



# Open Source and Freedom: Why Open Standards Are Crucial to Protecting IT Investment

GOSCON, Portland OR, October 2007



- **Where is Linux and who is the Linux Foundation?**
- **Open Source in Government; Global Trends**
- **Open Source and Open Standards; what is the difference, why should you care?**



## Where is Linux Today?

- **When you use the Internet, you use Linux**
  - Google, eBay, Amazon . . . .
- **When you use a bank, you use Linux**
  - Nearly all of the world's top banks or financial institutions run Linux
- **Increasingly, when you use a mobile phone, you use Linux**
  - Motorola, Palm and dozens of other device manufacturers are using Linux
- **When you use a consumer device, you use Linux**
  - Tivo, Sony Playstation 3 and many more use Linux to power their device
- **Every day more ways to use Linux are emerging**
  - One laptop per child, Ultra-mobile PC's, GPS devices powered by Linux

**In short, Linux is ubiquitous**



## Market Data Backs this up

- **Server**

- Linux server sales have hit their second consecutive quarter of double-digit growth
- Billions of dollars in systems sales globally using Linux (\$1.6 billion for the first quarter of 2007 alone)
- 75% of the 500 fastest super computers run Linux
- Unix is declining in market share overall

- **Embedded/Mobile**

- According to a 2007 study from ABI Research, we will see 203 million Linux-powered cell phones by 2012.
- Over the next five years Linux is expected to be the fastest growing smartphone OS
- Linux will have a compound annual growth rate of more than 75% by 2012

- **Desktop**

- It is the fastest growing desktop OS in the world
- Lenovo, Dell, HP, and others have recently started shipping Linux PC's
- Estimated market share from 3 – 5 percent globally and growing
- Governments, companies and other institutions are adopting Linux in mass
- There is still work to be done to replace the incumbent desktop



## Linux Development – How We Got There

- Linux is an historically unparalleled software development community in both size and speed of development
- From April 2006 to April 2007 there were 1762 unique contributors to the Linux kernel
- In the past two years, 3,200 developers have contributed to the kernel
- Linux supports more devices and more processors than any OS in history
- On average, 2000 lines of code are added every day, 2800 lines of code are modified every day
- There is a new kernel release every 2 ½ months
- Cutting edge distributions release every six months; commercial ones every eighteen months
  - In contrast to Vista which took six years to release
- Red Hat estimates that there is \$1 billion in R&D powering the Linux ecosystem annually. It gets to take advantage of all of that by investing about \$60 million in R&D



**Never before has the computing world seen**

- so many developers**
- from so many places**
- unite around one piece of software**
- and develop so quickly**



## A Second Stage of Growth Is Emerging Characterized by Two Dominant Development Models

- **The future is about the idea of open and closed**
- **Industry is entering a future dominated by two platforms: Linux and Windows**
  - Microsoft Windows is unambiguously the most successful commercial operating system
- **We need to respect that Microsoft does 3 things very well:**
  - **Promote:** Global marketing juggernaut of Microsoft spends billions on desktop, server, and mobile
  - **Attack:** Microsoft has spent millions to create FUD around Linux, particularly intellectual property
  - **Standardize:** Ubiquitous proprietary standards promise software & hardware compatibility
    - Designed for Windows is a wildly successful brand that represents those standards
- **The cost is that Windows offers no choice for developers, vendors, or end users**
  - Linux and open source are about enabling choice



## The Foundation is here to insure the success of Linux in the second stage by:

- **Promoting Linux:**
  - By acting as a neutral spokesperson for our members
  - Helping accelerate development through collaboration events, travel sponsorship and underwriting key open source events.
- **Protecting Linux:**
  - Providing fellowships to key developers such as Linus Torvalds
  - Endowing a legal defense fund to protect users of Linux
  - Publishing timely information on legal issues and debunking FUD
- **Standardizing Linux:**
  - Preventing Linux from fragmenting with the Linux Standard Base
  - Enabling technical collaboration in our workgroups for issues around printing, desktop compatibility (Portland), power management, etc.
  - Defining Telco requirements around CGL and mobile in MLI



# Who is the Linux Foundation?





# Linux and Open Source In Government

Global Trends



- **Government considerations regarding open source**
- **Examples of open source in government**
- **Why open source alone is not the answer**
- **How open standards and open source can produce positive benefits**



# How does government look at open source?

- **As a consumer of technology**
  - Governments are the worlds largest users of technology
  - Governments see open source as a way off maximizing efficiency through competition
  - Open source is as a way share development across all government (this benefit is often seen as more significant in government than in private industry)
- **As a matter of economic and strategic policy**
  - Open source is a way to foster greater market competition (addressing a market failure)
  - Reducing dependency on single sources of technology (in many countries a foreign technology) fore security or economic reasons
  - Governments use open source to develop a larger domestic software industry where it has traditionally been weak
  - Reduce patent and royalty concerns with open source software
  - Developing effective ICT eco systems



