

May 5, 2008

Last week:

- Worked on Dalvik VM:
 - Changed a bunch of labels in mterp so gdb can unravel the stack when an instruction breaks.
 - Fixed throw of incorrect exception when trying to use a class that failed to initialize. Spent some time chasing after the class (PhoneUtils).
 - Added an alternative form of assert() that is visible on the device.
 - Added a DDM message that keeps the DDMS thread list in sync when thread names change.
 - Added additional JNI checks, for static vs. virtual calling.
 - Cleaned up dexlist output.
 - Chased down a bug in JDWP exposed by IntelliJ 7.
 - Wrote up some notes about the Dalvik bytecode verifier.
 - Three interviews (two phone screens, one on-site).

This week:

- Continuing with the misc fixes.

Apr 28, 2008

Last week:

- Worked on Dalvik VM:
 - Finished up the "circular buffer with last N allocations" feature. Over to xav for UI work.
 - Fixed some issues found by security team.
 - Moved VM's Zip implementation into libdex to remove dependencies on C++ and libutils.
 - Various minor fixes.
 - Tracked down a problem with stat() in wrapsim that, for some reason, only surfaced now.
 - Spent a day as the chairperson of a slotting/promotion committee.

This week:

- Misc features/bugs.
- Interviews.

Apr 21, 2008

Last week:

- Worked on Dalvik VM:
 - Got part of the "circular buffer with last N allocations" feature working.
 - Changed the "backward branch" test a few times to deal with trivial infinite loops. (The trick was to get correct behavior without reducing performance.)
 - Spent a bunch of time figuring out how to get gdb backtraces to work correctly with the asm interpreter. Largely succeeded.
 - Tried to do something clever with DEX-truncation bus errors; failed due to limitations in debuggerd.
 - Fixed a race condition in the simulator's system property handling.
 - Prepped for promotion/slotting committee.

This week:

- Promotion/slotting committee (chairperson).
- Finish up "last N allocations" feature.

Apr 14, 2008

Last week:

- Worked on Dalvik VM:
 - Fixed some JNI issues (tighten arg checking in CheckJNI, ensure class init for alloc calls).
 - Corrected mterp {float,double}-to-int behavior for inf/-inf/NaN.
 - Fixed some bugs in "mterp" that danfuzz found when he split HelloWorld into regression tests.
 - Added "-Xdexopt:none" mode.
 - Added threadCpuTimeNanos for Noser performance evaluations.
 - Various minor fixes (simplify "interrupt should throw", ignore HeapWorker watchdog when debugger attached, follow execution-mode property in TouchDex, etc).
 - Helped various people track down various bugs.

This week:

- Work on "recent allocation display" feature.

Apr 7, 2008

Last week:

- Worked on Dalvik VM:

UNITED STATES DISTRICT COURT NORTHERN DISTRICT OF CALIFORNIA
TRIAL EXHIBIT 294
CASE NO. 10-03561 WHA
DATE ENTERED _____
BY _____
DEPUTY CLERK

- Finished up deadlock predictor. Announced availability.
- Added validation of UTF-8 strings to CheckJNI.
- Worked on an array annotation bug.
- Investigated app native heap usage (for jparks).
- Worked on performance reviews.

This week:

- Fix bugs.
- Cause trouble.

Mar 31, 2008

Last week:

- Worked on Dalvik VM:
 - More code reviews and performance checking for DEX format changes.
 - Spent a bunch of time helping others track down bugs. Filed a few.
 - Worked on deadlock prediction.
 - Fixed a long-standing bug in JNI field access.
 - Corrected bytecode verifier's register merge code.
- One interview.

This week:

- Finish up bytecode verifier.

Mar 24, 2008

Last week:

- Worked on Dalvik VM:
 - Spent a couple of days keeping pace with danfuzz' changes to the VM. Wrote additional performance and correctness tests.
 - Enabled allocation limit feature. Added a global allocation limit feature for regression tests.
 - Made a little progress on the deadlock prediction feature.
 - Explored the relationship between memory access patterns and benchmark inconsistency.
 - (Away on vacation Friday)

This week:

- Continue with deadlock prediction.

Mar 17, 2008

Last week:

- Worked on Dalvik VM:
 - Added a DDM message that retrieves the stack trace of an arbitrary thread.
 - Hunted down an issue involving relative paths in the bootstrap class path.
 - Fixed thread safety issues in java.lang.Thread.
 - Tracked down and fixed a bunch of minor bugs (annotation lookups on generated classes, improper throw of InterruptedException, HeapWorker thread release, non-EABI long handling, verification of null array references, ...).
 - Worked with danfuzz on DEX format changes.
 - Helped track down a library loading issue.

This week:

- (End of M6, start of SC1.)
- Work on deadlock detector.

Mar 10, 2008

Last week:

- Worked on Dalvik VM:
 - Added range checks to DEX code to help prevent malicious crashes.
 - Worked with danfuzz on method prototype representation changes.
 - Rewrote JNI call bridge to work with danfuzz's "proto" changes.
 - Updated a few forms of "invoke" to perform a null reference check.
 - Corrected Thread.sleep() behavior for multi-year durations.
 - Worked around a TouchDex issue.
- (Out Friday)

This week:

- Wrap up M6.

Mar 3, 2008

Last week:

- Worked on Dalvik VM:
 - Implemented various fundamental reflection calls using "system" annotations.
 - Examined finalizer activity.

- Fixed a couple of surprisingly long-lived debugger issues.
- Made JNI global reference limit configurable.
- Added per-thread allocation count limits for regression testing.
- Added a JNI stack check.
- Cleaned up android.os.SystemProperties.
- Added offset and size range checks to Zip archive code.
- One phone screen.

This week:

- Continue with M6 bugs and feature requests.

Feb 25, 2008

Last week:

- Worked on Dalvik VM:
 - Enabled "mterp" as the default interpreter.
 - Finished implementing annotations.
 - Started working on class attribute reflection, e.g. method exception lists.
 - Updated specs and source comments to reflect change to 5-arg invoke.
 - Tracked down a bug that would cause a VM crash if you tried to allocate huge arrays with specific size values.
 - Wrote more tests for annotations and class attributes.
- (Monday was holiday)

This week:

- Finish class attribute reflection.
- Continue Dalvik feature creep.

Feb 19, 2008

Last week:

- Worked on Dalvik VM:
 - Got a chunk of annotations working.
 - Changed Android runtime to get bootclasspath from env, removing a bad hack in the process.
 - Chased after some system bugs, notably the "ascii crash" failure and the "gdb frame base" issue.
- One interview and one phone screen.

This week:

- Finish annotations.

Feb 11, 2008

Last week:

- Worked on Dalvik VM:
 - Integrated Dalvik instruction changes from the vacationing danfuzz into the main branch.
 - Updated "mterp" to handle new/removed instructions. Spent some time making the entry/exit code faster.
 - Finished the last bit of C->asm conversions for mterp. Announced mterp to the group, encouraging everyone to try it.
 - Fixed an interface class merge bug in the verifier.
 - Created some Java annotation test classes.
 - Spent a few hours chasing the "ascii crash" bug.

This week:

- Implement annotations.

Feb 4, 2008

Last week:

- Worked on Dalvik VM:
 - Checked in mterp and the Dalvik "exerciser". Ran performance comparisons.
 - Altered Thread.interrupt() handling to avoid inappropriate exceptions.
 - Added feature allowing test code to enumerate classes in a DEX file.
 - Added workaround for Eclipse debugger flaw.

This week:

- Update mterp to track recent changes in DEX.
- Start on annotations.

Jan 28, 2008

Last week:

- Worked on Dalvik VM:
 - Fixed a race condition between System and ClassLoader.
 - Worked on mterp.
- Select JDWP transport based on build configuration.

- Two interviews.
- (Monday was holiday)

This week:

- Wrap up mterp.

Jan 22, 2008

Last week:

- Worked on Dalvik VM:
 - Implemented VM portion of `java.lang.reflect.Proxy`.
 - Implemented Harmony-style `VMStack.getClasses()` and `Class.getStackClasses()`.
 - Fiddled with asm interp.
- Two interviews.

This week:

- Fix up stuff for M5.

Jan 14, 2008

Last week:

- Worked on Dalvik VM:
 - Rearranged the way profiling is handled. Made instruction counting always available.
 - Worked with veenstra to get Java methods listed in emulator traces.
 - Checked in some Dalvik VM refactoring.
 - Added official Android copyright notices to all of the VM code.
 - Fixed implementation of "not-long", one of our instructions that has apparently never, ever been executed.
 - Added support for multiple JDWP transports, paving the way for `dt_android_adb`.
 - Fixed a couple of bugs in simulator wrapper.

