

3

Week 18
May
Wednesday (123-242)

Week	May '17
Monday	1 8 15 22 29
Tuesday	2 9 16 23 30
Wednesday	3 10 17 24 31
Thursday	4 11 18 25
Friday	5 12 19 26
Saturday	6 13 20 27
Sunday	7 14 21 28

Week	June '17
Monday	5 12 19 26
Tuesday	6 13 20 27
Wednesday	7 14 21 28
Thursday	1 8 15 22 29
Friday	3 10 17 24
Saturday	4 11 18 25
Sunday	

* ANSIBLE

What is Ansible?

It is an open-source configuration management tool which is created by using "Python."

Main m/c on which ansible is installed is called as controller.

Remote servers that ansible configures are called as managed nodes.

Ansible uses agentless policy for Configuring remote servers i.e; Ansible is installed only on 1 m/c, and we don't require any client side softwares to be installed on the remote servers.

Ansible performs configuration management through password less "ssh".

^{Biggest}
Netflix is the client of AWS.

~~Ex:- Suppose there are 1000 instances running & client wants to install some security package.~~
It is very difficult to install the package in all m/cs manually then with the help of CMT like "Ansible" it is possible.

What,

This is remote control

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16.00

17.00

18.00

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From packa

	June '17	22	23	24	25	26
Work		5	12	19	26	
Monday		6	13	20	27	
Tuesday		7	14	21	28	
Wednesday	1	8	15	22	29	
Thursday	2	9	16	23	30	
Friday	3	10	17	24		
Saturday	4	11	18	25		
Sunday						

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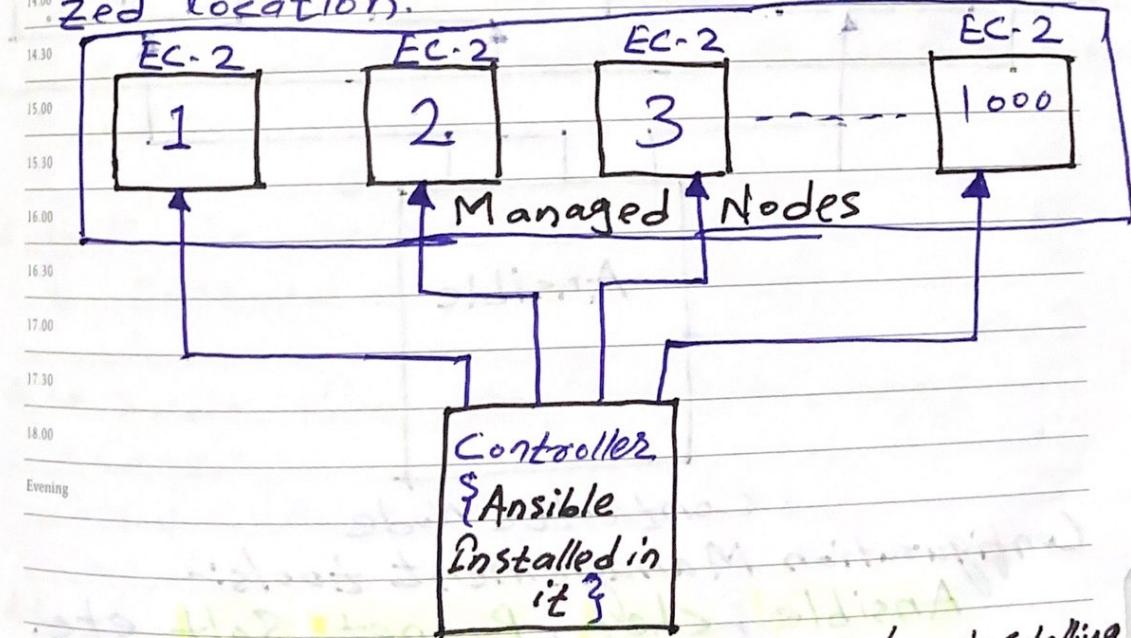
What is Configuration Management?

This is a process of Configuring remote servers from one point of control.

