Linus Torvalds, The Biography

By: Zinah Albaghdadi

Linus Torvalds is one of the most influential and aspiring Software Engineer in the tech community. He's the mastermind behind the iconic Linux and git systems.

Torvalds was born on December 28, 1969 in Helsinki, Finland. At around the age of 11 Torvalds used his grandfather's computer, a Commodore Vic 20, but he soon became bored with the few programs that were available for it. He began making his own using the BASIC programming language and later used the more difficult but powerful assembly language.
In 1988 Torvalds enrolled in the University of Helsinki, the premier institution of higher education in Finland. By that time he was already an accomplished programmer, and, naturally, he majored in computer science. As part of his studies, he took his first class in the C programming language, the language that he would soon use to write the Linux Kernel.

For his master's in Computer Science, Torvalds developed the Linux Kernel which is based on UNIX and MINIX, and penned a thesis titled "Linux: A Portable Operating System". He formed a team of volunteers to work on this new kernel and released its first version, V1.0, in the spring of 1994.
In what Torvalds now admits was one of his best decisions, he decided to release Linux under the GPL (GNU General Public License) rather than under the more restrictive license that he had earlier planned. Developed by Richard Stallman, a notable programmer and a leading advocate of free software, this most popular of the free software licenses allows anyone to study, use, modify, extend and redistribute the software as long as they make the source code freely available for any modified versions that they create and then redistribute. The interest in Linux then sored and eventually many experienced programmers and indeed corporates contributed greatly in the development of this system. As Stallman and his Free Software Foundation (FSF) had been developing a number of free programs for use in a free version of UNIX, and such programs (e.g., bash, gcc and GNU binutils) thus became major components of virtually all Linux distributions. Other parts of Linux distributions came from the Berkeley UNIX Distribution (BSD), a version of UNIX that was developed at the University of California at Berkeley (UCB) and which later evolved into the highly regarded BSD operating systems. And the X Window System, which is the dominant system for managing GUIs (graphical user interfaces) on Linux and other Unix-like operating systems, came from the Massachusetts Institute of Technology (MIT). As the performance of the Linux kernel and Linux distributions grew extraordinarily, so

did its users and eventually became favorites for many computer enthusiasts. Today Linux is the dominant operating system on servers and other "big iron" computers, such as mainframes and supercomputers. In fact, 90 percent of the world's top 500 supercomputers use Linux as their operating system. Moreover, the Linux Kernel is now being used in Android and Chrom OS, two popular operating systems developed by Google, but Torvalds remains the ultimate authority on what new code is incorporated into the standard Linux kernel.

As the Linux Kernel continues to be open-sourced, Linus Torvalds wanted to develop a system that'll help him keep track of all the changes happening to Linux. In the early years (1991 - 2002), changes to the software were passed around as patches and archived files. Then in 2002, the Linux kernel project began using a proprietary DVCS called BitKeeper. However, in 2005, the relationship between the community that developed the Linux kernel and the commercial company that developed BitKeeper broke down, and the tool's free-of-charge status was revoked. As a result Torvalds had to develop his own version control system, and Git was born. From his experience with BitKeeper, Torvalds knew exactly what to include and what not to include in the system, and impressively finished developing the system in 10 days. For this matter Torvalds had said that "the trick wasn't really so much the coding but coming up with how it organizes the data [.....] git actually has a simple design, with stable and reasonably well-documented data structures. In fact, I'm a huge proponent of designing your code around the data, rather than the other way around, and I think it's one of the reasons git has been fairly successful [] I will, in fact, claim that the difference between a bad programmer and a good one is whether he considers his code or his data structures more important".
Essentially Git is used to keep track of all the changes happening in computer files and coordinates work on those files among multiple people. It is primarily used for source code management in software development, but it can be used to keep track of changes in any set of files.
Today Git is open-sourced and is the most widely used modern version control system in the world.

From the above I can conclude that the world of software would be completely different if Linux and Git systems weren't created. As Linus Torvalds once said "I am not a visionary. I'm an engineer. I'm happy with the people who are wandering around looking at the stars but I am looking at the ground and I want to fix the pothole before I fall in".