

City of Findlay, Ohio

Computer Services Department

Annual Report 2019

COMPUTER SERVICES DEPARTMENT RESPONSIBILITIES:

The Computer Services department is responsible for maintaining all hardware, software, and network access for the various City departments. Hardware support includes the evaluation, purchase, installation, preventive maintenance, repair, and the inventory of supplies for the computer equipment throughout all City departments. Some of the hardware supported includes a high availability virtual failover cluster running 60+ virtual servers, including an on-premise Exchange server, CAD servers, and GIS server; firewalls, L3 switches, and every desktop/laptop computer and printer in the City. For software, we both assist all departments when researching new software, as well as work alongside them on the final implementation, testing and training of the new software installed on the City's network of servers. Our staff then provides ongoing first line support to the City's departmental personnel for all software operating on the City's network. We are responsible for administering the 3rd party packaged software applications on the network, performing periodic system software updates, and also backing up all data on a daily basis. Several city applications and reports are custom written and maintained by Computer Services staff as well. We also provide basic operational support for various versions of Microsoft Office products such as word processing, spreadsheets, and calendar sharing.

COMPUTER SERVICES DEPARTMENT STAFFING:

Staffing for the office consists of:

- Computer Services Manager (6 years' service time)
- Computer Programmer (3 years' service time)
- Full Time Help Desk Technician (5 years' service time)

COMPUTER SERVICES DEPARTMENT APPLICATIONS & EQUIPMENT:

All of the various software modules used city wide are accessed by hardware located in 28 city department locations, as well as several County agency locations, including: Hancock County Sherriff's office, Adult Probation, Hancock Regional Planning, and Hancock County Prosecutor's Office.

There were significant upgrades to the City's virtual infrastructure throughout the year, both physical, and logical, and as always, major security patches. The Microsoft Windows servers are the central storage areas for departmental files. The City maintains an enterprise grade MS Exchange 2016 server to provide email service to all City employees. Email, as well as calendars, tasks, contacts, etc. can be accessed via MS Outlook at the individual users' desktops, and also available via OWA (Outlook Web

Access), on any internet connected device including Android, and Apple smartphones. The City's network is protected by a dual layer defense which includes a DMZ between two layer 5 firewalls. The City of Findlay's web site (www.findlayohio.com), delivers the City's departmental information via web pages to the World Wide Web. The site is hosted by a 3rd party vendor, and is located outside the City internal network. The Geographic Information System (GIS) was replaced this year, with a new system through Esri. The former GIS services continue to be hosted as well during a "parallel" period, however this server should be phased out during the 2020 year. These servers store and makes available the various Engineering mapping layers to city offices. The Building Security server controls the locking and unlocking of doors in the Municipal Building. An upgraded security camera system was installed, and brought online in 2019. This system consists of 65+ cameras inside, and outside the Municipal building, and will be maintained by the Computer Services office going forward. The Tyler New World servers controls the interfacing tools used for patrol car computer access to Ohio LEADS, and the Computer Aided Dispatching system via cellular cards on each system, among other things. All additional servers make up the hardware necessary for the various departmental software applications which primarily run in a Microsoft Windows Server environment. We are expanding various flavors of Linux throughout the cluster as well, including come CentOS, and Ubuntu machines. Some, but not all of the departmental software applications include: CMI - Utility Billing, eMIT - City Income Tax, Tyler New World Suite – Police, and Innovare's CourtMaster 2000 for Municipal Court. The network supports resource sharing, and provides seventeen remote offices with a direct fiber optic connection to the central network servers. The network also provides Internet access to the entire City network through dual fiber connections managed by Buckeye and Spectrum.

