P6 : Explain how the modified technology system is suitable for the intended purpose and original requirements.

The purpose of upgrading for the "recruit me "company in Manchester is to enhance the efficiency and performance of the standalone computer they currently have , which is used to produce promotional materials. Currency the system experiences slowdowns, overheating and storage limitations which decreases productivity. The intended upgrades aim to address these issues by improving processing power, heat distribution and expanding storage capacity. In addition, a graphics tablet to create professional designs. For all these upgrades, the allocated £500 pound budget will ensure smooth performance and less need to delete files.

The original requirement for the company requires an upgrade for their stand-alone computer used to produce promotional materials. The company seek improvements in processing power, heat management, storage capacity and graphics design , when also sticking to the £500 budget. When applicable, efficient file management solution to decrease the number of files that need to be removed.

The modified technology system aligns with the client's requirements, as we discussed the benefits of enhancing both the CPU and HDD components to boost computer performance. Firstly, the new CPU is designed with more cores, enabling it to handle intensive processing tasks more efficiently. This means smoother operation and quicker response times, essential for demanding applications and multitasking. Additionally, incorporating a CPU cooler ensures optimal temperature management during heavy processing loads, safeguarding against overheating and potential performance degradation.

Moreover, upgrading to a better HDD offers notable improvements in read and write speeds, significantly enhancing overall system responsiveness. With faster data access, tasks such as loading applications and transferring files are completed more swiftly, enhancing user productivity. Furthermore, the increased storage capacity reduces reliance on external drives, streamlining data management and providing greater convenience. Pairing this with regular data backups ensures data integrity and security, minimizing the risk of data loss due to hardware failures or other unforeseen circumstances.

In summary, the modifications implemented in the technology system address the client's needs by enhancing CPU performance and optimizing storage capabilities. These improvements not only result in a more efficient and responsive computing experience but also contribute to data safety and reliability.

M5 : Review the extent to which the modified technology system meets the original requirements, considering feedback from others and any constraints.

Introduction

The system that is currently I use is suffering from poor performance, as in overheating frequently and slow read and write times. Then I modified the 2 internal components, CPU and HDD, and added a more advanced cooler as well as a more up to date CPU to ensure more intensive tasks can be run. Having a bigger HDD ensures that no external storage Is needed.

The Original requirements

❖ Address the slow issues such as loading files, running applications, loading files, and using graphical manipulation software.

❖ Resolve overheating problems when multiple applications are run.

❖ Providing graphics tablets to enable the designers to create logos and manipulate images more easily.

❖ Addressing the issue of running out of storage which leads to continually freeing up the space on the hard drive.

❖ Using the 2 weeks they must perform these hardware upgrades without impacting staff and productivity.

❖ Working with the £500 budget to supply and fit the parts.

Modifications made.

1. Install a new CPU and reliable cooling fan to constantly cool the CPU while under high workload.

2. Upgrading the size of the HDD so less need to remove files.

Feedback (Uncle and my brother)

These changes increase the PC performance, while the storage has been increased, the problem of storage hasn't been addressed, only if the company had something toa archive files onto such as the cloud or server , then this upgrade would be deemed useful. Overall, these changes increase productivity within the office and leaves any space to upgrade in the future.

The constraints of this

Budgets: tight as £500 may be reasonable, a somewhat considerable budget like £700 would have been better, as having the current budget may lead to buying low quality components which may break in the long term. Along with sourcing the parts for the PC, the company would need to either **invest in a cloud solution** or **Invest in getting a server to archive files onto for the future.**

Time: the time needed to complete the upgrade, which is 2 weeks, if the time is more spent on installing, there will be less time to test and therefore when people come back to work, more issues will arise. Having more time for example 3 weeks will give time to test the components so then there will not be any problems.

Training : as new hardware may be installed , training may be required so they get used to possibly new software and may affect timeframe as there needs to be time to install , test and train people .

D4 : Evaluate the initial plan against the modified technology system and justify any changes that were made, making recommendations for further improvements.

Evaluate changes.

Installing a new CPU and cooler fan

Original requirement: The primary goal was to ensure consistent performance and mitigate overheating risks, especially during high workloads.

Evaluation: The changes, including the CPU upgrade and installation of a reliable cooling solution, directly address the project's objectives. By enhancing the system's processing power and thermal management capabilities, these modifications significantly reduce the chances of overheating incidents and ensure reliable performance under varying workloads. This aligns closely with the client's expectations, therefore demonstrating a positive approach to fulfilling their requirements and enhancing overall system stability.

Improvements: To further optimize system performance and accommodate potential future demands, having a dedicated graphics processing unit (GPU) is recommended. A GPU would not only offload intensive processing tasks from the CPU but also significantly enhance graphics rendering capabilities. This enhancement would lead to smoother visual experiences, improved productivity in tasks requiring graphical processing, and the ability to handle more sophisticated workloads effectively. By incorporating a GPU, the system would be well-equipped to meet evolving user needs and maintain a competitive edge in performance-driven environments.

