

Visualization of holistic performance monitoring data generated by System Activity Reporter (SAR)

By Anshul Sharma.

About Author:

I am Anshul Sharma from ABVGIET Shimla have done my internship under the guidance of Dr.Sparsh Mittal at IIT Hyderabad in one-month summer internship program (from 1st June 2018 to 30th June 2018) organized by TEQIP-MHRD. Mr. Maruthi S. Inukonda has mentored me.

Acknowledgments:

I am very much thankful to TEQIP team and also to MHRD, Govt of India for such an excellent programme.

Learning Accomplishments:

I started the internship without an idea of using Linux. Now I have installed Linux on my laptop, and also helped other TEQIP interns in the installation. I have learnt deployment of Virtual machines and Docker containers. I have also setup an OpenStack cluster to centrally manage virtual machines and containers. To develop the tool I have learnt Core Python and Python visualization. For source code version control, I have learnt git and bitbucket.

From TEQIP seminars by Mr. Nandan K. Jha, Ms. Poonam Rajpoot, Mr. Maruthi S. Inukonda, I have learnt Convolution Neural Network, Autonomous Driving Systems, Containerization of GPUs.

Abstract

Hardware resource (especially accelerator like GPU, NVMe card) sharing could be done by having different user accounts on a system or different virtual machines or different containers. To evaluate these options, holistic system performance measurement is required for CPU, Memory, Network, I/O. SAR could be used for the same. Analyzing voluminous SAR data is time consuming. A tool is developed which generates graphs from SAR data using Python visualization features.

SAR(System Activity Reporter)

SAR or System Activity Report is used for monitoring of the resources of a Linux server. It can be used to generate reports relating to the performance of a system, i.e. CPU reports, Memory reports, Disk reports, etc. It saves reports in the form of log files on the system. Our motivation is to share the hardware resources.

Literature Survey

Ksar is a visualization tool, but it does not show on live data. Also, It has a tight binding with KDE desktop environment. This makes it not feasible for machines running other desktop environments like Gnome, Mate, etc.

My Contribution:

Here, I have done Visualization of holistic performance monitoring data generated by System Activity Reporter (SAR). I have done data visualizations in Python3. I have deployed virtual machines and Docker containers.