Who is Jeff?

- Veteran technical writer
- Embedded open-source greybeard: has worked in embedded open-source software and related hardware for 17 yrs (OMG)
- Experienced web guru: created one of the first corporate websites and intranets in 1994 (and hasn't stopped since)
- Longtime community volunteer in many areas: homeschooling, airport, Habitat, historical society
- Developer advocate and open-source blogger at http://www.jefro.net/blog
Why is he talking to us?

- Passionate about community and its potential for research efficiency, developer harmony, and world peace
- Sees something missing in the Linux community and wants to help
- Admin for MontaVista's new developer community
Who is MontaVista Software?

- Leader in embedded software solutions based on Linux
- Major developer of real-time features
- Major innovator and code submitter to mainline
- A company of developer advocates
Community-Oriented Software Development
The Benefits of Community-Based Development

- Preaching to the converted
The Caveats of Community-Based Development

- Still preaching to the converted
Who is the Community?

Open-Source Software
- GNU tools
- BSD, etc
- Every project on sourceforge

Embedded Development
- Other free/open embedded OS

Linux
- Servers
- Desktops

Embedded Linux

Proprietary OS, RTOS

Hardware Manufacturers & ISVs
Let's Look Closer at the Embedded Linux Community and its challenges

Because it's not “the” community you are after.

It is YOUR community you want---the one that answers your questions and enables your participation
One View of the Embedded Linux Community

Your Project

MontaVista

Eclipse

mpatrol

Feature

Memory Leak Analyzer

DevRocket

Feature

Realtime

USB

UBI

Netdev

Kernel.org

CPUFreq

Android

Local Hacks

Platform Team

Last Project

Tunings

Enterprise Linux Distribution

Codecs

Security

oprofile

Semi-conductor distribution

QA

USB

Feature

Glibc

Open Embedded

Busybox

Gilbc

Platform Team

Local Hacks

Last Project

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Finding a Needle in Multiple Haystacks
The Challenges

Embedded Linux development is information intensive

Locate information, hardware and software

Validate information, credibility and completeness

Adapt information, specific project needs
A Proposed Solution

An embedded Linux community that connects all engineers

**Connect:** Leverage the experience of other embedded Linux developers

**Share:** Collaborate on information and ideas

**Design:** Develop products faster with information re-use
Embedded Linux community,
For systems engineers,
To connect and share information, ideas, and software,
Unlike search engines, Meld directly connects experienced systems engineers to assist one another on specific projects and to design commercial-ready embedded devices.
<table>
<thead>
<tr>
<th>IS</th>
<th>IS NOT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community of embedded Linux <strong>users</strong></td>
<td>An open source project for code development</td>
</tr>
<tr>
<td>Supporting commercial device development</td>
<td>Targeting academic, research, hobbyist development</td>
</tr>
<tr>
<td>Connecting embedded developers who use Linux, connecting communities</td>
<td>Replacement for already existing communities</td>
</tr>
<tr>
<td>Embedded: device-specific root filesystem</td>
<td>Enterprise/desktop: one-size-fits-all distribution</td>
</tr>
<tr>
<td>Public, open</td>
<td>MontaVista customers only, paid for, application specific</td>
</tr>
</tbody>
</table>
Welcome to Meld
meld.mvista.com
Connect: Update My Interests

Welcome!

This system empowers you to quickly identify others with whom you can communicate, exchange knowledge, schedule meetings, and share ideas. To get started, just follow these three easy steps:

1. Update Your Profile
   - Click the Update My Profile link and describe a few things about yourself or your company. You can provide as much or as little information as you wish.

2. Update Your Interests
   - Click the Update My Interests link and specify the attributes of those individuals with whom you would most like to meet.

3. Match With Others
   - After you complete the first two steps, this system will automatically build a list of individuals whom most closely match your interests. At this point, use the People Map to browse your network and request introductions, schedule meetings, and share ideas with others.

What Else Can I Do?

To get even more out of this system, upload your photograph, share your portfolio, or participate in group discussions. Make this system work for you!
Connect: Update My Profile

Please indicate the architectures that you use in development (select all that are relevant).

- [ ] arm_v5
- [ ] arm_v6
- [ ] arm_v7
- [x] arm_xscale
- [ ] mips32
- [ ] mips64
- [ ] ppc_440
- [ ] ppc_7xx
- [x] ppc_8xx
- [ ] ppc_83xx
- [ ] ppc_9xx
- [x] x86 (32-bit)
- [x] x86 (64-bit)

Please identify the host operating system you use most often for embedded development (select one from Host OS list below)

- Windows XP

If other please indicate:

Please indicate what functions you perform on your current project (select all that apply)

- [x] Firmware, boot code
- [x] Toolchain management: updates, bugfixes, trouble-shooting
- [x] Software development infrastructure: Source Control Management, build
- [ ] Kernel features: kernel config, feature/patch management
- [ ] Device drivers
- [ ] System configuration: configuration files, daemon configuration
- [ ] Middleware: userland components not directly visible to users
- [ ] Applications: userland components directly visible to users
- [ ] Documentation: communication of product info
- [ ] Field engineering / technical marketing: communicating product information to customers and partners
- [ ] Testing / QA: verifying product functionality and performance characteristics
- [ ] Architect: Overall system design, software component selection
- [ ] Project management:
- [ ] Other

If other please indicate:

Please share a few words about yourself:

System designer focusing on industrial control systems for auto-manufacturing
Who Would You Like to Meet?

