PLUMgrid for OpenStack

July 2016
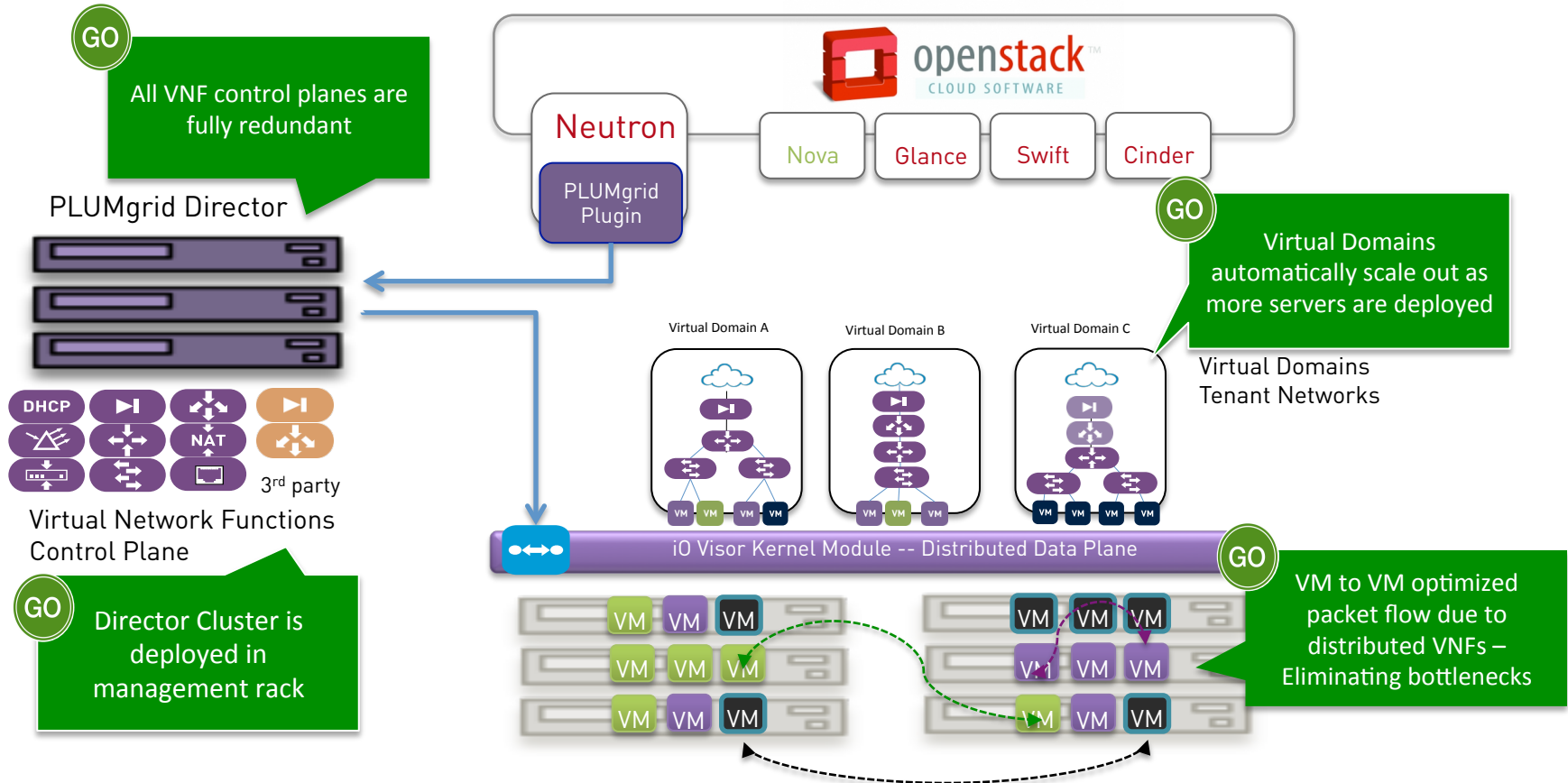
PLUMgrid

