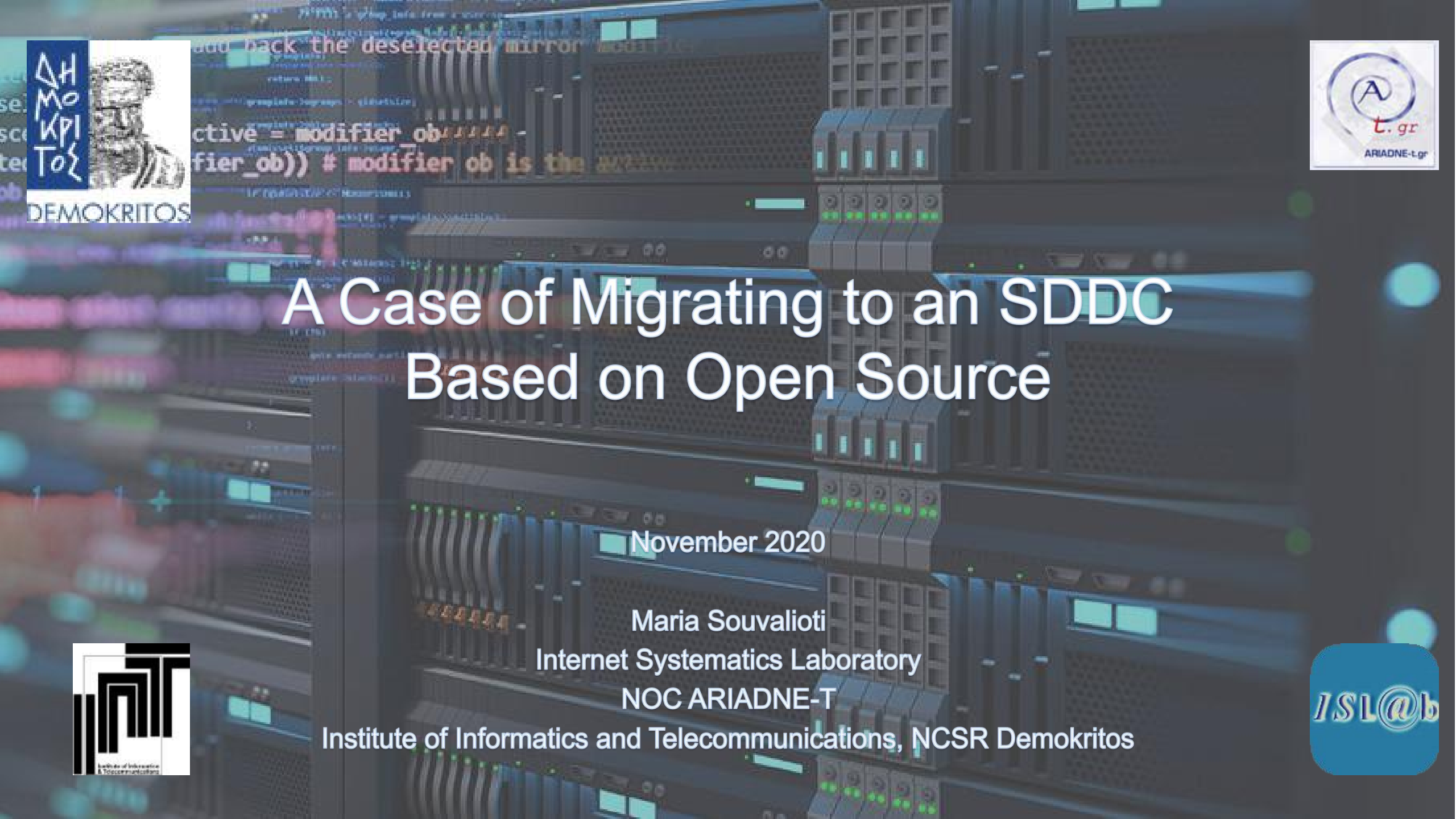

A Case of Migrating to an SDDC Based on Open Source

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Software Defined Data Center

What is Software Defined Data Center - SDDC

The term appeared for the first time in 2013 from the field of Virtualization.

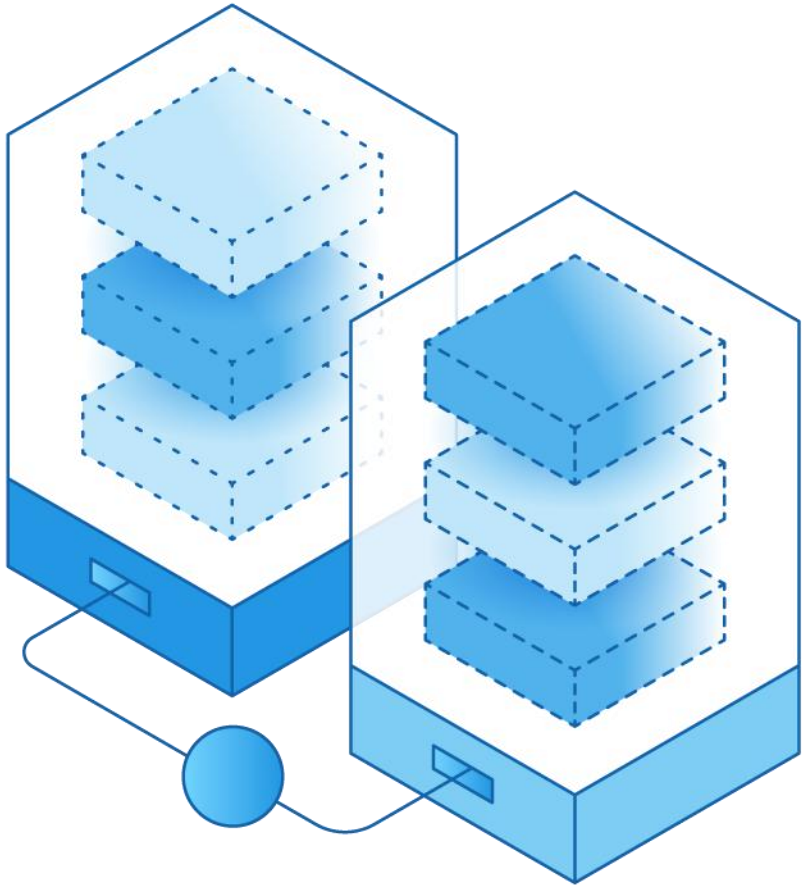
Based on VMware's product VMware Infrastructure 3 (2006).

Evolved with the platform VMware VSphere (2009).

