

Exploring Modules and Testing

Hello!

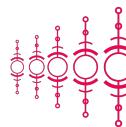
Exploring Modules and Testing

Don't Repeat Yourself (DRY) is a key aspect of programming for applications and infrastructure. Just as important is testing your code works as intended.

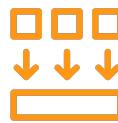




DRY (Don't Repeat Yourself)



Reduce redundancy



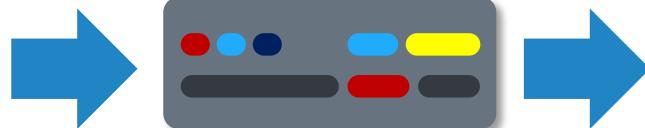
Create abstractions



Increase reusability

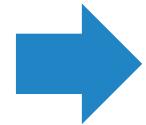
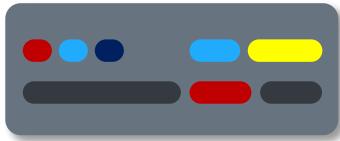
Fruit
Grapes
Apples
Oranges
Bananas
Pears

sorting_script.sh



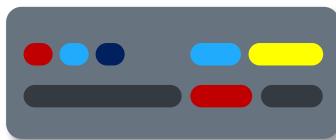
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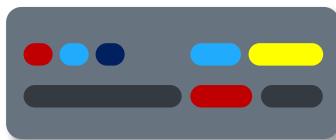


```
function sort(items)
{
    # Code to sort items
    ...
    ...
    return sorted_items;
}
```

