



---

# Welcome

---

## Why Use Linux?

Stan Reichardt  
[stanr@sluug.org](mailto:stanr@sluug.org)

# Introduction



stan reichardt

*GNU/Linux for Beginners*

*Brought to you by the*

NewLinux Linux Users Group

<http://www.newlinux.org/>

*A Special Interest Group of the*

St. Louis Unix Users Group (SLUUG)

<http://www.sluug.org/>

## All About Me

### Stan Reichardt

- I started a beginner friendly user group for Linux newcomers **formerly** known as the Hazelwood Linux Users Group (<http://hzwlug.sluug.org>) in November 2000. Also, I am currently Vice-President of the St. Louis Unix Users Group. Both groups meet monthly. Membership and meetings are free.
- My start was around hobby computers back in the 1970's while on Active Duty with the U. S. Army Reserve. My interest became professional and over the next 10 years work included networked mini-computer systems, desktop PCs, help desk support for desktop users, data base programming, Unix System Administration, bulletin boards and more. I retired from Active Duty as an Information Systems Chief out of the U. S. Army Reserve Command.
- Contract work followed doing Software Deployment for the U. S. Postal Service, UNIX System Administration for U. S. Army Material Command, Linux Subject Matter Expert for Wave Technologies International, Senior Security Engineer auditing and evaluating security assessments for the U. S. Veterans Administration.
- I have received Linux +, and Security + certifications from CompTIA, the IT Industry Trade Association. That was years back.

01/19/23 12:59

3



## We will make Comparisons

In addition to **reasons**, we will try to **compare** and **contrast**, listing both of the following:

**Advantages**

**Challenges**

**Alternately sometimes described as:**

Compare

Contrast

Feature

Defect

Good

Bad

Opportunities

Obstructions

Plus

Minus

Pros

Cons

Value

Liability

# 1. Free or very low cost



## Advantages

- a. Free is always good
- b. Lots of free open source applications
- c. No limit on number of installations

## Challenges

- a.
- b.
- c.
- d.

5

Free software can be changed to match problem, only time and effort. So solution return on investment is only measured on time and effort.

Hard (impossible) to count number of users

[http://en.wikipedia.org/wiki/Linux\\_Counter](http://en.wikipedia.org/wiki/Linux_Counter)

The Linux Counter also has several built in drawbacks:

- Only people who run across mention of it on Linux enthusiast web pages are likely to hear about it, although several important Linux documents also mention it
- Only people with E-mail or Web access can register with it
- Accounts of people who forget to re-visit the website are deleted after two years.
- And most importantly: Only people who \*care\* to be registered can be counted.

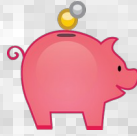
**About some good reasons to count:**

[http://en.wikipedia.org/wiki/Smolt\\_\(Linux\)](http://en.wikipedia.org/wiki/Smolt_(Linux)) [a now defunct programming effort]

Collecting this kind of data across distributions could:

- aid developers in detecting hardware that is poorly supported
- focus efforts on popular hardware
- provide workaround and fix tips[5]
- help users to choose the best distribution for their hardware
- convince hardware vendors to support Linux

## 1. Free or very low cost



### Advantages

- a. Free is always good
- b. Lots of free open source applications
- c. No limit on number of installations

### Challenges

- a. Still takes time and effort
- b. Wary disbelief that free software is good
- c. It is hard to sell free software
- d. Cost is the least important reason

6

Free software can be changed to match problem, only time and effort. So solution return on investment is only measured on time and effort.

Hard (impossible) to count number of users

[http://en.wikipedia.org/wiki/Linux\\_Counter](http://en.wikipedia.org/wiki/Linux_Counter)

The Linux Counter also has several built in drawbacks:

- Only people who run across mention of it on Linux enthusiast web pages are likely to hear about it, although several important Linux documents also mention it
- Only people with E-mail or Web access can register with it
- Accounts of people who forget to re-visit the website are deleted after two years.
- And most importantly: Only people who \*care\* to be registered can be counted.

