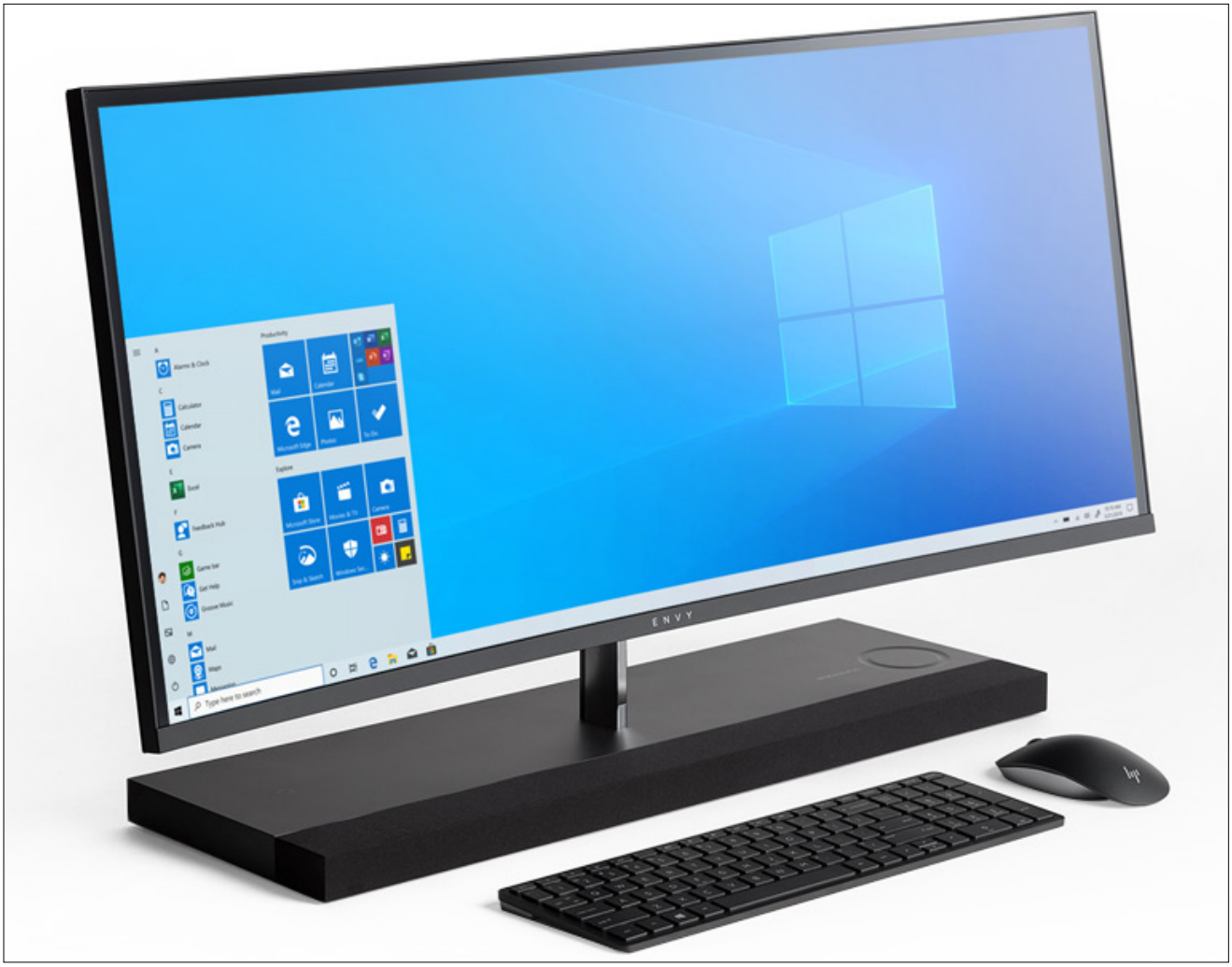

Computer Upgrade Proposal

Prepared for: Cornell Media Guild Inc.

