00.12 **Eric Raymond**,
Author, “The Cathedral and the Bazaar”
-I was at Agenda 2000 and one of the people who was there was Craig Mundy, who is some kind of high mucky-muck at Microsoft, - I think vice president of consumer products or something like that - and, I hadn’t actually met him, I bumped into him in an elevator and I looked at him and said, “I see you’re from Microsoft.” He looked back at me and said, “Oh, yeah. And what
00.35 do you do? “ And I thought he seemed a tad dismissive, I mean here is the archetype of a guy in a suit, looking at a scrappy hacker, and so, I gave him the thousand yard stare and said: “I’m your worst nightmare.”

TV reporter:
01.05 -For most of its short, but colorful history, the computer industry has been dominated by the Windows operating system. But that could soon change, as Windows faces a strong challenge from Linux.

Narrator:
01.18 -Silicon Valley has long been the place to develop new technology, start new companies, and get really rich. Now the Valley is the front line in a revolution fighting for that most politically incorrect of ideas: individual freedom. Day and night a loose confederation of hackers and programmers zap bits and pieces of computer code around the world as it builds the tools to set
01.42 computer-users free. Using open information and the free exchange of technology to achieve its goals, this revolution began in the 1980s with the Free Software Movement and the GNU project, and now is most commonly associated with Linux and the Open Source Movement.

01.49 “WHAT IS LINUX?”

TV commentator - Sue Herrera :
01.50 -We do have one sector that’s taking off today, the Linux-related sector. And I thought this might be a good opportunity to say, “what is Linux?” To answer this question for you, many of you probably know that there are 12 million users out there, a computer operating system developed by hundreds of programmers collaborating on the internet, a challenge to Microsoft Windows NT, very popular for its speed. So, this is what the craze is about.

Linus Torvalds,
02.25 Creator, Linux Kernel
-To kind of explain what Linux is, you have to explain what an operating system is. And think about an operating system, I mean, you’re never-ever supposed to see it; because nobody really uses an operating system; people use programs on their computers and the only mission in life for an operating system is to help those programs run. So, an operating system

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02.48 never does anything on its own, it's only waiting for the programs to ask for certain resources or ask for certain files on the disk, or ask for programs to connect them to the outside world. And then the operating system steps in and tries to make it easy for people to write programs.

03.10 "AND WHAT IS OPEN SOURCE?"

Bryce Perens,
Author, Open Source Definition
-Open Source is a way for people to collaborate on software without being encumbered by all of the problems of intellectual property, having to negotiate contracts every time you buy a piece of software, having a lot of
03.30 lawyers involved. In general, we just want to get the software to work and we want to be able to have people contribute fixes to that, etc. So, we sort of sacrifice some of the intellectual property rights and just let the whole world use the software.

Narrator:
03.48 -Before there could be Linux, there was Richard Stallman and The Free Software Movement.

"RMS, MIT, GNU FSF, AND HOW IT ALL BEGAN"

Linus Torvalds:
03.53 -Think of Richard Stallman as the great philosopher, and think of me as the engineer.

Narrator:
04.00 -Richard Stallman, is the founding father of the Free Software Movement. Through his efforts to build the GNU operating system, he created the legal, philosophical and technological foundation for the Free Software Movement. Without these contributions it's unlikely that Linux and Open Source would have evolved into their current forms today.

Richard Stallman:
04.20 -I joined the M.I.T. Artificial Intelligence Lab in 1971. I joined a thriving community of hackers, people who loved programming, loved exploring what they could do with computers. They had developed a complete operating
04.40 system, entirely written there. And I became one of the team that continued to improve the operating system, adding new capabilities. That was my job. And I loved it. We all loved it. That's why we were doing it. And we called our system "the incompatible time-sharing system," which is an example of the playful spirit which defines a hacker. Hackers are people who enjoy playful cleverness.

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05.05 "THE BEGINNING OF THE END OF FREEDOM: PASSWORDS COME TO M.I.T."

Richard Stallman:
-Well, it first started going wrong as the outside world started pressuring us to have passwords and we didn't have any passwords on our computer; and the reason was that the hackers who originally designed the system realized that passwords were a way that administrators could control all the users.
05.25 And they didn't want to build tools, you know, locks and keys for the administrators to control them, so they just didn't do it. They left that out. We had the philosophy that whoever is sitting at the computer, should be able to do whatever he wants, and somebody else, who was there yesterday, shouldn't be controlling what you do today. When they put passwords on to one of the machines at M.I.T., I and a bunch of other hackers didn't like it. I just wanted to try a subversive sort of hack. I figured out how to decode the passwords, so by looking at the database of encoded passwords, I could
06.00 figure out what each person would actually type to log in. So, I sent messages to people saying: "Hello, I see you chose the password, MUMBLE," or whatever it was. "How about if you do as I do, just type ENTER for your password, it's much shorter, much easier to type." And of course with this message, I was implicitly telling them that the security was really just a joke anyway, but in addition I was letting them in on this hack, and eventually a fifth of all the users on that computer, joined me in using just ENTER as their passwords.

Interviewer:
06.40 -How did those ideas lead to what is now Open Source? How did that begin? Who started it?

Bruce Perens:
06.45 -Well, it actually began with the start of computers, because at that time software was just passed around between people. And I think it was only in the late 70s, early 80s, that people started really closing up their software
07.03 and saying, "No, you can never get a look at the source code, you can't change this software, even if it's necessary for you to fix it for your own application." And, you can actually blame some of that on Microsoft, they were one of the real pioneers of the proprietary software model.

Narrator:
07.20 -In the mid 1970s, a group of hackers and computer hobbyists in Silicon Valley formed HOMEBREW COMPUTER CLUB. In the club's January, 31st, 1976 newsletter, Bill Gates of the recently formed Microsoft wrote an open letter to the community where he made a point by point argument for the relatively new concept of proprietary software. Up to that point, the practice of computer-users had been to freely pass around software with not

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07.50 much thought given to its ownership. Known as an Open Letter to Hobbyists, Bill Gates writes: “To me, the most critical thing in the hobby market right now is the lack of good software courses, books and software itself. Without good software and an owner who understands programming, a Hobby computer is wasted. Will quality software be written for the hobby market?”

08.10 Gates goes on to write: “The feedback we have gotten from the hundreds of people who say they are using BASIC has all been positive. Two surprising things are apparent, however. 1) most of these “users” never bought BASIC and 2) the amount of royalties we have received from sales to hobbyists makes the time spent on Altair BASIC worth less than $2 an hour. Why is this? As the majority of hobbyists must be aware, most of you steal your

08.32 software. Hardware must be paid for, but software is something to share. Who cares if the people who worked on it get paid? Is this fair? One thing you don’t do by stealing software is get back at M.I.T.s for some problem you may have had. M.I.T.s doesn’t make money selling software. One thing you do do, is prevent good software from being written. Who can afford to do

08.50 professional work for nothing? What hobbyist can put three man years into programming, finding all bugs, documenting his project, distributing for free? The fact is, no one besides us has invested a lot of money in hobby software. What about the guys who re-sell Altair BASIC? Aren’t they making money on hobby software? Yes, but those who have been reported to us may lose in

09.10 the end. They are the ones who give hobbyists a bad name, and should be kicked out of any club meeting they show up at. I would appreciate letters from anyone who wants to pay up, or has a suggestion or comment.” Signed, Bill Gates, General Partner, Micro-Soft.

Eric Raymond:

09.25 -In the late 70s and early 1980s, Richard Stallman was doing Artificial Intelligence research and coding at the M.I.T. Artificial Intelligence Lab. Richard had a number of negative experiences during that period, which soured him on the whole idea of commercial software.

Interviewer:

09.42 -Such as…

Eric Raymond:

-Some code that he wanted to work on and wanted to fix was locked up and he couldn’t get the company that owned the code to let him fix it, even though it would have been to their advantage to do so.

