



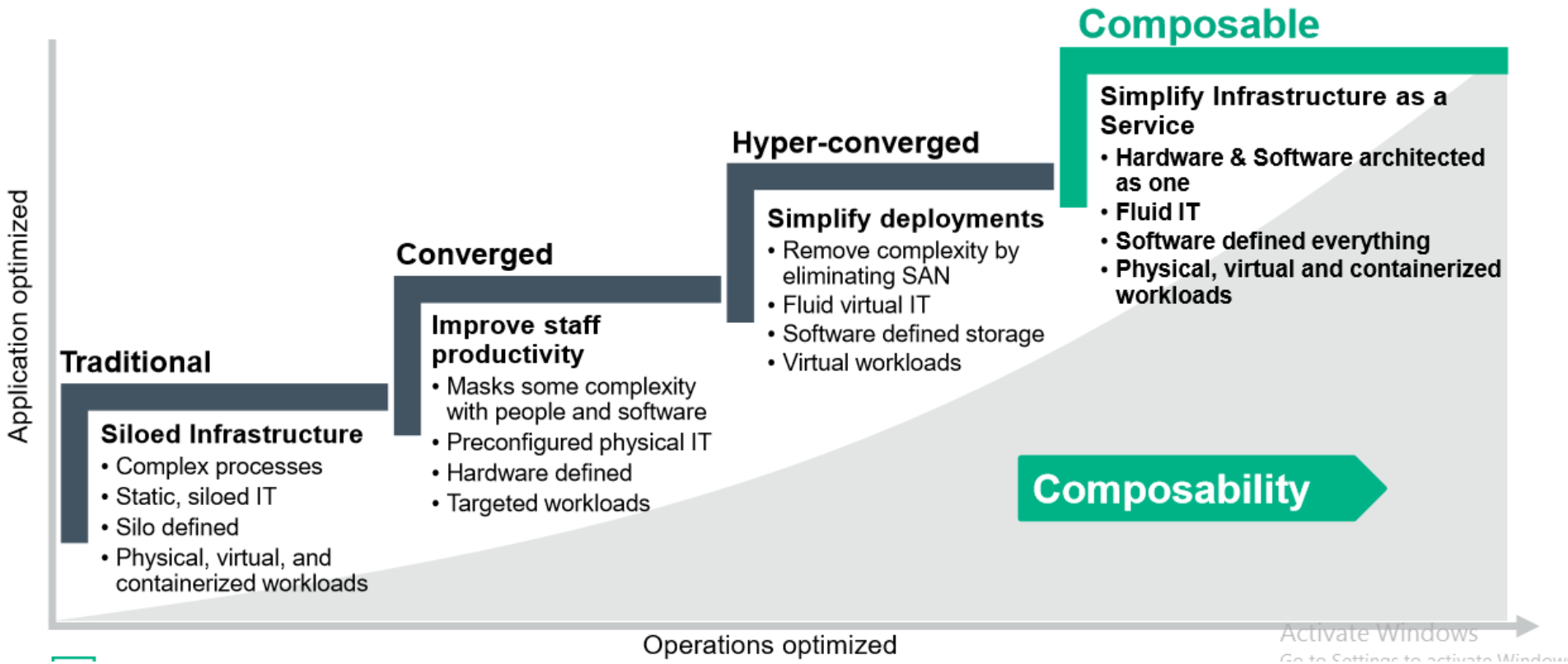
# Hyperconvergence

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Innovating in the Idea Economy

1

## Experience

- Empowering IT to create new value instantly and continuously

2

## Operating models

- Traditional
- Cloud apps

3

## Design principles

- Fluid Resource Pool
- Software defined intelligence
- Unified API

4

## Business benefits

- Reduce cost
- Deploy at cloud-like speed
- Simplify ops
- Develop more apps

# Hyperconvergence

## Hyper-Converged Infrastructure

### A DATA CENTER OPTION FOR THE CIO

Hyper-converged technology compresses computing, storage, networking and virtualization in the same box, offering an alternative to other data center architectures.

#### Benefits

- Ease of acquisition (one box vs. multiple boxes)
- Can reduce administrative burden
- Support via IT generalists, rather than specialists
- Reduces maintenance costs
- Reduces data center footprint
- Scale-out architecture



#### Use cases

- VDI
- Remote offices
- Dev/test
- Data analytics
- Production apps

#### Challenges

- Hardware savings not always clear cut
- May result in cost shifting, rather than savings
- May limit reuse of existing hardware
- Upgrade strategy: Do you need to switch out the whole box or can you swap out individual components?

# Hyperconvergence

## Differences distinguish integration, convergence and hyper-convergence in data center IT systems

TECHNOLOGY	WHAT IS IT?	BENEFITS TO DATA CENTERS	LIMITATIONS TO THIS APPROACH	EXAMPLES
<b>Integration</b>	Integration is making disparate things work together, including servers, network gear, storage systems and other devices purchased from a variety of vendors.	<ul style="list-style-type: none"> <li>Solves the traditional enterprise computing dilemma where IT architects and administrators assemble, connect, configure and optimize IT equipment and software.</li> </ul>	<ul style="list-style-type: none"> <li>Equipment and software do not natively work together, so the integration process can be costly or time-consuming—or both.</li> <li>Each new addition to the data center requires additional work.</li> </ul>	<ul style="list-style-type: none"> <li>Integration is performed by consultants, value-added resellers and IT integrators.</li> </ul>
<b>Converged infrastructure</b>	A vendor preassembles and integrates essential compute, storage and network gear into a single product offering with a common physical enclosure.	<ul style="list-style-type: none"> <li>Accelerates and simplifies data center deployment with fewer errors.</li> <li>Can boost performance and resource utilization. A common management interface and no trial-and-error tuning.</li> <li>Single-vendor service and support.</li> </ul>	<ul style="list-style-type: none"> <li>While the vendor handles integration, users still pay for proprietary hardware and management software.</li> <li>Vendors may update CI boxes' feature sets at a slower rate than their other products.</li> </ul>	<ul style="list-style-type: none"> <li>Dell Active Systems Manager</li> <li>Hitachi Unified Compute Platform</li> <li>HP ConvergedSystem</li> <li>IBM PureFlex</li> <li>NetApp FlexPod</li> <li>Oracle Private Cloud Appliance</li> </ul>
<b>Hyper-converged infrastructure</b>	A converged infrastructure with a software-based and -driven architecture that vendors run with white box servers and other generic hardware.	<ul style="list-style-type: none"> <li>Users experience seamless management and expansion of various compute, storage and network devices.</li> <li>Numerous services integrated such as backup, data deduplicatin, WAN acceleration, and SSD storage and cache.</li> </ul>	<ul style="list-style-type: none"> <li>Capacity is expanded simply by adding more boxes, but data centers lose the choice of different vendors' management software or hardware that best suits an application.</li> </ul>	<ul style="list-style-type: none"> <li>VMware Evo:Rail</li> <li>SimpliVity OmniCube and OmniStack</li> <li>Nutanix NX with Acropolis and Prism</li> <li>Maxta MxSP and MaxDeploy</li> <li>Scale Computing HC3 and HC appliance</li> </ul>