OpenFlow/SDN Market Opportunities: Dell's Point of View

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Agenda

- Computing model change and impact to networking
- SDN market opportunities… examples
- SDN-enabled multi-tenant data center
- Enterprise networking – wireless, campus, branch
- Server interconnect, fabric, network – fabric switching
- Software defined networking – Dell's PoV

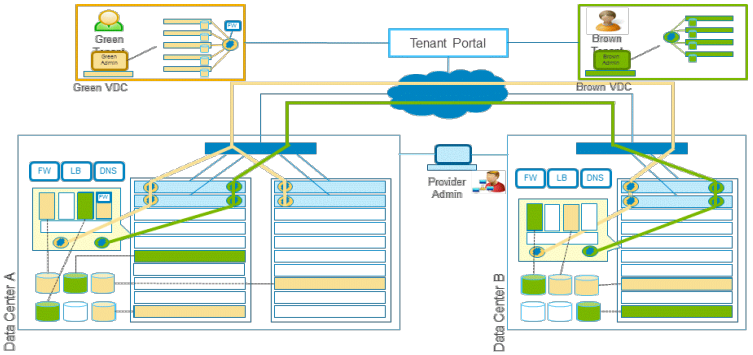
Virtualization and Cloud Computing is Redefining Networking

- Data center networking disrupted:
  - Hypervisor virtual networking & server access switching
  - Flattened aggregation & DC core
  - Virtualized network services
- Campus networking simplified… … wired/wireless access and control… unified campus networking
- Extreme scale-out systems… hyper-scale cloud centers… new programming model… fabric switching…
- Software-defined networking as a key enabler for the new networking architecture

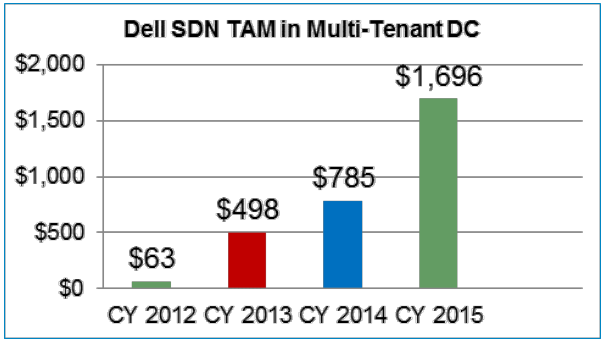
SDN Market Opportunity

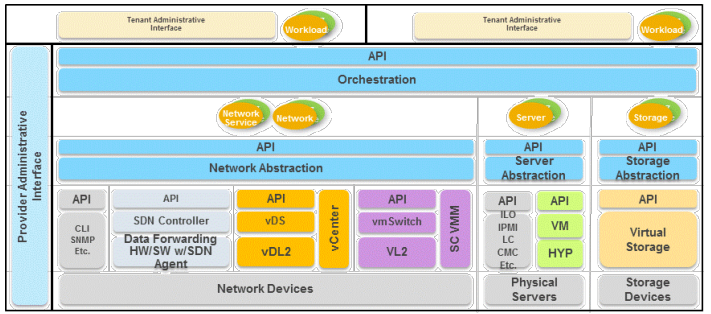
OpenFlow/SDN-enabled Multi-tenant Data Center

- Easier manageability of tenant networks, workload mobility and tenant network extensibility
- Ease of inserting network services, traffic steering, and integration with third-party L4-L7 services
- Allows more granular control of the traffic engineering, security, and QoS on per tenant basis
- Enhances legacy network architectures rather than replacing it