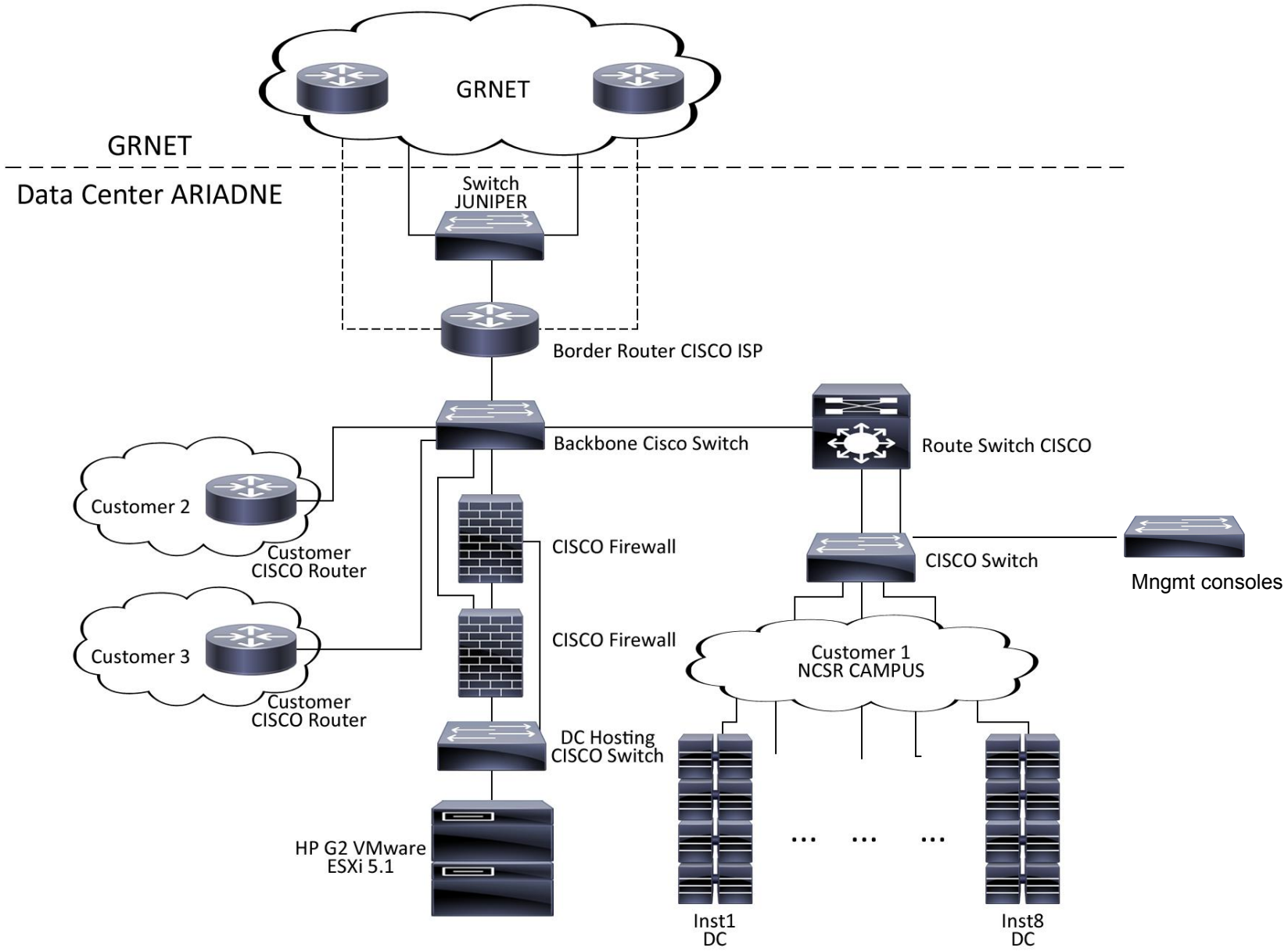
This software provides computing, storage and network resources in virtual form by using the corresponding physical resources of the classic Data Center.

In the SDDC term concepts such as Virtualization, SDN, SDS, management και automation are included.

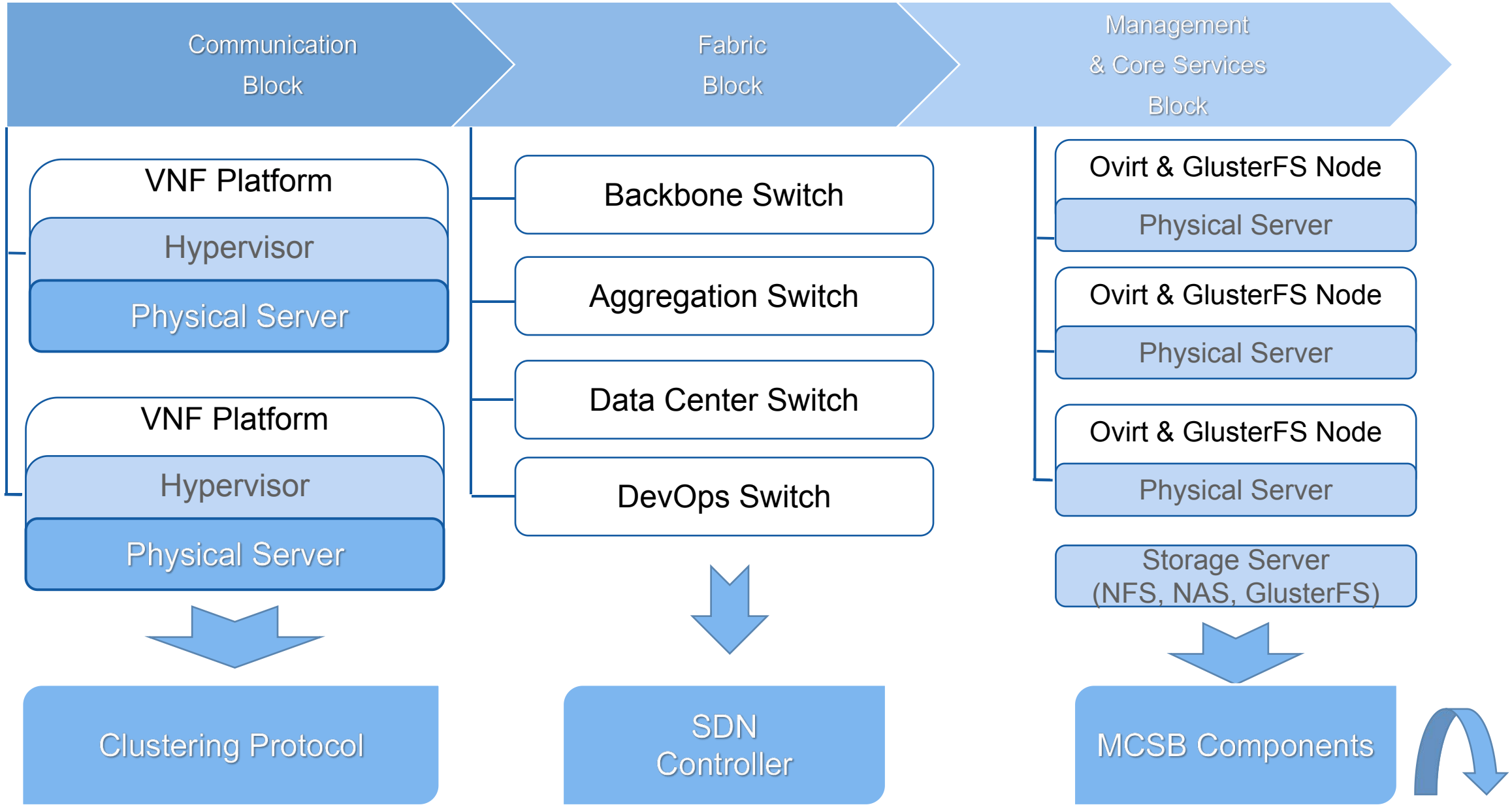
Essentially, it is an intermediate virtualization platform before the next stage which is the Cloud and depends on the scale of the platform (number of users of the platform, geographical coverage, multi-tenant).



