TECHNOLOGY ROADMAP

Table of Contents

Project Scope

Develop an assessment of current Information Technology (IT) infrastructure and provide a detailed 3-year roadmap for making improvements on their infrastructure.

Requirements

The team will develop recommendations for changes or improvements to the nonprofit's use of technology to support efficiency and efficacy of programs, including recommendations for how they should invest in their software, network connectivity, and server system. The team will then craft an updated 3-5 year IT infrastructure strategic roadmap.

Deliverables

At the completion of this project, the nonprofit will have:

- A comprehensive assessment of its IT Infrastructure, with accompanying recommendations for changes or improvements to their use of technology to support efficiency and efficacy of programs, including recommendations for how they should invest in their software, network connectivity, and server system
- An updated 3-5 year IT Infrastructure Strategic Roadmap
- TBD: Pending the results team's assessment and approval by Common Impact and the nonprofit, there may be a carefully scoped implementation component to this project. If so, the nonprofit will have training and documentation on how to use and maintain any updated systems

Initial Observations

Initial findings regarding technical aspects of the infrastructure gathered from staff

Problem Presented

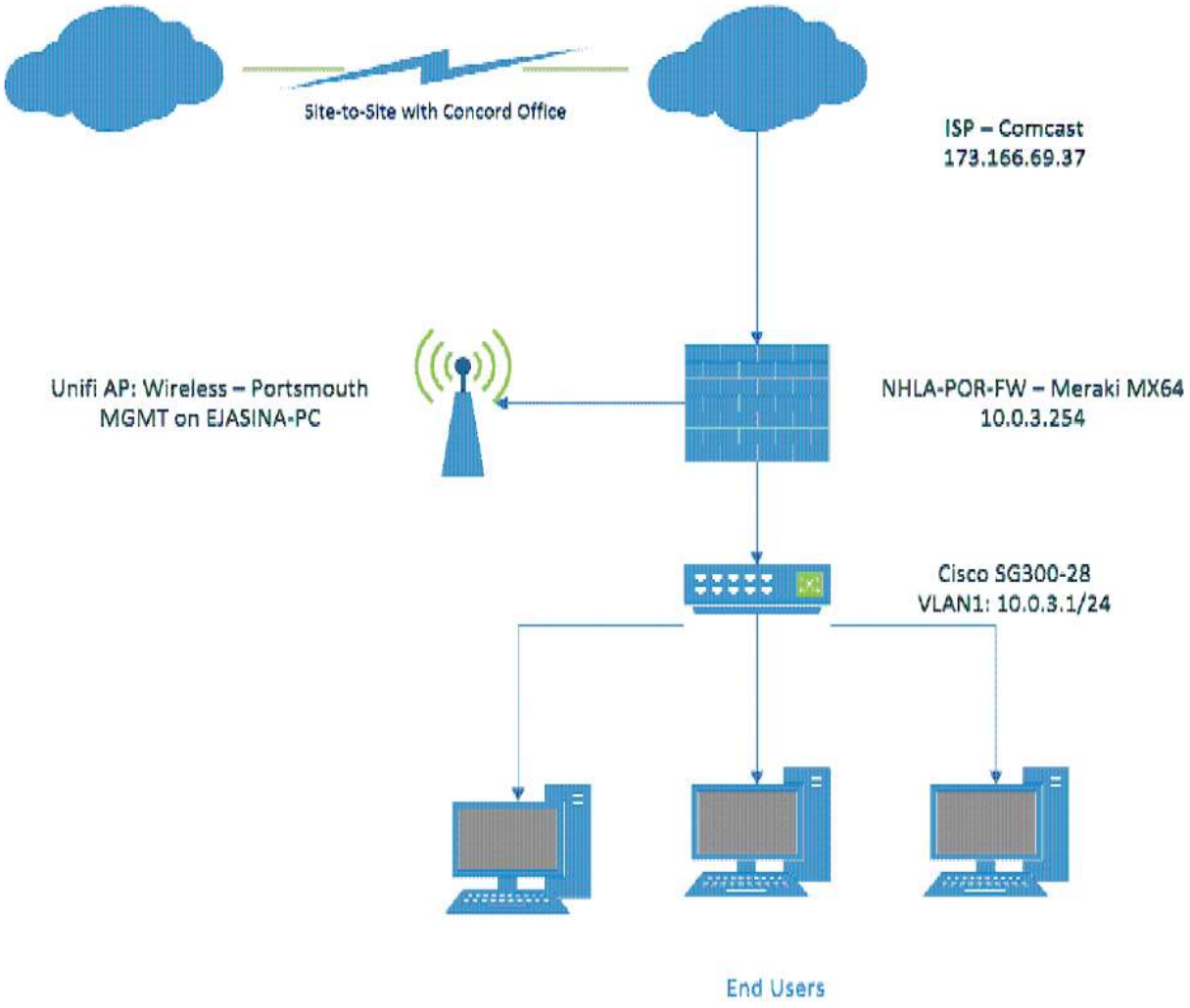
- Nonprofit no longer has a dedicated IT role
    - Several staff members have been working a little to 'fill in', but have limited IT knowhow and time in which to troubleshoot
    - Increased level of services with external contractor as a result of that
- Some equipment is aging out, and staff at satellite offices experiencing problems described as 'connectivity issues' with virtual servers hosted on a single box at HQ

What Was Asked of Us

- Assess the current infrastructure across all five sites AND the recommended infrastructure plan provided
- Provide our own recommendations as to an approach that covers the next 3-5 years
    - Work to find cost-effective solutions, keeping in mind budget and necessary items
    - Consider both security and resiliency issues

Current IT Infrastructure

Current IT infrastructure – including hardware and software



Physical routers/switches

- **Switches**
    - Site A has one Cisco switch SG300-52
    - Sites B and C have one Cisco switch SG300-28
    - Site D has one Dell x1026 switch
    - Having one switch in each site is very risky, because if the device goes down, staff will not be able to connect or access their data in the network
- **Routers**
    - All the sites have either one Cisco Meraki Router MX64 or one Cisco Meraki Router MX65, in fact, if the router goes down or has an issue, the staff will not be able to connect to the internet.