09.55 **Richard Stallman:**

-And that put me into a moral dilemma, you see, because to get one of the modern computers of the day, which was the early 80s, you would have to get a proprietary operating system, but the developers of those systems, didn’t share with other people, instead they tried to control the users, dominated the users, restricted them, saying: to get this system, you have to

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10.16 sign a promise you won't share it with anybody else. And to me that was essentially a promise to be a bad person, to betray or cut myself off from society, from the cooperating community. And I had already experienced what happened when other people did that to us, when they refused to share
10.38 with us, because they have signed these contracts. And it hurt the whole lab. It kept us from doing useful things. So, I just wasn't going to do that. I felt this is wrong. I am not going to live this way.

Eric Raymond:
10.50 -And from experiences like this he developed a profound hostility to the idea of intellectual property and software. He eventually acted this out by founding a free software foundation

Richard Stallman:
11.00 -So, I look for another alternative and I realize I was an operating system developer; if I were to develop another operating system and then as the author encourage everyone to share it, say everyone you can come and get it, use this, form a new community. Not only could I give myself away to keep using computers without betraying other people, but I give it to everybody else too. Everybody would have a way out of that moral dilemma. And so I realized this was what I had to do with my life.
11.35 I actually began a project in January of 1984, that's when I resigned from my job at M.I.T. to start developing the GNU operating system. Now, I should explain that the name GNU is a hack, because it's a recursive acronym. It stands for Gnu's Not Unix, you see, so that G-N -U stands for GNU; and
12.00 what the name means is, I was developing a system that was like the Unix Operating System, but was not the Unix Operating System, this was a different system, we would have to write it completely from scratch, because Unix was proprietary. We were forbidden to share Unix, we couldn't use Unix, it was useless for a community. So, we had to write a replacement for it.

12.25 "UNIVERSITY OF CALIFORNIA, BERKELEY"

Narrator:
-Throughout the 1980s as Richard Stallman was building the GNU project, computer scientists from the University of California at Berkeley were developing their own free operating system. Known as Berkeley Unix, or BSD, it was based upon the Unix kernel which had been licensed from AT&T. However, due to legal problems with AT&T and fragmentation of the source code, hackers and other non-institutional users were slow to adapt them.

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Stallman:

12.50 -Well, Unix consisted of a large number of separate programs that communicated with each other. So, we just had to replace these programs one by one. So, what I started doing was writing a replacement for one program, and then another, and then another, and then people started joining me because I published an announcement inviting other people to join me to help write these programs, and, by around 1991, we had replaced practically all of them.

Interviewer:

13.20 -What were some of the programs that you had to …

Richard Stallman:

-Well, we had to, to have a complete system, you need to have a kernel, which is the program that allocates resources to all the other programs; you need a compiler which translates a program from readable source-code that
13.40 programmers can understand, into numbers, mysterious numbers that a computer can actually run; you need other programs that go with the compiler that help do this job; you need a de-bugger, you need a text editor, you need a text-formatter, you need mailers, you need lots and lots of things. There are hundreds of programs in a Unix-like operating system.

Michael Tiemann,

Co-Founder, CYGNUS Solutions

14.00 -I saw Stallman's announcement, actually I met him in February of 1987, he came to give a five-day tutorial on EMACS at our company. And during the day he would explain new ways to think of EMACS and ways to extend it, enhance it and to use the EMACS source code for better or worse; but in the evening he was busily working on this compiler and he had not yet released it to the public, so he was being a little bit careful about who got to see the
14.20 source code, but I was very eager, and when he first announced it in June, I downloaded it immediately, I played with it, I got some pointers from him, and when I sent the source code back to him, he was actually very amazed on how quickly I was able to ramp up on his technology.

Larry Augustin, Ph.D.

Co-Founder, CEO, VA Linux Systems

14.48 -Whenever we worked on something at Stanford or in the university, mostly at he time we were working off of machines from Digital Equipment or Sun, mostly Sun; whenever we would get a Sun machine, the first thing we would do is, we would spend literally days downloading GNU free software from the internet, building it in and installing it in that Sun machine.

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Richard Stallman:

15.12 -The crucial thing about GNU is that it's free software. Now free software refers not to price but to freedom, so think of free speech, not free beer. The freedoms that I'm talking about are the freedoms to make changes if you want to, or hire somebody else to make changes for you, if you're using a **15.30** software for your business, to redistribute copies, to share with other people and to make improvements and publish them, so other people can get the benefit of them too. And those are the freedoms that distinguish free software from non-free software. These are the freedoms that enable people to form a community. If you don't have all these freedoms, you're being divided and dominated by somebody.

Larry Augustin:

15.55 -My first experience contributing to free software, came in late 1989, early 1990. I was working as a graduate student at Sanford University on a computer-aided-design tools. One of the pieces I needed was a tool called a **16.00** parser-generator. Well, the Free Software Foundation under Richard Stallman created a great tool called "Bison." I needed a tool that worked with C++; Bison worked with C. I modified Bison to create something called Bison++. And that was a tremendous feeling of empowerment, to be able to take a piece of software that was available, and create what you needed in a very short period of time by modifying it.

16.38 I put it back on the internet and I was amazed at the number of people that picked it up and started using it. In fact, I remember going to job interviews, I, at various times, considered just going out and getting a job. I'd gone to a job interview and I was talking with one of the people and I started asking them about what tool they used and they said, "Gee, we use Bison++," and I said, "Oh, I'm the author of Bison++."

Bruce Perens:

17.01 -Free software generally does have a copyright, it does have an owner, and it has a license. It is not public domain.

Richard Stallman:

1712 -If we put the software in the public domain, somebody else would be able to make a little bit of change and turn that into a proprietary software package, which means that the users would be running our software, but they wouldn't have freedom to cooperate and share. To prevent that we use a technique **17.32** called copy-left. The idea of copy-left is copyright flipped over. And what we do is, we say, "this software is copyrighted and we, the authors, give you permission to redistribute copies, we give you permission to change it, we give you permission to add to it, but when you redistribute it, it has to be under these terms, no more or no less, so that whoever gets it from you, also gets the freedom to cooperate with other people if he wants to." And this way, everywhere the software goes, the freedom goes too, and it becomes

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an inevitable right to cooperate with other people and form a community.

Interviewer:

18.11 -And so what is that, the license, what was that for?

Richard Stallman:

18.26 -Well, copy-left, being a general idea, in order to use it, you have to have a specific example. The specific example we use for most GNU software packages, is the GNU GENERAL PUBLIC LICENSE. A particular document in legalese which accomplishes this job. A lot of other people use that same license, for example, Linus Torvalds uses that license for Linux as well.

Bruce Perens:

18.38 -Well, the license I use is the GNU GENERAL PUBLIC LICENSE, that's the one that Richard Stallman wrote and I think it's a really astounding contribution. It's one of the few software licenses that was written from the standpoint of the community, rather than from the standpoint of protecting a company, or, as is the case with the M.I.T. and BSD license, performing the
19.06 goals of a government grant program. And the GPL is really unique in that. It's not just a license, it's a whole philosophy that I think motivated the Open Source Definition. I don't hide that a lot of what I do came from Stallman.

19.25 "FREE SOFTWARE GOES FREE ENTERPRISE: GNU GETS ITS FIRST STARTUP"

Narrator:

19.35 -A crucial step in the growth of the GNU, Linux and the Free Software Movement, was the creation of businesses based upon the software and philosophy. Ground zero for the beginning of the business phase was the Electronics Research Lab at Stanford University. Known as ERL, the lab was the place where the first GNU and Linux businesses found their inspiration.

Larry Augustin:

19.38 -So, right here is where ERL was. That would have been the entrance over there, next to the Electrical Engineering and McCullouh building. As you walk in, you come in, you walk down the hallway down here. My office would have been about here, and then right across the hall from that was Michael Tiemann's office.
20.07 Michael Tiemann took and started a company, Cygnus Software. The idea was to sell consulting and services around the GNU free software. And Michael has done very well with Cygnus.

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20.18 Michael Teman:
-Well, I spent a lot of time working out how we were going to make money and in the original GNU Manifesto, which is the last chapter of the GNU EMACS manual, Stallman proposed a number of different possible ways to make money.