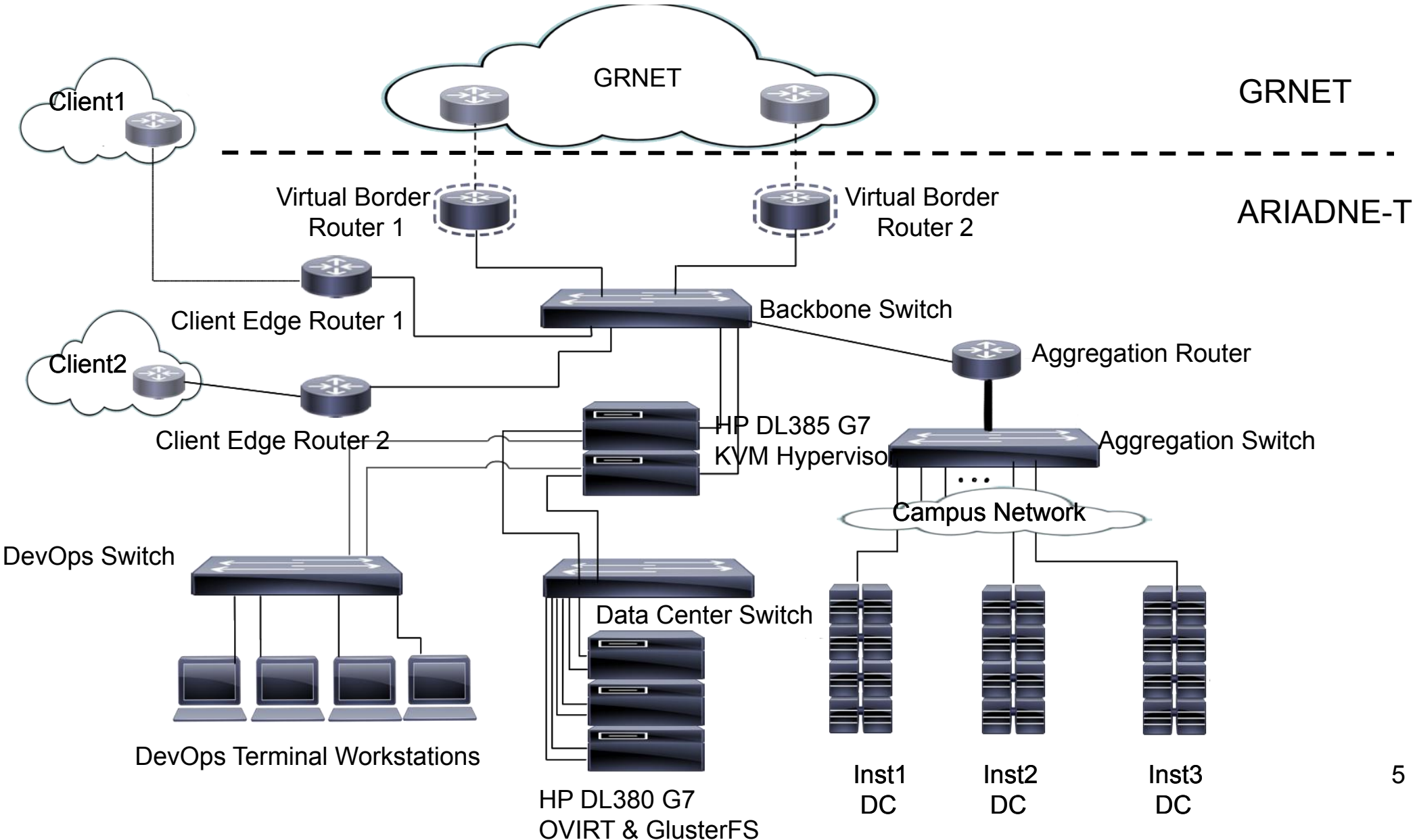
Old SDDC Architecture



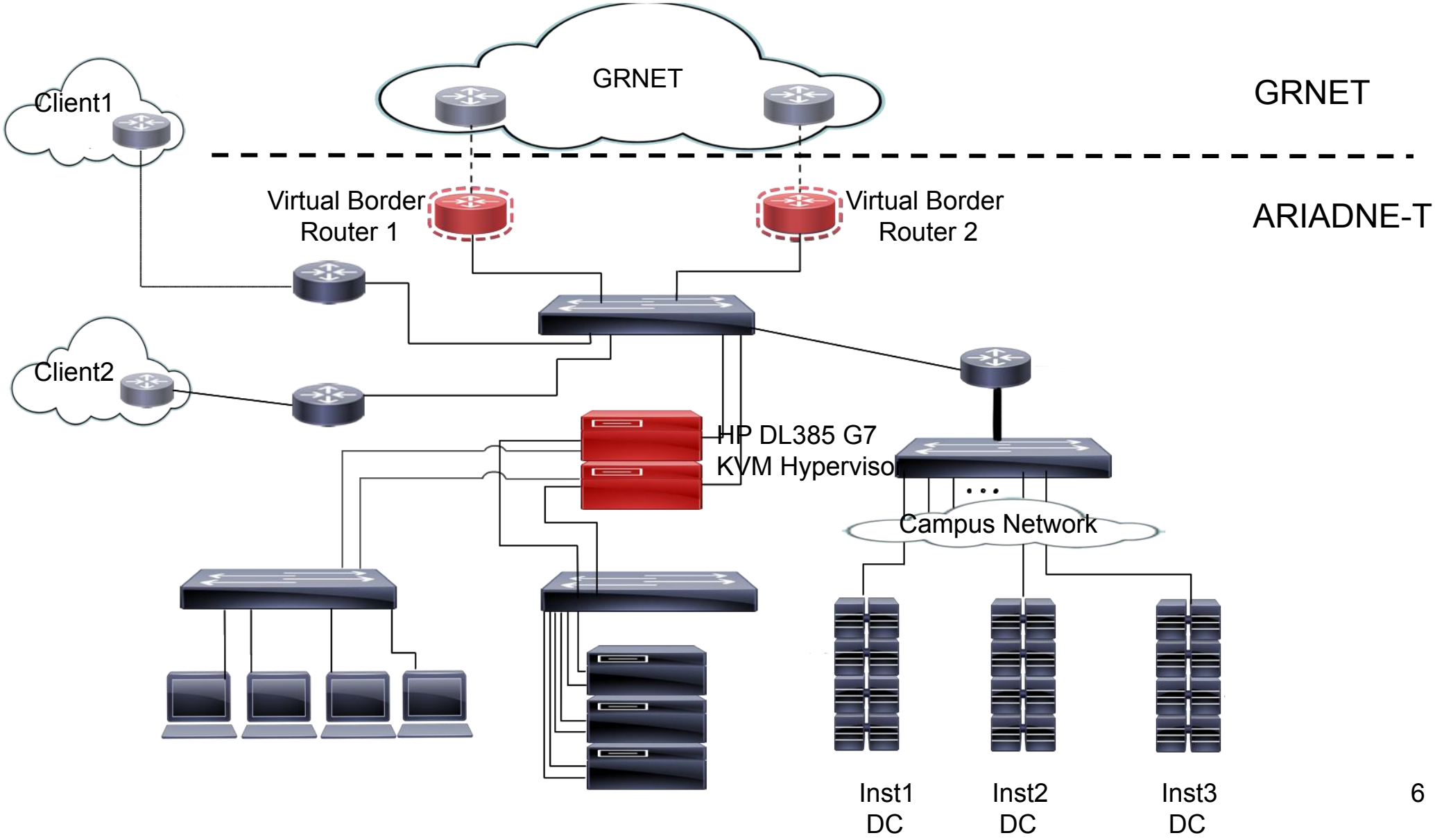
Architecture of an SDDC