WAN

- Site E has one Time Warner Modem; the rest of the sites each have one Comcast Modem
- If there is an outage for either Time Warner or Comcast in the areas in which an office is located or there are any issues with the modem in one of the offices, the staff will not be able to access internet

Servers

- One physical host located in Site A = **Dell PowerEdge R630**
    - CPU = 10 cores
    - RAM = 64 GB, expandable to 3000GB
    - Storage = 445/1971 GB **free**, with two free slots for expansion
        - Roadmap Note: There has been no significant data growth on the virtual servers since they were installed. Growth has been around 5% a year with a maximum of 10% Virtualization Software = VMware ESXi with warranty expiring 2/10/2021
- Three virtual servers that are spun off the physical host above:
    - SBS01: Domain Controller, running Windows Small Business Server (C:drive = 29/150 GB **free** and D:drive = 231/952 GB **free**
    - TS01: Terminal server running Windows Server 2008R2 (75/614 GB **free**)
    - Secondary terminal server set up for load balancing that also runs Windows Server 2008R2 (110/255 GB **free**)

Endpoints

- Multiple computers with varying Operating Systems in use
    - 13 Windows 10, Dell Machines (<2 years old)
    - 21 Windows 7, Dell Machines (3-5 years old)
    - 12 Thin Clients that are running Windows XP (5+ years old)
- New machines should have the minimum following for upgrades

- 128GB SSD, 8GB RAM
- Intel i5 CPU, Quad Core, 3.4 GHz clock speed
- Windows 10 Pro Operating system
- Warranty:
    - One-year hardware defect support
    - Three-year support of the model
- The Dell OptiPlex (tower) model are a good series of computer for work. They provide the recommended specifications as well as being at a good price. Dell offers varying sales throughout the year and either model can be bought for a good price. These computer specifications should serve as a baseline for ordering computers at different vendors. These desktops are currently priced at $679.99 and $799.99 respectively.

- On the instances for when laptops are needed, similar configuration as well as being business class laptops are recommended. This is due to improved security measures. We'd recommend screens no bigger than the standard 15.6 in screens.
- Current plans for replacing computers:

Operating System	**Age of Computer**	**Replacement Year**

Microsoft Windows XP Professional (x3)	8	2018
Microsoft Windows 7 Professional x64 (x4)	5	2018
Microsoft Windows 7 Professional	8	2018
Microsoft Windows 7 Professional x64 (x9)	4	5 in 2019 4 in 2020
Microsoft Windows 10 Pro x64 (x3)	2	2021
Microsoft Windows 7 Professional x64 (x6)	2	2021
Microsoft Windows 10 Pro x64 (x5)	1	2022
Microsoft Windows 10 Pro x64 (x6)	0	2023

Backup & Disaster Recovery

Datto physical disk box and software is used for backup at the nonprofit.

- **Backup process:**
  - Automated backups occur 2x/day and transported (via internet) offsite to Datto data centers (bicoastal).
  - Backups the server images to the cloud 2 times per day for the servers in Site A location only; and could be available via backup internet solution in the event of an outage to primary network.
  - Backup Datto tests are performed quarterly

- **Recovery services:**
  - Both file level and server level restores are performed.
  - Recovery of individual files back to normal in less than 10 minutes in case of a downtime (performed by Mainstay) or within 1 hour in the event of total server failure.
  - Servers can run in cloud if there is a disaster
  - Mainstay does receive alerts from monitoring in the event of outage
  - In a disaster situation, for requesting a restore, a ticket would be opened with Datto and they will work on it.

- **Disaster Recovery Test:**
  - Disaster recovery tests are performed quarterly internally by Mainstay.
  - Full DR tests are not performed by Mainstay as it involves cost and it is time consuming

- **Cost:**

- Datto service is $360 per month and includes backup, tests, and restore/support
- Datto Device is end of life in 8/2019. Mainstay recommends replacing to a Datto Siris (~$1500 for new device)

Software Applications

Productivity and Email

- MS Office 365 Premium Non-profit Plan: $3/user/mo ($141/mo for 47 users) and MS Outlook 365 - Microsoft, web browser and desktop applications
  - This Microsoft subscription includes standard productivity software (Word, Excel, PowerPoint, etc.) for up to five PCs/Macs per user, hosted email, 1TB file storage & sharing per user, Online meetings, HD video conferencing, and instant messaging, Online versions of Office (for editing and viewing Office files in web browsers),Intranet site for your teams, Active Directory integration: manage user credentials and permissions, Yammer and 24/7 technical phone support
- Adobe Acrobat Pro
  - Edit functionality is noted as necessary for 15 out of current 42 individuals; others can use (free) Acrobat Reader for viewing PDFs
  - $14.99/user/month (Monthly $224.85 for 15 users)

Archival and Legacy Applications

- FLAPS, locally installed
  - Family law software
  - Annual $275
  - Starting to be used more rarely
- Kemps, locally installed
  - Used for historical data only, client conflict checks and legacy information
  - No associated budget item was listed
- KeePass
  - Password management utility
  - Free

Financial

- FinancialEdge - BlackBaud
  - 3 licenses: $4100 annually
- Raiser'sEdge – BlackBaud
  - 2 licenses: $2760 annually
- BlackBaud DB hosted on-site, 400-500GB. Requires on-site server to host this, with associated maintenance, utility etc.

