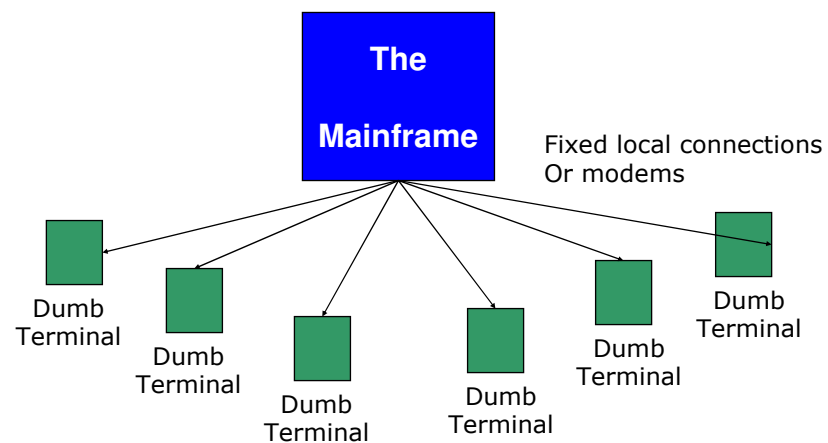


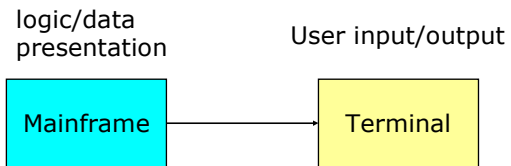
Distributed systems: an architectural view

Once upon a time...

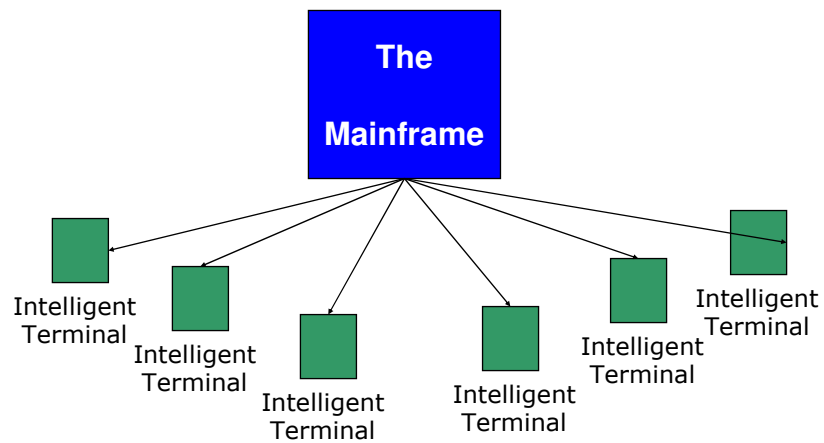


All of the work is done at the center

Mainframe

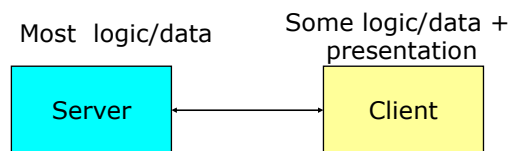


Once upon a time...



Some work is done on the periphery: the client-server paradigm

Client server

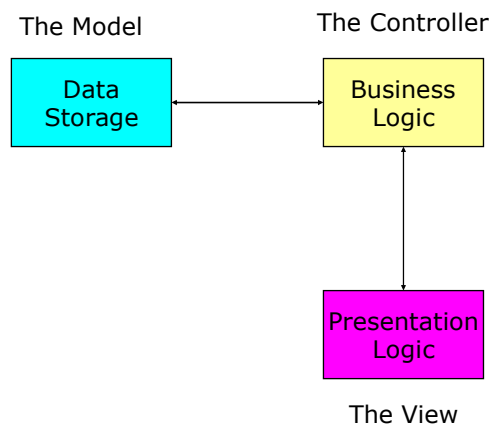


Enabled by:

- the Personal Computer / Workstation
- the Internet (TCP/IP)

Client server - evolution

Three tier architecture



Client server - problems

Part of the BUSINESS LOGIC is performed on the periphery:

The new version nightmare...

The Web – Back to the old model!

