

# **Heresy in Ones and Zeroes**

*on the Evolution of Two Irreconcilable  
Technological Religions, and Why it  
Matters to You.*

Michael A. Dickerson

Pomona College



# Contents

Background

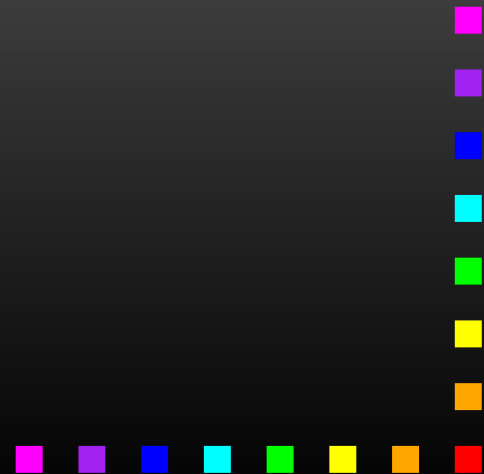
The Establishment

The Rebellion

Epilogue: What Comes Next?

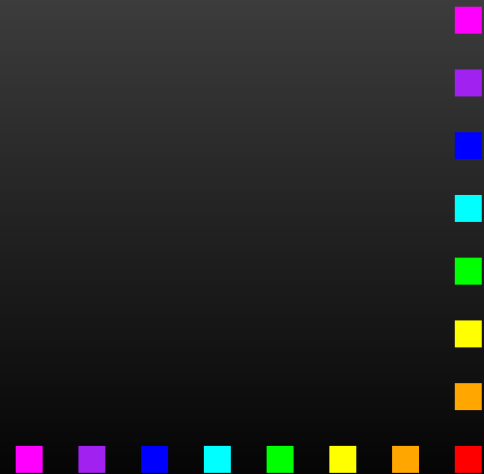


# An Abbreviated History of Operating Systems



# The Stone Age

- MVS (IBM, 1964)
- Multics (MIT, Bell, GE, 1965)
- ITS (MIT AI Lab, ca. 1967)



# The Bronze Age

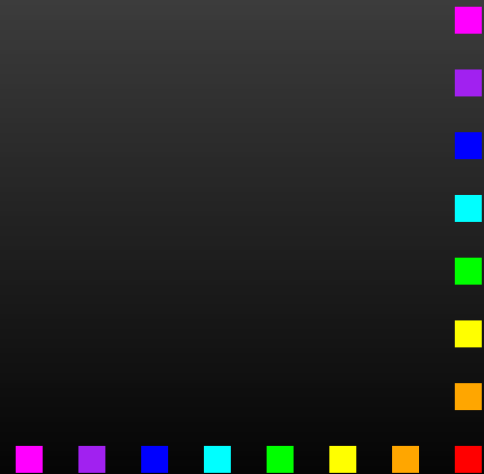
April 1969: Bell Labs pulls out of MULTICS project; Thompson and Ritchie start to write UNICS, an “emasculated MULTICS.”

1973: Gary Kildall releases CP/M, which will become popular by the late 1970s.



# The Iron Age

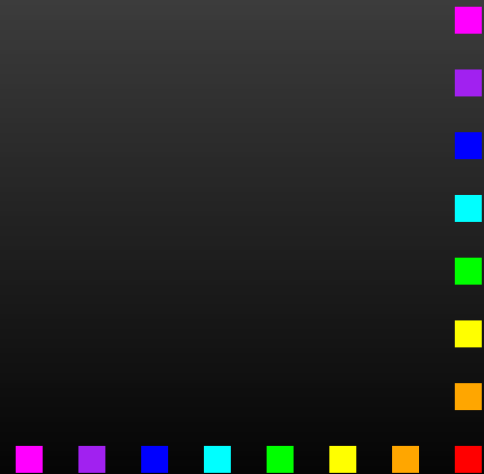
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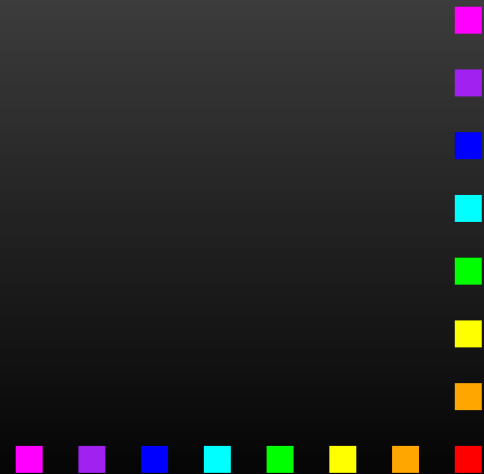


