

Open Source Project from China

Northeast Asia Open Source Software Competition

Nov. 2012

Projects

- PMON: BIOS for Loongson CPU
- TCPCopy: A stress test utility for real-time network traffic
- FastDFS: A lightweight distributed file system
- Linux Deepin: A Linux distribution aimed at beautiful desktop environment and ease of use

Introduction of PMON

- Loongson: a general-purpose CPU developed at the Institute of Computing Technology (ICT), Chinese Academy of Sciences (CAS), which uses reduced instruction set, somewhat like MIPS
- PMON acts as the BIOS system in the Loongson hardware platform. It has the powerful and rich features as hardware initialization, OS booting, hardware testing, program debugging and more. It supports various booting media as USB device, CD/DVD-ROM, TFTP and hard disk. It provides test utilities for memory, serial port, display, NIC, hard disk, etc. It also supports firmware upgrade.
- Website:<http://www.loongson.cn/dev/community/openproject/pmon>

Tech Features of PMON

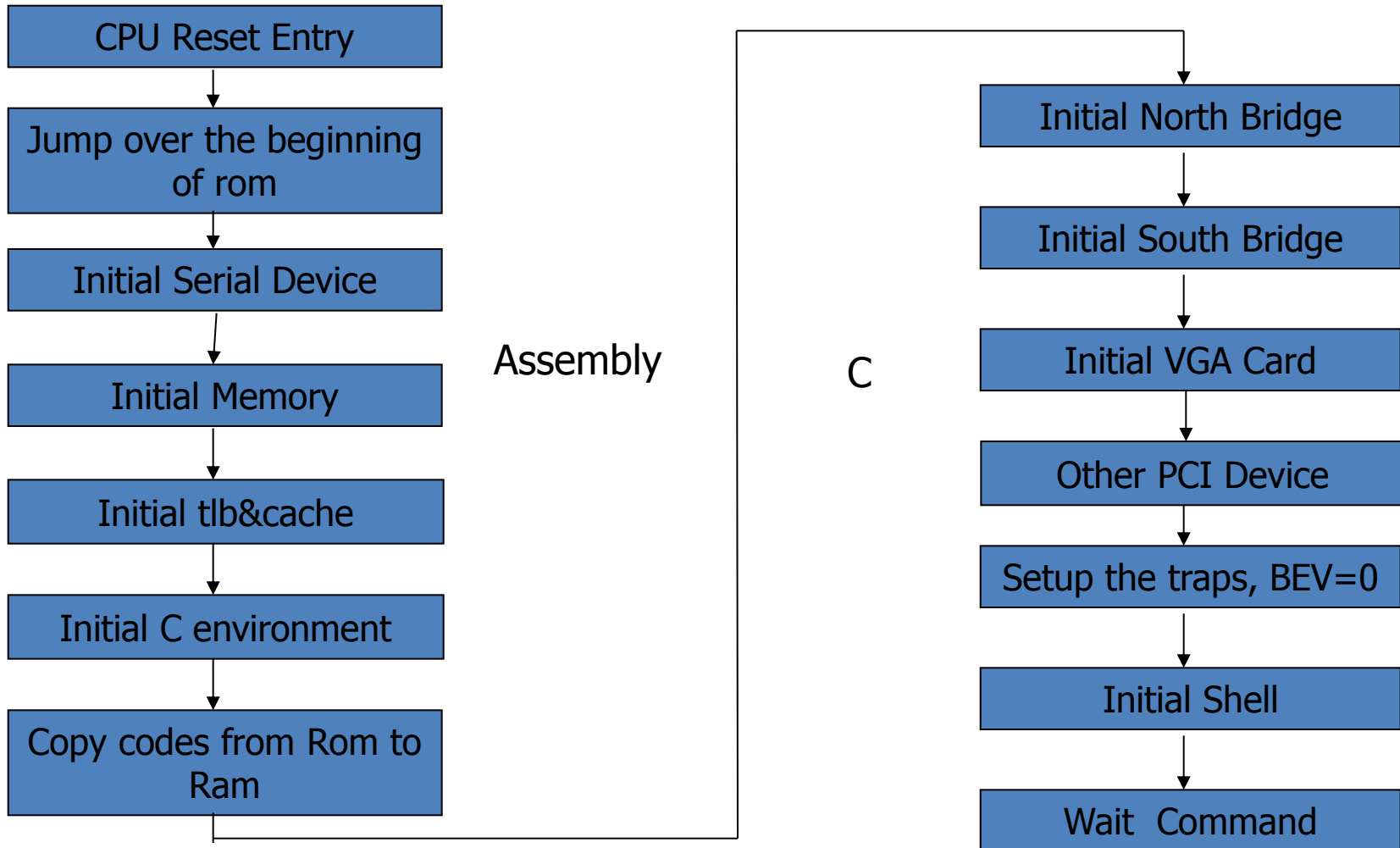
Original PMON2000 2.x

- Open source and stable embedded firmware
- Complies with ASIN C, Free BSD
- Supports ARM/MIPS/X86/PPC
- Debugged included, with SDK Kit
- Supports FAT
- Supports booting from USB/IDE/TFTP
- Able to run application and output from serial port

PMON for Loongson

- Based on PMON2000
- X86 Emulation added
- Compression/Decompression included
- UEFI/SMBIOS supported
- General-purpose CPU supports added
- Support for independent board bridge added
- Graphic console added

Execution Flow of PMON



Introduction of FastDFS

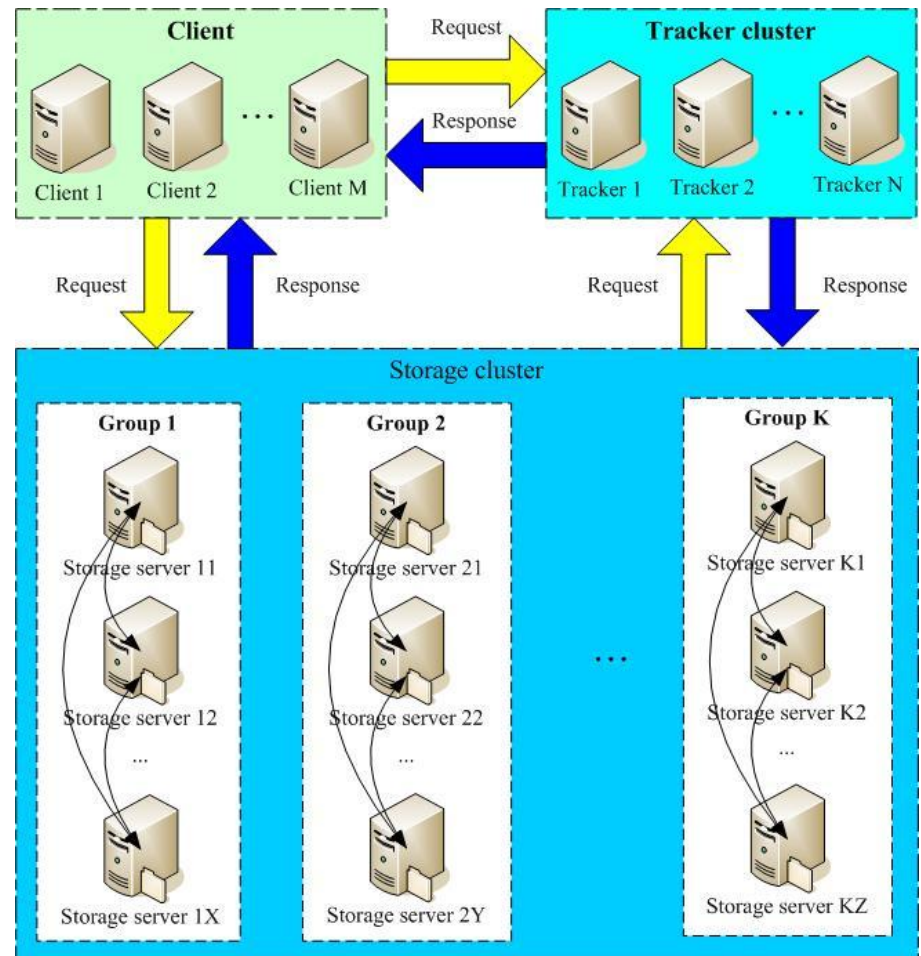
- FastDFS is an open source lightweight distributed file system, whose features include file storage, file syncing, file upload and download, which has solved the problem of mass storage and load balancing. It fits especially well with file based online service, such as online album, video website, etc.
- Founded in Apr. 2008
- Source: <http://code.google.com/p/fastdfs/>
- Forum: <http://www.csource.org/>

