Dell DCS ‘G5’ & Intel® Rack Scale Architecture: Your Foundation for the Software-Defined Data Center

Stephen Rousset, Dell Distinguished Engineer and Director of DCS Architecture
## History of Hyperscale Leadership

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
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<tbody>
<tr>
<td>2007</td>
<td>Dell establishes Data Center Solutions (DCS) to meet the needs of the world's largest web &amp; social media providers.</td>
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<td>2010</td>
<td>Key OpenStack supporter - Dell is a founding member of and leader in the OpenStack community.</td>
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<td>2011</td>
<td>DCS Expands Offerings - Dell’s Data Center Solutions group expands product offerings to meet the unique needs of the broader scale-out enterprise.</td>
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<td>2012</td>
<td>One million cloud servers shipped - Dell DCS has shipped more than one million hyperscale servers since its founding, cementing its position as the density-optimized server leader.</td>
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**Industry’s 1st hyperscale-focused solutions provider**
- Dell establishes Data Center Solutions (DCS) to meet the needs of the world’s largest web & social media providers.

**DCS does first Dell MDC design**
- DCS initiates Dell’s development of Modular Data Centers.

**Key OpenStack supporter**
- Dell is a founding member of and leader in the OpenStack community.

**Creation of density-optimized space**
- Dell DCS creates first 4-node-in-2u-chassis that is now prevalent in the industry.

**Dell launches PE-C from DCS**
- DCS mainstreams 3 of its best-selling products under the PowerEdge C brand (C1100, C2100, C6100).
What does the Future Hold?
What is driving the Industry?
Contextualizing the megatrends

**Traditional IT**
- Make my legacy more efficient; more responsive to my users
- Help me deal with all these devices and BYOD
- Help me better manage my business
- Make my infrastructure more flexible and cost-efficient

**New IT**
- Hyperscale my infrastructure to meet demand
- Capitalize on the always-on, always connected consumer
- Mine my user/subscriber base for value
- Make my infrastructure more scalable and cost-efficient

**Cloud**

**IoT / Mobility**

**Big Data**

**Software-Defined**

**Business requirements drive IT innovation**
Cloudy Forecast

Big Data
DRAM density, Flash cost, CPU cores ... have enabled the economics to make the data minable (profitable) for business insights

Software Defined: SDN, SDS, NFV
Enables composable IT from disaggregated resources, encourages Rack Scale Architecture

Internet of Things
Hot new era and technology enabled by shrinking transistors to enable low cost highly connected devices...

Public/Private/Hybrid Cloud
Economic driven ... enabled by cost of computing Creating an on-demand bridge to more (Storage, Compute)
Intel Rack Scale Architecture and Dell DCS ‘G5’ - Building Blocks for the Software Defined Datacenter

- Compute Building Block
- Storage Building Block
- RSA-Ready Switch w/Network PSME Agent
- POD Manager
- Disaggregated Shared Cooling
- Disaggregated Shared Power
- Rack-level Management w/PSME Agent and RMM

DELL DCS ‘G5’ RACK
DCS ‘G5’ and Intel Rack Scale Reference Architecture

Orchestration

POD Manager

SDS Ex, Cinder

SDN Ex, OpenFlow

Customer choice

Dell Reference Arch
“G5 Rack scale ready”

Your Foundation for the Software-Defined Data Center
Tailoring to workloads with Dell DCS ‘G5’

Full rack-scale solution designed to open hyperscale principles

Third-, half- and full-width sleds for maximum IT flexibility

Compute, storage, networking and power infrastructure fully cold-aisle serviceable

Comprehensive management capabilities including Redfish

Rack scale ready beginning 2016
Dell ‘G5’ Rack Scale Ready Solution
foundation for the software defined datacenter

Example PoC Use Cases:

1. Telecommunications
   • Cloud Compute / NFV Infrastructure – 1/3rd and Half-width compute; **OpenStack Nova, vEPC, vIMS**
   • Big Data – Full-width storage; **OpenStack Nova, Swift, CEPH, Hadoop, CDN**

2. Web / Cloud Service Provider
   • eCommerce – 1/3rd width compute; **OpenStack Nova, Search, Web front-end**
   • Big Data / Object Storage - Full-width storage w/JBOD; **OpenStack Swift, Hadoop**

3. Others? Come talk to us
How to learn more

- Visit us in booth 372 (in the Data Center & Software Defined Infrastructure Community)
- Get hands on with Dell’s ‘G5’ rack scale hardware solution and see our Intel® Rack Scale Architecture demo
- Attend INFS006 – Exploring Redfish – Emerging Manageability Standards
- Or contact your Dell account rep to discuss Proof of Concept opportunities
Thank You
‘G5’ and Intel® Rack Scale Architecture Demo

Redfish 1.0

- Redfish 1.0 / PSME / GAMI CLI sends `<command>` to the Compute PSME running on the ‘G5’ management controller …
- ‘G5’ mgmt controller polls the node BMC for the requested information …
- BMC(s) respond to the ‘G5’ mgmt controller which responds to the console … `<response>`

RSA PSME

GAMI

Demo Monitor

PSME Service Window

GAMI Service Window

<response>