

Bid Proposal — Individual Portion

Computer Science, MOT Charter High School

Cynthia Wang

May 22, 2020

Bid Proposal — Individual Portion

Assigned Problems to Solve

I was in charge of ensuring the solutions to the following problems:

- Equipment is disappearing
- No building or computer room security.
- Passwords compromised

To solve these problems, I focused on plans for building security, computer and server room security, and password policy.

Proposed Solutions

Building Security

A mantrap should be installed at the entrance of the building to prevent non-employees from tailgating employees to enter the building. Employees should be authenticated to enter the building using a biometric system. Iris biometric is recommended due to its low false rejection and false acceptance rates (Whitman, 2002). Additionally, security cameras should be placed inside and outside the building so that the entire perimeter of the building and every spot in the building can be seen from the cameras. The recording history of the security cameras should be saved and encrypted. Security camera footage can only be accessed by administration and IT. Doors and windows should be equipped with alarms that sound when they are forced open or broken (Ipsen, 2018).

Server and Computer Room Protection

Walls and doors should be fireproof to protect the servers. Security is also very important, so the doors should include high-tech electromechanical locks that can only be opened

by few authorized people. Iris biometrics should be used to enter the room, and only necessary individuals should be allowed to enter the room. The biometrics should also be used to log the history of server room access. The door should automatically close, and it should also include a strike plate alarm that goes off if the door is held open for too long (Ipsen, 2018).

Fire detecting systems such as an air-aspirating detector system can be used to determine if there is a fire. Gas fire suppression systems can be useful, since they help reduce oxygen levels or use a cooling system to help prevent fires. Good ventilation and air conditioning is important because servers need to be kept from overheating. The humidity must also be kept low. Power must be sufficient but not too high, and electricity must be properly grounded (“[Checklist] Establishing Server Room Security,” n.d.). The use of a UPS is recommended to protect servers in case an unexpected disruption of power occurs (Bone, 2017).

Servers should be in locked rack cages, and their USB ports should be disabled to prevent damage or theft from internal employees. The servers should also be air-gapped to prevent remote access from unauthorized users (Ipsen, 2018).

Password Policy

The following password policy should be implemented to increase password security. The password characters and minimum password length requirements cause employees to create strong passwords that are less vulnerable. A maximum password age is set so that employees must change their passwords after 3 months, which protects the integrity of company data if an old password were known by an outside person. The minimum password age is set to prevent employees from changing their password multiple times in a row to use an old password. A 5-password password history prevents employees from using an old password (up to 5 passwords

ago). 2-factor authentication requires the employee to enter his/her password along with a one-time code sent to a personal device to further confirm the employee's identity. Finally, each employee should also be trained to keep his/her password secure and recognize phishing scams (Narisi, 2013).

Default password	A default password is set for new employees and interns, and it must be changed within 12 hours.
Minimum password length	8 characters
Password characters	Combination of upper- and lower-case characters, numbers, and special characters
Minimum password age	2 weeks
Maximum password age	3 months
Password history	5 passwords
2 factor authentication	Required
Employee training	Employees should be trained to create strong and unique passwords. Passwords can never be shared to any other person and the same password cannot be used on different accounts or personal accounts. Training to prevent giving sensitive information like passwords to phishing scams. Do not write passwords down or use password managers to store passwords without IT's approval.

Budget Plan

Security Solution	Estimated Purchase Cost of Software/Hardware
Mantrap	\$50,000 (Barnes, 2018)
Iris biometrics	\$400 (“Biometric Iris Capture Cameras and Iris Scanners,” n.d.)
UPS	\$3,000 (“Small Server Room UPS,” n.d.)
Security Cameras	\$3,000 (“GW Security,” n.d.)
Intruder alarms	\$5,0000 (Kinn & Timm, 2002).
Fire detection system	\$3,000 (“VLC-600 VESDA,” n.d.)
Fire suppression system	\$4,000 (“Superior Hoods,” 2020)
Fireproof door	\$1,000 (“Commercial Steel Door,” 2020)
Electromechanical locks with strike plate alarm	\$400 (“Schlage M490,” 2020)
Ventilation and air conditioning system	\$4,000 (“LG - 36k BTU Cooling + Heating,” n.d.)
Rack cages for servers	\$800 x 5 (“Server Cabinet Enclosures,” n.d.)
Air-gapping servers	variable
Employee training for password security	none

References

Ipsen, A. (2018, June 27). Why You Should Secure Your Server Room, and How. Retrieved from

<https://www.backupassist.com/blog/why-you-should-secure-your-server-room-and-how>

Narisi, S. (2013, November 6). Password Policy Template. Retrieved from

<http://www.itmanagerdaily.com/password-policy-template/>

Barnes, D. (2018, August 3). How Much Does A Safety Entrance® Cost? Retrieved from

<https://isotecsecurity.com/how-much-do-custom-safety-entrance-systems-cost/>

Biometric Iris Capture Cameras and Iris Scanners. (n.d.). Retrieved from

<https://www.fulcrumbiometrics.com/Iris-Cameras-s/36.htm>

Bone, J. (2017, September 15). 6 Important factors to consider when buying a UPS.