Upgrading the HDD

Original requirement: The primary goal was to ensure ample storage capacity to accommodate user files without the need for frequent file deletions.

Evaluation: Increasing the hard disk drive (HDD) size addresses the client's requirement by providing users with more storage space. This upgrade minimizes the need for file deletion, thereby enhancing usability and user satisfaction. By meeting this objective, the system becomes more efficient in handling data storage demands, aligning closely with the client's needs and enhancing overall user experience.

Improvement: To achieve even greater performance gains and user satisfaction, transitioning to a solid-state drive (SSD) storage solution is recommended for future improvements. SSDs offer significantly faster read and write speeds compared to traditional HDDs, leading to enhanced system responsiveness and overall performance. This upgrade not only improves file access times but also accelerates system boot-up and application loading times, contributing to a smoother and more efficient user experience. By adopting SSD technology, the system would be better equipped to handle demanding workloads and deliver superior performance, elevating the user experience to a higher level.

Future recommendation

Data management strategy,

Implementing data management strategy to streamline file optimisation and reduce the need for manual intervention. Could include investing into a NAS (network attached storage) to store central data and backups.

Regular Maintenance

regular maintenance sessions to optimise system performance and prevent issues before they occur, could include cleaning internal components, updating software and monitoring system health

why are these good recommendations.

Data management strategies

Having a good data management strategy is important because of **efficiency**. Having a central NAS on the network means that data can be stored in a centralised space. This therefore reduces time spent searching for files across several devices. Aswell as it being central, backups can be easily automated and be done more regularly, and therefore minimizing the need for manual intervention which saves time and ensures data is all backed up without relying on manually backing data up.

Having a NAS increases **data security**. This is because a typical NAS has built in access controls as well as encryption features to protect sensitive data and unauthorised access to the data. Most NAS systems support "RAID" configs which provide redundancy (multiple pathways if something fails) therefore reducing risk of data loss due to hardware failure. NAS also comes with a secure data transfer protocols like FTP to ensure data security on data transfers.

Reliability is another crucial aspect facilitated by a NAS system. These devices can be set up to conduct regular health checks and diagnostics, enabling proactive maintenance to identify and resolve potential issues before they become a potential problem. Additionally, NAS systems are designed for high availability, often having features such as interchangeable drives and redundant power supplies to minimize downtime caused by hardware failures. Furthermore, built-in data integrity checks and error correction mechanisms ensure the continued integrity of stored data over time.

Cost wise, investing in a NAS can lead to significant savings. Storing onto a central NAS eliminates the need for multiple standalone storage devices, reducing both hardware and maintenance costs. the automation of backup processes and centralized management decrease the need for manually backups, resulting in further cost savings over time. While there may be upfront expenses associated with implementing a NAS, the long-term benefits in terms of efficiency, reliability, and security outweigh the initial investment.

Finally, **scalability** is a key advantage offered by NAS systems. These solutions allow for flexible expansion of storage capacity by adding additional drives or expanding existing ones, ensuring that the storage infrastructure can grow alongside the organization's needs. Additionally, NAS solutions are designed to integrate seamlessly with existing IT infrastructure, making it easy to scale up or down as required. By investing in a scalable NAS solution, organizations can future-proof their data management infrastructure and adapt to evolving business requirements without significant changes or investments in the future.

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Regular maintenance

Regular maintenance is essential for optimizing system performance and preventing potential issues before they disrupt operations. Tasks such as cleaning internal components and updating software contribute significantly to efficiency by ensuring systems operate at peak levels and minimizing downtime. Proactive maintenance measures save time and resources, allowing teams to focus on core tasks without interruptions.

Furthermore, regular maintenance enhances security by actively managing vulnerabilities. Through software updates and system monitoring, organizations can mitigate potential threats, reducing the risk of cyber-attacks and data breaches. This ensures the integrity of sensitive information and upholds data security standards effectively.

Reliability is another critical aspect of regular maintenance. By conducting preventive measures like cleaning internal components and performing health checks, organizations can prevent hardware failures and system malfunctions. Early detection and resolution of issues help maintain system reliability and availability, minimizing disruptions to operations.

Moreover, regular maintenance offers long-term cost savings by mitigating the need for expensive repairs or premature hardware replacements. Proactive maintenance practices help organizations avoid unexpected expenses and downtime, contributing to overall financial stability.

Finally, regular maintenance supports scalability by ensuring that systems are optimized for current needs and capable of accommodating future growth. Flexible maintenance practices can adapt to evolving business requirements, allowing organizations to adjust their infrastructure effectively. Investing in regular maintenance establishes a solid foundation for sustained success and growth.

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