Remote Execution Linux <-> Windows
Bazel + Buildbarn

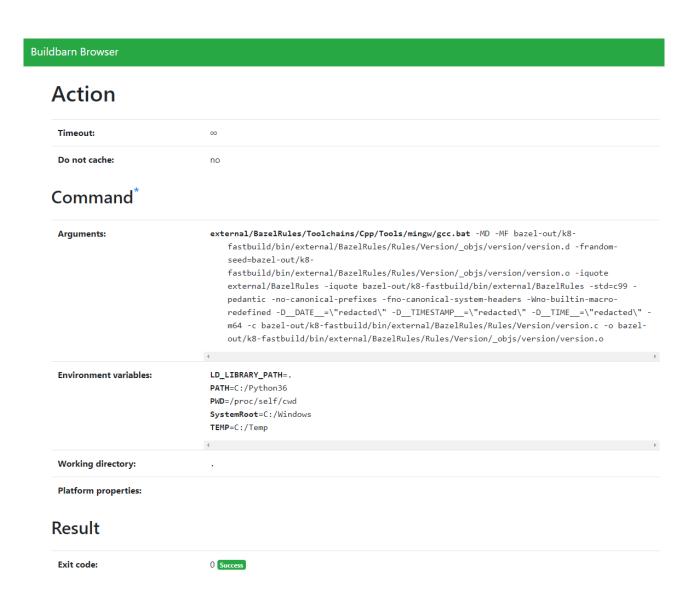Fredrik Medley

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Why?

- Third party compilers and tools
    - Some are only supported on Linux
    - Some are only supported on Windows

- Resulting build graph
    - Windows -> Linux -> Windows -> Linux

Test Setup

- Running Bazel on Linux

- Buildbarn scheduler on Linux

- Buildbarn worker on Windows

- Some tasks run locally on Linux

- Some compilation runs remotely on Windows

Buildbarn Browser

Action

Timeout:	∞
Do not cache:	no

Command*

Arguments:
```
external/BazelRules/Toolchains/Cpp/Tools/mingw/gcc.bat -MD -MF bazel-out/k8-
    fastbuild/bin/external/BazelRules/Rules/Version/_objs/version/version.d -frandom-
    seed=bazel-out/k8-
    fastbuild/bin/external/BazelRules/Rules/Version/_objs/version/version.o -iquote
    external/BazelRules -iquote bazel-out/k8-fastbuild/bin/external/BazelRules -std=c99 -
    pedantic -no-canonical-prefixes -fno-canonical-system-headers -Wno-builtin-macro-
    redefined -D__DATE__=\"redacted\" -D__TIMESTAMP__=\"redacted\" -D__TIME__=\"redacted\" -
    m64 -c bazel-out/k8-fastbuild/bin/external/BazelRules/Rules/Version/version.c -o bazel-
    out/k8-fastbuild/bin/external/BazelRules/Rules/Version/_objs/version/version.o
```

Environment variables:
```
LD_LIBRARY_PATH=.
PATH=C:/Python36
PWD=/proc/self/cwd
SystemRoot=C:/Windows
TEMP=C:/Temp
```

Working directory:	.
Platform properties:	

Result

Exit code:	0 Success

Observations so far

- PATH needs to be specified per toolchain in Windows and Linux format respectively
  - Use `env_sets` in the toolchains.
  - Avoid using e.g. `--action_env="PATH=C:/Program Files/Git/usr/bin;C:/usr/local/bin:/usr/bin:/bin"` even if it is compatible with Windows and Linux.

- Some tools has to run on the same kind of remote as the client
  - Example: Built in py_binary behaves differently on Windows and Linux
  - Also observed toolchain setups depending on `repository_ctx.os.name`

- Use `exec_properties` to let the remote scheduler select appropriate worker
  - https://docs.bazel.build/versions/master/be/platform.html#platform.exec_properties
  - Not implemented in Buildbarn yet

Thank You!