

GKernelCI v.2

new features and KernelCI compatibility

\$ whoami

Alice Ferrazzi

Gentoo:

- Gentoo Kernel Project Leader
- GKernelCI creator
- Gentoo Board Member

Cybertrust Japan Co., Ltd.

- Software Engineer
- EMLinux embedded linux distribution - Lead CI system development

- Gentoo Kernel Project
- GKernelCI origins
- GKernelCI helping Upstream Kernel Project
- Changes of GKernelCI
- Collaboration with KernelCI
- KCIDB
- What's next
- Conclusion

Gentoo kernel project

In summary:

- Gentoo-sources (made by linux kernel + few Gentoo specific patches)
upstream first!
- Compiling kernel
- Booting kernel (the current gentoo-sources test)
- Stabilize kernel (sign as stable gentoo-sources that are tested working and without pending critical security bugs)

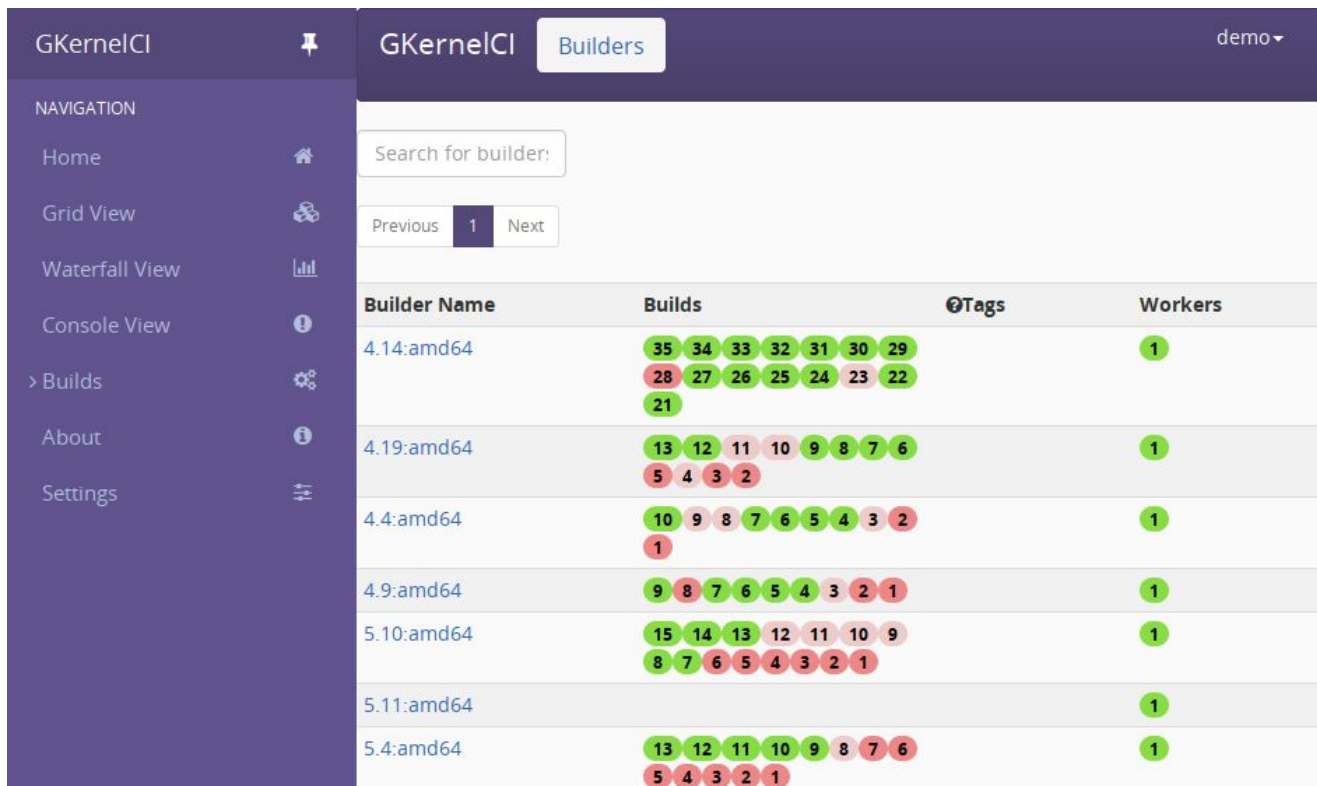
Gentoo kernel project (2016-2017)

