

EXHIBIT 8

UMBRA TECHNOLOGIES LTD.'S FIRST INFRINGEMENT ANALYSIS

U.S. Patent No. 11,146,632– Defendant Cisco Systems, Inc. - UMBRA Technologies Ltd. (“UMBRA”)

Claims 1-4 & 7

UMBRA Technologies Ltd. (“UMBRA”) provides evidence of infringement of claims 1-4 and 7 of U.S. Patent No. 11,146,632 (hereinafter “the ’632 patent”) by Cisco Systems, Inc. (“Cisco”). In support thereof, UMBRA provides the following claim charts.

“Accused Instrumentalities” as used herein refers to at least Cisco systems and methods, including one or more hardware and software products for network virtualization and related services, which by way of example include but are not limited to Cisco Secure Access Service Edge (SASE) (*see, e.g.*, Cisco SASE, <https://www.cisco.com/site/us/en/solutions/secure-access-service-edge-sase/index.html#tabs-9cfa4a460b-item-b8ba101fed-tab>), Cisco Software Defined-WAN (*see, e.g.*, Cisco SD-WAN, https://www.cisco.com/c/en_ph/solutions/enterprise-networks/sd-wan/index.html), Cisco Security Service Edge (SSE) (*see, e.g.*, Cisco SSE, <https://www.cisco.com/site/us/en/solutions/security-service-edge-sse/index.html#tabs-9e2187ae1d-item-8d800bd1e7-tab>), and Cisco HyperFlex Systems (Hyper Converged Infrastructure or “HCI”) (*see, e.g.*, Cisco HCI, <https://www.cisco.com/site/us/en/products/computing/hyperconverged-infrastructure/index.html#tabs-9cfa4a460b-item-b8ba101fed-tab>) and related earlier versions (the “Accused Instrumentalities”). These claim charts demonstrate Cisco’s infringement, and provide notice of such infringement, by comparing each element of the asserted claims to corresponding components, aspects, and/or features of the Accused Instrumentalities. These claim charts are not intended to constitute an expert report on infringement. These claim charts include information provided by way of example, and not by way of limitation.

The analysis set forth below is based only upon information from publicly available resources regarding the Accused Instrumentalities, as Cisco has not yet provided any non-public information. An analysis of Cisco’s (or other third parties’) technical documentation and/or software source code may assist in fully identifying all infringing features and functionality. Accordingly, UMBRA reserves the right to supplement this infringement analysis once such information is made available to UMBRA. Furthermore, UMBRA reserves the right to revise this infringement analysis, as appropriate, upon issuance of a court order construing any terms recited in the asserted claims. UMBRA provides this evidence of infringement and related analysis without the benefit of claim construction or expert reports or discovery. UMBRA reserves the right to supplement, amend or otherwise modify this analysis and/or evidence based on any such claim construction or expert reports or discovery.

UMBRA TECHNOLOGIES LTD.’S FIRST INFRINGEMENT ANALYSIS

U.S. Patent No. 11,146,632– Defendant Cisco Systems, Inc. - UMBRA Technologies Ltd. (“UMBRA”)

Claims 1-4 & 7

Unless otherwise noted, UMBRA contends that Cisco directly infringes the ’632 patent in violation of 35 U.S.C. § 271(a) by selling, offering to sell, making, using, and/or importing the Accused Instrumentalities. The following exemplary analysis demonstrates that infringement. Unless otherwise noted, UMBRA further contends that the evidence below supports a finding of indirect infringement under 35 U.S.C. §§ 271(b) and/or (c), in conjunction with other evidence of liability under one or more of those subsections. Cisco makes, uses, sells, imports, or offers for sale in the United States, or has made, used, sold, imported, or offered for sale in the past, without authority, or induces others to make, use, sell, import, or offer for sale in the United States, or has induced others to make, use, sell, import, or offer for sale in the past, without authority products, equipment, or services that infringe claims 1-4 and 7 of the ’632 patent, including without limitation, the Accused Instrumentalities.

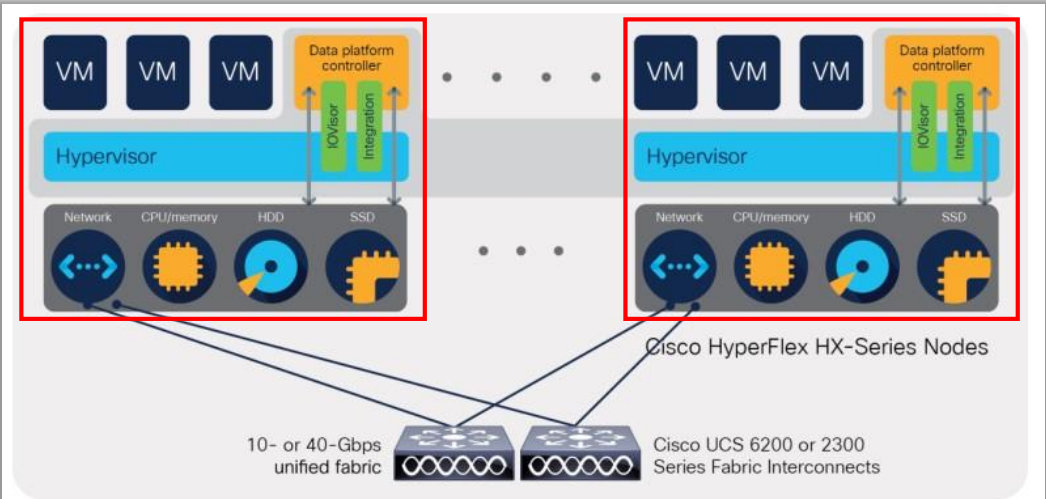
Unless otherwise noted, UMBRA believes and contends that each element of each claim asserted herein is literally met through Cisco’s provision of the Accused Instrumentalities. However, to the extent that Cisco attempts to allege that any asserted claim element is not literally met, UMBRA believes and contends that such elements are met under the doctrine of equivalents. More specifically, in its investigation and analysis of the Accused Instrumentalities, UMBRA did not identify any substantial differences between the elements of the patent claims and the corresponding features of the Accused Instrumentalities, as set forth herein. In each instance, the identified feature of the Accused Instrumentalities performs at least substantially the same function in substantially the same way to achieve substantially the same result as the corresponding claim element.

To the extent the chart of an asserted claim relies on evidence about certain specifically identified Accused Instrumentalities, UMBRA asserts that, on information and belief, any similarly functioning instrumentalities also infringes the charted claim. UMBRA reserves the right to amend this infringement analysis based on other products made, used, sold, imported, or offered for sale by Cisco. UMBRA also reserves the right to amend this infringement analysis by citing other claims of the ’632 patent, not listed in the claim chart, that are infringed by the Accused Instrumentalities. UMBRA further reserves the right to amend this infringement analysis by adding, subtracting, or otherwise modifying content in the “Accused Instrumentalities” column of each chart.

