

Distributed WorkLoad Generator for Performance & Load Testing Using Opensource Technologies

Load Testing and Benchmarking of Software Systems (LTB 2023) Workshop

Vishnu Murty

<https://www.linkedin.com/in/vishnu-murty/>

Presenter

Vishnu Murty



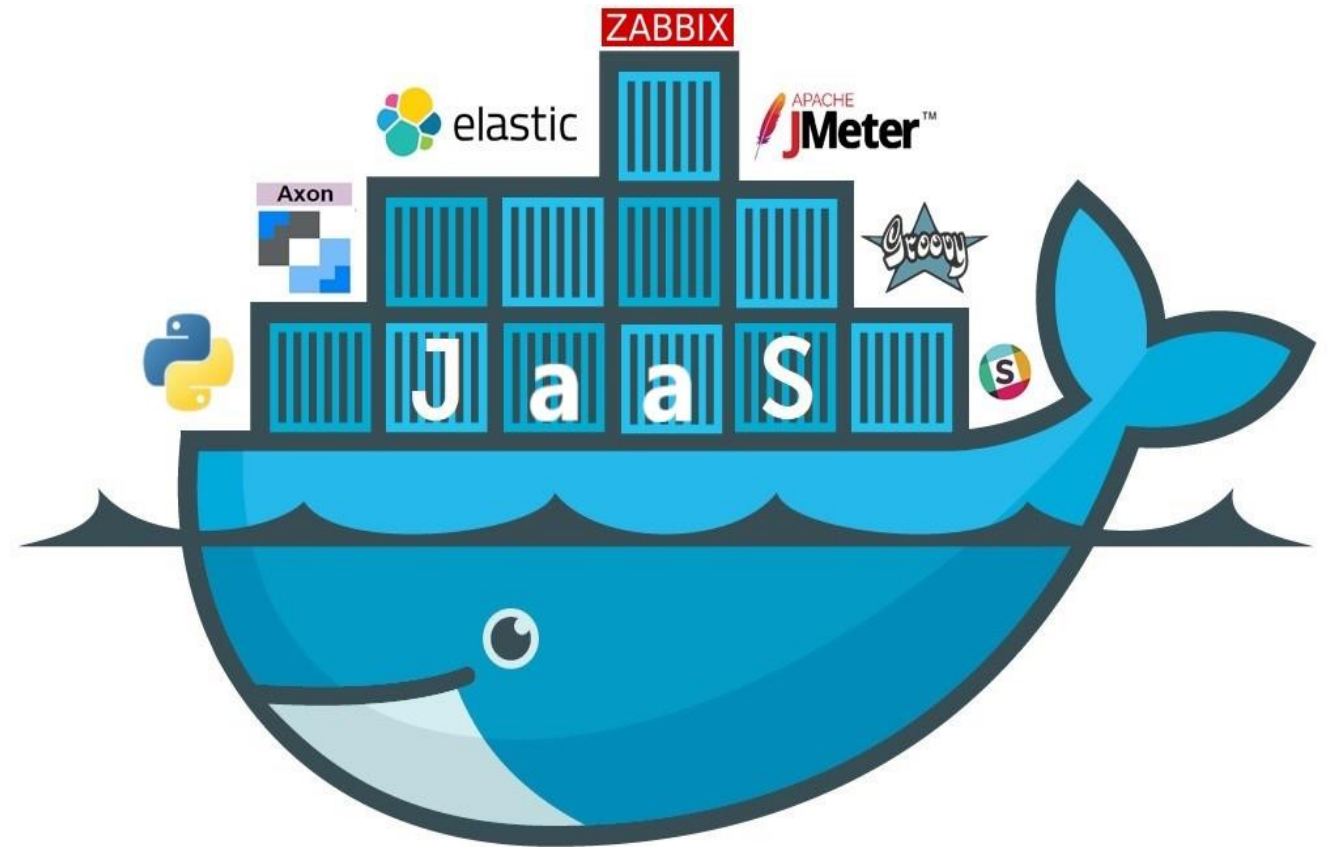
- Distinguished Member of Technical Staff(DMTS) at Dell Technologies
- Masters in Software Systems with 17+ years in Leading Validation and Automation efforts.
- Responsible of Delivering Test Automation frameworks and Tools.
- Worked on Server, Storage and System Management Software domains.
- 9 Patents Granted by USPTO and 128 Disclosures recognized by Dell Patent Committee.
- Presented Technical papers in PNSQC2021, Pycon(Python developer forum), STeP-IN, Targeting Quality 2019, SNIA and Quality Connect Conferences.

