CORPORATE &TRAINING PROPOSAL

WELLS FAMILY FITNESS

PREPARED BY:

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TABLE OF CONTENTS

I. RECOMMENDED SERVER AND WORKSTATION REQUIREMENTS

Server Requirements/Infrastructure

1. Windows will be utilized throughout the company; Windows Server 2016 will be heavily relied upon for file and print services and Active Directory.
2. Secondary storage snapshots will be taken routinely and when vital changes are made within the VM and/or server, so the state can be saved and referred back to when necessary.
3. Rather than at a router/switch level, Wells Family Fitness will have a centralized DHCP server to best suit its current size and future growth. Having a centralized DHCP server will allow support for IPv4 and IPv6 while using the same management interface. In addition, using servers will provide logging and interfaces so that administrators will be able to manage IP address scopes and know what is happening on the network. DHCP servers also provide redundancy and availability which is a must with a growing and nationally spread corporate network.

Workstation Requirements/Infrastructure

1. PC workstations will be used for the following but not limited processes that are only related to Wells Family Fitness: membership registration/log-in, scheduling, local finances, employee data, health wellness screenings etc.
2. Wells Family Fitness will utilize virtualization in a variety of ways for the sake of efficiency. It is recommended that the corporation should utilize linked clones and instant clones in selected offices. Linked clones are great for employees within the same department that need access to the same virtual resources, applications, and setups. And the IT department can utilize this method when testing out the software and new applications they hope to branch to other locations. Instant clones are a great method for virtual desktop infrastructures, which are virtual machines that provide and manage desktops.

I. RECOMMENDED SERVER AND WORKSTATION REQUIREMENTS

Workstation Recommendation cont.

Considering the benefits of these types of clones, I would recommend that the corporation utilize instant clones for VDI desktops in fitness centers and warehouses. This way administrators/IT can implement new patches or changes and the departments will not have to wait for the deployment of changes or have the changes interfere with their work.

3. Memory management will be executed through the virtualization of memory access by VMWare using a shadow page table as a reference between guess operating system virtual memory pages and the physical machine.

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II. STORAGE OPTIONS AND RECOMMENDATIONS

Storage Options

There are three main data storage options, direct-attached storage, network-attached storage, and cloud (online) storage.

- Direct-attached storage is physically connected to the computer and is only accessible to a single machine. Often used as local backups abut are not useful for the amount of data accumulated by medium to large corporations that need to be transferred (Hard Drive, CD Drive, Flash Drive).
- Network-attached storage is great for multiple machines to share storage via network via multiple hard drives in RAID configuration and centralizes data, has redundancy.
- Cloud/online storage offers virtual storage which is convenient to access data and material from anywhere without the restriction of specific computers or hard disks. But cloud storage security plans must be thoroughly planned out prior to implementation(What Is Data Storage?, n.d.).

Storage Recommendations

With Wells Family Fitness' current goals and topology state, I recommend hybrid cloud storage, NAS devices, or investing in secure cloud storage. The wellness facilities can have hybrid cloud storage since there is some small data storage that can remain localized but a majority of the data that the company will be handling needs to be able to transfer to corporate offices, and fellow locations, and accessible to the app.

Choosing one of these storage options will aid in expansion due to its ease of scalability and the company can easily implement new fault tolerance procedures. For instance, if the company decides to go with the NAS device route. There are various protocols that can be implemented in the Wide Area Networks for corporate offices, warehouses, and fitness centers/buildings. These storage services will allow for a strong, foundational infrastructure such as subnets, load balancing, link aggregation and more.

III. SERVER ROLES

File and Print Services

- Through the Windows Server 2016, data storage and printing information off of the network (securely) will be easier and more beneficial for each location of Wells Family Fitness.
- Each service within the Wells Family Fitness facility will require a PC that can have access to file and printer services for important data required to complete their tasks.

Domain Services

Windows Server 2016 has built-in domain services such as an Active Directory which will help the organization of files within PCs. A key feature that will be implemented from Windows is the Internet Information Services (IIS) support for Multitenant and the cluster aware update. IIS support will decrease the number of servers for the organization and encourage the hybrid topology.

Key features of the Active Directory Domain Service include the following:

- provide detailed information about users/objects in the network and ease of administration by appropriate parties
- Lightweight Directory Access Protocol is a standard Internet directory protocol that is used to update and query data within the directory
- TCP/IP compatibility
- Domain Name System support- DNS are created to translate simplified names into IP addresses for the computer and the AD DS supports and requires DNS to function properly
- Security Support- Internet standards-based security support is vital to a functioning environment; Windows Server 2016 and AD DS have IPsec, certificate authorities, SSL Encryption, and Kerberos built-in.

IV. DIRECTORY SERVICES ANALYSIS AND RECOMMENDATION

Directory Services Analysis

Windows Server 16 offers great directory services that allow for both technically-experienced or non-tech experienced users to navigate its features efficiently and with ease. The Active Directory stores information about different objects on the network in an organized (hierarchical) structure and allows for administrators and fellow users to easily find and use the given objects. Objects that are stored within the AD DS includes user accounts, deleted objects, program data, system data etc. It also includes a schema (rules) that defines classes of objects, the ability to query and index, and replication services. Windows operating system has AD DS built-in in contrast to other operating systems such as Linux.

