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Caliper [Open source benchmarking framework] Handbook

Shyju PV (shyju.pv@gmail.com)

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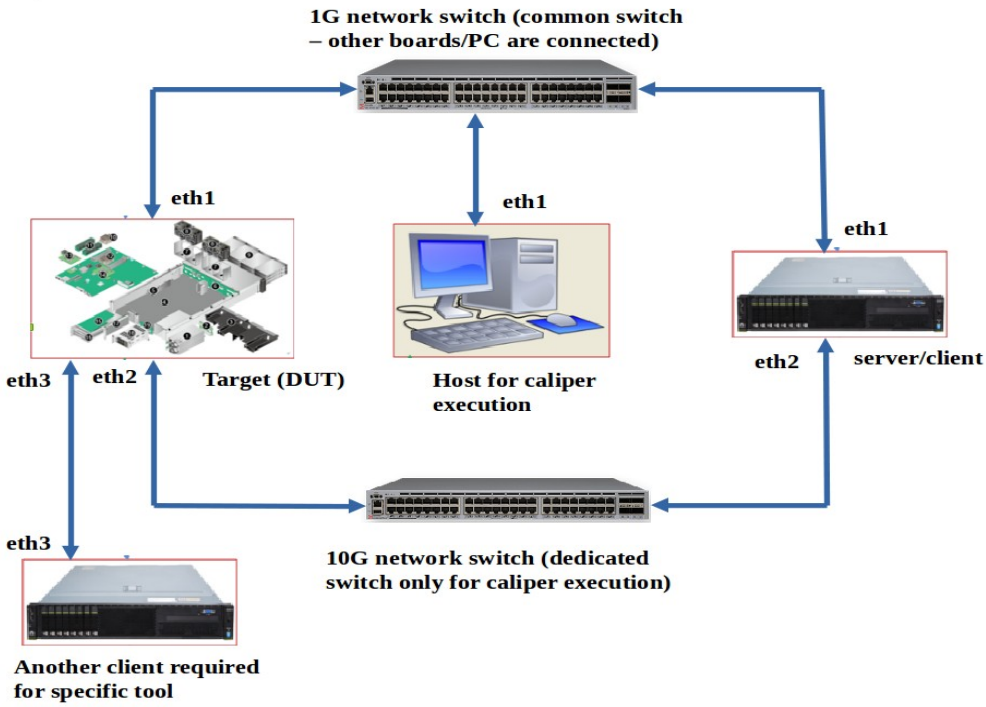
1 Introduction

This document servers as a quick reference for using caliper tool. It contains the high level information on the caliper setup, configuration, execution and some tips. Detailed information on caliper can be obtained from the url mentioned below. https://github.com/open-estuary/caliper/tree/master/doc

2 Caliper setup



Caliper requires:

- Two Network switches – one for 1G connection and second for 10G connection.
- Target platform on which all test tools will be execute.
- Two machines which acts as clients.
- One machine for caliper host.
- Extra client (connected through eth3), for specific test cases where target to be stressed with multiple network interfaces.

3 Caliper configuration

This section will discuss about the high level steps involved for caliper configuration.
Please see the detailed steps from the user manual in the following link
https://github.com/open-estuary/caliper/blob/master/doc/Caliper_User_Manual.pdf

- Get the caliper tool from https://github.com/open-estuary/caliper.git
- Install the caliper in your system.
- Install the dependency packages for all the machines to execute tools.
- Configure system login information in ~/caliper_output/configuration/config/client_config.cfg file.
- Choose the tools which user wants to execute from ~/caliper_output/configuration/test_cases_cfg/ directory.

4 Caliper execution

- Execute the caliper with “caliper -brps” command. By default the caliper command is configured with “brps” option.
- To execute caliper witht eh supported options refer caliper user manual section 5.1.

5 Generate caliper report in HTML format

Refer Section 5.2 in the user manual. High level steps are as follows.

- After the successful caliper execution, it generated three files from each platform (platform.yaml, platform_score.yaml and platform_hw_info.yaml) into ~/caliper_output/frontend/frontend/data_files/Input_Logs/ directory as specified in caliper user manual.
- Execute “caliper -BRPSw” command.
- Report will be generated as ~/caliper_output/<_WS_current_date_time>/output/results/test_results.tar.gz.
- Untar the test_results.tar.gz file and open index.html file with google chrome.

