Chapter 2　Software

Unit 2.3 Linux

备课时间：2019-10-10

词汇与词组

1. Linux is one of the most **prominent** examples of **free software** and **open source development**.

   ➢ **prominent**　杰出的，著名的

   ➢ **free software**　自由软件：用户可以自由地运行，拷贝，分发，学习，修改并改进该软件 Libre Software

   ➢ 使用最广泛的自由软件许可证—— GNU 通用公共许可证(**GNU General Public License, GPL**)

   ➢ GNU 编译器套件(GNU Compiler Collection, **GCC**)

   ➢ 1994 年，Linus 第一次采用 GNU 通用公共许可证(GPL)，发布了 Linux 的 1.0 版本

   ➢ **open source development**　开放源代码开发

   ➢ 1998 年，Jon "maddog" Hall 、Larry Augustin、Eric S. Raymond 和 Bruce Perens 等正式开始了开放源码运动

2. The Linux kernel was first **released** to the public on 17 September 1991, for the Intel x86 PC architecture.

➢ **Release** /rɪˈliːs/ 发布 to permit to be published, sold, or shown

There are several main categories into which kernel releases may fall:

Prepatch 预发行

Prepatch or "RC" kernels are **mainline** kernel pre-releases that are mostly aimed at other kernel developers and Linux enthusiasts. They must be compiled from source and usually contain new features that must be tested before they can be put into a stable release. Prepatch kernels are maintained and released by Linus Torvalds.

Mainline 主线树

Mainline tree is maintained by Linus Torvalds. It's the tree where all new features are introduced and where all the exciting new development happens. New mainline kernels are released every 2-3 months.

Stable 稳定

After each mainline kernel is released, it is considered "stable." Any bug fixes for a stable kernel are backported （回溯） from the mainline tree and applied by a designated stable kernel maintainer. There are usually only a few bugfix kernel releases until next mainline kernel becomes available -- unless it is designated a "longterm maintenance kernel." Stable kernel updates are

released on as-needed basis, usually once a week.

Longterm 长期维护

There are usually several "longterm maintenance" kernel releases provided for the purposes of backporting bugfixes for older kernel trees. Only important bugfixes are applied to such kernels and they don't usually see very frequent releases, especially for older trees.

3. The kernel was **augmented** with system utilities and libraries from the **GNU** project to create a usable operating system, which later led to the alternate term GNU/Linux.

   ➢ **Augment** /ɔːgˈment/ : to make larger; enlarge in size, number, strength, or extent; increase

   ➢ **Argument** /ˈɑːgjumənt/：参数 parameter

   ➢ **system utilities** 系统实用工具（软件）

   ➢ **Library 程序库**

   ➢ **GNU** 是"GNU's Not Unix!"的首字母递归缩写；它是 g 发音的单音节字，就像"grew"，但要用字母"n"替换掉"r"

   ➢ **GNU 计划**，是由理查德·斯托曼（Richard Stallman）在 1983 年 9 月 27 日公开发起的自由软件集体协作计划，目标是创建一套完全自由的操作系统 GNU

   ➢ GNU 和 Linux 的组合是 GNU/Linux 操作系统

   ➢ 大多数使用 Linux 内核的操作系统发行版基本上是 GNU 操作系统的修改版

➢ Alternate term 替代术语（词）

4. Linux is now packaged for different uses in Linux distributions, which contain the sometimes modified kernel along with a variety of other packages **tailored to** different requirements.

➢ Tailor 专门制作

➢ To 按照不同的需求

➢ **tailor made for 为...量身定制**

The beautiful San Juan Islands in Washington State are **tailor made for** romance.

圣胡安群岛位于华盛顿，是一个美丽而浪漫的岛屿。

5. **Predominantly** known for its use in servers, Linux has gained the support of corporations such as **IBM**, **Sun Microsystems**, **Dell**, **Hewlett-Packard** and **Novell**, and ... and **routers**.

➢ **Predominantly 主要地；显著地**

➢ **IBM** 美国国际商用机器公司（International Business Machine，1911 托马斯·沃森创立于美国）

➢ **Sun Microsystems 太阳微系统公司，已被 Oracle（甲骨文）收购**

➢ **Dell 戴尔（公司），迈克尔·戴尔（Michael Dell，1965 出生），戴尔公司董事会主席兼首席执行官，1984 年 1 月 2 日，戴尔注册了"PC 有限公司"。一开**

始，戴尔就在当地报纸上打出广告把印有自己名字（Dell）的成品组装机卖给用户，每月收入达 5～8 万美元。

➢ **Hewlett-Packard** 惠普（美国计算机公司）由比尔·休利特（Bill Hewlett）及大卫·帕卡德（David Packard）于 1939 年所创办

➢ **Novell** 网络系统公司，主要产品 NETWARE 网络操作系统可将多台个人电脑连接到一个统一的整合子目录，存储，打印，数据库等的网络中

Novell Inc., a global software leader, began managing and securing work environments and making people more productive in 1979.

