**Engineering experience**

1. **What is your own experience and ideas around infrastructure defined in code for large scale SaaS operations? What practices are needed to guarantee effectiveness as well as quality? What tooling do you enjoy/prefer working with? Why?**

In my experience, Infrastructure as Code (IaC) is a fundamental practice for managing large-scale SaaS operations. It enables consistent, repeatable, and automated deployment of infrastructure, which is crucial when dealing with complex environments. I have extensively worked with Terraform and Ansible, which allow the creation, modification, and versioning of infrastructure in a structured and auditable way.

At Computer Concepts Limited (CCL), we utilized IaC to automate infrastructure provisioning and configuration in cloud environments (AWS and Azure), ensuring that resources such as virtual machines, storage, and networking components were deployed consistently across environments. This practice improved our deployment speed, reduced manual intervention, and minimized configuration drift.

**Practices to Ensure Effectiveness and Quality:**

* Use version control systems like Git to track changes to IaC configurations.
* Break down infrastructure into reusable modules.
* Implement linting and unit testing tools.
* Use CI/CD pipelines to test infrastructure changes in staging environments.
* Employ logging and monitoring solutions to observe infrastructure performance in real-time.
* Integrate automated security checks into CI/CD pipelines.
* Use tools like Terraform Sentinel and HashiCorp Vault for policy enforcement and secrets management.
* Maintain clear and up-to-date documentation to explain the purpose and configuration of infrastructure resources.

**Preferred Tooling and Why:**

* Terraform:
  + I prefer working with Terraform due to its declarative nature, which simplifies managing large-scale infrastructures. Terraform’s support for multiple providers (AWS, Azure, GCP) makes it versatile, and its state management enables tracking resource dependencies and changes.
* Ansible:
  + I enjoy using Ansible for configuration management because of its simplicity and agentless architecture. Ansible’s YAML-based playbooks are easy to read and write, making it accessible for both developers and operations teams.

1. **Describe your own experience on Site Reliability Engineering? What types of applications, systems or infrastructure have you managed? At what scale? What are the best practices that should be followed?**

In my role as a Senior DevOps Engineer at Computer Concepts Limited (CCL), I have been deeply involved in Site Reliability Engineering (SRE) practices, managing various applications, systems, and infrastructure at scale to ensure high availability, reliability, and performance. My work has primarily focused on cloud-based systems, containerized applications, and automated infrastructure management, using a combination of DevOps and SRE principles.

* **Cloud Platforms (AWS, Azure):**
  + Managed cloud infrastructure on AWS and Azure, ensuring resources like virtual machines, load balancers, networking components, and databases were highly available, secure, and scalable.
  + Utilized **Terraform** to define infrastructure as code, and **Ansible** for configuration management, automating provisioning, scaling, and monitoring of services across multiple environments.
* **Serverless Architecture (AWS Lambda):**
* Worked on optimizing serverless applications deployed on **AWS Lambda**, ensuring scalability and efficient resource utilization while maintaining operational visibility through logging and monitoring tools like **CloudWatch**.
* **Monitoring and Incident Management:**
* Set up automated alerting for production issues, integrated with **PagerDuty** for incident response, ensuring quick reaction times and minimizing downtime.
* **On-Premises Infrastructure:**
* In addition to cloud platforms, I have managed on-premises infrastructure, automating server provisioning and management using **Terraform** and **Ansible**. This included ensuring systems were patched, monitored, and secured according to best practices.

**SRE Best Practices**

* + Implement automated deployment, testing, and monitoring pipelines to reduce manual errors and improve scalability.
  + Use comprehensive monitoring and logging tools to track application health.
  + Integrate tools for proactive incident response and minimize downtime.
  + Regularly assess capacity needs and implement auto-scaling policies.
  + Focus on security best practices to protect infrastructure and applications.

1. **What is your level of expertise in Linux system administration, monitoring and debugging?**

**Linux System Administration**: I manage Linux servers including installation, configuration, and maintenance. My tasks involve user management, file system administration, package management, and configuring network services. I also automate routine tasks using shell scripts and tools like cron.

**Monitoring**: I use various monitoring tools such as Nagios, Zabbix, and Prometheus to keep an eye on system health, performance, and uptime. I configure alerts and dashboards to proactively address potential issues before they affect system stability.