Prepared by: Michelle (Chelle) Davies, Chief Operator

Contributions: Trevor Bacchi, Sales Manager (Budget + Partnering with The Computer Center), Teddy Reiss (Specifications and Project Outline), Clara Enders, Treasurer (Budget)

Date: July 9, 2020

Subject: Pursuing a station-wide technological upgrade plan.

EXECUTIVE SUMMARY

Objective

This purpose of the proposed project is to make a necessary upgrade to our major station equipment in order to improve the station's productivity and performance. After being observed by members of external committees and assessed by members of the Technical Operations committee, we have concluded that **6** updates are "in need of repair effective immediately."[1]

Goals

The goal is to phase out the old CMG Computers and transition in the incoming ones in phases within the next 12 months with minimal software / network configuration changes by first looking to local sellers for updated technological equipment that supports Windows 10 and has RAM of 16GB or more, and then either storing reselling, recycling or donating the older computers.

A list of ideal and necessary specifications and features for our incoming computers to ensure longevity include:

- A *minimum* Random Access Memory capacity ("RAM", sometimes denoted as DDR) of 16 GB. It does not have to come with 16 GB of RAM as long as there are free RAM slots to add additional Memory later on.
- 512GB+ Hard Drive
- 6M-12M Cache
- Supports Windows 10 Pro*, 64-bit Operating System
- Must include a CD port or connect to our CD player ("DVD-RW Drive")
- Two Network Interface Cards (NICs)

Solution

As mentioned previously, the plan for implementation is to transition in phases so that we can budget the transition out and make sure each computer is replaced properly. Given the restrictions of available hands on deck, pending social distancing guidelines with the reopening of WVBR 93.5FM and all of the steps involved in upgrading the software, as well as limiting the amount of time that we have to close access to high-traffic areas like Air 1, it is best to replace the computers and therefore buy them in phases. As such, this is the proposed timeline for acquiring the new computers to replace to the current ones:

Immediate Replacements (Late July - October)[2]

[1] Refer to this spreadsheet of computers in our network, color coded by situation, with red indicating that immediate repair is needed. Prepared by Chelle Davies (2022) and Teddy Reiss (2019).

[2] The "Window of Installment" indicates how long the area of the station that the computer is in will be closed to station staff and CMG.

Computer Name	Window for Purchase	Window of Installment
Air 1 RadioDJ	July	July
CR.com RadioDJ	July	July
Traffic Computer	August	August
Additional Rack Server & New Server Computer for Virtual Machine Hosting	October	October
Door Access Machine	August	August

Project Outline

In July, Air 1 and Air 2 will have their computers replaced, and their respective stream encoders will be transitioned into Virtual Machines as we increase our hosting capacity. Then, the old Air 1 will become the Tower Computer (provided we get a USB Wi-Fi adapter for about $20) so Christopher can get his returned to him, the old Air 2 will replace our presentation setup in the upstairs space or in Studio A, and when the stream encoders become completely virtual, we will repurpose those.

In August, we will replace the Traffic and Door Access Computers and then repurpose the outgoing ones.

In October, we will increase our capacity to host Virtual Machines by upgrading our servers and server computer so that computers with essential programs running like Music Master can be virtualized and hosted in-house.

Within each of the three previously mentioned tiers of upgrading the computers, there are a number of different stages / considerations that must be kept in mind:

- **Old Computers -** One of them can be repurposed for the Tower Computer, amongst other things.
- **Virtual Machine Hosting** - It is better for us to house hosting any and all VMs that we use internally. If we do host offsite and something goes wrong where we need to fix it, we won't be able to fix it immediately and we will instead have to rely on the host's schedule, which will lead to additional lag in repairs, more external liability, and in the long run, adding VMs if needed would be more expensive then expanding our own capabilities. Additionally, we could make revenue from hosting VMs for other local companies should we have enough virtual resources after we set up our own instead of paying a yearly rate for someone else to host ours.
- **Choosing What to Upgrade - What We Virtualize** -
  - *Air 1 RadioDJ, CR.com RadioDJ, Tower Computer, and Traffic Computer* are all essential for immediate upgrade and necessary to have in physical form. Door Access is necessary to upgrade the memory for and change the OS to Windows 10. Other computers that are necessary for upgrade can be virtualized via the purchase of an additional rack server which we can use to expand our virtual machine

capabilities. Among these are Music Master (Accessed by VPN on local office computer and remotely), the WVBR Stream Encoder (Accessed by VPN on Air 1 and remotely) and the CR Stream Encoder (Accessed by VPN on Air 2 and remotely).

