

Next Generation Data Centers (NGDC)

A look at where OpenStack, Open Compute, and Software Defined Networking (SDN) intersect

Dave Cohen, Director
EMC, Office of the CTO

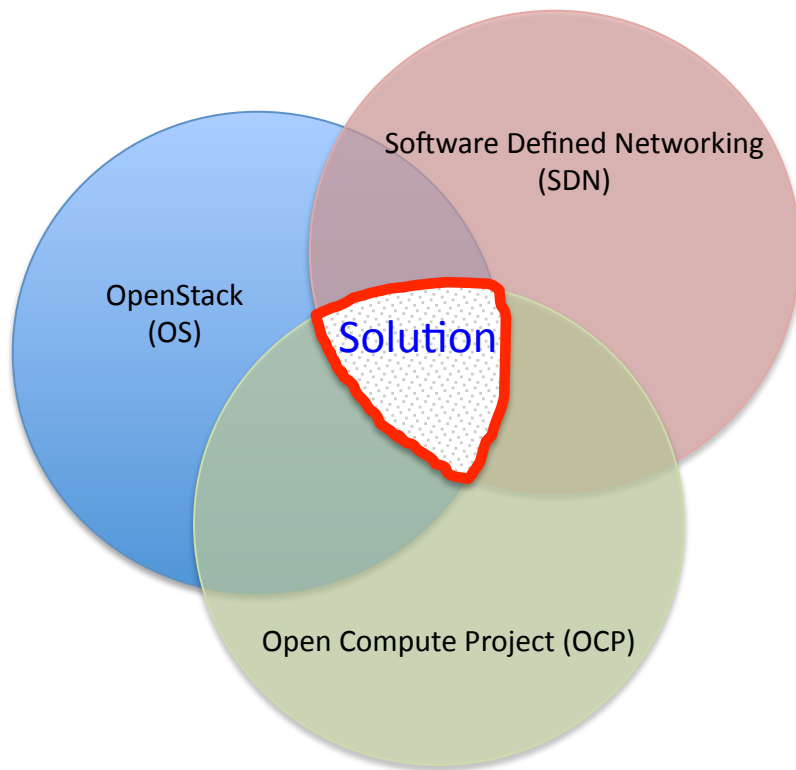
Disclaimer

My role in the Office of the CTO at EMC focuses on Advanced Development (AD) and Integration.

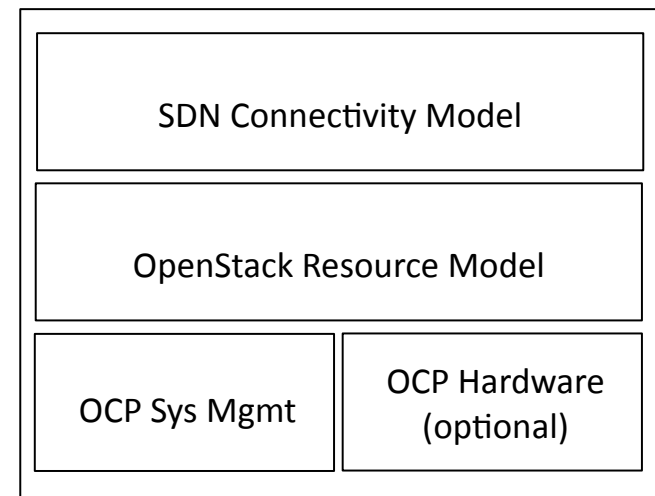
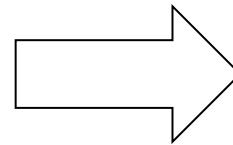
The content in the presentation that follows is a forward, advanced development/integration view and is not currently aligned to any EMC or VMware product nor is there a committed plan-of-record (POR) to develop such a product.

The work of our team is centered on determining the feasibility of the approach presented here and consists of prototypical architecture, engineering, profiling, and benchmarking.

What are we talking about?



