Disruptive Technologies Watch Series

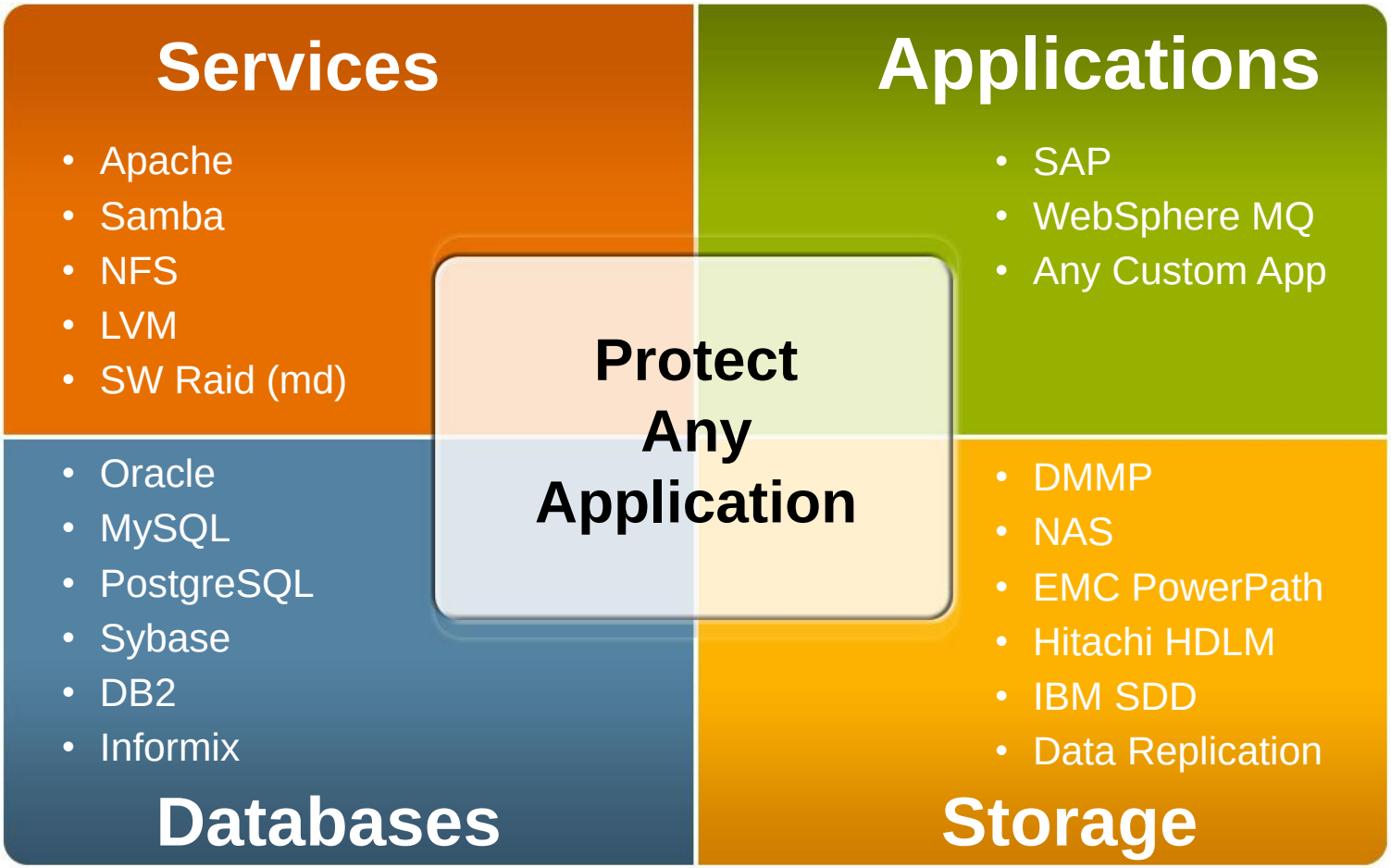
SIOS

Nugget of Software Defined Data Center

About SIOS

- Founded in 1999
- SIOS Technology Corp. is a wholly owned subsidiary of SIOS Technology, Inc., a Tokyo based, publicly traded company
- Worldwide presence with offices throughout the US, UK and Japan
- Over 50,000 licenses installed globally
- Leading Technology Partnerships

Out of the Box Linux Knowledge



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Open Source Goodness

URL to GitHub Pages:

http://siostech.github.com/genapp

https://github.com/siostech/fvorge

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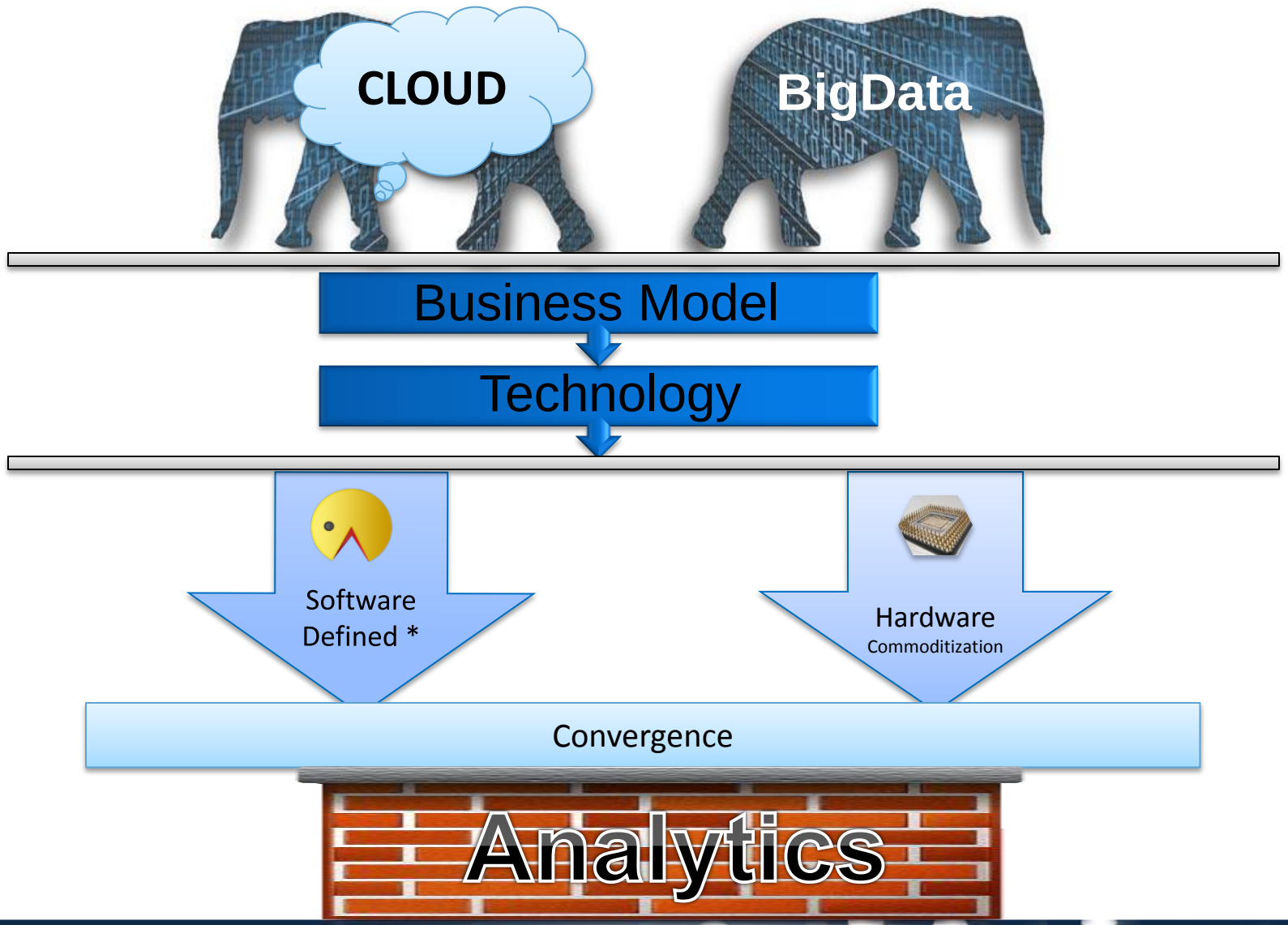
Technology Trends



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Customer Problem

Cloud and Virtualization

Reduce Capex and Opex while achieving scale, performance, and availability.

