MilleniAds

IT Consultation

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IT-201 Computer Platform Technologies

**Project Purpose**

Develop a computer system that requires hardware and software for an advertisement agency with 10 employees. Company is relatively “small” and has a limited budget of $25,000 and is expected to come far below the budget number.

**Business Needs: Requirements**

MilleniAds needs to have the ability to print physical copies of customized flyers brochures, letter heads, business cards, and other branded items. This will require hardware with the ability to print various sizes of custom prints for clients.

Creative directors and graphic designers require the need to create, manipulate, manage, and store digital assets. This would require a software to manage digital content and hardware to have the ability to handle high quality graphic design software.

CEO needs to be able to track the logistics and finances. Inventory, sales, and expenses. The logistics must be able to update the inventory and tunnel information to finance based on changes made in the system.

Project management must be able to handle several client accounts, but system must be able to handle additional accounts should scaling occur.

Employees must be able to share information and files among each other is a secure manner.

Employees prefer the ability to be mobile and move workspaces using tablets, phones, and mobile devices for their responsibilities.

MilleniAds needs the ability to support remote work for at least 2 employees to will be traveling and must have access to MilleniAds network.

**Business Needs: Hardware**

* Computers for 10 employees
  + Desktop computers for creative directors, graphic designers to be able to handle high demanding software with high performance hardware.
  + Laptop computers for the rest team members to be able to work from home and move around the office and enter meeting to with information on hand. Further the remote team members must be able to connect to the internal network via remote software.
  + General Specifications:
    - 500GB Hard drive
    - Dedicated RAM
    - i5 or i7, Ryzen 5 or Ryzen 7 CPU
    - Graphics Card (For design department)
    - Monitors (Power Cable)
    - Laptop Docks
    - Cables (HDMI, VGA, LAN, Power)
    - Mouse & Keyboard
* Printing device
  + Printer must be able to handle a large amount a volume, a spectrum of variety, and be able to output at a velocity to meet deadlines of clients.
* Graphics Card and Higher-Level Chipset
  + As creatives need to work in high demanding graphic design software that could render in high resolution images the hardware would need to be able to handle the application on the machines implemented for graphic design.
* Graphic design touch pad/tablet
  + Graphic designed can use a digital touchpad and digital pen to design software not limiting them to a mouse and keyboard.

**Business Needs: Software**

* Graphic Design software
  + Graphic design for the creative directors and graphic designers to develop and manipulate graphic software
* Digital Asset Management Software
  + Designers must be able to put assets in a manageable system to help organize projects and be able to find client work quickly and efficiently.
* Inventory Management & Finance Suite
  + Inventory data and financial information can be combined in a single suite/application to track inventory of physical supplies, their cost and sales data from clients.
* Project Management Software
  + Project managers and the CEO need to track progress and stay on top of client and internal projects
* Remote network connection software
  + For the traveling sales reps they will need to access and enter company and client information into MilleniAds and communicate with internal employees.
* Security Software
  + Prevent outside access into MilleniAds and prevent the leak of any proprietary information.

**Business Needs: Other**

* Collaborative work space
  + All employees will work in an inviting, creative, and collaborative environment to share ideas.
  + To keep cost low employees may share a large desk.

# Hardware Components

An aspect of MilleniAds operations surrounds delivering customized sales flyers, brochures, and other branded items. As the advertisement and marketing industry become increasingly digital, it is important that MilleniAds had the hardware to be able to compete in today’s demanding world but also to be able to advertise in new frontiers like video editing, virtual reality graphics, and augmented reality. A high-end graphics card will be necessary to handle these three environments should be enough to scale to new areas of business should MilleniAds grow their services. The amount of graphics cards they will need total to one for each person in the creative department. This includes the creative directors and graphic designers.

