Elle Held

Subject: Updates on Server Optimization - T20250516.0019

Good morning TNG team!

I wanted to provide you an update on what we've done on your server! I was originally tasked with reviewing the existing setup and coming up with ways to optimize with the existing hardware. I discovered a significant issue with the way the server was configured and came up with a plan to implement changes that would make a major difference.

I'll describe the technical aspect as best I can, but if you have any questions, do not hesitate to ask!

Problem: Multiple issues with the Windward Server virtual machine (VM) configuration
- **CPU was under provisioned** – One of the first things I noticed was the Windward VM was only allowed to use one of the processor cores available on the Host server. This means the Windward server was only able to do one operation at a time and had to wait for the next operation.
- **RAM was under provisioned** – The RAM that the VM was allowed to use was less than what it was demanding. The VM was asking for roughly 18GB of RAM from the Host, but only 16GB was provisioned. This can cause things on the server to slow down and lead to Windward slowness.
- **VM virtual disk had a checkpoint over 1 year old** – The VM uses a virtual disk for storage that lives in the Host. This allows for creating "checkpoints" that allow you to revert the state of the VM back to a point frozen in time. This is great for testing, but NOT recommended for long term use in production. Really old checkpoints can cause performance issues because the Host has to do more processing to keep the checkpoint consistent.

Solution (Implemented 5.18.25):
- **CPU was upped to 4 cores** – The Windward VM now has 4 available cores to process operations. Essentially, the Windward server is now 4x faster than before!
- **RAM was upped to 20GB** – That should cover what the server needs and improve efficiency.
- **Checkpoint deleted** – The checkpoint was deleted which triggered a "merge" process of the checkpoint data and the production data. This took about 7-8 hours overnight and should improve efficiency a little.

Problem:
- **Host server and Windward Server were sharing the same storage** – Your server has two different pieces of hardware that handle storage. One of these uses fast solid state drives (SSD) and the other uses slower spinning hard disk drives (HDD), but allow for more space. The SSD storage is optimized for running the Host operating system, but it was sitting inactive. All of the storage, including the Host operating system and the Windward VM were sharing the same storage and competing for data reads and writes.

Solution (Implemented last night!):
- **Clone existing Host OS to the faster storage** – I took a backup of the servers at 7pm to ensure we could restore if anything went awry. I then cloned the existing Host operating system files to the BOSS controller (the fast SSD storage) and reconfigured the settings for the Host to run from the faster storage. Everything went smoothly and is now running much more efficiently

Next steps: The Windward VM is actually performing two roles. The Windward database and Domain Controller (DC, handles all of the logins, user account stuff and local networking) are shared on the same VM. This is not recommended and cause efficiency issues. The plan going forward is to add a second VM to separate these two roles. This can be done in the background while everything is running during the day and will not cause any down time.

Hopefully this is not too much to digest! If you have any questions or need any further clarification about what we've done and why, please feel free to reach out!

Thanks,

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