Happy Trails:
Migrating to Apache 2.0

A Top Level Guide to the
Why and How
Of Migrating to Apache 2.0

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Agenda

- Why Apache?
- Why Apache 2.0 (what’s new)
- Migration from Apache 1.3
- Migration from iPlanet / SunOne
- Migration from IIS

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Why Apache?

- Extremely portable
- Completely Open Source
- Proven track-record
- Most popular web server on the planet
- Support available from informal and formal channels

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What’s New in Apache 2.0

- Multi-processing modules
- Hooks registered at run-time
- Modules helping each other
- Filtering framework
- Protocol modules
- Apache Portable Run-time
- Build system

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Multi-Processing Modules

- Apache can be run as a process-based server, a thread-based one or a hybrid.
- Allows Apache to be tailored for each platform
- Allows system administrators control over how their site runs
- Allows for admin control over robustness and scalability

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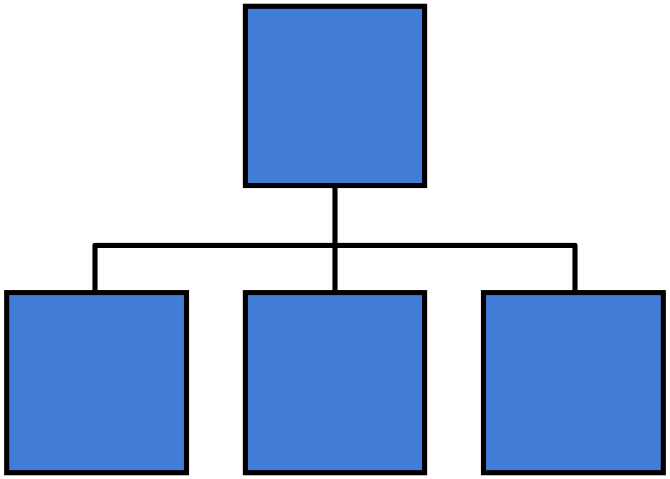
Prefork MPM



- Robust
- Proven technology (Apache 1.3)
- Not incredibly scalable
- Removes some optimization options (caching)

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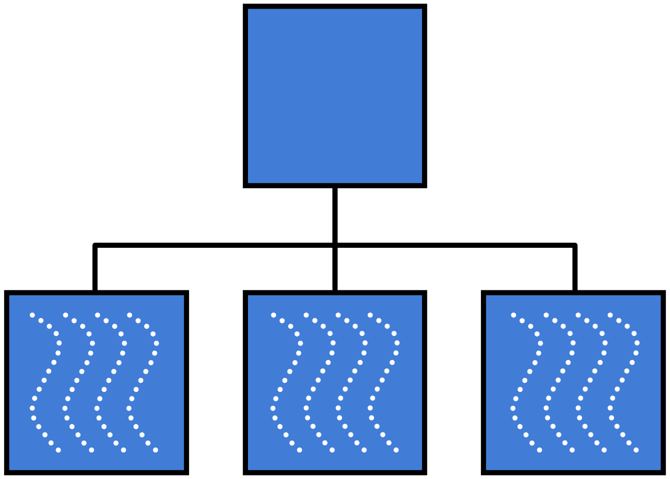
Worker MPM



- More scalable
- Less robust
- Less reliable
- Thread-safeness of libs critical

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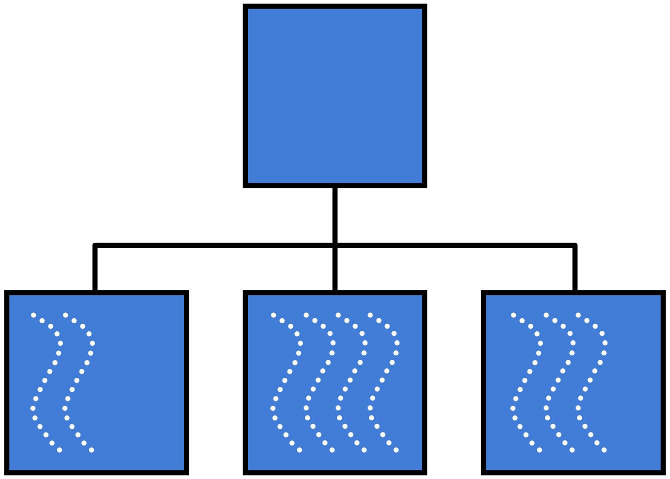
Perchild MPM (experimental)



- Most scalable
- Least robust
- Allows for better virtual host support (perchild uses file descriptor passing)

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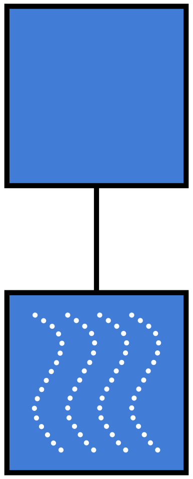
Windows MPM

