GLADINET, INC

Gladinet Cloud Enterprise

Multi-Zone Deployment Guide

Gladinet, Inc.

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This document discusses the technologies behind Gladinet Cloud Enterprise

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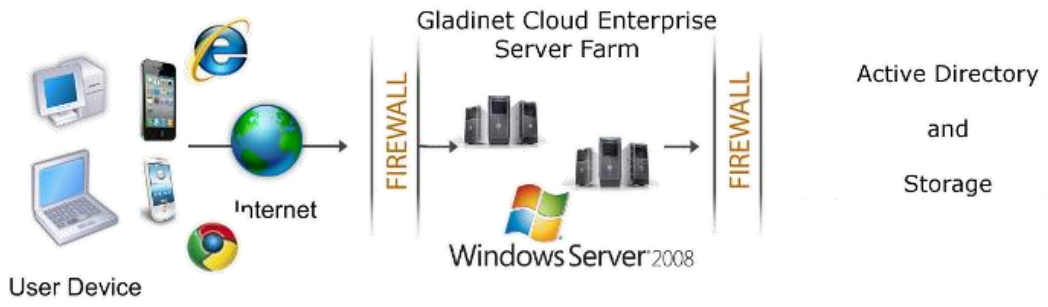
Overview of Gladinet Cloud Enterprise

Gladinet Cloud provides value-added services on top of cloud storage services or local storage services. Cloud Storage services include those from OpenStack, Amazon S3 and its compatibles, Google Cloud Storage, HP Cloud Storage and many others. Local Storage Services include file server Storage, SAN or NAS storage. Gladinet Cloud value-added services can be summarized as Backup, Access, Sync and Share, Identity, Control and Collaboration (BASIC). The BASIC value-added services is known as Enterprise File Sync and Share (EFSS) service.

Gladinet Cloud Enterprise is a cluster of web services built on the Microsoft Web Platform. It provides the BASIC value-added services that facilitate online storage access for PCs, Macs, File Servers, Web Browsers, and Mobile Devices.

The services can be deployed in flexible combinations to meet different needs. For example, you can deploy it on-premise as a private cloud; or you can deploy it off-premise in a data center, managed by your managed service provider (MSP); or you can deploy it in Amazon EC2-like environment as virtual-private deployment.



There are three different types of machines (or Virtual Machine). In the smallest deployment unit, the three different logical nodes can co-exists in one single machine.

- Web Front Node
  The Account Management, Sign-in and Load-balancing services will be installed on this physical machine. Depending on the load, you may need 1 to N such nodes. The main functionality of Web Front Node is load balancing. If you have hardware load balancer such as F5, there is no need to have Web Front Nodes.

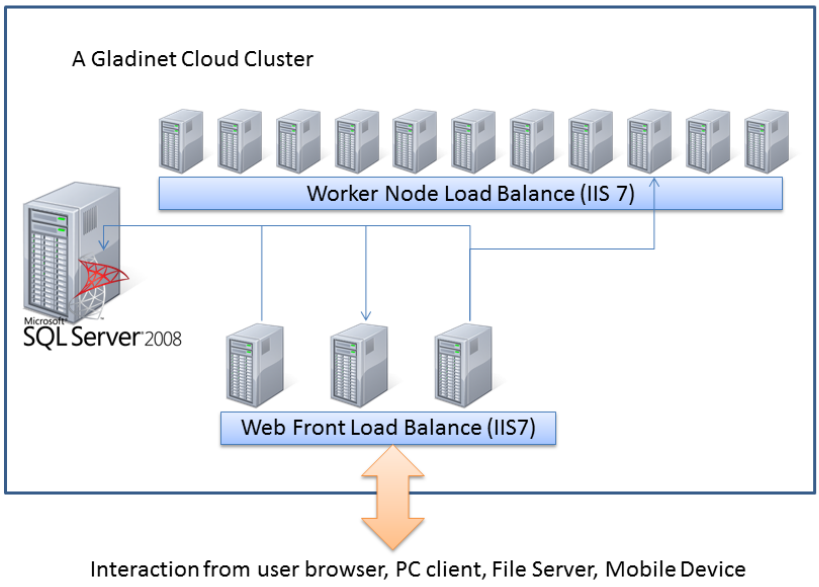
  Example: ACME Corporation deployed 2 web front nodes node1.acme.com and node2.acme.com. Each node is running a copy of Gladinet Cloud Enterprise, connected to the same SQL database.