## Examples of Government as a consumer

- **The Spanish region of Extremadura migrated 70,000 desktops and 400 servers in its schools to open source software. It has calculated that this decision has already saved them over \$20 million.**
- **NASA is using Linux for super computing combining it with commercial off the shelf hardware for superior price and performance**
- **In the U.K. the Office for Government Commerce concluded that the "adoption of Open Source software can generate significant savings in hardware and software costs for infrastructure implementation."**
- **A recent study by the UK's Department for Education and Skills found that, on average, primary schools using open source software cut their IT costs per PC by 50%.**
- **Schoolchildren in Russia are to be taught using the free, open-source Linux software in an effort to cut the cost of teaching information technology.**



## Government use of open source as “strategic”

- **Japanese Government is going open source to “decrease its reliance on Microsoft as a server operating system platform.” The government is moving its entire payroll system over to an open-source platform. The switch is expected to cut operating costs by half.**
- **In the UK an MP recently suggested, “open source savings would come not just from reduced licensing costs, but importantly by freeing government bodies from long-term, monopoly supply situations.”**
- **And in Holland, ten cities, including Amsterdam, The Hague and Eindhoven have begun implementing open-source evaluation projects.**
- **In Southeast Asia under the theme “UTILIZATION OF OSS-To close the Digital Gap, and Presage Its Economic Impacts“, 130 technical and policy leaders participated from 20 Asian economies at the Asian OSS Conference**



## Open Source and Open Standards

The way to create value of a network effect while preventing monopolies and increasing competition



## Open Source and Open Standards: Why you need both

**“[Open Source] severely limits the possibility of proprietary “lock-in”—where users become hostage to the software vendors whose products they buy.”**

- MIT Business Review



## Open source and open standards are part of an open ecosystem, but different

Attribute	Open Standards	Open Source
Nature	Set of specifications	Set of code
Openness and interface	By definition	By design
Interoperability	Enabled	Can not be assumed
Licensing	Various types	Various types (GPL, BSD, etc.)
Development model	Collaborative	Collaborative
Royalty	Varies case by case	Generally royalty free



## Open source isn't completely “free”

- “Open Source” specifies a development process
- A development process does not necessarily guarantee your freedom over time
- Ask yourself one question: how much would it cost to change technologies?
- Ask yourself if you can get out of a platform as easily as you go in?

*A Wall Street Firm Recently Began a 12 Month  
Linux to Linux Migration*



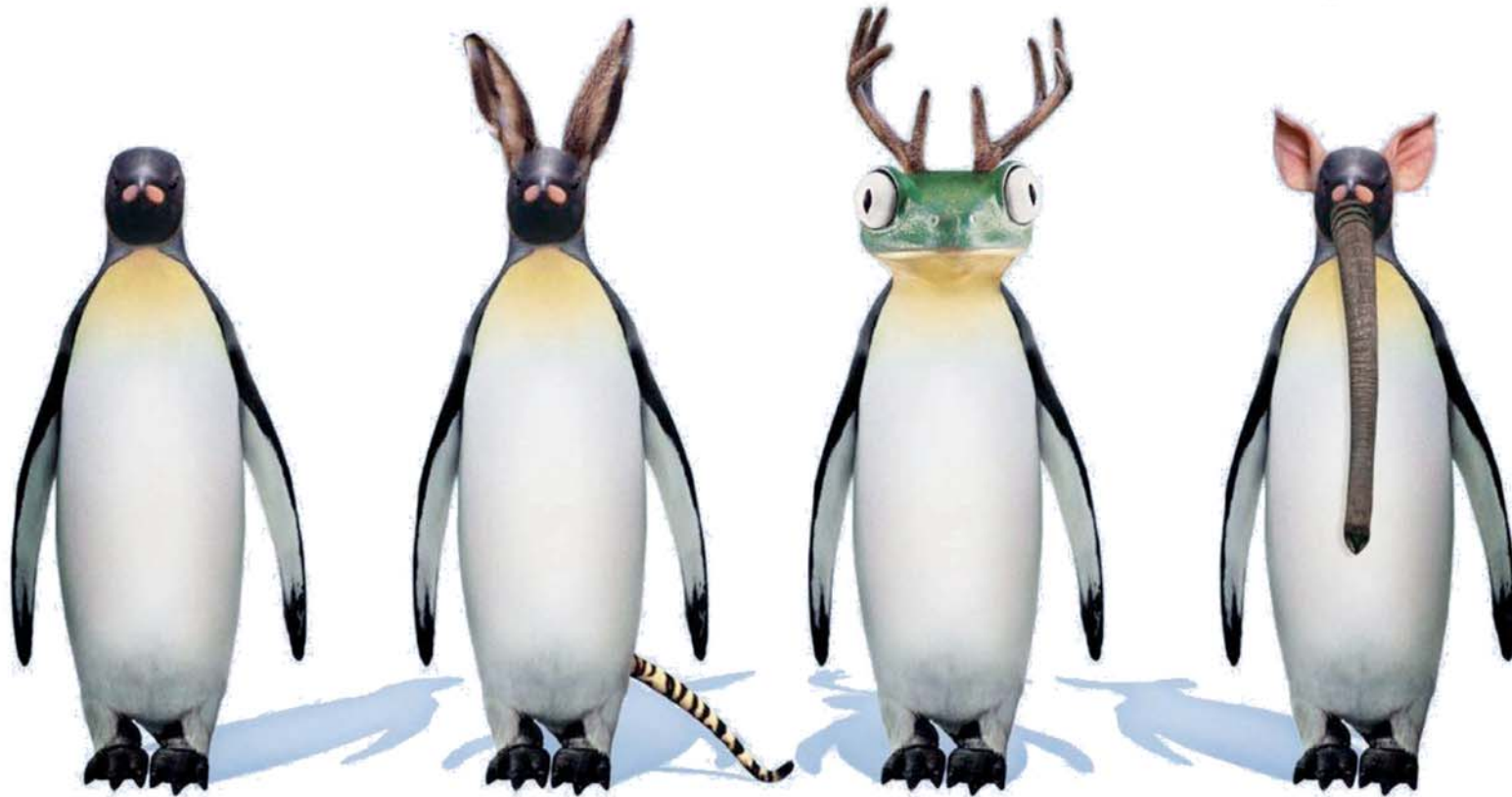
## Example: Without a standard Linux can stop being Linux over time