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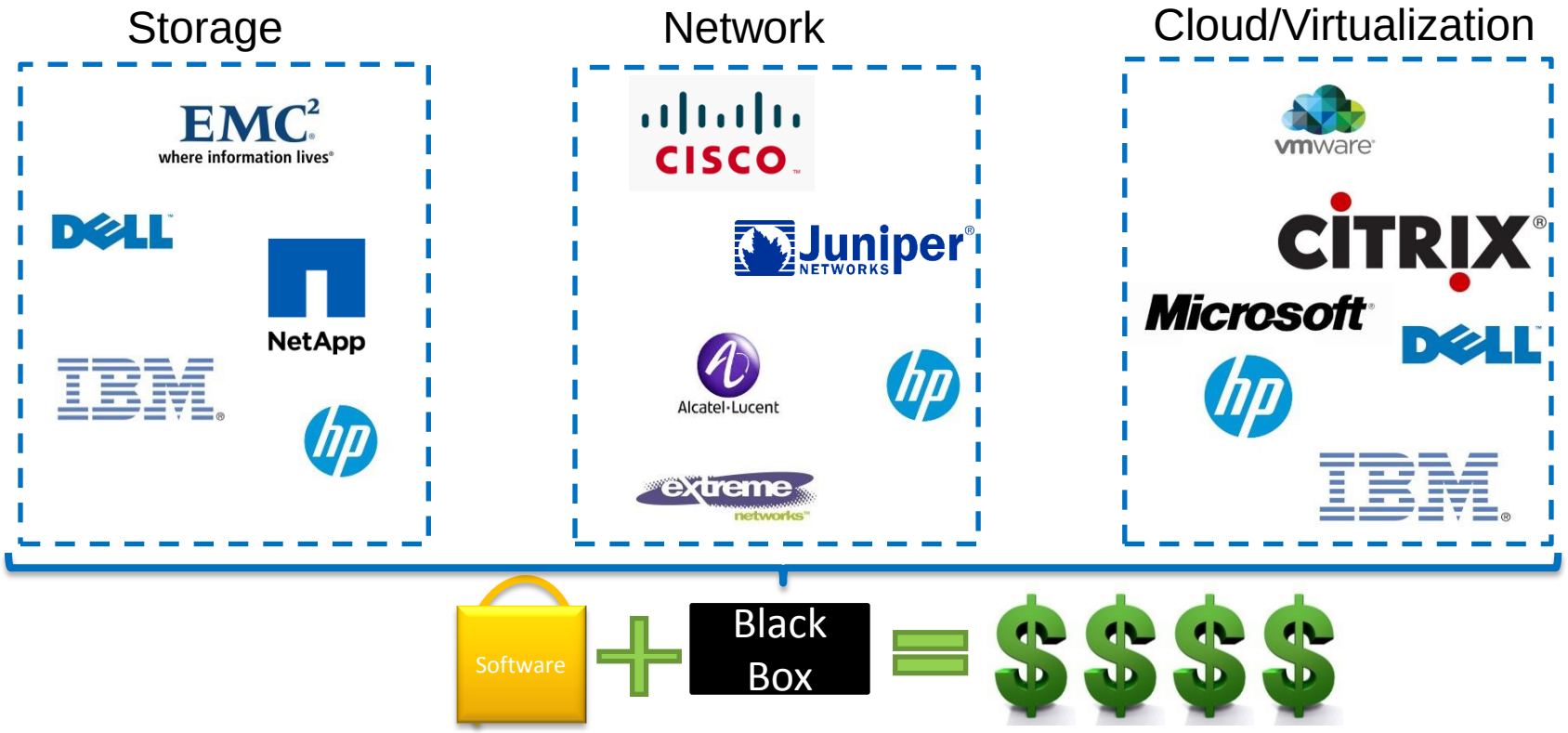
Data Center Today



- Has scale and capacity
- Proprietary Solution (Software and Hardware)
- Not heterogeneous
- Expensive
- Restrictive (vendor lock-in)

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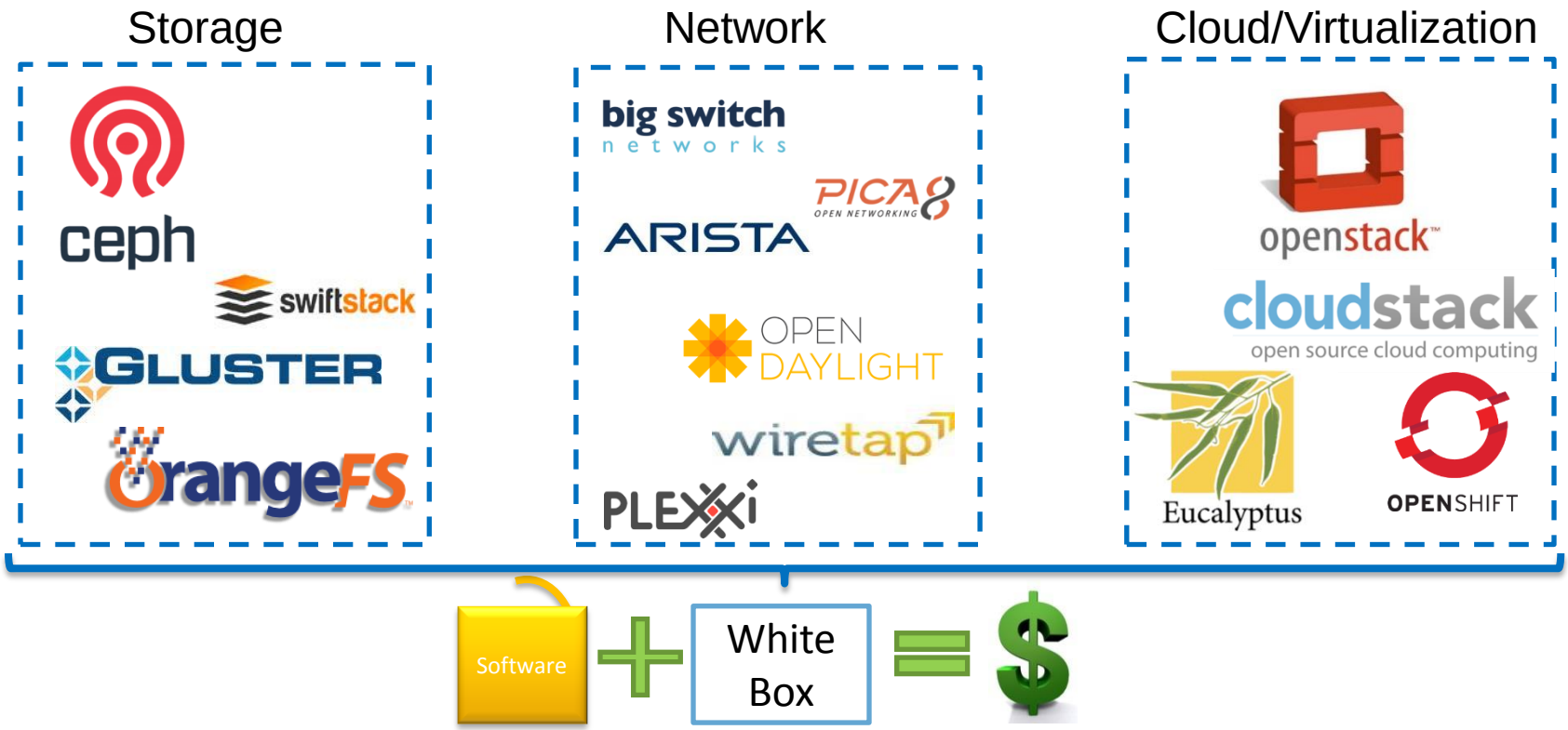
Data Center Emerging (Open Source Foundation)



- Has scale and capacity
- Open Solution (Software and Hardware)
- Heterogeneous
- Cost-effective
- No vendor lock-in

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Data Center Emerging (Open Source Foundation)

Cloud/Virtualization

Software Defined from the beginning and causes to the disruption in silos underneath.

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Data Center Emerging (Open Source Foundation)

Storage

- Distributed block storage takes each local storage system and, in much the same way as RAID combines multiple drives into one single array. No SPOF, point of management locus is centralized
- Enterprise level features: scalability, thin-provisioning, snapshotting, cloning, tiering, caching, HA/DR
- Performance: ability to spread the load from a heavy use virtual drive across multiple storage nodes in a cluster.
- Finally: All of the above is all about CapEx, OpEx, and TCO

Blog post: http://blog.techdozor.org/index.php/2013/09/30/san-vs-opensource/

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Data Center Emerging (Open Source Foundation)

- What is it?
  - It is a **centralized management** of the network infrastructure that enables **automation**, **analytics**, and **orchestration** of network services via the **standardized interfaces**.
- Why SDN?
  - **Efficiency** – optimized existing application, services, and infrastructure
  - **Scale** – ability to keep up with the dynamic scaling of application and corresponding services
  - **Innovation** – from “black box” to **COOL!**

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Does it ring the bell?

- Innovation Convergence
  - Telco is new IT
    - Centralized management
    - System Unification - Unified Communications

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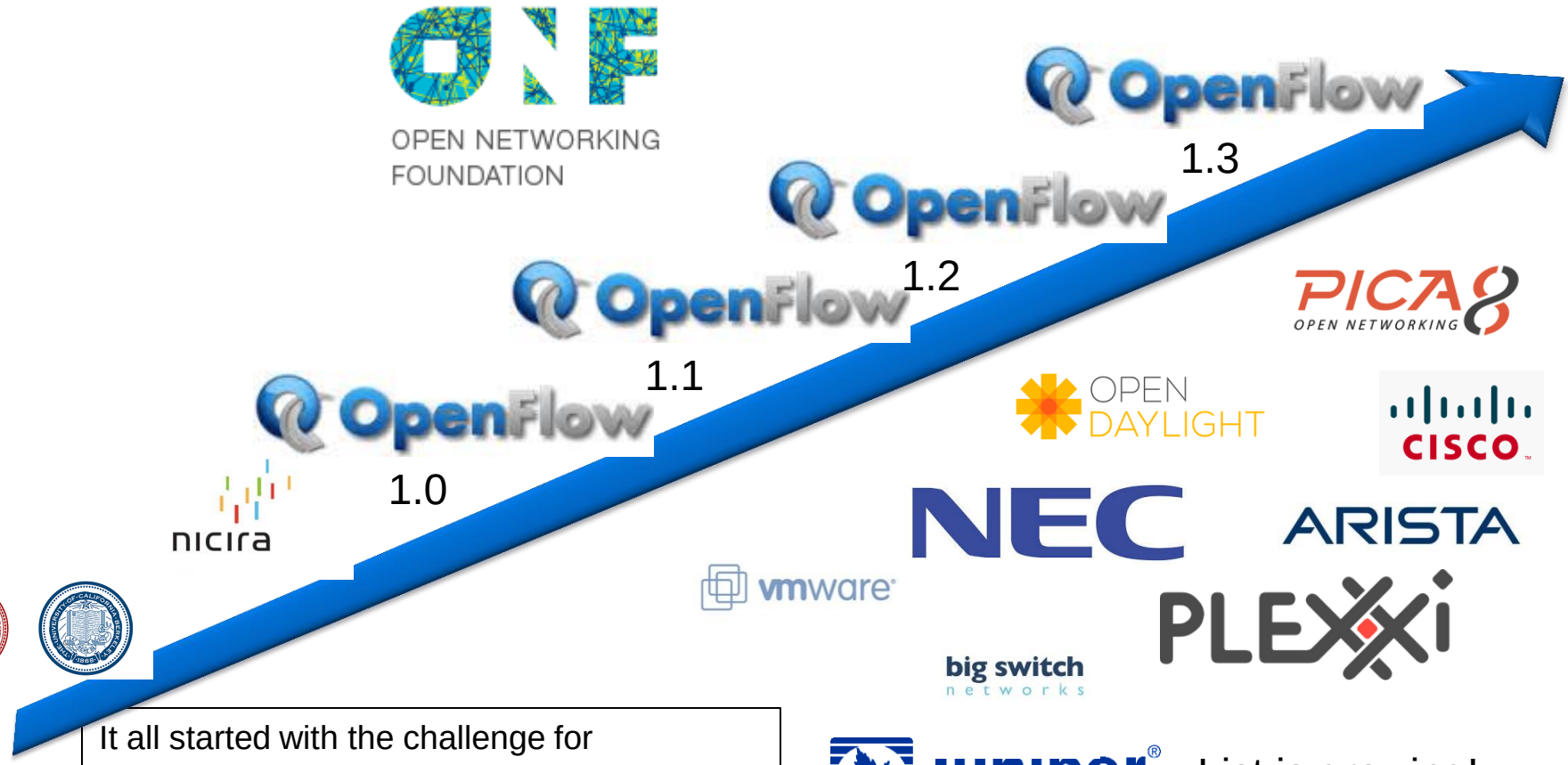
History



List is growing!