* High-End Graphics Cards for each Graphic Designer and Creative Director
  + Photo editing
  + Video editing
  + 3D Graphics rendering capable
    - **Compared to a lower end graphics:** Lower end cards for graphic ranging from lower end to integrated graphics cards will overwork the hardware on the motherboard and software application will not be able to run properly.
* Higher End CPUs for each Graphic Designer and Creative Director
  + Consider implementing AMD processors as they are known for handling graphic heavy applications better
  + 64-bit processor
    - **Compared to lower end CPUs:** Higher end CPUs can perfoem more calculations than a lower end CPU. CPU are usually marketed in Tiers of 3. Such as an i3, i5 or i7. Using the lowest ties CPUs will cause application to fail or run extremely slowly.
* CPU Cooler
  + Standard out of the box CPU cooler to handle system configuration.
  + **Compared to aftermarket coolers:** Standard coolers can perform well enough to protect the CPU. Aftermarket coolers, such as liquid coolers, can run a high price for better cooling but will not affect the performance of application noticeably.
* RAM
  + Start with one 2x8GB memory and increase slots as demand on the system increases.
    - **Compared to 4x16 or 2x4:** 2x16 or 4x16 can run a high cost for faster reading and writing of application data. Although when the company considers taking on graphic heavy projects they may consider switching to higher capacity RAM. Lower tier ram, 2x4 will run the application but the speed at which the software runs will be hindered.
* Storage
  + Creatives will need large disk sizes to handle the high-resolution graphics that tend to have large storage sizes. Begin with 1TB Hard drives and increase as needed.
    - **Compared to SSD:** SSDs can run at very high prices. The ability to read and write memory quickly may not be work the cost as you can typically carry more GB/Dollars with a HardDrive.
* Power Supply
  + Gold Rated for Graphic Designers and Creative Directors to higher demanding systems.
* Enterprise Business Printer
  + Handle up to 11+ users (All current and future employees)
  + Capable of printing high volume of pages per minute, less defects, and high life expectancy.
  + Print high resolution images
  + Print images of various sizes
    - **Compared to a home based printer**: The business enterprise printer can handle large amounts of prints and store largest amount of ink.

Employees have stated that their current desktop computers are limiting in the capabilities and prefer using phone and other mobile devices for work. Two of the ten employees will be working out of the office and travelling to other areas to doing business off site. Employees want to be able to move around the office and collaborate and bring information with them to meetings, to collaborative work spaces, and home. Laptops will also aid in the two employees working regionally. Sales staff, accountant and entrepreneur will not need high end desktop computers and can operate with a laptop and potentially a second monitor to increase information visibility.

* Mobile Computers: Laptops
  + Handle standard application
  + Move around the office and travel
  + Cost are relatively low for laptop computers compared to desktops
* Mid-level CPU:
  + Capable of running desktop and web application to support business operations.
  + Less expensive than top tier CPUs that will not be utilized.
* Storage:
  + Information will be shared between employees so beginning with a 1TB Hard Drive to be able to handle high memory consuming information and media.
* Additional monitors:
  + Improve the visibility of information on screens with multiple open windows.
  + Compared to using one screen this will increase productivity and less searching for information through multiple windows and applications.
* Mouse:
  + Mouse to be more productive and accurate with being limited to the track pad.
* Dock for laptop:
  + Improve the ability to adapt to modular accessories and available cords on the market.

**Software Requirements**

**Graphic Design**

Based on discussing needs and high-level operations with the entrepreneur is seems like the entrepreneur will need to acquire graphic design software. This graphic design software will support the creative director and graphic designers in producing work for clients. The software will need to be available for windows operating system. Further the software will require a personal to small enterprise license, depending on the software licensing definition of what is considered personal or enterprise level for the number of users or access keys given. For graphic design software, I need to consider the growth of MilleniAds and possible expansion of their services. MilleniAds can begin with graphic design software apart of a larger suite of applications.

Krita and Gimp and free to use graphic design software but you get what you pay for and graphic designers should be trained in higher end software that produces higher quality products. Advertising that the software programs your company uses is opensource and free may not be the best thing to tell clients. Using a software that will provide a greater quite of tools will be best when automating certain task and being able to produce high quality works.

**Digital Asset Management**

Digital asset management of several creative assets can either be done through a asset management software of a file management system using the computers operating system software. Issues with using an off the shelf asset management tool is the expense of utilizing such a to store creative assets on the cloud which can become costly. Using a file system network of shared drives can reduce the cost of having to purchase space on an external cloud network.

Digital assets can ultimately be managed in a file system on a shared drive and also backed up using a RAID system for disk. Using external software or services for storage will be helpful once the amount of work produced out paces that amount of space available to be saved on physical drives.

Compared to utilizing cloud services

Using cloud services can become extremely costly. Also, some cloud services are unreliable and can delete data that has been held on the account for an extended period of time.