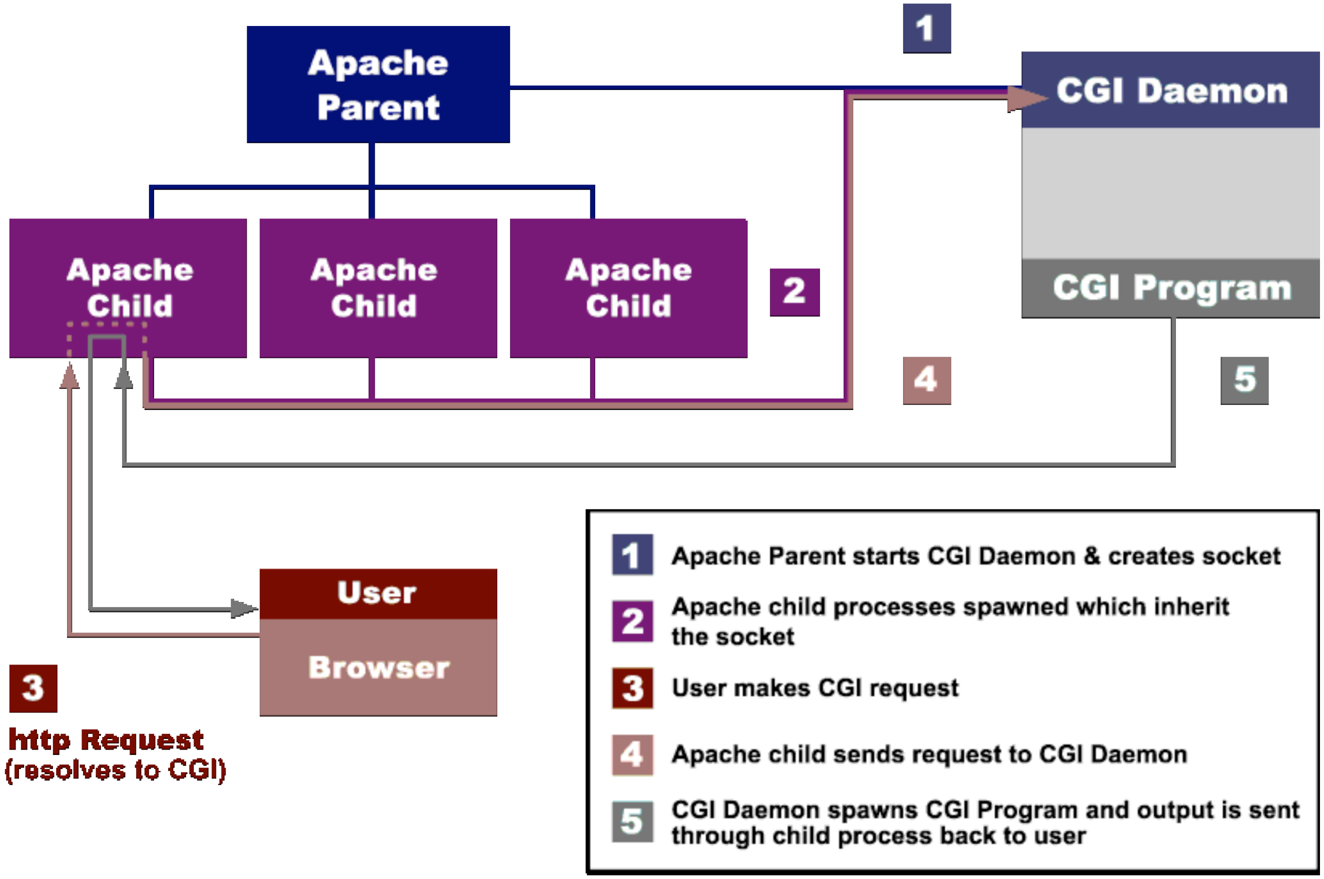


- Very scalable
- Takes advantage of Windows native API
- Allows for Apache on Windows to be a real contender!