Web Server 1

Web Server 2

Web Server 3

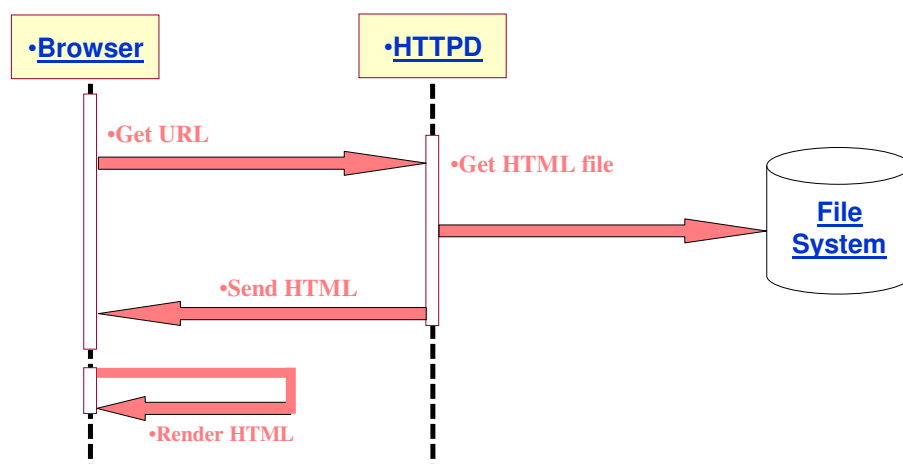
Thin client

General purpose

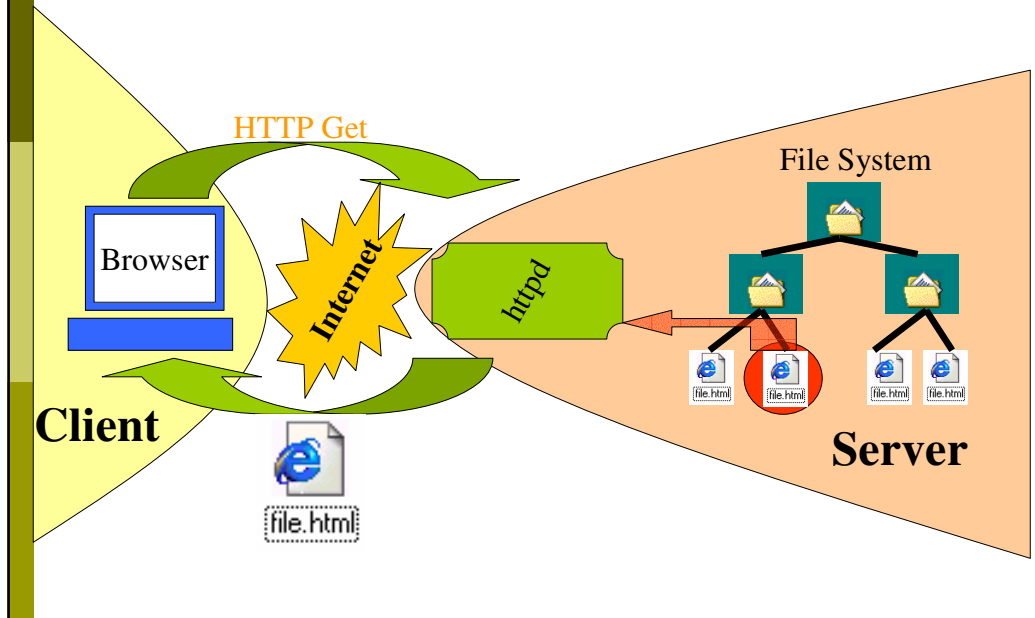
```
graph LR; WS1[Web Server 1]; WS2[Web Server 2]; WS3[Web Server 3]; TC[Thin client]; WS2 <--> TC;
```

