breeze

Breeze overview for field application engineers and their customers

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1 Breeze trace-only quick start

Download the latest Breeze trace-only archive from https://www.ellexus.com/downloads, extract it somewhere accessible on all potential execution hosts and then follow these steps:

- Trace your application using `<breezeDir>/trace-program.sh`
    - If you are using a scheduler, pass the whole command below to your scheduler.

    ```
    $ ./trace-program.sh -f <trace-database.out> <cmd and args>
    ```

- Decode the trace data with `<breezeDir>/decode-trace.sh`

    ```
    $ ./decode-trace.sh -f <trace-database.out> <trace-database.decoded>
    ```

    - You can remove confidential names and values by editing `<trace-database.decoded>/strings`

If you run either of these programs with no arguments then they will print usage instructions.

2 Product overview

2.1 What is Breeze?

Breeze is a tool that helps to solve the problems that arise when deploying and tuning complex Linux applications.

This is done through dependency analysis and IO profiling.

Breeze is used by companies such as ARM, Cadence, Mentor Graphics and Cancer Research to solve IT issues internally and to help field application engineers (FAEs) solve customer issues. Breeze does this by showing you which files have been found and by letting you quickly compare two different set-ups to find out what is different.

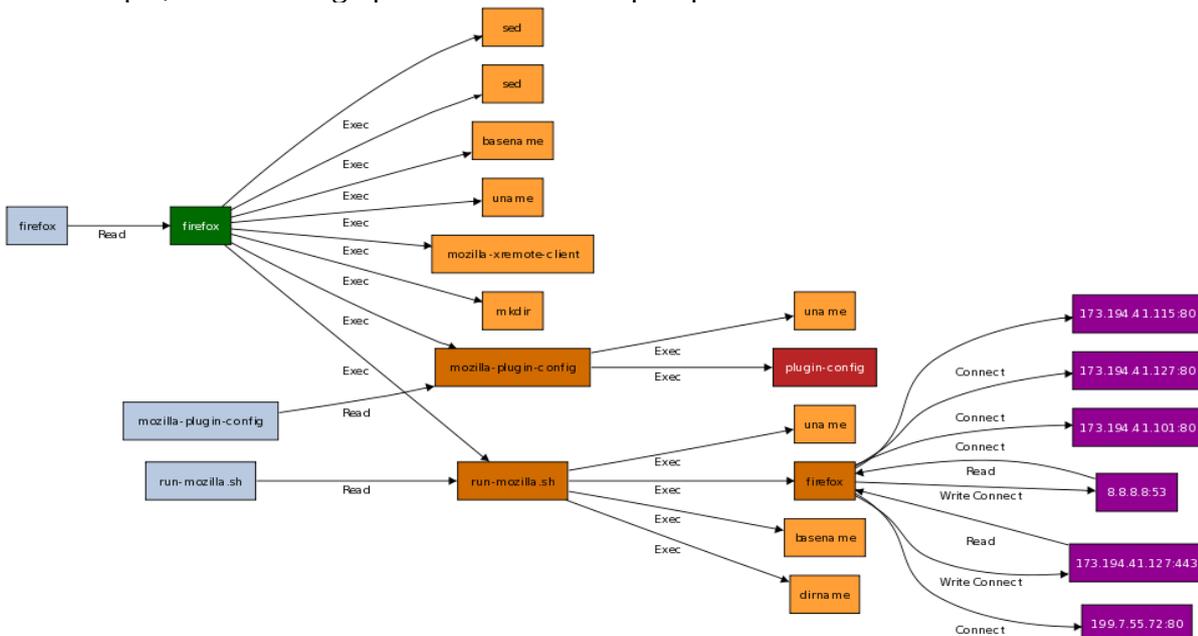### 2.2 What does Breeze record?

Breeze profiles your applications and file IO so you can be sure that your applications are using your HPC cluster as they should.

Breeze gathers information about program hierarchy, scripted flow, arguments, environment and file dependencies. This allows FAEs to understand and reproduce customer set-up more quickly and solve problems more effectively.

Breeze does NOT record or monitor the contents of design files or libraries.

2.3 What is in the trace database?

For example, this Breeze graph shows the start-up sequence of firefox:

The green node is the initial command traced; it calls some scripts in blue, programs in orange before starting the firefox binary itself. This then accesses the network, shown in purple.

3 Using Breeze in the field

Breeze is licensed so that FAEs can use Breeze to solve customer issues. Instructions for customers:

1. Download Breeze trace-only and trace your application and scripted flows. The trace data is saved to a trace database.
2. Decode the trace to plain text and remove any sensitive or confidential names.
3. Send your decoded trace database to your FAE. They will use their full copy of Breeze to analyse the result.

4 Frequently Asked Questions

4.1 Do I need to ask IT to install Breeze trace-only?

No, it is a small download that just needs to be extracted and runs in user space. You don't need root access or install rights to run it.

4.2 Do I need to use a version of my program with debug flags?

No, you don't need to change your programs or scripts. Breeze can trace almost any scripted flow or program.

4.3 Can I remove file names or project names from the trace database?

Yes, Breeze trace-only comes with a script that lets you decode the trace and remove specific names and strings from the trace before you send it. This means you can make sure that no sensitive information is leaked.

4.4 I want to look at the trace – do I need to get a license for Breeze to do this?

You can look at the plain text decoded trace for free, but you do need a license to run Breeze and view all the information easily. Ellexus can provide you with a demo and evaluation license if you would like to see what your vendor sees. Long term, if you want to look at trace data you will need to purchase a license for Breeze from Ellexus. The Breeze trace-only version doesn't need to connect to the license server so you don't need to worry about setting that up.

4.5 Does Breeze need to connect to the 'outside world'?

No. Once you have collected your trace it is up to you to transfer it to a location with a full Breeze license for analysis.

5 Case Study - Using Breeze to solve a configuration issue

Cadence used Breeze to solve a problem where a local install was overriding local console settings and some users couldn't type when they logged in.

> "We changed the environment and the problem was solved! Time between starting to look at the trace and solving the problem: 45 minutes. I'm happy with that!"

Steve Robson, Cadence.