GEN meeting on website cooperation and networking

Introduction to PHP

UNEP/DEWA/GRID-Geneva

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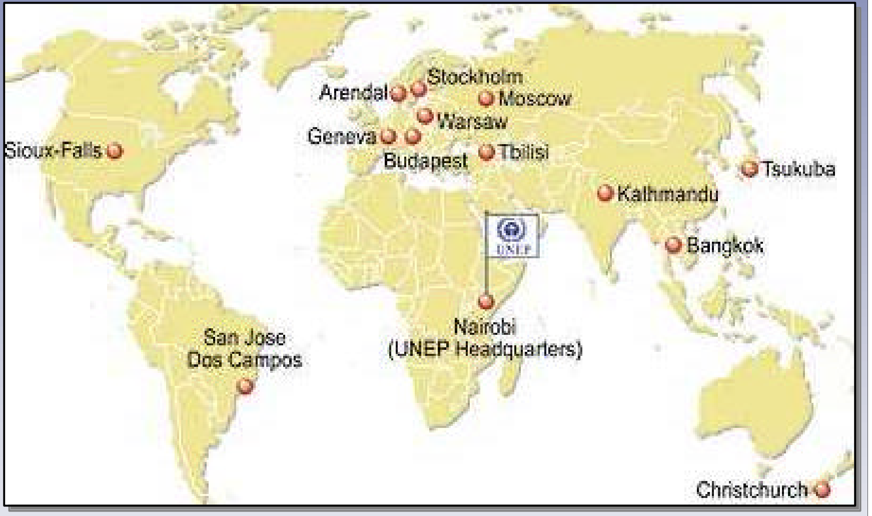
Who are we ?

- UNEP’s Division of Early Warning and Assessment (DEWA)
- GRID-Geneva is one of UNEP's majorcentres for data and information management



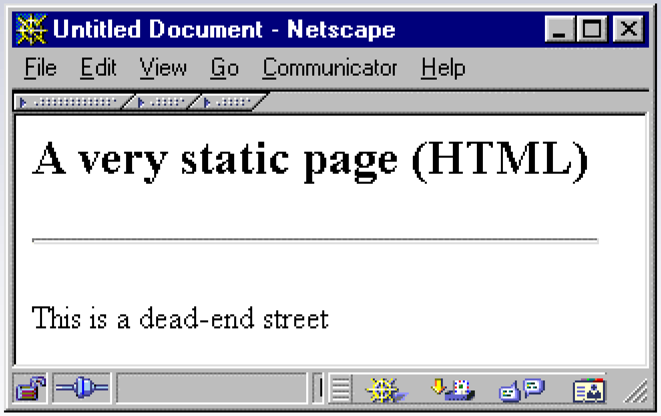
- Global and regional environmental data
- Support the environment assessment and "early-warning" activities of UNEP and its partners.

Foreword

- This presentation is not a programmer's view on the subject; it reflects a semi-naive use of PHP/HTML and JavaScript
- Our background : geography, biology, earth sciences, …
- Solutions have been found, sometimes explanations too
- Lack of specialized programming skills, but there is no need to know about mechanics to drive a car …

Why PHP ?

- The only ways to escape of this static page:
  - click on the back button of the browser
  - type a new URL in the location bar