Advantages of Configuration Management

① Provisioning of Servers

The applications that should be installed on servers can be done very quickly from a single centralized location.



From the Controller m/c we will be installing packages etc. into the all m/cs.

- | Things To Do | Important Notes |
|--------------------------|--------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> |
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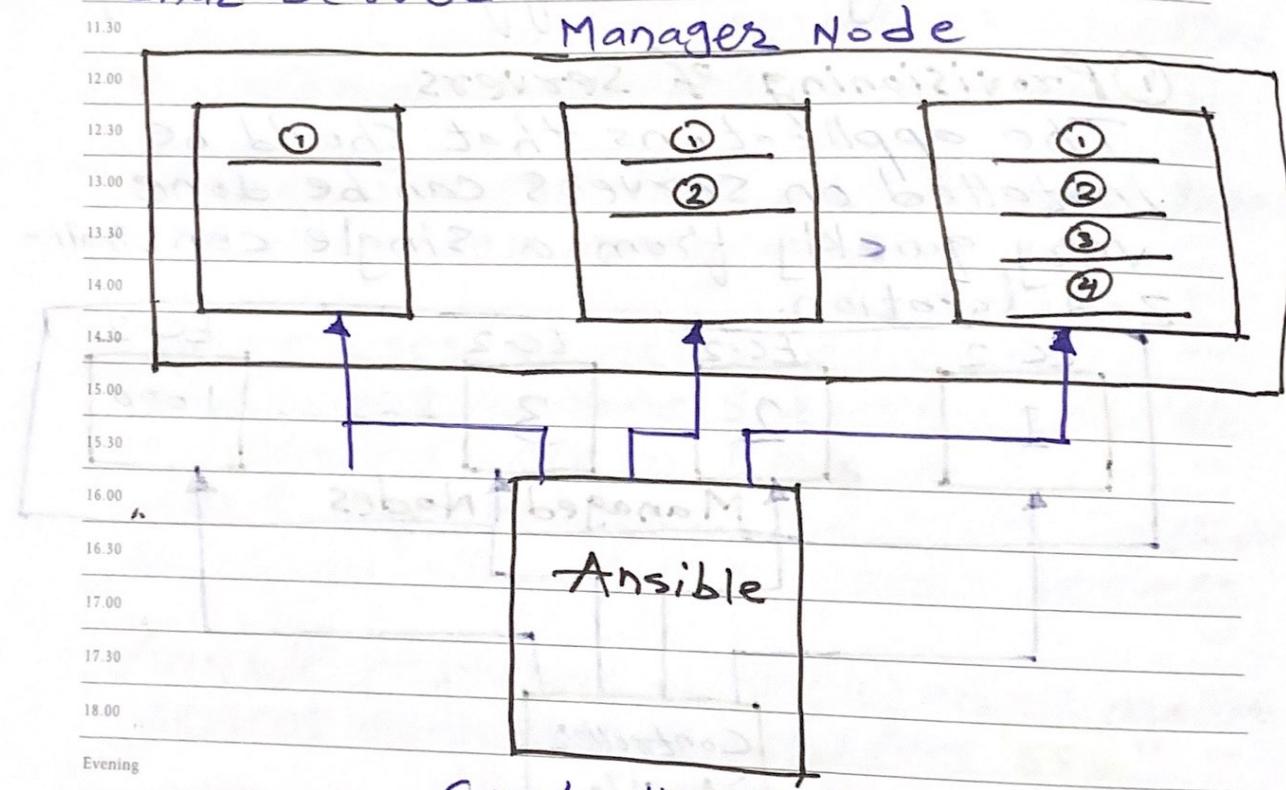
5

Week 18
May
Friday (125-240)

Week	18	19	20	21	22
Monday	1	8	15	22	29
Tuesday	2	9	16	23	30
Wednesday	3	10	17	24	31
Thursday	4	11	18	25	
Friday	5	12	19	26	
Saturday	6	13	20	27	
Sunday	7	14	21	28	

② Idempotent

Configuration management tools are used to bring the server to a particular state called as desired state. If a server is already in the desired state CMT will not reconfigure that server.



