



Virtual LoadMaster for Azure

Evaluators Guide

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1 Introduction

Microsoft's Azure cloud is of particular interest to companies who wish to expand or migrate their existing on-premises infrastructure to use easily configurable, on-demand resources.

Azure presents a rich environment and offers a variety of Microsoft software and services. There are also thousands of third party applications and a wide selection of open source tools and operating environments. As such, Azure allows for quick and inexpensive configuration, test and deployment of existing and new applications.

To optimise setup and delivery of those applications across both on-premise and cloud based networks, KEMP's LoadMaster provides a range of L4-L7 features including load balancing, security and traffic management.

1.1 Document Purpose

This document highlights a number of typical use cases that IT professionals can use to begin an Azure implementation based around KEMP's Virtual LoadMaster (VLM) for Azure.

1.2 Intended Audience

This document applies to:

- Users of users of load balancing and content switching products who need to develop and deliver services across hybrid and pure Azure cloud environments
- Companies developing or deploying applications requiring a richer set of integrated features than those found in native Azure components
- Online services that require security features such as user authentication
- Applications that require the protection of a WAF e.g. for PCI compliance

2 Description

Optimized to run natively inside of the Microsoft Azure cloud platform, Virtual LoadMaster (VLM) for Azure delivers full L4-7 load balancing and application delivery services for Azure-hosted workloads. While the Azure platform provides basic application load balancing capabilities, VLM for Azure greatly enhances and complements these capabilities with application aware delivery.

VLM for Azure provides comprehensive traffic distribution, session persistence and SSL acceleration along with features such as intrusion prevention, content caching and compression and the ability to share a single endpoint to publish multiple virtual services.

VLM instances deployed in the Microsoft Azure cloud and on-premise private cloud environments can be instrumented via PowerShell and RESTful APIs and work together to deliver continuity of service across cloud boundaries supporting customer's hybrid cloud strategy. Combining the latest advancements in L4-7 application delivery technology, LoadMaster is the ADC of choice for providing highly available services in cloud, web and application infrastructures.

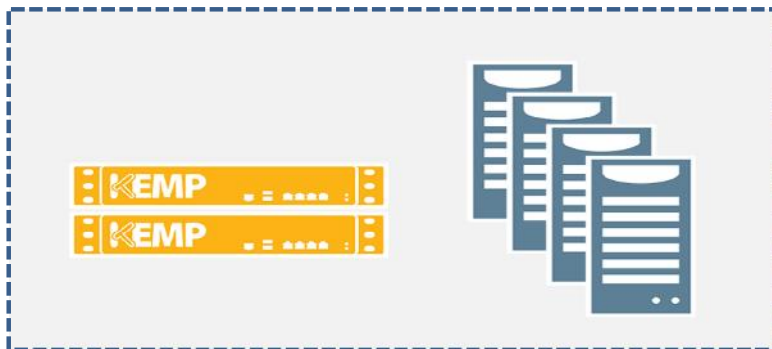
2.1 Introduction

KEMP's Virtual LoadMaster for Azure is a feature rich Application Deliver Controller that can augment some of the native functionality of Azure while providing a single point of management for a range of integrated features.

