History of Linux

by Ragib Hasan

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a. In The Beginning

It was 1991, and the ruthless agonies of the cold war was gradually coming to an end. There was an air of peace and tranquility that prevailed in the horizon. In the field of computing, a great future seemed to be in the offing, as powerful hardware pushed the limits of the computers beyond what anyone expected.

But still, something was missing.

And it was the none other than the Operating Systems, where a great void seemed to have appeared.

For one thing, DOS was still reigning supreme in its vast empire of personal computers. Bought by Bill Gates from a Seattle hacker for $50,000, the bare bones operating system had sneaked into every corner of the world by virtue of a clever marketing strategy. PC users had no other choice. Apple Macs were better, but with astronomical prices that nobody could afford, they remained a horizon away from the eager millions.

The other dedicated camp of computing was the Unix world. But Unix itself was far more expensive. In quest of big money, the Unix vendors priced it high enough to ensure small pc users stayed away from it. The source code of Unix, once taught in 1universities courtesy of Bell Labs, was now cautiously and not published publicly. To add to the frustration of PC users worldwide, the big players in the software market failed to provide an efficient solution to this problem.

A solution seemed to appear in form of MINIX. It was written from scratch by Andrew S. Tanenbaum, a dutch professor who wanted to teach his students the inner workings of a real operating system. It was designed to run on the Intel 8086 microprocessors that had flooded the world market.

As an operating system, MINIX was not a superb one. But it had the advantage that the source code was available. Anyone who happened to get the book 'Operating System' by Tanenbaum could get hold of the 12,000 lines of code, written in C and assembly language. For the first time, an aspiring programmer or hacker could read the source codes of the operating system, which to that time the software vendors had guarded vigorously. Students of Computer Science all over the world poured over the book, reading through the codes to understand the very system that runs their computer.

And one of them was Linus Torvalds.

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b. New Baby in the Horizon

In 1991, Linus Benedict Torvalds was a second year student of Computer Science at the University of Helsinki and a self-taught hacker. The 21 year old sandy haired soft-spoken Finn loved to tinker with the power of the computers and the limits to which the system can be pushed. But all that was lacking was an operating system that could meet the demands of the professionals. MINIX was good, but still it was simply an operating system for the students, designed as a teaching tool rather than an industry strength one.

At that time, programmers worldwide were greatly inspired by the GNU project by Richard Stallman, a software movement to provide free and quality software. The much awaited Gnu C compiler was available by then, but there was still no operating system. Even MINIX had to be licensed. Work was going the GNU kernel HURD, but that was not supposed to come out within a few years.

That was too much of a delay for Linus.

In August 25, 1991 the historic post was sent to the MINIX news group by Linus .....

From: torvalds@klaava.Helsinki.FI (Linus Benedict Torvalds)

Newsgroups: comp.os.minix

Subject: What would you like to see most in minix?

Summary: small poll for my new operating system

Message-ID: <1991Aug25.205708.9541@klaava.Helsinki.FI>

Date: 25 Aug 91 20:57:08 GMT

Organization: University of Helsinki

Hello everybody out there using minix -

I'm doing a (free) operating system (just a hobby, won't be big and
professional like gnu) for 386(486) AT clones. This has been brewing
; since april, and is starting to get ready. I'd like any feedback on
things people like/dislike in minix, as my OS resembles it somewhat
(same physical layout of the file-system (due to practical reasons)
among other things). I've currently ported bash(1.08) and gcc(1.40),and
things seem to work.This implies that I'll get something practical within a
few months, andI'd like to know what features most people would want. Any
suggestions are welcome, but I won't promise I'll implement them :-)

Linus (torvalds@kruuna.helsinki.fi)

PS. Yes - it's free of any minix code, and it has a multi-threaded fs.

It is NOT protable (uses 386 task switching etc), and it probably never

will support anything other than AT-harddisks, as that's

all I have :-(.

