Discover 2014

It’s time to build a better enterprise.
Together.
A roadmap to software-defined data center (SDDC) management

Anil A. Kuriakose / June 12, 2014

#HPDiscover
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What we will cover today?

- Evolution and introduction to SDDC
- Benefits of SDDC
- SDDC management challenges
- SDDC management requirements
- SDDC management – the HP Software POV
Evolution of data center

1. Primary goal:
   Connect users to applications

2. Core activities:
   Compute, store, and connect

3. Key resources:
   CPU, memory, storage, and ports

4. Key requirements:
   Manageability, security, and scalability

Software defined data center
- Offer infrastructure as a service
- Better utilization
- Higher flexibility/capacity on demand

Virtualized data center
- Server consolidation and virtualization
- Optimized compute utilization
- Performance issues

Traditional data center
- Dedicated and isolated hardware
- Low utilization
- Low flexibility

10 years ago
5 years ago
Today
What is HP Software Defined Data Center?

Extending the benefits of Converged Infrastructure

**HP Software Defined Data Center:**
SDDC enables IT to **optimize the rapid creation and delivery of business services**, reliably, through **policy-based automation**, from the infrastructure up to the application using a **unified view of physical and virtual** resources.

**SDDC aligns business and IT like never before** by providing **open choices** regarding how best to consume and/or deliver IT for maximum agility, security and business value.
Software Defined Data Center architecture

Open, software-defined and business-aligned

Business applications and their related infrastructure apps

Create abstractions (SW defined constructs) of infrastructure resources to support app/service requests

Application

Control

Infrastructure

Unified physical & virtual view

Next-gen applications platform

IT admin, LOB and application level control

Provide open standard-based programmatic access to disparate physical and virtual infrastructure resources and platforms
Software Defined Data Center – Infrastructure layer

- Built upon physical HW and resources
- Resources are abstracted and offer it as infrastructure services
- Platforms and applications share and consume the virtual resources
- A unified management layer looks across the board

- Business services
- Platforms and application infrastructure
- Resource abstraction and virtualization
- Physical resource pools

Unified infrastructure monitoring
Cloud services broker
Benefits of the Software Defined Data Center

Infrastructure consolidation

- Fewer servers
- Fewer top of the rack switches
- Optimized storage

Unified management and configuration

- Simplified administration automated configuration changes in support of dynamic operations, and cloud automation

Improved business agility

- The data center will become more responsive to the needs of the business
SDDC management challenges

Lack of unified view
• Current management tools are domain focused
• Current tools do not integrate very well

Traceability lost due to horizontal virtualization layer
• Applications using shared resources instead of dedicated hardware
• Difficult to know whether the workloads are getting necessary resources

Rate of change of resource requirements are very high
• Increase in business requirements
• Automated load balancing
• Workload movements

Capacity sprawl
• Easy to create, but forget to remove after the use
• Additional cost associated with the stale capacity
## Need for new SDDC management tools

<table>
<thead>
<tr>
<th>Complexity</th>
<th>Risk</th>
<th>Business demand for SLA</th>
<th>Infrastructure Optimization</th>
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<tbody>
<tr>
<td>Complex to manage the pools of virtual resources</td>
<td>Frequent configuration change requirements impact the work loads</td>
<td>Business takes the risk of running critical applications in abstracted, shared, and dynamic environment</td>
<td>Virtualization cost/benefits will be diminished if we are not identifying and removing the stale VMs</td>
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<tr>
<td>Right set of tools is essential to take the complexity out</td>
<td>The management tools are required to understand the relationships between the configuration changes and performance</td>
<td>Reducing MTTR with right tools is very important for meeting business SLA</td>
<td>A right unified performance and capacity management tool should be used to optimize the infrastructure</td>
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</table>
6 dimensions of SDDC management

#1 discover
- New
- Dependencies
- Change
- Configuration

#2 measure & detect (monitor)
- Availability
- Fault
- Performance

#3 events
- Thresholds
- Notifications

#4 diagnose & triage
- Fault
- Performance
- Operational - graphs & report

#5 optimize
- Placement
- Optimization
- Capacity & forecast
- Config mgmt

#6 automate
- Change
- Orchestrate
- Automate

Application layer
- DB
- Web
- Back office

Platform layer
- Operating system

Provides service to

Infrastructure layer
- Hypervisor
- Network
- Compute
- Storage
- Hardware (enclosed components)
### Criteria for your SDDC management stack

