



InMotion Hosting Delivers Hyperconverged Infrastructure for OpenStack On-Demand Private Clouds in Less Than an Hour

Supermicro MicroBlade® offers high density and cost efficiencies for a full-featured cloud computing experience to enable OpenStack as a Service.



INDUSTRY

Infrastructure as a Service (IaaS) market size was valued at \$39 billion in 2019 and is projected to reach \$202 billion by 2027, growing at a CAGR of 23% from 2020 to 2027, per Allied Market Research report. InMotion Hosting is a leading IaaS cloud computing service provider.

InMotion Hosting offers small-and-medium-sized businesses and smaller IT teams the ability to build and deploy small clouds on OpenStack. As a well-established and trusted provider of web hosting solutions, InMotion Hosting expanded its footprint to the private cloud and Infrastructure as a Service (IaaS) market with its Flex Metal Cloud IaaS product. This product gives cloud users a valid open-source option to compete against major closed-source public cloud providers. InMotion Hosting recognizes the power and value of open-source software and solutions from its founding days and has utilized Supermicro, OpenStack, and Ceph to foster a more open cloud paradigm. InMotion Hosting is using Supermicro's MicroBlade to provide a high density, high performance, low cost, and power efficient platform for their IaaS architecture.



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MBI-6219B-T41N

CHALLENGES

- Providing a secure, cost-efficient private cloud for customers
- Inefficient use of compute and storage resources
- Rising data center costs and competitive pressures
- Improve scaling for multi-tenancy
- High barrier to entry for OpenStack adoption

SOLUTION

The MicroBlade MBI-6219B-T41N and MicroBlade MBI-6219M-2N enable InMotion Hosting to deliver production-grade Private Clouds in less than an hour, scale up to thousands of servers, and provide a low-cost entry point for cloud customers. This systems utilize the Intel Xeon processors.

Challenges

As the number of companies shifting IT spending towards cloud-based solutions increases, InMotion Hosting is meeting the need to provide a secure private cloud offering that is cost-efficient, easily accessible, and can scale on-demand. Whether a private cloud or infrastructure as a service solution, the users of InMotion Hosting's servers and storage systems need to have high-performance and hyper-scalable cloud solutions.

Traditional cloud deployments require a large hardware footprint with dedicated hardware for every cloud computing stack component. Separate hardware is allocated for the cloud's control plane services, compute resources for virtual machine hypervisors, and cloud storage services. A highly available cloud service deployment can require multiple physical servers for proper redundancy to avoid outages from losing a single node. In smaller or less used deployments, these hardware nodes will spend most of their time sitting idle, resulting in wasted electricity and money. Even if compute resources and storage resources are heavily used, control plane servers are likely sitting idle if there are not many changes to the virtual machines deployed in the cloud.

For companies to remain competitive in their respective markets, the need to utilize cloud technology is paramount. Many companies interested in a private cloud realize that large server deployments become too expensive, especially when factoring in data center space, electricity, labor costs, resource allocation, networking, bandwidth usage, etc. This typically results in companies migrating to a public cloud solution option.

While OpenStack is an entirely viable competitor to public cloud platforms and closed-source cloud software solutions, it has a steep learning curve. It requires significant expertise in a staggering array of skills and disciplines to deploy a private cloud. Since resource availability and upfront investment are a struggle for small-and-medium-sized businesses, there hasn't been a natural adoption of OpenStack in that community, even though there are proven benefits to using private cloud.

InMotion Hosting determined that to make building and deploying small clouds on OpenStack easier and accessible to smaller IT teams, they needed to find a hardware solution that solved the problems of high cost, cloud operating system complexity, and restricted compute resources.

Solution

Supermicro has been a trusted partner of InMotion Hosting for many years through an extensive server product portfolio. Supermicro's deep expertise with OpenStack and cloud-optimized hardware is a natural fit to meet the hardware and networking demands for InMotion Hosting's Flex Metal Cloud IaaS.

The Flex Metal Cloud hyper-converged solution provides a high availability cloud deployment with one-third to one-fourth the number of servers than a traditional

non-hyper-converged cloud deployment. Companies looking to move into the cloud now have an entry point that is far more affordable thanks to Flex Metal Cloud, InMotion Hosting's data center infrastructure, and Supermicro's cloud server technology.

