Improvements to LibreOffice CI (Jenkins)

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TIRANA | 27 Sept. 2018
• What is CI?
• What do we use in the LibreOffice project?
• What are the problems with it?
• What has been done to improve the situation?
• Future improvements
• Q & A
What is CI?
What is CI?

- CI = Continuous Integration
- everyone pushes frequently to same branch
- aims to prevent integration problems
- now more often refers to the tooling
Why is it a good thing?

- tests all platforms, not only those the developer has access to
- standard build environment
- nobody likes build-breakers on a branch
What do we use in the LibreOffice project?
Gerrit

- Patch review system
- webinterface
- commandline
- collects review results
• receives changes from gerrit
• orchestrates builds
• sends results to gerrit
Tinderbox

- do build the branch
- partially part of jenkins, partially independent
- some do provide installation sets
  (daily/nightly builds)
What are the problems with it?
Problems

- build duration differs
- number of build agents is limited
- commits are not evenly distributed throughout the day
- random failures
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<tr>
<th>Device</th>
<th>OS</th>
<th>Notes</th>
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Problems

- build duration differs
- number of build agents is limited
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- random failures
What has been done to improve the situation?
Touchstone builds

- don't build on slow operating system when the build already failed
- artificially introduces delays
- builds are more likely to fail on the slow systems
- abandoned later
“no activity” timeout

- build assumed to be stuck after $x$ seconds with no additional buildlog output
- previously absolute buildtime
Switch to Multijob

- previously Matrix Project
- allows to kill other jobs if one job fails
- allows to resume
- easier access to buildlog
Triggereed by Gerrit: https://gerrit.libreoffice.org/50594

Revision: 4766e4b8cc7ead125002e0b53b0b1c56c22a2c03
- refs/changes/94/50594/1

Configurations

- linux_clang_dbgutil_64
- linux_gcc_release_64
- macosx_clang_dbgutil
- windows_msc_dbgutil_32
Switch to Multijob

- previously Matrix Project
- allows to kill other jobs if one job fails
- allows to resume
- easier access to buildlog
Triggered by Gerrit: https://gerrit.libreoffice.org/59099

<table>
<thead>
<tr>
<th>S</th>
<th>R</th>
<th>Job</th>
<th>Build #</th>
<th>Duration</th>
<th>Console</th>
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</table>
Switch to Multijob

- previously Matrix Project
- allows to kill other jobs if one job fails
- allows to resume
- easier access to buildlog
Back to Project

Status

Changes

Console Output

Edit Build Information

Delete Build

Polling Log

Retrigger

Parameters

Environment Variables

Resume build

Failure Cause Management

Previous Build

Next Build
Priorities for nodes and branches

- prefer faster machines over the slower ones
- prefer release-branches over master
• just getting “your build failed” is not very helpful
• BFA matches regular expression in buildlog
• ootb only works for individual jobs, adding result to multijob required groovy plumbing
Identified problems

VS compiler error

Visual studio complained about error C2027: use of undefined type 'com::sun::star::lang::XSingleServiceFactory' in file C:/cygwin/home/tdf/lode/jenkins/workspace/gerrit_windows@2/fpicker/source/win32/filepicker/FPentry.cxx(75)

Indication 1
Automatic retry

- retries the build on known bot failures
- when an agent loses network
- make stdout error
- mspdbsrv got killed
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<td>gerrit_windows</td>
<td>build #14726</td>
<td>1 hr 24 min</td>
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</table>
• start and end of a build are not using all threads
• jenkin's default of using @ in pathname (workdir@2) caused some issues
• avoid multiple workdirs when using ccache
Killing of leftovers

- signal handler in buildscript
- kills all processes in the process group
- can backfire
change default view

- thousands of builds made it slow
- full data moved to different tab
Future improvements
- automatic resume won't work
- bot needs to be taken offline
unclog queue in case of series

- when a series of patches is committed, all get queued
- stop processing of remaining series if the parent failed
- assign low priority to series to give other patches a chance
• as workaround search in gerrit for jenkins's comment
integrate with SSO

- so everyone with commit privileges can resume
• resume build only works in sidebar
Questions?