Monitoring Virtual Networks

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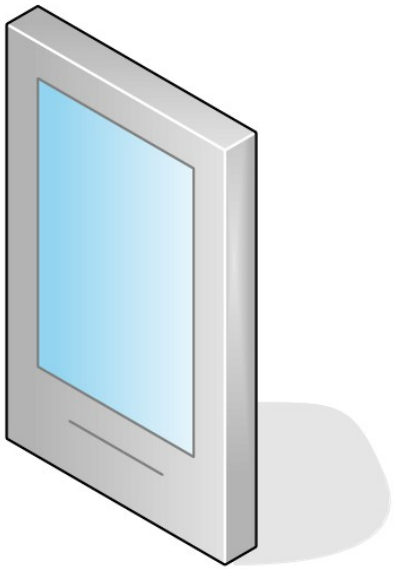
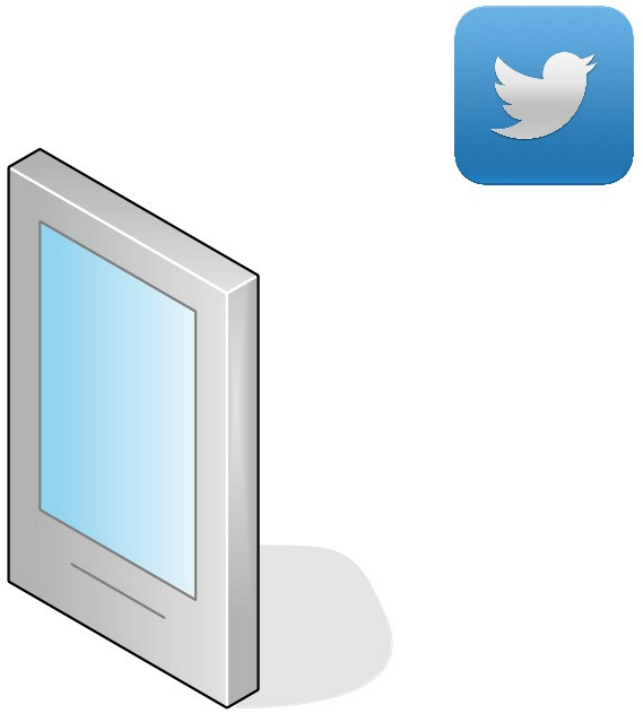
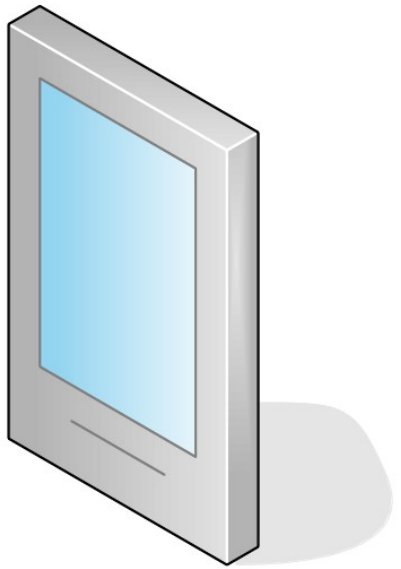
THE TENEO GROUP







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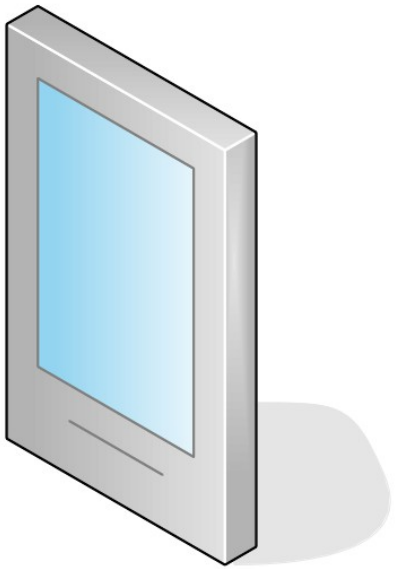

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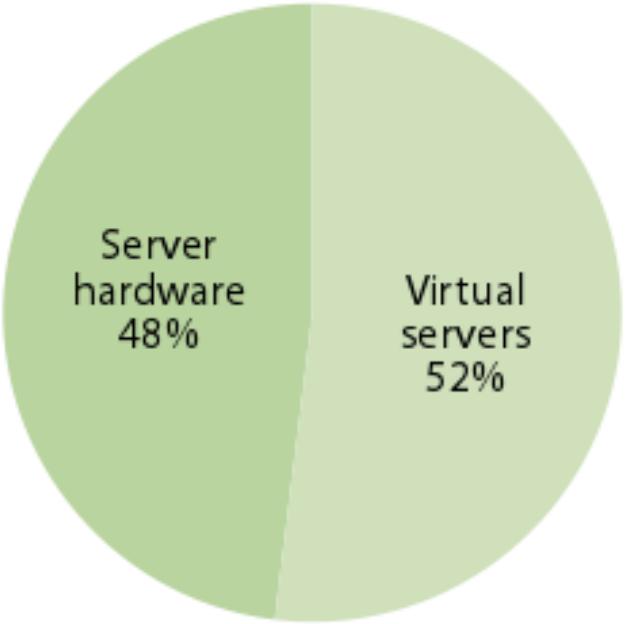
Overview

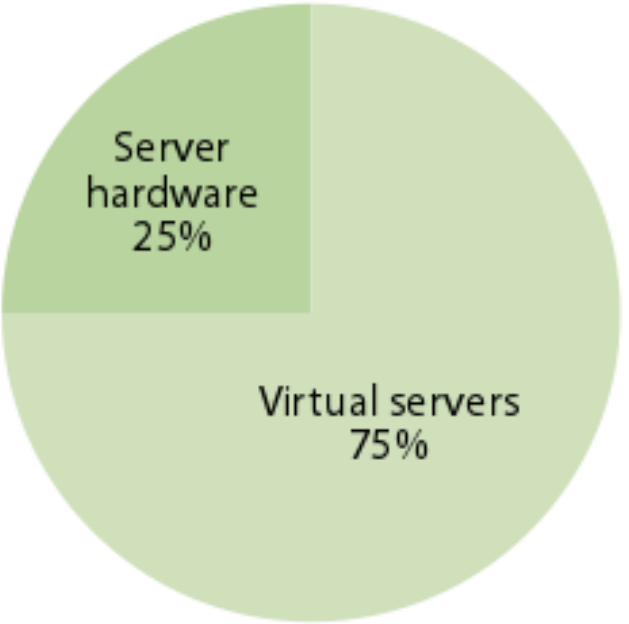
- **Background**
- **The Problem**
- **The Solution**
- **Going Forward**

1-2 The percentage of x86 server virtualization

"Today, approximately what percentage of your x86 server OS instances are operated as virtual servers rather than run directly on server hardware?"
(N = 771)



"In two years, approximately what percentage of your x86 server OS instances do you believe will be operated as virtual servers rather than run directly on server hardware?"
(N = 768)



Base: North American and European executives and technology decision-makers at companies with 20-plus employees and who are responsible x86 servers

Source: Forrsights Hardware Survey, Q3 2011

Source: Forrester Research, Inc.

Monitoring Cloud Computing by Layer, Part 1

Jonathan Spring
Software Engineering Institute

The general characteristics of cloud computing's three service models—software as a service (SaaS), platform as a service (PaaS), and infrastructure as a service (IaaS)—include on-demand self service, broad network access, pooling of resources, rapid elasticity of provisioning resources, and service or resource monitoring.[1] On the basis of the Cloud Security Alliance's work, a cloud is modeled in seven layers: facility, network, hardware, OS, middleware, application, and the user.[2] These layers can be controlled by highest risk of data exposure and compromise owing to the less-controlled environment and must be handled with the appropriate caution. Any cloud project will have idiosyncrasies, and each requires its own risk assessment.

Here, I present a set of recom- provider must formulate personnel policies with full appreciation of the observed increase in malicious insiders' involvement in security breaches[3] and the potentially huge impact a malicious insider could have by exfiltrating or manipulating data. The provider should follow best practices in separation of privileges, least privilege, access control systems, alarm systems, administrator logging, two-factor authentication, codes of conduct, confidentiality agreements, background checks, and visitor access.

Operating a data center is a complex process that must take into account many environmental con-

	Service model		
Layer	Software as a service	Platform as a service	Infrastructure as a service
Facility	✓	✓	✓
Network	✓	✓	✓
Hardware	✓	✓	✓
OS	✓	✓	?
Middleware	✓	?	—
Application	✓	—	—
User	—	—	—

	Service model		
Layer	Software as a service	Platform as a service	Infrastructure as a service
Facility	✓	✓	✓
Network	✓	✓	✓
Hardware	✓	✓	✓
OS	✓	✓	?
Middleware	✓	?	—
Application	✓	—	—
User	—	—	—

DOI:10.1145/1721654.1721672

Clearing the clouds away from the true potential and obstacles posed by this computing capability.

BY MICHAEL ARMBRUST, ARMANDO FOX, REAN GRIFFITH, ANTHONY D. JOSEPH, RANDY KATZ, ANDY KONWINSKI, GUNHO LEE, DAVID PATTERSON, ARIEL RABKIN, ION STOICA, AND MATEI ZAHARIA

A View of Cloud Computing

CLOUD COMPUTING, THE long-held dream of computing as a utility, has the potential to transform a large part of the IT industry, making software even more attractive as a service and shaping the way IT hardware is designed and purchased. Developers with innovative ideas for new Internet services no longer require the

hours. This elasticity of resources, without paying a premium for large scale, is unprecedented in the history of IT.

As a result, cloud computing is a popular topic for blogging and white papers and has been featured in the title of workshops, conferences, and even magazines. Nevertheless, confusion remains about exactly what it is and when it's useful, causing Oracle's CEO Larry Ellison to vent his frustration: "The interesting thing about cloud computing is that we've redefined cloud computing to include everything that we already do.... I don't understand what we would do differently in the light of cloud computing other than change the wording of some of our ads."

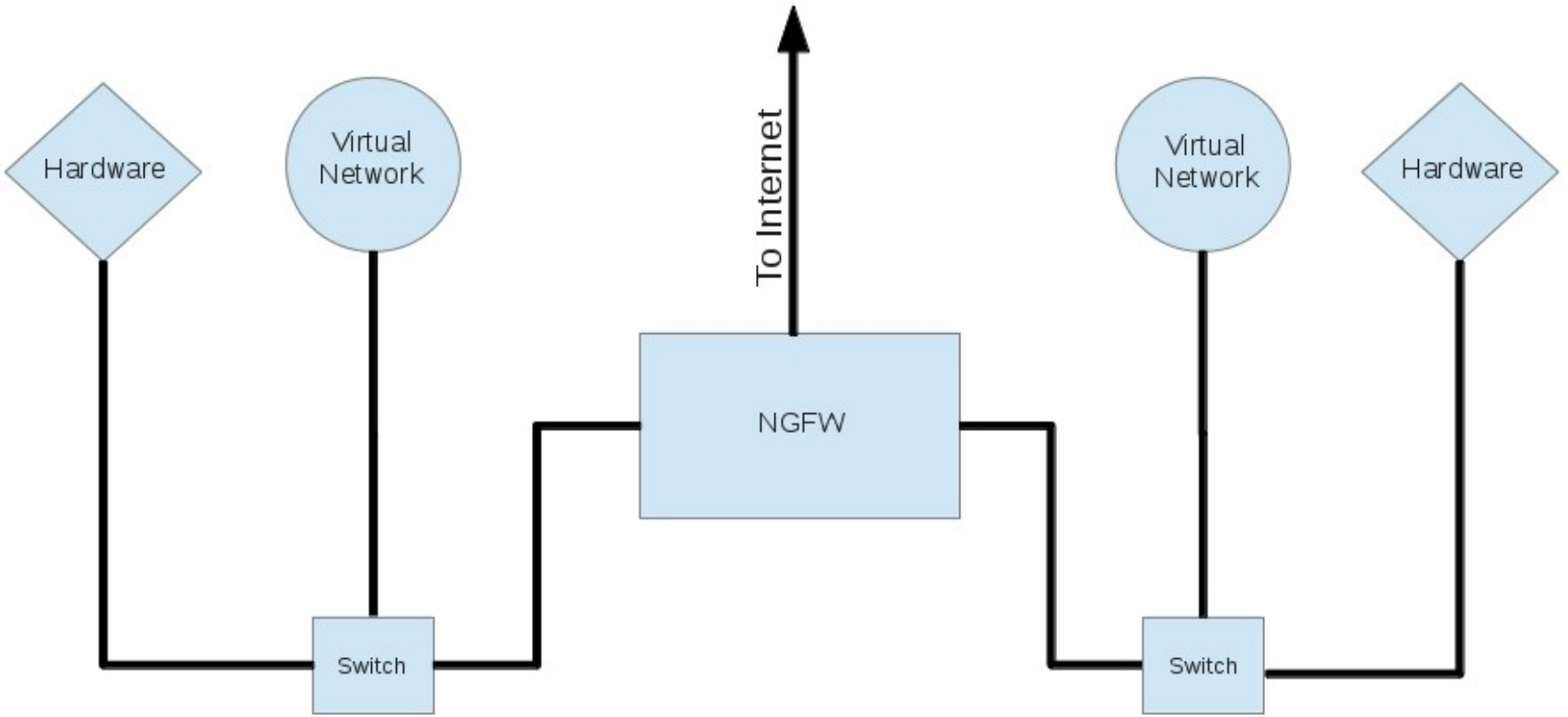
Our goal in this article is to reduce that confusion by clarifying terms, providing simple figures to quantify comparisons between of cloud and conventional computing, and identifying the top technical and non-technical obstacles and opportunities of cloud computing. (Armbrust et al[4] is a more detailed version of this article.)