Controller Node

Configuration Management Tools:-

Ansible, Chef, Puppet, Salt etc.

Meetings

✓ Things To Do



✓ Important Calls



	June '17				
Week	22	23	24	25	26
Monday	5	12	19	26	
Tuesday	6	13	20	27	
Wednesday	7	14	21	28	
Thursday	1	8	15	22	29
Friday	2	9	16	23	30
Saturday	3	10	17	24	
Sunday	4	11	18	25	

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Ex:- We need 4 instances

1 controller Node

3 Managed Node i.e; (server(1,2,3))

10.00 Taking Ubuntu 22.04

10.30 t2.micro

11.00 SG - All traffic

11.30

* Note:- Ubuntu m/cs comes with default Python3.

13.30 Steps:-

14.00 ① First we've to establish passwordless ssh connection bet" controller & managed node

15.30

* ↳ Sudo passwd ubuntu
(∴ Passwd can be anything)

SUNDAY 7

* ↳ Sudo Vim /etc/ssh/sshd_config
change

PasswdAuthentication Yes

:wq ↳

* ↳ Sudo Service ssh restart
Repeat above steps on server 2 & 3

Meetings	✓	Things To Do	✓	Important Calls	✓
	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>
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Week 19
May
Monday (128-237)

Week	18	19	20	21	22
Monday	1	8	15	22	29
Tuesday	2	9	16	23	30
Wednesday	3	10	17	24	31
Thursday	4	11	18	25	
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Wednesday	7	14	21	28	
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Saturday	3	10	17	24	
Sunday	4	11	18	25	

② Now, Connect to Controller node

Now, we need to generate ssh connections

10:00 ↳ ssh-keygen

11:00 Now copy the key

12:00 ↳ ssh-copy-id ubuntu@ Private IP of Server1

13:00 ↳ ssh-copy-id ubuntu@ Private IP of Server2

14:00 ↳ ssh-copy-id ubuntu@ Private IP of Server3

③ Installing Ansible

From ansible documentation

↳ sudo apt-get update

17:00 ↳ sudo apt-get install software-properties-common

18:00 ↳ sudo apt-add-repository ppa:ansible/ansible

Evening ↳ sudo apt-get install -y ansible

↳ ansible --version (To check version)

Meetings	Things To Do	Important Calls
	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>

Imp Now we

of managed our hosts

10:00 ↳ cd /e

10:30 ↳ ls

11:00 ↳ sudo

12:00 Adding +

13:00 :wq ↳

★ 14:00 ↳ ansible

14:30 all

15:00

15:30 (we'll go in mana

16:00

16:30 in mana

17:00

17:30 ↳ ansible

18:00 This Ze

Evening created,

Imp Note:- If we can't have shell scri

	June '17				
Week	22	23	24	25	26
Monday	5	12	19	26	
Tuesday	6	13	20	27	
Wednesday	7	14	21	28	
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Saturday	3	10	17	24	
Sunday	4	11	18	25	

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Imp Now we've to write the ip addresses of managed nodes in the inventory file or hosts file

↳ cd /etc/ansible
↳ ls

↳ sudo vim hosts

Adding private IPs of managed nodes

:wq ↳

* ↳ ansible all -a 'ls -la'

all m/cs argument

(we'll get the list of all the files in managed nodes).

* ↳ ansible all -a 'mkdir Zeeshan'
This Zeeshan name folder will be created in all the managed nodes.

Imp Note:- If there are 100 m/cs in that case we can't have to add the ips with the help of Shell Scripting.

Things To Do

✓ Important Calls

- | | |
|---|---|
| □ | □ |
| □ | □ |
| □ | □ |

Week	18	19	20	21	22
Monday	1	8	15	22	29
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Sunday	4	11	18	25	

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unctions.

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ing
odes.