**Project Management**

As clients begin receiving services from MilleniAds there must be a way to neatly organize and track progress and projects. Utilizing project management software, employees can create, update, and track the progress of projects, documenting the clients progress through MilleniAds services. A potential feature for employees within the project management environment is to have a channel for communication within the application to discuss certain topics within a project.

There are plenty of free project management tools to keep track of progress and keep clients informed of the process. Investing in a project management tool will only increase the budget and not having a project management tool will not hinder business operations and servicing clients.

Compared to paid project management software you can get as much done on many open source and free project management tools such as Trello or keep track via Excel templates.

Remote Employees

Employees traveling to other regions for business will require access to company information with the ability to read and write updates to files. Selecting a secure and affordable remote desktop software license will support these employees’ operations. For the sake of staying within budget I would suggest an open source remote desktop technology that will require authentication for the user to access MilleniAds network.

Remote desktop software can be quite expensive when its tied to a security suite. Windows provides free software to create remote desktop solutions for the employees that will be working out of office.

**Sales, Financial Reporting, Payroll**

MilleniAds will need a way to track income and expenses. Reporting sales, billing clients, tracking expenses on inventory, and payroll for employees are the most important for operations. Per the entrepreneur’s request, they do not expect complex record for the first years. I believe Microsoft Excel of utilizing Google Drive will suffice in the management of inventory, and financial reposting. There are small applications that run alongside Google Drive that can be integrated into the data, so the user can develop comprehensive reports.

Financial information can be inserted in organized spreadsheets that are supported by web applications to develop comprehensive reports. Reporting suites can run extremely high in price and will not be a necessary investment as they begin on their start up journey. In the beginning year there will not be much use for analytics.

At beginning, MilleniAds is advised to used financial reporting in Microsoft Excel. Excel is a power financial tool that can be used to create financial reports. Other financial tools can encompass all the financial information in a business like track sales, expenses, and employee wages. Since MilleniAds is just starting out this will not be necessary until the company begins to grow and needs to automate their financial records.

**Email & Messaging Services**

MilleniAds will need to interact with internal and external clients. To be able to do this there are email services that provide domain names appended to emails to develop a professional brand experience. Further, emails can come with scheduling software to schedule meetings with others in the workplace and a quick messaging feature to instead of sending emails back and forth, topic can be discussed with greater speeds with messaging.

Free email services can be used but you will not be able to appear professional. It will be professional to communicate with other employees and clients through a professional domain name appended to the back-end of the employees’ email. Domain name services can provide this service for an affordable price.

**Domain and Webpage**

Having a website where all your information lives will allow clients to find information about your products and services. A free blog page like blogger will not suffice in gathering clients. A webpage is nearly required to run a successful business. Especially with clients to do not operate in your geographical area. All in one solutions are available on the web where you can purchase a domain name and webpage as a package or separately. To simplify the process, you can grab the package but if you would like to separate your accounts because of certain deals being offers you can always connect your domain name to your webpage later on.

**Software Recommendations**

* Domain and Webpage
  + Grabbing a domain name and webpage package at google and creating a website on Shopify is the straightest path to market. Shopify has a full store of applications you can purchase to support your business as needed.
* Gmail and Services
  + Gmail provides email services to message clients and use online web application to collaborate and work on the same documents at the same time.
  + Use the hangouts messaging service to send quick instant messages or set up a video chat.
* Financial Reporting with Google Sheets
  + Google sheets web based spreadsheet software that can be connected to your Gmail account and can be collaborative as many people can work in the same documents at once.
  + Google has the capability to connect to external application to increase productivity and get financial reporting capabilities. With a few configurations you can develop formulas and visual reports in sheets to consolidate useful information
* Remote Desktop software
  + Google Drive will be able to suffice for gathering more information ask clients are on soliciting business in other areas but if this is not enough windows provides a desktop application that is free to be able to control a computer from a distance.
* Graphic Design Software
  + As graphic designers have been trained on mid to high level software it would be important to select a software they would be familiar with and will produce the best results. Adobe photoshop is a well-known graphic design software that will be able produce amazing results for clients with a large available suite of tools.

