Welcome to the Xen™ Mini Summit at OLS
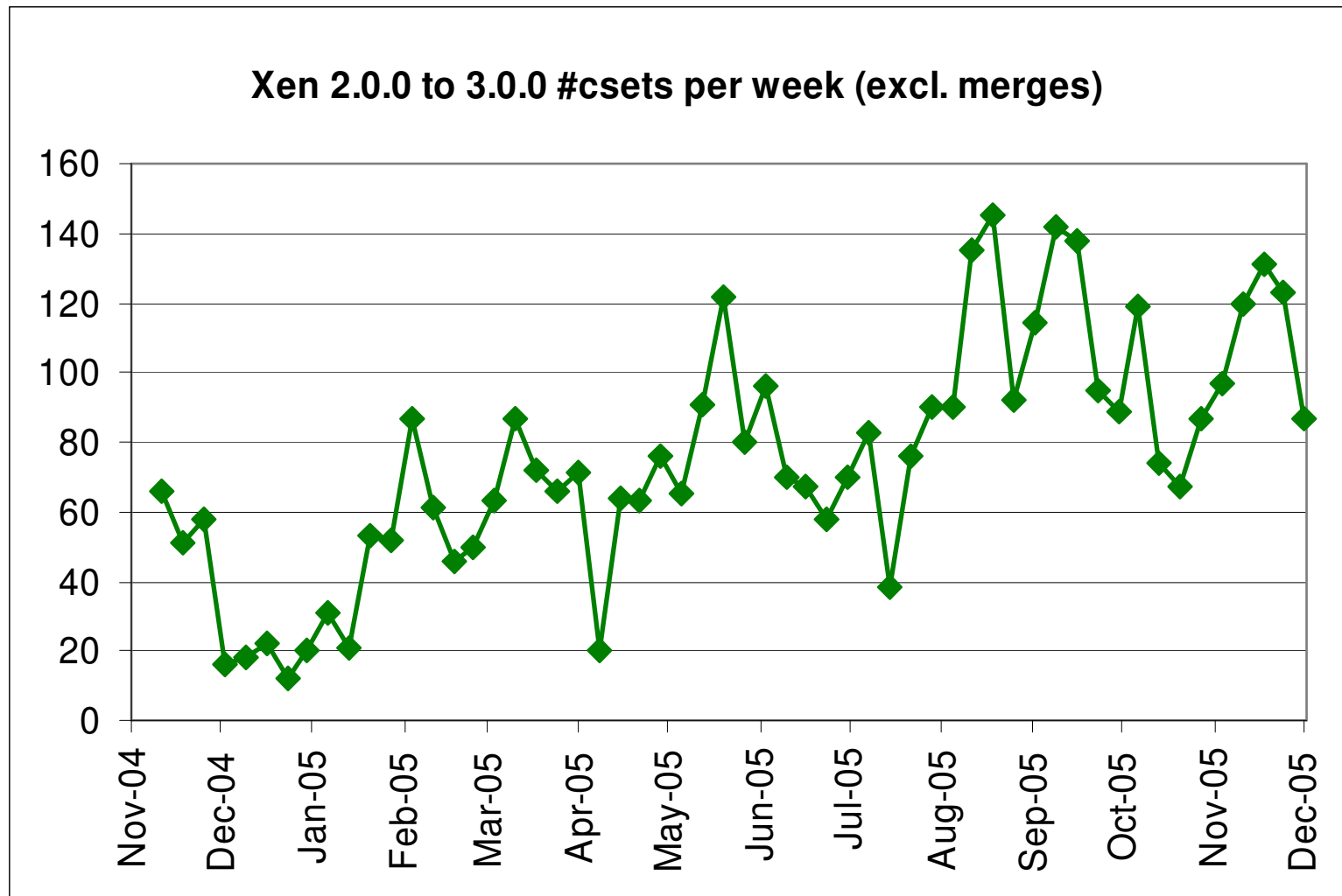
Mini Summit Agenda

- Facts and figures
- Roadmap presentation/discussion
- Linux upstream merge status (Chris / Keir / Rusty)
- ia64/power status (Alex Williams / Hollis)
- Xen API / xm extensions proposal (Ewan)
- HVM IO development (Jun / Leendert)
- File-based disk images: blktap/qcow (Andrew)
- Misc: Kexec, bootloaders, GSO

Xen 3-unstable Change Log

Xen 2.0.0 to 3.0.0 #csets per week (excl. merges)

