Linus Torvalds

Introduction

Linus Torvalds is a software engineer best known for the creation of the Linux kernel as well as the distributed version-control system Git. His open source kernel that received huge community involvement is currently in use on millions of devices and Git is now the most popular version control system. For these reasons he is one of the most decorated and influential software engineers of his age.

Early Life

Linus Torvalds was born in December 1969 in Helsinki, Finland. He was part of a Swedish speaking minority and raised by his mother and her parents. His parents Ana and Nils Torvalds divorced when he was very young.

He found an interest in computers at a young age. His grandfather Leo Törnqvist was a professors of statistics in Finland and played a key role in his development .At the age of 11 when he began learning programming in BASIC on a Commodore VIC-20. In an interview he stated, he then progressed to directly accessing the CPU in machine code.

Torvalds studied at the University of Helsinki where he would eventually receive a master's degree in computer science. He didn't graduate until 1996 because his education was interrupted by an 11 month officer training program which he undertook to fulfil Finnish mandatory military service. During his time in university he read the book "Operating Systems: Design and Implementation" by Andrew Tanenbaum. The book detailed MINIX, a minimal version of UNIX intended for use in education.

In 1991 he then purchased an Intel based clone o–f IBM PC, running MINIX which is when he began his work on what would later become the Linux kernel.

The Linux kernel

The licensing of MINIX is limited to educational uses which was a contributing factor to Torvalds decision to write his own kernel. Just months after purchasing his MINIX machine, Torvalds released the first prototype for Linux. He went the University of Technology to hear Richard Stallman (RMS), a free software movement activist and prolific programmer give a speech. He then opted to use Stallman's GNU General Public License for his Linux kernel.

The popularity of the kernel was accelerated by Linus' focus on feedback and community involvement. He frequently reached out on mailing lists asking people what they wanted in

an operating system. The first email he sent is now quite famous and the transcript is available online.

The original name envisioned by Linus was “Freax”, intended to be a combination of the words; free, freak and an X as a nod to UNIX. However a friend allegedly performed the FTP upload naming the folder Linux.

After much discussion amongst the members of the email list the name was officially changed to Linux. The support for Torvalds was high with fan websites appearing all over the internet.

In 1997 Torvalds settled in the USA with his wife and three daughters’. He received many job offers but took a position at Transmeta where he stayed until 2003. He then joined Open Source Development Labs which after a merger became the Linux Foundation.

Gratitude of development companies

In 1999 Red Hat and VA Linux, both big names in the Linux-Based software space gave Torvalds stock options in gratitude for his creation. The same year both companies went public and his share value skyrocket up to $20Million after which he referred to himself as the luckiest man in the world.

Git

Linus Torvalds received some criticism for his use of BitKeeper, a supply chain management system that he had been using for the development of the Linux kernel. At the time BitKeeper was proprietary software but it had been made free to Torvalds and other Linux members. BitKeeper essentially revoked access for free users after accusing someone of reverse engineering their protocols to make another product.

Torvalds then came to the decision to make a tool like BitKeeper himself. In doing so he improved in many aspects, with much better speeds than other version control software around at that time.

From the success of Git and some of the advantages it had over other VCs at the time of its release, we can see the skill of Linus Torvalds as a software engineer. Furthermore it’s fast adoption and continued success speaks for it’s his design.

Current Roles

Torvalds currently works for the Linux Foundation a non-profit where he continues to support Linux’ growth, standardize it and perform general oversight. The foundation has 150 employees and 1,000+ corporate members. Torvalds also does occasional interviews and talks where he continues to influence in the industry.

The Impact of the Linux kernel

As computer scientists the impact the Linux kernel has had on software engineering and the industry as a whole is extremely evident in the world around us.

People all around the world choose Linux distributions as their main OS for development, administration etc. With the number of distributions available freely increasing all time, all in different shades and features, users can find one that suits their needs.

The majority of the web runs on Linux with distributions such as Debian and CentOS providing flexible server solutions. Apache and nginx servers all over the internet use Linux servers to avail of advantages like cost savings, access to open source applications, easier customization etc. In many cases it allows start-ups and small businesses alike to cut down on the cost associated with Microsoft servers.

Another thing to note is that all Android devices currently use the Linux kernel. According to The Verge, as of May 7, 2019 there are 2.5 billion active android devices.

While the kernel contains millions of lines of code from thousands of developers, it was maintained by Torvalds and came from his skill as a software engineer and his willingness to go full open source and start a community.

Awards

Linus Torvalds is well decorated for his numerous achievements. He has received 14 since 1995. The most notable of which is the Millennium Technology Prize. It is generally considered technology's Nobel Prize equivalent.

Conclusion

Linus Torvalds has been hugely influential throughout his software engineering career. His success with both Git and the Linux kernel have come from taking a pragmatic approach to real world problems with thoughtful design and implementation. The kernel he started has changed the technology around us and serves as a valuable tool to countless developers. His creation of git to fulfil needs he required for the kernel has also had a huge impact as the tool is now a 'go-to' tool for many.

There is a claim about software development made by Eric S. Raymond named in honour of Linus Torvalds called 'Linus's Law':

"given enough eyeballs, all bugs are shallow"