Defining Cloud Computing

Cloud computing refers to both the applications delivered as services over the Internet and the hardware and systems software in the data centers that provide those services. The services themselves have long been referred to as Software as a Service (SaaS).[a] Some vendors use terms such as IaaS (Infra-

Cloud Computing - The applications delivered as services over the Internet and the hardware and systems software in the data centers that provide those services.

- Armbrust, M., Fox, A., Griffith, R., Joseph, A. D., Katz, R., Konwinski, A., Lee, G., Patterson, D., Rabkin, A., Stoica, I., and Zaharia, M. 2010. A View of Cloud Computing. Communications of the ACM 53, 50–58.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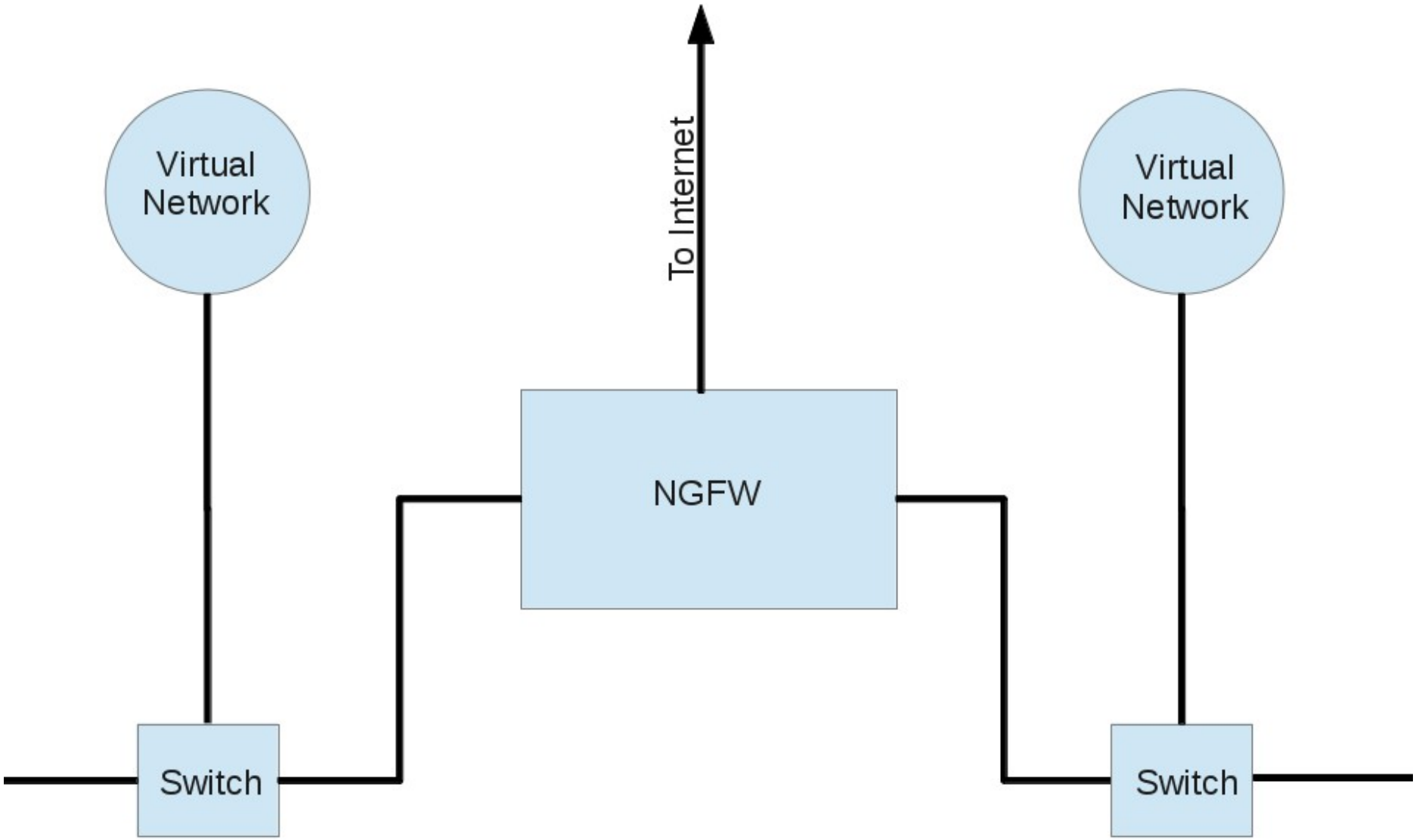
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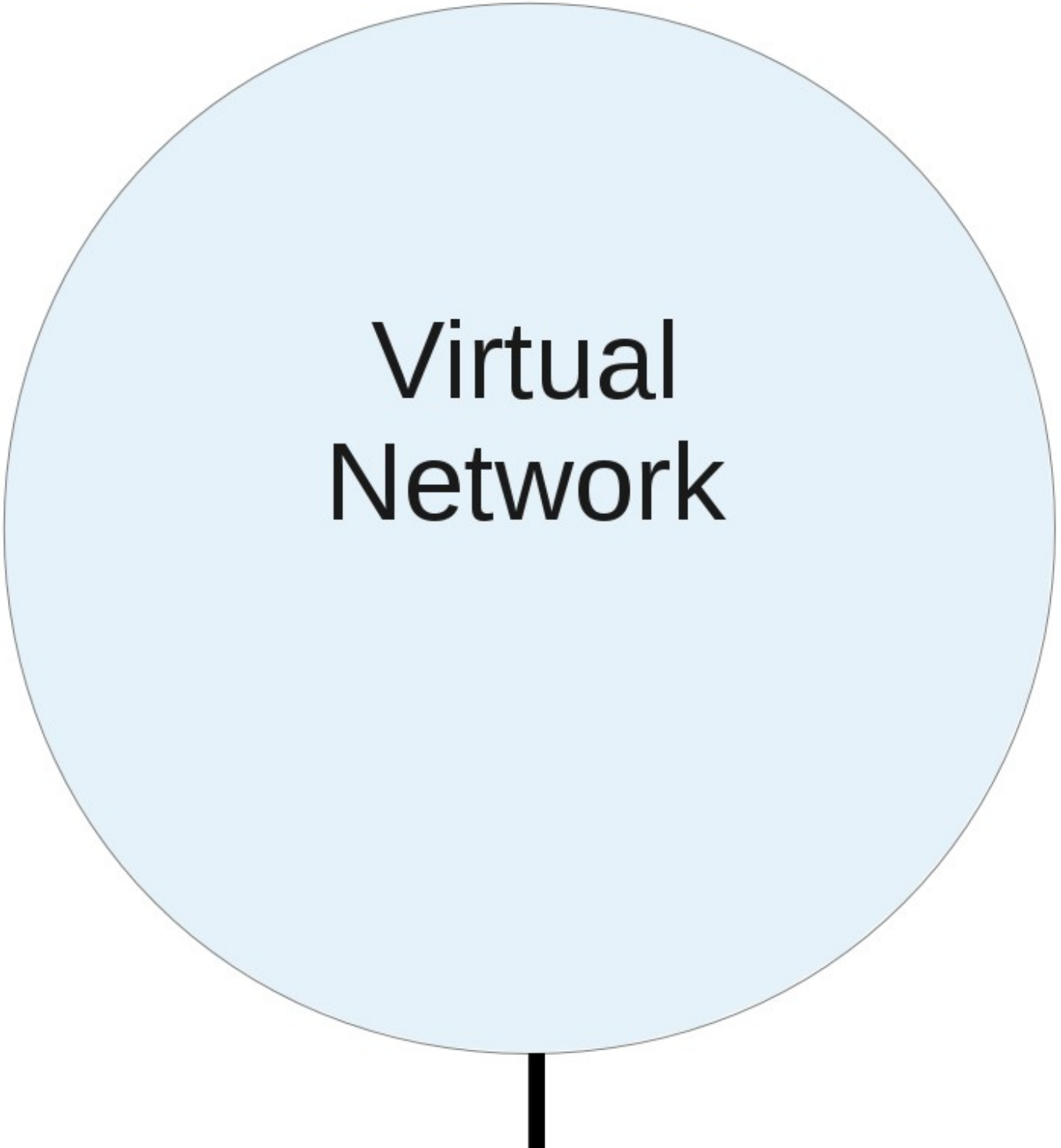
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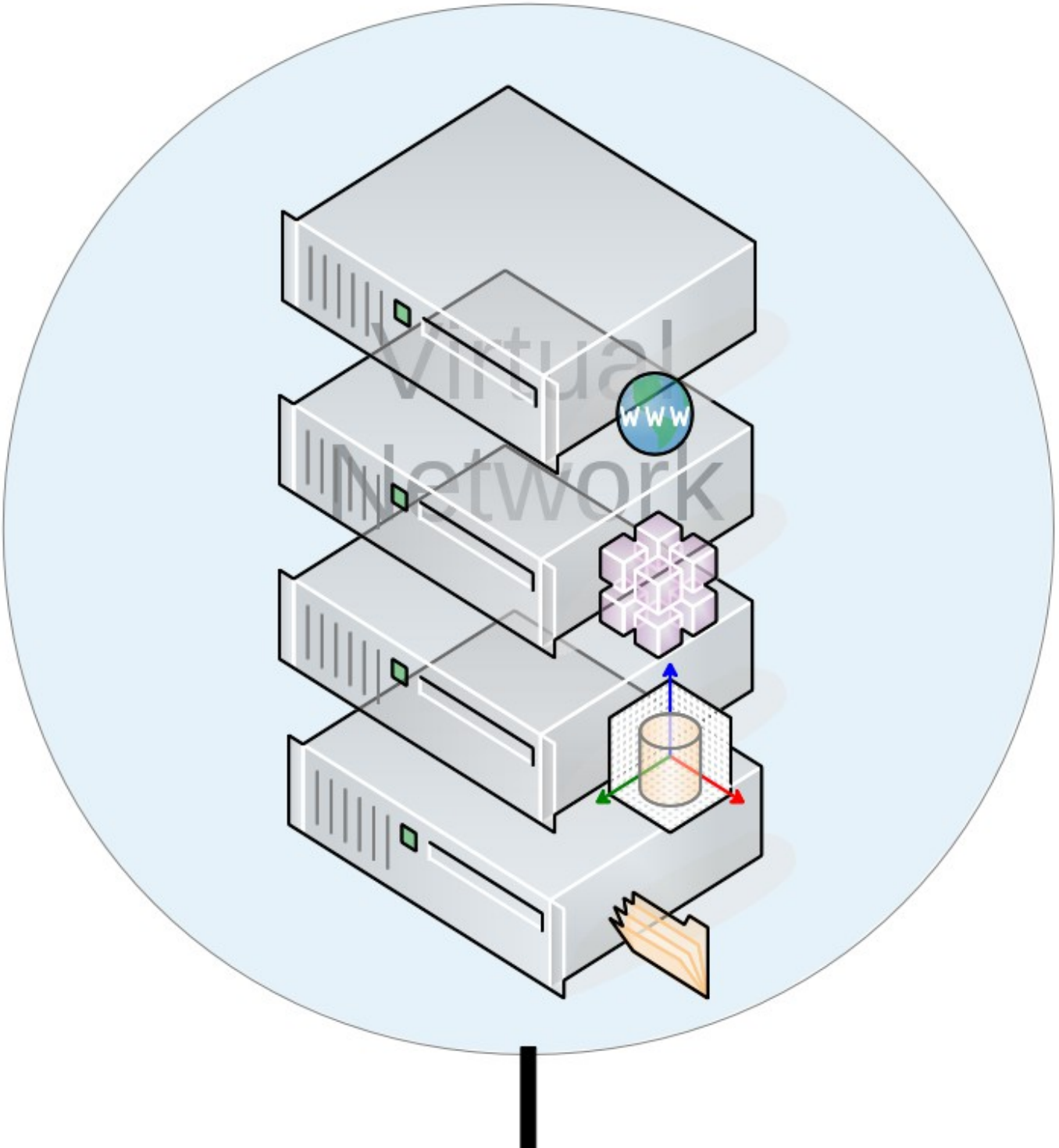
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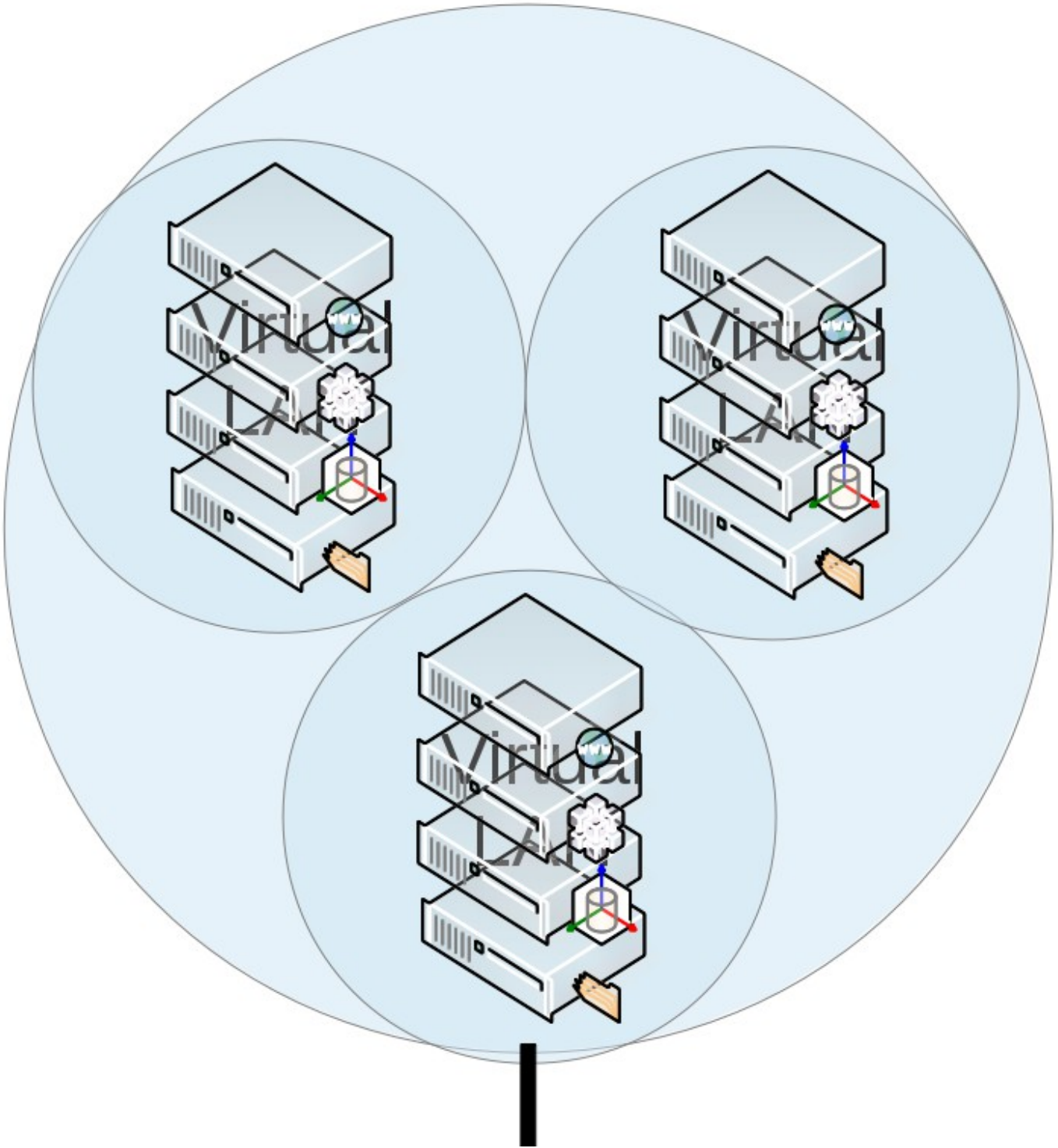
