



Free and Open Source: Not Just VoIP

by
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Trademarks

- Linux is a trademark of Linus Torvalds in several countries
- Unix is a trademark of X/Open in several countries

Who Am I....and Why Should You Listen?

- Thirty-seven years in computer industry
 - Mainframes 5 years
 - Unix 20 years
 - Linux since 1994
- Programmer, Systems Engineer, Product Manager, Technical Marketing, Educator
- *Extremely* large systems to *extremely* small ones
- Vendor *and* a customer.....

...But What Most People Don't Know....



- My whole family (almost) was in telephony...
 - Grandmother
 - Aunt
 - Brother and Sister-in-law
- 2 Years Working for Western Electric
- 3.5 years working for Bell Laboratories
- Free and Open Source Software whole time

This is a VoIP Conference....



Why are we talking about Free and Open Source
Software?

Telephony Used To Be About Wires....



Telephony Used To Be About Wires....But Today...

- Telephony is about computers and computer networks
 - packets
 - routing
 - multiplexing
- Telephony is about standards and interoperability

So is Free and Open Source Software

Once Upon A Time: (1943-1977)

- Hardware was expensive, computers were few, software was a service...
 - Software was written by contract
 - Software was owned by end-user
- Operating systems optimized for:
 - Hardware
 - Job mix



Software As A Passion

- 1969
 - DECUS
 - Two births
 - UNIX
 - Hardware costs dropping
 - Human costs rising
 - A child
- The USENIX crowd cheered
 - Academics used UNIX to do CS research



Why Write Software For Free?



- You need it for your own work
 - Free software is an amplifier of your own needs
 - It is hard to sell software as a product
 - Licensing
 - Support
- Amateur Painters
- Amateur Athletes

People want solutions, not software

Software As A Product



- 1977 – microcomputers
 - West Coast Computer Club
- 1980-1983
 - Commercialization of Unix
 - Growth of the Computer Store
 - USENIX hisses
- 1984 – GNU Project Starts

Software Libre!



- Free as in *freedom*, not free as in *beer*.
 - Free to read the source code
 - Free to make changes to the source code
 - Free to redistribute those changes
 - Freedom to use the code for any purpose
- GPL vs BSD
 - You can not limit another's freedoms

Richard Stallman has *never* said you should not make money writing software.

The Economics of Mass Production



- Meets 70-90% of most of the market's needs
- Create commodity products
 - What is a commodity?
 - Corn?
 - Cars?
 - Are business situations a commodity?
 - Are business *solutions* a commodity?

4000 Business People In A Room...



- How many have had a bug in proprietary software? How much did that cost?
 - Lost time
 - Lost effort
- How many have had to change the way they did business? How much did that cost?
 - Retraining
 - Loss of sales
 - Customer dissatisfaction

Software Freedom allows Business Decisions

The Problems With Mass Production



In the beginning....

- 100 engineers
- 1000 customers
- 2 reports/customer/year
- 2000 reports/year
- 20 reports/engineer

No problem!

Now It Is 2006 (Almost 2007)...

Our company has grown

- 200 engineers
- 4.5 million customers
- 2 reports/customer/year...

Do you see the problem?

Why Will Closed Source Software Fail?



How much does it cost us when our software

- Does not do what we want it to?
- Does not work at all?
 - Read the EULA
- Does it cost \$10/system? \$100/system?

There are 500,000,000 general-purpose computers



There Are Over 6 *Billion* People...

**....and 40% of those will die
without ever having made a
telephone call.**

Software for the 21st Century



The planets aligned....

- **Hardware prices for *significant* systems dropped**
- **The Internet happened**
- **Massive amounts of free code were available**
 - **GNU software**
 - **Xfree86**
 - **Sendmail**
- **Linus turned 21**

From Supercomputer....

- High Performance Clusters – 1994
- 64-bit Linux – 1995
- High Availability Linux Clusters – 2000



To Embedded System

All types of processors

- ARM
- Motorola
- Intel
- AMD
- Cell
- PowerPC
- SPARC



A New Old Model of Developing Software



When software is free....

