Status of Preempt-RT and why there is no roadmap

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ELC 2011 - SFO

Latest stable

2.6.33

- ▶ Difficult stabilization phase
- ▶ Recent update to longterm

Linux Real-Time status

What is mainline already?

- ▶ High resolution timers
- ▶ Mutex infrastructure
- ▶ Generic interrupt handling infrastructure
- ▶ Priority inheritance for user space mutexes
- ▶ Preemptible and hierarchical RCU
- ▶ ...

Linux Real-Time status

What is mainline already?

- ▶ Threaded interrupt handlers
- ▶ Forced threaded irq/softirq
- ▶ Tracing infrastructure
- ▶ Lock dependency validator
- ▶ Locking namespace and infrastructure
- ▶ Lot's of tiny infrastructure bits and pieces

Linux Real-Time status

What's left?

- ▶ Preemptible mmu gather (scheduled for .40)
- ▶ PerCPU modifications
- ▶ Preemtible memory and page allocator
- ▶ Soft-interrupt modifications
- ▶ Sleeping spinlocks

Linux Real-Time status

When is the merge to mainline done?

Linux Real-Time status

When is the merge to mainline done?

The realtime patch set will be mostly merged by the end of the year.

Jonathan Corbet 2007,2008,2009

Linux Real-Time status

When is the merge to mainline done?

- ▶ Piece wise merging is an ongoing effort
- ▶ Coming up with new fancy things in the same rate
- ▶ As always it will be done by end of next year

Linux Real-Time status

When is the merge to mainline done?

The RT people have actually been pretty good at slipping their stuff in, in small increments, and always with good reasons for why they aren't crazy.

Linus 2010

Linux Real-Time development

Why is there no RT for kernel version X?

- ▶ Lack of man power
- ▶ Long stabilization phases
- ▶ Upstream work and merging has priority

Linux Real-Time development

Who is involved ?

▶ About 20 active contributors

▶ Large testing efforts at RedHat, IBM, OSADL and Linutronix

Linux Real-Time development

Future features

- ▶ Non priority based scheduling algorithms
- ▶ Full CPU isolation
- ▶ Your fancy new idea

Linux Real-Time development

Why there is no roadmap?

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Linux Real-Time development

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Linux Real-Time development

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- ▶ We do not use PowerPoint
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- ▶ We are looking for the road to mainline ourself
- ▶ But ...

Linux Real-Time development

Here is a roadmap

Linux Real-Time development

Here is a roadmap

Linux Real-Time

Famous last words

And yeah, I still think the hard-RT people are mostly crazy.

Linus - 2010