Breaking Through the Infrastructure Software RoadBlock

verge.io **CenterGrid**

CENTERGRID'S JOURNEY TO VergeOS

CenterGrid started operations in 2009 as a small business unit inside Ascendum Solutions, LLC. As that unit grew and established, a decision was made to spin it out of Ascendum. The company has achieved significant revenue growth under its new name, CenterGrid, and established itself as a managed service provider (MSP) and cloud service provider (CSP) leader.

CENTERGRID'S UNIQUE SERVICE APPROACH

CenterGrid goes beyond providing infrastructure for its customers. Instead, they provide a complete turnkey managed IT service. The company has made a name for itself by responding quickly to help its customers respond to unexpected IT requests, including creating a new deployment or expanding an existing one. They manage projects with strict adherence to timelines. CenterGrid's ability to deliver this rapid response and adhere to strict timelines requires a flexible and robust infrastructure.

While CenterGrid's customer base includes a wide variety of traditional enterprise businesses, they have developed a specific expertise in the Media and Entertainment (M&E) industry. M&E has a reputation for requiring rapid workload standup. The M&E workloads also tend to push the limits of virtualized environments typical in CSP data centers. The overhead of legacy infrastructure software limits virtual machine density, and the restrictive hardware support makes it challenging to deliver the required graphics processing (GPU) capabilities. In the M&E industry, CenterGrid's services are driven by high-powered GPUs to support Visual Effects (VFX), Computer Generated Imagery (CGI), and now increasing demands for Artificial Intelligence (AI).

For CenterGrid, designing an infrastructure that is flexible enough to respond quickly to customer requests and powerful enough to meet those demands is a significant challenge. Often, the limiting factor is the dependence on legacy infrastructure software.

UNDERSTANDING INFRASTRUCTURE SOFTWARE TECHNICAL AND BUSINESS LIMITATIONS

According to CenterGrid's Chief Operating Officer (COO), Chris Beard, its legacy infrastructure software had a restrictive list of supported hardware and was slow to add support for new hardware. It also exacts a significant performance penalty for its virtualization benefits, often called the virtualization tax. This "tax" can consume as much as 20% of CPU resources before the MSP can create a customer-facing virtual machine (VM). The development efforts of their legacy solution compound the problem as it has not kept up with the various graphics processing units (GPU) that the M&E industry, and now many others, count on.

Beyond the technology, CenterGrid also encountered financial challenges with its prior infrastructure software provider. As a user of a complete stack (virtualized storage, hypervisors, management console, and software-defined networking), the per CPU / per core licensing practices made the software a significant part of CenterGrid's IT budget. It became increasingly challenging to invest in ultra-dense physical servers to support the high workload demands of the M&E industry and enable them to save on data center floor space and reduce power and cooling costs.
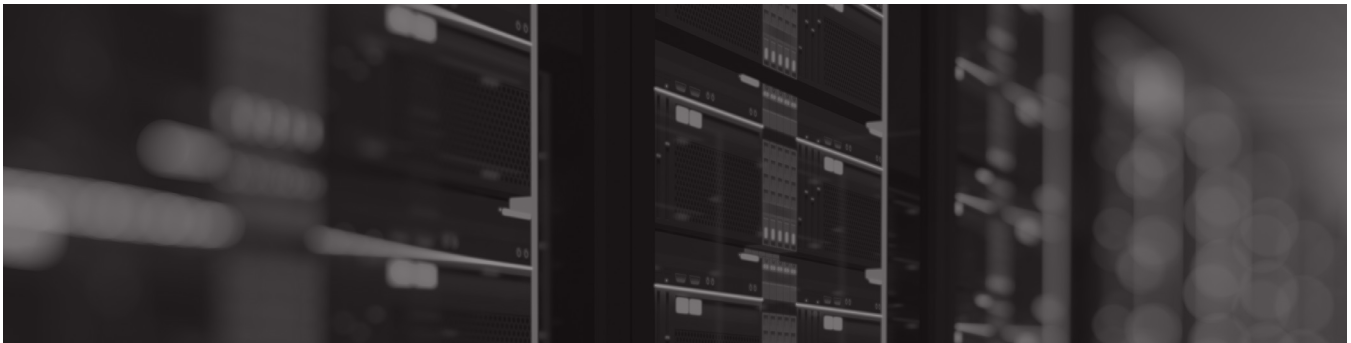
THE SELECTION PROCESS

The CenterGrid team is a self-described bunch of hardware nerds and looks forward to the challenge of identifying and selecting a new infrastructure software solution. As such, they built an extensive lab and a detailed test suite that mimicked their customer workloads. To establish a baseline, they ran that test suite against their current infrastructure software environment. CenterGrid aimed to reduce costs and simplify operations without compromising the customer experience.