Post-3.0.0 Change Log

Post 3.0.0 #csets per week (excl. merges)
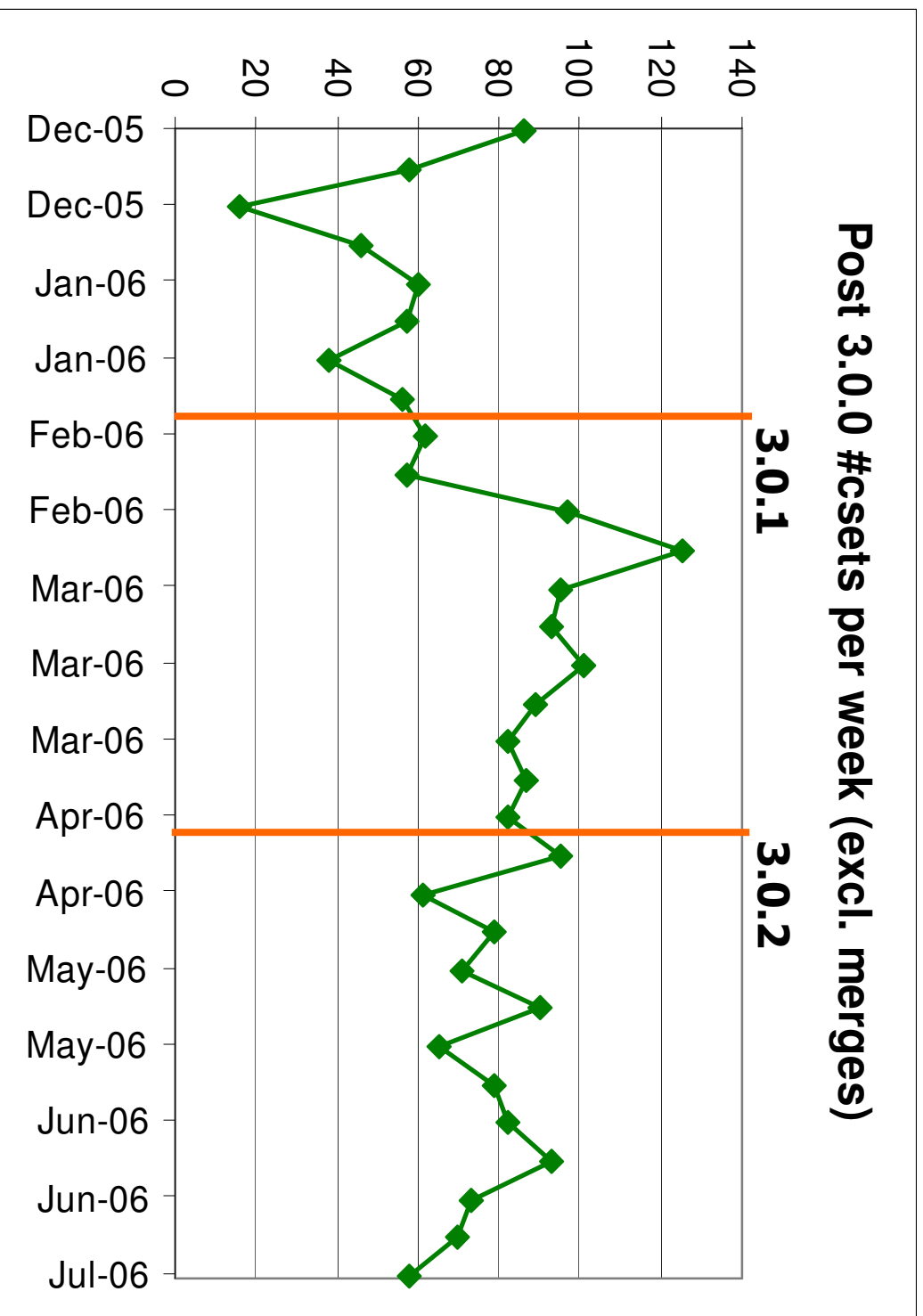
Post-3.0.0 Rough Code Stats

	aliases	checkins	insertions
xensource.com	15	1020	319786
intel.com	24	225	25343
ibm.com	28	193	36331
valinux.co.jp	2	137	10958
bull.net	1	104	6350
hp.com	8	93	18008
fujitsu.com	11	72	2812
amd.com	6	58	2563
novell.com	7	56	2860
virtualiron.com	5	23	1434
apana.org.au	1	21	3080
verge.net.au	1	18	296
ncsc.mil	1	17	5024
redhat.com	4	17	265
cam.ac.uk	1	9	1211
other	24	173	33210

