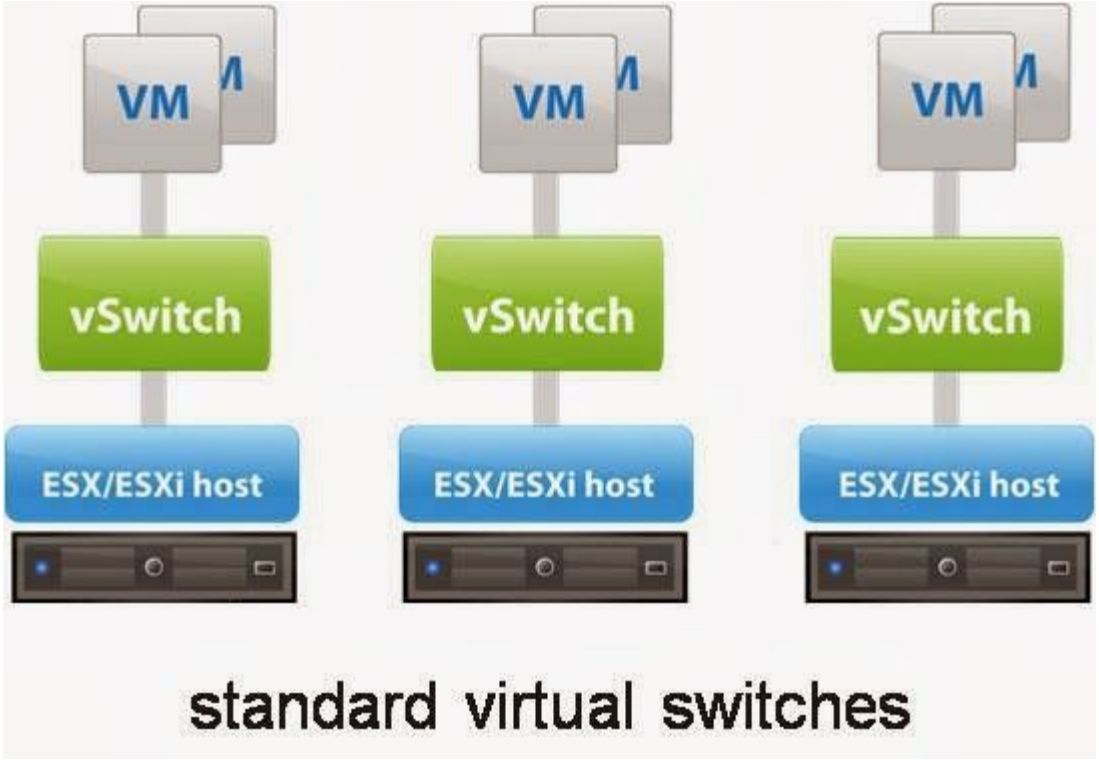
Waiting Room Fun :

Virtual Distributed Switch

Principle of Virtualization

Source: VMarena.com

Before that lets review again VSS Concept


VM
VM
VM
vSwitch
vSwitch
vSwitch
ESX/ESXi host
ESX/ESXi host
ESX/ESXi host
standard virtual switches

vSphere Standard Switches (vSS) provides:

Network connectivity to hosts and virtual machines.