ACME Corporation acquired a domain name (DNS) of cloud.acme.com which load balances between node1.acme.com and node2.acme.com.

When a user points their browser to https://cloud.acme.com, it is directed to one of the nodes which host the login page.

- Worker Node
  This node will contain services like Web Browser Based File Manager, Storage Service Connectors, and etc. Again, additional nodes can be added as the load increases.

- Database Node
  The database contains persistent information for the system. In general, once a user is logged in, database access is no-longer needed for normal operation. If the database is down, most end user operations can continue with cached information (However, a user needs to access the database at least once to login and cache information).



Dependency Components

Gladinet Cloud Enterprise is built on top of the Microsoft Web Platform, including Internet Information Server 8 (IIS), .Net Framework 4.5, ASP.NET 4 and SQL Server or SQL Server Express. The base operating system is Windows 2012 or R2.

Windows 2012 /R2

The base operating system provides the base of the Microsoft Web Platform. It will be loaded with the mentioned Microsoft components before the Gladinet Cloud Enterprise is installed.

SQL Server

SQL Server is used to store static configuration information, such as user name, email, storage configuration, file and folder sharing information, etc. It is recommended that the SQL Server has daily backups since it holds configuration information for the service to run properly.

[Multi-Zone Note]: In the Muti-Zone setup, the multiple zone will need to point to the same central SQL Server.

.Net Framework 4

Gladinet Cloud Enterprise Server is built with .Net Framework 4. It is also compatible with .Net Framework 4.5, which comes as default on Server 2012. We recommend using Windows Server 2012 and Server 2012 R2.

(Note: Most of the Access Clients are built with native code on each platform. Example, Windows Client built with Visual C++, Mac Client built with Object-C and etc.)

ASP.NET

Gladinet Cloud Enterprise web browser user interface is written in ASP.NET, HTML and Javascript.

Internet Information Server

Gladinet Cloud Enterprise services are hosted inside Internet Information Server(IIS). It provides brokerage functionalities between the Access Clients and the backend storage. It is also a value-add layer on top of the backend storage.

Recommended Hardware Specification

Memory: 8GB

Hard Drive: 100G

32-bit or 64-bit platform

Operating System: Windows 2008 R2, Windows 2012 or Windows 2012 R2

CPU: Intel (4-core or 4-vCPU)

(Virtual Machines are recommended.)

The following will be specific to multi-zone deployment, Please reference the Gladinet Cloud Enterprise Deployment Guide first before looking into multi-zone deployment.

Multi-Zone Deployment

Background

In the multi-zone setup, there is no replication between the two zones. The use case is that users have locality to each zone. For example, users in Los Angeles are using the storage from the LA zone, while the users in New York are using the storage from the NY zone. It is almost like two different and separated Gladinet Cloud Enterprise setups. However, by using the Multi-Zone deployment, the users can login at either location or login at a generic load balancer and eventually will be using the correct zone.

Example: User Joe belongs to LA zone. His zone assignment is la-share.acme.com. However, he can login to share.acme.com and use the file sync and share service without knowing he is coming from la-share zone.