Notes: BlackBaud products seem very expensive for the number of licenses purchased, especially for software that is not directly applied to the organization's primary focus but instead support. Based on interactions observed between Blackbaud and nonprofit, customer service could be better represented (sales rep did not seem to have a full understanding of customer environment, nor could they clearly explain detailed options of "NXT service").

Processes and Procedures

Current processes and procedures in place at the nonprofit for technology use

Server room components

- Comcast Modem
- Meraki firewall and router
- Cisco switch
- Patch panel for telephone
- Cabinet of servers
- Datto backup box

There are not many overheating issues now due to the equipment present in the room, but it would be ideal to include a system that would at a minimum circulate the airflow.

There are occasional visits to the room rather than planned, regular visits to the room.

Disadvantage of the current system

- Unattended temperature spike in a server room can result in loss of business due to downtime and loss of important data if equipment is damaged.
- The network room does not have proper doors which may result in accumulation of dust inside the room and be unable to prevent unwanted personnel from entering.

Internet/Network

- Internet service providers (ISP): Comcast, Time Warner.
    - Staff contact Comcast or Time Warner to fix any issue related to internet connectivity (which could take more time if there is an outage or a major issue)
- All network devices are maintained and stored on-site. Centralized intranet network on the main campus site.
    - When a network issue occurs, staff call Mainstay to fix it, which could take at least an hour for the problem to be solved (during that time staff cannot access internet or their data on the network)
    - There is no network documentation that would help staff to fix common network issues

Email

- Team members have been migrated to Microsoft 365 cloud. Utilizing the free use plan for non-profits

Remote access to the network

- All the sites use either one Cisco Meraki Firewall MX64, or Cisco Meraki Firewall MX65 to enable employees to connect remotely, in fact, if the device goes down employees will not be able to access internal data remotely to perform their tasks.
- Having one device for remote access will make the connectivity slower if too many employees try to connect remotely at once.

File Storage

- Shared drive D: on the SBS01 which is used most frequently by the team. Current storage on this drive: 231/952 GB **free**
- The Microsoft Office 365 plan for non-profit provides each user with 1 TB of cloud storage via OneDrive.

Print

- Printers are all on the network via server e.g. an employee from Site B can print to Site A.

Technology work orders

- Work orders would be submitted through Mainstay.
    - Work orders are usually finished within the hour for many problems
- Risk: Entirely reliant on Mainstay for technology problems, no documentation for troubleshooting problems on their own

Technology Lifecycle Management

- No defined TLM policy.
    - Currently working on improving desktops. Replacing old computers every 5 years. Priority now is to replace the ones using Windows XP as they're outdated and then replace the ones using Windows 7.

Security

- All sites use one, single Cisco Meraki Firewall MX64 or Cisco Meraki Firewall MX65 to secure their network. If one device stopped working, the internal network would be vulnerable to malicious attacks from hackers.
- Unlocked server cabinet and network room enables anyone to walk-in and have direct access to the system.

Current total tech costs

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Total
"Mainstay $80 x 35 users"	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	$xxxxx
Manage URL & web filtering	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	$xxx
Offsite backup of server	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	$xxxx
West Law (web)	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	$xxxxx
"PS Technologies (Legal Server) (web)"	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	$xxxx
Financial Edge													$xxxx
Raiser's Edge													$xxxx
FLAPS													$xxx
Best Case													$xxxx
"QuestBlue - phones 45 leases at $9.99"	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	$xxxx
QuestBlue - VoIP Service Pkg.	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	$xxxxx
"Ports. - Comcast Static IP . $20 Bus. Internet - $70 Equip. fee - $15"	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	$xxxx
Desktop charges x5 @890 each													$xxxx
Office 365	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	$xxx
"Adobe Acrobat Pro DC $14.99 x 15= $224.85"	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	$xxxx
Dropbox	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	$xxxx
total of proposed additional costs													$xxxxx

Proposed Short Term Recommendations

Install 4G LTE box for internet redundancy

- Benefits:
  - Staff (up to 15 wi-fi devices at a time) will be able to access internet to perform their tasks, even if the internet service provider has an outage or an issue.
- Goals:
  - Internet redundancy
- Costs:
  - Jetpack 4G LTE Mobile Hotspot AC791L

Install a "Z-Wave" lock in the server room in basement

- Yale Real Living B1L Lock, Z-Wave Key Free Push Button Deadbolt (Nexia certified)
  - Cost: $149 (https://www.nexiahome.com/certified-products/3965-2)
  - Advantages:
    - **Pin codes**: Create up to 100 four-to-eight-digit pin codes to share
    - **History**: View access history of who has entered your business
    - **Weather Protected**: Rubber gasket increase protection against outdoor environments
    - **Backlit Keypad**: Keypads wake with a touch and have numbers that won't wear off
    - **Battery Backup**: Never lose power, the lock can be energized with a 9v battery
- Benefits:
  - Programmable so each employee has own key code. If an employee leaves, then code can be removed.
  - Higher cost versions can send alerts to notification systems
  - Lock down the network lab will prevent hackers and employees (with no permission) to access the system.
- Goals:
  - Increase security

Replace All Old Windows Computers

- Benefits:
  - Increase security for sensitive information
  - Increase overall performance, outdated computers are much slower than newer equipment
- Goals:
  - Newer, relevant equipment
  - Increase overall day to day performance

Move to Web Browser Interface for Productivity Applications

Consider using the browser-based interfaces for most Microsoft products and possibly also FTR Player. Browser versions of these applications have most, if not all, of the commonly-used features found on the desktop versions; only install the desktop applications for those who absolutely need the extended functionality.

