



Introducing Tintri VM Scale-out

Scale out your storage as easily as your compute

Forget conventional storage scale-up and scale-out solutions that are expensive, hardware-dependent and require a team of storage PhDs to manage. What if you could scale-out your storage the same way you scale-out compute in your virtualized environment, by just adding another server and letting the hypervisor manager optimize VMs across the pool? Now you can with Tintri.

Modern Scale-out Architecture

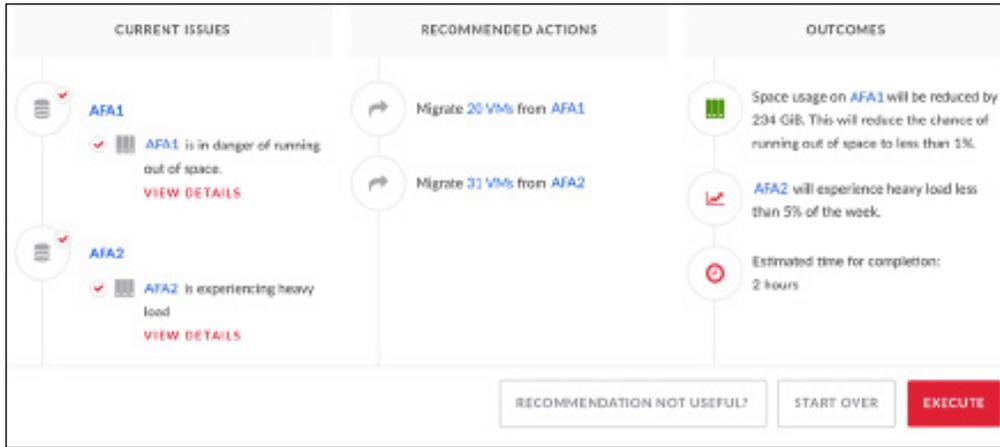
Conventional storage scale-out was not designed for today's virtualized and cloud applications. So what would a modern scale-out architecture look like?

- Federated pool of storage: Treats multiple Tintri VMstores—both all-flash and hybrid-flash—as a pool of storage, simplifying management, planning and resource allocation.
- Scalability and performance: Designed to scale to more than one million VMs. Separation of control flow from data flow ensures low latency and scalability to a very large number of storage nodes.
- Scale from small to very large with new and existing, all flash and hybrid, partially or fully populated systems.
- VM and Software based: Based on software intelligence that delivers consistent performance for virtualized and cloud applications, instead of inflexible hardware solutions requiring proprietary interconnects and specialized vendor training.
- Scale compute and storage independently. Loose coupling of storage and compute provides customers with maximum flexibility to scale these elements independently.

What is VM Scale-out?

Tintri VM Scale-out is the software brains that enables this modern scale-out architecture. Built on Tintri's VM-aware Storage (VAS) platform, it uses a million data points collected every 10 seconds from thousands of VMs to optimize VM distribution across multiple pools of storage. With VM Scale-out you can:

- Start small and scale big: Start with 1 or 2 VMstores and a couple of hundred VMs and scale up to 10 PB and 160,000 VMs or more.
- Scale smart: Deep workload analysis identifies VMs that are growing rapidly and applies sophisticated algorithms to model the growth ahead and avoid resource constraints within a pool.
- Scale simply: Scale-out is as easy as 1-2-3:



1. Identify issues

Based on 30 days of historical data, VM Scale-out looks forward a week, looking for ways to optimize VM distribution within a pool of VMstores.

2. Recommend actions

VM Scale-out finds the least-cost optimization in terms of time, data movement, and capacity utilization. Edit the recommendations and VM Scale-out learns.

3. Predict outcomes

If you accept the recommendation, VM Scale-out tells you what the result will be and how long it will take to execute.

5 Things you will love about VM Scale-out

- VM Scale-out optimizes your VMs based on a complete picture of their storage capacity and performance needs.
- Gives you least-cost recommendations, saving you time, bandwidth and capacity, to maintain optimal VM distribution
- You can review and edit the recommendations, and see the outcome before committing
- VM Scale-out learns every time you edit its recommendations and allows you to opt certain VMs out of migration
- Allows you to start small, with as few as 17TB and a couple hundred VMs, all the way to 10PB and 160,000 with the same storage team you have today.

5 Things You Won't Miss about Traditional Storage Scale-out

- LUN and Volume level data leads to bad guesses and poor decisions about optimal VM placement
- Solutions that recommend a VM migration recommendation based on VMs crossing a one-time capacity or IOPS threshold
- Poor recommendations based on incomplete data, and no visibility in to the impact on performance or the time required to complete a migration
- Problem VMs constantly getting bounced back and forth between arrays reacting to, but never resolving, performance issues
- Having to throw out your old storage, migrate to a scale-out architecture, and hire a team of Storage PhDs to run it

“With hundreds of terabytes of data across thousands of VMs, our business runs on scale. Conventional scale out promises scale but struggles beyond 100s of VMs, not to mention it doesn't give us the flexibility in how and what to scale with nor the intelligence to predict workload demands. Tintri's Scale Out architecture and VM Scale-out will do for storage what VMware's vSphere and DRS did for compute. The notion of tripling and quadrupling our virtualized infrastructure without adding the corresponding number of dedicated storage resources has tremendous appeal to us. Combined with advanced analytics, QoS, automation, and policy-based VM management, this gives us a powerful platform to build a very agile virtualized infrastructure.”

Jeff Wilhelm, CTO, Envision Technology Advisors