I would like to meet members performing the following functions:

- Firmware, boot code
- Toolchain management: updates, bugfixes, trouble-shooting
- Software development infrastructure: Source Control Management, build
- Kernel features: kernel config, feature/patch management
- Device drivers:
- System configuration: configuration files, daemon configuration
- Middleware: userland components not directly visible to users
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- Documentation: communication of product info
- Field engineering / technical marketing: communicating product information to customers and partners
- Testing / QA: verifying product functionality and performance characteristics
- Architect: Overall system design, software component selection
- Project management:
- Other

I would like to meet members using these architectures for development. (If your architecture is not shown, please let us know at community@mvista.com.)

- arm_v5
- arm_v6
- arm_aoe
- mips2
- mips64

- ppc_440
- ppc_7xx
- ppc_74xx
- ppc_8xx
- ppc_93xx

- ppc_85xx
- ppc_9xx
- x86 (32-bit)
- x86 (64-bit)

With the following Host OS

- Fedora Linux
- RedHat Linux
- Suse Linux

- Other Linux
- Windows XP
- Windows 2000

- Solaris 8
- Solaris 9
- Other

What are your top objectives for joining the community?
Connect: Update My Interests

Who Would You Like to Meet?

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With the following Host OS

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What are your top objectives for joining the community?

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Connect: People Map

Individuals who most closely match your interests are located near the center. Mouse over any individual to learn more about them, or click on an individual to view their full profile.
Connect: People Map Filter

Individuals who most closely match your interests are located near the center. Mouse over any individual to learn more about them, or click on an individual to view their full profile.
Connect: View Profile

Individuals who most closely match your interests are located near the center. Mouse over any individual to learn more about them, or click on an individual to view their full profile.
Connect: User Profiles

ptrmike
Member since February 27, 2009 | My Activity

About Me
A guy who makes a living from helping customers understand and use Linux in their products.

I Am Looking For
To be able to see what others are doing to solve the same problems that I am. We're all in the same boat and somebody surely has an idea of which end of the oar to grab.

My Community Activity

async. notification using signals from kernel space to userland
Yes, spawn a thread that blocks on a read in your driver. Then, have the interrupt, timer, whatever do a wake_up_interruptible to the driver to release the blocked read. That should be much faster than using more...

17 hours ago | h

System integration webinar
Although I certainly understand David Woodhouse’s perspective on always having the latest kernel, I feel it neglects the reality of manufacturing and QA. Any change that you make to a product's software more...

3/19/2009 3:43 PM | x 3

Polling GPIO pin status
Hmm... You'll need to be more specific. What CPU architecture are you using? Are the GPIO lines I/O mapped or memory mapped? You say you have a user-space "driver". How did you implement it? Using more...

3/19/2009 8:26 AM | x 1

Linux on emerson MVME3100 board
It could be done any of the ways you've outlined. Since I'm not from Emerson and don't have access to the code, I really couldn't say how they were doing it. I'm sure you'll be able to access the bus from the more...

3/19/2009 7:42 AM | x 1

Firmware loading using firmware.agent
The firmware is typically located in /lib/firmware. The firmware will be loaded when your driver does the request_firmware call. And, did you look in at the example in <linux>/samples/firmware_class? more...

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Connect: Email, Meetings

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Connect: Learn More About Melders

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2/19/2009 6:26 AM

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1/20/09 7:42 AM

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3/18/2009 7:42 AM | 1

driver does the request℡ firmware call. And, did you look in at the example in <linux>/samples/firmware_class? more...
async. notification using signals from kernel space to userland

Posts 16 | Created 3/9/2009 7:10 AM by ajitatu | 7

i have an ISR written as a kernel driver that handles interrupts from an external device. after getting the interrupt, i need to intiate the user application to update the app. state. currently i use kill_proc_info() to send signals from my kernel driver to user app. however, i have observed that the system gets slower and slower with time and finally halts. the signal frequency is around 10ms. i would appreciate if somebody can suggest better alternative for implementing such asynchronous notification from kernel to user space.

[Updated on 3/9/2009 7:17 AM]
Posted 3/9/2009 7:10 AM | 7

One approach would be to hang a user thread in a perpetual blocked read to the driver. Then have the ISR issue a wakeup_interruptible() on the driver's read wait queue. This should work pretty reliably, although it's bound to have some jitter due to scheduling. Alternatively, you could set up a kernel thread/wait queue, give it a high priority and have the ISR data handled in kernel space by queuing it up. Then have the kernel thread issue the wakeup_interruptible and pass bigger chunks of data via debugFS to minimize the kernel-to-user space transitions. And there are probably 3-4 more alternate approaches.

Which one is better? Well, it depends ;-) Which CPU architecture? Clock rate of the processor? How much data is moved at a time? How 'real-time' is the application? How sensitive is it to jitter? Any answer that anyone gives you will be subject to these answers and more.