Last Mile to Agility: Virtual Infrastructure
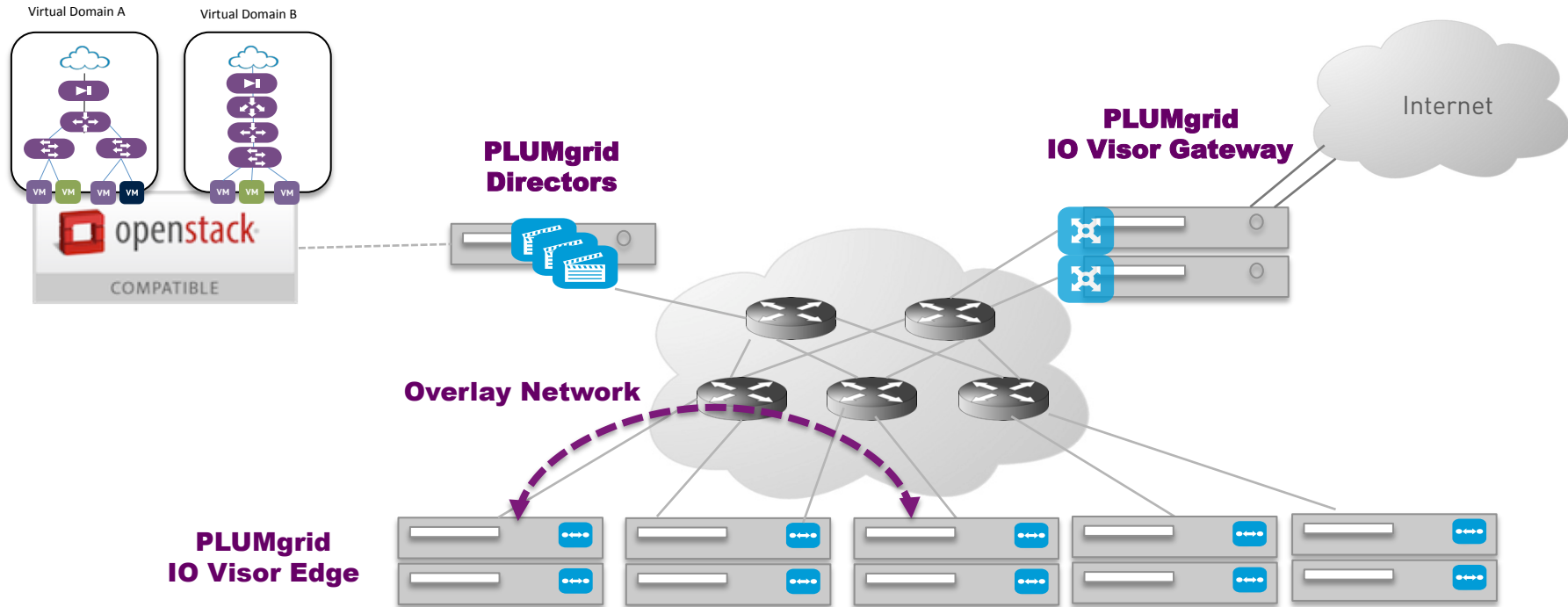

