**It technologies.**

**Clouds,services,servers**

***What does it do?***

**Clouds is a word that use to express the ability to host a software platform or a service without having had to host a *typical server.* This can be done regardless of location and can also be accessible to anyone via internet access**

**Cloud services are introduced to the public in three main distinctive type of services, which are *infrastructure-as-a-service (IaaS), platform-as-a-service (PaaS) and software-as-a-service (SaaS),* each is created with its own unique function and are used in different circumstances.**

**To begin with *infrastructure-as-a-service (IaaS)* is mostly used to rent IT infrastructure, more specifically, servers and virtual machines, networks and operating systems can all be rent - via a cloud provider and require a pay-as-you-go basis to get access to these infrastructures**

**While the second computing type *platform-as-a-service (PaaS), gives the developers the tools to build and host web applications.* Which mean instead of renting infrastructure from others providers, the second type give users access to the components the need to create and operate web or mobile applications on the internet rapidly. For instance,** Magento Commerce Cloud, Apache, etc…

**And last but not least is the *software-as-a-service (SaaS),* this last type of service is commonly used for web-based applications. SaaS allow user to deliver their applications over the internet where the cloud providers host, which make it easier to have the same application on all various devices at once by simply accessing it to the cloud system. One example of this type is the google apps**

**Cloud servers are virtual severs (Unlike the usual manually hosted server or so call physical servers) running in a cloud computing environment. These servers can be created, hosted and be accessed remotely via a cloud computing platform by using the internet.**

​**What is the state of the art of this new technology?**

In this modern era, the application of cloud computing in all facets of society is inevitable. For instance, most of the leading company among IT companies are investing an enormous amount of their company budget in cloud computing, and these including IBM, Google and Microsoft. **This can be attributed to the impactful advantages of cloud computing, which are (1) the mobility that allow user to get access to the main part of an application or software that they need without having had to buy the whole apps, (2) no file storage space is required on that device since it’s provided by the provider, and (3) a flexibility in collaboration among multiple users on documents stored in the cloud.**

***What is the likely impact?***

**According to an article, ‘1 Intelligence agencies are moving to cloud computing to integrate computer and information systems and share data.2 And, as an example within the states, the Kentucky Department of Education has moved to cloud-based services for some 700,000 students, faculty, and staffstatewide, replacing 180 on-premise exchange servers and saving an estimated $6.3 million in operational costs over four years.3 One industry commentator states that cloud computing has become so broadly accepted that it won't rank as an exciting development for 2012’**

**Dixon, Herbert B, Jr . The Judges' Journal ; Chicago  Vol. 51, Iss. 2,  (Spring 2012): 36-38.**

**And the reasons that cloud computing is going viral are easy to comprehend. Both businesses and individuals need to have access to their files on multiple devices and platforms and cloud computing can provide this easily. Besides, the fast internet connection is also an exclusive strength of cloud computing, having allow users to access files from each of the server easier and more convenient. Finally, the cost of cloud computing is affordable to everyone’s economic reach**

**Despite the massive impacts of cloud computing, there are still some significant drawbacks and alarming dilemma. One first thing to be aware of is that not all cloud provider services are equal. Some mainly focus on the stability and durability of their network while important factors such as the use and quality of their services are neglected. Moreover, regarding the aspect of security, there are cases where a burglar entered a physical place and stole valuables data from the owner, Scammers are able to use their trick on computer users, lure them into revealing their passcodes and IDs, not only that but they can also send Trojan viruses to the operating systems of computing devices, which result in critical damage to the main frame and a substantial loss of important data as well as the user’s information.**

**What can be done now?**

More than any approaches, the best defense against cyber-theives is to use a cloud server with a condensed layer of security. Cloud computing might be vulnerable to some inevitable threats, however, it also has several advantages that contribute to the growth of your business. Despite the minor flaws, cloud computing is still an outstanding system with advance operations. Moreover, cloud service is always improving from time to time. It is believed that the future of cloud computing will become more elaborated and sophisticated in management. But the first thing you should do now is to find a credible and good cloud service provider.

This is also believed by most specialists in the IT field, according to an online It blogger, ‘what you need to do to overcome the shortcomings in cloud computing is to find service providers who want to provide your business needs and ensure the security of your server. In addition, inadequate infrastructure is one of the problems that is often experienced, for this you can also use Cloud Hybird where service providers will handle the transition and reduce time & costs greatly using personnel and technology for your business.’