20.33 Richard Stallman:
-From the beginning of the free-software movement, I've had the idea that there is room in it for business to be done; one of the advantages of free software is that there is a free market for any kind of service or support. So, if you were using software in your business and you want good support, you
20.52 have a choice of people to go to for it. You have a choice of businesses that are in the business of providing you with support. So, they are going to have to, in general, give you good support, or you go to somebody else. With proprietary software, support is a monopoly. There is one company, typically, that has the source code and only they can give you support. So, typically, you're at the mercy of a monopoly, that's the case, for example, with Microsoft. So, no wonder, the support is so bad.

21.20 Michael Tiemann:
-The benefits of free software were tremendous, but the costs of supporting it internally, made managers very very nervous. So, the fundamental idea I had was, if we could build a model that could deliver two to four times the support and handholding capability that an internal engineer could provide, and we
21.45 could do it at one half to one quarter of the cost, that would meet the test of whether or not people would actually buy. And by about the fall of that year, we had all of the things worked out about who we needed on the technical team, what terms the sale would be, what the key price points were and we
22.00 actually received our incorporation in November of 1989.
One of the most difficult things in starting our company was actually finding a name for it. I explained this to one of my friends, that we were having difficulty and he returned an E-mail message that basically just had a bunch of words with the name GNU in it. Cygnus was the one that looked least obnoxious and least obscene.

22.22 Bruce Perens:
-I can say very clearly that Cygnus was the first business that specialized in free software. Cygnus supported Free Software, filled the various essential needs, because we had this great software, you could get it for nothing, but you couldn't get support; and they made their money by charging for support.

Eric Raymond:
22.41 -The GNU project started by building a tool-kit of basic development tools, such as a C compiler, a de-bugger, a text-editor and other necessary operators. And their intention was eventually to develop a kernel to sit

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22.58 underneath those and be the center of the operating system. By about 1990, they had successfully developed that tool-kit and it was in wide use in a great many variants of Unix, but there was still no free kernel.

Richard Stallman:

23.12 -The kernel happened to be one of the last things we started to do, and we had started it not long before. And that's when Linus Torvalds came along.

Interviewer:

23.22 -Lihn-us or Line-us, what's your exact preferred pronunciation?

Linus Torvalds:

-When I speak Swedish, it's "Leenis," when I speak Finnish, it's "Leenus," when I speak English it's "Linus," and I really don't care how people pronounce my name, but Linux is always Linux.

Richard Stallman:

23.38 -He developed a kernel and got it working faster than we got ours working, and got it to work very nicely and solidly. His kernel is called Linux.

23.48 **Linus Torvalds:**

-The initial goal was my very personal goal, to be able to run a similar environment on my computer that I had grown used to at the university computers. And I could not find anything suitable for that. So, having been doing computers for all my life basically, at that point I just decided I would do my own. Most of the inspiration early on came from the Sun OS which was what I was using at the university at the time.

Interviewer:

24.20 -Which university?

Linus Torvalds:

-University of Helsinki in Finland.

Eric Raymond:

24.26 -From 1991 till about 1993 was really, I guess, the infancy period of Linux. That was when it was still only Alpha or Beta quality, it was relatively unstable, although even then it was a good deal more stable than a lot of what are now called "production operating systems."

Richard Stallman:

24.45 -Linus used the traditional "tried and true method" of writing one program that does the job. And he got it to work quickly. In fact, faster then I would have thought it was possible.

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24.56 **Linus Torvalds:**
-The term for it is monolithic, which means that basically the OS itself is one entity, indivisible. Well, in a micro-kernel, the operating system kernel is actually just a collection of servers that do different things and then they have a common protocol for doing communication between themselves.

Interviewer:
25.24 -So why is it that if the GNU project had so much lead time just for doing this, why is it that he was able to kind of come in at the tail…

Richard Stallman:
25.35 -Well, we actually started GNU HURD not long before he started Linux. And as it happened though, we chose a design that's a very advanced design, in terms of the power it gives you, but also, it turns out to be very hard to debug. We decided to divide up the kernel which traditionally had been one program, to divide it up into a lot of smaller programs that would send
26.00 messages to each other asynchronously, to communicate. The problem is that style of programming has a great deal of potential for bugs, which are often very hard to figure out because they depend on – does this program send this message before or after this one sends that message, and the result was – it took us years to get the thing to work.

Interviewer:
26.26 -What is Linux's relationship to the GNU project?

Linus Torvalds:
26.31 -Well, there is a relationship to GNU on multiple levels; one is just a philosophical level of thinking that, making your source open is a good idea.

Richard Stallman:
26.47 -When Linus developed his kernel, he wasn't doing it for the GNU Project, he did it independently and he released it independently and we didn't know about it. But some of the people who did know about it, decided to look for what else they could find to put together with that kernel to make a whole system.

27.02 "1991: VERSION 0.01 OF LINUX HAS 10,000 LINES OF CODE AND ONE USER"

27.12 And they looked around and low and behold, everything they needed was already available. What good fortune, they thought. But actually there was no chance about it. They had found all the pieces of the GNU System which was missing just the kernel. So, when they put all that together, really they were fitting Linux into the gap in the GNU system. But they didn't know that.

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Linus Torvalds:

27.30 -There are a lot of these programs done by the Free Software Foundation and done by other people like Linux. And there is a symbiosis between Linux and the programs; so, the programs run on Linux and at the same time – and they take advantage of Linux as a platform, while Linux takes advantage of the programs just by being able to use them.

Interviewer:

27.50 -What type of programs?

Linus Torvalds:

-The main one is actually the GNU C compiler. Without a C compiler, it would not have been possible to make Linux, or most of the open programs available. Linux uses the GPL and I agree with kind of the philosophy behind the GPL. The GPL itself is not a very pretty document, which is just probably because no lawyer-ese can ever be very pretty.

28.28 "1992: VERSION 0.96 OF LINUX HAS 40,000 LINES OF CODE AND 1,000 USERS."

Larry Augustin:

28.33 -Well, I'd been playing around with Linux for, actually late '92 early '93, for about a year, before I decided it was to the point where it actually had everything that I needed to really replace the Sun workstation.
And I was looking for a way to have a Unix workstation at home. At the time we used Sun SparcStations in the office in Stanford. Those machines cost us about seven thousand dollars. Now, I desperately wanted a Unix machine at home.

29.02 There is always this thought you get as a graduate student, "Gee, if I could work at home, then I would be so much more productive, I would graduate sooner, because I would finish my thesis sooner." Well, is it true? Well, you can judge, you know, most people end up spending a lot of their time becoming more productive, so if they actually worked on a thesis, they finish it in a day. It takes a while sometimes.

29.25 So, I decided I wanted a Unix machine at home. And I went out there and was able to use Linux together with a PC. For about two thousand dollars I put together a system – that was one and a half, two times faster than that seven thousand dollar San Spark Station. That was absolutely amazing; I had one and a half to two times the speed at a third to a fourth the prize. Lightbulbs went off. I knew there was an opportunity here. This was a chance to really do something better than Sun has done, around Open Source and Linux.

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Linus Torvalds:

29.58 -I called it Linux originally as a working name, and that was just because Linus and the "X" has to be there, it's Unix, I mean it's like a law and what happened was that I initially thought that I can't call it Linux publicly because it's just too egotistical. That was before I had a big ego.

Richard Stallman:

30.22 -They thought they were taking a whole bunch of components and putting them around Linux. So, they ended up calling the whole thing a Linux System and somehow that term caught on. The result is, there are now ten million people using this variant of the GNU system, the GNU/Linux Operating System – and most of them don't know it.

Interviewer:

30.44 -If some people asked you to describe this GNU/Linux, I mean, what's your thought about this, does that justify, or…

Linus Torvalds:

30.52 -Well, I think it's justified, but it's justified if you actually make a GNU distribution on Linux. The same way that I think that Red Hat Linux is fine, or SuSE Linux, or Debian Linux, because if you actually make your own distribution of Linux, you get to name the thing. But calling Linux in general GNU/Linux, I think it's just ridiculous.

Eric Raymond:

31.15 -I got involved in Fall '93 because I was sent a copy of the first CD-ROM commercial Linux distribution, which was called Yggdrasil, it was produced by Adam Rikter. And I got a copy because I had been myself writing free software for a long time since the early 80s, I was actually one of the early GNU contributors myself, and I was absolutely astonished, I was completely

31.38 astonished, because I'd been a software engineer for nearly 15 years to that point and according to all the rules I knew about controlling complexity, keeping your project group small, having closely manageable objectives, Linux should have been a disaster. And it wasn't. Instead, it was something wonderful and I was determined to figure out how they were getting away with that.