**About some good reasons to count:**

[http://en.wikipedia.org/wiki/Smolt\\_\(Linux\)](http://en.wikipedia.org/wiki/Smolt_(Linux)) [a now defunct programming effort]

Collecting this kind of data across distributions could:

- aid developers in detecting hardware that is poorly supported
- focus efforts on popular hardware
- provide workaround and fix tips[5]
- help users to choose the best distribution for their hardware
- convince hardware vendors to support Linux

## 2. Liberty



### Advantages

- a. MS Windows or Apple OS-X alternative
- b. Avoid upgrade treadmill lock-in
- c. Dump proprietary restrictions
- d. GPL and other Open Source Licenses
- e. Local control of change

### Challenges

- a.
- b.

7

Lots of confusion about “Liberty”

**Better approach is that it is NOT software slavery!**

Business are frighten about choice.

**Better approach is that they have control!**

## 2. Liberty



### Advantages

- a. MS Windows or Apple OS-X alternative
- b. Avoid upgrade treadmill lock-in
- c. Dump proprietary restrictions
- d. GPL and other Open Source Licenses
- e. Local control of change

### Challenges

- a. Freedom is not necessarily an advantage
- b. Large number of choices

8

Lots of confusion about “Liberty”

**Better approach is that it is NOT software slavery!**

Business are frighten about choice.

**Better approach is that they have control!**



### 3. Learning



#### **Advantages**

- a. Puts the fun back into computing
- b. Interoperability between machines
- c. Learn real IT Open Standards

#### **Challenges**

- a.
- b.
- c.

9

Learning is NOT about using  
~ using is NOT understanding  
~ using is NOT learning  
~ using one tool is NOT learning  
~ using all tools is on the path to learning  
~ using all tools ~ Not using one tool

### 3. Learning



#### **Advantages**

- a. Puts the fun back into computing
- b. Interoperability between machines
- c. Learn real IT Open Standards

#### **Challenges**

- a. Unfamiliar environment
- b. Constant changes
- c. Always more to learn

10

Learning is NOT about using

~ using is NOT understanding

~ using is NOT learning

~ using one tool is NOT learning

~ using all tools is on the path to learning

~ using all tools ~ Not using one tool

## 4. Interface (shell)



### Advantages

- a. X Window System open standards
- b. Graphical User Interface (GUI) mature
- c. GUI style choices (Gnome, KDE, etc.)
- d. New designs for tablets and phones
- e. Traditional drop-down menus available
- f. Command Line Interface (CLI) for power
- g. GUI ability very good, CLI not required

### Challenges

- a.
- b.

## 4. Interface (shell)



### **Advantages**

- a. X Window System open standards
- b. Graphical User Interface (GUI) mature
- c. GUI style choices (Gnome, KDE, etc.)
- d. New designs for tablets and phones
- e. Traditional drop-down menus available
- f. Command Line Interface (CLI) for power
- g. GUI ability very good, CLI not required

### **Challenges**

- a. GUI capability not common knowledge
- b. Large number of choices

## 5. Security



Security is not a product, but a process. -- Bruce Schneier

### Advantages

- No Microsoft viruses
- Difficult target for malware
- Good out of the box default configuration
- Stability (uptime measured in years)

### Challenges

- 
- 
- 
- 

13

Recent (2014) problems

**Heartbleed** ~ mostly just effected websites

**Bash Shellshock** ~ everybody on Internet

techSNAP episode #182 2014-10-02

XEN vulnerability ~ cloud services Amazon, Rackspace, IBM Softlayer

*Metrics*

- Not just overall total count (the 1 percent is deceptive).
- No single measure truly reflects vulnerability.
- Quality, not quantity**, is the determining factor when evaluating the number of attacks against software.

*Mitigation*

- Issue is **“how quickly are fixes available.”**
- Should also consider severity of problem.

FOSS fixes are usually available within hours. None the less, people/corporations fear updates will break something, as is often the case with Microsoft Windows.

Internet-of-things frightens John “MadDod” Hall. As a vast number of commercial devices will be built, companies go out of business, where will security patches come from if source disappears.

## 5. Security



Security is not a product, but a process. -- Bruce Schneier

### Advantages

- No Microsoft viruses
- Difficult target for malware
- Good out of the box default configuration
- Stability (uptime measured in years)

### Challenges

- Nothing is perfect
- Other malware issues besides viruses
- Different environment
- Open does not guarantee secure

14

Recent (2014) problems

**Heartbleed** ~ mostly just effected websites

**Bash Shellshock** ~ everybody on Internet

techSNAP episode #182 2014-10-02

XEN vulnerability ~ cloud services Amazon, Rackspace, IBM Softlayer

*Metrics*

- Not just overall total count (the 1 percent is deceptive).
- No single measure truly reflects vulnerability.
- Quality, not quantity**, is the determining factor when evaluating the number of attacks against software.