- Machines that host essential services (such as Door Access) should NOT be made into a Virtual Machine because if the Virtual Machine is down, Door Access will also be down so we would be locked out the station which would disrupt cleaning, programming, engineering repairs and all other essential activities that require being in-person. Additionally, since this needs to be on 24/7, this computer has to have enough RAM.

- **Budget -** On the next page, there is an itemized budget for these upgrades.
- **Provider -** The Computing Center, who acquired the company we got our computers through, could be the provider and they would provide warranty, some set-ups and repairs, although we will save more money by doing the install.
- **Quality -** While we want this to be affordable, computers are priced by their worth and functionality, so if a full fledged desktop like the type that we at CMG need is being offered for less than $800 by a seller, there is a reason. It might be use, it might be quality, it might be the condition, it might be that it's as old as the computers we are trying to replace, but we need one that we don't have to replace again in a year,. The previous ones that were first released 8 years ago and were installed in the station 6 years ago. That will not be the cheapest option, but investing wisely will pay off long-term.
- **The impact of COVID-19 on the installment procedure -** Due to anticipated COVID-19 measures that the station may take as well as ongoing operations, the installation process will require cutting off access to certain parts of the station at certain times, which may impact work for many.
- **Potential for software/system changes -** We will need to use Windows 10 Pro rather than the current Windows 7 setup, which may result in some setup issues with the current applications we use. I will try to minimize this and provide an announcement to members whose work may be affected.
- **Disruption to remote work -** Some computers will be offline from remote access while this overhaul happens. When possible, I will have a temporary computer in the network to take over those tasks until the update is done.

Summary

It is imperative that this initiative occurs in phases, beginning with our most demanding computers and working out from there, for both practical and financial reasons.

BUDGET

These prices come from The Computer Center in Ithaca, who acquired Sherpa. In addition to the devices, in order to ensure memory longevity we need to purchase memory upgrades. We should not get these from Sherpa, it's cheaper for us to buy the parts and I'll install it with Teddy's remote help. These prices factor in discounts. We will need to buy a VGA adapter off Amazon as well to reuse our Monitors.

According to Larry, Clara and Trevor, it's feasible to fund this with our current resources, whether that be through the Endowment, Grants, Revenue or a combination of any of these.

THIS MONTH - FOR APPROVAL THIS MONTH

Breakdown of Expenditures - Est. Cost for Payment - July Expense (WVBR Air 1, CR Air 2)

Description	Quantity	Unit Price	Total Cost
Dell Optiplex 5070 SFF s017o5070sffus, 16GB, 1TB	2	$949	$1,898
(DEBATABLE) Installing Computers Fee	2	$360	$720
DisplayPort to VGA Adapter	2	$16	$32
Extra Network Interface Card (Crucial)	2	$40	$80
Total (We install the ProDesks)			**$2,010**
Total (TCC Installs it)			**$2,872**

If you are not interested in reading the financial plan beyond this month (July), skip the tables.