mod_cgid

- Forking threaded processes kills performance
- mod_cgid creates a CGI daemon that actually forks the CGI process

mod_cgid



1 Apache Parent starts CGI Daemon & creates socket

2 Apache child processes spawned which inherit the socket

3 User makes CGI request

4 Apache child sends request to CGI Daemon

5 CGI Daemon spawns CGI Program and output is sent through child process back to user

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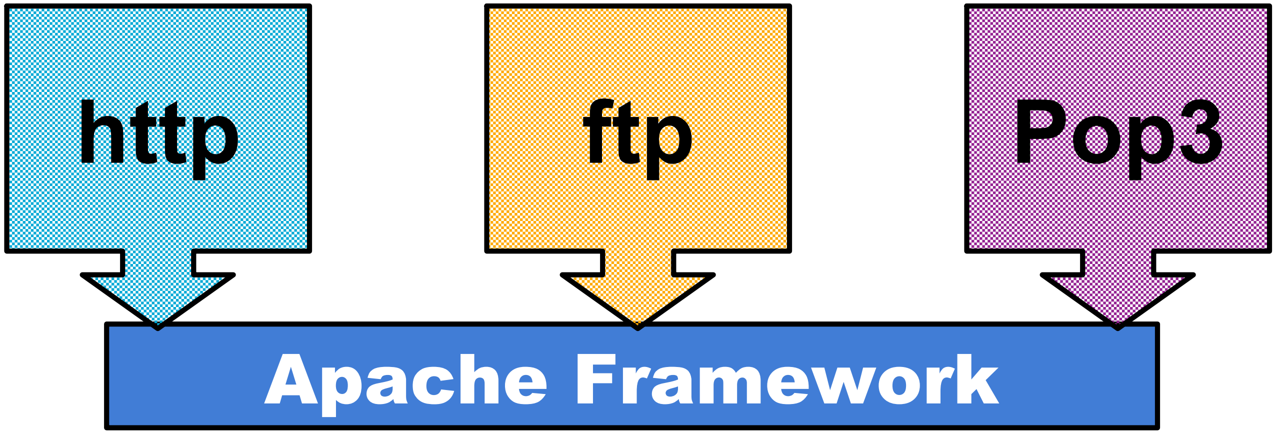
Protocol Modules

- Apache is no longer “just a Web server!"
- It is possible to create protocol modules
  - mod_perl 2.0 already supports PMs



http

ftp

Pop3

Apache Framework

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Apache Portable Run-time

- Apache 1.3 was ported to almost every platform imaginable
  - It only really worked well on Unix
  - The assumption was always Posix
- Apache 2.0 is ported to almost every platform imaginable
  - It works well on all of them
  - And can be ported to more platforms easily!
  - The Apache code is much cleaner!

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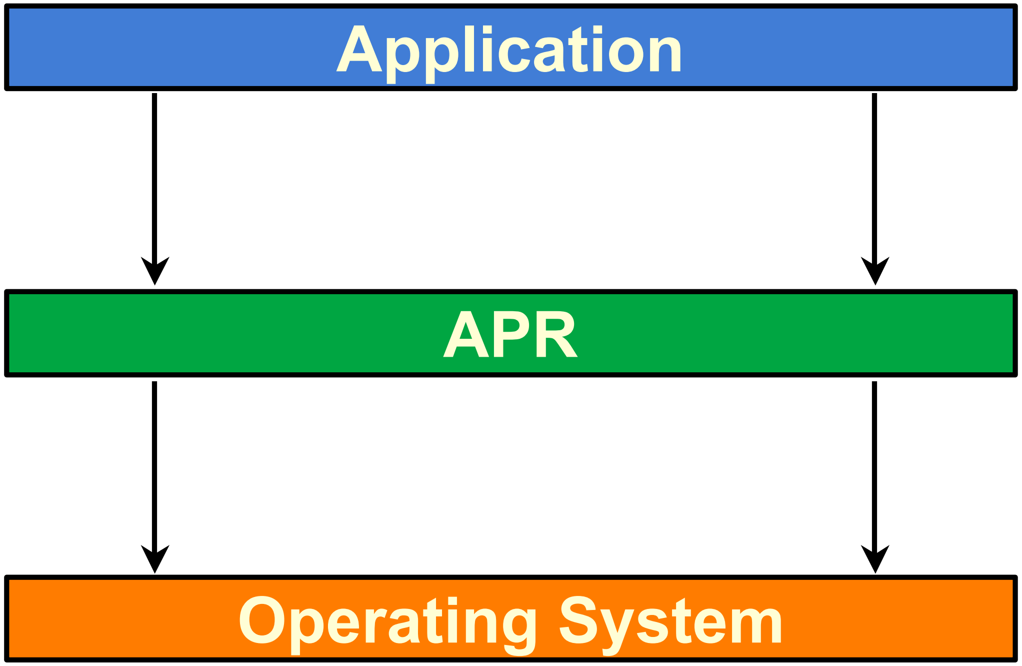
Apache Portable Run-time



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Migration from Apache 1.3

- Why Migrate?
  - Scalability improvements
  - Better utilization of server resources
  - More robust proxy implementation
  - Easier for in-house module development
  - Much better support for non-Unix platforms
  - Utilization of additional protocols
  - All new development focuses on 2.0
  - Build system uses GNU autoconf

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Migration from Apache 1.3

- Potential Gotchas
  - Changes in directives (some went away, like **Port**, and others are changed)
  - Availability of 3rd party modules (not yet ported to Apache 2.0)
  - Questions and concerns on thread-safeness of various modules (only a real concern with threaded MPMs)

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Migration from Apache 1.3

- How
  - Easiest migration
  - Look through httpd.conf
  - Most likely, stay with Prefork at first (same tuning as 1.3)
  - Move to Worker when appropriate
    - Check out modules and libraries
    - OS has good threading implementation?