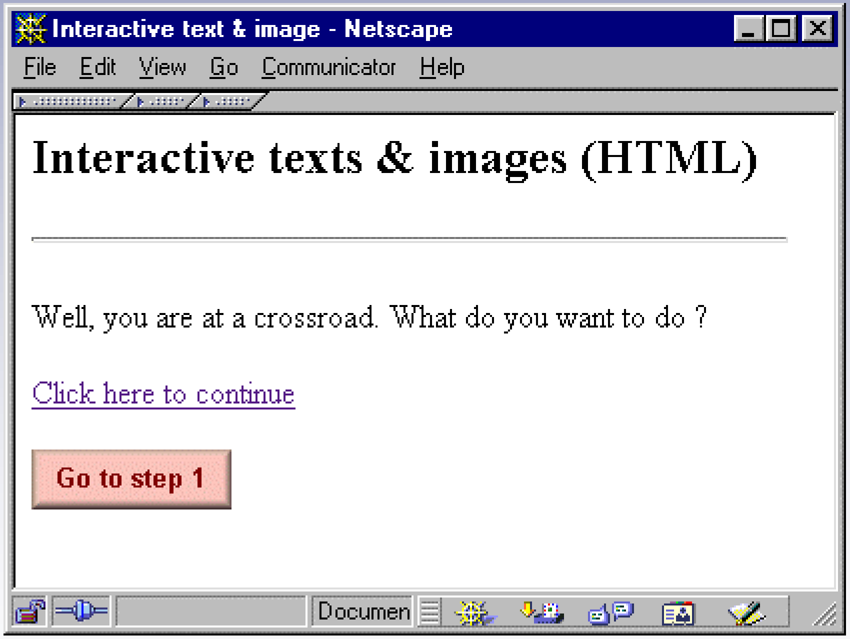

Untitled Document - Netscape
File Edit View Go Communicator Help

A very static page (HTML)

This is a dead-end street

Why PHP ?

- Navigating with hyperlinks : the content of the page is still static


Interactive text & image - Netscape
File Edit View Go Communicator Help
Documen

Interactive texts & images (HTML)

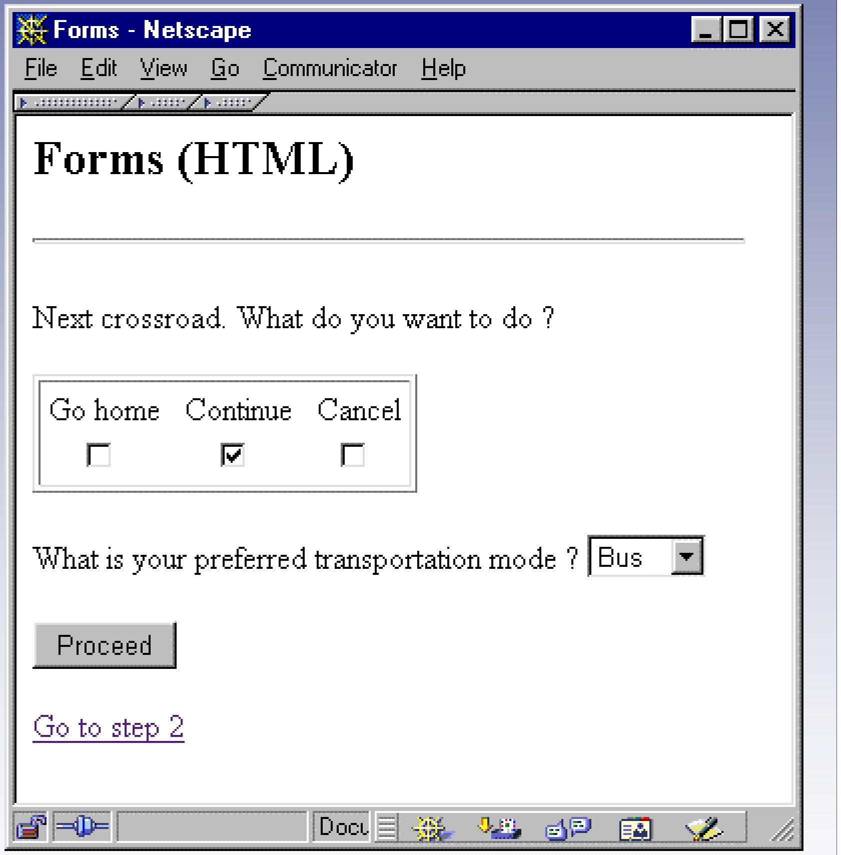
Well, you are at a crossroad. What do you want to do ?

Click here to continue

Go to step 1

Why PHP ?

- Using forms : controls (checkboxes, radio buttons, text areas, ...) modified by the user before submission for processing => more interactive, but only HTML code



Forms (HTML)

Next crossroad. What do you want to do ?