The Web: an architectural view

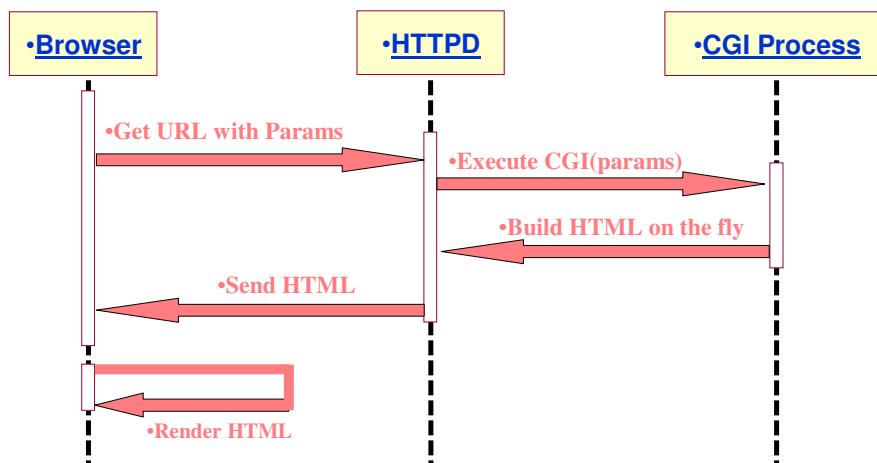
The primitive Web model



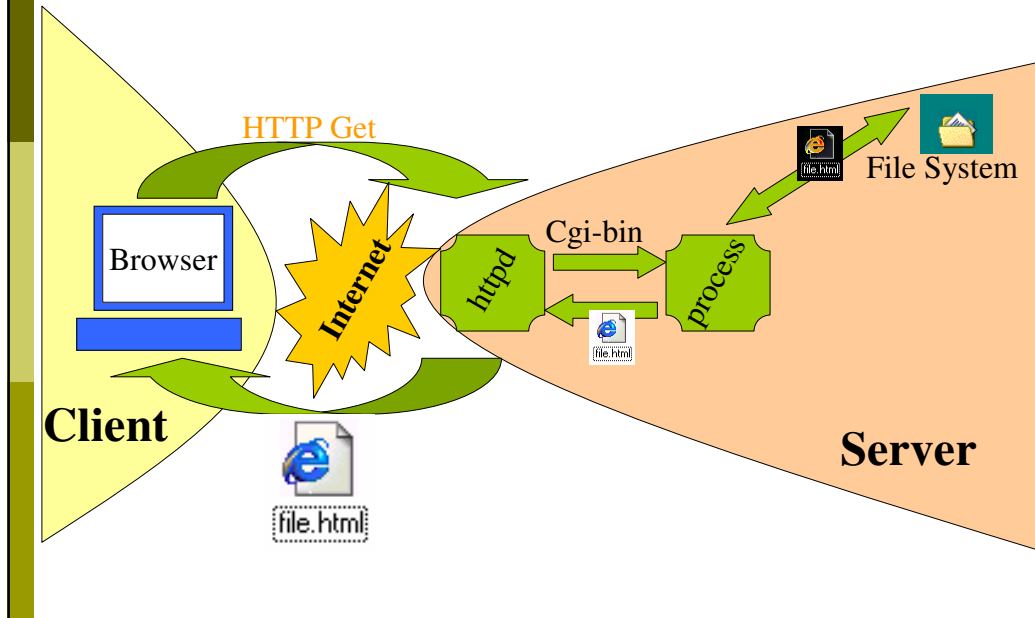
The primitive Web model



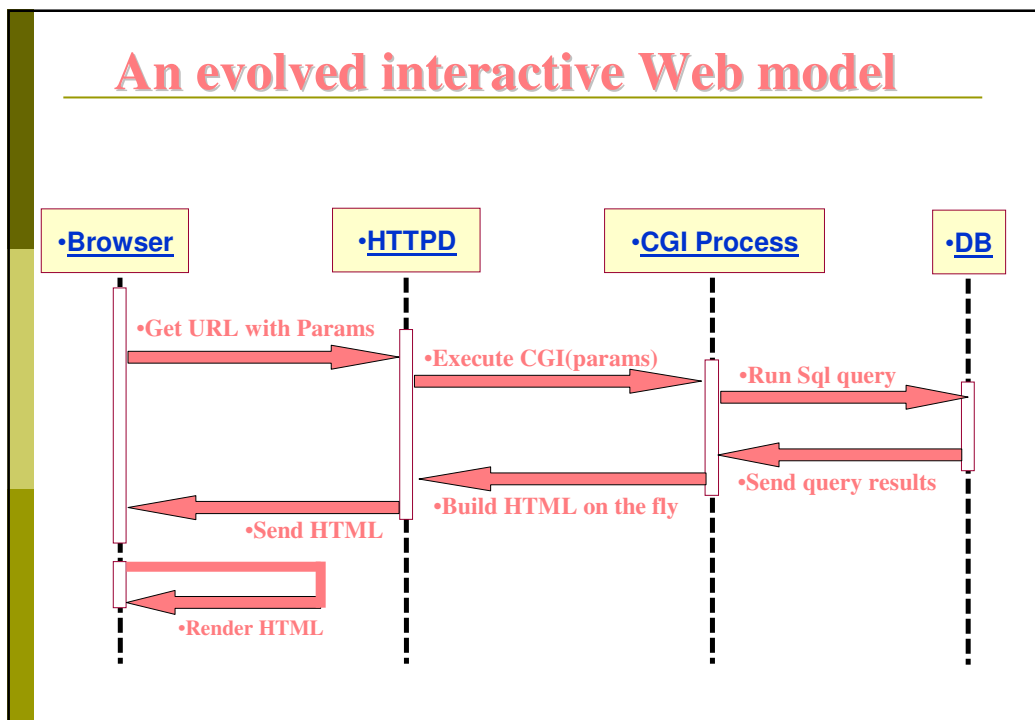
A simple interactive Web model