Abstract

- In DellEMC Enterprise Servers Validation Organization, we perform Load testing using different workloads (Web, FTP, Database, Mail, etc.) on Servers to identify the performance of the servers under heavy load. Knowing how DellEMC Enterprise Servers perform under heavy load is extremely valuable and critical.
- Load testing tools available in market comes with its own challenges like Cost, Learning Curve and Workloads Support.
- In this talk we are going to demonstrate how we have built Distributed WorkLoad Testing solution using opensource technologies like JMeter, Docker Containers, Grafana and Elastic Stack, and how this solution playing a crucial role in Delivering Enterprise Server Validation efforts.

Agenda

- ▶ Server Validation Overview
- ▶ What is System Test?
- ▶ Challenges and Solution
- ▶ Technology Stack
- ▶ Solution Overview
- ▶ Current Status
- ▶ What Next?



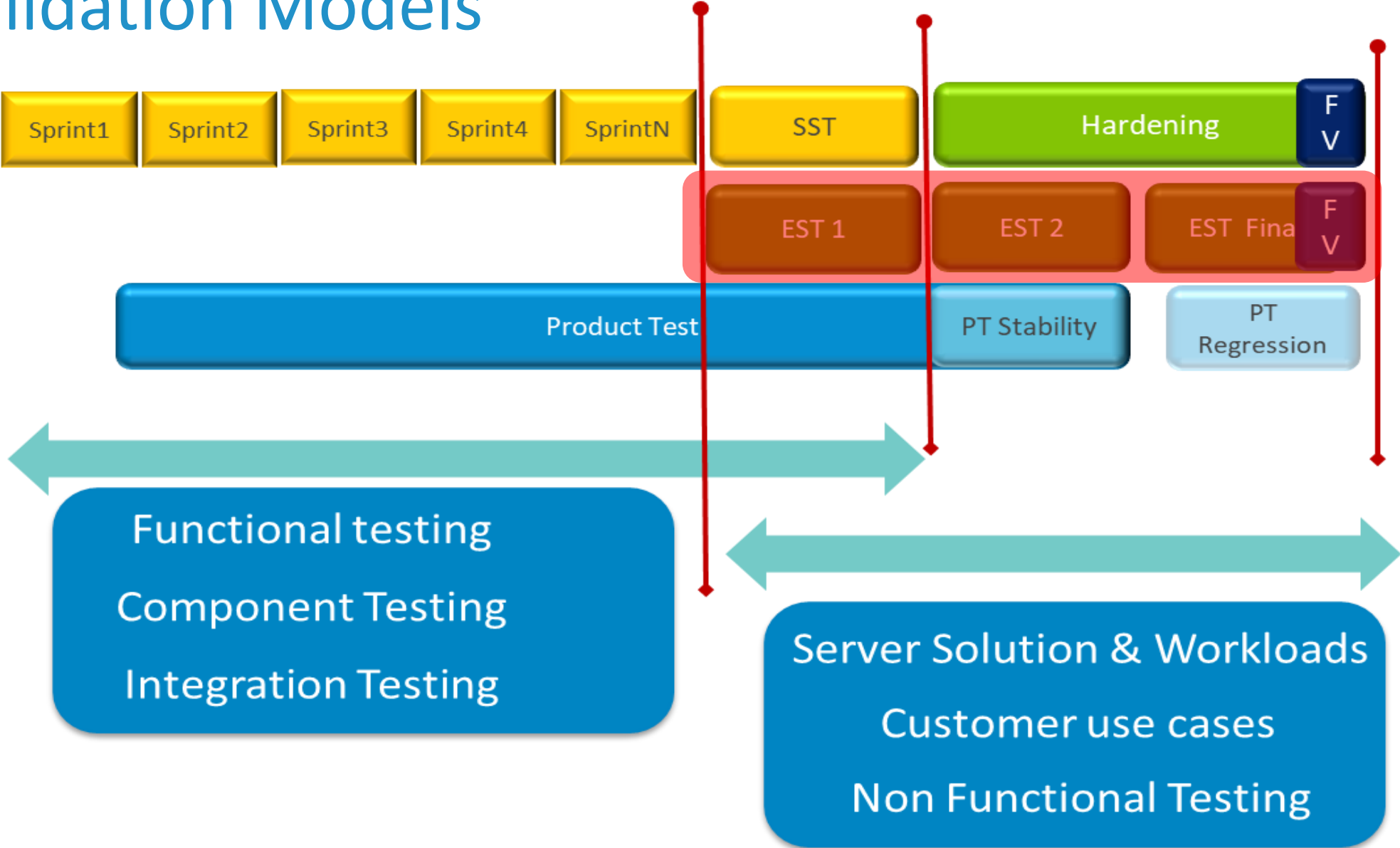
Server Validation Overview



Validate PowerEdge
Solutions

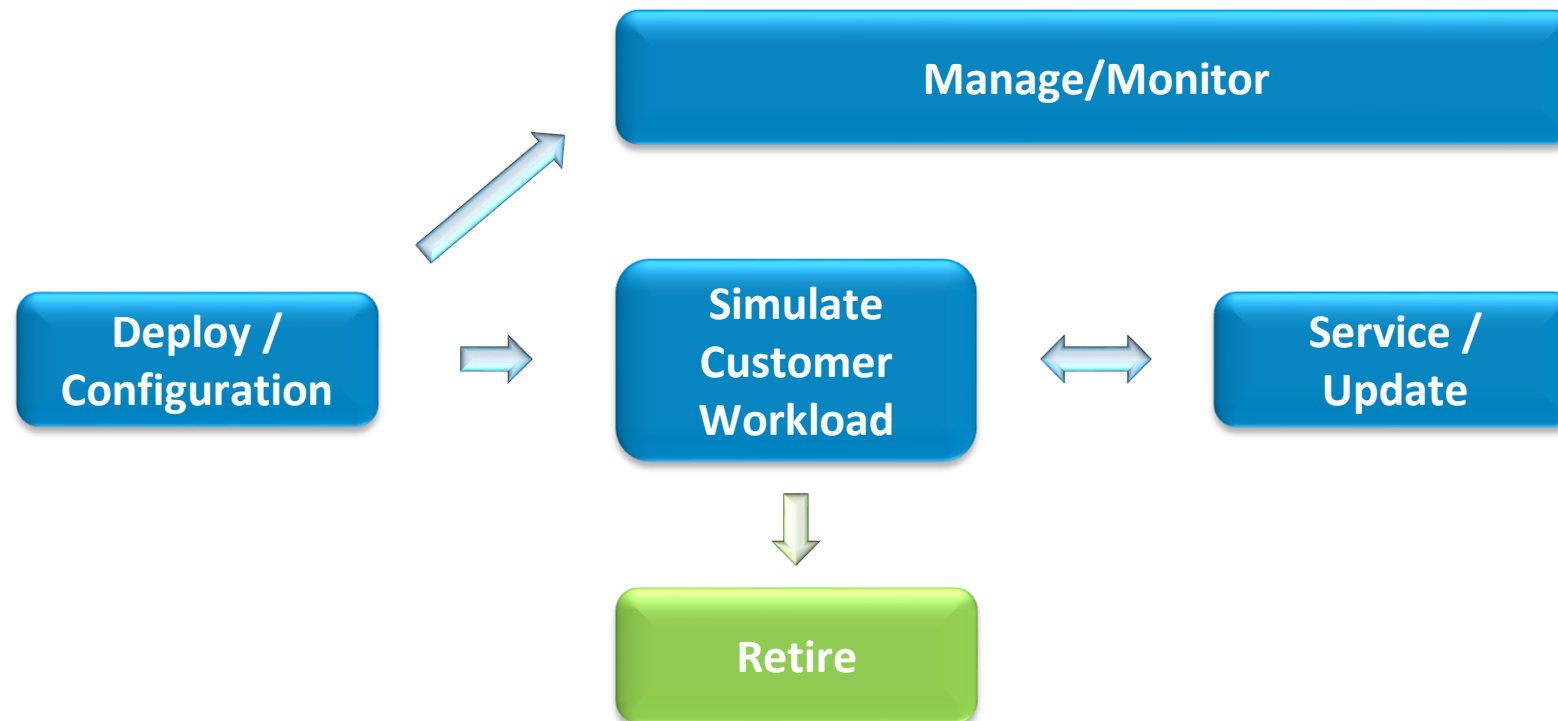


Validation Models



What is System Test?