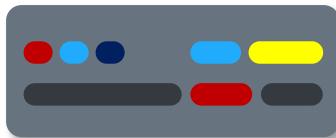
bubble_sort



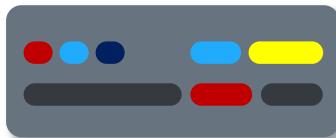
quick_sort



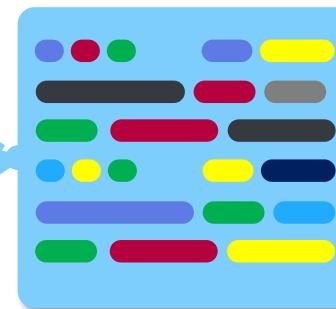
top_sort



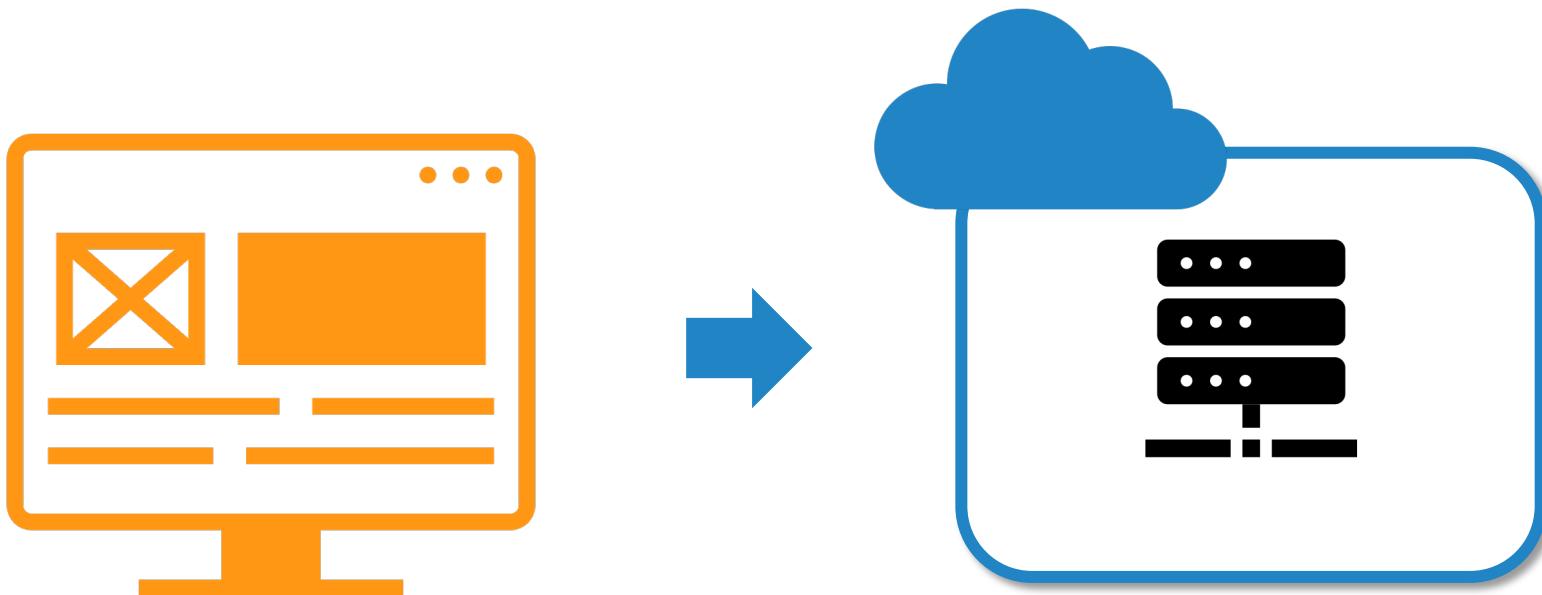
replacement_sort

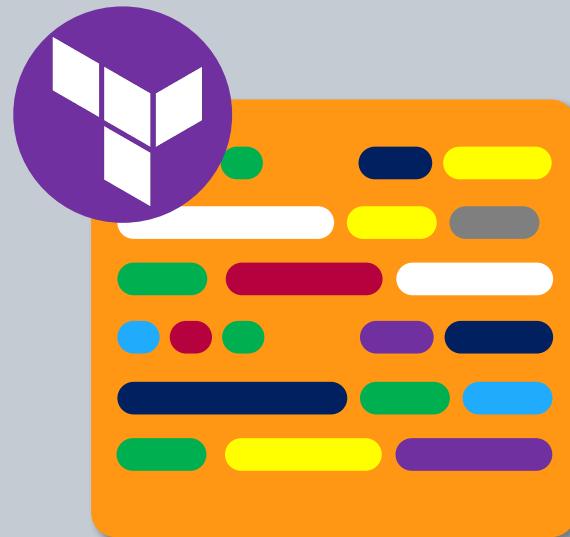


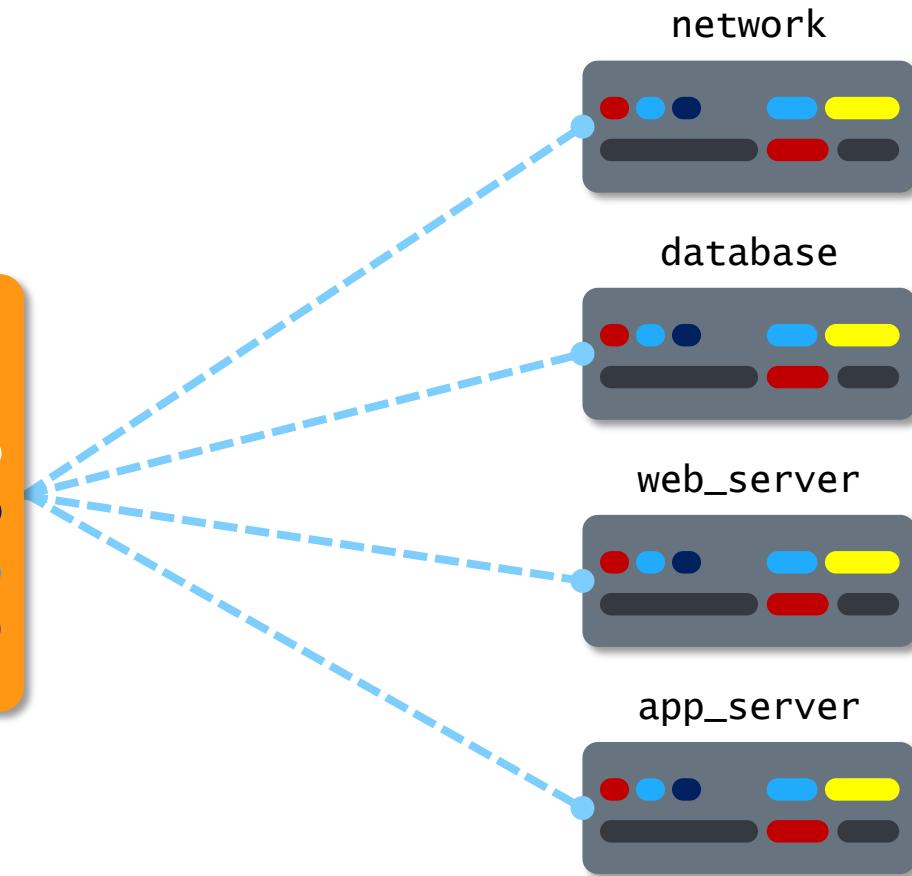
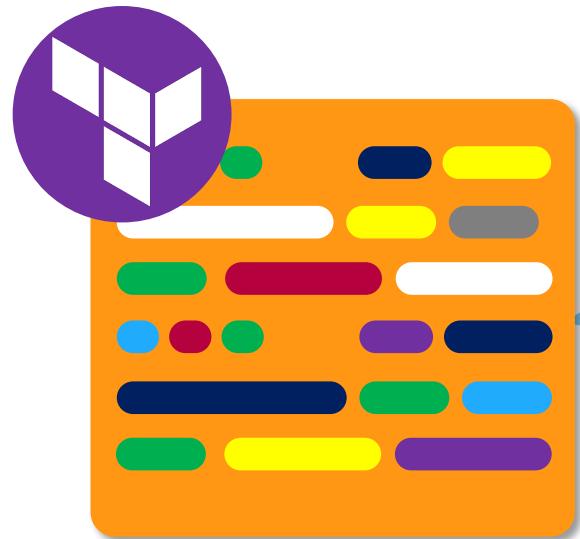
sorting.lib