Sarah Lavinski,10 Disadvantages & Risks of Cloud Computing

<https://medium.com/faun/10-disadvantages-risks-of-cloud-computing-35111de75611>

***How will this affect you?***

**Cloud computing is a wonderful invention of mankind. it contributes not only to business but also to the user of the services. It is also extremely beneficial to school goers or college student regarding to their study. Take my-self as an example, due to cloud computing, it is possible for me to get access to useful application such as google drive, outlook without having to spend any money as well as download the apps to my computer since it allows user to get access via internet.**

## **Without this invention, many big and impactful businesses such as GE (general electric) or eBay might not have achieved such success as they have today. Additionally, it also has a significant impact on the life of every citizen who gain a huge benefit from this advance technology. If this is the case, the development of many field might be decreased drastically for the developers had to spend more budget on various purposes such as hosting a physical server, in order to sustain their work and it is still, without any doubt, not as efficient as if when there was cloud computing take place.**

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| --- | --- | --- | --- | --- | --- |
|  | **Trúc** | **Đạt** | **Quân** | **Hảo** | **Phúc** |
| **Our plan** | **My plan**  **1. Finish Bachelor’s degree in IT – because this job requires to hold at least a bachelor’s degree in computer/technical related field.**  **2. Finish Master’s in IT – many companies prefer candidates who have master’s degree. A master’s degree in business administration in information systems will increase my opportunity to get the job so I am considering about it.**  **3. Get a cybersecurity certification – is it necessary because I can demonstrate my level of expertise in the area.**  **4. Get these certificates, the more certificate the better**  **CEH: Certified Ethical Hacker**  **CISM: Certified Information Security Manager**  **CISSP: Certified Information Systems Security Professional**  **CompTIA Security+**  **GIAC Certified Penetration Tester**  **GSEC: SANS GIAC Security Essentials**  **5. Do internships to gain as much experience as possible – companies want to hire employee that have years of experience working in this field, so I have to prepare myself with as much knowledge and experience as I can so that I can have a better opportunity.**  **6. Apply for the job**  **7. Be a professional information security analyst.**  **8. Earn money.**  **Along with this plan, I will also do my best to improve soft skills such as Communication skills, problem solving, organizational skills, teamworking, etc. because I cannot work on my own, not only in work but also every other aspects of life. That’s why those soft skills are extremely essential.**  **\*This is only my current plan and will be significantly changed over time.** | 1. **Learned at least 3 coding languages before graduated** 2. **Experiencing a big project that involve in game developing at least 1** 3. **Finish Bachelor’s degree in IT in game developer** 4. **Aiming for a Master’s degree in IT abroad in order to attain my dream job** 5. **Learning different skills in IT such as web developing, analyze and recommend Database improvements, .etc..** 6. **Try to do internships or freelancing in order to gain more experience while studying for master degree, create relationships with people and learn how to work as a team** 7. **Building a plan for creating a game. (list things to do, and prepare,..) and find people to help on with the project.** 8. **Start with some small project by releasing application on ios platform to gain income while continue working on the final project** 9. **When finished, if it’s a hit, look for some company who want to buy the game. After that, my next goal is to try to work for my dream game developing company or I can either try to focus on the next project .( = if I manage to come up with one, depend on the situations at the time)** | skills for a cyber security engineer include  1 solving complex problems, creative thinking, verbal communication and stress management. Regarding qualifications, I think employees are expected to have **a bachelor’s degree in** **Computer Science, Mathematics or a related field. Lastly, a cyber security engineer may need at least 3 years of experience** detecting risks and designing effective protection measures. • I don’t have any of the mentioned above requirements at the moment but plan to acquire them through courses of IT program at RMIT Vietnam University. In addition, I am currently enrolled in online courses about Python programming and web development using HTML/CSS. I will also improve my awareness of cybersecurity trends and hacking techniques by reading articles and books about this field. | 1. **Study a BA or BS in computer science or computer engineering in Canada** 2. **Work something related to the subject for 2 to 3 years** 3. **Practice writing technical articles, preferably as a junior technical writer or trainee** 4. **Gain knowledge and experience throught the years** 5. **Start applying for position** 6. **Become professional technical writer** | The first step that I need to learn javascript, html, CSS at the moment in RMIT, because the up coming subjects require those skills. This is an opportunity for me to learn and master the skill as fast as I can. Then I wil have free time to learn about Data base, I know it will not be easy but I must learn it in order to satisfy those companies requirements. A Good diploma is what they want so I better I a well bachelor degree to make that a tide in order to have a chance to have an interview. Another skills that I have to know that is teamwork, now I am at RMIT which provide me the best environment for teamwork. There will be some people that do not have the same thinking with me or they may protest all of my ideas, but that is the downside of teamwork, but the benefit of teamwork is enormous. So learn how to do project as a team is very important for me and I am preparing it now with my current team. |
| **Our job** | **Information security analyst** | **Game developer** | **Cyber security engineer** | **Technical writer** | **Web developer** |