With the baseline established, CenterGrid set out on its mission to find an alternative infrastructure software solution. They tested almost every commercially available hypervisor and several open-source solutions. Each solution provided advantages but had downsides, including forced hardware purchases, increased complexity, lack of entry-level interfaces, lack of cohesion among modules, and only minor cost reductions.

VergeIO - DISCOVERY AND TESTING

After early disappointment with other infrastructure software alternatives, CenterGrid discovered VergeIO. VergeIO is a pure software company. It does not sell hardware; it doesn't even have a hardware compatibility list, only a modest set of minimum requirements. VergeIO's UltraConverged Infrastructure (UCI) offering is the first solution that integrates networking, virtualization, and storage into a cohesive operating platform called VergeOS.

CenterGrid's initial research of VergeOS revealed a licensing model that piqued their interest. VergeOS is licensed by the physical server, not by the number of CPUs or cores or the amount of RAM or storage capacity. VergeIO's stance on licensing enables CenterGrid to build highly dense servers into its infrastructure without raising software licensing costs. In that single VergeOS license is the entire stack that most infrastructure software solutions force them to buy in pieces: networking, virtualization, and storage. Finally, they were impressed by the demonstrations of VergeIO's seamless migration capabilities, which promised a rapid exit if VergeOS survived the testing phase.

The next step was for CenterGrid to put VergeOS through that extensive test suite. The CenterGrid team tested VergeOS' capabilities and found its features to be at least on par with their current solution and many exceeding it. They also found that the solution provides better hardware support, especially in GPUs, which they needed for their M&E clients.

Their benchmarking found VergeOS outperforming all the other solutions available while being the easiest to set up and operate. Operations is a crucial concern for Beard, "One of the things that shocked us was how responsive the interface was even in a large environment with dozens of virtual machines. Screen refreshes that can take minutes in our legacy hypervisor happen instantly in VergeOS. He said it sounds like a little thing, but staring at the screen until it refreshes can consume hours per day for our operations team."

As part of the operations testing, the scope included how VergeOS responded to various failure conditions, such as drive loss or server downtime. The workload continued running in each case and was appropriately moved to surviving nodes. The CenterGrid team also tested adding new nodes to the VergeOS instance and found it to be the most straightforward process of any product they tested, including so-called turnkey solutions.

Finally, they confirmed that the pricing and the ease of migration exceeded their initial expectations. CenterGrid believes they can achieve savings measured in six figures in licensing costs over the next few years by converting to VergeOS. The savings compound as they can now deliver more performance per server and purchase denser, space-saving servers.

During the test period, they found the entire VergeIO company responsive to their needs, especially regarding support and knowledge transfer. After testing, the entire CenterGrid IT team was on board with the decision to move to VergeOS. They did not feel like they were forced into it. Instead, the entire team was excited to begin the project.

FROM PILOT TO PRODUCT IN A WEEK

With the proof of concept (PoC) complete, the team developed an implementation plan to migrate infrastructure to the VergeOS platform gradually. However, as is often the case, the best-laid plans don't always come to pass. Instead, CenterGrid had signed a new customer who needed a quick stand-up of their environment, and the plan went from an organized pilot to a complete production rollout. Within a week, they set up their first production VergeOS instance that provided high-performance NVMe storage and GPUs and hosted a public real-time rendering website across dozens of nodes.

OPERATIONAL EXCELLENCE WITH VergeIO

Today, CenterGrid is continuing to add to the VergeOS instance, taking advantage of the ease of node addition and the efficiency of each node. The product is rock-solid and reliable, and the support quality impresses the CenterGrid team. "The VergeIO Customer Success team has been amazing; they won't let go of a problem until it's solved, even if it is not necessarily a VergeOS issue," said Beard.

The team has also taken full advantage of the VergeOS API and can automate more tasks than ever. They are using it with Terraform and Ansible.
From a day-to-day operations perspective, the IT team is impressed with the intuitive and responsive user interface, saving hours per day and not having to wait on screen refreshes. And using VergeOS' Virtual Data Center technology, they can securely deploy new customers in minutes.

In conclusion, thanks to VergeOS, CenterGrid's infrastructure is precisely where it needs to be. Now, they can focus on servicing their customers and attracting new ones instead of worrying about how the infrastructure will hold up to growth.