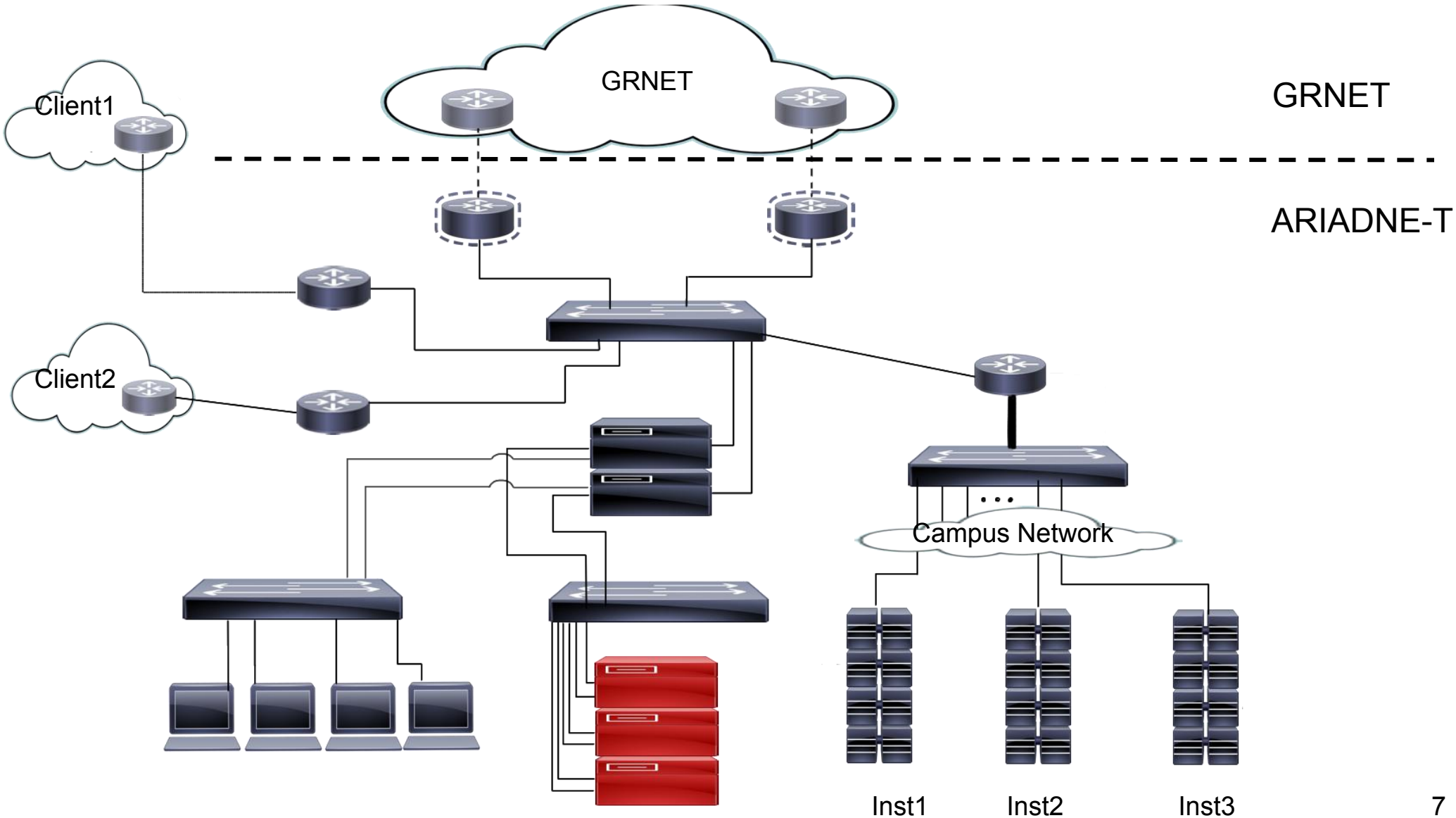
New SDDC Architecture



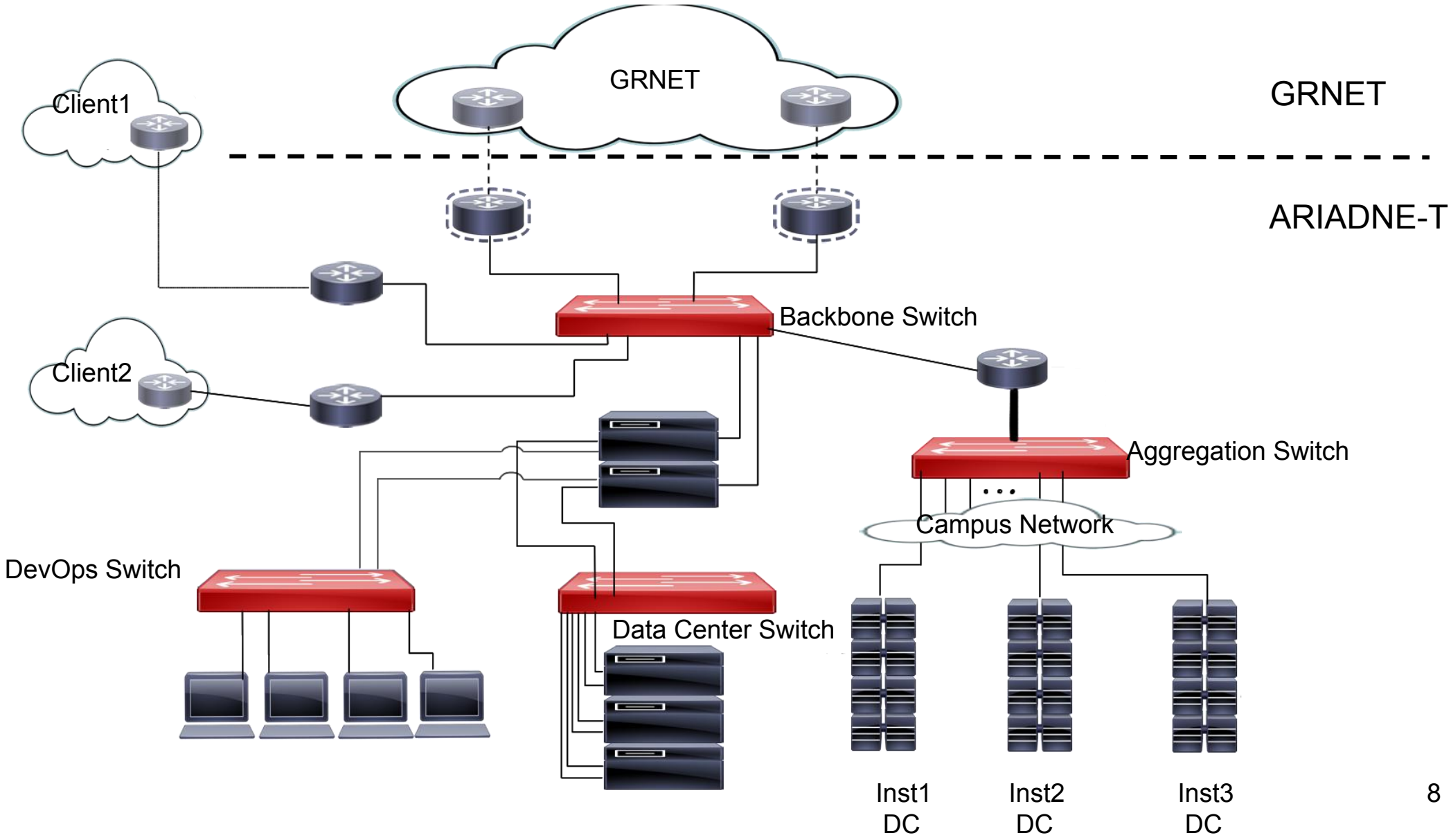
