Cyber Security Internship: Final Paper

Miles Anderson

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Professor Teresa Duvall

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Employer: Ajay Gupta

Company: CS Systems (Old Dominion University)

Table of Contents

Introduction

In the summer of 2024, I was an upcoming junior who was desperate to obtain my first IT-related internship. As a Cyber Security Major, I knew that some form of technical job would be crucial to my development in the technology field. I consistently applied to a wide range of tech-related positions on Handshake, the university's job platform dedicated to helping students find on-campus employment and internship opportunities. I focused primarily on roles that would allow me to gain practical experience in information technology, such as IT Help Desk, Auxiliary Services support positions, and other similar technical support roles that aligned with my developing skill set. I felt that an on-campus job would be the best way to build hands-on experience in a real operational environment while still completing my coursework. Furthermore, my car wasn't driveable at the time, so it would allow me to save money on travel expenses. However, despite my efforts to apply and follow up with employers, many of the job postings either disappeared a few weeks after I applied or had already been filled. Additionally, my attempts to follow up with employers by email or phone went unanswered. As the new semester approached, I was beginning to lose hope. In the meantime, I was working in a Daycare as an assistant teacher to make some money while looking for my first technical job. Fortunately, I experienced a turning point thanks to an unexpected connection. One of my student's fathers, who had graduated from ODU with a degree in Computer Science, happened to be acquainted with Ajay Gupta, the Director of Computing Resources on campus. After learning about my ongoing search for an IT position, he offered to reach out on my behalf. His recommendation opened the door for me to apply for a Systems Administrator/Consultant position within the Computer Science department at ODU. After weeks of unanswered applications and repeated rejections, this opportunity felt like a breakthrough. For the first time, I had secured a legitimate

interview and a real chance at starting my IT career. Moreover, this opportunity didn't come from job boards at all, but rather through the connections I made in my role as an assistant teacher. This experience showed me the importance of professional connections and how they can create pathways that traditional applications sometimes cannot.

In this position, I hoped to strengthen and build upon my existing knowledge in several core technical areas, including Windows and Linux system administration, web development, and networking. I saw the internship as an opportunity to move beyond classroom concepts and gain practical experience with these technologies. In addition, I wanted to develop stronger technical support abilities in troubleshooting hardware, software, and network issues so that I could become more confident and effective in an IT support role. I prepared carefully for my interview, arriving in a suit and tie with a notepad and pen in hand in case I needed to jot down anything important. The conversation began like a traditional interview, with the interviewer asking me to describe myself. I explained how my passion for technology began at a young age and how that early interest eventually led me to pursue my major and develop a strong academic record in the field. Then, I got to learn more about the company I would be working for along with more details about the position I was applying for. I learned that CS Systems was a team made purely of undergraduate and graduate students. They consist of IT Consultants, system administrators, and system engineers stemming from the Hampton roads area who are dedicated to supporting and managing the IT infrastructure of the Computer Science department. This management includes maintaining an integrated network of Microsoft Windows workstations and servers, Linux servers, and various other cutting-edge technologies ("Home – Systems Group – ODU," n.d.). I was amazed and impressed to learn that our entire team was composed of students, and even more surprised to learn that my interviewer, systems engineer Dakota Dunn,