Novell was acquired by The Attachmate Group in 2010, and by Micro Focus International in 2014. Novell products are now part of the Collaboration, Security, and File and Networking Services portfolios of Micro Focus.

➢ **Router** /'ruːtə(r)/ 路由器 a device which sends data to the appropriate parts of a computer network

The BrandZ rankings of the world's most valuable brands have been compiled by WPP's research arm Kantar since 2006. BrandZ calculates the value that brand contributes to businesses by combining financial and market data with surveys of nearly 4m consumers in 51 countries on their views about brands.

Rank 2019 ⇕	Rank 2018 ⇕	Change ⇕	Brand ⇕	Category ⇕	Country of Origin ⇕
1	3	+2	Amazon	Retail	US
2	2	na	Apple	Technology	US
3	1	-2	Google	Technology	US
4	4	na	Microsoft	Technology	US
5	7	+2	Visa	Payments	US
6	6	na	Facebook	Technology	US
7	9	+2	Alibaba	Retail	China
8	5	-3	Tencent	Technology	China
9	8	-1	McDonald's	Fast Food	US
10	10	na	AT&T	Telecom Providers	US
11	12	+1	Verizon	Telecom Providers	US
12	15	+3	Mastercard	Payments	US
13	11	-2	IBM	Technology	US

6. The UNIX operating system was **conceived** and implemented in the 1960s and first released in 1970.
   ➢ Conceive 构想

7. One so-called UNIX-like system was GNU, started in 1984, which had the goal of creating a **POSIX**-compatible operating system from entirely free software.

➤ **POSIX:** The **P**ortable **O**perating **S**ystem **I**nterface for UNI**X** a set of formal descriptions that provide a **standard** for the design of operating systems, especially ones which are compatible with UNIX. The goal of POSIX is to ease the task of cross-platform software development by establishing a set of guidelines for operating system vendors to follow.

8. In 1985, Richard Stallman created the **Free Software Foundation** and developed the GNU General Public License.

➤ **Free Software Foundation（https://www.fsf.org/）自由软件基金会**

The Free Software Foundation (FSF) is a **nonprofit** with a worldwide mission to promote computer user **freedom**.

➤ The Foundations of the GPL

Nobody should be restricted by the software they use. There are four freedoms that every user should have:

1) the **freedom** to **use** the software for any purpose,

2) the **freedom** to **change** the software to suit your needs,

3) the **freedom** to **share** the software with your friends and neighbors, and

4) the **freedom** to **share** the changes you make.
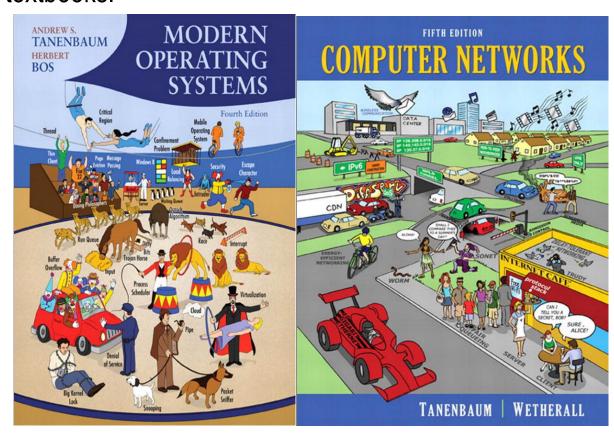
https://www.gnu.org/licenses/quick-guide-gplv3.html

9. Daemon　/ˈdiːmən/

➢ 守护程序

➢ 虚拟光驱

➢ a creature in ancient Greek stories that is half a god and half a man

〔古希腊神话中的〕半人半神的精灵，半神

➢ **Demon /ˈdiːmən/** 恶魔

1) **Daemon** refers to **benevolent** (/bəˈnevələnt/仁慈的) and **noble** (/ˈnəʊbl/高尚的) spirits in Greek mythology.

2) On the other hand, **demon** refers to an **evil** (/ˈiːvl/邪恶的) creature. This is the main difference between the two words.

3) The origins of both daemon and demon can be traced back to Greek mythology.