Overall Architecture

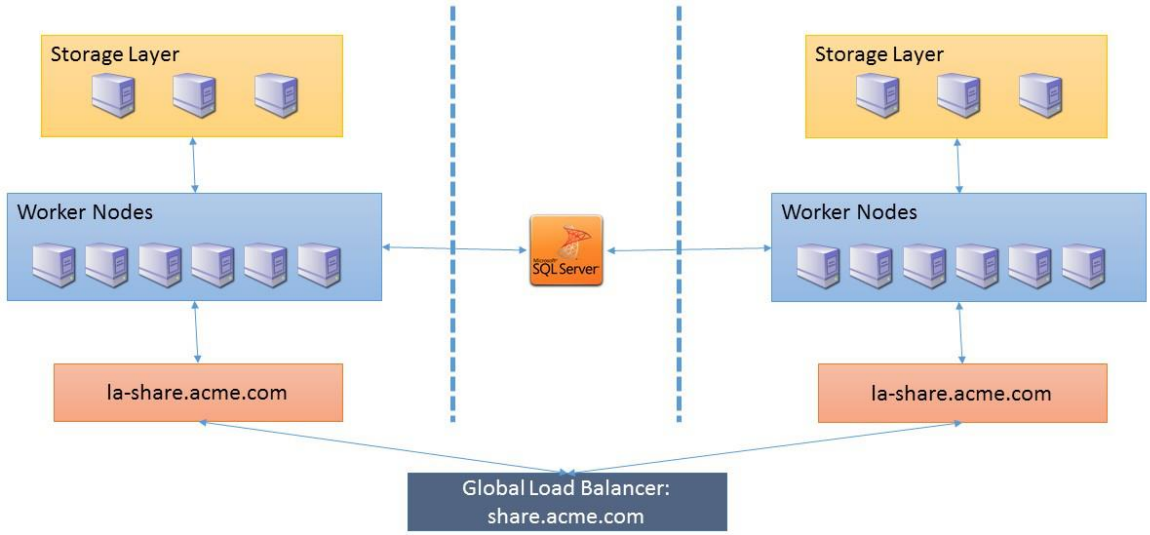
As shown in the following diagram, the architecture is broken into 4 different functionality layers.

Global Load Balancer – A global load balancer that directs users to the nearest site. However, the Global Load Balancer doesn't need to guarantee 100% accuracy of zone assignment. The worker nodes will guarantee zone accuracy.

Worker Node – The worker node upon user's login, will verify the user's zone assignment. If user is in the wrong zone, the worker node will redirect user to the correct zone.

SQL Server – The SQL Server will be shared among two zones. It can stay physically with a specific GEO location, however, its access and firewall needs open to the other zone for access.

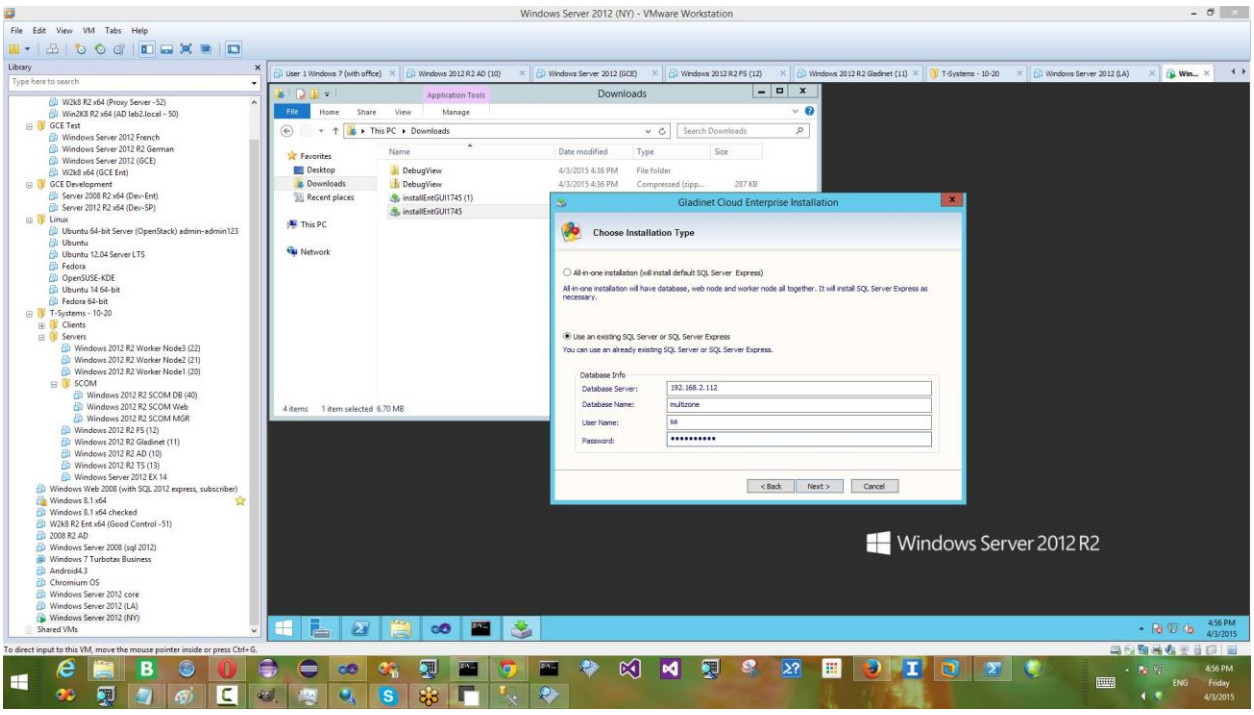
Storage Layer – The storage layer may stay with one single zone.