was in the same year of school as myself. What came next proved to make this interview the most difficult and nerve racking interview I had ever participated in. To assess my current level of technical knowledge, Dakota gave me an impromptu quiz covering key concepts in Windows, Linux, and networking. While I was able to answer some of the basic questions, I quickly realized how unprepared I was for others. There were moments where I completely blanked on topics that I should have been able to recall easily, which was discouraging. Despite being rattled by the surprise quiz and my lackluster performance, I didn't let that stop me from having a successful interview. Instead, I demonstrated perseverance and a genuine willingness to learn. As Dakota reviewed each question, I wrote down notes in my pad, paying close attention as he explained the correct answers and clarified gaps in my understanding. Even though it was evident that my knowledge wasn't yet at the level typically expected for the position, Dakota still recognized my motivation and potential. Despite my shortcomings during the quiz, he gave me the opportunity to move forward with the hiring project. For context, the hiring project is a requirement for every new hire with a week long deadline to complete it. The project required me to build a minimal Ubuntu Server virtual machine using VirtualBox, configure its networking, and secure it with a basic firewall. I had to set up user groups, accounts, and directory permissions, and then install a full LAMP stack, which stands for Linux, Apache, MySQL, and PHP. I also needed to create a simple PHP site that interacted with a MySQL database and host it through the Apache web server. In the end, I had to demonstrate the working system and explain the steps I took and what I learned in front of several senior members of the team. After an intense week filled with stress, late-night research, and constant trial and error, I successfully completed the hiring project on time and delivered my presentation with almost no issues. Finishing the project under pressure demonstrated my ability to learn new material

quickly, adapt to unfamiliar systems, and show that I could become a reliable and contributing member of the team. Although I wasn't able to be hired immediately, my training consisted of volunteer work where I would come into the office on my own time to get familiar with the work environment. During this period, I practiced opening and closing procedures, set up my workstation, and familiarized myself with the tools and services I would eventually be using. Some of these tools and services included the department's ticketing system, virtual machine environment, and internal support processes. This early exposure gave me a strong foundation and confirmed that I was committed to succeeding in the role. I became confident that this internship would give me an opportunity to grow my technical skills, contribute meaningfully to the Computer Science department, and move one step closer to achieving the professional objectives I had outlined at the beginning of this paper.

Internship Overview and Management

At CS Systems, our main job is supporting the individuals in the Computer Science department in any way we can. If a student, professor, or researcher in the department needs assistance, they will email us at root@cs.odu.edu. This creates a ticket which will be sent to our ticketing system at https://ticket.cs.odu.edu, which is only accessible from our private network. The tickets we receive vary widely in both complexity and the level of administrative access required to resolve them. Some tickets are straightforward and can be handled quickly by Consultants without elevated permissions. For example, some of the simpler tickets that Consultants can resolve quickly involve physical layer issues, such as a professor reporting that their computer has no Ethernet connection, requests for new equipment like a keyboard or mouse, or the need to set up a workstation in a specific office or desk. Other tickets, however, require higher-level administrative privileges or involve systems that Consultants are not

authorized to modify. In these situations, we escalate the request to our superiors or to staff members with the appropriate access. This escalation process ensures that tasks involving sensitive data, system configurations, or account permissions are handled by personnel with the responsibility and clearance to manage them safely and correctly. An example of this would be a student asking for keycard door access to a specific lab, which we would have to forward to our superiors so they can enter that individual's University ID number into the system that allocates card access to certain buildings and rooms. To manage communication efficiently, our team uses the application Discord. Although Discord is commonly known as a platform for gamers to create servers and chat, we adapted it as a tool for sending ticket notifications directly to our phones and collaborating with team members in real time. Each incoming ticket automatically generates its own thread within the server, allowing Consultants to discuss the issue, share updates, and attach any necessary screenshots or files. Anyone who participates in the thread continues to receive notifications, ensuring that the entire team stays informed about the ticket's progress from start to finish. I found Discord to be both engaging and highly effective for our workflow. Its organized channels, threaded conversations, and instant alerts made it easy to track multiple tasks at once. Furthermore, our Discord server uses several "bots," which are automated programs that can be configured to run custom commands or perform routine tasks that support our infrastructure. For example, we use a bot named Ranni, which automatically sends alerts to our Discord channels whenever a new ticket is submitted, a service experiences a failure, or when it's time for us to submit our timesheets. These automated notifications help streamline our workflow and ensure that important tasks are never overlooked.

