

# Naxsi performance measurement

Lutz Engels    Dennis Pellikaan

University of Amsterdam  
System and Network Engineering

March 26, 2013



# Outline

- 1 Naxsi
- 2 Research questions
- 3 Results

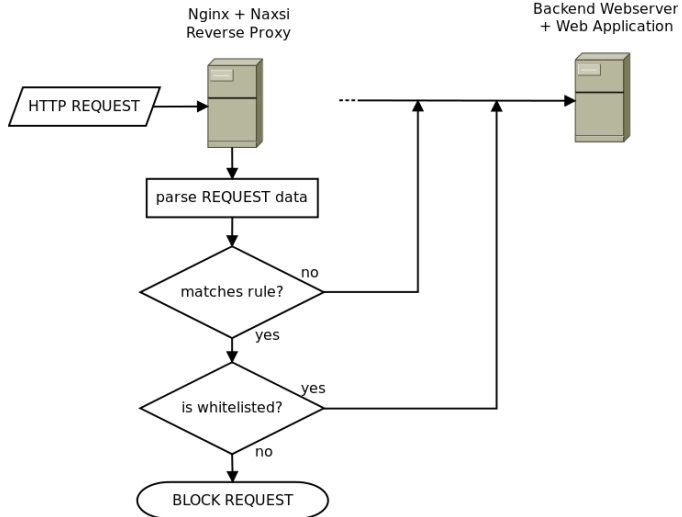


# What is a Naxsi?

- Nginx Anti Xss & Sql Injection
- Web Application Firewall
- Module Nginx webserver
- Designed as reverse proxy



# Naxsi request flow



# Whitelist processing

- HTTP requests parsed
  - divided into zones:
  - ARGS (GET arguments), URL (the full URI), BODY (POST arguments), as well as Cookie http header
- Core rules
  - RegEx
  - unique IDs
- White lists and Specific Rules
  - define strictness



# Research Question(s)

"How does Naxsi influence the performance of the Nginx webserver?"



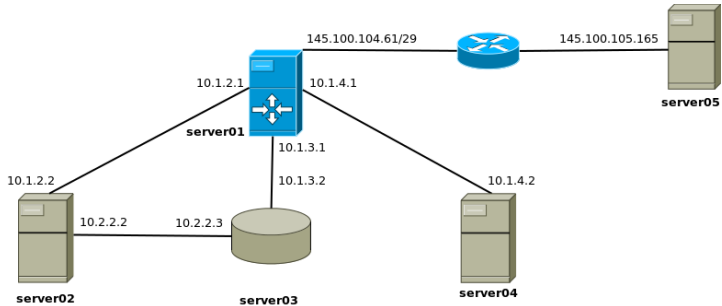
## Research Question(s)

"What is the performance of Nginx firewall when Naxsi is isolated?"

"What is the performance of the Nginx firewall in a real life scenario?"



# Experimental setup



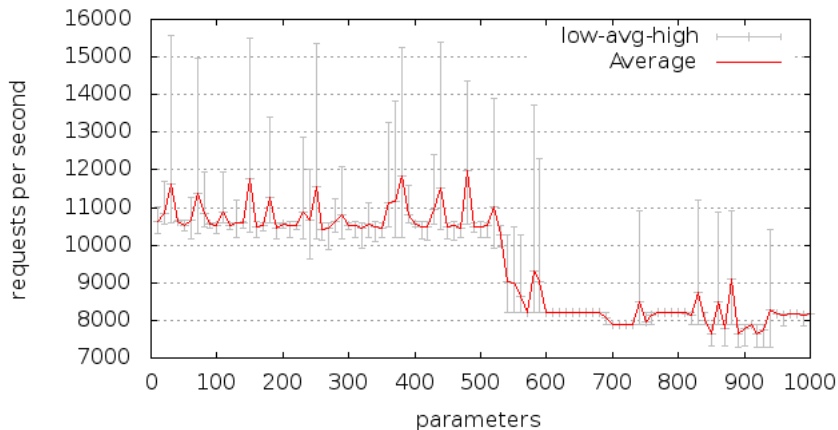


# Approach

- Naxsi isolation (HTTP 200 OK)
  - Baseline performance measurement
  - Incrementing URL parameters
- Real-life scenario (Wordpress)
  - Baseline performance measurement
  - Incrementing URL parameters



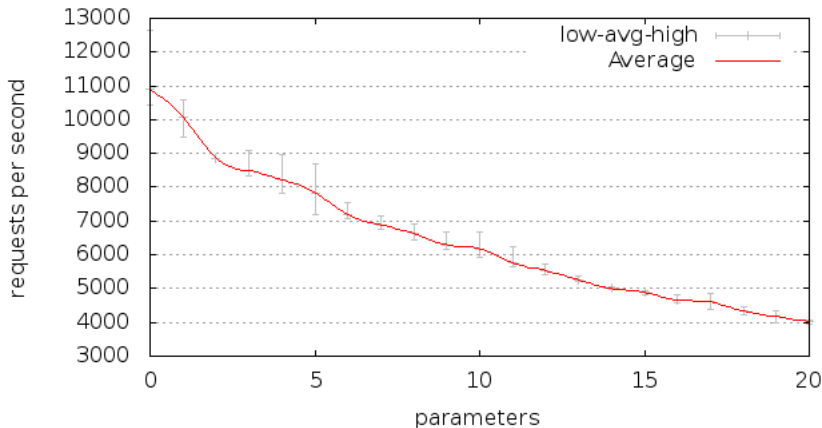
# HTTP 200 OK: baseline performance measurement



