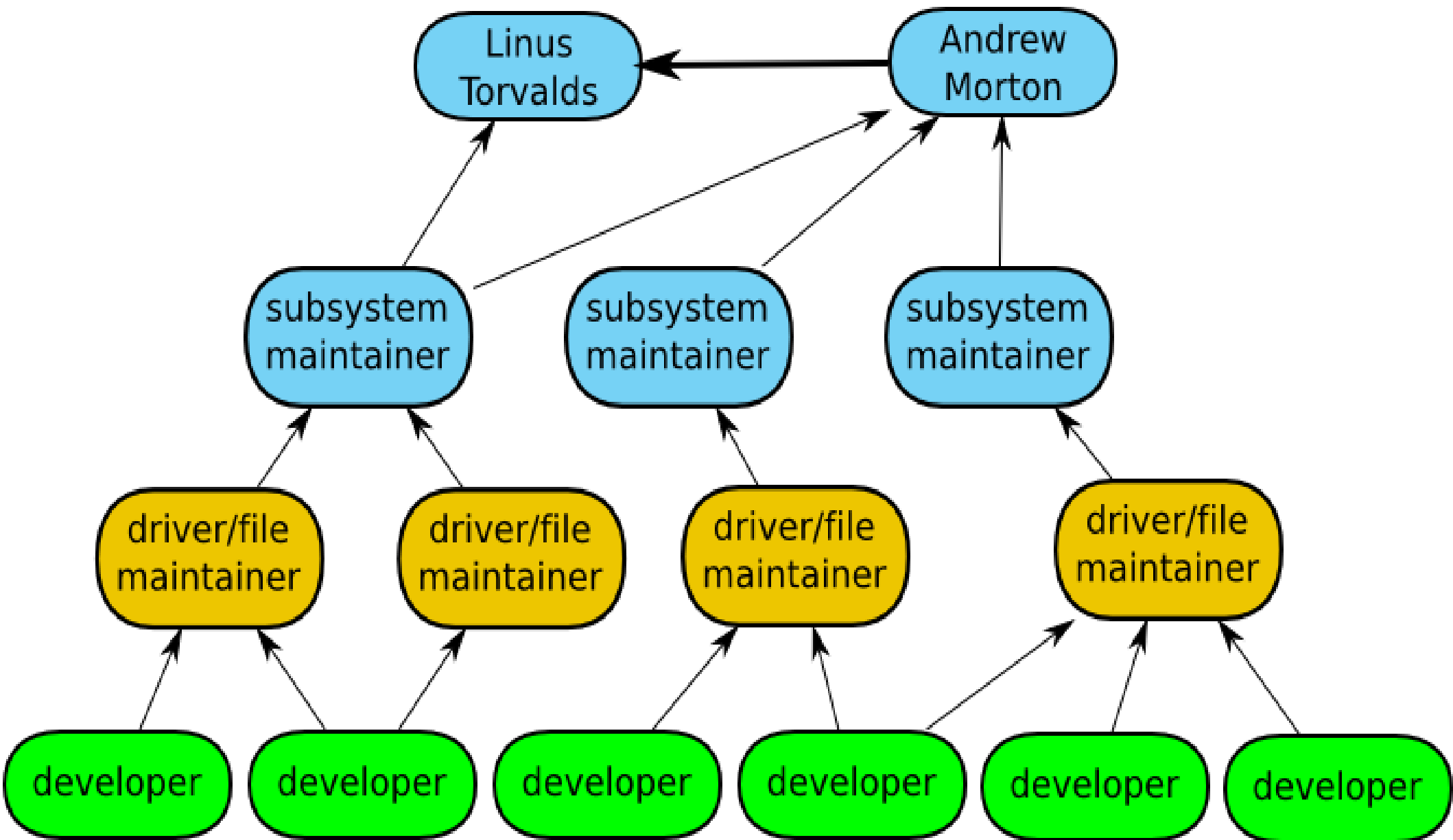


Linux Kernel Development

How, What, How Fast, and Who

Greg Kroah-Hartman
SuSE Labs / Novell



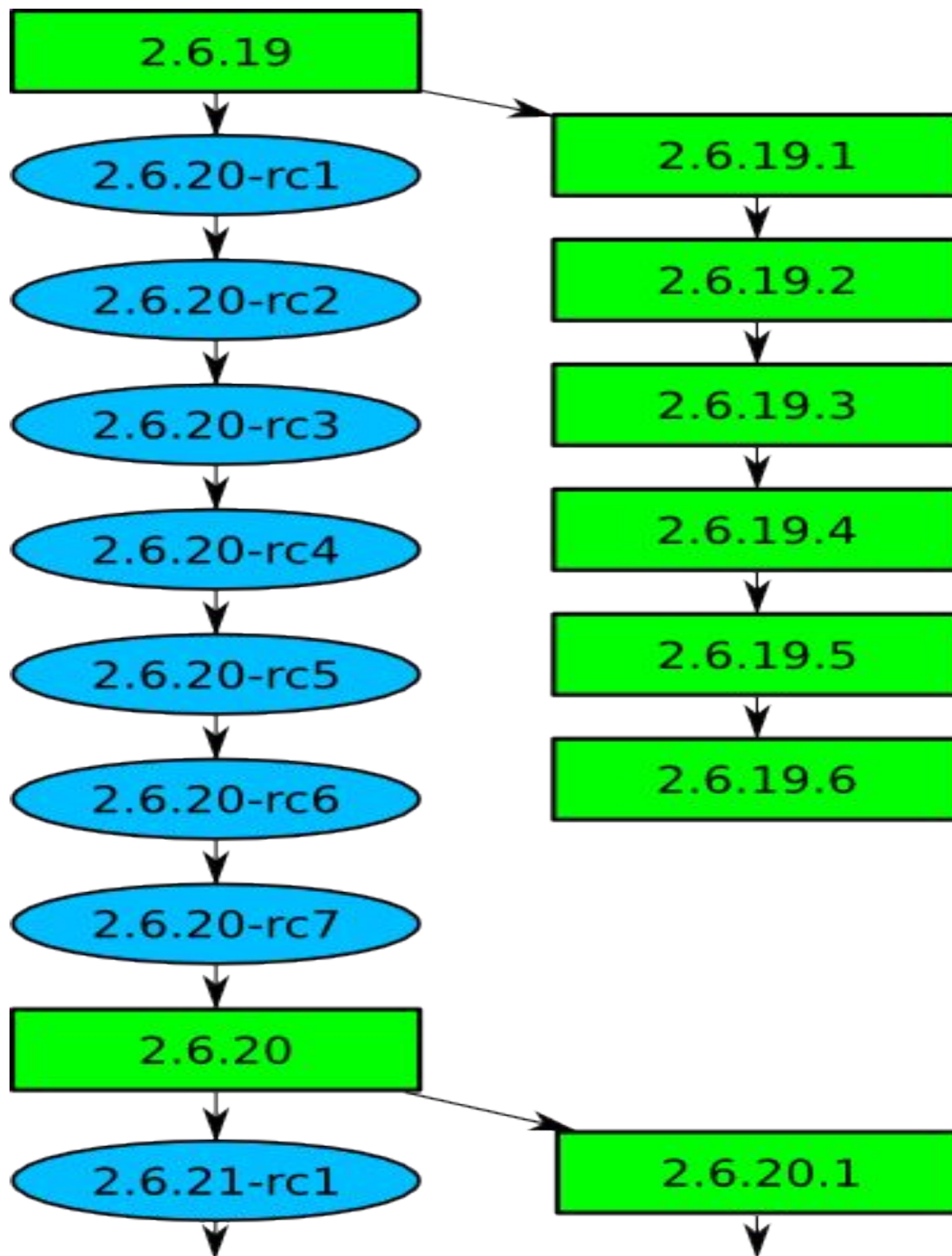
Development or Stable tree?