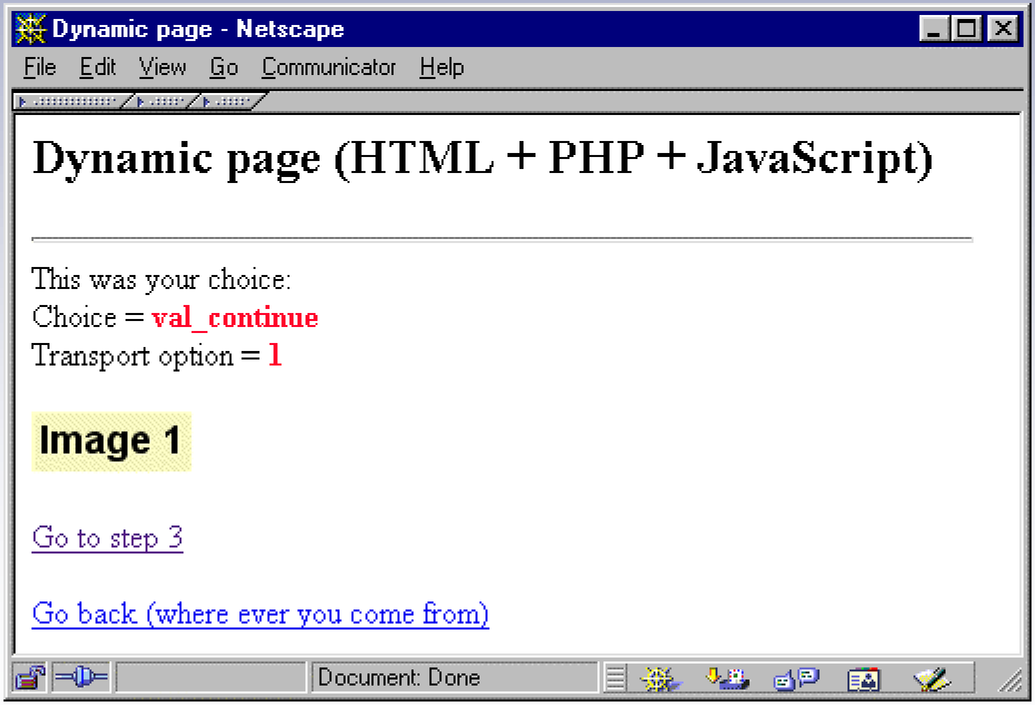
Go home	Continue	Cancel
□	☑	□

What is your preferred transportation mode ? Bus

Go to step 2

Why PHP ?

- JavaScript : more interactive elements, special functions (ex: flip images)
- PHP : page content dynamically generated



Dynamic page (HTML + PHP + JavaScript)

This was your choice:
Choice = **val_continue**
Transport option = **1**

Image 1

Go to step 3

Go back (where ever you come from)

Why PHP at GRID-Geneva ?

- New technology
- Separate data, applications and layout : allows for different (and unexpected) uses of the same data
- Facilitate content updating
- Improve interactivity with users/clients

- Helps structuring our data/information
- Makes people talk (internal communication)