UMBRA TECHNOLOGIES LTD.’S FIRST INFRINGEMENT ANALYSIS

U.S. Patent No. 11,146,632– Defendant Cisco Systems, Inc. - UMBRA Technologies Ltd. (“UMBRA”)

Claims 1-4 & 7

Claim #1	Accused Instrumentalities
Indep.Cl. 1 1-p 1. A network system for providing data beacons, comprising:	“In Cisco HyperFlex Systems, the data platform spans three or more Cisco HyperFlex HX-Series nodes to create a highly available cluster. Each node includes an HX Data Platform controller that implements the scale-out and distributed file system using internal flash-based SSDs, NVMe storage, or a combination of flash-based SSDs and high-capacity HDDs to store data.” “The HX Data Platform controller handles all read and write requests for volumes that the hypervisor accesses and thus intermediates all I/O from the virtual machines and containers. ... the HX Data Platform is designed to exploit low network latencies and parallelism...”, i.e., Cisco HyperFlex HX-Series nodes in a Cisco HyperFlex System are a network system for providing data beacons.  Figure 2. Distributed Cisco HyperFlex cluster

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Claims 1-4 & 7

1-p Cont.	<u>In Cisco HyperFlex Systems, the data platform spans three or more Cisco HyperFlex HX-Series nodes to create a highly available cluster. Each node includes an HX Data Platform controller that implements the scale-out and distributed file system using internal flash-based SSDs, NVMe storage, or a combination of flash-based SSDs and high-capacity HDDs to store data.</u> Source: Cisco HyperFlex Systems white Paper, p.7 https://docplayer.net/51839424-Cisco-hyperflex-systems.html_ (annotations added) <u>The HX Data Platform controller handles all read and write requests for volumes that the hypervisor accesses and thus intermediates all I/O from the virtual machines and containers. Recognizing the importance of data distribution, the HX Data Platform is designed to exploit low network latencies and parallelism, in contrast to other approaches that build on node-local affinity and can easily cause data hotspots.</u> Source: Cisco HyperFlex Systems Solution Overview, p.14 (pdf p.21) https://www.cisco.com/c/en/us/products/collateral/hyperconverged-infrastructure/hyperflex-hx-series/solution-overview-c22-744674.html_ (annotations added)
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UMBRA TECHNOLOGIES LTD.'S FIRST INFRINGEMENT ANALYSIS

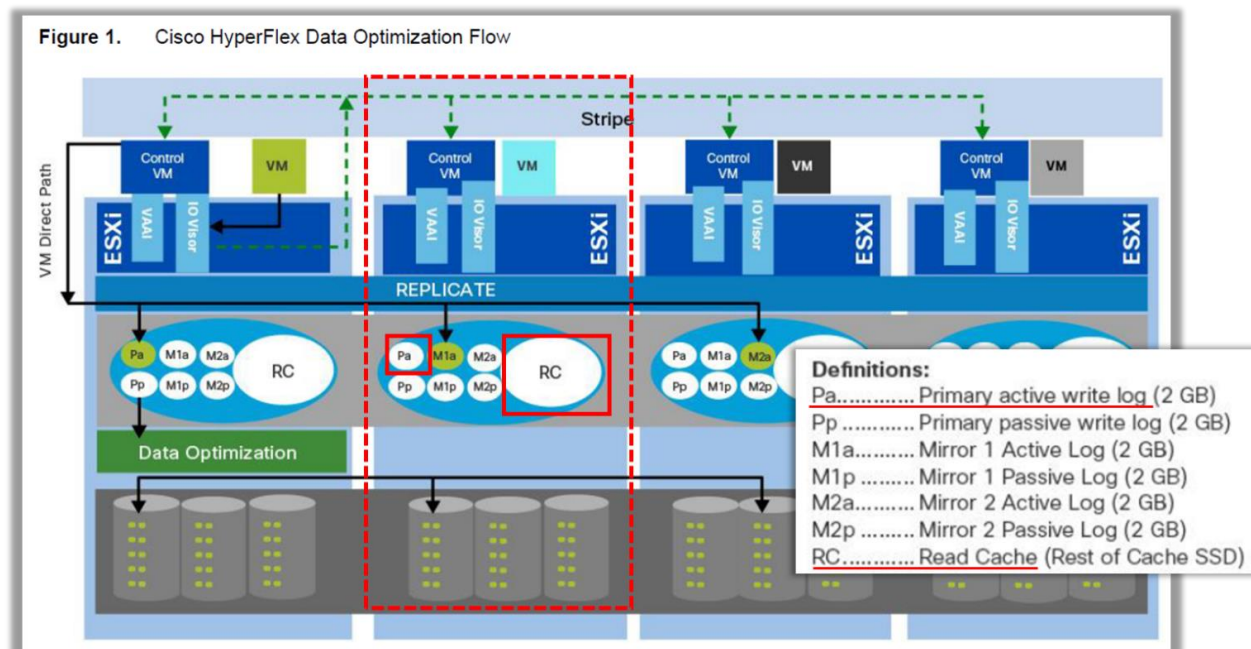
U.S. Patent No. 11,146,632– Defendant Cisco Systems, Inc. - UMBRA Technologies Ltd. (“UMBRA”)

Claims 1-4 & 7

1-a
a first node
comprising a first
read queue, a first
write queue, and a
first parallel file
system;

“As shown in Figure 1, the IO Visor intercepts workload traffic and stripes the block across available nodes in the cluster. The data then bypasses the hypervisor using VMDirectPath and is cached on the larger cache disk in one of the dedicated partitions. Replication across nodes takes place at this layer.”

“The data platform implements a log-structured file system that uses a caching layer in the SSDs to accelerate read requests and write responses.” i.e., Figure 1 shows a first node in the dashed red lines comprising an “RC Read Cache” queue, a “Pa Primary active write log” queue and a first “caching layer SSD” parallel file system.



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Claims 1-4 & 7

1-a
Cont.

As shown in Figure 1, the IO Visor intercepts workload traffic and stripes the block across available nodes in the cluster. The data then bypasses the hypervisor using VMDirectPath and is cached on the larger cache disk in one of the dedicated partitions. Replication across nodes takes place at this layer. Write blocks continue to be written to write logs until they are full, at which time they are marked as passive and destaged to disk. Data optimization processes such as deduplication and compression occur when the data is destaged from the cache and before it is written to disks.

The data platform implements a log-structured file system that uses a caching layer in the SSDs to accelerate read requests and write responses, and a persistence layer implemented with HDDs for capacity. The log-structured layer replicates incoming data to one or more SSDs located in different nodes before the write operation is acknowledged to the application. This process allows incoming write operations to be acknowledged quickly while protecting data from SSD or node failures. If an SSD or node fails, the replica is quickly re-created on other SSDs or nodes using the available copies of the data.

Source: Cisco HyperFlex Systems white Paper, p.9 <https://docplayer.net/51839424-Cisco-hyperflex-systems.html>_ (annotations added)

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Claims 1-4 & 7

1-b
Cont.

As shown in Figure 1, the IO Visor intercepts workload traffic and stripes the block across available nodes in the cluster. The data then bypasses the hypervisor using VMDirectPath and is cached on the larger cache disk in one of the dedicated partitions. Replication across nodes takes place at this layer. Write blocks continue to be written to write logs until they are full, at which time they are marked as passive and destaged to disk. Data optimization processes such as deduplication and compression occur when the data is destaged from the cache and before it is written to disks.

The data platform implements a log-structured file system that uses a caching layer in the SSDs to accelerate read requests and write responses, and a persistence layer implemented with HDDs for capacity. The log-structured layer replicates incoming data to one or more SSDs located in different nodes before the write operation is acknowledged to the application. This process allows incoming write operations to be acknowledged quickly while protecting data from SSD or node failures. If an SSD or node fails, the replica is quickly re-created on other SSDs or nodes using the available copies of the data.