Relevant Projects and Communities



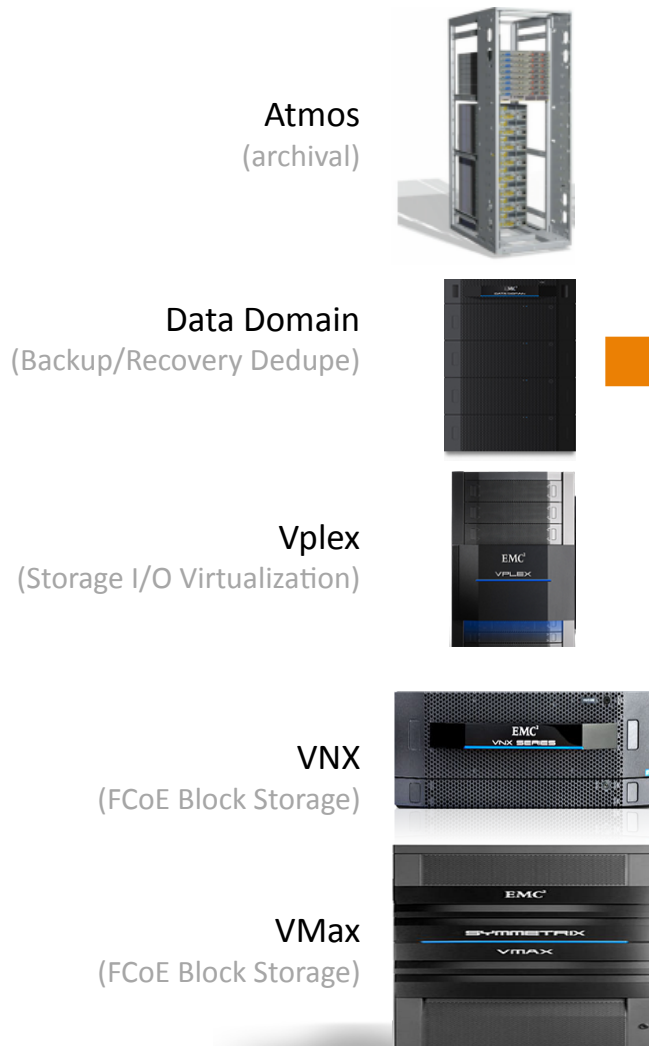
Solution Stack

NGDC – the Who, What, Where, When, and How

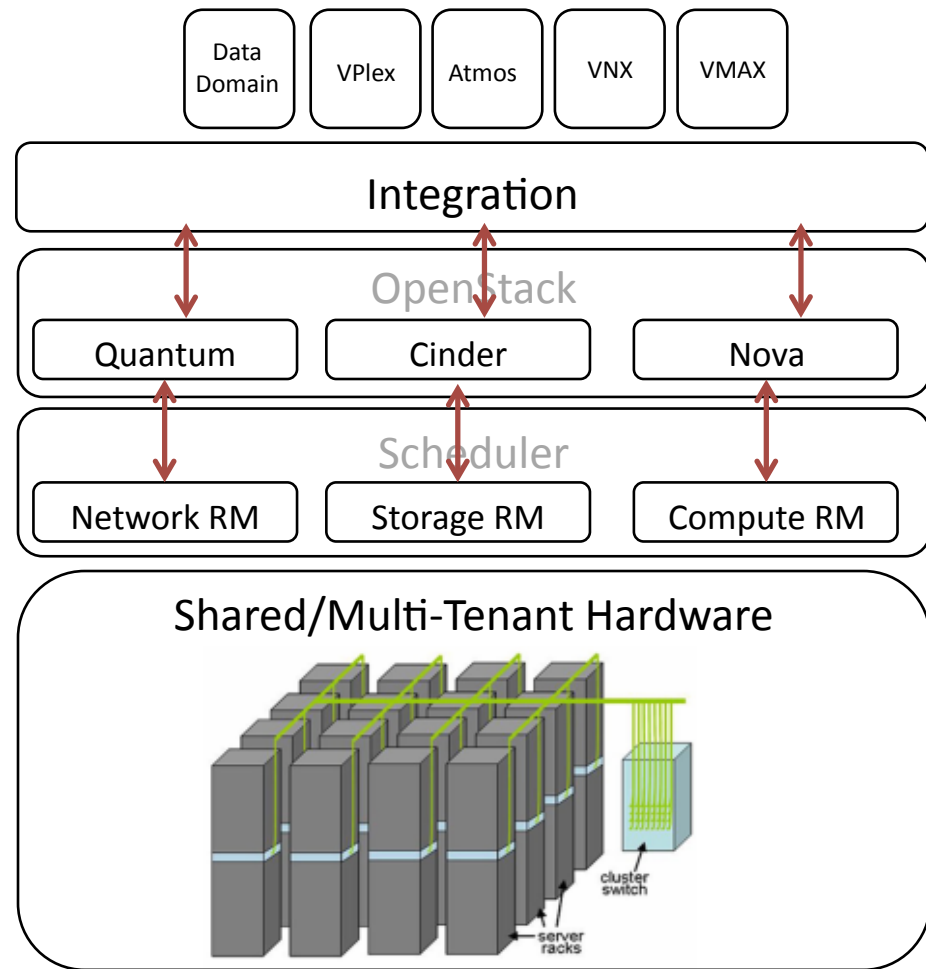
- **Who** - *People and Machines* that use software running locally to access services running in the Cloud
- **What** - a set of interconnected, *Cloud data centers* that support the people and machines using the software-based services that operate within confines of the interconnected data centers.
- **Where** – *Proximity*
 - users and machines
 - Amongst the interconnected data centers
 - One or preferably two, independent energy grids.
- **When** - *Time Synchronicity* operates on two planes:
 - Synchronization with the people and machines using/perturbing the services that operate in the Cloud data centers and
 - Synchronization between the interconnected data centers for replication.
- **How** - *Source-Switching*. This means the source transmits messages that carry a small amount of control information along with content. This control information is operated on by a series of switches until it reaches the intended destination.