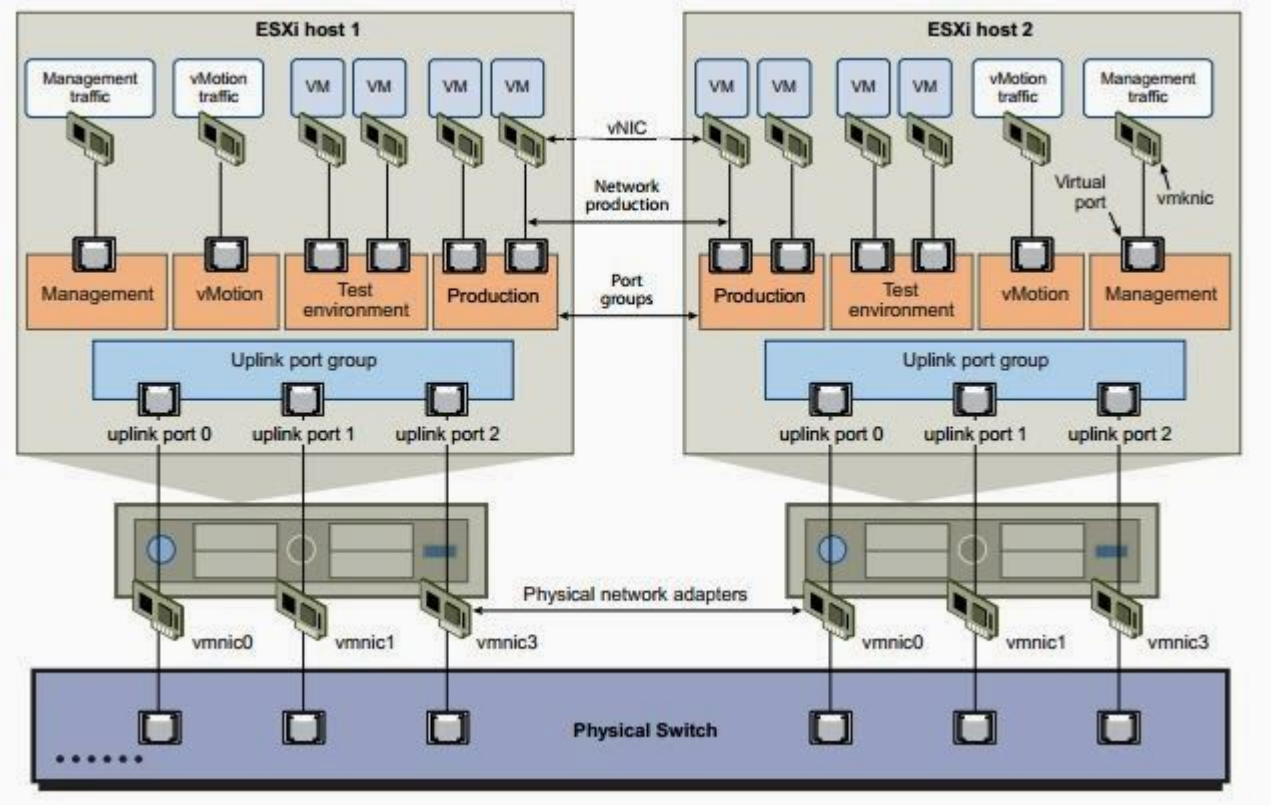
Standard switch can bridge traffic internally between virtual machines in the **same VLAN** and also link to external networks.

Standard switches uses **physical Network adapters (NICs)** of the ESXi hosts as **uplink ports** on the standard switch which helps the virtual machines to talk to the outside network.

Virtual Machines have it s **virtual network adapters (vNICs)** that will connect to the port groups on the standard switches.

Every **port group** **can use one or more physical NICs** of ESXi host attached to it to handle its network traffic.

For the **Port group with no physical NIC connected to it will allow virtual machines to communicate only with the virtual machines connected on the same port group** and will not allow to communicate to external network.