*Mitigation*

- Issue is **“how quickly are fixes available.”**
- Should also consider severity of problem.

FOSS fixes are usually available within hours. None the less, people/corporations fear updates will break something, as is often the case with Microsoft Windows.

Internet-of-things frightens John “MadDod” Hall. As a vast number of commercial devices will be built, companies go out of business, where will security patches come from if source disappears.

## 6. Hardware



### **Advantages**

- a. Some versions work with old hardware
- b. Performs well with less RAM
- c. Choice for innovative development

### **Challenges**

- a.
- b.
- c.

15

A Unified Extensible Firmware Interface (UEFI)

<http://community.linuxmint.com/hardware>

These challenges effect installation

- a) Few users are experienced with installing an OS
- b) Usually resolved after 6 months
- c) Newer Linux distros have resolved these issues

## 6. Hardware



### Advantages

- a. Some versions work with old hardware
- b. Performs well with less RAM
- c. Choice for innovative development

### Challenges

- a. Rarely pre-installed on new hardware
- b. Newest hardware not yet supported
- c. BIOS, GPT partitioning and UEFI issues

16

## A Unified Extensible Firmware Interface (UEFI)

<http://community.linuxmint.com/hardware>

These challenges effect installation

- a) Few users are experienced with installing an OS
- b) Usually resolved after 6 months
- c) Newer Linux distros have resolved these issues



## 7. Installation



### **Advantages**

- a. Mostly easy to install
- b. Easily down-loadable ISO packages
- c. Boot live tests without hard drive change

### **Challenges**

- a.
- b.
- c.
- d.
- e.

## 7. Installation



### **Advantages**

- a. Mostly easy to install
- b. Easily down-loadable ISO packages
- c. Boot live tests without hard drive change

### **Challenges**

- a. Most users have never installed an OS
- b. Burning an ISO disc is not just copying
- c. Sometimes hard to install
- d. Large number of choices
- e. Unpolished installs give poor impression

18

d. To my mind asking if we have too many distributions is akin to asking if we have too many novels or too many paintings. – Jesse Smith, Distrowatch

## 8. Applications



### **Advantages**

- a. Multitude of choices
- b. Extensive file format support
- c. Constant improvements and bug fixes
- d. Licensing allows updates via repositories

### **Challenges**

- a.
- b.
- c.
- d.

## 8. Applications



### **Advantages**

- a. Multitude of choices
- b. Extensive file format support
- c. Constant improvements and bug fixes
- d. Licensing allows updates via repositories

### **Challenges**

- a. Alternatives are not exact replacements
- b. Legal restrictions on codecs
- c. Locating solutions
- d. No standard of quality

## 9. Community



### Advantages

- a. Can be very helpful
- b. Developers are accessible
- c. 80% plus of kernel developers are now paid

### Challenges

- a.
- b.
- c.

21

## Advantages

- a.
- b.
- c. Top contributors paid by corporations (after volunteers):
  - 2011 Red Hat, then Intel, Novell, IBM, with Microsoft as 5<sup>th</sup> among top 20 corporate contributors
  - 2012 Red Hat, then Intel, Texas Instruments, Lenaro, SuSE, IBM, Google, Samsung (note increased embedded firms)
  - 2013 Red Hat, then Intel, Texas Instruments, IBM, Google, Oracle
  - 2014 <http://spectrum.ieee.org/computing/software/whos-writing-linux>
  - 2015 <https://www.zdnet.com/article/whos-writing-linux-today/>
  - ...so far, I have not found current numbers. Still looking.