<table>
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<tr>
<th>Criteria</th>
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<tbody>
<tr>
<td>Single vendor or multi-vendor strategy</td>
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<tr>
<td>Trusting platform vendor to manage their platforms</td>
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<tr>
<td>Trusting one platform vendor to manage other vendor’s platform</td>
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<tr>
<td>Business service integration</td>
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<tr>
<td>Play around with it before you buy it</td>
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</table>
SDDC management - next steps

Software data center
- Develop a software defined data center roadmap
- Evolution of today’s virtualized data center to SDDC

Cost/benefits balance
- Draw the line for what you needed
- Proceed incrementally
- Migrate workloads one by one

Consolidate technology platforms
- Identify hardware consolidation opportunities
- Standardized up on small set of hardware vendors

Management tool consolidation
- Consolidate point tools to a unified management tool
- Select a vendor who offer multivendor management strategy
- Embrace integrated monitoring and automation
SDDC management convergence & capability model

Increasing data center convergence and software defined capabilities

Server consolidation

Compute virtualization and automation

Network consolidation and storage optimization

Self service infrastructure with full lifecycle management

Software defined
HP POV – The SDDC management continuum...

- Server consolidation
- Compute virtualization and automation
- Network consolidation and storage optimization
- SDDC

Operations management
Virtualization management solution
SDDC management solution

Software Defined
**HP vPV – the virtualization management solution**

A practitioner tool for virtualization, and cloud administrators for unified fault, performance & capacity management

Helps you to troubleshoot VM performance issues and helps to optimize virtualized and cloud environment

Tree-map provides at-a-glance visual analytics

Performance workbench embeds diagnostic workflows

Domain operational reports provide status, trends and history

Placement and optimization to right size the environment and safely reclaim the unused resources

Real time guest OS visibility to debug and triage guest OS issues
What is new with vPV 2.00?

• Alerting – HP OM integration
• Capacity modeler (what-if scenarios)
• Richer MS Hyper-V management with broader metric set & improved collection interval
• vSME dashboard for "at a glance" health and capacity overview
• Enriched user experience with improved navigation
HP Software POV - the SDDC management stack

Application Performance Monitoring
Application Aware Infrastructure Monitoring
Infrastructure Capacity Management
Infrastructure Performance Management
Unified Infrastructure Monitoring
SDDC
Physical Resource Pools
Operational Analytics
Change, Orchestration, & Automation
Benefits framework for HP SDDC mgmt. continuum

Manage virtualized and cloud environments
- Vendor neutral, supports multiple hypervisors, domains and technologies
- OpenStack – Private Cloud

Ensure health, Performance & Capacity
- Troubleshooting
- Rapid root cause analysis
- Capacity Management

Reduce Total Cost of Ownership (TCO)
- Fast time to value
- Ease of use
- Scales cost-effectively
- Optimize the resources

Investment Protection for the Future
- Support for modern architectures
- Integrates with BSM and Cloud solutions

Benefits
For more details

**SDDC Management Thought Leadership:**
HP SDDC Mgmt Blog: [www.hp.com/go/sddc](http://www.hp.com/go/sddc)
HP SDDC LinkedIn Group:

**Software Defined Data Center (SDDC) Management**
[https://www.linkedin.com/groups?home=&gid=6617035](https://www.linkedin.com/groups?home=&gid=6617035)

**Related Product Pages:**
HP vPV: [www.hp.com/go/vpv](http://www.hp.com/go/vpv)
HP SiS: [www.hp.com/go/sis](http://www.hp.com/go/sis)
HP NNMi: [www.hp.com/go/nnmi](http://www.hp.com/go/nnmi)
For more information

Attend these sessions

- TB3104 - Next-Generation IT Ops: Optimize IT value with BSM Innovations
- CDA3164 - Dealing with Darwin – HP BSM Strategy and Roadmap
- BB3076 - The five-step journey to predictive operations
- BB3014 - Bringing Performance Metrics to the business
- RT3379 - BSM Maturity Model – Where to start and how to define the journey to BSM
- DF3349 - Why and how you should move to BSM
- DF3351 - Obtain measurable, maximized value from business service management (BSM)
- DF3352 - Managing your cloud environment with business service management (BSM)
- TB3172 - T-Mobile – Service Centric Operations with the business in mind
- BB3292 - Unified Monitoring: Waste Management provides Continuous Service Availability
- RT3074 – Monitor and Optimize your virtual cloud environment
- RT3365 - Trying to plan and needing clarity: The evolution of HP’s operations and performance management strategy

Visit these demos

- SW 806 - HP Systems Management: App Infrastructure Monitoring

After the event

- Contact your partner or sales rep
- Visit the following websites
  - www.hp.com/go/bsm
  - www.hp.com/go/SystemsManagement
  - www.hp.com/go/hpln

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