Stats since 3.0.0 Release

Post-3.0 Development Model

- Stabilize "unstable" tree every 8-12 weeks
  - Sweep unstable into 3.0-testing
  - Release as 3.0.1, 3.0.2 etc
- Bug fixes cherry picked into 3.0-testing until next release
  - After being in unstable for a few days, requests to push into 3.0-testing
  - Release as 3.0.x-y etc.
  - (much like Linux)

Achievements: 3.0.1/3.0.2

- AMDV support, generic 'HVM' layer
- Linux 2.6.16 upgrade in –unstable
  - subarch of i386/x86_64
  - Linux tip maintained in linux-2.6.tip-xen.hg
- Progress on linux patch upstreaming
  - Patch queue in linux-2.6-patchqueue.hg
- PCI pass-through is back

- Bug fixes, stabilization for SLES10

3.0.3 Release

- Planned for before OLS, postponed to synchronize with FC6 freeze and drive more features:
  - New CPU scheduler with CPU migration
  - Blktap/qcow for file-backed virtual disks
  - Upgrade qemu for HVM IO (usb, vnc)
  - New shadow pagetable code
  - PV extensions to HVM guests (net, block IO)
  - *PV framebuffer support*
  - *NUMA memory allocator support*
  - *Dom0 kexec/kdump support*
  - *Xend life-cycle management*
  - *Full Segmentation Offload in netfront/back*
  - *Power architecture merge*

3.0.4 Release

- Early Q4 2006 (October)
  - (leftovers from above)
  - Xen control API
  - XML config files, extended 'xm' syntax
  - QEMU 'v2e' integration
  - Performance optimizations

- Should we call this release 3.1?

Performance

- Performance and scalability work
  - Time is right for some close attention
  - 1-4 socket systems the priority
  - Optimizations for bigger systems must not hurt smaller ones (they often help)
    - Onus is on submitter to demonstrate
    - (Patches that clearly hurt larger systems should be rejected too)
- Good performance tools now available
  - s/w perf counters, xen oprofile, tracebuf etc

API stability

- Guest API stability (hypercall, IO)
  - Backward guaranteed:
    - Old 3.0 guests must run on new xen
  - Need to add forward compatibility as well
    - Important now SLES10 hypervisor in the wild
  - [Linux upstreaming may force API change]
- Privileged domain hypercall API
  - Over time, stabilise dom0 priv domain API
  - Still in flux through 2006
- Xen API control protocol and CLI syntax
  - Finalize wire format, create bindings

Tools (xm/xend/CIM)

- VM life-cycle management
- XML config file format adoption
  - xm syntax changes
- Xen control API
  - C/C++/perl/python bindings
  - Platform for CIM providers
  - https/unixdomain sockets/ssh transport
- Guest coredump support
- Guest bootloader support

HVM Support

- Further shadow pagetable optimizations
- Allow PV hypercalls from HVM guests
- HVM save/restore support; live relo
- Initial SMP guest support; ACPI support
- Superpage PTE support
- Enhanced device emulation
  - Move emulator to stub domain
  - Change interface to hypervisor ("V2E")
  - Better device models

Core Xen

- Live relo on PAE/x86_64; tuning
- Support for 32b PAE PV guests on 64b xen
- NUMA allocation/policy
- Scheduler tuning
- Remove artificial x86_64 heap sz restriction
- Superpage support
- Scheduler tuning, partic. for SMP guests
- Power management

Linux

- Extensive benchmarking and tuning
- x86_64 optimizations
- PV framebuffer (plus X extensions)
- Avoid balloon driver 'crunch' issues
- SMP scalability improvements
- USB virtualization
- OpenGL virtualization (Chromium)

Storage

- Support for file-based virtual disk storage
  - blktap/ublkback
  - dm-userspace
- Adopt qcow as favoured xen disk format
  - Compatible optimizations vs. v2 format
- Block IO QoS via ionice and/or blkback
- Media change, resize events
- SCSI-level front/back (tape, CD writer)

Network

- Segmentation Offload support
- Cleanup up checksum offload
- Copy vs. page-flip tuning
- Streamline linux bridge code
- TOE/RDMA support
- Point-to-point inter-VM NIC support

Misc

- Dom0 kexec/kdump support
- Bootloader support
- xenfs filesystem virtualization