Web Template

Web template

A Web template system describes the software and methodologies used to produce web pages and for deployment on websites and delivery over the internet. Such systems process web templates, using a template engine. It is a web publishing tool present in content management systems, software frameworks, HTML editors, and many other contexts.

Overview

A web template system is comprised of:

- A Template engine: the primary processing element of the system;
- Content resource: any of various kinds of input data streams, such as from a relational database, XML files, LDAP directory, and other kinds of local or networked data;
- Template resource: web templates specified according to a Template language;

  The template and content resources are processed and combined by the template engine to mass-produce web documents. For purposes of this article, web documents include any of various output formats for transmission over the web via HTTP, or another internet protocol.

Motivations and typical uses

Mass-production

Various agencies and organizations use web template systems for mass-production of content when slower production alternatives prove unfeasible.
For an introductory overview, a news website is used as example. Suppose a "static website", where all web pages are static, and built by a web designer that needs to add and update pages every day.

A typical strategy to automate the web-designer's "repetitive work" is:

- choose a web template system to maintain the website
- group news items with different presentation needs;
- specify the "presentation standards" through web templates, for each group of news;
- Specify a content resource to generate or update the content of each news item.

Style standardization

Separation of concerns

For the web designer, when each web page comes from a web template, he/she can think about a modular web page structured with components that can be modified independently of each other. These components may include a header, footer, global navigation bar, local navigation bar, and content well.
For programmers the template language offers a more restricted logic, only for presentation adaptations and decisions and not for doing complex (business model) algorithms.
For other members of the "site team", a template system frees webmasters to focus on technical maintenance, content suppliers to focus on content and for all of them more reliability.
Moreover, it has the following advantages to its use:

- Ease of design change: presentation variations on templates are "content invariant", web designer can update presentation without another preoccupations.
- Ease of interface localization: menus and other presentation standards are ease to uniform, for users browsing on the site.
- Possibility to work separately on design and code by different people at one and the same time.

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Formal characterization

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Further information might be found on the talk page or at requests for expansion.

See the on Formal treatment supplement. Here a resume.

Elements (C,T,P,R) on the dataflow representation.

Kinds of template systems

There are many public software and commercial packages promoted as being web templates and template engines, but there are a high diversity of disperse kinds of solutions. To select and group them in a systematic way, the first step is to characterize them as template systems.

A second step is to group and identify main properties of each characterized system:

- The architecture of these systems, into a client-server reference model, is the main division criteria for group then -- although the use of diverse modern web cache strategies, architectures can be characterized. There are, as illustrated, three groups: Outside server systems, Server-side systems, and Distributed systems.
- Main attributes:
- Template languages may be:
- Embedded or Event-driven.
- Simple, Iterable, Programmable, or Complex.
- Specification possession: the standards of the language are controlled by a public or not-public ownership rights. The possession strategy and the ownership indicate the stability and credibility of the specification.
- Template engine possession: it is public or not, indicating if source codes of the template engine are open, or not.

Outside server systems

Outside server template system architecture.
Web templates in this context produce only static web pages, and can be viewed as a ready-made web design, used to mass-produce "cookie-cutter" websites for rapid deployment.
HTML editors are the typical systems using outside server subsystems. They also commonly include themes in place of CSS styles. In general the template language is to be used only with the editor's software.
FrontPage and Dreamweaver are the most popular editors with template sub-system. On Dreamweaver the template tool may also include a graphical template making it easy to edit or customise graphics and images. A Flash web template uses Macromedia Flash to create visually appealing sites.
System label/name
Platform/editor
Notes
BlueFish?
?
?
Nvu
Linux/Nvu
HTML authoring.
Flash
Macromedia

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Flash authoring.
FrontPage
Microsoft
HTML authoring. Embedded iterable language.
Dreamweaver
Macromedia
HTML authoring. Embedded iterable language.
Many server-side template systems have the option to publish the output pages on the server, where the published pages will be static. It is a common feature on content management systems, like Vignette. But this does not have to be considered an out-server generation.
In the majority of the cases, this "publish option" not interferes with the template system, and it can be made by external software, as Wget.

Server-side systems

Server-side template system.
Server-side dynamic pages began generated by templates with pre-existent software adaptated for this task. This early software was the preprocessors and macro languages, adapted for the web use, running on CGI. Next, a simple but relevant technology was the direct execution made on extension modules, started with SSI.
A lot of template systems are typically used as server-side template systems:
System label/name
Platform/framework
Notes
Amrita Template Library
Ruby
Public. Embedded complex language.
CheetahTemplate
Python
Public. Embedded complex language.
Chip
PHP
Public.
ClearSilver
C, Java, Perl, Python, Ruby
Public. Embedded complex language.
Django
Python
Use the "Django template language".
Evoque
Python
Embedded simple language.
FreeMarker
Java
Public.
Genshi
Python
Public
Haml
Ruby or Other
Public.
Hamlets

Java
Public.
HTML::Template
Perl
Public.
Kid
Python

Lasso
OmniPilot
Proprietary.
Basic Server Side Includes (SSI)
The basic directives fix a "standard".
Embedded simple language, if exclude exec directive.
Basic Edge Side Includes (ESI)
A SSI-like and alternative "basic language".
Embedded simple language.
Smarty
PHP
Public. Embedded complex language.
Template Alloy
Perl
Public. Embedded complex language. Supports various languages includind Template::Toolkit, HTML::Template, Text::Tmpl, as well as Velocity Template Language
Template Power
PHP
Public. Web template#Complex templates.
Template Toolkit
Perl
Public. Embedded complex language.
StringTemplate
Python
Public. Embedded iterable language.
Template Attribute Language (TAL)
Zope, Python, Java, Perl, PHP, XSL
Public; a.k.a. Zope Page Templates (ZPT); see also TAL Expression Syntax (TALES), Macro Expansion TAL (METAL)
Topsite
Python
Public.
PHPlib
PHPlib
Public. Embedded iterable language.
WebMacro
Java
Public. Embedded iterable language.
WebObjects
Java
Use the WebObjects Builder as engine.
Velocity (Jakarta/Apache)
Java
Public. Use VTL - Velocity Template Language.

Vignette
Proprietary.
Commercial solution. Embedded complex language.
VlibTemplate
PHP
Public.
XSLT (standard language)
Any with an XSLT parser
Standard. Event-driven programable language.
XQuery (standard language)
Any with an XQuery parser
Standard. Embedded programable language.
Merge On Browse
AJAX compatible browser
Public. Cross browser, client side templating language which uses AJAX and DHTML to pull together dynamic content and static document structure

Technically, the methodology of embedding programming languages within HTML (or XML, etc.), used in many "server-side included script languages" are also templates. All of them are embedded complex languages.
System label/name
Notes
Active Server Pages (ASP)
Proprietary (Microsoft platform). See also: VBScript, Javascript, PerlScript, etc. extensions for ASP.
eRuby
Public (Ruby).
ColdFusion (CFM)
Proprietary.
JavaServer Pages (JSP)
Public, Java platform.
Active Perl
Public.
PHP
Public.
OpenACS
Public (Tcl).
There are also preprocessors used as server-side template engines. Examples:
Preprocessor
Notes
C preprocessor
Public. Embedded iterable language.
M4
Public. Embedded complex language.

Distributed systems

Distributed (decentralized) template system.
The more simple form are transclusions (HTML frames). In other cases it need Dynamic web pages to run.
Examples:

- Ajax (programming)
- Rich Internet application.

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