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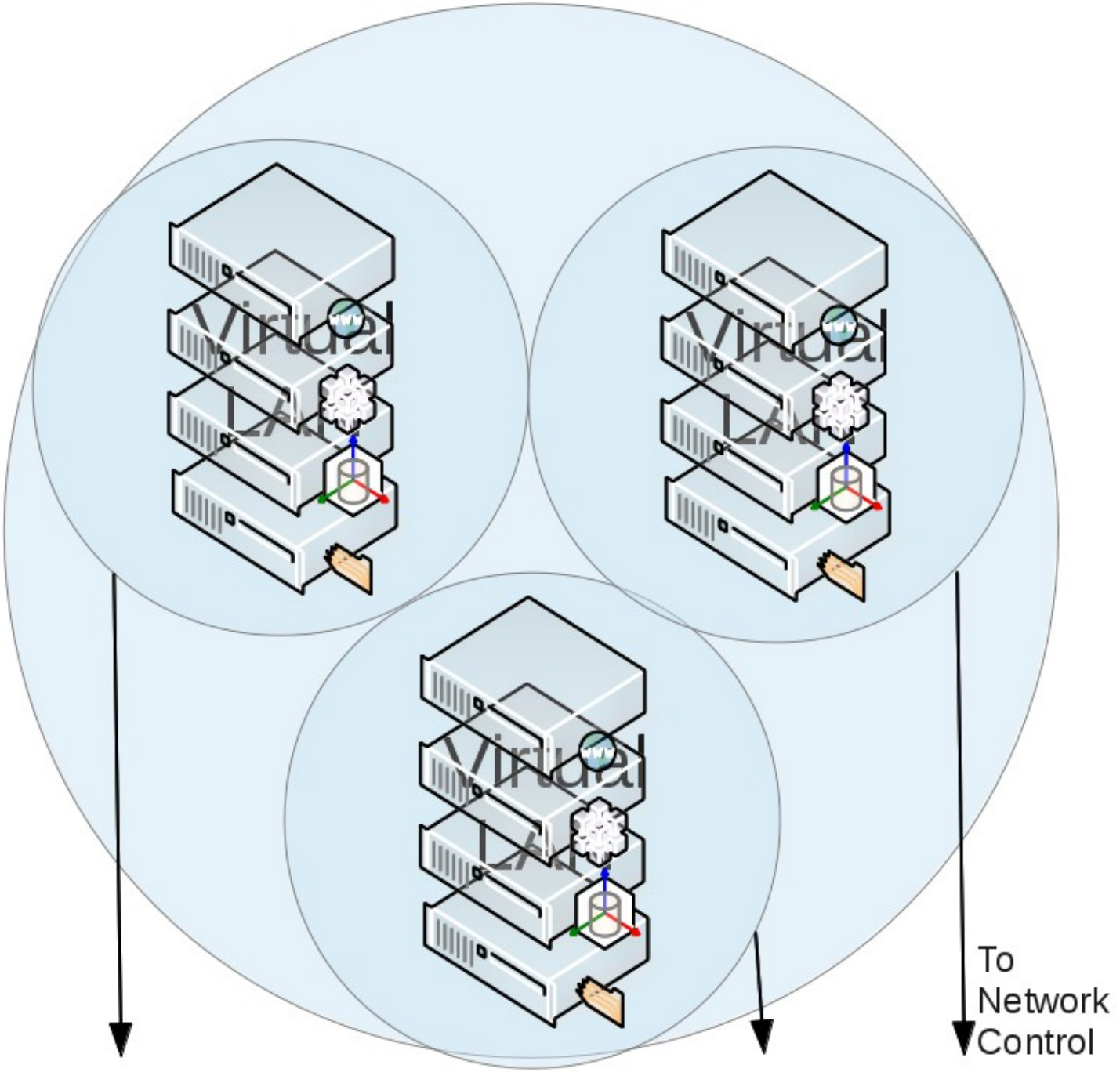
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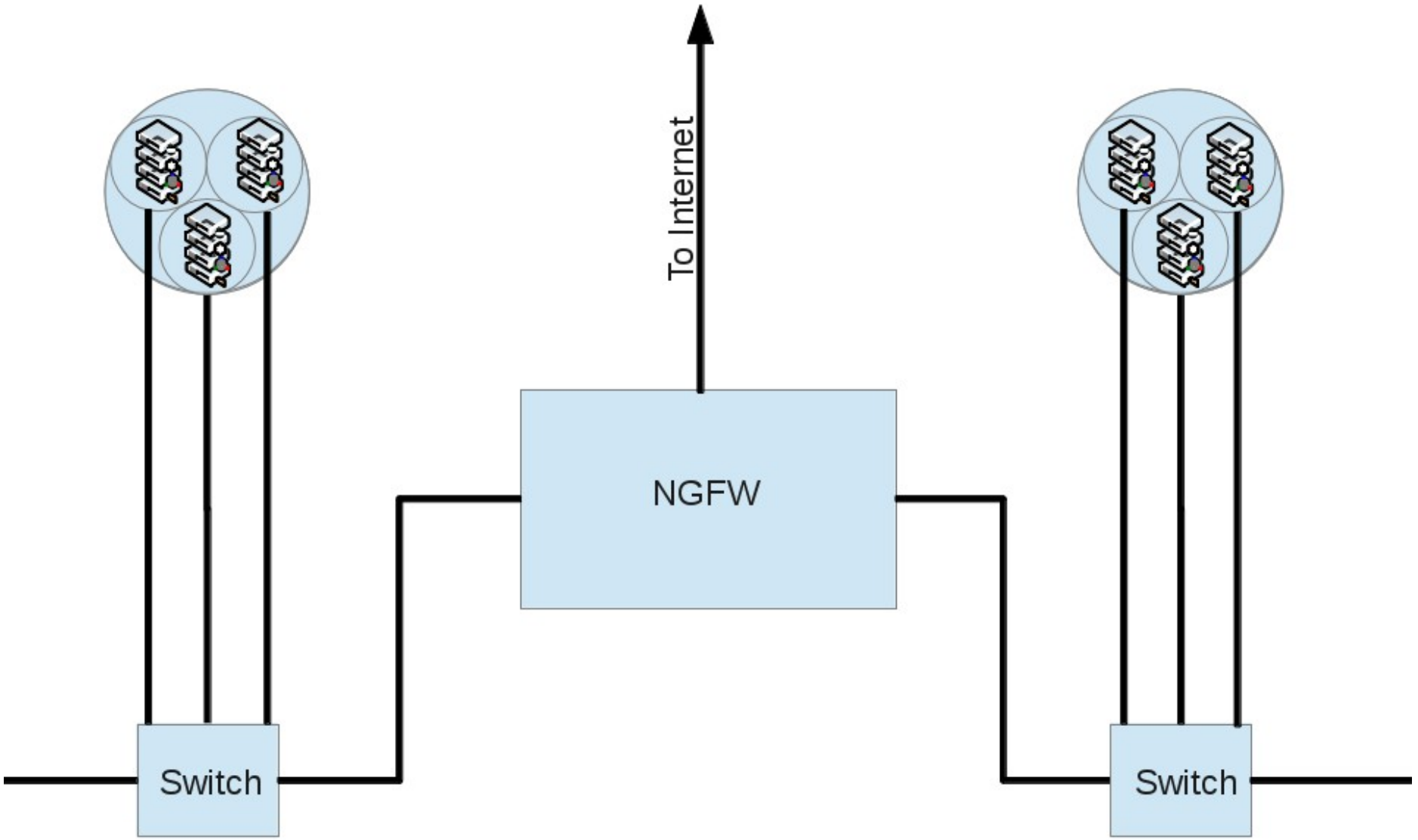
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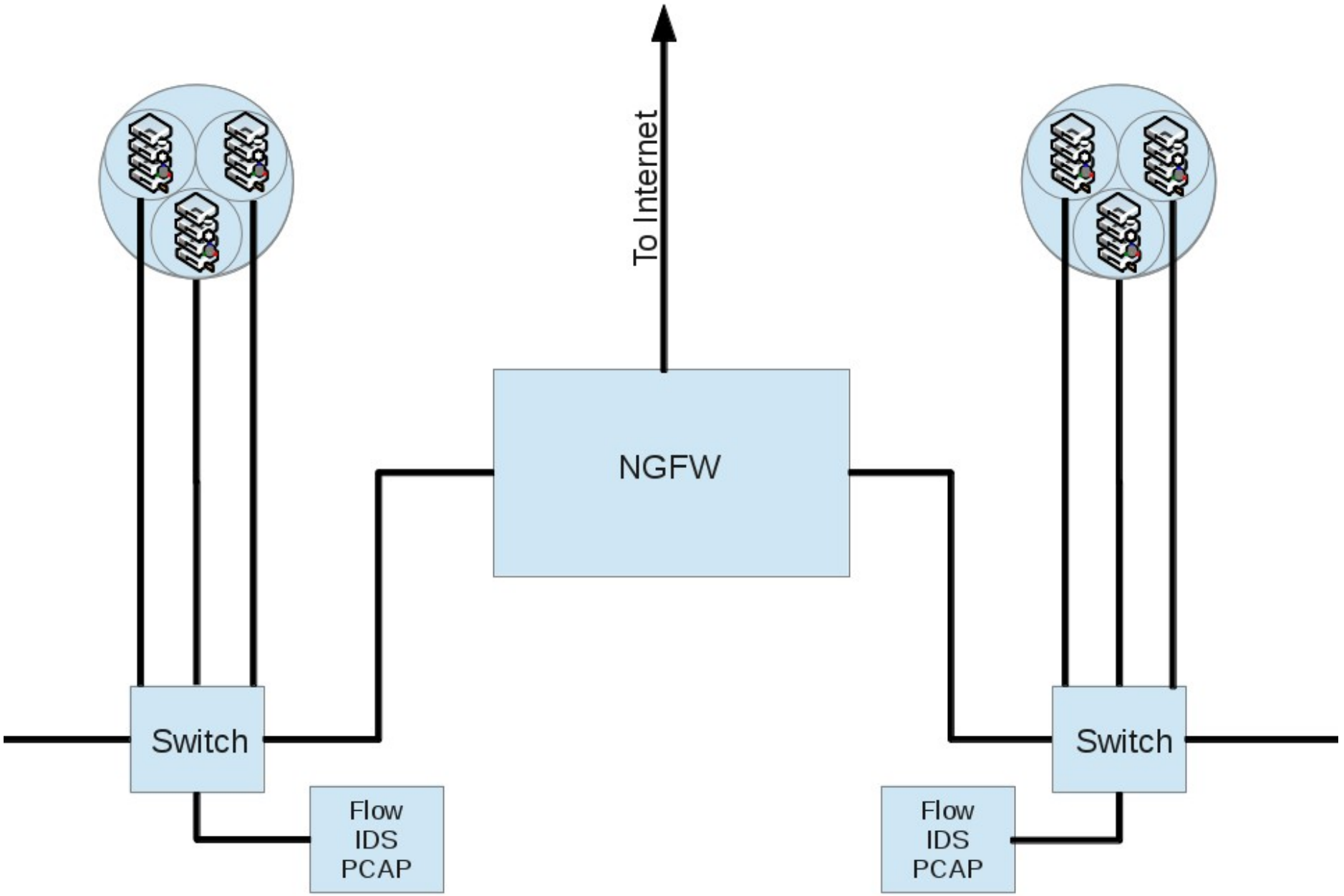
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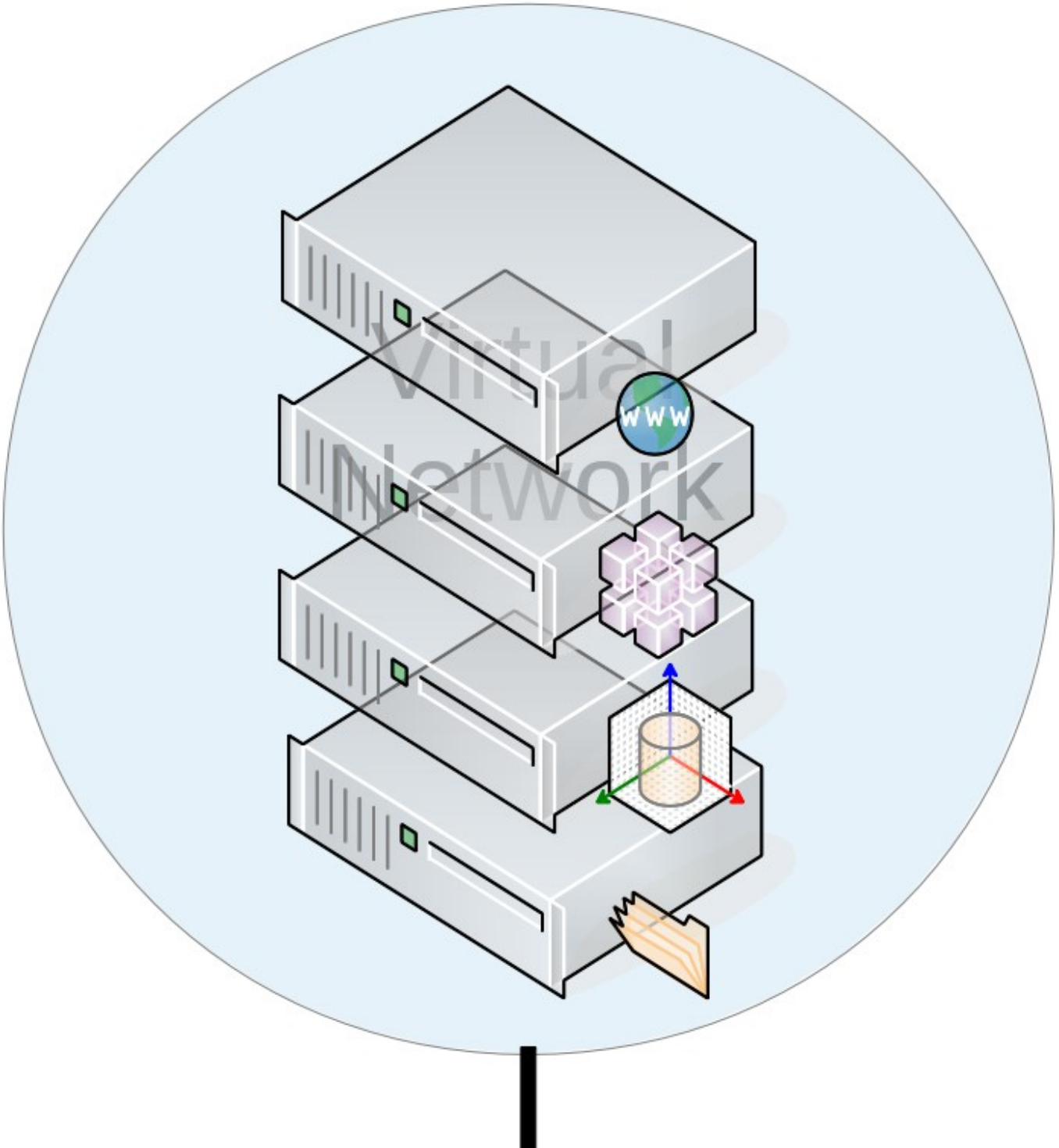
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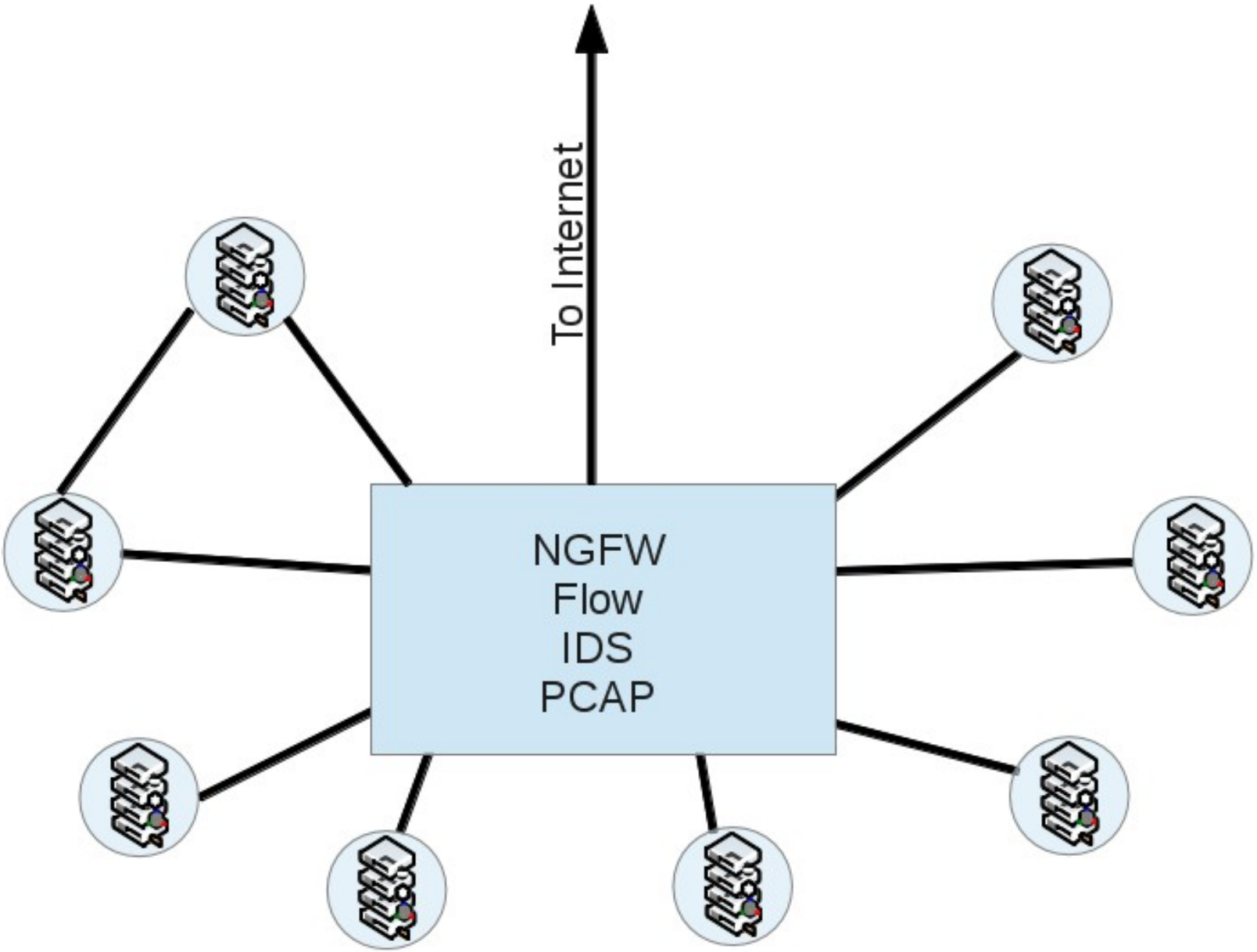
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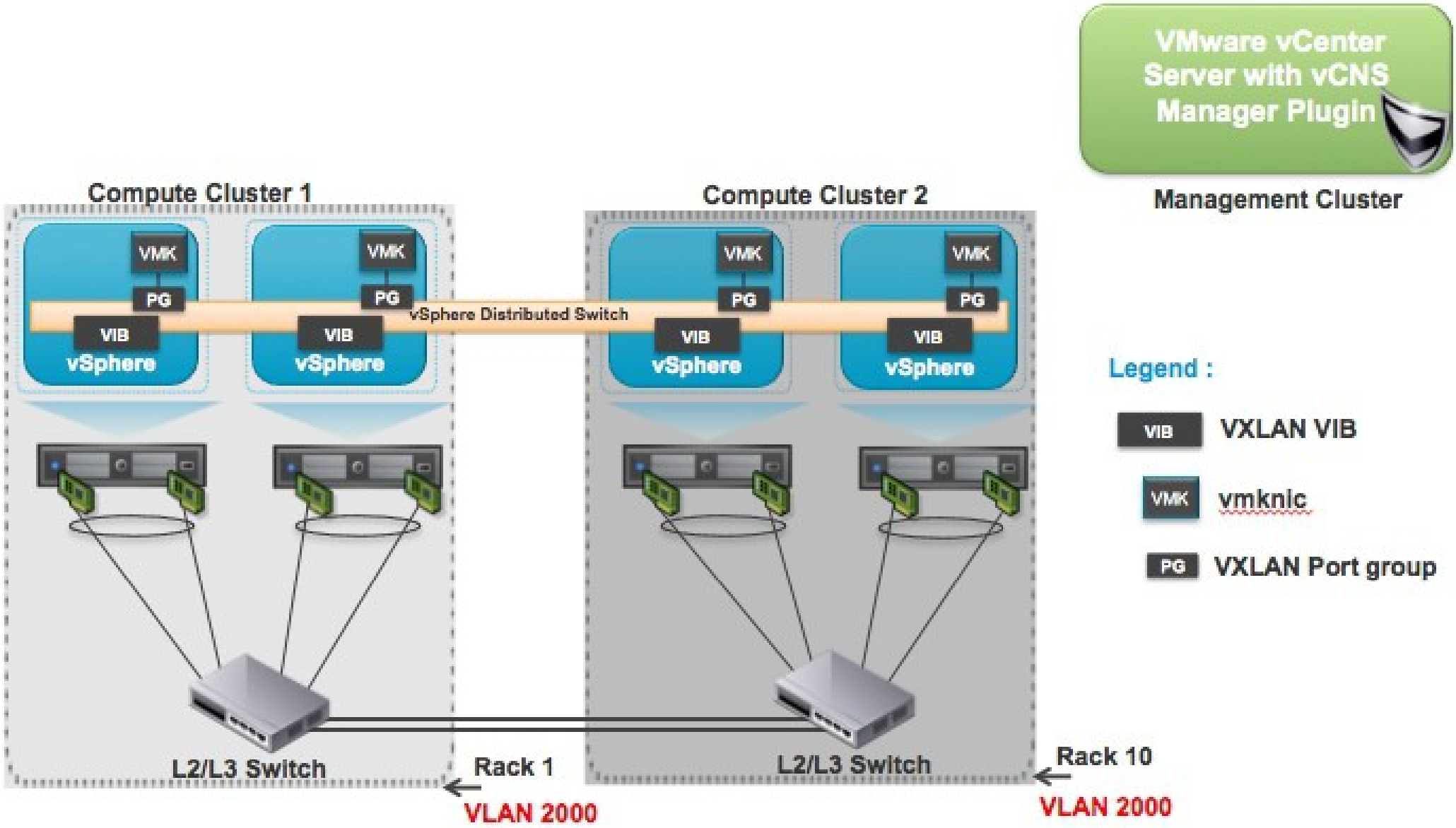

