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CSE4471

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A. Champion

Homework #2

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| **Type** | **Product Name** | **Description** |
| Firewall | Comodo Firewall | * Desktop widget * Stealths ports against attack * Prevents DNS-based attacks * Includes “hardened” browser |
| Firewall | ZoneAlarm Free Firewall 2013 | * Resists direct attacks * Protects against web-based attacks * Limited number of pop-ups * 5GB online backup (free) * includes Facebook privacy test |
| Firewall | TinyWall 2.1 | * stealths ports correctly * no pop-ups * passed many leak tests (tests conducted by PCMagazine) |
| VPN | Private Internet Access | * cheap (approximately $40/yr) * top rated, well recognized * approximately 1,000 exit servers in 10 countries * does not log data about user’s session or connection details (supposedly) |
| VPN | TorGuard | * offers specific types of servers for different activities * take DNS leaking security seriously * pricing depends on usage habits * full services offers 200 exit servers in 18 countries * no data retention |
| VPN | IPVanish VPN | * uses shared IP addresses * have 140,000 IP’s to share, over 100 exit servers in 47 countries * open to any type of activity (browsing, video streaming, etc) |
| IDS | Snort | * network IDS * free, open source * real-time traffic analysis, packet logging on IP networks * performs protocol analysis, content searching and matching |
| IDS | Bro | * open source, UNIX based network monitoring framework * can be used to build a network IDS * “Bro Event Engine analyzes lives or recorded network traffic or trace files to generate neutral events” * “Bro Policy Scripts analyze events to create action policies” (action policies are rules that trigger events, such as sending an email, executing system command, etc) |
| IDS | Kargus | * “Highly scalable” network IDS * can handle networks with 10 Gbps * performance is comparable to hardware-based IDS’s * passes some traffic to GPU for faster processing times * multi-threaded parallel execution |

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| **Product Name** | **Description** |
| IBM PCIe Crypographic Coprocessor | * high-throughput cryptographic subsystem * board contains CPU, encryption hardware, RAM, persistent memory, random number generator (hardware-based), infrastructure firmware and software * contains two 32-bit PowerPC RISC processors * contains many different types of encryption schemes (SHA-224, SHA-256, RSA, SHA-512, AES, DES, etc) |
| Amtel CryptoAuthentication  http://www.atmel.com/Images/Atmel-8885-CryptoAuth-ATSHA204A-Datasheet.pdf | * SHA-256 hash algorithm * 256-bit key, can store up to 16 keys * unique 72-bit serial number (guaranteed) * hardware-based random number generator * 4.5kb EEPROM for keys and data * key exchange for encrypted downloads |
| VIA PadLock | * hardware implementation containing an extension of opcodes to the processor * uses a twin engine random number generator * creates twelve million random numbers per second, numbers generates via quantum physics theories * uses VIA C7 GPU to run calculations * AES encryption, SHA-1 and SHA-2 secure hash |

3. Since the farm sells goods, the network will have to process credit card information. Thus, the farm’s security system should revolve around protecting customer credit card information. When processing credit card information, farmers at the market at the point of selling should connect to the farm’s server via a reliable VPN. The farm’s network should include a NIDS, in order to detect any unwanted intruders to steal credit card information. Also, at the point of sale, the customer’s credit card information should be thoroughly encrypted. Entry into the farm’s network should be through a firewall in order to limit access to the network to those who have been assigned that privilege. With a MAC level firewall, the farm could add those MAC addresses that have been granted access privileges. We could consult the farm to invest in more advanced technologies, but the likelihood of a farmer’s market to be hacked is unlikely, though, this depends on the revenue generated by the farmer’s market.