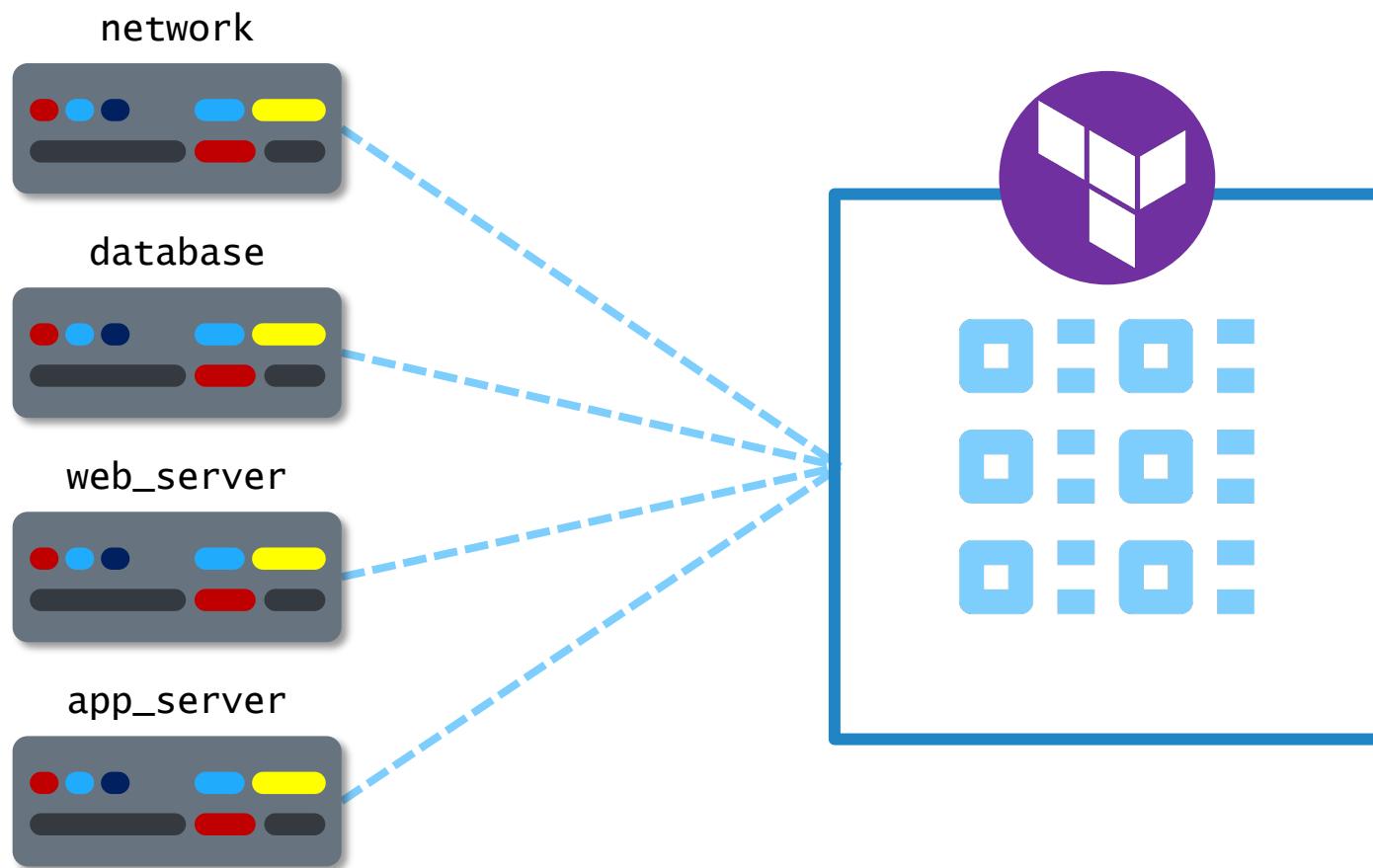


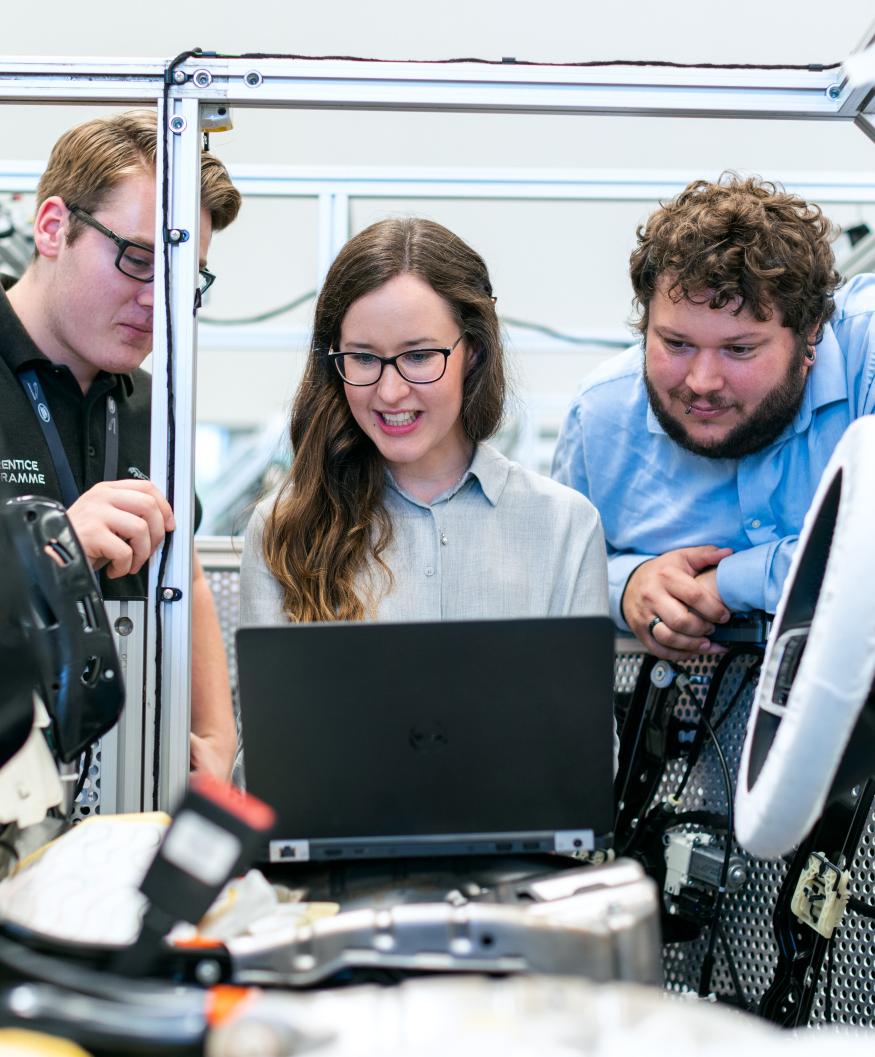
Infrastructure Deployment











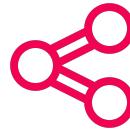
Testing



Maintenance of code

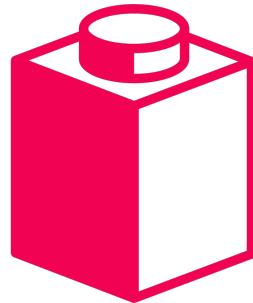


Breaking changes

