview: /home/inn/news/spool/overview**

INN outgoing feeds – newsfeeds (1)

> etc/newsfeeds

- **Specify what batch files should be created and then used by innfeed to feed articles to remote sites**

- **Syntax**

sitename[/exclude,exclude,...]\

: pattern,pattern, ...\
:

flag,flag,..\
:

parameter

- **Ex:**

netnews2.csie/netnews2.csie.nctu.edu.tw\
:

,!control,!junk,!alt.binaries.*,!news.lists.filters\
:

Tm:innfeed!

INN outgoing feeds – newsfeeds (2)

– flags

- < size
- > size
- A *checks*
 - > c, C, d, e, ...
- B high/low (Use buffer to gain performance)
- Ttype (how to feed for this site)
 - > f file (Designed for use by external program)
 - > l log entry only (The same as Tf:/dev/null)
 - > p program (spawn a given program for each article)
 - > c channel (spawn once)
 - > m funnel
 - > x exploder
- W items (information sent to this site)
 - > b, e, f, g, ...

INN outgoing feeds – newsfeeds (3)

– Example

```
ME:!* /!local,!collabra-internal: :
```

```
innfeed!\n      :!*\  
      :Tc,Wnm*:/home/inn/news/bin/startinnfeed
```

```
n2m!:!*\  
      :Tc,Ac,Wng*:/home/inn/news/bin/news2mail
```

```
netnews2.csie/netnews2.csie.nctu.edu.tw\  
      :* ,!control* ,!junk ,!alt.binaries.* ,!news.lists.filters \  
      :Tm:innfeed!\
```

```
network-programming@java.csie.nctu.edu.tw\  
      :csie.course.network-programming\  
      :Tm:n2m!
```

```
tybsd.csie/tybsd.csie.nctu.edu.tw\  
      :csie.course.netadm:Tf,Wnm,B4096/1024:
```

INN outgoing feeds – innfeed.conf and nntpsend.ctl (1)

> Related to newsfeeds

- **File feeds use nntpsend.ctl and funnel feeds use innfeed.conf**

> innfeed.conf

– **Three types of entries:**

- Key: value (global setting to peer and group)
- group (one group may contains many peers)
- peer (can be individual or within one group)

```
max-connections:          5

group csie-news-sites {
    peer netnews2.csie {
        max-connections:    5
        ip-name:             netnews2.csie.nctu.edu.tw
    }
}

peer java.csie {
    ip-name:                 java.csie.nctu.edu.tw
}
```

INN outgoing feeds – innfeed.conf and nntpsendctl (2)

– Key-value pairs in innfeed.conf

- Global values that apply to the process
 - > news-spool, pid-file, debug-level, log-file, ...
 - > initial-reconnect-time, max-reconnect-time, ...
- Global peer defaults
 - > article-timeout, response-timeout, ..
 - > initial-connections, max-connections, ..
- Peer value
 - > ip-name (FQDN or IP)

> nntpsendctl

- **nntpsend is a front-end that invokes innxmit to send articles to remote NNTP site**
- **Syntax**
site_name:fqdn:max_size:args_to_innxmit
- **Ex:**
tybsd.csie:tybsd.csie.nctu.edu.tw::-T1800 -t300

INN incoming feeds – incoming.conf

> incoming.conf

- **Names and addresses that feed us news**
- **Three types of entries**
 - Key: value
 - group
 - peer
- **Key-value pairs in incoming.conf**
 - Hostname, max-connections, password, patterns, ..

```
max-connections:      8      # per feed

peer ME {
  hostname:           "localhost, 127.0.0.1"
}

peer netnews2.csie {
  hostname:           "netnews2.csie.nctu.edu.tw, 140.113.209.3"
}
```

INN incoming feeds – readers.conf (1)

> Access control for nnrpd

– auth configuration

- Identity of the news readers
- syntax

```
auth "name" {  
    hosts: "hostlist"  
    auth: "authprog"  
    res: "resprog"  
    default: "default-identity"  
    default-domain: "emailldomain"  
}
```

– access configuration

- Determine what each identity can do
- Syntax

```
access "name" {  
    users: "userlist"  
    newsgroups: "newsgrups"  
    read: "read-list"  
    post: "post-list"  
    access: "permission"  
}
```


INN incoming feeds – readers.conf (2)