## Challenges

- a. Linux vs Microsoft, geek vs newcomer
- b. can be callow, coarse, crass, lewd, obscene, petty, puerile
- c. Info 2<sup>nd</sup> hand, Linux Foundation sells report of contributor #s

<http://arstechnica.com/business/2012/04/linux-kernel-in-2011-15-million-total-lines-of-code-and-microsoft-is-a-top-contributor/>

<http://www.nullptr.me/2012/04/05/linux-kernel-in-2011-microsoft-top-contributor/>

<http://www.datamation.com/open-source/the-divisive-linux-community-1.html>

## 9. Community



### Advantages

- a. Can be very helpful
- b. Developers are accessible
- c. 80% plus of kernel developers are now paid

### Challenges

- a. Culture differences and terminology
- b. Too much commonly mean, offensive, rude or surly behavior
- c. Remain friendly to newcomers

22

## Advantages

- a.
- b.
- c. Top contributors paid by corporations (after volunteers):
  - 2011 Red Hat, then Intel, Novell, IBM, with Microsoft as 5<sup>th</sup> among top 20 corporate contributors
  - 2012 Red Hat, then Intel, Texas Instruments, Lenaro, SuSE, IBM, Google, Samsung (note increased embedded firms)
  - 2013 Red Hat, then Intel, Texas Instruments, IBM, Google, Oracle
  - 2014 <http://spectrum.ieee.org/computing/software/whos-writing-linux>
  - 2015 <https://www.zdnet.com/article/whos-writing-linux-today/>
  - ...so far, I have not found current numbers. Still looking.

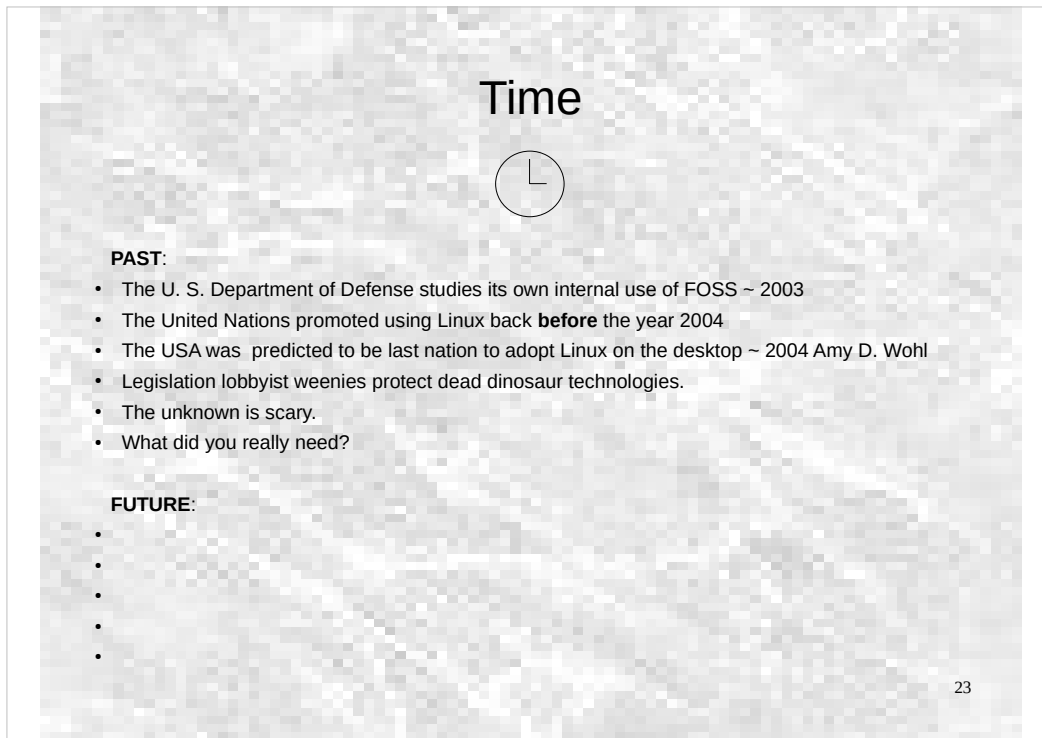
## Challenges

- a. Linux vs Microsoft, geek vs newcomer
- b. can be callow, coarse, crass, lewd, obscene, petty, puerile
- c. Info 2<sup>nd</sup> hand, Linux Foundation sells report of contributor #s

<http://arstechnica.com/business/2012/04/linux-kernel-in-2011-15-million-total-lines-of-code-and-microsoft-is-a-top-contributor/>

<http://www.nullptr.me/2012/04/05/linux-kernel-in-2011-microsoft-top-contributor/>