Development or Stable tree?

Everything is “stable”

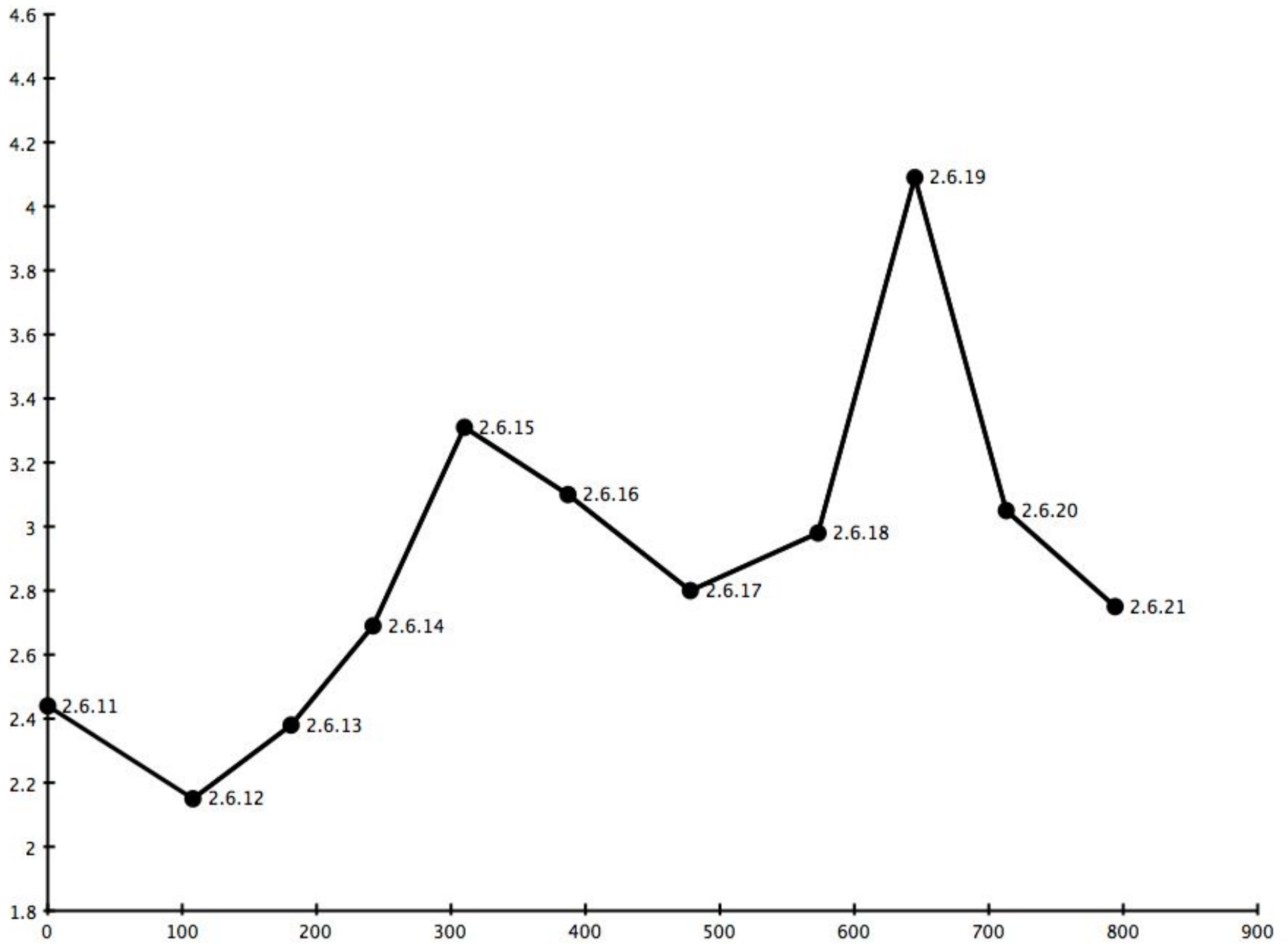




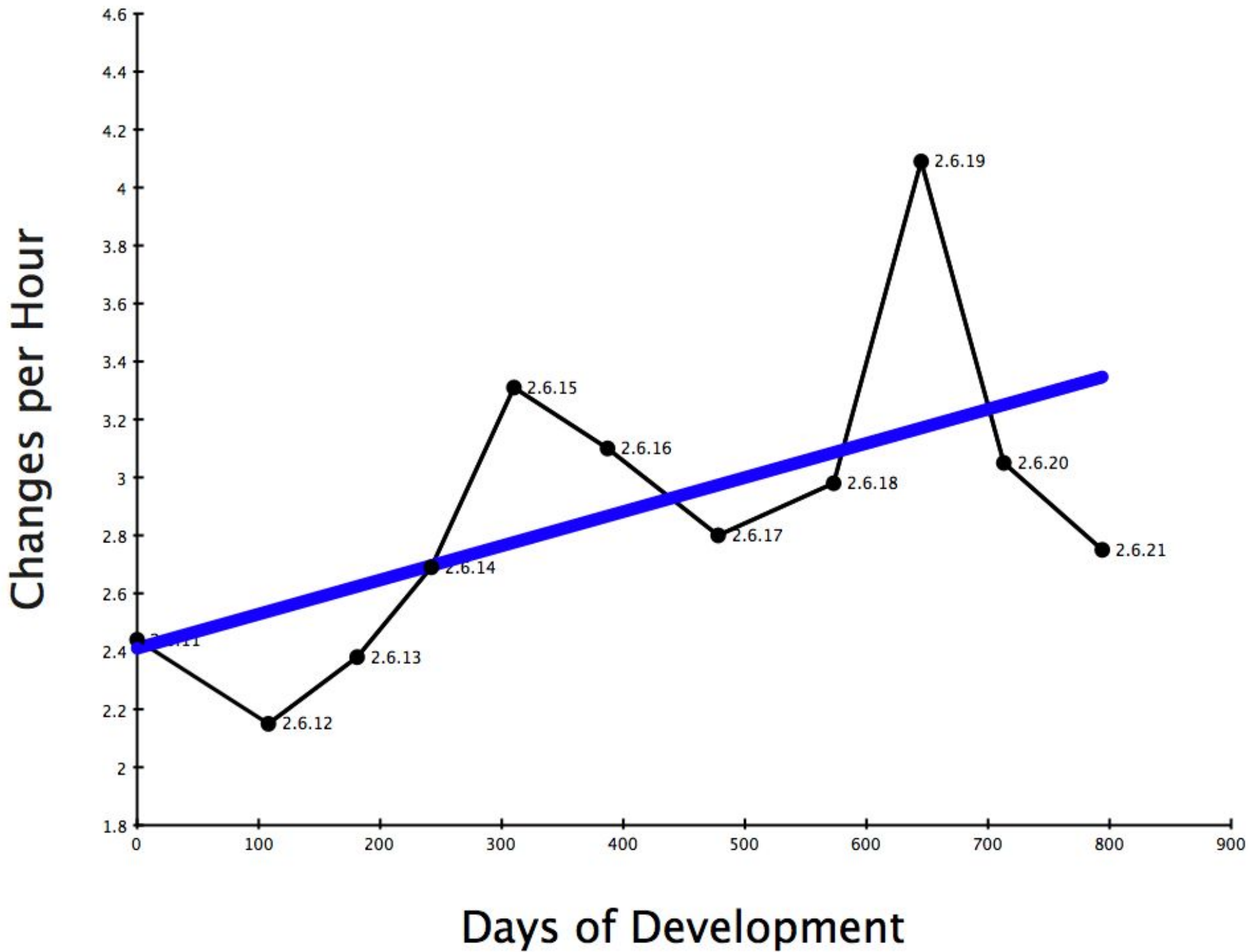


**New release every
2½ months**

Changes per Hour



Days of Development



2.89 changes per hour

```
*
* Return -EEXIST if there is already a sysfs element with the same name for
* the same parent.
+ * LOCKING:
+ * mutex_lock(parent->i_mutex)
- * called with parent_mutex held
+ * RETURNS:
+ * Pointer to sysfs_dirent if found, NULL if not.
*/
-int sysfs_dirent_exist(struct sysfs_dirent *parent_sd,
-                       const unsigned char *new)