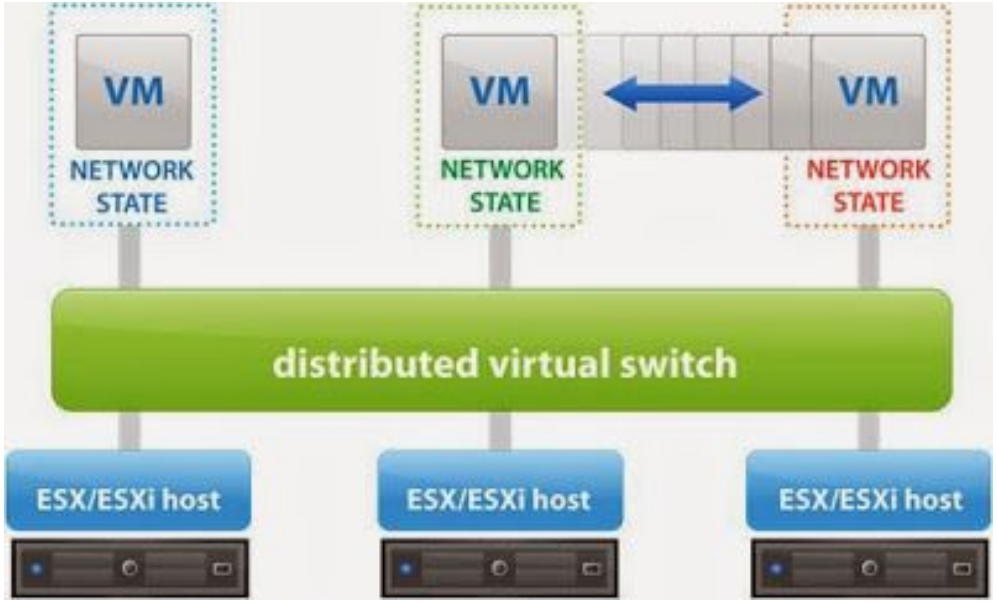
Architecture of Virtual Standard Switch

Example

In simple terms, **vSphere Standard Switches need to be created on each individual hosts**.

For example, If you have 2 ESXi host in the cluster, All the port groups (for example Management, vMotion, Test environment and Production) needs to be created same as exact name on both the ESXi hosts for the vMotion to work between the ESXi hosts in the cluster.

VDS


VM
NETWORK STATE
VM
NETWORK STATE
VM
NETWORK STATE
distributed virtual switch
ESX/ESXi host
ESX/ESXi host
ESX/ESXi host

vSphere Distributed Switch (vDS) provides **centralized management and monitoring of the network** configuration of all the ESXi hosts that are associated with the dvswitch(Distributed Virtual Switch).

Distributed switch can be created and configured at **vCenter server** system level and all its settings are propagated to all the hosts that are associated with the switch.

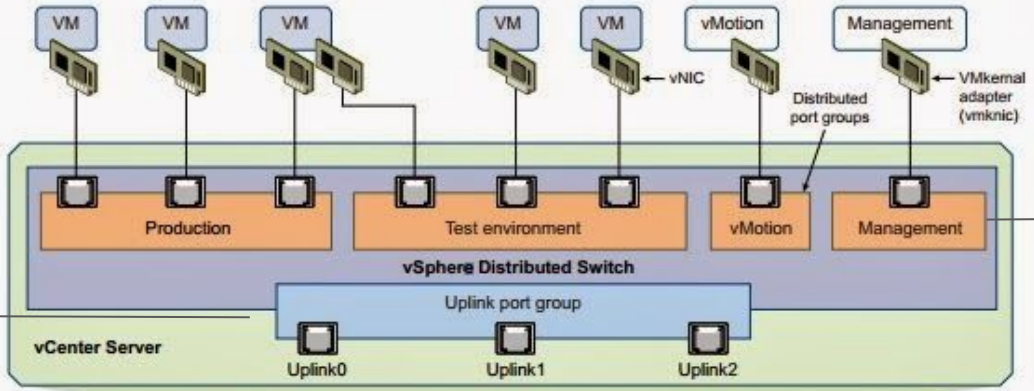
dvSwitch is designed to **create a consistent switch configuration** across every hosts in the datacenter.