It all started with the challenge for researchers at Stanford and Berkeley to test new ideas in real networks at scale. That's when Martin Casado, Nick McKeown, Scott Shenker, and others started working on it.

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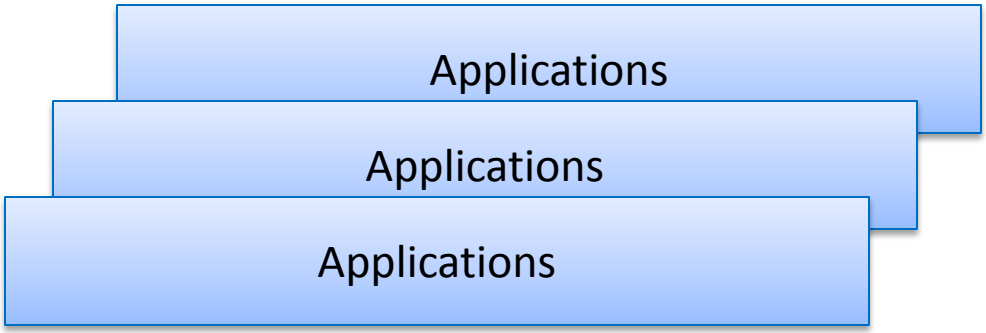
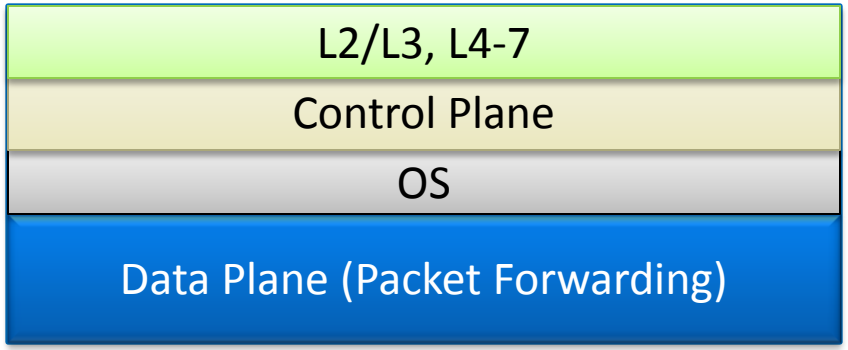
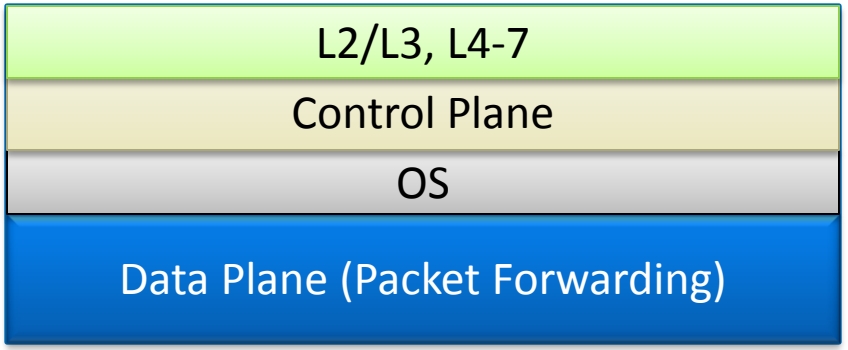
What does network look like today?







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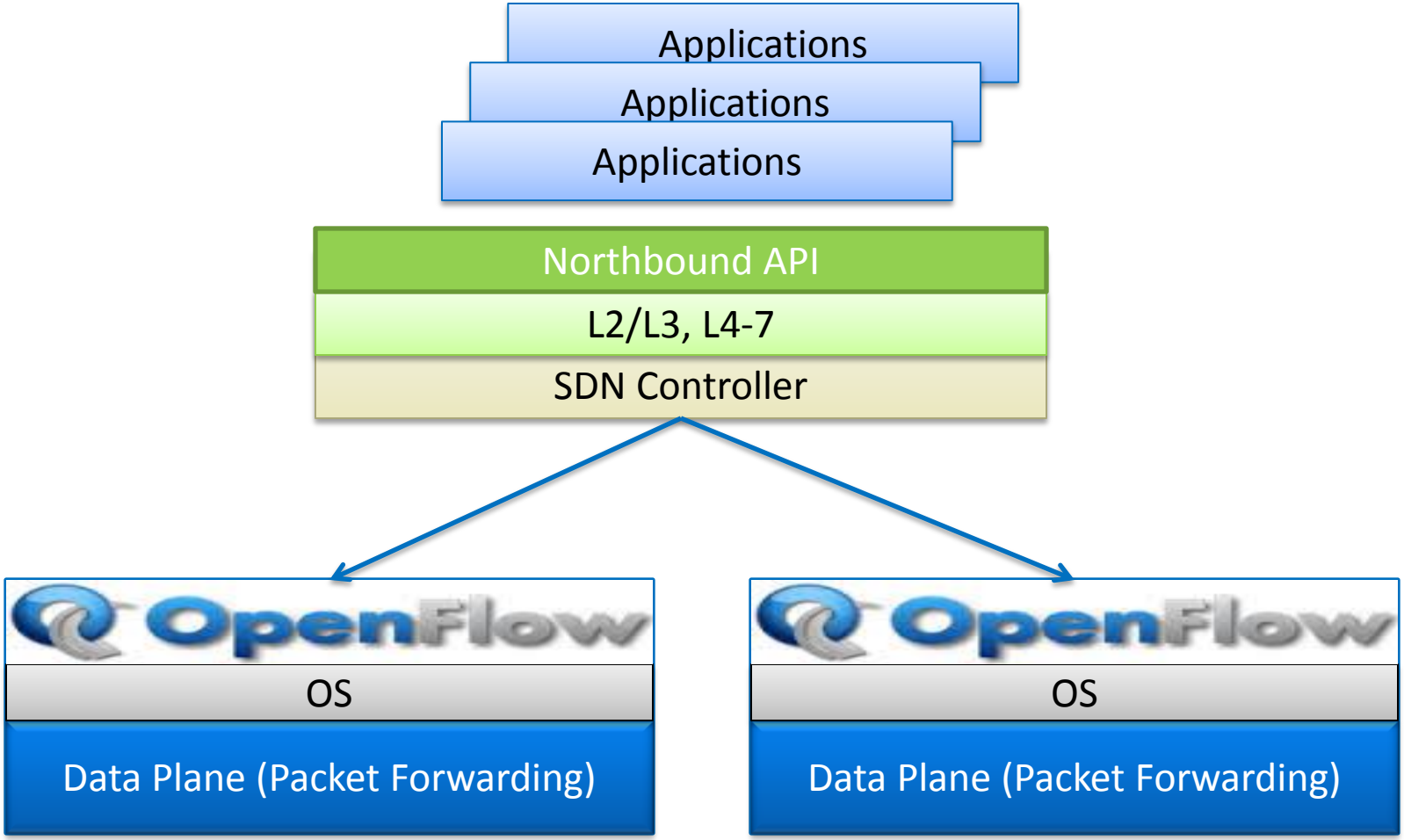
Network with OpenFlow



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What are the market opportunities?