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1981: Paul Allen and Bill Gates buy QDOS from Patterson to sell to IBM





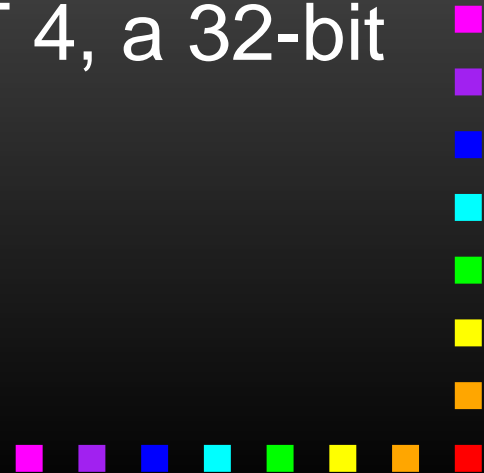
# The Battle Begins, and Ends

1985: Microsoft releases Windows 1.0, an 8-bit graphical shell for MS-DOS.

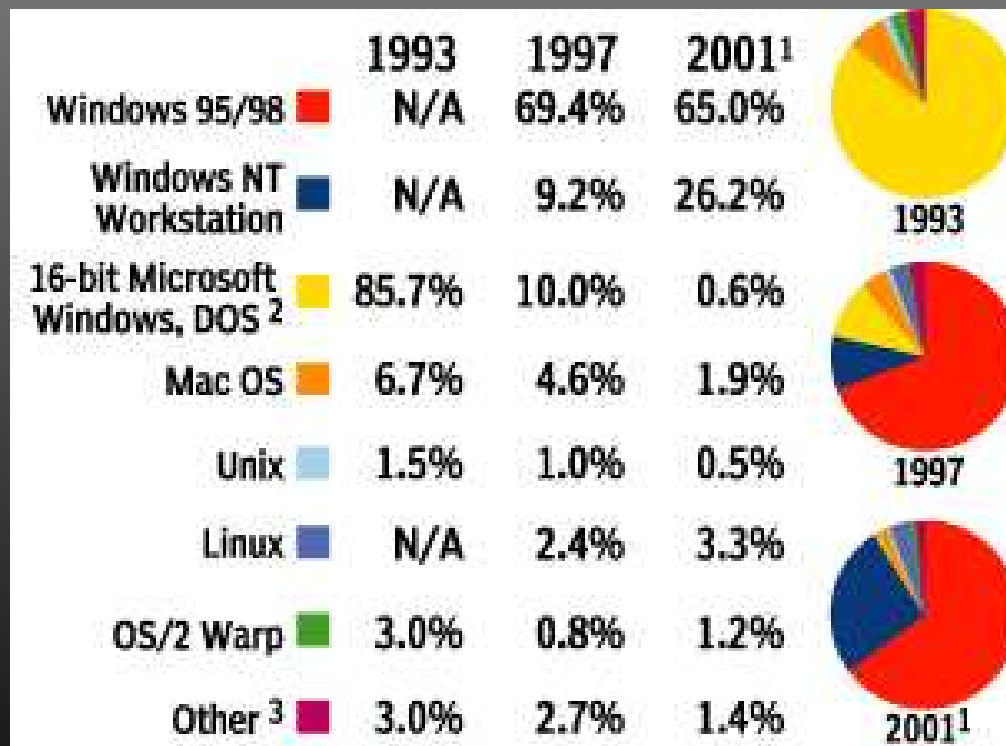
1985: Intel develops the 32-bit 80386 processor

1995: Microsoft releases Windows 95, the first significant upgrade to 16-bit Windows.

1996: Microsoft releases Windows NT 4, a 32-bit rewrite.