4) However, it was **Christianity** (/ˌkrɪstiˈænəti/基督教) not Greek mythologies that put a **malignant** (/məˈlɪgnənt/有恶意的) and **darker** meaning to demons.

➢ **Daemon/Demon Armour ?**

10.　Stall　/stɔːl/ 熄火；拖延；（飞机）失速

The engine stalled.

发动机突然熄火了。

11. MINIX, a UNIX-like system intended for academic use, was released by **Andrew S. Tanenbaum** in 1987.

   ➢ **Andrew Stuart Tanenbaum** (born 1944) is an American computer scientist living in the Netherlands. He is best known as the author of Minix, a free Unix-like operating system for teaching purposes, and for his computer science textbooks.

12. With code from the GNU system freely available, it was advantageous if this could be used with the **fledgling** OS.

   ➢ **fledgling 菜鸟；年轻的**

   You use **fledgling** to **describe** a person, organization, or system that is **new** or **without experience**. 新的；无经验的(人、组织、系统)

例句：

He was chosen in 1996 to begin training for China's **fledgling** space programme.

1996 年，他被选中，开始为中国**刚起步的**太空计划进行培训。

13. Linux and GNU developers worked to **integrate** GNU components **with** Linux make a **fully functional** and free operating system.

> **integrate... with...** 整合

> **Fully functional** 功能完备/齐全的

14. Today Linux is used in **numerous domains**, from embedded systems to supercomputers, and has **secured** a place in server installations with the popular **LAMP** application **stack**.

> **Numerous** 很多的

> **Secure：**If you secure something that you want or need, you **obtain** it, often after a lot of effort. 争取到；获得；占据

> **LAMP** 是指**一组**通常一起使用来运行动态网站或者服务器的自由软件名称首字母缩写：

1) **L**inux，操作系统

2) **A**pache，网页服务器

3) **M**ariaDB 或 **M**ySQL，数据库管理系统（或者数据库服务器）

4) **P**HP、**P**erl 或 **P**ython，脚本语言

➢ **Stack： software suite or bundle 软件套件或组合**

15. Stallman **heads** the Free Software Foundation, which in turn develops the GNU components.

➢ **Head** 作为···的首领；领导【动词】

➢ **in turn :** as a result of something in a series of events

例句：（翻译成"紧接着...；于是"？）

1) Increased production will, **in turn**, lead to higher profits.

2) She was very angry with me and I **in turn** was very upset.

16. Finally, individuals and corporations develop **third-party** non-GNU components.

➢ **Third-party** 第三方的

➢ 两个相互联系的主体之外的某个客体，叫作第三方

➢ IT 行业**第三方服务**是指由非原厂商提供的，针对多品牌产品的 IT 基础设施服务

➢ **Third-Party Payment 第三方支付**

1) 是具备一定实力和信誉保障的独立机构，采用与各大银行签约的方式，提供与银行支付结算系统接口的交易支持平台的网络支付模式。

2) 买方选购商品后，使用第三方平台提供的账户进行货款支付，并由第三方通知卖家货款到账、要求发货；买方收到货物，并检验商品进行确认后，就可以通知第三方付款给卖家，第三方再将款项转至卖家账户上。

3) 第三方支付作为目前主要的网络交易手段和信用中介，最重要的是起到了在网上商家和银行之间建立起连接，实现第三方监管和技术保障的作用。

17. Most Linux distributions support **dozens** of programming languages.
   ➢ Linux distributions：Linux 发行版本[Ubuntu，Mint，Fedora]
   ➢ **dozen 十二个**
   ➢ **dozens** 许多

