Cloud Computing with Cloudmesh

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Introduction

Cloudmesh is an open source project to easily manage virtual machines in a multicloud environment. With Cloudmesh, it is possible to use Azure, Amazon Web Services, OpenStack, and other clouds.

It is well known that Windows operating system is largely used in corporations and academic settings. The previous Cloudmesh command line client works under Linux and Mac machines. However, it did not support the Windows environment.
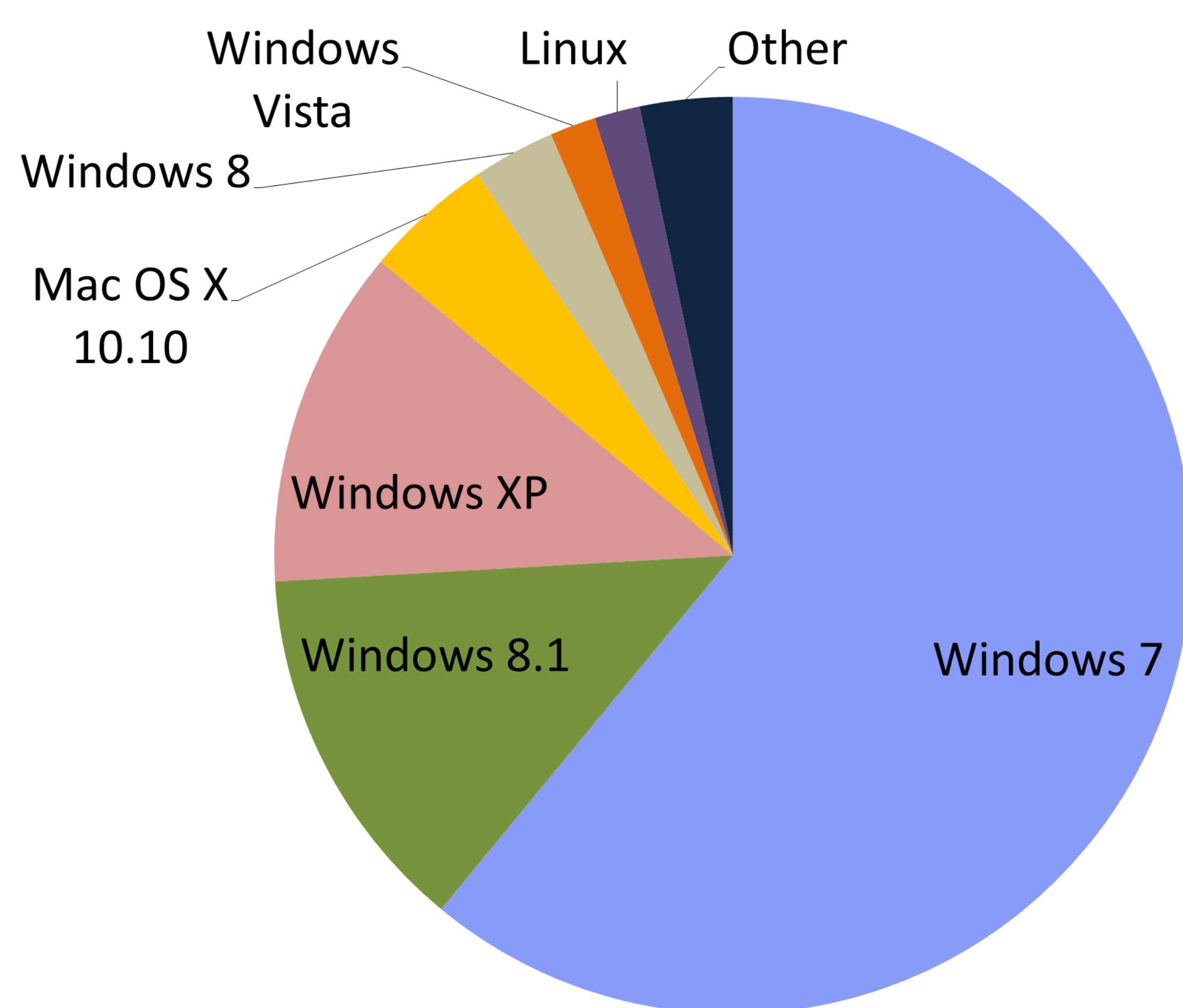

Figure 1. Desktop Operating System market share [2].

Goals

The aim of this project is to:

a) Create a new version of Cloudmesh that supports the Cloudmesh command line and shell tools also under Windows.

b) Provide user documentation to install Cloudmesh on Windows.

c) Provide an exhaustive test environment to verify that cloudmesh works on Windows (including ssh key management).

d) Provide a customized registration command for Windows that makes it easy to use existing ssh keys to log into the system.