Add Worker Nodes in the Cluster

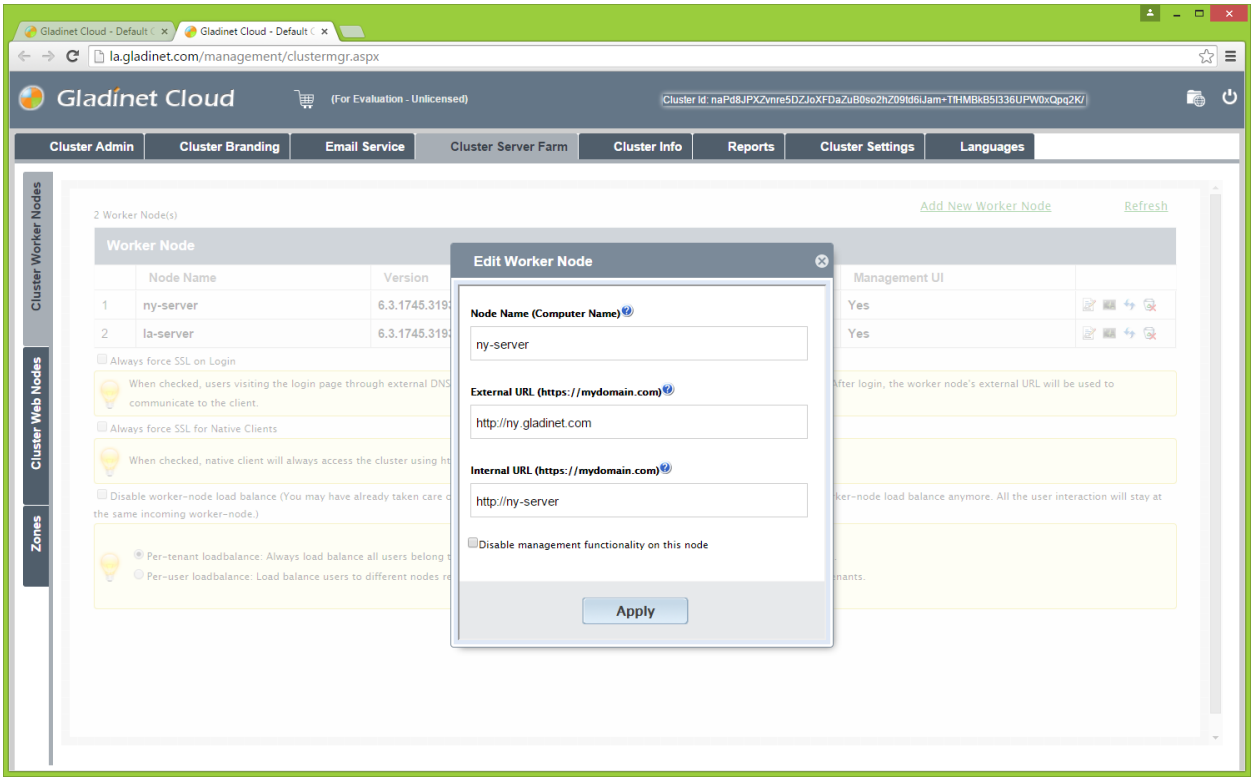
First need to create the central SQL Server database and make sure the SQL Server can be accessed by worker nodes from different zones.

In the following sample, when install the worker nodes, point the database to the same central SQL Server.