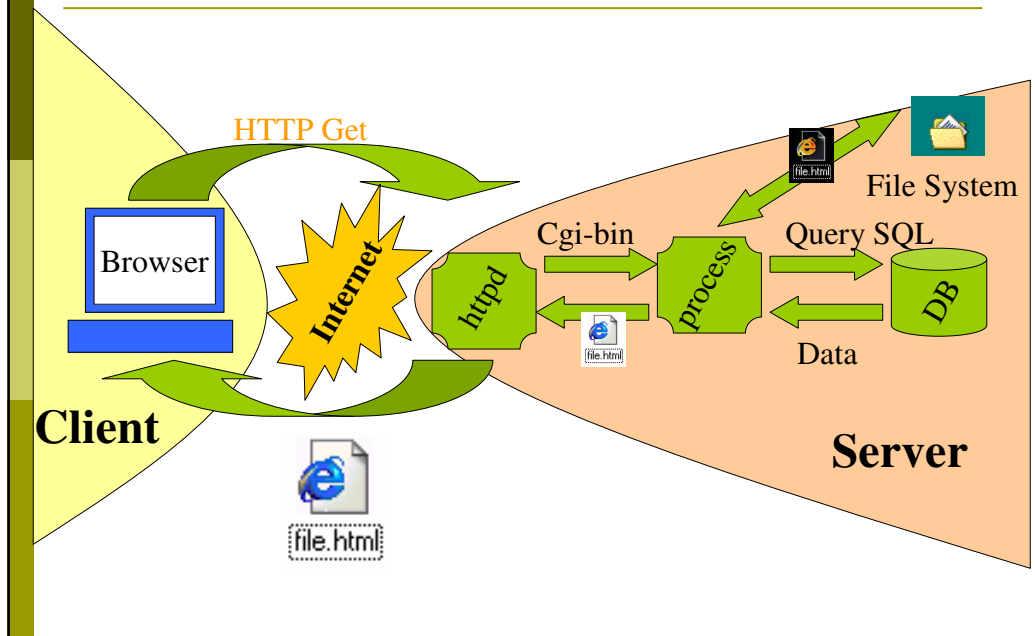
A simple interactive Web model



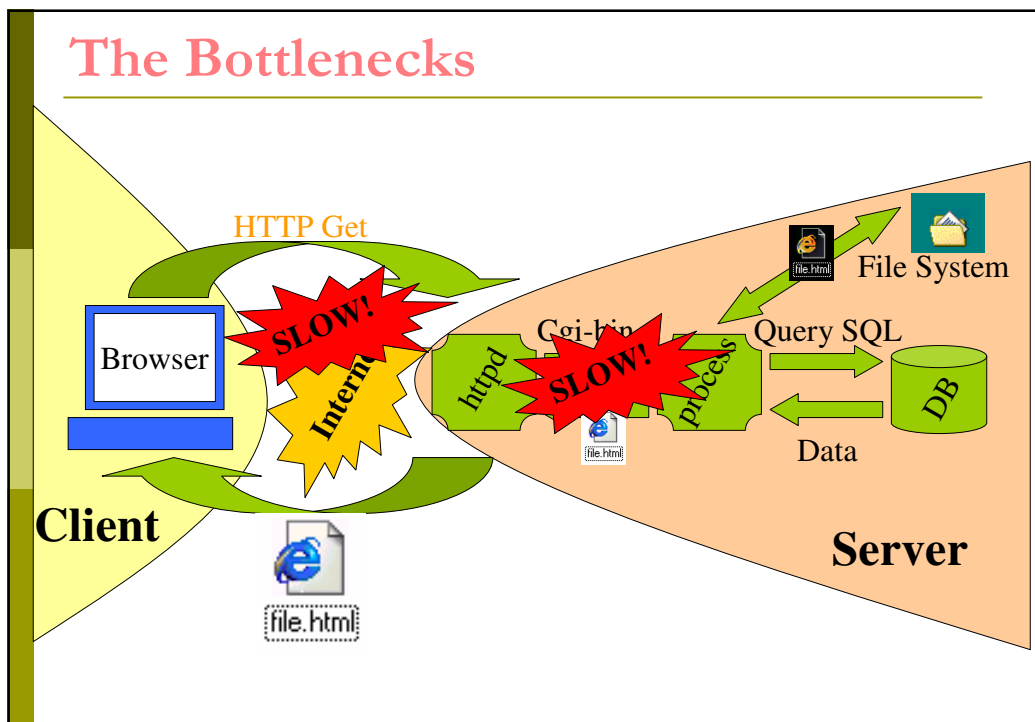
An evolved interactive Web model



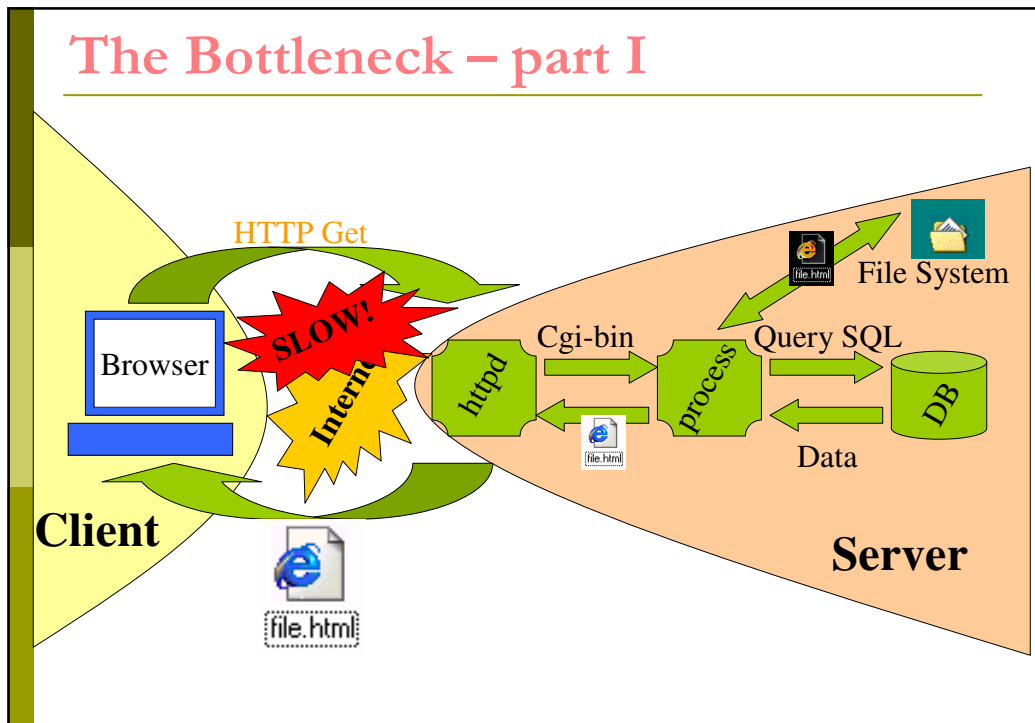
An evolved interactive Web model



The Bottlenecks

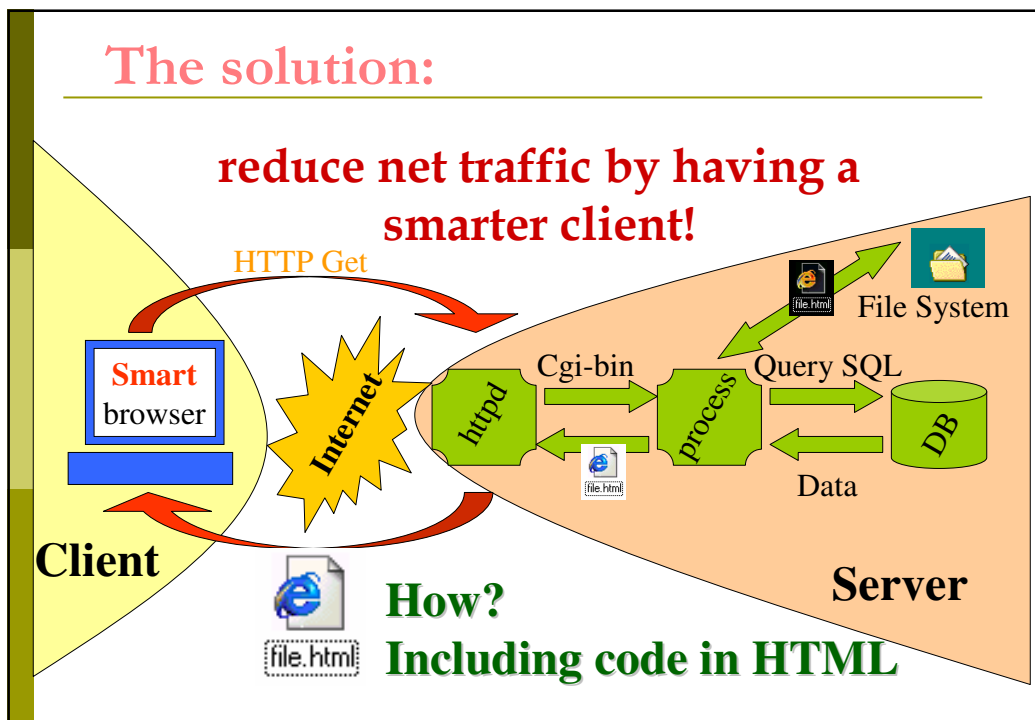


The Bottleneck – part I



The solution:

reduce net traffic by having a smarter client!



Enabling technologies

(must be
HW-OS-Browser
independent!)

Smart
browser

Client

Scripting languages

- Javascript
- Vbscript
- Perlscript
- Python
- ...