Features of FastDFS

- Implemented in pure C and supports Linux, FreeBSD and *NIX systems
- Inaccessible from standard file op functions(just like GFS) and can only be accessed by our defined APIs. We currently provide APIs in C, Java and PHP.
- It's customized for web applications, aims at performance and scalability and has solved the problem of mass storage.
- FastDFS can be regarded as a key-value pair storage system and might be better called a distributed file storage service.

Principles of FastDFS

- 2 roles: tracker server and storage server
- FastDFS generates a file id as the file access token. There' s no need of file index storage and thus no need of the traditional name server.
- There' s no master-slave relation and every server is equal.
- Storage servers are grouped. Servers in a same group are duplicates of each other(based on RAID 1).
- Scale out to increase the total capacity. Scale up to provide more load processing ability.



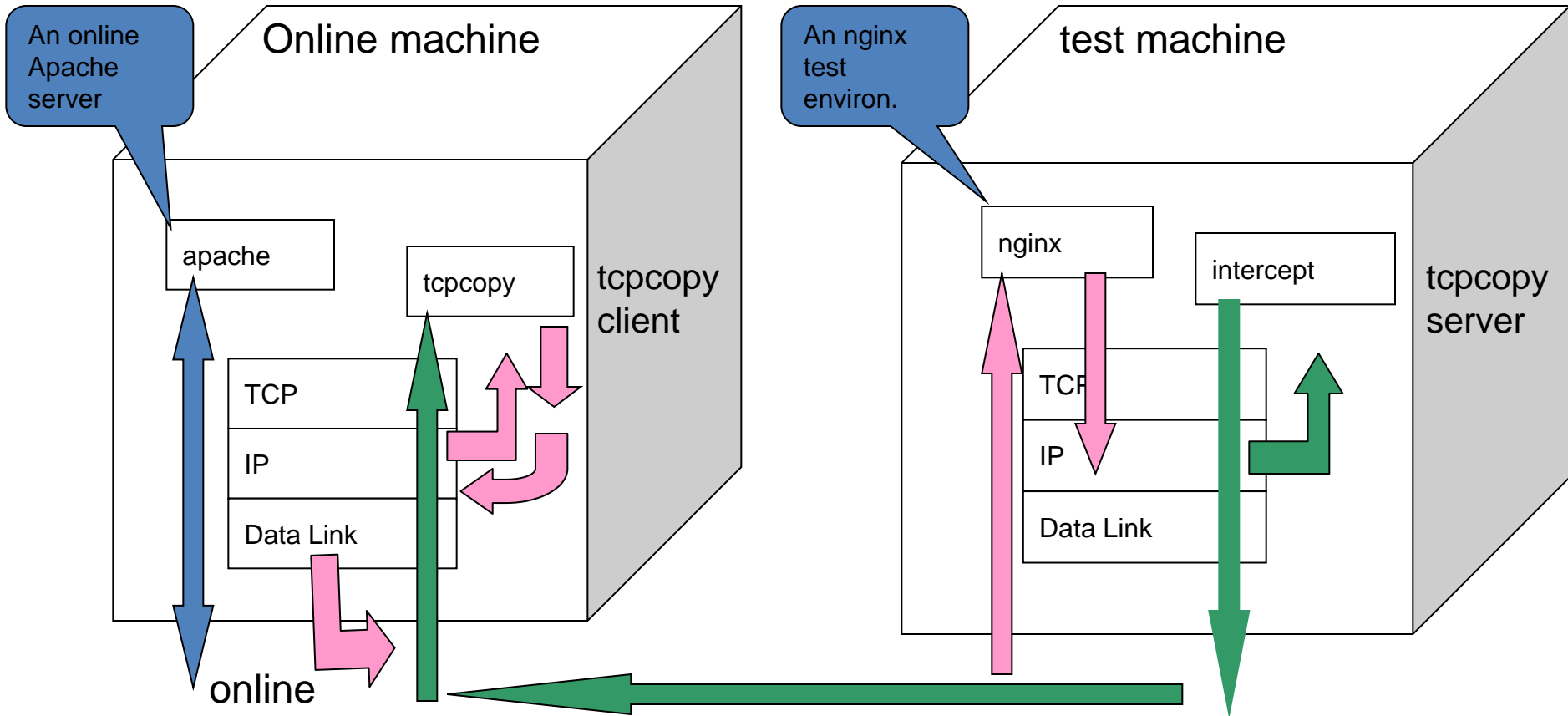
FastDFS Application Scenarios

- Used in more than dozens of commercial companies in production systems
- Customers cover industries of financial, cloud storage, video, games and more
- A typical customer: more than 200 server groups with a total storage over 3 PB and files over 100 million

Introduction of TCPCOPY

- TCPCopy can copy the online servers' TCP traffic to the testing environment for real production environment traffic testing without affecting the production system.
- Main Characteristics
 - Performance
 - Distributed stress test
 - More real than traditional stress test tool
 - Performance AB test, e.g. Apache vs. Nginx performance comparison
 - Availability
 - Hot backup
 - Test for server crash
 - DDoS attack test
 - Preheat
