

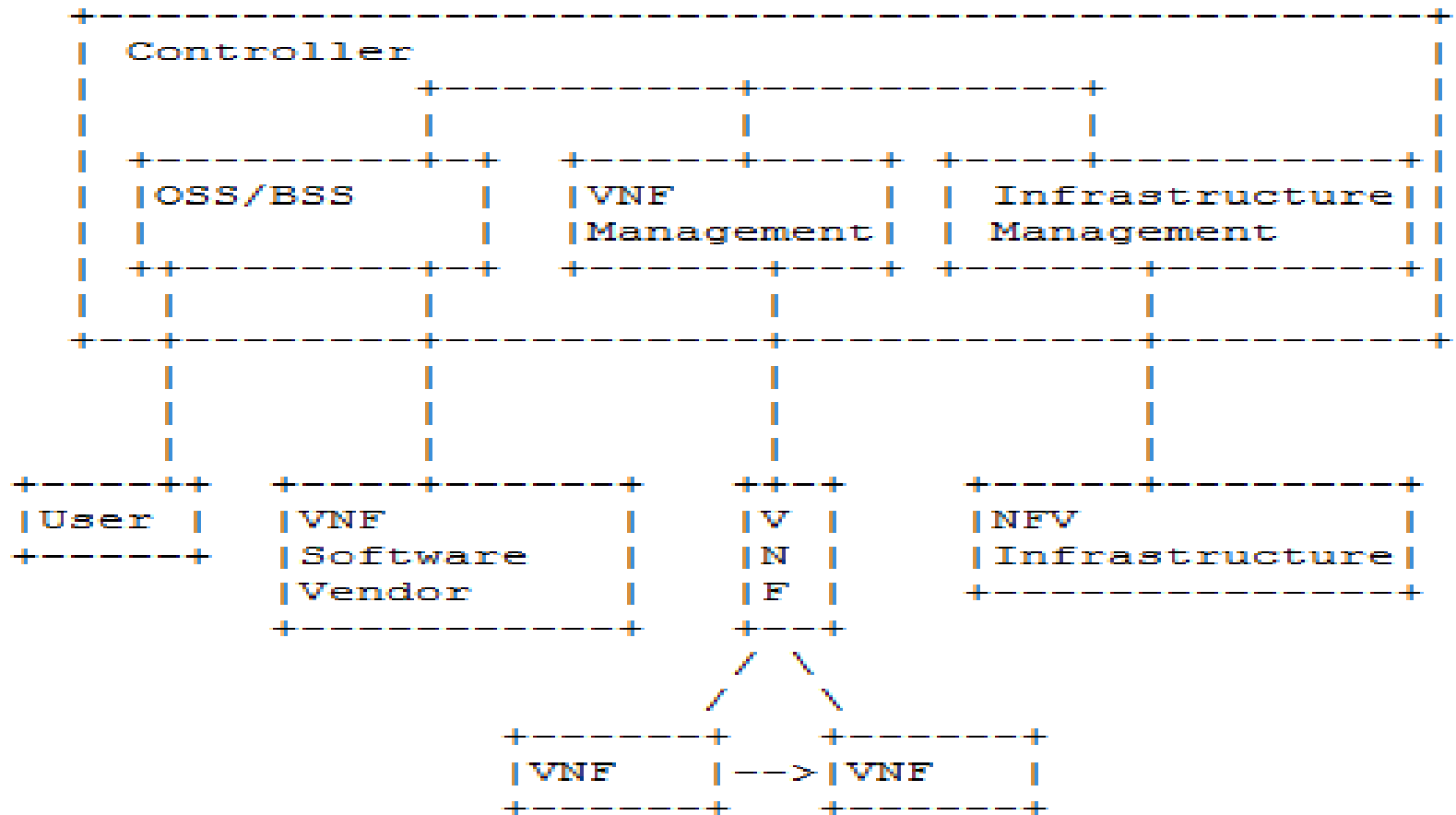
Virtual Network Function Configuration Architecture

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NFV Configuration



Principles

- Controller is the brain
 - A user does not have to communicate directly with its multiple VNFs, but a simple controller
 - Act as a broker to retrieve the existing parameters, and configure VNFs and their connections
- Controller is agnostic of the configured service parameters
 - But is aware of how/when to apply configurations to which VNFs, or related forwarding equipments
- The key is the information and the data model
 - VNF model
 - Resource model
 - Service/forwarding graph model
 - Monitoring/reporting status

User-Controller Interface

- Lifecycle management
 - VNF installation
 - VNF name, quantity, preferred locations(e.g. data center level), components selection,
 - resource requirements, capability requirements,
 - Whether on-demand resource allocation, and the automatic scale-out/scale-in needs resource policy which will trigger the event from the user or provider
 - VNF update, termination
 - A forwarding graph data model for service flow
- Configuration
 - A service template containing: Identify of VNF, user signature, service parameters
- Report Information from the Controller
 - Status, logging, accounting

Software Vendor-Controller Interface

- VNF descriptor from the software vendor
 - Type (options provided by controller for classification), function description, resource requirements, software environment requirement, capability per instance, pricing and etc.
 - Publish, update, off-the-shelf of a VNF
- Software packages

Controller-VNF Interface

- Lifecycle management
 - Create, delete, update
- Automatic scale-out/scale-in
 - With creating new instances or deleting existing instances
- Monitoring
 - Resource (CPU, link and etc) usage
- Coordinate with the infrastructure management module
 - Splitting traffic for load balancing (change the forwarding rules)

Controller-Infrastructure Interface

- Configure the underlying network and forwarding rules
- Lifecycle management of VMs
- There are some existing tools for it
 - Openstack, Cloudstack...
- *May leave it out of scope*
 - *Too many implementation details*

Security


- All user controller interactions **MUST** be validated bi-directionally
- An encryption of messages is mandatory

Next Step

- Gap analysis with NetConf and NetMod

Thanks!

