



Karnendu Raja Pattanaik

May 26, 2016

Agenda

| 1 | What is Hyperconvergence? |
|---|--|
| 2 | The journey of transformation |
| 3 | Need for Hyperconvergence |
| 4 | Architecture |
| 5 | Benefits |
| 6 | Testing of Hyperconvergence |
| 7 | Challenges |
| 8 | Market Study and Players working on Hyperconvergence |



What is Hyperconvergence



Hyperconvergence is a type of infrastructure system with software-centric architecture that tightly integrates compute, storage, networking and virtualization resources and other technologies from scratch in a commodity hardware box supported by a single vendor.

Put simply, hyperconvergence enables integration of highlyreliable server platforms, with storage, networking and virtualization resources. All resources can be managed as a single system, organizations can implement highly-agile, easy-to-manage IT infrastructure solutions in a single turnkey package, from a single vendor.

Conventional Stack eventually became converged platform and converged further to give rise to hyperconvergence



The Journey of Transformation





Need for Consolidation

- Traditional storage architectures in their original form are not equipped to support the new workflows like data analysis, filesystems, dev ops etc.
- To accommodate modern data flow, many silos are created and a massive data stretch making the legacy architecture complex and isolated to manage heterogeneous services
- This gave rise to the need for a platform from a single vendor consolidating all modules in an intelligent way, hence Hyperconvergent platforms





•Multi Layered Architecture •Software Centric Control







Scaling Up/Down

Flexibility on Scaling Up/Down:

- Some of the Vendors come up with intelligent files system using Open Architecture using the flexibility of open architecture to enhance scalability
- The utilization of VM-centric architecture also helps in the flexibility of scaling





Data protection

- Utilization of unique snapshot technology which takes immediate and frequent snapshots limitlessly
- The VM-centric snapshot can be replicated easily to different data centre with a user-defined time period
- Replication technology is made flexible to replicate one-to- one, one-tomany and bidirectional
- No third-party software for back-up replication





Data Efficiency

- Some of the vendors achieve this by sharing all data, metadata across the entire cluster eliminating any bottleneck for efficiency
- A hyperconvergent platform consists of multiple nodes. For all practical purposes, a node can be thought of as a hardware module; each node includes CPU (compute), memory and storage resources (DAS). These resources are matched to one another to ensure compatibility and optimal performance.





Testing of Hyperconvergent Systems

Testing in Conventional and Converged Stack

- Focus on testing on HW component
- Multiple component Pre-tested and post-tested after complete configuration
- Different monitoring software for various modules to be tested for cross-functional activities
- Focus on performance of individual components

Testing of Hyperconvergent System

- Test design considering one commodity
- Focus on software-centric architecture
- Throughput is important

- Different skill set is required to test and configure different component of stack
- To maintain multiple component multiple skills are required
- Focus on performance of individual components
- More OPEX and CAPEX

- Multiple skill not required to configure and test
- Newly emerging infrastructure engineers people with broad knowledge of infrastructure and business needs
- Lesser OPEX and CAPEX



Challenges of Hyper convergent systems

- Inability to make granular upgrades or tweaks to the system
- Lack of flexibility to scale up individual modules



Some of the Vendors offering Hyperconvergent Platforms:



















Offerings from various vendors



- Scale out on-demand with any-size
- Smart resource provisioning and allocation
- Distributed architecture with self-healing for high availability

Sources: http://www.stratoscale.com/products /



- www.hyperconverged.org
- www.cohesity.com
- www.nutanix.com
- www.scalecomputing.com