- Merchant silicon hardware, open switches
- Centralized orchestration and analytics platforms
- Transformation from the hardware to software business
  - Cloud is a new hardware
- Closer integration with applications - network as part of the development platform
- New opportunities for innovation

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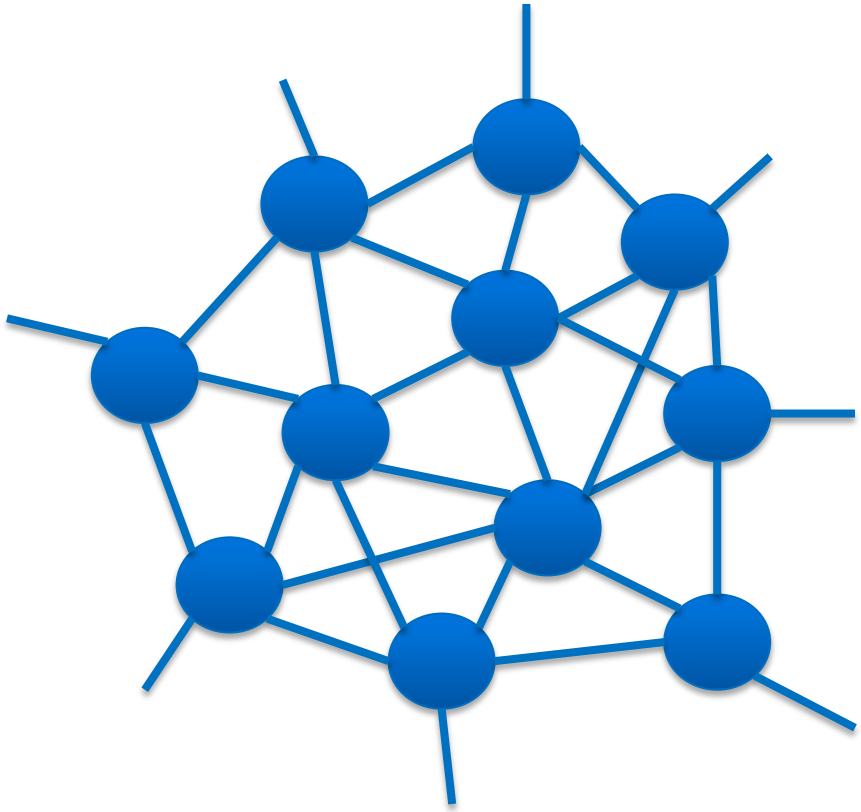
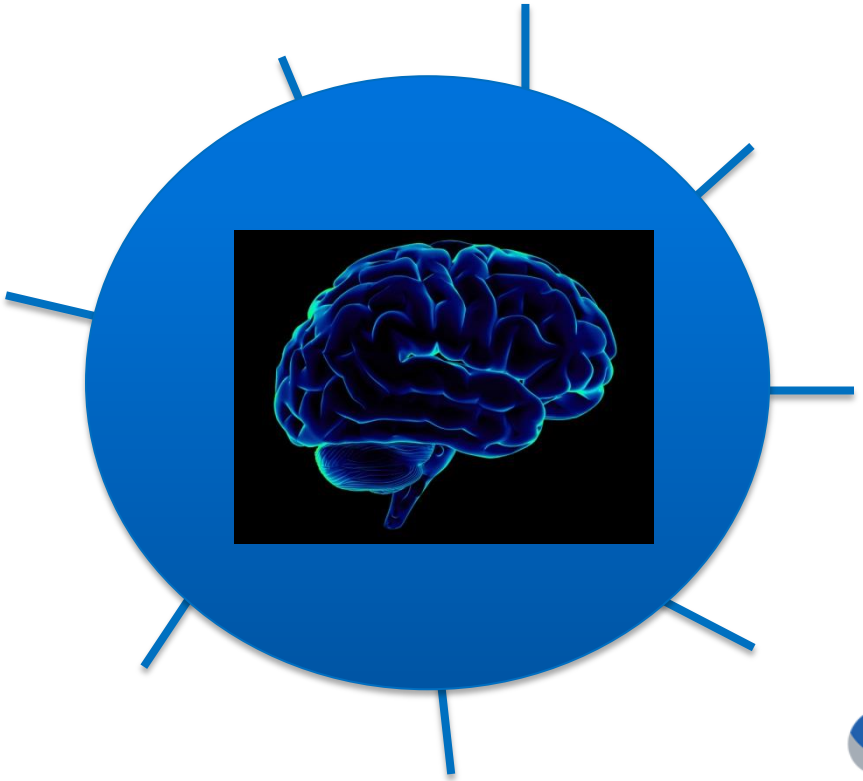
Management

- Centralized management of hydrogenous network infrastructure

TODAY



SDN



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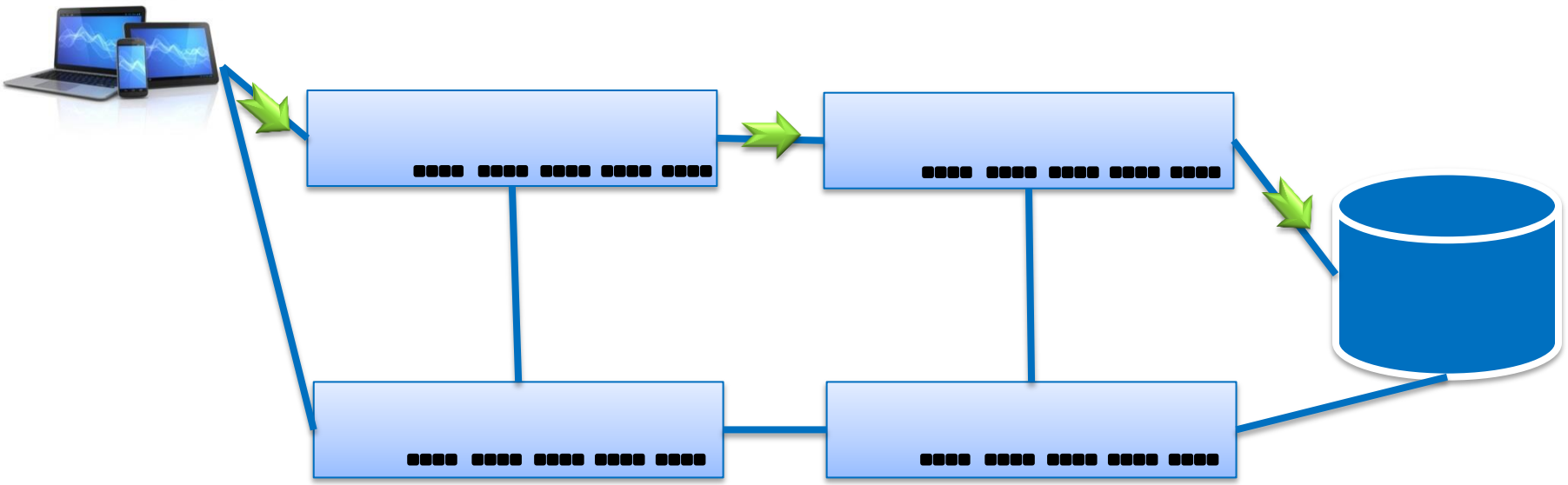
Network Resilience



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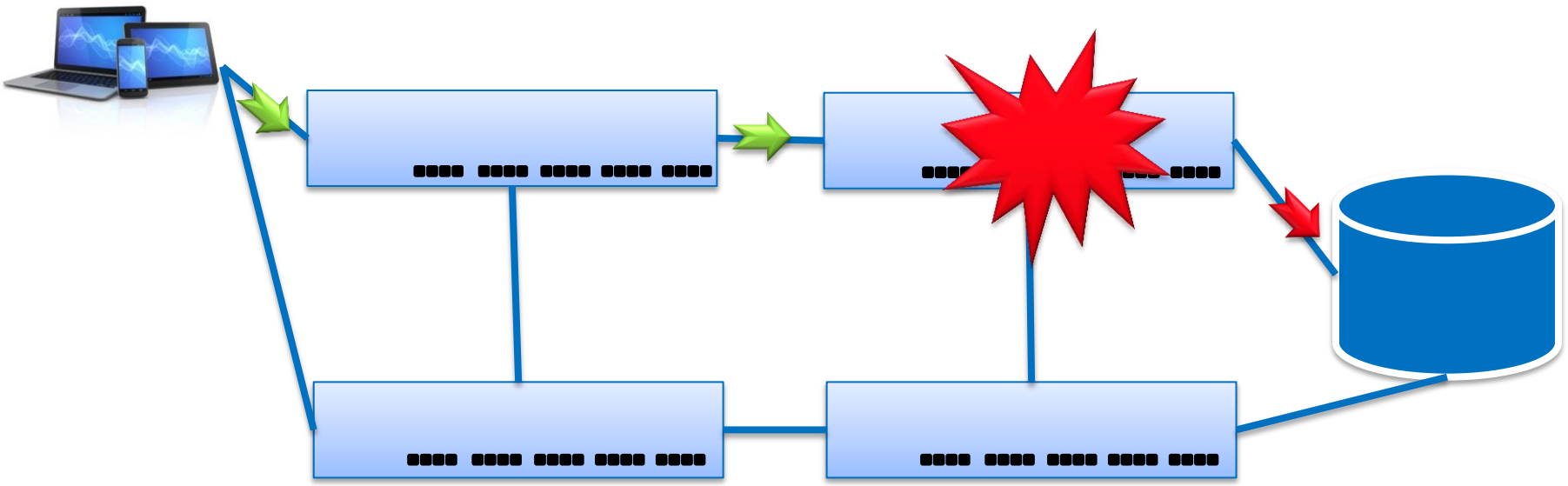