- **You pay for service in....**
 - **copying and distributing**
 - **getting features in your time frame**
 - **integrating with other software and hardware**
 - **training**
- **Best Case: You never pay for the software again**
- **Worst Case: You pay for the software one time**



www.sourceforge.net

- 135K+ projects
- 1.4M+ registered developers

Lots Of Different Software



- Multiple operating systems
- Many compilers for many languages
- Databases (flat, hierarchical, relational, object oriented, embeddable)
- Office Systems
- Web Browsers and Servers
- Collaboration Software
 - Accessgrid

And All Of This Can Now Be Integrated With Your Telephony System



- Either by you (if you have the expertise)...
- Or by someone else who you pay to do the integration.....
- Or you use the code the way it is.

But that choice is now *yours* to make.

You Are No Longer A Slave...



- To the Telephone vendor
- To the proprietary software developer

But it is now up to you to make the
business decision

A New Model of Funding Software



- **500,000,000 people use software**
- **250,000,000 want to change it**
- **125,000,000 have the time to change it**
- **65,000,000 have the expertise to change it**
- **33,000,000 actually do some work on it**

What happens when China is fully on board?
Russia?

Types Of Developers...



- Researchers and Students
- Hobbyists
- Amateurs
- System Administrators
- Users
- Hardware vendors
- Systems Integrators/Consultants

Real Development Costs Real Money...



- Hardware
- Electricity
- Documentation
 - Creating
 - Consuming
- Meetings
- Personnel

Organizations Like...



- Linux Professional Institute (www.lpi.org)
 - Certification of Systems Administrators
 - Funding from tests and grants
- Free Standards Group
 - Funding from certifications
 - Memberships

Carrier Grade Linux



Open Source Development Labs

- Many general sponsors
- Test Labs
- Sponsored projects

Where Does Other Funding Come From?



- Vendors like IBM, HP, Sun sell hardware and services
 - Employ kernel developers, compiler developers, etc.
- Vendors like Oracle, Computer Associates sell services
 - Employ other developers
- Many companies hire sysadmins and programmers for their own work

Funding For Other Software



- VARs and Consultants
 - iSolve, etc.
- Digium - Contributes to Asterisk, Dundee
 - Makes money by
 - selling support
 - selling hardware
 - business relationships

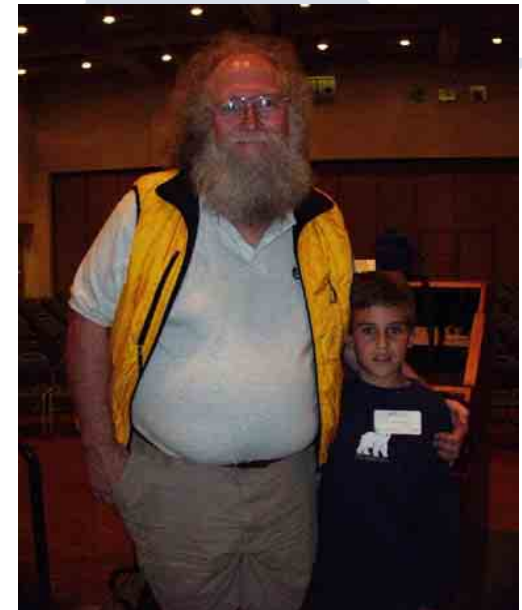
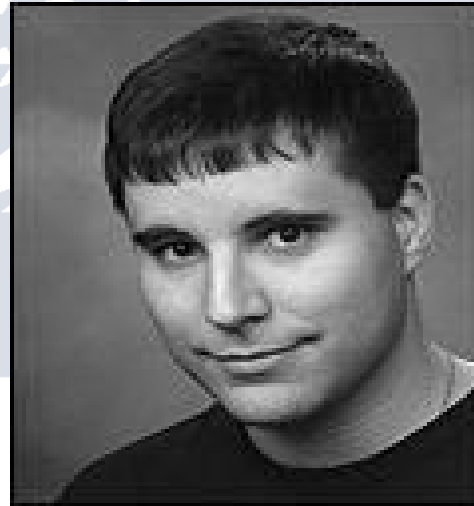
When All Other Things Are Equal...



Hire a FOSS Developer
By your solutions from FOSS Companies.

Does Closed Source Allow You To Do This?

- A 19 year old president
- A 15 year old kernel developer
- A 14 year old distribution developer
- An 11 year old programmer of supercomputers





Today

- Linux is now shipping on:
 - 1/3rd of all new servers
 - Most supercomputers
 - 3rd most used OS in embedded system starts
- Creeping out on the desktop



Questions?