Power Management at SUSE

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The Powersave Daemon

- → General architecture overview
- → The Powersave Daemon
- → Schemes
- → Suspend to Disk/RAM
- → CPU Frequency Scaling









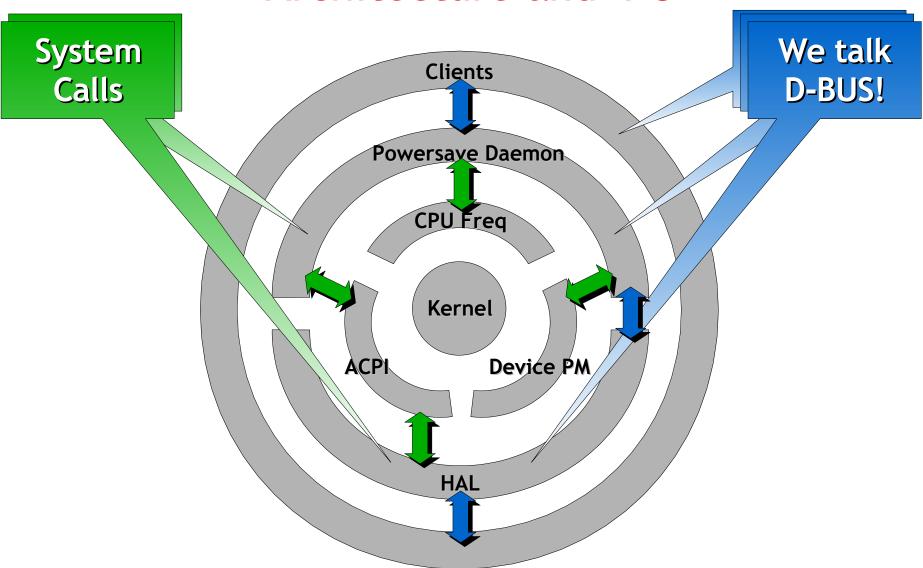








Architecture and IPC



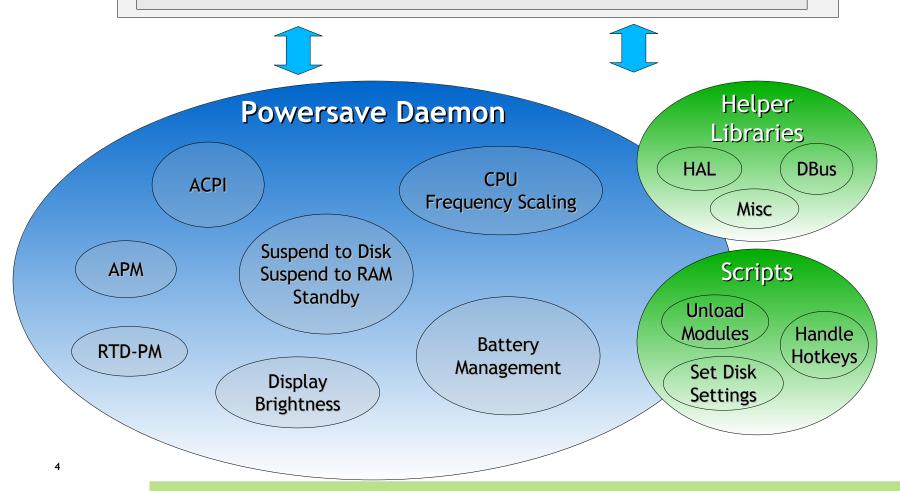
Powersave Architecture

Clients (KPowersave, wmpowersave, gkrellm-powersave)



Client implements: Auto-Suspend, Lock Screen, Event Notifications (...)

Daemon interaction: Trigger Suspend, Set CPU frequency, Set Schemes





Scheme Architecture

CPU Freq.: Dynamic Scheme »Powersave« **IDE** Disk CPUs online: **CPUs online:** Settings CPU Freq.: RTD-PM dynamic Brightness: Low **Brightness:** Low RTD-PM

CPU Freq.:
high

Scheme
Performan

Scheme
»Performance«

CPU Freq.:
High

CPUs online:
all

Brightness:
High

CPUs online:

Brightness: High

IDE disk settings

Novell.

Powersave and Suspend (1/2)

Client triggers....

Battery low event...





Suspend Event:

- prepare_suspend_to_*
- do_suspend_to_*
- restore_after_suspend_to_*





Internal Actions:
Daemon Actions

External Actions: Scripts

Inform daemon about:

- Progress
- Errors/ Warnings
- Screen Lock Requests
- Success
- Failure

Powersave and Suspend (2/2)

- Currently evaluating the so called "hibernate scripts" as successor, for integration/ merge or replacement
- Integration of s2ram tool from the Suspend Project:
 - make suspend to ram "just work"
 - huge whitelist of machines
 - integration of radeontool/vbetool, etc.
- next: Integration of suspend and resume tools

CPU Frequency Scaling

General policies:

- Powersave
- Performance
- Dynamic



Kernel Governors:

- powersave
- performance
- ondemand



Userspace Implementation (userspace governor):

- frequency at min
- frequency at max
- dynamic frequency

Thank you.







Resources of Interest

- http://powersave.sourceforge.net/pm-report/
- http://www.opensuse.org/Projects_Powersave
- http://powersave.sourceforge.net
- http://sourceforge.net/Projects/Powersave
- Mailing lists:
 - powersave-users@forge.novell.com
 - powersave-devel@forge.novell.com