Retrieved from <https://www.icstech.com.au/6-important-factors-consider-buying-ups/>

[Checklist] Establishing Server Room Security. (n.d.). Retrieved from

<https://www.getkisi.com/guides/server-room-security>

Commercial Steel Door and Frame, 3'-0" x 7'-0", 3 Hour Fire Rated, Gray Flush 18 Gauge

Hollow Metal Door with 5-3/4" Jamb Depth 16 Gauge Masonry Knock Down Frame

with Mortise Lock Package. (n.d.) Retrieved from

https://www.autodoorandhardware.com/ProductDetails.asp?ProductCode=DKS-1840-M3070-534-LHR-L&click=2&gclid=CjwKCAjw5Ij2BRBdEiwA0Frc9d4RBXUGZl-IVxz8bcFn-xJooubahoYesBeEV9PKH-BI7H3CCMXFFRoCw8UQAvD_BwE

GW Security. (n.d.). Retrieved from

https://www.gwsecurityusa.com/product/gw-security-32-channel-5mp-h-265-poe-ip-security-camera-system-32ch-4k-nvr-24-x-5mp-ip-bullet-security-cameras-video-surveillance-system-for-24-7-recording/?gclid=CjwKCAjw5Ij2BRBdEiwA0Frc9TAPlc2NGCc_fUEfMyKnuT1sRDkPqMyCQClSbk6zwx9Pa4wJtbdPHxoCQQwQAvD_BwE

Kinn, D. & Timm, K. (2002, July 18). Justifying the Expense of IDS, Part One: An Overview of ROIs for IDS. Retrieved from

<https://community.broadcom.com/symantecenterprise/communities/community-home/librarydocuments/viewdocument?DocumentKey=e40e39e8-2849-4da7-b11e-62aa8305597b&CommunityKey=1ecf5f55-9545-44d6-b0f4-4e4a7f5f5e68&tab=librarydocuments>

LG - 36k BTU Cooling + Heating - High-Static Concealed Duct Air Conditioning System - 19.0 SEER. (n.d.). Retrieved from

https://www.ecomfort.com/LG-LH368HV/p99299.html?gclid=CjwKCAjw5Ij2BRBdEiwA0Frc9ZRuCRNke4YrSKXml8StFmT9uN72hMqVffCLEt0GRagjt6qgNE5K5hoCwTMQAvD_BwE

Schlage M490. (2020). Retrieved from

https://www.qualifiedhardware.com/brands/schlage/m490.htm?vfsku=3843&vfsku=3843&gpla=pla&gclid=CjwKCAjw5Ij2BRBdEiwA0Frc9TdP3WMKD6QhpfdnwnYaDwAkvrWHiUvkXmcmhgWmBr_WP2iaZe-LCBoC0UoQAvD_BwE

Server Cabinet Enclosures. (n.d.). Retrieved from

https://www.racksolutions.com/rack-mount-enclosure.html?gclid=CjwKCAjw5Ij2BRBdEiwA0Frc9VJaPQaV37lkif00hDPiaMRPn3soMct5J-mmVOJJIY6siYxRkasERoCq6IQAvD_BwE

Small Server Room UPS. (n.d.). Retrieved from

<https://www.dell.com/en-us/work/shop/small-server-room-ups/ar/6262>

Superior Hoods FIRESUPP-14 Fire Suppression System for 14' Hood. (2020). Retrieved from

https://www.acitydiscount.com/Superior-Hoods-Fire-Suppression-System-for-14-Hood-FIRESUPP-14.0.25739.1.1.htm?utm_source=google&utm_medium=cse&utm_campaign=cse_goo&ppcid=22&link=25739&gclid=CjwKCAjw5Ij2BRBdEiwA0Frc9dMQ07pC8umVBKjsY5BIMr0WT1FFl80NWVlQEHV-2XYEp9pF00amnRoCsBUQAvD_BwE

VLC-600 VESDA. (n.d.). Retrieved from

https://www.jemsecurity.com/shop/vesda/vlc-600-vesda/?gclid=CjwKCAjw5Ij2BRBdEiwA0Frc9Z8Kia8niv9oOU-5o048l1Oxy8KywEHMfev_ApVfGQG9XYGdDoE8BB0CsNYQAvD_BwE

Whitman, M. E. (2002). *Principles of Information Security*. Boston, MA: Course Technology.