New SDDC Architecture - Communications Block



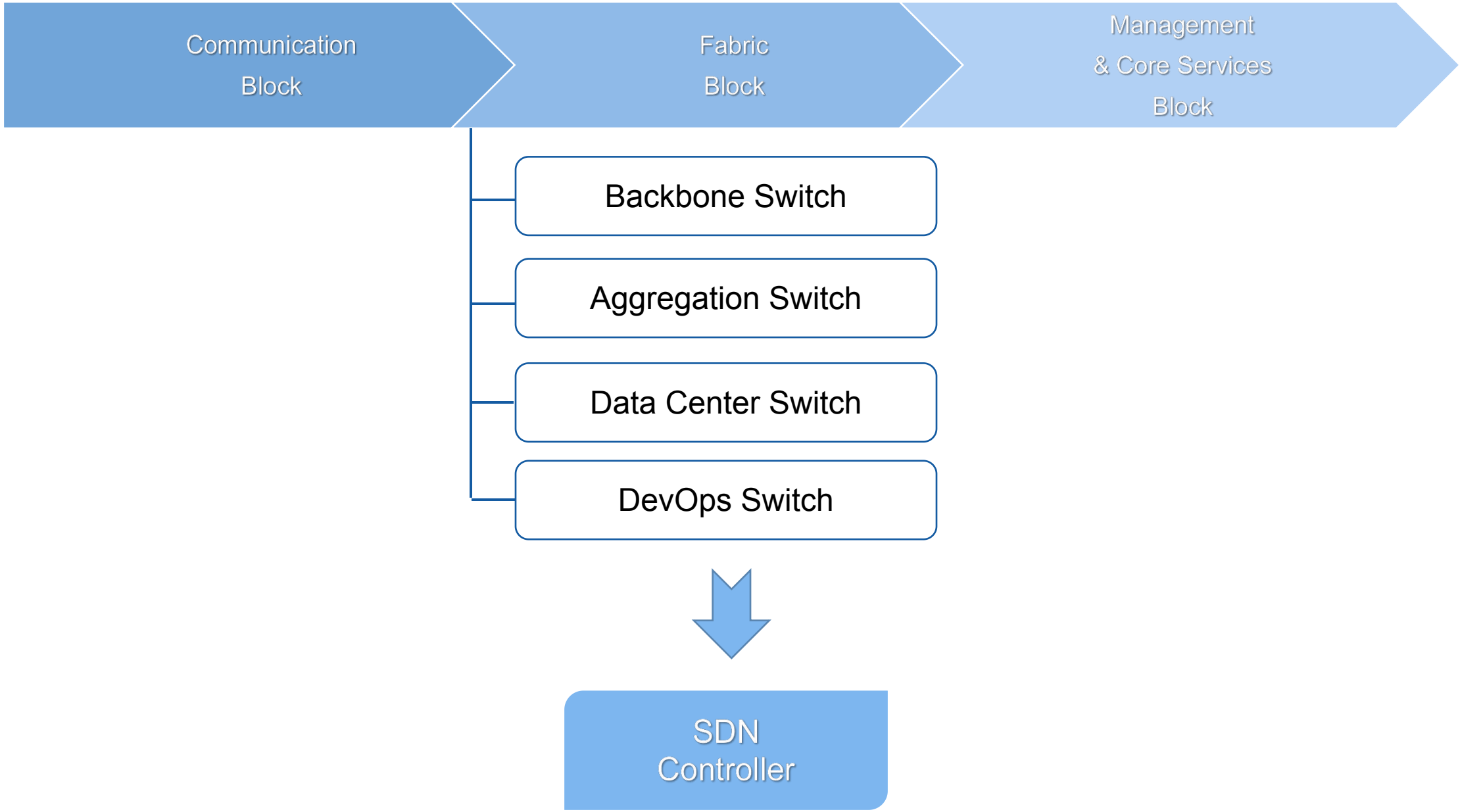
New SDDC Architecture - Management & Core Services Block