As for the management hierarchy of the organization, it is fairly simple with three major roles separating our level of administrative clearance, responsibilities, and pay. First are

Consultants, which is the position I was hired for. Consultants consist of new hires and individuals who mainly handle lower level tasks. They are typically the first responders to tickets, either resolving them themselves or sending the tasks to higher leveled team members if required. They may have admin level access to some services such as our Windows environment or local admin credentials on the department computers, but they typically need to contact a supervisor for most advanced needs. On top of completing tickets and other miscellaneous tasks, Consultants are assigned work projects which train them to manage our IT infrastructure. We have several categories of projects, each with varying levels of difficulties. The project's categories range from Windows, networking, Linux, and web development. Similar to the hiring project, these assignments come with 1–2 week deadlines and must be presented to a supervisor for approval once completed. To reinforce what we learned, our supervisors also quiz us on the key concepts covered during each project. Next up in the chain of command are the “RunAs”, or the system administrators. RunAs have a slight pay increase and typically work directly on our production environment. Managing our servers, websites, and making networking changes are all aspects that RunAs will interact with on a daily basis. They also oversee Consultant learning and progress, quizzing them on their work projects after completion. Finally, the “Fulltimes” are quite literally the fulltime employees. Unlike Consultants and RunAs, who are student employees limited at 20 hours per week per ODU's work policy, Fulltimes are our student systems engineers who are on salary pay and have the most responsibilities. They have administrative access to every service in our infrastructure and report directly to our employer, Ajay Gupta They also serve as supervisors to both RunAs and Consultants. We currently have three Fulltime employees, and while each of them can work across all areas of our production environment, they typically specialize in a specific domain. For instance, one focuses on

managing the Windows environment, another handles networking changes, and the third maintains our web infrastructure. This specialization makes it easy to identify the right person for any given task. As a Consultant, I rarely interact directly with my employer, Ajay Gupta. Instead, I primarily look to my immediate supervisors for guidance, task assignments, and progress reporting. Having a management team composed entirely of students creates a positive and supportive work environment. Because we share similar academic experiences and challenges, there is a natural sense of comradery and understanding. This structure provides a healthy balance of flexibility and accountability, allowing me to manage my responsibilities independently while still receiving direction when needed.

Job Duties, Assignments, and Projects

As mentioned earlier, a Consultant's primary responsibilities include answering tickets, completing work projects, and assisting with various miscellaneous tasks. However, as a more senior Consultant on the team, I have been given additional responsibilities within these areas. For example, I was assigned a special role that includes handling incoming tickets over the weekends. Since our office hours are typically Monday through Friday, from 8:00 a.m. to 8:00 p.m., there are no staff members on-site during the weekends to address incoming tickets or resolve technical issues. This can lead to long ticket wait times over the weekend, which reflects poorly on our team and can be a concern for our supervisor, Ajay Gupta. To address this gap, I was assigned three hours of work on both Saturday and Sunday specifically to monitor and respond to any tickets that arrive during that time. I have the flexibility to complete this work either from home using my work laptop or in person, since I live near campus. Even if I am unable to fully resolve an issue on my own, I am expected to respond promptly to the requester, acknowledging the ticket and assuring them that the problem is being addressed. Once the rest of

the staff returns during the next business day, I oversee the ticket to ensure it is fully resolved and properly documented. This weekend responsibility not only helps maintain service continuity but also reinforces my accountability and ability to manage tasks independently. Moving on to work projects, I have completed a total of ten different projects, including the initial hiring project. These experiences have provided me with advanced, hands-on training in key areas such as Windows, networking, Linux, and web development, allowing me to navigate and contribute effectively within our production environment. My role is primarily focused on Windows systems, which is critical to the team's overall balance, as other members specialize in Linux, web development, and networking. By concentrating on Windows, I ensure that our team maintains expertise across all essential technical areas, allowing us to provide comprehensive support and efficiently handle a wide range of tasks. As a Windows focused Consultant, I am one of the few Consultants who has completed the Windows III project, which introduces you to Microsoft Endpoint Configuration Manager (MECM). Completing this project demonstrated my ability to deploy and manage operating systems and software using MECM. It also highlighted my skills in configuring Domain Name System (DNS), Dynamic Host Configuration Protocol (DHCP), and multi-network interface card (multi-NIC) servers, capturing and deploying system images, and automating operating system and software deployment across a managed network. After proving I was able to handle these tasks, I was trusted in being allowed to work with our MECM server for our production environment. This means I was given access to deploy software and changes to multiple device collections, such as all faculty, researcher, graduate student, and lab devices. With my new access to MECM, I was tasked with a project specifically assigned to me called the MECM audit. For this project, I am responsible for reviewing the applications available in Software Center, which allows users to install software directly from the

