## **BT Allium Project: Telecom Infrastructure Support**

### **Project Overview:**

The BT Allium project focused on the robust support of telecom infrastructure in the UK. As a Software Engineer, my role from August 2018 to February 2021 encompassed crucial tasks to ensure the seamless operation of telecommunications applications hosted on on-premises servers.

### **Roles & Responsibilities:**

#### **Server Administration:**

**Question 1: Can you explain your responsibilities in routine server maintenance?***Response:*Routine server maintenance involved executing critical tasks such as applying patches and updates. For instance, we routinely used the yum package manager on CentOS servers to apply security patches. An example command would be sudo yum update to ensure all packages were up-to-date.

**Question 2: How did you manage and maintain databases within the project?***Response:*Database management was intricate. For MySQL databases, regular backups were executed using the mysqldump command. An example would be mysqldump -u <username> -p<password> <database\_name> > backup.sql for creating a backup.

#### **Change Management:**

**Question 3: Can you provide an example of a change management process you led or participated in?***Response:*During a security update, we needed to modify firewall rules to accommodate new requirements. Using iptables on Linux, we implemented changes such as sudo iptables -A INPUT -p tcp --dport 22 -j ACCEPT to allow SSH traffic.

#### **Health Checks and Monitoring:**

**Question 4: How did you perform health checks on servers and databases?***Response:*Health checks involved utilizing tools like Nagios for server monitoring. For instance, to check disk space, the command df -h was regularly used to display available disk space on servers.

#### **Patching:**

**Question 5: Can you describe your approach to patch management and its impact on system stability?***Response:*In patch management, we employed tools like yum for CentOS servers. Before applying patches, thorough testing was done. The command sudo yum check-update ensured a list of available updates without applying them.

#### **On-Call Support:**

**Question 6: How did you handle on-call support for critical incidents?***Response:*An example incident involved sudden high CPU usage. Using top and ps commands, I identified the culprit process and mitigated the issue by optimizing its configuration.

#### **Collaboration and Documentation:**

**Question 7: How did you contribute to knowledge sharing within the team?***Response:*Collaboration was facilitated through tools like Confluence. Documentation involved sharing scripts for routine tasks. For instance, a bash script for automated backups could be shared with the team.

#### **Continuous Improvement:**

**Question 8: Can you share an instance where you identified and implemented a process improvement?***Response:*To enhance system performance, I optimized MySQL configurations. For example, increasing the innodb\_buffer\_pool\_size significantly improved database read performance.

### **Database Administration Tasks:**

**Question 9: How did you ensure data integrity and security in database management?***Response:*Data integrity was maintained using MySQL’s CHECKSUM TABLE command for tables. For security, we regularly reviewed and revoked unnecessary database privileges.

**Question 10: Describe a scenario where you optimized database configurations for improved efficiency.***Response:*Optimizing MySQL involved tweaking the my.cnf file. For instance, setting innodb\_flush\_log\_at\_trx\_commit = 2 improved write performance by reducing disk I/O.

This technical elaboration provides specific examples and real-time commands used in the BT Allium project. It emphasizes practical aspects of server administration, change management, health checks, monitoring, patching, on-call support, collaboration, and continuous improvement. Feel free to adjust the responses based on your unique experiences and the technologies used in your environment.