+struct sysfs_dirent *sysfs_find_dirent(struct sysfs_dirent *parent_sd,
+                                       const unsigned char *name)
{
-   struct sysfs_dirent * sd;
+   struct sysfs_dirent *sd;

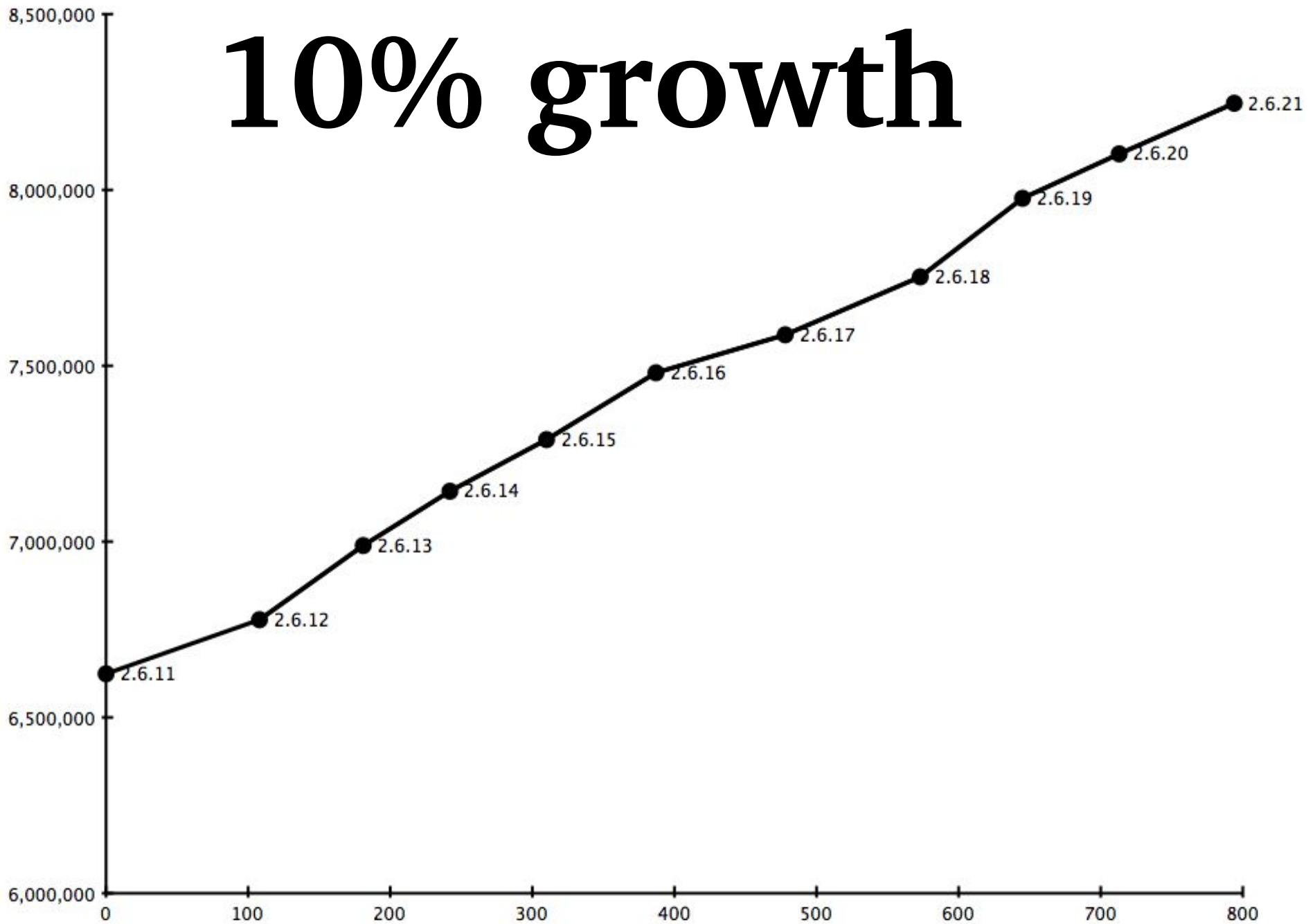
-   for (sd = parent_sd->s_children; sd; sd = sd->s_sibling) {
-       if (sysfs_type(sd)) {
-           if (strcmp(sd->s_name, new))
-               continue;
-           else
-               return -EEXIST;
-       }
+   for (sd = parent_sd->s_children; sd; sd = sd->s_sibling)
+       if (sysfs_type(sd) && !strcmp(sd->s_name, name))
+           return sd;

+   return NULL;
+}

-   return 0;
+/**
```