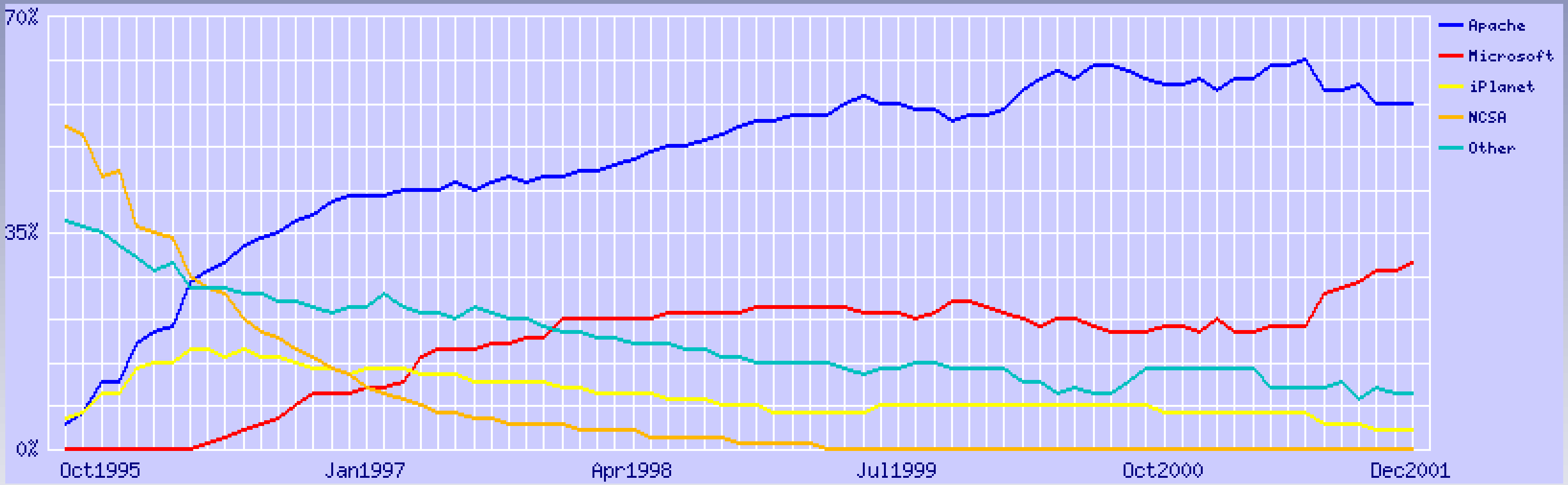
History of PHP

- PHP first version (originally known as Personal Home Pages) released in early 1995 by Rasmus Lerdorf
- 1995 : PHP/FI (Form Interpreter)
- 1997 : PHP3, renamed PHP: Hypertext Preprocessor - a recursive acronym.
- 1999 : PHP4
- Latest version : PHP4.1.1 (2001)

- Over two hundred regular contributors

PHP on the Internet

- In use on over 5.5 million domains

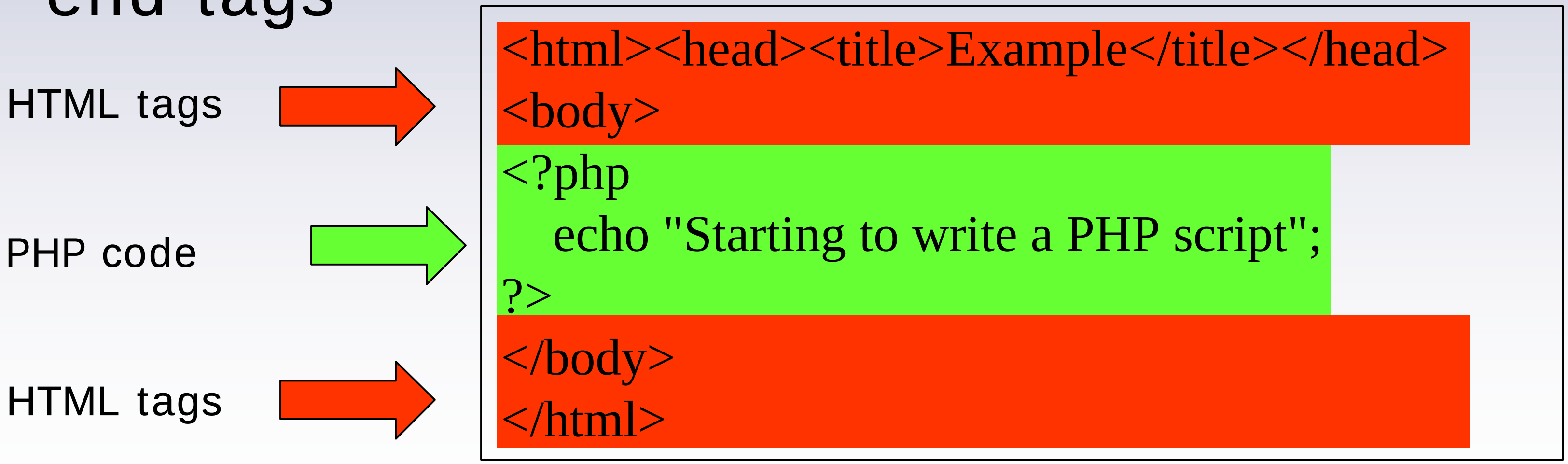


- Market share of Internet webservers
  - Apache : 60%
  - IIS servers (ASP) : 30%

(from http://www.netcraft.com/survey/)

What is a PHP script ?