**Debugging**: I have a strong skill set in diagnosing and troubleshooting system issues. I use tools like top, htop, strace, lsof, and tcpdump to identify performance bottlenecks, diagnose service failures, and analyze network problems.

1. **How familiar are you with Linux networking, including routing, firewalls, both on a local and global scale?**

** Local Networking:**

* I configure and manage static routes, understand and work with routing tables using tools like ip route and route, and set up advanced routing policies.
* I handle network interfaces, including configuring IP addresses, subnet masks, and gateways using ifconfig or ip commands.
* I configure DNS and DHCP services, including setting up and managing DNS resolution and DHCP server settings.
* I manage firewalld for dynamic firewall configurations, utilizing zones and services for easier management of firewall rules.
* I configure Network Address Translation (NAT) and Port Address Translation (PAT) for managing network traffic and ensuring proper address mapping.
* I set up and manage VPN connections (like OpenVPN or IPsec) for secure remote access and site-to-site connectivity**.**

1. **Are you a high quality Python coder? What processes / automation have you implemented in Python?**

I have significant experience with the language. I’ve used Python for several practical tasks and automation, including:

* ServiceNow Ticket Management: I’ve written Python scripts to automate interactions with the ServiceNow API, including ticket creation, updates, and status checks.
* Data Consolidation: I’ve used the openpyxl module for consolidating data from Excel files, allowing for efficient manipulation and integration of data.
* Data Analysis and Reporting: I’ve leveraged the pandas library for data-related tasks, including data manipulation, analysis, and generating reports.

1. **How do you review and make sense of large amounts of logs? What tooling do you prefer using?**

* For quick log searches, I rely on command-line tools like grep for pattern matching, awk for extracting specific data fields, and sed for simple text manipulation.
* On systems using systemd, I use journalctl to filter and view logs based on specific time ranges, services, or log levels.
* For structured log files, such as those in CSV or JSON format, I use Python’s pandas library to analyze, filter, and aggregate data more thoroughly.
* In large-scale environments requiring real-time log analysis, I prefer using Splunk for its powerful search capabilities and built-in alerting features.
* I create scripts to automate log processing tasks like summarizing critical events, extracting errors, or sending alerts when specific patterns are identified.

1. **What is your most senior role in a software SRE/IT Operations organisation? Describe your span of control, and the diversity of products, functions and teams you led.**

My most senior role as a Senior DevOps Engineer, I was responsible for leading initiatives that spanned across both SRE and IT Operations. My span of control included overseeing automation projects, infrastructure management, and collaborating with cross-functional teams. Here’s a breakdown of my responsibilities:

* Team Leadership: I led a team of engineers focused on automating infrastructure deployments using tools like Ansible and Terraform. I worked closely with SRE, development, and operations teams to streamline processes and improve system reliability.
* Automation and Infrastructure: I spearheaded projects to automate the deployment of cloud infrastructure, CI/CD pipelines, and monitoring solutions, ensuring that environments were consistent, scalable, and efficient.
* Diverse Product Ownership: I managed a range of products, from cloud infrastructure and monitoring solutions to DevOps toolchains (Jenkins, GitLab). I also led projects involving ServiceNow integrations and API-based automations for IT operations.
* Collaboration with Teams: My role required close collaboration with diverse teams across development, operations, and business functions. I played a key part in driving decision-making around infrastructure improvements, monitoring strategies, and incident management.

In this role, I worked across a wide spectrum of technologies and teams, driving improvements in system resilience, automation, and operational efficiency.

1. **Outline your thoughts on documentation and asset management in large-scale IT operations. What practices should teams follow?**

* Define clear and consistent documentation standards to ensure uniformity and readability.
* Establish a central repository like Git for storing all IT documentation, accessible to relevant teams.
* Ensure that documentation is kept up-to-date to reflect changes in the IT environment.
* In large-scale environments, manually tracking assets is impractical. Automated asset discovery tools like SolarWinds, ServiceNow, or Puppet can help track servers, network devices, software licenses, and configurations in real-time.
* Maintain a robust CMDB to track all assets and their relationships within the environment. This helps in understanding dependencies between systems, which is critical for change management and incident resolution.
* Regularly audit assets for compliance with security policies and operational standards.