The dvswitch consists of two components,

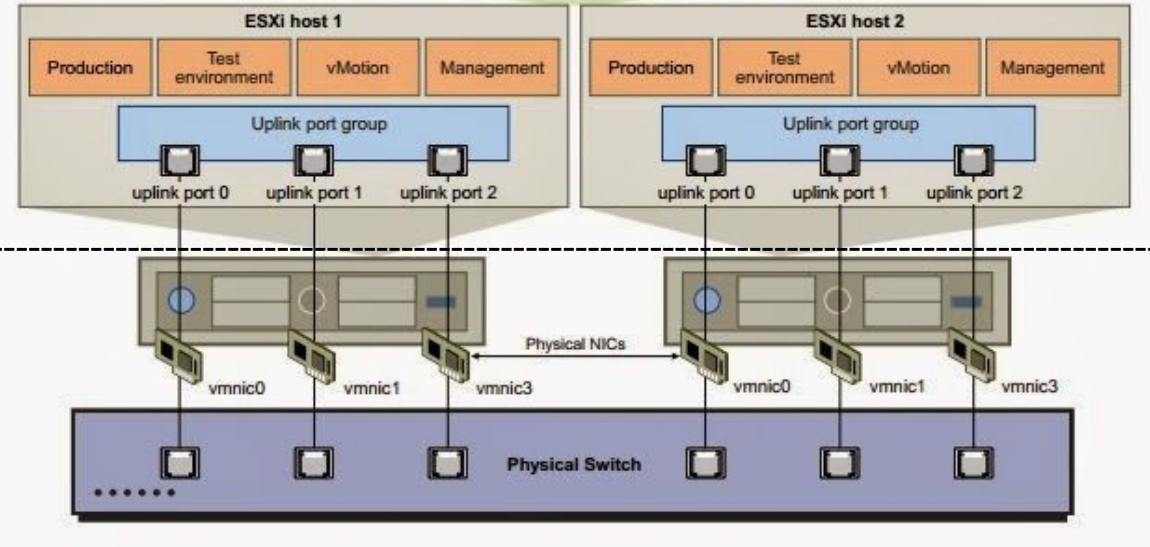
the control plane and the I/O or data plane.

vSphere Distributed Switch is also referred as vDS (vSphere Distributed Switch and dvs (Distributed virtual switch).

Management Plane
Control layer



Data Plane (I/O) -
Hidden Layer



The Control plane

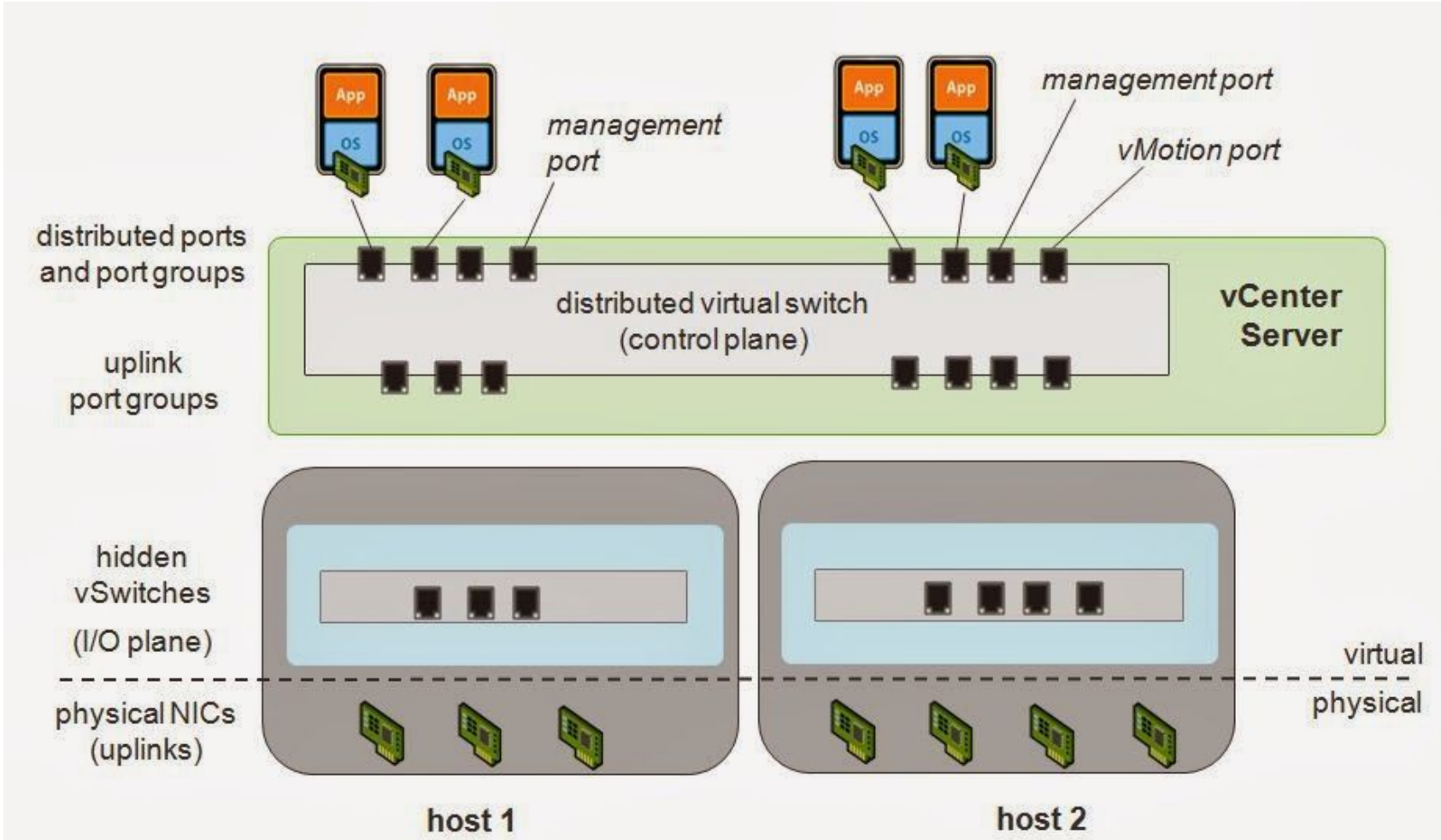
Control plane exists at vCenter server and It is responsible for managing and configuring the dvswitch dvport groups,dvports, uplinks,VLANs,PVLANs and NIC teaming,etc.