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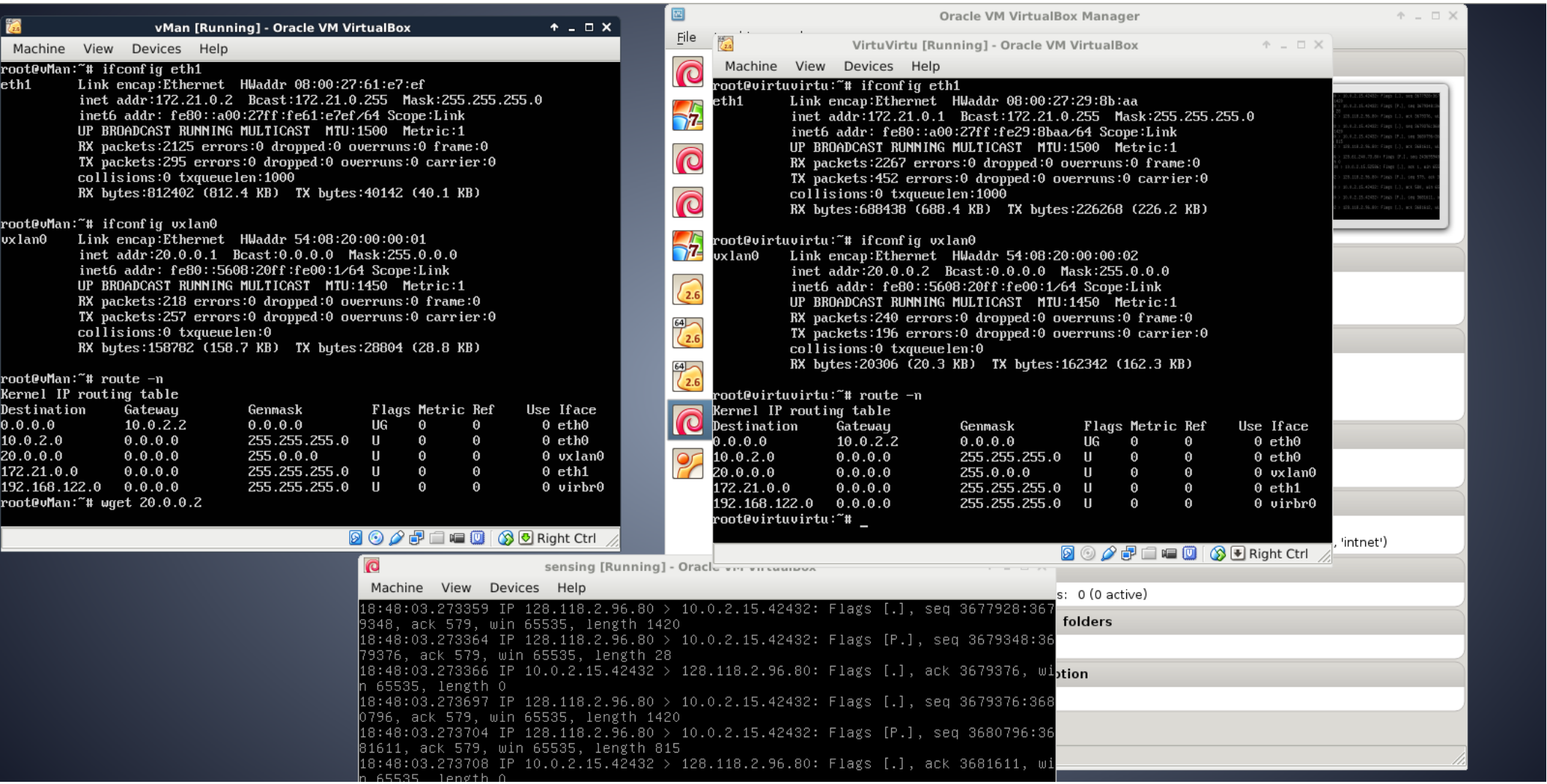