This week:

- Implement `java.lang.reflect.Proxy`.
- Update OKRs.

Jan 7, 2008

Last week:

- Worked on Dalvik mterp.
- One interview.
- (Short week due to New Year holiday)

This week:

- Continue work on mterp.
- Work with veenstra to finish up Java/native profiling integration.

Jan 2, 2008

Last week:

- (Holiday vacation)

This week:

- Work on mterp.

Dec 27, 2007

Last week:

- Worked on Dalvik VM:
 - Worked on "mterp".
 - Corrected reflection access check on protected fields.
 - Did some more directory renaming.
- One interview candidate lunch.

This week:

- (Christmas holiday + two vacation days)

Dec 17, 2007

Last week:

- Worked on Dalvik VM:
 - Split DEX file access code out into a static library. Shifted lots of code around.
 - Added ability to run "dexdump" on a jar/apk/zip with "classes.dex" inside.
 - Added "dexlist" utility to list methods found in a DEX archive.
 - Added API for Dalvik-level instruction counting.

- Changed internal exception throws to use "descriptor" form of class name.
- Added additional access check on protected field access through reflection.
- Stripped out some more simulator cruft.
- Started learning Python.

This week:

- Work on asm version of interpreter.

Dec 10, 2007

Last week:

- Finished up filename remapping in simulator.
 - Added "fake" device entry for /sys/android_power entries.
 - Removed last bit of sim-specific stuff in libhardware.
 - Added touch-screen support to simulator.
 - Added system property to enable Java language assertions in Dalvik.
- Added support for class/package name matching in -ea/-da.
- Fixed a bug in Dalvik that could try to execute code in an uninitialized class when throwing an exception from JNI.
 - Started on Dalvik instruction count reporting.

This week:

- Finish up instruction count mechanism.
- Start on asm interpreter for Dalvik?

Dec 3, 2007

Last week:

- Worked on Dalvik VM:
 - Fixed a bug with multiple re-initializations of a class that fails to load.
 - Fixed a bug with null references in reflection code.
 - Corrected float-to-int conversions.
 - Investigated "can't create 764 threads" issue.
- Created an alternative implementation of system properties for simulator.
- Worked on transparent filename remapping in simulator.
- Renamed a couple of major directories in the source tree.
- (one interview)

This week:

- Finish sim filename remapping.
- Work on Dalvik stuff.

Nov 26, 2007

Last week:

- Got basic set of fake drivers (display, input, logging) working with simulator. Also implemented "vibrating notification mechanism".
- Removed a bunch of sim-specific code.
- Fixed a bug in JNI local references.
- Chased down an incorrect exception thrown from native code when "inflate" sees bad data.
- (Out Thursday/Friday for Thanksgiving)

This week:

- Continue work on sim, notably system properties and filename remapping.

Nov 19, 2007

Last week:

- Celebrated the public launch of the Android SDK.
- Read an unhealthy number of blogs, news articles, and press releases.
- Worked on simulator evolution:
 - Moved simulator communication channel out of runtime and into preload lib.
 - Got "fake device" infrastructure working.
 - Got most of /dev/graphics/fb0, /dev/tty0, and /dev/input/events0 working.
- Chased after the "Binder thread explosion" bug.

This week:

- Finish up /dev/input/events0.
- Write /dev/log/*.
- Start on filename substitution.

Nov 12, 2007

Last week:

- Reviewed patent application.
- Removed various incarnations of the "J word" from the SDK.
- Began simulator overhaul: launch runtime in separate xterm, with LD_PRELOAD wrapper. Removed "ui-hardware" classes and interfaces.

- Fixed "ls -R" behavior.
- Fixed bug in dmtrace (nee jtrace) profiling.
- Various minor changes to prep for SDK launch.

This week:

- Continue simulator work.

Nov 5, 2007

Last week:

- Spent some time configuring a MacPro as a Linux build machine.
- Worked with jparks and mathias to get the Linux simulator working again.
- Stripped out some simulator cruft.
- Started fiddling around with planned simulator updates.
- Last-minute stuff for M3.

This week:

- Continue work on simulator evolution.
- Read lots of news articles.

Oct 29, 2007

Last week:

- Added binary event log output to "logcat". Fixed the binary logging implementation. Added a log tag map.
- Worked on Dalvik VM:
 - Reduced overhead when calling into the interpreter.
 - Rearranged EXPORT_PC handling so we do less work.
 - Made the main VM thread more generic, so that it's possible for other threads to join() on the main thread.
 - Fixed bytecode verification when finding the best superclass of two array classes.
 - Show more detail when a finalizer throws an uncaught exception.
 - Ensure existing processes blow up if you replace one of the core Java classes.
- Added bytecode disassembly to "dexdump" tool.

This week:

- Continue with Dalvik stuff.
- Look into making the simulator build more device-like.

Oct 22, 2007

Last week:

- Resurrected stand-alone benchmark test app.
- Worked on Dalvik VM:
 - Improved verification of invoke-super. Removes need for a runtime test.
 - Changed verification to switch off of a property, rather than an #ifdef.
 - Reduced thread-local storage lookups by passing a pointer around in performance-critical areas. Sped up JNI and synchronized blocks.
- Pushed for (and got) a decision on how we're fixing our IPC mechanism.
- Participated in a promotion & slotting committee (29 candidates).

This week:

- Continue Dalvik performance & correctness changes.

Oct 15, 2007

Last week:

- Wrote up proposal for Binder driver replacement. Discussed with a few people.
- Helped track down some JNI global reference leaks.
- Pursued the "slow classloader" problem (identified, partially addressed with a ZipEntry change, redirected to core java lib).
- Pursued the "uncaught exceptions don't work" problem (identified, redirected to framework).
- Worked on Dalvik VM:
 - Refactored the "instanceof" cache into a more general mechanism.
 - Used the cache to speed up interface calls.
 - Correctly handle virtual calls to abstract methods (for out-of-sync Jar files).
- Updated some developer docs.

This week:

- Promotion/slotting committee.
- Continue with Dalvik stuff.
- Get IPC replacement figured out.

Oct 8, 2007

Last week:

- Added feature in VM that copies stdout/stderr to log file.
- Made a couple minor changes to help others debug problems.
- Switched to IPC rewrite full time.
 - Wrote some code for the previous design (not checked in).
 - Became concerned about scheduling and started thinking about alternate plans.

This week:

- Finalize what we're doing with IPC.

Oct 1, 2007

Last week:

- Worked on Dalvik VM:
 - Added some static tests to Java verifier. Rearranged failure logging to reduce output size.
 - Enabled the Java bytecode verifier.
 - Generalized the reference table mechanism. Use the "expandable" mode for JNI global refs and some GC heap stuff.
 - On thread detach, release all monitors entered via the JNI MonitorEnter function.
 - For JNI compliance, fail if somebody tries to detach a thread with Java frames on the stack.
 - Added JNI GetObjectRefType method. We should be JNI 1.6 compliant now.
 - Followed up on digit's TCP_NODELAY discovery by running some experiments and then disabling Nagle in DDMS and VM JDWP.
 - Spent some time with crazybob talking about the IPC implementation.
 - Helped some people figure out issues uncovered with -Xcheck:jni.
 - Followed up on a couple of pioneer issues ("bad" APK hosing boot process, ServerSocket not closing properly).
 - Finished peer reviews.

This week:

- Investigate interface call speedup.
- Clean up some stuff in the VM.
- Help out with memory leak issues.

Sep 24, 2007

Last week:

- Worked on Dalvik VM:
 - Implemented some slower but EABI-correct register-access primitives in interpreter.
 - Implemented a "fast path" in the ARM native JNI call bridge to make things faster under EABI.
 - Fixed initialization of java.lang.Class.
 - Tweaked thread dumps to help with system debugging.
 - Fixed some minor stuff in Java libs.
 - Forced "check JNI" to be enabled. Dealt with the ensuing hilarity.
 - Chased after a couple of memory leaks.
 - Read through some "new IPC" stuff from crazybob.
 - Worked on performance peer reviews (six).
 - Mentor for Andy Stadler.
 - (Got caught up after vacation)

This week:

- Finish peer reviews.
- Work with crazybob on "new IPC".
- Deal with whatever comes up.

Sep 17, 2007

Last week:

- (out on vacation)

This week:

- Get caught up on current events.
- Enable verification.
- Write static verification tests.
- Work on perf review stuff.

