

# Dynamic Content and Protocol-Level Interoperability

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## What are CMSes?

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- CMS= Content Management System
- Online systems to create, store, edit, secure, **preserve**, **transform** and **publish** original and **acquired** digital content.
- Examples:
  - Slashdot
  - Freshmeat
  - SourceForge
  - Wikipedia

# Zope.org

The screenshot shows the Zope.org website homepage. At the top left is the Zope Community logo. To its right is a search bar with the word "search" inside. Below the logo, it says "You are here: Home". On the right side, it says "You are not logged in" with links for "Log in" and "Join".

**About Zope**

- [What Is Zope?](#)
- [Zope Powered Sites](#)
- [About Zope.org](#)
- [Member FAQ](#)
- [Zope News](#)

**Business**

- [Zope Corporation](#)
- [Solution Providers](#)
- [Zope Hosting](#)

**Documentation**

- [The Zope Book](#)
- [Developer Guide](#)
- [Administrator Guide](#)
- [API reference](#)
- [ZPT reference](#)

**Welcome to Zope.org**  
*The Web Site for the Zope Community*

**What is Zope?**

Zope is an open source application server for building content managements, intranets, portals, and custom applications. The Zope community consists of hundreds of companies and thousands of developers all over the world, working on building the platform and Zope applications. Zope is written in Python, a highly-productive, object-oriented scripting language. [more](#)

**Welcome to the new Zope.org!**

Zope.org has a new look and a new platform, based on Zope 2.6.2, the CMF and Plone. The old site will remain accessible at <http://old.zope.org> for some time.

**Zope 4 Intranets Training Zope Intermediate Solutions Training**  
Sept 27 - 30, 2004

**Zope Technical Solutions Training**  
July 19 - 22, 2004

**Zope Technical Solutions @ CIGNEX**  
July 13 - 16, 2004

**Zope Technical Solutions @**

## PHPNuke, PostNuke, Zope

- ❑ Manage basic content (pages) and gather resources from different locations.
- ❑ Easy to use and install for end users.
- ❑ Professional appearance.
- ❑ Minimal installation resources.
- ❑ Modular and extensible.
  - Portal approach to user interface.

# Wikipedia



The screenshot shows the Wikipedia Main Page. At the top left is the Wikipedia logo, a globe made of puzzle pieces with various characters, and the text "WIKIPEDIA The Free Encyclopedia". Below the logo is a navigation menu with links: Main Page, Community portal, Current events, Recent changes, Random page, Help, and Donations. To the right of the logo is a search box with "Go" and "Search" buttons. Below the search box is a "toolbox" with a link "What links here". At the top right, there are tabs for "article", "discussion", "view source", and "history", and a "Log in" button. The main content area is titled "Main Page" and contains a welcome message: "Welcome to Wikipedia! We are building an open-content encyclopedia in many languages. In the English version, started in January 2001, we are now working on 302665 articles. Learn how to edit pages, experiment in the sandbox, and visit our Community Portal to find out how you can participate in the development of Wikipedia." To the right of the welcome message are links: "Browse by topic", "Other languages", "Sister projects", "Text only", and "No tables". Below the welcome message are two featured sections: "Today's featured article" with a photo of a saxophone player and text "The saxophone is a musical instrument of the woodwind", and "In the news" with a photo of a large green building and text "The International Court of Justice rules that the".

# Wiki

- ❑ Wikis are collaborative website editors, using a Web interface.
- ❑ Every page (generally) has an "edit" button.
- ❑ HTML is too complex so it is simplified
  - e.g., !! heading, \*bullets, bold
  - New pages are created by linking to them.
- ❑ Security is not necessary - actions can be undone by an administrator.

# Blogger.com

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Written	9
s Written	1,835
und Links	0
e Views	138

## Recent Posts

### [Math Project!](#)

25 May 2004

hey blog! Well .. Today I got my math result .. eh .. I got 23/30 ! I wasnt really happy, and I wasnt upset! I just want this course to END ! And Guess what ! I have a new thing to worry about ! It My MATH project ! well .. Wish me all the best I dont know where really to start ! ...

### [hey blog! Well .. Bad Day! I did really bad...](#)

24 May 2004

... my CAP test ! eh :( Also My Math test told us that he is really upset from our test results :( And I feel that he is talking about me :( so I am getting really upset ! Well .. Today , I was really embarrassed .. lol I was saying :- WHEN THIS CAP TEACHER WILL COME UFF .. Suddenly !! Guess...

