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Kemp® LoadMaster®

Deployment Guide EMC Syncplicity

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Introduction

Syncplicity is an enterprise sync and share solution from EMC which enables corporate users to collaborate from anywhere while providing corporate IT with the security and control required to comply with best practice and policy. In addition to being a service hosted by EMC, Syncplicity can be deployed as an on-premise solution integrated with storage architectures such as EMC Atmos.

The LoadMaster not only addresses the load balancing requirements defined by EMC, it can add significant value in multi-tenant environments such as service providers and enterprise deployments.

Document Purpose

This document outlines how a LoadMaster can be deployed together with EMC Syncplicity. It also provides guidelines for the configuration of LoadMaster services.

Intended Audience

This document is intended to be used by anyone deploying a LoadMaster in conjunction with on premise Syncplicity and by service providers deploying a multi-tenant Syncplicity service.

Prerequisites

The reader should have sufficient knowledge of networking, the LoadMaster and Syncplicity products to implement the solution outlined.

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Template

Progress Kemp has developed a template containing our recommended settings for this workload. You can install this template to help create Virtual Services (VSs) because it automatically populates the settings. You can use the template to easily create the required VSs with the recommended settings. For some workloads, additional manual steps may be required such as assigning a certificate or applying port following. These steps are covered in the document, if needed.

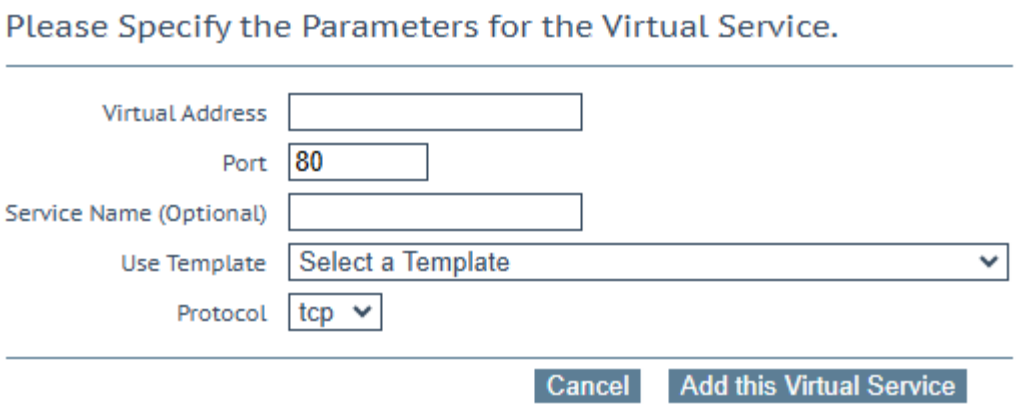
You can remove templates after use and this will not affect deployed services. If needed, you can make changes to any of the VS settings after using the template.

Download released templates from the following page: LoadMaster Templates.

You can import templates to the LoadMaster through the **Manage Templates** page under **Virtual Services** in the main menu of the LoadMaster User Interface (UI).

Click **Choose File**, select the template to install and click **Add New Template**. The template will then be available to select when you are adding a new Virtual Service.

To begin the process of creating a new Virtual Service, click **Virtual Services** and **Add New** in the main menu.



This opens the Virtual Service parameters page which prompts to enter the Virtual IP (VIP) address of the Virtual Service, the port, and the name to give the service and the protocol. You can select a previously-imported template in the **Use Template** drop-down list.

For more information and steps on how to use templates, refer to the Virtual Services and Templates, Feature Description.