- Code embedded within tags : jumping between HTML and PHP (like ASP and Cold Fusion)
- No heavy code to output HTML (as needed in Perl or C)
- PHP code is enclosed in special start and end tags



HTML tags

PHP code

HTML tags

```
<html><head><title>Example</title></head>
<body>
<?php
   echo "Starting to write a PHP script";
?>
</body>
</html>
```

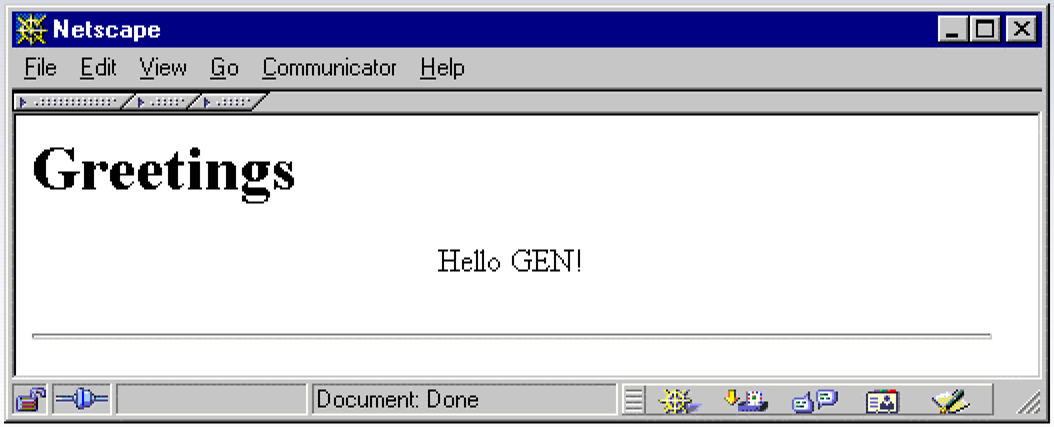
PHP is server-side

What the web server sees (and executes on-the-fly)

```
<H1>Greetings</H1>
<P ALIGN="center">
<?php
print ”Hello GEN!";
?>
</P><HR>
```

What the web browser receives (it never sees PHP code)

```
<H1>Greetings</H1>
<P ALIGN="center">
Hello GEN!
</P><HR>
```

