HTTP is your architecture International PHP Conference Spring Edition

Kore Nordmann (@koredn) Tobias Schlitt (@tobySen)

May 31, 2011

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► Degree in computer sience



- ▶ Degree in computer sience
- ► More than 10 years of professional PHP



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- Degree in computer sience
- ► More than 10 years of professional PHP
- ► Open source enthusiasts
- Contributing to various FLOSS projects



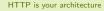
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HTTP is your architecture

Outline

Introduction

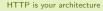
HTTP

Taking it further

Conclusion

Aspects of a web application

- ► Scalability
- Reliability
- ► Simplicity
- Usability
- Security
- Standard Compliance



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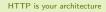
LCoDC\$SS

LCoDC\$SS

▶ Who heard of this term before?

LCoDC\$SS

- Who heard of this term before?
 - ► This **is** HTTP. [Fie00]



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LCoDC\$SS

Layered CoDC\$SS

Layered Code on Demand C\$SS

Layered Code on Demand Client \$S Server

Layered Code on Demand Client Cached S Server

Layered Code on Demand Client Cached Stateless Server

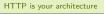
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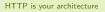
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HTTP

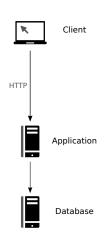
Layered architecture

Request semantics
Stateless server

Code on demand



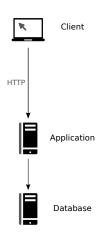
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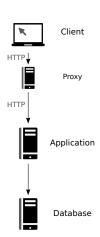
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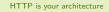
► What is required?



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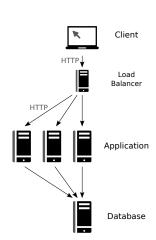
- ► What is required?
 - ► Request semantic

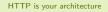




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- ► What is required?
 - Request semantic
 - Stateless server





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Outline

HTTP

Request semantics

request semantics

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Code on demand



- ► Well known
 - ► GET
 - ► POST

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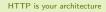
- Mostly unknown
 - ► HEAD
 - ► OPTIONS
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 - ► MKCOL
 - ► PROPSET
 - FRUFSE.
 - ► PROPGET
- ▶ Use any you want...

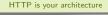


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 - Varnish / Squid
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- ► Layered Code on Demand Client Cached Stateless Server

Is your search form broken?

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 - Search results may not be cached

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 - ► Search results may not be cached
- ▶ No bookmarking of search results

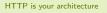


HTTP is your architecture

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► POST

► PUT



- ► POST
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► PUT

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- Examples
 - ▶ Updating account data using (PUT /users/42)
 - Create a new resource with known identifier



HTML 5 is broken!

Using PUT and DELETE as HTTP methods for the form element is no longer supported. [vK10]

$$f(x)=f(f(x))$$

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- Everything but POST has to be idempotent
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- ▶ Idempotence is a useful property in all messaging systems

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- You may want to use something like
 - \$request->parameters
 - \$request->body

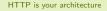


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- ▶ But if you implement them, they must obey to semantics
- ► Sorry, your website is not HTTP, if you . . .
 - ...are using POST for a search form.
 - ... are using POST for data updates.



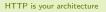
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HTTP

Request semantics

Stateless server

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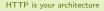


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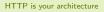


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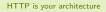
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 - Simplicity

Share nothing!

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 - ► Clean PHP instance for each request
 - By default no shared resources

App servers usually suck!



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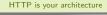
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 - ► Database server?
 - ► File access?
- App servers usually suck!

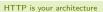


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Outline

HTTP

Layered architecture Request semantics Stateless server Code on demand



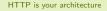
In the code-on-demand style, a client component . . . receives that code, and executes it locally. [Fie00]

Do you deliver code on demand?

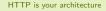
- ▶ Do you deliver code on demand?
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Security

Code generation is the root cause for webb application security problems.

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Escape for target context / language (XSS)

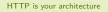
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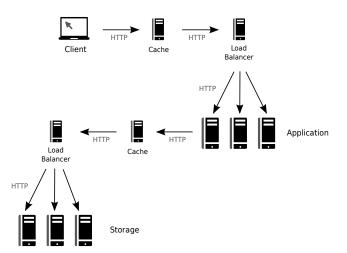
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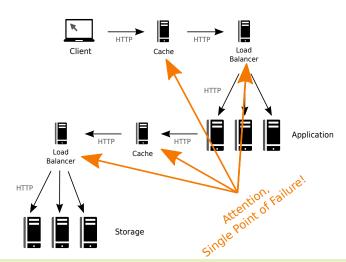


Embrace HTTP



HTTP is your architecture

Embrace HTTP



HTTP is your architecture



Use HTTP actively

- Semantic HTTP methods
- ► URIs (address resources)
- Status codes
- ▶ Headers
 - Cache control
 - Content negotiation
 - **.** . . .

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 - ► Follow resources / concept character of URIs
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HTTP is your architecture

- ▶ What is REST actually?
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 - HATEOAS
 - Hypermedia as the Engine of Application State [Fie00]



- What is REST actually?
 - ► "New" style web services
 - ► Follow HTTP / LCoDC\$SS
 - ▶ Follow resources / concept character of URIs
 - Use proper status codes
 - HATEOAS
 - Hypermedia as the Engine of Application State [Fie00]
 - Short: Use hyper links to delegate client



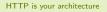
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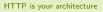
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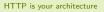
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Use HTTP!



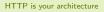
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Use HTTP, properly!



Q/A

Questions? Comments? Feedback?



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- Organizers
- ► You!

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Thanks for listening

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- Kore Nordmann
- kore@qafoo.com
- @koredn / @qafoo

- ► Tobias Schlitt
- toby@qafoo.com
- @tobySen / @qafoo

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