- Benefits:
    - May reduce hardware requirements (storage), as locally-installed/desktop versions of applications may not need to be installed, but instead run in a browser; laptops and/or desktop computers with less specified storage drives than the specs listed earlier in this document could be used, which may have lower purchase costs
    - Most files, if created via the browser interface, could be accessed from anywhere with an internet connection and would be saved as changes are made so that the file isn't lost in the event of a connectivity disruption or loss or failure of local hardware
- Goals:
    - Potentially reduce hardware costs - on-machine storage lower priority item
    - Improve use of cloud applications, collaboration

Assess Local Files and Data Usage

Work to build a comprehensive and concrete picture of (what) data is locally-stored (on-premises), its frequency of access (how often, what files), what operations are performed on the data (what kind of access on what files) and age (how long have files not accessed in, say, the past year or two been on the server) via investigation of the files stored on the server themselves via survey or personal check-in over the course of week or two to understand data access and usage. Determine if any files could be permanently removed from the on-site server, barring legal restrictions on data or document retention.

- Benefits:
    - Depending on the assessment's conclusions, this could result in an additional recommendation to clean up and/or reduce the amount of data stored locally, which would then open up a little more space on the server for new data
    - A clear picture of data usage will allow assessors a better standpoint from which they may make decisions on potential solutions for data storage and management if presented with multiple options.
    - May aid in preparation for a move from storing archival files locally to cloud storage, given cloud costs are often heaviest in data access and not the storage itself
- Goals:
    - Construct a comprehensive and concrete picture of data and its use so as to empower those conducting the assessment to better make decisions regarding tools and data

Assess Legacy Software Application Usage

Review frequency of use/data access for FLAPS, Kemps, given current use of other software such as LegalServer for similar purposes, and assess if the use of the software can be discontinued, or, if the data still needs to be accessed, if it can be accessed without the software (such as via an export to Excel-opened file like a .csv). It may also be beneficial to assess other software usage -- what tools are most used? What aren't? Is there a majority who use the same tools the most?

- Benefits:
    - Can illustrate how the number of software items in need of support could be reduced, which can also then free the associated budget item for use elsewhere

        - Example: the budget item for Flaps annual costs could cover nearly two months of Office 365 subscriptions for all 47 users (at the $3/user/month rate)
    - Allows assessors to gain a better understanding of how the organization makes use of tools and data in order to make future decisions
- Goals:
    - Construct a comprehensive and concrete picture of tools (software) and data associated to these tools in use so as to empower those conducting the assessment to better make decisions regarding tools and data
- Notes:
    - Actual cost savings estimate is not much, ($XXX annually in the above example) but number of applications in need of any sort of support or management could be reduced, as well as, again, reducing space taken up by these applications, which can then allow other applications more space to use. Most of the idea of this suggestion was to work in combination with the previous to get a good idea of what is going on locally and what can move or change without negative effect. In addition, both of these suggestions (this and the previous) are meant to give staff a better handle on the software and data use within the organization in order to be in a better position for future decision-making.
    -

Utilize Microsoft 365's Cloud File Storage Offering – OneDrive and Terminate/Retract DropBox Contract

- Benefits:
    - The Microsoft Office 365 plan for non-profit provides each user with 1 TB of cloud storage via OneDrive at no additional cost
    - Canceling the DropBox contract would save $XXXX annually
    - Microsoft OneDrive is seamlessly integrated with the other Microsoft 365 applications. Mainstay also offers support of this offering
- Goals:
    - Find the most cost-effective cloud file storage solution for users
- Roadmap Note: There has not been significant data growth on the virtual servers since they were installed. Growth has been around 5% a year with 10% being the absolute max; Following the push to using cloud storage and the space that would be cleared up from retiring the terminal servers, expanding the physical storage on the server would not be short term recommendation.
- Please see the chart below for a comparison of OneDrive and Dropbox:

Microsoft One Drive	Dropbox
• Integrate easily with Microsoft Office which allows rapid sharing and real-time collaboration • ***Security:*** Microsoft OneDrive offers the ability to set up two-factor authentication, secure sharing which allows users to set expiration dates for shared links, locking external sharing of files, and Microsoft's enterprise-grade security encryption, capable for HIPAA-compliance and requires a BAA	• Does not have any third-party apps but is compatible with Office 365 suite and co-authoring potential • ***Security:*** Dropbox files use 256-bit AES encryption on files not in use, also offers 2-factor authentication, HIPAA compliant, take into consideration that DropBox had 69 million accounts compromised by a hack in 2012

to be signed with Microsoft https://www.microsoft.com/en-us/trustcenter/compliance/hipaa • 2018 survey by Spiceworks with 544 business technology professionals revealed that 51% of organizations utilized OneDrive, Dropbox and Google tied at 34% each	• Has fast block-level sync while Microsoft has no true block-level sync

Migrate and Decommission Existing Three Windows Servers (EOL: Q1 2019) to a Windows Server 2016 VM

- Benefits:
  - The thin clients which were running Windows XP, which is not a supported OS and pose a security risk, will be removed
  - Increased storage due to thin clients being decommissioned
  - Windows Server 2016 is a full major upgrade from Windows Server 2008: multitude of new features and security updates
- Goals:
  - Replace all VMs running Windows Server OS that will be End-Of-Life in 2019
- Costs:
  - Mainstay has estimated the cost of this server migration project to be around **$XX,XXX**
  - There are 12 thin clients running Windows XP from Virtual Machines hosted on the terminal servers. These should be decommissioned, and the cost above could be negotiated down because migrations of those VMs would not be necessary

Install a small fan in the Server Room to improve air circulation:

Networking equipment especially servers generate a lot of heat in a relatively small area. Today's servers are smaller and have faster CPUs than ever. The power used by these devices are dissipated in to air as heat. If servers and other networking equipment are not kept cool, they're prone to failure and a shortened lifespan. It is important to ensure that individual cabinets used for network equipment provide adequate ventilation.