18. The most common collection of utilities for ..., is found with the GNU **toolchain**, which includes the GNU Compiler Collection (GCC) and the GNU build system.
   ➢ collection 套件
   ➢ **Toolchain** 工具链，软件开发过程中所涉及的一堆的开发工具的组合（编译器+库+链接器+调试器）
   ➢ **GNU build system**： ./configure && make && make install GNU 构建系统：利用脚本和 make 程序在特定平台上构建软件
      1) configure 脚本是由软件开发者维护并发布给用户使用的 shell 脚本，作用是检测系统环境，最终目的是生成 Makefile 和 config.h
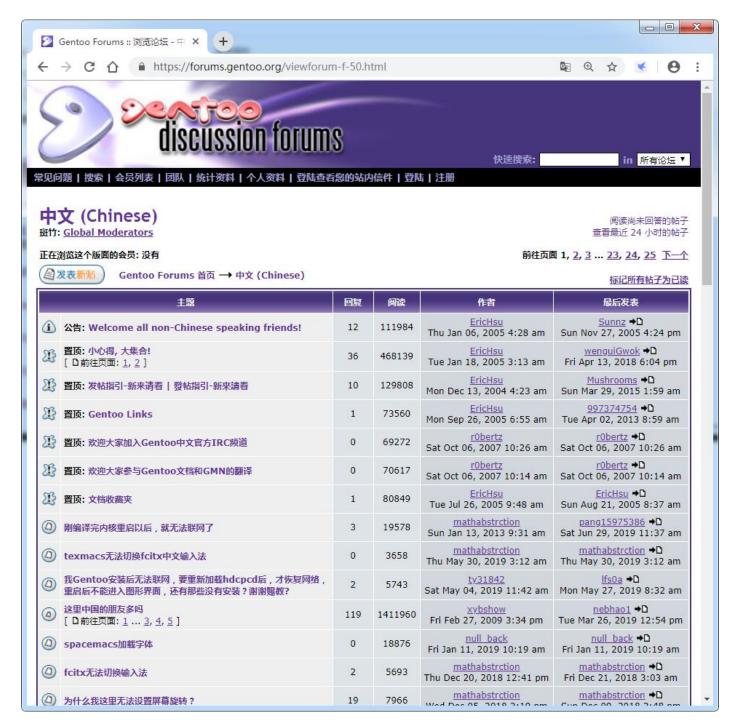   2) configure 主要检查当前目标平台的程序、库、头文件、函数等的兼容性。这些检查结果将作用于

config.h 和 Makefile 文件的生成，从而影响最终的编译

3) make 通过读取 Makefile 文件，开始构建软件

4) make install 可以将软件安装到需要安装的位置

19. **Proprietary solutions** 专有的解决方案

➢ Proprietary /prəˈpraɪətri/ 专有的、专属的

➢ A proprietary solution is a hardware or software product or combination of products and services that is tied to a specific vendor, to the exclusion of all other vendors.

20. Linux is largely driven by its developer and user **communities**.

➢ Community /kəˈmjuːnətɪ/ 社区

21. Some vendors develop and **fund** their distribution on a **volunteer** basis, **Debain** being a well-known example.

➢ Fund 投资；资助 When a person or organization funds something, they provide money for it

➢ Volunteer 志愿的

➢ Debain 不只是提供一个纯粹的操作系统：它还附带了超过 59000 个软件包，这些预先编译好的软件被打包成一种良好的格式以便于在您的机器上进行安装

22. Most distributions and open source projects have **IRC chatrooms** or **newsgroups**.

> ➢ 互联网中继聊天（IRC，Internet Relay Chat 由芬兰人 Jarkko Oikarinen 于 1988 年首创的一种网络聊天协议）是包括一套规则、习惯用法和客户、服务器软件的聊天系统

> ➢ It consists of various **separate** networks (or "nets") of IRC servers, machines that allow users to connect to IRC. IRC is very similar to text messaging, but designed around communicating with **large groups of users** instead of one on one.

> ➢ **Newsgroup：** a place in a computer network, especially the Internet, where people can discuss a particular subject and exchange information about it （网络）新闻组；（计算机系统）新闻组

23. Online **forums** are another means for support, with notable examples being LinuxQuestions.org and the Gentoo forums.

> ➢ Forum [ˈfɔ:rəm] 论坛

> ➢ notable 著名的

> ➢ Gentoo 巴布亚企鹅，又叫绅士企鹅，它们的特点在于从眼睛延伸到头顶的白色条纹，还有独特的橙色的喙(huì)

24. Linux Weekly News is a weekly digest of Linux-related news.

 ➢ weekly digest 每周文摘

25. The Linux **Journal** is an online magazine of Linux articles published monthly.

 ➢ Journal 期刊

Linux Journal Ceases Publication: An Awkward Goodbye
IMPORTANT NOTICE FROM LINUX JOURNAL, LLC:

On August 7, 2019, Linux Journal shut its doors for good. All staff were laid off and the company is left with no operating funds to continue in any capacity. The website will continue to stay up for the next few weeks, hopefully longer for archival purposes if we can make it happen. – Linux Journal, LLC

✧LLC：Limited Liability Company 有限责任公司

26．Slashdot is a technology-related news **website** with many stories on Linux and open source software.

➢ **website**：网站 a place connected to the Internet, where a company or an organization, or an individual person, puts information

27．Groklaw has written in depth about Linux-related legal **proceedings**.

➢ **Legal proceedings 法律事项**

➢ Proceedings 会议论文集

28．The relationship between Linux as a whole and individual vendors may be seen as **symbiotic**.

➢ **Symbiotic /sɪmbaɪˈɒtɪk/ 共生的**