dvswitch is nothing but a configuration template used to configure the settings on each host which are connected to the dvswitch.

The Data Plane (I/O plane)

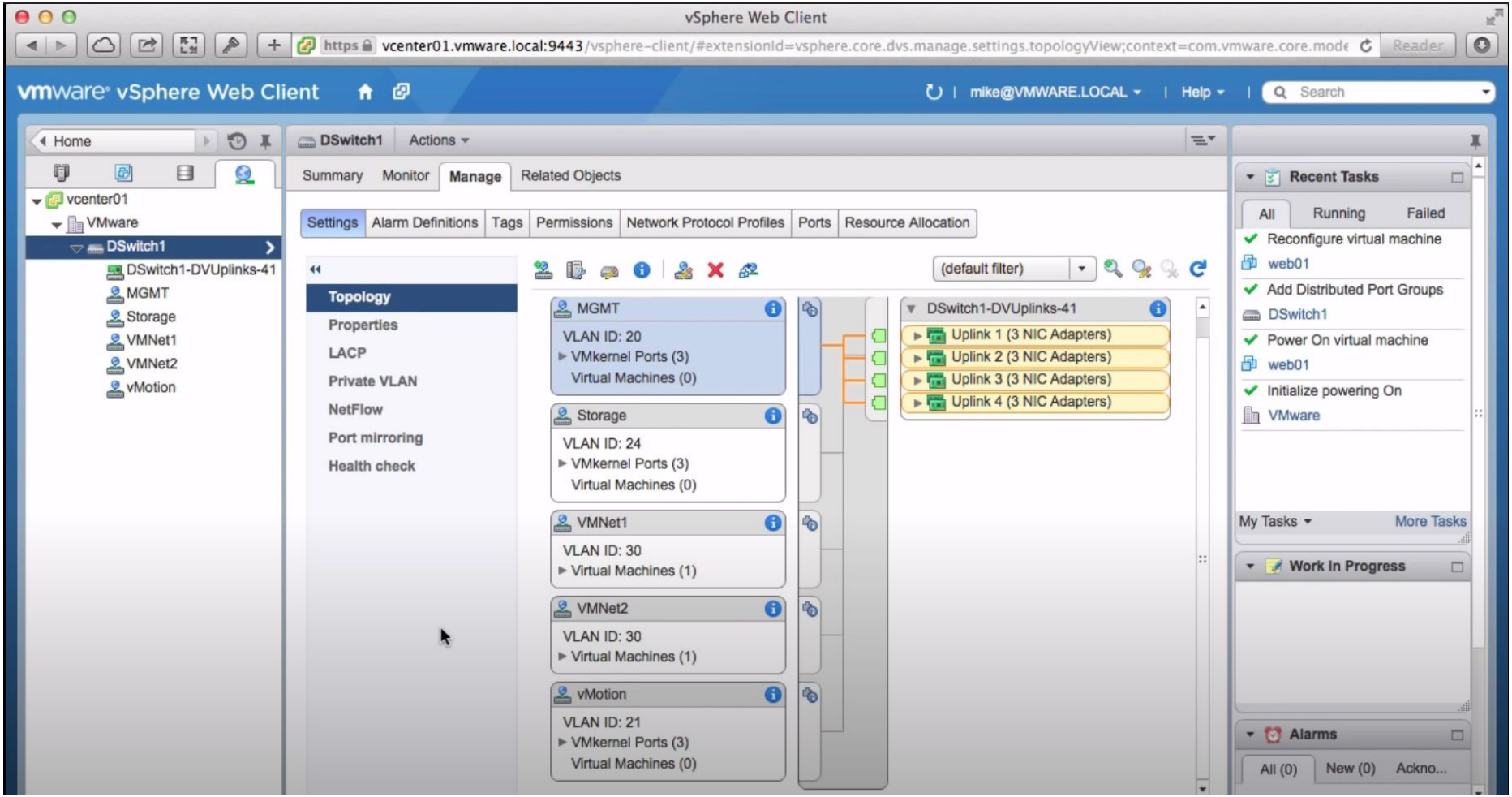
Data plane is **hidden switch** that exists on each host and it is **responsible for forwarding the data packets to the relevant uplinks**.

