



# QA and Testing

Suchitra Vemuri, ONF  
Karthick Ramanarayanan, Ciena  
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# QA and Testing

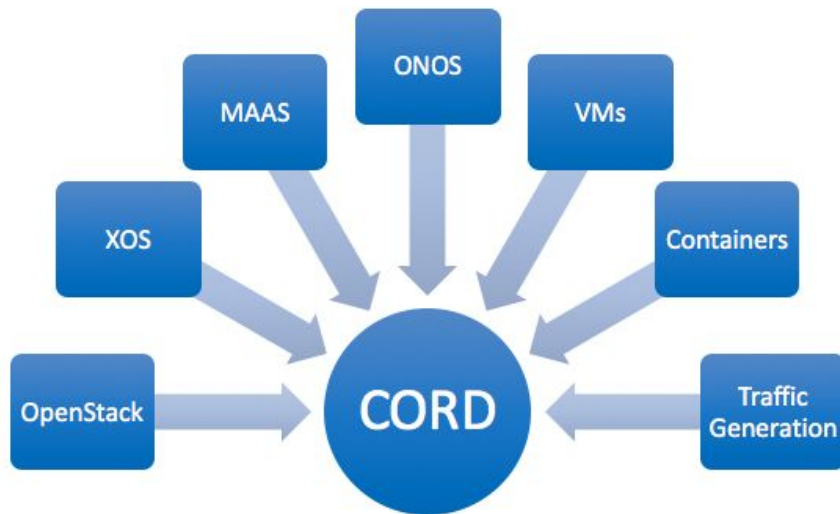
## Agenda

- Introduction
- Framework Overview
- Test Suites
- QA Jenkins
- Setup/Run Tests
- Collaborations
- Contribution Opportunities