Id. at 9. (annotations added)

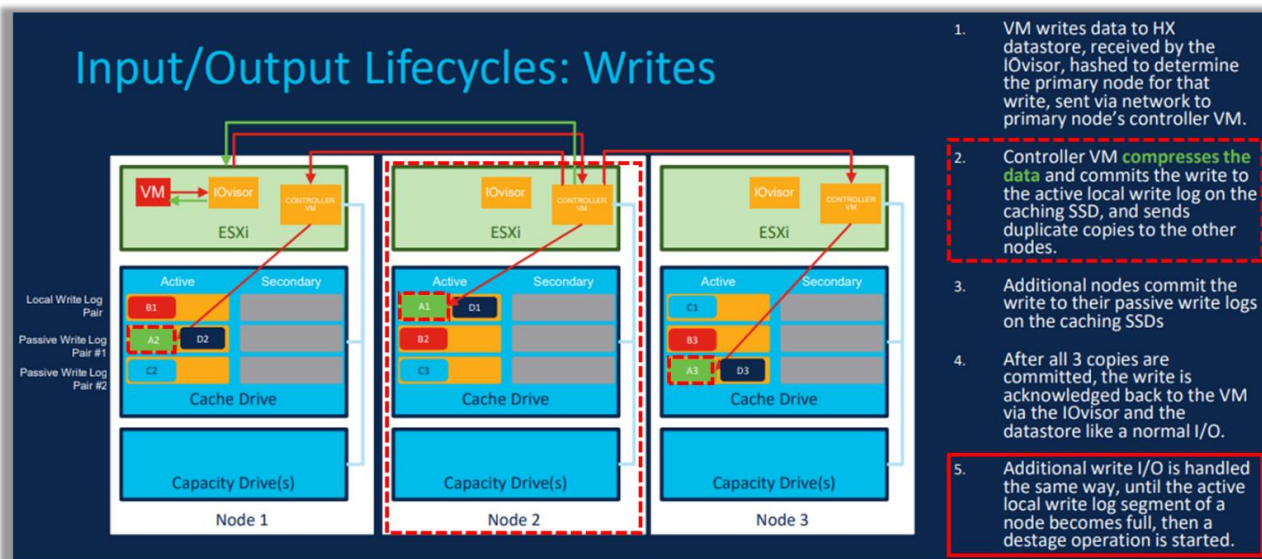
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Claims 1-4 & 7

1-c
wherein the first
node writes first data
from the first write
queue to the second
parallel file system;
and

In the example below, “[Node2] commits the write to the active local write log on the caching SSD [A1] and sends duplicate copies to the other nodes.”, e.g., “[A2] on Node 1”, i.e. the first node writes first data from the first write queue to the second parallel file system.



Source: Introduction to Hyperconverged, p.27

<https://www.ciscolive.com/c/dam/r/ciscolive/apjc/docs/2020/pdf/BRKCOM-1110.pdf> (annotations added)

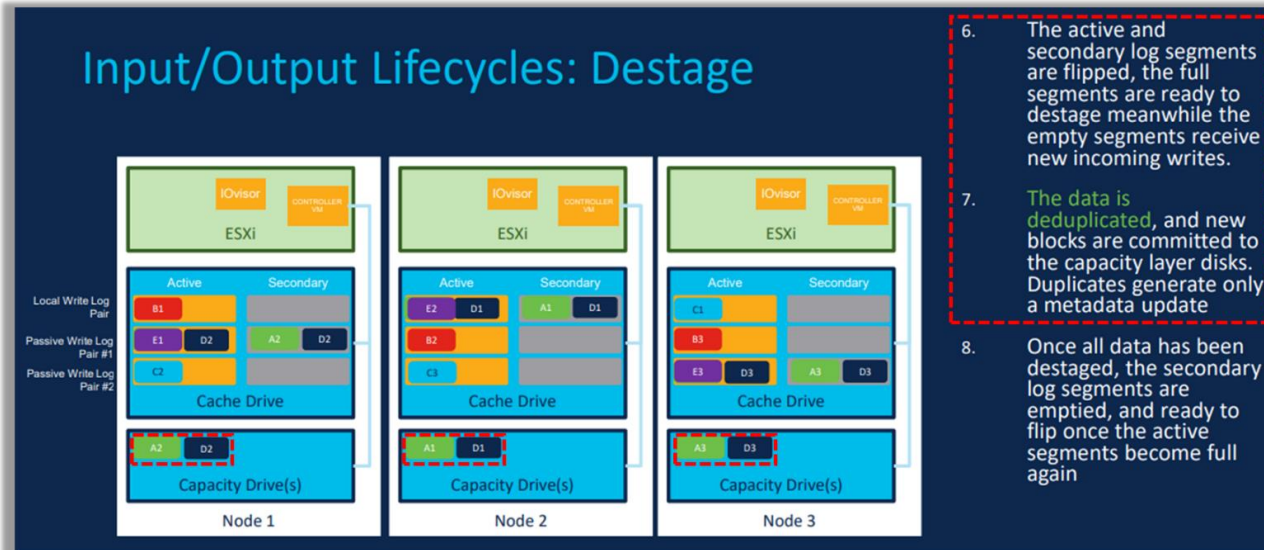
Comment: When write operations are performed in the HyperFlex system, the data is initially written to the active write log, which is a high-speed, non-persistent storage layer. The active write log serves as a temporary buffer for incoming writes and provides low-latency and high-performance data storage. The destaging process occurs periodically or when specific conditions are met, such as reaching a certain threshold of data in the active write log or during system maintenance tasks. During destaging, the data stored in the active write log is transferred or “destaged” to the persistent storage tier, which typically consists of SSDs in the HyperFlex cluster. The figure below depicts the destaging step.

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Claims 1-4 & 7

1-c
Cont.



Source: Introduction to Hyperconverged, p.28

<https://www.ciscolive.com/c/dam/r/ciscolive/apjc/docs/2020/pdf/BRKCOM-1110.pdf>_ (annotations added)

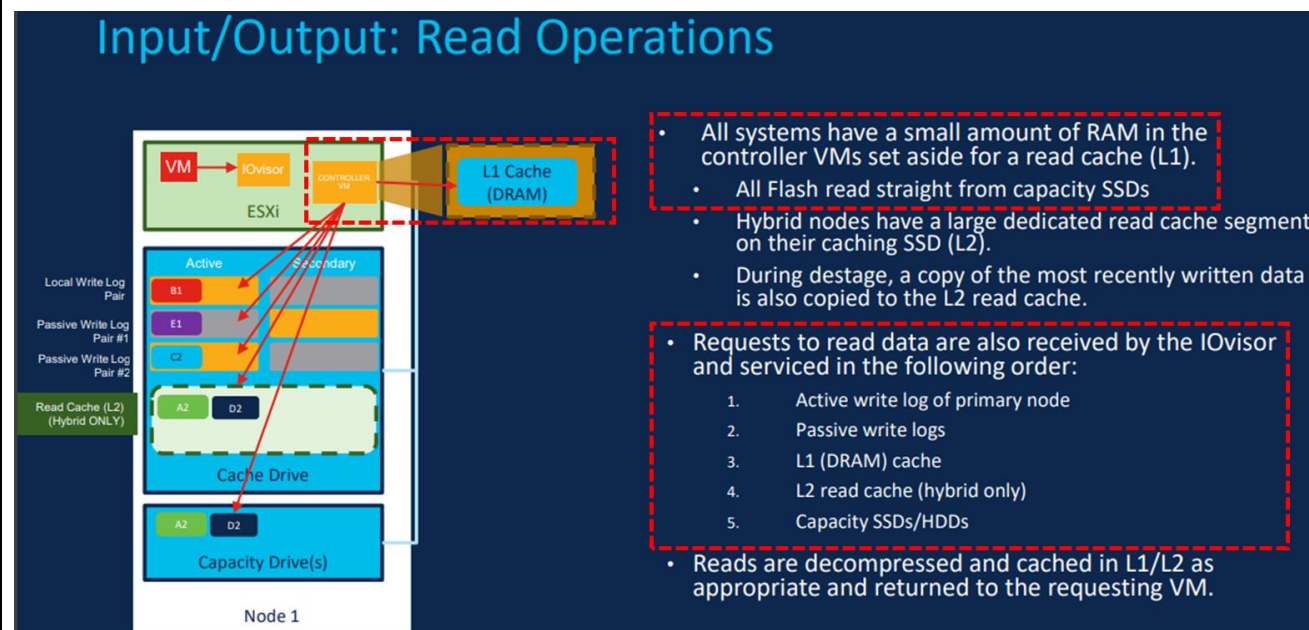
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Claims 1-4 & 7

1-d
wherein the second node reads the first data from the second parallel file system and places the first data in the second read queue.

