WindRiver POC Plan

v1.2 10/9/2017

Introduction

WindRiver has a goal to provide a highly available, scalable, and robust solution for their internal users to access IT services within the organization. Jason Pratt and team had already self-initiated a Proof of Concept (POC) of our open-source distribution of DC/OS to use for housing solutions such as JIRA, code review, and other development tools. After initial discovery we found that DC/OS could potentially serve as a unified and standardized platform for container orchestration and data services across the entire organization. The result of this implementation would greatly simplify development operations that are currently managed by a relatively small DevOps team in regards to availability, security, software adoption, and access control. As a phase two discussion, the current Jenkins CI/CD platform could also benefit from migration towards running on DC/OS to also simplify operations and effectively utilize unused resources within the cluster.

In addition to the criteria tested in the OSS DC/OS proof of concept currently scheduled to go live on October 13th, WindRiver would like to begin a proof of concept (POC) on the additional Enterprise DC/OS features focusing on Role Based Access Control (RBAC), LDAP integration, and EdgeLB. We also want to explore the Jenkins CI/CD pipeline running on DC/OS. Concurrent with the POC, the business team will engage in conversations to ensure that upon successful completion that we can go-to-market as quickly as possible, once the value is proven. This document describes the logistics and the evaluation criteria for the POC project.

WHO - Who will be performing the DCOS evaluation?

Customer Personnel:

- Jason Pratt - Jason.Pratt@windriver.com
- Konrad Scherer - Konrad.Scherer@windriver.com
- Two new hires (TBH)

Mesosphere Personnel:

- Adam Deluca - Sales Executive, 520-661-9202
- Teasara Thompson - Sales Executive, 510-857-7809
- Alex Ly - Sales Engineer, 760-880-1165
- Mesosphere Tech Support as needed, TBD

WHAT - What will be evaluated and what are the success criteria?

Use Case 1. **Set Up Secure EE Cluster**

Description: Install Enterprise DC/OS v1.10 on the test cluster (with intent to become the production cluster) and configure the security parameters to meet production specifications. Deployment utilizing automation tools such as Chef, Puppet, Ansible.

Success Criteria: Successful deploy of an EE DC/OS cluster using automation tools (Ansible) with security criteria (Permissive mode, unless otherwise noted) in place for Production capacity.

References:
DC/OS System Requirements
DC/OS Advanced Installation Guide

Weighting: High (1)

Use Case 2. **LDAP Integration**

Description: Implement enterprise-class security through our LDAP integration in the Mesosphere cluster in order to leverage existing IAM structure in an existing LDAP or Active Directory to reduce manual labor and setup.

Success Criteria: Successfully implement LDAP integration connection following guides provided by Mesosphere Documentation. (See references) Display how to specify authentication methods and parameters. Validate that the connection works by simulating an actual login

References:

- Configuring the LDAP Connection
- Specify Authentication Method and Parameters
- Verifying the LDAP Connection

Weighting: High (1)

Use Case 3. **Role Based Access Control (RBAC)**

Description: Implement enterprise-class security in the Mesosphere cluster leveraging LDAP, RBAC and Access Control Lists (ACLs). Test the Enterprise DC/OS security features that provide user access controls, work-group isolation and task/container isolation. Also test the access auditing capabilities.

Success Criteria: Display ability to prevent unauthorized access by setting access controls at a group and individual level using RBAC and ACL features in Enterprise DC/OS

1. Create Service Groups
2. Create Individual Users

3. Add Permissions to both group and individual levels
4. Test login to validate RBAC and ACL functionality
5. Review IAM API for audit purposes

References:

Managing Users and Groups in DC/OS

Granting Access to the GUI

Permissions Reference

Weighting: High (1)

Use Case 4. **EdgeLB**

Description: Test the features and functions of EdgeLB compared to the existing MarathonLB criteria that has already been tested in the OSS DC/OS POC.

Success Criteria: Validate the feature enhancements of EdgeLB over MarathonLB.

1. Deploy EdgeLB from both CLI and GUI
2. Show support for workload pooling and placements of backends
3. Validate EdgeLB support for both Marathon and Data Services
    - Validate EdgeLB as an external public facing LB
4. Replace existing MarathonLB with EdgeLB

    - Configure EdgeLB with a new VIP
    - Reconfigure upstream LB or DNS to point to the VIP of EdgeLB instead of the VIP of MarathonLB
5. View EdgeLB Metrics to monitor performance and health

References:

Edge-LB Documentation

EdgeLB Architecture

EdgeLB Service Deployment Strategies

Weighting: Medium (2)

Use Case 5. **Data Services - Jenkins CI/CD**

Description: Test the ability to run the Jenkins CI/CD service on the DC/OS cluster along side the containerized applications being deployed. Testing stateful services will help strengthen the value of time-to-market when evaluating and adopting new technologies and tools used by the development team as well as migration of existing services into the DC/OS cluster (such as ELK).

Success Criteria: Enterprise DC/OS allows stateful services to be deployed on the cluster along side the stateless applications. WindRiver will like to test Jenkins as a potential Phase II project for the DC/OS cluster. Success will be determined by validating deployments via the CLI and GUI to deploy the Jenkins Universe

package and to run a test build/deploy. WindRiver will also deploy Jenkins alongside their current existing CI/CD tools that they will validate for compatibility with the DC/OS platform.

References:

DC/OS Jenkins Framework Service Guide

Tutorial: Deploying Marathon Apps with Jenkins

Weighting: Medium (2)

Use Case 6. **Deploy Containerized Applications**

Description: Deploy test applications in Docker and Mesos containers utilizing our UCR and Marathon.

Success Criteria: Validate deployments via a CLI and GUI. The DC/OS Command Line Interface can be used to manually deploy multiple instances of Docker containers onto the Mesos cluster. We must demonstrate that the CLI, API and GUI can deploy applications.

References:

Tutorial: Create and Run a Service in DC/OS

Weighting: Medium (3) - Used in validation of RBAC

Other technologies being evaluated in addition to DCOS?:

Evaluation of platform to run Jenkins CI/CD

Number of Servers (Mesosphere recommends at least 3 masters and 5 agent nodes and 2 public agent nodes running RHEL 7, CentOS 7 or CoreOS):

CentOS 7.3 Physical servers in on-prem datacenter

Location of Servers (data center location or public cloud vendor location):

- Alameda, California - 3 Masters, 7 Agents

All servers will be internal

Location of Customer Personnel:

- Alameda, California

Location of Mesosphere Personnel:

- Adam Deluca - San Francisco, California
- Teasara Thompson - San Francisco, California
- Alex Ly - San Francisco, California
- Mesosphere Tech Support Personnel, San Francisco, California and Hamburg, Germany

WHEN - Evaluation start and end dates:

Planned Start Date: Target: Week of 10/9/17

Planned Finish Date: End of Month

Planned Evaluation Results Briefing Date: TBD

Would like to go into production by: End of Q4 at the latest, but preferred if before the Holidays.