Sep 10, 2007

Add snippet

No snippet submitted

Sep 4, 2007

Last week:

- Worked on Dalvik VM:
 - Made "-Xverify:{none,remote,all}" do what they should. Got

verification working end-to-end.

- Rearranged optimization to respect "-Xdexopt:{all,verified}".
- Added some code to force optimization+verification of class files when the system first boots. This reduces the delay seen on first app launch.
- Worked on performance review.
- (Out Friday)

This week:

- Monday was holiday, in Tuesday, away Wednesday-Friday. Mostly trying not to break things.
- Out all next week too.

Aug 27, 2007

Last week:

- Worked on Dalvik VM:
 - Rearranged class loading to perform verification on non-pre-verified classes.
 - Enabled "lite" verification; code flow analysis still too slow.
 - Corrected handling of package-scope access checks during opt/verify.
 - Added page access guards on LinearAlloc regions to help track down an EABI memory corruption bug.
 - Expanded set of JNI calls you're allowed to make with an exception pending (1.6 spec).
 - Updated jni.h to remove some fancy new warnings.
 - Added flags to disable signal catching.
- Partially restored the stand-alone performance tests.
- Took some measurements with and without mkf's SSA optimizations.
- Spent some time examining the performance of JDWP to the device and emulator.
- Attended the Android coming-out tech talk.

This week:

- Work on performance review.
- Improve performance of verified code flow analysis.
- Add some static verification tests.

Aug 20, 2007

Last week:

- Worked on Dalvik VM:
 - Finished development on bytecode structural verifier. Added more detailed checks on short integers. Corrected common superclass determination. Reduced memory usage and improved speed.
 - Blocked optimization and pre-verification of classes defined in multiple DEX files.
 - Eliminated VMThrowable class, folding it into Throwable.
 - Added logging of exceptions thrown from finalizers.
 - Added printLoadedClasses to help with Zygote performance examination.
 - Fixed a bug that would cause Eclipse to break on caught exceptions that straddled a native call.

This week:

- Continue static verification work. Enable (warn-only mode) in live system.

Aug 13, 2007

Last week:

- (away on vacation)

This week:

- Get caught up.
- Finish bytecode verification.
- Address some memory profiling analysis needs.

Aug 6, 2007

Last week:

- Worked on Dalvik VM:
 - Continued work on verifier. Code-flow analysis is complete, but we've decided to extend it slightly beyond what the spec requires.
 - Fiddled with exception logging to help track down excessive exception activity.
 - Aligned array objects for EABI.

This week:

- Out on vacation all week.

Jul 30, 2007

Last week:

- Worked on Dalvik VM:
 - Made good progress on bytecode verifier.
 - Moved uncaught exception handling for the main thread into the thread-detach code.
 - Fixed Class.newInstance to do access checks properly (Noser).
 - Fixed some reflection exception handling problems exposed by jython.
- One phone screen.

This week:

- Continuing on with the verifier.

Jul 23, 2007

Last week:

- Worked on Dalvik VM:
 - Worked on bytecode verifier.
 - Changed the way internal exceptions are initialized to match expected behavior.
 - Added JNI vfprintf() and abort() hooks.
 - Fixed up some stuff from the Noser integration.
- Filed several bugs on improper use of JNI NewGlobalRef in our sources.
- One interview.

This week:

- Continue work on verifier.

Jul 16, 2007

Last week:

- Worked on Dalvik VM:
 - Continued work on Java bytecode verifier
 - Found last week's heisenbug (gcc-4.2.0 bug)
- Worked with others to chase misc bugs (cheese-scrolling throw-fest, spinning Spinner, Bitmap heap trasher, sluggish Mac sim, nuance DetachCurrentThread)
- (away on vacation Friday)

This week:

- Continue Java bytecode verifier

Jul 9, 2007

Last week:

- Worked on Dalvik VM:
 - Worked on some classfile verification stuff.
 - Added -Xverify option.
 - Changed thread startup from spin-wait to condition wait. Took some thread startup timings.
 - Enabled __memcmp16() and fixed some bugs in String.compareTo().
- Removed JamVM from the build.
- Spent a bunch of time chasing a Heisenbug (771329).
- (Wednesday was a holiday)

This week:

- Continue chasing the Heisenbug.
- Work on Java class verification.

Jul 2, 2007

Last week:

- Dalvik VM:
 - Various improvements to JDWP debug support (simplified startup, "server=n").
 - Fixed a bug in stack overflow exception handling.
 - Changed frame depth calculation to improve single-step execution performance.
- Added some additional tests to -Xcheck:jni.
- Fixed a stall in DDM initialization.
- Fiddled with LD_ASSUME_KERNEL for our goobuntu systems.
- Worked on my OKRs.

This week:

- Start work on Java classfile verifier.

Jun 25, 2007

Last week:

- Worked on Dalvik VM:
 - Finished EABI-compliant JNI call bridge (in ARM assembly).

- Aligned long/double fields on 64-bit boundaries by reshuffling field order.
- Wrote replacement 64-bit arg decoder for internal natives.
- Fixed a rare bug that hit when a debugger attached at the wrong moment.
- Fixed a bug that could lock up a VM if DDMS was left connected for too long.
- Reduced class lookup-by-name calls by caching a reference to [Foo in Foo.
- Experimented with a JDWP speed improvement (which didn't work).
- Fixed an fd leak in DDMS.
- One interview.

This week:

- Work on Dalvik.
- Figure out some OKRs.

Jun 18, 2007

Last week:

- Worked on Dalvik VM:
 - Reduce native heap usage in Zip archive support.
 - Fixed some VM startup ordering issues that were blocking Noser.
 - Wrote a simple linear allocator to hold bits and pieces of class files.
 - Made the VM-internal hash table load factor adjustable, and tweaked it for better performance.
 - Allocate Java thread stacks with mmap() instead of malloc().
 - Started work on ARM EABI support.
- Chased down some JNI problems for Nuance that turned out to be a bug in our dynamic linker.
- One interview.

This week:

- Finish ARM EABI support in Dalvik.

Jun 11, 2007

Last week:

- Added ZipFileRO, an extremely memory-conscious Zip archive access class.
- Replaced all device-side usage of ZipFile/ZipEntry classes with ZipFileRO.
- Evaluated correctness & performance of mathias' __memcpy16.
- Remove system class loader from app loader call sequence.
- Worked on Dalvik VM:
 - Implemented java.lang.reflect.Method.getExceptionTypes(), now that we have exception lists in DEX.
- One phone screen.
- (Out Thursday/Friday on vacation)

This week:

- Continue with some Dalvik memory footprint reduction and performance stuff.

Jun 4, 2007

Last week:

- Moved to a new office.
- Worked on Dalvik VM:
 - Improved spin-on-suspend handling.
 - Added support for Java thread priorities. Added missing pieces of Thread/ThreadGroup.
 - Added AccessController and ProtectionDomain features, notably the getStackDomains() method, for Noser security work.
 - Explored alternative stack allocation methods.
 - Fixed a JDWP bug.
- Two interviews (one cancelled shortly before it started).
- (Monday was holiday)

This week:

- Work on reduced-heap Zip support.
- (On vacation Thursday/Friday)

May 29, 2007

Last week:

- Worked on DalvikVM:
 - Sped up native calls.
 - Wrote inline versions of String.equals() and String.compareTo() (6-40x faster than Java).
 - Changed DEX file section alignment to 64-bit for pending EABI changes.
 - Added "-Xss" flag, use it to set default stack sizes.
 - Rearranged the wait-for-suspend code.
- Added TRACE_ALLOC_COUNTS flag to jtrace. If set, the allocation counters are written into the key file.
- Added some misc fields (total calls, syscall benchmark) to jtrace key header.
- Met with patent lawyers.
- One interview.

This week:

- Dalvik VM performance & correctness.

May 21, 2007

Last week:

- Worked on Dalvik VM:
 - Experimented with fixed register assignments in interpreter core.
 - Tracked down and fixed a bug in debugger method invocation.
 - Added java.lang.Thread constructor that takes a stack size.
- Corrected size bounds in VM.
 - In DEX optimizer, replace calls to Object.<init> with instructions that are treated as no-ops in standard interpreter.
 - Added an "inline implementation" instruction. Wrote inline versions of String.length() and String.charAt().
- Substantially rewrote "efficient Java" document. Reformatted entire document, edited existing sections, added new material.

This week:

- Continue performance work.