How does EMC fit into an NGDC?

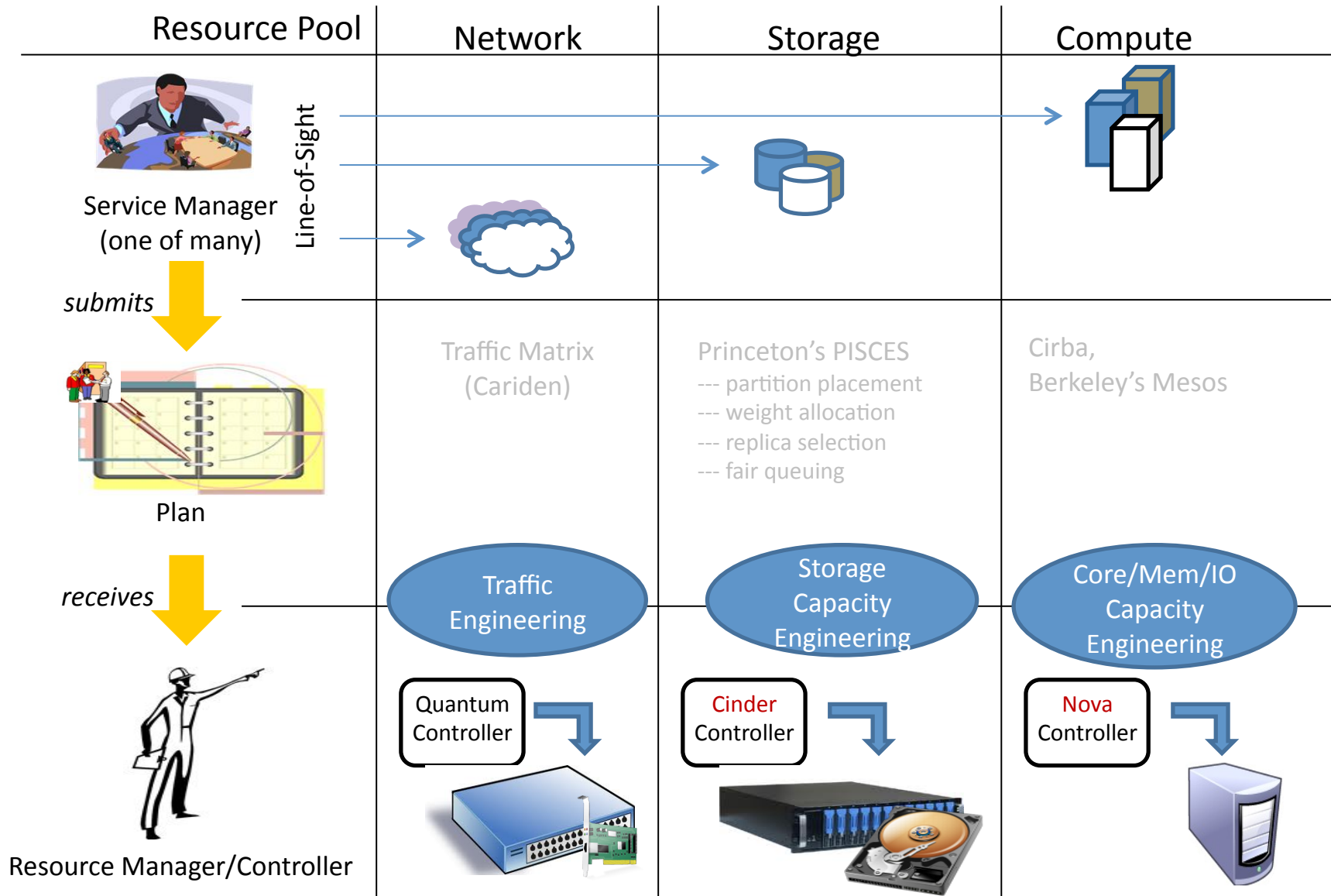
EMC Storage Appliance



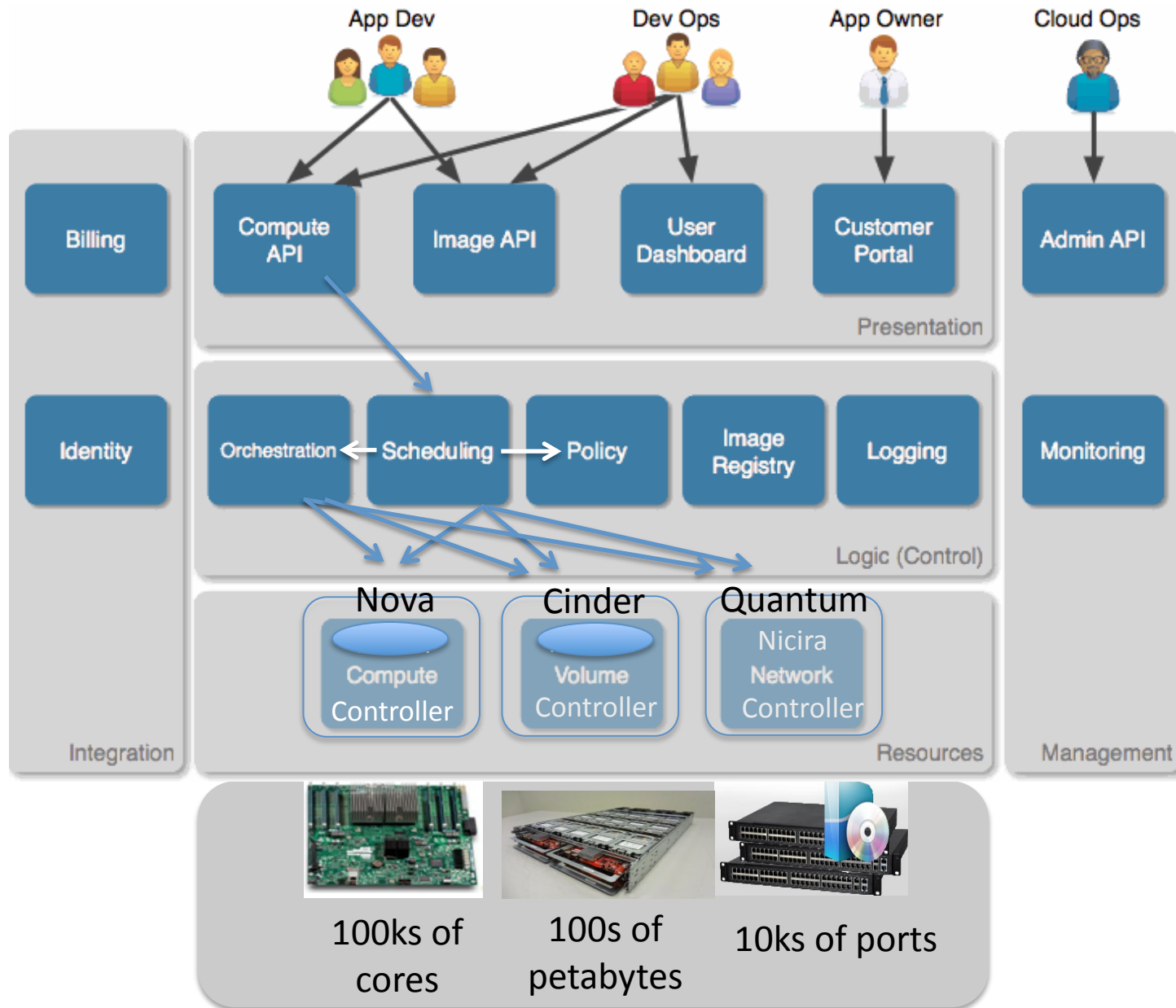
EMC Cloud



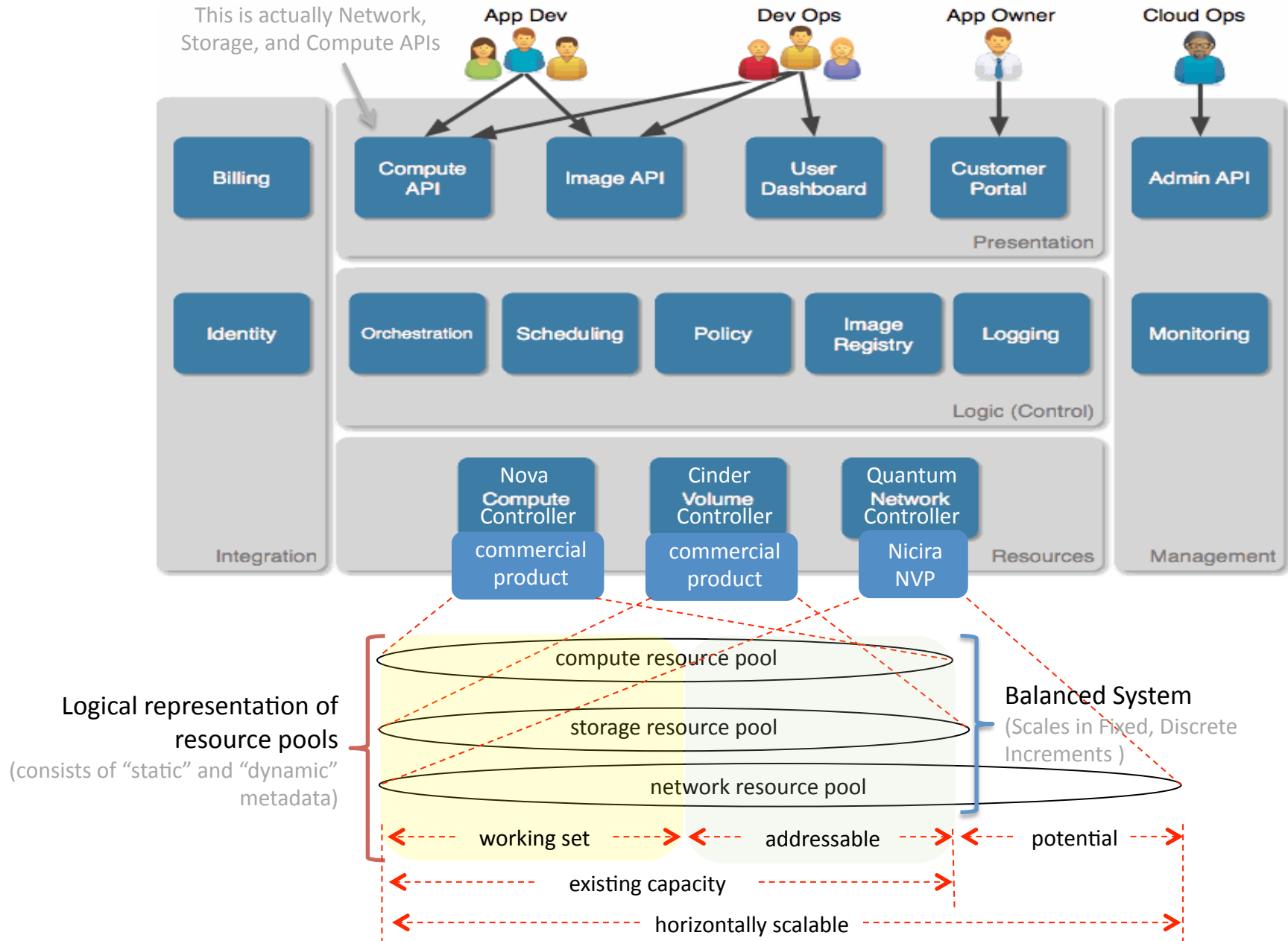