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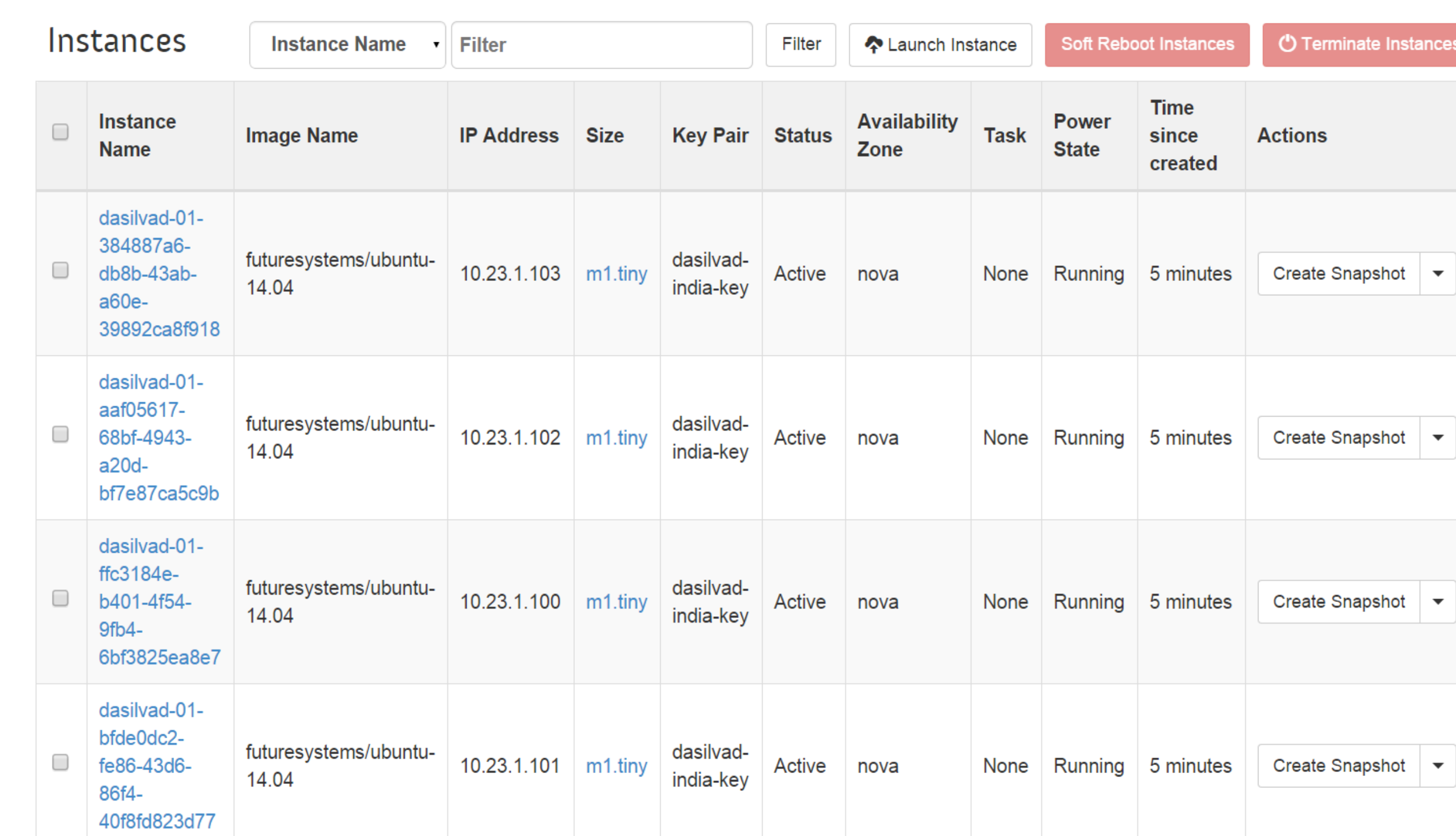Gregor von Laszewski, laszewski@gmail.com

Results

Cloudmesh Shell and command lines that work in Linux, Mac and Windows environments have been prototyped. In particular we focused on the following:

• An arbitrary number of Virtual Machines can be created and deleted. Users can specify the amount of resources that the new virtual machine will have.

• We improved the previous version of Cloudmesh with regards to registering and listing clouds to be integrated and accessed by Cloudmesh.

• A search command has been created in order to retrieve information about clouds that are registered in the local database.

• The database has been changed from Mongodb to SQLite accessed via SQLAlchemy. This allowed us to avoid the need to start a deamon for the database. Instead, we are able to utilize SQLite in memory service that reads and writes the data to files to achieve consistency.

• Developing segments of documentation for installing Cloudmesh on Windows machine.

• The source code was documented in part.

Figure 2 shows a screenshot of the Cloudmesh Shell upon startup. Figure 3 shows virtual machines started with Cloudmesh through OpenStack Horizon.

Figure 2. Cloudmesh running on Cygwin.

Figure 3. Instances started with Cloudmesh and listed through OpenStack Horizon [3].

Conclusion

With the new version of Cloudmesh, research organizations and industries that use Windows Machines will be able to utilize Cloudmesh without changing their software infrastructure.

Future Work

Because Cloudmesh is a large project, only a small parts of its previous features have been implemented. We focused on virtual machine management on OpenStack. We suggest the addition of features from the previous version of Cloudmesh, such as:

a) Image management.
b) Virtual cluster management.
c) Access through a Web framework to satisfy Graphical User Interface requirements.
d) Managing security groups.
e) Displaying the status of the database and clouds.
f) Better error analysis.

Acknowledgments

References

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