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Solution Overview

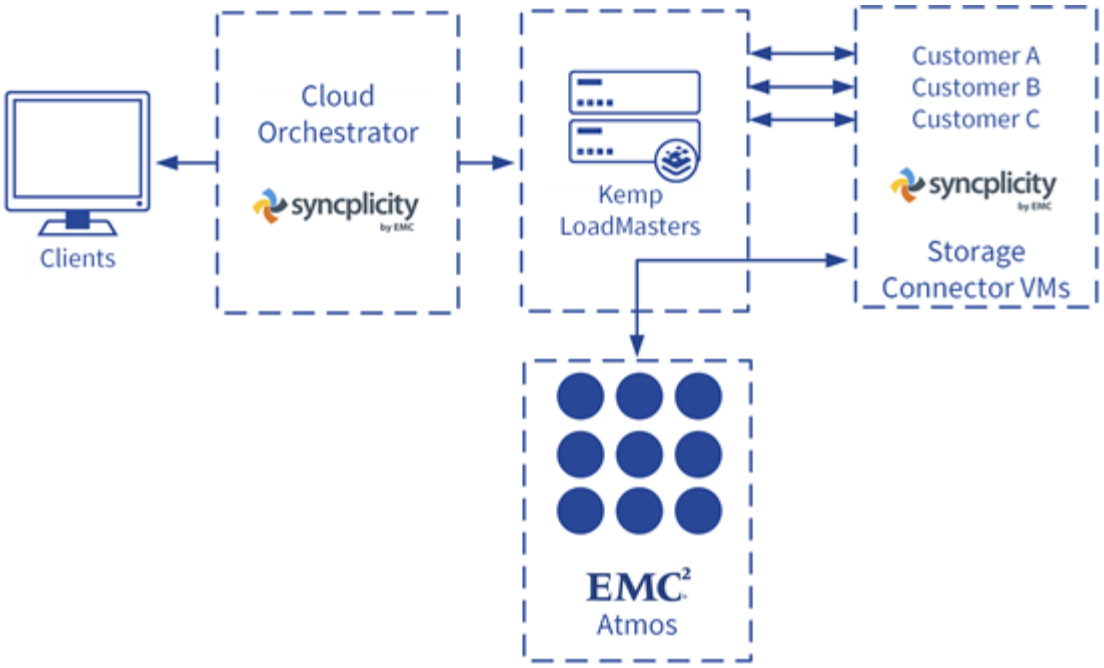
Refer to the following sections for an overview on the topology and the enhancements that the LoadMaster can provide.

Contents

- Topology
- LoadMaster Functionality Applied

Topology

Syncplicity consists of a cloud-based orchestration layer connecting authenticated and authorized clients with their storage using a customer-specific URL.



Based on the URL content, the LoadMaster infrastructure forwards the customer request to the customer-specific Storage Connector. The Storage Connector services the customer request by communicating with the EMC Atmos service via the LoadMaster.

While the Cloud Orchestrator is designed to deal with a single IP address (Storage Connector), the LoadMaster enables a multi-tenant environment by selecting the client's Storage Connector based on the client-specific URL.

LoadMaster Functionality Applied

The LoadMaster environment enhances the Syncplicity environment in the following ways:

- It load balances Storage Connector hosts
- It load balances traffic on the Atmos storage cluster
- It simplifies scaling of Storage Connectors
- It performs Network Address Translation (NAT) of internal addresses
- Acts as a single point for managing and controlling digital certificates
- Enables multi-tenancy on a single IP address by mapping the request URL to subscriber-specific Storage Connectors

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Deployment Example

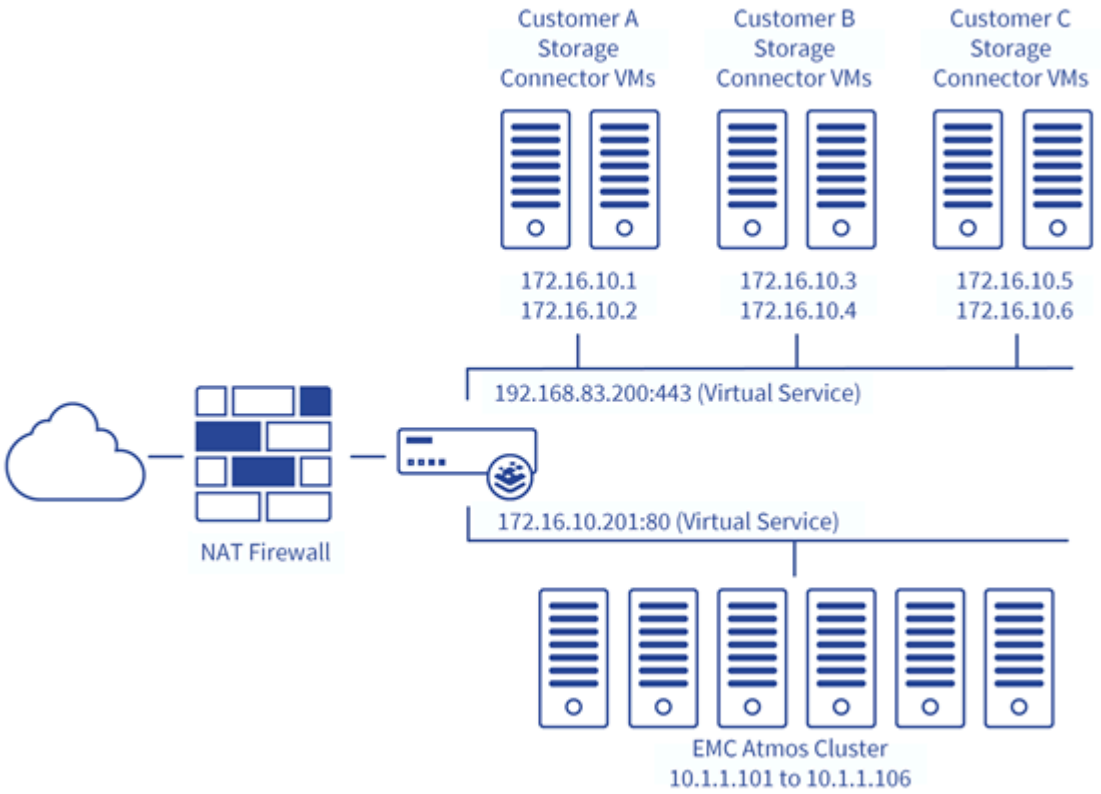
To highlight the LoadMaster capabilities, the example below assumes the following:

- On-Premise, Multi-Tenant service on the domain example.com
- Services are provided to Customer A, Customer B and Customer C
- Each customer has a pair of Storage Connectors deployed
- A single certificate is used to secure communication with all customers
- An EMC Atmos cluster provides a multi-tenant storage platform
- For simplicity, a single LoadMaster is deployed, although in a real situation a pair of LoadMasters would be used for resilience

Contents

- Network Environment

Network Environment



- The LoadMaster sits behind a NAT firewall on subnet 192.168.83.0/24. A virtual IP of 192.168.83.200 is created to service requests from the Cloud Orchestrator
- The Storage Connector VMs are on subnet 172.16.10.0/24
- Customer A connects via https://customera.example.com and has Storage Connector hosts at 172.16.10.1 and 172.16.10.2
- Customer B connects via https://customerb.example.com and has Storage Connector hosts at 172.16.10.3 and 172.16.10.4
- Customer C connects via https://customerc.example.com and has Storage Connector hosts at 172.16.105 and 172.16.10.6
- The EMC Atmos cluster is on subnet 10.1.1.0/24 with IP addresses of 10.1.1.101, 10.1.1.102, 10.1.103, 10.1.1.104, 10.1.1.105, and 10.1.1.106
- The LoadMaster is configured with addresses of 10.1.1.200 and 172.16.10.200 to provide connectivity to the Storage Connector and the EMC Atmos storage platform

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LoadMaster Configuration

Refer to the following sections for details about the recommended LoadMaster configuration relating to EMC Syncplicity.

Contents

- Enable Subnet Originating Requests Globally
- Virtual Service for Syncplicity Cloud to Storage Connectors
- Content Rules
- Virtual Service for Storage Connector to Atmos

Enable Subnet Originating Requests Globally

It is best practice to enable the **Subnet Originating Requests** option globally.

In a one-armed setup (where the Virtual Service and Real Servers are on the same network/subnet) **Subnet Originating Requests** is usually not needed. However, enabling **Subnet Originating Requests** should not affect the routing in a one-armed setup.

In a two-armed setup where the Virtual Service is on network/subnet A, for example, and the Real Servers are on network B, **Subnet Originating Requests** should be enabled on LoadMasters with firmware version 7.1-16 and above.



When **Subnet Originating Requests** is enabled, the Real Server sees traffic originating from 10.20.20.21 (LoadMaster eth1 address) and responds correctly in most scenarios.

With **Subnet Originating Requests** disabled, the Real Server sees traffic originating from 10.0.0.15 (LoadMaster Virtual Service address on **eth0**) and responds to **eth0** which could cause asymmetric routing.

When **Subnet Originating Requests** is enabled globally, it is automatically enabled on all Virtual Services. If the **Subnet Originating Requests** option is disabled globally, you can choose whether to enable **Subnet Originating Requests** on a per-Virtual Service basis.