COMPUTER SERVICES DEPARTMENT ACTIVITIES FOR 2018:

Our Hyper V failover cluster has been performing without issue, and as expected since its implementation. RAM was once again increased on each Host in 2019 to keep up with the growing demand of VM's being hosted. The fiber loop has maintained 100% up time throughout 2019. A new vendor (TSC) was brought on to perform underground locates, as well as repairs, and emergency services to the physical infrastructure. Each City building currently has a minimum 10Gb connection back to the municipal building, which is well beyond current usage. The primary backup repository is maintained at our DR. site, with nearly 100TB of storage. This system allows us to keep backups going back further in time, and implement a GFS solution for long term archived backups. There is also sufficient space to allow for the City's servers count to continue expanding. The VoIP phone system has been very solid throughout its first full year of utilization. Every City office is now connected to a central phone system via the City fiber network. We brought in an additional SIP trunk provider in 2019, to two different physical locations. This vendor will be converted to our Primary SIP trunk provider, and the City will maintain a secondary provider as well, in the event of an ISP outage. We continue to maintain 3 analog phone lines through AT&T as "emergency backup lines" for use by Police dispatch in the event of a catastrophic failure of either equipment, or dual ISP's.

Necessary updates and fixes were installed on all of our third party software applications running on the network servers, network PCs and Police Department Laptops in the cruisers. The Computer Services staff attempts to minimize the downtime caused by these installations by performing them either after hours or during low volume processing times for the various affected personnel. The various software upgrades performed throughout the year included Exchange 2016 updates, CMI Authority updates,

Emergitech updates, CourtMaster updates, Pitney Bowes updates, as well as general Windows Server updates.

Additional steps have been taken throughout the year to increase the overall security of the City's network. Some of these steps include upgrades to physical equipment, and a multiple layer approach to security. We moved to a new Antivirus solution in 2019, that provides standard means of detection, as well as behavioral based methods. The City has had no major virus incidents, and takes the utmost level of caution where any potential virus or intrusion attempt is observed. We maintained, or improved all other security implementations in place. We have implemented many other security measures, including the training end users to spot and stop phishing emails.

During 2019 Computer Services performed some "pen testing" on public facing connections. No weaknesses were discovered during these tests; however, it is something that continues to be scrutinized, and monitored.

Work on the in-house NEAT/Zoning program continued to evolve. Many additional features, as well as capabilities have been added by the City's programmer. This work allows NEAT/Zoning employees to operate more efficiently in taking on the various aspects of their job. Our programmer has been working closely with this department to make sure all needs are sufficiently met.

A new Electronic Warrant program was requested by the Municipal courts in 2019, and a solution was built out by our in-house programmer. The solution allows judges to review, approve, and sign warrants electronically, from any internet connected device. Two factor authentication is utilized for any activity on this system, outside of the City's internal network. This is done without requiring the use of a VPN tunnel, so as to lessen the impact on these time sensitive matters.

All computer systems have been fully upgraded to windows 10 in 2019. Along with the new OS, additional security components were enabled, including UAC, LAPS, Firewalls, and others.

We completed the Tyler New World deployment, which is a joint City/County CAD system utilized by the City PD, FD, and Engineering, as well as County Sheriff, and Jail staff. This involved spinning up 16 new virtual servers, and configuring them for the New World software. Computer Services worked closely with Tyler to implement this new system, and keep things as stable, and fast as possible. We also worked jointly with County IT staff in order to allow network communication via fiber for County Sheriff office to connect into this system. In addition, a method was setup to allow County IT personnel to create, and remove County employee accounts from our AD infrastructure. In the future, we may explore the possibility of setting up a trust between our domains to allow county users to use County AD accounts to login to City resources.

A majority of our virtual infrastructure, resides on Solid State storage. Approximately 15TB of solid-state drives are in use on City SAN devices. All hosts were upgraded to multi-port 10Gb ethernet for SAN traffic, which helped eliminate another bottleneck in our virtual environment. There are plans to implement a new storage solution in 2019, both traditional SAN, and a hyperconverged infrastructure are being reviewed.

A new security camera system has been fully deployed to the Municipal building, with plans on expanding to outlying buildings in the future. This process included running new home run ethernet cables to each camera location, as well as camera installation. A new physical server was added to host this system, as well as maintain all footage. This system allows significant space for expansion, and an offsite system will be put into place, in order to duplicate this data. The camera system will utilize the City owned fiber loop to propagate this service to all of our remote offices in the future. This will eliminate the need for multiple servers at each location, and will streamline Dispatch, and Police department access to all cameras.