Narrator:

32.02 -In order for Linux to grow beyond the world of a computer programmer, it needed a use, an application that made it a must-have technology. That threshold was crossed with the development of a program that made complex websites possible. That program was the Apache Web Server.

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32.20 **Eric Raymond:**
-The killer app of Linux was undoubtedly the Apache Web Server. If you look at the history of Linux, the adoption curve of Linux and the adoption curve of the Internet exactly track each other.

32.35 "1993: VERSION 0.99 OF LINUX HAS 100,000 LINES OF CODE AND 20,000 USERS."

1993, which was when the Apache Web Server project really got started, was also the beginning of a popular ISP explosion when Internet first became a mass-market commodity and the idea of Web-based electronic commerce and mass communication became real.

Brian Behlendorf,
32.50 Co-Founder, President, Apache Project
-I think it was one of the first applications that caused people to go, "Wow, if I install Linux, I get some tangible benefit from doing so, right." I mean, clearly, there are a lot of interesting applications on Linux, at the time, maybe two or three years ago when this weird thing really started to take off, but there wasn't a driving, you can say, business case for someone to use Linux versus using NT until, I think, Apache. And a lot of the things had plugged
33.15 into Apache and enhanced Apache. I mean, when you went out and built a server-farm, it was much more cost-effective. Cost-effective, real dollar terms, to build it on Linux and Apache, than it was to build it on IIS and NT. Even if it meant that you had to spend a little bit of money to train your staff to learn how to use that or find people who were knowledgeable, but the good news was that that knowledge wasn't very expensive because there were all these college students out there who've been using Linux for a long time and were very familiar with it.

Eric Raymond:
33.43 -If you look at the trend curves in Web servers, Apache has steadily been gaining market share ever since, it's up to something like 66% now. It steadily clobbered all of the closed-source competition and that's because it's more reliable, it's more flexible, it's more extensible, it does what Webmasters actually need. The combination of Apache and Linux found its way into a great many commercial shops.

Narrator:
34.07 -Essentially, Apache became the application that motivated Internet service providers and e-commerce companies to choose Linux over Microsoft's Windows.

Brian Behlendorf:

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34.18 -It would probably run best on Linux and on free BSD, and the reason is the communities around those operating systems are also the communities that contribute the most back to Apache. And they are also the operating systems
34.30 that Internet service providers started using very heavily as well. And Internet service providers really liked Apache because it allowed them to do a lot of different things that some of the commercial Web servers didn't, such as the ability to host more than one Web site on a single box – which, clearly, if you're an ISP and you have 40,000 users and they all want their own Web site, it's gonna be pretty important to you.

Narrator:

34.53 -One of the key factors in the growth of Linux, was the creation of companies that specialized in the distribution and support of the operating system itself. Among these companies, Red Hat software is the best known.

Donnie Barnes,

35.04 Employee #4, Red Hat Software
-Red Hat started as a product of Marc Ewing while he was working at IBM he wanted a little better Linux distribution. He started playing around. He found out, he spent more time maintaining his Linux distribution than he did working on his new project, so he sort of started a distribution itself. He met up with Bob Young, who at the time was running a company called ACC Bookstore,
35.27 which was a mail-order PC Unix catalog and Bob kind of knew he wanted something more his own to market, rather than reselling other people's products and he was fairly good at marketing. And Mark knew he needed some marketing help because he was fairly good at the technical parts, so they kind of got together.

35.45 I started working at Red Hat in May of 1995, along with Eric Truan, who him and I combined and made up employees number 4 and 5. And we actually reported to work at an apartment that Marc Ewing used to live in. We took it over, as kind of the development part of Red Hat Software. It stayed that way till about November of 1995, when a toilet that we had in the apartment kind of exploded, flooded our downstairs neighbor and she got a little upset and the apartment folks found out we were running a business there, instead of actually living there, at the same time. So they decided to throw us out. So, at that point, we had about a week to go find our first office, which we did, and get ourselves moved in a hurry.

36.30 "1995: VERSION 1.2 OF LINUX HAS 250,000 LINES OF CODE AND 500,000 USERS"

Larry Augustin:

36.38 -We started going in, again in '95 or so, to the venture capital firms, saying, there is something happening here, there is a great business opportunity to build the next Sun for Open Source. Well, the venture capitalists looked at

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this and said, “Gee, you’re selling systems, the software is free, this is kind of scary. We are not sure that we wanna put money in it. And by the way, we funded other systems companies and it hasn’t really panned out; we are scared.”

Linus Torvalds:

37.10 -I came to the US about three years ago, and the reason really was, that I’d been spending six or seven years at Helsinki University; I decided that it was time to see the “real life” and not just the university life, especially in this area that had some of the most interesting work being done. So, I decided, let’s move half way across the world, and give this a try. And it's turned out pretty well.

Interviewer:

37.42 -Do you see this as temporary or long term?

Linus Torvalds:

37.46 -Well, we saw it as temporary at first and I think it’s looking like it'll turn out to be long term. Our youngest daughter is both a US and Finnish citizen, because she was born here, and the older one is speaking both Swedish and English, so.

38.20 “1997: VERSION 2.1 OF LINUX HAS 800,000 LINES OF CODE AND 3.5 MILLION USERS.”

Eric Raymond:

38.25 -The next major event was the one that I had a direct hand in. I wrote a paper called “The Cathedral and the Bazaar,” which was my observations, my anthropological analysis of what it was that made the Open Source world work. We didn’t call it that then, we’re still using the term Free Software, primarily. So, it was my observation of what made Free Software and why we were able to produce extremely high quality software in spite of constantly violating all of the standard rules of software engineering.

38.55 In that paper I was setting up a contrast between two different styles of development, two opposed styles of development: one which is the conventional, closed development style, which I called the Cathedral style. In that one you have tight specifications of objectives of small project groups which are run in a fairly hierarchical, authoritarian manner and you have long

39.25 release intervals. On the other hand what I identified is happening in the Linux world, was a much more peer to peer, decentralized market world, bazaar-like style, which had very short release intervals and constant

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solicitation of feedback from people who were formally outside the project. The very intense peer review process. And the startling thing was that the more I looked at this, the more I'd seen that trading away all the supposed advantages of conventional closed development for that one single advantage of massive independent peer review actually seemed to win, actually seemed to get you good results.

40.03 "FREE SOFTWARE AND NETSCAPE'S BIG GAMBLE"

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Bruce Perens:

40.05 -The reason Netscape is important is that they were the first large company to participate in Open Source, we had Cygnus providing support, but we didn't really have much business. And Netscape went to Open Source, essentially as a way to fight Microsoft which was giving away Internet Explorer, but not letting anyone else have the source code, not letting companies collaborate.

Frank Hecker,
Former Netscape Systems Engineer

40.30 -Working as part of the sales works, I got a good idea of why people bought our software and what it took to make our software successful on the marketplace against competitive products. However, the problem was, we were seeing that as time went on, our software was being competed against by other people's software, particularly Microsoft's, and as time went on, the price of our software had to drop, because other people were giving their software away at no charge or little charge.

Eric Raymond:

41.02 -Now, the real problem was that they feared that Microsoft would achieve a monopoly lock on the browser market and they would then use that monopoly lock to pervert actually the HTTP and HTML standards that the Web depends on. And once they had turned those standards into lock-in devices, they could then use that control to drive Netscape out of the server market, which is where it was making its real money.

Frank Hecker:

41.25 -My concern was that as time went on, Netscape's business would be threatened by the fact that we didn't have enough people to do all the things we needed to do as a company, in order to keep our software viable on the marketplace.

Eric Raymond:

41.40 -The Netscape release happened in early 1998, and I was told later, I had no idea at the time, that it came about as a direct result of the right people having read "The Cathedral and the Bazaar."

Frank Hecker:

41.53 -"The Cathedral and the Bazaar," the paper by Eric Raymond, was a significant influence on Netscape's decision to release the source code.

Eric Raymond:

42.04 -It came as a complete shock to me, I wasn't really ready for the thought that I was changing the world, even by accident.

