# AT•A•GLANCE

**› CLIENT**
chuck-stack.org

**› LOCATION**
Round Rock, Texas, United States

**› BUSINESS FOCUS**
Open-source ERP implementation and education for SMBs

**› ISSUES**
- Vendor lock-in and costly premiums make hyperscale cloud computing extremely expensive for chuck-stack's target audience.
- The complexity of platforms such as AWS increases the risk of issues like resource sprawl and requires expertise that's difficult or costly to attain.

**› SOLUTION**
phoenixNAP's Bare Metal Cloud

**› RESULTS**
- Right-sized, flexible hybrid cloud infrastructure with greater compute and storage than comparable AWS instances.
- Ability to run high-performance dedicated IT at less than a third of the cost of AWS.
- More economical compute using a high core count CPU instead of GPUs.
- Simpler environment that needs less expertise to manage.
- Easy access to support for troubleshooting or technical advice.

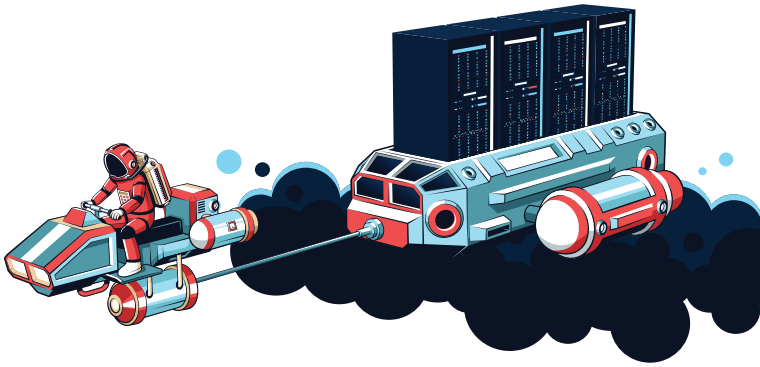
## Case Study
# chuck-stack.org

## Bare Metal Cloud Helps chuck-stack Build a High-Performance Hybrid Cloud at a ¼ of the Price of AWS or Azure

**phoenixNAP's Bare Metal Cloud servers featuring Intel® Xeon® 6 CPUs with E-Cores helped the founder of an ERP implementation platform build a cost-effective hybrid cloud at roughly a quarter of the 3-year price of popular public cloud services. The result: minimized recurring costs, reduced complexity, and enhanced productivity.**

chuck-stack is an organization dedicated to streamlining and personalizing ERP, data management, and IT pipelines through AI, enhanced by popular open-source tools and thoughtfully designed work instructions. Its robust set of frameworks and best practices empowers small-to-medium businesses to simplify and automate otherwise complex tasks. Such optimization enables the rise of what chuck-stack calls superclerks, employees who harness automation to multiply their velocity and effectiveness.

*Watch Video Testimonial*



> "What makes us special? Conversational enterprise computing on an open-source technology stack. We are tired of ERPs hitting organizations with thousands of barely relevant fields that overcomplicate processes. We offer a better way for small and medium organizations to manage data, automate processes, and build superclerk talent."

**Chuck Boecking,**
Founder of chuck-stack.org

## CHALLENGES

chuck-stack focuses on providing businesses with simple, cost-effective solutions and methodologies to maximize the benefits of automation. Virtualization plays a vital role in this endeavor, enabling IT teams to quickly deliver resources to the applications and workloads that need them. At first, popular public clouds like AWS, Azure, and Google Cloud prove convenient as users can quickly access infrastructure and online resources for support. However, dependence on a fully virtualized infrastructure from hyperscalers quickly becomes too expensive and difficult to manage.

CSP clients often face **mounting IT bills due to overprovisioned and idle resources** over which they have limited visibility or control. Another widespread problem contributing to cloud waste is the **lack of required skills to enforce key policies.** The inability to adequately take operational responsibility for public cloud deployments swells expenses and lowers productivity. Furthermore, the growing complexity of hyperscaler environments not only shrinks the talent pool of eligible cloud management experts but also increases exposure to outside and inside threats.

> "With small and medium organizations, cost and complexity are the enemy, and this is where phoenixNAP really shines: it gives me the ability to minimize the number of experts I need to hire, and you allow me to use the same tools and experts everywhere. phoenixNAP makes the cloud way more accessible to the world's SMBs."