The old camera system is still in place, with plans to disassemble and remove in 2020. This will be a fairly time-consuming endeavor, as cameras are bolted to walls, and hardwired back to a central location on the 2nd floor.

Computer Services also implemented a new desktop replacement strategy in 2019. All computers were purchased in a single batch, directly from Dell, which allowed for significant cost savings. We were able to procure better spec'd systems, at a lower than normal cost. With the upgraded systems, we plan to keep computers for an additional year before replacement. This would allow for even greater cost savings for the City. Deployments were also more streamlined, as we were able to focus department efforts on a single task for a period of time. Overall this strategy was successful, and we plan to continue this upgrade plan for the foreseeable future.

COMPUTER SERVICES DEPARTMENT USAGE 2019:

We calculate how much money should be charged back against a department based on the percent their department used of the total services and resources made available by the Computer Services department. The total of the Computer Services projected budget is multiplied by that percent, providing the amount to be charged in that particular department's budget. The items considered in services and resources are: equipment, number of users, application use, internet access, phones, printers, cloud faxing, programming, and project time that will be spent on anticipated projects in a particular department for the coming year. You can find a departmental break down listed in Table A-1.

COMPUTER SERVICES DEPARTMENT OBJECTIVES FOR 2020:

We hope to have all possible systems virtualized in 2020. We will maintain physical servers where necessary, including a domain controller, Camera system, and a couple others. We also plan to continue advances in the security of our network.

The new VoIP phone system will continue to be fully administered by Computer Services staff, with support from the PBX vendor.

Plans for DR site implementation in 2019 were not realized due to larger than normal workloads, and other major projects. We do however have funding in place for the implementation of a fully functional DR site within the City. We will again try to implement this in 2020, as well as an update the DR plan for all City departments. This will ensure we can operate, even when the main building is compromised, as well as keep data safe in the event of a major catastrophe.

As part of this project, the second direction of the Fiber loop should be brought online, through additional network equipment in our DR site. This will allow signal to propagate to each site via 2 different geographic routes, which will ensure connectivity, even in the event of fiber damage.

As part of DR planning, a supplementary wireless connection will be built out to each site. This will be done at minimal expense, but will provide emergency connectivity in the event of a catastrophic failure of the fiber loop.

Further redundancy to the VoIP phone system will be added in 2020. This will include a “passive” phone server, that will be able to pick up operations within milliseconds of a failure to the primary system. We will also fully utilize secondary SIP trunks, as well as multiple physical locations of ingress for these lines.

The part time position will be converted to full time in 2020, which will give us a staff of 4 full time employees. This is necessary to cover our increasing workload, while maintaining the highest level of security possible.

A new storage solution will be implemented in 2020. We are currently investigating solutions for either a new SAN device, or looking into the possibility of a Hyperconverged infrastructure. All options will be fully vetted, and tested before implementation. This work should all be completed with no downtime to the virtual infrastructure.

Network security will continue to be an important initiative. We will work to close any potential security holes, and increase network security via hardware, and configuration changes.

Computer Services personnel will continue to pursue training in areas that can be of greatest benefit to the management of the city’s network. We plan to purchase online training accounts for all Computer Services personnel that can be used to gain knowledge of products and systems used by the City, and hopefully obtain certifications in various fields.

The Computer Services Department will continue to support all of the existing applications running on the city’s network, both 3rd party and custom written. Maintenance programming and user help support for the various application systems will consume much of our time. We will make ourselves available to discuss and analyze the technical needs of the various city departments. We will strive to become more efficient and cost effective through the use of technology advancements within the city’s network environment.

