

The ArsDigita Community System

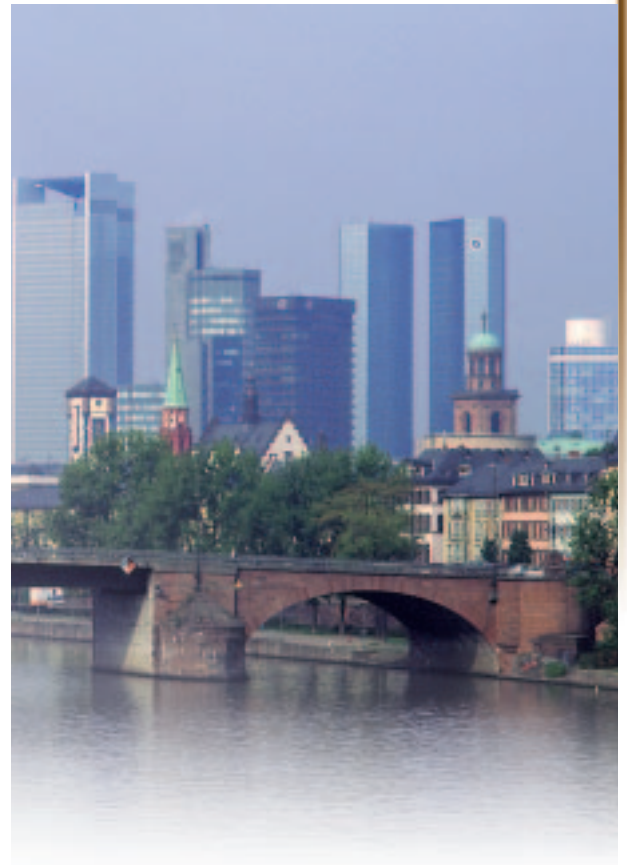
DIGITAL

LOCAL

CALLS

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ACS is a tool for creating and running online communities, so it's a special feature of a Web application server. The original system is based on operation with Oracle and the AOL Web server, plus there is OpenACS for Postgres and Apache.



The ArsDigita Community System (ACS) is something out of the ordinary. It performs the typical tasks of a Web application server, but is not designated as such. It is focused on the construction and running of Web communities. These include not only the typical open communities on the WWW, or particular ACS is intended to enable project-oriented teamwork by work groups scattered all over the world.

When someone goes on a trip...

ACS, with its approximately 50 modules, is the most comprehensive free Web-standard software package. It has its origins in a trip lasting several weeks. In 1993 the MIT lecturer and photo fan Philip Greenspun went to Alaska in his Minivan. Every week he wrote a chapter on his experiences and published it on the Internet.

Shortly after he returned, Mosaic, the first Web-browser, came out and the Internet went

multimedia. Greenspun added pictures to his travel reports. He built a system to make replying to the many e-mail messages he received easier.

Over the next three years he expanded the original software from photo.net into community software.

The history of the system is well documented in "Philip and Alex's Guide to Web Publishing". In it Philip addresses all the techniques necessary for the construction of a Web service. The book is still an interesting read now, as it gives an overview of the "big picture".

The heirs of the past – Oracle and TCL

Philip Greenspun then decided to make use of the following technologies: the NaviServer, (later renamed AOLServer), Oracle and TCL. The following arguments were in favour of the AOLServer: Most Web servers use CGI scripts to display dynamic contents. Each access of a page requires a program

to be started and if applicable, connection to a database. The AOLServer had a TCL interpreter integrated right from the start to allow multithreaded page generation within the Web server. When starting an AOLServer the database connections are made and kept open during the run time, which is otherwise a very time-consuming operation. For some years now by the way, the AOLServer has been free and Open Source. Greenspun decided on Oracle mainly because of the following advantages:

- Oracle uses an internal version management, so that read transactions never have to wait for write transactions and vice versa.
- Oracle has a complete programme environment within the database server. Software running within the database itself does not need to transfer any data between database and Web server.
- Oracle is extremely stable and very powerful.

In 1997, Greenspun founded ArsDigita with some of his students. They took the source code which had evolved in three years and over the summer they hacked the ArsDigita Community System together. ArsDigita places the ACS under the GPL, and anyone interested can download the system from <http://arsdigita.com>.

OpenACS complete with free software

Because the classic ACS is in fact free, but requires Oracle as database, a few former colleagues from ArsDigita breathed life into the OpenACS project and ported kernel and modules on to PostgreSQL, the only free database at that time. In the meantime

Philip Greenspun, founder of ArsDigita, with Alex



work was proceeding in a one-man project to port ACS onto Interbase. In this project, incidentally, an Interbase driver for the AOL-Web server in Version 1.1 has just come out.

OpenACS is now available as a complete RPM packet for Red Hat, and work is still going on for packages for other distributions. Installation takes only about ten minutes. To make the ACS also run under Apache, a module was developed which emulates the AOLServer-API under Apache. The OpenACS-RPM can therefore use Apache as a Web server.