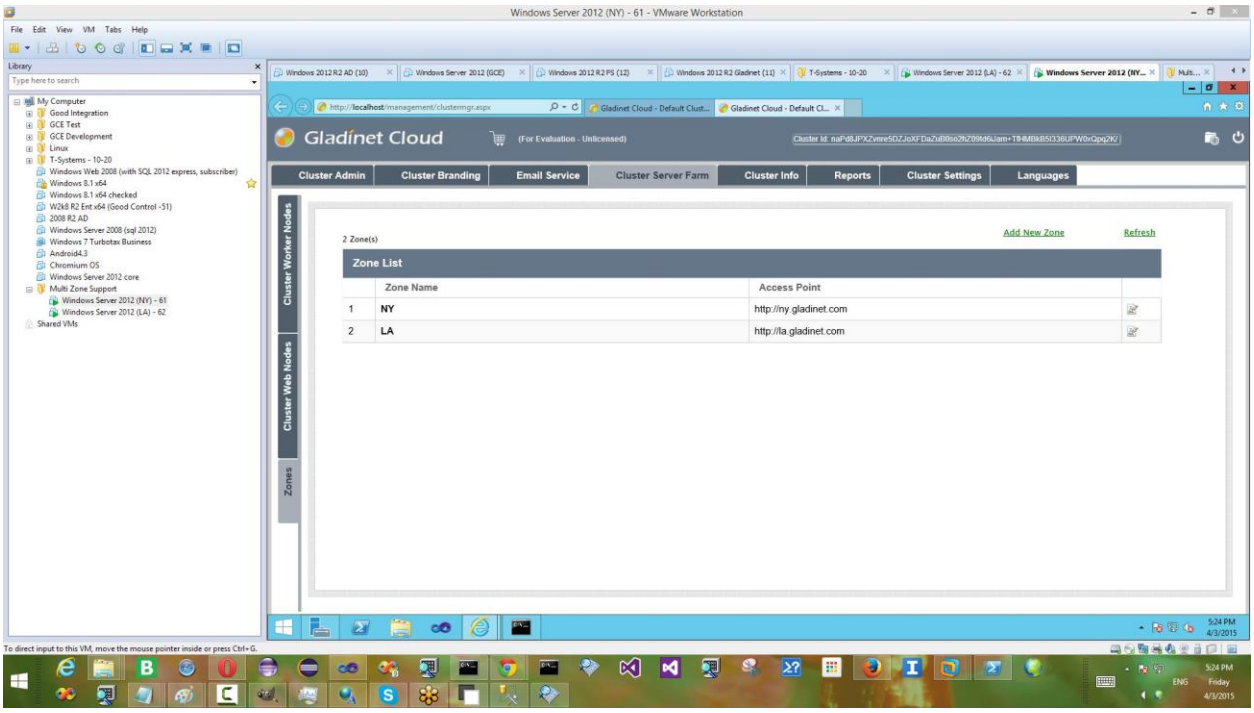
Assign Worker Nodes External URL

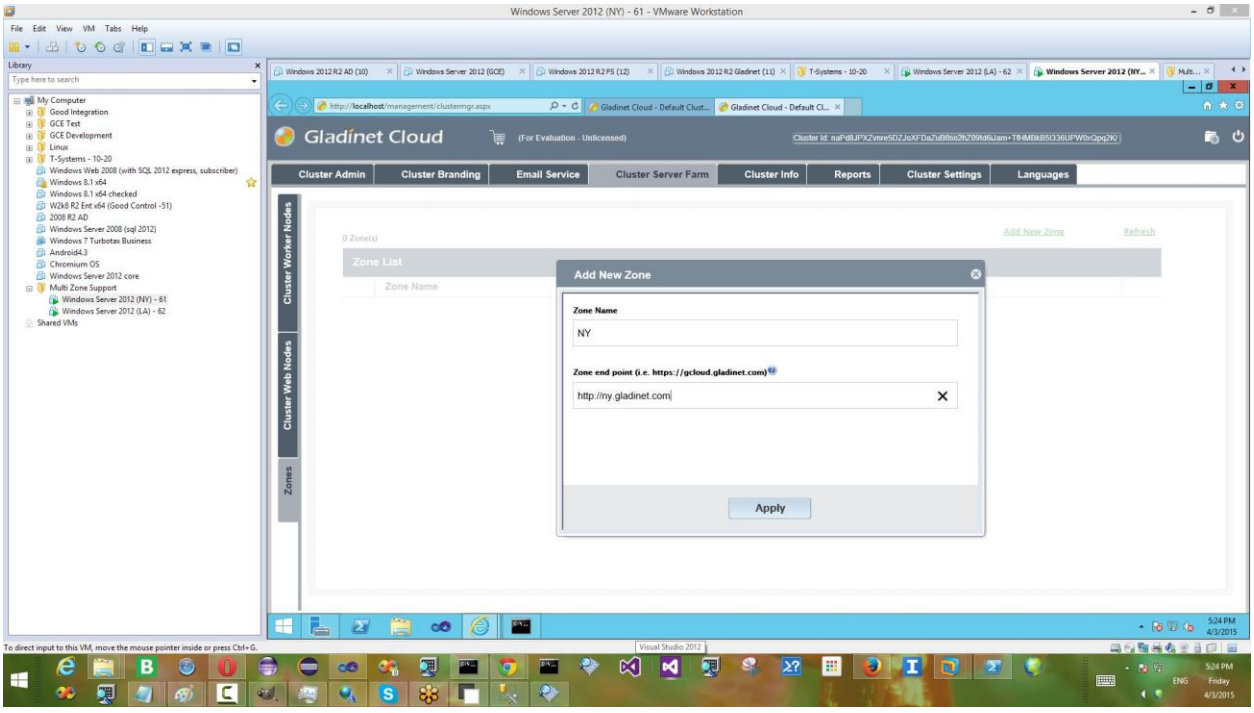
Now for each worker node, assign the worker node's External URL to each zone's URL.