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Automate

GKernelCI building Gentoo sources



Start to send boot reports to upstream in January 2018

On Thu, Jan 4, 2018 at 5:11 AM, Greg Kroah-Hartman

<gregkh@xxxxxxxxxxxxxxxxxxxxxx> wrote:

> This is the start of the stable review cycle for the 4.4.110 release.
> There are 37 patches in this series, all will be posted as a response
> to this one. If anyone has any issues with these being applied, please
> let me know.
>
> Responses should be made by Fri Jan 5 19:50:38 UTC 2018.
> Anything received after that time might be too late.
>
> The whole patch series can be found in one patch at:
> kernel.org/pub/linux/kernel/v4.x/stable-review/patch-4.4.110-rc1.gz
> or in the git tree and branch at:
> [git://git.kernel.org/pub/scm/linux/kernel/git/stable/linux-stable-rc.git](https://git.kernel.org/pub/scm/linux/kernel/git/stable/linux-stable-rc.git) linux-4.4.y
> and the diffstat can be found below.
>

This patchset merges correctly with Gentoo patches and GCC version 6.4.0

The kernel boot up correctly.

Logs: <http://kernel1.amd64.dev.gentoo.org:8010/#/builders/5/builds/44>

> *This patchset merges correctly with Gentoo patches / GCC 6.4.0 and the
> kernel boot up correctly.*
> https://github.com/gentoo/linux-patches/tree/4.9_001
> <http://kernel1.amd64.dev.gentoo.org:8010/#/builders/3/builds/47>

Great, thanks for testing and letting me know.

