DG5 Technologies

420 N. Meridian St.

Newberg, OR 97132

Adventure Lab:

Proposal for Network Rehabilitation

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Executive Summary:

Digital Gateway 5 Technologies will provide Adventure Lab with a solution in restoring the usability of the network while providing room for growth and also remaining inside the given budget.

Our solution to the given situation is to start by replacing the equipment that was stolen. While replacing the equipment we would upgrade equipment as needed. The equipment that would be replaced or upgraded for the main floor would be the router and firewall, Patch Panel, and a 48 port switch. As for the second floor we would upgrade the 3 current switches and in addition, add another 48 port switch. Finally we would add an alarm to the half rack to prevent future theft.

With the solution that we established Adventure Lab would not only have a system that comfortably fits your current needs but also leaves plenty of room for future growth. In addition to counting the cost of all of the equipment and labor, this solution lies well within the given budget.

Scopes, Approach, and Methodology:

Scopes, Approach, and Methodology

The network plan Digital Gateway™ has developed is fine-tuned for Adventure Labs' use case, with subnetting designed to give as much IP space to each group as possible, in accordance with our company growth models, so as to prolong the life of this network plan for better stability.

This network plan, while complete, is considered a draft. It is subject to any changes the networking team at Adventure Labs deems wise for the productivity of the company. Digital Gateway™ provides consulting services in this proposal, should your network administration wish to explore options.

Intranet/Internet Security Plan:

Because the firewall was stolen, Digital Gateway™ has arranged a combination firewall-router to keep your network safe.

Digital Gateway™ places strong emphasis on closing potential security holes, and on maximizing the usability of the network. Security always comes at the cost of some usability, but at Digital Gateway™ we strive to strike a balance that will not hinder your company, but leave bad actors with no good attack vectors.

The interior of your network will be shielded by the firewall integrated with the router we provide, configured with our blacklist of malicious hosts. This list is maintained

constantly, and will be available for as long as Adventure Labs has a contract with Digital Gateway™.

Virtual Private Network Plan:

Due to the current pandemic, a VPN is an absolute must-have for a business like Adventure Labs; Digital Gateway™ will re-establish your VPN to create a cohesive network for those who work in the office, and those who work from home.

The firewall-router combination includes VPN capabilities, so when configured by our team, up to 50 members of your organization will be able to work remotely, with access to the network as though they were plugged in from the office.

Social Engineering Vulnerabilities & Plan:

Any time a human is involved with maintenance of a computerized system, there is opportunity for the human to be subverted into misusing the network. This is a huge attack vector, so we have addressed this issue as completely as is reasonable.

Many social engineering attacks stem from employees having more access to sensitive areas of the network than is necessary. Digital Gateway™ takes the approach of partitioning the network finely so as to avoid the occurrence of an employee who is not aware of proper cyber security protocols having access to resources that could jeopardize the network.

Physical Security Plan:

The existing physical security plan, a locking half rack, wasn't sufficient to prevent theft of your networking equipment, more security measures must be put in place. This single point of failure will be given redundancy to protect against further theft, the rack will have an alarm installed so that any intrusion is reported immediately.

Software Product Maintenance Plan:

Digital Gateway™ recognizes the frustration of dealing with subscription-based software services, so we avoid them when feasible. It happens that all software we will be using have one-time purchase licenses. This will avoid the hidden cost of software license maintenance.

Since all required software licenses are perpetual, no continual license costs will be incurred with this solution. Additionally, over-the-air router software upgrades can easily be performed by service desk staff once the system is installed, and switch firmware upgrades are trivial using the switch administration interface.

Enterprise-wide Computer Assessment & Replacement:

The RFP requested no assistance replacing any computers that were stolen. As Digital Gateway™ is less well acquainted with Adventure Labs' specific computing needs, procurement of such devices is left to Adventure Labs' IT and R&D department.

Project Management Approach:

Digital Gateway™ is legendary for excellent teamwork with our client. We always start with the hard details from the specification given by our client, and spend time scrutinizing every detail so as to appropriately address each detail, no matter how small. After compiling a list of everything that is required, we contact the client again with any questions raised during the expository process. We contact any relevant staff teams and determine the amount of communication that is considered acceptable, in order to not waste time if our client doesn't have time. We, however, highly encourage our client to communicate with us because this gives more opportunities for the client to adjust their requirements as the situation changes.

After gathering as much information on the situation as is needed, our network engineering group begins diagramming a subnet plan that can keep your network tidy and safe, for the given address space. If the client is amenable, we will present this diagram and our reasoning for its layout to the client for approval.

