Addressing NFV Virtualization Requirements

Douglas Snyder, CISSP, ITILv3

Technical Architect 5

What is NFV?

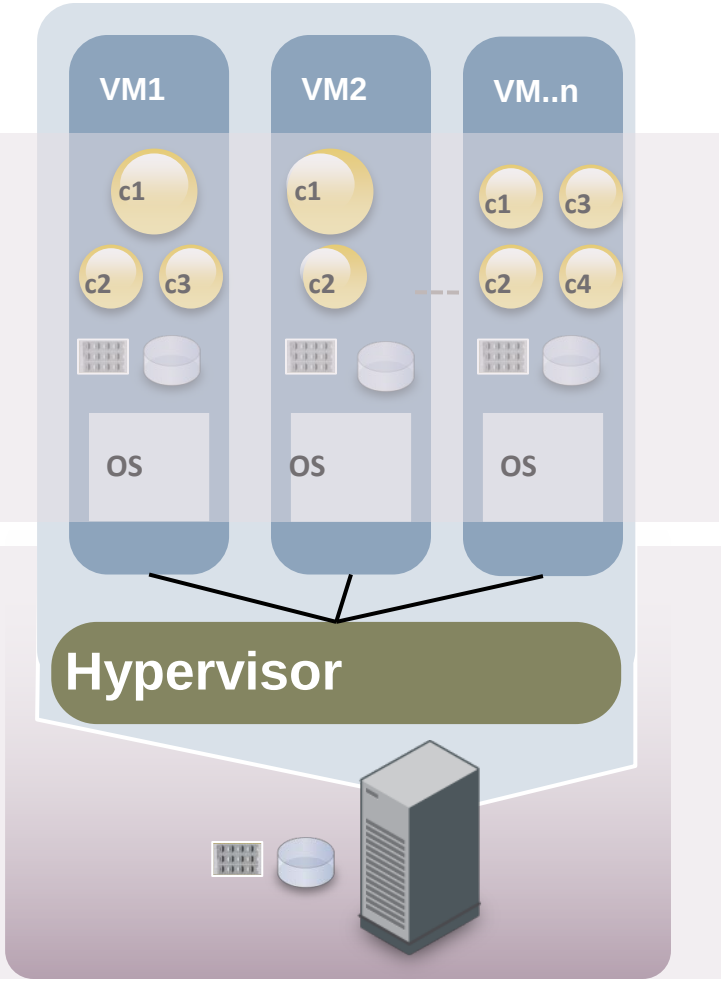
- Network functions virtualization (NFV) is an initiative to virtualize network functions previously carried out by proprietary, dedicated hardware.
- Developed by the European Telecommunications Standards Institute, NFV will decrease proprietary hardware that's needed to launch and operate network services. This is because functions previously carried out in routers, firewalls, load balancers and other dedicated hardware are now be hosted on virtual machines.

"Ending the Confusion About Software-Defined Networking: A Taxonomy“ Joe Scorupa, Mark Fabbi and Akshay Sharma, Gartner, (G00248592)