Up to Version 3.4 the ACS has grown historically and essentially represents a collection of loosely-connected tools. Version 4, which came out recently, brings about a generation change: The kernel of the system has been completely redesigned and a large part of the application logic has been relocated into the database, so that TCL is now merely the glue language.

OpenACS is still based on Version 3.2. As soon as the database layer is implemented under Postgres, the porting cycles will presumably become considerably shorter. But as long as there is no large developer community, it is expected that OpenACS will continue to limp a long way behind ClassicACS. There are about 180 developers working at ArsDigita.

The end of a toolbox

Earlier versions of ACS were more programmer toolkits, which considerably speeded up the creation of Web sites. Version 4 is the first fully-integrated product; an out of the box installation can, with a bit of configuration via the Web browser, already run as a simple Web site. The package manager can be used to download applications from the Web, install them and mount them in the site map on one or more URLs. In this way, a module can be used as often as required.

All modules mentioned below are available for both ACS and OpenACS or are now being ported.

The modular construction remains

There is a refined issue of privileges, which recognises users, user groups and user groups interlocked with each other and allows secure web applications with finely-graduated access rights. Very large, hierarchical Web applications can thus be created and administered in the Webbrowser.

The Content Repository makes available an API which encapsulates the administration of contents of any types required. Version administration, categorisation, permissioning and workflow are observed by the corresponding functions, so that developers can concentrate on creating user-oriented applications. One example of an

application of this layer is the Content Management System of ACS.

The workflow module has functions which considerably aid the development of process-oriented applications. Internally the workflow processes are shown on Petri networks, the system is generic and can be used by a developer with relatively little expense. Two sample applications are the workflow module as application and the ticket-tracker module.

Additional service modules are notification (email alerts on objects), messaging (for example creation of Web-boards or e-mails), LDAP authentication and the templating system. These layers of abstraction considerably alleviate the adaptation of the ACS to individual settings and adapted systems profit from further advances in the kernel modules.

A module for every function

The applications modules can be divided into five categories:

- **Collaboration:** Since the ACS grew out of a Web forum oriented towards collaboration, the collaboration modules are the most important and the largest ones. Address book, bulletin board, bookmarks, calendar, chat, file storage, Intranet, ticket or WimpyPoint (Web-based presentations) form the backbone of most ACS-supported Web sites.
- The **Publishing** modules support and simplify the administration of content: adserver, banner ideas, display, dynamic publishing system, FAQ, general comments, general permissions, graphing, news, poll, prototype builder and spam
- The **Personalization** modules make it possible to adapt a website to users or user groups: portals, user groups, user session tracking and member value

- The **Site-Management** modules, audit and site-wide-search, support auditing and categorised Site-wide searching.
- The **Transaction** modules mainly encompass the e-commerce module, which makes it possible to set up an Amazon-type shop, and the classified ads.

Documentation is everything, but there's more

Open and free software includes good documentation, which is why each ACS includes manuals for programmers in the form of HTML files. The documentation standard prescribes that the requirements of a module must be described in it. The bulletin boards of ArsDigita and OpenACS [8] are another good source of information for web and database developers. The ArsDigita Systems Journal on the other hand is a generally formulated online magazine on the subject of Web-based information systems. Also to be found there are online publications of the three computer books written by Philip Greenspun: The already-mentioned Philip and Alex's Guide to Web Publishing, SQL for Web Nerds and TCL for Web Nerds. At irregular intervals, events on web development with ACS take place in Germany (see the ArsDigita Web site). Also interesting - especially for small communities - is the OpenACS hosting offer from the firm Furfly.

ArsDigita has been working flat out for some months now on a Java version of ACS, which runs under Apache. The commercial market is crying out for it and the firm is hoping for a considerably stronger presence in the free software scene. An alpha version has already been released, in mid-November, and the final release should be available for downloading by the time this issue comes out. The latest information on this can be found in the developer zone of the ArsDigita Web site. ■

Info

[1] *ArsDigita-Homepage*: <http://www.arsdigita.com> [3] *OpenACS*: <http://openacs.org> [2] *Philip Greenspun: Philip and Alex's Guide to Web Publishing* (Verlag Morgan Kaufmann; ISBN: 1558605347) [4] *Interbase variants of ACS*: <http://acs.lavsa.com/acs-interbase/> [5] *Open-ACS packets for downloading*: <http://openacs.org/software.asp> [6] *Content Management System*: <http://cms.arsdigita.com> [7] *BBoard of ArsDigita*: <http://www.arsdigita.com/bboard> [8] *BBoard of OpenACS*: <http://openacs.org/bboard> [9] *Philip Greenspun's books online*: <http://www.arsdigita.com/books/> [10] *ACS-Hosting*: <http://openacs.furfly.net/services.html>



The authors

Dirk Gomez has been a self-confessed fan of Philip and Alex's Guide to Web Publishing for years. Also, he has been developing database applications for almost ten years. Martin Schmeil has in the past four years been a Sybase / Oracle-DBA and developer in a large multimedia agency. He publishes the (non profit) yellow pages of the punk-rock "BDEBL" in print and soon (perhaps with ACS) online.