**Chuck Boecking,**
Founder of chuck-stack.org

## SOLUTION

An article Chuck posted on chuck-stack proposes a distributed hybrid cloud paradigm that uses **phoenixNAP's Bare Metal Cloud (BMC)** as the infrastructure foundation. Bare Metal Cloud is designed for infrastructure simplicity, delivering cloud-like access to workload-optimized dedicated servers - without hypervisors or vendor lock-in. Available in strategic global and edge locations worldwide, BMC lets you add bleeding-edge compute, memory, storage, and networking resources in mere minutes. The platform combines performance, stability, and ease of maintenance,

making it ideal for SMBs operating in multiple locations and looking to streamline their IT.

chuck-stack's solution allows users to test or deploy services locally and replicate them to cloud servers with a reduced software stack. Below is an overview of the environment's design:

- Automation-driven dedicated servers by **phoenixNAP** provide easy access to next-gen IT resources.
- Virtualization layer created using **Incus** and easily managed with one tool.
- VPN overlay between virtual servers and office or mobile clients facilitated by **Netbird**.

### chuck-stack's Instance of Choice: BMC With Intel Xeon 6 CPUs

chuck-stack chose the ***s4.x6.c6.large*** BMC instances running on Debian and powered by **Xeon 6700-series CPUs with E-Cores**, boasting these specs:

| | |
|---|---|
| **CPU** | Intel Xeon 6 6731E (96 cores x 2.2 GHz (3.1 Turbo)) |
| **Memory** | 256 GB DDR5 RAM |
| **Storage** | **2x 2TB NVMe** |
| **Network** | 2x 25 Gbps |

Featuring groundbreaking acceleration technologies, Intel Xeon 6700-series CPUs with E-Cores supercharge AI, HPC, and other demanding workloads while maintaining steady clock speeds. **Bare Metal Cloud lets users cost-effectively add advanced compute capabilities to their environments in minutes and easily scale when needed.**

## Bare Metal Cloud and AWS Cost Comparison

Below is a breakdown of the specs and cost of phoenixNAP's BMC with Xeon 6700-series CPUs with E-Cores and comparable AWS instances.

| INSTANCES | |
|---|---|
| **BMC (s4.x6.c6.large)** | |
| **Specs** | **Costs** |
| • Intel Xeon 6 6731E (96 cores x 2.2 GHz (3.1 Turbo))<br>• 256 GB DDR5 RAM<br>• **2x 2TB NVMe**<br>• 2x 25 Gbps | • **$21,000 total for 3 years of usage**<br>• Paid on a monthly basis<br>• No vendor lock-in for licensed services |
| **AWS (c6a.48xlarge)** | |
| **Specs** | **Costs** |
| • AMD EPYC 7R13 (48 cores x 3.6 GHz)<br>• 384 GB RAM<br>• **No hard drive**<br>• 50 Gbps | • **$131,775 total**<br>• 3-year reservation paid upfront<br>• Non-convertible |
| **AWS (m7i.48xlarge)** | |
| **Specs** | **Costs** |
| • 4th Gen Xeon 8488C (48 cores x 3.2 GHz)<br>• 768 GiB RAM<br>• **No hard drive**<br>• 50 Gbps | • **$100,400 total**<br>• 3-year reservation paid upfront<br>• Non-convertible |

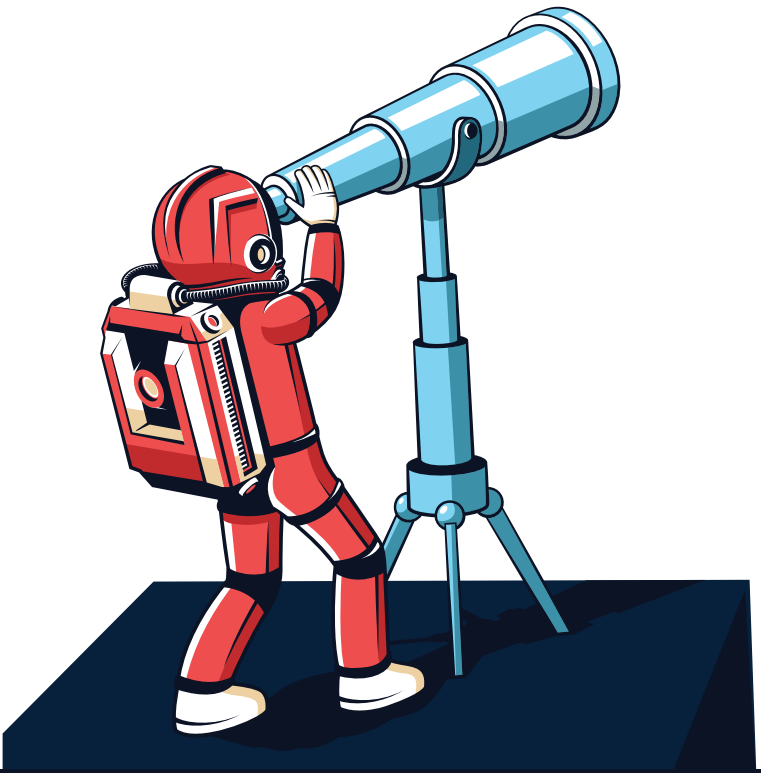
> "One of the things I like about phoenixNAP is that it's the right-size solution for me, but it's also the right price. I can take advantage of existing expertise, use the same tools everywhere, and take advantage of compute at every location. This enables me to reduce the overall cost of my infrastructure to a quarter or fifth of what I have with AWS."
>
> **Chuck Boecking,**
> Founder of chuck-stack.org

