Behind the Scenes of the Apache Software Foundation

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What is the ASF?

• ASF stands for Apache Software Foundation
• The ASF is a registered non-profit organization
• Incorporated in the state of Delaware, USA
• The ASF is a volunteer organization
What is the ASF?

- all work is done by volunteers
- nobody gets paid by the foundation
Why the ASF?

- to provide a foundation for open, collaborative software development projects by supplying hardware, communication and business infrastructure
- to provide a means for individual volunteers to be sheltered from lawsuits directed at the foundation's projects
Why the ASF?

- to create an independent legal entity to which companies and individuals can donate resources and be assured that those resources will be used for the public benefit

- to protect the »Apache« brand, as applied to its software products, from being abused by other organizations
Bylaws of the ASF

- uncommon for a USA foundation ...
- bylaws can only be changed by the members or board of directory, but not just by the president
- annual vote of a new board of directors
- board members do not need to be residents of the USA
- becoming a new member requires a majority vote of all existing members
Before the ASF

• in 1995 a group of people got together to exchange software patches for the NCSA web server
• they started to call themselves the Apache Group
Before the ASF

- later that year they released their own web server: the Apache HTTP Server
- in less than 6 months (April 1996) they surpassed the NCSA web server adoption market share
  
  June 2005: 71%
Before the ASF

- thanks to its modular design, sister projects for web server modules came to gravitate around the Apache Group
- being leader of the market, the Apache Group started to fear abuse and lack of legal protection
- all this lead to the creation of the Apache Software Foundation in 1999
Why »Apache« as a Name?

- no, it isn’t an attack helicopter ...
- »a patchy« server? No, that's just a pun
- reference to the ASF's development philosophy:

»Characteristic of both Eastern and Western Apache, [...] was the lack of a centralized tribal organization. The band, an autonomous collection of small local groups within a given locality, was the primary political unit as well as the primary warring and raiding unit. The strongest headman of the local groups was recognized as an informal chief, and several bands might be united under one leader. Chieftainship was thus not generally hereditary.« (Encyclopaedia Britannica)
Meritocracy

- govern of merit
- the more merit you have, the more power you get
- no old-men club because of openness
Openness

- everybody can join
- everybody can disagree
- everybody can propose changes
Diversity

- diversity increases openness
- diversity increases the ability to adapt
- respecting diversity reduces balkanization
Software Darwinism

- software as a living entity, survives when it fits the environmental needs
- user-driven development beats marketing-driven development:
  - faster evolution cycles
  - better interoperability
  - better platform stability
The Chain of Merit

- User
- Committer
- Project Member
- ASF Member
User

• anybody who uses the software
• passive: does not contribute directly to the project (aka lurker)
• active: contributes directly to the project (aka contributor), either with code patches, feature requests, bug reports, answering questions on mail list, etc ...
Committer

- an active user that was elected for merit and, for this, receives:
  - write access to the project repositories (SVN and CVS)
  - an »apache.org« mail address and access to certain ASF server infrastructure
Contributer License Agreement (CLA)

- A contributer only grants the ASF a non-exclusive copyright license for his/her contributions.
- A contributer still reserves all rights, title and interest in his/her contributions.
- A CLA has to be signed by every contributor with commit access.
Project Member

• an active committer that was elected for merit in the evolution of the project, for this, receives:
  • the ability to vote
  • the ability to propose other people for committership
ASF Member

- a project member or committer that was elected for merit in the evolution of the foundation
- shareholder of the foundation
- can work on foundation projects/teams
- can propose committers for membership
- can elect the board
- can be a candidate for the board election
- can propose a new project for incubation
The Foundation Structure

Diagram showing the structure of the Apache Software Foundation:
- Board
- Foundation
- Projects:
  - PMC
  - Sub-projects:
    - Sub-project
    - Sub-project
Some Foundation Numbers

- 9 Directors
- 37 Officers
- 132 Members
- 13 Emeriti Members
- 1127 Committers

(October 2005)
The Board of Directors

- manages corporate assets (funds, intellectual property, trademarks, and support equipment)
- allocates corporate resources to the various projects
- 9 members elected every year
- makes no technical decisions!
Project Management Committee (PMC)

- manages a project (and its sub-projects) subject to the direction of the board
- each PMC has the faculty of establishing its own set of rules and procedures for day-to-day project management
... but many share the same
Communication

