Elementum POC Plan

v1.1 12/4/2017

Introduction:

Elementum is a current user of OSS DC/OS in production looking to explore Enterprise Edition features and Enterprise Support as they add more microservices and explore the use of data services within the cluster. The main goals of the Elementum team are to evaluate LDAP and RBAC functionality to enable self-service deployment and management by developers which will help to speed up time to market and reduce non-value add dependencies on the IT Operations team. The Elementum team is also looking to further explore running data services alongside microservices within the same cluster for ease of deployment, management, and increased utilization of the overall cluster resources.

WHO - Who will be performing the DC/OS Evaluation?

Mesosphere	Elementum
Account Executive: Teasara Thompson Solutions Engineer: Alex Ly Mesosphere Tech Support as Needed	Engineering Lead DevOps: Daniel Avila Engineering Manager : Daniel Williams Senior DevOps Engineer: Brian Curtich

Areas of Interest:

Use Case	Description	Success Criteria	References	Weighting
RBAC	Implement enterprise-class security in the Mesosphere cluster leveraging LDAP, RBAC and Access Control Lists (ACLs). Test the Enterprise DC/OS security features	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 Create Service	Managing Users and Groups in DC/OS Granting Access to the GUI Permissions Reference	High (1)

	that provide user access controls, work-group isolation and task/container isolation. Also test the access auditing capabilities.	Groups Create Individual Users Add Permissions to both group and individual levels Test login to validate RBAC and ACL functionality Review IAM API for audit purposes		
LDAP Integration	Implement enterprise-class security through our LDAP/SAML 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.	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	Configuring the LDAP Connection Specify Authentication Method and Parameters Verifying the LDAP Connection	High (1)
External Persistent Storage	Mount external persistent storage on the DC/OS cluster to support stateful services.	Elementum team can decide whether they want to utilize the existing REX-RAY integration with DC/OS for external persistent storage or the Mesosphere can demo and leverage resources from Portworx for a discussion	DC/OS External Persistent Volumes Portworx Universe Package Portworx Webpage	Low (1)
DSE Cassandra	Install and configure Datastax Enterprise	Success will be determined by	Datastax Enterprise Service Guide	Low (1)

	framework from the DC/OS Universe	validating deployments via the CLI and GUI to deploy the DSE universe package, connecting to quick start guide example as POC or to existing solution provided by Elementum, and configuring the service to best practices	Datastax Deployment Best Practices Datastax Quick Start	
Spark		Run a Spark streaming job that consumes from Kafka and writes to DSE or Elastic		Med (2)
Automation of Deployment	Installation of DC/OS cluster using automation tooling (i.e. Terraform, Ansible, Chef)	Success will be determined by successful deployment of the DC/OS Advanced Install in Azure and AWS Successful switchover to any instance type Note: Mesosphere considers DC/OS as an evergreen platform - meaning that the customer has the choice when selecting tooling of choice (i.e. automation tooling, logging and metrics aggregation and analysis)	Example of Deploying Open DC/OS Using Terraform Example of Deploying Open DC/OS Using Ansible **Note:** Both links above are meant to be used as a baseline template and modified to work with your existing environment as well as an Enterprise Edition deployment	Med (2)
Multi-Zone	Installation of	Success will be	DC/OS	High (1)

DC/OS Cluster in AWS	multi-zone DC/OS cluster for fault tolerance and ease of failover of apps between zones	determined by successful deployment of DC/OS in a multi zone configuration using a Terraform script Elementum's OSS cluster is currently set up across three AWS AZs with cross-zone masters and agents and success will be recreating this setup in the POC	Documentation: Multiple Zones	

Other Notes to Consider:

- **Autoscaling** is not currently an out-of-the-box feature of DC/OS as of the 1.10 release. The Mesosphere team can discuss existing examples and share thoughts on logic and architecture (see below) but will be omitting this from the POC plan. Added support and out of the box integration for autoscaling is slated for an upcoming release
    - DC/OS EE Autoscaler - Shared by one of our Enterprise Solutions Architects
    - AWS Autoscaling First Thoughts - Thoughts on Autoscaling utilizing AWS ALBs shared by one of our Solutions Engineers

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):

- Operating System: (CoreOS/CentOS)
- # of Master Nodes: 5
- # of Public Agent Nodes: 3
- # of Private Agent Nodes: 6-9

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

- Cloud Provider: AWS
- Region: US-East1

Location of Customer Personnel:

- Mountain View, CA
- Buenos Aires, Argentina

Location of Mesosphere Personnel:

- Teasara Thompson - San Francisco, CA
- Alex Ly - San Francisco, CA
- Mesosphere Tech Support Personnel - San Francisco, CA and Hamburg, Germany

WHEN - Evaluation Start and End Dates:

Planned Start Date: December 4th

Planned Finish Date: January 4th (tentative)

Planned Evaluation Results Briefing Date:

- December 18-20th milestone check-in

Would like to go into production by: Q1 2018

Cadence:

- 30 minutes weekly
- Schedule TBD based on schedules (Chile, Argentina, US)