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VIRTUAL INFRASTRUCTURE

CRM	VDI	ERP	SaaS	PaaS	IaaS

Self Service Portal/Catalog

Cloud Management Platform

Virtual Compute

Virtual Networks

PLUMgrid

Virtual Storage

PHYSICAL INFRASTRUCTURE

Compute

Network

Storage
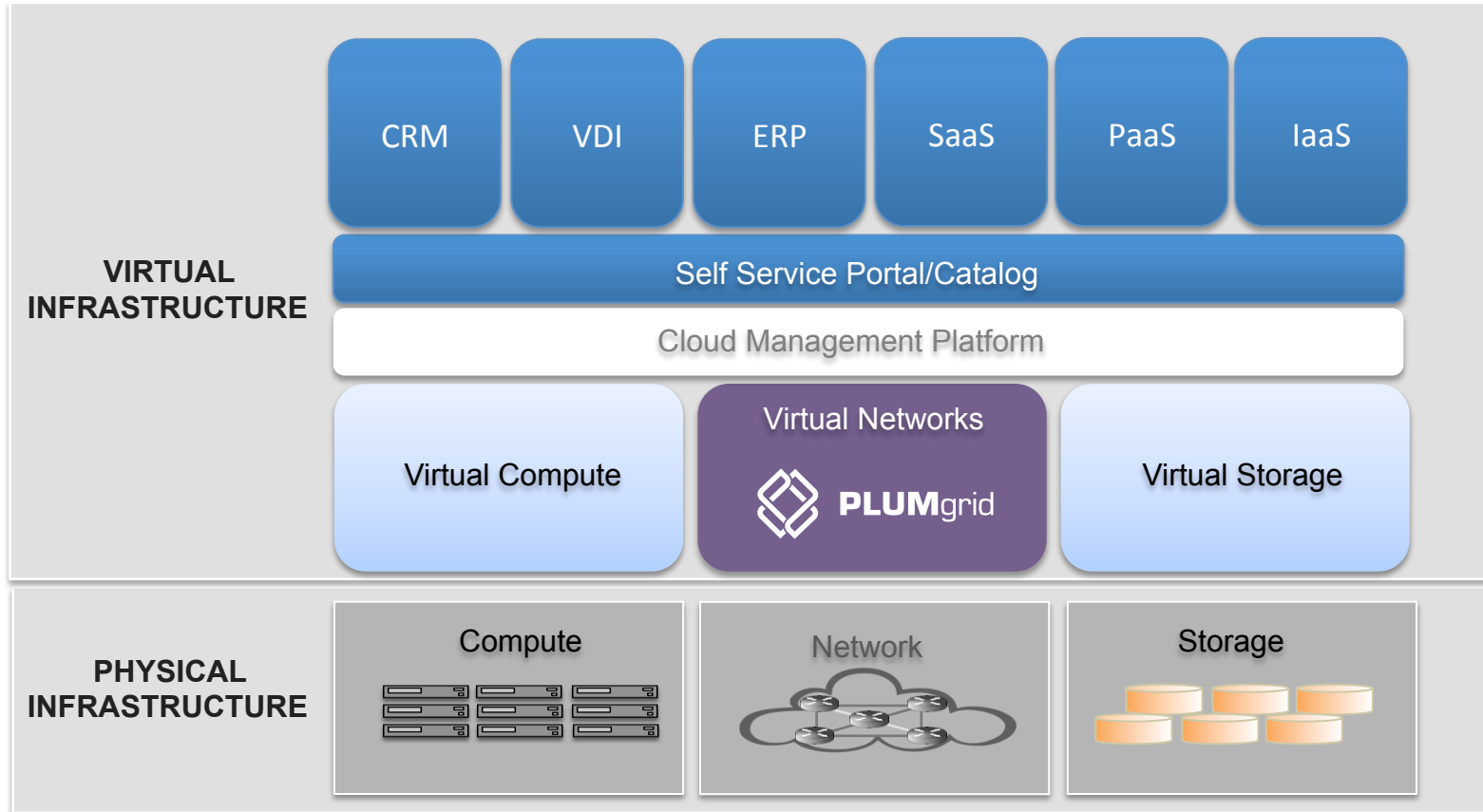
Architecture Challenges: Neutron & OVS

Single Point of Failure
単一障害ポイント
Advanced Services run on dedicated nodes. Limited HA.

Network Nodes

Neutron

Services Neutron Framework

ML2/OVS plugin

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CLOUD SOFTWARE

Nova   Glance   Swift   Cinder

L3 Agent
DHCP Agent
FWaaS Agent
LBaaS Agent

Scaling/Performance Issues
スケーリング
Creation of new tenants requires careful sizing of components to maintain performance level

Traffic Bottleneck
トラフィックボトルネック
Placement of these components is critical; They are in data path and become bottlenecks

Agent   VM VM VM
Agent   VM VM VM
Agent   VM VM VM

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Performance Challenges
パフォーマンス問題
VM traffic flow can be handled in kernel, in local user space or in network nodes with different performance level

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Architecture Solution: Neutron & PLUMgrid

GO All VNF control planes are fully redundant

PLUMgrid Director

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Neutron

PLUMgrid Plugin

Nova | Glance | Swift | Cinder

GO Virtual Domains automatically scale out as more servers are deployed

Virtual Domains Tenant Networks

Virtual Domain A | Virtual Domain B | Virtual Domain C

DHCP | NAT | 3rd party

Virtual Network Functions Control Plane

iO Visor Kernel Module -- Distributed Data Plane

GO Director Cluster is deployed in management rack

GO VM to VM optimized packet flow due to distributed VNFs – Eliminating bottlenecks