## chuck-stack's phoenixNAP-Powered Infra in Action: Creating an Open-Source Work Instruction Chatbot

chuck-stack laid out the details for an AI application underpinned by phoenixNAP's Bare Metal Cloud, Incus, and Netbird. It lets users develop complex work instructions by simply prompting a chatbot based on almost any LLM running on a private network. The addition of BMC contributes to building a secure global VPN for remote users at diverse locations.

For more information about this fascinating solution, read **chuck-stack's deep-dive blog article!**

To learn more about chuck-stack.org and their services, **watch this short video!**



## BENEFITS

By harnessing Bare Metal Cloud's turnkey dedicated infrastructure, virtualized with Incus and privately connected via Netbird, **chuck-stack built a hybrid cloud server powered by state-of-the-art CPU, RAM, and HD technologies, all at roughly 1/3 to 1/4 the 3-year cost of AWS or Azure.** This deployment is easier to manage thanks to BMC's API-driven architecture and easy cost monitoring, as well as the simplicity of Incus virtualization. Moreover, BMC runs on a robust DDoS-protected network, further securing the VPN overlay provided by Netbird. This solution enables **global deployment of any application or service, while securely connecting clients to a high-performance infrastructure – with minimal recurring costs.**

- **Cost savings:** Up to 75% saved compared to AWS.
- **Flexibility:** API-driven infra on an open-source stack with no hypervisor.
- **High performance:** Servers powered by Intel Xeon 6 CPUs with E-Cores, DDR5 memory, and NVMe storage.
- **Simplicity:** Easier to manage, fewer layers with fewer tools required.
- **Security:** VPN overlay with DDoS protection.
- **Expert support:** Readily available experts to solve or advise on technical issues.

## Intel Xeon 6700-Series Processors with E-Cores

**More Cores + Increased Memory Bandwidth**

96 cores with DDR5 memory support and 88 PCI Express lanes.

**Intel Advanced Vector Extensions 2 (AVX2)**

Enhances performance in AI, analytics, HPC, and multimedia processing.

**Intel Data Streaming Accelerator (DSA) 2.0**

Offloads data movement and transforms operations such as move, fill, compare, CRC, etc.

**Intel Dynamic Load Balancer (DLB)**

Enables dynamic distribution of network packet processing and offloads reordering.

**Intel QuickAssist Technology (QAT)**

Boosts networking and storage. Offloads bulk cryptography and compression.

**Intel In-Memory Analytics Accelerator (IAA)**

Handles memory compression and decompression, scan and filter functions, and CRC.

**Intel Software Guard Extensions (SGX)**

Isolates sensitive data in a secure, hardware-based 512 GB enclave.

**Intel Trust Domain Extensions (TDX)**

Fortifies confidential computing with new AES-256 and 2,048 encryption keys.