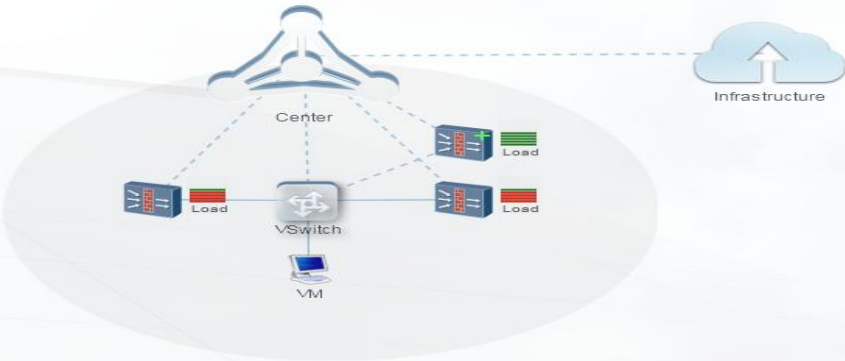
POC Prototype

 **NFV Store** Hello admin | [Logout](#) | [Help](#)


vNFs Market

vNFs
vNFs > vFW

Configure Monitor



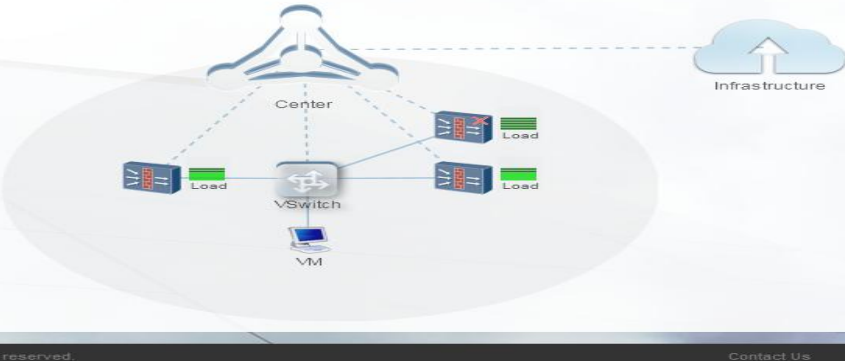
The diagram illustrates a network architecture. At the top, a 'Center' node (represented by a blue trident icon) is connected via dashed lines to a 'VSwitch' (represented by a blue switch icon) and an 'Infrastructure' cloud icon (represented by a blue cloud with an upward arrow). The 'VSwitch' is connected to a 'VM' (represented by a blue laptop icon) and four 'Load' nodes (represented by blue server icons with green bars). The 'Load' nodes are arranged in two pairs, one on each side of the 'VSwitch'.

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The diagram illustrates a network architecture, identical to the one above. At the top, a 'Center' node (represented by a blue trident icon) is connected via dashed lines to a 'VSwitch' (represented by a blue switch icon) and an 'Infrastructure' cloud icon (represented by a blue cloud with an upward arrow). The 'VSwitch' is connected to a 'VM' (represented by a blue laptop icon) and four 'Load' nodes (represented by blue server icons with green bars). The 'Load' nodes are arranged in two pairs, one on each side of the 'VSwitch'.

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POC Prototype

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vNFs Market

Market

Configure **Upload template**

Name: vFW

Description: A service to protect your network from attacking

Memory: 1 GB (Minimum memory required)

CPU: 1 GHz (Minimum cpu required)

ISO: D:\vFW\vFW.img

Configuration: D:\vFW\vFW_Config.xml

Auto-Scale: Yes No

Sub-component: No Yes

component name	component description	actions
vIPS	virtual Intrusion Prevention System	<input data-bbox="1184 1168 1219 1193" type="button" value="删除"/>
		<input data-bbox="1184 1225 1219 1250" type="button" value="添加"/>

Cancel

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POC Prototype

The screenshot displays the 'vNFs' configuration page for 'vFW' in the 'NFV Store' interface. The page is divided into 'Configure' and 'Monitor' tabs, with 'Configure' being the active tab. The configuration includes a section for 'Enable/Disable IPS Service' with a checked checkbox for 'Enable IPS'. Below this is the 'IPS Service Configure' section, which contains two text input fields: 'HOME-NET' with the value '192.168.0.0/24' and 'EXTERNAL-NET' with the value '0.0.0.0/8'. At the bottom of this section, there are two checked checkboxes for 'IPS Services': 'dos' and 'browser'. The page features a top navigation bar with the Huawei logo and 'NFV Store' text, and a user status 'Hello admin | Logout | Help'. A bottom footer contains the text 'Power by Huawei LTD. All rights reserved.' and links for 'Contact Us', 'FAQ', 'Terms of Use', and 'Privacy Policy'.

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vNFs Market

vNFs
vNFs > vFW

Configure Monitor

Enable/Disable IPS Service

Enable IPS

IPS Service Configure

HOME-NET : 192.168.0.0/24

EXTERNAL-NET : 0.0.0.0/8

IPS Services : dos browser

Done Cancel

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