10% growth

Lines of code



Days of Development

8.2 million lines

```
if (error)
    goto Error;

/* first, register with generic layer. */
kobj_err = set_name(&dev->kobj, "%s" dev->bus_id);
err = kobj_err_add_dev(&dev->kobj);
if (error)
    goto Error;

/* notify platform of device entry */
if (platform_notify)
    platform_notify(dev);

/* notify clients of device entry (new way) */
if (dev->bus)
    blocking_notifier_call_chain(&dev->bus->bus_notifier,
                                BUS_NOTIFY_ADD_DEVICE, dev);

error = device_create_file(dev, &uevent_attr);
if (error)
    goto attrError;

if (MAJOR(dev->devt)) {
    error = device_create_file(dev, &devt_attr);
    if (error)
        goto ueventattrError;
}

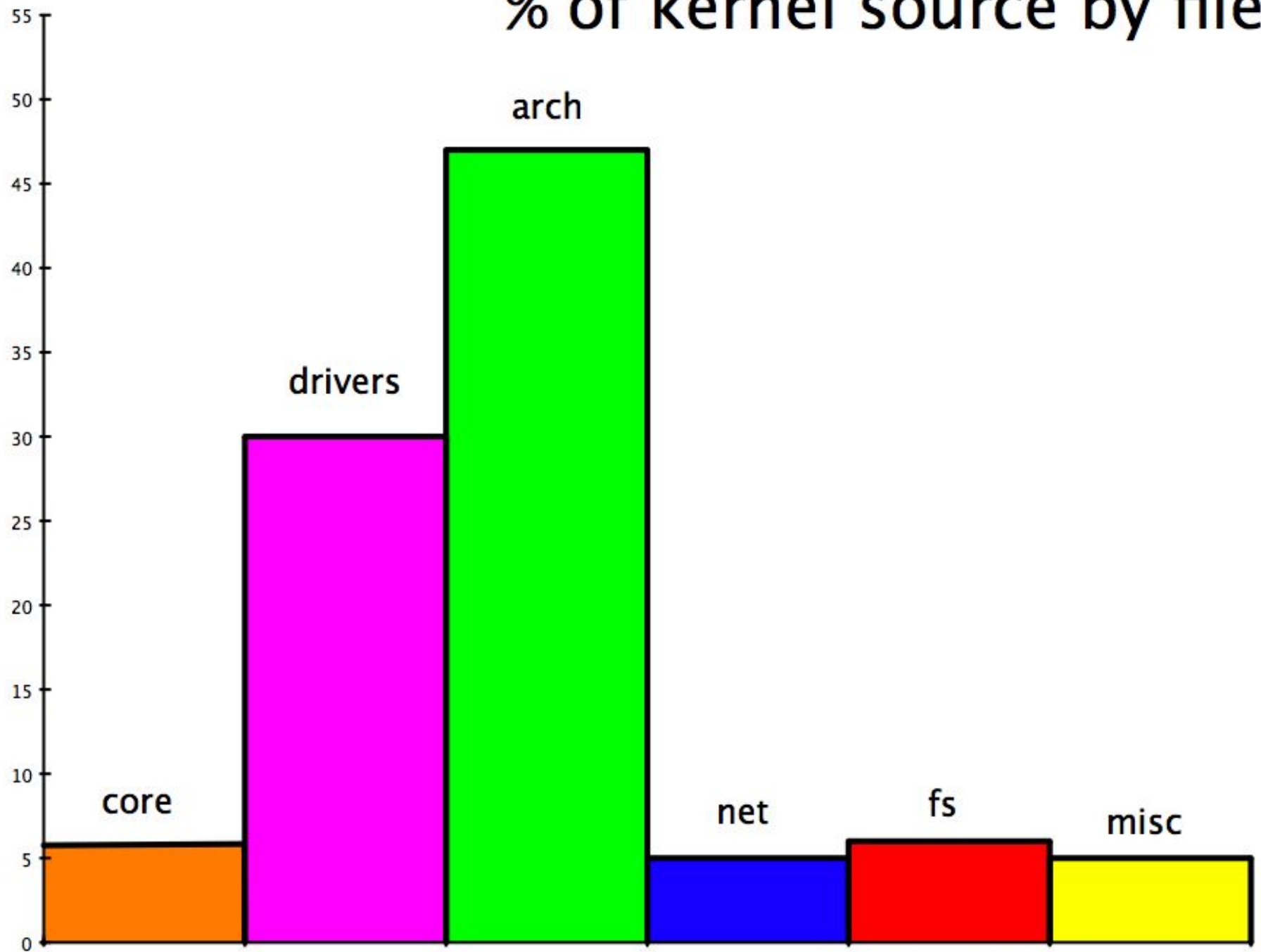
if (dev->class) {
    sysfs_create_link(&dev->kobj, &dev->class->subsys.kobj,
                    "subsystem");
    /* If this is not a "fake" compatible device, then create the
     * symlink from the class to the device. */
    if (dev->kobj.parent != &dev->class->subsys.kobj)
```