Multi-Tenant DC Infrastructure Solution





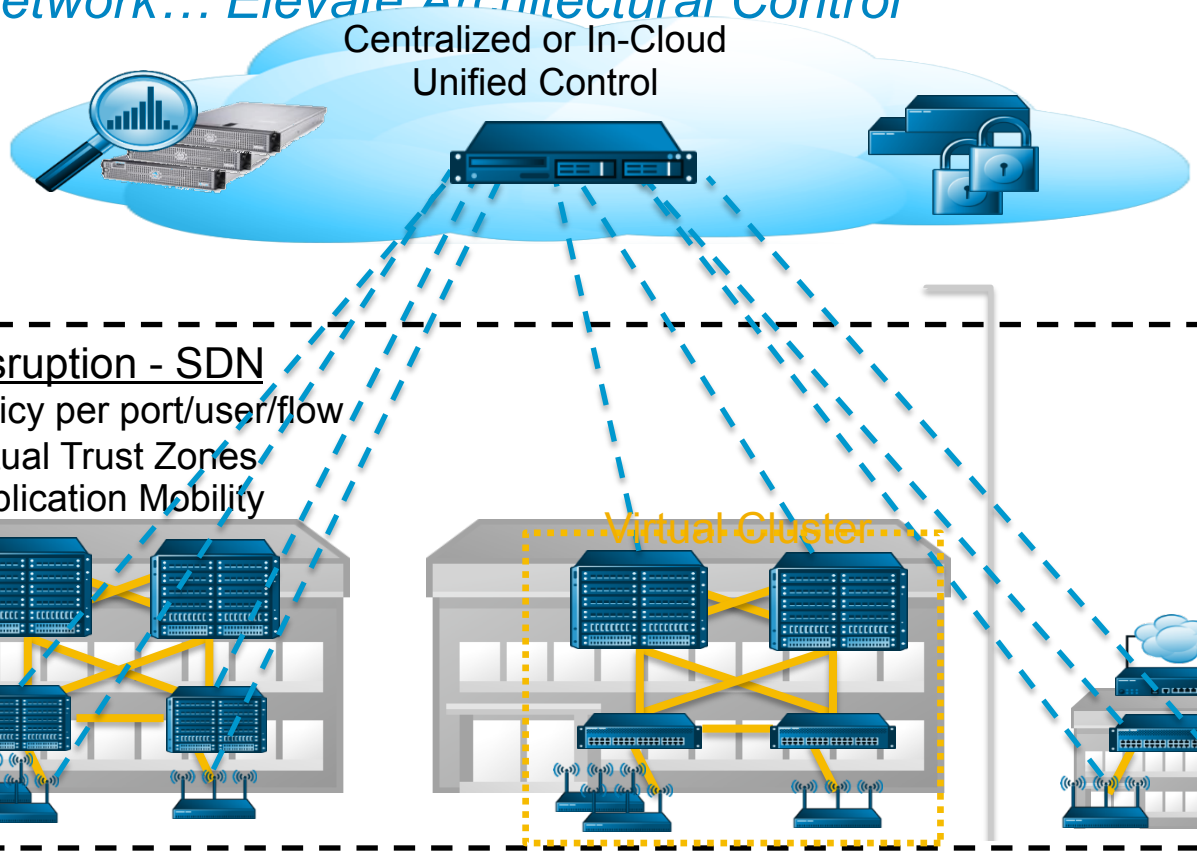
Multi-tenant DC Software Solution

SDN Market Opportunity

Unified Enterprise Network… Elevate Architectural Control

Centralized or In-Cloud Management & Control

- Workflow automation
- Hiearchical, role-based
- Multi-tenant
- Unified control plane
- WAN Opt
- Security