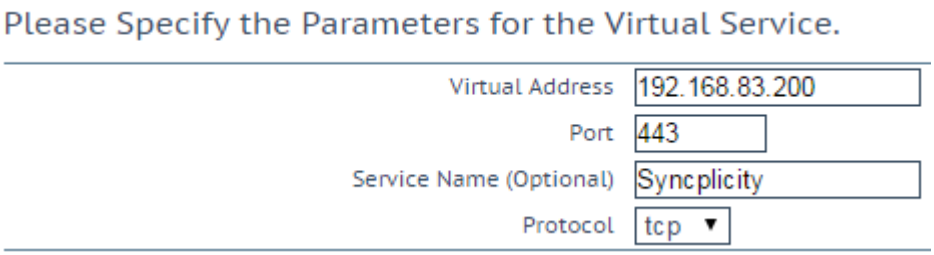
To enable **Subnet Originating Requests** globally, follow the steps below:

1. In the main menu of the LoadMaster User Interface (UI), go to **System Configuration > Miscellaneous Options > Network Options**.
2. Select the **Subnet Originating Requests** check box.

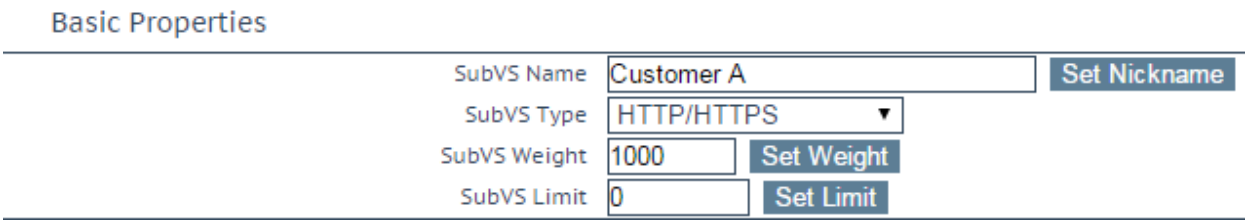
Virtual Service for Syncplicity Cloud to Storage Connectors

For our example, a Virtual Service needs to be created on 192.168.83.200 which redirects requests to the customer-specific Sub-Virtual Service (SubVS) based on the requestor URL. To do this, follow the steps below in the LoadMaster Web User Interface (WUI):

1. Create a Virtual Service on the LoadMaster which responds to requests on port **443** coming from the Syncplicity Cloud.



2. Configure the Virtual Service using the recommended settings as listed in the Virtual Service Settings section.
3. For each customer, create a SubVS and add Real Servers for their Storage Connector servers.



Note: The Storage Connection host is on port **9000**.

4. Add any Real Servers, as needed.

Contents

- Virtual Service Settings

Virtual Service Settings

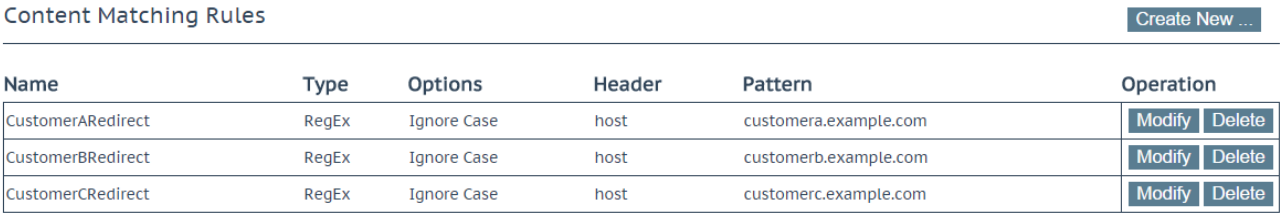
The following, are Progress Kemp recommended settings for a Syncplicity Virtual Service. All other options remain as per the default configuration. However, changes can be made to any settings, as needed based on your environment.

Section	Option	Value	Comment
Standard Options	Transparency	Enabled	
	Persistence Method	None	
	Scheduling Method	round robin	
SSL Properties	SSL Acceleration	Enabled	A wildcard certificate allows secure connections to be established with a request URL in the format of *.example.com. With this approach, a single certificate secures traffic for all clients in a multi-tenant environment.
	Cipher Set	Best Practices	For further information on cipher sets, please refer to

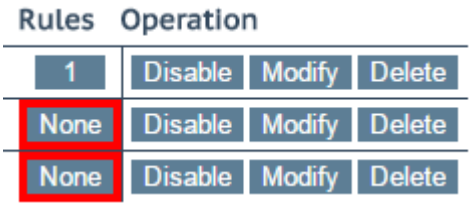
Section	Option	Value	Comment
			the SSL Accelerated Services, Feature Description.
Real Servers	Real Server Check Parameters	HTTP Protocol	These settings are used to define the URL to use for checking the availability of a Real Server.
	HTTP Method	HEAD	

Content Rules

Content rules allow traffic be redirected based on criteria, including the URL requested by the client.