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Frank Hecker:

42.10 -However, it wasn't by any means, the only influence on that decision. And not necessarily the most important one. And as I said, Netscape had been talking about releasing the source code for quite some time, for anybody who heard of that paper.

Eric Raymond:

42.30 -Linux Congress in early 1997, was the first place where they gave that paper. And one of the people who heard it was Tim O'Reilly at O'Reilly Associates and he thought it was pretty intriguing and he asked me to give it at his first PERL Conference, which was later that year, in fall of 97. And

42.50 apparently what happened, I was told later, although I had no idea this was happening at the time, is that some people from Netscape actually heard the paper at the PERL Conference and took those ideas back to Netscape and they kind of lit a fire there.

Frank Hecker:

43.04 -The role of my paper was essentially to make the internal case at Netscape, to make the business case for why Netscape should release source code.

43.15 The paper was called: "Netscape Source Code As Netscape Product." A strange title, essentially what the title meant was that, in my opinion, we need to think of source code not just as something that was used in creating our product, but as something that was a product in its own right. Something that customers might use, other people might use.
I then looked at what the business models might be, if we released the source code for our products; how do we license them, how do we sell products in this environment?

43.33 Then I looked at the competition, and I'm talking about Microsoft, what would they be likely to do, if we released the source code, was there some way they could use our source code against us? I used Eric's paper as an example of how distributed development could work, how a company could develop software not just using their own people, but also working with people on the Internet. And that's why I included a reference to Eric's paper in my paper.

44.09 Once my paper was circulated, the people who read my paper would, naturally enough, find a reference to Eric's paper and read that as well.

Interviewer:

44.16 -Who was involved in making that happen at Netscape?

Eric Raymond:

44.20 -Primarily, the person who made the actual decision was Jim Barksdale and this turned out to be important later, that our big win, the big score that gave us mainstream visibility and credibility with investors came, not because of bottom-up evangelism or a bunch engineers, but because one strategist

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at the top saw the potential power of this method and then essentially imposed that vision on everyone underneath him.

Frank Hecker:

44.45 -When I completed the paper, I first gave a copy to Mark Andressen who was co-founder of Netscape and at the time was in the senior management team at Netscape. Mark then gave a copy of the paper to several other people within the Netscape management, including Jim Barksdale. I'm not sure exactly when Jim and the other senior managers made the actual decision, I believe it was early January sometime. Netscape actually announced that it was going to release the source code on January 27th. At the same time that they released it, they were going to give Communicator away for free.

45.20 "NETSCAPE NAMED THE NEW BROWSER PROJECT *MOZILLA* AFTER THE ORIGINAL CODE NAME OF THE NAVIGATOR BROWSER."

When Netscape decided to release the source code, people sort of got a wake-up notice that said, "Hey, maybe there is something in this idea of releasing source-code and doing development with people outside your

45.30 company." So, Netscape's decision brought a lot of public attention to the idea of Free Software, that came to be known as Open Source, and brought a lot of attention to the Linux Operating System, which was one of the most prominent examples of Open Source software at that time.

Larry Augustin, Ph.D.:

45.50 -This was our first office, Mountain View, California. We moved here in early 1995. This is 4,000 square feet. It was an incredible leap of faith for us to move out and take the company to our own office. Now, what's really important about this place is that this is the office where the term Open Source was invented.

Eric Raymond:

46.12 -If you walk into an executive's office and you say "Free Software," if you're lucky, the response you will get is something like, "Hmm. Hmm. Ah, free software. That must be cheap, shoddy, worthless." And if you're not lucky, it has associations with the Free Software Foundation's wholesale attack on intellectual property rights, which regardless of what you think about the effects of that, it's lousy marketing, it's not something that businesses want to hear.

Larry Augustin, Ph.D.:

46.44 -So, Eric Raymond knew that there was a problem; we've been calling this Free Software, but people took the term "free" and associated it with free of charge, they thought that it couldn't make money or couldn't sell, which is exactly the wrong concept. We wanted to get across the idea that the software was open and that the source code was available. Very important

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pieces. We had this meeting at the VA offices in Mountain View, where Eric, myself and Christine Peterson from the Foresight Institute joined us, as well as several other people.

Eric Raymond:

47.14 -Christine Peterson was there by phone, John “Mad Dog “ Hall was also there by phone, Todd Anderson, who later worked for SuSE for a while, was there, Sam Ockman, who now runs Penguin Computers, was there; he was an employee of VA at the time.

Larry Augustin, Ph.D.:

47.34 -Well, we came up with a concept of Open Source. We called Linus, in fact, and asked Linus if he liked it. He was interested, he liked it and eventually we came up with something to replace Free Software. And that was the beginning of Open Source.

Interviewer:

47.48 -How did you chose the words Open Source?

Larry Augustin, Ph.D.:

47.51 -You know, I think Christine Peterson was the person who really came up with the idea. We wanted, again, the idea that the source code was out there and it was open. There weren’t many choices.

Richard Stallman:

48.03 -Since the first three recipients have spoken for the Open Source Movement, I think I should speak about the Free Software Movement. The Open Source Movement focuses on practical advantages that you can get by having a community of users who can cooperate on interchanging and improving software. I agree completely with the points they make about that. The

48.28 reason why my views are different while I’m in the Free Software Movement, rather than in the Open Source Movement, is that I believe there is something more important at stake. That freedom to cooperate with other people, freedom to have a community is important for our quality of life, it’s important for having a good society that we can live in. And that is, in my view, even more important, than having powerful and reliable software.

Bruce Perens:

48.55 -But I think some of the people in the Free Software camp are a little scared by the commercialization. And, you know, of course, the rebel is put off by success; I think commercialization is very important, we want to mainstream this software. And I worked with Richard Stallman, who is the gray-hair-man of Free Software, on a regular basis, and I don’t feel I have any philosophical differences, me as author of the Open Source definition and he as originator of Free Software as an organized thing, except for one thing: Richard wants

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49.40 all software to be free and I think that free software and non-free software should co-exist. That's the only difference we have.

Eric Raymond:

49.48 -We decided early on, that we needed a definition, we needed kind of a meta-license to define the term Open Source. And what we came up with is a document called the Open Source Definition. It's derived from the Debian Free Software Guidelines that were originally written by Bruce Perens.

Bruce Perens:

50.06 -I had written the original draft of that, discussed it for a month with Debian developers, Debian is a Linux distribution, and made it their project policy. Eric and I decided to re-label what we'd written for Debian as the Open Source Definition, and to say, "Open Source is software that gives you a list of nine rights, which is in the Open Source Definition."

50.35 "RIGHT NO. 1: FREE REDISTRIBUTION"

The first right is Free Redistribution. This doesn't mean free as no price, it means liberty. You have to be free to redistribute your software to someone else. And actually, no price is a side-effect, you can charge for that redistribution or not.

50.54 "RIGHT NO. 2: SOURCE CODE AVAILABLE"

It has to come with source code, so that someone can maintain a program; if they go from a PC to a Mac, for example, they can change the software.

51.05 'RIGHT NO.3: DERIVED WORKS PERMITTED"

Derived Works have to be possible; if someone has to improve your program, they should be able to distribute the result.

5118 "RIGHT NO. 4: INTEGRITY OF THE AUTHOR'S SOURCE CODE"

There is a provision about the Integrity of the Author's Source Code, which says that the author can sort of maintain their honor and if you make a change, you might have to change the name of the program, or mark out your change very clearly, so your change doesn't reflect on the author.

51.36 'RIGHT NO. 5: NO DISCRIMINATION AGAINST PERSONS OR GROUPS"

There is no discrimination against people or groups. The example I usually use is, you can't stop an abortion clinic or an anti-abortion activist from using the software.

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51.49 “RIGHT NO. 6: NO DISCRIMINATION AGAINST FIELDS OF ENDEAVOR”

There is no discrimination against fields of endeavor; and that means, the software has to be usable in a business, as well as in a school.

52.00 “RIGHT NO. 7: DISTRIBUTION OF LICENSE”

The license has to be distributable; in other words, I have to be able to give that license to someone and that license then should work if that someone gives it to yet a third person.