SIOS

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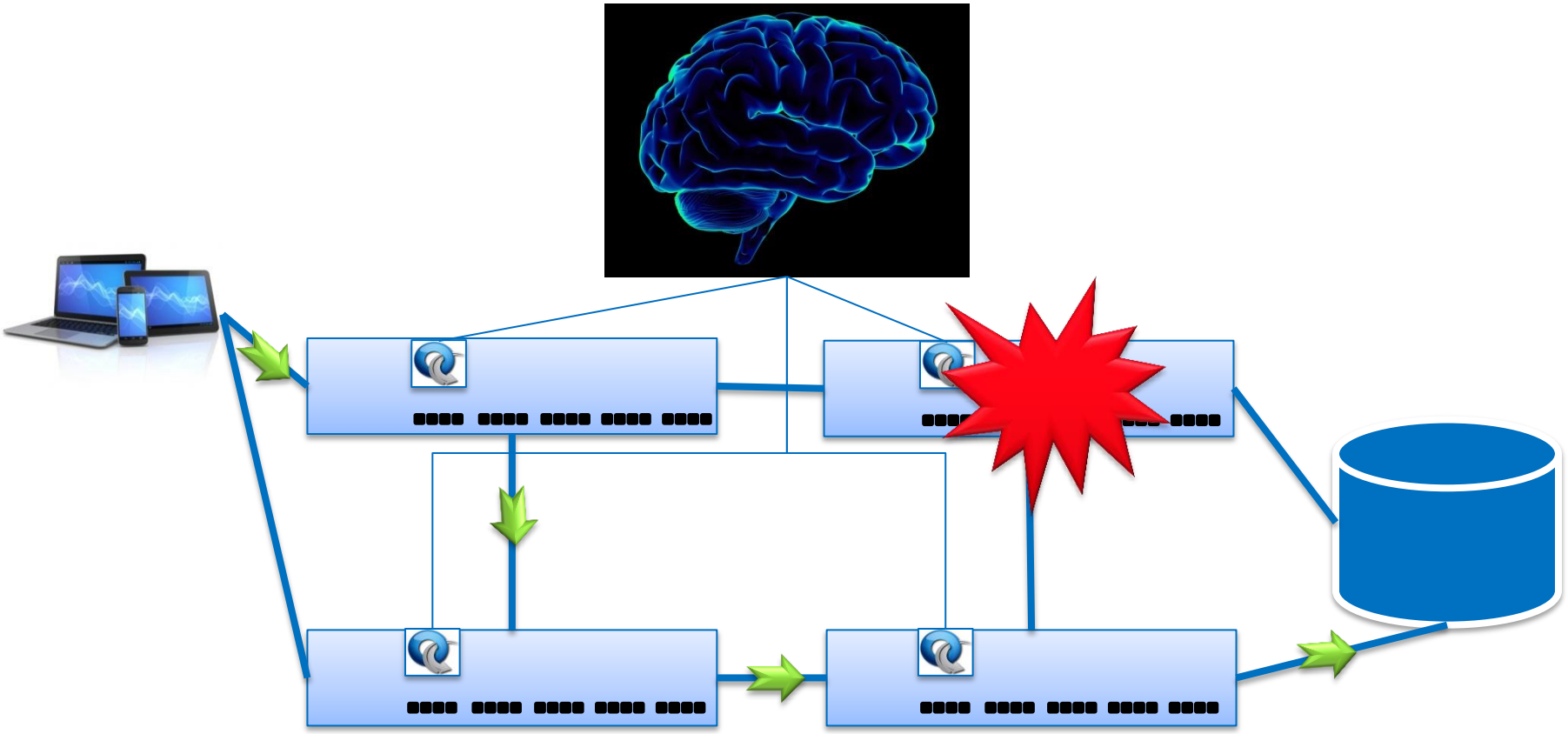

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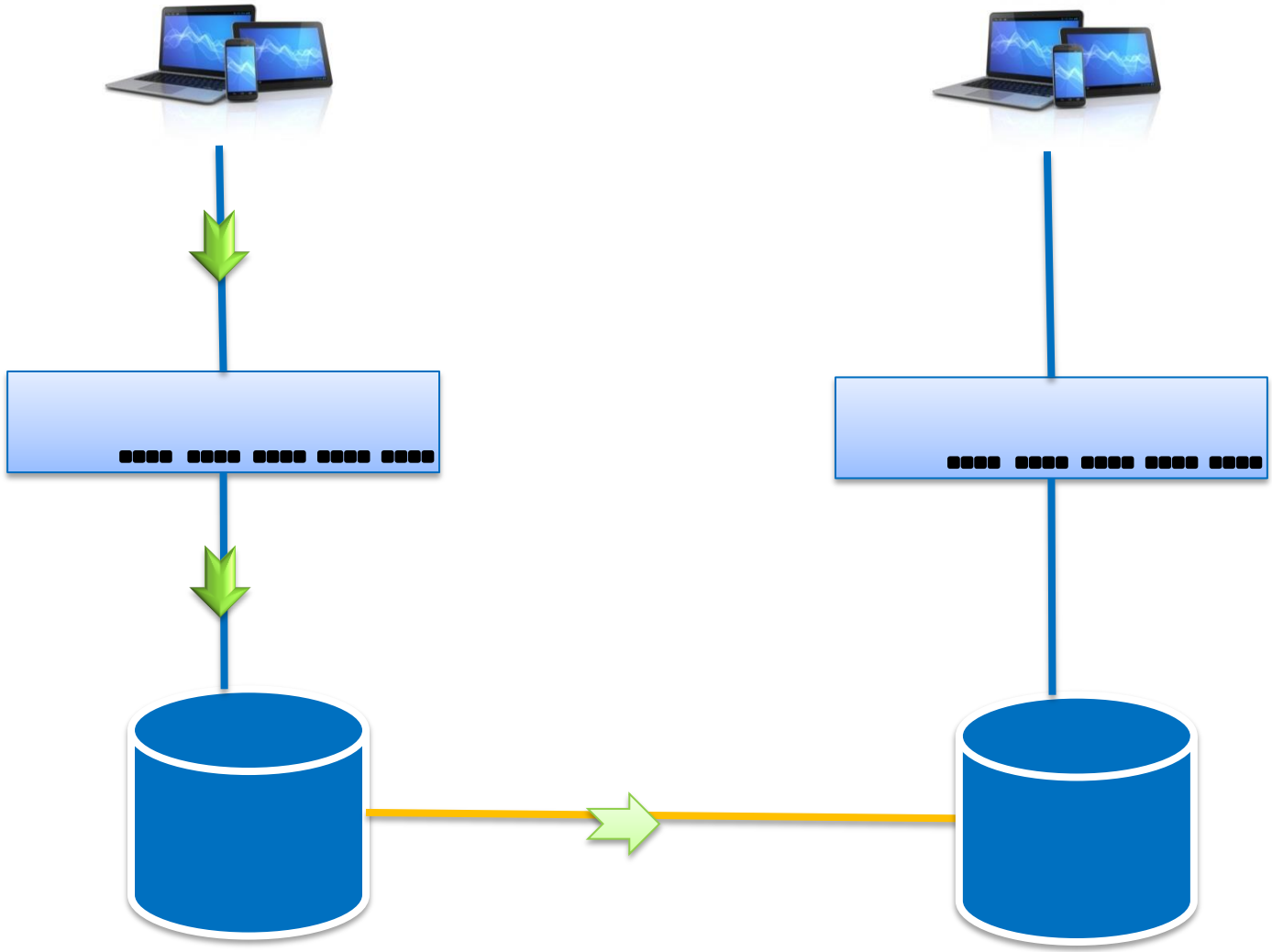
Network Replication



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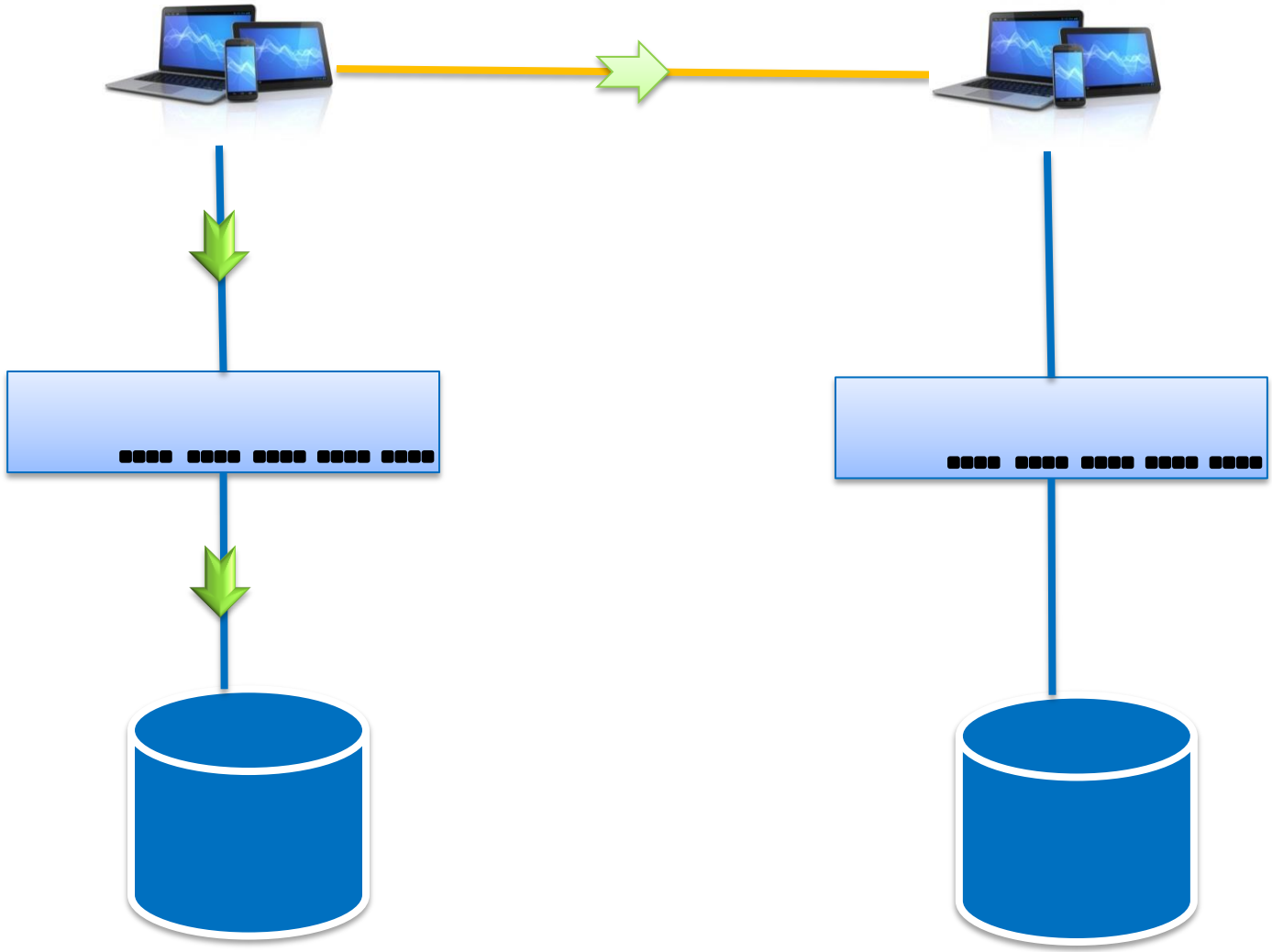
Network Replication



