

TREX WORKSHOP 2013

THE CLOUD AND ITS EFFECTS ON WEB DEVELOPMENT

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Relevantum


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The arrival of the Cloud

Comparing the environments

Effects on Web Development

Conclusions

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Conclusions

The arrival of the Cloud

- Cloud computing has gained notable popularity in a few years
- Cloud services are rather easy to use
 - Especially cloud platforms require zero setup effort
 - Makes cloud hosting available to many developers

The arrival of the Cloud

- Cloud platforms have been rather naively advertised
 - Advertising oversimplifies the cloud
 - Causes difficulties in understanding what is happening under the hood

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Comparing the environments

- Single-server environment
- Clustered environment
- Cloud computing in a nutshell

Single-server environment

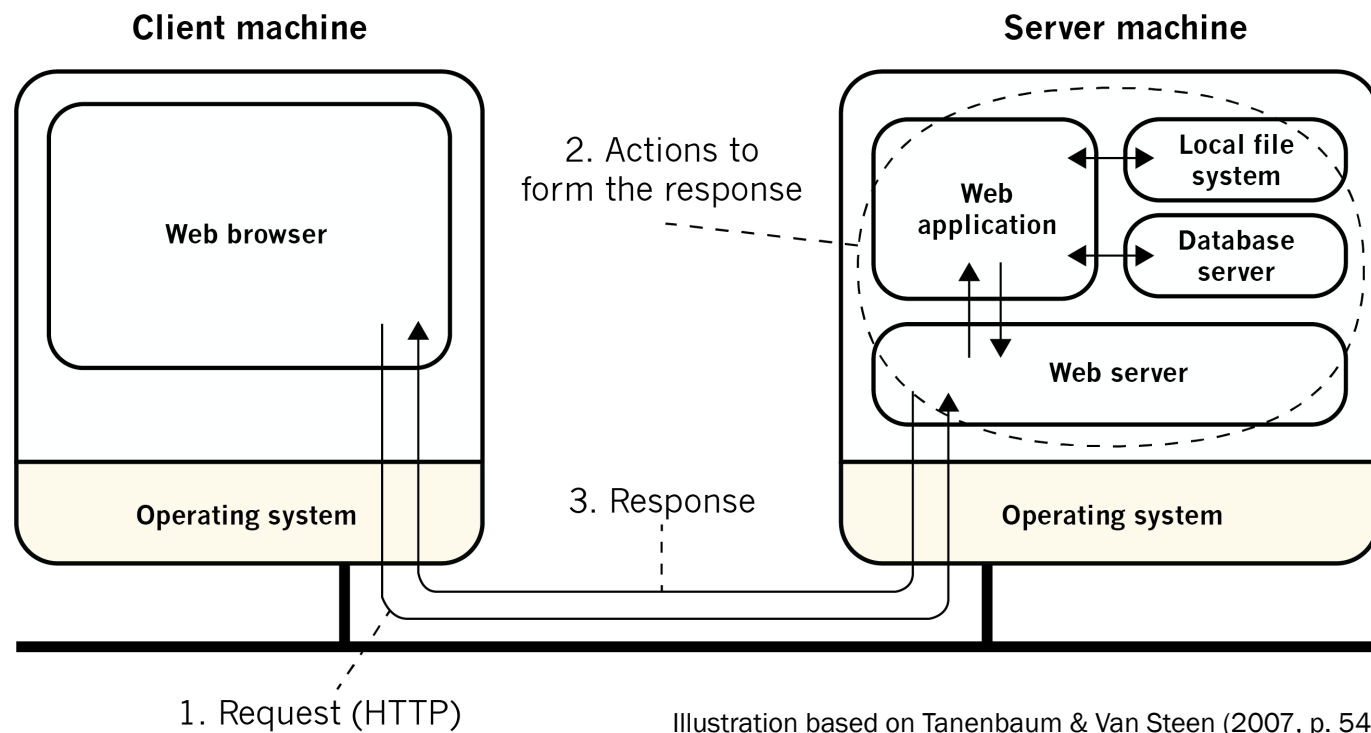


Illustration based on Tanenbaum & Van Steen (2007, p. 547)