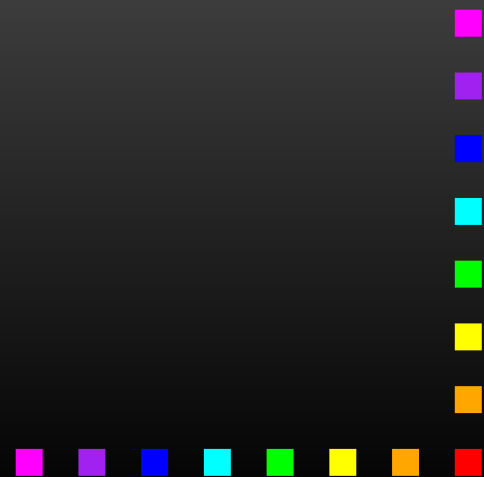


# Market share in the 90s



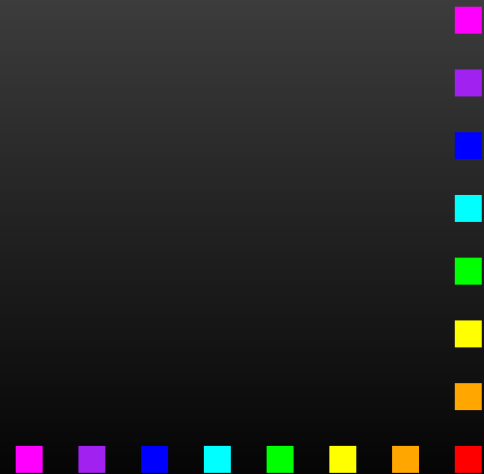
Source: PC Magazine

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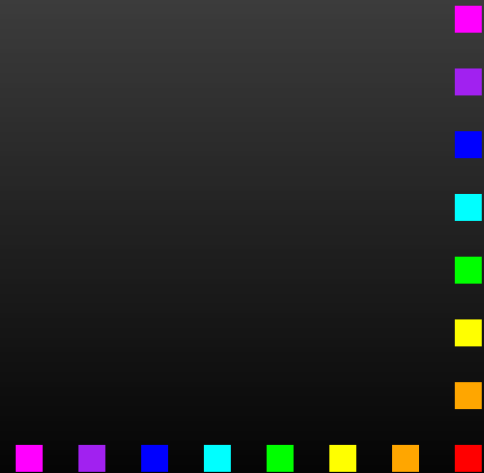
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- \$ Bill Gates’s personal fortune is estimated at \$41 billion.



# How did it get so bad?

Consider the founding philosophy:

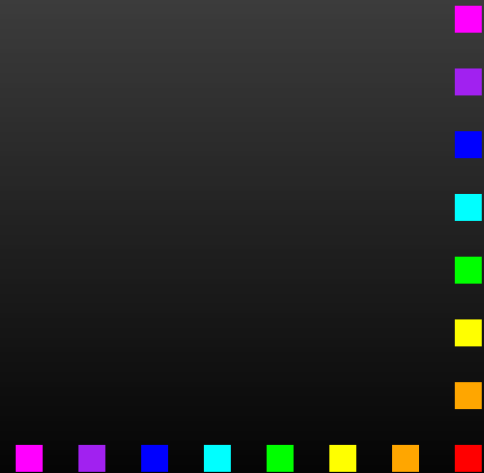




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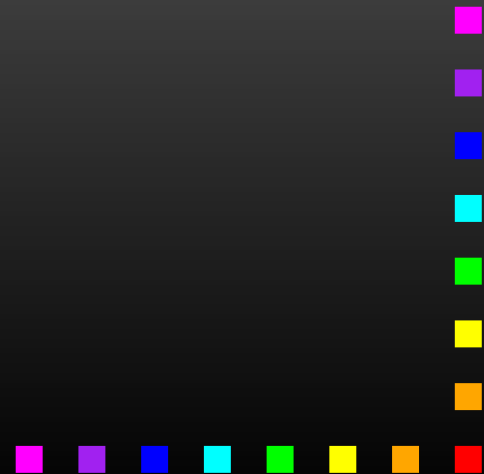
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- \$ Actual product quality is neither necessary nor desirable for success in the marketplace.
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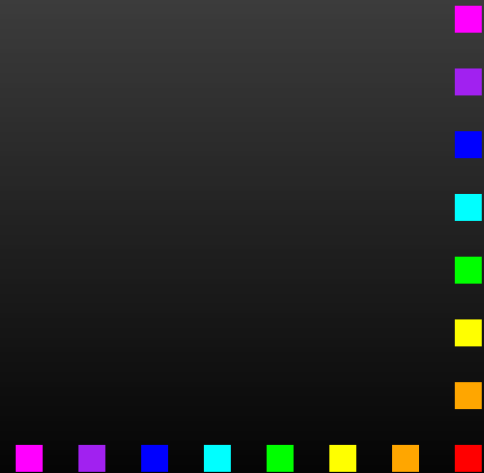