MECM server without browsing for installers online. During this review, I identified and resolved several applications that were generating download errors to ensure they could be properly deployed across our production systems. I was also granted administrative access to the MECM server, which enabled me to examine the full catalog of applications and implement various improvements. Work on this project is valuable for the company because it allows me to not only make more applications available for our faculty and researchers, giving them increased software diversity, but it allows me to revise a critical part of our infrastructure while the busy fulltimes can tend to other tasks. As for miscellaneous tasks, my close proximity to ODU has opened several opportunities to help the company on site when others could not. I have attended multiple open house sessions where upcoming ODU undergraduates come and experience the Computer Science department for the first time. Here, I am able to explain what my job is, what we do, and some of the resources we have available to students who chose Computer Science as their major. Even as a Cyber Security major who does not take many Computer Science courses, I am able to use my position at work to foster interest in technology-related fields. This not only benefits my company by promoting technical knowledge and engagement but also supports the College of Sciences at ODU as a whole. Another on-site task I participated in was the highly anticipated visit from the Accreditation Board for Engineering and Technology (ABET). Representatives from ABET came to ODU for a tour of the facilities we operate in, including Dragas Hall and the Engineering and Computational Sciences building. During the tour, we highlighted the layout and structure of our buildings, showcased our laboratories, and demonstrated our computational and server resources. A positive impression from the ABET representatives could result in increased funding for our department. As part of this visit, I came into work off schedule during the weekend and assisted with the tour by ensuring key rooms

were clean and presentable and by interacting with the ABET representatives in a professional and approachable manner. I answered questions to the best of my ability, providing information about our facilities and operations, and helped create a positive and informative experience for the evaluators. In the end, the ABET visit was a resounding success, resulting in approval for increased funding for our department. This achievement highlighted the hard work and dedication of our team and reinforced the importance of maintaining a professional and well-organized environment. In summary, even as a Consultant, I have gained access to higher privileges within our IT infrastructure, heightened responsibilities in managing our ticketing system, and other miscellaneous tasks to promote the reputation of our department.

Use of Cyber Security Skills

Even though I am working for the Computer Science department, the need for Cyber Security skills is crucial in not only securing the job during the interview but completing daily tasks. I came into the job with basic Cyber Security skills shaped by my personal interest in technology and the material I learned in my coursework. It was important for me to put these skills into practice, particularly in areas such as maintaining secure, complex passwords, encrypting drives to protect systems, and understanding the fundamentals of networking and subnetting. One of the most valuable skills this internship helped me solidify was my understanding of the Open Systems Interconnection (OSI) model. The OSI model is a conceptual framework that breaks down the components of a functioning network or device into seven distinct layers. While I learned about the OSI model in class, the internship allowed me to apply it in real troubleshooting scenarios, which significantly deepened my understanding. In practice, our team often uses the OSI model as a checklist when diagnosing technical issues. For example, if a faculty member reports that their machine cannot access the internet, we begin at the

physical layer, verifying that all necessary cables, ports, and connections are secure and functioning. From there, we can move up to the data link layer to check switching issues, and then to the network layer to inspect IP configurations, routing problems, or DNS errors. Progressing through each layer systematically allows us to isolate the problem efficiently and accurately. This hands-on application reinforced the concept far more effectively than lectures or textbook examples alone. The same pattern applied to countless other skills I developed during this internship. Everything from Linux administration to networking fundamentals became clearer and more intuitive once I had the chance to apply them in a real work environment.