HTH.
Posted 3/9/2009 7:57 AM | 4

ajitatu, if your system gets slower over time, this sounds like you have a memory leak somewhere. i'm not sure this has to do with your choice of kill_proc_info(), so be prepared to look for other causes. But do take a look at all structs you allocate in the kernel - are you really freeing them all?

i have to agree with ptpmike that a blocked read on a device file is a nice, clean, reliable mechanism to get notifications to user space - and transfer some app data at the same time, saving you yet another set of user-to-kernel calls.

Posted 3/9/2009 12:14 PM | 1

hello ptpmike, hello kaaching, thanks for the information.

doing a blocked read in the app, and issuing wakeup_interruptible() from the kernel puts the entire user space process to sleep. however, my application is a...
Share: Groups

Groups
Interested in connecting with others with similar interests or backgrounds to yours? Browse the information below to find the groups that are right for you.

All Groups

Sort by: Number of Members

General Discussion
- 69 Members | 49 Discussions | 0 Files | 0 Meetings | 266 Posts
- General discussion about embedded Linux

System Integration
- 44 Members | 9 Discussions | 0 Files | 0 Meetings | 71 Posts
- The system integration forum is focused on the often forgotten challenge of how to take a pile of software and turn it into product. Everything from build, configuration, Image creation, deployment, more...

Texas Instruments Platforms
- 39 Members | 7 Discussions | 0 Files | 0 Meetings | 34 Posts
- Discussions about developing, modeling, and demonstrating software using Texas Instruments platforms. Please prefix discussions with a uniquely identifiable term. For example, use "Beagle: " for more...

6IP
- 33 Members | 6 Discussions | 0 Files | 0 Meetings | 44 Posts
- Private group for the discussion of new technology.

DevRocket
- 32 Members | 21 Discussions | 1 File | 0 Meetings | 51 Posts
- The goal of this group is to provide assistance in using DevRocket and to increase transparency in the DevRocket development cycle.

Announcements
- 20 Members | 5 Discussions | 0 Files | 0 Meetings | 17 Posts
- Project or product announcements. Note that overt marketing messages will be deleted.

Help / FAQ
- 11 Members | 10 Discussions | 0 Files | 0 Meetings | 34 Posts
- Stop here for information on how you can get the most out of your community

Wizards
- 5 Members | 5 Discussions | 0 Files | 0 Meetings | 14 Posts
- Site wizards only

Results 1 - 0 of 6 50 items per page
Share: Top Contributions

Top Contributors

kaaching
I'm Senior Solutions & Services Architect for MontaVista, operating out of the MontaVista Headquarters in Santa Clara, CA, USA. The first time I ran into Linux was in 1993, when I (unwittingly) used a PC to more...

64 Discussion Posts

ptmike
A guy who makes a living from helping customers understand and use Linux in their products.

28 Discussion Posts

rbdixon
Read my blog: http://mvista.com/blogs/dixon

59 Discussion Posts | 2 Groups

josiermixon
I am a technical writer with MontaVista, and I blog about open-source software at http://www.lafro.net/blog. I also am helping to create and maintain Meld, so please feel free to contact me directly with any more...

35 Discussion Posts | 4 Groups | 4 Wiki Pages

tkich
I'm a product marketing manager at MontaVista. I'm interested in hearing from Melders on how they like it and how we can improve!

15 Discussion Posts

.tbird20d
Architecture Group Chair, CE Linux Forums; Tracing and boot-time specialist

5 Discussion Posts

brmillikan
Embedded software engineer

8 Discussion Posts
Share: Content, Files

Sample RPM project

Posted 2/26/2009 4:54:41 AM | Download | 1
This is a DevRocket project that I have quickly put together to demonstrate how one can use a legacy Makefile and generate RPMs. You can then integrate the generated RPMs into the Platform Image Builder.
## Notification Preferences

Receive a notification when items of interest to you are added or changed.

<table>
<thead>
<tr>
<th>Current Settings</th>
<th>Email Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>System Integration</td>
<td><img src="Image" alt="Stop Email" /> <img src="Image" alt="Rss" /></td>
</tr>
<tr>
<td>Help / FAQ</td>
<td><img src="Image" alt="Stop Email" /> <img src="Image" alt="Rss" /></td>
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</tbody>
</table>
Design

Developer Spotlight

Kurt Lloyd
Alcatel-Lucent

"Meld is a well-implemented framework for facilitating effective communication among people using (or wanting to use) open source in their products. Good job putting it together!"

Kurt has worked on a variety of high-end telecommunication products, with more to come. Kurt is currently working on a large DWDM switch, and some smaller switches using much of the same code base.
Why is MontaVista doing this?

- As a company, MontaVista realizes that the best return on investment comes from happy developers.
- The end goal of Meld is to create happy developers.
- The beyond-the-end goal is happy ISVs and hardware manufacturers, who will create more and better products for those happy developers.
- MontaVista wants to foster the communication to make this possible---collaboration is king.
Thanks for participating!

meld.mvista.com

994 members, be the next one