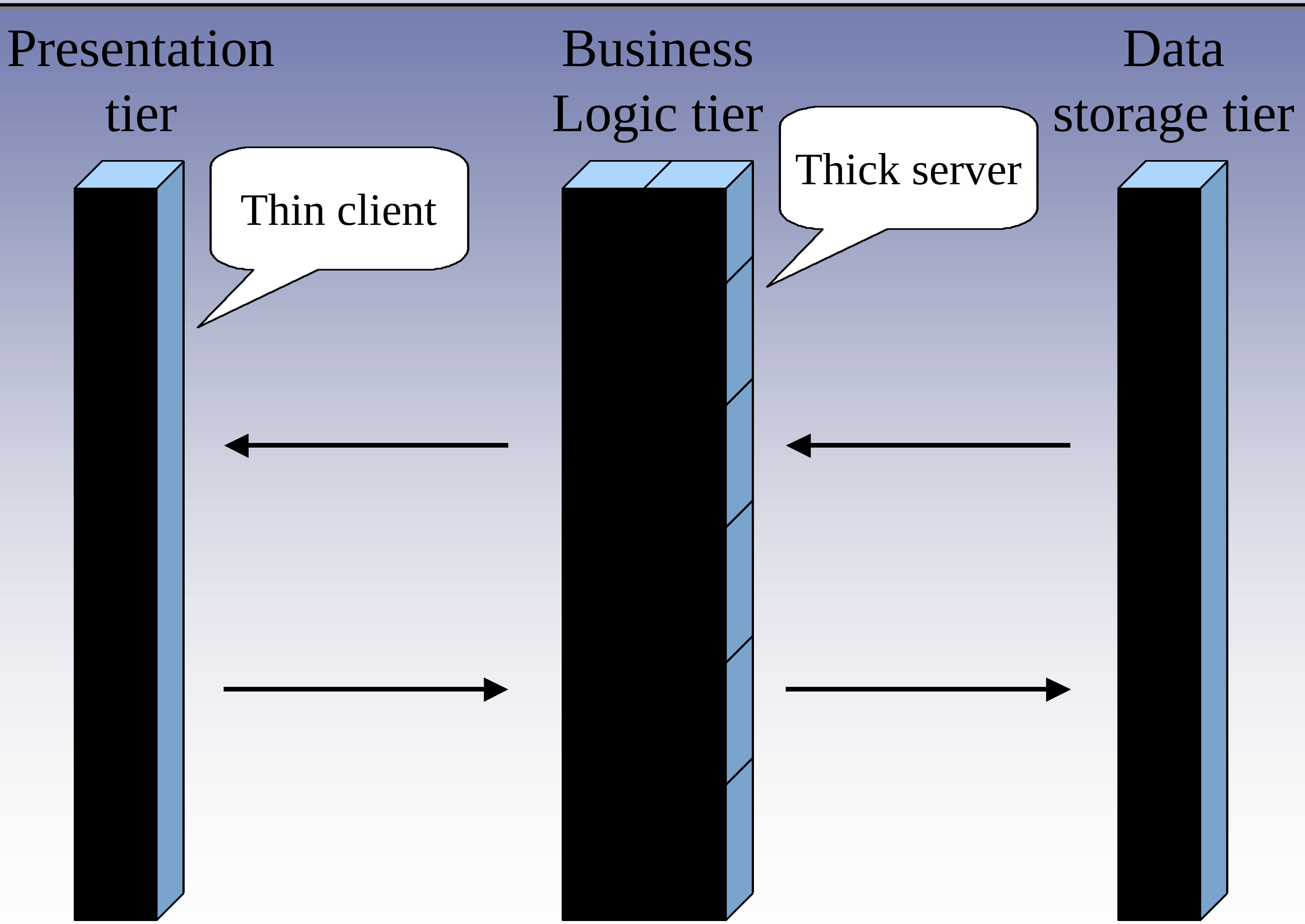


Greetings

Hello GEN!

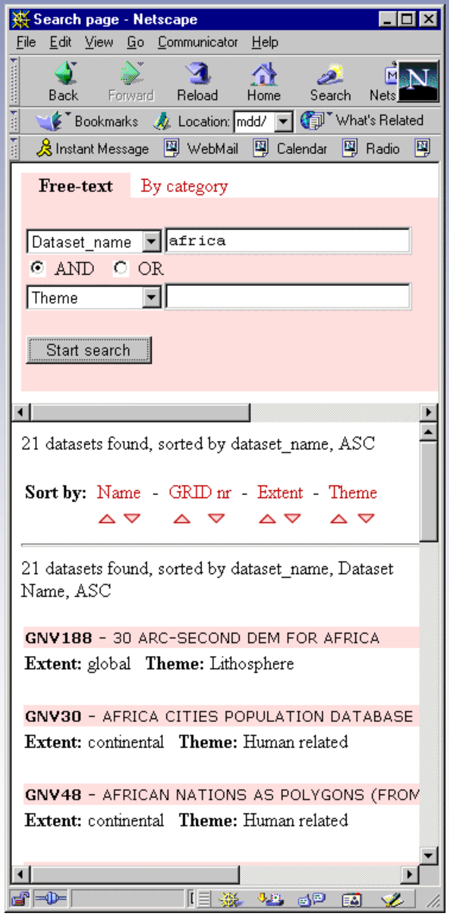
=> it is not possible to copy the source code from the web browser

Three-tier architecture



Architecture : an example

Client : web browser


Search page - Netscape
File Edit View Go Communicator Help
Back Forward Reload Home Search Netscape
Bookmarks Location: mdd/ What's Related
Instant Message WebMail Calendar Radio

