

Exploring the Software Defined Data Center

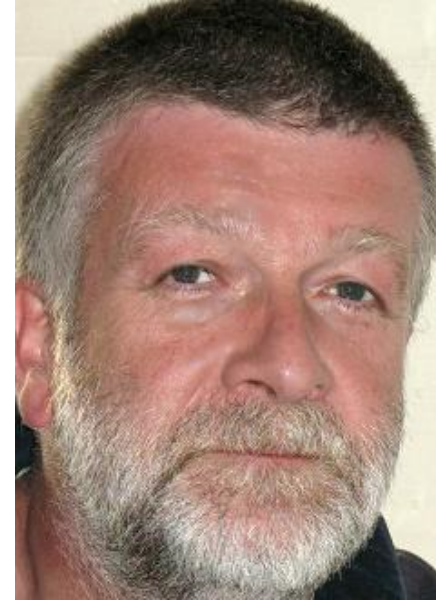
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Agenda

- The Changing Role of IT
- What is Service Delivery?
- What is Software Defined?
- Is Software Defined Just “Marketechture”?
- The Characteristics of Software Defined Storage
- Towards an SDDC – Software Defined Data Center
- Summary

The Changing Role of IT

➤ Builders & Operators transitioning to “Brokers of Services”



Security

??



Compute

Server Virtualization



Networking

??



Storage

??

How can I provide the benefits of virtualized compute throughout the whole stack?

Service Delivery is what it's about

- IT role in Information-driven world is Service Delivery
 - ◆ IT role as Brokers of Services, not Builders of Infrastructure
- The SDDC concept is a means to an end, not the end
 - ◆ Cloud is the delivery model
 - ◆ IT agility and cost containment in infrastructure management is the driving force here.
- The concept of SDx enables these benefits by
 - ◆ Disaggregating software from hardware
 - ◆ Replacing proprietary systems with proprietary software and generic hardware

What is software defined?

- Not new - we've been replacing hardware with software for a long time
 - ◆ Early example is the travel alarm clock
 - ◆ Elimination (or reduction) of physical buttons and controls on all kinds of products
 - ◆ Forced to click through menu trees to get to the function you want to activate
- Allows consolidation of multiple devices
 - ◆ Another example – smart phone
 - ◆ Everything it does is software defined – except for the few buttons around the edges
 - ◆ Entire screen becomes a dynamic control
 - ◆ Software turns it into multiple devices – phone, voice recorder, MP3 player - and a computer



Marketecture - or the real thing?

➤ Software Defined is Overused

- ◆ a term that's been hijacked by lazy marketers
- ◆ generating web hits encourages people to use the terms that get the most attention, even when they're not particularly appropriate
- ◆ Nowhere is this more apparent than with SDS

➤ Software-Defined is Real – and powerful

- ◆ It's technology that enables a host of developments
- ◆ Scale out, clustered arch
- ◆ Commodity hardware movement

From Enabled to Defined



Enabled

- But not virtualized



Semi virtualized

- Single Pane of Glass management



Fully virtualized

- Hardware
- Software
- Services
- Management

- **Software enabled, managed or defined, ...**
 - ◆ Software at the heart of most storage system functionality – and essentially all the features
 - ◆ Storage volumes are software defined
 - ◆ Virtualization is a great example of software defined concept
- **Storage controllers are essentially purpose-built servers**
 - ◆ Server virtualization enables proprietary hardware components to be run as VMs
 - ◆ Makes it easier to create clustered, scale-out storage architectures

Software Defined Storage

- Virtualized Storage Services
 - ◆ Provision based on service levels & templates
- Multi-Vendor Hardware
 - ◆ Deploy on platform of choice
- Application self-service
 - ◆ Deliver application storage without admin intervention
- Responsiveness for IT teams
 - ◆ Provision based on priority and service level
 - ◆ Automate via policy-based security and delegation
- Flexibility for purchase decision makers
 - ◆ Deploy on platform of choice
 - ◆ Extend capabilities of existing assets
- Autonomy for app owners
 - ◆ Instantly deploy new applications and services
 - ◆ Dynamically respond to shifts in demand

Requirements for Virtualized Storage Services

- Provision based on Service Levels (SLA)
- Policy-based storage
 - ◆ Gold, Silver, Bronze concepts
- Object-based QoS
- Multi-tenant
- SAN and NAS
- Storage capacity efficiency
 - ◆ Dedupe, compress, thin provision
- System and data center mobility
- Integrated data protection

What is a Software-Defined Data Center?

➤ SDDC

- ◆ An emerging architecture and set of technologies that build upon existing cloud and virtualization models
- ◆ Enables resources to be defined in software, provisioned based on policy, and deployable on any hardware
- ◆ Increase IT agility and operational efficiency while speeding delivery of services to application owners

➤ Resources are:

- ◆ Defined in software
- ◆ Provisioned based on policies and service levels
- ◆ Deployed on a variety of hardware



Who's really doing SDDC?

- To get at the SDDC concept, we need to look at hyperscalers
 - ◆ Hyperscalers – large, web-based social media and cloud enterprises
- Enormous amounts of data and enormous numbers of transactions
 - ◆ Scalability
 - ◆ Flexibility
 - ◆ Cost containment
- In-house infrastructures to meet these requirements using software defined concepts
 - ◆ Scale-out topologies for incremental growth and largest total capacity
 - ◆ Software-based, clustered architectures to support maximum flexibility
 - ◆ Commodity hardware to keep the whole thing affordable



Who else wants SDDC?

➤ Everyone!

- ◆ SDDC makes sense - on the whiteboard
- ◆ Commodity hardware
- ◆ Scalable, flexible architectures

➤ Hyper-scale dream is difficult to deploy

- ◆ Companies geared towards IT operation, not design and development

➤ Can this technology 'trickle down' to traditional IT organizations?

- ◆ Technology transfer occurs in defense, space, etc.

Options for Deploying SDDC

➤ Open Source

- ◆ Used by hyper-scalers
- ◆ Requires development mindset
- ◆ Can result in 'science project'

➤ Hyperconverged Infrastructures

- ◆ SDDC in a box
- ◆ Hyperconverged Appliances have had some enterprise success

➤ Open Storage Platform

- ◆ Separate hardware and software components
- ◆ Roll you own cloud infrastructure

SDDC is a replacement

- Nobody has the magic wand; can't turn traditional infrastructure into SD
- The move to a SDDC will have to occur in increments
 - ◆ Projects like VDI, BigData analytics
 - ◆ Departmental computing
 - ◆ Infrastructure refresh in smaller environments
- Private clouds offer a way to obtain critical mass in this evolution to SDDC

In Summary

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After This Webcast

- This webcast and a copy of the slides will be on the SNIA Cloud Storage website and available on-demand
 - ◆ <http://www.snia.org/forum/csi/knowledge/webcasts>
- A Q&A from this webcast, including answers to questions we couldn't get to today, will be on the SNIACloud blog
 - ◆ <http://www.sniacloud.com/>
- Evaluator Group Video & White Paper “Open Storage Platform: An Overview”
 - ◆ <http://www.evaluatorgroup.com/document/analyst-video-open-storage-platform-overview/>
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Thank You