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Migration from iPlanet/SunOne

- Why?
  - Apache is finally threaded!
  - Better performance and reliability
  - Open Standards / Open Source
  - Some question commitment to Web Server layer
  - More control for the Administrator
  - Leverage module availability

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Migration from iPlanet/SunOne

- Potential Gotchas
  - Very different configuration and administration
  - Does Apache provide the same “control” and capability that iPlanet/SunOne does?
  - Application Server “bundled in”
  - It’s a “sweet suite”

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Migration from iPlanet/SunOne

- How
  - Get up to speed on terminology differences (backup slides)
  - Prefork or Worker? Now no longer need separate iPlanet instances.
  - Look at dynamic content: what makes sense to port to server-side or application. In many cases, Tomcat helps!
  - Need AdminServer? Check out open source and commercial offerings.

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Migration from IIS

- Why?
  - Security!
  - Other “traditional” open source advantages
  - VERY similar native performance
  - Leverage the number of modules available for Apache
  - Opens up migration opportunities

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Migration from IIS

- Potential Gotchas
  - BIG cultural shift.
  - I need a GUI.
  - Does Apache interface with everything I need (MS centric infrastructure)?
  - Mistrust

Migration from IIS

- How?
  - For many, simple “drop in” replacement
    - Apache includes ISAPI interface
    - Commercial support for .NET
    - Some interfaces still not as clean as one would like
  - Protecting IIS via Apache Reverse Proxy
    - Eases migration path
    - Reduces risk with no decrease in functionality
    - Minimal impact on developers

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Thank you !

- Q&A
- That's all folks!

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Backup Slides

- Various backup slides

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iPlanet/Apache Comparison: Languages/Backends

- Netscape
  - CGI
  - Java (LiveConnect)
  - Javascript
  - SAF/NSAPI

- Apache
  - CGI
  - Java (Tomcat, JServ)
  - php, perl, lots
  - iAPI

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iPlanet/Apache Comparison: Directives

- Netscape
  - Init
  - AuthTrans
  - PathCheck
  - NameTrans
  - ObjectType
  - Service
  - Error
  - AddLog

- Apache
  - init (configs)
  - auth/check
  - access
  - translate
  - type_checker
  - handler
  - redirect()
  - log()

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iPlanet/Apache Comparison: Directives (Init)

- Netscape - Init
  - cache-init, init-clf, init-cgi

```
Init fn=load-modules
      shlib=/lib/msqlath.so
      funcs=msql_auth

AuthTrans fn=basic-auth
      auth-type=basic userfn=sql_auth
```

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iPlanet/Apache Comparison: Directives (Init)

- Apache: Init, Command Table

```
LoadModule msqlauth_module
      /lib/msqlauth.so

<Directory /private>
      AuthType Basic
      AuthmSQL_Table    foo
      ...
```

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iPlanet/Apache Comparison: “Homepage”

- Netscape 3.x
  - PathCheck fn=find-index index-names=index.html,home.html
- Apache 1.x
  - DirectoryIndex index.html home.html

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iPlanet/Apache Comparison: Error logging

- Netscape
  - Error fn=send-error code=401 path=/spot/errors/401.html
- Apache
  - ErrorDocument /spot/errors/401.html

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iPlanet/Apache Comparison: Extensible logging

- Netscape
  - AddLog fn=recordit name=browserlog Flex-log %Ses->client.ip%
- Apache
  - mod_log_config/CustomLog
    - “%a”

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iPlanet/Apache Comparison: Service

- Netscape
  - Service type=text/html method=GET fn=append-trailer trailer="<hr><img src=/logo.gif> Copyright 1995"
  - ‘parse-html’
- Apache
  - no direct equivalent
  - mod_include
  - mod_ext_filter

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iPlanet/Apache Comparison: SAF Interface

- Netscape
  - C
  - pb/pblock
  - sn/Session
  - rq/Request
  - Result Codes
  - Memory Mgt

- Apache 2.x
  - C, Perl, Java
  - conf/tables
  - session_rec
  - request_rec
  - Result Codes
  - pools

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iPlanet/Apache Comparison: SAF interface (2)

- Netscape
  - Write 'C'
  - each function maps to an directive
  - compile, link
  - edit obj.conf
  - restart

- Apache 2.x
  - Write C
  - each module has a set of directives and separate handlers
  - compile, link
  - edit httpd.conf
  - restart

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