- communication is done mainly over asynchronous media (mostly mail lists)
- all communication is kept archived, so that others can join or have a reference
- this allows geographic distribution
Decision Making & Conflict Resolution

- **lazy consensus**
  - making a decision does not require the whole group to be involved

- **voting rules:**
  - +1 yes
  - 0 abstain
  - -1 no (veto)

- three +1 and no veto required for approval

- a veto requires proposal of an alternative solution or explanation of reason
Philosophy

- collaborative software development
- high-quality software
- respectful, honest, technical-based interaction
- faithful implementation of standards
- security as a mandatory part of software development
Licensing Philosophy

- ASF wants its software to be usable and modifiable by the largest number of people for any purpose they see fit
- commercial-friendly license
- no reciprocal conditions
- all packages produced by the ASF are implicitly licensed under the Apache License, Version 2.0 (new since February 2004)
Software Projects

- main purpose is to create, maintain and distribute software
- Current top-level projects:
Auxiliary Projects

- they do not distribute software, but help the foundation in specific domains
  - Infrastructure
  - Security
  - Incubator
  - Public Relations
  - Conference Planning
  - Legal
  - Java Community Process
ASF Incubator

- receives and filters proposals for the creation of new development efforts
- supervises and mentors the incubated communities for legal and community issues
- evaluates the maturity of incubated efforts, either promoting them or shutting them down (prevent Sourceforge effect)
Incubation Requirements and Goal

- **Requirements**
  - a working codebase
  - the intention to donate copyright and all IP rights to the foundation
  - a sponsoring member or officer

- **Goal**
  - create healthy and diverse communities around a software development effort
The Apache Security Team

- security@apache.org
- the central point of contact regarding potential security vulnerabilities in Apache Software
- manages vulnerability reports and coordinates efforts between projects
- reports are forwarded and handled by project-specific security teams (e.g., HTTP Server and Jakarta/Tomcat)
The Apache Public Relations Team

- fundraising@apache.org
  press@apache.org
- deals with public relations, trademark licensing, and fund-raising for the foundation
- common forms of donation:
  - money (check or via paypal.com), tax-deductable in the USA
  - buying ASF gear, e.g., T-Shirts
  - bandwidth and hardware
The Apache Conference Committee

- concom@apache.org
- organizes ApacheCon and similar events
- next event: ApacheCon Europe 2005
The Legal Team

- PMCs are responsible for handling legal issues of the project
- The ASF Legal Team provides assistance with legal issues and addresses legal policies.
The Java Community Process

- represents the ASF in the Java Community Process, responsible for the maintenance and evolution of the Java Platform
ASF Infrastructure

- the ASF is a virtual organization: no offices or building
- only physical existence is the technical infrastructure that runs its services
  - web services
  - source code repositories
  - mail services
  - issue/bug tracking services
  - distribution mirroring
The Infrastructure Team

- manages the ASF infrastructure 24/7
- 16 servers located at 4 co-locations
- people close to the location of the servers (mainly USA bay area) get notified if machines go down
Some Infrastructure Numbers

- Web servers:
  - about 50 requests per second
  - about 4 million hits per day
  - about 5 TByte per month

(average numbers)
Some Infrastructure Numbers

- Mail servers:
  - handling user accounts and more than 270 public lists with a total of about 95,000 subscribers
  - about 2.5 Mio connects per day
  - about 1 Mio messages processed per day
- Rejected (RBLs): about 1.5 Mio per day
- Filtered (spam): about 16,000 per day
- Filtered (virus): about 25,000 per day
Some more Infrastructure Numbers

- Source Code Repository: 25 GB
- Binary Repository: 6GB
- Mirror servers:
  - currently 265 mirrors in 54 countries
  - about 450 Gbyte per month of rsync traffic
  - about 2 Mio file transfers per month
Public Foundation-wide Mailing Lists

- announce@apache.org (read only)
- community@apache.org
- woman@apache.org
- announce@apachecon.com (read only)
The Future of the ASF

- The future is what you make of it ...
  - all Apache work is based on someone needing something at some point and just doing it
  - all Apache technical decisions are discussed and implemented on public mailing lists
  - all you have to do to start is subscribe and participate

»The best way to predict the future is to invent it.«
(Dr. Alan Kay)
Any Questions?