Table A-1

DEPARTMENT	Computers	Phones	Cloud Fax	Servers	Printers	Users	Apps	Internet	Proj Hrs	Prog. Units	Usage %	Budget Amt
Airport	4	4	0	18	1	5	7	5	24.00	5.0	2.60%	\$12,977.35
Auditor	9	7	0	18	3	6	9	17	35.00	5.0	3.20%	\$16,481.25
City Council	0	1	0	14	0	0	6	0	24.00	0.0	1.75%	\$8,376.88
Civil Service	1	1	0	17	1	1	6	1	24.00	5.0	2.27%	\$10,917.34
Comp Serv *	7	5	0	8	1	3	7	28	400.00	5.0	4.19%	\$0.00
Dispatch	10	25	0	41	3	11	9	10	124.00	0.0	5.79%	\$30,844.13
Engineering	15	11	0	21	6	9	10	10	54.00	0.0	3.56%	\$19,036.88
Fire	24	39	0	36	8	61	13	19	124.00	10.0	6.65%	\$37,414.29
HRPC	6	8	0	18	2	8	9	6	28.00	0.0	2.65%	\$13,822.41
Income Tax	11	9	1	19	7	7	7	9	54.00	10.0	3.43%	\$18,262.15
Law Director	3	2	0	18	6	6	9	4	39.00	0.0	2.69%	\$13,130.06
Mayor	7	8	0	20	3	4	9	4	59.00	0.0	3.01%	\$15,571.14
Muni Court	49	34	2	28	19	29	13	34	334.00	20.0	8.22%	\$46,582.56
NEAT (Removed)	0	0	0	0	0	0	0	0	0.00	0.0	0.00%	\$0.00
Police	74	54	0	46	17	74	18	52	824.00	25.0	14.01%	\$77,176.20
PW - Cemetery	2	3	0	17	2	3	6	2	24.00	0.0	2.23%	\$10,999.67
PW - Recreation/CUBE	8	11	0	18	4	7	10	11	84.00	0.0	3.19%	\$16,842.91
PW - Streets	9	10	0	17	3	9	11	8	24.00	5.0	2.85%	\$15,187.82
PW - Traffic Lights	2	2	0	17	0	3	5	2	24.00	0.0	2.15%	\$10,515.38
HR Director	1	1	0	17	1	1	7	1	24.00	0.0	2.17%	\$10,422.51
Safety Dir	2	1	0	17	1	1	8	1	24.00	0.0	2.22%	\$10,736.22
Service Director	1	1	0	17	1	1	8	1	24.00	0.0	2.20%	\$10,546.21
Treasurer	1	1	0	17	0	1	4	1	24.00	0.0	2.06%	\$9,927.67
Water Billing	15	11	0	23	3	10	11	10	134.00	10.0	4.40%	\$22,997.54
Water Dist.	8	5	0	21	2	13	10	5	24.00	5.0	3.15%	\$15,978.31
Water Treatment	9	23	0	20	5	15	11	7	650.00	5.0	6.52%	\$33,978.21
WORC (Removed)	0	0	0	0	0	0	0	0	0.00	0.0	0.00%	\$0.00
WPC/Sewer Maint	12	15	0	17	5	19	13	10	144.00	0.0	3.64%	\$19,676.18
Zoning	3	3	0	18	3	3	8	3	54.00	30.0	3.40%	\$16,595.72
TOTALS *	293	295	3	558	107	310	244	261	3405.00	140.0	104.19%	\$524,999.00

2020 Computer Services Budget (Less Internet/Phone/Fax)		\$472,219.00
2020 Internet Charge		\$32,820.00
2020 Phone/Fax Charge		\$18,960.00
2020 Cloud Fax		\$1,000.00
TOTAL 2017 Computer Services Budget Request		\$524,999.00

2020 Computer Services Budget Request

* Computer Services Usage is subtracted from totals before % is calculated for departments

Computers = 1 point for each individual system

Internet = Internet usage based on # of computers from total yearly internet charge

Phone = Phone usage based on # of phone from total yearly Phone charge

Servers = 4 point for physical or virtual server

Printers = 1 point for each individual printer

Users = 0.3 points for each user over the total number of computers for a department (this accounts for shared systems)

Apps = 1 point for each application used by the department

Projects Points equals .20 points per man hour for these estimated project hours

* 648 of the total Project Hours are shared equally by the 27 Departments

Programming Units to maintain their custom application = 5 points per application (some are split)

Usage % is calculated as: (Computers+Servers+Printers+((Users-Computers)*.3)+Applications+Proj Points+Programming Units)
 (The totals of columns B C D E G H - Computer Services amounts)

Internet & Phone usage is calculated separately based on the actual yearly cost of each service, and the actual number of users and Phones