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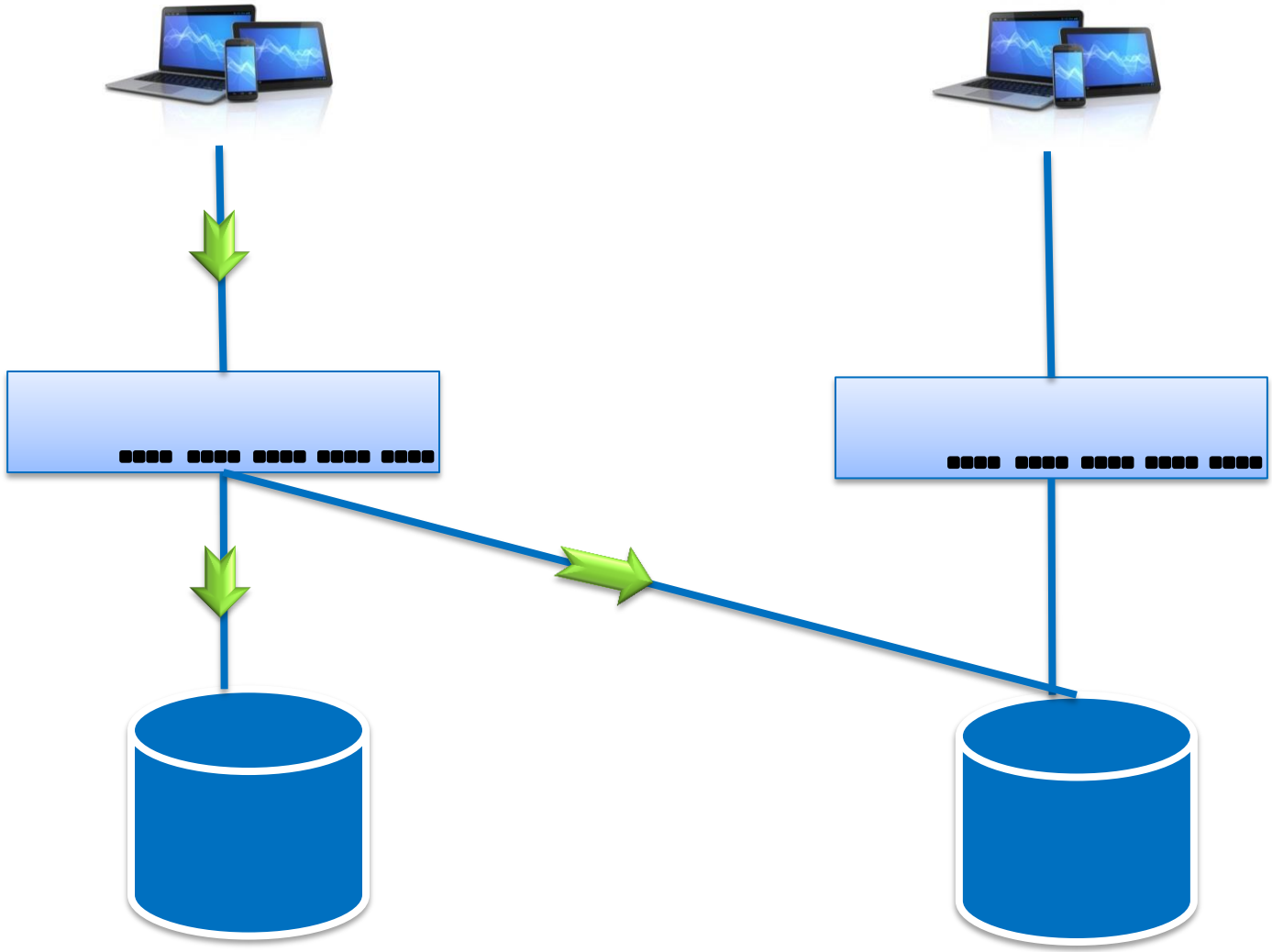
Network Replication



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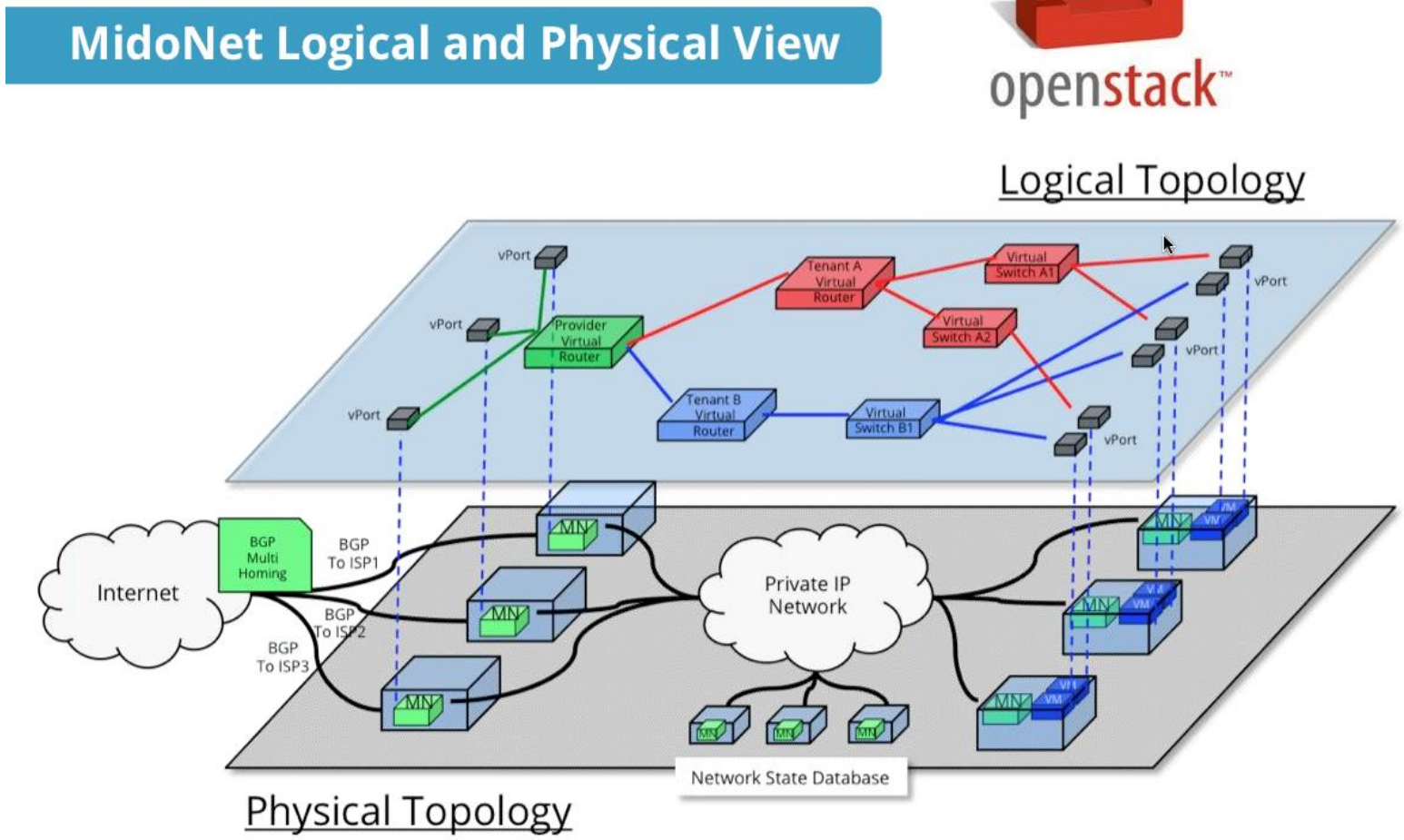
Use cases

- Network virtualization



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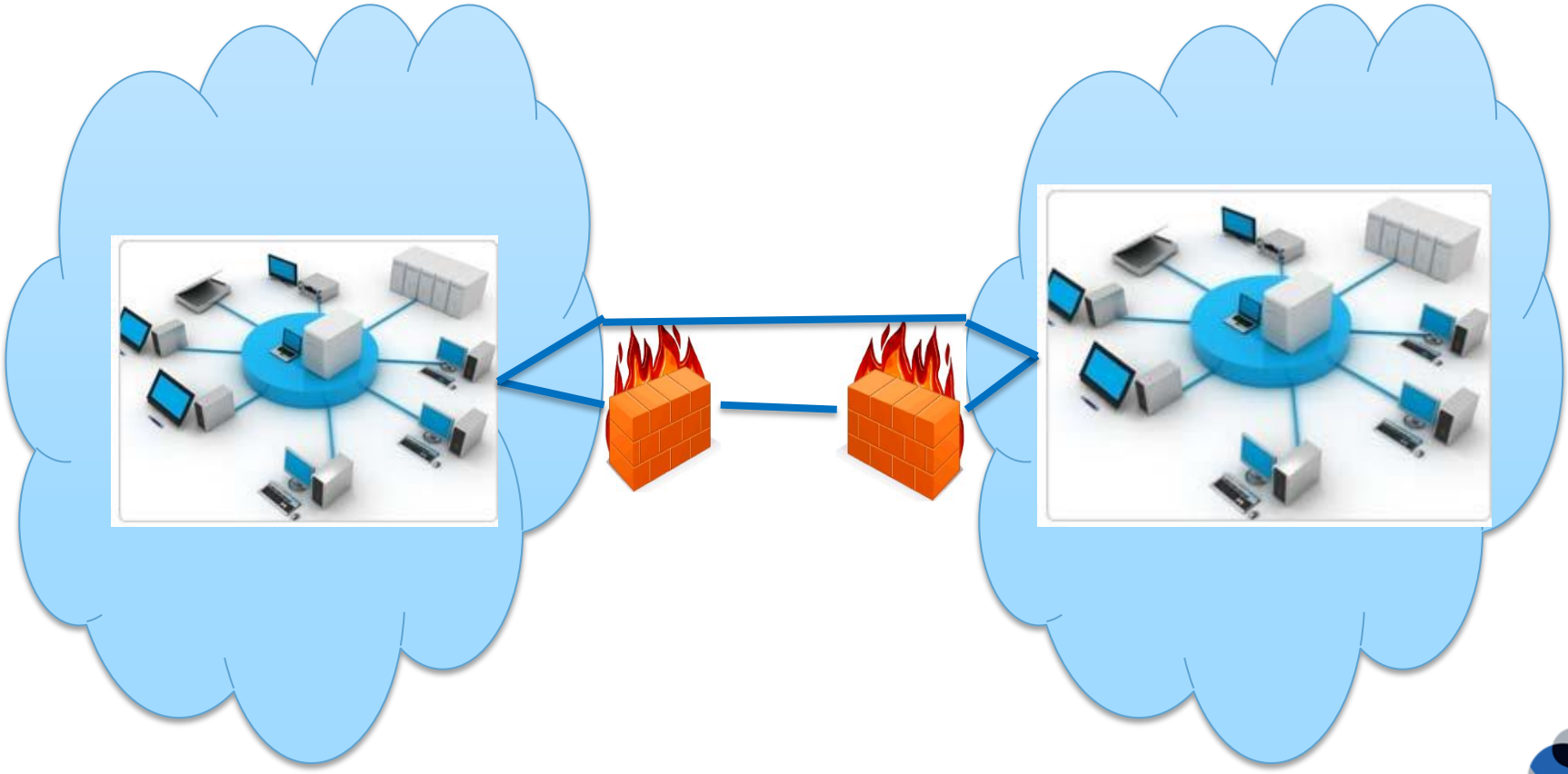
Dynamic Flow Control for Efficiency