# HTTP 200 OK: incrementing allowed URL parameters

`http://example.com/?foo1=bar1`

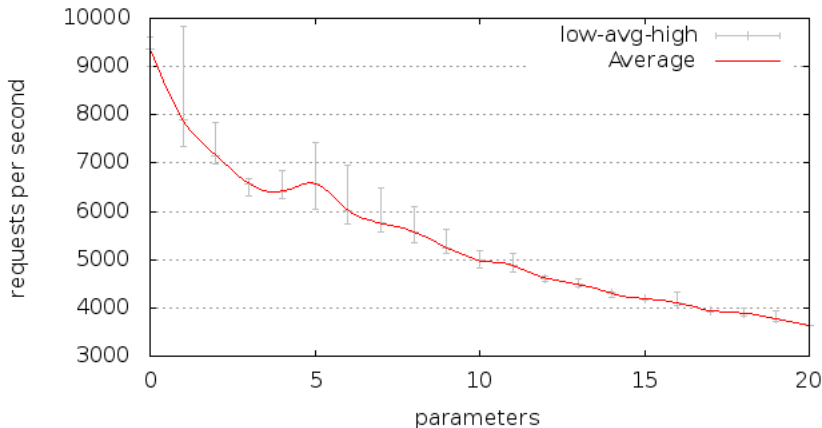
`http://example.com/?foo1=bar1&foo2=bar2`



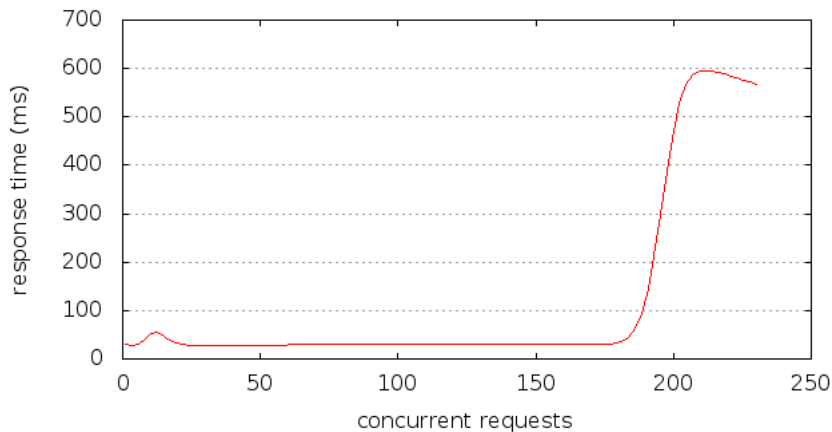
# HTTP 200 OK: incremting disallowed URL paramters

`http://example.com/?../`

`http://example.com/?foo1=bar1&../`



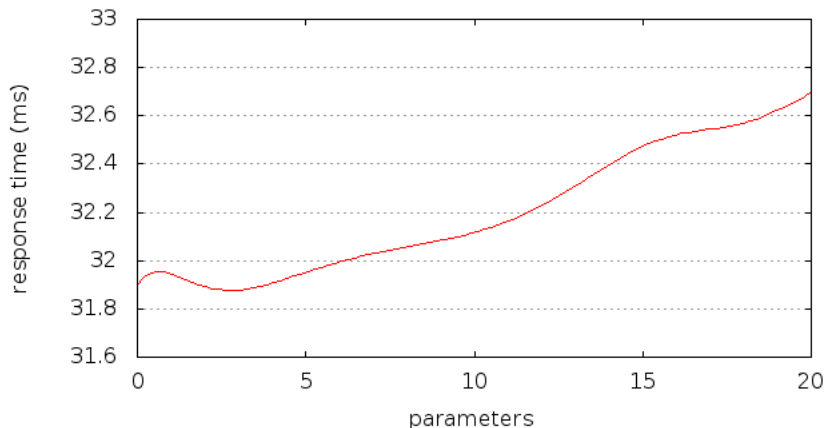
# Wordpress: baseline performance measurement



# Wordpress: incrementing allowed URL parameters

`http://example.com/?foo1=bar1`

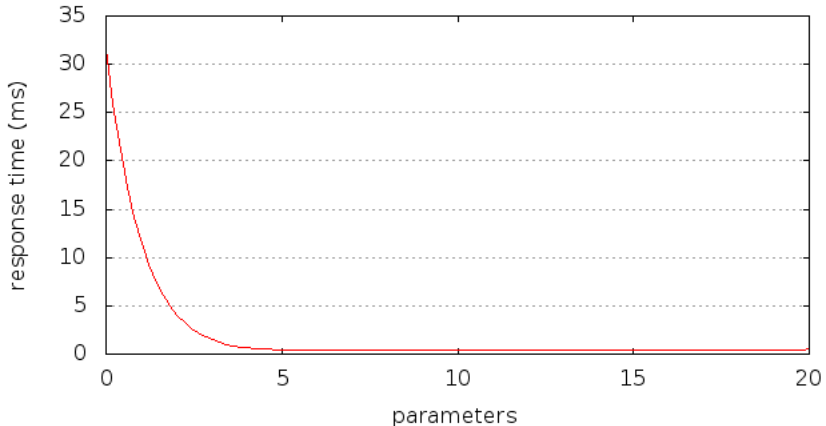
`http://example.com/?foo1=bar1&foo2=bar2`



# Wordpress: incrementing disallowed URL parameters

`http://example.com/?../`

`http://example.com/?foo1=bar1&../`



# Conclusion

- Naxsi has a low overhead on system resources
- The value of Naxsi depends on the application that needs to be protected
- Naxsi is flexible and allows for different applications to be protected with a different rule set





# Questions

Questions?