Because of this data plane (hidden switch created at each host) network communication continues to work even if your vCenter is down.


App
OS
App
OS
management port
App
OS
App
OS
management port
vMotion port
distributed ports and port groups
distributed virtual switch (control plane)
vCenter Server
uplink port groups
hidden vSwitches (I/O plane)
virtual
physical
physical NICs (uplinks)
host 1
host 2

Vsphere Distributed Switch Demonstration [Upcoming Lab Session]

Video reference link: https://youtu.be/8fxdz2aoVOw?t=76


vSphere Web Client
https vcenter01.vmware.local:9443/vsphere-client/#extensionId=vsphere.core.dvs.manage.settings.topologyView;context=com.vmware.core.mode
Reader
vmware vSphere Web Client
mike@VMWARE.LOCAL
Help
Search
Home
vcenter01
VMware
DSwitch1
DSwitch1-DVUplinks-41
MGMT
Storage
VMNet1
VMNet2
vMotion
DSwitch1
Actions
Summary
Monitor
Manage
Related Objects
Settings
Alarm Definitions
Tags
Permissions
Network Protocol Profiles
Ports
Resource Allocation
Topology
Properties
LACP
Private VLAN
NetFlow
Port mirroring
Health check
(default filter)
MGMT
VLAN ID: 20
VMkernel Ports (3)
Virtual Machines (0)
Storage
VLAN ID: 24
VMkernel Ports (3)
Virtual Machines (0)
VMNet1
VLAN ID: 30
Virtual Machines (1)
VMNet2
VLAN ID: 30
Virtual Machines (1)
vMotion
VLAN ID: 21
VMkernel Ports (3)
Virtual Machines (0)
DSwitch1-DVUplinks-41
Uplink 1 (3 NIC Adapters)
Uplink 2 (3 NIC Adapters)
Uplink 3 (3 NIC Adapters)
Uplink 4 (3 NIC Adapters)
Recent Tasks
All
Running
Failed
Reconfigure virtual machine
web01
Add Distributed Port Groups
DSwitch1
Power On virtual machine
web01
Initialize powering On
VMware
My Tasks
More Tasks
Work In Progress
Alarms
All (0)
New (0)
Ackno...