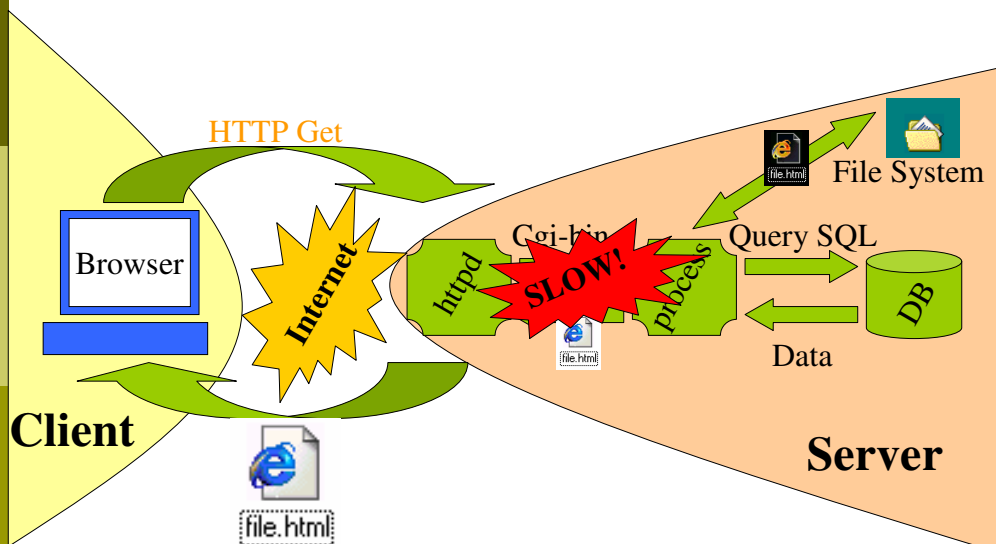
Interpreted:
Source code travels

Programming languages

- Java

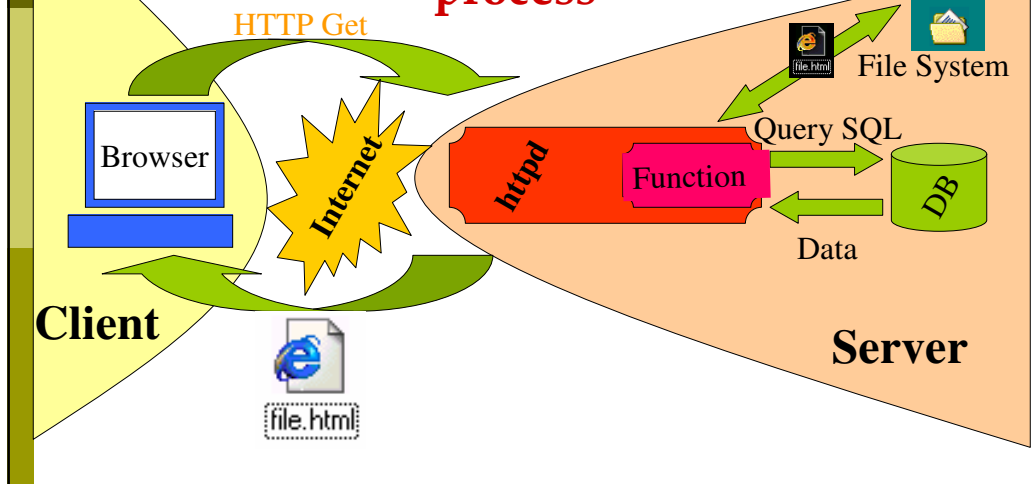
Compiled:
Executable travels

The Bottleneck – part II



The solution:

integrate the service into the httpd process



Enabling technologies

(depending on server implementation)

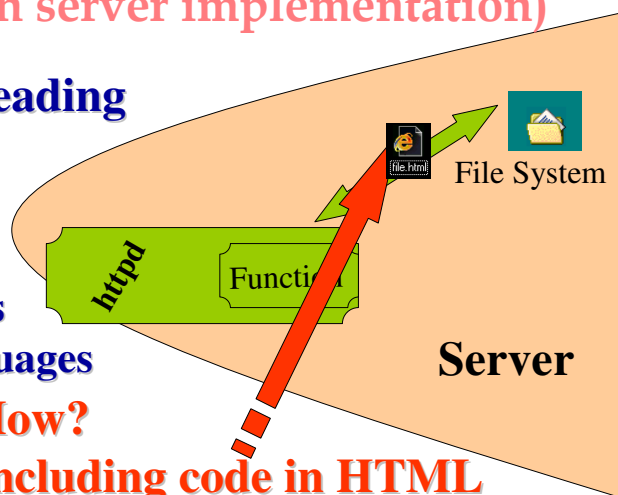
- Multithreading
- DLL
- Servlets

Using...

- Scripting languages
- Programming languages

How?

Including code in HTML



mixed client- and server-side scripting

<HTML>

...

<SCRIPT LANGUAGE=VBScript RUNAT=SERVER>

...VBScript Commands...

</SCRIPT>

...

<% VBScript Commands %>

ASP Syntax

...

<SCRIPT LANGUAGE=JavaScript>

...JavaScript Commands...

