

Inetd Enhancements -- Add New Features to Inetd

About Project

Goal of the Project: Add new features to `inetd` (Internet Service Daemon)

Programme: Google Summer of Code, 2016

Organization: The NetBSD Foundation

Category: Operating Systems

Operating System: NetBSD

Deliverables: Code, and the documentation

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Overview

Inetd is a classic method for launching network programs on the fly and some of its ideas are coming back into vogue. It is a super server daemon (process) that listens on a number of ports and when it receives a request it launches the appropriate server program to handle the connection/request. RHEL / CentOS / Fedora Linux runs **xinetd** (and xinetd.conf) and BSD family / Debian / Ubuntu Linux / Mac OS X runs **inetd** (and inetd.conf). The goal of this project, in a nutshell, is to enhance inetd such that

Enhanced inetd = Advantages of inetd + Advantages of xinetd

Milestones

1. Prefork: Support pre-forking multiple children and keeping them alive for multiple invocations
2. Per service configuration file: Add a per-service configuration file similar to xinetd
3. Make the rate-limiting feature configurable on a per-service basis
4. Improve the logging and make logging modes configurable on a per-service basis

Intended Schedule

I. April 22, 2016 - May 22, 2016: Community Bonding

II. May 23, 2016 - June 28, 2016: Milestones #1 and #2

Inetd should create worker processes in advance, so time is not wasted forking when a worker (service) is needed. One efficient way to do that is to maintain a log/data structure of frequently 'launched' services; for example - ftp, telnet, login, tftp are frequently used when compared to discard, and chargen. Also, the configuration file should be similar to xinetd.

III. June 29, 2016 - Aug 16, 2016: Milestones #3 and #4

Inetd, like xinetd, should provide more granular control of the services along with the control over RPC with improved logging of services. Once the primary milestones are met, inetd should be extended to secondary milestones/goals stated in the project description - @link: <http://wiki.netbsd.org/projects/project/inetd-enhancements/>

About the Project and NetBSD

My working area is the core NetBSD operating system. It has been two weeks since I started working on NetBSD, and I must say, it is one of the best operating systems out there. I am working my way through NetBSD documentation, learning new things and protips. I am 20% through the source code of inetd already (at the time of writing this proposal). My project integrates into NetBSD as a **userland tool**.

Interfaces Needed for the Project

Filename #1:	/usr/sbin/inetd (Source Code)
Filename #2:	/etc/inetd.conf (inetd configuration file)
Filename #3:	/etc/services (services database)
Filename #4:	/etc/protocols (DARPA internet protocols)
Filename #5:	/etc/rpc (name mappings to rpc program numbers)
Filename #6:	/etc/hosts (to allow or block hosts)

Note: filenames are provided along with absolute paths.

Familiarity with the above interfaces:

I am well versed in operating system concepts, networking, and I am able to write efficient, secure C code which is required for the project. Having said that, Since I am a newbie to open source community, on a scale of one to ten - ten being the "genius level intellect/familiarity", I would give myself a 'five (5)'.

About Me

Name: Shalom Rachapudi David

Education:

- **Master of Science (Computer Science)**, Sept 2016 to Aug 2017
University of Edinburgh, United Kingdom
- **Bachelor of Technology (Computer Science and Engineering)**
Jawaharlal Nehru Technological University, Hyderabad, India
Grade: First Class with Distinction (70.17%)

Religious Views: Christian

Political Views: Neutral

Open Source Level: Newbie

Interests: Kernel Programming, Ethical Hacking, and Music

Prior Experience with NetBSD: None, newcomer.

However, I have contacted 'tech-kern (tech-kern@NetBSD.org)' regarding the project posted on <http://wiki.netbsd.org/projects/project/aprint/>

Projects:

- Designed Lexical Analyser, and Parser
- Modelling and detection of Camouflaging worm
- Compiler (Ongoing - Just a fancy project to learn programming aspects of compilers in depth)

Will I be a good fit?

I believe I am because I am positive, and persistent. I possess never ending will to accomplish and always love to work behind the scenes. I believe in the quote - "You have to serve in order to lead."

Why am I applying?

I, an aspiring kernel programmer, assure you that it is not for money or fame. I would love to work on this project irrespective of the outcome of GSoC application because I believe that this will be the ticket to my never ending journey as kernel/systems programmer in open source community.

Resources

1. <https://en.wikipedia.org/wiki/lnetd>
2. <https://en.wikipedia.org/wiki/Xinetd>