Connection to ODU Curriculum

While I feel that ODU's Cyber Security curriculum provided a foundational understanding that somewhat prepared me for this position, there was still significant room for improvement. For instance, I would say my curriculum left me unprepared for my initial hiring quiz. Although I had learned some Linux concepts through entry-level courses, much of the knowledge required to succeed on the quiz came from independent study and self-directed learning. During the early stages of my undergraduate studies, much of the Cyber Security curriculum focused on social and theoretical aspects of the field rather than hands-on technical application. In addition, a large portion of my learning involved memorizing definitions rather than developing the practical skills necessary to apply those concepts in real-world situations. For instance, I could define terms like Domain Name System, Network Address Translation, and various networking protocols, but I initially struggled to apply that knowledge to solve actual problems or troubleshoot tickets. This often required me to ask for guidance from more experienced team members, through which I learned the correct approach and how to effectively apply these concepts in a practical work environment. This experience highlighted the gap

between academic knowledge and practical skills, reinforcing the importance of hands-on experience in truly understanding and applying Cyber Security principles. In regards to Cyber Security skills, I can confidently say that I've learned more from my position as an IT Consultant than any class offered by ODU's curriculum. This isn't to say that ODU's curriculum and professors are inadequate, but it's simply due to the fact that I am a hands-on learner. As a result, the hands-on experience I gained during my internship has had a far greater and more lasting impact on my learning than the lectures and assignments completed in class.

Evaluation of Learning Objectives

Without a doubt, my position at CS Systems has given me ample knowledge and hands-on experience with Windows, Linux, web development, networking, and IT troubleshooting. First, Windows has been my biggest area of development as a Windows-focused IT Consultant. Besides my work with MECM, working with Windows devices has been a daily part of my job. Since the majority of devices in our labs, as well as those provided to faculty and researchers, are Windows machines, I have had extensive opportunities to work with them on a variety of tasks. These responsibilities include installing and configuring software applications, performing operating system updates, and deploying new machines using Preboot Execution Environment (PXE) to integrate them into our Active Directory environment. This hands-on experience has allowed me to deepen my understanding of Windows system administration and gain practical skills in managing and maintaining a large network of devices within an organizational IT infrastructure. Next, Linux has also been a significant part of my learning experience, and my internship has helped me build a much stronger foundation than what I gained solely from my Cyber Security courses. Beyond learning and memorizing basic Linux commands, I have gained practical experience using Linux-based resources such as configuring

iptables firewalls, managing MySQL and PostgreSQL databases, and compiling programs from source. This hands-on work has enhanced my understanding of Linux system administration and given me the confidence to apply these skills effectively in a real-world IT environment. To follow up, learning Linux-based open-source web servers and containerization was my first introduction to web development. Using Nginx, Apache, and Docker to build web servers with floating IPs, reverse proxies, and load balancing gave me insight into the underlying systems that make the websites we use every day function. Additionally, this experience significantly expanded my networking knowledge. For networking, I gained valuable experience both through virtual projects using the Graphical Network Simulator 3 (GNS3) application and hands-on tasks in our production environment. In GNS3, I simulated building secure networks as if I were managing infrastructure for an actual company. This included configuring Virtual Local Area Networks (VLANs), implementing port trunking with 802.1Q encapsulation standards, and working with various dynamic routing protocols such as Routing Information Protocol (RIP), Border Gateway Protocol (BGP), and Open Shortest Path First (OSPF). These virtual projects helped me understand network design, segmentation, and traffic management in a controlled environment. In our production environment, I also participated in several instances of mass recabling during scheduled downtimes. This provided practical, real-world experience in teamwork and attention to detail, as it was critical to ensure that every Ethernet cable was connected to the correct port in the patch panel to maintain service availability. Moreover, I learned to make keystone jacks, which are modular Ethernet ports that can be attached to cut Ethernet cables. This skill proved useful when faulty ports caused unstable connections, allowing me to replace or rewire cables to restore full functionality. These experiences have reinforced my understanding of both virtual and physical network management and emphasized the importance