NOTE: “Node 1” reads data from the “Cache Drive” or “Capacity Drive” and places it in the “read cache (L1)”, i.e., the second node reads the first data from the second parallel file system and places the first data in the second read queue.



Source: Introduction to Hyperconverged, p.29

<https://www.ciscolive.com/c/dam/r/ciscolive/apjc/docs/2020/pdf/BRKCOM-1110.pdf> (annotations added)

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Claims 1-4 & 7

1-d,
Cont.

See also: <https://www.cisco.com/c/en/us/products/collateral/hyperconverged-infrastructure/hyperflex-hx-series/solution-overview-c22-744674.html>

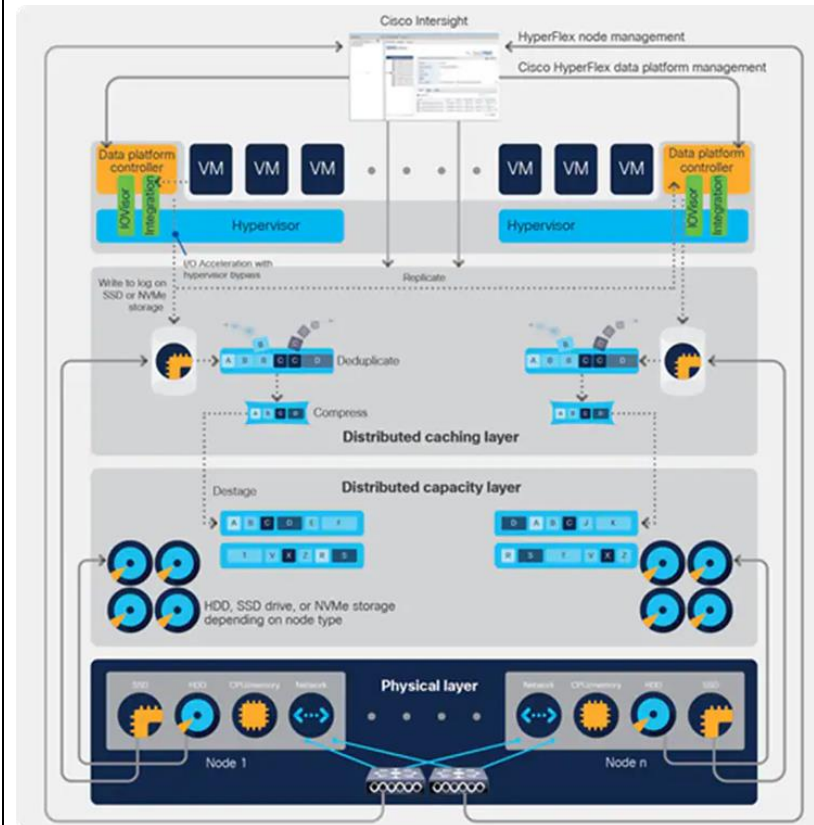


Figure 6. Data write flow through the Cisco HyperFlex HX Data Platform

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Claims 1-4 & 7

1-d,
Cont.

Enterprise-class storage features

The data platform has all the features that you would expect of an enterprise shared-storage system, eliminating the need to configure and maintain complex Fibre Channel storage networks and devices. The platform simplifies operations and helps ensure data availability.

Id. at Figure 6.

NOTE: The “Data platform controller” is involved with each of the handle operations of the “Distributed Caching Layer” and the “Distributed Capacity Layer.”

UMBRA TECHNOLOGIES LTD.'S FIRST INFRINGEMENT ANALYSIS

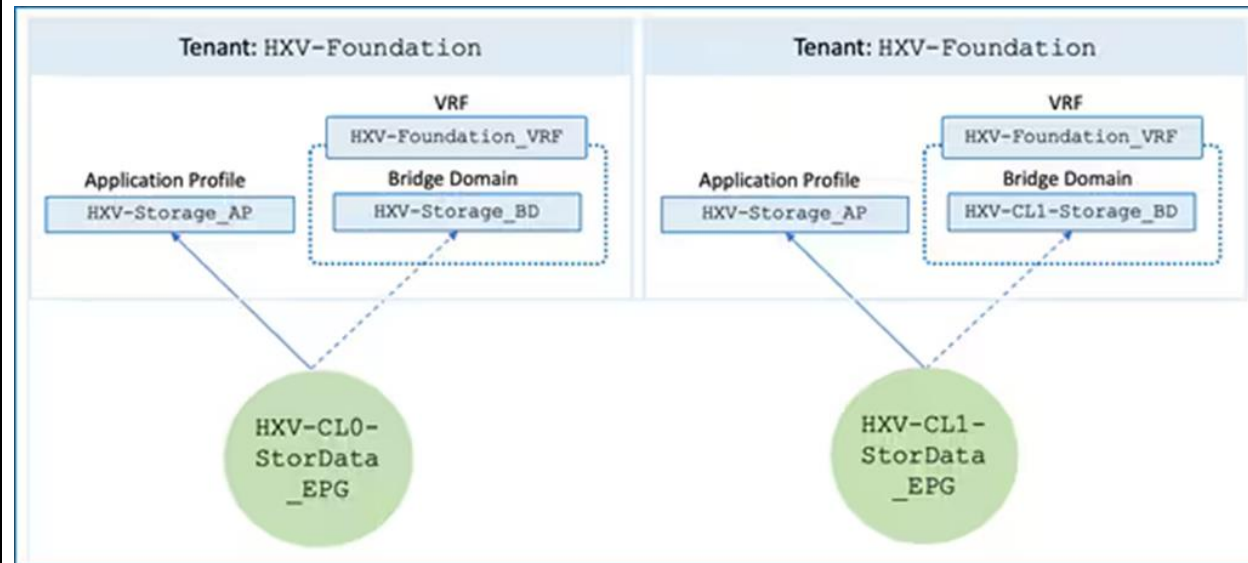
U.S. Patent No. 11,146,632– Defendant Cisco Systems, Inc. - UMBRA Technologies Ltd. (“UMBRA”)

Claims 1-4 & 7

1-d,
Cont.

Also see:

https://www.cisco.com/c/en/us/td/docs/unified_computing/ucs/UCS_CVDs/hx_35_vsi_aci_multipod_design.html



Source:

https://www.cisco.com/c/dam/en/us/td/docs/unified_computing/ucs/UCS_CVDs/hx_35_vsi_aci_multipod_design.docx/_jcr_content/renditions/hx_35_vsi_aci_multipod_design_22.png

Figure 19 **ACI Constructs for Storage Data EPGs for HyperFlex Standard and Stretched Clusters**

UMBRA TECHNOLOGIES LTD.’S FIRST INFRINGEMENT ANALYSIS

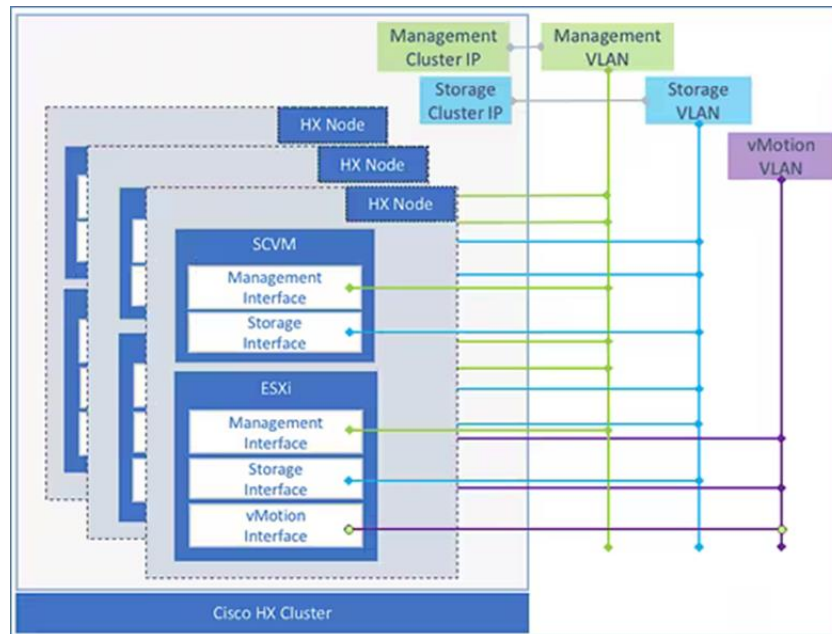
U.S. Patent No. 11,146,632– Defendant Cisco Systems, Inc. - UMBRA Technologies Ltd. (“UMBRA”)

Claims 1-4 & 7

1-d,
Cont.