 - Testability
 - Smoke test
- Open sourced in Sep. 2011
- <https://github.com/wangbin579/tcpcopy>

Principle of TCPCOPY



TCPCOPY Applications

- Used in 4 of China's TOP10 websites
- Users include China's biggest search engine baidu.com, the biggest portal sina.com.cn and the biggest e-commerce site taobao.com

Linux Deepin

- Linux Deepin is the most active Linux community distribution in China. It's based on Ubuntu and Debian repositories and aims at building the most usable desktop Linux distribution.
- Founded in 2004, renamed to Linux Deepin and published to the whole community in 2009.
- Website: www.linuxdeepin.com
- Source: github.com/linuxdeepin

Architecture of Linux Deepin

- Foundation: based on Ubuntu and Debian repositories
- Desktop: based on Gnome Shell and DGSE with a lot of customizations
- Applications by us: Software Center, Music Player, Video Player, Screen Capture Utility...
- Deepin-UI GUI Layer

Deepin-UI

- Deepin UI is a GUI library developed by Linux Deepin team which aims at boosting development speed and improve the Linux desktop application usability.
- Main Features
 - Designers are free to follow his own creativity in GUI design and is no longer restricted by GTK+ default control looks and layouts.
 - Fast and easy-to-use theme engine. You no more need to jigsaw a theme like in old GTK/QT apps. With the support of them engine' s alpha control, you can achieve your desired excellent effect with only a favorite image of yours.
 - Rich customizable controls and styles provided. You can get every control you need in Deepin UI lib.
 - Plenty of application modules included. Developers no longer need to waste time in basic functions such as window dragging, gradient effect, rounded window, mutex window, etc.