<http://www.datamation.com/open-source/the-divisive-linux-community-1.html>



> Future Self

> <http://www.xkcd.com/1421/>


Use of Free and Open-Source Software (FOSS) in the U.S. Department of Defense (2003-01-02)

[http://www.terrybollinger.com/dodfoss/dodfoss\\_html/index.html](http://www.terrybollinger.com/dodfoss/dodfoss_html/index.html)

Amy D. Wohl (economist and computer market expert) during 2004 presentation predicts USA will be last to adopt Linux on the desktop

See \*.ssxi slide show files in my:  
`/home/stan/Storage/keep/linux-userguide-docs`

# Time



**PAST:**

- The U. S. Department of Defense studies its own internal use of FOSS ~ 2003
- The United Nations promoted using Linux back **before** the year 2004
- The USA was predicted to be last nation to adopt Linux on the desktop ~ 2004 Amy D. Wohl
- Legislation lobbyist weenies protect dead dinosaur technologies.
- The unknown is scary.
- What did you really need?

**FUTURE:**

- My predictions are nearly always wrong.
- What do you really need?
- Time solves all problems ( proprietary software is a problem ).
- Things in the cloud will migrate to Linux ( then it may not matter ).
- The Internet of **Other** People's Things is scary. – John "Mad Dog" Hall

24

> Future Self

> <http://www.xkcd.com/1421/>

Use of Free and Open-Source Software (FOSS) in the U.S. Department of Defense (2003-01-02)

[http://www.terrybollinger.com/dodfoss/dodfoss\\_html/index.html](http://www.terrybollinger.com/dodfoss/dodfoss_html/index.html)

Amy D. Wohl (economist and computer market expert) during 2004 presentation predicts USA will be last to adopt Linux on the desktop

See \*.ssxi slide show files in my:  
`/home/stan/Storage/keep/linux-userguide-docs`



## Additional Resources



### Advantages

- a. <http://whylinuxisbetter.net/>
- b. Security Report: Windows vs. Linux (22 Oct 2004 ~ still worth reading)  
[http://www.theregister.co.uk/2004/10/22/security\\_report\\_windows\\_vs\\_linux/](http://www.theregister.co.uk/2004/10/22/security_report_windows_vs_linux/)
- c. Linux Does What Win Don't (April 2013) 13:06  
<https://www.youtube.com/watch?v=HD6nqQrJx78>
- d. Ten More Reasons Why LINUX Is BETTER Than Windows! (April 2014) 14:07  
<https://www.youtube.com/watch?v=oqLmOPap6u0>

### Challenges

- a. Windows user, wanna try Linux? Checklist.  
<http://netrunner-mag.com/windows-user-wanna-try-linux-checklist/>
- b. Don't Switch to Linux | LINUX Unplugged 15 (19 Nov 2013) 1:06:55  
<https://www.youtube.com/watch?v=MPzPEIK0TUQ>
- c. Hidden Linux Benefits, Clear Linux Challenges  
<http://www.datamation.com/open-source/hidden-linux-benefits-clear-linux-challenges-1.html>

25

see techSNAP #182 (2014-10-02)

## Top Linux Myths Dispelled

<http://www.datamation.com/open-source/top-linux-myths-dispelled-1.html>

X

## Correction to Resource



***During a recent live presentation an incorrect URL was verbally given for an additional resource.***

Incorrectly gave URL as:

AlternativeTo - Crowdsourced software recommendations

<https://alternativesto.net/> ( verbally stated incorrectly 3 times )

**Correct URL is:**

**AlternativeTo - Crowdsourced software recommendations**

**<https://alternativeto.net/>**

26

see techSNAP #182 (2014-10-02)

## Top Linux Myths Dispelled

<http://www.datamation.com/open-source/top-linux-myths-dispelled-1.html>

X



---

## SLUUG Sponsored Groups

---

### *Loosely Affiliated Special Interest Groups*



STLLINUX ~ Saint Louis Linux User Group

- <https://stllinux.org>



SLACC ~ Saint Louis Area Computer Club

- <https://slacc.org/>



NEWLINUX ~ NewLinux Linux User Group

- <https://newlinux.org/>



---

# Questions

---

## Why Use Linux?

What are your questions?

Stan Reichardt  
[stanr@sluug.org](mailto:stanr@sluug.org)