* \hookrightarrow ansible all -i /etc/ansible/hosts -m command

-a 'touch f1'

9:00 We can check whether the file created in the managed nodes or not by SSH Private IP of Any Server or

10:00 ssh ubuntu@ Pri. IP of Server-1/2/3

11:00 After connecting to see any server

↳ ls

② Shell Module:-

It is used to

13:30 execute commands which involved redirection and piping and to execute shell scripts on managed nodes.

15:30 Ex- Installing docker on all m/cs.

16:00 Taking shell script from (get.docker.com)

16:30

* \hookrightarrow ansible all -i /etc/ansible/hosts -m shell -a 'docker-script'

17:30

* \hookrightarrow ansible all -i /etc/ansible/hosts -m shell -a 'docker-file i.e., shfile'

Now, Docker is installed successfully on all m/cs.

Meetings

✓ Things To Do

✓ Important Calls

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12 Week 19
May
Friday (132-233)

Week	18	19	20	21	22
Monday	1	8	15	22	29
Tuesday	2	9	16	23	30
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Thursday	4	11	18	25	
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Saturday	6	13	20	27	
Sunday	7	14	21	28	

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Saturday	3	10	17	24	
Sunday	4	11	18	25	

Ex:- Creating my own inventory file and it contain only 2 mks IP.

8.00 ↳ vi myinventory
10.00 Pasting IPs of 2 mks which we want.
10.30 :wq ↳
11.00

* ↳ ansible all -i myinventory -m command
11.00 -a 'ls -la'
12.00 It will show the list of files of mks
13.00 whose IP is in myinventory file.
13.30

Note:- If you don't mention the inventory file, it takes default one.

ex:- ansible all -m Command -a 'free'

③ User Module:-

It is used for user management like create user, setting password, assign home directory etc.

Ex:- I want create user in all managed nodes

* ↳ ansible all -m user -a 'name=zeeshan
Meetings Password=1234' -b

[become=b, it is used for higher privileges on managed nodes]

Ex:- I want to create name, password, directory & def.

8.00 ↳ ansible all -m
10.00 Password=1234
10.30 home=/home/lubu
11.00

④ APT Module:

12.00 package manager
13.00 i.e., Installing
13.30 repositories etc.
14.00 It works on
14.30

Ex:- I want to install nodes

* ↳ ansible all -m apt

Note:-
State = P

State = a

State = l

Meetings	✓	1
	✓	
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Week	18	19	20	21	22
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Monday	5	12	19	26	
Tuesday	6	13	20	27	
Wednesday	7	14	21	28	
Thursday	8	15	22	29	
Friday	9	16	23	30	
Saturday	10	17	24		
Sunday	11	18	25		

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13

inventory file
by 2 m/cs IP.

s which we want.

ls -m command
-a 'ls -la'
of files of mks
Inventory file.

option the inventory
will one.

and -a 'tree'

used for user
the user, setting
directory etc.

in all managed

name=zeeshan

✓ Important Calls ✓
□ □
□ □
50% higher
[nodes]

Ex:- I want to create a user with
name, password, uid, comment, home
directory & default working shell etc.

* ansible all -m user -a 'name=zeeshan
password=1234 uid=9503 comment="User"
home=/home/ubuntu/Zeeshan shell=/bin/bash' -b

④ APT Module:-

It is used for performing
package management on managed nodes
i.e, Installing softwares and upgrading
repositories etc.

It works only on Ubuntu and Debian.

Ex:- I want to install git on all managed
nodes

SUNDAY 14

* ansible all -m apt 'name=git state=present'
-b

Note:-

State = Present — for installation

State = absent — for Uninstallation

State = latest — for Upgradation

Meetings	✓ Things To Do	✓ Important Calls

15

Week 20
May
Monday (135-230)

Week	18	19	20	21	22
Monday	1	8	15	22	29
Tuesday	2	9	16	23	30
Wednesday	3	10	17	24	31
Thursday	4	11	18	25	
Friday	5	12	19	26	
Saturday	6	13	20	27	
Sunday	7	14	21	28	