In our example, the LoadMaster is configured with a content rule for each customer so requests to the customer-specific URL are redirected to the customer-specific Storage Controller pair.



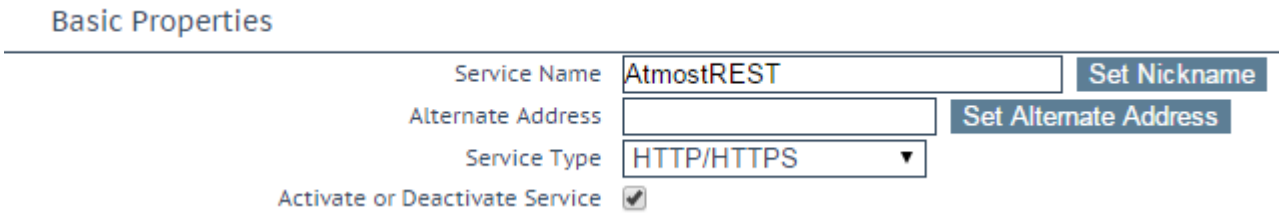
In the **SubVS** section of the **Virtual Service** properties page, add the appropriate content matching rule for each customer.

For more information on content rules in general, please refer to the Content Rules, Feature Description.

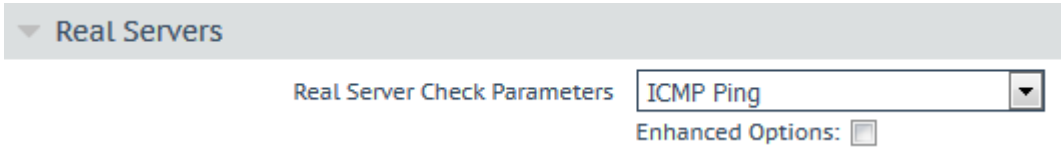
Virtual Service for Storage Connector to Atmos

The Storage Connector nodes communicate with the Atmos storage backend via port **80**. The Atmos storage

environment consists of multiple nodes and any of which are capable of servicing requests from Storage Connectors. EMC suggests using a round robin algorithm on a load balancer. This results in even distribution of service requests across the Atmos nodes. The health of the Atmos environment can be tested using PING or by requesting the /rest page from the Atmos node.



A Virtual Service should be created on the LoadMaster interface which is connected to the particular Storage Connector subnet. This Virtual Service should accept HTTP requests on port **80** and balance them, using **round robin**, to the Atmos nodes (the six IP addresses on 10.1.1.0/24 in this example).



Atmos nodes are added as Real Servers with the server check set to **ICMP Ping** or **HTTP Protocol**. Using HTTP as the check protocol gives a view of the Atmos REST service status while PING only checks the host network status.

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Configuration: Summary

	Virtual IP Address	Prot	Name	Layer	Certificate Installed	Status	Real Servers	
4	172.16.10.201:80	tcp	AtmosREST	L7		Up	10.1.1.101 10.1.1.102 10.1.1.103 10.1.1.104 10.1.1.105 10.1.1.106	5
1	192.168.83.200:443	tcp	Syncplicity	L7	on Real Server	Up	Customer A Customer B Customer C	
	#1	tcp	Customer A	L7		Up	172.16.10.1:9000 172.16.10.2:9000	
2	#2	tcp	Customer B	L7		Up	172.16.10.3:9000 172.16.10.4:9000	3
	#3	tcp	Customer C	L7		Up	172.16.10.5:9000 172.16.10.6:9000	

Syncplicity clients connect via the Syncplicity orchestration cloud to the Virtual IP [1] on the LoadMaster which is listening on port **443**.

Based on the request URL, the connection [2] is forwarded to the customer's Connection Server pair on port **9000** [3].

The Connection Server makes a REST request on port **80** to the Atmos Virtual IP [4] which balances the request to one of the available Atmos nodes [5].

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References

Other useful documents are as follows:

Content Rules Feature Description

Virtual Services and Templates Feature Description

SSL Accelerated Services Feature Description