- Customer-focused validation of Server solutions
- Simulates real world usage with typical applications on Servers



Challenges with Current Load Generation Solutions

- Needs to be installed in local Lab on Proprietary hardware.
- Expensive, complex, licensing
- Requires highly specialized performance engineers to Develop Scripts
- Data Analytics and Correlation

Proposed Solution

- JaaS – JMeter as a Service : on-premise cloud.
 - JMeter, Docker, Elasticsearch-Logstash-Kibana(ELK) Stack
 - Axon – UI
 - DellEMC Hardware as Load Generators
- Massively Scalable across Regions/Labs
- Build or incorporate to support new workloads
- Automate and integrate via REST API
- Advanced Dashboards and Visualizations.

Key Technologies



Supports many types of load tests
Platform-independent tool
Full multithreading framework
Open Source Software



Portable
Disposable
Resource-efficient
Open Source

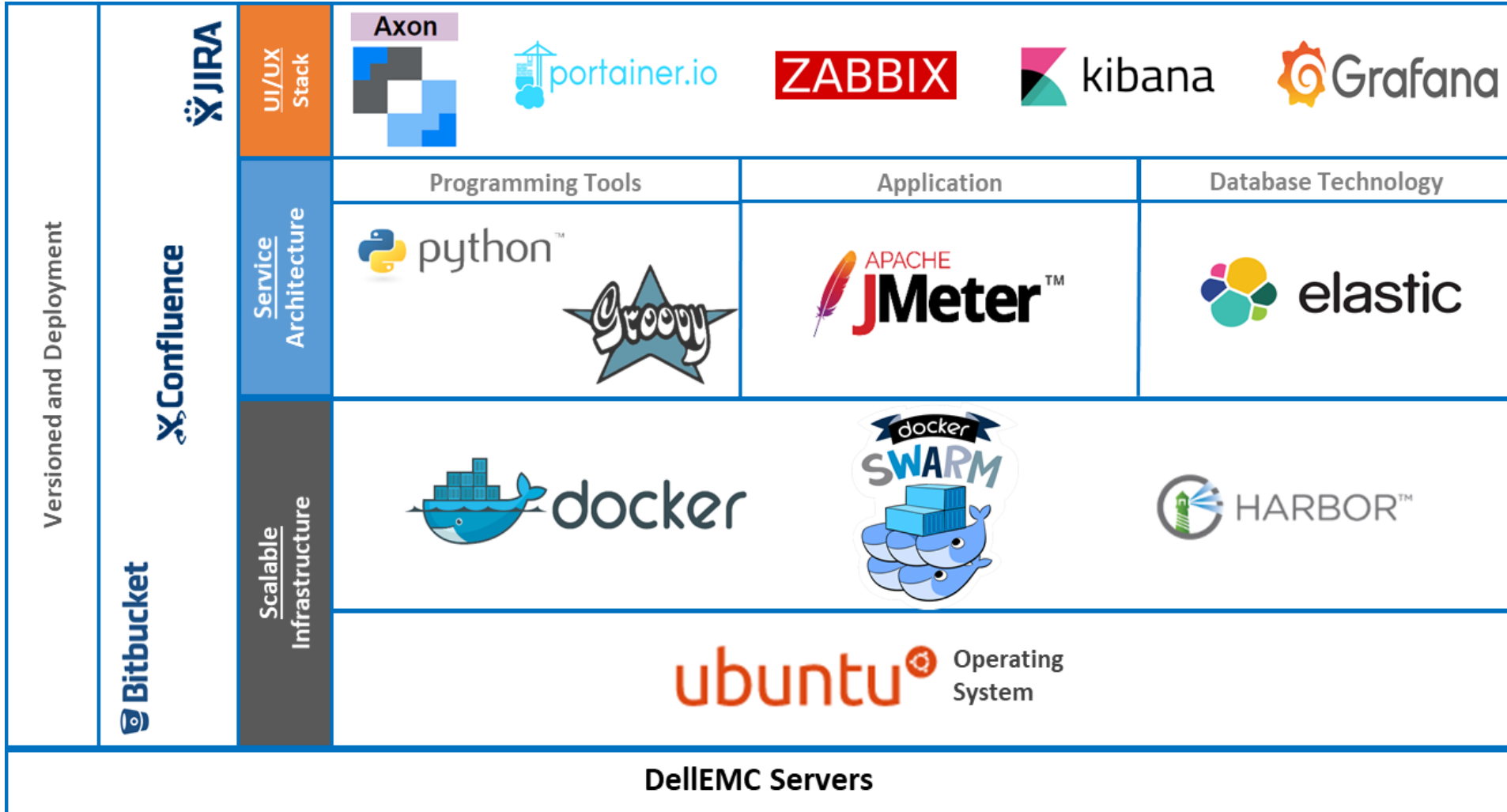


Cluster management and Orchestration
Cluster of Docker nodes
Load balancing
RESTful API

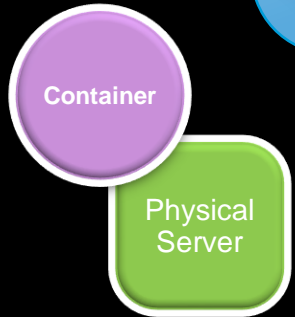
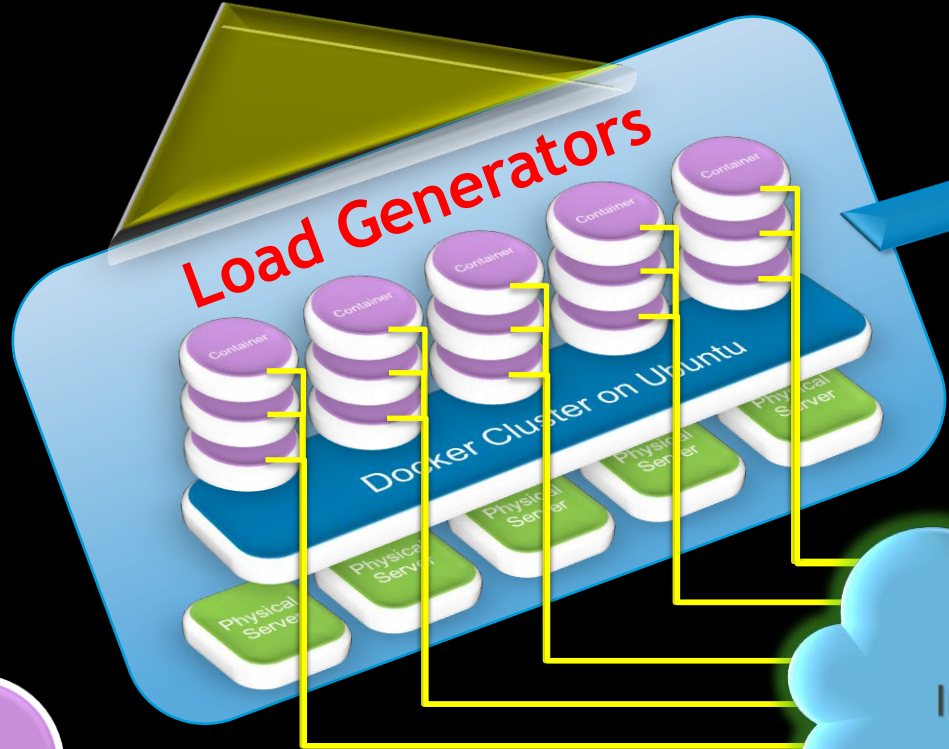
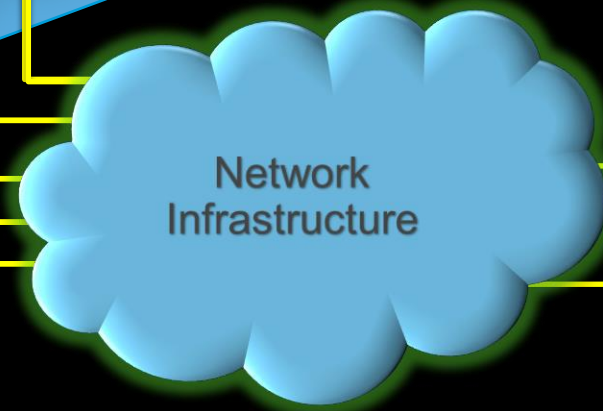
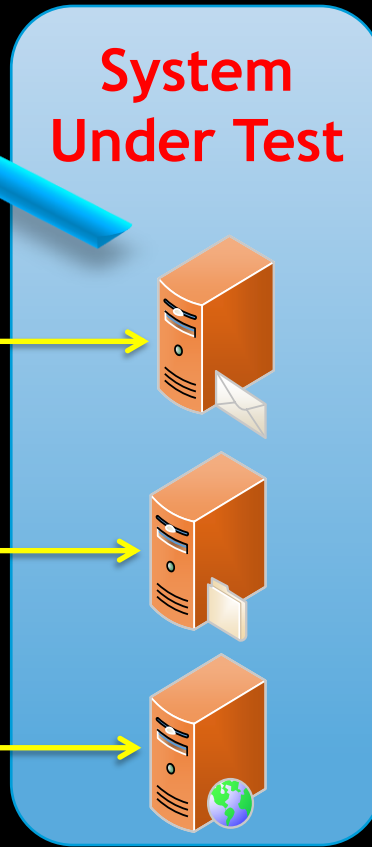