Installing fans will actively circulate air through cabinets. The most common cabinet fans are top-mounted fan panels that pull air from the bottom of the cabinet or through the doors

- Benefits:
  - The network room will have sufficient air circulation and it reduces hot spots inside the room
  - Ensures long life of the equipment by avoiding over heating
  - Reduces accumulation of dust and humidity
  - Proper doors help in improving the security of the room and avoids dust entering the room
  - Frequent visits to the server room helps in monitoring if the servers/devices are in good condition

- Goals:
    - Install a small fan near the ceiling to blow hot air out of the room, as heat rises
    - A box fan can be used to blow air into the room near flooring to have air circulation
    - The server room should have a good door/security system and be visited regularly
- Costs:
    - A small, mountable fan costs around $20.

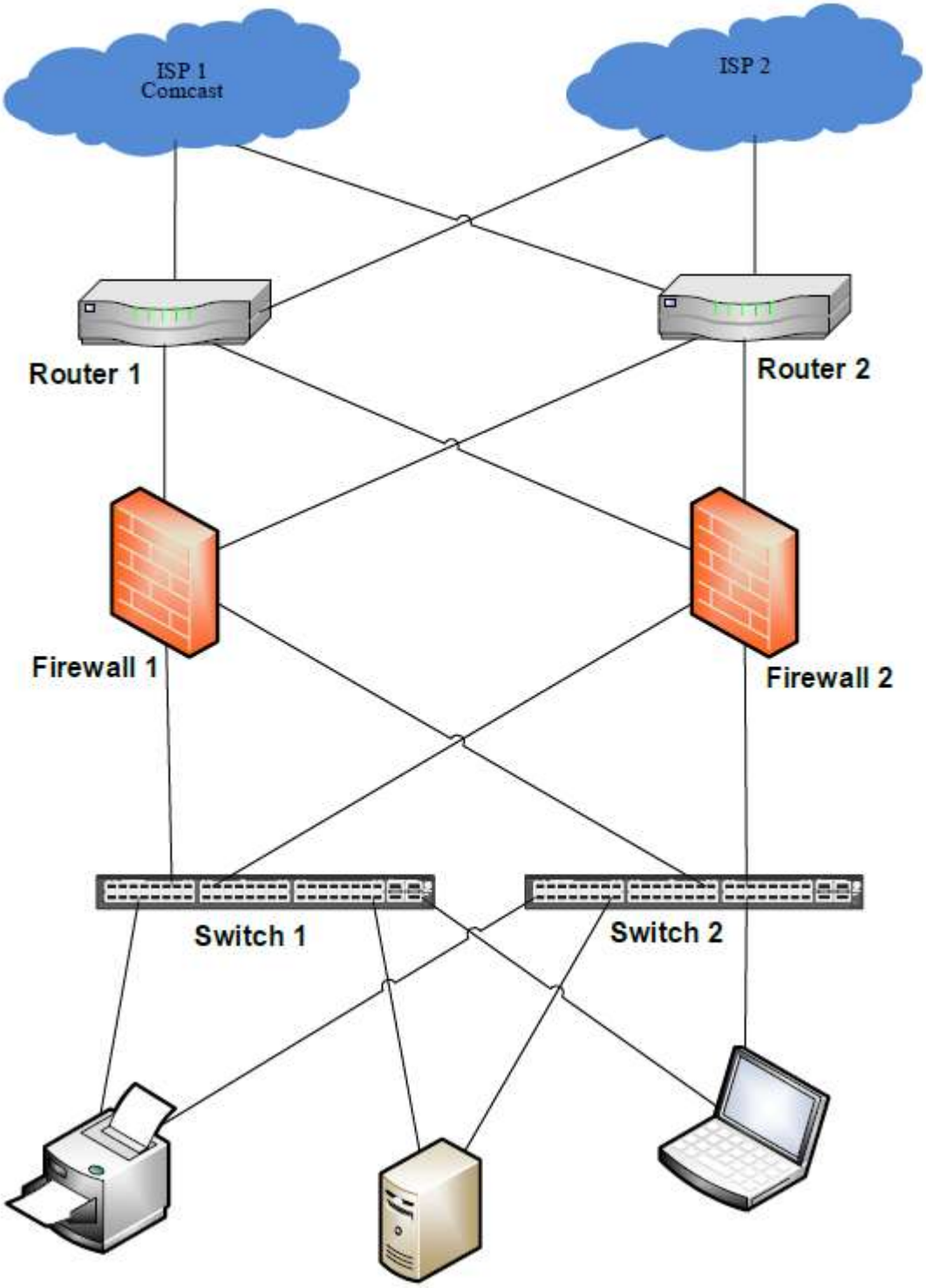
Short Term Cost recommendations

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Total
"Mainstay $80 x 35 users"													
Manage URL & web filtering													
Offsite backup of server (Datto)	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXXX
Total Mainstay monthly charges: $3,209													
Server Migration Project - Labor Costs													XXXXX [1]
Sever Migration Project – Windows Server 2016 licenses													XXX
West Law (web)	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXXX
West Law CLEAR (web)	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXXX
"PS Technologies (Legal Server) (web)"	800	800	800	800	800	800	800	800	800	800	800	800	9600
Blackbaud:													
Financial Edge													XXXX
Raiser's Edge													XXXX
FLAPS													(XXX)
Best Case													XXXX
Office 365	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XXX
"Adobe Acrobat Pro DC $14.99 x 15= $224.85"													
Dropbox	-XXX	-XXX	-XXX	-XXX	-XXX	-XXX	-XXX	-XXX	-XXX	-XXX	-XXX	-XXX	-XXXX
Small Mountable fan for the server room													$XX