PLUMgrid Open Networking Suite Components

Virtual Domain A

Virtual Domain B

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COMPATIBLE

PLUMgrid Directors

PLUMgrid IO Visor Gateway

Internet

Overlay Network

PLUMgrid IO Visor Edge

✓ No single point of failure
✓ Highly resilient & self-healing
✓ Terabits of distributed scale out performance
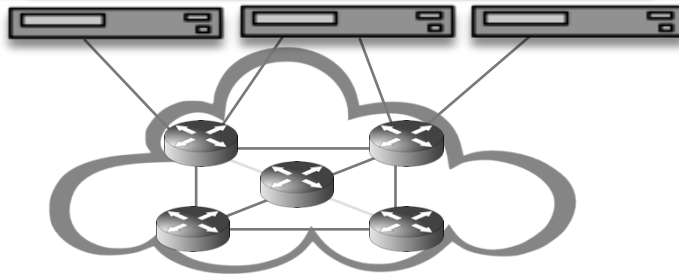
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Physical & Virtual Network Infrastructure

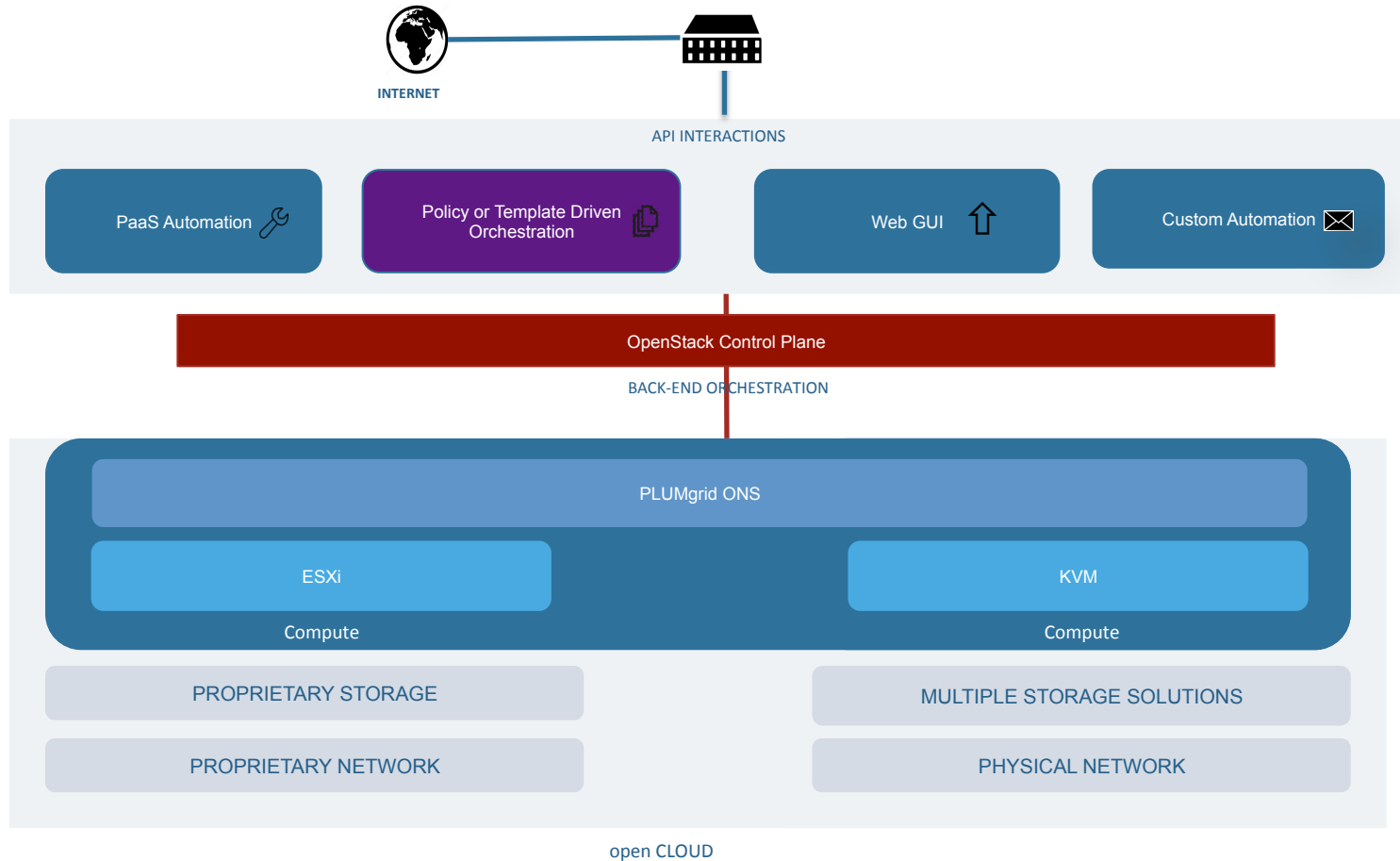**VIRTUAL INFRASTRUCTURE VIEW**

TENANT NETWORKS

Overlay Network
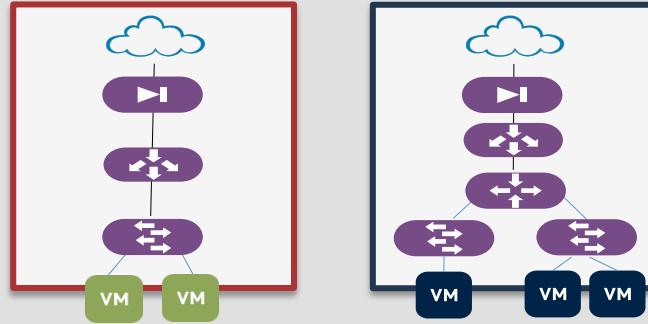
- On-Demand
- Multi Tenant
- Automated
- Self Service
- Secure
- Distributed

PHYSICAL INFRASTRUCTURE VIEW

- QoS, Bandwidth
- Latency
- Multicast
- Capacity
- Connectivity
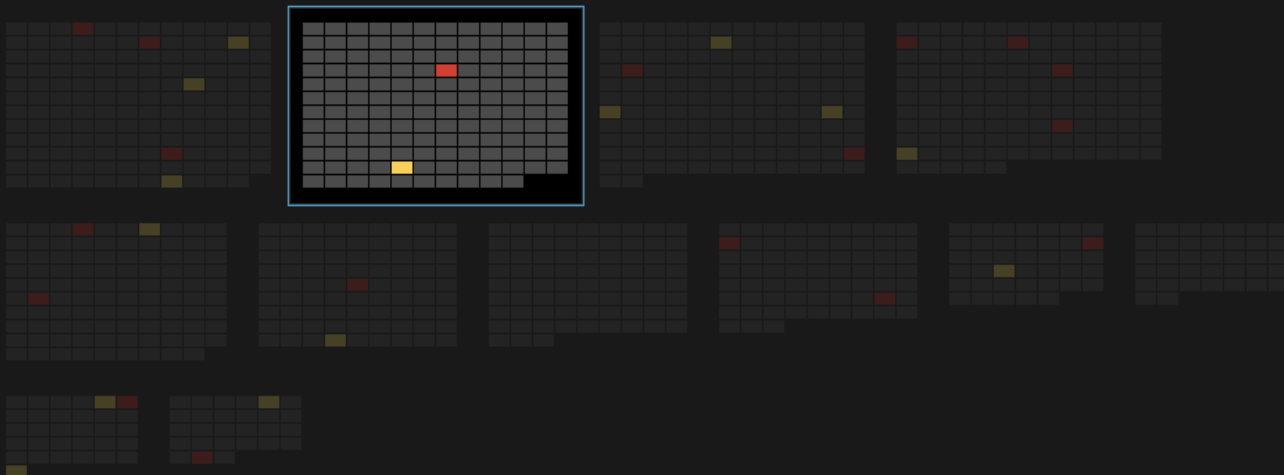
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OpenStack Multi-hypervisor Single SDN
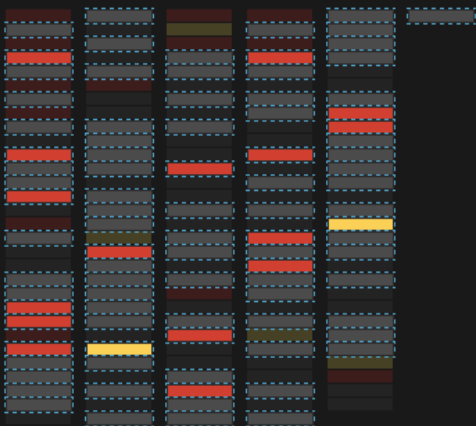
PLUMgrid CloudApex™ Highlights