as of the 2.6.21 release

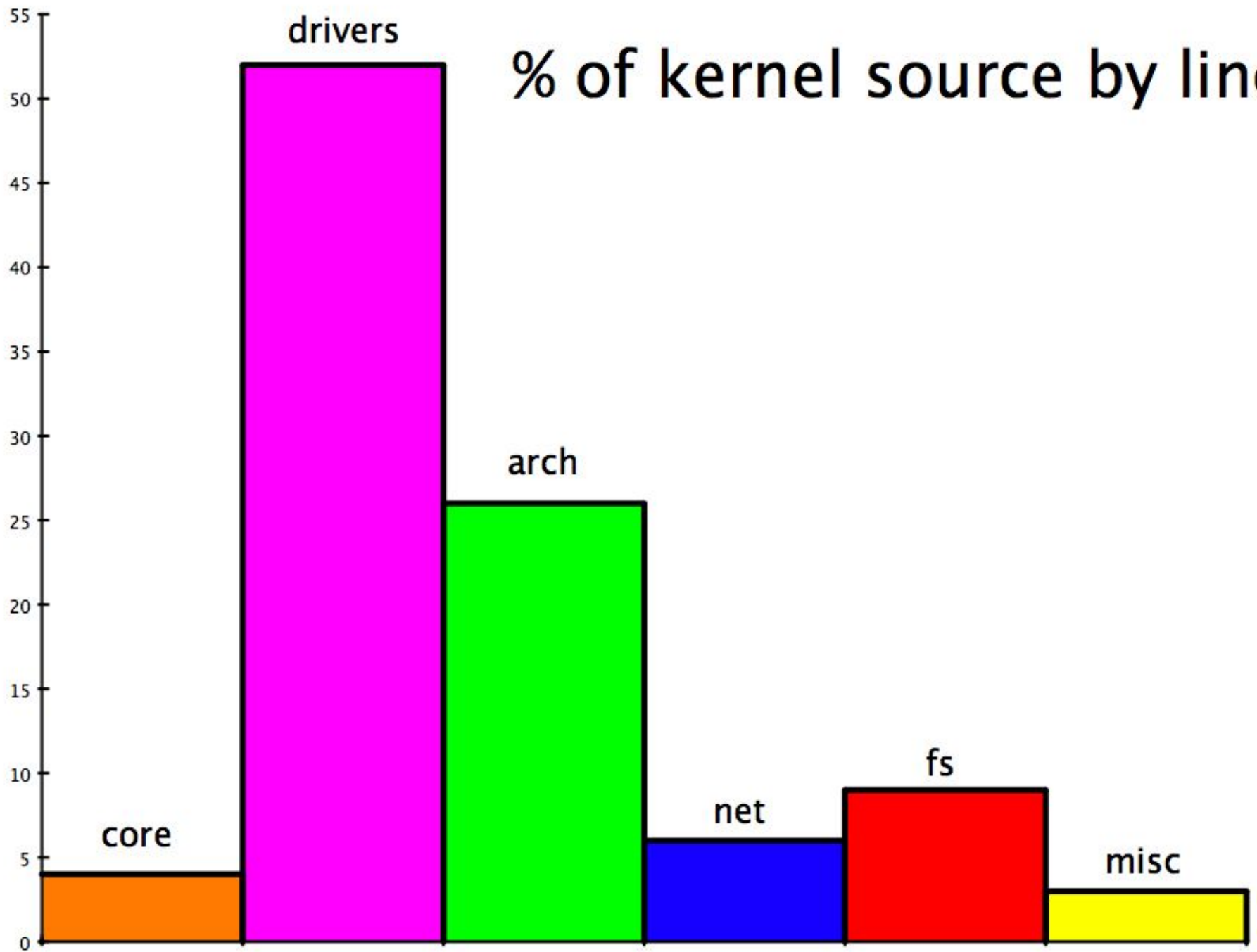
2000 lines added every day
2800 lines modified every day
24 hours a day
7 days a week

```
2007-05-23 07:23 Timur Tabi * | | [POWERPC] QE: fix Kconfig 'select' warning with UCC_FAST
2007-05-21 08:56 Domen Puncer * | | [POWERPC] 52xx: unbreak lite5200 dts (_pic vs. -pic)
2007-05-17 07:52 Kumar Gala * | | [PPC] Remove duplicate export of __div64_32.
2007-05-17 07:52 Kumar Gala * | | [PPC] Fix CONFIG_MDN_SUPRIO1 warnings
2007-05-24 11:01 Salyzyn, Mark * | | [SCSI] aacraid: add pci vendor id and pci device id for pci/scsi-
2007-05-24 09:17 Sumant Patro * | | [SCSI] aacraid: interrupt timeout and handle io
2007-05-21 20:59 Dave Jones * | | [SCSI] fusion: Fix |//| confusion
2007-05-16 14:01 Darrick J. Wong * | | [SCSI] aic94xx: aas_clear_nexus should fail if the cleared
2007-05-16 14:01 Darrick J. Wong * | | [SCSI] aic94xx: fix aasm build failure with gcc 3.4.6
2007-05-16 14:01 Darrick J. Wong * | | [SCSI] aacraid: add pci vendor id and pci device id for pci/scsi-
2007-05-16 10:06 James Bottomley * | | [SCSI] aacraid: fix panic on short Inquiry
2007-05-15 09:14 Salyzyn, Mark * | | [SCSI] aacraid: Correct sa platform support. (Was: [Bug 846
2007-05-13 22:48 Christoph Hellwig * | | [SCSI] NCR53C9x: correct spelling mistake in deprecation no
2007-05-11 19:10 FUJITA Tomonori * | | [SCSI] tgt: fix a rdma indirect transfer error bug
2007-05-10 07:22 Sumant Patro * | | [SCSI] MegaRAID: Update MAINTAINERS email-id
2007-05-09 20:50 Ed Lin * | | [SCSI] stex: minor cleanup and version update
2007-05-09 20:50 Ed Lin * | | [SCSI] stex: fix reset recovery for console device
2007-05-09 20:50 Ed Lin * | | [SCSI] stex: extend hard reset wait time
2007-05-09 20:50 Ed Lin * | | [SCSI] stex: fix interrupt handling
2007-05-09 15:36 Brian J. Moran * | | [SCSI] pr: proper return codes for dev_reset for SATA d
2007-05-09 11:01 Michal Hocky * | | [SCSI] zfcp: avoid clutter in erp_dbf
2007-05-09 11:01 Martin Peschke * | | [SCSI] zfcp: avoid clutter in erp_dbf
2007-05-29 16:34 Alan Stern * | | USB: replace flush_workqueue with cancel_sync_work
2007-05-25 19:55 Linus Torvalds * | | // [v2.6.22-rc3] Linux 2.6.22-rc3
2007-05-26 00:39 Hugh L. Davis * | | fix compat console uniman regression
2007-05-25 15:49 Linus Torvalds * | | Merge branch 'for-1.5.0' of kernel.org:/pub/scm/linux
2007-05-24 18:32 Michael S. Tsirkin * | | IPVS/cm: fix timeout check in ipvs_cm_dev_stop()
2007-05-24 14:02 Michael S. Tsirkin * | | IPVS/cm: fix timeout check in ipvs_cm_dev_stop()
2007-05-24 16:51 Stefan Roscher * | | IB/ehca: Fix number of send WRs reported for new QP
2007-05-24 16:05 Eli Cohen * | | IB/mlx4: Initialize send queue entry ownership bits
2007-05-23 15:16 Roland Dreier * | | IB/mlx4: Don't allocate RQ doorbell if using SRQ
2007-05-25 15:48 Linus Torvalds M \ \ \ Merge branch 'upstream-linus' of master.kernel.org:/pub/sc
2007-05-25 20:48 Alan Cox * | | pata_hpt37x: Further improvements based on the IDE update
2007-05-25 20:39 Alan Cox * | | pata: Trivia
2007-05-25 05:02 Jeff Garzik * | | [libata] sata_via, pata_via: Add PCI IDs.
2007-05-25 04:39 Jeff Garzik * | | [libata] Fix decoding of 6-byte commands
2007-05-25 09:48 Uwe Koziol * | | libata: sata_sis fixes
2007-05-23 14:26 Tony Breeds * | | Fix build failure for drivers/ata/pata_scc.c
2007-05-24 23:40 Jeff Garzik * | | [libata] sata_mv: add TODO list
2007-05-24 23:35 Jeff Garzik * | | [libata] sataPromise: fix flags typo
2007-05-18 13:12 Christoph Hellwig * | | [PATCH] ocfs2: use generic_segment_checks
2007-05-09 17:34 Mark Fasheh * | | ocfs2: fix inode leak
[main] 90c615bc42886f23a6112733a949d0f6f6be343b6 - commit 51 of 57091 (0%)
```