52.15 “RIGHT NO. 8: LICENSE MUST NOT BE SPECIFIC TO A PRODUCT”

The license can’t be specific to a product; in other words, if I distribute my software on a Red Hat System, the license can’t say: you can’t distribute this on a SuSE or a Debian system.

52.29 “RIGHT NO. 9: LICENSE MUST NOT CONTAMINATE OTHER SOFTWARE”

The license can’t contaminate other software; so, if I distribute this on a CD with another program, it can’t say: that other program must be free, otherwise you can’t distribute my software.

52.45 And then the only other part of the Open Source Definition is a list of licenses that were accepted. And the ones that we started with were the GPL, which was actually the example for a lot of what’s in the Open Source Definition, the BSD license, because software for the BSD system pre-existed Linux.

53.03 “LINUX AND OPEN SOURCE PICK UP MOMENTUM”

Eric Raymond:

53.10 -I think the next moment that I thought was really pivotal, was when the database vendors flipped over, which happened three months sooner than I expected it to. It actually happened in late July, early August.

Interviewer:

53.24 -To do what?

Eric Raymond:

-Commitments to do tier 1 ports from ORACLE and SYBASE and the other key database vendors.

Interviewer:

53.30 -And why was that critical?

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Eric Raymond:

53.34 -Because we knew that in order for the Open Source story to be credible, and especially for the Linux story to be credible, we'd have to get commitments from independent software founders to do ports of their applications to these platforms. And I was actually kind of worried, I felt that we were in a window of vulnerability, between the time that we announced
53.52 the Open Source Campaign and the database vendors flipped over. That was the point at which hostile action by Microsoft or other closed-source software companies, that was the point at which a serious marketing blitz might actually have sunk us, but once the big database vendors flipped over, that opened the way for other ISVs, that started a snowball effect going.

Larry Augustin, Ph.D.:

54.14 -Every six months or so, I would come back to the venture capitalists and I would show them the new numbers showing more and more people adopting Linux and new people pouring in, new users. And I would show them our customer list.

54.20 "1998: VERSION 2.110 OF LINUX HAS 1.5 MILLION LINES OF CODE AND 7.5 MILLION USERS."

And our customer list was getting much more impressive with people like Cisco that were beginning to appear, people like the "dot.com" companies were starting to show up on our customer list. Eventually the venture
54.38 capitalists, you know, they kept looking at it, and they kept saying: "we can't quite do it. " Finally, Linus appeared on the cover of Fortune, there was something happening with Open Source. Well, at that point, the venture capitalists couldn't ignore it, they just got sick of hearing about Linux everywhere, and they got tired of me just showing it to them, at that point, almost every week. So, they decided it was time to invest, there was something happening.

Bruce Perens:

55.03 -When I announced Open Source to the world on the Internet, I did a lot of the early administrative work of starting the Open Source initiative and I think six months later I was reading the words OPEN SOURCE in the news all the time. That was totally astounding. And a year later, I believe, Microsoft was talking about releasing some source code, and someone in the press asked Steve Ballmer if they were going to Open Source their code and Steve Ballmer said, "Well, Open Source means more then just releasing the source
55.38 code," and I realized that he had read my document and understood it and was now telling the press about this. Now, if you're just a guy on the Net who's not doing this for a job at all, and you sort of write a manifesto and it spreads out through the world and you hear later that the vice president of Microsoft is talking about that, you'd think you were on drugs, wouldn't you? But that's what really happened!

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56.05 “SVLUG, BALUG, LALUG - LINUX USERS GROUPS”

Linus Torvalds:

56.10 -The local users groups tend to be more on the issue of building a social network, especially getting people familiarized with issues, also, acting as kind of a supporting network for people who, for example, do not have the ability to pay for commercial support. So, one thing that they are doing in this area, for example, is, they are making these, I think once a month, they are

56.47 having “install fests,” which means that people who have problem getting Linux installed on their machine, or have some issue, I mean, maybe they actually installed Linux, but want to set up the network in a specific way, can actually bring in their machines to this user’s group meeting and there are a lot of people there willing to help, who may have seen that problem before.

Terry Egan, in the users’ group meeting:

57.18 -Well, actually things aren’t going so well, I tried earlier myself, I had problems, so I came to this “install fest” where all the gurus abound. Hopefully I’ll have better luck getting it in.

Marc Merlin, in the users’ group meeting:

57.32 -Instead of sending e-mails or writing to newsgroups on the Internet and waiting several days for the answer, sometimes it’s easier to come here and find other people who might know what your problem is and may be able to help you. And hopefully within a few hours you’ll have your machine installed.

Dave Ljung Madison, in the users’ group meeting:

57.50 -Originally I wanted to install it on my larger laptop, so, I just did a search on the net and found where there were resources to get help. I’m here today, because I’m trying to put Linux on this little guy right here, which is a Toshiba Libretto. It’s not the easiest thing in the world to do, because it’s a weird piece of hardware

58.26 “U.S., 20 STATES FILE ANTITRUST LAWSUITS AGAINST MICROSOFT”

Linus Torvalds:

-I think that the Department of Justice case has made people aware of the fact that you should at least look for alternatives to Microsoft; and maybe

58.33 Microsoft isn’t the American Dream after all. And that kind of shifting perception you can very clearly see that people just took Microsoft for granted. Maybe they are still buying Microsoft, but at least they are more aware of the issue.

Eric Raymond:

58.51 -Microsoft actually used Linux as defense; they used Linux to ground a claim that they don’t have monopoly, because Linux could essentially push them

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off their catbird seat at any time. It's a very ingenious argument, totally
59.05 specious, because it didn't do anything to answer the charge that they had previously engaged in bullying and various anti-competitive practices. But it was clever of them. In any event, the judge didn't buy it.

"HACKERS UNITE! WINDOWS REFUND DAY PROTEST, FEBRUARY 15,
59.18 1999."

Nick Moffitt:
-We, in the LINUX community, are rather wary about letting Microsoft become the issue, but there was a SLASHDOT article in December of '98, where a fellow named Matt at the Noodle had pointed out that a gentleman in Australia had managed to receive a refund for the unused copy of Windows
59.40 that came with his computer. So, he declared the 19th of February "Windows Refund Day." He encouraged everyone to go to the computer manufacturers and return their unused copies of Windows as it was specified in the Windows User License Agreement.

Chris DiBona:
60.04 -It's important to remember that in the License itself it says that you can receive a refund if you don't use the software and that the manufacturer is bound by law to do this, or it was bound by contract. And we found that if you called up these manufacturers, they basically said: "stop bothering me, kid,"
60.23 and they hung up on you. We didn't really want to give out the location of where we were going to meet, until the very last second. So, we just had people meet at places that we could control, in the different towns around here. So, I was the San Jose marshal….

Nick Moffiti:
60.35 -Rick Moen and I did San Francisco…

Chris DiBona:
-…and so we had maps there and we handed them off to everybody who was coming.

Nick Moffitt:
60.33 -We actually met at a Denny's that's just outside the Foster City limits, which meant also, that it was just outside the Foster City Police Jurisdiction, which meant, that any incident that happened at the meeting point, happened in the jurisdiction of San Mateo. And if they'd told us to get lost, we'd say: "Fine, we are going to Foster City. Bye."

Chris DiBona:
61.01 -Sort of "The Dukes of Hazzard" method of avoiding the cops.

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Nick Moffitt:

61.05 -Actually, originally we marched on the other side of this building. We marched around and up onto the parking structure that's up there. And that's where Microsoft had a reception laid out for us with drinks and a big sign that said: "Microsoft Welcomes the Open Source Community."

61.20 The local news-cameras got shots of Eric Raymond and the Microsoft representative. The Microsoft story seemed to mostly be that this was not an issue for Microsoft, rather than for the OEMs. So, we all needed to go back to our computer manufacturers and try yet again, to get a refund from them. We responded to them saying that we've tried that, it's not possible, we need Microsoft to take action at this point, and they just repeated the line over and over again: "you need to go to the OEMs, the manufacturers, and get your refunds there."

Chris DiBona:

61..50 -There were about 150 people, probably half of which had signs and such.