Free-text By category

Dataset_name: africa

● AND ○ OR

Theme:

Start search

21 datasets found, sorted by dataset_name, ASC

Sort by: Name - GRID nr - Extent - Theme

21 datasets found, sorted by dataset_name, Dataset Name, ASC

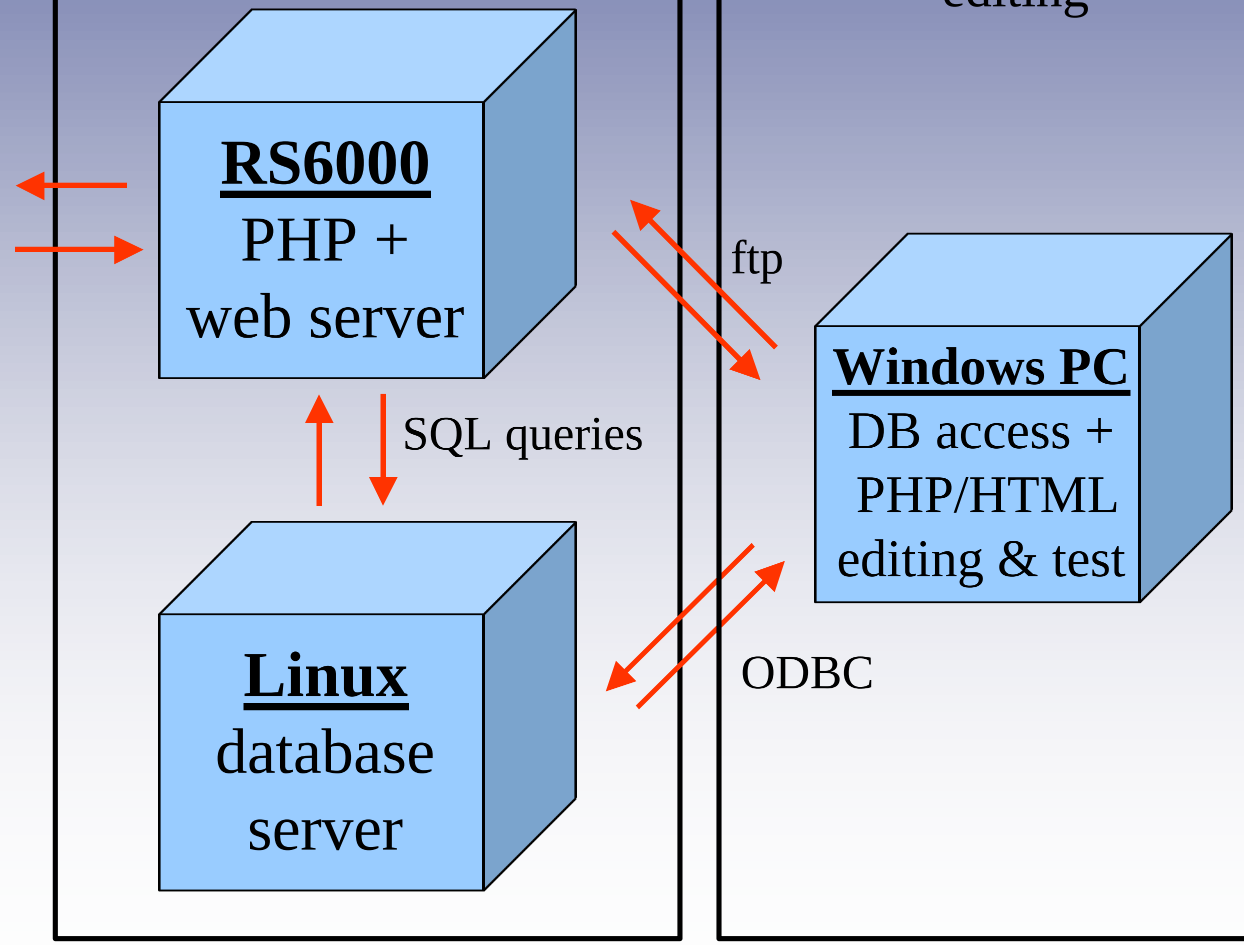
GNV188 - 30 ARC-SECOND DEM FOR AFRICA
Extent: global **Theme:** Lithosphere