- Big Data and application awareness



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Open Source

Controller	Source
Beacon	Stanford University
Floodlight	Big Switch Networks
FlowER	Travelping GmbH
Jaxon	University of Tsukuba
Mul SDN Controller	Kulcloud
NodeFlow	Cisco Systems
NOX	ICSI
POX	ICSI
Ryu Network Operating System	NTT Communications
Trema	NEC

Comprehensive List: http://www.sdncentral.com/comprehensive-list-of-open-source-sdn-projects/

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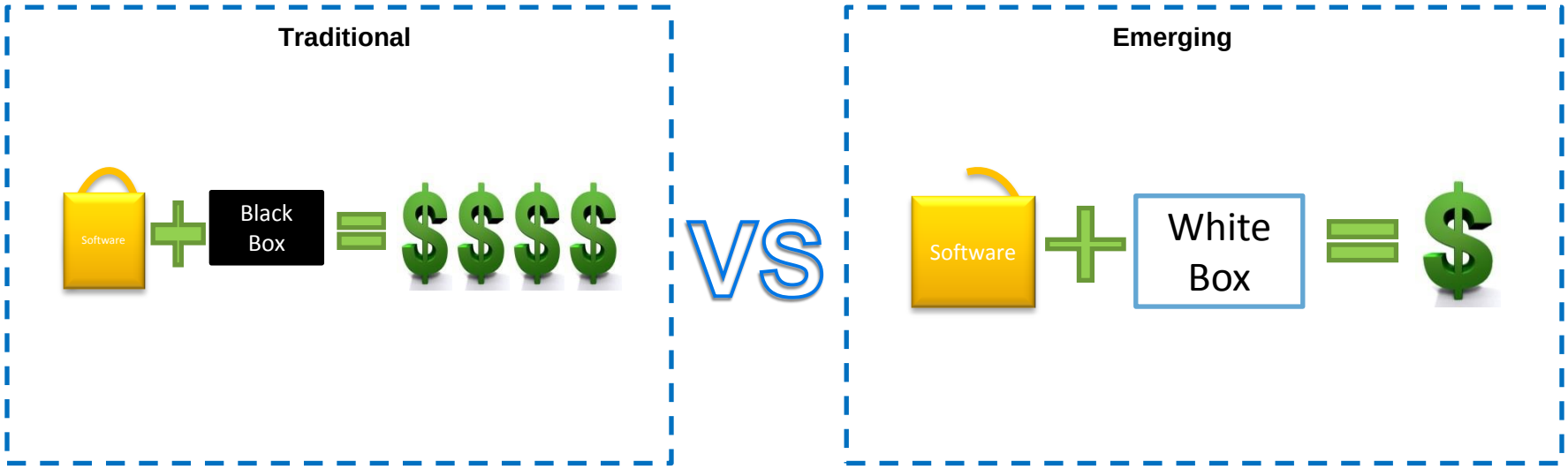
Where is the nugget?



Constraints in wide-scale adoption and deployment:

- Complexity
  - Management, Orchestration, Operations (reporting, analytics)
- Reliability

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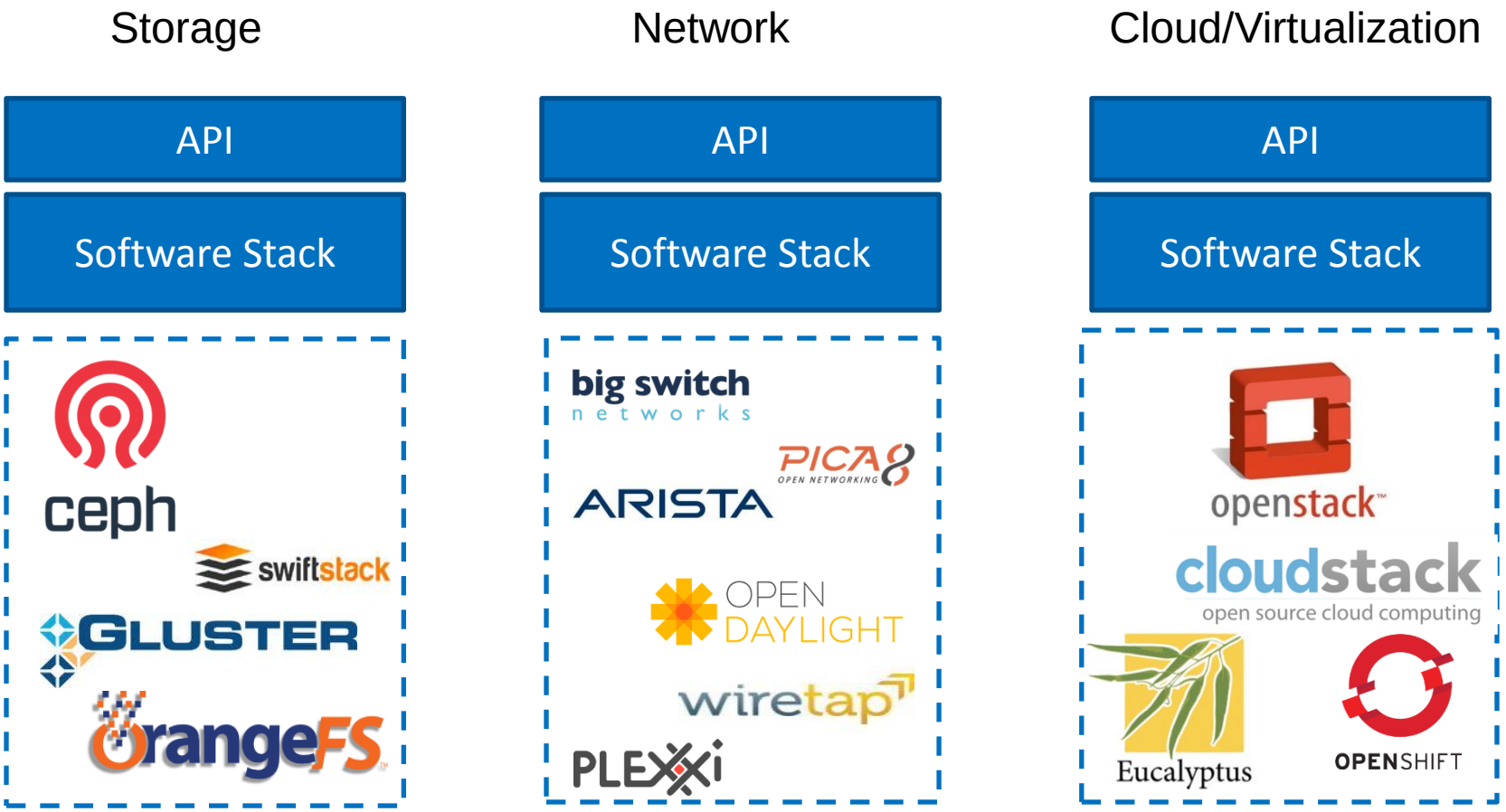
Where is the nugget?



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What's the Nugget?