# Poor ethics



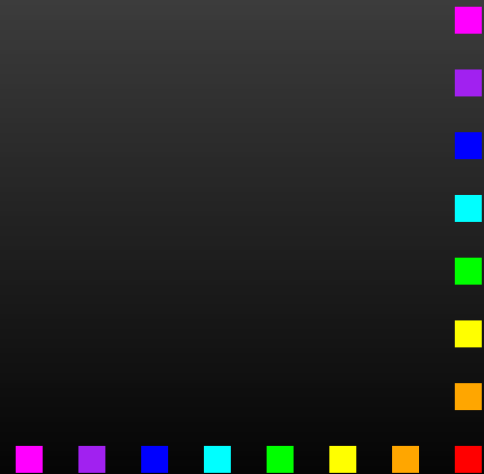
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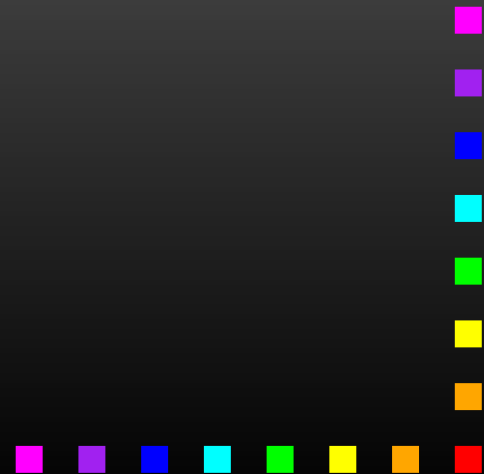
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- \$ Napster Inc. built a billion dollar business on copyright infringement.



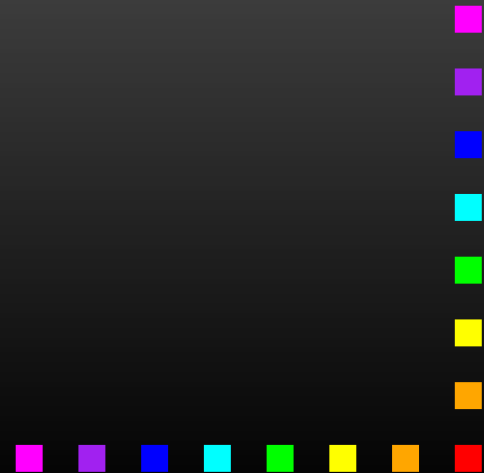


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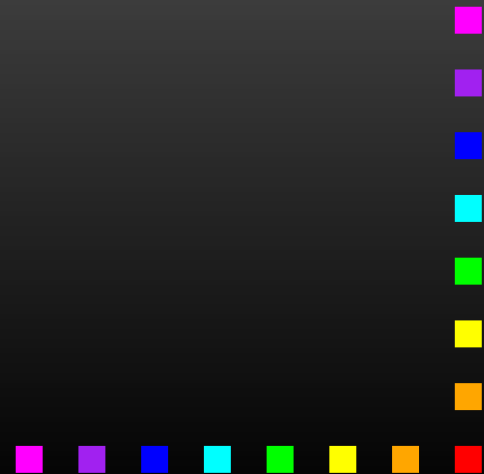
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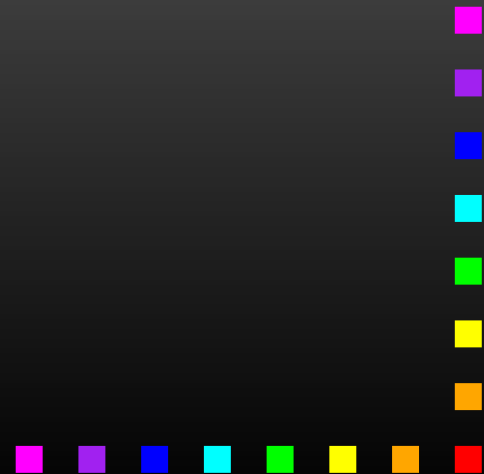


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- \$ Bonzi Software delivers popup ads that impersonate system messages.



