



Accelerating HP-UX performance using NSA HTTP



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Agenda

- What is NSA HTTP ?
- When do you use NSA HTTP ?
- How do you configure NSA HTTP ?
- Where can you get relevant documentation ?

What is NSA HTTP?

- NSA HTTP stands for “Network Server Accelerator for HTTP”
- It is a HP-UX product which improves the performance of web servers.
- It improves performance by doing the following:
 - Caching frequently accessed web pages in the kernel
 - Executing in the interrupt context (Efficient event notification).
 - Avoiding user space to kernel context switches.
 - Avoiding data copy as much as possible.

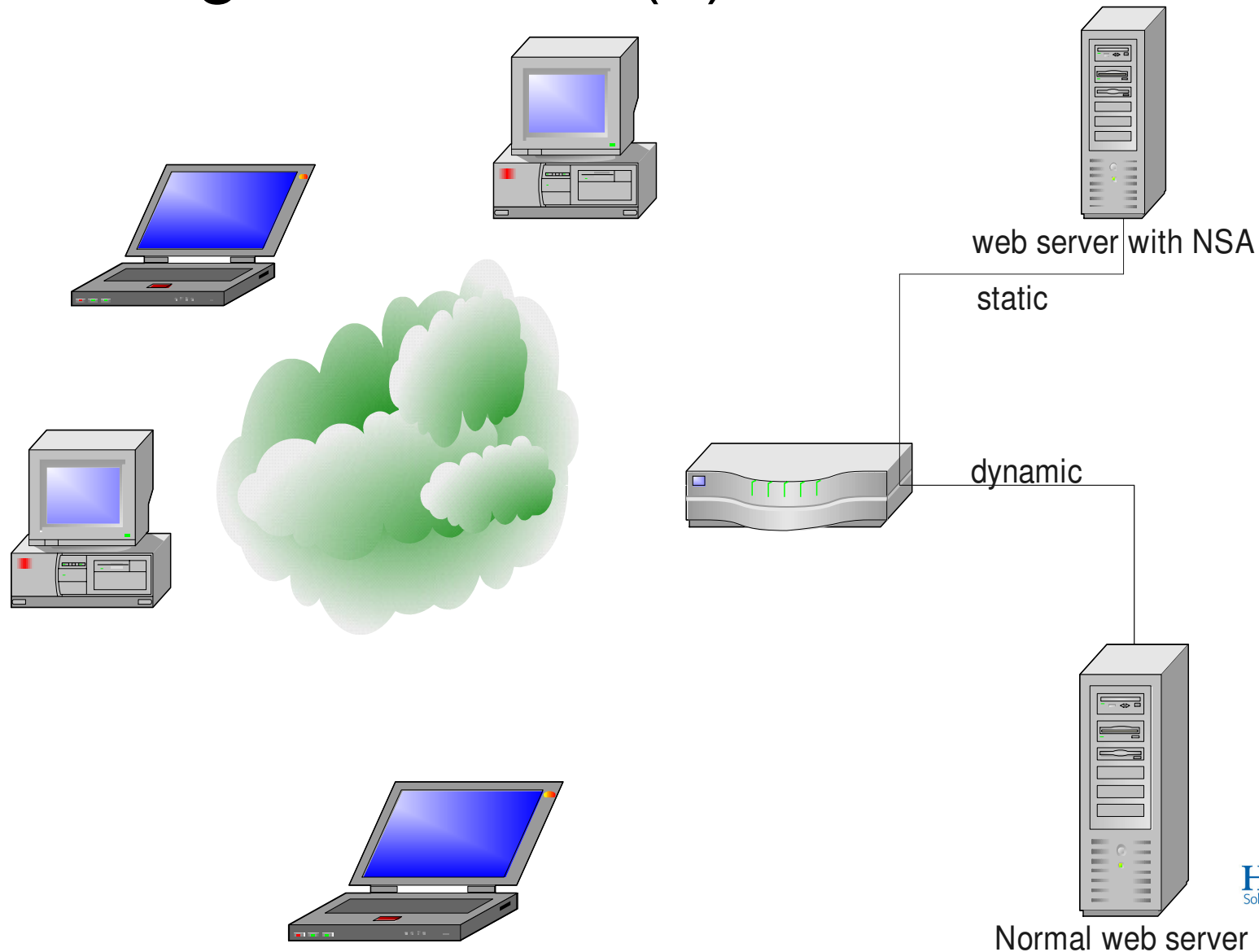


Salient Features

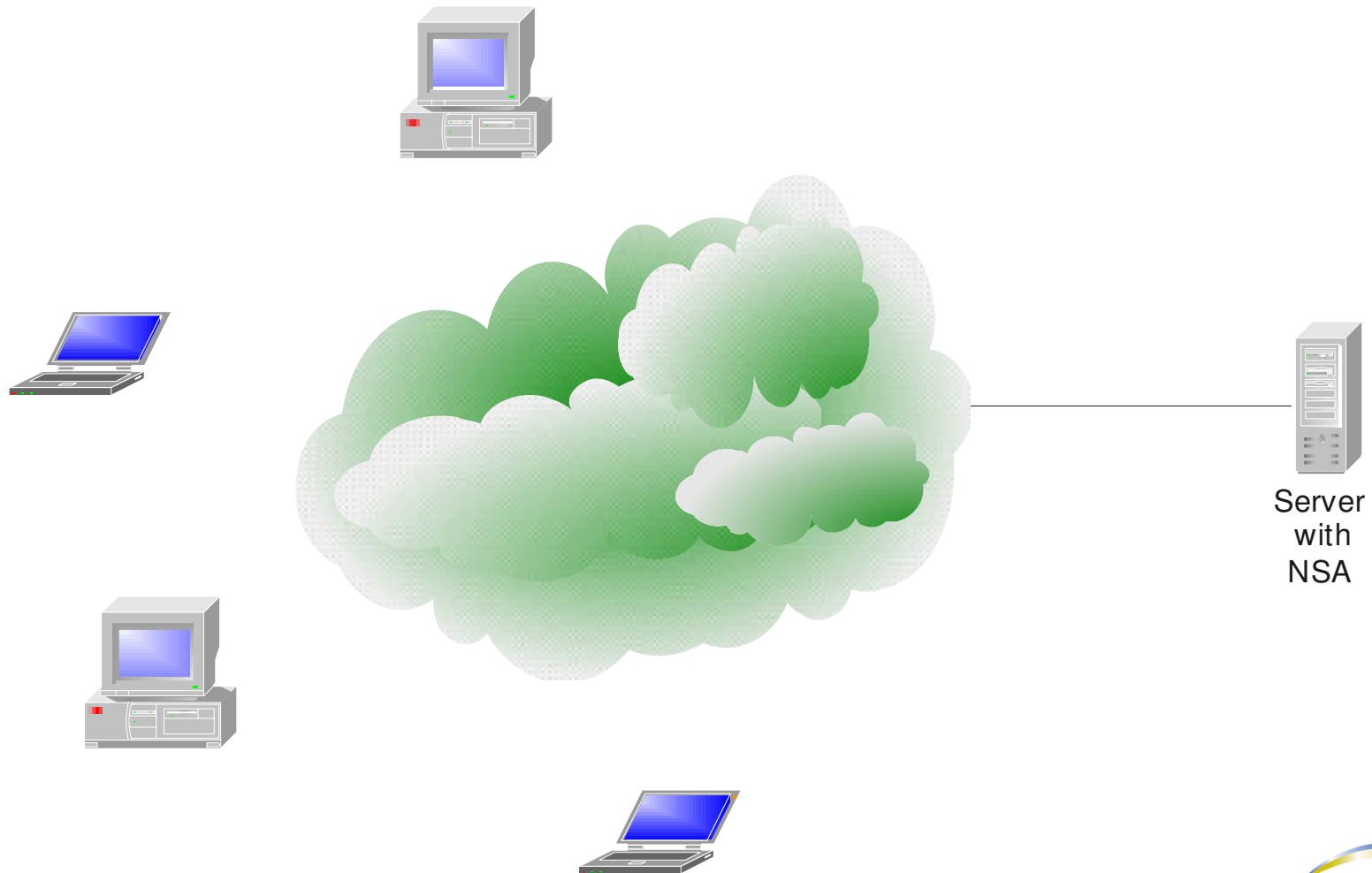
- Improves HTTP performance by as much as 60% for zeus server and as much as 100% for apache.
- Completely transparent to the web server. Hence can be used with any web server.
- Supports HTTP/1.1

When do you use NSA HTTP ?

