An Application Deployment to Openshift Cloud Using Existing Git Repository From Local Client

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Abstract: *Cloud is capable of running many kinds of applications. Putting application to some clouds are free and had their own procedure. Few clouds are famous for their services and OPENSHIFT, a Red Hat Cloud, is one of that cloud service provider which is constantly providing good services thus famous one for individual application deployment. Keeping personal development in mind here we are describing complete procedure to deploy application to OPENSHIFT cloud. For deployment first create a small application in HTML or PHP then application is connected to the newly created GIT repository. GIT repository is then connected to the OPENSHIFT account. Cloud deployment will provide a link which can be used to access your application. Application is successfully running over cloud thus availability to your project anywhere. Deploying application to cloud will provide the access anywhere ease. This deployment will teach the procedure to manage big applications and also this procedure will reflect immediate change in cloud when applications edited at local machine. This will help developers, researcher, and student to start with the very popular concept of cloud.*

Keywords: Cloud Application, OPENSHIFT, Application Deployment.

1. Introduction

Cloud is rapidly growing technology in the market today. Rapid growth needs engineer and students to be aware about technology/cloud and also how it works. To start change in thinking to develop and thinking of any application for cloud, first we need to have hands on experience to deploy the existing application in cloud. Practical approach is necessary in case of learning new things/technology rapidly; it is the first step towards innovation which gives new ideas related to new technology. There are many service providers who are providing cloud services for free for some time or free for one application to give idea of working of cloud. OpenShift is a cloud service by RedHat, RedHat is constantly providing good services to its clients and has free cloud deployment model to new users.

OpenShift, developed by RedHat is the open hybrid cloud application platform by RedHat. It allows to develop, scale and host application in the cloud.
GIT, is again by RedHat, a pool of repositories public and private both. Many developers are using this wonderful tool to manage codes. This tool allows tracking the code change with custom information.

2. Defining Cloud

Cloud Computing can be defined in various terms. Here we present some of the key definitions of cloud:

- Cloud computing is a broad array of web-based services aimed at allowing users to obtain a wide range of functional capabilities on a „pay-as-you-go‟ basis that previously

- required tremendous hardware and software investments and professional skills to acquire. Cloud computing is the realization of the earlier ideals of utility computing without the technical complexities or complicated deployment worries.[5]
- Buyya et al. have defined it as follows: "Cloud is aparallel and distributed computing system consisting of a collection of inter-connected and virtualised computers that are dynamically provisioned and presented as one or more unified computing resources based on service-level agreements (SLA) established through negotiation between the service provider and consumers.[7] McKinsey and Co. report claims that "Clouds are hardware based services offering compute, network, and storage capacity where: hardware management is highly abstracted from the buyer, buyers incur infrastructure costs as variable OPEX and infrastructure capacity is highly elastic." [6]
- "Cloud computing is a model for enabling convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction. This cloud model promotes availability and is composed of five essential characteristics, three service models, and four deployment models." by US National Institute of Standards and Technology (NIST).[4]

3. Method of Deployment

Deploying an application concern about two main things

updating codes should be easy and maintain codes in proper manner to track issues. This needs to use tools. First step is developing code, here in the example a simple project of unix-tutorials are taken which is in HTML files with the use of jqurey.

Second step is creating repository in GIT using many other services like BITBUCKET. BITBUCKET provides the private repository for free. It is developed by Atlassian.

Third step, installing GIT client to machine depends on Operating System and bits. Source Tree, Smart GIT/HG, etc. like clients, are used to map code in the local machine to the remote.

Fourth Step, mapping OPENSHIFT account application to the existing GIT repository.