[1] The total cost is based on an expired quote. Will need to contact MS for an updated quote

Proposed Long Term Recommendations

Install new Hardware to Provide Network Redundancy



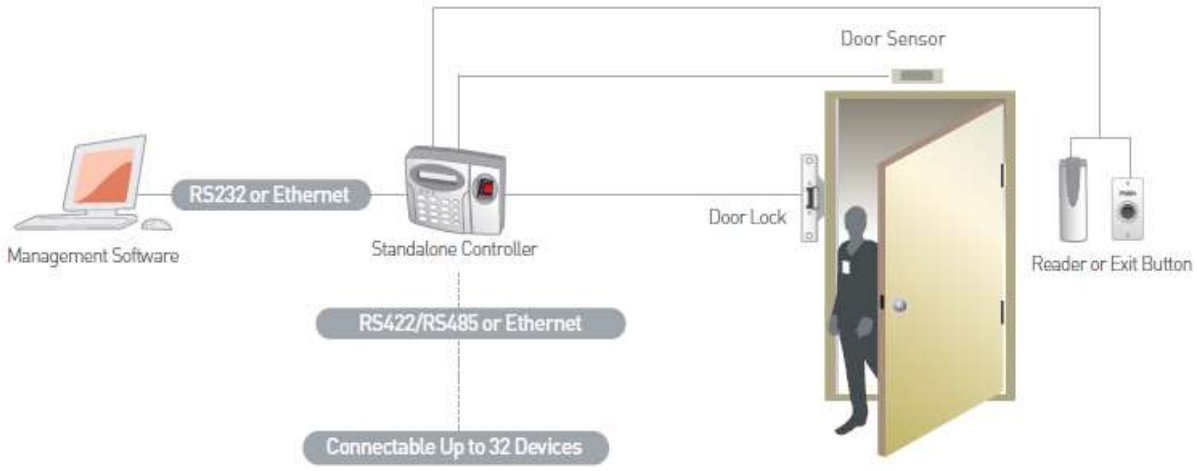
- Benefits:
  - Staff will be able to connect and access their data internally at any time
  - Staff will be able to access internet, even if one internet service provider has an outage.
  - The network will be more secured
- Goals:
  - Network redundancy
  - Increase security
  - Increase data availability
- Costs:
  - Cisco Small Business SG300-52 (Switch) ==> $XXX.XX
  - Cisco Meraki MX64 (Router + Firewall) with 1-year license ==> $XXX
  - **Optional (in case the nonprofit wanted high speed instead of 4G Lte)**

    Internet service provider: HughesNet ==> $XX.XX a month ==> (requires a 24-month commitment)

    - 25 Mbps download and 3 Mbps upload speeds
    - 20GB total data ==> will be reduced to 1-3Mbps when the 20GB is completed
    - free standard installation

Install an advanced access control system for the network and server room

We recommend installing a monitoring system such as Nexia which is only $10/month and allows door sensors, heat/moisture sensors, door (Schlage) motion sensors, and even cameras which would produce alerts or notifications when something is wrong in the server/network room. Depending on the number of devices, startup costs of this type of system could be as low as $250.



1. Provide more security
2. Provide a physical access to the network and server room using keypad codes
3. Provide temporary access to employee with emergency business need

4. Remove access automatically when an employees left the organization.
5. Register logs to easily identify who access the room and when
6. Place a camera inside or outside the room

Cost:

- Nexia system: $XX a month
- Yale Real Living B1L Lock, Z-Wave Key Free Push Button Deadbolt (Nexia certified): $XXX
- HD Indoor Security Camera (Nexia certified): $XXX
- Nexia Bridge – BR100: $XX
- Installation and fees

Install an air conditioning unit in the server room for better cooling

An air conditioning unit should be installed in the server room to ensure that computer hardware is running at an optimal temperate so that the servers do not overheat causing them to slow down, shut down or, in severe cases, a total crash causing loss of data.

Wall-mounted air conditioners can direct the cold air directly at the servers so they are kept as cool as possible.

There are also specific wall-mounted air conditioning models that are purpose-built to deal with the intense, constant cooling that a server room requires.

- Benefits:
  - Cooling is done to avoid over-heating of components.
  - In small to mid-sized rooms, portable spot coolers can provide the needed boost to cool air directly coming from the racks.
  - The server cooler maintains the temperature, air distribution and humidity in the network room
  - A UPS helps in managing the uptime and cooling during sudden power failures or voltage drops by providing instant power supply
- Goals:
  - **Air conditioning units** can be used to have adequate airflow and cooling
  - There should be an UPS/alternate cooling system when the power goes off
  - A temperature monitor should be present to alert if there are any serious spikes.

Uninterruptable Power Supply (UPS)

- Cost:
  - UPS costs between $XXX and $XXX
  - Portable air coolers cost around $XXX

Consider Cheaper Alternatives for Financial and Fundraising Software

We recommend investigating alternative options to FinancialEdge and Raiser'sEdge, as it may result in significant cost savings for the nonprofit. BlackBaud products are costly, and the observed support given (and recommended) by the BlackBaud rep for a potential migration to their NXT cloud solution seems both

overpriced and not in line with the nonprofit's needs. BlackBaud products themselves tend to be aimed towards much larger organizations with a pricing structure to match— for an organization as small as the nonprofit, the gargantuan machine that is BlackBaud may be overkill. BlackBaud products are also billed on a per-user basis, which is not ideal. Most of these suggestions that follow are cloud-based, have a web-based option or are partially in the cloud without necessarily incurring additional charges *just* for that service or for data migration. Potentially, a full, comprehensive evaluation and product analysis could be a future Common Impact project.