Nick Moffitt:

-We ended up actually, right on this courtyard here. Basically, we originally gathered outside, various people sent groups in, people from the FreeBSD camp sent a couple of folks in, we had Eric Raymond; Chris tried to go up eventually, but they had locked the elevators from us.

Interviewer:

62.15 -Where were the offices?

Nick Moffitt:

-The offices are actually right up here on the 9th floor.

Chris DiBona:

62.20 -We got some really nice press out of it. And we think as a result, Toshiba made it possible for you to buy laptops without the operating systems on it. It's a small victory, but…

Nick Moffit:

62.33 -Even now, companies such as IBM and a lot of other computer manufacturers are allowing you to buy machines that don't have Windows on them.

62.44 "ARE YOU NOW, OR HAVE YOU EVER BEEN A MEMBER OF THE COMMUNIST PARTY?

Richard Stallman:

62.53 -When I was a kid and I went to school, the teachers were trying to teach us to share. They said, if you bring some candy, you can't eat it all yourself,

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you've got to share with the other kids. But now the administration says, teachers should be teaching kids to say "yes" to licensing. If you bring some
63.10 software to school, "Oh, no. Don't share it! Sharing means you're a pirate." Sharing means you'll be put in jail. That's not the way society should work. We need the goodwill, the willingness to help other people, at least when it's not too hard, because that's the basis of society. That's the fundamental resource that gives us a society, instead of a dog-eat-dog jungle.

Interviewer:

62.28 -So, what about people who would say that if you have rampant piracy it will eliminate the profit motive and the creative work will not…

Richard Stallman:

63.35 -Well, they are wrong on both counts. For one thing, people are making a profit from developing free software, but for another, the freedom to have a community is more important.

Interviewer:

63.47 -People that casually look at Open Source/Free Software and think, "you're supposed to share and do it for people's goodwill," doesn't that seem somewhat Communist? What's your response?

Eric Raymond:

63.57 -Absolute nonsense! It makes me really angry when people do that.

Michael Tiemann:

-Well, back in 1989 actually, Communism would have been a compliment. The word that people were using at that time was "crazy." I wanted them to use "Capitalism."

Eric Raymond:

64.12 -Communism is an ideology that forces people to share; if you don't share, you get thrown in jail or killed.

Michael Tiemann:

64.19 -In 1990 we got a visit from a director of an institute in Moscow University, actually I just saw him in Helsinki two weeks ago, but in any event, he came by and Richard Stallman had suggested that he visit Cygnus, because he was interested in understanding how the Free Software model might apply to stimulating entrepreneurial innovation in Russia, of all places. We have been
64.45 kind of secretive about our business plan, because, you know, we weren't really sure that it was going to work and we didn't want to look too stupid if it failed. But I was very very open with him. And the more I told him, the more he started shaking his head like this. And I finally said, "What's wrong?" And he said:" This sounds too much like communism to be successful in Russia."

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Eric Raymond:

65.10 -You go to a gulag and end up in a mass grave with a bullet in the back of your head. Open Source is not communism because it doesn't force people.

Bruce Perens:

65.20 -Karl Marx did not invent helping your neighbor. It's not communist to have a commons. A commons existed long before communism as a philosophy of government.

65.35 "1999: VERSION 2.2 OF LINUX HAS 12 MILLION USERS."

There are many commons in our lives, for example we drive on the highway, something that is maintained for our common good.

Michael Tieman:

65.44 -Actually, labeling our business model means that it misses the point a little bit. Whether it's communist, or whether it's capitalist, the label doesn't matter. The real question is, how much value can you deliver; how scalable is the business; what kind of problems, what kind of rating innovation can you sustain. And then, however you want to label that, it is really up to you.

66.08 "THE REVOLUTION GOES PRIME TIME"

Eric Raymond:

66.23 -A lot of people described that LinuxWorld as "Linux's coming out party." Linus Torvalds was very funny about it, he said, "What. Was Linux gay?" But some people said, yeah, that was our debutante ball. That was when the Linux guys, the hardcore hackers really got it together with the suits.

Narrator:

67.04 -At 3 PM on August 10th, 1999, Linus Torvalds delivered the keynote address at LinuxWorld. The crowd of 6,000 people began lining up at 12 noon.

Presenter:

67.35 -Ladies and gentleman, please welcome Larry Augustin, LinuxWorld Conference Chair and President and CEO at VA Linux Systems.

Larry Augustin:

67.50 -These guys have to clap, I pay them. Thank you all for being here. It looks like it has been a great show, so far. If you indulge me for a moment, I'm gonna try and avoid the glare of the lights and… I still think there are a lot of people, even though this is the second show... I still think there are a lot of people who don't quite get what it is that's so exciting about Linux. So, there

68.15 is this great show going on next door, there are huge exhibits and everything,

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but it's the people out here that are the real contributors, not those companies. The person on next, I know you all know, so, I don't have to give any kind of introduction. Ladies and gentleman, I give you Linus Torvalds.

Linus Torvalds:

68.45 -Calm down. Calm down. Say, "Uhhhhh." I don't want to just give one of my normal talks, because I find them boring. Probably, by now, most of you find them boring too, because you've heard them like ten times. But after the technical update, we'll actually see whether we can do a question and answer session with 5,000 people, or however many of you there are. And it may not actually work out, because one of the 5,000 people is really loud.

69.23 The one thing I will do, which I always do in all my talks, is the gratitude thing. I want to kind of acknowledge the fact that I've obviously not been alone in doing Linux.

69.35 "RHAT IPO: ON AUGUST 11, 1999, RED HAT SOFTWARE BECAME THE FIRST LINUX COMPANY TO GO PUBLIC.

TV Reporter - Tom Costello:

69.40 -Red Hat, up 228%. This is the IPO that everybody was waiting for. They, of course, are behind the Linux Operating Software.

Larry Augustin:

69.55 -R-H-A-T.

Person at the computer:

-I know.

Larry Augustin:

70.00 -All I've got today are comments about what the stock price is. All morning, you know; it was at 41, it was at 42, it was at 47, it was at 53, it is at 51. Every machine, as far as I can tell, on the show floor, is pointed to their E-Trade accounts or their broker accounts. They know their Red Hat price.

Man behind the computer:

70.21 -I can't believe this.

Person next to him:

-52.

Man behind the computer:

-Oh, boy. I didn't buy any.

Larry Augustin:

-You didn't buy?

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Man behind the computer:
-No, no. I should have bought. No. No. That's great.

Larry Augustin:
70.30 -Well, Red Hat being successful just means that it legitimizes LINUX, so it's much easier for us to go out.

71.00 "ROB MALDA (CMDR-TACO)….ON THE RED HAT IPO"

Rob Malda:
-It's kind of a little bit divided, I mean, you've got a lot of people that are pretty hard core and they are kind of offended by that, because they worked really hard because they are not really getting their fair share out of that.
71.14 Some people do get ticked and, you know, you see that on a lot of mailing lists or on Slashdot; you read, this guy is really mad, because he didn't get a chance to do, to get stock from Red Hat, he didn't get a change to get a job from this other company. But the kind of shocking secret there is that most of the really hard-core guys, they don't care so much. The guys that are really down at the trenches, they are writing this code because they need this code.

"DURING LINUXWORLD, RICHARD STALLMAN RECEIVED THE
71.42 IDG/LINUS TROVALDS COMMUNITY AWARD."

Presenter:
-We are gonna invite Richard Stallman, who's the founder of the Free Software Association and Tim Ney, who's the managing director. There we go.

Richard Stallman:
-Ah, here it is….
71.53

Presenter:
-Richard, I saw you playing your recorder in Paris at the Linux Conference, but I didn't have audio tracks. So, would you get them to add audio to their video downstream next time?

Richard Stallman:
-I don't have any control of that. Unfortunately those things can only be done
72.06 with non-free software.

Presenter:
-All right, we'll give you the award and before you say a word, we'll have Tim
72.15 and yourself hold up a little representation of the contribution towards the Free Software Association.