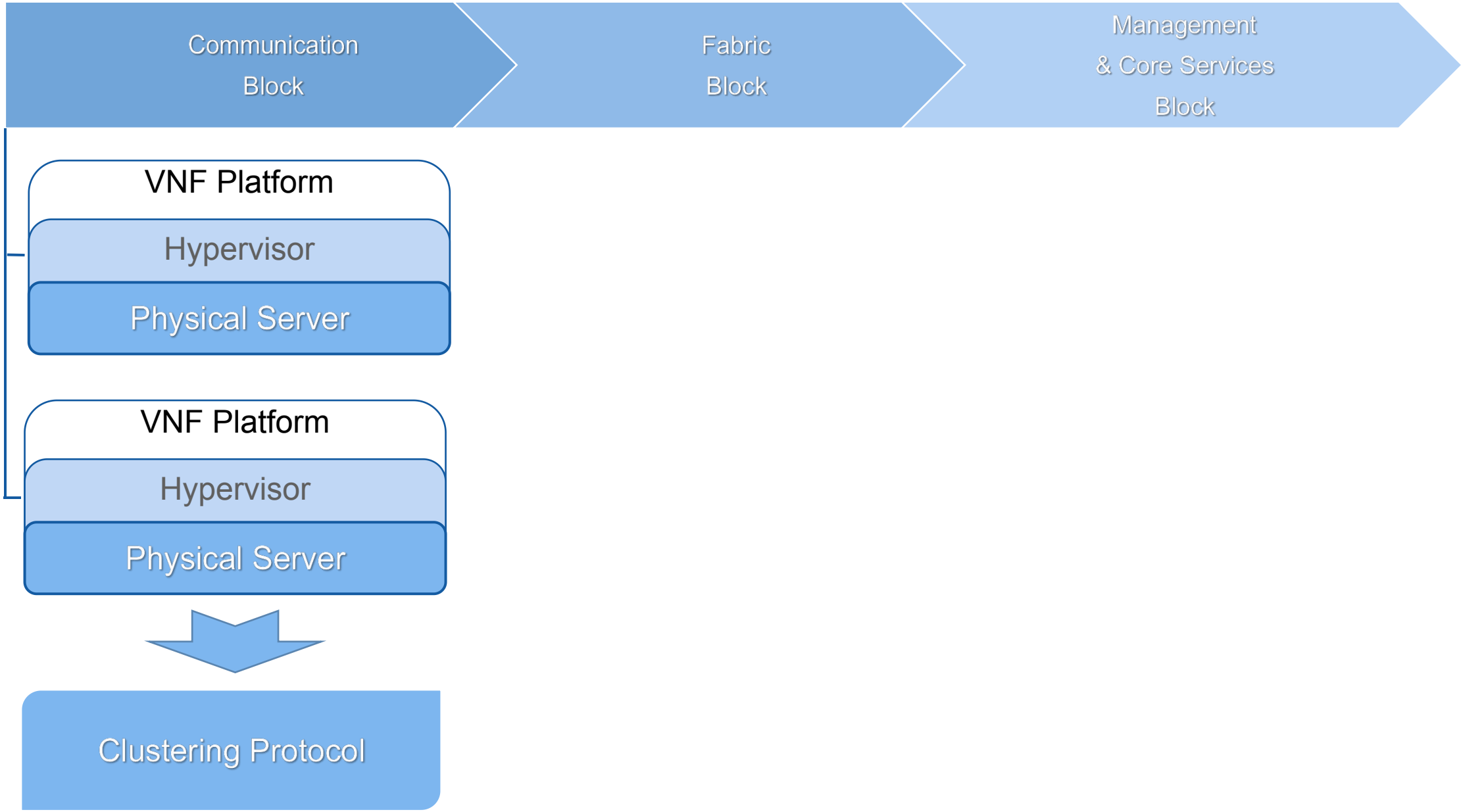
New SDDC Architecture - Fabric Block



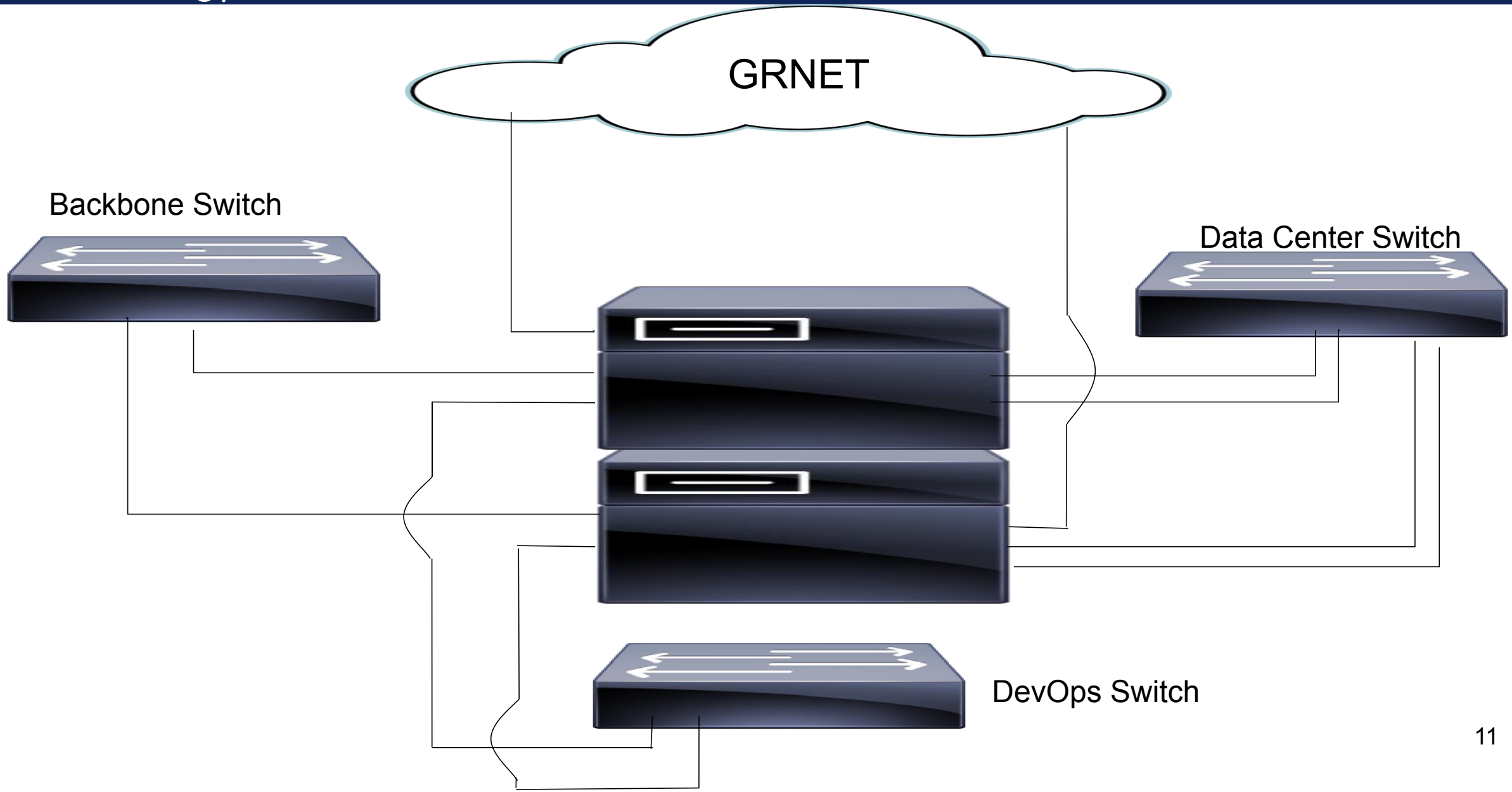
Fabric block



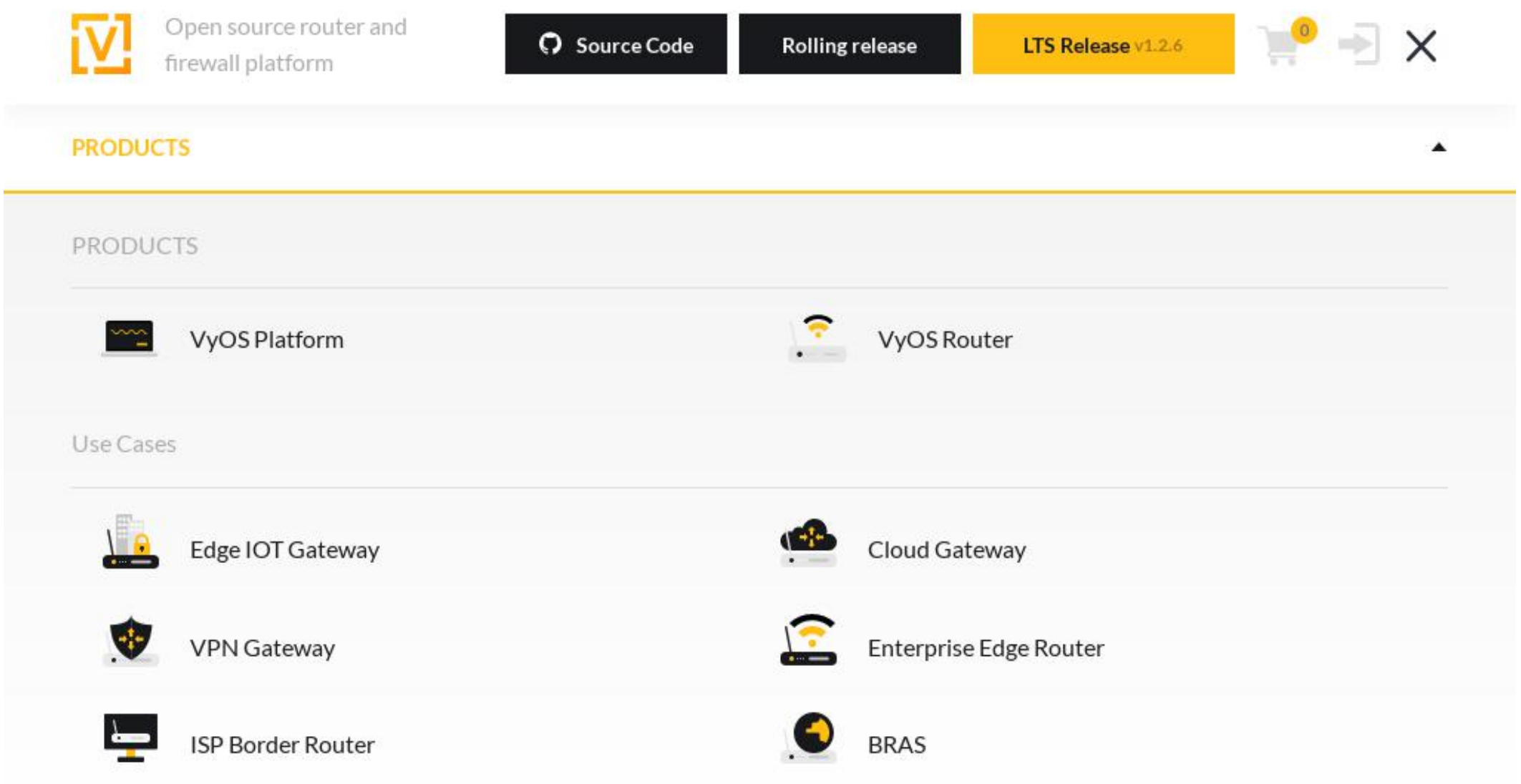
Communications Block



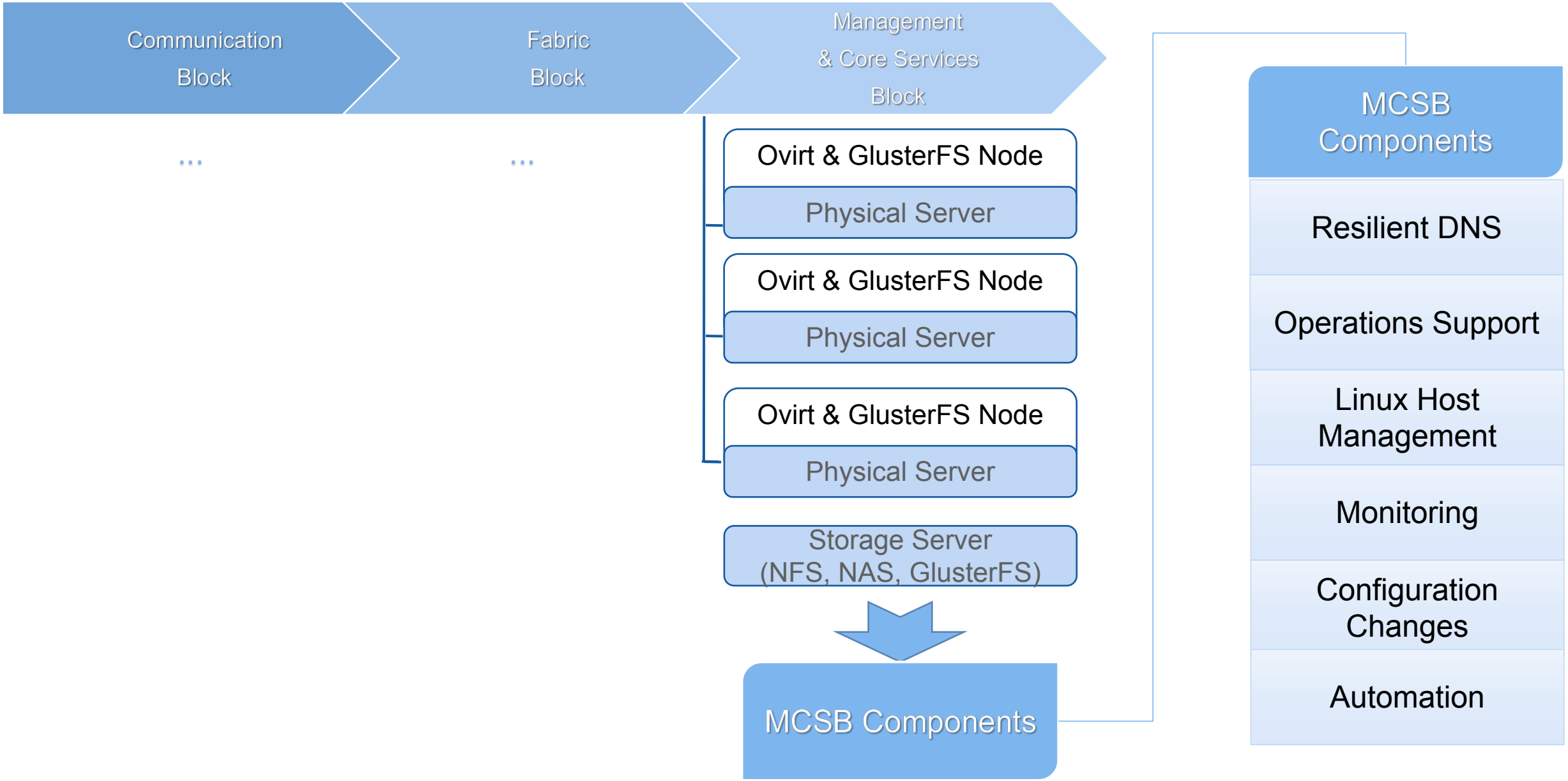
KVM Hypervisor connections



VNF Platform - VyOS



Management & Core Services Block



oVirt

GLUSTER

ANSIBLE

FOREMAN

ManageIQ

OPENSHIFT
origin

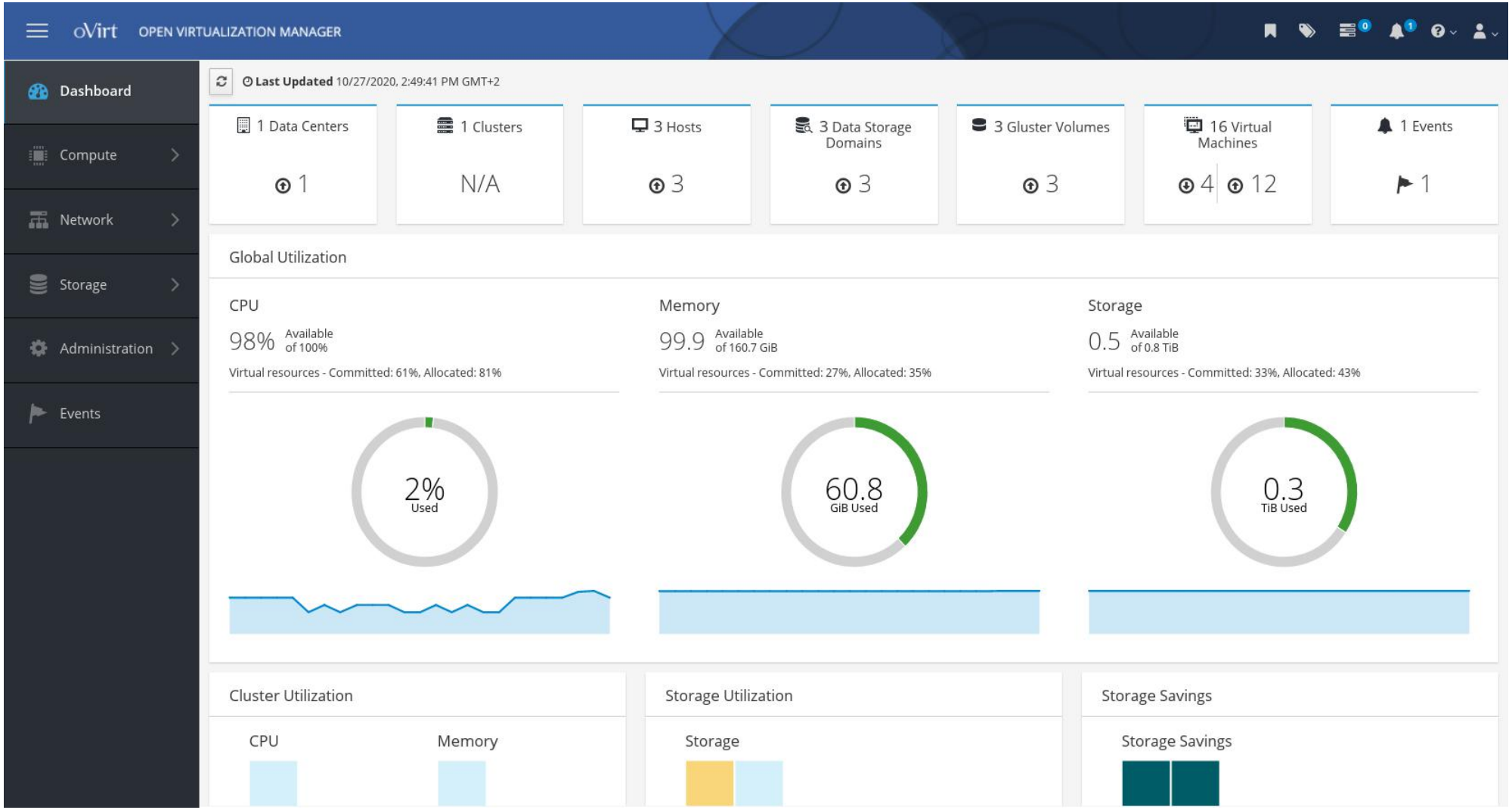
WildFly

CoreOS

oVirt

- The basic component on which we built our SDDC.
- Hyperconverged solution → Combination of storage, compute, networking resources in a single environment. → Definition of multiple VDCs (Virtual Data Centers)
- A supported version is also provided by RedHat, namely Red Hat Enterprise Virtualization Solution - RHEV.
- May contain a large number of oVirt nodes.
- Automated creation of distributed GlusterFS storage via gdeploy.

oVirt


oVirt