- If over time enough small mutations among the various pieces that make up Linux accumulate from one distribution to the next.
- The result is like speciation in nature where the sum of the changes make species genetically incompatible and can no longer exchange (genetic) information.
- In other words you have functionally similar, but incompatible versions.

*This concept is illustrated in the difference between men and apes and different versions of Unix*



# Speciation looks something like this...





## What would it feel like if Linux fragmented either in your agency or in the market?

- **Linux would be less valuable (Dramatically reduced network effect and consequent reduced value)**
- **Years of porting effort if you choose the wrong distribution**
- **Lack of vendor choice**
- **No competitive pressure keeping costs reasonable**
- **Slower innovation**
- **Lack of trained personnel**
- **Potential technology dead end**



## Microsoft promotes this as a risk for Linux

"Promoting" Linux's code forking... is something Microsoft can do strategically to remain competitive against a product that is argued to be of better quality, is updated more frequently, and is free.

- *Microsoft vs. Open Source: Who Will Win?*  
*Prof. Ghemawat and Casadesus-Masanell,*  
*Harvard University*



## Why Microsoft's platform has been so successful

- **Microsoft does the following very well:**
  - **Standards (Defacto):** Rich, backward compatible API/ABI
    - Well-written DOS apps will run on Vista
    - De facto, proprietary standard makes it exceedingly difficult to create a compatible competitor (see OS/2 and WINE)
  - **Testing & Tools:** Windows Hardware Quality Lab (WHQL) provides driver testing (while app testing is shakier). As a developer program, MSDN is second to none
  - **Certification & Branding:** Designed for Windows logo program is a consumer-recognized symbol of interoperability

*This comes at the cost of choice*



## How is Linux combining open source AND open standards to preserve freedom and choice

- **The LSB is about doing three things:**
  - **Standards:** The Linux Standard Base (LSB) delivers application interoperability among all major Linux distributions
  - **Testing & Tools:** Comprehensive, user-friendly test suite, and a community-driven site for ISVs writing portable Linux apps
  - **Certification & Branding:** A federated “Designed for Windows” program
- **The Linux Foundation is the standardization and certification authority for Linux**
  - All major Linux distributions have certified
  - SAP, RealPlayer, and MySQL are certifying apps, with hundreds more in the queue



## Open Source combined with Open Standards Provide Multiple Benefits

- **Open Standards Mean:**

- Standard applications work on a standard platform
- Decrease the cost of change by decreasing the costs of components of change
- Higher quality resulting from increased competition
- More applications due to standard interoperability
- Backward compatibility
- Consistent developer target
- Lower support costs
- Durability of technology - “Safe bet on the future”

- **Open source means:**

- Shared development
- Faster time to benefit
- More transparency



## State of Open Standards in Government Today

- **Governments in the US and throughout the world are creating "interoperability frameworks" in an effort to make their operations, budgets and data sharing more rational, extensible, feasible and economical.**
- **Those frameworks specify open standards and, increasingly, open software to achieve these goals.**
- **LF is unique in helping to make open standards and open software manageable at both the technical as well as the IPR level.**
- **LF champions this cause not only through Linux support, but also app support and advancement of appropriate standards implemented in open and proprietary products, such as ODF**



## Considerations for Government Use of Open Source and Linux

- **Assess your solution stack and identify areas for collaboration**
- **Controlled rate of adoption; implement OSS at a rate that suits your needs**
- **Involve OSS legal experts to assist in licensing and IP**
- **Work to define interoperability frameworks**
- **Include the following type of language in your license and support agreements:**
  - **<Customer> requires any Linux-based system delivered under this <agreement> to bear the LSB certification mark indicating that the Linux distribution complies with the Linux Standard Base specifications of the Free Standards Group.**
- **Write internal applications to open standards**
- **Join the Linux Foundation End User Advisory Council**



**Thank You.**

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