Flexible and Powerful
Distributed real-time Search and Analytics Engine
Schema free & RESTful API
Open Source Software

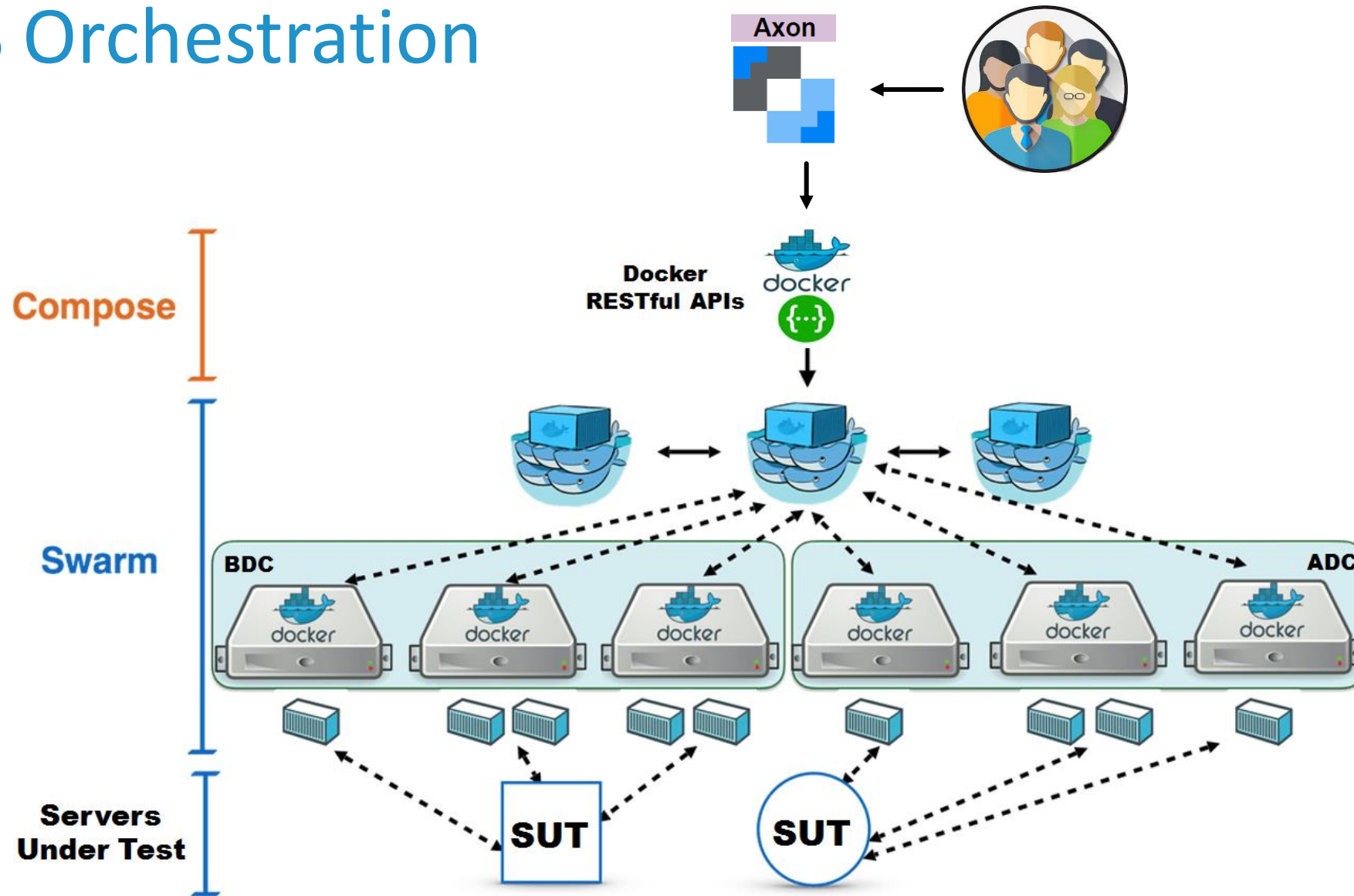
JaaS - Technology Stack



JaaS Solution Overview



JaaS Orchestration