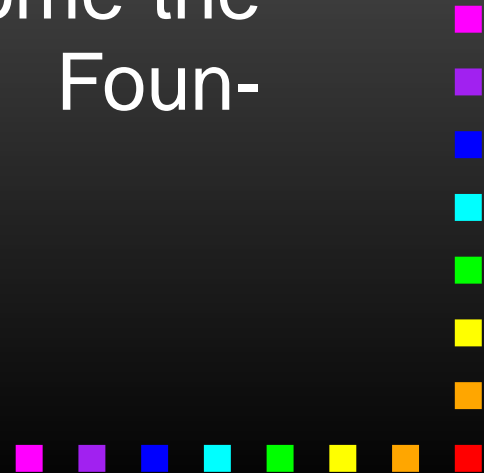
# The First Computer Lutherans



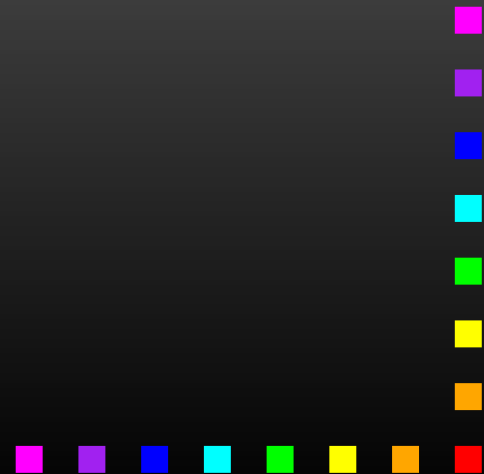
# Stallman announces GNU



1984: Richard Stallman, MIT hacker, begins the GNU project, which will become the Free Software Foundation:



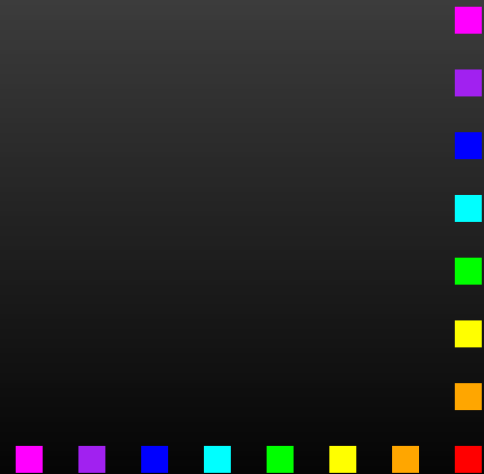
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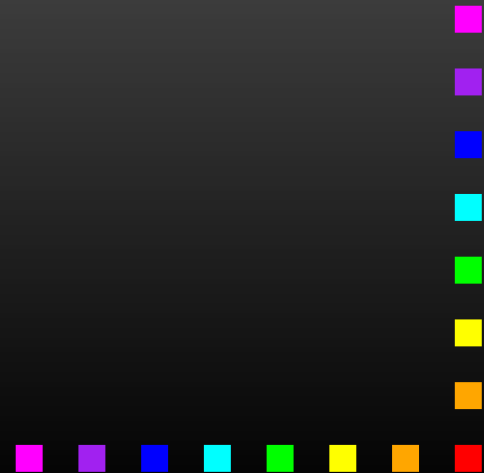
- ♥ I consider that the golden rule requires that if I like a program I must share it with other people who like it.
- ♥ The purchaser of software must choose between friendship and obeying the law.
- ♥ Once GNU is written, everyone will be able to obtain good system software free, just like air.



# GNU goes to work

Many unglamorous but necessary system tools are written by GNU:

Emacs	gcc
gawk	yacc
gdb	grep
curses	sed

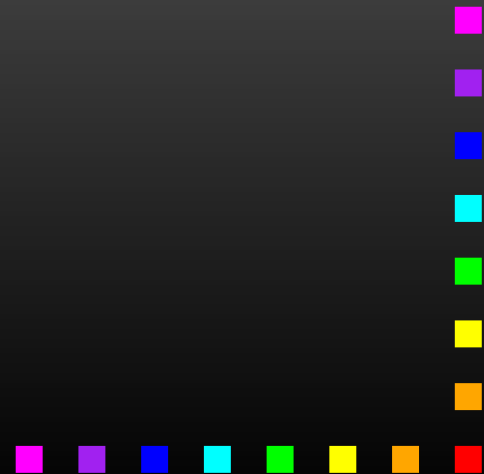


# Linus writes a kernel

Linus Torvalds releases a kernel called Linux in 1991, choosing the GPL.