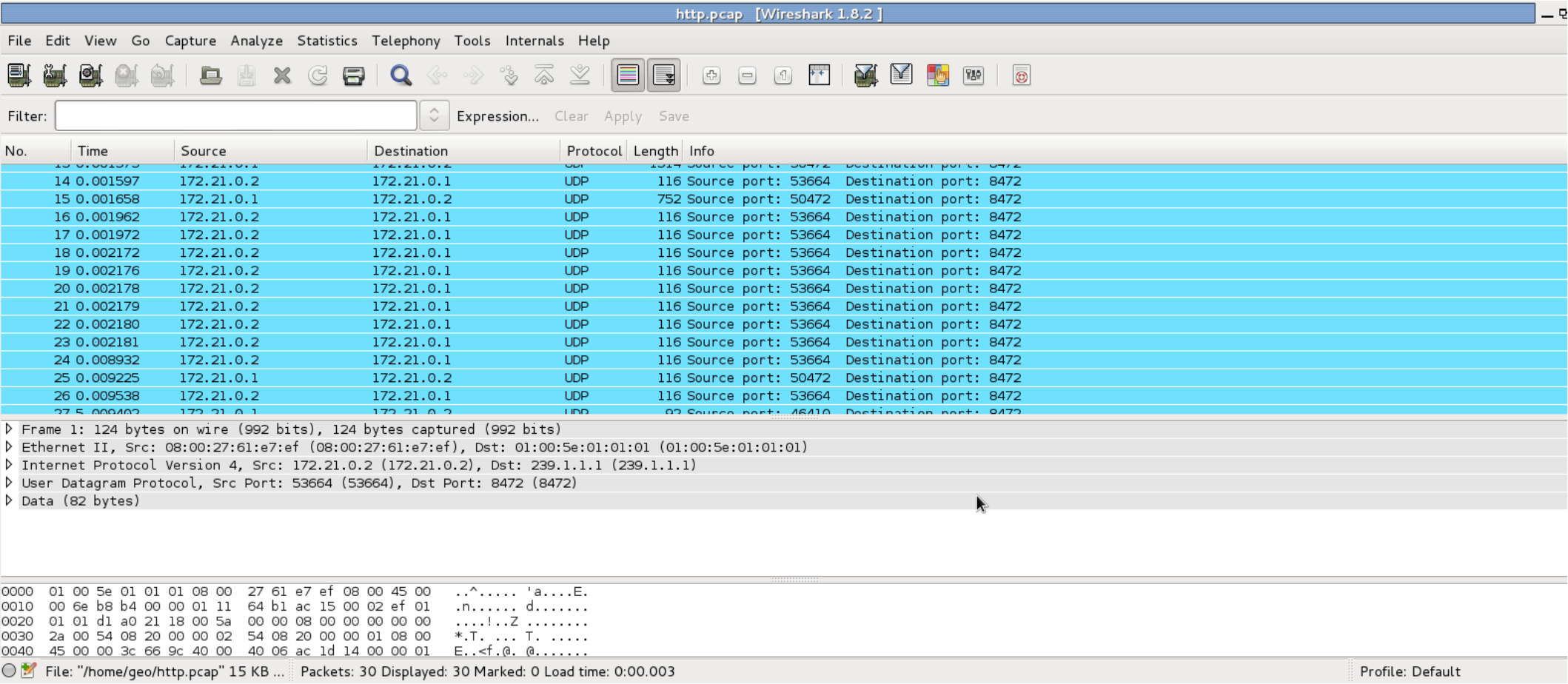

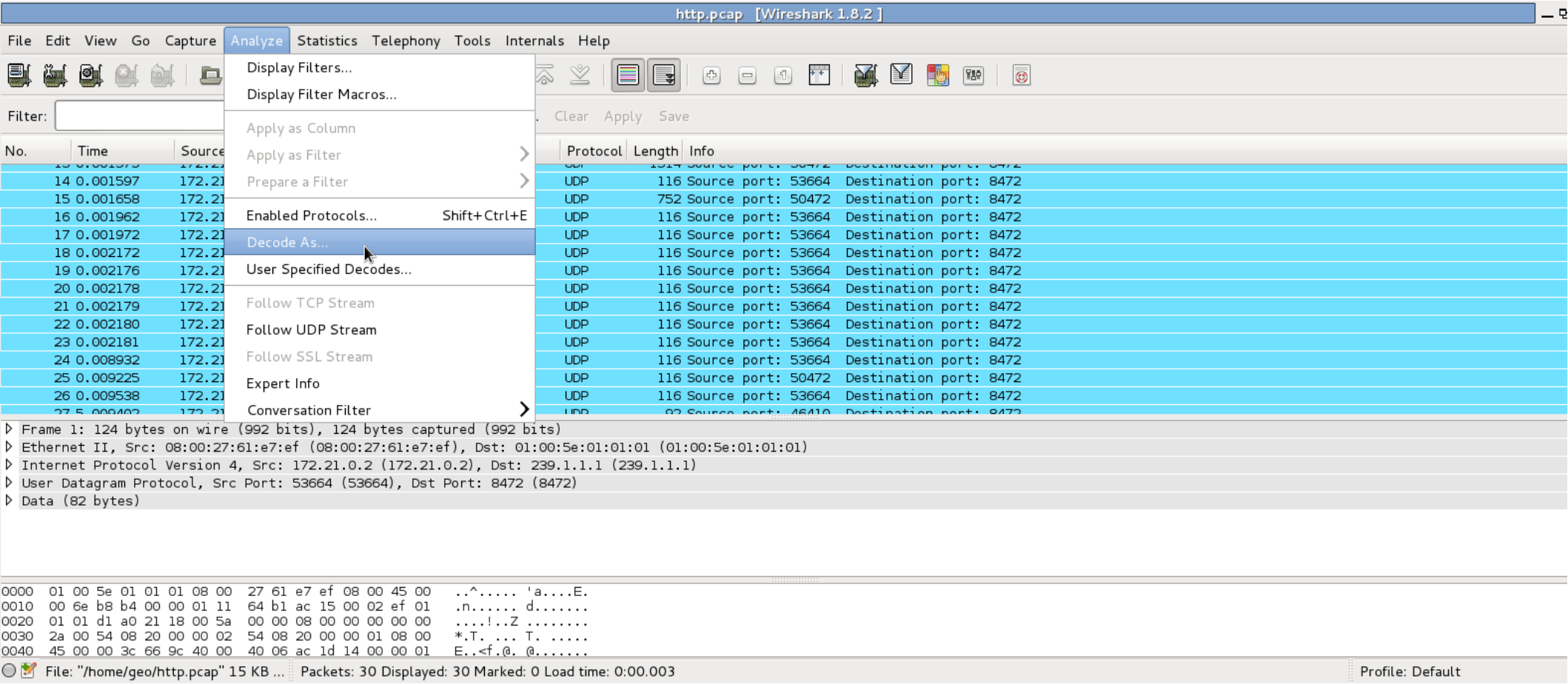

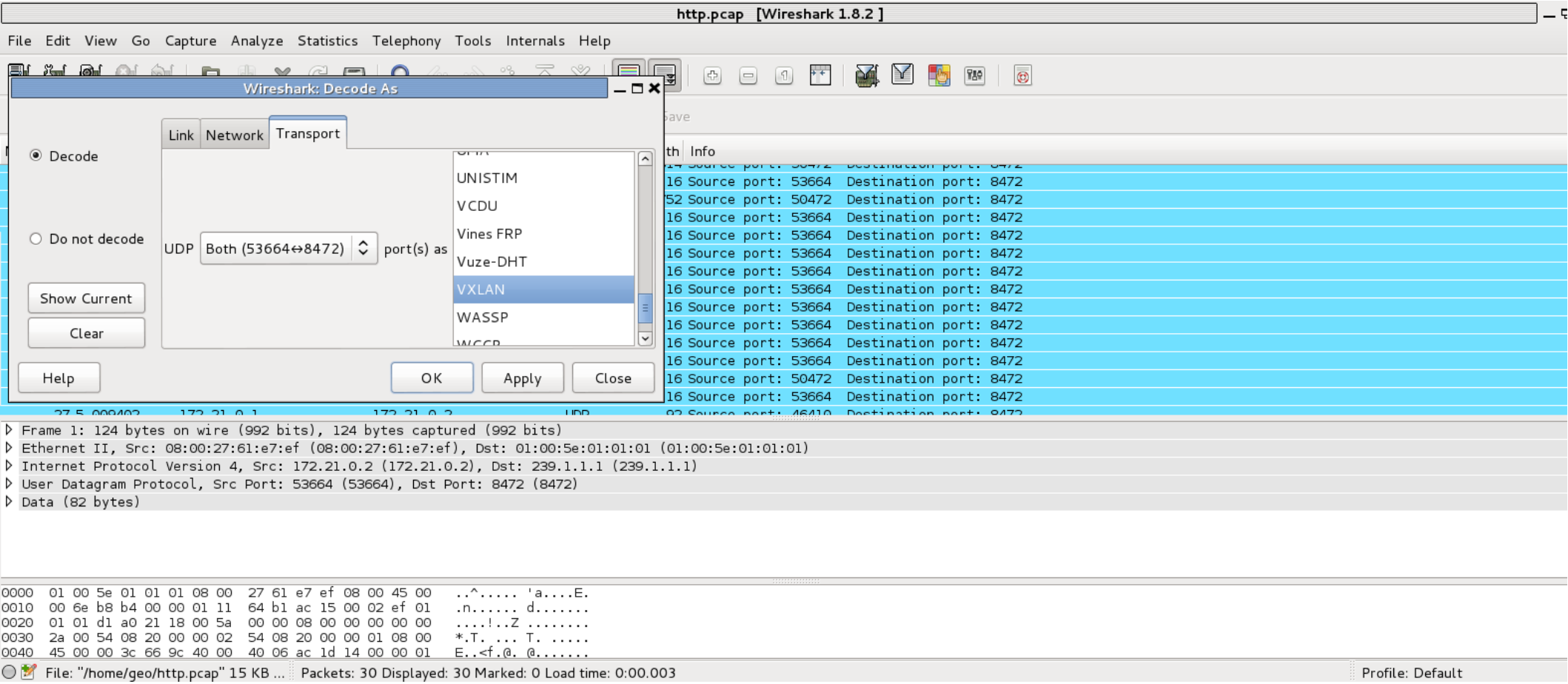

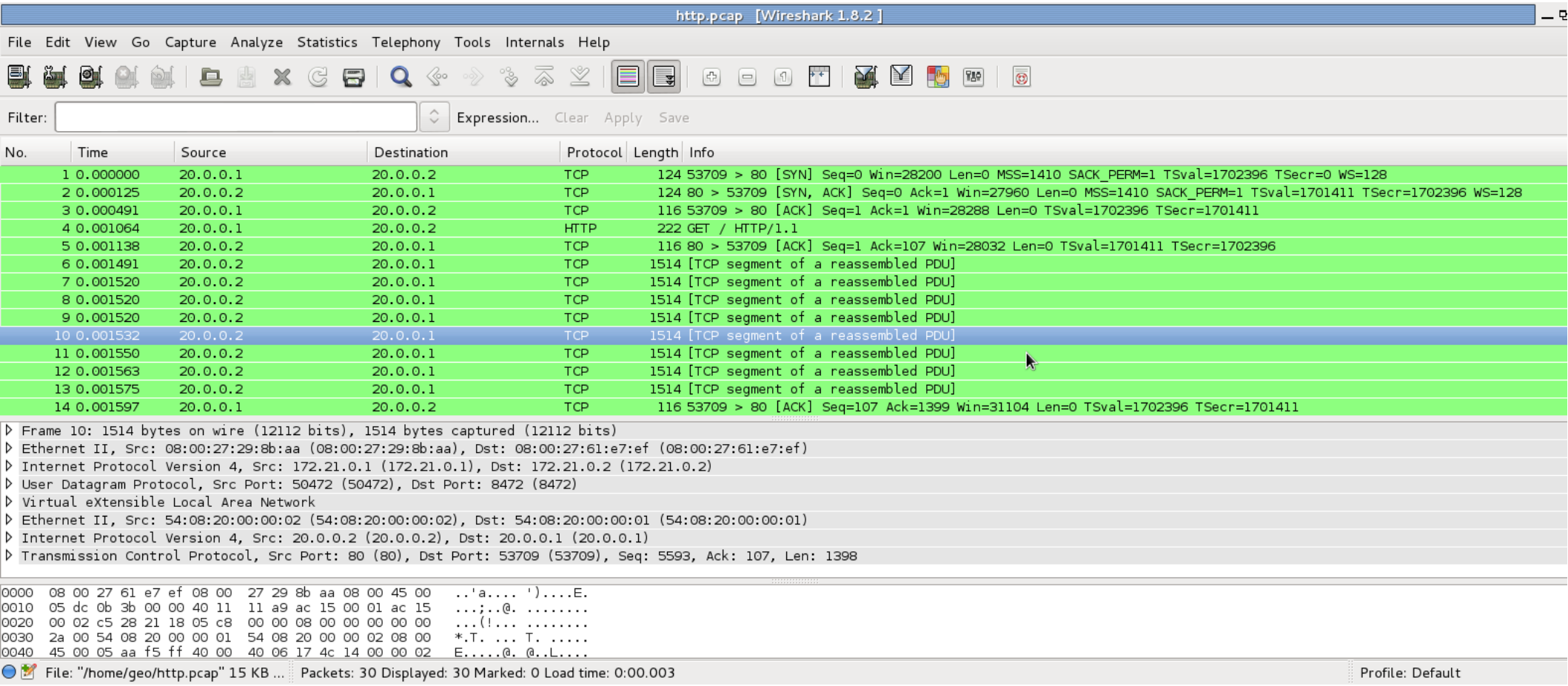

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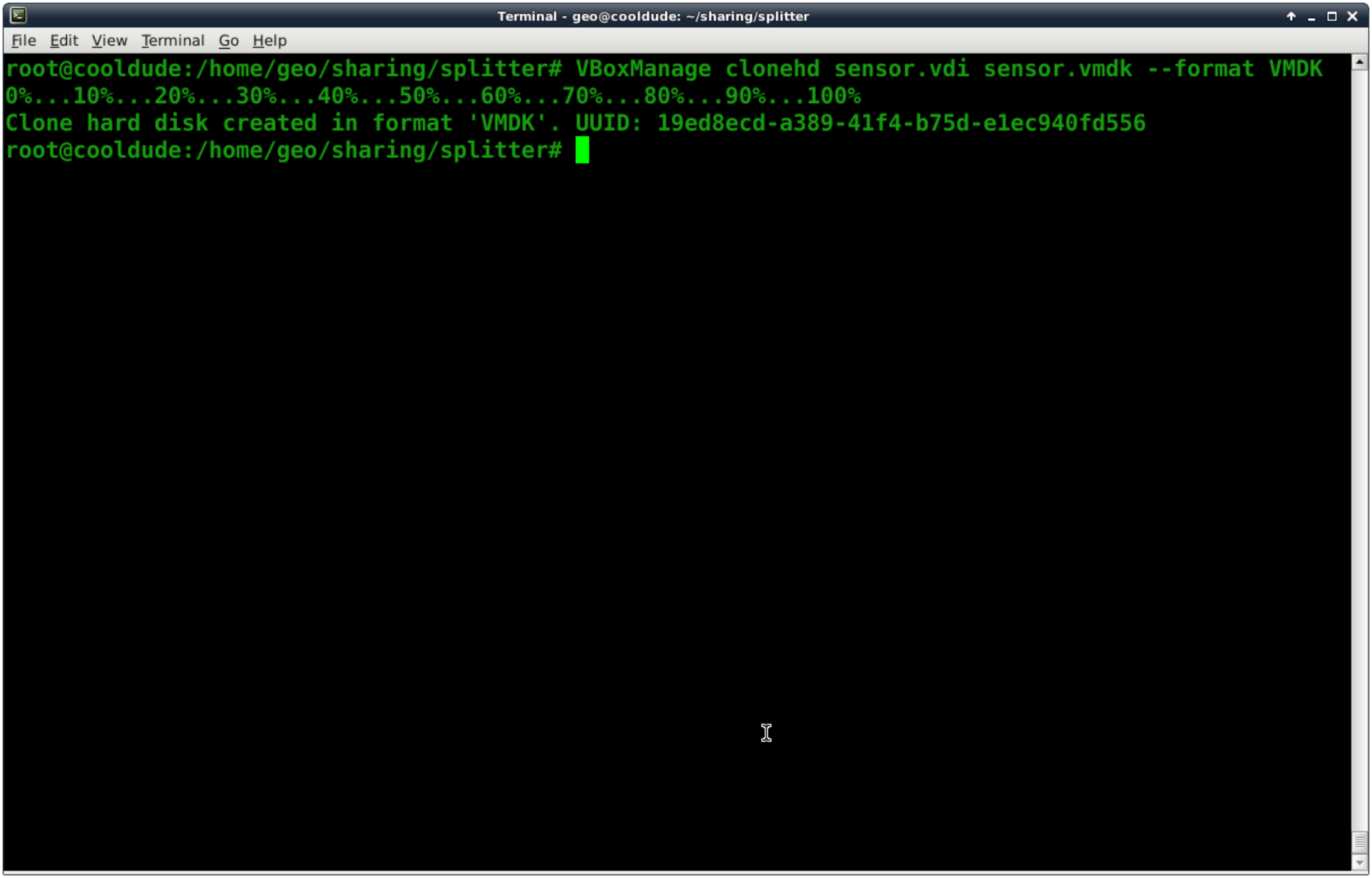
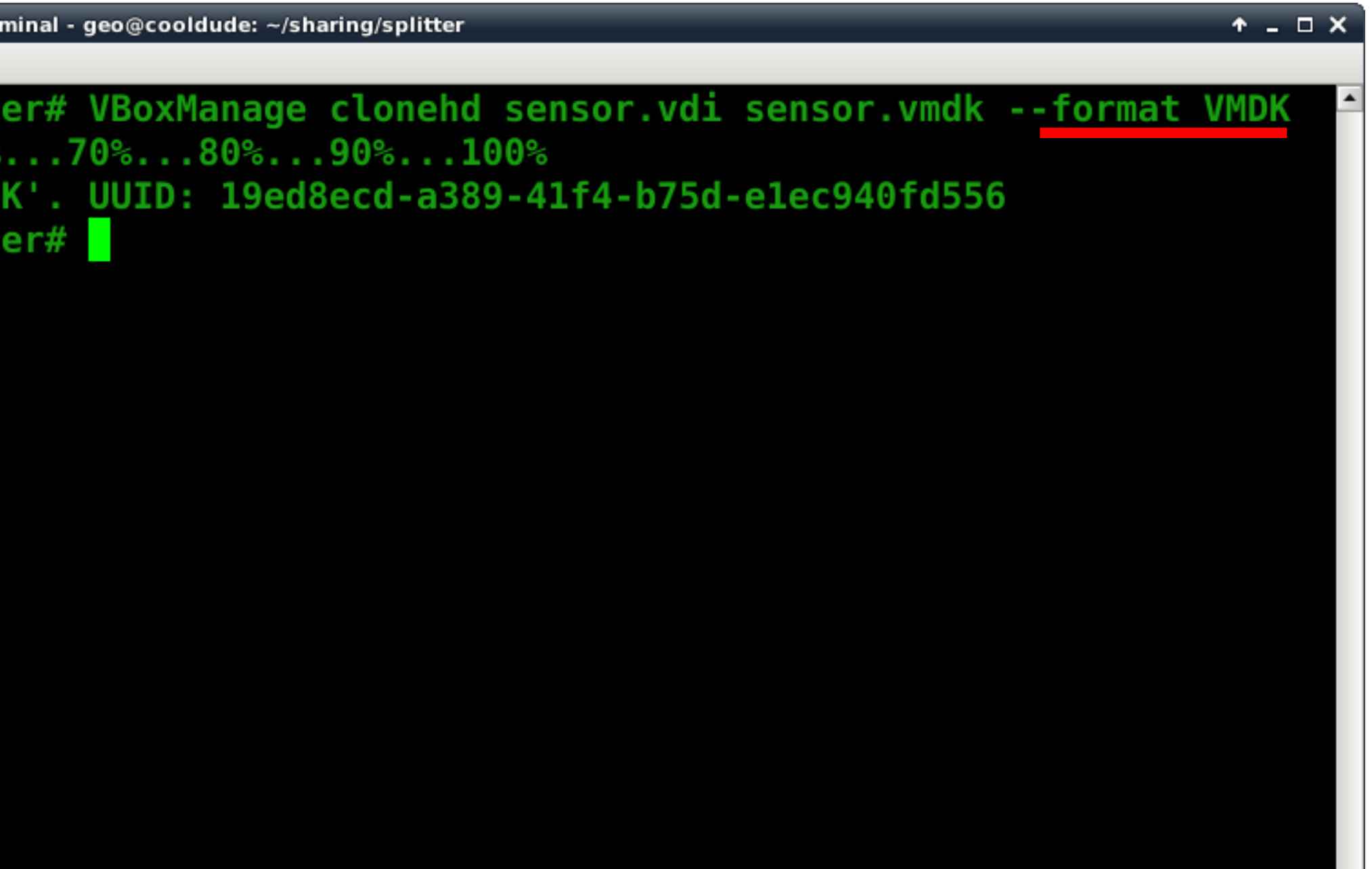
Virtual Sensors

