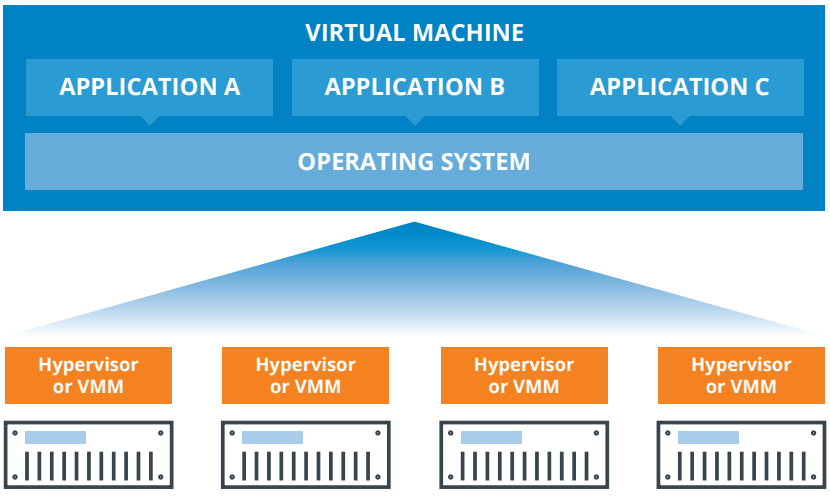
ScaleMP™
Creating the Power of One


# vSMP ServerONE

## Scale-Up with Virtual SMP

vSMP ServerONE aggregates multiple, industry-standard, x86 servers into one single virtual high-end system, serving as a superior alternative to expensive legacy multiprocessing (SMP or NUMA). With vSMP ServerONE, computing and memory are no longer linearly tied, and users can selectively scale different system attributes.

vSMP ServerONE turns multiple servers into a single computer system seen by the operating system, applications, administrators, developers or users as a single entity, running only one copy of the operating system. Each CPU in the aggregated system has access to all the memory, enabling applications to scale using thread-parallel execution models such as OpenMP.

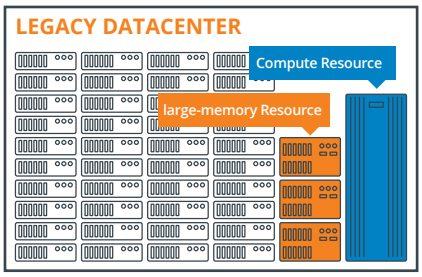


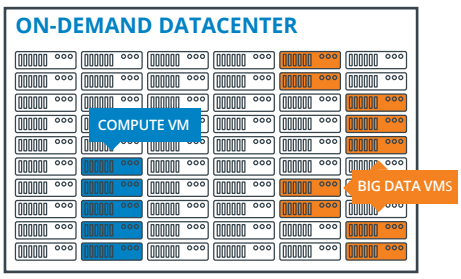

vSMP ServerONE functionality can be delivered on-demand, turning any collection of nodes connected to the same fabric into a single system, and providing a true software-defined composable server infrastructure for HPC and enterprise data centers.

## HIGHLIGHTS

- Running any type of HPC application, providing best of-breed performance for SMP applications
- Leveraging cluster cost benefits, eliminating the need for custom hardware and components
- Creating SMP on demand using a single management point, thus increasing utilization and lowering costs
- Using the latest generation of processors and interconnects to provide best performance at volume pricing
- Providing selective scaling capabilities so that users can shape the system to fit the workload and only pay for what they use

**THE VIRTUALIZED DATACENTER**



# vSMP ServerONE EDITION COMPARISON

| Category | Feature | vSMP ServerONE | vSMP ServerONE Advanced Platform |
|---|---|---|---|
| **Selective scaling allows for resource aggregation to accommodate for workload requirements. "Memory Expansion" will aggregate CPU, memory and I/O of multiple systems.** | | | |
| **Capability** | **Maximum nodes** participating in a highly scalable SMP with up to 32,768 CPUs and 2 PB (Petabyte) RAM by virtualizing the aggregate resources of multiple nodes[1] to a single VM | 32 | 128 |
| | **Processing and I/O scalability** (number of nodes with active processors and I/O devices) | All | All |
| | **Tailor-made SMP** allowing to select processor type (AMD or Intel), node-size (2-socket, 4-socket and 8-socket) and I/O capabilities (1GigE, 10GigE, Fibre-Channel, SAS, etc.) | √ | √ |
| | **Processing capabilities** (max. processors per node / max. processors per VM) | 4/64 | 8/1024 |
| | **Memory capabilities** (max. memory per VM) | 8 TB | 2 PB (Petabyte) |
| | **Pay as you grow** allows for expansion with no price or performance penalties when more resources are needed | √ | √ |
| | **AnyIO** provide support for extended list of I/O devices including accelerators (GPGPUs), storage and network controllers | Predefined | User-defined |
| **Performance** | **Built-in high-performance parallel storage** providing parallel, non-blocking scratch volume with linear scalability | √ | √ |
| | **Active-active multi-rail InfiniBand** for increased performance with up to four HCAs providing maximum of up to 400Gbps (EDR) | | √ |
| | **User-instructed hardware memory placement control** provides enhanced support for memory pinning via dedicated system API | √ | √ |
| **Availability** | **Unmatched RAS characteristics** with node level fault isolation and automatic system recovery – providing maximum system uptime without user intervention | √ | √ |
| | **Active-passive multi-rail InfiniBand** providing seamless link failover for increased availability using dual-rail InfiniBand support | √ | √ |
| **Flexibility** | **SMP partitioning** allows creation of multiple, isolated and independent smaller SMPs | | √ |
| | **Shared InfiniBand fabric for multiple VMs**, providing infrastructure cost savings | | √ |
| | **On-demand SMP** allows repurposing cluster nodes in an ad-hoc basis. Ready-made integration with multiple provisioning systems: Bright Cluster Manager, IBM Platform, Insight CMU, ROCKS and XCAT | | √ |
| **Licensing Model** | Licensing model | Node-locked | Floating |