Also see:

https://www.cisco.com/c/en/us/td/docs/unified_computing/ucs/UCS_CVDs/hx_35_vsi_aci_multipod_design.html



https://www.cisco.com/c/dam/en/us/td/docs/unified_computing/ucs/UCS_CVDs/hx_35_vsi_aci_multipod_design.docx/_jcr_content/renditions/hx_35_vsi_aci_multipod_design_38.png

Figure 35 HyperFlex Node and Cluster Level Networking

NOTE: See “Storage Cluster IP” to “Storage VLAN” and then connection to SCVM and ESXi “Storage Interfaces” on each “HX Node”.

UMBRA TECHNOLOGIES LTD.’S FIRST INFRINGEMENT ANALYSIS**U.S. Patent No. 11,146,632– Defendant Cisco Systems, Inc. - UMBRA Technologies Ltd. (“UMBRA”)****Claims 1-4 & 7**1-d,
Cont.

Also see:

https://www.cisco.com/c/en/us/td/docs/unified_computing/ucs/UCS_CVDs/hx_35_vsi_aci_multipod_design.html

Network Type	VLAN Name	VLAN	HyperFlex Networks
In-Band Management Network	hxv-inband-mgmt	118	ESXi Hypervisor & Storage Controller VM (SCVM) Management
vMotion Network	hxv-vmotion	3018	vMotion
Storage Data Network	hxv0-storage-data	3118	Storage Data Network – for Management HX cluster
Storage Data Network	hxv1-storage-data	3218	Storage Data Network – for Application HX cluster
VM Network	hxv-vm-network-1118 hxv-vm-network-1218	1118 - 1218	HX VM Network – on Management HX cluster
VM Network	hxv-vm-network-2118 hxv-vm-network-2218	2118 - 2218	HX VM Network – on Application HX cluster

Image Source:

https://www.cisco.com/c/dam/en/us/td/docs/unified_computing/ucs/UCS_CVDs/hx_35_vsi_aci_multipod_design.docx/_jcr_content/renditions/hx_35_vsi_aci_multipod_design_39.png

Figure 36 HyperFlex VLANs

The HyperFlex Installer uses the VM Network VLAN pool to create VLANs in the UCS Fabric and port-groups in vSphere. Additional VLANs can be added for VM network as needed. The VM network VLANs are initially mapped to port-groups on a VMware virtual switch but they can be migrated to an APIC-controlled VMware virtual distributed switch (vDS), Cisco AVS, or Cisco ACI Virtual Edge after the initial install. The infrastructure (4093) required for VxLAN tunneling to the APIC-controlled Cisco ACI Virtual Edge used in this design, is provisioned directly from Cisco UCS Manager, after the initial HyperFlex install.

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Claims 1-4 & 7

1-d,
Cont.

Also see:

https://www.cisco.com/c/en/us/td/docs/unified_computing/ucs/UCS_CVDs/hx_35_vsi_aci_multipod_design.html

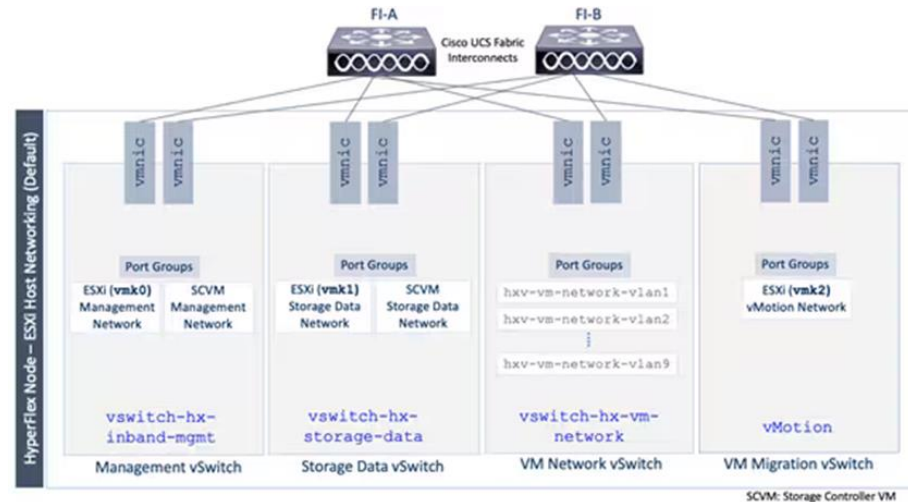


Image Source:

https://www.cisco.com/c/dam/en/us/td/docs/unified_computing/ucs/UCS_CVDs/hx_35_vsi_aci_multipod_design.docx/_jcr_content/renditions/hx_35_vsi_aci_multipod_design_40.png

Figure 37 Virtual Networking on HyperFlex Nodes – Default Setup
Virtual Networking Using VMware vSphere vSwitch

Cisco HyperFlex Installer deploys the following default virtual network design on each ESXi host in the HyperFlex cluster, this is the **default** setup.

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Cont.

Also see:

https://www.cisco.com/c/en/us/td/docs/unified_computing/ucs/UCS_CVDs/hx_35_vsi_aci_multipod_design.html

VLAN ID	HyperFlex & UCS VLAN Names	HX Server Uplinks (vNICs)	Virtual Switch	ESXi Port Groups
118	hvx-inband-mgmt	hv-mgmt-a, hv-mgmt-b	vswitch-hx-inband-mgmt	Management Network (ESXi) Storage Controller Management Network (SCVM)
3218	hxl-storage-data	storage-data-a, storage-data-b	vswitch-hx-storage-data	Storage Hypervisor Data Network (ESXi) Storage Controller Data Network (SCVM)
1118-1218	hvx-vm-network1118- hvx-vm-network1218	vm-network-a, vm-network-b	vswitch-hx-vm-network	hvx-vm-network-1118 - hvx-vm-network-1218
3018	hvx-vmotion	hv-vmotion-a, hv-vmotion-b	vMotion	vmotion-3018

Image Source:

https://www.cisco.com/c/dam/en/us/td/docs/unified_computing/ucs/UCS_CVDs/hx_35_vsi_aci_multipod_design.docx/_jcr_content/renditions/hx_35_vsi_aci_multipod_design_44.pngTable 2 **Virtual Switching on HyperFlex Nodes in Management Cluster**
andTable 3 **Virtual Switching on HyperFlex Nodes in Applications Cluster**

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U.S. Patent No. 11,146,632– Defendant Cisco Systems, Inc. - UMBRA Technologies Ltd. (“UMBRA”)

Claims 1-4 & 7

1-d,
Cont.