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er# VBoxManage clonehd sensor.vdi sensor.vmdk --format VMDK
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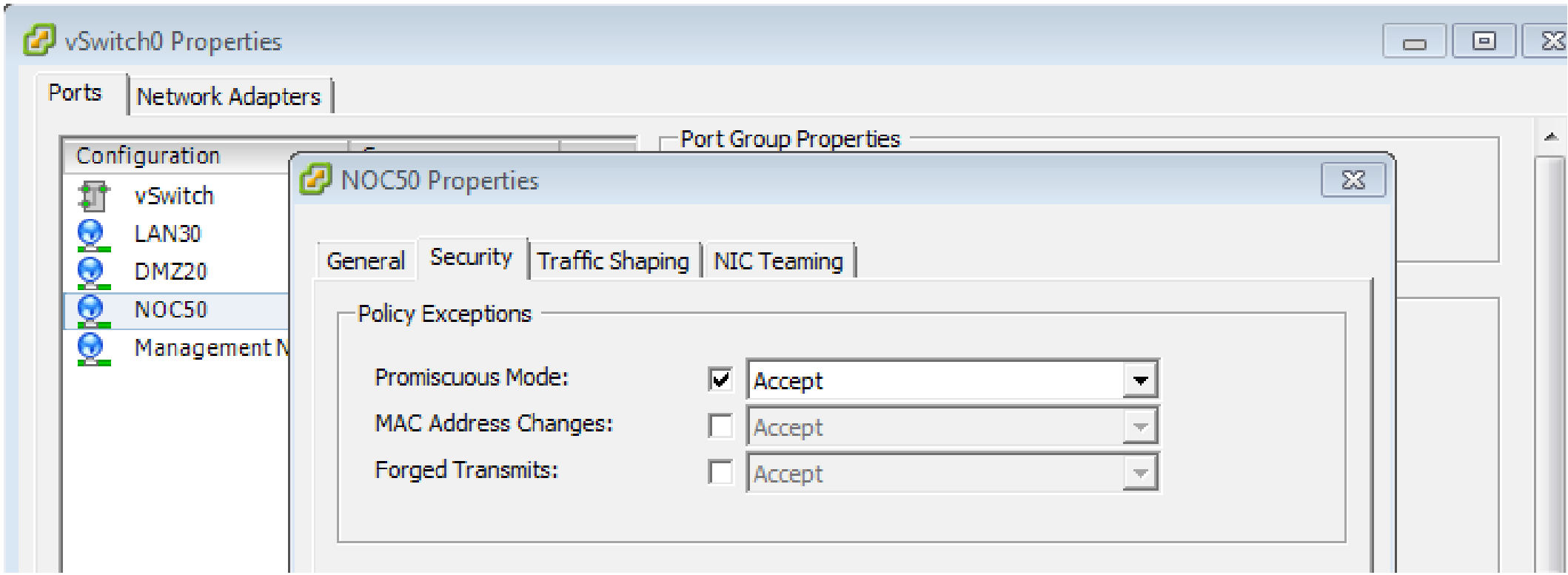
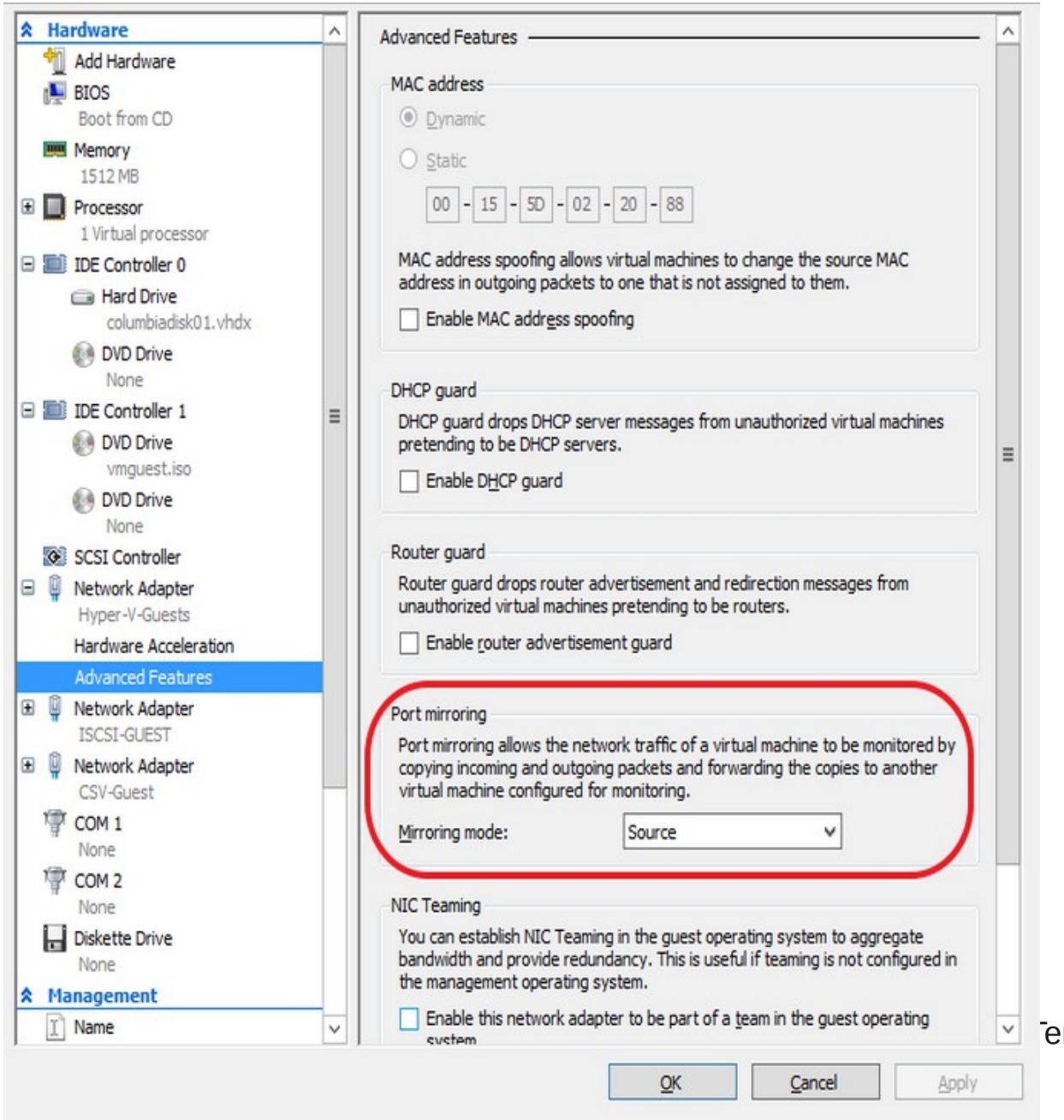
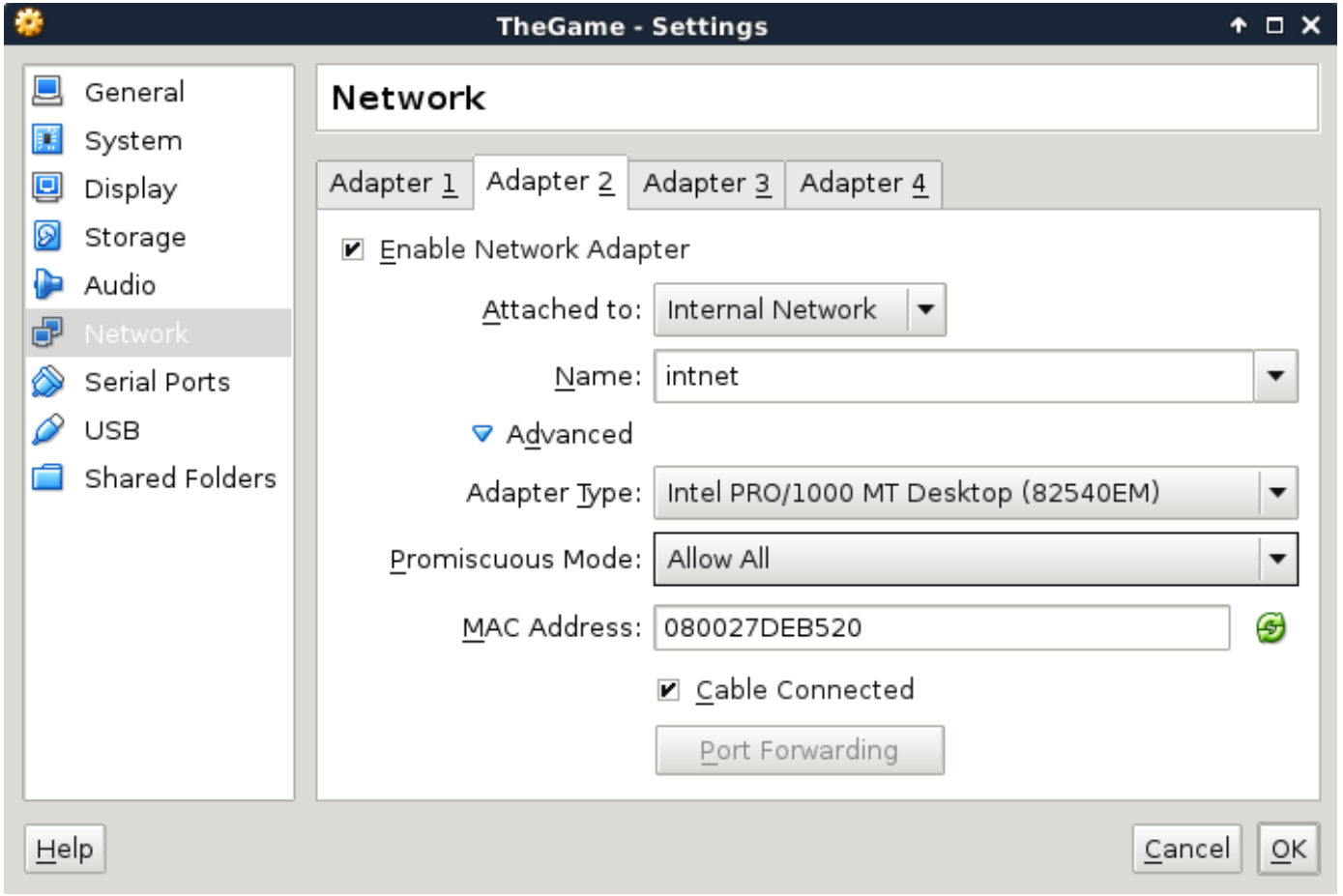
VMware Port Groups