Upon approval, we pick hardware for the physical aspect of the network. Given a budget and set of requirements, we can propose a set of hardware. We usually strive to future-proof the network at this stage, by overprovisioning networking hardware and bandwidth. The client may interrupt here with any special requests we have not taken into account yet, but usually the information gathered previously is enough. Another important factor in this stage is the existing hardware. If there are management tools

already in use, unless the client wishes to proceed with a new software, we take care that the new hardware will be compatible with the preexisting management software.

At this point, hardware is purchased. Our installation staff travels to our client's destination and installs any and all hardware (except when the client specifically requests to perform the installation themself. We cannot guarantee installation not performed by ourselves). At this point, any required configuration will be done by our staff. This configuration is thoroughly documented and will be presented to your networking maintenance staff. It is critical that your staff be able to effectively re-configure and effectively maintain any hardware and software we install.

Our work, as installed, is warranted and guaranteed. If any problems should occur, you may contact us and we will diagnose and repair the network.

Deliverables:

Upon completion of this project, all newly-purchased networking hardware will be fully installed and configured according to the diagrams in Appendix D, any hardware requiring reconfiguration will be reconfigured. Some subnets will be combined with VLAN software in order to more effectively use the address space available. This configuration is subject to change upon discussion with networking staff, as your needs come first. Additionally, VPN configuration instructions, detailed network diagrams, and equipment maintenance guides will be provided to service desk technicians.

We will replace all of the 48 port switches in your network with POE capable gigabit switches. We are also adding a 48 port switch to the upstairs rack. Based on the bandwidth usage reported in the RFP, we deem this an enormous upgrade in network capacity, and adding another switch brings in redundancy and capacity for futureproofing.

Detailed and Itemized Pricing:

Item	Model	Price	Quantity	Subtotal
48 Port Gigabit POE Network Switch	Cisco CBS250-48P-4G	$1,095.00	5	$5,475.00
Router/Firewall	Cisco RV340	$279.99	1	$279.99
48 port Patch Panel	TRENDnet TC-P48C6	2	2	$143.98
VPN Licence	Cisco AnyConnect Plus, 50 seats perpetual	$1,418.99	1	$1,418.99
Labor	Hardware Installation	$100/hr	10 hrs est.	$1,000.00
Labor	Software configuration for hardware	$100/hr	35 hrs est.	$3,500.00
Assorted small hardware	CAT-5e cable, alarm switch, power distribution, unforseen small purchases, etc.	$500	1	$500.00
			Total:	$13,317.96

Appendix A: *References*

Mark Zuckerberg - CEO of Meta:

Digital Gateway™ proved instrumental in correcting our recent service outage. Their knowledge and capabilities brought us back to full capacity in a matter of hours, and they brought a variety of tasty insects to appease my lizard kind. I cannot recommend their services enough, they are a complete lifesaver.

Steve Ballmer - Former CEO of Microsoft:

DG5 TECHNOLOGIES SUPPORTS DEVELOPERS! LET'S GIVE IT UP FOR DEVELOPERS! DEVELOPERS DEVELOPERS DEVELOPERS DEVELOPERS! WOOOOOO!

Anonymous - StackOverflow Contributor:

Thanks for doing my Networking homework.

Appendix B: *Project Team Staffing*

Kevin Lockwood:

Title:

CHief Executive Experienced Resource Innovation Officer (CHEERIO)

Biography:

Kevin Lockwood has been a member of the Digital Gateway™ since its absolute foundation. As a founding member, he is part of what makes the friendly helpful culture of Digital Gateway™ so pervasive. A professional student, he is constantly picking up new skills and trying to get his peers to try linux. He promises it's better than the alternatives.

Experience:

Kevin has plugged in ethernet cables before and has command-strip taped an unmanaged switch to the side of his desk. He has also produced thorough subnetting plans for Adventure Labs, and once crashed a game of Halo: Combat Evolved™ by plugging both ends of an ethernet cable into the same switch that everyone was sharing so they could play together.

Kevin has never been convicted of a felony and is a legal resident of the United States of America.

Nathaniel Hudson:

Title:

Electrical Engineering Whiz (EEW)

Biography:

Nathaniel Hudson began his work with Digital Gateway™ as the communications manager of the emerging tech consulting firm. However, due to his previous experience taking a soldering iron to his ThinkPad to remove a burnt-looking resistor, he quickly rose to the position of Electrical Engineering Whiz (EEW), where his valuable skills are no longer grossly undervalued. While some may look at a complicated schematic and say “eew”, as EEW, Nathaniel takes any and every opportunity to improve clients’ systems with just a bit of solder and electrical tape.

Experience:

Nathaniel owns more computers than he has fingers, although most of them are currently serving as a side table. He also once tried to use pre-existing cat5e in the walls of his house to run ethernet from the garage to the master bedroom, but gave up when it didn’t work the first time. Several years ago, he hosted a Christian Minecraft server from his parents’ den, but it never took off.

