Unit 6 is next - common cloud tasks.
Read through the learning objectives for this unit…

- Recognize the categories of common cloud tasks
- Identify the requirements for installing a cloud
- Identify the procedures and results of installation
- Carry out Cloud Manager Deployment server installation tasks
It is hard to cover all the common cloud tasks in an introduction course. However, the tasks can be categorized into three groups of users in according to their roles:

- Users with managing cloud service roles
- Users with cloud development roles
- Users who use cloud services for works

A logical starting point is with users who build or install a cloud. Once the cloud environment is built, these users remain in the managing roles. They might also pass the cloud environment to other groups of users with developing roles. Users with using roles make up the largest group of cloud users. They are any regular users that include non-information technology users.
This unit assumes that you explored the infrastructure components in earlier units. You have the technical backgrounds on the three main components: server, storage, and network. You also learned about the virtualization manager and virtual resources in the previous unit. Now you are ready to create the needed virtual machines, with the required images. You also need to obtain the installation packages. You need skills in system administration and software installation, either in using virtual machines or bare metal servers. These skills are also required for you to understand the lab demo exercises in this class.
When you talk about common cloud tasks, by using practical examples from a real software product helps. IBM Cloud Manager with OpenStack (ICMwO or just ICM) is used in class lectures as an example. The lab exercise units also use ICM as simulator or demo. ICM is reasonably simple in comparing to other cloud manager software.

The visual lists a summary of what you learn from working with ICM through out this class.
This visual shows a table that lists resource requirements for ICM servers: Deployment server and OpenStack controller. The minimum hardware requirements are mandatory for the servers to be running in a test environment. The recommended minimum hardware production requirements might include other performance factors other than minimum hardware requirements. The same requirements are applied to bare metal servers or virtual servers. Although, virtual servers might share resources with other virtual servers. The advantage of using virtual servers is that you can adjust resources as needed. Virtual servers can also be rebuilt quickly.

**Additional information:**

IBM Knowledge Center for Cloud Manager with OpenStack 4.3.0
http://www-01.ibm.com/support/knowledgecenter/SST55W_4.3.0/liaca/liacahardware.html
Network is one of the three major infrastructure components. The hosts and servers or virtual machines communicate through network interfaces. ICM requires that its servers use static IP addresses, as opposed to using Dynamic host configuration protocol (DHCP) for dynamic IP addresses. Hostname resolution is required either through Domain name server (DNS) or local /etc/hosts file. For security concerns, user access is through the secured shell (ssh). Applications or service interfaces also need to communicate with each other. Some of them might require disabling the firewall.
The visual lists ICM servers' software supports as examples. Even if you install some other cloud manager software, be on the look out for similar support conditions. Most important is the operating system that runs the virtual servers. For example, ICM 4.3 chooses RHEL 7.1, on PowerLinux or x86 Linux. The rest are typical software packages in a cloud installation, such as:

- Databases
- Messaging services
- User registries
The web browser user interface is critical for accessing Cloud Manager services. The visual lists the most popular web browsers and their latest releases. For your favorite browser, test it out with the ICM features that are important to your work.

<table>
<thead>
<tr>
<th>Browser</th>
<th>Versions</th>
<th>Notes</th>
</tr>
</thead>
</table>
| Internet Explorer | 11.0     | With latest fix pack  
Minimum resolution of 1024x768 (or greater)  
Internet Explorer 9 or 10 compatibility view is not supported |
| Firefox        | 31       | With latest fix pack  
Minimum resolution of 1024x768 (or greater) |
| Chrome         | 38       | With latest fix pack                                                  |
| Satan          | /        | With latest fix pack                                                  |
You download the ICM installation packages in a tar or zip file, from the IBM software download site. The compressed file has to be decompressed into a temporary dir. Follow the installation guide to verify that the files are all there. The <INSTALLER_LAUNCH_DIR> is where you will find the installation command. The ICM installation also requires other software packages that it can obtain from the RHEL yum repository. Thus, you need to set up the local yum repository or register the server for RHEL repository subscription services.
When the executable file was packed into the compressed file, the executable permission bit might be disabled. You need to check and enable it. The installer command name is the same for different platforms or operation system. Therefore, the name should have a different identifier as <OS> for example. The command optional flag –i is for specifying the run mode:

- Default is to run in text console
- i= gui is to run in graphical interface mode
- i= silent is to run in silent mode with the –f option flag for the response file

These common running modes are usually provided by most installers.
The final installation might be a success or failure. The typical task after installation is checking for success message from the installer. What applications are installed as a result? In the case of ICM, the Deployment server is installed. Deployment server is not the entire Cloud Manager but a chef server with its virtual infrastructure and tools for creating the ICM cloud environment. If the installation failed, then the tasks are to analyze logs, debug, and retry.
The command `chef-server-ctl status` lists the chef processes and services for verification. Bookshelf is the main component for running chef. Nginx is the web server. Postgresql is a database manager and redis is the in-memory but persistent on disk database. Rabbitmq is the messaging service that enables communications between the components. If you are familiar with chef, try other commands such as knife. Work with chef or learn more about it in any other ways on this server. For ICM, chef's role is to deploy cloud environments.
In a traditional installation, silent installation does not require user interaction. It might require a response file and can run the installation remotely. The user starts an installer that includes all the packages for the automated installation. The installation can be executed on a remote node. Comparing to cloud deployment, the installation might call for extra installation packages that have to be available from some package repositories. A deployment usually is involved with a server and one or more deployed nodes. The deployment environments have to be prepared and validated in advance. The deployment setup might include many individual processes like chef’s cookbooks and recipes. As part of the processes, deployment agents are created to carry out installation procedures on the nodes.
For starter, YAML stands for “YAML ain’t markup language”. As you can see in the example, the markup tags and values are readable. YAML builds the data structures out of this configuration file. It further provides the capability to convert these data structures into serialized text or data. The idea is that any programming languages can access and use these configuration properties.

For additional information visit the YAML home page: http://yaml.org
The visual shows examples of the nodes configuration in a YAML file. Each property or attribute is a name: value pair. These attributes are built into data structures that represent the nodes in the database.
The figure illustrates the cloud environment that you will work with in this class. In this unit, you install the Deployment Server. You do all the preparation and validation as you can from the Deployment Server. Now you are ready to deploy the cloud environment in the next unit.
Keywords

- IBM Cloud Manager with OpenStack (ICMwOS or ICM)
- Deployment server
- OpenStack controller
- DNS (Domain name server)
- DHCP (Dynamic Host Configuration Protocol)
- Hostname resolution
- Fqdn (Fully qualified domain name)
- Ssh (secured shell)
- Databases
- Messaging services
- User Registry
- Yum repository
- Subscription service
- YAML (YAML Ain’t Markup Language)

Critical Keywords for you to understand.
Time to test your knowledge.

Write your answers here:

1.
2.
3.
4.
So, how did you do?
Four activities in this lab - have fun!
Can you do the following?

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