Through the Server Manager, you will also be able to enable and manage Network Connections, DNS connections and more.

It is recommended that all administrative and IT support personnel within Wells Family Fitness become familiar with the different capabilities, procedures, and layouts provided within Windows AD DS and that the corporation relies upon this platform.

V.WINDOWS AND LINUX INTEGRATION ANALYSIS AND RECOMMENDATIONS

Analysis

Windows provides ease of access and user interface for non-technical users while providing Active Directory, whereas those who may have to interact/use Linux operating systems on servers or specific workstations do not have AD built-in. Azure Cloud Active Directory is a great platform example because it allows users on both managed and non-managed devices to have access to the required applications and files for their jobs through a single sign-on portal(2020, Soseman). Even though Azure is primarily associated with Windows devices, administrators can set up an Azure AD DS and then connect it to vNet on the Linux workstation so it can be included and secured through the platform as well (Secure Your Linux With Azure AD, 2022).

Recommendations

Wells Family Fitness has many different locations and many different facilities that require security, easy file transfer/sharing, and ease of management of users/permissions. Since the corporation will implement a hybrid network topology along with a hybrid- server topology for data, using the Azure Cloud AD platform would be a great fit for all facilities, in general.

For example, WFF retail store will require Azure AD to delegate permissions for the supervisors and store manager on duty in order to track transactions, finances, and inventory, and limit the access for sales associates.

By using Azure AD, Administrators/IT can easily delegate groups of users/employees specific permissions and applications securely and allow for easy employee SSO (single sign-on). This can also be used to back up files that are stored locally within a department. For files or user management processes that are specific to the department, I recommend that Wells Family Fitness implement the usage of Server Message Block in order to transfer files locally.

VI.USER AND GROUP MANAGEMENT RECOMMENDATIONS AND PERMISSIONS

Recommendations

- Ensure that the administrators have a thorough understanding of how to establish permissions on future files and how to update permissions or user/group access. By properly training the appropriate faculty on the essentials of AD, there is a reduced risk
- Secure data by establishing a physical security protocol for physical infrastructure. Only allow appropriate staff to access specific computers, servers, systems, or resources that fit within their given permission.

Permissions

- Windows file system assigns permission to every file for any number of users/groups/”everyone”.
- If a user is part of multiple user groups they will inherit the file permissions levels of the group with the most access.
- GPO, also known as group policy, is exclusively available for Microsoft® Active Directory® (AD) platform that only works for Windows® based systems.
- A file and print service server would have ingress/egress filtering set up to determine which users or groups are allowed access to different files, applications, setting capabilities, or workstations.

VII.AUTOMATION AND ROLLOUT RECOMMENDATIONS AND LOGIN SCRIPTS AND DRIVE MAPS

Automation

Most automation capabilities are available through the Linux operating system. It is very easy to set up an automated process for creating user accounts with passwords through shell scripting; automation can be set up so that the command line doesn't need to be used by administrators. The simplified steps to set up the automated user account creation includes:

1. Create checks for pre-existing users
2. Use the *useradd -m* command to create a new user and a home directory for the user
3. Create a feedback and exit code to ensure the user that their account was made

Linux also has various tasks that can be automated, from configuration management to inventory, patches, or process management.

Login Scripts

In Linux there are scripts for both user logins and the system, in fact, there are different types of script locations that allow for the different scripts to be executed for different purposes. The four login script locations include: /etc/profile (processes when logging into the system after a boot, ~/.bash_profile (processes when logging in after a boot completes), ~/.bashrc (processes after each login by a specific user and is found in the HOME folder of said user), /etc/bashrc (processes after ea login by all users). The /etc folder is full of scripts that can be executed by all users whereas the HOME folder is for specific scripts that pertain to each user. When a user logs into a system, there are scripts executed in the background that can be manipulated for other programs to run, services to stop/start, etc.

VIII.GROUP POLICY, COMPUTER USAGE, AND RESTRICTION POLICIES

Group Policy

Windows has developed and engineered its OS and AD to specifically allow IT, administrators, to implement security policy settings as well as corporate policy. Within the Windows 10 workstation, GPO Console offers *Windows Hello for Business,* a tool that aids in Business Group Policy. Windows Server has various policies that can be implemented via group policy such as password character minimum limits.

Wells Family Fitness will require all employees to sign in to clock in/out of shifts as well as in order to perform certain procedures. By enforcing both password age limit and password character minimum policies, employees' credentials and accounts will be less likely to be compromised via password guessing/stealing. Whether an employee is logging into a register or is working in the HR department; having a secure password that changes routinely is key. In addition, customers will be required to have the same policies when logging into their membership and newly developed app.