GNV30 - AFRICA CITIES POPULATION DATABASE
Extent: continental **Theme:** Human related

GNV48 - AFRICAN NATIONS AS POLYGONS (FROM
Extent: continental **Theme:** Human related

Servers

PHP/HTML editing



RS6000
PHP +
web server

SQL queries

Linux
database
server

ftp

Windows PC
DB access +
PHP/HTML
editing & test

ODBC

What do you need to use PHP ?

- PHP (now ver. 4.1.1), in one of the following flavours:
  - executable : stand-alone (PHP-GTK), CGI (php.exe)
  - module : Apache web server (php4apache.dll), ISAPI (php4isapi.dll, not in production state)
- A web server
- A database server
- Optional :
  - extensions : additional functionalities
  - an ODBC database driver for accessing to/from other databases

System requirements

- Operating systems :Linux, many Unix variants (HP-UX, Solaris and OpenBSD, ...), Microsoft Windows, Mac OS X, RISC OS, ...
- Web servers : Apache, Microsoft Internet Information Server, Personal Web Server, Netscape, iPlanet, Oreilly Website Pro server, Caudium, Xitami, OmniHTTPd, Zeus, ...
- Databases : Oracle, Informix, Sybase, InterBase, PostgreSQL, MySQL, ODBC, ...

How to install PHP ?

=> http://www.zend.com/manual/installation.php

- Let’s have the Open Source attitude : compile the program from the source code
- Get the executable binaries
- Get PHP with your operating system (ex: RedHat Linux)
- Use an installer
  - PHP installer at http://www.php.net
  - PHP + Apache + mysql installer : EasyPHP.org
- Call your beloved system manager

Installation for Windows

- Get EasyPHP 1.5 (9 MB) at http://www.easyphp.org/
- Double-click on easyphp1-5_setup.exe
- Use myphpadmin to manage your mysql database
- Install the myodbc driver (http://www.mysql.com/downloads/api-myodbc.html)
- Create a new ODBC data source
- Access the data source with MS-Access

Write a PHP file

- Buy a good PHP manual, or go to http://www.php.net/manual/
- Open your favorite text editor
- Type your PHP/HTML/Javascript code
- Save your file with the extension .php
- Put your .php file on your (local) web server
- Access your .php file with a web browser using the http protocol:
    - http://localhost/my_file.php
- Do not use the following location
    - file://d:/Program%20Files/EasyPHP/www/my_file.php

Advantages of PHP

- Modest learning curve
- Free and open development (independence, security, community)
- Native database connectivity (mysql, ODBC, ...)
- Availability for a variety of platforms (Windows, UNIX, Linux, Mac OS, RISC)
- Simple but powerful, thin client
- Many functions (databases, mail server, PDF, ...)

Disadvantages of PHP

- Immature language
- Mixing of HTML and program code : disorganization (application and layout not always well separated), bug prone
- In general, more efficient as an Apache web server module => CGI and other web servers' versions are often weaker (speed, reliability)

Learnings so far

- Easy to install, more complex to configure properly (ex: security)
- Need some programming skills, although some developers' tools exist (PHAKT, PHP Coder, ...)
- Access to databases not standardized (use ADODB library to turn around this problem)
- Use PHP as Apache module, CGI version not appropriate when working with databases (connection lost at each page processing => time consuming)

Next steps for GRID-Geneva

- Put our in-house PHP applications in production phase
- Take some training either in PHP or in the field of related technologies : XML, database design, Java servlets, ...
- Future collaborations with other GEN partners ?

References & resources

- Lerdorf R. (2000), “PHP Pocket Reference”, O’Reilly, Cambridge
- Nocton C. (2001), “PHP 4 et MySQL en ligne”, Micro Application, Paris
- PHP Home page : http://www.php.net
- Web links : http://www.grid.unep.ch/proser/training/it/gen2002/links.html