4. Implementation

4.1 Pre-Requisite for Application Deployment in Cloud

1. Git Repository of project. That can be created through portals like bit-bucket. This example is using bitbucket.

2. Install tool Smart GIT/HG 6.0.6. or equivalent. Example using Smart GIT for Windows 8.1 Pro.

3. An account of OPENSHIFT.

4.2 Steps for Deploying Application in Open-Shift

1. Create an account in bitbucket.org – for creating a repository in GIT.
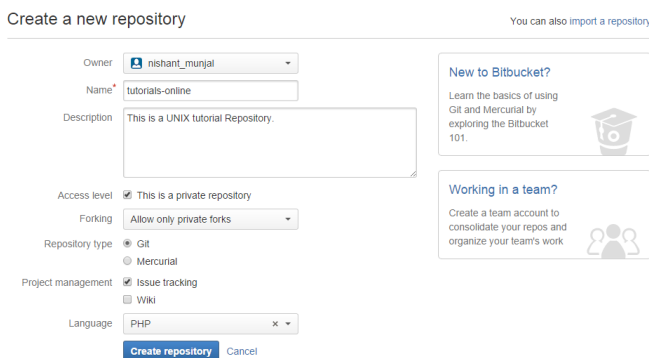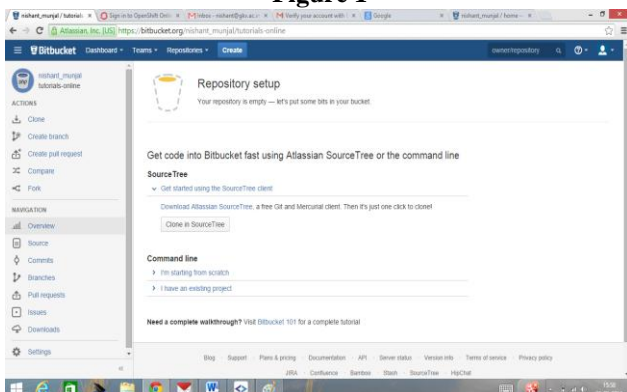2. Create a repository in bitbucket.

Figure 1

Figure 2

3. Click "Clone" tab and a link will appear copy this link.

4. Start Smart GIG 6, software add repository from "repository" menu tab. Provide path to your local machine where your projects is actually stays.
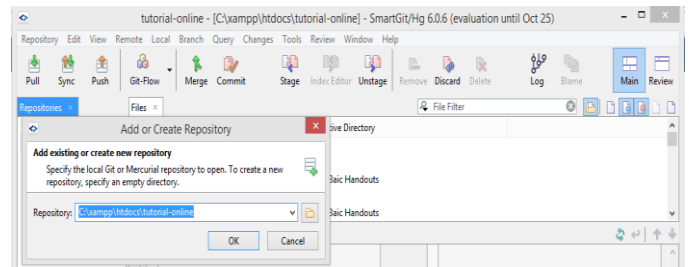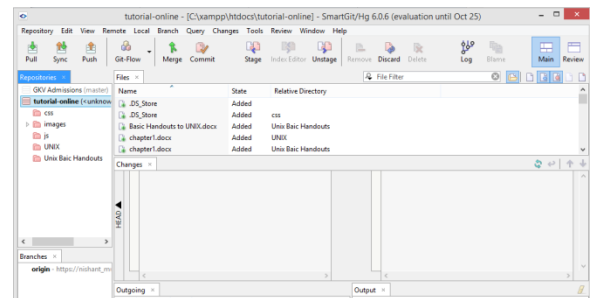
Figure 3

Figure 4

5. Now connect with GIT. Click "Remote" tab from Menu in Smart GIG/HG 6. Click "Add". One dialog box will appear "Add Remote Repository". Copy the HTTPS link copied earlier and remove "git clone" from the link. This process will connect repository on bitbucket.
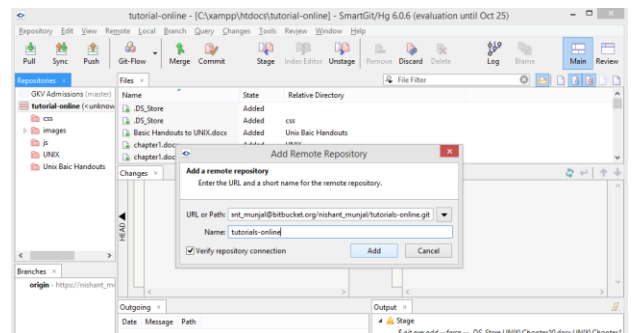
Figure 5

6. Click "PULL" tab from menu. Sometimes it shows error while pushing repository to bitcuket. (Error: LF will be replaced by CRLF), this error generally comes if your online bitbucket account is not properly synced to the local account. So better FIRST pull the defaults in local and then starts again by pushing the data up to bitcuket(pushing procedure written below).