greg k-h

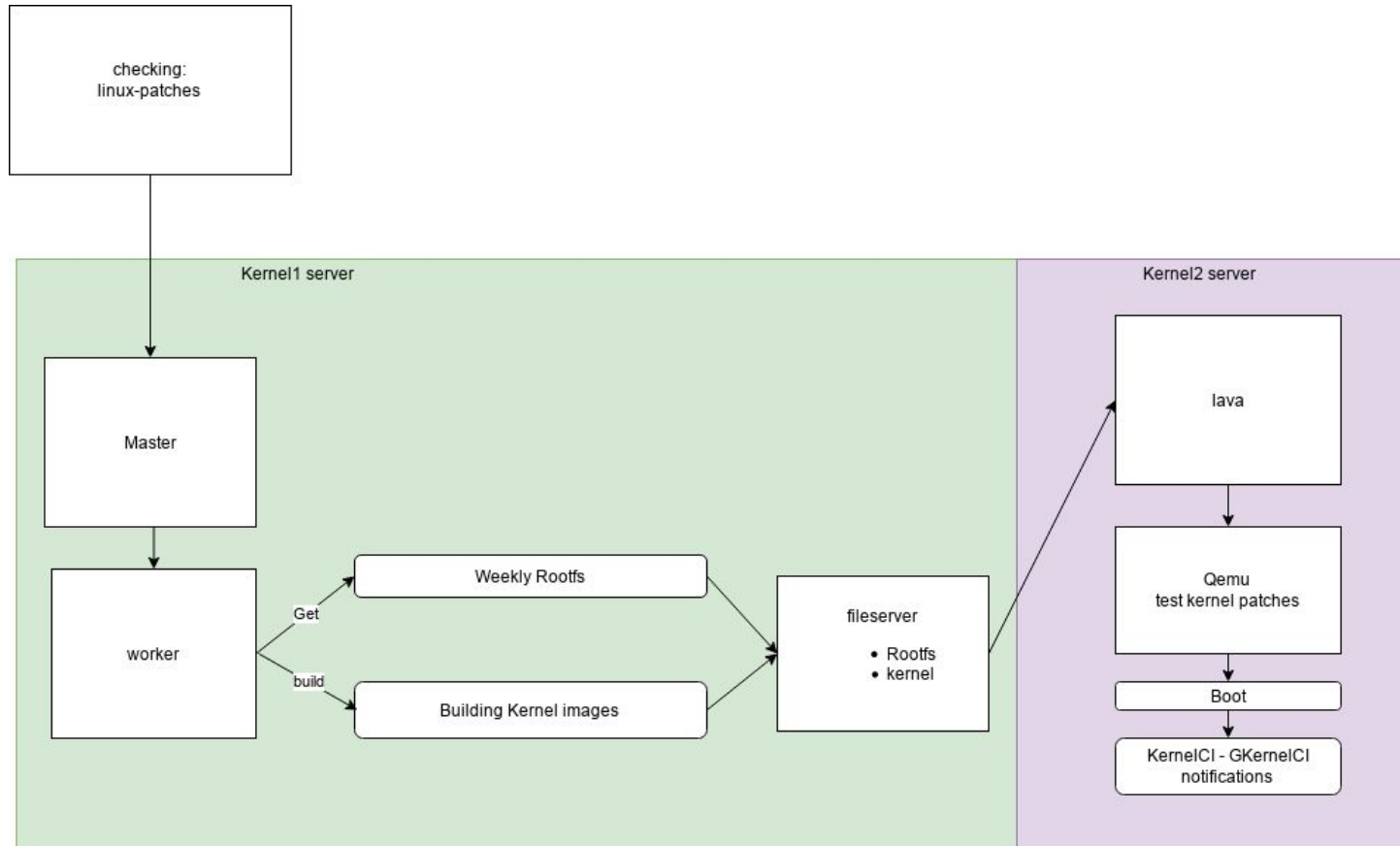
GKernelCI V1 -> GKernelCI V2

Starting GKernelCI from buildbot commands -> docker-compose

Boot scripts -> LAVA

Send results notification to KernelCI (recently part of linux foundation) with KCIDB

Current GKernelCI structure



GKernelCI Features

- Tailored for Gentoo kernel but could be used for testing other kernels
- Simple to use (git clone --recursive <https://github.com/GKernelCI/Gdocker.git> && cd Gdocker && ./start_testing.sh)
- Few languages switch (python bash and c)
- Highly customizable (based on buildbot and lava)
- Implement KCIDB for pushing results to KernelCI

KCIDB (KernelCI project)

- Tool for unifying results from different CI systems in KernelCI
- Standardize CI reports and kernel upstream notifications
- KernelCI access credentials are needed
- Use JSON

```
(.venv) alicef@alicef-pc ~/personal_projects/Ghelper (master*) $ cat data_file.json |jq
```

```
{
  "version": {
    "major": 3,
    "minor": 0
  },
  "revisions": [
    {
      "id": "2c85ebc57b3e1817b6ce1a6b703928e113a90442+85a78e9888a3d9dcc91bc8310c13657bfebca21206b4a8f67741388f8143fba",
      "origin": "gkernelci",
      "discovery_time": "2021-01-21T15:23:27.204807981+00:00",
      "git_repository_url": "git://git.kernel.org/pub/scm/linux/kernel/git/torvalds/linux.git",
      "git_repository_branch": "5.10",
      "git_commit_hash": "2c85ebc57b3e1817b6ce1a6b703928e113a90442",
      "contacts": [
        "Mike Pagano <mpagano@gentoo.org>",
        "Alice Ferrazzi <alicef@gentoo.org>"
      ],
      "patch_mboxes": [
        {
          "name": "1000_linux-5.10.1.patch",
          "url": "https://raw.githubusercontent.com/GKernelCI/linux-patches/5.10/1000_linux-5.10.1.patch"
        },
        {
          "name": "4567_distro-Gentoo-Kconfig.patch",
          "url": "https://raw.githubusercontent.com/GKernelCI/linux-patches/5.10/4567_distro-Gentoo-Kconfig.patch"
        }
      ],
      "valid": true
    }
  ],
  "builds": [
    {
      "id": "gkernelci:5.10:amd64_35",
      "origin": "gkernelci",
      "start_time": "2021-01-21T15:23:27.204807981+00:00",
      "revision_id": "2c85ebc57b3e1817b6ce1a6b703928e113a90442+85a78e9888a3d9dcc91bc8310c13657bfebca21206b4a8f67741388f8143fba",
      "architecture": "amd64",
      "valid": true
    }
  ]
}
```