How virtualization works

All applications are dependent on the availability of the physical resources

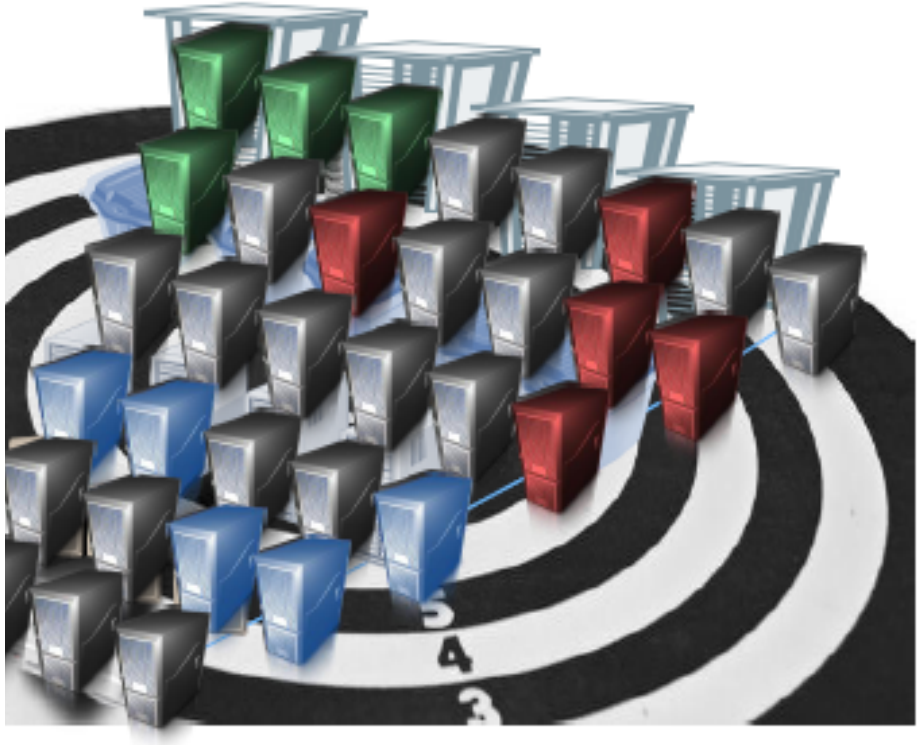
A hypervisor provides sharing of physical resources (compute, disk, network, etc.) to multiple OS instances



Gauging the impact of NFV…

- Characteristics:
  - Functions defined through software not hardware
- Benefits:
  - More standardization
  - Faster (re)configuration
  - Higher agility, higher utilization
  - Lower cost

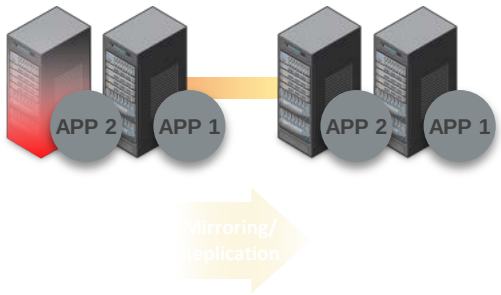
Beyond the control plane to the data plane



EFFICIENCY

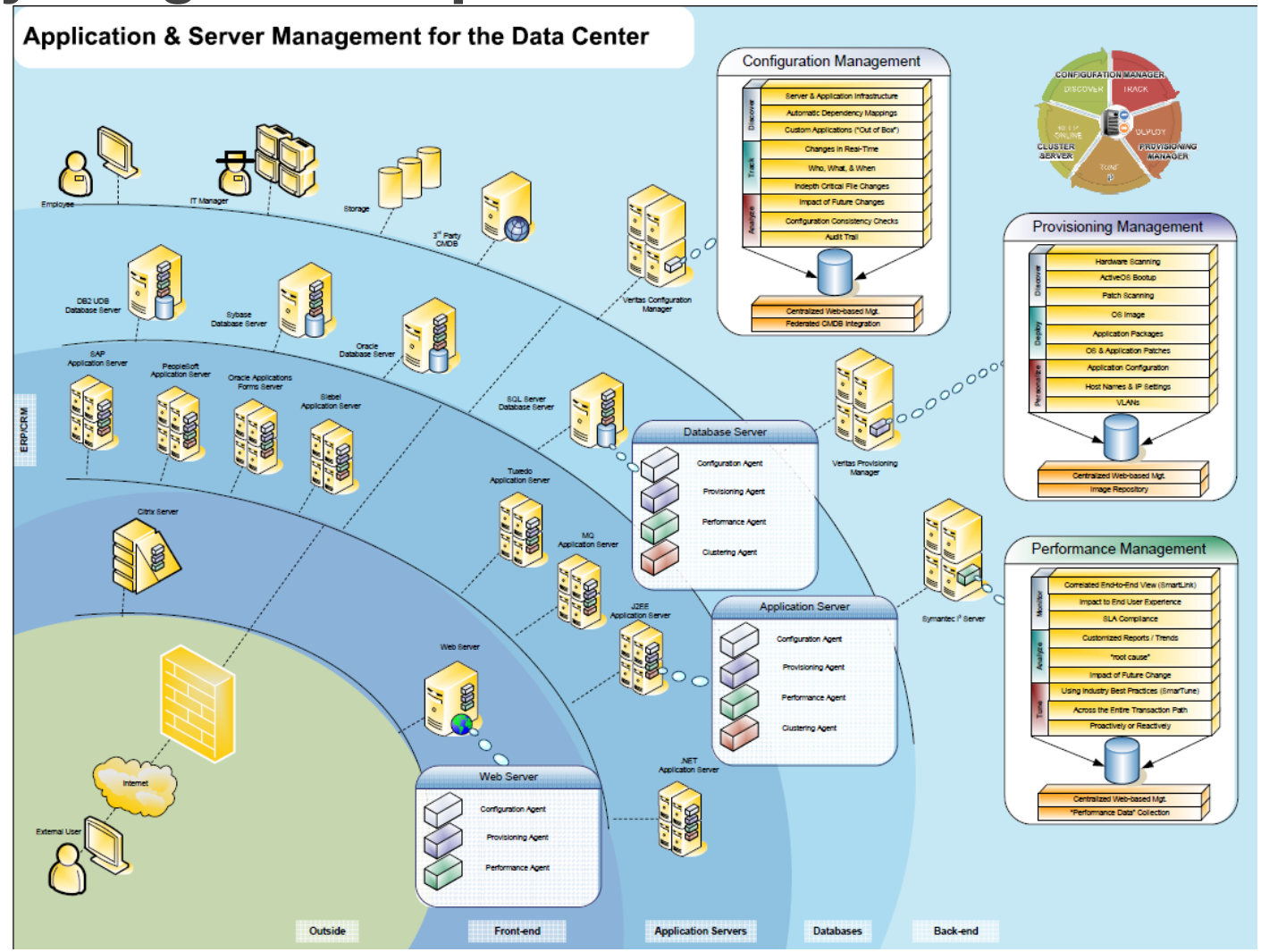
And the risk of NFV… and virtualization in general