OTHER MONTHS - FOR EARLY FINANCIAL PLANNING ONLY, FOR LATER APPROVAL

Just to reiterate, the August and October Budgets are meant to give a picture of the estimate cost vs timeline relationship. The expense months indicate the month to be purchased. If you would like to take the finances one step at a time, you can hold off on looking at these as those budgets do ***not*** *need to be approved this month*

Breakdown of Expenditures - Est. Cost for Payment - August Expense (Traffic, Door Access Machine)

Description	Quantity	Unit Price	Total Cost
HP Business Desktop ProDesk 600 G5 Desktop Computer	2	$949	$1,898
(DEBATABLE) Installing Computers Fee	2	$360	$720
Memory Upgrade - 16GB (Crucial)	2	$40	$80
DisplayPort to VGA Adapter	2	$20	$40
Total (We install the ProDesks)			**$2,018**
Total (TCC Installs it)			**$2,800**

Breakdown of Expenditures - Est. Cost for Payment - October Expense (Rack Server/Server Computer)

Description	Quantity	Unit Price	Total Cost
TBA, 32-64GB RAM 2-4TB SATA	1	$1,985	$1,985
Dell Optiplex 5070 SFF s017o5070sffus, 16GB, 1TB	1	$949	$949
Memory Upgrade - 16GB (Crucial)	3	$40	$120
DisplayPort to VGA Adapter	1	$20	$20
Total (We install the ProDesks)			**$3,074**
Total (TCC Installs it)			**$3,816**

Grand Total for Initiative (We Install It)	**$7,102**
Grand Total for Initiative (TCC Installs It)	**$8,746**

Here are descriptions of the proposed models:

Dell Optiplex 5070 SFF s017o5070sffus - $949.00 per unit

- The system is powered by a 9th Gen 3.0 GHz Intel Core i7-9700 Eight-Core processor with integrated Intel UHD Graphics 630. It also has 16GB of 2666 GHz DDR4 RAM, a 1TB 7200 rpm SATA 3.5" hard drive, Gigabit Ethernet, DisplayPort 1.2, USB 3.1 Gen 2 Type-C, USb 3.1 Gen 1 Type-A, and USB 2.0 Type-A.

HP Business Desktop ProDesk 600 G5 Desktop Computer - $949.00 per unit

- Intel Core i7 9th Gen i7-9700 3 GHz
- 8 GB RAM DDR4 SDRAM

- 1 TB HDD SATA
- Micro Tower
- Windows 10 Pro 64-bit
- Intel UHD Graphics 630 DDR4 SDRAM
- DVD-Writer
- English Keyboard & Mouse
- Gigabit Ethernet
- 3 year onsite warranty

HPE ProLiant ML350 Gen10 4208 1P 16GB-R E208i-a 4LFF 1x500W RPS Server - **$1,926.99 per unit**

- **Processor Name** Intel® Xeon® Scalable 4208 (8 core, 2.1 GHz, 11.00 MB, 85W)
  - Processor Core Available - 8 core
  - Processor Cache Installed - 11 MB L3
  - Processor Number - 1 processor
  - Processor Speed - 2.1 GHz
- **Memory Type** HPE DDR4 SmartMemory
- **Standard Memory** 16 GB (1x 16 GB) RDIMM
- **Hard Drive Number (included)** None ship standard, 4 LFF drives supported, Optical Drive Type - Optional
- **Security -** UEFI Secure Boot and Secure Start support Immutable Silicon Root of Trust FIPS 140-2 validation (iLO 5 certification in progress) Common Criteria certification (iLO 5 certification in progress) Configurable for PCI DSS compliance Advanced Encryption Standard (AES) and Triple Data Encryption Standard (3DES) on browser Support for Commercial National Security Algorithms (CNSA) Tamper-free updates – components digitally signed and verified Secure Recovery – recover critical firmware to known good state on detection of compromised firmware Ability to rollback firmware Secure erase of NAND/User data TPM (Trusted Platform Module) 1.2 option TPM (Trusted Platform Module) 2.0 option Front bezel key-lock feature – standard, available in both Tower and Rack models Padlock slot, standard Kensington Lock slot, standard
- **Remote Management Software**
  - HPE iLO Standard with Intelligent Provisioning (embedded), HPE OneView Standard (requires download) (standard), HPE iLO Advanced, and OneView Advanced (optional)
- **Power Supply Type** 1 HPE 500W Flex Slot power supply
- **Expansion Slots** 4-slots (x16, x8, x16, x8) as standard For detail reference QuickSpecs.
- **Network Controller** HPE Ethernet 1Gb 4-port 369i Adapter
- **Storage Controller** 1 HPE Smart Array E208i-a Gen10 Controller
- **System Fan Features** 2 standard fans Optional redundant fan cage kit (874572-B21, additional 4 fans) Form Factor - 4U Tower