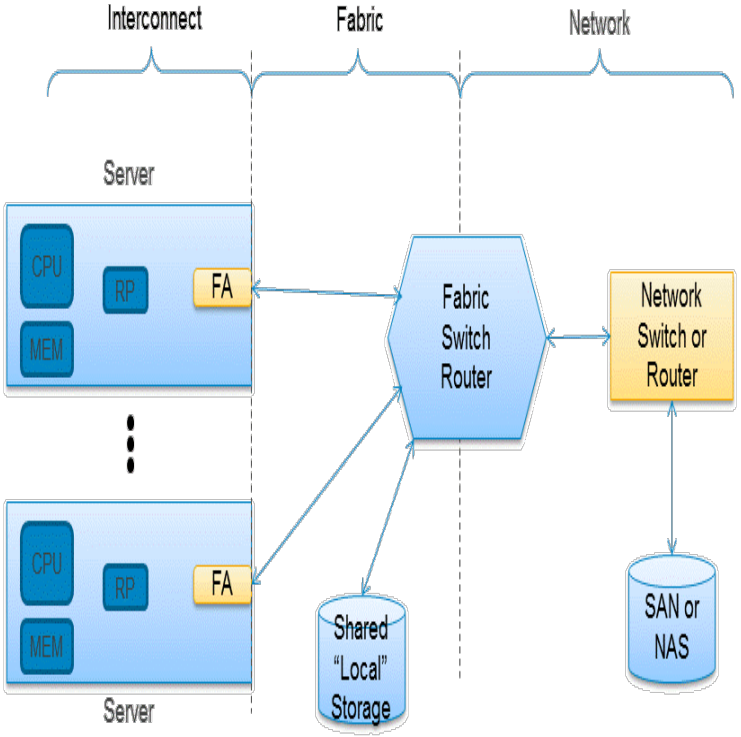
NG Access

- Plug & play
- Purpose built access switch
- Wireless /wired data off load
- Common wired/wireless control policy

SDN Market Opportunity

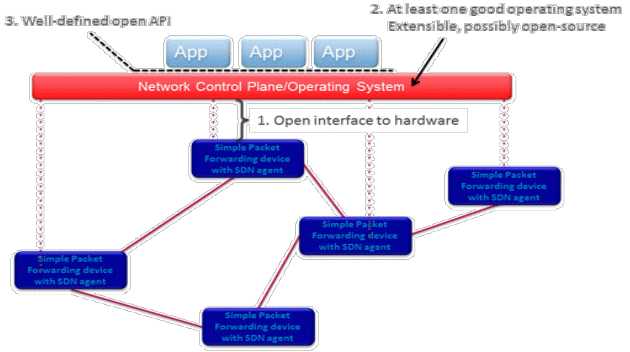
Server Interconnect … Fabric… Network… Fabric Switching Opportunity

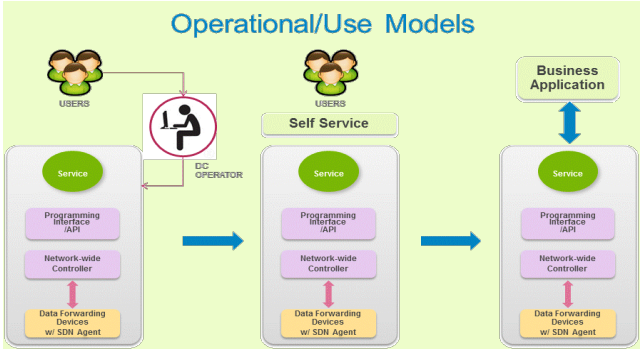
- Extreme Scale-Out Compute Platforms and Warehouse-scale Data Centers
- New application programming model – highly dynamic workload redistribution
  - Virtual machines
  - MapReduce/Hadoop tasks
- Emergence of “fabric switch” category
  - Ultra low latency within the fabric (bakplane, intra-rack, inter-rack… distance)
  - Ability to move “shared” local storage and interprocessor communications traffic seamlessly and losslessly
  - VM and RDMA support
  - Ability to connect to “outside world” via the network switch seamlessly
- Manageability… software controlled fabric… SDN/ OpenFlow support



Dell's SDN Point of View

- Shif in computing paradigm requires fundamental architectural and development model change in the networking industry
- Architecture change - breaking up monolithic network architecture – reducing customer TCO
- Operation model change – application driven, self-adjustable network operations
- Business model change – application ecosystem to enable industry-wide innovation
- Dell supports OpenFlow-based SDN strategy… working in conjunction with virtual networking capabilities enabled by the next gen OS environments





Thanks!