It is quite obvious that the plan that I had for my future career is pretty much similar to other members of my groups (2 (included me) out of 5 to be exactly). Our main purpose is to focusing on graduating college with some intermediate experience and knowledge in the field (such as, time management, communicating, team work, etc..) then aiming for the master degree of our major. And along the way, we could learn more about our future job through small project with other people, internships or even by trying to create and accomplish a project of our own. Without having forget to equipped us with some more fundamental knowledge for our job, in order to do this, some enroll in courses with the aim of having more certificates to prepare for their future job as well as strengthening their skills

So what set us different from the other members is that Regarding the other three members of our team, instead of taking on a projects after graduating from college and learn about things along the way. A much safer approach of them is to focusing on preparing them self for the job, to be more specific, they will start to enroll in courses and trying to get the certificates right away. This is clearly a more suitable approach because trying to bite off more than one can chew can be too risky, trying to participate in a project while learning things on the way can be difficult and exhausted at the same time. However, I think that this approach is more appropriate for people who love to take risk and enjoy having some new worthwhile experiences, like we do. But when we break down the fact in term of our job, it is clearly that our job, which is game developer and Technical writer, will have to require a lot of working experience and it will provide us a higher chance to get a qualified job if I have already done a past project. On the other hand, the job of three members, which are cyber security and information security analysis will require more theoretical knowledge compare to our job, that is why they have to focus on accomplishing their course to attain the certificates instead of trying to get experiences through projects

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| **Job’s title** | ***Security consultant*** | *Software developer* | *Security analyst* | ***Information developer*** | *Software developer* |

*Rank in term of demand from employers:*

***Security analyst:***

*Overall, this job has a steady future prospect since its industry is on a rising trend over the past few years. However, security analyst positions are not prioritized by most of the employers. Statistics have shown that in term of employer’s demands, the job only have around 1000 postings recorded each day*

*Required skills and rank*

*Hard skills-*

* TCP/IP, computer networking, routing and switching – top 11
* Firewall and intrusion detection/prevention protocols – top 20
* Windows, UNIX and Linux operating systems- top 12
* Network protocols and packet analysis tools – top 12
* C, C++, C#, Java or PHP programming languages – top 1,2,3
* Cloud computing
* Security Information and Event Management (SIEM)

Soft skills: Soft skills like writing, teaching and public speaking are equally important (top 4). As part of your job, you’ll be expected to draft policies, talk over issues with upper management and explain how your security plans fit into the larger corporate picture.

Overall, analysts are expected to be curious, creative thinkers who are deeply interested in the latest security developments and tools.

Cyber Degree, BECOME A SECURITY ANALYST, <https://www.cyberdegrees.org/jobs/security-analyst/>

*The burning glass data have shown that most required skills for my job is not necessarily important and are not appreciated by most employers nowadays. However, I still choose to not change my thought for the passion that I have on my job is the most important thing and as long as I still love what I am doing, stopping is not an option.*

***Software developer:***

*Employment of software developers is projected to grow 21 percent from 2018 to 2028, much faster than the average for all occupations. Employment of applications developers is projected to grow 26 percent, and employment of systems developers is projected to grow 10 percent. The main reason for the growth in both applications developers and systems developers is a large increase in the demand for computer software*

*Required skills:*

**Soft skills:**

**Analytical skills.** Developers must analyze users’ needs and then design software to meet those needs.

**Communication skills** (***top 1***) Developers must be able to give clear instructions to others working on a project. They must also explain to their customers how the software works and answer any questions that arise.

**Creativity. (top 9)** Developers are the creative minds behind new computer software.

**Detail oriented**. ***(top 8)*** top Developers often work on many parts of an application or system at the same time and must therefore be able to concentrate and pay attention to detail.

**Interpersonal skills. (top** ***8)*** Software developers must be able to work well with others who contribute to designing, developing, and programming successful software.