Create Zones

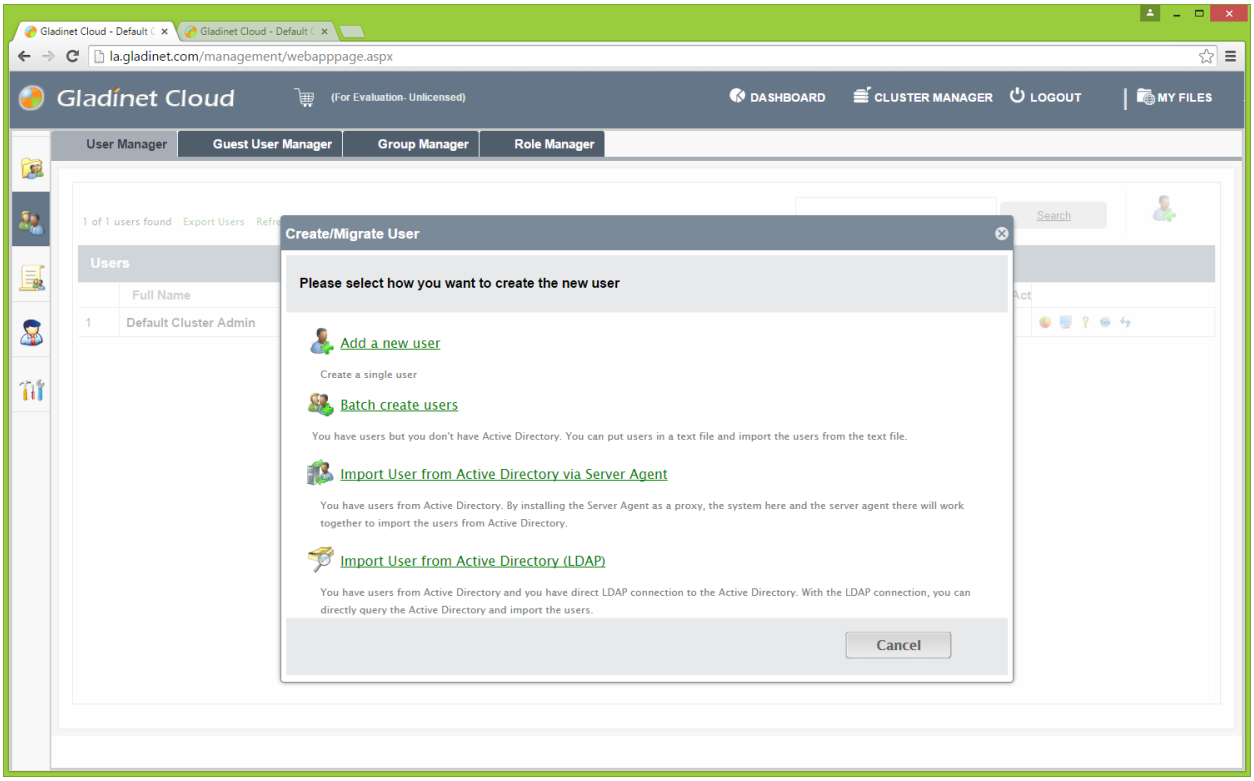
You can create zones from the cluster manager. Each zone is identified by the Zone Name. And each zone's value is its External URL.