of precision, planning, and collaboration in maintaining a reliable network infrastructure. Finally, learning IT troubleshooting has been one of the broadest areas of my experience and has significantly strengthened my critical thinking skills. Each incoming ticket is often unique, requiring me to adapt and apply new troubleshooting techniques for almost every task. One of the most valuable tools I've learned to use is a Fluke network tester. A Fluke device connects to an Ethernet port and provides detailed information about the connection, including whether the port is receiving voltage, the name of the switch and port it is connected to, the VLAN assignment, and the overall integrity of the network link. This tool is particularly useful for diagnosing issues where a device has no network connectivity despite being physically connected, helping quickly identify wiring, switch, or configuration problems. In addition, many troubleshooting tasks require immediate, on-the-spot solutions that cannot be fully anticipated or prepared for in advance. Handling these situations effectively comes with repetition and experience, requiring you to remain calm, think critically, and respond efficiently under pressure. I am confident that I would not have developed nearly as strong an understanding of IT concepts if I had not had the opportunity to participate in this internship. Even now, as I write this paper, I continue to encounter new challenges and learn new concepts across all technical areas, consistently expanding my knowledge and refining my practical skills.

Motivating Aspects

Being a Consultant in CS Systems has several motivating aspects besides the opportunity to learn. I would say that one of the most motivating aspects of this position is the strong sense of responsibility it fosters. This was my first job where I had my own office and the ability to track and record my own hours, which motivated me to work diligently and demonstrate that I deserved these privileges. For another motivating aspect, Consultants are incentivized to

complete work projects by earning upgrades to their workstation hardware. For example, after completing the entry level projects in Windows, networking, and Linux, Consultants are eligible to enhance their workstations with additional monitors. This includes having three or more displays, including 34-inch curved widescreen monitors. These resources not only make work more efficient but also create a more enjoyable and engaging work environment. The combination of responsibility and tangible rewards motivates Consultants to continue developing their skills while contributing meaningfully to the department. Finally, another key motivating aspect is the generosity of our employer, Ajay Gupta, who consistently recognizes and rewards outstanding team members. Consultants, including myself, have received incentives such as additional hours on our timesheets or the privilege to order specialized equipment for our workstations when we receive positive feedback from faculty or supervisors. These rewards not only encourage high-performing Consultants to maintain their strong performance but also motivate other team members to elevate their own efforts. In addition, Ajay offers to reimburse Consultants for professional certifications, such as CompTIA Network+ and CompTIA Security+. This policy has been particularly motivating for me, as it provides both a tangible reward and a professional incentive to study for and pass these certification exams while continuing to gain experience at the company. In summary, CS Systems takes advantage of the fact that we are technology fanatics and uses that to reward us, which I am not only grateful for, but recognize as a smart and healthy way to promote a healthy work environment.

Discouraging Aspects

While there are several factors at CS Systems that motivate me, there are plenty of other aspects that can be quite discouraging. One of the most discouraging aspects of the position is the limited pay. As Consultants, we are paid minimum wage, which can be discouraging,

especially given the level of responsibility and technical skills required for the role. This challenge is compounded by the fact that ODU student workers are generally limited to working a maximum of 20 hours per week. Balancing these limited hours with academic responsibilities and other personal commitments can make it difficult to fully dedicate myself to the job or invest the time necessary to maximize learning and performance, even if the position offers significant professional growth. This especially became clear during my first year on the job when I had a daily morning shift. Working from 8:00 a.m. to 12:00 p.m. is often one of the least active periods, which limits my opportunities to engage in tasks and gain hands-on experience during scheduled hours. I quickly realized that in order to truly learn and develop my skills, I would need to be willing to stay beyond my scheduled shift and put in extra work without additional pay. This experience taught me the importance of initiative and dedication, as gaining meaningful experience sometimes requires going above and beyond the minimum requirements of the position. Present day, I solved this issue by balancing a schedule of morning and afternoon shifts this semester, but I still believe this is an ongoing problem that our new Consultants continue to face. Another discouraging aspect of the position is that I will not be able to continue in this role after graduation, as CS Systems only employs current undergraduate and graduate students. Knowing that my position will end after this May, unless I pursue graduate school, has been discouraging at times, making it challenging to fully commit to climbing the ladder within the company. It has also been a source of stress, as it creates a sense of urgency and uncertainty around a significant part of my life and income, making me feel as though there is a “ticking clock” on this opportunity. Despite these discouraging aspects, I recognize that no job is perfect, and I do believe that this position is a great opportunity for any undergraduate student to be in.