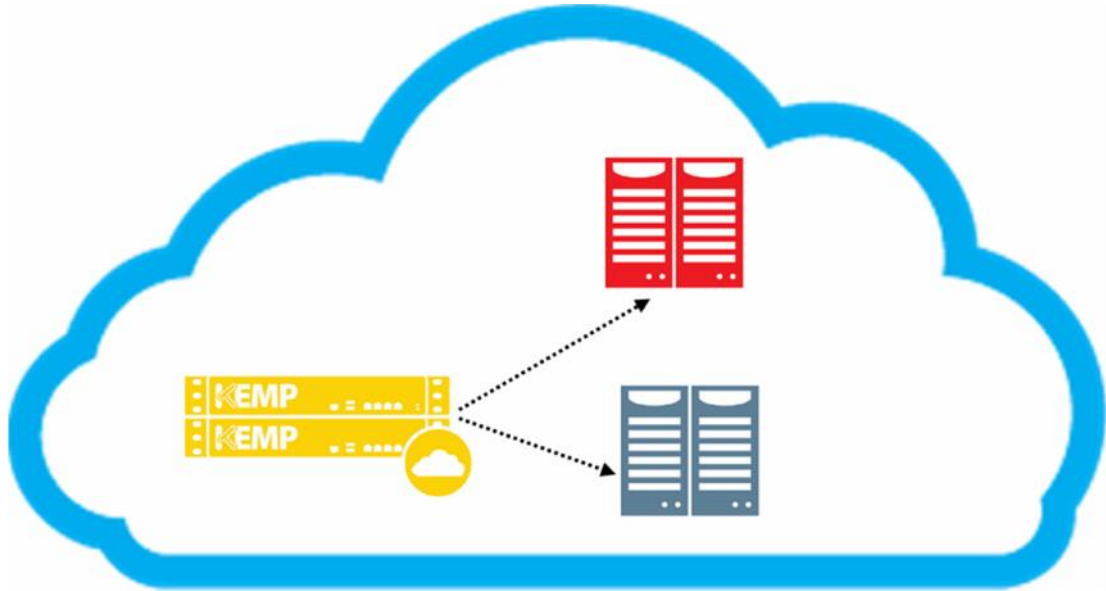
2.2 Overview

Beginning as an appliance providing load balancing for physical servers, the LoadMaster has evolved rapidly to meet the needs of virtualized and cloud environments, offer a comprehensive, integrated set of services as described above. The diagram below shows the infrastructure:

Typical Loadmaster On-Premises deployment



Typical Loadmaster – Cloud Server deployment



Thanks to KEMP's commitment to "platform ubiquity" the same software, and hence the same configuration options, exist whether the LoadMaster is an appliance or running in a virtual machine.

With a large selection of integrated features, the LoadMaster can be configured to assume many roles within the network. This is true whether the network is physical or virtual.

The following deployment examples are included in this section:

- Basic Installation
- High Availability (HA)
- IPSec VPN
- Content Switching
- Authentication and Single Sign On
- Policy Based Traffic Steering (GEO)
- Web Application Firewall
- KEMP 360 Framework

These examples reflect many of the built-in capabilities of the LoadMaster, and apply equally well in the cloud as in on-premises physical and virtual infrastructure.

2.2.1 Basic Installation – Single VLM

Kemp offers several versions of LoadMaster software in the Azure Marketplace. There is a Free/BYOL version which can be used for free, but is limited to 20Mbps/50 SSL TPS. A paid, perpetual license can be applied to this version to increase throughput. In addition, to suit the

flexibility of the hourly billing model in Azure, versions ranging from 200Mbps to 10Gbps are available.

These LoadMaster versions can be installed into a virtual machine in the Azure cloud through the Azure portal: <https://portal.azure.com/>

The *LoadMaster for Azure* feature description in the KEMP document library explains how to select, install and configure a single LoadMaster to provide load balancing for connected VMs and web services.

2.2.2 Installation of High Availability Pair

KEMP has documented the process of setting up a highly available pair of LoadMasters configured in an Azure availability set to provide the highest level of resilience for attached workloads. Please consult the documentation on how to create this configuration in the Azure Portal.

Both the single VLM instance described above, or an HA pair, can be used to experiment with additional LoadMaster features as described below.

2.2.3 IPsec VPN Tunnel

The KEMP LoadMaster can be configured to provide an endpoint for a secure VPN tunnel into the Azure cloud. Microsoft documentation connection point within Azure can be

This connection ensures secure access between on-premises and cloud deployments enabling a variety of hybrid computing configurations, and assisting in migrating applications into the cloud.

2.2.4 Content Switching

Content Switching allows you to aggregate multiple application front-ends into a unified experience for end-users using a single domain name or IP address leveraging the following capabilities:

- Server Name Indicator (SNI)
- Host Header Matching
- Group Based Traffic Steering

For example, if there are two groups of servers - one to serve images and the other to serve all other content - rules can be created to separate these two types of request. Any URL that includes /images in it, for example <http://example.com/images/demo.jpg>, would get directed to the image server(s). Anything else gets directed to the other server(s).

Content switching allows the KEMP LoadMaster to redirect traffic based on the content of the request. Traffic can be examined by inspection of the HTTP header or source IP address or even data within the body of a request. This feature is particularly useful for deploying multiple related web services in a PaaS model.