### [Cool Day !](#)

23 May 2004

hey blog! Well .. It was a good day ! Tomorrow I have a CAP test! hmmm .. I am studying for it.. Well .. There is nothing new today ! So0o .. I am going to teach

# Weblogs

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- ❑ Online Web-based journals.
  - There are also online photo albums, shopping lists, CD inventories, etc.
- ❑ Simple interface for non-techie users to publish thoughts.
- ❑ Single or group.
- ❑ Usually free - what are the economics?

# Moodle

**Computer Science 4000W** You are logged in as Hussein Suleman (Logout)

CompSci » CSC4000W Turn editing on

**People**   
Participants

**Activities**   
Assignments  
Choices  
Forums  
Resources

**Search Forums**   
Advanced search

**Administration**   
Turn editing on  
Settings  
Edit profile  
Lecturers  
Students

**Topic outline**

- News forum
- Question Forum
- Discussion Forum
- ICG 1st handin marks to be reduced
- IS Handin Extension
- Project: List of projects for 2006
- Project: Milestone document
- Project: choice form
- Year Plan 2006
- Exam time, AM or PM?
- What do you think about honours?

**1 Introduction to Computer Graphics**   
This module teaches the basic techniques of computer graphics and how they may be applied.

**Latest News**   
Add a new topic...

- 21 Jul, 17:00  
James Gain  
Starfight Code Framework  
Update [more...](#)
- 12 Jun, 15:49  
James Gain  
Starfight GFX Project  
Update [more...](#)
- 9 May, 09:41  
Anet Potgijter  
Pattie Maes' Paper - with diagrams [more...](#)
- 8 May, 12:11  
Anet Potgijter  
Agents Prac Submission - Network Display [more...](#)
- 8 May, 09:14  
Anet Potgijter  
IS Practical - Weighting

## Learning Management Systems

- ❑ Learning Management Systems (LMSes) handle not just creation and dissemination of content, but provide learning-specific facilities as well.
  - e.g., assignment submission, online testing
- ❑ LMSes are a superset of CMSes.
  - Learning is not just about content!
- ❑ LMSes have follow Web standards as well as particular learning-related standards:
  - IMS Metadata Set, Content packaging, Question and Test Interoperability
  - SCORM Content Packaging/Delivery

# Ananzi

International

Browse SA web sites by category

- Industry & Engineering**  
Manufacturing, Mining, Auctions...
- Motoring**  
Cars, Trucks, Auctions...
- Personal Finance**  
Investments, Tax, Banks...
- Property**  
For Sale, Rentals, Auctions...
- Reference & Publications**  
Newspapers, Books, Media...
- Science & Environment**  
Astronomy, Weather, Farming...
- Shopping & Auctions**

Classic watch

Sun Jul 11 2004 17:39:47 GMT+0200 (South Africa Standard Time)

**Ananzi News** news24.com

- [Work on barrier wall continues](#)
- [Men draw swastikas on mom](#)
- [Leaders must do more - Annan](#)
- [Hostage taken in Baghdad](#)
- [Sharks can boost ECape](#)

**BBC News** BBC NEWS

- [Tel Aviv hit by rush hour blast](#)
- [Kerry blasts Bush Iraq 'failures'](#)
- [UN head urges action against Aids](#)

**Ananzi Sport** 365 Sport

- [Zim rebels given new deadline](#)
- [Scottish Open: Sunday's latest news, scores](#)
- [All Blacks back island style](#)
- [Chiefs Progress To Final](#)

## Web CMS/Portal Interoperability

- ❑ Federated Authentication
- ❑ Federated Search
- ❑ Content Syndication

## Federated Authentication

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- Shibboleth is a networked authentication/authorisation model.
  - Single sign-on model.
  - Access without identity!
    - Only by attributes e.g., student at UCT.
  - Privacy is user-controlled – users can decide how much information to pass on to third parties.
  - Trust relationships are established among collaborating systems out-of-band.
  - SAML records are exchanged to specify attributes (and club membership) of users.
- Security Assertion Markup Language (SAML) is an XML-based security assertion language.