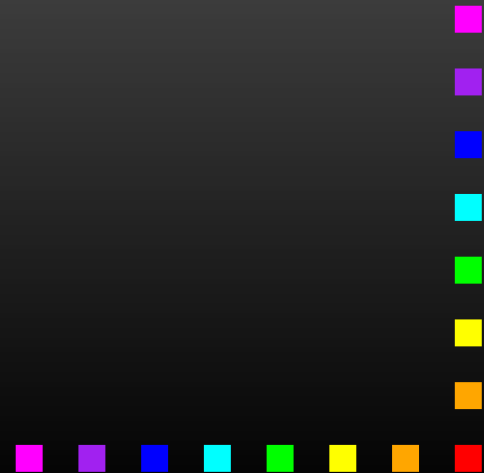


# Principles of Free Software



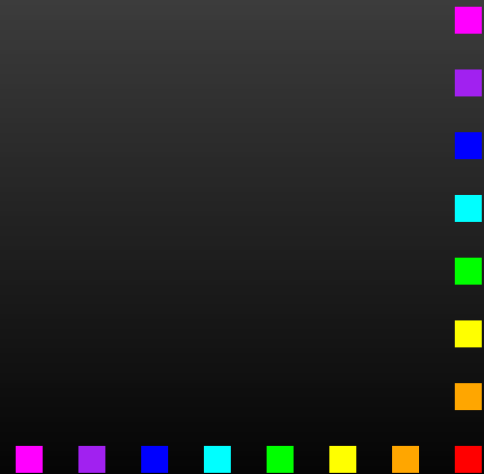
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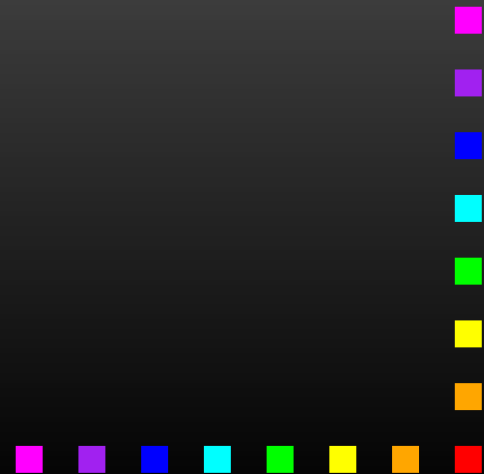
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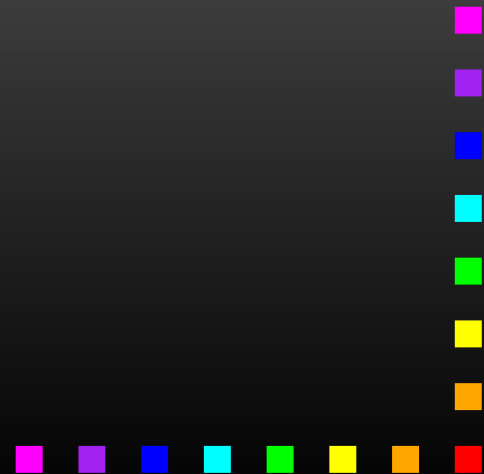
# Open Source follows

Modification requires access to the original computer code that produces the executable program (“source code”).

If this is granted, it is effectively impossible to prevent derivative products, plagiarism, etc.