May 14, 2007

Last week:

- Worked on Dalvik VM:
 - Enabled instruction rewriting in the DEX optimizer. Improves the speed of virtual method calls and accesses to instance fields.
 - Wrote a cache for the results of "instanceof" and "checkcast" operations. Iterated until useful.
 - Moved DEX class name lookup from a heap-allocated hash table to shared-memory storage.
 - Changed a large number of functions from "JValue blah(...)" to "void blah(..., JValue* pResult)". This works out better on ARM, and improves the performance of native methods returning void (of which we have many).
 - Added some JNI performance and correctness tests.
 - Replaced the JNI native call bridge with a hand-coded ARM assembly version.
- Continued the quest for Java readability.
- One phone screen.

This week:

- Jury duty. Assuming I'm not called up:
 - Continue Dalvik performance work.
 - Add some instrumentation features requested by jparks/veenstra/etc.

May 7, 2007

Last week:

- Worked on Dalvik VM:
 - Completed work on optimization of virtual fields and instance methods.
 - Reworked optimization mechanism to use fork+exec instead of just fork.
 - Added exception-wrapping to java.lang.reflect.Method.invoke implementation.
 - Added an instruction counter to get a sense for which instructions are popular and which are going unused.
 - Made some minor performance tweaks.

This week:

- Continue Dalvik performance work.
- Finish Java readability review work.

Apr 30, 2007

Last week:

- Worked on Dalvik VM:
 - Reorganized DEX file loading so that generation and caching of the byte-swapped version happens generally (i.e. not merely as a side-effect of Jar extraction).
 - Compute and store inter-DEX dependency information. Re-optimize files when a dependency changes.
 - Examined VM loaded-classes hash table performance.
 - Fixed a problem with debugger-initiated method invocations that throw exceptions.
- Worked on DDMS:
 - Warp client selection when a VM is waiting for a debugger.

This week:

- Finish up Dalvik field/method access optimizations.

Apr 23, 2007

- Worked on Dalvik VM:
- Removed most of the overhead associated with debugger support from the interpreter core, resulting in a ~30% speedup.
- Made miscellaneous minor speedups (strict-aliasing, interpreter size reduction).
- Tried some performance enhancements that didn't work.
- Made some improvements to the performance tests.
- Worked on Dalvik VM: - Removed most of the overhead associated with debugger support from the interpreter core, resulting in a ~30% speedup. - Made miscellaneous minor speedups (strict-aliasing, interpreter size reduction). - Tried some performance enhancements that didn't work. - Made some improvements to the performance tests.
Apr 16, 2007

Last week:

- Worked on Dalvik VM:
- Spent a bunch of time fiddling with the performance tests to try to get a consistent set of meaningful numbers.
- Improved performance by inlining part of class/field/method/string resolution.
- Moved some low-use values out of the Method struct. Reduced heap usage by 12 bytes per method.
- Reduced the situations in which we initialize a class to those specified in the VM spec.
- Reshuffled VM source tree, moving headers next to sources.
- Show debug info breakdown in "dexdump -S".
- Fixed a bug that prevented strings in Object arrays from displaying nicely in the debugger.
- Worked on DDMS:
- Changed "Halt" button to call Runtime.halt() instead of Runtime.exit(). Bypasses some of the exit processing.
- Cleaned up some code for a readability review.
- Wrote up OKRs.

This week:

- Continue Dalvik VM performance work.

Apr 9, 2007

Last week:

- Worked on Dalvik VM:
- Rewrote DEX file loading to maximize use of shared memory, reducing native heap requirements.
- Fix a spin-on-suspend when a GC happens while a profiled thread is waiting to exit.
- Worked on DDMS:
- Cosmetic touch-ups on heap stats.
- Added a "cause GC" button.
- Added space for native heap info.
- Provided a work-around for slow log window performance under Mac OS.
- Wrote a command-line Java performance measurement tool.
- Attended daily "aardvark" release meetings.

This week;

- Continue performance improvements, focusing on DEX file optimization work.

Apr 2, 2007

Last week:

- Worked on Dalvik VM:
- Added "inflate" support to classes.dex loading.
- Investigated debugger performance issues.
- Corrected VM internal hash table implementation.
- Quick-reject debugger connection attempts when one is already connected.
- When waiting for a debugger, return after it has connected and been idle for a set period (to allow it a chance to set breakpoints).
- Worked on DDMS:
- Show tid, status, utime, and stime in the "threads" panel. Update periodically.
- Chased after some adb-related problems.
- Reviewed and updated developer documentation.
- Participated in "aardvark" status meetings.
- One phone screen.

This week:

- Work on Dalvik VM

Mar 26, 2007

Last week:

- Worked on "ddms"
- Finished hooking up "preferences" items.

- Added a color key to the heap map.
- Don't try to scan the device if it's in the boot loader.
- Started work on retrieving per-thread CPU usage stats.
- Worked on Dalvik VM
 - Prefer new pthread_cond_timedwait_monotonic() for Object.wait().
 - Allow global references table to expand.
 - Implemented JNI direct byte buffer calls.
 - Reduced the VM's debug-level log output.
 - Implemented java.lang.reflect.Field get/set calls.
 - Fiddled with some VM options after the first ever Dalvik performance review. Toned down paranoia on "release" builds to improve device performance.

Dalvik is now the default on devices.

This week:

- Finish per-thread CPU stats in ddms.
- Dalvik VM performance work.

Mar 19, 2007

Last week:

- Work on DDMS
 - Added preferences screens with JFace. Implemented most of them.
 - Improved the network I/O.
 - Refactored client list. Added "waiting for debugger" icon.
 - Send the app name up when it changes.
 - Fixed some ordering issues when running Dalvik on the device.
- Spent a day hunting down edge cases exposed by attaching "jdb" and letting the system run.

This week:

- Finish wiring up the DDMS preferences.
- Work on Dalvik VM (monotonic clock waits, global ref table).

Mar 12, 2007

Last week:

- Worked on DDMS:
 - Added it to the build. Got it working on Macs.
 - Added "debug selected VM" feature.
 - Added skeletal heap panel UI for dbort.
 - Changed reply routing to allow for generic "fail" packet.
 - Added device screen shot feature.
 - Added device command output capture; used with "dumpstate", "dumpsys", and "logcat".
 - Fixed lots of little things in the UI.
- Added Java "assert" statement support to both VMs.
- In Dalvik VM: ignore breakpoints and other events while executing code on behalf of the debugger.
- In Dalvik VM: treat JNI warnings as fatal errors (with a to-be-added command-line option to mellow them out). Made "Check JNI" the simulator default.
- Spent some time at the "Android boot camp" dry run.
- One interview.

This week:

- Continue work on DDMS.

Mar 5, 2007

Last week:

- Added thread creation/death notifications to DDM.
- Started work on DDM server user interface. Spent most of the week on this.
- Added an "is debugger connected?" feature and a "change JDWP listen port" feature to both VMs.
- Participated in "client team sourcing event".
- One interview.

This week:

- Continue work on DDM.

Feb 26, 2007

Last week:

- Worked on DDM:
 - Got enough working to register Java "hello" message handlers on both sides and exchange data.
 - Updated debugger pass-through to recycle client connection when debugger drops.
 - Added DDMS support to JDWP code.

- Added a couple of calls to our NIO implementation.
- Helped reed/abliss chase after some resource leaks that presented as global reference table overflows.
- One phone screen
- (Monday was holiday)

This week:

- Continue with DDM server and client.

Feb 20, 2007

Last week:

- Fixed a number of bugs in Dalvik and JamVM.
- Added file info to "jtrace" output.
- Worked on DDMS. Currently shuffling packets around with NIO.
- One phone screen.

This week:

- Continue work on DDMS.

Feb 12, 2007

Last week:

- Implemented per-thread and default uncaught exception handlers (in both JamVM and Dalvik VM).
- Worked on Dalvik VM:
 - Added support for -Xrunjdpw/-agentlib:jdpw= options.
 - Rearranged JDWP startup to allow "suspend=y".
- Worked on Dalvik Debug Monitor design doc.
- Started on Dalvik Debug Monitor server (ddms). Added SWT to main build.

This week:

- Continue work on ddms.

Feb 5, 2007

Last week:

- Worked on Dalvik VM:
 - Fixed bug in libffi that only manifested on Linux/x86 with optimizations enabled.
 - Implemented parts of ClassLoader.getResource().
 - Added DEX-in-Jar support to user-defined class loaders.
 - Corrected JNI AttachCurrentThread behavior.
 - Corrected JNI FindClass behavior to use system class loader rather than bootstrap. This allows CLASSPATH to be used for the initial class.
 - Check method return types in -Xcheck:jni.
 - Chased after misc bugs people found now that Dalvik is more widely used.
 - Added a few things that the "mauve" test suite wanted.