OPEN VIRTUALIZATION MANAGER
Dashboard
Compute
Network
Storage
Administration
Events
Last Updated 10/27/2020, 2:49:41 PM GMT+2
1 Data Centers
1
1 Clusters
N/A
3 Hosts
3
3 Data Storage Domains
3
3 Gluster Volumes
3
16 Virtual Machines
4
12
1 Events
1
Global Utilization
CPU
98% Available of 100%
Virtual resources - Committed: 61%, Allocated: 81%
2% Used
Memory
99.9 Available of 160.7 GiB
Virtual resources - Committed: 27%, Allocated: 35%
60.8 GiB Used
Storage
0.5 Available of 0.8 TiB
Virtual resources - Committed: 33%, Allocated: 43%
0.3 TiB Used
Cluster Utilization
CPU
Memory
Storage Utilization
Storage
Storage Savings
Storage Savings

oVirt - Συμπεράσματα χρήσης

- Rapid evolution.
- Need for 2 deployments; experimental & production.
- Provides self healing processes for the recovery of GlusterFS storage (e.g. after maintenance).
- Active community that supports administrators who are interested in using, testing and /or developing the platform.

  ovirt.org

  lists.ovirt.org

Τελικά Συμπεράσματα

- The **disaggregation of Software/Hardware** is very important.
- With the pandemic and the growing demand for teleworking, there seemed to be a problem with virtual routers, where they seemed unable to respond as many interrupts were created in the processor cores. Overall, the hardware seemed to be not responding. So we proceeded to 10G lines of bigger capacity, with relative ease since the routers were in open source VyOS and we were not locked by the hardware/software relationship.
- Server research and scientific teams that have a large industrial footprint.
- The total size that has been examined that this infrastructure serves satisfactorily concerns 1000-2000 people.
- Next stage → Dockerization

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Thank you

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