Usage Scenario (1)



When do you use NSA HTTP? Usage Scenario (2)

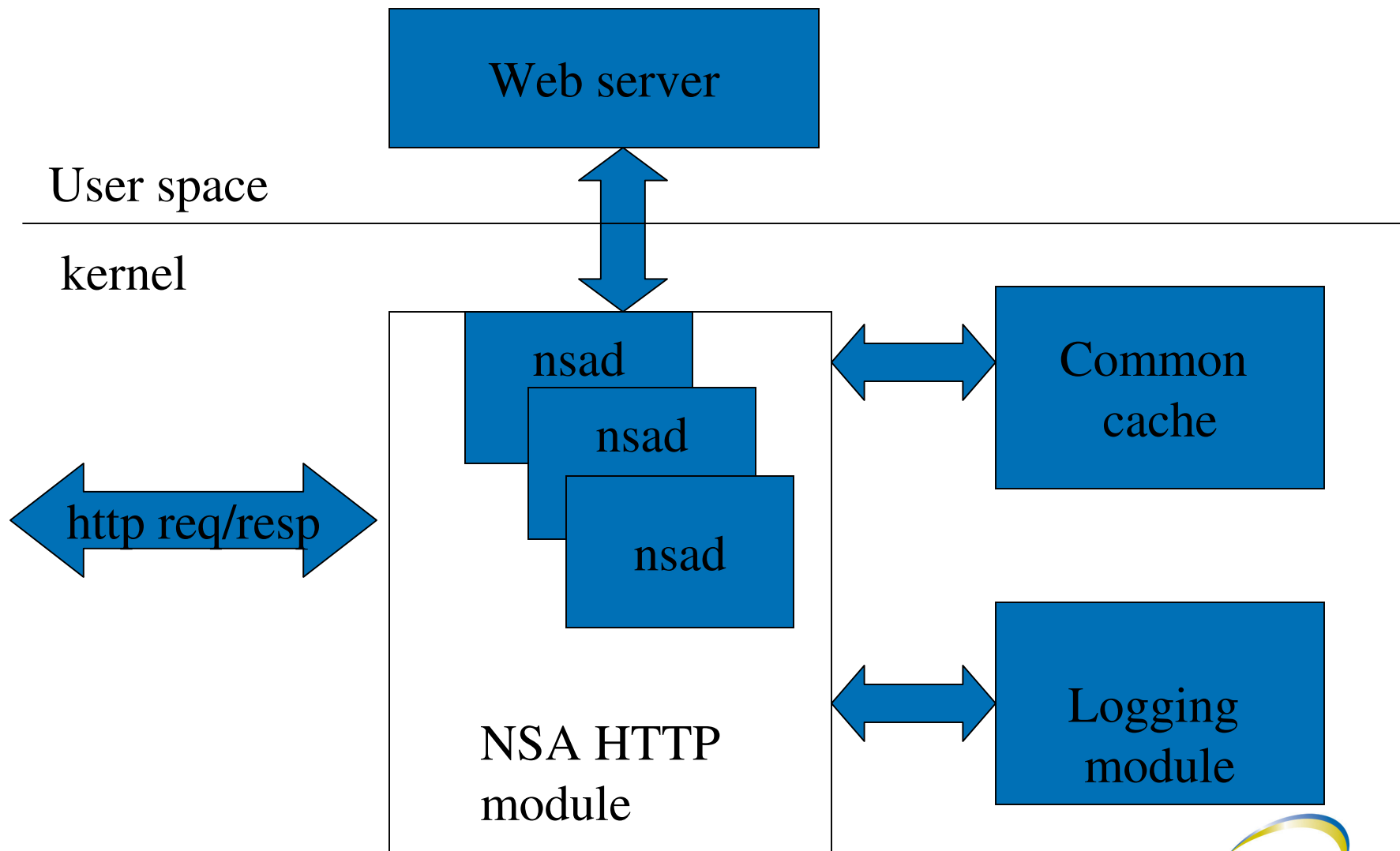




Where do you get NSA HTTP ?