Also see: <https://www.cisco.com/c/dam/en/us/products/collateral/hyperconverged-infrastructure/hyperflex-hx-series/operating-hyperflex.pdf>

Image Clipped from PDF file: operating-hyperflex.pdf - on page 8 (top)

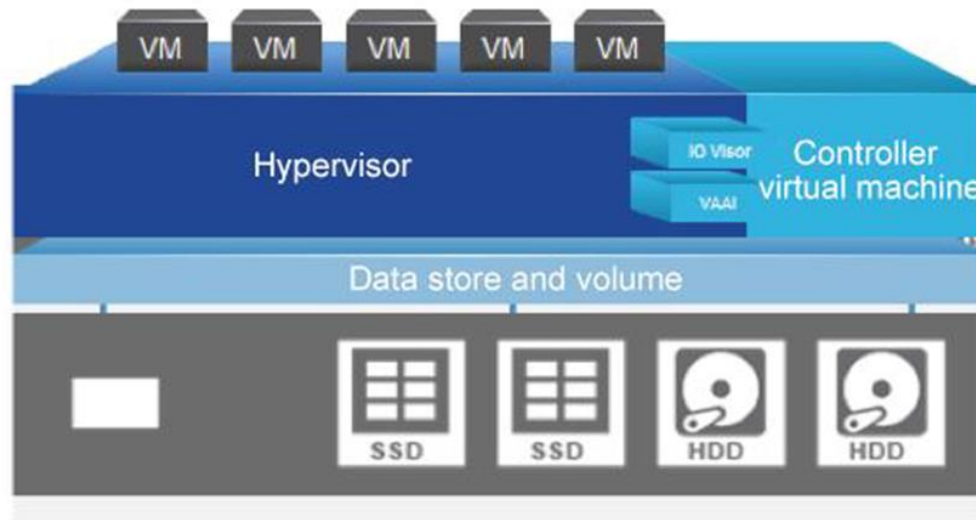


Figure 1. Typical Cisco Hyperflex HX-Series node

These nodes are incorporated into a distributed cluster using Apache ZooKeeper, as shown in Figure 2.

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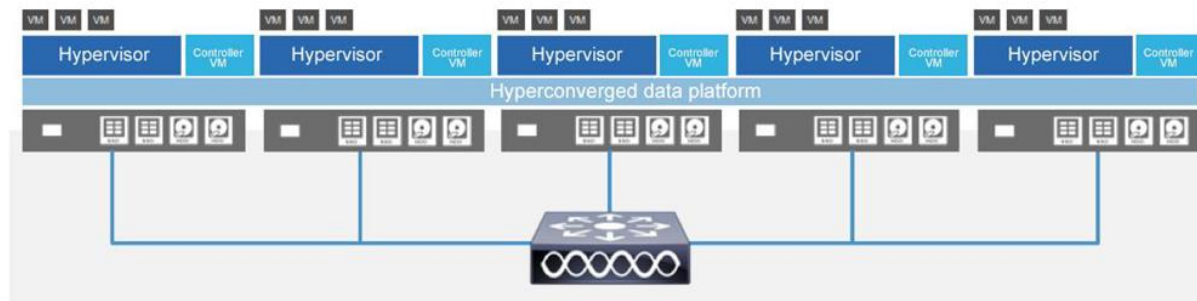


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Figure 2. **Cisco hyperflex distributed system**

Each node consists of the virtual machine NIC (VMNIC) and vSwitch architecture shown in Figure 3.

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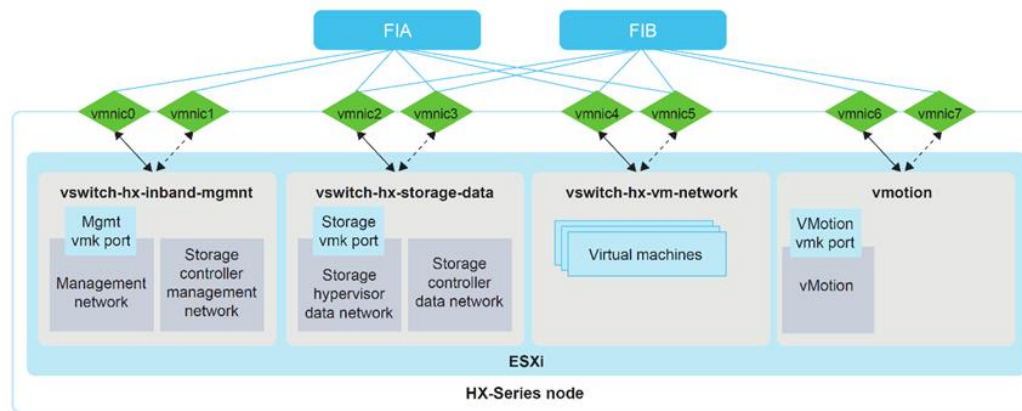


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Figure 3. Cisco Hyperflex HX-Series Node networking architecture

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Also see: <https://www.cisco.com/c/dam/en/us/products/collateral/hyperconverged-infrastructure/hyperflex-hx-series/operating-hyperflex.pdf>

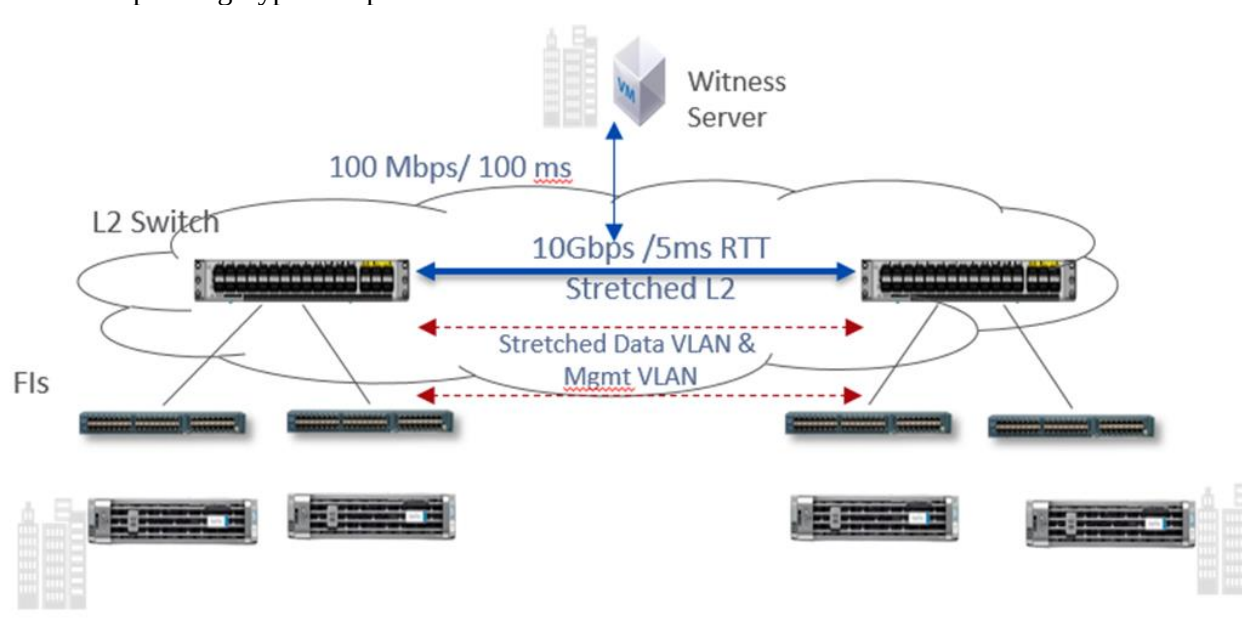


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Figure 7. **General Stretch cluster network**