As it is apparent from the posting, Linus himself didn't believe that his creation was going to be big enough to change computing forever. Linux version 0.01 was released by mid september 1991, and was put on the net. Enthusiasm gathered around this new kid on the block, and codes were downloaded, tested, tweaked, and returned to Linus. 0.02 came on October 5th, along with this famous declaration from Linus:

From: torvalds@klaava.Helsinki.FI (Linus Benedict Torvalds)

Newsgroups: comp.os.minix

Subject: Free minix-like kernel sources for 386-AT

Message-ID: <1991Oct5.054106.4647@klaava.Helsinki.FI>

Date: 5 Oct 91 05:41:06 GMT

Organization: University of Helsinki

Do you pine for the nice days of minix-1.1, when men were men and wrote their own device drivers? Are you

without a nice project and just dying to cut your teeth on a OS you can try to modify for your

; needs? Are you finding it frustrating when everything works on minix? No more all-nighters to get a nifty program

working? Then this post might be just for you :-)

As I mentioned a month(?) ago, I'm working on a free version of a minix-lookalike for AT-386 computers. It has

finally reached the stage where it's even usable (though may not be depending on

what you want), and I am willing to put out the sources for wider distribution. It is just version 0.02 (+1 (very

small) patch already), but I've successfully run bash/gcc/gnu-make/gnu-sed/compress etc under it.

Sources for this pet project of mine can be found at nic.funet.fi (128.214.6.100) in the directory /pub/OS/Linux.

The directory also contains some README-file and a couple of binaries to work under linux

(bash, update and gcc, what more can you ask for :-). Full kernel source is provided, as no minix code has been

used. Library sources are only partially free, so that cannot be distributed currently. The system is able to compile

"as-is" and has been known to work. Heh. Sources to the binaries (bash and gcc) can be found at the

same place in /pub/gnu.

Linux version 0.03 came in a few weeks. By December came version 0.10. Still Linux was little more than in skeletal form. It had only support for AT hard disks, had no login (booted directly to bash). version 0.11 was much better with support for multilingual keyboards, floppy disk drivers, support for VGA,EGA, Hercules etc. The version numbers went directly from 0.12 to 0.95 and 0.96 and so on. Soon the code went worldwide via ftp sites at Finland and elsewhere.

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c. Confrontation & Development

Soon Linus faced some confrontation from none other than Andrew Tanenbaum, the great teacher who wrote MINIX. In a post to Linus, Tanenbaum

commented:

" I still maintain the point that designing a monolithic kernel in 1991 is a fundamental error. Be thankful you are not my

student. You would not get a high grade for such a design :-)"

(Andrew Tanenbaum to Linus Torvalds)

Linus later admitted that it was the worst point of his development of Linux. Tanenbaum was certainly the famous professor, and anything he said certainly mattered. But he was wrong with Linux, for Linus was one stubborn guy who won't admit defeat.

Tanenbaum also remarked that : "Linux is obsolete".

Now was the turn for the new Linux generation. Backed by the strong Linux community, Linus gave a reply to Tanenbaum which seems to be most fitting:

Your job is being a professor and researcher: That's one hell of a good excuse

for some of the brain-damages of minix.

(Linus Torvalds to Andrew Tanenbaum)

And work went on. Soon more than a hundred people joined the Linux camp. Then thousands. Then hundreds of thousands. This was no longer a hackers toy. Powered by a plethora of programs from the GNU project, Linux was ready for the actual showdown. It was licensed under GNU General Public License, thus ensuring that the source codes will be free for all to copy, study and to change. Students and computer programmers grabbed it.

Soon, commercial vendors moved in. Linux itself was, and is free. What the vendors did was to compile up various software and gather them in a distributable format, more like the other operating systems with which people were more familiar. Red Hat , Caldera, Debian, and some other companies gained substantial amount of response from the users worldwide. With the new Graphical User Interfaces (like X-windows, KDE) the Linux distributions became very popular.

Meanwhile, there were amazing things happening with Linux. Engineers have tweaked Linux to run 3Com's handheld PalmPilot computer. Red Hat Software's version of Linux won the 1996 award for bestdesktop computer operating system from trade

magazine InfoWorld. In April that year researchers at Los Alamos National Laboratory used Linux to run 68 PCs as a single parallel processing machine to simulate atomic shock waves.The do-it-yourself supercomputer cost only $152,000, including labor (connecting the 68 PCs with cables)-about one tenth the price of a comparable commercial machine. It reached a peak speed of 19 billion calculations per second, making it the 315th most powerful supercomputer in the world. Three months later it still didn't have to be rebooted.

