

## Future Directions of Sendmail

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## E-Mail is not Static

- We keep asking for more
  - Multimedia (MIME)
  - Extensibility (ESMTP)
  - Accountability (DSN, MDN)
- And yet more...
  - Message Tracking
  - Unified Messaging
  - QoS, Timeouts, Transactions, etc.



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## X.400 Was a Failure. Why?

- Too heavy for basic implementations
  - ASN.1 is really too much here
  - Entry level is too high
- Was arguably a “class of standards” rather than a Standard
- Standardization process was too centralized

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## X.400 Was Not a Failure. Why?

- OK, we don't run it
- Directory service is the basis of LDAP
- ASN.1 is used in many other protocols
- Gave us the model of MUA/MTA
- Generally: *GREAT* thinking, impractical to implement

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## **sendmail** vs. Sendmail

- There are two [Ss]endmails now
  - The code (lower case “s”)
  - The company (upper case “S”)
- I’ll focus mostly on the code
  - But the two are deeply intertwined

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## Why Did **sendmail** Succeed?

- **sendmail** Philosophy:
  - flexibility, communication, adaptation
- The world was and is changing
- **sendmail** isn’t pedantic
- **sendmail** has adapted, is adapting, and will continue to adapt
- **sendmail** has scaled with the Internet

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## First, the Present

- **Sendmail 8.10** is out
  - SMTP Authentication
  - More spam control
  - Message Submission Agent support
  - IPv6 support
  - Better LDAP support
  - Multiple queues
- **Sendmail Switch (commercial)** is out
  - 8.10 plus TLS plus way cool distributed management

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## The Philosophy

- Move toward a long term target a step at a time
  - This isn't new; all of version 8 has been on a trajectory.
- Goal is a cleaner, flexible MTA in the "sendmail style"
  - Very flexible and configurable
  - Avoid pedanticism: communication is the goal

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## Next Step: 8.11

- A lot of internal cleanup
  - Better memory management
  - Improved internal flow control
- Better queue control
- Milter packages included (currently **FFR**)
- Possible TLS support in open source
- Another 400 lines of proposed changes

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## And Then: 8.12

- More internal cleanup
- BDAT support
- Support for SMTP Pipelining
- Probably more of those 400 proposed changes

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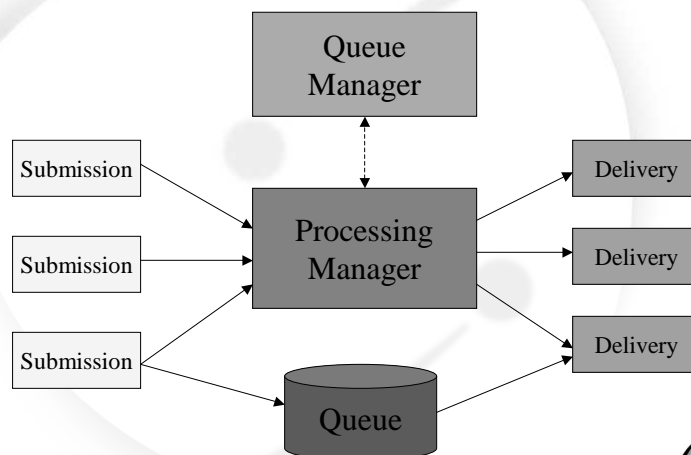
## Finally: 9.x

- Vastly more flexible architecture to support 21<sup>st</sup> century requirements
- Multiple processes (but not insanely so)
- Queue manager doing predictive scheduling
- Better support for using `sendmail` as a platform for mail-based applications

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## Possible Architecture



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## What Might You See in 9.x?

- Configuration file format is on the table
  - We will plan on a conversion tool
  - But only for the M4 version: convert now!
- A lot of old cruft will go away
  - Config file boiler plate will probably go away
  - Rewriting rules? Probably just as an escape (but still needed for flexibility)

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## Some Interesting Issues

- Mailbox namespace  $\neq$  User namespace
  - /etc/passwd isn't the right database
  - Anything else is a management headache
  - *Every* large site has a different scheme
- Most customers don't understand that  
MTA  $\neq$  Message Store  $\neq$  Access Server

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## Sendmail, the Company

- We believe in the Open Source
  - Critical for innovation
  - Critical to be able to deploy standards
  - Important for market share
- But we have to make money
  - We can't give everything away

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## Is Sendmail good for **sendmail**?

- It isn't without costs
  - Commercial-grade bug tracking
  - What feature goes where?
  - More meetings (and meetings, and meetings...)
- Ultimately, probably worth it
  - Sadly, Internet is going commercial
  - Too much work to do by volunteers alone
  - **sendmail** is a success disaster
  - Now have 7 engineers working on **sendmail**

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## The Tension

- Commercial and Open Source are not obvious allies
  - But they really are
- Schedules are harder, much more rigorous
  - Many more “schedulable” people
  - Real milestones, real consequences
  - “Road Maps” — longer horizon
- Open Source is “obviously” unschedulable.



SENDMAIL

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## Why Does **sendmail** Persist?

- **Postfix** et al are (mostly) good products
- **Sendmail** is proven in hard environments
  - AOL, Earthlink, etc.
- **Sendmail** is the implementation baseline implementation



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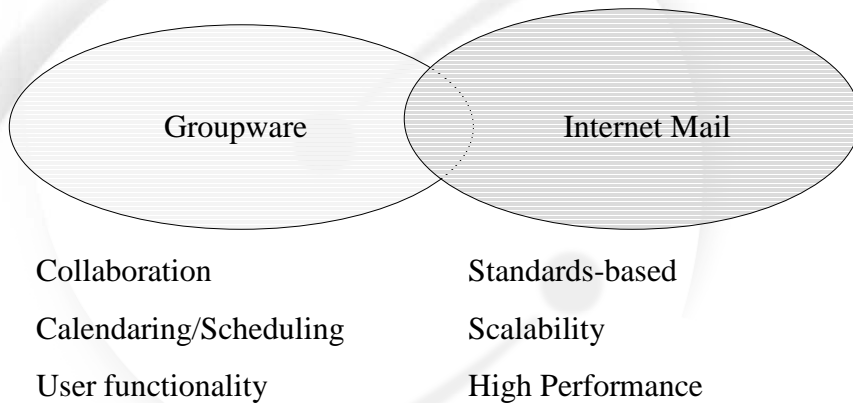
## What Else is Going On?

- **MSGTRK** group at IETF
  - Message tracking, a la FedEx or DHL
- More work on standardizing LDAP schemas
- **Calendaring/Scheduling/Groupware**
  - If we want to survive, we have to play

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## The Market



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## Some Personal Gripes

- PAM doesn't work for **sendmail**
  - Authenticates, but can't just validate a user name
  - But ultimately, mailbox namespace needs to be separated from end user namespace
  - Ugh, another system API?
- Win32 interface inappropriate
  - Must use I/O Completion Ports (IOCPs) for good performance
  - Dictates application architectures

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## Questions?

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