- > Both auth and access groups are last matching
- > Ex:

```
auth "nctu" {
    hosts: "*.nctu.edu.tw"
    default: <nctu>
    default-domain: nctu
}
auth "csie" {
    hosts: "*.csie.nctu.edu.tw"
    default: <csie>
    default-domain: csie
}

access "nctu" {
    users: "*@nctu"
    read: "*", !csie.*, csie.course.*, !alt.binaries.*, !junk, !twbbs.*, !control, !control.*"
    post: "*", !csie.*, csie.course.*, !alt.binaries.*, !junk, !twbbs.*, !control, !control.*"
}
access "csie csiespec sec" {
    users: "*@csie,*@csiespec,*@sec"
    newsgroups: "*", !junk,!csie.cc.*, !twbbs.*, !control, !control.*"
}
```

Article Storage – storage.conf (1)

> Storage methods for articles

- **Each entry is a storage method**
- **Articles that match the rules of certain storage method is saved using that method**

- First match if multiple match

– **Syntax**

```
method "methodname" {  
    class: storage_class  
    newsgroups: group_list  
    size: minsize[,maxisze]  
    options: option_list  
}
```

– **Storage methods**

- tradspool: patharticles/news.group.path/nnnn
- timehash: patharticles/time-nn/bb/cc/yyyy-aadd
- timecaf: patharticles/timecaf-nn/bb/aacc.CF
- cnfs: metacycbuf

Article Storage – storage.conf (2)

Ex:

```
method tradspool {
    newsgroups: csie.cc.*
    class: 2
}
method cnfs {
    newsgroups: csie.*, nctu.*, nthu.*, ncu.*, ntu.*, ccu.*, nccu.*, ntou.*, ntnu.*, ncku*, eecsep.*
    class: 9
    size: 0,8191
    options: CSIEAREA
}
```

```
method cnfs {
    newsgroups: comp.*, news.*, linux.*
    class: 7
    size: 0,8191
    options: DIGEST
}
```

metacycbuf in cycbuff.conf

Article Storage – cycbuff.conf

> Four entries

- **cycbuffupdate:<interval>**
- **refreshinterval:<interval>**
- **cycbuff:<name>:<file>:<size>**
- **metacycbuff:<name>:<buffer>[,<buffer>,...]**
 - If > 1 buffer
 - > Round-robin
 - > Sequential

> Create cycbuffer file

- **dd if=/dev/zero of=/home2/CNFS/CSIE bs=1024 count=960000**

```
cycbuff:BUF09H:/home2/CNFS/CSIE:960000  
cycbuff:BUF11H:/home2/CNFS/DIGEST:1152000  
cycbuff:GENERAL:/home2/CNFS/GENERAL:1920000
```

```
metacycbuff:CSIEAREA:BUF09H  
metacycbuff:DIGEST:BUF11H  
metacycbuff:NORMAL:GENERAL
```

Overview storage – overview.fmt

- > Specify the organization of overview
 - Use “makehistory” to rebuild the overview database
 - **Ex:**

```
Subject:  
From:  
Date:  
Message-ID:  
References:  
Bytes:  
Lines:  
Xref:full
```

Expiration Control – expire.ctl

- > Two purposes:
 - **History expiration control for expired or rejected articles**
 - **Article expiration**

- > History expiration
 - **Used to reject old articles from other peers**
 - **/remember/:10**

- > Article expiration
 - **Class-based expiry (groupbaseexpiry=false in inn.conf)**
 - <class-num>: <keep>: <default>: <purge>
 - **Group-based expiry (groupbaseexpiry=true)**
 - <pattern>: <flag>: <keep>: <default>: <purge>
 - flags
 - > M (only moderated), U (only unmoderated), A (All)
 - > X (remove the article from all groups it appears in)

Control message (1)

- > Arriving articles that have a Control header
 - **Handled by “controlchan(8)” via feed set up in newsfeeds**
 - **Put into the pseudo-newsgroup “control”**
 - Or “*control.command*”
 - **Such as**
 - cancel, newgroup, rmggroup, checkgroups
 - **Pseudo newsgroup in active file**
 - control
 - control.cancel
 - control.newgroup
 - control.rmggroup
 - junk

Control message (2)