API	API	API
Software Stack	Software Stack	Software Stack

ceph
swiftstack
GLUSTER
OrangeFS

big switch networks
PICA8 OPEN NETWORKING
ARISTA
OPEN DAYLIGHT
wiretap
PLEXXI

openstack™
cloudstack
open source cloud computing
Eucalyptus
OPENSHIFT

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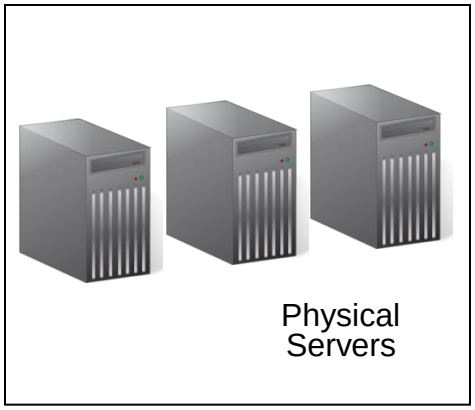
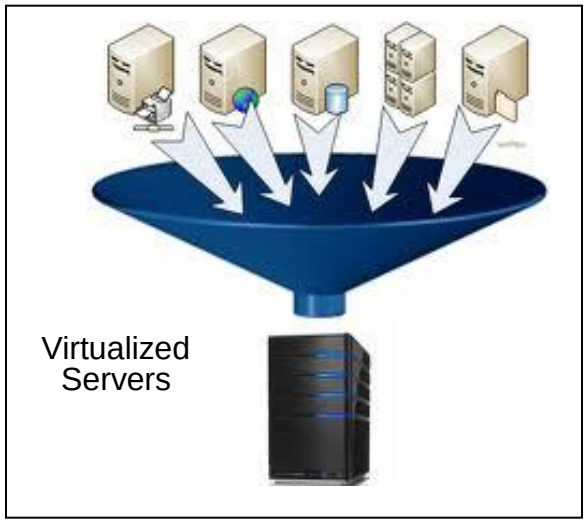
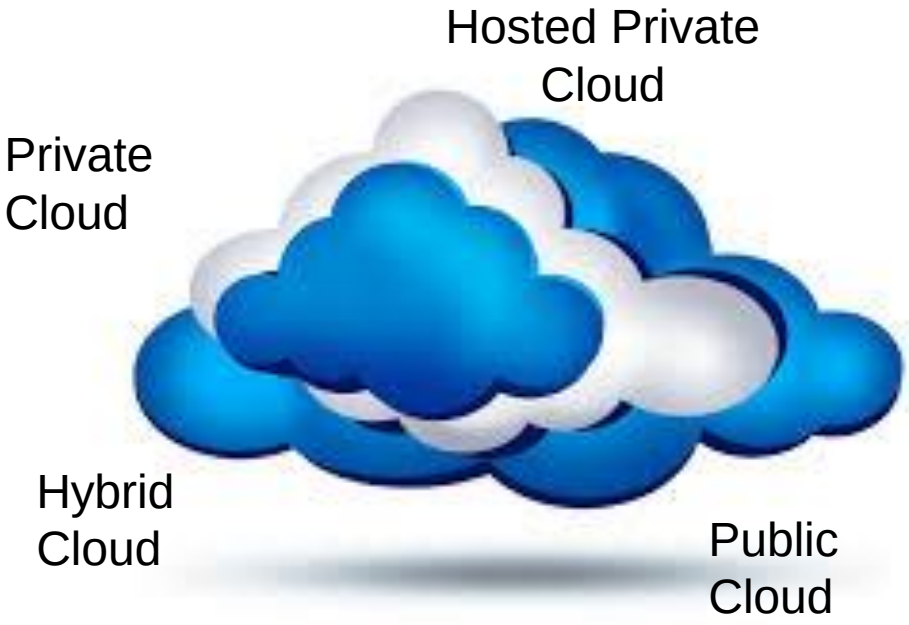
Where is the nugget?







On-Premise ⟷ Off-Premise

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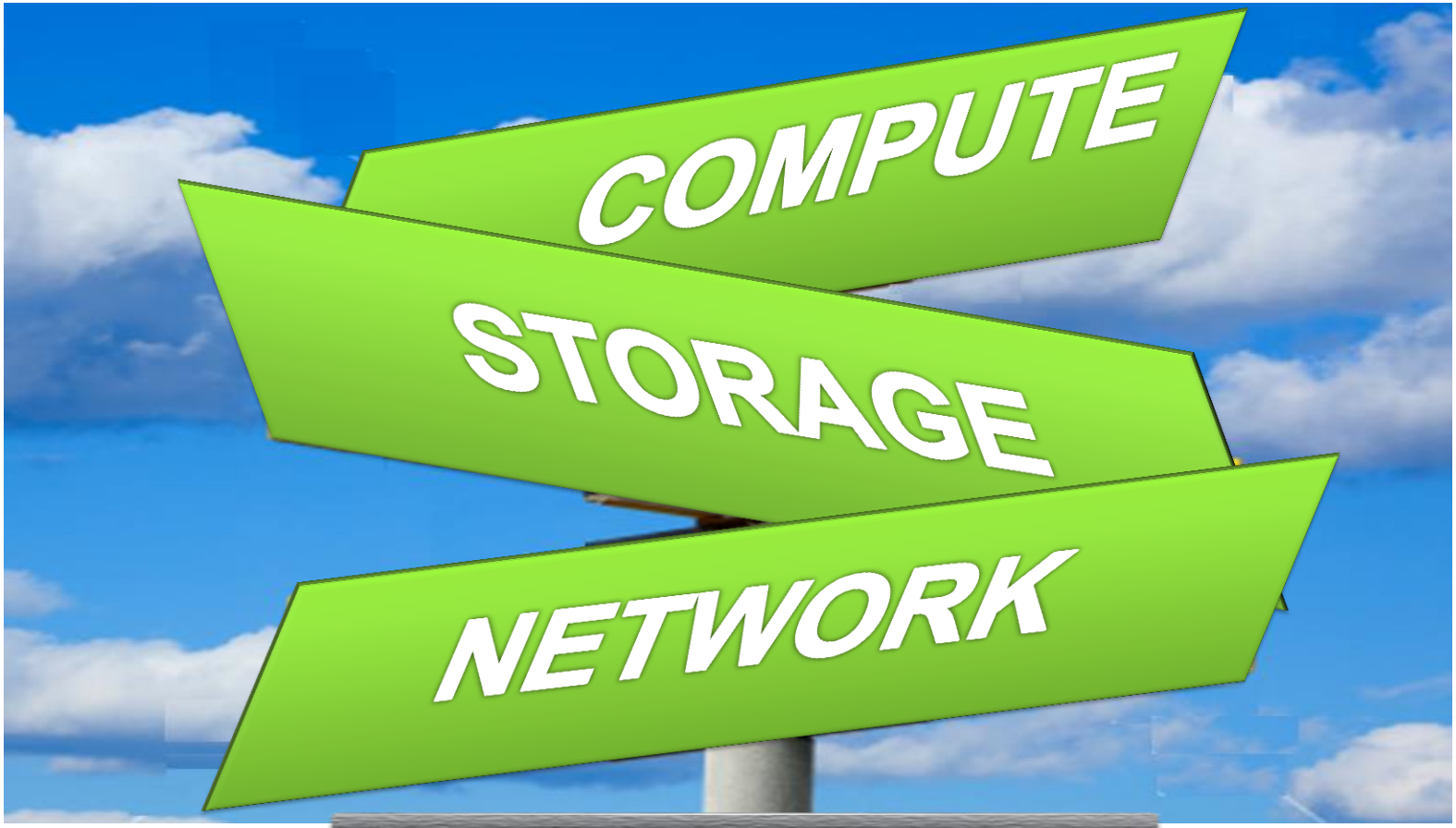
Semantic IO™- Break the Silos with Innovation



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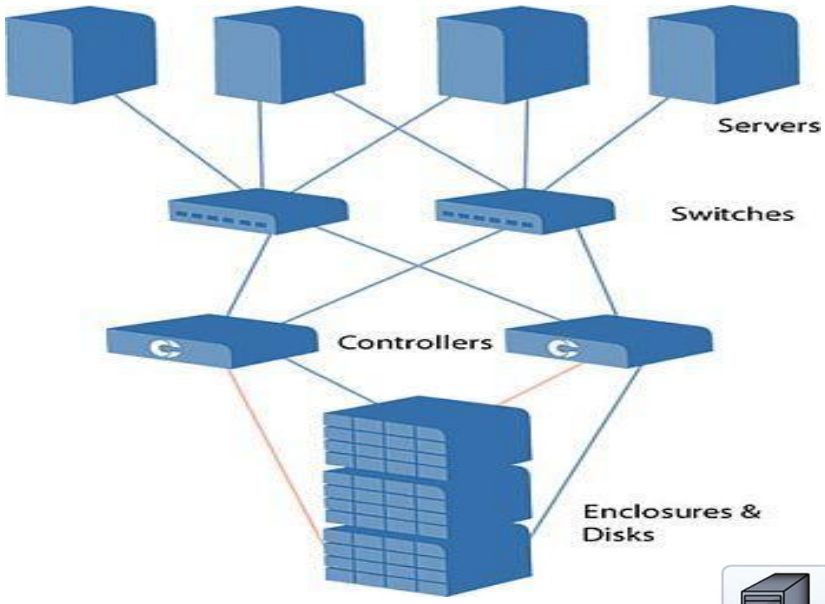
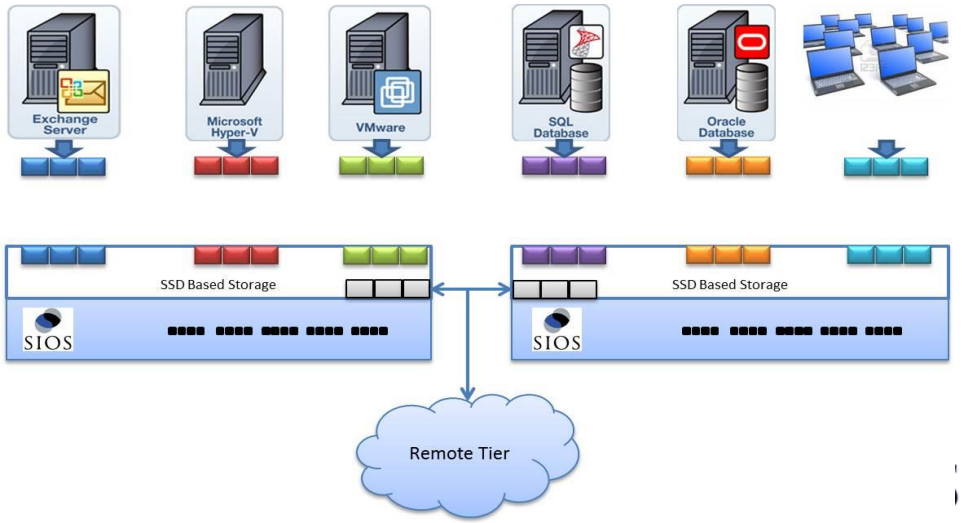
Semantic IO™- Break the Silos with Innovation

Today



Tomorrow



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What's the Nugget?

API

Software Stack

ceph

big switch networks

PICA8 OPEN NETWORKING

ARISTA

swiftstack

GLUSTER

OPEN DAYLIGHT

wiretap

OrangeFS

PLEXXI

API

Software Stack

openstack™

cloudstack

open source cloud computing

Eucalyptus

OPENSHIFT

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Semantic IO™- Break the Silos with Innovation

Coming to your Data Center
In 2014

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Questions?

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Thank you!

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