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72.28 Richard Stallman:
-So, very ironic things have happened, but nothing to match this; giving the Linus Torvalds award to the Free Software Foundation, is sort of like giving the Han Solo Award to the Rebel Fleet. You see, some of you may not realize how far that analogy goes, but actually, let me tell you how we got here. You see, what happened is, 15 years ago if you wanted to use a computer, the only way you could do it was with proprietary software,
73.13 software that divides and subjugates the users. And most people didn't like it, but they saw no alternative. But some of us were determined to make an alternative and we said, we are gonna develop a free operating system, a free software operating system that will give users the chance to have freedom while they use their computers. Now, a lot of people said, "Well, it's a nice idea, but it's so hard, we'll never get it done, so I don't want to participate. I don't believe that you can ever get it done." But luckily, not everybody said that. And clearly, we knew we would eventually get the kernel
73.50 done. But as it happens, somebody else did a better kernel before we did. Now, in the old days we had an overall strategy for calling people's attention to the importance of freedom, to the freedom that they can have or not have, when they use a computer. Well, what can we do about it? As far as I can tell, the only workable way of trying to change this and make that strategy
74.14 work again, is to spread the word that the operating system you're using is actually the GNU System. Somewhat modified, of course. And when people know this, they'll take a look at the reasons we developed this system, they'll think about these issues and some of them will decide they agree. So, I ask people, please tell people, this is the GNU System, it's a combination of GNU AND Linux, so we can call it GNU/Linux.

74.43 Interviewer:
-So, Larry, when you were at Stanford eight, nine years ago doing your Ph.D., did you ever think you'd be in this position?

Larry Augustin:
-No. No. I had no ideas. Honestly.

Interviewer:
-What did you think when you picked up your Ph.D?

74.54 Larry Augustin:
-You know, that's a good question. I really didn't have a good idea. I mean here we are on this huge show, there are people just going crazy about Linux, we had 6,200 people crammed into a room to see Linux speak last night. Here we are with all of these huge vendors, all for this show and you had no idea this is gonna happen; I mean, this is just a little operating system that we were happy with, that a few people cared about. I thought I'd have a nice little consulting business and here I am suddenly with all of these huge shows going on. It's just incredible.

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75.30 Now, a few years ago you could look and say, “You know, this is going to be big.” And everyone standing at this show was going, “You know, the show was big last year, is it gonna be as big this year?” Then you remind them, “You know, last year was only six months ago. “ And then they go, “Oh, Linux time.”

76.10 “ON OCTOBER 7, 1999, VA LINUX SYSTEMS FILED WITH THE S.E.C. FOR ITS INITIAL PUBLIC OFFERING”

Larry Augustin:

76.12 -So, leading up to the IPO, we had arrived actually in San Diego on Tuesday night. We spent Wednesday morning meeting investors in San Diego. We flew up to San Francisco, we spent Wednesday afternoon meeting investment firms in San Francisco.

76.33 “VA LINUX SELECTED DECEMBER 9, 1999 AS THE DAY FOR ITS STOCKS TO BEGIN TRADING”

76.40 Then on Thursday morning of the IPO was when our stock would be traded publicly. So, it was nice that we ended our tour in San Francisco because we could go to the Credit Suisse trading desk the next morning to watch the public offering. San Francisco being close enough to the company and to our families, we could invite people up to actually join us in the first trade. So, I **76.50** invited my wife and we invited Linus and Tove and a number of other friends, people who worked in the company, to join us. Whenever we invite Linus and Tove, they have two young children and I have a daughter, Andrea, we always bring the kids along. So, we went into the Credit Suisse trading floor with all these traders and then all these three-year-old kids running around and chasing each other around the trading floor. So, Linus and I walked in **77.20** and we walked up into the trading floor and everyone was very excited and we kept asking, “how is it going, are things going OK,” and they said, “oh, we are really excited, things are going well, we don’t want to say anything, we don’t want to jinx anything.”

77.30 “VA LINUX PRICED ITS IPO SHARED AT $30 AND CHOSE THE TICKER SYMBOL LNUX.”

We walked in and there was a big screen TV showing CNBC. And it was amazing to us, but the theme for the day was Linux.

TV Reporter - Tom Costello:

77.45 -Now we have an IPO that’s gonna go today and when I mean go, it is going to go. The estimates I’m hearing are staggering, but watch VA Linux Systems. It goes at 12.40 today, the symbol is LNUX, a provider of large scale computer servers and work stations especially designed for the Linux

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Operating System. The original range of this IPO was $11to 13 then 21 to 23, then 28 to 30, price to 30. And the estimates I'm hearing, I don't want to repeat because I don't have a confirmation, but if they're true, they will blow your mind when this stock takes off at 12:40.

Larry Augustin:

78.17 -I turned to Linus, I said, "Gee, did you ever think you'd walk in here someday and Linux would be the theme on CNBC?" And Linus said in his joking way, "Oh, absolutely."

78.20 So, we walk in and they show us the buy and sell orders coming in and it's incredible; we are seeing numbers like 320 dollars, 340 dollars a share. And I'm just in complete shock, you know, this is over ten times what we priced the offering for; it was just incredible. And I remember Linus just kind of patting me on the back, it's like, you know, relax. It was pretty exciting to see that. It was just amazing. We were stunned.

78.48 "THE FIRST TRADE WAS AT $299 PER SHARE – SETTING A RECORD FOR THE HIGHEST OPENING TRADE IN HISTORY."

78.57 We were lucky that we were able to get back to the offices, we'd been in San Francisco. So, we could come back to VA's offices to see everyone in the office for the IPO. So, we got back, everyone obviously was very excited, the IPO had done tremendously well. We had a little party that we put together. It was interesting, while we were celebrating there were plenty of people who were still trying to work. I recall cries of "Be quiet. We are on the phone. We are working, " as we went into the offices.

79.30 One of the things I did, I gave the Roadshow Presentation for the employees back in the office, so they could have an idea of what we'd been telling investors and understand exactly what we'd put together for them.

TV Reporter - Tom Costello:

79.43 -Again, the story of the day is VA Linux now up 766%, 235 dollars to 265, Sue, the best performing IPO ever. Here we go, Sycamore Networks was priced $38, surged to $270, this has just beat it.

Interviewer:

80.00 -So, how do you feel about potentially billions of dollars of wealth being created from your creation that you're not necessarily directly cashing out.

Linux Torvalds:

80.10 -So… if I hadn't made Linux available, I mean, I wouldn't have gotten money that way either. So it's a win-win situation. Just the fact that there are a lot of commercial companies, means that there are a lot of Linux people who used to work on Linux, kind of on the side. And now they get paid for doing what they wanted to do. And that helps me in the sense that I wanted them to work on Linux anyway.

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80.42 "ON JUNE 19, 2001, RED HAT REPORTED ITS FIRST QUARTERLY PROFIT. THE NEXT DAY ITS STOCK OPENED AT $4.87 PER SHARE."'

80.50 "ON JUNE 27, 2001, VA LINUX ANNOUNCED IT WAS EXITING THE COMPUTER SYSTEMS BUSINESS, DUE TO MOUNTING LOSSES. THE NEXT DAY ITS STOCK OPENED AT $2.61 PER SHARE.

80.59 "A FINAL THOUGHT FROM THE MAN WHO STARTED IT ALL."

Richard Stallman:

81.08 -The whole GNU project is really one big hack. It's one big act of subversive playful cleverness, to change society for the better, because I'm only interested in changing it for the better – but in a clever way.

81.59 "LINUX WAS THE FASTEST GROWING SERVER OPERATING SYSTEM IN THE YEAR 2000. IT CLAIMED 27% OF THE SERVER MARKET, SECOND ONLY TO MICROSOFT'S 41% SHARE."

82.13 ON MAY 3, 2001, MICROSOFT ANNOUNCED ITS SHARED SOURCE CAMPAIGN TO COMBAT THE OPEN SOURCE MOVEMENT."

<u>The Free Software Song</u>

81.25 Performed by the GNU/Stallmans
Lyrics by Richard Stallman

Join us now and share the software,
You'll be free, hackers you'll be free.

Hoarders may get piles of money,
That is true, hackers, that is true.
But they cannot help their neighbors;
That's not good, hackers, that's not good.

When we have enough free software
At our call, hackers, at our call,
We'll throw out those dirty licenses
Ever more, hackers, ever more.

Join us now and share the software;
You'll be free, hackers, you'll be free.

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