# Introduction

## Need for a Framework

CORD involves validating several components



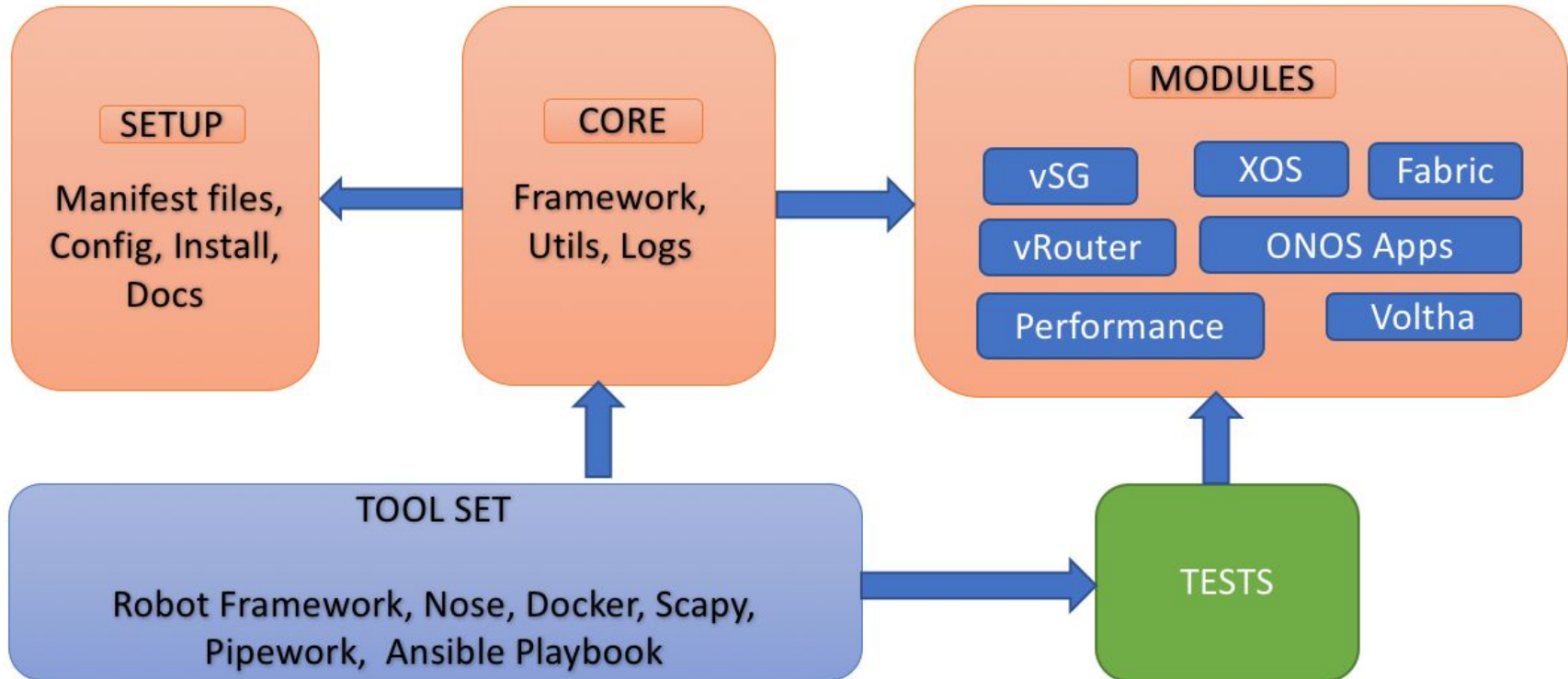
# Introduction

## Automation Framework

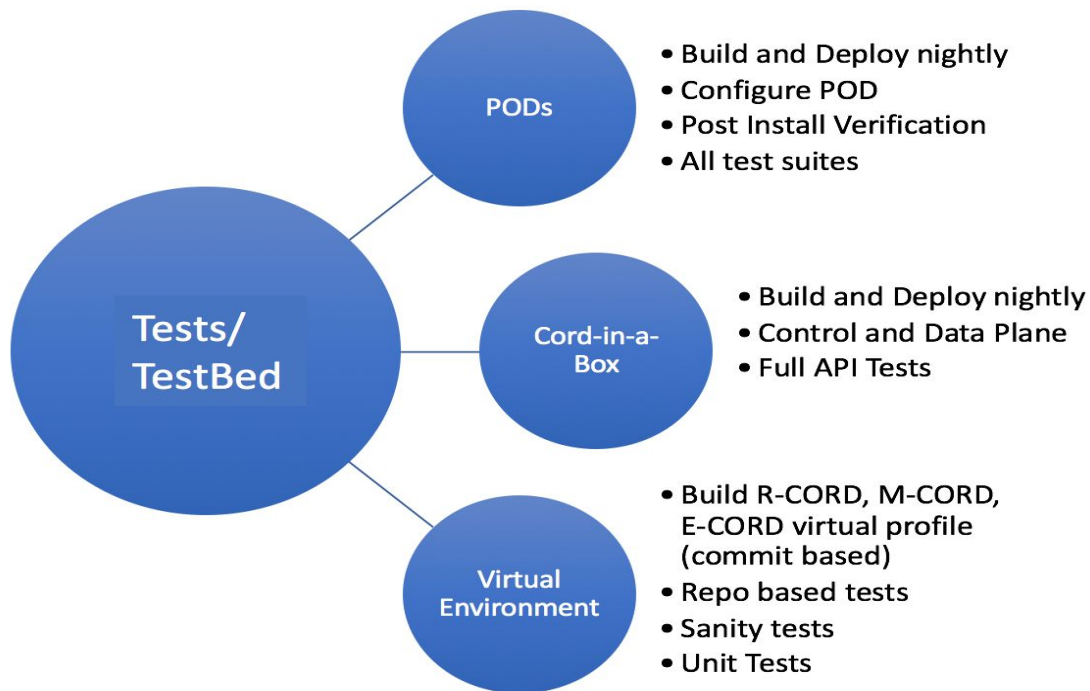
- Test Automation Framework (cord-tester)
  - collection of several test tools
  - deployed in containers
  - creates interfaces to simulate edge traffic
  - can be installed on PODs/VMs
  - Several flavors of tests can be achieved
    - functional, container related, sanity, API, data plane, performance/scale, end-end