InMotion Hosting's Flex Metal Cloud can fit an entire fully featured OpenStack deployment on three Supermicro MicroBlade server nodes through resource tuning and service optimization. Supermicro MicroBlade technology gives InMotion Hosting the efficiencies and economies of scale to offer OpenStack at a previously unachievable cost, physical density, and power draw than traditional 1U server technology. Flex Metal Cloud deployments balance the control plane services, OpenStack's compute hypervisors, and Ceph's cloud storage services across each MicroBlade. This enables an instance of control plane services, OpenStack virtual machines, Ceph monitors, and Ceph object storage daemons (OSDs) on each physical node in the Flex Metal Cloud Starter Cluster.

InMotion Hosting's Flex Metal Cloud configures OpenStack Nova (Compute) service to expose only a certain percentage of hardware resources as virtual CPUs and virtual RAM for OpenStack virtual machine instances. Users can customize this configuration on their own to meet their needs. InMotion Hosting's Flex Metal Cloud team has run benchmarks and performance tests to determine the optimal sharing of resources that provides the maximum number of virtual machines while maintaining enough resources to operate the cloud and provide cloud storage.

The Flex Metal Cloud hyper-converged deployment utilizes Ceph for enterprise-level cloud storage. Ceph is carefully calibrated to grant sufficient resources for Ceph to operate a monitor daemon, manager daemon, object storage daemon, and RADOS gateway instance on every MicroBlade. Each MicroBlade node in Flex Metal Cloud's hyper-converged deployment has a single disk for use with Ceph to provide storage. Using a single disk per hardware node minimizes Ceph's resource requirements. Multiple hardware nodes are combined to provide high availability for Ceph services and fault-tolerant cloud storage with a 3-replica replication strategy with host-level failure domain.

With OpenStack Nova (Compute) and Ceph's resource allocations defined, the operating system and control plane services on each hardware node are guaranteed the resources they need to meet the cloud users' needs.

Benefits

By choosing Supermicro's MicroBlade technology, InMotion Hosting can deploy OpenStack on the smallest footprint that's never been achievable before. Supermicro's MicroBlade technology provides a fully-featured cloud computing experience with previously unachievable density and cost efficiencies. The MicroBlade comes as a powerful and flexible extreme-density 3U 28-node or 6U 56-node all-in-one blade architecture, enabling a lower cost of ownership.

BENEFITS

- Lower Total Cost of Ownership of Server Hardware
- Improved Power Efficiency, Cooling Performance, and Physical Server Density
- Maximize Data Center Utilization
- Best Performance per Watt

"Automating deployments of OpenStack and Ceph private clouds in under an hour at a low-cost entry point was a huge challenge. Supermicro embraced our vision and actively engaged their Networking, Blade, and OpenStack teams to help us bring this vision to market."

–Todd Robinson, President and Co-Founder of InMotion Hosting

SUPERMICRO

Supermicro is a global leader in high performance, green computing server technology and innovation. We provide our global customers with application-optimized servers and workstations customized with blade, storage, and GPU solutions. Our products offer proven reliability, superior design, and one of the industry's broadest array of product configurations, to fit all computational need.

For more information, visit <https://www.supermicro.com>

Hyper-converged OpenStack deployments on Supermicro's MicroBlade allow InMotion Hosting to provide all the features and functionality of OpenStack while lowering the total cost of ownership of server hardware. The double density MicroBlade MBI-6219B-T41N and MicroBlade MBI-6219M-2N provide a more efficient way to operate and utilize compute resources, allowing InMotion Hosting the ability to offer their Flex Metal Starter Clusters at an affordable price point. The versatility of these servers enables InMotion Hosting to optimize power, cooling, data center space, and hardware utilization better than traditional server hardware architectures. Combining InMotion Hosting's Flex Metal Cloud platform and Supermicro's MicroBlade architecture delivers a powerful alternative for cloud customers. InMotion Hosting provides the flexibility and affordability of public clouds for customers who truly prefer a fully private cloud experience for their cloud architecture needs.

INMOTION HOSTING

InMotion Hosting is a privately held technology company providing web hosting, cloud-based solutions, and managed services to businesses and entrepreneurs across the globe. With over 170,000 customers, InMotion Hosting's mission is to bring tools, platforms, and outstanding customer service within anyone's reach to transform their online presence. Since 2001, we have built our foundation around 24/7/365 US-Based customer support and open-source technology. Our partnerships include Supermicro and the Open Infrastructure foundation.

For more information on InMotion Hosting and their Flex Metal Cloud product, visit <https://www.inmotionhosting.com/flex>