Cloud-wide Search

Self-organizing Health Status

Affinity-based GUI

Real-time Heatmap

Advanced Troubleshooting

63 Warnings · 3 Alerts · Director 1 · Director 2 · Director 3

Search
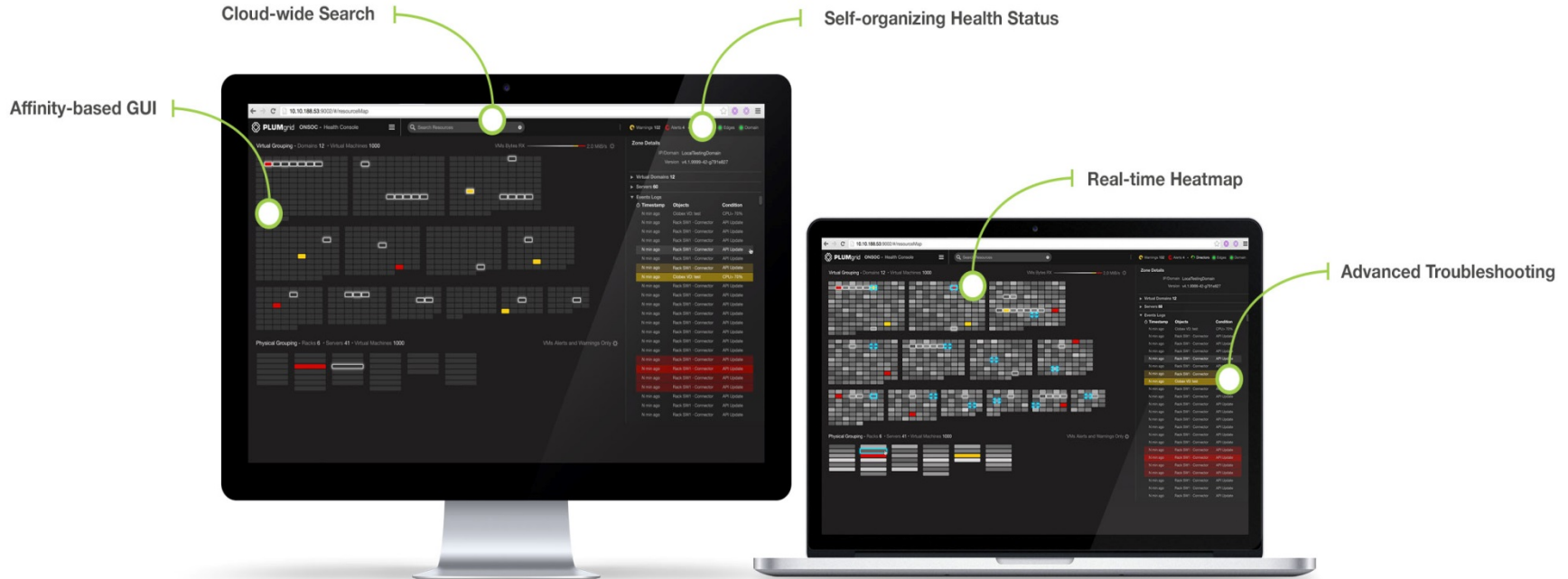
Virtual Domains 12 · Virtual Machines 1000

All Alerts and Warnings

Virtual Domain Details

UUID domain_dcd4140d0f5ea50
Topology topo2
State Ready
Rx 385739200 packets
62489750442 bytes
123074 pps
20212332 bps
Tx 236641271 packets
46854971785 bytes
84764 pps
17896669 bps
Drops 29 packets

