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To: Rebecca Grill, City Administrator

From: Jim Jandovitz, ITC Director

RE: Request to purchase a hyperconverged system to replace existing computing servers

Date: June 8, 2015

I am requesting that the city purchase a hyperconverged solution from Scale Computing to replace the majority of the existing individual computer servers used by the city. This hyperconverged solution will replace 18 out of our 22 servers with three new "super servers." These three "super servers," or nodes, will make up one server cluster. In a simplistic term, you can think of this cluster as being a private computing cloud for all city departments. The old 18 physical servers being replaced will be migrated to a new virtual server that will live on one of the three nodes in this server cluster. If one of three nodes fails, all of its virtual servers running on this node will automatically be moved to one of the two existing nodes. This will give the city of a state-of-the-art platform to host its existing servers and provide capacity for the future.

Please be advised that the critical police and fire servers running ProPhoenix Public Safety software will not be migrated at this time. The ProPhoenix Public Safety software may require us to purchase additional nodes in the future due to the size of the existing police and fire databases.

Purchasing had issued a Request for Proposals for a hyperconverged solution. After reviewing the technology of each solution, I am recommending that we purchase this hyperconverged solution from Scale Computing for the cost of $68,468.04, based on costs and ease of use.

We plan to fund this new hyperconverged system using the Information Technology Capital Accumulation Account, which was designated for a new IBM iSeries mainframe computer system and other computer and networking equipment. I would like to request a transfer from the Capital Account to the ITC Department Account #100-1101-517-70-03 to fund this initiative.

The following lists some of the justifications for going with a hyperconverged solution:

1. <u>Update existing server hardware</u> - Many of the city servers are old and need to be replaced within the next few years. The replacement cost for each server is over $5,000; replacing all 18 servers would cost around $90,000.

2. <u>Decrease Power Usage</u> - By consolidating our servers into a hyperconverged solution, we reduce the amount of electricity used. We are currently using 4.1 kilowatts to power our existing servers at a cost of $4,000 to $6,000/year. By eliminating the majority of our servers, we will save an estimated $2,400 to $3,600 yearly in electrical costs.

3. <u>Decrease the amount of UPS batteries</u> – Currently, we have around $6,000 in batteries that need replacement every two years. Eliminating all these servers will eliminate the cost and time to replace these batteries.

4. <u>Reduce Heat</u> – Eliminating 18 servers will significantly reduce the heat generated running our existing servers. This will save additional monies in energy costs associated with cooling. These servers run 24 hours a day, 7 days a week, and generate a lot of heat.

5. <u>High Availability</u> – If a server encounters hardware issues and crashes, it will automatically be moved to another server, and its applications and programs will be up and running in minutes.

6. <u>Scale Ability</u> - The current cluster solution has excessive capacity to hold more virtual servers for the next few years. When additional space and resources are needed, we will just need to add another node to the cluster and the system will reorganize itself to efficiently use the additional resources.

7. <u>Ease of Use</u> – IT will be able to create an additional virtual server in minutes instead of days when needed.

8. <u>Reduce Noise </u>– Over the years, we have increased the number of servers by around 20. This has increased the noise in the server room and has become a health concern for our IT Staff. The server room is the office for the city's Network Specialists as they need to keep an eye on the servers. Safety & Training Coordinator Linda Huske is performing a noise study to see if it's affecting the hearing of IT staff. Reducing the number of servers by 90% will significantly reduce the noise and make the room more usable.

If you have any questions, please feel free to contact me.

Sincerely,

Jim Jandovitz,
Director of Information Technology and Communications