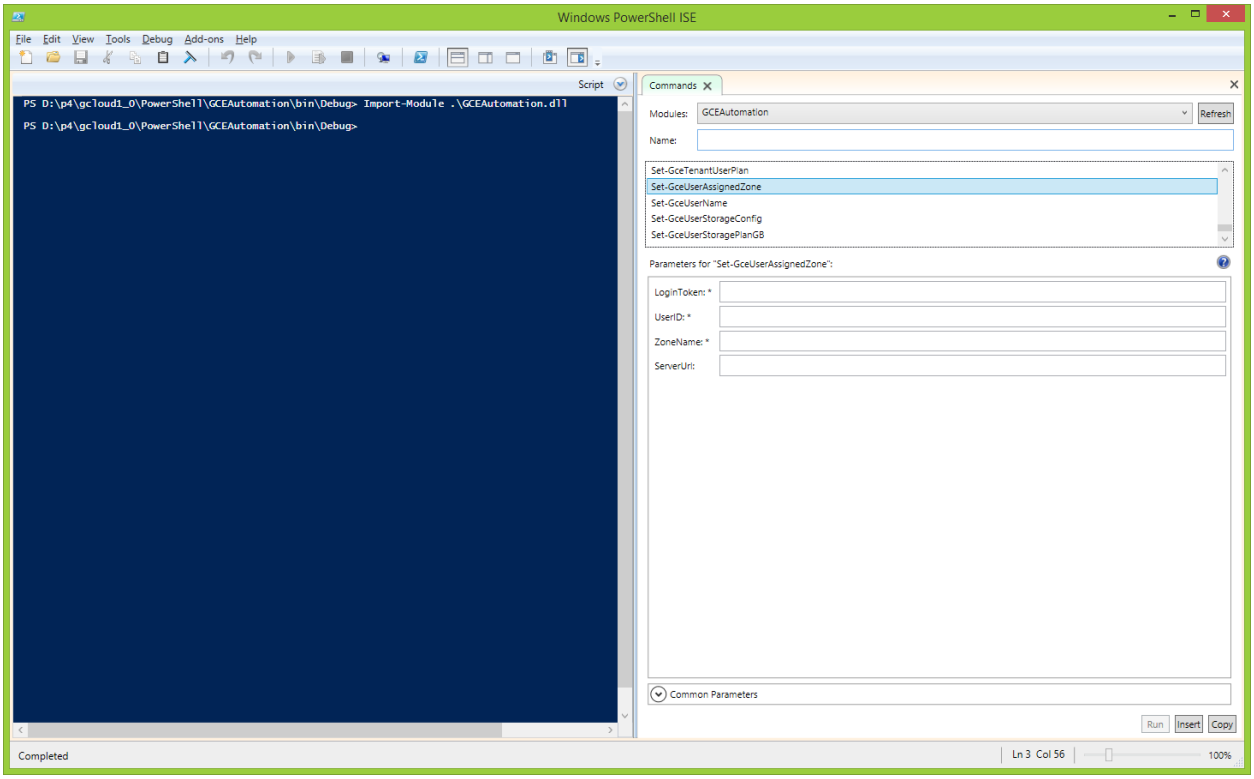
Create Users

You can create users normally from user manager. However, the users may get home directory assignment from one zone. The user's zone assignment needs to be adjusted later.



Assign User to Zone

You can assign user to zone from PowerShell command Set-GceUserAssignedZone



Update User's Storage Configuration

After the user's zone assignment is set, the user's home directory storage configuration will need to be updated to point to the storage location in the new zone. The PowerShell command is Set-GceUserStorageConfig