Ex:

```
Path: netnews.csie.nctu.edu.tw!netnews2.csie.nctu.edu.tw!mailgate.csie.nctu.edu.tw!jwwang
From: <solobosouvpe@prodigy.com>
Newsgroups: csie.cc.ta-eval
Subject: msg cancel <bj8an$1k8p$1@netnews.csie.NCTU.edu.tw>
Control: cancel <bj8an$1k8p$1@netnews.csie.NCTU.edu.tw>
Date: Sat, 13 Sep 2003 05:38:35 +0000 (UTC)
Organization: Computer Science & Information Engineering NCTU
Lines: 1
```

```
Path: netnews2.csie.nctu.edu.tw!tytsai
From: Tsung-Yi Tsai <tytsai@csie.nctu.edu.tw>
Newsgroups: csie.help
Subject: msg newgroup csie.course.realtime-rendering
Control: newgroup csie.course.realtime-rendering
Date: Wed, 02 Mar 2005 08:50:38 +0000 (UTC)
Organization: Computer Science & Information Engineering NCTU
Approved: tytsai@csie.nctu.edu.tw
Message-ID: 96r4f2$3f0$1@netnews2.csie.NCTU.edu.tw
```

For your newsgroups file:
csie.course.realtime-rendering [及時顯像技術]

Control message (3)

- > Determine what action is taken when a control message is received
 - **Read by controlchan**
 - **Syntax:**
 - <type>: <from>: <newsgroups>: <action>
 - <type> = cancel, newgroup, rmggroup, all, ...
 - <action> = doit, doit=file, doit=mail
drop , log, mail, verify-*, verify-*=file

```
## DEFAULT
all:***:mail
## Default (for any group)
newgroup:***:log=newgroup
rmgroup:***:log=rmgroup
checkgroups:***:mail
# for csie.*
newgroup:tytsai@csie.nctu.edu.tw:csie.*:doit=mail
rmgroup:tytsai@csie.nctu.edu.tw:csie.*:doit=mail
# for tw.bbs.*
newgroup:ltc@news.cc.nctu.edu.tw:tw.bbs.*:doit=mail
```

moderators

> Send unapproved articles to some email address

– **Syntax**

<newsgroup>: <mail-address>

%s in mail-address will be changed to newsgroup name
with dashes connected each components

– **Ex:**

csie.forgery: anon@anon.csie.nctu.edu.tw

tw.bbs.*: %s@csie.nctu.edu.tw

– **Manual or automatic processing**

INN log and cron

> Log

- **/etc/syslog.conf news.crit /usr/local/news/log/news.crit**
 - news.err /usr/local/news/log/news.err
 - news.notice /usr/local/news/log/news.notice
 - Add news.none to all entry starts with *

> Cron

- **Run news.daily which performs dail server maintenance**
 - Status report, removing expire articles, renumbering the active file, rotate the log...
 - > 0 5 * * * /home/inn/news/bin/news.daily expireover lowmark
 - > 0 6 * * * /home/inn/news/bin/cnfsstat -a
 - > 0 8 * * * /home/inn/news/bin/actsync netnews2

Create database files

> Files under news/db

– **active, active.times, newsgroups**

- Can be download from <ftp://ftp.isc.org/pub/usenet/CONFIG/>
- Create your-own newsgroups
- Required-newsgroups: control* and junk

– **history**

- % cd ~news/db
- % touch history
- % makedbz -i
 - > history.n.dir, history.n.hash, history.n.index
- Rename each history file to eliminate n.
- % chmod 644 *

INN Basic Operation (1)

- > Do it with "news" identity
 - `% su - news -c`
- > innd will be in three states
 - **running**
 - **throttled** (close connections and reject new one)
 - **pause** (reject new one but not shut down existing connections)
- > Start
 - `% /home/inn/news/bin/inndstart`
 - `% /home/inn/news/bin/rc.news`
- > Stop
 - `% /home/inn/news/bin/ctlinnd shutdown 'your-reason'`
 - `% /home/inn/news/bin/rc.news stop`
- > Throttle
 - `% /home/inn/news/bin/ctlinnd throttle 'your-reason'`
- > Go
 - `% /home/inn/news/bin/ctlinnd go 'the-same-given-in-stop-or-throttle'`

INN Basic Operation (2)

- > Create and remove newsgroups
 - **Method1: use control message**
 - **Method2: use ctlinnd**
 - Create
 - > % bin/ctlinnd newgroup <groupname> <rest> <creator>
 - > Add description in db/newsgroups
 - Delete
 - > % bin/ctlinnd rmgroup <groupname>
 - > Remove description