## Federated Search Protocols 1/2

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- SDLIP (Simple Digital Library Interoperability Protocol)
  - Defines simple HTTP/CORBA-based interfaces for remote searching (esp. wrapping existing search systems)
  - Stateless/ful a/synchronous operation
  - 3 sub-interfaces
    - source metadata
    - search
    - result access

## Federated Search Protocols 2/2

- Z39.50 is the traditional remote search protocol for library systems.
  - ANSI/NISO/ISO standard
  - Comparatively complicated syntax/operation
  - Based on older standards (1998)
- Latest standards for federated search:
  - SRW – Search/Retrieve for the Web
  - SRU – Search/Retrieve URL mechanism?
    - `http://myserver.com/myurl/searchRetrieve?query=dc.title=cat&maximumRecords=10&recordSchema=http%3a//www.loc.gov/mods/&sortKeys=title,dc&startRecord=1` (excerpt from ZING website)

## SRW Request

SOAPAction: "searchRetrieve"

```
<SOAP:Envelope>
  <SOAP:Body>
    <SRW:searchRetrieveRequest
      xmlns:SRW="http://www.loc.gov/zing/srw/v1.0/">
      <SRW:query>(dc.author exact "jones" prox///5 title >=
"smith")</SRW:query>
      <SRW:sortKeys>/record/title,"http://www.loc.gov/zing/srw/dcsche
ma/v1.0/",1,0,highValue
/record/datafield[@tag="100"]/subfield[@code="a"],"http://www.l
oc.gov/marcxml/,,, "Smith"</SRW:sortKeys>
      <SRW:startRecord>1</SRW:startRecord>
      <SRW:maximumRecords>10</SRW:maximumRecords>

      <SRW:recordSchema>http://www.loc.gov/mods/</SRW:recordsSchema>
    </SRW:searchRetrieveRequest>
  </SOAP:Body>
</SOAP:Envelope>
```

(excerpt from ZING website)



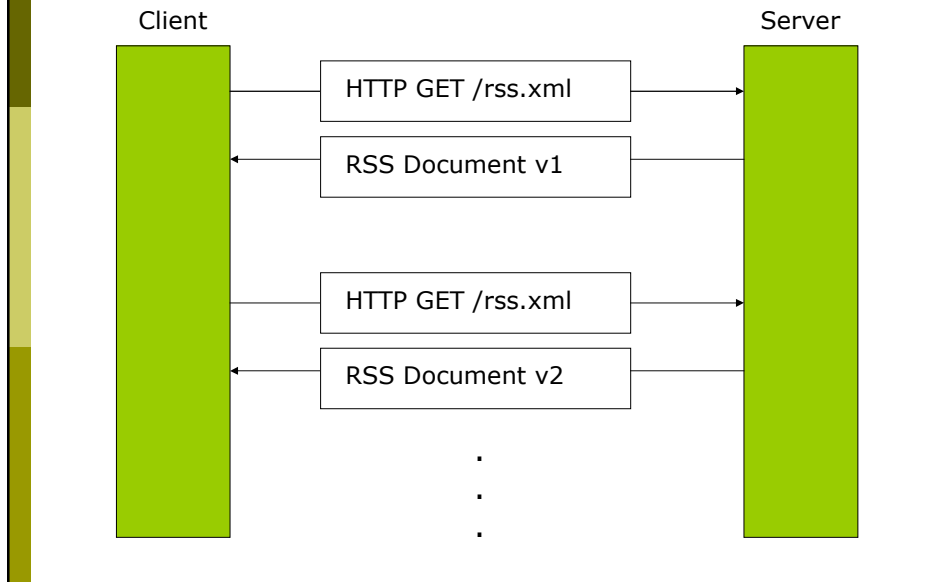
## SRW Response

```
<SOAP:Envelope>
<SOAP:Body>
<SRW:searchRetrieveResponse xmlns:SRW="http://www.loc.gov/zing/srw/v1.0/"
  xmlns:DIAG="http://www.loc.gov/zing/srw/v1.0/diagnostic/">
<SRW:numberOfRecords>2</SRW:numberOfRecords>
<SRW:resultSetId>8c527d60-c3b4-4cec-a1de-1ff80a5932df</SRW:resultSetId>
<SRW:resultSetIdleTime>600</SRW:resultSetIdleTime>
<SRW:records>
  <SRW:record>
    <SRW:recordSchema>http://www.loc.gov/mods/</SRW:recordSchema>
    <SRW:recordData> <?xml version="1.0" encoding="UTF-
8" ?> <mods xmlns:xlink="http://www.w3.org/TR/xlink"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns="http://www.loc.gov/mods"
xsi:schemaLocation="http://www.loc.gov/mods/
http://www.loc.gov/standards/mods/mods.xsd" >
<title>Sound and fury : the making of the punditocracy
</title>
<name
type="personal" >
Eric.
</namePart>
<role>
creator
</role>
</namePart>
...
</SRW:recordData>
<SRW:recordPosition>1</SRW:recordPosition>
</SRW:record>
...
(excerpt from ZING website)
```

## Content Syndication - RSS

- ❑ Really Simple Syndication (RSS) is a (predecessor to SOAP) standard to transfer a list of recently updated entries from one CMS to another.
- ❑ RSS 2.0 is arguably a dynamically-generated "data format" rather than a "protocol".
- ❑ Lots of different (incompatible) versions: 0.91, 0.92, 2.0, etc.
- ❑ RSS 0.92 used the Resource Description Framework (RDF) XML format to encode items.
- ❑ Blogs, Wikis and other CMSes generally support RSS, sometimes both as client and server.
- ❑ Alternatives? OAI-PMH?