The best thing about Linux today is the fanatic following it commands. Whenever a new piece of hardware is out, Linux kernel is tweaked to take advantage of it. For example, within weeks after the introduction of Intel Xeon® Microprocessor, Linux kernel was tweaked and was ready for it. It has also been adapted for use in Alpha, Mac, PowerPC, and even for palmtops, a feat which is hardly matched by any other operating system. And it continues its journey into the new millenium, with the same enthusiasm that started one fine day back in 1991.

As for Linus, he remains a simple man. Unlike Bill Gates, he is not a billionaire. Having completed studies, he moved to USA and landed a job at Transmeta Corporation. Recently married, he is the proud father of a girl, Patricia Miranda Torvalds. But he remains as the world's most favorite and most famous programmer to this date. Revered by Computer communities worldwide, Linus is by far the most popular programmer on this planet. He deserves it.

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Epilogue 2000

The year 2000 started as the beginning of a new century, and of course, a brand new millenium. With the ever increasing popularity of Linux sky-rocketing to

new heights, it was clear that Linux was to stay as an inevitable part of computing in the 3rd Millenium. And the father of Linux, Linus Torvalds also created headlines when his company Transmeta Corporation delivered the ultimate result of their secret product, the amazing Crusoe(TM) processor. Linus worked from the beginning as a project member, and the resultant Crusoe processor is another testimony to his remarkable abilities as a dreamer. One thing is clear, The Future Belongs To Linux!

Some Linux Cookies

Here are some famous words by Linus himself.

Dijkstra probably hates me

(Linus Torvalds, in kernel/sched.c)

"How should I know if it works? That's what beta testers are for. I only

coded it."

(Attributed to Linus Torvalds, somewhere in a posting)

"I’m an idiot.. At least this one [bug] took about 5 minutes to find.."
(Linus Torvalds in response to a bug report.)
"If you want to travel around the world and be invited to speak at a lot
of different places, just write a Unix operating system."
(By Linus Torvalds)
> > Other than the fact Linux has a cool name, could someone explain why I
> > should use Linux over BSD?
>
> No. That’s it. The cool name, that is. We worked very hard on
> creating a name that would appeal to the majority of people, and it
> certainly paid off: thousands of people are using linux just to be able
> to say "OS/2? Hah. I’ve got Linux. What a cool name". 386BSD made the
> mistake of putting a lot of numbers and weird abbreviations into the
> name, and is scaring away a lot of people just because it sounds too
> technical.
(Linus Torvalds’ follow-up to a question about Linux)
> The day people think linux would be better served by somebody else (FSF
> being the natural alternative), I’ll "abdicate". I don’t think that
> it’s something people have to worry about right now - I don’t see it
> happening in the near future. I enjoy doing linux, even though it does
> mean some work, and I haven’t gotten any complaints (some almost timid
> reminders about a patch I have forgotten or ignored, but nothing
> negative so far).
>
> Don’t take the above to mean that I’ll stop the day somebody complains:
> I’m thick-skinned (Lasu, who is reading this over my shoulder commented
> that "thick-HEADED is closer to the truth") enough to take some abuse.
> If I weren’t, I’d have stopped developing linux the day ast ridiculed me
> on c.o.minix. What I mean is just that while linux has been my baby so
> far, I don’t want to stand in the way if people want to make something
> better of it (*).
>

> Linus

>

> (*) Hey, maybe I could apply for a saint-hood from the Pope. Does

> somebody know what his email-address is? I'm so nice it makes you puke.

(Taken from Linus's reply to someone worried about the future of Linux)

'When you say "I wrote a program that crashed Windows", people just stare at

you blankly and say "Hey, I got those with the system, *for free*".'

(By Linus Torvalds)

Your job is being a professor and researcher: That's one hell of a good excuse

for some of the brain-damages of minix.

(Linus Torvalds to Andrew Tanenbaum)

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Acknowledgements

History is always boring, but history of Computing and that of Linux are very interesting. Much of the source of this article has been taken from the Internet. It was inspired by the questions asked by many would be Linux users at meetings and postings of Bangladesh Linux Users Group.Thanks to all.

For all mistakes and suggestions

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Last Updated: Nov 4, 2000

Bron: http://ragib.hypermart.net/linux/