This week:

- Implement "-Xrunjdpw" args.
- Get ClassLoader.getResource() working.
- Continue to address Dalvik issues as they arise.

Jan 29, 2007

Last week:

- Work on Dalvik VM:
 - Added support for loading DEX files from Zip archives to bootstrap class loader.
 - Added local-reference abuse checking to -Xcheck:jni. Fixed a couple of problems it found, reported others.
 - Added libffi, so we can use PowerPC macs.
- Announced general availability of Dalvik at group meeting.
- (Out sick most of Friday)

This week:

- Work on Dalvik VM.
- Work on resource loading.

Jan 22, 2007

Last week:

- Dalvik VM:
 - Finished work on initiating class loaders in Dalvik.
 - Replaced the hold-all "u8" type with a union throughout the code.
 - Corrected some bugs in the JDWP implementation in both VMs. Added some missing features that IntelliJ required.

- Spent most of Tuesday with visitors from Korea.
- (Monday was holiday)

This week:

- Roll Dalvik VM out to the soon-to-be adoring masses.

Jan 16, 2007

Last week:

- Wrote a JNI calling convention converter. Ran it against our sources, which used C-style JNI calls in C++ code.
- Dalvik VM:
 - Reworked some VM class loader innards.
 - Did most of the work required to support initiating class loaders.
 - Perf: write peer reviews.
 - One interview.

This week:

- Finish initiating class loaders.
- Meet with some Java people.
- Work on Dalvik.

Jan 8, 2007

Last week:

- More jni.h tweaks, mostly to make JNIHelp.h work with either C or C++.
- Changed JamVM's RegisterNatives method to link methods immediately, rather than on first use.
- Override the class loader in JNI FindClass while handling JNI_OnLoad.
- Fixed a couple of bugs in the JDWP support.
- Work on Dalvik VM:
 - Added basic class loader support to VM. Added DEX file loading to Java ClassLoader.
 - Added "lazy" JNI native method binding by signature.
 - Hooked up local variable table support for the debugger.
 - Improved debugger object registry (fewer registrations, more appropriate data structure).
 - One interview.
 - (four day week)

This week:

- Performance reviews.
- Work on Dalvik VM.

Jan 2, 2007

Two weeks ago:

- Enabled dynamic library loading in JamVM and Dalvik VM. Corrected ClassLoader handling in JamVM per spec.
- Fixed some warnings found by -Xcheck:jni that I got tired of looking at.
- Created C++ inline version of JNI calls. The thrill ride of the season.
- (Friday was holiday)

One week ago:

- (off for entire week)

This week:

- Continue C++ JNI stuff.
 - Continue System.loadLibrary work.
 - Continue ClassLoader work in DalvikVM.
- Two weeks ago: - Enabled dynamic library loading in JamVM and Dalvik VM. Corrected ClassLoader handling in JamVM per spec. - Fixed some warnings found by -Xcheck:jni that I got tired of looking at. - Created C++ inline version of JNI calls. The thrill ride of the season. - (Friday was holiday) One week ago: - (off for entire week) This week: - Continue C++ JNI stuff. - Continue System.loadLibrary work. - Continue ClassLoader work in DalvikVM.

Dec 27, 2006
Add snippet

No snippet submitted
Dec 18, 2006

Last week:

- Worked on Dalvik VM:
 - Got basic shared library loading working.
 - Reduced DEX file memory requirements by deferring some pieces to load on demand.
 - Added initialization of static final string constants, and some reflection code needed to test it.

- Cleaned up strict-aliasing issues.
- Ran some performance evaluations to see how we were doing.
- Added more tests to -Xcheck:jni mode.
- Updated jtrace code to stall thread exits when a trace is running. This way we get thread names and don't re-use thread IDs.
- Switched system from using Jam's "jni.h" to Dalvik's. Fixed the ensuing C++ type clashes.
- Wrote self-review.
- One interview.

This week:

- Finish up shared library loading (both VMs need work).

Dec 11, 2006

Last week:

- Dalvik VM:
 - Reworked some mutex stuff to avoid GC race conditions.
 - Reduced memory usage by loading Positions, Locals, and Exceptions on demand only.
 - Added a threaded-execution mode to the interpreter.
 - Reserve some stack space so we can correctly handle StackOverflowError.
 - Added internal object tracking to ensure we don't GC objects created by native VM code.
 - Enabled threaded execution in JamVM.
- One interview.

This week:

- Performance self-review.
- Continue work on Dalvik VM.

Dec 4, 2006

Last week:

- Work on Dalvik VM:
 - Added public/protected/package/private access checks on method calls and field accesses.
 - Added JNI local/global reference tracking.
 - Added JNI Push/PopLocalFrame.
 - Added debugger object registry.
 - Chased after a spin-on-suspend issue.
- Added VM selection pop-up menu and a "check JNI" checkbox to simulator.
- One interview.

This week:

- Continue work on Dalvik VM.

Nov 27, 2006

Last week:

- Dalvik VM:
 - Added support for "-Xcheck:jni" and "-verbose:jni".
 - Check JNI thread affinity, verify field type in Set*Field calls, and watch for inappropriate activity between "critical" calls.
 - Added GetStringRegion/GetStringUTFRegion.
- Spent a day digging into Wonka.
- (Out Thursday/Friday for Thanksgiving)

This week:

- Add JNI local/global reference tracking to Dalvik VM.
- Improve Dalvik debugger support.

Nov 20, 2006

Last week:

- Spent some quality time with some newly-GPLed source code.
- Performance profiling (JamVM + Dalvik VM):
 - Updated jtrace to show class loader overhead.
 - Added memory allocation counting.
 - Added wall-clock elapsed time to jtrace "key" file.
 - Disabled clock_gettime() on Linux desktop -- doesn't really work on goobuntu.
- Implemented a JDWP command that IntelliJ IDEA required.
- Dalvik VM:
 - Better handling for OutOfMemoryError.
 - Updated some JNI functions.
- One interview.
- (half-day "offsite" on Thursday)

This week:

- Implement -Xcheck:jni in Dalvik.
- Add JNI reference tracking.

Nov 13, 2006

Last week:

- Implemented our "jtrace" method call profiling in Dalvik VM.
- Spent some time QAing the Dalvik VM. Fixed a few problems.
- Filed a few bugs about app/lib issues uncovered by valgrind.
- (Out sick for two days)

This week:

- Evaluate newly-GPLed Java stuff.
- Continue work on Dalvik.

Nov 6, 2006

Last week:

- Work on Dalvik VM:
 - Got it building on all platforms. Added it to the main build.
 - Build it into the Android runtime, allowing run-time selection of Jam or Dalvik.
- Implemented JDWP debugger method invocation.
- Iterated on bug fixes and missing functions until we booted the Android system into the home page.
- Continued iterating until nearly all tests pass and applications appear to run correctly.
- Work on JamVM:
 - Made JamVM's Class.newInstance more restrictive, to meet the Java spec. Updated a couple of tests that weren't correct Java.
 - One phone screen.

This week:

- Continue work on Dalvik.

Oct 30, 2006

Last week:

- Worked on DalvikVM:
 - Implemented most of the JDWP notification events.
- Fixed a bug and added some debug output to JamVM.
- One interview.

This week:

- Try to get the system booting on Dalvik.
- Implement JDWP remote method invocation (last item for feature-parity with JamVM).

Oct 23, 2006

Last week:

- Implemented some Java class library stuff (notably Properties.list()).
- Work on Dalvik VM:
 - Added JNI reflection methods.
 - Implemented properties (init, cmd line overrides).
 - Started work on JDWP support.
- One interview and one phone screen.
- Worked on OKRs.

This week:

- Continue on Dalvik JDWP support.

Oct 16, 2006

Last week:

- Work on DalvikVM:
 - Rearranged exception handling to properly track PC of current method.
 - Finished up most of the work on JNI stubs.
 - One interview.
- Fixed a bug, and added a feature and new tests for java.util.zip.
- Developed a set of Guava questions.
- One interview.

This week:

- Work on DalvikVM:
 - Finish stray JNI functions
 - Implement system properties
 - Start in on JDWP

Oct 9, 2006

Last week:

- Work on Dalvik:
 - Got most of the reflection support working (all of the stuff we appear to use).
 - Link Dalvik VM against libjavavm to get the classes its supports (esp. Float, Double).
 - Implemented a few JNI methods.
- Three interviews (for Guava).