- Benefits:
    - Software with equivalent or similar functionality but a lower price tag
    - Products recommended for exploration all are cloud-based, so being constrained to the Concord location to use them would not be an issue
- Potential Drawbacks:
    - While most of these suggested applications allow import of data in common formats from other software, field naming conventions may not perfectly align; initial data import for migration would require some small amount of work to remap the fields
    - As with any new software application, there would be a learning period
- Goals:
    - Maintain finances, donor records, fundraising activity and comprehensive, customized reports at current level or better with similar or lower cost
- Notes:
    - Migration processes for each product appear to be very similar, most involving importing a .csv file
    - All products have a comprehensive set of documentation, training videos, guides and community resources, in addition to paid or free customer support to address specific issues – paid support may have no significant difference from free support aside from potentially having a specific support contact assigned to your organization
    - I would not recommend moving the BlackBaud databases off-premises (to cloud hosting) unless the staff are also going to have BlackBaud applications a) on laptops, b) also use the cloud version of the applications and/or c) desire access to this information from outside of the office. While cloud hosting is a good idea for ease-of-access from anywhere (with an internet connection), I've been given to understand that the nonprofit staff using these applications do so only in Site A offices, from specific machines—I do not see an advantage to doing so. In addition, hosting this data elsewhere will incur charges for that service-- as the current state has the database(s) on a local server that is *not* entirely dedicated to the database(s) but also data such as user profile configurations, the maintenance and service costs for said local server would not be reduced by migrating that data to the cloud

Finances

Very brief product comparison chart. Features noted as required by the nonprofit are listed in **purple**

Product	Xero	QuickBooks	FinancialEdge	Aplos
Pricing	$60/mo ($720/yr) Offers a 25% off to nonprofits	$30/mo ($360/yr) (50% off ongoing promotion; regular $60/mo, $720/yr)	$4100 /yr current	~$3500/yr *
Users	Unlimited users under a company account	5 users under a company account	Price listed is for 3 users	The closest fixed plan to estimate is for 6-10
Accounts Payable	yes	yes	yes	yes
Cash/Receipts	yes	yes	yes	may require 'advanced accounting'
Budget Management	yes	yes	yes	yes
Print Checks	yes	yes	yes	yes
Cash Management	yes	yes	yes	
Reports	yes	yes	yes	yes
Grants Management	no	Well-documented custom process	Feature available	no
Bookkeeping	yes	yes	yes	yes
Data Export/Import	yes	yes	yes	yes
Integration		via import	Raisers'Edge	Bloomerang, self
Projects Management	yes	yes	yes	with 'advanced accounting'
Mobile App	yes	yes	no	yes
Cloud?	yes	yes	See section summary	yes
Migration Support	Some docs provided	Some docs provided	See section summary	Some docs provided
Customer Support	Free, available 24/7	Available during listed times. Paid available.	Available during listed times, tickets	Available during listed times; email; chat
User permissions	yes	yes	yes	yes

* Price listed is an estimate based on fixed package plans; adds a ballpark'd increase for 'Advanced Accounting' package

Xero

Xero is a cloud-based and modern-looking accounting product that offers all its core features for a single price to an unlimited number of users under a single subscription.

Key Features/Capabilities:
Xero includes many features not listed in the above chart, but keeps payroll as an add-on, as does QuickBooks. Xero has what looks like a very clean-looking, customizable UI. Documentation and videos are available for more in-depth feature exploration on their website.

Pricing and Usage Considerations:
(Starting November 1) Xero costs $60/mo for all Xero features except Payroll. Migration to Xero from other systems is documented, though there is a preference in the documentation for users migrating from QuickBooks.

QuickBooks

QuickBooks (QB) is a popular option for nonprofits. Pricing is a little complicated and *can* get to be a little expensive if many extra/advanced features are desired. QuickBooks has well-documented methods for how to use it for managing grants/grants spending. Stronger suggestion towards exploring QuickBooks Online as opposed to only a local installation (QuickBooks Desktop) to take full advantage of the cloud capabilities of the product.

Key Features/Capabilities:
Because QuickBooks is so popular, many donor management and fundraising software list it as a system to which it can export in a compatible format in order to 'sync' records for accurate record-keeping and reporting. QuickBooks is also quite customizable, and there are many, many guides on how to configure it to your specific needs. Payment processing and bill management are built-into the app; bank transfers (ACH) are free, while fees for credit card payments by several methods are clearly listed.

Pricing and Usage Considerations:
QuickBooks' pricing is comparable to Xero and sits at about 1/5 of what is paid to BlackBaud annually for accounting software. Migration to QuickBooks can be done by importing records via csv, which may require some formatting changes in order to align with QuickBooks' categorization scheme – this is essentially the same process for any migration. Because QuickBooks is software not geared *specifically* for nonprofits, it does not come out-of-the-box configured for any nonprofit-specific use. It does, however, have plenty of documentation and guides on how to customize QuickBooks to your specific needs.

Notes:
TechSoup offers discounted subscriptions for QuickBooks, though there is a promotion that would start new accounts with a 50% discount for what I'm reading as the first three (3) months directly from Intuit. Xero and QuickBooks have just about all of the same features, given that they are both comprehensive accounting software applications. The widespread use of QuickBooks over the newer Xero allows more options for integration and documentation as for how to use QuickBooks with other products.

Aplos

Aplos is an all-in-one financial and fundraising/donor management application. Aplos used to offer accounting software, donor/fundraising software or a packaged all-in-one solution; they now only offer the all-in-one.

Key Features/Capabilities:
Aplos has a staggering number of features and tools, a number of which are not required by the nonprofit, such as a set of features focused on payroll. The 'core' features for Aplos include budget management, a fundraising platform with reporting capabilities, a donor database and CRM, online donation integration, donation receipts and statements, mail-merge email and letter builders, event management and other varied tools. The 'Advanced Accounting' package offers a more robust set of tools and more complex reporting capabilities.