1. **Outline your thoughts on security in software operations. How should engineers be lead to improve their security posture and awareness?**

* Implement security checks in CI/CD pipelines. Automating vulnerability scans, dependency checks, and static code analysis ensures that issues are flagged as soon as possible. Tools like Snyk, and can help in continuous monitoring and remediation.
* Integrate security into the development lifecycle, not as an afterthought.
* Conduct regular scans to identify and patch vulnerabilities.
* Encourage a culture of keeping software dependencies, libraries, and infrastructure up to date. Unpatched systems are a major vector for attacks, so regular patch management processes should be in place.
* Implement proper secrets management to avoid hardcoding sensitive information like API keys, passwords, and tokens. Tools like HashiCorp Vault, AWS Secrets Manager, or Azure Key Vault can securely store and manage secrets.
* Create awareness where engineers feel safe to report vulnerabilities or potential security risks. Building this openness ensures that issues are flagged early rather than ignored.

**Career development**

1. **Describe your most enjoyable role you have had in your career. What made it enjoyable?**

The most enjoyable role I’ve had in my career was as a Senior DevOps Engineer, where I was deeply involved in automation and infrastructure management. What made this role particularly fulfilling was the blend of technical challenges and the opportunity to make a significant impact on the team's efficiency.

* I had the freedom to explore and implement automation solutions that reduced manual workloads. From streamlining CI/CD pipelines to automating infrastructure deployments, every project pushed the boundaries of what we could achieve through automation, which was incredibly satisfying.
* Working closely with development, operations, and security teams fostered an environment of continuous learning. The collaborative nature of the role, where ideas were exchanged and best practices were developed, created a strong sense of teamwork and achievement.
  + The role gave me the chance to take ownership of complex challenges, such as resolving issues with system scalability and reliability. Being able to solve these problems and see the direct benefits of those solutions, both for the business and the team, was extremely rewarding.
  + I was constantly learning new tools and techniques, especially around cloud infrastructure and automation frameworks. This focus on personal growth and development was highly motivating and kept the role dynamic.

Overall, the combination of technical innovation, team collaboration, and the opportunity to lead impactful projects made this role one of the most enjoyable and professionally satisfying experiences of my career.

1. **Describe a time in your career that you found challenging. Why was it challenging? What changes did you make to meet the challenge?**

Challenging experience I encountered was during a project involving **CloudCreator**, a product designed to manage virtual machines (VMs) and provide access to their consoles. The challenge emerged when the client requested additional features mid-project, which led to extended timelines and more complexity.

**Why It Was Challenging:**

* **Changing Requirements Mid-Project:**
  + Midway through the project, the client requested new features, such as the ability to manage VM snapshots and initiate backups directly from the dashboard. These changes added complexity and required redesigning parts of the solution to accommodate the new functionality.
* **Tight Deadlines:**
  + The project was already under a strict deadline, and adding these new features put additional pressure on the team. Meeting both the original requirements and the new ones without causing significant delays was a difficult balancing act.
* **Technical Complexities:**
  + Implementing snapshot and backup management required deep integration with the underlying infrastructure, which was more challenging than initially expected. The project also had to account for different cloud environments and ensure consistency across them.

**Changes I Made to Meet the Challenge:**

* **Prioritized Features and Timelines:**
  + I worked closely with the client to prioritize the new features, ensuring that the most critical ones were developed first. We agreed on a phased approach, which allowed us to deliver key functionalities without delaying the overall project too much.
* **Increased Collaboration:**
  + I brought together the development and infrastructure teams to work more closely, facilitating quicker decision-making and smoother integration of the new features. Regular meetings helped keep everyone aligned and ensured that we could address issues promptly.
* **Optimized Resource Allocation:**
  + To meet the deadlines, I reassigned some team members to focus on specific high-priority tasks, ensuring that we could deliver the requested features on time while still keeping the rest of the project on track.

**Outcome:**

Despite the challenges, we successfully delivered the product with all requested features, although the timeline was slightly extended. The client was highly satisfied with the final product, and I received a **Star Performer** award for my efforts. This experience taught me valuable lessons in flexibility, resource management, and the importance of maintaining close client communication to manage expectations during shifting project scopes.

