Structural and Development Model of the Apache Projects

Chiefs and Indians

When IBM was negotiating a contract with the folk from Apache way back in 1998, since IBM wanted to integrate the web server in their Websphere product, the enterprise's attorneys were more than dumbfounded. The other party to the contract was not an organization. When asked what kind of organizational structure Apache had, the answer was "It's a web site.". "Did I get that right – we are negotiating a contract with a web site?". But the period of creative chaos is a thing of the past at Apache.

The former NCSA server patch (A Patchy Server), as one of the largest and best organized free software projects, has become a kind of role model with the Apache Software Foundation (ASF) deriving partly from the experience with IBM.

The Foundation's task is to support projects running under Apache's large umbrella both financially and organizationally. The web server itself, which is simply referred to as the HTTPD project in Apache circles is just one small, albeit important, part.

Web Server as a Name Giver

There are subprojects, which are often divided into sub-subprojects – you can see the effect of modularization even here. The most important Java and XML projects of the Open Source Community are now Apache projects, as is the popular PHP web language. In the case
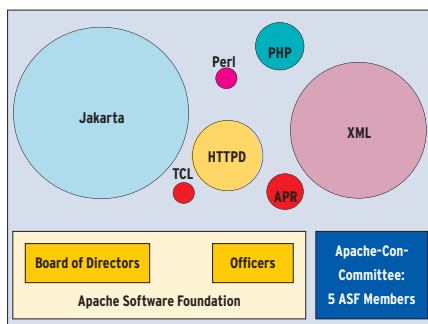
Apache is more than just a web server. The Apache Software Foundation (ASF) provides a home for some of the most significant developments in the world of free Java and XML software, and even PHP. But what makes the ASF so attractive to developers? **BY ULRICH WOLF**

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of Jakarta, the Apache Java project, the number of subprojects has risen to 23 and include heavyweights such as the Tomcat Application Server. A total of more than 160 developers regularly contribute code to the Jakarta project. This puts Jakarta at the top of the list of Apache projects (Figure 1).

Apache XML has 125 main developers assigned to no less than 18 subprojects ranging from A for AxKit, a web publishing tool, to X for the XML parser Xerces. Even Soap, the Simple Object Access Protocol that is becoming increasingly popular for web services is an Apache XML subproject. The third largest project by numbers is the web server itself, that is the HTTPD project with 65 active developers.

Even the web programming language PHP with all its subbranches is a part of the Apache project. There are approximately 15 core developers at present, but this does not include those who regularly contribute to associated projects such as documentation or add-ins and applications. These developers have been swapped out to the Pear project (PHP Extension and Application Repository).

Normally with an organization the size and complexity of the Apache project, you would automatically assume that a hierarchy would be in place with command chains and formalized decision taking processes. However, there is little evidence of this in the case of the Apache project. Instead there are mandatory rules.

More Work, More Say

The Apache Software Foundation describes itself as a meritocracy, that is a rule of the deserving. People who put in a lot of work, also have a lot to say. And this is the principle used for admission to the Foundation or even its Board of Directors. The Board works just like any other American corporation, electing officers for management roles, a Chairman, a President, a Treasurer, and three Vice Presidents. Each subproject has its own structure and rules that allow the developers involved to reach decisions. There is no move towards harmonization. In many cases, as ASF member Lars Eilebrecht reports, a lazy or rough consensus model will eventually appear. If a suggestion does not meet with disapproval, you can consider it approved.

Figure 1: Apache's Structure. The individual sub-projects are mostly autonomous, the Jakarta Java project is the largest by numbers

In the case of the HTTPD project anybody can veto a patch, but the objections have to be well-founded. A typical case would be discovering an error in a patch that could give rise to further issues. Cases like this are normally resolved quickly, although lengthy discussions (which are resolved by a majority decision) tend to ensue in case of general design decisions.

As Lars Eilebrecht reports, the ASF does not receive any earnings from partnerships with other enterprises. Additionally, the ASF will never appear as a partner of an enterprise. However, there are so-called Memories of Understanding, for example between the Apache Software Foundation and the manufacturer Sun Microsystems.

Apache and Money

The ASF has two sources of income at present: Firstly by donations (the ASF can issue donation receipts as a non-profit organization). Secondly additional earnings come from a share in profits on Apache Conferences.

Although membership is restricted to individuals only and not permitted for companies, there is obviously some collaboration with the IT industry. Five members work for IBM, and there are two members from Sun. Brian Behlendorf's startup company, Covalent Technologies, an enterprise whose core business is Apache based products and support, is particularly prominent.

The Apache project is living proof that the world of Open Source is not only a competition for workable solutions and good code, but also all about successful development models. Developers seem to regard the ASF's approach as closer to the mark than many others, and this has made the ASF a magnet for projects.

Competition Between Development Models

It may have something to do with the largely autonomous approach of the subprojects or the ideological freedom of the decision makers, and it certainly has something to do with the attractiveness of the web server as a role model for free software rubbing off on to other Apache projects. But the ASF tend to turn down additional projects due to the increased coordination demands placed on them.

The relatively friction-free cooperation with IBM or SUN is probably due to the Apache licensing form, which is extremely easy on the IT industry and allows integration into proprietary software, in contrast to GPL, for example.

We will probably see another demonstration of the popularity of the Apache project at the Apache Con starting 19 Nov in Las Vegas. Last year the congress was cancelled as the organizer, Camelot, went bankrupt. The new organizer – Security Travel – also host the Black Hat and Def Con security conferences, and is thus conversant with hosting similar events. Five members of the Apache Software Foundation will be taking care of the technical side of the congress. ■