**Problem-solving skills.** ***(top 2)*** Because developers are in charge of software from beginning to end, they must be able to solve problems that arise throughout the design process.

*Hard skills:*

C++, C#, Java or python programming languages (Top 1 )

*OCCUPATIONAL OUTLOOK HANDBOOK, software developers, viewed Wednesday, September 4, 2019,* <https://www.bls.gov/ooh/computer-and-information-technology/software-developers.htm?view_full#tab-6>

After having looked that burning glass statistics, I can definitely assure that these set of skills are the goals for every software developer to go after. In order to be successful in the field, detail oriented and problem-solving skills are significantly important to have so as to become a successful software developer in this era.

***Security consultant:***

There are thousands of jobs available for security consultants across the nation. According to the Bureau of Labor Statistics, security consultant positions are projected to grow by 18% by 2024, which is a much faster rate than most fields. The median salary of security consultant is $77,746, though can range from $54,000 – $100,000+. For consultants running their own businesses, earnings can advance into the millions of dollars depending on the scale of their operations.

CYBER SECURITY DEGREE, CYBER SECURITY CAREERS<https://cybersecuritydegrees.com/careers/security-consultant/>

*Skills require:*

*Hard skills:*

* IDS/IPS, penetration and vulnerability testing
* Firewall and intrusion detection/prevention protocols
* Secure coding practices, ethical hacking and threat modeling
* ISO 27001/27002, ITIL and COBIT frameworks
* PCI, HIPAA, NIST, GLBA and SOX compliance assessments
* Windows, UNIX and Linux operating systems
* Performance tuning views, indexes, SQL and PLSQL
* Application security and encryption technologies
* C, C++, C#, Java or PHP programming languages (top 1)
* Subnetting, DNS, encryption technologies and standards, VPNs, VLANs, VoIP and other network routing methods
* Network and web related protocols (e.g., TCP/IP, UDP, IPSEC, HTTP, HTTPS, routing protocols, etc.)
* Advanced Persistent Threats (APT), phishing and social engineering, network access controllers (NAC), gateway anti-malware and enhanced authentication

*Soft skills:*

It goes without saying that great leadership (top 11) and negotiation skills are going to be helpful in this job. Companies are also looking for candidates with excellent oral and communication abilities. Talking to clients and working with diverse IT teams requires patience and tact.

Cyber Degree, BECOME A SECURITY consultant, <https://www.cyberdegrees.org/jobs/security-analyst/>

Having looked at the burning glass data, i still keep my opinion about ideal job as I don't have any reasons to change it. Developing those skills that are in high demand (both IT-specific and generic) has already been a part of my career plan.

***Information developer:***

Employment of technical writers is projected to grow 8 percent from 2018 to 2028, faster than the average for all occupations.

The continuing expansion of scientific and technical products and growth in Web-based product support will drive employment demand for technical writers. Growth and change in the high-technology and electronics industries will result in a greater need for those who can write instruction manuals and communicate information clearly to users.

Professional, scientific, and technical services firms are expected to continue to grow rapidly and should be a good source of new jobs even as the occupation finds acceptance in a broader range of industries.

*OCCUPATIONAL OUTLOOK HANDBOOK* , technical writer, viewed Wednesday, September 4, 2019 <https://www.bls.gov/ooh/media-and-communication/technical-writers.htm#tab-6>

***Skills required:***

***Critical-thinking skills*.** Technical writers must be able to simplify complex, technical information for colleagues and consumers who have nontechnical backgrounds.

***Detail oriented*.** Technical writers create instructions for others to follow. As a result, they must be precise about every step.

***Imagination*.(top 9 )** Technical writers must think about a procedure or product as if they are someone who does not have technical knowledge.

***Teamwork*. (top 18)** Technical writers must be able to work well with other writers, designers, editors, illustrators, and the technical workers whose procedure or product they are explaining.

***Technical skills*.** Technical writers must be able to understand complex information. Technical writers may benefit from a background in fields such as engineering or science.

***Writing skills*. (top 1)** Technical communicators must have excellent writing skills to be able to explain technical information clearly

*OCCUPATIONAL OUTLOOK HANDBOOK* , technical writer, how to become one, viewed Wednesday, September 4, 2019 <https://www.bls.gov/ooh/media-and-communication/technical-writers.htm#tab-6>

Based on the data given by the burning glass, despite the fact that the skill my job required is not highly concerned, I still believed that it is crucial to also acquire and master skills such as teamwork and collaboration, and stay open-minded to improve creativity.