CptS 464/564 Project #3
DETER testbed example usage

April 22, 2015

1 NS file

```
#.ns file starts

set ns [new Simulator]
source tb_compat.tcl

# Change this to a number of nodes you want
set NODES 4

set lanstr ""
for {set i 0} {$i < $NODES} {incr i} {
    set node($i) [$ns node]
    append lanstr "$node($i) "
}

# Change the BW and delay if you want
set lan0 [$ns make-lan "$lanstr" 100Mb 0ms]

$ns rtproto Static
$ns run

#.ns file ends
```

There is a way to auto-start programs on node start up using

```
tb-set-node-startcmd $nodeA "/proj/myproj/runme.nodeA"
tb-set-node-startcmd $nodeB "/proj/myproj/runme.nodeB"
```

...so that you can automatically install or run your program using a script.

2 Creating an experiment

1. After logging into deter lab hover over experimentation and click begin experiment.
2. Input information and use your .ns file.
3. Hover over experimentation and click My experiments.
4. Click on your experiment under EID (This is where all your information will go)
5. To the left of the screen you will see Experiment Options to activate your project for use click Swap in.
6. Click on the details tab near the top of your screen. (This information is what you will need to ssh into the correct nodes. It also contains info on your IP addresses.) To login into your nodes (I am using putty for this and have yet to use a different method so what works for me may not work for you). You will need to ssh into deter lab. `ssh users.deterlab.net`

   ```
   Login prompt: wsu464..
   Password : ********
   Then from their you will need to ssh into your node.
   Your node Virtual Node Info:
   ID              Type         OS      Qualified Name
   --------------- ------------ ----    --------------
   node-0          pc              node-0.Experiment.WSUCPTS464.isi.deterlab.net
   node-1          pc              node-1.Experiment.WSUCPTS464.isi.deterlab.net
   node-2          pc              node-2.Experiment.WSUCPTS464.isi.deterlab.net
   node-3          pc              node-3.Experiment.WSUCPTS464.isi.deterlab.net
   ```

7. Using this information ssh into a node. ssh node-0.Experiment.WSUCPTS464.isi.deterlab.net
8. From their you can install apps and run your programs. The command to install `go` is `sudo apt-get install golang`
9. `go run myfile.go`

3 Examples

A simple tcp server client can be found at:
`https://systembash.com/a-simple-go-tcp-server-and-tcp-client/`
it uses the local host settings to check connections from different nodes replace the ip address `127.0.0.1` with the IP addresses found in your details page.

```
Virtual Lan/Link Info:
ID              Member/Proto    IP/Mask         Delay     BW (Kbs)  Loss Rate
--------------- --------------- --------------- --------- --------- ---------
lan0            node-0:0        10.1.1.2        0.00      100000    0.00000000
                ethernet        255.255.255.0   0.00      100000    0.00000000
lan0            node-1:0        10.1.1.3        0.00      100000    0.00000000
                ethernet        255.255.255.0   0.00      100000    0.00000000
lan0            node-2:0        10.1.1.4        0.00      100000    0.00000000
                ethernet        255.255.255.0   0.00      100000    0.00000000
lan0            node-3:0        10.1.1.5        0.00      100000    0.00000000
                ethernet        255.255.255.0   0.00      100000    0.0000000
```

You can also ping these IP to check that they are working. Also python seems to be automatically installed and an example program to use can be found at:
`http://ilab.cs.byu.edu/python/socket/echoserver.html`
`http://ilab.cs.byu.edu/python/socket/echoclient.html`
...and can be run using the command `python myfile.py`.