</SCRIPT>

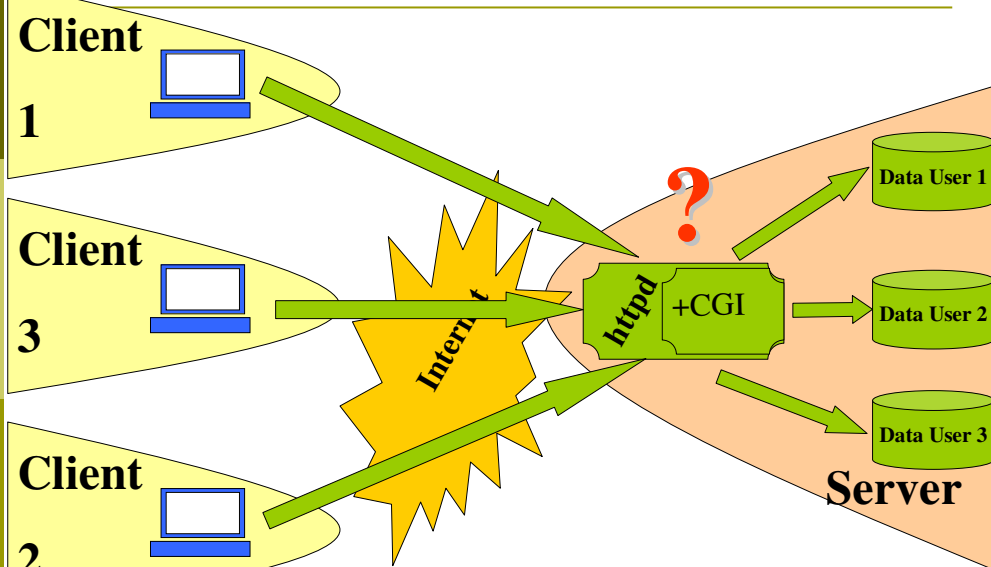
...

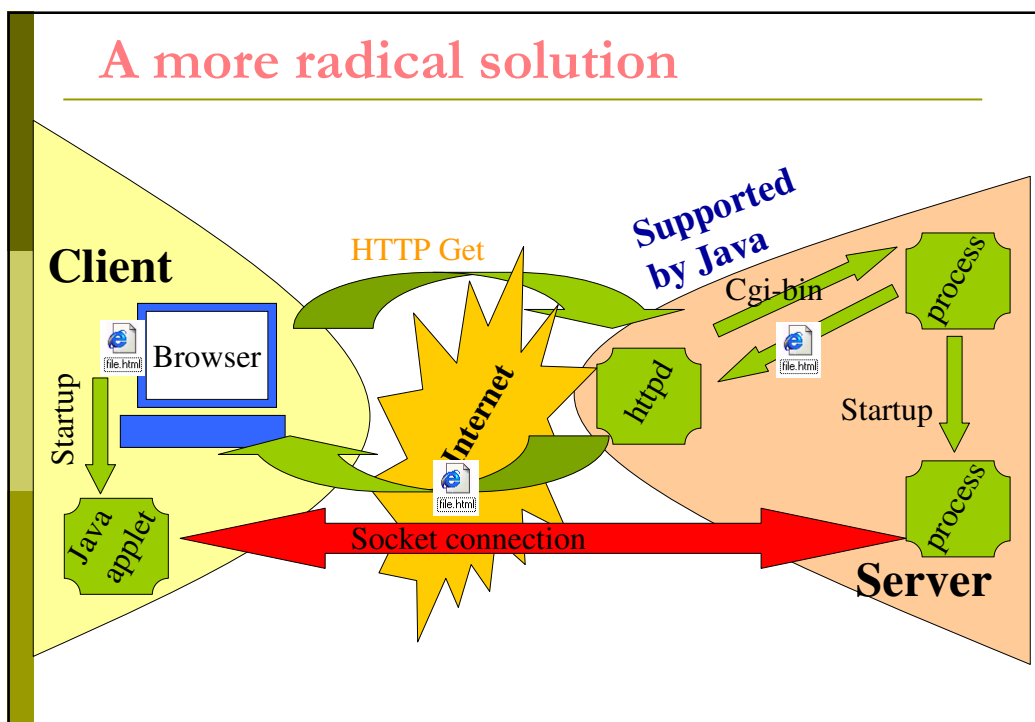
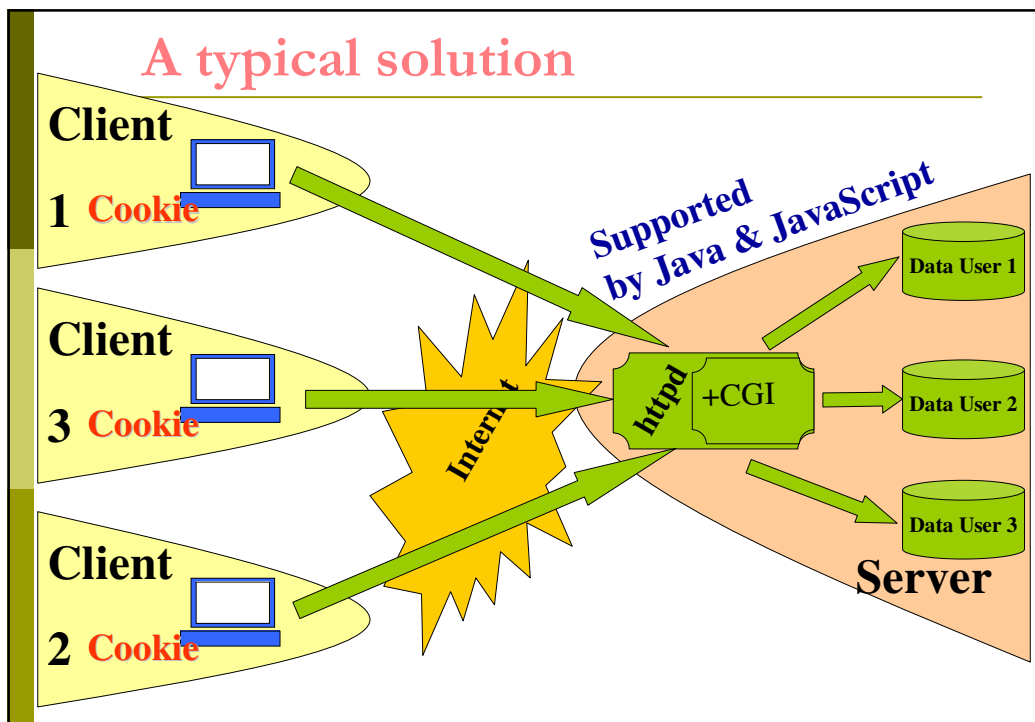
</HTML>

