**Puppet Labs Technical Challenge**

Automate the installation and configuration of a nginx web server


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# Requirements

The nginx server should:

1. Serve requests over port 8000
2. Serve a page with the content of the following repository: https://github.com/puppetlabs/exercise-webpage.
3. Ensure that the required configuration is completed reliably when all the steps are completed
4. Ensure that subsequent applications of the solution do not
    i. cause failures or
    ii. repeat redundant configuration tasks.

Please perform this exercise on one of the following operating systems:

- CentOS
- RHEL
- Fedora
- Debian (6 or 7)
- Ubuntu (10.04, 12.04)

If you prefer you can use the vagrant boxes located here: http://puppet-vagrant-boxes.puppetlabs.com/
You can complete this exercise using your choice of automation tool or language.

Please attach:

1. Your solution, in the form of working code sample
2. A brief paragraph explaining the steps required to apply your solution
3. Answers to the following questions. Limit your answers to 1-2 Pages.

## Questions

1. Describe the most difficult/painful hurdle you had to overcome in implementing your solution.

2. Describe which puppet related concept you think is the hardest for new users to grasp.

3. Please comment on the concept embodied by the second requirement of the solution(ii)

4. Where did you go to find information to help you in the build process?

5. In a couple paragraphs explain what automation means to you and why it is important to an organization's infrastructure design strategy.

# Explanation

## Baseline

To begin with, I didn't know anything about Vagrant or Puppet when I started; this is all new to me. I came to the table with Linux and BASH skills. Anyway, given the choice of platform I ran with the debian-73-x64-virtualbox-puppet box. I had it all working within 3 days; could I have put life on hold it would have been turned in earlier.

## Assumptions

Any server intended to be a web server will be deployed with a static IP address; within the constraints of context, and for flexibility, this host `'weby'` maintains a dynamic IP address. The Provider extensions (VBoxGuestAdditions) are out of date but seem to work just fine; this was not updated. Also, it is assumed that you would like to see more puppet and less shell.

The overall assumption: Simple is Good.

## Description

Vagrant: required some common options. Additionally, I set the hostname and port forwarding.

Puppet: Finally had to read the books I picked up a few months ago. Within about an hour I had everything I needed. I realize the manifests look like they were written in crayon but that's not far from true.

## Answers

1. Describe the most difficult/painful hurdle you had to overcome in implementing your solution.
    a. Deciding how to implement it.
    b. The puppet language. It's not terribly difficult but there are nuances.

2. Describe which puppet related concept you think is the hardest for new users to grasp.
    a. The language. The upside is, it's as simple as it needs to be. There are complexities inherent to this business. They can't be avoided.

3. Please comment on the concept embodied by the second requirement of the solution(ii)
    a. Assuming this question is in reference to "subsequent applications: failures and redundancies", I assume both points to be good, general design principles. Personally, I have a few design principles that guide all of my development:
        i. *It seems that perfection is attained, not when there is nothing more to add, but when there is nothing more to take away*. -Antoine de Saint Exupéry
        ii. *Everything should be made as simple as possible, but no simpler*. -Albert Einstein

    Both are pursuant to simplicity which omits the possibility for redundancy and especially flaws/defects/bugs. Incidentally, nothing is applied twice in this solution.

4. Where did you go to find information to help you in the build process?
    a. For vagrant, I just used their website; it was quick and easy. For Puppet I had picked up the O'reilly book,  Puppet 3 Beginner's Guide; John Arundel, 2013; to move fast, the concepts were supplemented with various searches through Puppet's online documentation. I had everything else in my hands.

5. In a couple paragraphs explain what automation means to you and why it is important to an organization's infrastructure design strategy.

   A manager once asked me why I would write a program for many people to perform the same task on many different machines for many different clients. I explained, For all the same reasons you would write any program (I worked for a software company; databases), it should cause us to be:
   - Consist
   - Accurate
   - Complete, and
   - Published

   If any one of these are missing, there will be *avoidable problems* in the future. My view on avoidable problems is, essentially, that they should be avoided - at all costs. For example, a co-worker needed to add 12 (client) user accounts over 64 systems (individual Linux nodes) with a temp password; that's a lot of unnecessary typing.

   Leveraging pdsh (parallel shell (over ssh)), within 2 hours, I was able to hack a solution together that would perform this task in well under a minute.

   Had it lacked consistency, there could have been many and varied subsequent problems to clean up - all with a different solution; who has the time?

   Had it lacked accuracy, it would have been incorrect but at least consistent in it's incorrectness. But, then it's time to do the job - a second time; who has the time?

   Had it been incomplete, then the job has to be finished twice; who has the time?

   Had it not been published, there is the possibility of missing dumb mistakes; more eyes is always better.

   Over the years I've leaned-in to a simple concept:
   1. Get in
   2. Get done
   3. Get out
   4. Get paid

   Everything else is just keeping us from improving our work, ourselves and spending time with family and friends - *that's* what it's really all about.

   PS: I know this isn't what you were looking for but I truly believe I can do almost anything. I will continue with both Vagrant and Puppet. Next time you are looking for a consultant, I will be prepared.