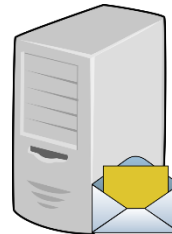
Current Supported Workloads



Web Workloads



File Workloads



SendMail

Mail Workloads

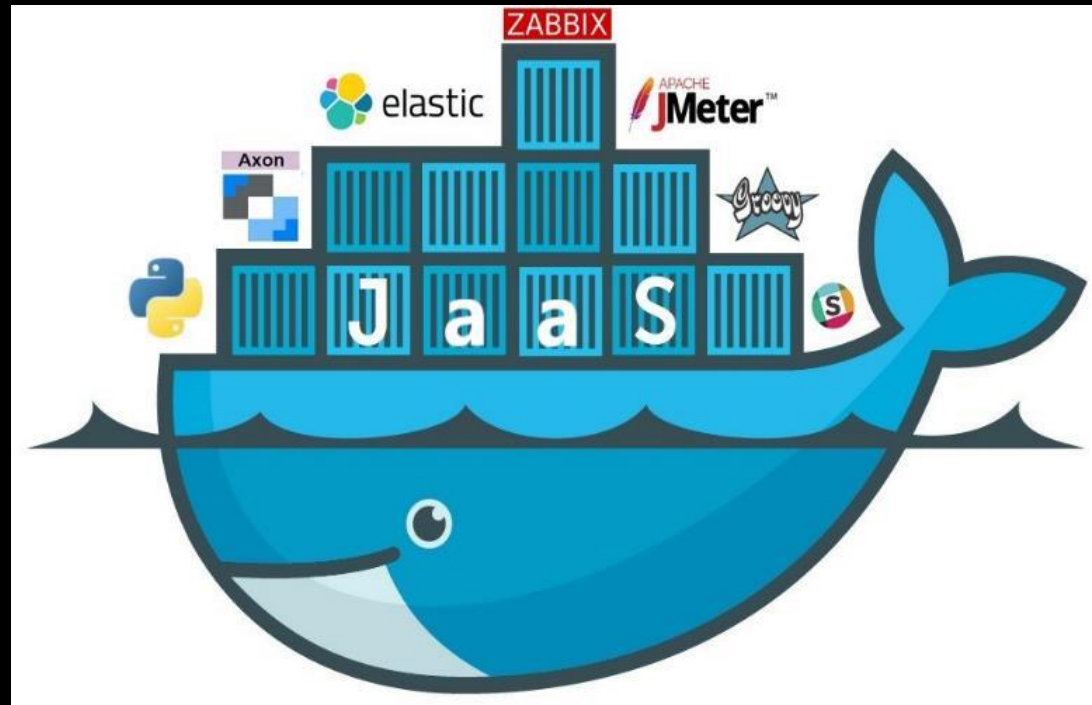


mongoDB

ORACLE

Database Workloads

Demo



What Next?