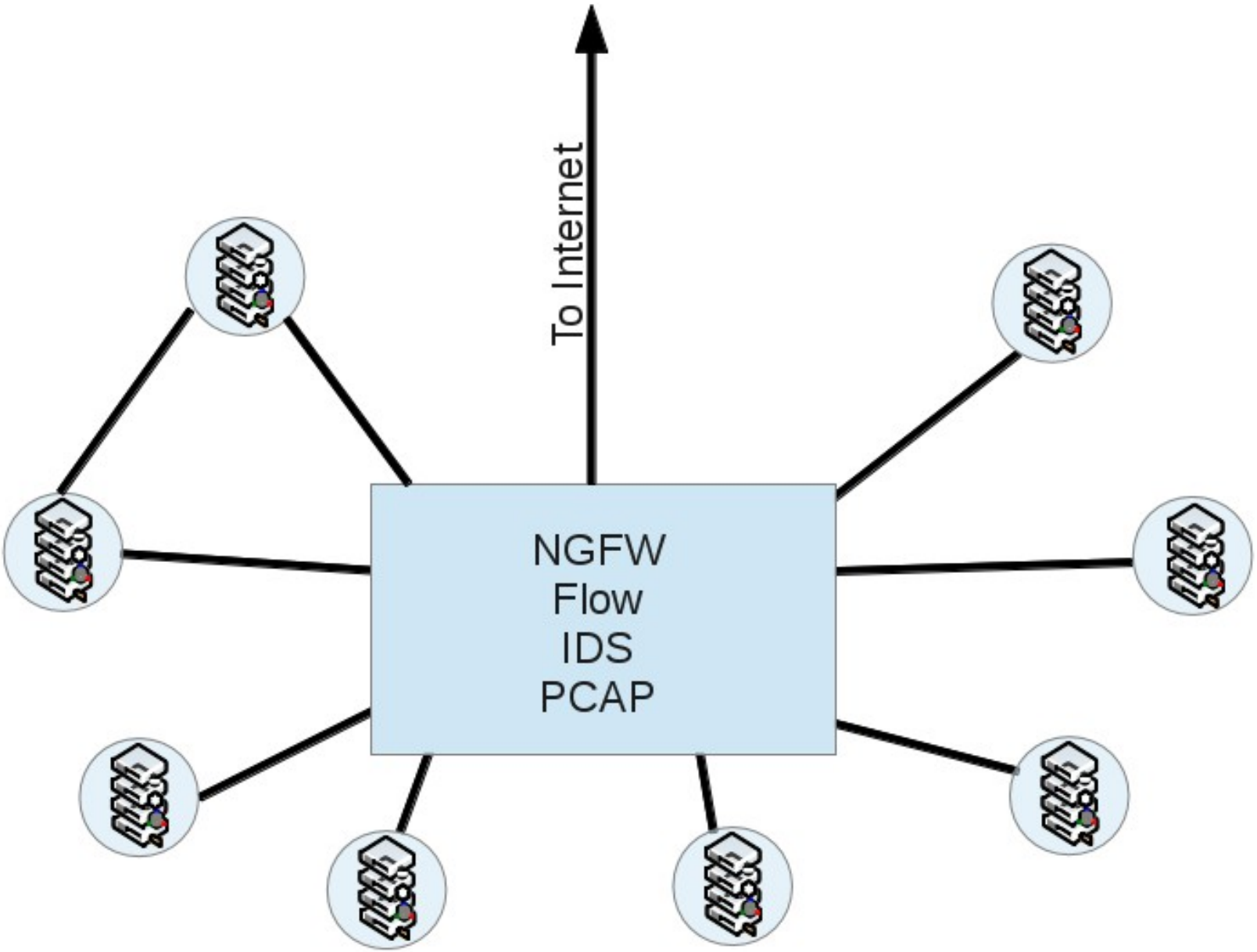


Hyper-V Port Mirroring



Vbox Promiscuous Mode

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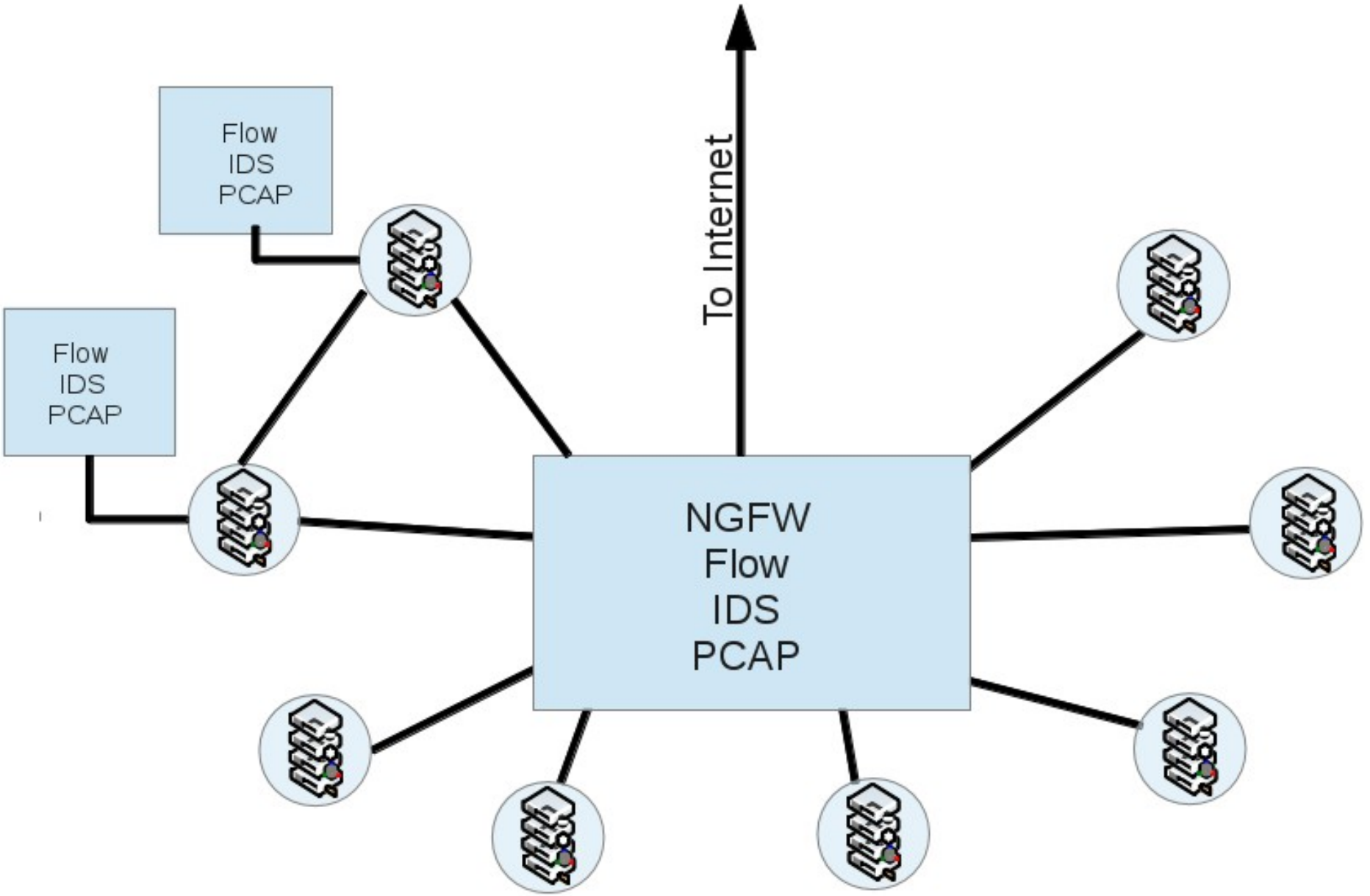
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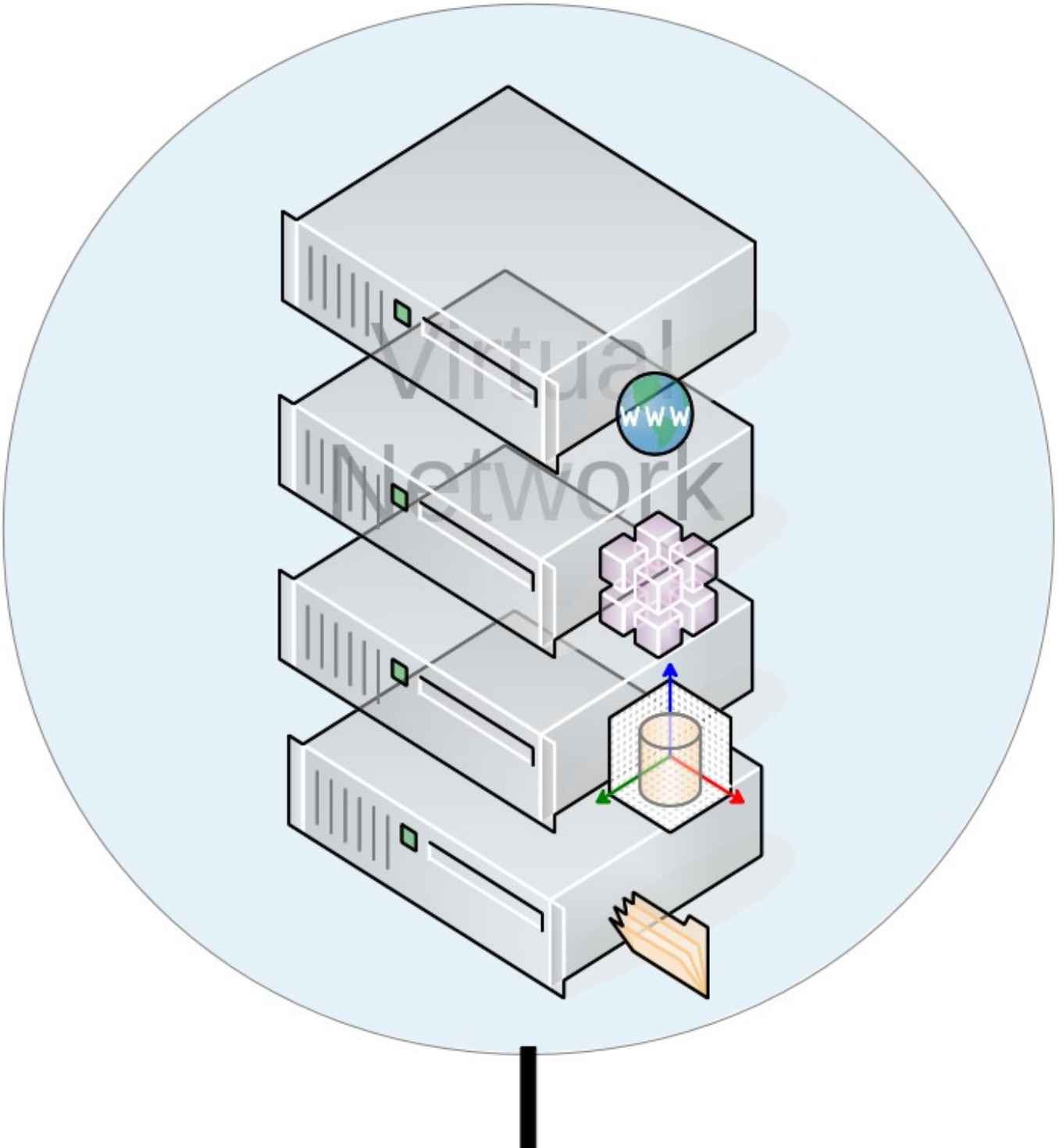
Virtual
Network
WWW

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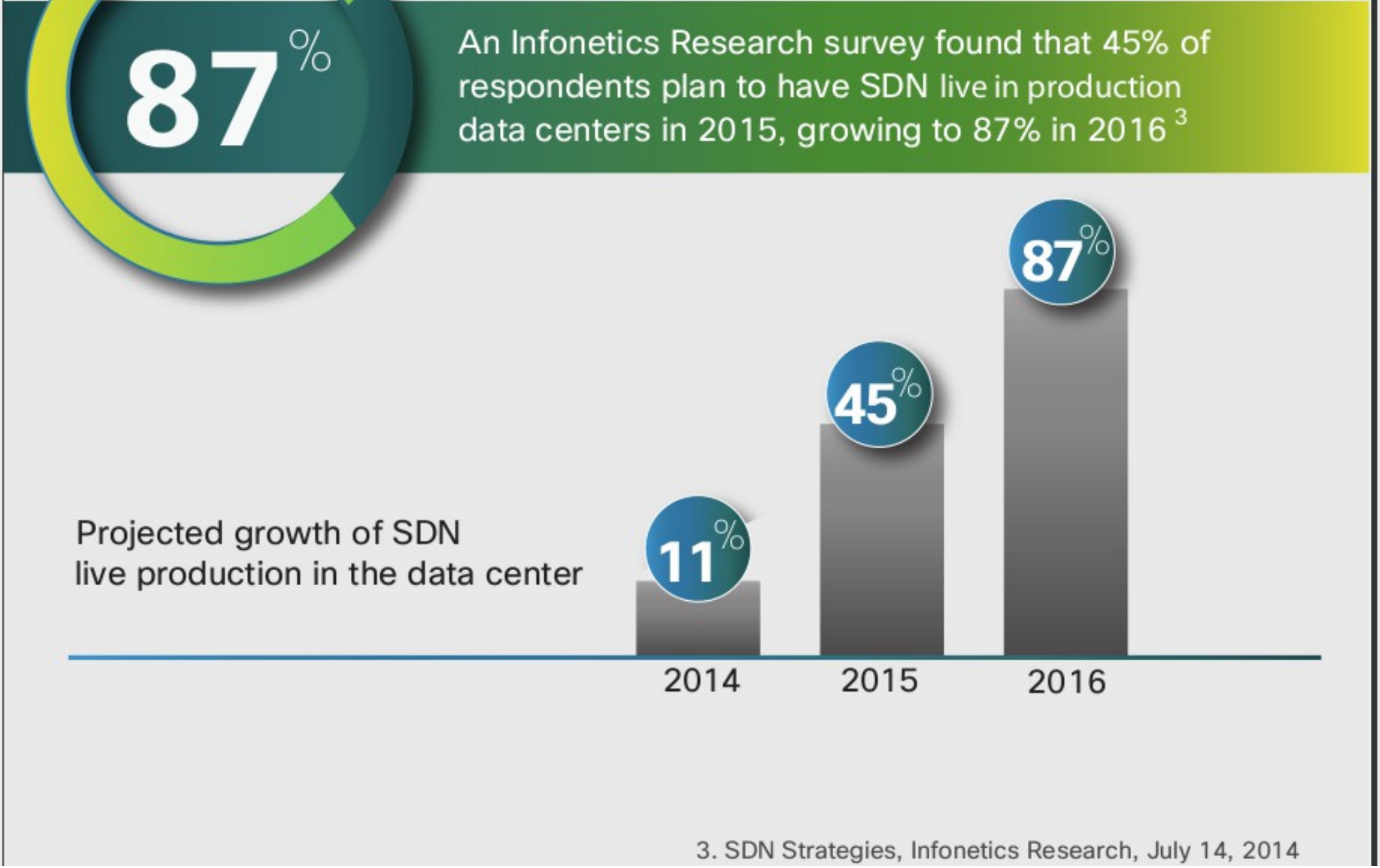
Monitoring Virtual Networks

The Future



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- Events & Training
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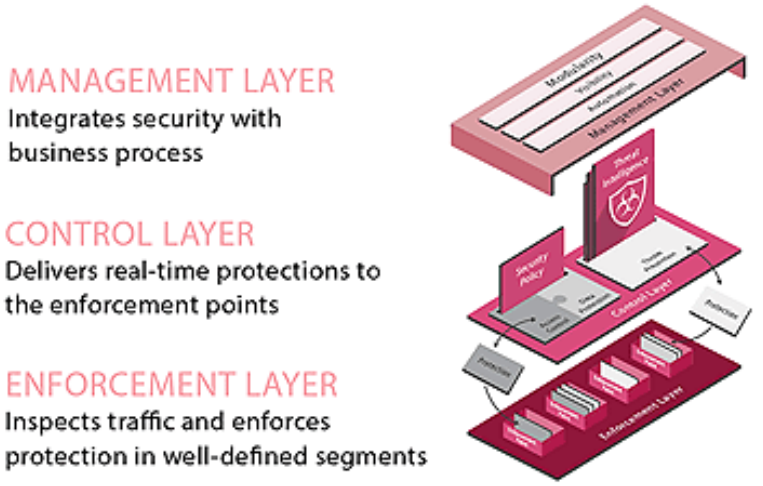
SAN CARLOS, CA - RSA Conference 2014 — Tue, 25 Feb 2014

Check Point® Software Technologies Ltd. (Nasdaq: CHKP), the worldwide leader in securing the Internet, today introduced Software-defined Protection (SDP), a revolutionary security architecture that can protect organizations in today's fast-evolving IT and threat landscape. Software-defined Protection offers modern security today that can effectively protect against tomorrow's threats, through a design that is modular, agile and most importantly, secure.

SDP is a three-layer security architecture comprised of enforcement, control and management layers. This framework decouples the control layer from the enforcement layer, enabling robust and highly-reliable enforcement points that obtain real-time protection updates from a software-based control layer. SDP converts threat intelligence into immediate protections and is managed by a modular and open management structure.

"The threat landscape has become far more sophisticated while at the same time, enterprise IT environments have grown in complexity. Enterprises are looking for advice on how they can become more



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NSX

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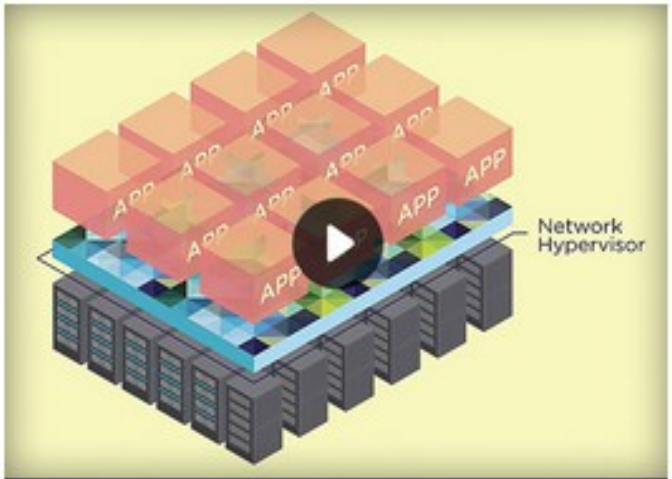
VMware NSX™ is the network virtualization platform for the Software-Defined Data Center (SDDC).

By bringing the operational model of a virtual machine to your data center network, you can transform the economics of network and security operations. NSX lets you treat your physical network as a pool of transport capacity, with network and security services attached to VMs with a policy-driven approach.



NSX technology reduces network provisioning time from days to seconds. (4:08 min)

Monitoring Virtual Networks

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