1. **Describe your approach and experience sharing knowledge with other engineers? Can you give examples of technical innovations you have successfully championed in your team?**
   * I regularly engage in one-on-one sessions with less experienced engineers to walk them through complex technical issues. For example, during a project to automate deployments using **Ansible** and **Terraform**, I led knowledge-sharing sessions to guide the team through the intricacies of infrastructure-as-code. I introduced best practices for managing configurations and troubleshooting common issues. By doing so, junior engineers were able to take on more responsibility over time, boosting team productivity.
   * I encourage a collaborative approach to problem-solving, where everyone feels comfortable contributing ideas. One instance was during a project involving **CloudCreator**, where we had to implement complex VM snapshot and backup management features under tight deadlines. I facilitated open discussions among the development, infrastructure, and operations teams, ensuring that solutions were shared and understood by all. This not only improved our approach to the challenge but also increased cross-team knowledge transfer.
   * One of the key innovations I championed was the automation of weekly report generation using scripting tools like Python and the Autotask API. This was a manual process that consumed a lot of team time. By automating it, I significantly reduced the workload and gave the team more time to focus on higher-impact tasks. I introduced the idea, implemented the solution, and trained the team on how to maintain and extend it. This resulted in greater efficiency and showed the value of automation to the broader organization.
   * I emphasize the importance of maintaining comprehensive documentation and ensuring that all automation scripts and technical solutions are stored in a shared code repository, such as **GitHub**. For example, after automating the backup and snapshot management for **CloudCreator**, I documented the entire process and shared it with the team, so that anyone could easily understand and replicate the solution.
2. **What aspects of your performance do you think your colleagues would describe as extraordinary?**
   * My ability to tackle complex issues with innovative solutions has often been recognized. For example, when I was automating the backup processes for virtual machines, I identified that existing snapshots were causing errors. After diving deeper, I proposed and implemented a solution that checked for snapshots before disabling backups, which reduced errors and prevented unnecessary ticket escalations. This proactive approach to problem-solving stands out in how I handle challenges.
   * My attention to detail, especially when working on critical automation scripts or production environments, is something colleagues often notice. Whether it’s in code reviews or designing infrastructure automation, I ensure that edge cases are covered and potential risks are mitigated. My sense of ownership over tasks and seeing them through from design to successful implementation is something that my colleagues highly value.
   * Colleagues often highlight my leadership in driving automation as a game-changer. I’ve led initiatives that automated repetitive tasks, saving time and improving accuracy. My work on scripting weekly report generation in Python, automating SolarWinds configurations, and streamlining VM deployment processes with Ansible and Terraform has had a visible impact on operational efficiency. My colleagues would likely describe my enthusiasm for identifying and implementing automation as a critical factor in improving overall team productivity.

**Education**

1. **How did you rank in your high school, in your final year in maths and hard sciences? Which was your strongest?**

In my final year of high school, I ranked in the top 10% of my class in both math and the hard sciences. Mathematics was my strongest subject, where I consistently performed well and had a particular affinity for problem-solving and logical reasoning. I also excelled in physics and chemistry, but math always stood out as the subject I found most engaging and challenging in a positive way.

1. **How did you rank in your high school, in your final year in languages and the arts? Which was your strongest?**

In my final year of high school, I ranked in the upper middle range of my class in languages and the arts. My strongest subject in this area was languages, particularly English. I enjoyed reading, writing, and expressing ideas clearly, which helped me excel in that subject. While I appreciated the creativity involved in the arts, I found that my strengths leaned more towards analytical and linguistic skills.

1. **Please state your high school graduation results or university entrance results, along with the system used, and how to understand those. For example, in the US, you might give your SAT or ACT scores. In Germany, you might give your scores 1-5.**

I completed my high school under the Tamil Nadu Matriculation Board in India, where I scored 1121/1200 in my final exams. My cut-off for engineering admissions was 93%, which played a key role in securing my admission to an engineering program.

In this system:

The overall score is calculated out of 1200, with marks assigned for individual subjects.

The cut-off score is derived from key subjects like Mathematics, Physics, and Chemistry, which is critical for entry into engineering colleges.

This strong performance helped me pursue a career in engineering.

1. **What sort of high school student were you? Outside of class, what were your interests and hobbies?  What would your high school peers remember you for, if we asked them?**

In high school, I was a dedicated and curious student, particularly in subjects like mathematics and science. Outside of class, one of my main hobbies was cooking. I enjoyed experimenting with different recipes and cuisines, which became a creative outlet for me. Cooking allowed me to relax and explore flavours, whether it was trying new dishes or perfecting family recipes. It also became a way for me to connect with friends and family by sharing meals I prepared.