**Code transferred to the client
and interpreted by the Browser**

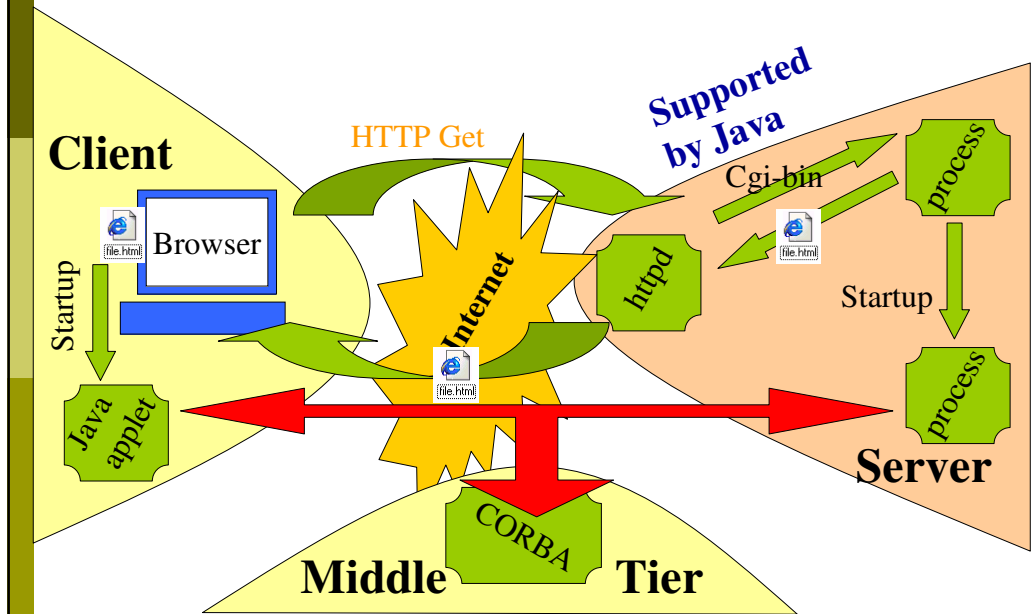
**Code executed
by the Server
BEFORE the
page is
transferred
over the Net**

The state problem

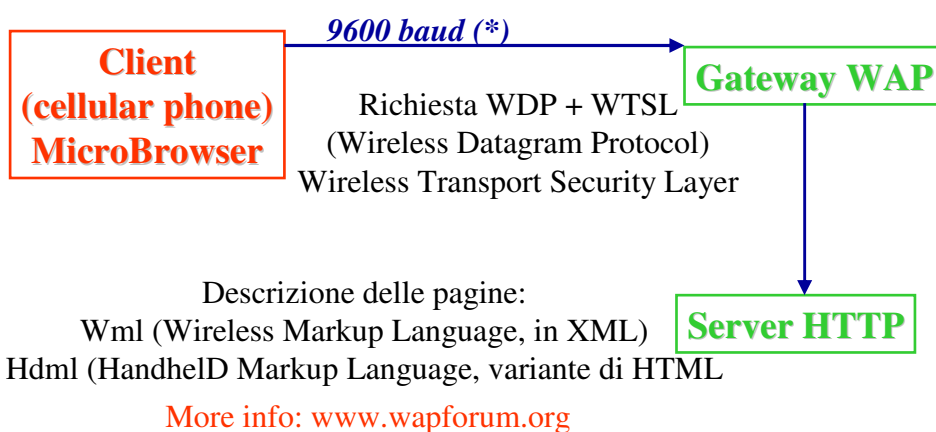




An even more radical solution



WAP - Cenni



(*) con GPRS fino a 56 Kbit/sec, con UMTS fino a 2 Mbit/sec
(Universal Mobile Telecommunication System)

XML Enabled HTTP Server