Ex:- I want to update apt repository and install tomcat9

- 9.00
- * `ansible all -m apt -a 'name=tomcat9 state=present update-cache=yes' -b`
- 10.00
- 11.00 It means updating the repository on managed nodes.
- 11.30
- 12.00

⑤ File Module:-

13.00 It is used for creating or deleting files and folders on managed nodes.

14.00

14.30

Ex:-

- 15.00
- * `ansible all -m file 'name=/tmp/file1 module=touch state=touch'`
- 16.00
- 16.30
- 17.00
- 17.30 To create directory
- * `ansible all -m file 'name=/tmp/d1228 state=directory'`
- 18.00
- 18.30
- * `ansible all -m file 'name=/tmp/file1 state=absent'`

Note:-

State = touch — To create file

Meetings ✓ Things To Do ✓ Important Calls ✓

State = directory — To create directory

State = absent — To delete file/directory

	May '17					
Week	18	19	20	21	22	23
Monday	1	8	15	22	29	
Tuesday	2	9	16	23	30	
Wednesday	3	10	17	24	31	
Thursday	4	11	18	25		
Friday	5	12	19	26		
Saturday	6	13	20	27		
Sunday	7	14	21	28		

	June '17					
Week	19	20	21	22	23	24
Monday	5	12	19	26		
Tuesday	6	13	20	27		
Wednesday	7	14	21	28		
Thursday	8	15	22	29		
Friday	9	16	23	30		
Saturday	10	17	24			
Sunday	11	18	25			

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t repository

=tomcat.g
be=yes'-b
ository

- creating
on

me

⑥ Copy Module:-

This module is used for copying the files from controller node to managed node.

We know that, in the /etc/passwd we have the info. about users.

Ex: I want copy the file into all m/cs.

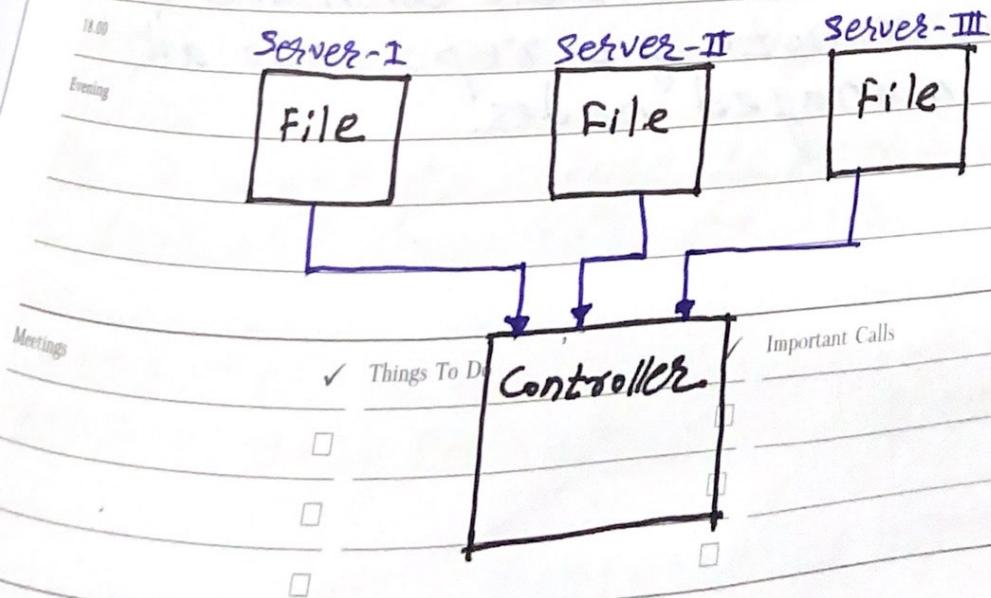
* ansible all -m copy -a 'src=/etc/passwd dest=/tmp'

destination source

⑦ Fetch Module:-

It is used to copy files from managed nodes to Controller node.

It is opposite of copy module.