This week:

- Re-examine Dalvik exception handling.
- Write more JNI stubs.

Oct 2, 2006

Last week:

- Worked on Dalvik:
 - Finished first cut at threads & synchronization.
 - Capture stack traces in exceptions, and convert for display.
 - Implemented Miranda methods.
 - Started work on reflection.
 - Show stack trace on SIGQUIT.
 - Participated in Android "bug bash" day.
 - One interview and one phone screen.

This week:

- Work on Dalvik:
 - Finish reflection support.
 - Start on JDWP.
- Dilligence interviews.

Sep 25, 2006

Last week:

- Dalvik:
 - Got most of the basic language synchronization primitives working. Object.wait/notify/notifyAll, Thread.join, and monitorenter/monitorexit.
 - Added source file & line number to stack traces.
 - Developed feature list for Q4 planning.
- Found timing problems in JamVM/klibc. Worked with jham to fix them.
- Two lunch-escort interviews.

This week:

- Finish basic thread & synchronization stuff (Thread.sleep, Thread.interrupt).
- Save & display exception stack traces.
- Dump stack traces for all threads on SIGQUIT.

Sep 18, 2006

Last week:

- Implemented most of java.lang.reflect.Array.
- Made some progress on multi-dimensional array support in Dalvik.
- Attended (via phone) two marathon design meetings.
- (Out all of Monday and parts of the rest of the week while recovering from shoulder surgery.)

This week:

- Work on Dalvik. Finish multi-dimensional arrays, work on threading and synchronization.

Last week:

- Added method tracing to JamVM, as the first cut at a Java profiler. Worked with Jack on the analysis tools.
- Spent some time examining the JamVM thread model. Determined that it's too fragile to adopt.
- Wrote up a long description of the planned Dalvik thread model. Shifted some existing code to use it.
- (Monday was a holiday; out Friday for shoulder surgery)

This week:

- (out Monday, recovering from surgery; working partial days for most of this week)
- Work on Dalvik thread stuff.

Sep 11, 2006

Add snippet

No snippet submitted
Sep 5, 2006

Last week:

- Filled out java.lang.ClassLoader. Created a system class loader instance.
- Added "top 5" lists to garbage collector output.
- Wrote Java method trace generator for JamVM to help track down performance issues. Wrote output formatting tool.
- Work on Dalvik:
 - Notify the ThreadGroup when a thread exits.

This week:

- Work on Dalvik threads.

Aug 28, 2006

Last week:

- Finished implementation of java.util.zip.*.
- Started working on java.lang.ClassLoader.
- One interview.

This week:

- Finish work on java.lang.ClassLoader.

Aug 21, 2006

Last week:

- Started work on java.util.zip.* implementation.
- Wrote Inflater, Deflater, and appropriate tests.
- Wrote or fixed some java.io.* classes that the Zip stuff needed.

This week:

- Finish up java.util.zip.
- Start on java.lang.ClassLoader.

Aug 14, 2006

Last week:

- Dealt with some class loader issues.
- Started work on java.util.zip.*.
- (Out 3 of 5 days; Friday was picnic)

This week:

- Work on java.util.zip.*.

Last week:

- Implemented a fair bit of thread handling support in Dalvik:
 - Thread ID assignment.
 - Ignore daemon threads when contemplating exit.
- Wrote some docs on using JDB.
- Identified (by inspection) some race conditions in JamVM, mostly via AttachCurrentThread.
- Created android-discuss mailing list.

Next week:

- Mostly not in the office.

Aug 7, 2006
Add snippet

No snippet submitted
Jul 31, 2006

Last week:

- Continued work on Dalvik VM:
 - Implemented instance-of, check-cast, and allocation of multi-dimensional arrays.
 - Finished implementation of System.arraycopy().
 - Implemented some math operations, "switch" statements, and wrote stub implementations of monitor enter/exit.. All Dalvik instructions are now handled.
 - Got basic Thread support working.
- Fixed some JNI issues in JamVM.

This week:

- Continue work on Dalvik, primarily threads and synchronization.

Jul 24, 2006

Last week:

- Worked on Dalvik:
 - Got interfaces working.
 - Finished exception handling (implemented "throw").
 - Got Dalvik working in the new build system.
- Created "libs/javavm", for VM-neutral java.* native methods. Wired it into JamVM.
- Converted native methods from half a dozen classes to JNI.

This week:

- Continue work on Dalvik VM.

Jul 17, 2006

Last week:

- Worked on dalvik:
 - Got most of exception processing working.
 - Improved method calls. Got JNI invocation of native methods working (something of a hack).
 - Implemented class initialization (i.e. invoke <clinit>).
 - Implemented class and instance field get/put.
- Worked on JamVM:
 - Moved JamVM-specific native functions into jamvm's "glue" dir.
 - Updated system init so that the right stuff is initialized at the right time.
 - Changed Throwable to use StackTraceElement and other standard stuff. JamVM implementation now uses JamVM-provided natives.
 - Fixed a bug in JamVM exception handling.
 - Added per-thread Java instruction counting to track down spinning threads.

This week:

- Continue work on Dalvik.

Jul 10, 2006

Last week:

- Worked on Dalvik.
 - Implemented several instructions, notably "invoke-direct" and "invoke-virtual".
 - Implemented native method calls.
 - Got "hello, world" working.
 - Reported & verified some jx bugs for danfuzz.
- Fix the way exceptions are reported to the debugger in JamVM (stop at exception, not in catch block).
- (three-day week)

This week:

- Continue work on Dalvik.
- Investigate some JamVM issues.

Jul 5, 2006

Last week:

- Worked on Dalvik VM.
 - Implemented arrays and strings.
 - Implemented object allocation.
 - Defined stack frames. Implemented native->Java calls.
 - Implemented a few Dalvik instructions. The VM is officially executing code.

This week:

- Implement more instructions, especially "invoke".

Jun 26, 2006

Last week:

- Worked on Dalvik VM.
 - Developed & discussed plan for how DEX files will be managed.
 - Wrote large pieces of class loading/linking/initialization.
 - Wrote self-evaluation for semi-annual review.
 - Conference call with VM company.
 - (Engineering offsite on Thursday.)

This week:

- Continue work on Dalvik VM.
- Write peer reviews as required.

Jun 19, 2006

Last week:

- Progress on Dalvik.
 - Got lots of loading/linking stuff figured out.
 - Tracked changes to DEX file format.
 - Created some trivial classes to feed to "jx" for testing.
- Added object allocation logging to JamVM.
- Updated "google resume".

This week:

- Continue on Dalvik.
 - Finish loading/linking.
 - Start on static initialization.

Jun 12, 2006

Last week:

- Worked on Dalvik VM core infrastructure.
- One interview.

This week:

- Continue working on Dalvik.

Jun 5, 2006

Last week:

- Corrected the implementation of the JNI invocation functions I wrote for JamVM. They're now compliant with the JNI spec.
- Fixed some minor issues in JDWP.
- Tried to figure out why Eclipse sometimes ignores breakpoints. Failed.
- Added openNonAsset() to AssetManager. Fixed potential race condition.
- Wrote JNI stubs for Dalvik.
- Made some progress on parsing Dalvik class files.
- (Monday was a holiday; took Tuesday as a vacation day)

This week:

- Continue work on Dalvik.

Last week:

- Rearranged the way threads get started in our system. Switched thread creation and VM initialization to use JNI. Reduced complexity.
- Moved native call registration so that it's initiated from Java.
- Fixed a race condition in JDWP code.
- Experimented with JamVM performance optimizations. Not much of a win.
- Started evangelizing "application exit".
- Wrote some initialization code for the Dalvik interpreter.
- (Away on vacation on Friday)

This week:

- Fix some JNI stuff.
- Continue work on Dalvik VM.

May 30, 2006

Add snippet

No snippet submitted

May 22, 2006

Last week:

- Finished changes to asset manager.
- Enabled JNI in JamVM. This required writing some functions that were in the spec but not implemented.
- Switched to JNI calls in our code for VM initialization and logging.
- Began public encouragement of JNI over JamVM-proprietary interfaces.
- Started unraveling some thread stuff, with the ultimate goal of switching to JNI calls.
- Enhanced the ThreadGroup support in JamVM, in our class libraries, and in the JDWP debug code. Eclipse now properly categorizes the threads.