- NSA HTTP is available as a web release at:
<http://software.hp.com>
- It is available on HP-UX 11i version 1(PA) and version 2.0(IPF):

NSA HTTP functional overview



Configuration

- Configuration of NSA HTTP can be classified into 3 different categories:
 - Logging
 - Cache
 - HTTP protocol processing.
- 2 different ways to configure NSA HTTP
 - Using the command `nsahttp(1)`
 - Using the configuration file (`/etc/rc.config.d/nsahttpconf`).

Configuration file

- /etc/rc.config.d/nsahttpconf
- Used when calling /sbin/init.d/nsahttp start.
- Format
 <Parameter> value1,value2, value3.

Starting/Stopping NSA HTTP

- To start NSA HTTP execute :
 - Stop web server
 - /sbin/init.d/nsahttp start
 - Start web server
- To stop NSA HTTP execute :
 - Stop web server
 - /sbin/init.d/nsahttp stop
 - Start web server



To Start NSA HTTP during boot time

- Edit /etc/rc.config.d/nsahttpconf and set the “NSAHTTP_ENABLE” equal to 1.
- NSA HTTP is started on port 80 by default. In order to enable NSA HTTP for a web server running on an alternate port set the parameter “Listen” to the corresponding port. Multiple ports can be specified separated by commas.

Logging.

- Following is the list of configurable options related to NSA HTTP logging, all these options can be set using the `nsahttp` command.
 - log file location
 - log format (binary vs. ascii).
 - enable/disable logging..

Log file location

- Each listen socket of the web server on which NSA HTTP is enabled creates a kernel thread called “nsad”. These threads do the logging for NSA HTTP.
- Each of these nsad’s creates a separate log file.
- The log file name is created with a configurable prefix/location followed by the PID of the nsad.
- The log files specify the port number on which it is listening as part of the header in the log file.

Log file location (Contd.)

- Configured using “nsahttp -f”
- Across boots by modifying the parameter “LogFile” in the configuration file.
- This option needs to be set before starting the web server.
- This option is applicable to all instances of NSA HTTP.

LogFormat

- Default is set to ascii. The format is very similar to CLF except that the timestamp contains number of seconds since 1970 and is not formatted.
- Modification takes effect only when the web server is stopped and restarted.
- Binary format can be converted to CLF using the command “nsahttp -c”.
- Takes effect for all the NSA HTTP instances on the system.

LogFormat (contd.)

- Set using the command: `nsahttp -F`
- Modify the “LogFormat” parameter in `/etc/rc.config.d/nsahttpconf` to preserve log format’s across reboots.
- Performance vs. Readability.

Configuration (cache).

- Common across all instances of NSA HTTP on a system.
- Cache is separate from buffer cache. So buffer cache needs to be also tuned to create more space.
- All the configuration parameters take effect immediately.
- Uses Least Recently used algorithm for aging out cache entries.

Max Data Size

- Max data size
 - maximum data size that can be cached.
 - more number of cache hits vs. single large cache hit.
- Set using “nsahttp -m” and also by modifying “MaxURIDataLen” parameter in the configuration file.

Cache Max Pct

- Cache max percentage.
 - maximum percentage of kernel memory used for cache.
 - memory vs. performance.
- Needs to be modified in conjunction with the buffer cache values.
- Using `nsahttp -C`
- `CacheMaxPct` in `/etc/init.d/nsahttpconf`

Cache timeout

- Cache timeout
 - timeout for aging cache entries.
 - stale entries vs. more cache hits.
- Set using `nsahttp -e`
- “CacheTimeout” in `/etc/init.d/nsahttpconf`

Protocol Configurations

- Port configuration
 - - Enabled using `nsahttp -p`
 - Disable using `nsahttp -D -p`
 - Use Listen Parameter in the configuration file.
- Persistent Timer (HTTP/1.1).
 - - Set using `nsahttp -t`
 - Use “PersistentTimeout” parameter in the configuration file

Statistics

- Following statistics are collected.
 - Number of incoming connections
 - Number of cache hits
 - Number of Cache misses
 - Data Cache size

Debugging NSA

- Access Log files
 - Just to verify whether there are cache hits.
- Check if NSA HTTP is running by doing:
`ps -ef | grep nsad`
- Statistics
 - Use `nsahttp -s`



Related Documentation

- white paper
<http://docs.hp.com>
- man pages and release notes.





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