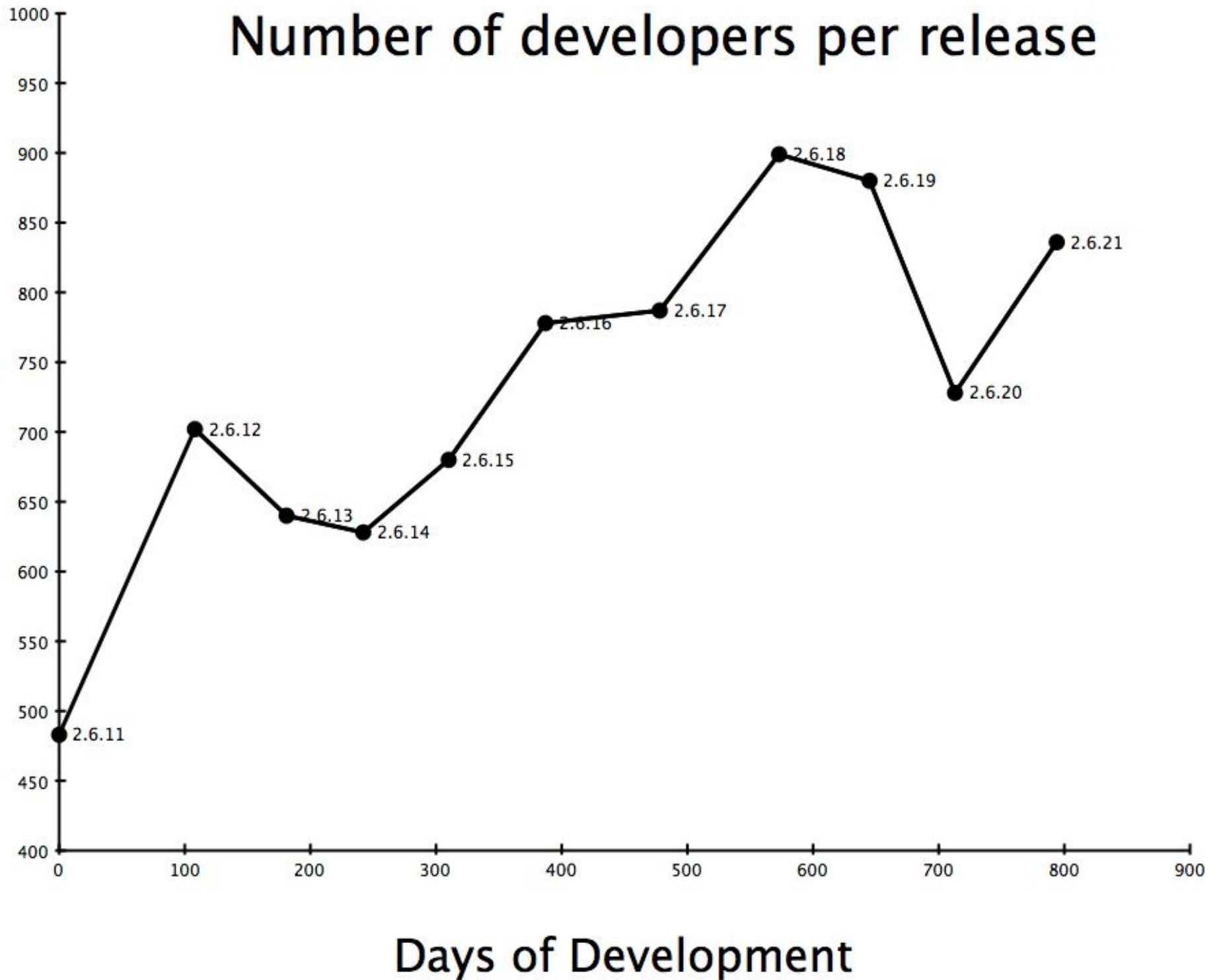

% of kernel source by files



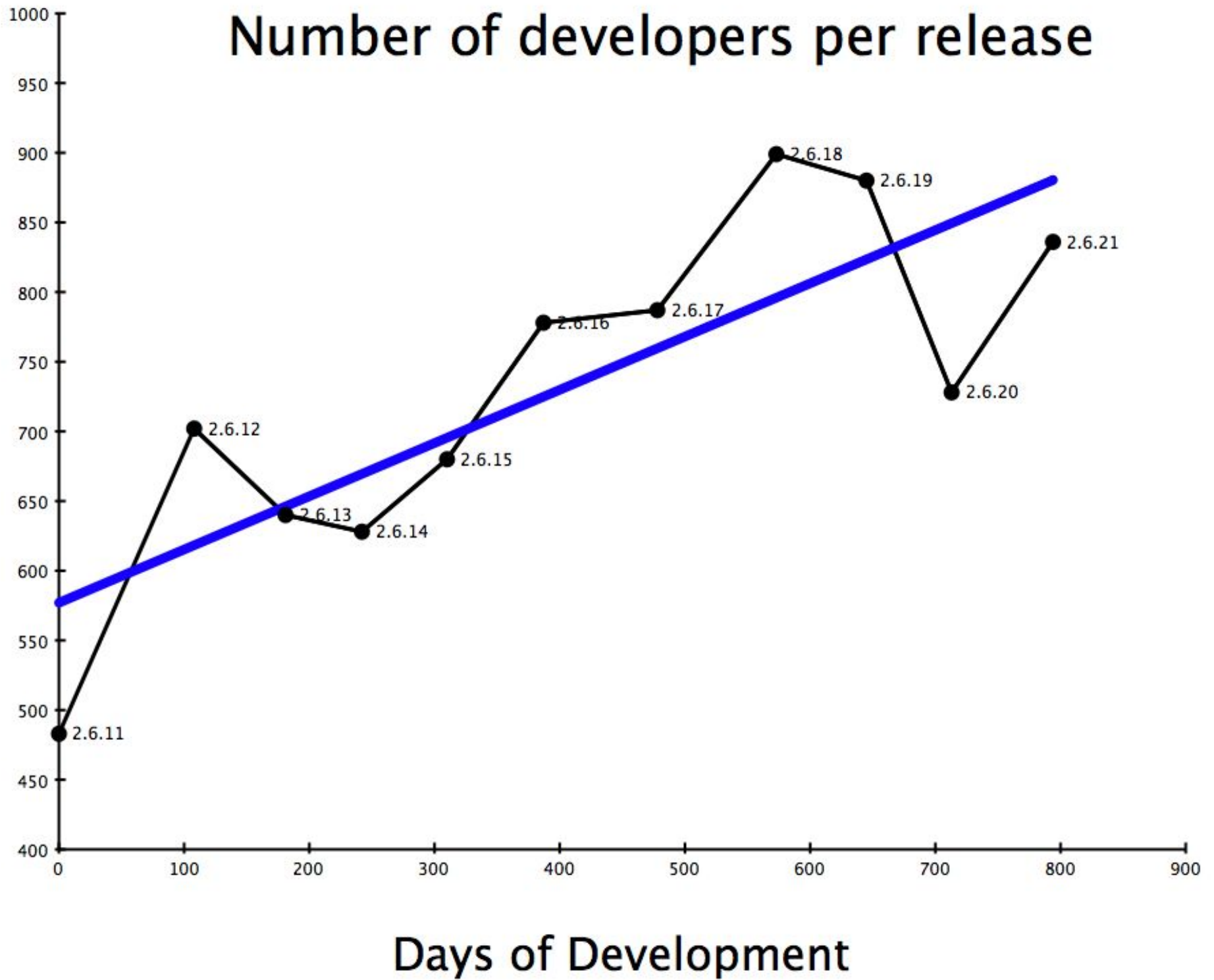
% of kernel source by lines



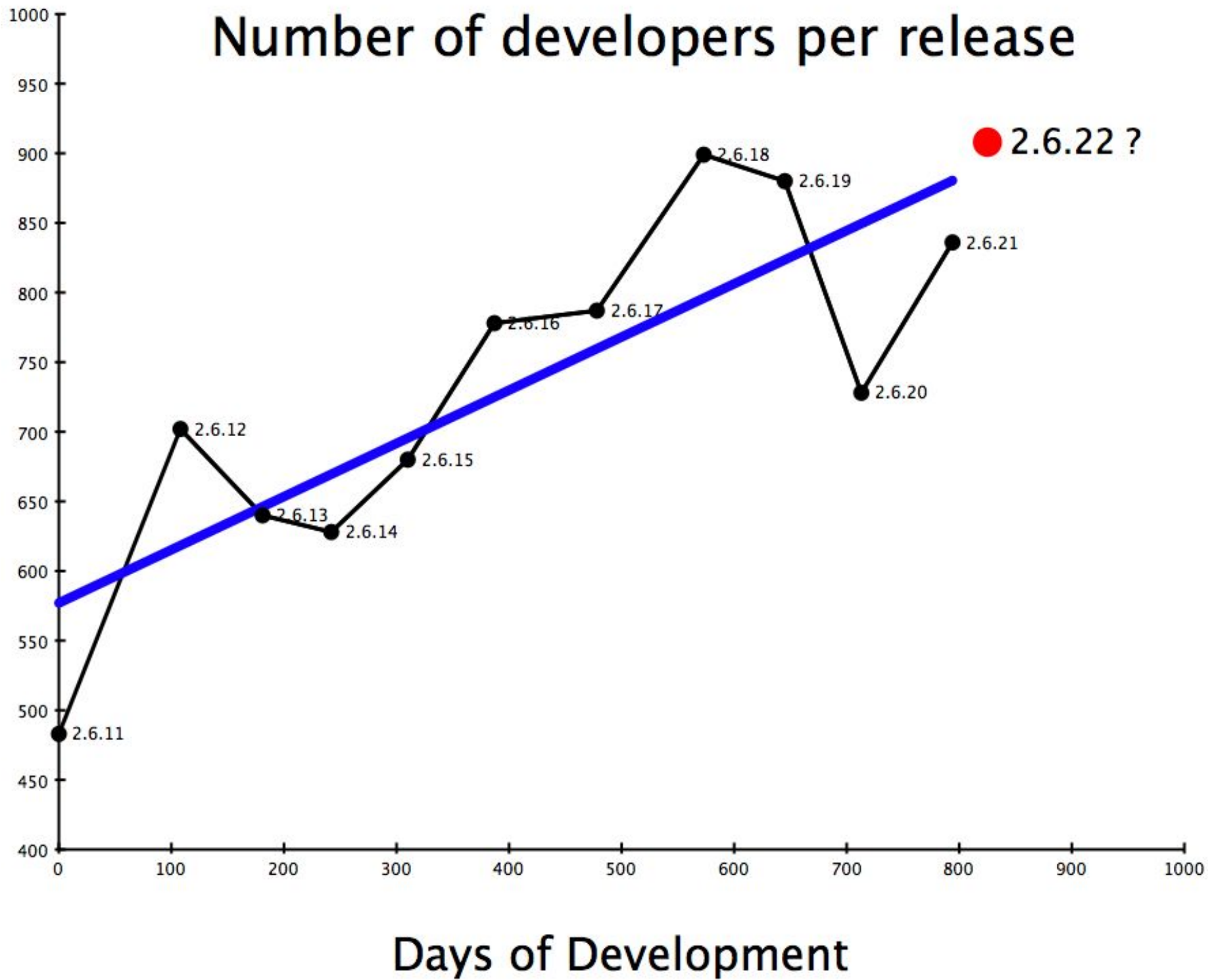
Number of developers per release



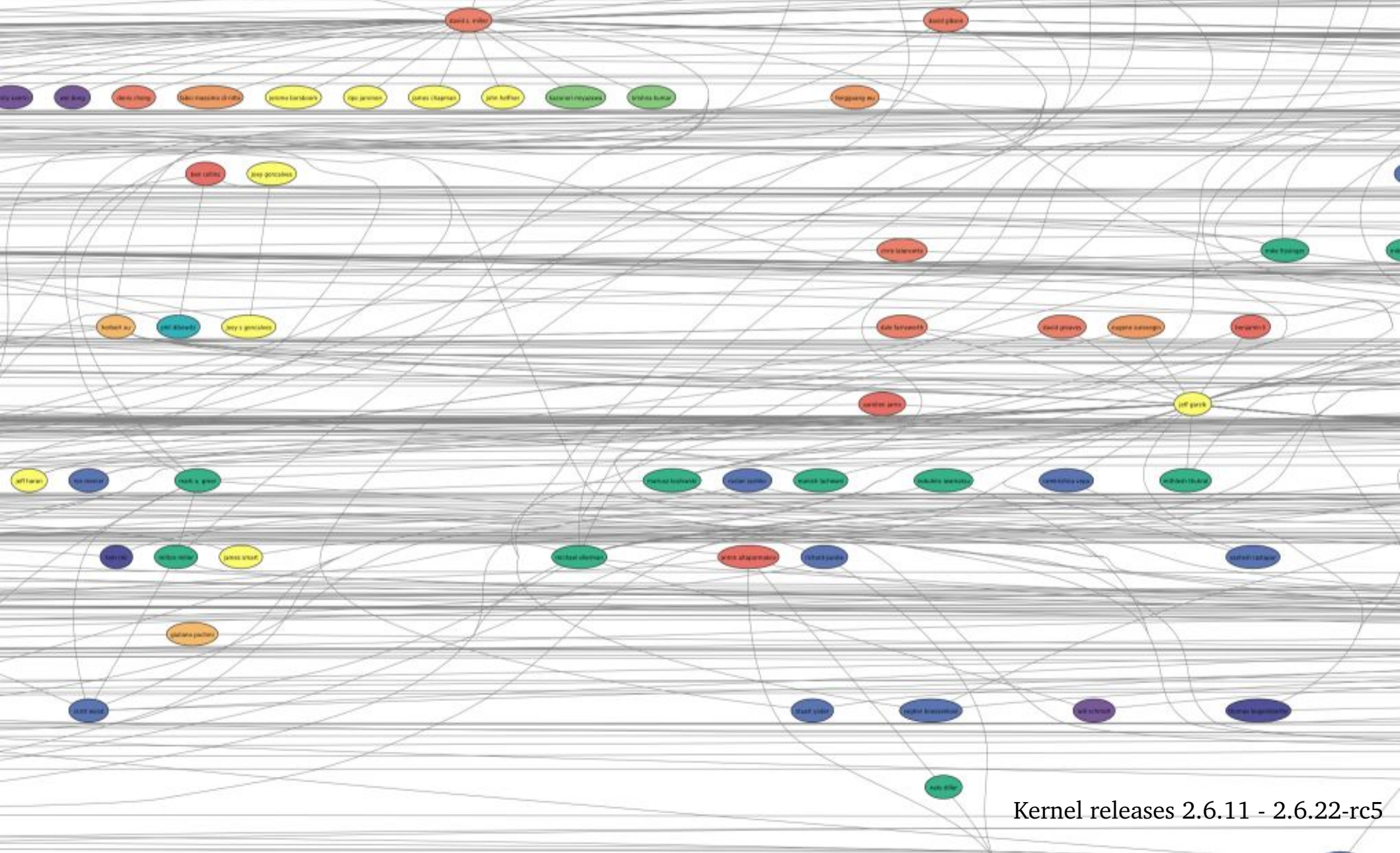
Number of developers per release



Number of developers per release



3200 Developers over 2½ years



Top developers by quantity