Nathaniel has never been convicted of a felony and is a legal resident of the United States of America

Cassandra Wischhoefer:

Title:

Communications Operations and Office of Logistics (COOL)

Biography:

Cassandra Wischhoefer is the first female COOL in Company History. She graduated Harvard twice and was a key member at BlockBuster until the very end.

Experience:

She helped her family fix the Wifi by unplugging and plugging it back in. Twice. She is also growing her cyber security knowledge by only watching hacker movies and believes she will eventually get out of the matrix.

Cassandra is has never been convicted of a felony and is a legal resident of the United States of America

Dylan Rainey

Title:

Computer OPerations Executive (COPE)

Biography:

Dylan began working at Digital Gateway™ shortly after it was founded and became the first employee to COPE. Dylan tries his best to use his COPE skills to help clients however he can.

Experience:

Dylan has experience with driving over an hour to his grandparents house to teach them how to drag and drop photos onto an external hard drive, and they still forgot the next day. Dylan is also known as the “IT guy” in his family for being able to turn something off and on again.

Dylan has never been convicted of a felony and is a legal resident of the United States of America.

Appendix C: *Company Overview*

Address:

Digital Gateway 5 Technologies

420 N Meridian St.

Newberg, OR 97132

Key Contact:

Kevin Lockwood

CHief Executive Experienced Resource Innovation Officer (CHEERIO)

(425)387-4064

kevin.b.lockwood@gmail.com

Contract Staff:

Dr. Stak Overfloe

Community-Based Solutions Coordinator

(555)867-5309

stak@overfloe.com

Gitte Hubb, PE

Software Modification Tracking Engineer

(555)234-5789

gitte@hubb.com

Company History:

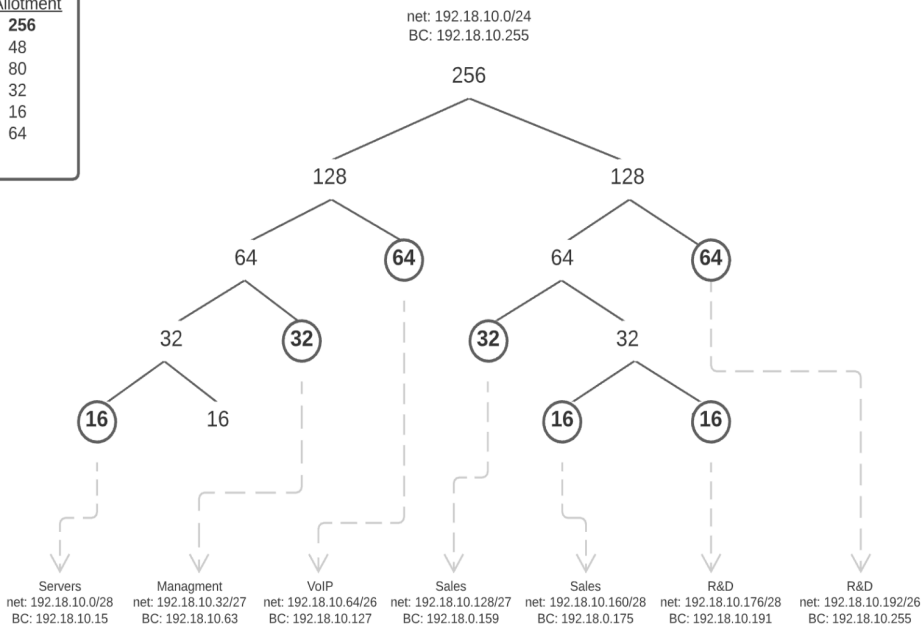
Digital Gateway 5 Technologies™, or Digital Gateway™, was founded in the year 2021, with roughly two and a half months of experience in the field. Many customers ask us about the 5 in our name, which is derived from the four founding members, plus the client. Our team is not complete without the most important part, the client. We put the client first in all matters business and technical. Our priority is building out a functional network for you.