15 Thornwood Drive Ithaca, NY 14850
NY State Certified Woman Owned Business

July 10, 2020

Michelle Davies
WVBR

SUBJECT: PROPOSAL FOR NEW WORKSTATIONS

So, if you need the 2 units in by July 18th, then I would take a look at these units . currently in stock in our PA warehouse, it is a micro tower.

HP Business Desktop ProDesk 600 G5 Desktop Computer
- Intel Core i7 9th Gen i7-9700 3 GHz
- 8 GB RAM DDR4 SDRAM
- 1 TB HDD SATA
- Micro Tower
- Windows 10 Pro 64-bit
- Intel UHD Graphics 630 DDR4 SDRAM
- DVD-Writer
- English Keyboard & Mouse
- gigabit Ethernet
- 3 year onsite warranty **$949.00 per unit**

HP EliteDesk 800 G4 Desktop Computer
- Intel Core i7 8th Gen i7-8700 3.20 GHz
- 16 GB RAM DDR4 SDRAM
- 512 GB SSD
- Micro Tower
- Windows 10 Pro 64-bit
- Intel UHD Graphics 630
- Keyboard & Mouse

- Gigabit Ethernet
- 3 year onsite warranty **$1270.00 per unit**

HP PRODESK 400 SMALL FORM FACTOR DESKTOP WITH MONITOR

- Intel Core i7-9700 Processor
- 8GB Ram
- 256GB Solid State Hard Drive
- Integrated Intel Graphics
- DVD
- HP 23.8” Monitor
- HP Keyboard & Mouse
- Microsoft Windows 10 Pro 64bit
- 3 Year On-Site Warranty **$ 805.64 Per Unit**
- PC PRICE WITHOUT MONITOR $707.51 PER UNIT

HP PRODESK 400 SMALL FORM FACTOR DESKTOP WITH MONITOR

- Intel Core i7-9700 Processor
- 8GB Ram
- 512gb Solid State Hard Drive
- Integrated Intel Graphics
- DVD
- HP 23.8” Monitor
- HP Keyboard & Mouse
- Microsoft Windows 10 Pro 64bit
- 3 Year On-Site Warranty **$ 903.79 Per Unit**
- PC PRICE WITHOUT MONITOR $805.66 PER UNIT

HP PRODESK 400 SMALL FORM FACTOR DESKTOP WITH MONITOR

- Intel Core i7-9700 Processor
- 16GB Ram
- 512GB Solid State Hard Drive
- Integrated Intel Graphics
- DVD
- HP 23.8” Monitor
- HP Keyboard & Mouse
- Microsoft Windows 10 Pro 64bit
- 3 Year On-Site Warranty **$1045.64 Per Unit**

- PC PRICE WITHOUT MONITOR $947.51 PER UNIT

MEMORY UPGRADE FROM 8GB TO 16GB	$ 141.85
512GB DRIVE UPGRADE	$ 201.00

THE ABOVE PRICING IS NY STATE AGGREGATE CONTRACT PRICING AND WILL BE BILLED DIRECLTY BY HP INC. TO THE CLIENT. ORDERS SHOULD BE SENT TO THE COMPUTING CENTER TO BE PLACED FOR EASY TRACKING AND ANY PROBLEM RESOLUTON.

IF EXISTING MONITORS ARE TO BE USED, VGA TO DISPLAY PORT ADAPTERS MAY BE REQUIRED
INSTALLATION IS ESTIMATED AT 3-4 HOURS PER MACHINE BILLED AT $90.00 PER HOUR.

Mary Stazi
CEO