▶ Virtual Machines 142
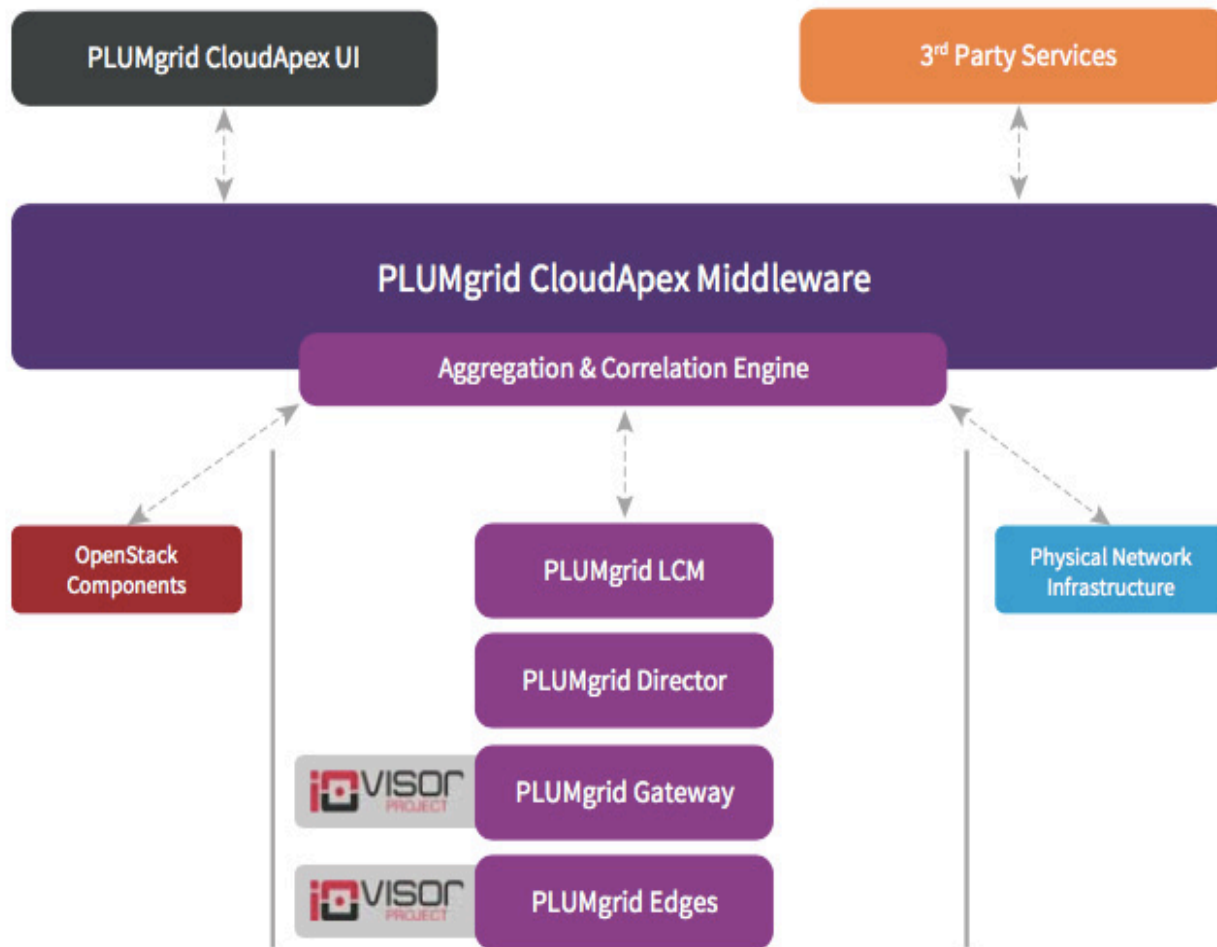▶ Servers 91
▼ Event Logs

domain_dcd4140d0f5ea50 Filter ▾ Pause

Timestamp	Object	Condition

Racks 6 · Servers 150 · Virtual Machines 1000

All Alerts and Warnings

Fully Distributed Architecture

THANK YOU!

Keep in Touch and Contact Us

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