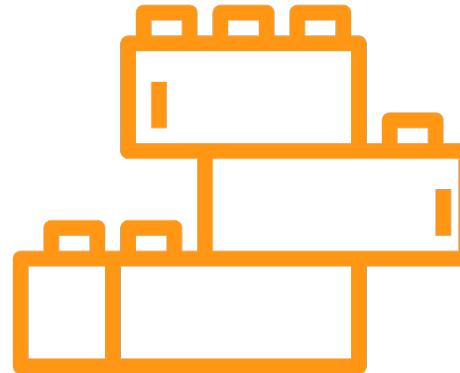


Use by others

Test Types

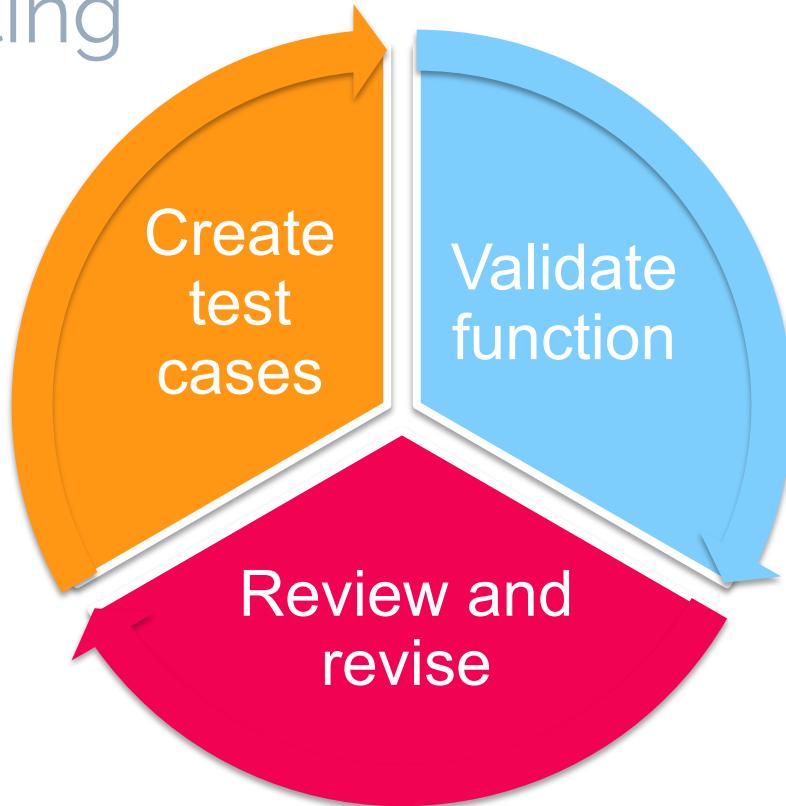


Unit testing



Integration testing

Unit Testing



Integration Testing



Units work together



Longer than unit test



Test in parallel