Revision ID

Commit hash + patchset hash

```
kcldb-submit -p kernelci-production -t kernelci_new < data_file.json
```



Origin gkernelci ▾

Repo All ▾



Welcome

Welcome to Linux Kernel CI report database (KCIDB) dashboard. Here you can find testing reports aggregated from multiple CI systems ("origins"). This is a work in progress, and we welcome contributions and participation. See the source code for [the collection system](#), and for [this dashboard](#). Write to kernelci@groups.io if you want to start submitting results from your CI system, or if you want to receive

Revisions

Origin	Repository	Branch Name	Hash	Discovery time	Status	Builds	Tests
gkernelci	git://git.kernel.org/pub/scm/linux/kernel/git/torvalds/linux.git	5.4	219d54332a09	2021-01-21 19:34:58.569610+00	✓	✗	
gkernelci	git://git.kernel.org/pub/scm/linux/kernel/git/torvalds/linux.git	4.4	afd2ff9b7e1b	2021-01-21 18:40:37.942345+00	✓	✓	
gkernelci	git://git.kernel.org/pub/scm/linux/kernel/git/torvalds/linux.git	4.9	69973b830859	2021-01-21 18:40:37.916154+00	✓	✓	
gkernelci	git://git.kernel.org/pub/scm/linux/kernel/git/torvalds/linux.git	5.10	2c85ebc57b3e	2021-01-21 17:37:10.902543+00	✗	✗	
gkernelci	git://git.kernel.org/pub/scm/linux/kernel/git/torvalds/linux.git	4.19	84df9525b0c2	2021-01-21 16:03:36.629884+00	✓	✗	
gkernelci	git://git.kernel.org/pub/scm/linux/kernel/git/torvalds/linux.git	4.14	bebc6082da0a	2021-01-21 16:00:49.546258+00	✓	✗	

What's next for GKernelCI

- Stabilize Gentoo Kernel packages (set gentoo-sources as stable after been tested)
- Implement more tests
- Improve Gentoo Kernel testing and process
- More customization (build also linux kernel with user patches)

Gentoo ARCH	defconfig	boards to test	notes
ARM	multi_v7_defconfig	qemu(virt-2.11)	
ARM64	arm64_defconfig	qemu(virt)	
alpha	defconfig	qemu(clipper)	defconfig miss CONFIGs
hppa/parisc	generic-32bit_defconfig	qemu(hppa)	LAVA need a patch https://git.lavasoftware.org/lava/lava/-/merge_requests/1419 Merged, will be in 2021.x
m68k	mac_defconfig	qemu(q800)	LAVA need a patch https://git.lavasoftware.org/lava/lava/-/merge_requests/1424
MIPS32	malta_kvm_guest_defconfig	qemu(malta)	
PPC	pmac32_defconfig	qemu(g3beige)	
PPC64	pseries_defconfig	qemu(pseries)	
riscv	defconfig	qemu(virt)	
sparc64	sparc64_defconfig	qemu(sun4u)	defconfig miss CONFIGs
x86			
x86_64	x86_64_defconfig	qemu(pc)	

Conclusion

GkernelCI project want to:

- Be more helpful to Kernel upstream (collaborating with KernelCI)
- Improve the Gentoo Kernel Source testing
- Improve Kernel Testing

Are you interested?

See in action: <https://kernel1.amd64.dev.gentoo.org>

Project repository: <https://github.com/GKernelCI>

GKernelCI support chat IRC freenode #gentoo-kernel #gentoo-kernelci