## RSS Time Sequence



## RSS Example

```
<?xml version="1.0"?>
<rss version="2.0">
  <channel>
    <title>Liftoff News</title>
    <link>http://liftoff.msfc.nasa.gov/</link>
    <description>Liftoff to Space Exploration.</description>
    <language>en-us</language>
    <pubDate>Tue, 10 Jun 2003 04:00:00 GMT</pubDate>
    <lastBuildDate>Tue, 10 Jun 2003 09:41:01 GMT</lastBuildDate>
    <docs>http://blogs.law.harvard.edu/tech/rss</docs>
    <generator>Weblog Editor 2.0</generator>
    <managingEditor>editor@example.com</managingEditor>
    <webMaster>webmaster@example.com</webMaster>
    <item>
      <title>Star City</title>
      <link>http://liftoff.msfc.nasa.gov/news/2003/news-starcity.asp</link>
      <description>How do Americans get ready to work ...</description>
      <pubDate>Tue, 03 Jun 2003 09:39:21 GMT</pubDate>
      <guid>http://liftoff.msfc.nasa.gov/2003/06/03.html#item573</guid>
    </item>
    <item>
      <description>Sky watchers in Europe, Asia, and parts of Alaska and Canada will experience a
      &lt;a href="http://science.nasa.gov/headlines/y2003/30may_solareclipse.htm">partial
      eclipse</description>
      <pubDate>Fri, 30 May 2003 11:06:42 GMT</pubDate>
      <guid>http://liftoff.msfc.nasa.gov/2003/05/30.html#item572</guid>
    </item>
  </channel>
</rss>
```

source: <http://www.rssboard.org/files/sample-rss-2.xml>

## RSS Basic Structure

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```
<rss version="2.0">
<channel>
  <title>some channel</title>
  <link>some link</link>
  <description>stuff...</description>
  <item>
    <title>an_item</title>
    ...
  </item>
  ...
</channel>
```

## RSS Channel Tags

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Tag	Description
title	name of the channel
link	URL of website corresponding to channel
description	description of channel
language	language of channel
copyright	copyright statement
managingEditor	email of content editor
ttl	number of minutes before channel expires and must be refetched
pubDate	time when content was created
lastBuildDate	last time content was updated

## RSS Item Tags

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Tag	Description
title	name of the item
link	URL of the item
description	synopsis of item
guid	unique identifier for item
category	classification of item
comments	URL of page where comments can be added
source	the RSS channel an element came from
pubDate	time when item was created

## RSS Cloud

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- Notification system for RSS
  - Why contact the server waiting for an update when the server can contact you when it updates its content?
- Two methods:
  - client→cloud\_server, registers the procedure, port and transport protocol (e.g., SOAP) to use to notify the client when content changes.
  - cloud\_server→client, sends the RSS URL for the changed document.
- Clients must register every 24 hours.

## Podcasting

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- ❑ Podcasting refers to the distribution of multimedia (non-text) files over the Internet using RSS-like technology.
- ❑ Media files are linked to RSS items using the <enclosure> tag and automatically downloaded to mobile devices.

```
<enclosure  
url="http://www.scripting.com/mp3s/weatherReportSuite.mp3"  
length="12216320" type="audio/mpeg" />
```

source: <http://www.rssboard.org/rss-specification>

## References

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- ❑ Internet2 (2006) Shibboleth Project. Website <http://shibboleth.internet2.edu/>
- ❑ Library of Congress (2006) SRU: Search and Retrieve via URL. Website <http://www.loc.gov/standards/sru/>
- ❑ RSS Advisory Board (2005) Really Simple Syndication: RSS 2.0.1 Specification (revision 6). Available <http://www.rssboard.org/rss-specification>
- ❑ RSS Advisory Board (2001) Really Simple Syndication: RssCloud API. Available <http://www.rssboard.org/rsscloud-interface>
- ❑ Sureau, D. G. (2006) RSS - Really Simple Syndication. Available <http://www.xul.fr/en-xml-rss.html>