- 5.2 – Portability
- 5.3 – Performance
- 5.4 – Elasticity
- 5.5 – Resiliency
- 5.6 – Security
- 5.7 – Service Continuity
- 5.8 – Service Assurance
- 5.9 – Management
- 5.10 – Energy Efficiency
- 5.11 – Co-existence



http://www.etsi.org/deliver/etsi_gs/NFV/001_099/004/01.01.01_60/gs_NFV004v010101p.pdf

Data Centers are complex – Software defined everything can help



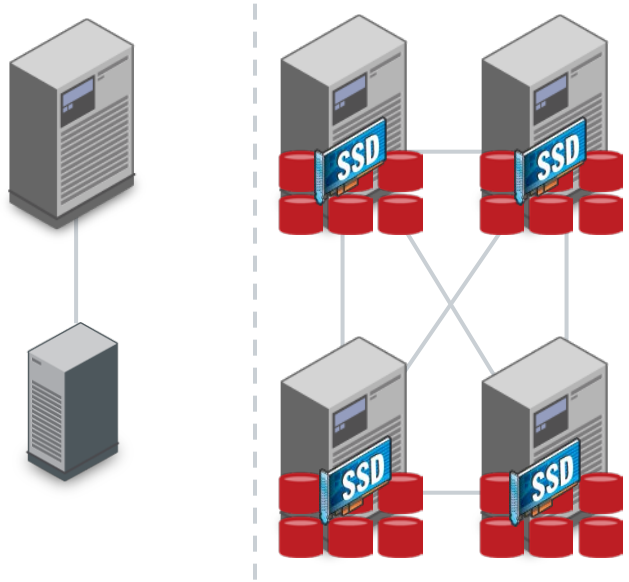
Software defined?