Clustered environment

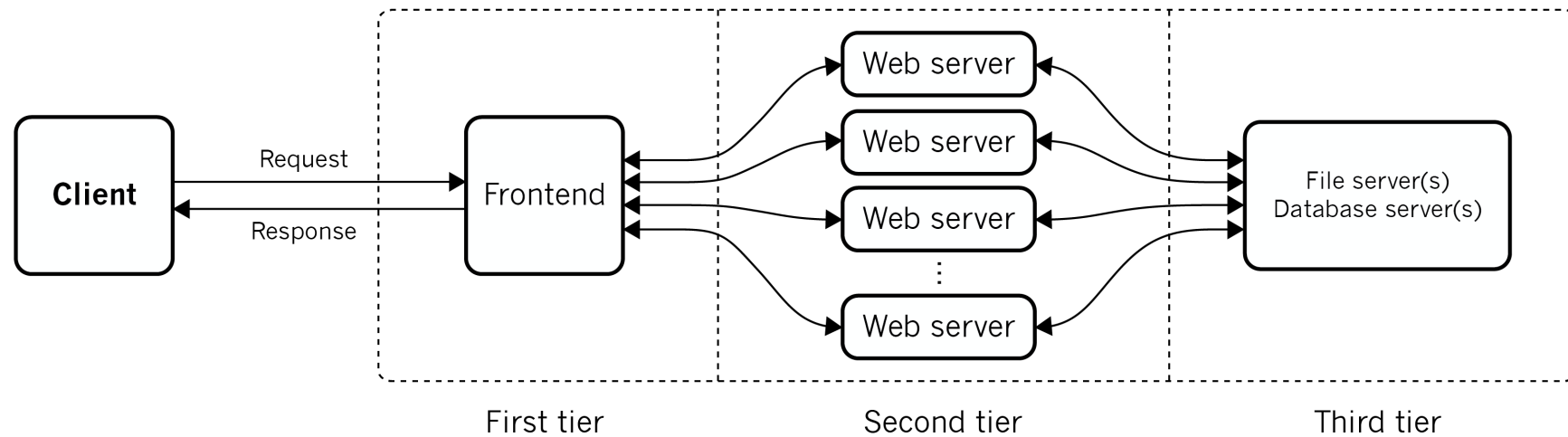


Illustration based on Tanenbaum & Van Steen (2007, p. 93; 2007, p. 558)

Cloud computing in a nutshell

- A definition of cloud computing
(Mell & Grance 2011 & Armbrust et al. 2010)
 - Rapid provisioning of configurable, on-demand computing resources
 - Minimal management effort or service provider interaction
- It is required of a cloud application that it is hosted in a way that meets the above requirements

Cloud computing in a nutshell

- Common service models in cloud computing
 - Software-as-a-Service (SaaS), Platform-as-a-Service (PaaS), Infrastructure-as-a-Service (IaaS)
 - Each model abstracts the underlying implementation
- Benefits of using cloud services are obvious
 - IaaS: Scalability, elasticity, instant allocation of resources, ...
 - PaaS: Deployment automation, zero maintenance, ...
 - SaaS: Software on-demand, integration via HTTP APIs, ...

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Effects on Web Development

- Web frameworks are often used as a basis in web application projects
 - Frameworks include built-in practices and assumptions regarding e.g. the server setup
- Features such as sessions and file uploading may not work out-of-the-box in cloud context

Effects on Web Development

- Key problems:
 - Web frameworks have matured in the single-server environment
 - Cloud's architecture and practices invalidates framework features that are valid in single-server context

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Conclusions

- Developing with web frameworks requires acknowledging the new environment
- Web frameworks are evolving in a direction that may complicate their use in cloud context
- Lack of proper cloud support in web frameworks
 - Support is often provided by the cloud provider
 - Easy-to-follow tutorials and framework support make cloud services attractive to developers

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References and further reading

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