Al Viro 1339

David S. Miller 1279

Adrian Bunk 1150

Andrew Morton 1071

Ralf Baechle 1013

Andi Kleen 922

Russell King 874

Takashi Iwai 816

Stephen Hemminger 755

Tejun Heo 670

Top Signed-off-by:

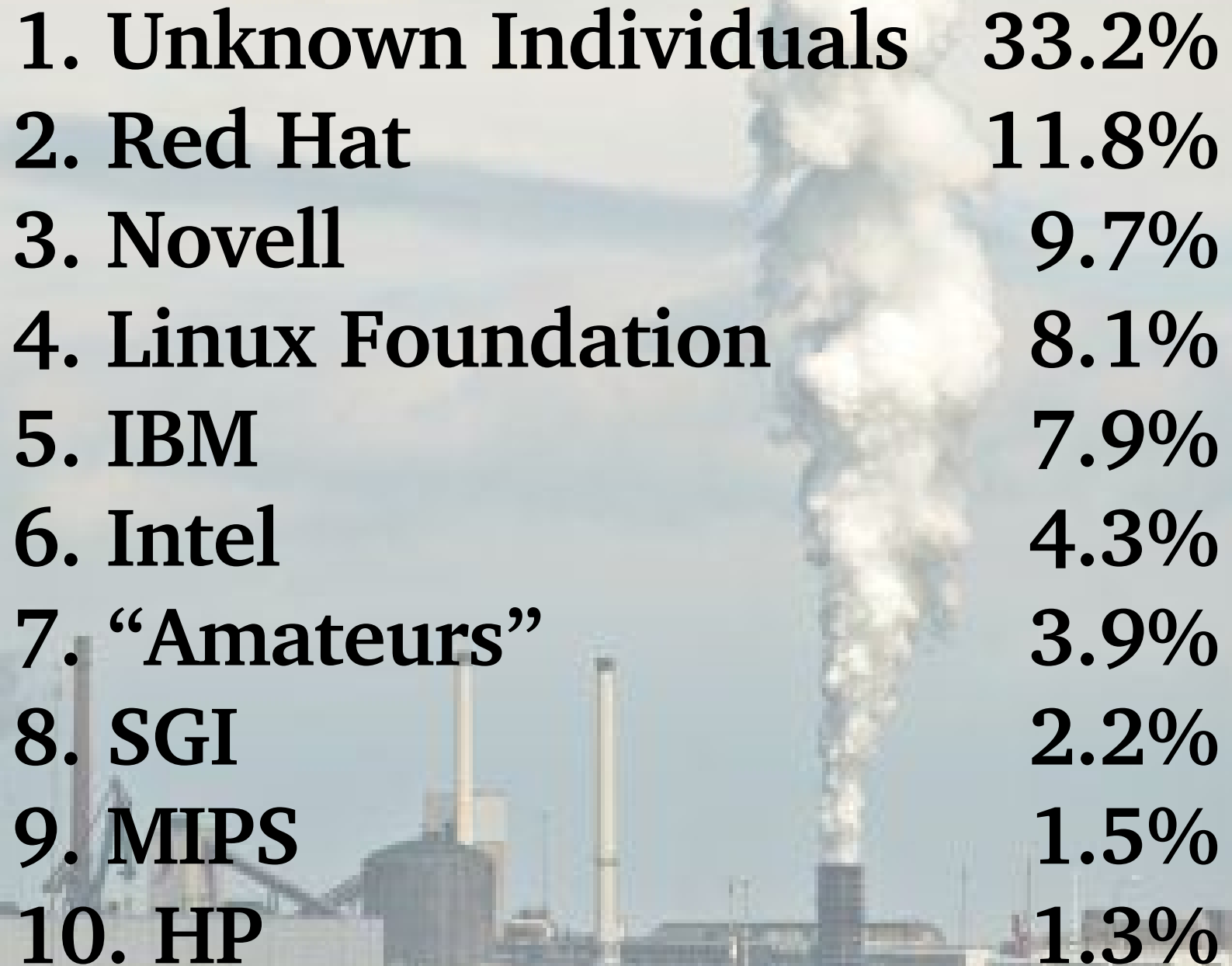
Linus Torvalds	19890
Andrew Morton	18622
David S. Miller	6097
Greg Kroah-Hartman	4064
Jeff Garzik	3383
Russell King	2607
Paul Mackerras	2460
Mauro Carvalho Chehab	2124
James Bottomley	2048
Andi Kleen	1692

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5. IBM	7.9%
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8. SGI	2.2%
9. MIPS	1.5%
10. HP	1.3%

Who is funding this work?



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6. Intel	4.3%
7. “Amateurs”	3.9%
8. SGI	2.2%
9. MIPS	1.5%
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