OPEN SOURCE SDN

CNLABS

Atrium Field Trial

Phase 1 - Test Report

NOV 2016

This test report is an evaluation of readiness of Open Flow based BGP peering router (Project Atrium) for the upcoming service provider field trial.
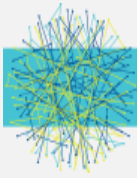
Atrium is one of the Open Source SDN efforts supported by the Open Networking Foundation. The test report is based on independent testing conducted by Criterion Network Labs and is first in a series of a test reports that captures the readiness of the open source routers, controllers and vendor switches participating in the field trial.

Criteron Network Labs, one of the ONF approved Open Flow interoperability test labs undertakes independent testing, interoperability and certifications for network operators and product vendors in the SDN/NFV domain.

The Atrium BGP peering router is one of the use case requirements from SIFY, an ICT solution provider and an SDN/NFV Alliance member of Criterion Network Labs.

SIFY plans to underake field trial tests for an Open Flow based BGP peering router based on Atrium distribution in Q1 2017. The core field trial requirements of the customer are independently validated at CNLabs. The solution will additionally undergo formal acceptance testing at SIFY before field trial deployment.

Write to cnlabs@criterionnetworklabs.com for additional questions and clarifications related to the test report.

INTRODUCTION

Project Atrium is one of the Open Source SDN projects from Open Networking Foundation. The goal of the project is to provide integrated SDN solutions for network operator use-cases while achieving interoperability across multiple switch products. Atrium distributions include concepts like Flow Objectives that allow for interoperability across different implementations of Open Flow switch pipelines.

Atrium distributions are open source, integration tested and prequalified for near production quality. Since 2015, it has been demonstrated at various forums including the SDN world congress and more recently at Open SDN India.

Atrium 16/A is the most recent distribution of Atrium for the service provider solutions. Along with the routing application, the distribution includes support of flow objectives interoperability module for ONOS and Open Daylight controllers.

The SDN BGP router implementation uses Quagga for control plane learning, a BGP speaker application on the SDN controller and implement flow objectives to program Open Flow capable switches.

Additional details on Open Flow based BGP peering router is available at https://github.com/onfsdn/atrium-docs/wiki.

SCOPE AND OBJECTIVE

The objective of the test effort is to ensure that the participating vendors and open source components meet all the core requirements identified for the field trail. The requirements are validated in a phased manner prior to acceptance testing at the customer site.

Gaps identified during each phase of testing are shared with the participants and the Atrium project team atrium_eng@groups.opensourcesdn.org. Requirement gaps must be resolved by field trial participants to be included in the next phase of test efforts. SIFY, the field trial customer might add additional requirements to be met based on the results of each phase of testing,

Phase 1:

- Validate core functional requirements
- Baseline tests and characterization
- SDN control plane learning/programming

Phase 2:

- IPv6 and MPLS support
- Data plane characterization
- Additional control plane requirements
- System level tests

Phase 3:

- Full test report with member switches

- Phase 3 test report will be disclosed publicly only if the vendors provides explicit consent to share the results

PARTICIPANTS

SIFY is one of the largest integrated ICT Solutions and Services companies in India, offering end-to-end solutions.

The comprehensive range of products from SIFY are delivered over a common telecom data network infrastructure and reach more than 1300 cities and towns in India. SIFY's telecom network connects 38 Data Centers across India including SIFY's 6 Tier III Data Centers across the cities of Chennai, Mumbai, Delhi and Bengaluru.

As part of their next generation network transformation initiatives, SIFY has been evaluating virtual provider edge gateways based on Open SDN solutions. The field trial of the Open Flow based Internet Gateway router is the first step of a phased field trial at SIFY towards achieving this end goal.

The current list of participants in the field trail include switches from Extreme Networks, Noviflow and SDN controllers from ONOS, Open Daylight and Open MUL.

IXIA and Spirent provide traffic generation and network emulation capabilities for the test environment.