This week:

- Switch our thread creation over to JNI calls (requires implementing those JNI calls in JamVM).
- Evangelize clean process exits for memory leak detection.
- Do the Dalvik?

May 15, 2006

Last week:

- Finished hunting down the bug from hell.
 - More goodies for JamVM debugging:
 - Fixed up wait-for-debugger function.
 - Added breakpoints on exceptions and class loading.
 - Added method invocation (virtual/non-virtual/static).
 - Fixed a race condition in JamVM thread handling.
 - The asset manager is going to package stuff up differently now.
- Updated the documentation and started in on the code.

This week:

- Finish asset manager changes.
- Investigate JamVM performance features.
- Do some stuff on Dalvik.

May 8, 2006

Last week:

- Lots of progress on debugger:
 - Implemented single-step modes.
 - Correctly handle interface classes.
 - Increased the ThreadGroup kluge factor to improve support for other debuggers.
 - Added waitForDebugger() for early-process debugging.
- Spent two days chasing a bug (with help from others). Chased it into a corner.
- Two interviews.

This week:

- Finish tracking down the mystery bug (which looks like a JamVM multithreading problem).
- Add support for exception traps in debugger.

May 1, 2006

Last week:

- Lots of progress on Java debugger, notably:
 - Implemented "run to line".
 - Got connection to debugger on device working.
 - Fixed some problems with display of objects, arrays, and strings.
 - Reduced debugger overhead in VM.
- Chased down four problems associated with JamVM. (One bug in the VM, one in my debugger support, one in ARM pthreads, one in Skia glue.)
- Announced general availability of debugger to group. Added notes to klobag's Eclipse doc.
- Two phone screens.

This week:

- Get single-step modes working.
- Add exception traps.

Apr 24, 2006

Last week:

- Made lots of progress on Java debugging. Now working in Eclipse and JDB:
 - Inspection of fields, variables, and arguments.
 - Generic breakpoints.
 - Method entry/exit notification.
- Wrote "jdwpspy" tool as part of figuring out why the debuggers didn't like me.
- Moved into bldg 44.

This week:

- Continue work on debugging. Need "run to cursor" and must reduce performance impact of breakpoints.

Apr 17, 2006

Last week:

- Made good progress on java debugger support. Suspend/resume and stack traces work from Eclipse and jdb.
- Fixed gdb/jamvm hang.
- Minor tweaks to Dalvik (md5-->sha1+adler32).
- Two interviews and one lunch escort.
- Packed up to move to bldg 44.

This week:

- Unpack.
- Continue work on jamvm debugger support.

Apr 10, 2006

Last week:

- Worked on JDWP (Java Debug Wire Protocol). Wrote enough code to convince Eclipse and JDB that they are actually talking to somebody.
- Made a little progress on Dalvik.
- Met with Sun re: VM stuff.
- Worked on OKRs.
- Group hug.

This week:

- Get some piece of Java debugging working inside jamvm. Probably suspend/resume and stack traces.

Apr 3, 2006

Last week:

- Read Sun's Java VM spec and Dan's Dalvik spec.
- Read about Java debugging (notably JDWP).
- Read through jamvm sources.
- Wrote some code for Dalvik interpreter.

This week:

- Work on Dalvik or jamvm debugging, depending on present whims of management.
- Write next quarter's OKRs.

Mar 27, 2006

Last week:

- Worked on PRD. Added stuff, rearranged sections.
- Finished Thinking In Java. Wrote Life in Java+Swing in Eclipse.
- Spent some time chasing after crashing bugs (e.g. EricTest, contacts list).
- Attended my first TimeOut fitness class.

This week:

- Write OKRs for next quarter.
- Resource manager?

Mar 20, 2006

Last week:

- Spent most of the week reading "Thinking in Java". I thought the character development was weak, though the dialog wasn't bad.
- Went to a hiring committee meeting. Now *there's* an interesting bunch of characters.
- Participated in the usual random discussions and build-fixing.

This week:

- Finish reading about Java.
- Start doing something with Java.

Mar 13, 2006

Last week:

- Finished first cut at Asset Manager. It's done until somebody breaks it.
- Tweaked the simulator.
- Fixed some build problems.
- Started learning Java.
- Two interviews.

This week:

- Continue with Java.

Mar 6, 2006

Last week:

- Finished first cut at asset manager API and packaging tool.
- Converted simulator to use asset manager APIs.
- Rearranged java app assets to use expected layout.
- Dealt with some minor build stuff (64-bit off_t, wxWidgets include file speedup).
- Two interviews.
- (Out 1/2 day on Friday)

This week:

- Add some caching to asset manager.
- Work with others to figure out how apps interact with asset APIs.

Feb 27, 2006

Last week:

- Got most of asset manager and associated tools working.
- One interview.
- (short week)

This week:

- Finish first cut at asset manager, and integrate into simulator.

Feb 21, 2006

Last week:

- Worked on asset management:
 - Finished most of "aapt" tool, Zip utility lib, and PathName class.
 - Rearranged Sim assets.
 - Updated design doc.
- Changed simulator's focus-grabbing behavior.
- Fixed Cygwin simulator problem.
- Attended half-day Google interview training.
- Two interviews + 1 candidate lunch escort.

This week:

- Finish basic asset management APIs.

Feb 13, 2006

Last week:

- Worked on Yet Another Zip Utility and Yet Another Zip Library. Finished most of what I need.
- Experimented with a build speedup. Added "native" util lib generation to build.
- Updated asset manager doc.
- Fiddled with simulator configuration.
- Spent some time writing and following up on tickets for "android-build" user account and ordering some rack-mount hardware. With Dan, physically rearranged the lab.
- One interview.

This week:

- Develop basic implementation of asset manager.
- Attend interview training seminar.

Feb 6, 2006

Last week:

- Presented asset management plan. Got feedback, made revisions. Started implementation.
- Reshuffled assets according to the New Plan. Relocated the sim's assets.
- Resurrected the Cygwin build, again.
- Minor sim changes: restore terminal state, use "-j" to pick Java app. Fixed some brokenness.
- Spent some time exploring the "openbinder" stuff.
- (out sick one day)

This week:

- Work on asset manager.

Jan 30, 2006

Last week:

- Brought the Cygwin build back to life.
- Allow "runtime" to be launched separately from "simulator".
- Mostly finished first cut at asset management.

This week:

- Submit asset management doc for general review.
- Misc simulator clean-ups.

Jan 23, 2006

Last week:

- (away on vacation)

This week:

- Asset management.
- Might fiddle with the sim.

Jan 17, 2006

Last week:

- Started design of asset management.
- Wrote OKRs.
- Patched up minor issues in sim.
- (out two days)

This week:

- (away on vacation)

Jan 9, 2006

Last week:

- Participated in formal & informal design discussions during Skia visit.
- Various tweaks to logging.
- Minor build fixes.
- Fiddled with event log design.
- One interview.
- (short week)

This week:

- Figure out asset management.
- (out 1-2 days)

Jan 3, 2006

Last week:

- Replaced GNU make magic with "acp" calls.
- Changed build config to use global header instead of command-line -D flags.
- Suppressed key repeat events in the simulator. Added key highlighting. Use a different color for mouse-over highlighting.
- Spent a few hours chasing after a weird valgrind/shmget/GTK mis-interaction.
- (three-day week)

This week:

- Futz with logging.
- Event log design.

Dec 28, 2005

Last week:

- Worked on peer performance reviews.
- Largely finished debug logging features in simulator. (And there was much rejoicing.)
- Dealt with some build issues.
- One interview and one phone screen.

This week:

- (3-day week due to holidays)
- Build cleanup.
- Logging touch-ups.

Dec 19, 2005

Last week:

- Build system work. Rearranged install directories, renamed a bunch of files, fixed yacc-related weirdness in android-arm.
- Wrote a replacement "cp" that works like it's supposed to on all platforms.
- Rewrote Socket & friends to work without exceptions.
- Got some work done on logging.
- Upgraded to goobuntu. Hilarity ensued.
- Two interviews.

This week:

- Keep swinging at logs.
- Peer reviews.

Dec 12, 2005

Last week:

- Wrote self-review.
- Beta-tested Brian's USB boot loader stuff.
- Participated in the Great Exceptions Debate and the Big Performance Discussion.
- Participated in Great Source Tree Reorg. Removed stale files, relocated some sources to libraries, stripped resource forks from PNGs, added flex/bison to build system.
- Wrote code that probes for devices in runtime, so we can run on P2 or Tornado without #ifdefs.
- One interview.