Pricing and Usage Considerations:
Aplos may have too many features that won't be in use by the nonprofit, and a custom quote will need to be sought due to their specific needs. Some features look like they are only included in the 'Advanced Accounting' add-on package, and the largest pre-packaged plan only covers up to 5000 records/contacts. As the nonprofit has more than 5000, they will need to request a quote for a more custom solution. The figure included in each comparison chart for Aplos is an estimate only, based on their listed pricing plans, and it may not be fully accurate.

Fundraising/Donor Management

Very brief product comparison chart. Features noted as required by the organization are listed in **purple**

Product	Little Green Light	Bloomerang	Raiser'sEdge	Aplos
Pricing	$637/yr for 5001-10000 records	$299/mo ($3588/yr) for 5001-15000 records	$2760/yr current	~$3500/yr *
Users	Unlimited users under a company account	Unlimited users under a company account	Price listed is for 2 users	Closest fixed plan to this estimate has 6-10
Donor Management	yes	yes	yes	yes
Track donations	yes	yes	yes	yes
Advanced reporting	yes	yes	yes	yes
Appeals/Events	yes	yes	yes	yes
Letters	yes	yes	yes	yes
Reports	yes	yes	yes	yes
Form Emails	yes	yes	yes	yes
Grants Management	Some capability incl.	Some capability incl.	no	no
Data Export/Import	yes	yes	yes	yes

Integration	QuickBooks, payment processing services	QuickBooks, Aplos, payment processing	FinancialEdge	Bloomerang, self
Mobile App	no	yes	no	yes
Cloud?	yes	yes	See summary	yes
Migration Support	Step-by-step docs provided	Can be done via csv upload	See section summary	Some documentation available in support
Customer Support	Free and paid** support available	Phone, email, tickets support	Available during listed times, tickets	Available during listed times; email; chat
User Permissions	yes	yes	yes	yes

* Price listed is an estimate based on noted fixed package plans; adds a ballpark'd increase for 'Advanced Accounting' package; ** 'Paid' here indicates the 'Consultant Network', with available services that may include extra migration assistance

Bloomerang

Bloomerang is a very popular donor and fundraising management software for nonprofits that has a strong emphasis on visual reports (charts, graphs) for fundraising and donor analysis/reporting. Integrates with Aplos and QuickBooks for records and reporting.

Key Features/Capabilities:
Given many reviews of this product, it's obvious that the customer support team is very engaged and that Bloomerang has a very comprehensive set of features – a list long enough that putting it here would seem as if we were attempting to simply fill a lot of space. Integrates with Stripe to accept credit card donations.

Pricing and Usage Considerations:
While this is not the cheapest option, it does provide support for synchronizing/transferring its data to multiple accounting applications, and its popularity means that there is plenty of documentation available both on Bloomerang's own website and elsewhere on the web.

Little Green Light

Little Green Light (LGL) seems to be the cheapest option out there for fundraising that also looks to have a reasonable number of features and support. Pricing is tiered by number of records rather than users. LGL integrates with QuickBooks as well as a number of other applications. A Little Green Light subscription allows unlimited users for an organization account.

Key Features/Capabilities:
LGL boasts a lot of customizability, and it has some detailed documentation, as well as videos and guides for performing a variety of actions. the LGL team is still adding new features and improving existing ones – a quick look at some of their latest release notes shows that they are dedicated to improving their application as much as possible and enthusiastically accept feedback as input to their development.

Pricing and Usage Considerations:
This is one of the cheapest of the donor management and fundraising options out there. It may not fully integrate with every possible application, but LGL has at least one integration with apps for email, address checking and payment processing, as well as import/export capabilities and a network of consultants who are available for issues or even custom solutions that may be beyond the current scope of LGL staff. There have been mixed reviews of the product regarding specific features, but it seems likely, given the LGL team's consistent updates, that the issues mentioned in reviews may have been addressed by the LGL development team.

Establish a Technology Lifecycle policy for equipment

Develop a plan on equipment replacement policy that replaces and upgrades older computer technology. The industry standard for equipment replacement is between 3-5 years for computer. There are two ways to plan a replacement cycle:

Full Building Replacement (all in one go)

This plan would have the entire computer catalog be replaced in the same year.

Pros:

- Only replace computers once every few years
- All computers are replaced at the same time

Cons:

- High bill for replacing all the computers at once
- Entire staff will be without a computer for a few hours

Cycle Replacement (staggered replacements)

This plan would have an established time to replace all computers by a certain amount of years. A set portion of computers are replaced each year until all the computers are replaced by the established year. i.e. a 4-year cycle plan = ¼ computers replaced every year.

Pros:

- Cost for replacement is stretched across a span of time
- Budget may more easily accommodate costs, so there is some more flexibility with replacement

Cons:

- Maintenance costs can potentially be higher than a single full replacement due to differing hardware

Security/Phishing Email

Goal: to increase awareness and reduce risk of stolen data and establish procedures for dealing with phishing and other similar security risks

1. Develop a training exercise to help employees identify phishing emails and what to do once an email has been identified. This exercise can be done once or twice a year so that employees are reminded of how to identify and appropriately report a scam.
2. Send periodical emails that emulate a phishing email to employees so that they are aware and on alert. By sending emails that emulate phishing, the nonprofit can track the percentage of employees who are successfully reporting phishing email and can adjust the exercise to increase awareness.
    a. Useful Links:
        i. https://cofense.com/anti-phishing-best-practices/
        ii. https://www.shoregroup.com/blog/8-best-practices-to-avoid-email-phishing-scams
        iii. http://www.phishing.org/10-ways-to-avoid-phishing-scams