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Week 20
May
Wednesday (137-228)

Week	18	19	20	21	22
Monday	1	8	15	22	29
Tuesday	2	9	16	23	30
Wednesday	3	10	17	24	31
Thursday	4	11	18	25	31
Friday	5	12	19	26	
Saturday	6	13	20	27	
Sunday	7	14	21	28	

Week	22	23	24	25	26
Monday	3	12	19	26	
Tuesday	6	13	20	27	
Wednesday	7	14	21	28	
Thursday	1	8	15	22	29
Friday	2	9	16	23	30
Saturday	3	10	17	24	
Sunday	4	11	18	25	

Ex:- I want copy tomcat-server.xml file from all managed nodes into /tmp folder on the controller node.

★ ↳ ansible all -m fetch -a 'src=/etc/tomcat9/tomcat-server.xml dest=/tmp' -b

⑧ Git Module:-

It is used to perform git version controlling on managed nodes.

Ex:- I want to clone my repo in all m/cs.

★ ↳ ansible all -m git -a 'repo=https://github.com/Malik097/argoCD.git dest=/zeeshan/myargocdrepo' -b

Note:- It is an ansible command to clone remote git repo into all the managed nodes.

Meetings

✓ Things To Do

✓ Important Calls

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<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Week	22	23	24	25	26
Monday	3	12	19	26	
Tuesday	6	13	20	27	
Wednesday	7	14	21	28	
Thursday	1	8	15	22	29
Friday	2	9	16	23	30
Saturday	3	10	17	24	
Sunday	4	11	18	25	

⑨ Service

Starting, stopping services.

Ex:- I want service.

★ ↳ ansible all state=

Note:-

State

Stat

16.00 Stat

16.30 Star

17.00 Repla

Replacing

Evening

Ex:- I w

tomca

★ ↳ ansible replace

Pat

Week	May '17
Mondays	1 8 15 22 29
Tuesdays	2 9 16 23 30
Wednesday	3 10 17 24 31
Thursdays	4 11 18 25
Fridays	5 12 19 26
Saturdays	6 13 20 27
Sundays	7 14 21 28

Week	June '17
1	22 29 24 25 26
2	5 12 19 27 28
3	6 13 20 27 29
4	7 14 21 28 30
5	8 15 22 29 30
6	9 16 23 30
7	10 17 24 25
8	11 18 25
9	12 19 26

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server.xml file
to /tmp
node.

~~etc~~
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o perform
aged.

2/11

github.com
vsgocorp

⑨ Service Module:-

It is used for
starting, stopping and restarting
services on managed nodes.

Ex: I want to stop the tomcat9
service on all m/cs.

* `ansible all -m service -a 'service=tomcat9
state=stopped' -b`

Note:-

State = started — To start a stopped
service

State = stopped — To stop a running
service

State = restarted — restarting a service

⑩ Replace Module:-

It is used for
replacing a specific string with other
string.

Ex: I want to change the port number of
tomcat9 from 8080 to 9090

* `ansible all -m replace -a 'regexp=8080
replace=gogo path=/etc/tomcat9/server.xml' -b`

Path

Regenerating Experience

19 Week 20
May Friday (139-226)

Week	May '17				
	18	19	20	21	22
Monday	1	8	15	22	29
Tuesday	2	9	16	23	30
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Friday	5	12	19	26	
Saturday	6	13	20	27	
Sunday	7	14	21	28	

~~Imp Note!~~ After this we need to restart the tomcat9 service so that the port number will change from 8080 to 9090.

* `ansible all -m service -a 'service=tomcat9 state=restarted' -b`

Now, the port number will change from 8080 to 9090.

⑪ Uri (Unique Resource Information):-

uri is used to check whether the url is reachable or not

Ex:- I want to check if Instagram's url is reachable or not on all nodes.

* `ansible all -m uri -a 'url=https://instagram.com'`
o/p will be in green color with status=200

Giving an Invalid url

* `ansible all -m uri -a 'url=http://abfzk.com'`
o/p will be in red color with status=-1

Meetings	✓ Things To Do	✓ Important Calls
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	<input type="checkbox"/>	<input type="checkbox"/>
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