7. Now push repository from your own local computer path. By below process or by clicking "Branches link"(like here tutorials-online) to which you want to push and then PUSH in menu tab.
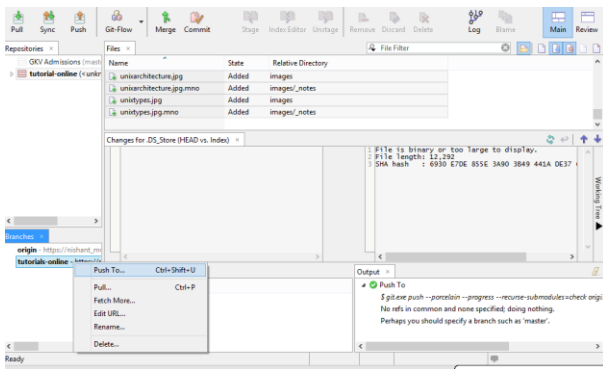
Figure 6

8. Now log onto https://openshift.redhat.com. And create an account and Log-in

9. Now click tab APPLICATIONS. And then ADD APPLICATION

10. Now select the CARTRIDGES. Means select the tool on which you build your application you will use while in project. (In example PHP is taken as the project is in HTML and PHP format).

   In Public URL- type any name relating to your project or repository. And note down the complete URL name. In Source Code put your GIT repo path – The same path which was used to link with SMART GIT. Now Click "Create Application" in last.

Figure 7

Figure 8

11. Project/Repository is UPLOADED successfully.
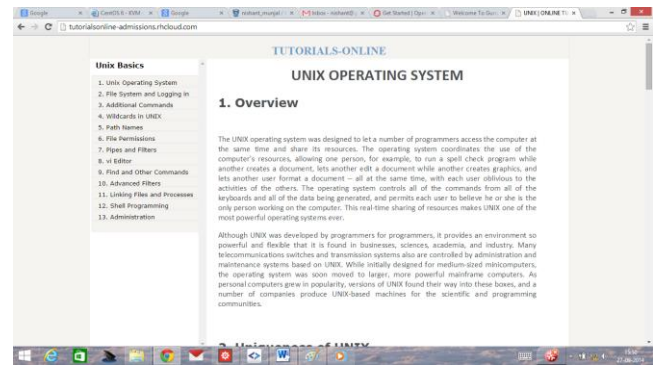

Figure 9

Figure 10

12. Now access your application.

5. Conclusion

This complete process helps in understanding the entire procedure of deploying application to cloud with easy to handle way. The most important part in any development is updating things on run-time. This complete process is long but it will help managing project easily. Any change in the project/repository on local machine will directly reflect to the cloud after committing it on local machine. GIT helps in managing the code and provides collaboration.

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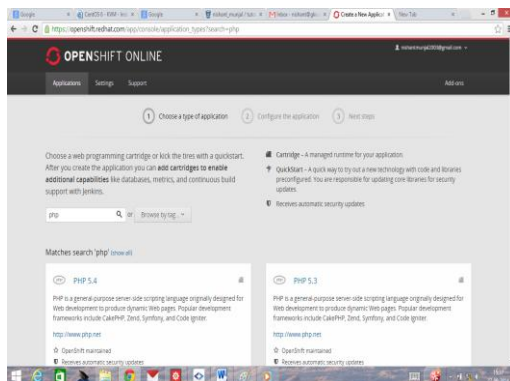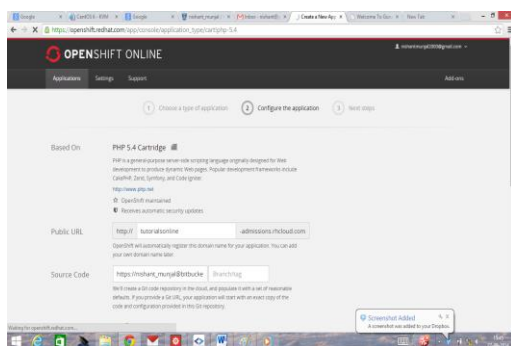
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