## phoenixNAP's Bare Metal Cloud

**Open-source infrastructure deployable globally and in edge locations in minutes.**

**Dedicated servers featuring high-performance DDR5 RAM and NVMe storage.**

**100% direct access to hardware. No vendor lock-in. No hypervisors.**

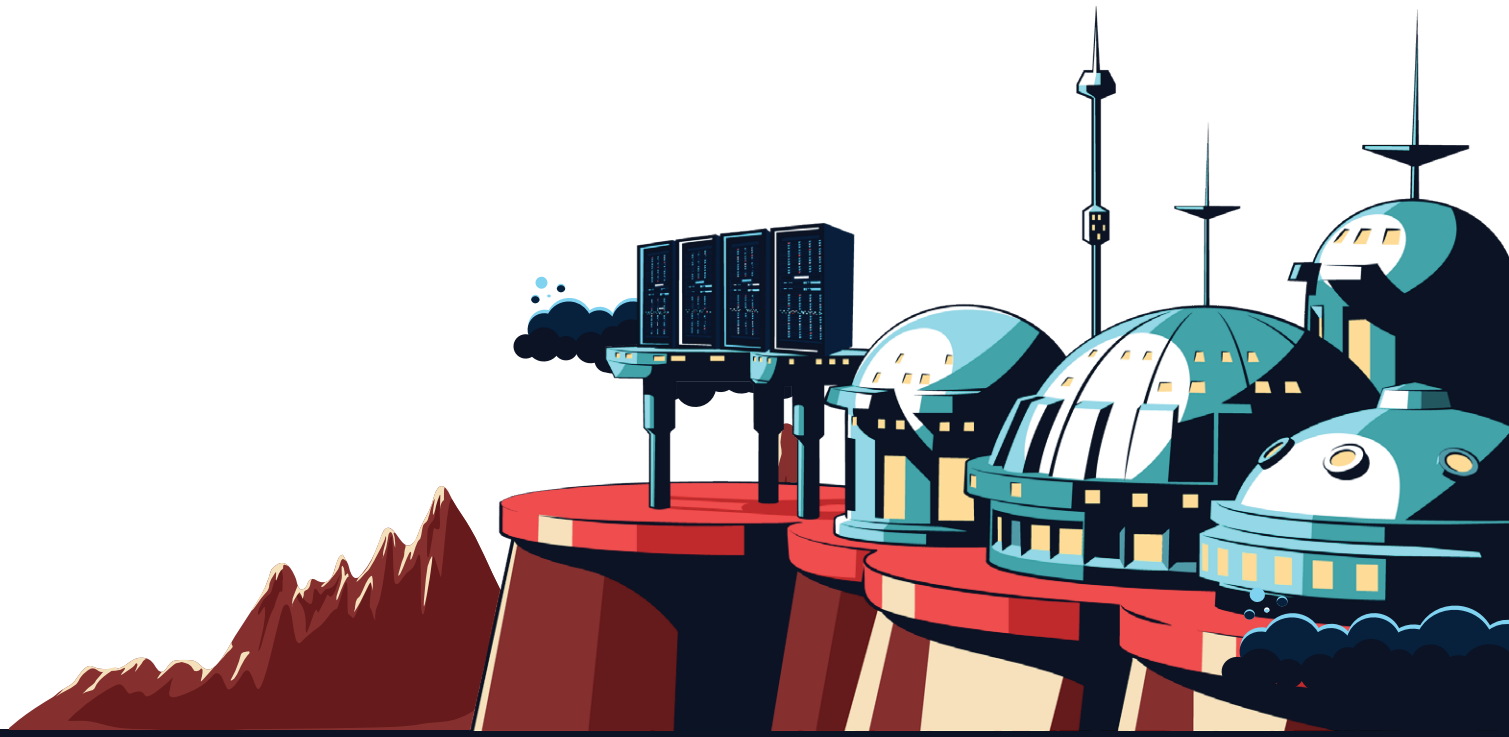
**API-driven provisioning and management via IaC tools (Terraform, Ansible, Pulumi, Chef).**

**Easy access to terabytes of low-cost Network File Storage or S3-compatible object storage.**

**Regularly updated repos, actions, and SDKs on GitHub.**

**Flexible billing and bandwidth models. Hourly billing + discounts for reservations.**

**50 Gbps network speed. 20 Gbps free DDoS protection. 15 TB free bandwidth. Public and private network options.**



“What I have used of your bare metal cloud has been amazing; what I have used of your technical customer support has been amazing. I very much look forward to working with you and the team more.”

**Chuck Boecking,**
Founder of chuck-stack.org

## Want to learn how chuck-stack built a streamlined, cost-effective hybrid cloud using Bare Metal Cloud?

Feel free to read the **in-depth walkthrough of the entire process** on their website!

## ABOUT phoenixNAP

phoenixNAP is a global IT services provider offering progressive Infrastructure-as-a-Service solutions from locations worldwide. Our bare metal server, cloud, hardware leasing and colocation options are built to meet the evolving technology demands businesses require without sacrificing performance. Scalable OpEx solutions to support with the systems and staff to assist; phoenixNAP global IT services.

Contact phoenixNAP at: **sales@phoenixnap.com** or **855.330.1508 | www.phoenixnap.com**

**Schedule a Virtual Tour!**

Scan the QR code to schedule a virtual tour of our data center!