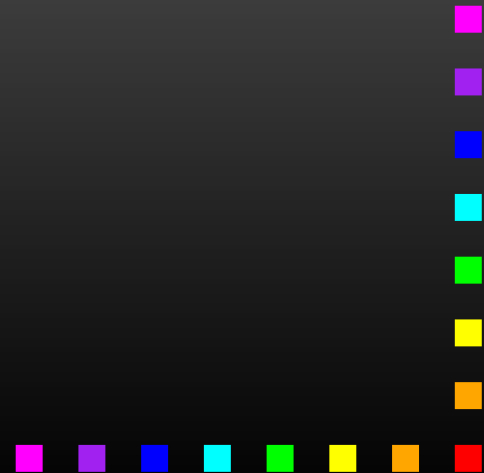


# The Modern Era



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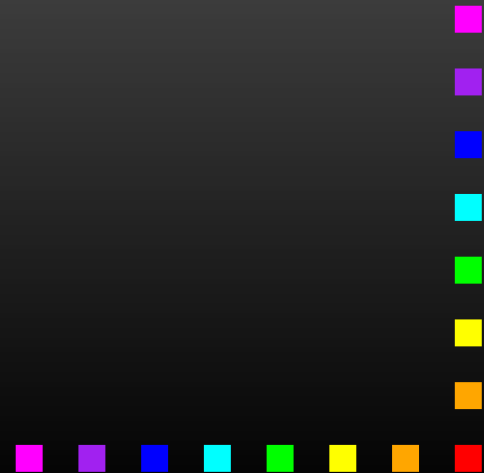
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- ♥ Miscellaneous: Artistic (Perl), Apache, X11



# Distribution Proliferation

- \$ Red Hat Linux
- \$ SuSE Linux
- \$ Conectiva Linux



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♥ Debian GNU/Linux

♥ Slackware

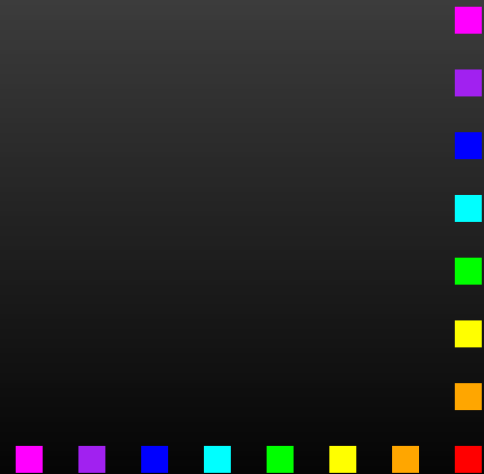
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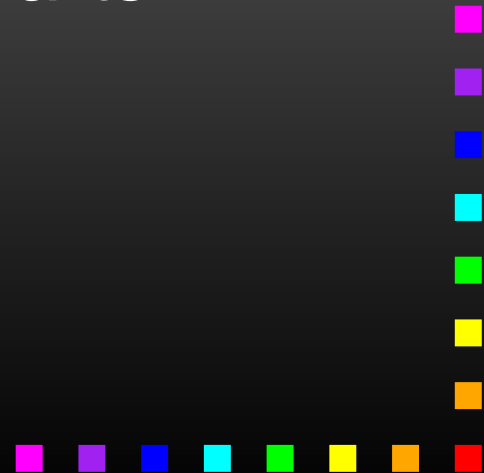
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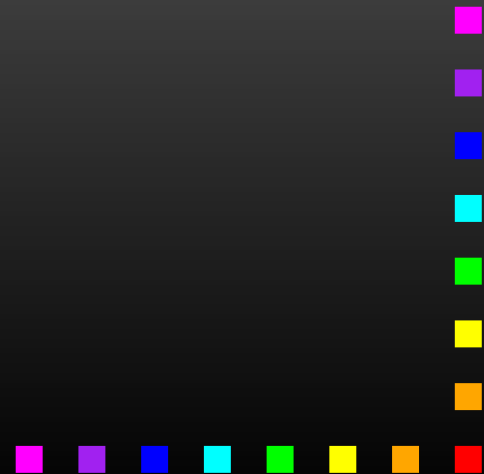


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- ♥ Studies show that about 60% of free software contributors are professional programmers, 10 years median experience.