This week:

- Peer reviews.
- Finish up logging stuff.

Dec 5, 2005

Last week:

- Finished most of the work on simulator log output.
- Spent a bunch of time with the Skia nooglers.

- Three interviews.
- Out sick one day.

This week:

- Finish basic log output management in simulator.
- Fix up simulator keyboard input.
- Write performance self-review and peer reviews.

Nov 28, 2005

Last week:

- Added "preferences" dialog to simulator.
- Added Win32 support to Brian's USB image loader.
- Hunted down a wxWidgets keyboard input problem.
- Ate lots of turkey.

This week:

- Add log output window to simulator.
- Revisit runtime user input.
- Three interviews.

Nov 21, 2005

Last week:

- Finished support for devices with multiple displays.
- Spent some time fiddling with process management and tty handling.
- Added some UI elements to main window to allow debugging and valgrinding.
- Updated nandroid doc for all our new nandroids.
- One interview.

Next week:

- Add preferences dialog.
- Do some Windows stuff for Brian.
- Eat turkey.

Nov 14, 2005

Last week:

- Finished simulator process separation.
- Split device window off into a modeless dialog.
- Rearranged simulator config file and associated data structures.
- Switched from SysV IPC to mmap/sem_open on Mac OS X.
- Two interviews.

This week:

- Finish support for devices with multiple displays.
- Fix configurability of display size and refresh rate.
- Spiff up the UI a little.

Nov 7, 2005

Last week:

- Wrote semaphore and shared memory classes for SysV and Win32.
- Wrote process creation class for POSIX and Win32.
- Mostly finished simulator process separation.

This week:

- Continue improvements to simulator.

Oct 31, 2005

Last week:

- Integrated latest drop of Skia.
- Integrated IJG JPEG lib and pulled in latest ZLIB (security fixes).
- Spent a day fighting with Windows. Tied.
- Spent an evening fighting with a flaky Mac OS X machine.
- Hunted down and killed a build problem.
- Added XML config file to simulator.
- Started work on simulator process separation.
- Two interviews.

This week:

- Finish work on simulator process separation.
- Continue work on other simulator stuff.

Oct 24, 2005

Last week:

- Reorganized simulator internals to have more generalized device handling.
- Switched to XML file for device specification. Converted existing specs.
- Added TinyXml to the code base.
- One interview.

This week:

- Continue work on simulator, starting by adding a config file and wxWidgets preferences panel.
- Big Vendor Meeting.

Oct 17, 2005

Last week:

- Finished implementation of "debug logs" in C/C++ and JavaScript.
- Finished most of the design of "event logs".
- Spent some time dealing with STL for P2. Wrote an STL-compatible list class.
- Fiddled with the build for a while.
- Two interviews.

This week:

- Work on simulator (input, multi displays, process separation).

Oct 10, 2005

Last week:

- Split mid-level architecture doc into smaller pieces. Reshuffled it to take a more holistic view.
- Developed logging design, submitted for review, incorporated feedback.
- Built rudimentary implementation of debug log system.
- Split the menu and soft-button rendering out into the system layer.
- Two interviews.
- Took two half-day vacations due to recent sibling procreation events.

This week:

- Finish debug log system.
- Finish design of event log system.
- Work on input handling. (This week for sure!)

Oct 3, 2005

Last week:

- Revamped event handling. Changed the way events are queued, and created new JavaScript interfaces. Renamed some constants.
- Split some runtime files off into a library. Beat it until it ran on all platforms.
- Polished up the display system a bit. Added some instrumentation to evaluate performance. Created JavaScript classes for Hardware and Hardware.Display.
- Three interviews.

This week:

- Implement debug logging features.
- Fix input issues (key repeat, input focus).
- Three interviews are scheduled.

Sep 26, 2005

Last week:

- Added optimizations to graphics compositing (scan-line tagging, faster alpha blend op).
- Changed graphics interface to have better semantics. It now uses the correct locking style and makes it easy to avoid dropping frames on the P2. The JavaScript interface was updated to eliminate an extra buffer copy.
- Experimented with Skia's bitmap filtering.
- Video test function can now start/stop.
- Rearranged argument processing for simulator and runtime.
- One interview.

This week:

- Add prototype "Hardware" classes and sub-classes to JavaScript interface.
- Fix input issues (key repeat, input focus).
- Implement some logging features.
- Start work on a simulator overhaul.

Sep 19, 2005

Last week:

- Got multi-layer graphics composition working.
- Added a trivial "video" class for testing.
- Added a call to force the alpha level in a region to have a specific (pre-multiplied) alpha value. Reported some related bugs to Skia.
- Worked with the Skia guys to get their 2005/08/31 SGL drop working.
- Added "view single layer" feature to new "debug" menu in simulator.
- Fixed "lost wakeup" bug in Win32-specific condition variable implementation.

This week:

- Do some simple optimizations on the compositing code so the P2 looks better.
- Modify JavaScript code to use the back buffer instead of an intermediary.
- Modify JavaScript code to split the app and system layers.

Sep 12, 2005

Last week:

- More big changes to runtime (event handling, display management).
- Added auto-power-on to simulator.
- Updated some documentation.
- One interview.

This week:

- Finish up multi-layer, multi-display features and tests.
- Work with Brian to get runtime running on the new P2 kernel.

Sep 6, 2005

Last week:

- Rewrote parts of the runtime, notably display management and event handling.
- Determined that our network access stalls are caused by Google's DNS. Wrote a simple test case and filed a ticket.
- Created "Android for Nandroids" document.
- Tried to integrate the latest Skia drop. Got it running, modulo missing API functions, on 2 out of 4 platforms before putting it aside.
- Attended the fabulous GPS meeting.

This week:

- Finish changes to display management and event handling.
- Create video plane sample.

Aug 29, 2005

Last week:

- Converted mid-level architecture document to HTML.
- Added some new sections to arch doc, and updated some old ones.
- Got Android simulator working under Mac OS X.
- Fixed some timing bugs in the simulator's display routine.
- Fixed the runtime so that it can be restarted within the simulator.
- Stared at the P2 with Ficus.
- Conducted two interviews and one phone screen.
- Wrote up a sample interview question.

This week:

- Work on runtime, particularly the display management.
- Help figure out why new runtime stalls on P2.

Aug 22, 2005

Last week:

- Wrote a wxWidgets front-end for the Android simulator. Works under Linux and Windows. Removed older SDL stuff.

This week:

- Resurrect Mac OS version.
- Work on logging and asset loading.
- Convert & update mid-level architecture document.

Aug 15, 2005

Last week:

- Overhauled build system. We're now using FMS for everything.
- Struggled with MinGW for a while. Ended up with Cygwin.
- Various ngruntime tweaks, e.g. re-rooted assets directory, added an "android" namespace, and fixed stuff to make valgrind happy.
- Built wxWidgets under Windows and Linux. Checked in libs & headers.
- Two interviews.

This week:

- Rewrite ngruntime front-end to use wxWidgets instead of SDL.
- Get Mac OS X runtime working again (hardware needed).

Aug 8, 2005

Last week:

- Checked in first cut at fancy new Android runtime.
- Got FMS test code building under Windows.
- Got Android simulator networking features mostly working under Windows.

This week:

- Figure out remaining weirdness in Windows stuff.
- Continue work on ngruntime.
- Two interviews are scheduled.

Aug 1, 2005

Last week:

- Moved in.
- Went to a bunch of meetings and NH classes (including noogler TGIF).
- Plotted and schemed about Android architecture with the team.
- Convinced FMS build stuff to work on Mac OS X.

This week:

- Continue work on new-fangled Android runtime.
- More plotting and scheming.

Note: 20% time has been "banked", and will continue to be until further notice.

Last week:

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- Went to a bunch of meetings and NH classes (including noogler TGIF).
- Plotted and schemed about Android architecture with the team.
- Convinced FMS build stuff to work on Mac OS X.

This week:

- Continue work on new-fangled Android runtime.
- More plotting and scheming.

Jul 25, 2005

Last week:

- Attended various new-hire classes.
- Worked on Android runtime.
- Discussed architectural stuff with The Gang.
- Packed for move from Palo Alto.

This week:

- Got actual desk space. With a phone, no less.
- Chat some more about Android architecture.
- Keep plugging away on runtime.
- Propose build environment.

Jul 18, 2005

Last week:

- Did the typical noogler stuff.
- Fantasized about having an office.

This week:

- Get Android build system sorted out.
- Work on new version of Android runtime.
- Fantasize about having an office.