# Automation Framework

## Tool Set/Architecture



# Test Environments



# Test Suites

## Categories of Tests

- Tests on PODs
- Control Plane
- Data Plane
- API
- Quick Sanity Tests
- End-End

# Test Suites

## Testing PODs

- Validating PODs
  - Post installation configuration scripts
  - Sanity end-end checks
    - pings between nodes, fabric
    - health checks in onos apps and logs
    - status checks on openstack lxc containers
    - validate MAAS services and container states
    - validate services on fabric
    - validate profile specific service containers
    - control plane



# Test Suites

## Control Plane

- Validates XOS control plane operations
- Validates on both PODs and virtual environments
- Tests are run using RobotFramework and Python
- Currently tests available for R-CORD

# Test Suites

## Data Plane

- Validates data plane operations
- Tests available for CiaB
- Tests are run using Nose Framework and Python
- Currently automated tests available for R-CORD only

# Test Suites

## Container Based

- Tests run using ansible playbook
- Deploys virtual profiles (R-CORD, M-CORD, E-CORD)
- Quick validation on containers health
- Error checks in the logs

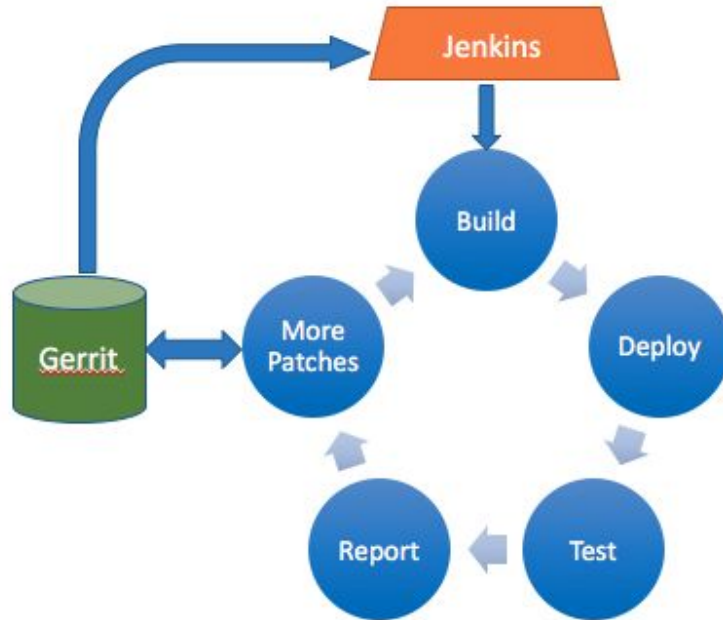
# Test Suites

## API Related

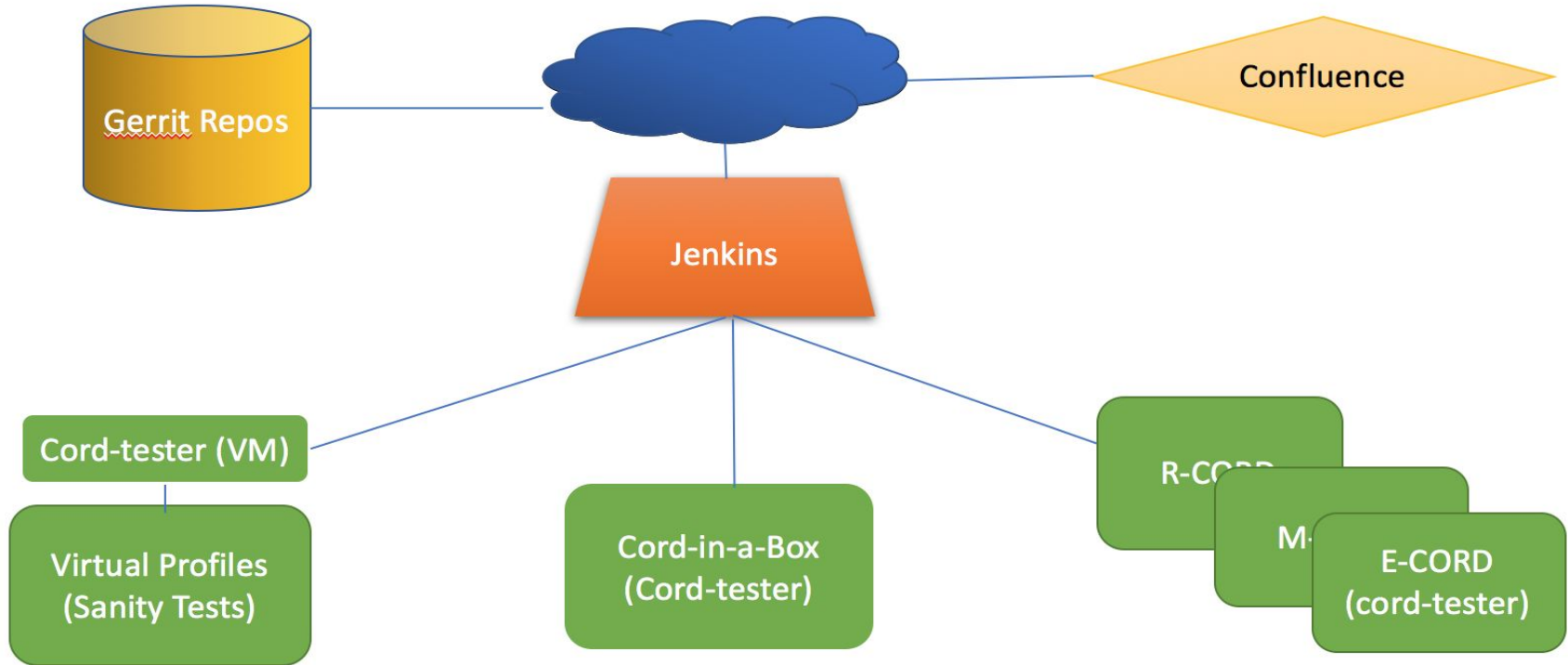
- XOS REST API tests (all environments)
- XOS gRPC APIs (virtual environments)
- Sanity API tests run for every commit on certain repos

# QA Jenkins

## Builds and Tests



# QA Jenkins Environment



# Jenkins Environment

## Jobs

- Jenkins jobs are run on various platforms

<https://jenkins.opencord.org/view/QA/>

- VMs
  - job triggered by every commit on the repos
  - builds virtual profiles and validates sanity/API based tests
- PODs
  - builds nightly on PODs and runs all available tests
  - R-CORD, E-CORD (global and local) , M-CORD
- CORD-in-a-Box
  - Builds nightly on a physical node and runs all available tests