Computer Usage

1. While Wells Family Fitness's network administration strives to provide a reasonable level of privacy, all users should be aware that the data they create on the company systems remains the property of Wells Family Fitness.
2. Employees are responsible for exercising good judgment regarding the reasonableness of personal use. Individual departments are responsible for creating and implementing guidelines regarding personal use of internet systems. In instances of absent policies regarding certain circumstances employees should consult their supervisor or management.

VIII.GROUP POLICY, COMPUTER USAGE, AND RESTRICTION POLICIES

Computer Usage cont.

3.You are solely responsible for any actions taken from your device that cause damages or affect other devices or users of the Service.

4.You agree not to run programs, services, systems, processes, or servers, whether by yourself or in connection with other users that could degrade network or system performance or accessibility of the services

5.You will use the Service only as permitted by applicable local, state and federal laws.

6.In relevant departments, including but not limited to Healthcare and Training, you agree not to use the Service to :

7. access, transmit or store material that is pornographic, obscene, libelous or defamatory, or which holds anyone in a false light, invades any right of privacy, or violates a right of publicity.

a. access web sites that exploit the images of children under 18 years of age.

b. access web sites that contain material that defames, abuses, or threatens others.

c.to access another person's computer, computer account, files, or data without permission.

VIII.GROUP POLICY, COMPUTER USAGE, AND RESTRICTION POLICIES

Restriction Policies

The following activities are, in general, prohibited. Under no circumstances is an employee of Wells Family Fitness authorized to engage in any activity that is illegal under local, state, federal or international law utilizing Wells Family Fitness-owned resources. The policy serves as a framework for activities that fall under unacceptable use:

- Unauthorized access, copying or dissemination of classified/sensitive information.
- Installation of any copyrighted software for which Wells Family Fitness or end user doesn't have an active license is strictly prohibited.
- Providing information about list of Wells Family Fitness employees to parties outside Wells Family Fitness.

Violations of this policy express contradiction to Wells Family Fitness's beliefs and efforts to implement a community of safety, trust and integrity. Every computer user has a personal responsibility to uphold this standard or contact a relevant department for more information. Any violation of this policy and may result in the following: network removal, access revocations, corrective and disciplinary actions, civil or criminal prosecutions, and termination of employment.

IX. SECURITY GUIDELINES

Overview

Wells Family Fitness strives to uphold values that align with the Christian worldview in every aspect of the company as well as provide employees, customers, and Wells Family Fitness a safe space. In providing these guidelines, employees will be fully informed on the various contributions and responsibilities that play a role in the safety of Wells Family Fitness on a technological level.

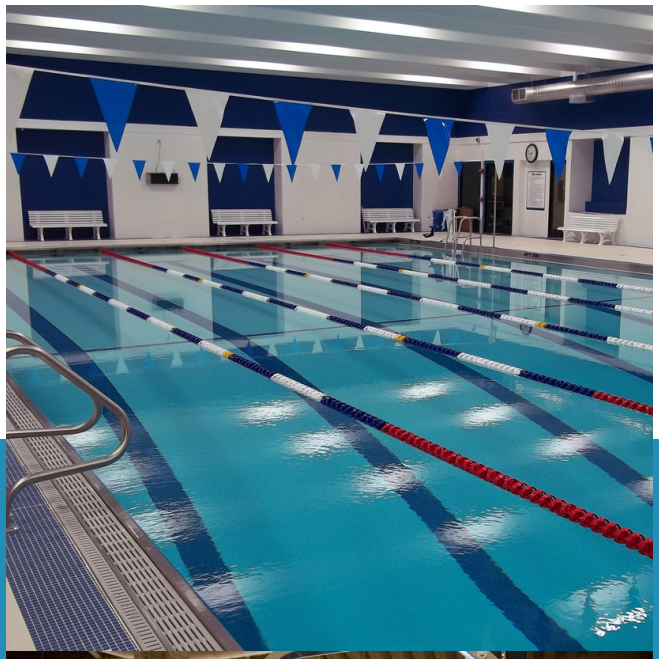
Guidelines

- Patches are software and OS updates that focus on fixing security vulnerabilities within a program. Administrators will routinely install updates as soon as possible to best protect the technological products and software of Wells Family Fitness.
- Administrators must ensure that all technology systems have updated patches installed.
- It is your responsibility to ensure that your programs' updates are installed and if they are not, contact your administrator.
- To help in monitoring and providing records-administrators will preset audits for logon/off activity, account management, policy changes, system events, Active Directory Service Access
- Passwords are set up to expire every 120 days, be sure to recreate a new password each time for the safety of your account, and ultimately Wells Family Fitness.
- Avoid sharing credentials for WiFi, desktop logons, dashboard logons, etc.
- Handle all physical systems with care, damaging any physical components can jeopardize any level of security within a system.
- Be aware of the simple ways to prevent malware from entering desktops and laptops such as but not limited to: not downloading free software, email attachments, pop-ups that is not established as secure or relevant by Wells Family Fitness

THANK YOU

WE LOOK FORWARD TO WORKING

WITH YOU



WELL FAMILY FITNESS

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