Challenging Aspects

While my time at CS Systems has been filled with enjoyable experiences and valuable learning opportunities, it has also presented significant challenges. One of the most difficult aspects has been managing the deadlines for the various work projects, which typically range from 1-2 weeks. While these deadlines may seem reasonable on paper, they become extremely demanding when balanced against a busy personal and academic schedule. For instance, I am a full-time student, work 20 hours per week as an intern, serve as an executive board member of a student organization, and maintain another part-time job to help cover tuition and living expenses. Balancing these responsibilities alongside my personal life often made it difficult to prioritize work projects that, although crucial for my learning, are neither graded nor compensated. I frequently found myself struggling to meet deadlines, moving directly from one shift to another exhausted, and spending several sleepless nights completing projects or staying late at the office without pay. Admittedly, many of the long nights I spent at the office were a result of my own shortcomings in time management. There were certainly occasions where I could have been more efficient and productive with my work projects during scheduled hours. Additionally, procrastinating on school assignments often compounded the challenge, as deadlines began to overlap and created conflicts with my internship responsibilities. This intense schedule required careful time management, resilience, and determination. Despite the physical and mental strain, these experiences taught me the importance of prioritization, perseverance, and the ability to remain focused under pressure, which are skills that are essential both in the professional world and in personal development. Ultimately, time management becomes the greatest challenge, as balancing the internship alongside other responsibilities can feel like taking on the equivalent of two additional full-time courses on top of an already demanding academic

workload. Overall, juggling multiple jobs, school assignments, student organization obligations, and personal commitments requires constant planning, prioritization, and discipline, often pushing both physical and mental limits. Another challenge of this internship is maintaining consistently productive weeks. Every Tuesday at 12:15 p.m., the entire team holds a meeting where each individual reports on the tasks they have completed, raises any concerns, and outlines their plans for the following week. The main point of these meetings is for the fulltime employees to track and monitor the progress of their team, ensuring they are staying productive and dedicated to their tasks. While these meetings are valuable for communication and team coordination, it can be stressful to enter a team meeting after a slow week, especially when there are few accomplishments to report. Moreover, they highlight the unpredictable nature of productivity in this role. Much of the work we complete, particularly tickets, is spontaneous and depends entirely on when problems arise. If faculty, students, researchers, or systems experience few technical issues in a given week, there is significantly less work to report. While this is a positive reflection of the stability of our infrastructure, it can make individual Consultants appear less productive during meetings when ticket counts are low. This relates back to the struggles of working a morning shift from 8:00 a.m. to 12:00 p.m., which are generally less active times for tasks compared to the afternoon. As a result, Consultants working during these hours may have fewer opportunities to complete tasks, meaning colleagues on later shifts often have higher ticket counts to report. This variability makes it essential to focus on quality, initiative, and engagement, even when the volume of tasks is outside of one's control. To address these challenges, it is helpful to take initiative and pick up additional tasks beyond handling tickets. For instance, I have gone out of my way to clean and organize workspaces or take inventory of the hundreds of devices in our backstock. While these tasks may seem minor, they are important

for maintaining an efficient and organized department. Completing these additional responsibilities demonstrates to supervisors that, even during weeks with few ticket submissions, I made productive use of my time and contributed meaningful work to support the team and the department's overall operations. Managing both the unpredictability of each week along with time managing a busy schedule has taught me the importance of adaptability and self-motivation in a professional setting.