Gnome Shell/DGSE Customization

- A lot of customizations for Gnome Shell



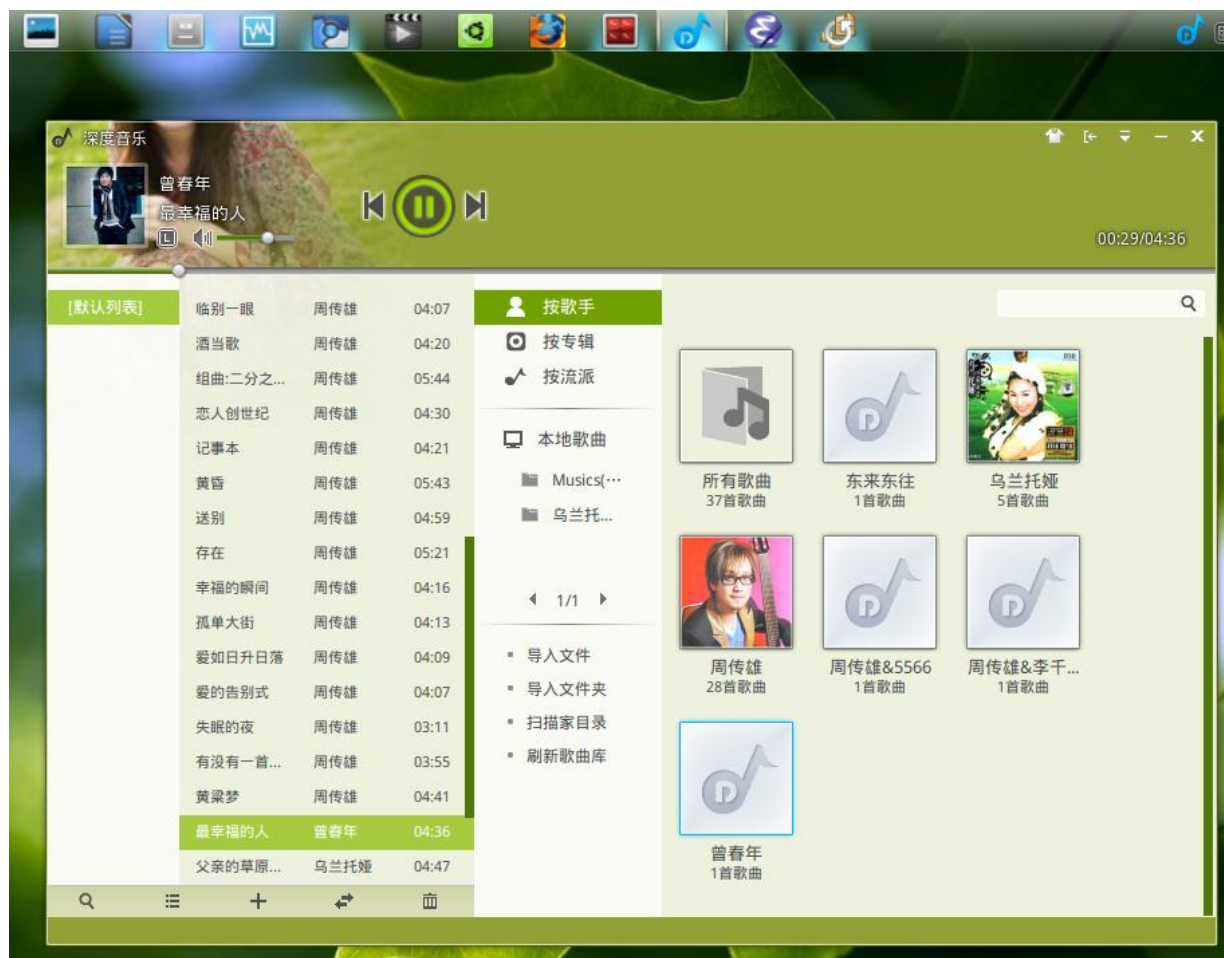
Deepin Software Center

- Easy-to-use software installation utility for mass users
- One key to install, run and uninstall any software without remembering any command line
- Timely update for any software
- Detailed description, screen shots and user comments for every software



Deepin Music Player

- Designed in mind of CJK to erase any mess in charset and encoding
- Online lyric search and direct screen display for lyrics
- Free music format transformations
- Theme management based on Deepin UI
- Various kinds of lyric lib support



Deepin Video Player



- Theme management based on Deepin UI
- Support almost any video support
- Online subtitle search
- Free video format transformations

Deepin Screen Capture

- Lightweight and agile screen capture utility
- In-place editing of screen capture
- Direct share among main stream SNS sites
- Supports various desktop environment and multiple monitors



Applications

43	Tails	296▲
44	MEPIS	294-
45	wattOS	292-
46	Oracle	288▲
47	Semplice	281▼
48	antiX	274▲
49	BackBox	273-
50	Deepin	261-
51	Peppermint	259-
52	aptosid	257-
53	FreeNAS	256-
54	Salix	255-
55	Snowlinux	244▲

- More than 5 million download in total, daily active users over tens of thousands
- Ranks 50 in Distrowatch.com
- Full time developers over 20, community contributors over 100, and community active users over 10,000
- Already deployed in companies for daily use

Acknowledgements

- Every open source community user from China and the world
- Chinese Open Source Promotion Union
- Northeast Asia Open Source Software Competition