Retry on flakes

Infrastructure as Code



Actual resources deployed for testing



Time consuming for large configurations



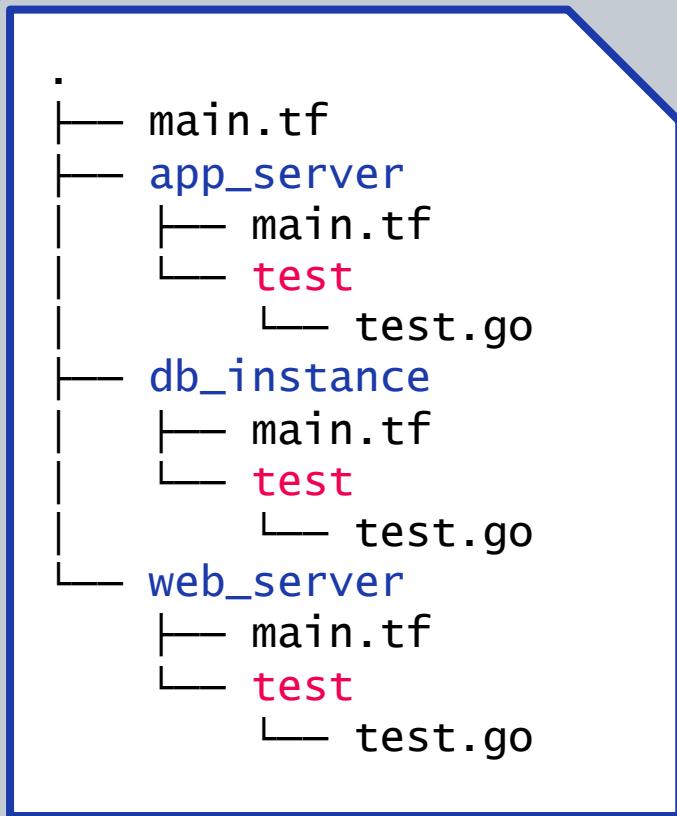
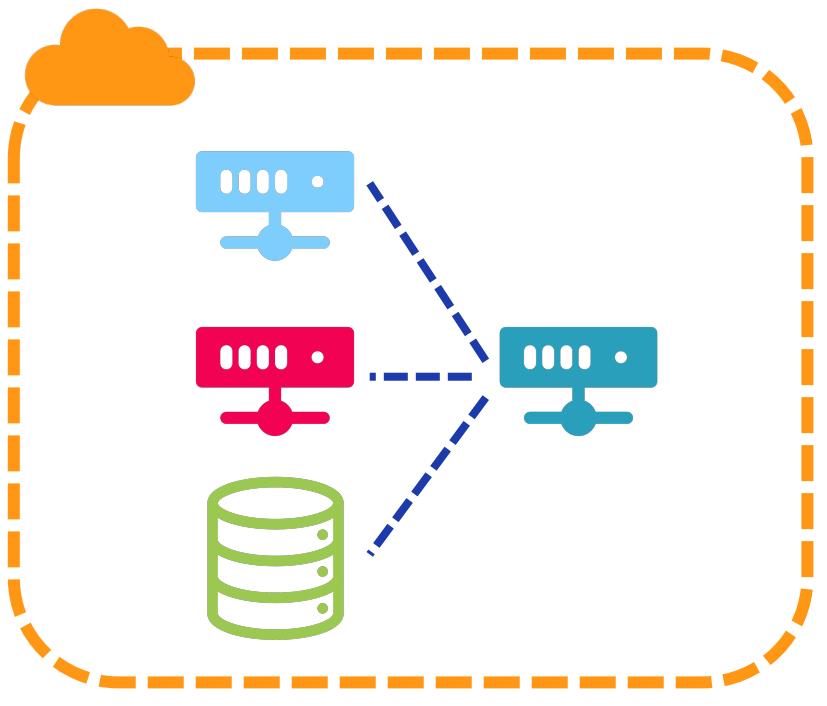
Unit testing handled by providers