Bringing it all together



OpenStack Architecture

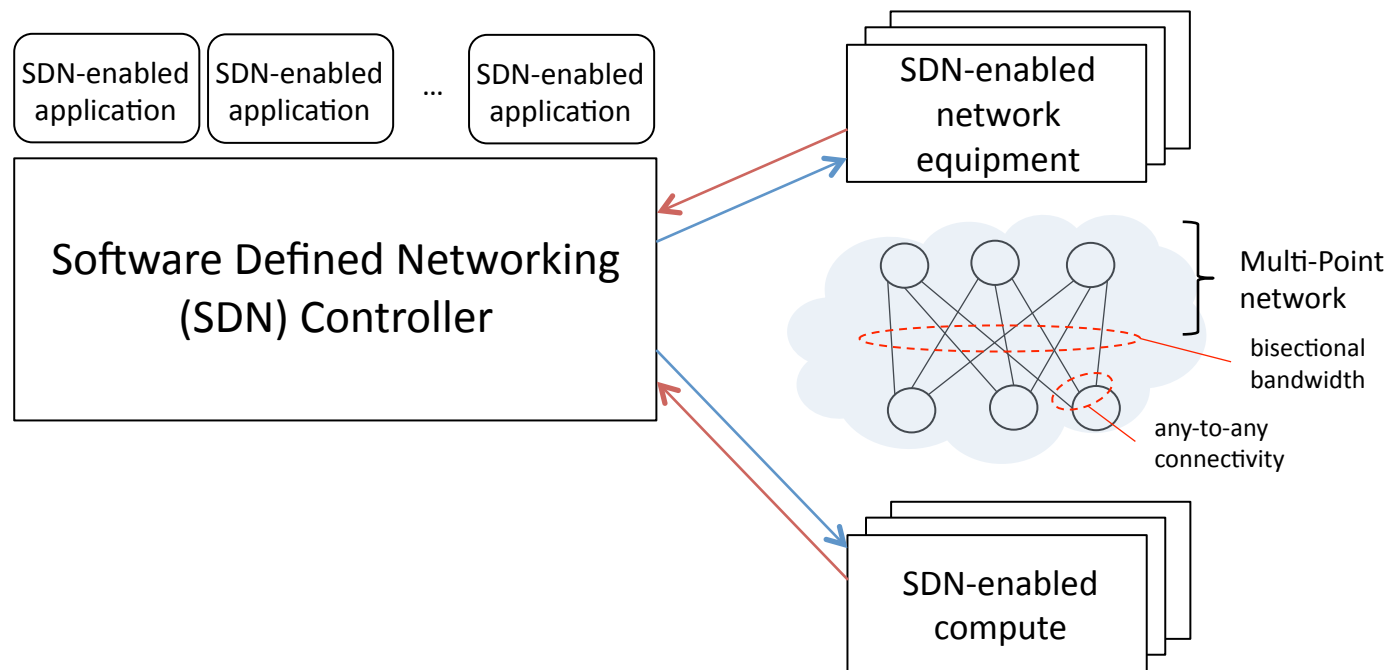


Let's Drill into the Details

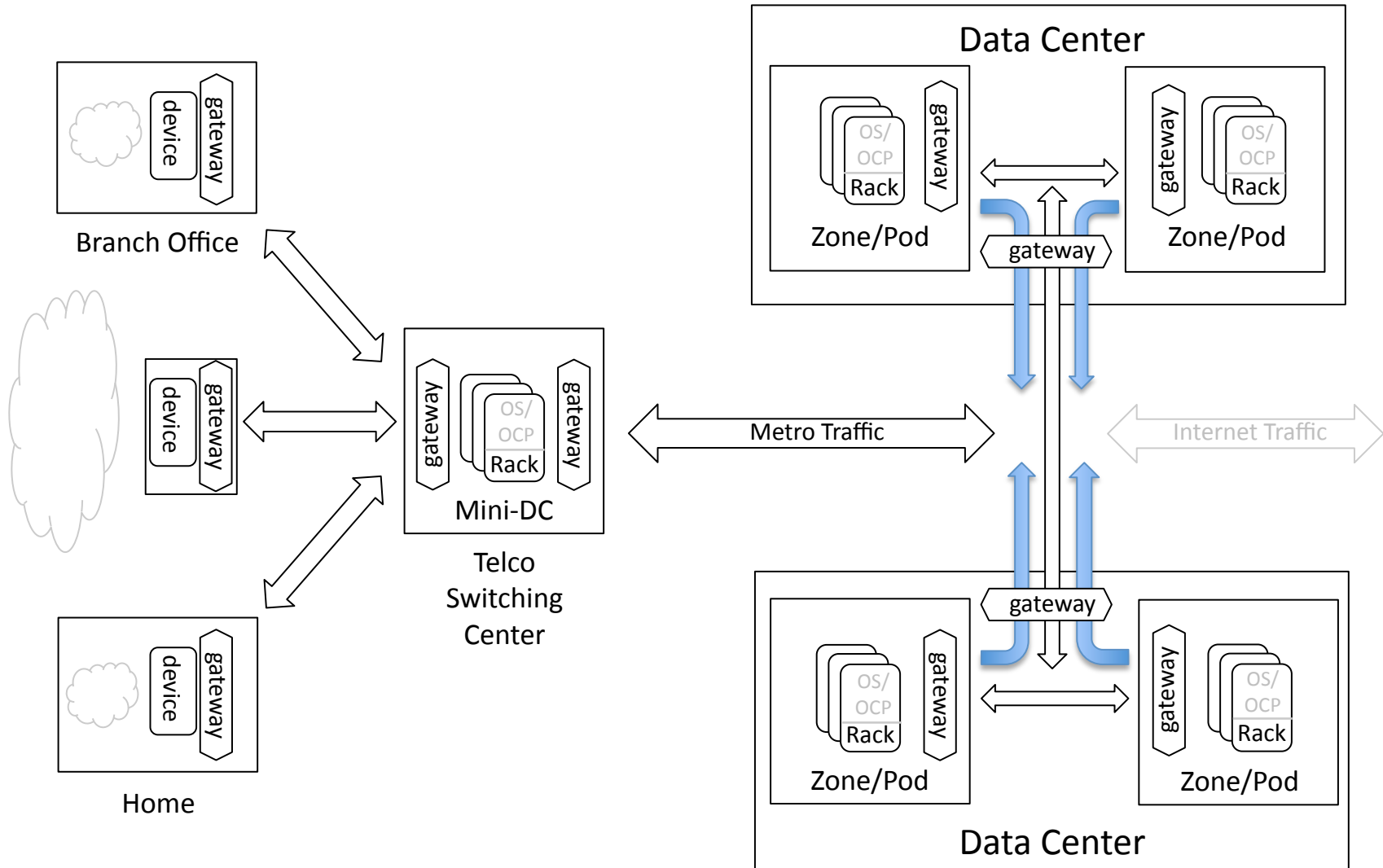


Software-Defined Networking (SDN)

Software-Defined Networking (SDN) is a model where “a control platform handles state distribution – collecting information from the switches and distributing the appropriate control state to them, as well as coordinating the state among the various platform servers – and provides a programmatic interface upon which developers can build a wide variety of management applications. The term ‘management application’ refers to the control logic needed to implement management features such as routing and access control.”