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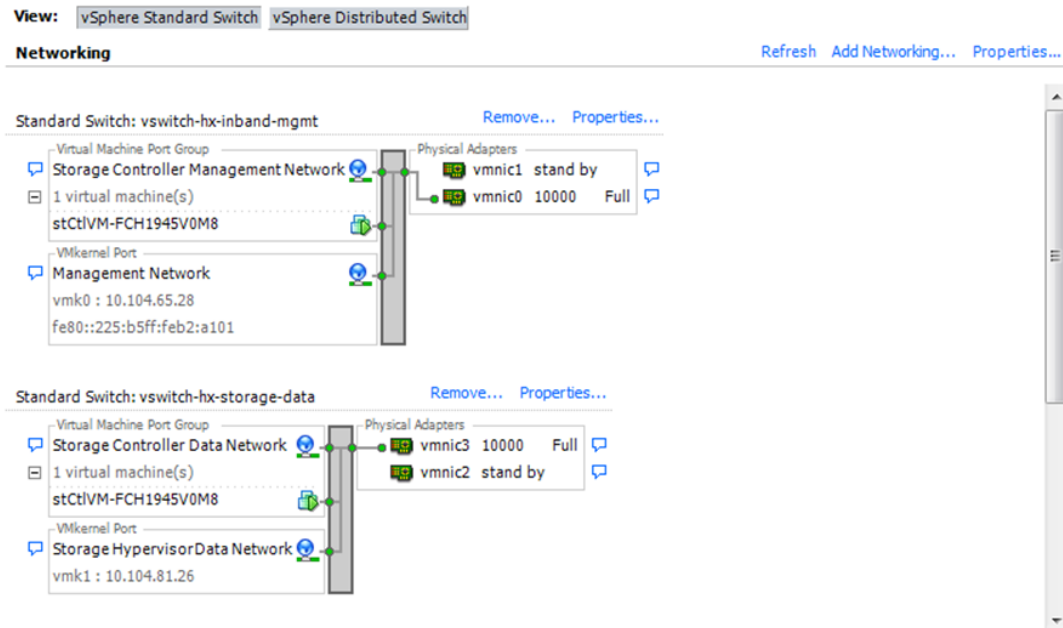


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Figure 11. Screen showing management and Cisco HyperFlex storage data networks

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1-d,
Cont.

Also see: <https://www.cisco.com/c/dam/en/us/products/collateral/hyperconverged-infrastructure/hyperflex-hx-series/operating-hyperflex.pdf>

HX Connect

The screenshot shows the 'Create Datastore' dialog box in the HX Connect interface. The dialog has fields for 'Datastore Name', 'Size' (set to 1 GB), 'Block Size' (set to 8K), and 'Site Affinity' (set to '< Site A >'). There are 'Cancel' and 'Create Datastore' buttons at the bottom of the dialog.

Below the dialog is the 'Datastores' table, which lists existing datastores. The table has columns for Name, Mount Summary, Site Affinity, Status, Size, Used, and Free. Two datastores are listed: DS1 and DS2.

	Name	Mount Summary	Site Affinity	Status	Size	Used	Free
☐	DS1	MOUNTED	Site A	Normal	100 TB	245 GB	100 TB
☐	DS2	MOUNTED	Site B	Normal	100 GB	0 B	100 GB

Showing 1 - 2 of 2

Image Clipped from PDF file: operating-hyperflex.pdf - on page 39 (top)

Figure 13. Data store creation and site affinity

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Claims 1-4 & 7

1-d,
Cont.

Also see: <https://www.cisco.com/c/dam/en/us/products/collateral/hyperconverged-infrastructure/hyperflex-hx-series/qos-for-hyperflex-wp.pdf>

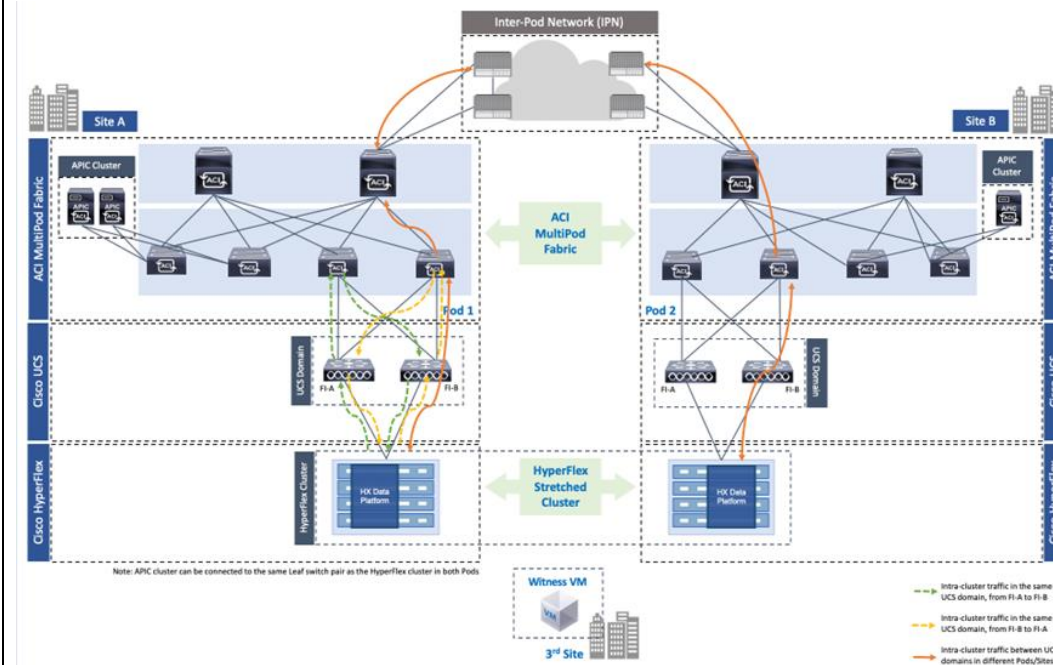


Figure 3. HyperFlex stretched cluster connected to an ACI Multi-Pod fabric

Image Clipped from PDF file: qos-for-hyperflex-wp.pdf - on page 8 (middle)

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1-d,
Cont.

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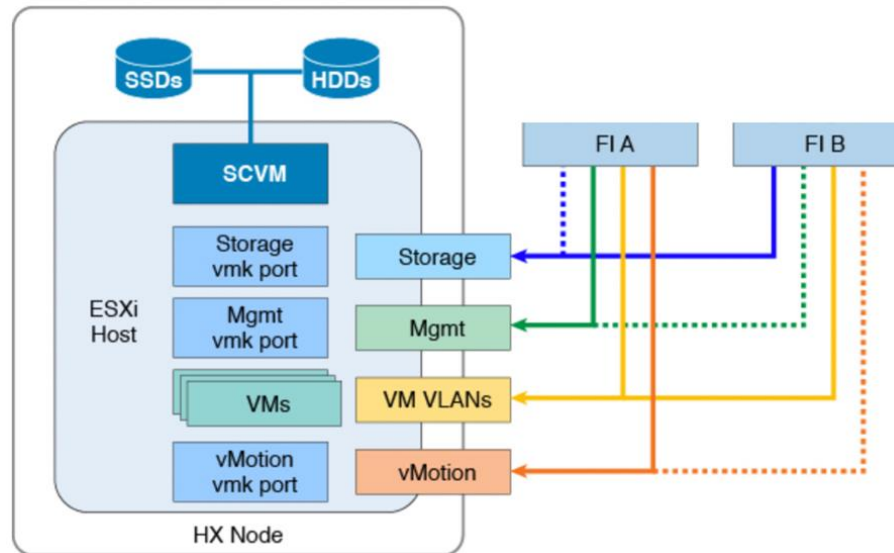


Image Clipped from PDF file: qos-for-hyperflex-wp.pdf - on page x (top)

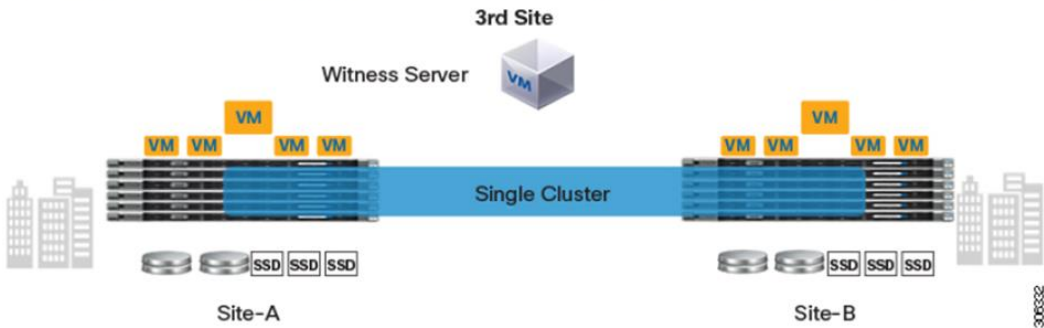
Figure 7. HyperFlex server traffic to UCS fabrics—Logical view

Figure 7 shows a logical view of the primary and secondary paths for a given HyperFlex server. Note that virtual machine networks uses both virtual NICs for forwarding traffic.

