20+
OSes

80+
developers supported

100%
integration with other tooling

Our Customer

Pliops was founded in 2017 by flash storage industry veterans from Samsung, M-Systems and XtremIO. Their innovative product, the Pliops Extreme Data Processor (XDP), enables cloud and enterprise data centers to access data up to 50X faster with 1/10th of the computational load and power consumption.

This helps companies address the scalability challenges created by the explosion of cloud data and the growing data requirements of AI and ML applications.

The Challenge

The Pliops solution is a physical PCIe adapter that offloads CPU I/O (input/output) operations. To support a wide variety of customers, Pliops must test and certify its product on many different types of servers, storage arrays, and operating systems.

Nir Ram-Nof, DevOps and Lab Operations Director for Pliops, manages a team of DevOps engineers as well as a research and development lab team. The R&D lab consists of about 160 servers from a variety of vendors, such as Dell, HP, Lenovo, and Inspur. He explains that they test the Pliops product at the hardware level for compatibility with "air flows, electricity, PCI," etc. with various vendors. On the software level the product is tested with numerous "operating systems applications, and distributed file systems, [and other] systems."

Ram-Nof's teams provide DevOps and CI/CD services that run on bare metal to the entire R&D department at Pliops. This includes software developers, validation engineers, and VLSI engineers. These users rely on

Challenges

- Current solution could not deploy servers to meet R&D demands
- Requirement to deploy multiple server brands and over operating system images
- Needed a solution to work with homegrown services and DevOps tools

Results

- Operating systems are reprovisioned on bare metal servers according to R&D demands
- Every major server vendor (and public cloud servers) plus over 20 OS images available on demand
- Bare metal server deployment process 100% compatible with Pliops-built services, Ansible, and Jenkins

the lab to check new code, test VLSI improvements, or run nightly CIs and regression tests.

As you can imagine, so many teams needing access to such a wide array of server hardware and software puts a strain on a lab team providing clean systems. According to Nir Ram-Nof, the biggest challenge is "the ability to reprovision the operating systems on servers according to validation themes and R&D demands."

At the time Ram-Nof joined Pliops, the teams were using MAAS to deploy servers automatically in the R&D lab. He recalls, "One of the major flaws in the product is that it supported only the Ubuntu operating systems." Additionally, to make MAAS work they had to use Packer (another Hashicorp tool) to create the image operating system, adding more steps in the path. Another big issue was that "there was no way to validate [what] you [did worked]"; you had to "trigger the image deployment and hope that everything [worked]."

Nir Ram-Nof knew he needed to find a solution to deploy servers that could support numerous flavors of Linux as well as the homegrown operating systems used by cloud computing companies. "As [of] today, we have around, I think, more than 20 different images put in all sorts of distributions: whether it's Red Hat, CentOS, Rocky, Ubuntu, Debian. And, in many cases, these are distributions that ... our customers ... develop themselves."

He also wanted the solution to provide PXE boot services, including "the ability to deploy images with the relevant kickstart files and preseeds." The

only alternative was to do everything themselves, which Nir Ram-Nof saw as "a huge time consumer." He reflected, "We could have stayed with MAAS and ... another solution." But it would have meant developing their own solution for each different operating system, which would have been complicated to manage. As Ram-Nof said, "It's a mess."

The Solution

Pliops chose Digital Rebar to rapidly re-provision operating systems on bare-metal servers. Pliops uses these servers to test their product on multiple types of hardware OEMs and over 20 operating systems. Over 80 developers and engineers are to specify the server hardware and operating systems required for checking code or testing new VSLI improvements, and immediately be provided with a clean server for testing.

With Digital Rebar, the team implemented one solution to reprovision operating systems that integrated completely with their own services as well as other DevOps tooling.

The Results

Ram-Nof is fortunate to manage the DevOps team because "they are all backend developers that develop the pipelines and our services." In fact, they don't rely much on 3rd party products because "70 or 80% of our stack is internally developed."
Ram-Nof and his team integrated the Digital Rebar Platform into their overall CI/CD system. They developed Python scripts so their Jenkins pipelines could invoke the RackN DRPCLI (Digital Rebar Platform Command Line Interface), allowing users to use a script to choose the server hardware required to run

their testing. Ram-Nof explained that in addition to choosing the server hardware, users could also "specify which operating system they want to deploy, which kernel they need with it, and if they need all sorts of extra packages. Once the system requirements are defined by the user, Digital Rebar is called to start the deployment. Once the deployment ends, we continue to other stages involving all sorts of Ansible Playbooks to take care of the post configurations."

Ram-Nof really likes the ability to customize Digital Rebar to tailor the bare metal configuration to meet the requirements of the R&D teams. He reflected this ability "really enables us to really make it our own. It really simplifies everything."

The R&D lab team leader is responsible for adding new operating system images and configuring Digital Rebar. According to Ram-Nof, this person "creates the images, updates the boot [image], and also incorporates the relevant pipelines to support the parameters to be passed through the Jenkins." This work is what enables about 80 people to request the exact servers and operating system that they need for their testing, receive access automatically, and never worry about configuring a server.

Digital Rebar is also used to support the lab team. It deploys VMware virtual machines required to host internal CI/CD processes. Additionally, it gives the teams a way to "make sure that our pipelines are working properly."

He also appreciates Sledgehammer, the Digital Rebar in-memory lifecycle management utility that provides discovery, inventory, and configuration.

Sledgehammer incorporates a mechanism to manage and deploy most servers, storage or networking devices. This customization is necessary for Pliops because they host so many types of servers as well as a diverse catalog of operating systems. Ram-Nof said "Sledgehammer … is a great solution. Basically, it [Digital Rebar] is a product that makes sense."

Pliops provides a cutting-edge solution for organizations looking to access and scale data at massive scales. To do this, they must enable their software developers and engineers to rapidly build bare metal servers on-demand. RackN Digital Rebar is a perfect fit for their purpose-built CI/CD process.

In fact, Ram-Nof observed, "I'm not aware of any other IaC solution that is intended for the bare metal world."

> "[Digital Rebar] enables us to really make it [our infrastructure] our own. It really simplifies everything."

RackN