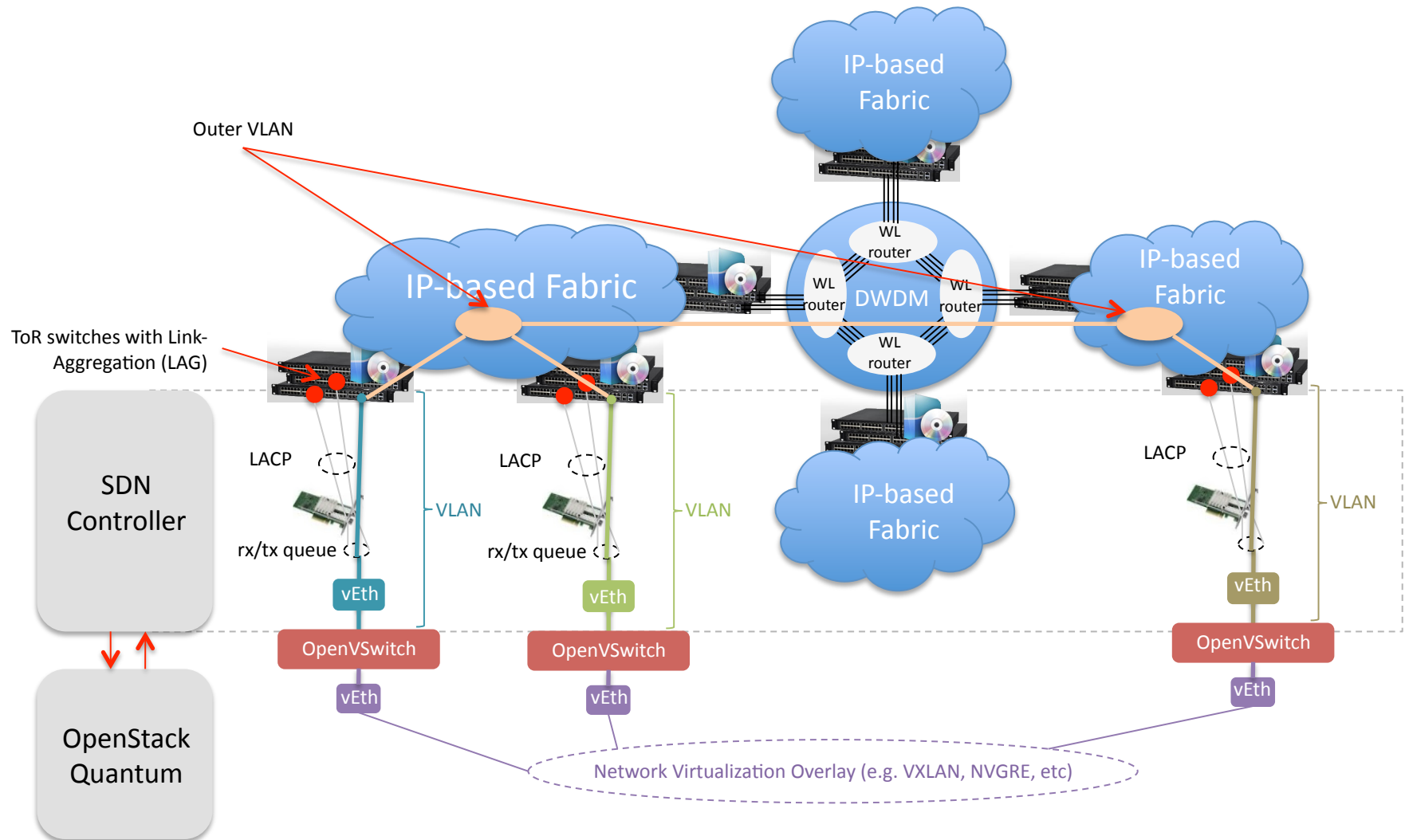


SDN - Where does it apply?



Section I – Basic Services

Scale-Out Switching – Virtualizing Ethernet



--- END ---

Disclaimer

This presentation has been a forward, advanced development/integration view and is not currently aligned to any EMC or VMware product nor is there a committed plan-of-record (POR) to develop such a product.

My role in the Office of the CTO at EMC focuses on Advanced Development (AD) and Integration.

The work of our team is centered on determining the feasibility of the approach presented here and consists of prototypical architecture, engineering, profiling, and benchmarking.