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Claims 1-4 & 7

Claim #2	Accused Instrumentalities
2. The network system of claim 1, wherein the second node writes second data from the second write queue to the first parallel file system; and wherein the first node reads the second data from the first parallel file system and places the second data in the first read queue.	Also see: https://www.cisco.com/c/en/us/td/docs/hyperconverged_systems/HyperFlex_HX_DataPlatformSoftware/HyperFlex_Stretched_Cluster/4_0/b_HyperFlex_Systems_Stretched_Cluster_Guide_4_0.pdf HyperFlex Stretched Cluster enables you to deploy an Active-Active disaster avoidance solution for mission critical workloads requiring high uptime (near zero Recovery Time Objective) and no data loss (zero Recovery Point Objective). A stretched cluster is a single cluster with geographically distributed nodes. Both sides of the cluster act as primary for certain user VMs. The data for these VMs is replicated synchronously on the other site. Stretched clusters enable you to access the entire cluster even if one of the sites were to completely go down. Typically these sites are connected with a low latency, dedicated, high-speed link between them.  This document describes the deployment process for stretched clusters, gives information about monitoring stretched clusters, and discusses guidelines to follow when deploying stretched clusters. Image Clipped from PDF file: _HyperFlex_Systems_Stretched_Cluster_Guide_4_0.pdf - page 9 (top)

UMBRA TECHNOLOGIES LTD.’S FIRST INFRINGEMENT ANALYSIS**U.S. Patent No. 11,146,632– Defendant Cisco Systems, Inc. - UMBRA Technologies Ltd. (“UMBRA”)****Claims 1-4 & 7**

Claim #3	Accused Instrumentalities
3. The network system of claim 1, wherein the first data is a carrier file comprising a header, a body, and a footer.	Network packets typically include a header, and a payload including a footer, thus a “first data” as “carrier file” can be inferred.
Claim #4	Accused Instrumentalities
4. The network system of claim 3, wherein the first nodes subsequently writes additional data to the first parallel file system.	See: https://www.cisco.com/c/dam/en/us/products/collateral/hyperconverged-infrastructure/hyperflex-hx-series/solution-overview-c22-744674.docx/_jcr_content/renditions/solution-overview-c22-744674_7.png Figure 6. Data write flow through the Cisco HyperFlex HX Data Platform Enterprise-class storage features The data platform has all the features that you would expect of an enterprise shared-storage system, eliminating the need to configure and maintain complex Fibre Channel storage networks and devices. The platform simplifies operations and helps ensure data availability. Figure 6. Data write flow through the Cisco HyperFlex HX Data Platform NOTE: “Data platform controller” on each of the handle operations of the “Distributed Caching Layer” and the “Distributed Capacity Layer.”

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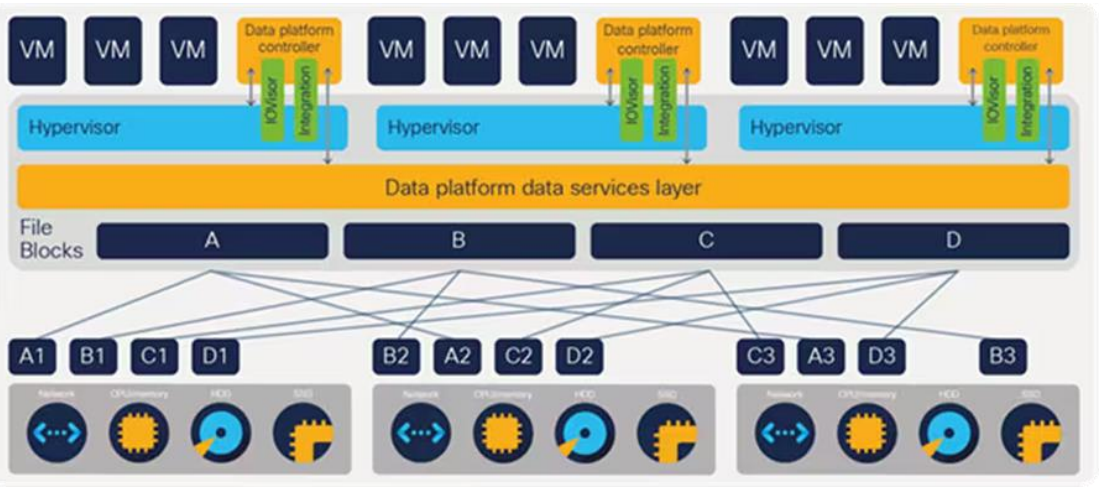
July 31, 2023

Note: All internet sources last accessed and downloaded July 31, 2023.

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Claim #7	Accused Instrumentalities
7. The network system of claim 1, further comprising a third node comprising a third read queue, a third write queue, and a third parallel file system; wherein the first node writes first data from the first write queue to the second and third parallel file systems at the same time; and wherein the third node reads the first data from the third parallel file system and places the first data in the third read queue.	Source Page: https://www.cisco.com/c/en/us/products/collateral/hyperconverged-infrastructure/hyperflex-hx-series/solution-overview-c22-744674.html  Figure 5. Data blocks are replicated across the cluster Image source: https://www.cisco.com/c/dam/en/us/products/collateral/hyperconverged-infrastructure/hyperflex-hx-series/solution-overview-c22-744674.docx/_jcr_content/renditions/solution-overview-c22-744674_6.png

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Claims 1-4 & 7

Clm. 7,
Cont.

Data distribution

The HX Data Platform controller handles all read and write requests for volumes that the hypervisor accesses and thus intermediates all I/O from the virtual machines and containers. Recognizing the importance of data distribution, the HX Data Platform is designed to exploit low network latencies and parallelism, in contrast to other approaches that build on node-local affinity and can easily cause data hotspots.

Source Page: <https://www.cisco.com/c/en/us/products/collateral/hyperconverged-infrastructure/hyperflex-hx-series/solution-overview-c22-744674.html>

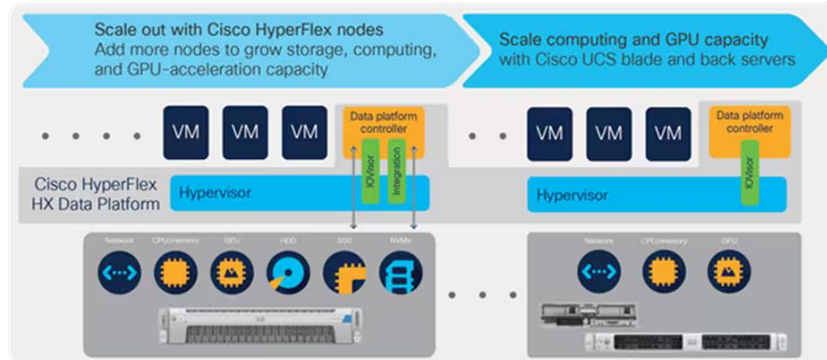


Image Source: https://www.cisco.com/c/dam/en/us/products/collateral/hyperconverged-infrastructure/hyperflex-hx-series/solution-overview-c22-744674.docx/_jcr_content/renditions/solution-overview-c22-744674_9.png

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Claims 1-4 & 7

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