Networking Requirements

Business Network Needs

An issue in the domain of networking in MilleniAds organization is concerning the protection of data and information from external and internal entities. The financial department will oversee information that other employees and people on the network should not have access to, except the sales team. The sales team should be able to read the financial data and be able to write to some but not all the financial documents. Only sales data that pertains the sales team. This includes reading or writing data. Another similar is with creative and graphic assets. Other employees who want to see the graphics should be able to access and read the file but the employees other than the creative director and graphics artist should not be able to write files to those projects. The entrepreneur should be able to access all files in all departments to be able to better make decisions on the direction of MilleniAds. The entrepreneur however should not be able to write data on graphic files since the entrepreneur’s job is not to develop graphics.

Network Architecture

A peer-to-peer network should be implemented since the client-server network can run a high cost. With a new business venture, it would be easier to implement a peer-to-peer network and share resources and permissions to those resources. Offices typically have LAN connections as well as WAN connection options. Having both LAN and WAN will help employees access the internet while moving around the office and collaborating with other employees. The office should have already cable line running in the walls so connecting a modem for internet access should be simple. Satellite connections will not be necessary and cellular connection will be provided by each employees’ individual plan. No phoneline will be provided to employees. Utilizing a HomeGroup rather than sharing files over a file sharing application such as Google Drive or Dropbox will keep file protected within the intranet of MilleniAds. Within the HomeGroup, read/write permissions will be set as stated above for each user in the HomeGroup. Each user will require a username and password to log onto the system. This will protect he users’ data from non-employees trying to access their user accounts without permission. The employees travelling to other regions will have to access the peer-to-peer network via the remote desktop service. The windows remote desktop service will require a host machine and a client machine. To avoid having to purchase two computers, it might be more cost effective to purchase licensed remote network connection via a virtual private network to access the drives on the peer-to-peer network. The windows remote desktop connection will be suitable for technical support and troubleshooting any problems users may have.

**Maintenance and Security**

As MilleniAds creates and maintain documents. Information on those documents should only be allowed to be written on those who can edit documents and read only by those authorized to obtain such information. Though there will be exceptions when people of other departments are collaborating with information. To protect documents while making it easier to share with others in the department to be able to write data to a file, “owners” of a file and create passwords on Microsoft Office documents. This can keep others without the password from writing data or accessing the file to maintain the information.

Files and directories should be kept in a neat and logical order of hierarchy. Naming conventions of files are recommended to include underscores instead of spaces between words. This will help IT make changes to file permission by knowing where they are located in the directory. If naming conventions were not normalized then people would used random naming conventions and file paths would not be easily shareable.

Data must be backed up on a continuous basis. Most importantly financial data which is used to report historical data and hold current information on the state of the company. Financial data must be maintained daily as financial information changes and is the most difficult to replace. Financial information should be backed up every 4 hours to prevent the loss of data and this backup should be automatically scheduled.

Data will be stored on and shared in a work group so other employees within that work group can get information and write information. Certain computers will be designated business unit computers and will be responsible for holding information. The permission for backing up this information will be given to the IT manager. Strengths if this setup will allow the sharing of drives and prevent computers from needing excessive amounts of storage on their devices and instead certain computers will hold most of the data. The weakness of this is if the computer is lost then all the data on that computer will be lost. This can be prevented by backing up the data to computers on the same network but are on a separate hard disk.

Network security should be check throughout that day in changing intervals. As the company grows, it acquires proprietary information that could be parsed and made public or an attacker and deploy ransomware on the business and hold their information hostage until the hacker is paid.

**Future Considerations**

In the future it would be ideal to designate a few employees to obtain a certain level of IT skills to make managing the technology much easier. When adding a new branch this person can make sound recommendations in scaling a network and helping a remote employee get online to their base computer. When considering further consideration of handling financial data, it would be helpful to move all the financial information to an automated financial system that does payroll and collect sales data and produces reports. This would save take and reduce the amount of work required. Software licenses will need to be negotiated for paid software which as Microsoft Office products while free open source software will be useful in small scale project but in the future could potentially be more productive to utilize the premium software features found on those applications. Further considerations would be to increase the network security of MilleniAds. Cybercrimes are on the rise and customer financial information can be sold on the black market. MilleniAds should try their best to protect the information of their employees and customers. Instead of using basic computer security, I suggest MilleniAds invest in business level security system. Not only software security but external security such as cameras.