If you asked my high school peers, they would probably remember me for being always willing to help, especially in academics. They might also recall my enthusiasm for cooking, as I often talked about new dishes I had tried, and occasionally brought homemade treats to share with my friends.

1. **Which university and degree did you choose? What other universities did you consider, and why did you select that one?**

I chose to pursue my Bachelor’s degree in Engineering at Anna University where I specialized in Electronics and communication. When deciding on a university, I also considered institutions like SRM University and VIT for their strong engineering programs and academic reputation. Ultimately, I chose Anna University because of its focus on practical learning and its reputation for fostering innovation in engineering. The curriculum offered hands-on projects and internships that aligned with my career goals, giving me a chance to apply theoretical knowledge in real-world scenarios. Additionally, the university’s faculty and resources, particularly in the field of technology and engineering, made it the best fit for my long-term aspirations. The balance of a well-rounded education and practical experience helped me solidify my decision to study there.

1. **At university, did you do particularly well at any area of your degree?**

At university, I did particularly well in areas related to programming and automation. I excelled in subjects like data structures, algorithms, and operating systems, which deepened my understanding of how software interacts with hardware. Additionally, I had a strong grasp of networking concepts and cloud computing, which later became instrumental in my professional work.One standout area for me was scripting and automation, where I developed efficient ways to automate repetitive tasks. I enjoyed working on projects that allowed me to apply my skills in Python and other scripting languages to streamline processes, which became a core strength during my studies.

1. **Overall, what was your degree result and how did that reflect on your ability?**

I graduated with a First-Class degree achieving a CGPA of 8.3 out of 10. This reflects my strong academic performance and consistent effort throughout the course. My result highlights my problem-solving abilities, technical skills, and dedication to mastering core concepts in my field. The CGPA not only signifies my academic achievements but also underscores my ability to balance theoretical knowledge with practical application. The projects and internships I undertook during my studies further demonstrated my capability to effectively apply knowledge in real-world scenarios

1. **In high school and university, what did you achieve that was exceptional?**

In high school, I achieved an exceptional overall score of 1121/1200 and a cut-off of 93%, which was instrumental in securing admission to a top engineering program. This high performance demonstrated my strong grasp of academic subjects and prepared me well for higher education. At university, I graduated with a CGPA of 8.3 out of 10, which was a testament to my consistent academic excellence. Additionally, I was recognized for my work on a standout project where I developed an innovative automation system. This project not only showcased my technical skills but also received commendation for its practical application and problem-solving approach, highlighting my ability to excel both academically and in hands-on projects.

1. **What leadership roles did you take on during your education?**

**Context**

* **Outline your thoughts on the mission of Canonical. What is it about the company's purpose and goals which is most appealing to you? What do you see as risky or unappealing?**

Canonical's mission, centered on open-source technologies and collaboration with the Ubuntu operating system, is really positive. Their commitment to creating accessible and collaborative software is great. Encouraging community contributions adds to the positive impact. While there's room for diversification, the current focus on collaboration stands out as a strong and appealing aspect. Canonical's dedication to open-source collaboration fosters inclusivity and innovation within the tech community.

* **Who are Canonical's key competitors, and how should Canonical set about winning?**

Canonical's main competitors are Debian and Red Hat. To strengthen competitiveness, Canonical should differentiate from Debian, enhance enterprise services, and crucially, adapt to the evolving landscape by integrating AI capabilities into Ubuntu. Embracing AI aligns with the growing importance of artificial intelligence, ensuring Ubuntu remains relevant and effective in meeting the evolving needs of users and businesses.

* **Why do you most want to work for Canonical?**

Being a queer individual, joining a company that prioritizes respect and diversity is of great importance to me, and I understand that this aligns well with Canonical's values. The prospect of working at Canonical, a prominent global company, is genuinely exciting. Learning and growing within such an influential organization would be an amazing opportunity. Drawing from various skills acquired during my time in aviation, I am prepared to bring dedication and strong interpersonal skills to the team. I believe that my inclusion will contribute to a more diverse team, benefiting everyone involved. Securing this job would be a positive step for all of us

* **What would you most want to change about Canonical?**

If Canonical considers changes, I think that focusing even more on artificial intelligence could be a key strategy. Integrating AI tech, staying updated, and forming partnerships can drive innovation and growth.

* **What gets you most excited about this role?**

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