Look to converged systems for simplicity

Today

Storage Area Network

Object Storage



Tomorrow

Software Defined Data Center

SDN / NFV

VM

VM

Software Defined Storage

Today

- Great for scale-up
- Tested through time

Tomorrow

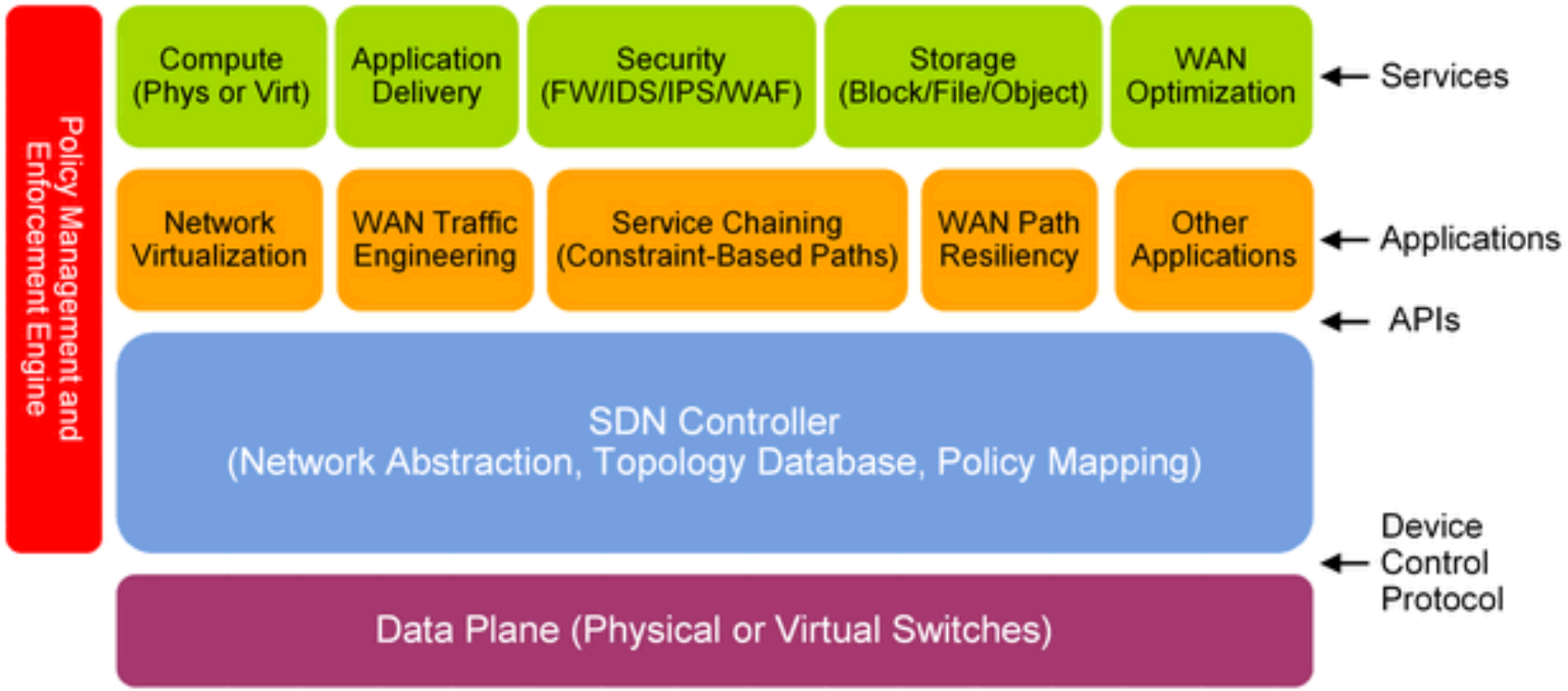
- Scale-out OR up
- Agile infrastructure aligned with NFV and SDN needs
- Commodity hardware
- Higher performance
- Recoverability

Storage is important for NFV quality and reliability!

- Traditional storage = many “hops” for each read & write
  - From host device (HBA) to switch
  - From switch to array controller
  - And the reverse path!
- Each “hop” introduces latency – on average 7 ms roundtrip
- So what?!?!
- If your CPU runs at 3.5 Ghz then each ms = 3,500,000 clock cycles
- A 7 ms delay wastes 24,500,000 clock cycles while your application or hypervisor waits for data!
- Acceptable for traditional applications – is it acceptable for networking?

NFV will only be as good as the virtualization!

- The SDN and NFV markets will grow steadily with an ***inflection point*** when ***best-of-breed*** architectures occur



Source: Gartner (October 2013)

Thank you!

Douglas Snyder, CISSP, ITILv3

doug_snyder@Veritas.com
(614) 580-5156