6 Appendix

- Caliper user manual:
  https://github.com/open-estuary/caliper/blob/master/doc/Caliper_User_Manual.pdf

- Caliper developer manual:
  https://github.com/open-estuary/caliper/blob/master/doc/Caliper_Developer_Manual.pdf

- Nginx tool user guide:
  https://github.com/open-estuary/caliper/blob/master/doc/Nginx_Tool_User_Guide.pdf

- Redis tool user guide:
  https://github.com/open-estuary/caliper/blob/master/doc/Redis_Tool_User_Guide.pdf

7 General Tips

Checklist for caliper execution

- Confirm the hostname configuration in below files for hadoop tool execution:
  In /etc/hostname file:
  localhost.localdomain

  In /etc/hosts add this line:
  127.0.0.1 localhost

After updating above files, user has to reboot the target platform.

- Mount saperate disk (Example: /dev/sdb1) at /mnt/sdb (create the mount if not exists) for storage tools testing.
- Start mysql server for centos target platform: cd /usr/local/mysql; ./bin/mysqld_safe &
- Check all ethernet interfaces which will be use for caliper execution.
  Use this command to check the ethernet interfaces: ethtool <interface name>

Check the ping responce of all the ip addresses which will be use for caliper execution. (Refer ~/caliper_output/configuration/config/client_config.cfg file for ip addresses which will be used for caliper execution)

Caliper output log varification

After caliper execution has been completed, verify below files are present in the workspace.

- output/final_parsing_logs.yaml – This file will be used for caliper framework. It is an intermediate file, which is not relevant for end user.
- output/results_summary.log – summary information of tool execution status.
- output/caliper_exe.log – execution time of tool
- caliper_build/<each tool build log> - If the tool is successfuly build, then the file name will be <tool_name_arch_name>.suc. If the tool in not able to build successfully, then the file name will be <tool_name_arch_name>.fail. User has to review the reason for failure and fix the issue.
- caliper_exec/<each tool output log> - The output log of each tool will be present in caliper_exec directory. If tool execution has been failed, then user can review the log file and fix the issue accordingly.

- result/yaml/<platform name given in client_config.cfg file>.yaml – This file contain the test case results of each tool.
- results/yaml/<platform name given in client_config.cfg file>_score.yaml – This file contain the test case results of each tool in compressed way.
- results/yaml/<platform name given in client_config.cfg file>_hw_info.yaml – This file contain the hardware information of the platform.

Caliper re-execution for failed tools

Refer below steps if user wants to execute caliper for those tools which has been failed.

- Execute this command: cd ~/caliper_output/<workspace created by caliper>/test_cases_cfg/
- Choose only failed tools in following files:
  common_cases_def.cfg
  server_cases_def.cfg
  application_cases_def.cfg

- Execute this command: *caliper -brpsf <workspace created by caliper>*
- After successful execution of all the tools, uncomment all the tools in common_cases_def.cfg, server_cases_def.cfg and application_cases_def.cfg files.
- Perform parsing and scoring using the command: *caliper -BRpsf <workspace created by caliper>*
- Please verify that all the yaml files has been created in "output/results/yaml" directory.

Change platform name in HTML report

If user wants to change the name of the platform in caliper HTML report, then make following changes:

- Execute this command: *cd ~/caliper_output/frontend/frontend/data_files/Input_Logs/*
- Update the "platform_name>.yaml" files in Input_Consolidated directory and change the name inside this file at 2 places:
  (see highlighted text)

  Configuration:
    Byte_order: Little Endian
    CPU: '64'
    CPU_type: '*TBA'
    Hostname: platform_name
    L1d_cache: 1024 kB
    L1i_cache: 1536 kB
    L2_cache: 8192 kB
    L3_cache: 32768 kB
    Machine_arch: aarch64
    Memory: 523535MB
    OS_Version: Linux 4.9.20+
  name: platform_name

- Follow same procedure for <platform_name>_score.yaml files in Input_Report directory.
- Update the name of <platform_name>_hw_info.yaml files in Input_Hardware directory.
- Execute command: *caliper -BRPSw*
- New workspace will be created in ~/caliper_output directory.
- Swwitch to the new workspace and exract test_results.tar.gz file in output/results directory.
- Open index.html web page.