Recommendations for Future Interns

There are several recommendations I would offer to future interns at CS Systems. First and foremost, I would advise that applicants only apply if they have prior experience or a strong interest in programming, networking, or IT-related fields. The hiring interview is extremely rigorous, and the expectations for candidates have only become more stringent since I was hired, reflecting the department's increased standards for Consultants. To put the level of competition into perspective, two of our most recent hires are older undergraduate students with prior IT experience gained through service in the U.S. Armed Forces. Applicants should be thoroughly prepared to answer fundamental questions about networking concepts, Linux and Windows commands and functions, and basic computer hardware components. Those who cannot demonstrate a solid understanding of these topics, despite their professionalism and willingness to learn, may not get the chance to progress to the hiring project stage such as I was. Success in the interview requires not only technical knowledge but also critical thinking, problem-solving under pressure, and the ability to communicate solutions clearly. Prospective interns should invest time in reviewing and practicing these core skills to maximize their chances of being selected for the position. However, for those who are successful in securing an internship, my next recommendation is to manage time effectively. Complete homework and academic

assignments as soon as they are assigned to free up sufficient time for the internship's learning projects, ensuring they can be completed before their deadlines. In addition, while working on these projects, it is crucial to take detailed notes and document the concepts and procedures you encounter. This practice not only reinforces your understanding but also prepares you for the post-project quizzes, allowing you to retain and apply the knowledge more effectively in future tasks. Another piece of advice refers to writing email responses to tickets. While many tickets are submitted on behalf of fellow students, a significant portion are directed to professors and faculty members within the Computer Science Department. Communicating with them requires a high level of professionalism and respect. It is important to address faculty appropriately using titles such as Sir, Ma'am, Professor, or Doctor, and to proofread your emails carefully for grammatical errors or unclear wording. Additionally, it can be helpful to have a supervisor review your response before sending it, especially if the situation is complex. Unlike some other platforms, once an email is sent, there is no option to undo or edit it, so ensuring that your message is clear, accurate, and professional beforehand is essential. I have personally experienced situations where hastily written emails contained typos or incorrect instructions, which only served to confuse the recipient further. These experiences underscored the importance of careful communication and attention to detail in a professional IT environment. My final piece of advice for new interns is to step out of your comfort zone and actively apply yourself. Don't simply sit in your office at Dragas Hall waiting for tasks appear. In most cases, there is always work to be done, but you cannot simply wait for tasks to be assigned to you. It's very important for Consultants to take the initiative to seek out work. I would recommend visiting the Engineering and Computational Sciences building during your free time and asking supervisors or team members if there are tasks you can assist with. Even if there isn't an

immediate task available, you can take the opportunity to shadow supervisors or more experienced colleagues. Observing their work and asking questions provides valuable learning experiences and allows you to expand your knowledge, even when you are not directly handling a project. By being proactive and engaged, you maximize the benefits of the internship and ensure that every moment contributes meaningfully to your professional growth. Talking from experience, that same engagement and willingness to learn will not go unnoticed, and your superior will put that into consideration when it comes time to give rewards to performing team members.

Conclusion

My experience at CS Systems, my first IT position, has left me with more than I could ever anticipate. Even as a Consultant, I have been entrusted with elevated privileges within our IT infrastructure, which has allowed me to take on more complex tasks and contribute meaningfully to the department's operations. I have also assumed greater responsibilities in managing our ticketing system, ensuring timely responses, and supporting other miscellaneous tasks that promote the efficiency and reputation of our department. For the remainder of my time at ODU, this internship will continue to expand my knowledge as I work closely with my superiors within our production environment. In addition, I plan to take full advantage of the certification reimbursement offered by our employer, Ajay Gupta, to strengthen my credentials and gain a competitive edge as I begin searching for new opportunities after this position ends. Furthermore, this job prepared me for my future professional path by giving me a realistic glimpse of what employment after college will be like. No one is holding your hand or providing step-by-step instructions each day. You are responsible for your own productivity. It is up to you to seek help when needed, collaborate with team members, take initiative to find tasks, and

complete your work each week to ensure a strong performance report for the weekly team meeting. Overall, these experiences have provided me with valuable hands-on skills, reinforced my technical knowledge, and offered a unique perspective on the operations of an academic IT environment.

Works Cited

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