VERSION CONTROL
TECHNOLOGY

JaaS@DELL.COM



TensorFlow

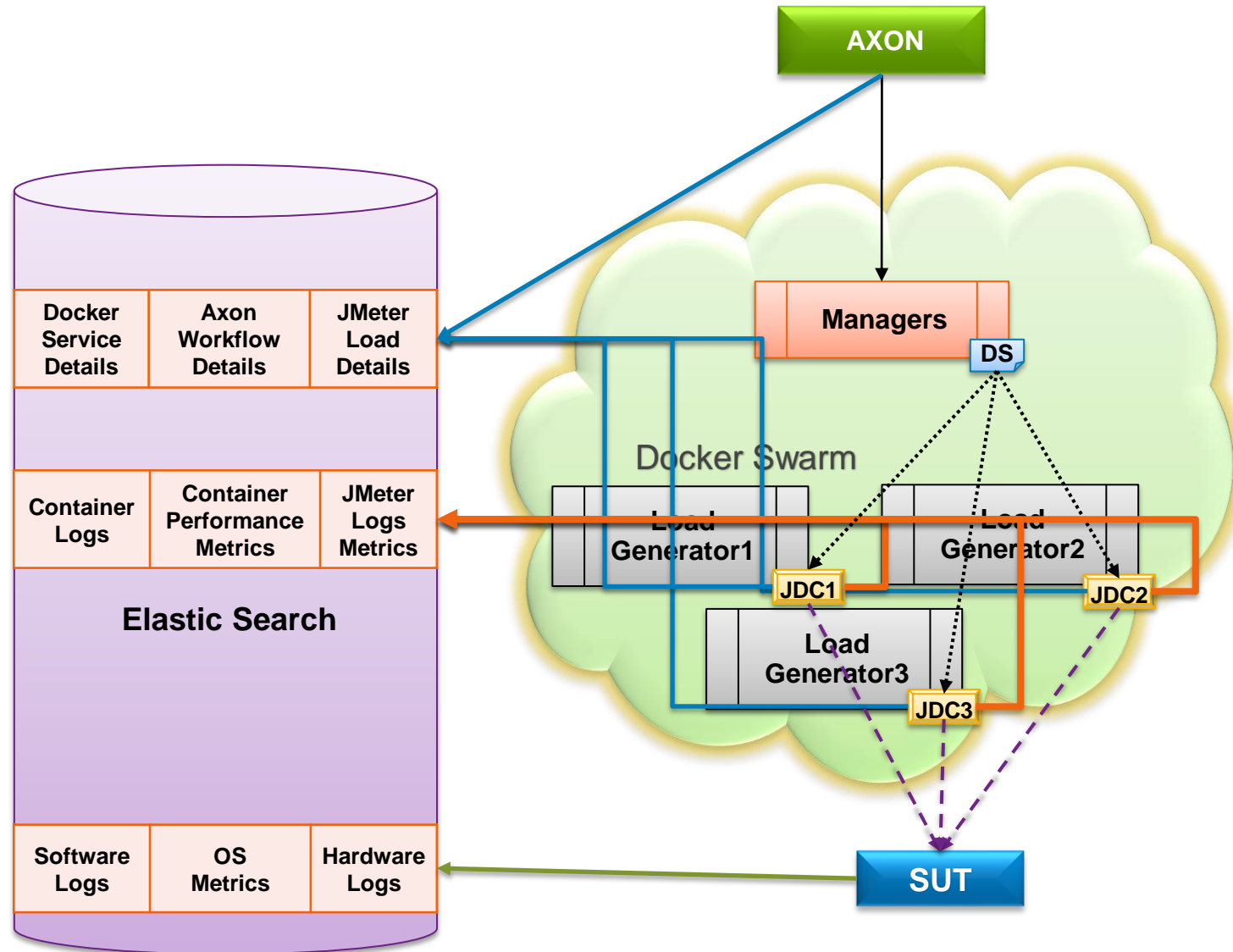


Thank You



Feedback Please
JaaS@dell.com

JaaS Dataflow Diagram



DS : Docker Service
JDC : JMeter Docker Container
SUT : System Under Test