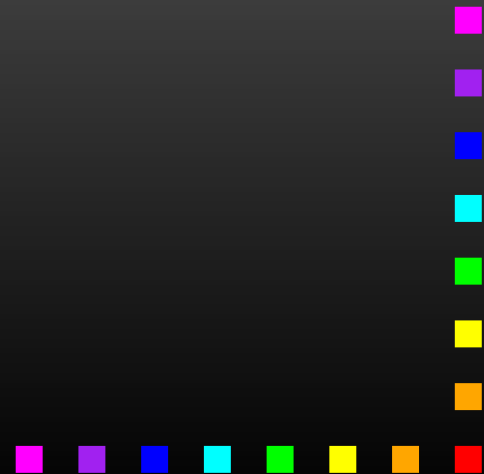


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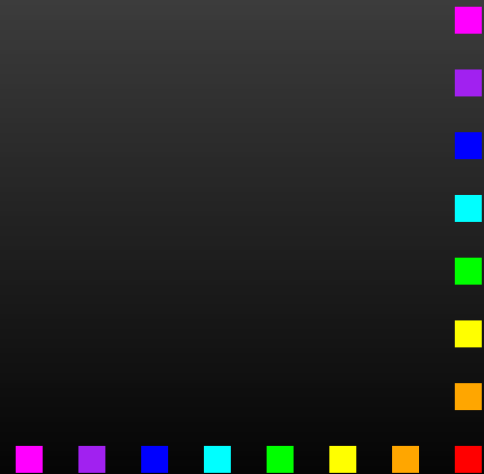
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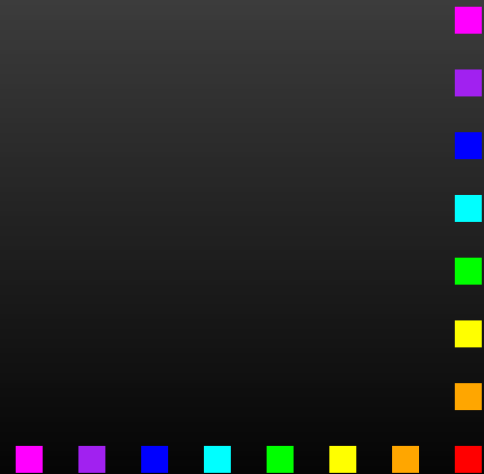
- \$ Technically unskilled users still dominate the market.
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- \$ Monopolies are hard to beat.





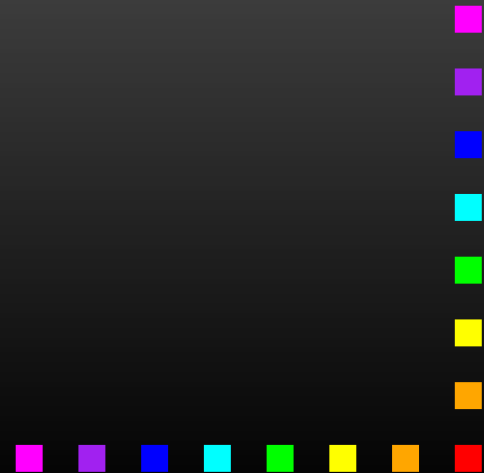
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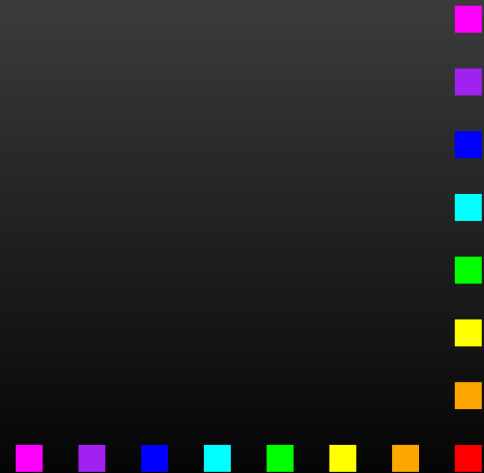
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- ♥ Microsoft backlash is strong and getting stronger.
- ♥ Politics drive non-Americans to seek independence from Microsoft.
- ♥ Linux is more rewarding to highly skilled users, and especially programmers.



# Why can't we all get along?

At the extremes, neither philosophy can tolerate the mere existence of the other.

Both sides rely on emotional arguments, mudslinging, fear, uncertainty, and doubt to win converts.



# Neutrality is impossible

Computers are used in fundamentally collaborative ways.

Every creative act that uses a computer necessarily creates added value for the platform that was used in the process: sending an email, writing a paper, browsing web pages, and most of all, writing a program.



For more information:

- Detect and remove scumware from your Windows computer: <http://www.lavasoft.de/software/adaware>
- Linux that runs directly from CD: <http://www.knoppix.org>
- Debian GNU/Linux: <http://www.debian.org>
- Read more about GNU: <http://www.fsf.org/gnu>

Thanks to Melissa Egan (research and fact checking) and Eric Freborg (comments and suggestions)