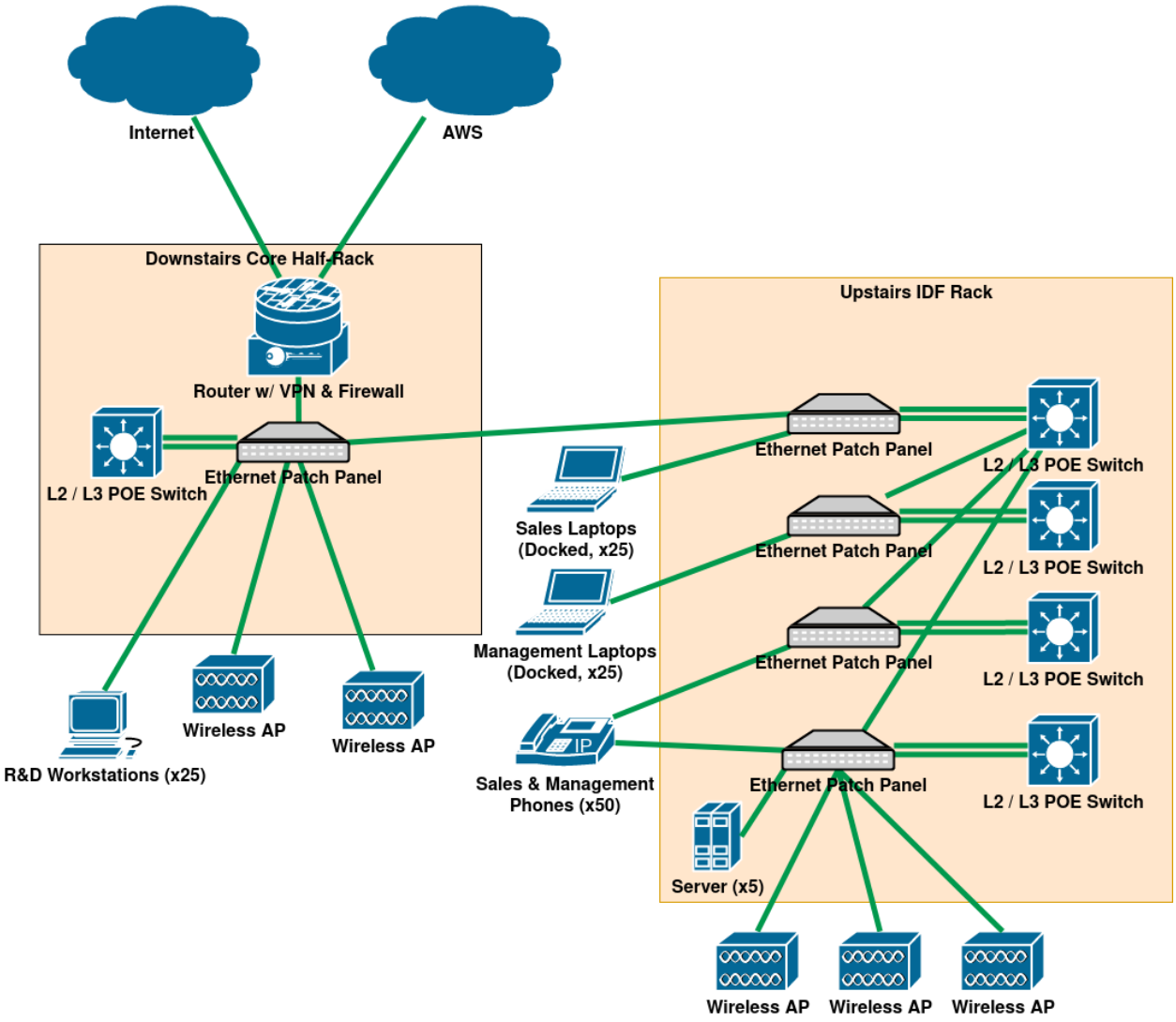
After resolving the DNS issue Facebook (now Meta) created, we moved on to resolving every known networking issue. Despite only having enough address space for just over 4 billion addresses without NAT, we managed to cram another several trillion into the IPv4 address space with zero overhead or additional protocols. This renders DHCP completely unnecessary, as we can simply hand out static addresses like candy. This also mitigates the need to transition networks over to IPv6.

With that trivial fix under our belt, we set out for our greatest conquest: rebuilding Adventure Labs' network after it was broken into. I would go into more detail about that, but we haven't actually won the contract for that yet. We're certain we will though, and any details you might wish to see are present in the above document.

Appendix D: *Network Diagrams*

Users	Name	Allotment
105	**Total**	**256**
25	Sales	48
50	R&D	80
25	Mgmt	32
5	Servers	16
50	VoIP	64




Internet
AWS
Downstairs Core Half-Rack
Router w/ VPN & Firewall
L2 / L3 POE Switch
Ethernet Patch Panel
R&D Workstations (x25)
Wireless AP
Wireless AP
Sales Laptops
(Docked, x25)
Management Laptops
(Docked, x25)
Sales & Management
Phones (x50)
Upstairs IDF Rack
Ethernet Patch Panel
L2 / L3 POE Switch
Ethernet Patch Panel
L2 / L3 POE Switch
Ethernet Patch Panel
L2 / L3 POE Switch
Ethernet Patch Panel
L2 / L3 POE Switch
Server (x5)
Wireless AP
Wireless AP
Wireless AP