



## Council Agenda Item

Meeting Date: July 16, 2024

Agenda Item: 2024 Server Replacement and Optimization

Staff Contact (name, email, phone): Tim Neubeck, [tneubeck@whitewater-wi.gov](mailto:tneubeck@whitewater-wi.gov), 262-473-1391

### BACKGROUND

(Enter the who, what when, where, why)

The City previously replaced their servers in early 2018 with 4 refurbished Dell PowerEdge R710 appliances. Among other things, these appliances host virtual machines (VMs) that function as our file servers, print server, run SCADA, etc. Generally, servers should be replaced every 5-7 years; however, the refurbished devices were manufactured around 2011 and have lived long past their useful life. The City sought out proposals to purchase 4 servers, virtual storage equipment, installation, and upgrades of current operating systems and SQL servers (if possible), and support for a complete turnkey environment with disaster recovery capability (high availability and failover capabilities). The purpose of the hardware is to establish a design of distributed architecture to ensure local survivability as well as core redundancy with complete failover from one internal data center to the other with minimal disruption of service.

The current servers would not replace the current servers exactly; rather, one server would be a replication appliance at the City's backup data center at the Wastewater Treatment Facility, one server for Police needs in order to comply with current and future Criminal Justice Information Services (CJIS) standards, and two servers to replace the rest of the City's VMs. Additionally, there is a software licensing requirement for a virtual storage area network (VSAN). A VSAN combines the storage pool of two servers into a single, redundant, storage pool.

While the hardware/software ask is straightforward, the optimization piece is more complicated. While we would like to upgrade all VMs to Microsoft Server 2022, some VMs will be unable to due to the age of the applications running on them, so they will have to remain on older versions until that application can be deprecated and replaced. An example of this is the City's SCADA system which is to be upgraded this budget cycle. Furthermore, the City's SQL server needs to be upgraded to the latest version and to separate the City's various databases into their own databases rather than mashed into one. Finally, all VMs will need to be properly licensed.

The City received two proposals. One from Digicorp, the City's current managed service provider (MSP), and the other from Core BTS, a nationally recognized digital consultancy group. Within Digicorp's proposal, it had two options – to virtualize the VMs with VMWare or to use Hyper-V. While VMWare is the leading virtualization tool in the country, its parent company recently changed its licensing model into a subscription service which would significantly increase the operating costs of these appliances. As such, staff recommends using Hyper-V, the virtualization tool that is currently in use. In Digicorp's proposal, they recommended separating and condensing the proposed PD virtual machines, hosting them on the proposed city infrastructure. However, the IT staff would prefer to keep those VM's on a separate host in order to accommodate additional loads and requirements that are unanticipated at this time. Furthermore, Core BTS included an additional switch in their proposal to replace the City's current core

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switch. As such, the City asked Digicorp to include the cost of an additional server and core switch to make an “apples to apples” comparison between the two proposals.

Comparing the two proposals, IT staff noted that there was a significant difference in hardware costs between them. Core BTS recommends the use of Cisco branded equipment rather than HPE and to use two NetApp devices for data infrastructure. While these are excellent solutions, they are significantly outside of the City’s budget for this project.

As a note: this project is not one that can be pushed back or delayed as it is a prerequisite for projects slated for 2025 including moving the City to O365 from Office 2019, replacing the City’s voice over internet protocol (VOIP) phone system, and parts of the rollout of multifactor authentication (MFA). Also, notes from the Police Department’s CJIS audit requirements is requiring this upgrade as well due to the age of the equipment, the age of the operating systems, and the needed increased separation of Police data and systems.

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**PREVIOUS ACTIONS – COMMITTEE RECOMMENDATIONS**  
(Dates, committees, action taken)

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N/A

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**FINANCIAL IMPACT**  
(If none, state N/A)

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- Digicorp’s Hyper-V option: \$146,287.00
- Digicorp’s VMWare option: \$160,507.00
- Digicorp’s additional proposal for storage equipment and additional server: \$27,750.00
- Core BTS’s option: \$249,302.92

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**STAFF RECOMMENDATION**

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This project was originally budgeted for \$170,000 when this project was scoped in the summer is 2023. Staff recommends selecting Digicorp’s Hyper-V option along with the additional equipment for a total of \$174,037.00.

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**ATTACHMENT(S) INCLUDED**  
(If none, state N/A)

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1. Digicorp’s proposal dated 6/30/24
  2. Digicorp’s additional equipment proposal dated 7/9/24
  3. Core BTS’s proposal dated 7/1/24
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