2.2.5 Authentication and Single Sign On

The KEMP Edge Security Pack (ESP) pack delivers a solution using the KEMP LoadMaster line of load balancers to customers who might have previously deployed TMG to publish their Microsoft applications.

The KEMP ESP offers the following key features:

- End point authentication for pre-auth
- Persistent logging and reporting for user logging
- Single Sign-On (SSO) across Virtual Services
- LDAP Authentication from the LoadMaster to the Active Directory
- Basic authentication communication from a client to the LoadMaster
- Dual-factor authentication

Given the ability to sync between on-premises and AD in the cloud, this opens up a lot of possibilities for controlling access to applications running in a hybrid environment.

2.2.6 Policy Based Traffic Steering (GEO)

KEMP Technologies' Global Server Load Balancer (GSLB) solution is an integrated features which includes:

- Directing web facing traffic to the closest and fastest performing Azure resources through intelligent DNS responses
- Failover of traffic from a data center suffering from an outage to another resource that has capacity available
- Applying business rules to traffic management algorithms to distribute requests across hybrid cloud infrastructures

With GEO, companies can optimise their resource usage and customer experience on a worldwide basis, while providing high availability for critical services.

2.2.7 Web Application Firewall (WAF)

KEMP's Application Firewall Pack (AFP) combines Layer 7 Web Application Firewall protection with other application delivery services including intelligent load balancing, intrusion detection, intrusion prevention as well as edge security and authentication. By integrating the world's most deployed web application firewall engine, ModSecurity, augmented by threat intelligence and research from information security provider, Trustwave, AFP provides

- data loss prevention (DLP)
- mitigation of the [OWASP](#) Top Ten common vulnerabilities
- real-time threat protection for packaged & custom applications
- support for organizational PCI-DSS compliance requirement

The integration of an application firewall in LoadMaster brings the same level of protection for applications irrespective of where they are hosted. For environments with specialized compliance requirements such as PCI DSS, LoadMaster in Azure can provide the required aspects of application security.

2.2.8 KEMP 360 Framework

For complex environments where multiple LoadMaster instances need to be provisioned and managed, KEMP has introduced the KEMP 360 framework. It currently offers the following two services:

KEMP360 Central – Centralized management of application delivery

KEMP360 provides centralized visibility on application delivery across all hosting platforms including data centre, private cloud, IaaS, PaaS and public cloud. From a single point, application owners have access to all their key application performance metrics while the infrastructure managers have the visibility and controls to easily monitor and manage the application delivery stack. KEMP360 Central simplifies routine administration tasks such as configuration management and software lifecycle management and provides a central repository for resources such as application templates. The real-time monitoring provides instant visibility on the status of the application delivery infrastructure supporting rapid detection and diagnosis of performance and availability events.

KEMP360 Vision - Proactive application monitoring service

The KEMP360 Vision is a subscription service that monitors key application availability, reachability and performance metrics and in the event of a defined limit being breached will initiate a notification and remediation process. This process includes the notification of KEMP's 24/7 Customer Support and triggers a KEMP initiated contact with the designated customer contact. KEMP Customer Support proactively works with the customer to diagnose the issue and put a remediation plan in place. Service level agreement (SLA) metric collection and analysis is also simplified as the KEMP360 Vision reports provide the necessary summary and detail information on application availability.

For further details, please visit kemptechnologies.com/k360

2.3 Requirements

In order to evaluate the LoadMaster in Azure, a Microsoft subscription and access to the Azure portal (portal.azure.com) are required. Within the portal, the chosen LoadMaster and its associated virtual environment should be prepared first before proceeding with any additional configuration.

References

Additional supporting documents can be found at <http://kemptechnologies.com/loadmaster-documentation>. The following items in the feature description section address the examples above and also provide additional information on configuration for virtual services, security and content switching.

- Virtual Services and Templates
- Transparency
- Sub Virtual Services
- SSL Accelerated Services
- RSA Two Factor Authentication
- Port Following
- Licensing
- Edge Security Pack (ESP)
- Content Rules
- LoadMaster for Azure
- HA for Azure
- Service Provider License Agreement (SPLA)
- IPSec VPN
- NTLM Authentication

Document History

Date	Change	Reason for Change	Version	Resp.
Dec 2015	CB	First version	1.0	