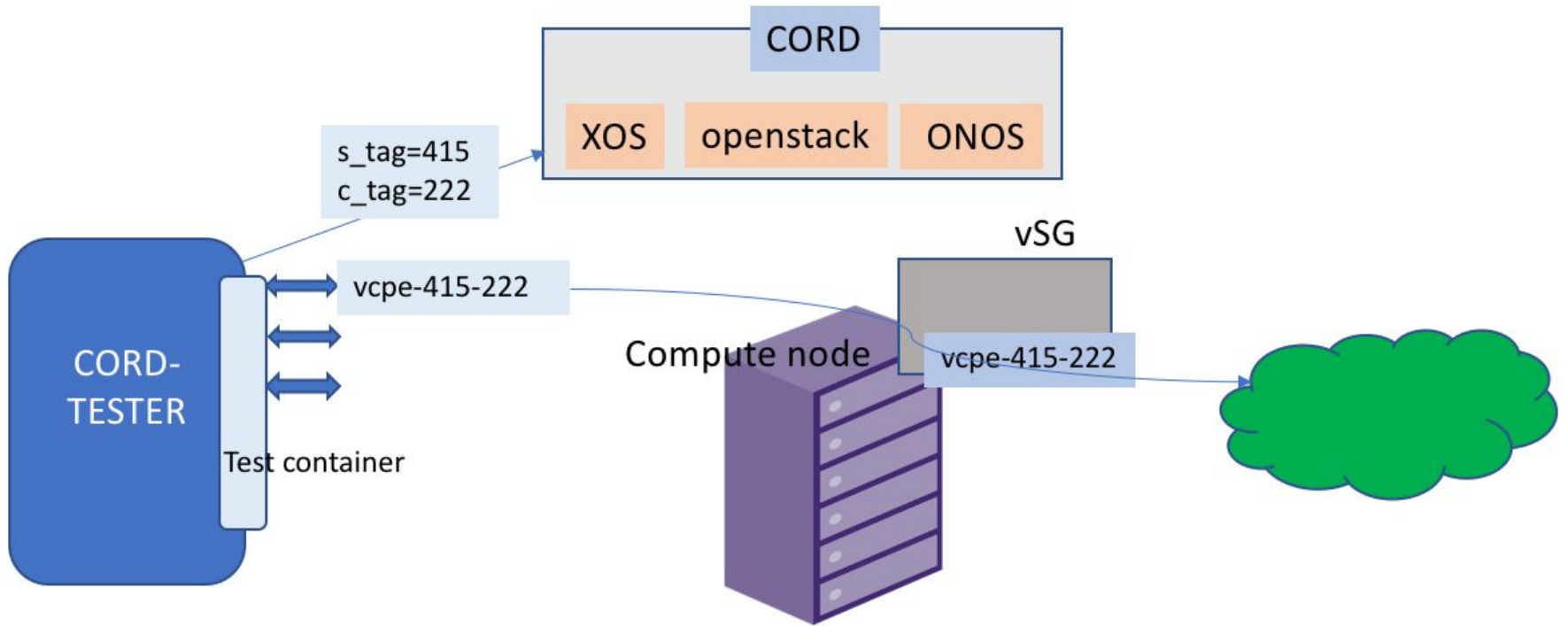
# Setup and Run Tests

## Example

Test#: Create a subscriber using XOS(with specific s\_tag and c\_tag) and then validate the data plane connectivity for the created subscriber



# Example



# Setup and Run Tests

- Setting up the test environment
  - git clone <https://gerrit.opencord.org/cord-tester>
  - sudo ./src/test/setup/prerequisites.sh --cord
- Create test container
  - sudo ./cord-test.py setup -m manifest-cord.json
- Control Plane test to create subscriber
  - From `cord-tester/src/test/cord-api/Tests` directory
  - Run **pybot Ch\_SingleInstanceTest.txt**
- Validate the data plane connectivity
  - nosetests -v vsgTest.py:vsg\_exchange.test\_vsg\_for\_external\_connectivity



# Community Collaborations

## Contributions

- Ciena
  - “cord-tester” framework initiation
  - data plane framework
  - automated few functional tests for R-CORD and Voltha
- Radisys
  - Automated sanity tests for PODs
- Spirent
  - POD for R-CORD/M-CORD tests
  - Traffic emulation for R-CORD functional scenarios
  - M-CORD functional scenarios

# Community Collaborations

## Contributions

- Intel/Ixia/Netronome
  - Performance tests using Intel EPC
- Flex
  - PODs for test
  - Functional scenarios for R-CORD
- QCT
  - PODs for deployments and tests

# Community Collaborations

## Community Help

### QA Contribution Opportunities

- Performance/Scale
  - Measure and benchmark performance numbers in multiple areas of CORD
- E-CORD
  - Automation framework development
  - End-end Test development
- M-CORD
  - Automation framework development
  - End-End Test development

=> For more details and questions, please drop by the **ONF QA kiosk desk**

# QA and Testing

Thank You