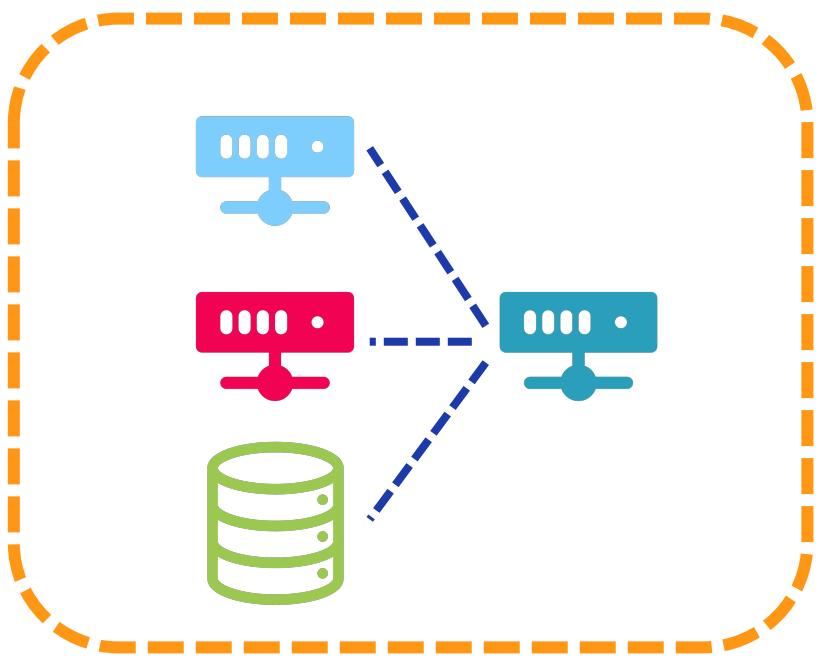
Test desired functionality of infrastructure



Module Testing

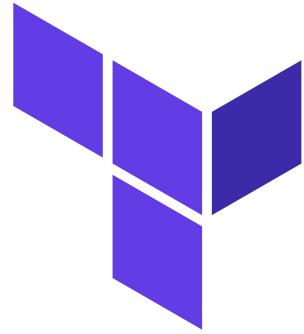


Module Testing



```
web_server:  
- port: 443  
- status: 200  
  
application_server:  
- port: 443  
  
database_instance:  
- port: 3306  
- query: master_db
```

Testing Tools



Terragrunt

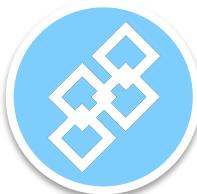


Molecule



Checkov

End-to-End Testing



Test everything together



Dedicated environment



Incremental changes



Validate changes only

Summary

- ▶ Practice DRY when writing code for apps or infrastructure
- ▶ Infrastructure can be abstracted with modules and playbooks
- ▶ Testing is critical to dependable code
- ▶ IaC testing requires more resources and time



Diagrams and infographics

