Debugging.TV

Frame 0x0D

Presenter: Dmitry Vostokov

Topics

- Spiking Thread pattern
- Manual core dump generation

✓ *Dump and kill:*

```
kill -s SIGQUIT <PID>
```

✓ *Dump and continue:*

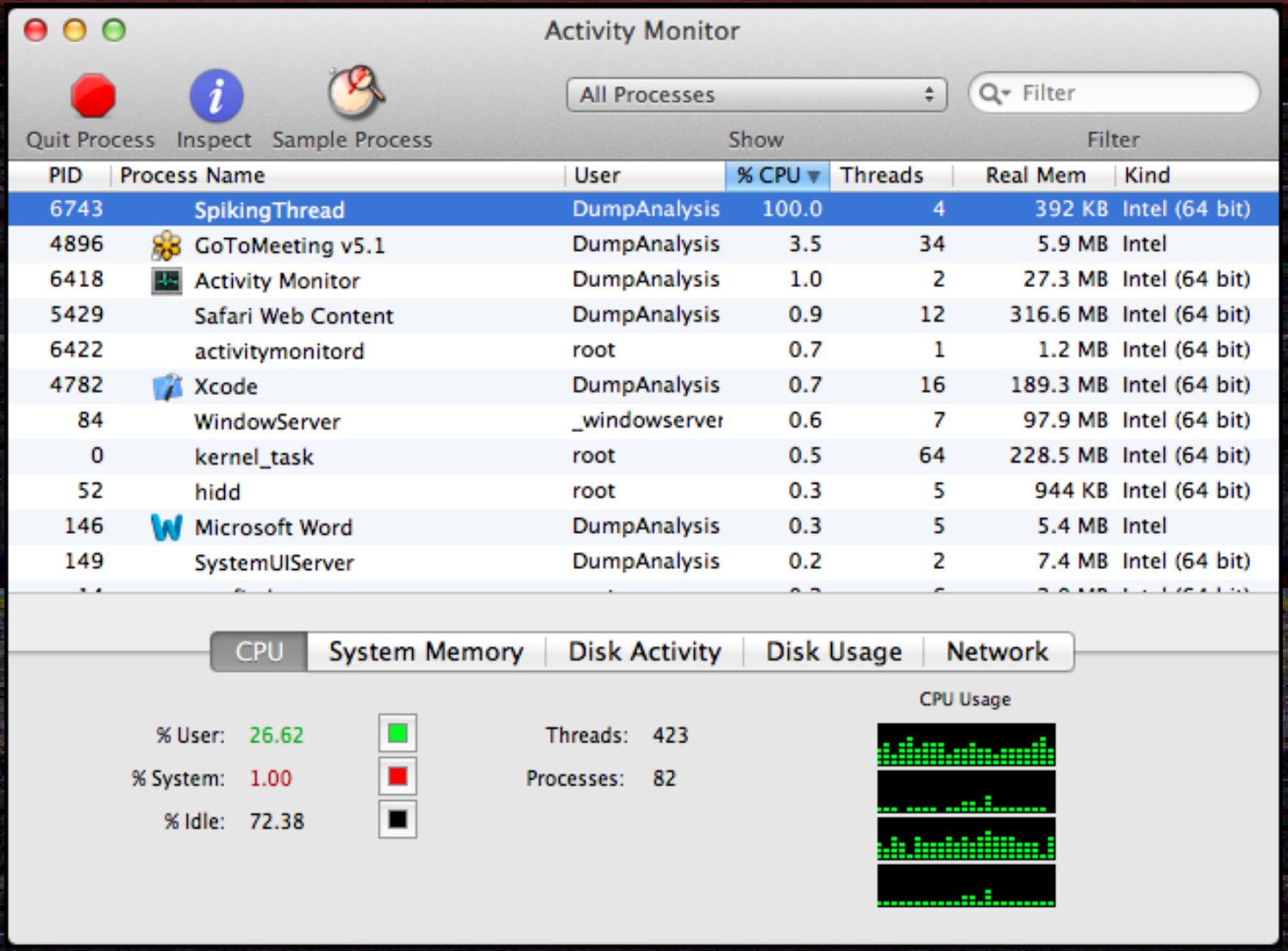
http://osxbook.com/book/bonus/chapter8/core/

- Live thread inspection

Spiking Thread

```
void * thread_one (void *arg)
{
    while (1) { sleep (1); }

    return 0;
}

void * thread_two (void *arg)
{
    while (1) { sleep (2); }

    return 0;
}

void * thread_three (void *arg)
{
    while (1) { *(double*)arg=sqrt(*(double *)arg); }

    return 0;
}

int main(int argc, const char * argv[])
{
    pthread_t threadID_one, threadID_two, threadID_three;

    double result = 0xffffffff;

    pthread_create (&threadID_one, NULL, thread_one, NULL);
    pthread_create (&threadID_two, NULL, thread_two, NULL);
    pthread_create (&threadID_three, NULL, thread_three, &result);

    pthread_join(threadID_three, NULL);

    return 0;
}
```

Spiking App



Crash Report

```
Crashed Thread:  0  Dispatch queue: com.apple.main-thread

Exception Type:  EXC_CRASH (SIGQUIT)
Exception Codes: 0x0000000000000000, 0x0000000000000000

Thread 0 Crashed:: Dispatch queue: com.apple.main-thread
0   libsystem_kernel.dylib          0x00007fff8616ee42 __semwait_signal + 10
1   libsystem_c.dylib               0x00007fff8fa7c97e pthread_join + 795
2   SpikingThread                   0x0000000107ac1e81 main + 161 (main.c:54)
3   SpikingThread                   0x0000000107ac1d64 start + 52

Thread 1:
0   libsystem_kernel.dylib          0x00007fff8616ee42 __semwait_signal + 10
1   libsystem_c.dylib               0x00007fff8fa7cdea nanosleep + 164
2   libsystem_c.dylib               0x00007fff8fa7cc2c sleep + 61
3   SpikingThread                   0x0000000107ac1d86 thread_one + 22 (main.c:19)
4   libsystem_c.dylib               0x00007fff8fac68bf _pthread_start + 335
5   libsystem_c.dylib               0x00007fff8fac9b75 thread_start + 13

Thread 2:
0   libsystem_kernel.dylib          0x00007fff8616ee42 __semwait_signal + 10
1   libsystem_c.dylib               0x00007fff8fa7cdea nanosleep + 164
2   libsystem_c.dylib               0x00007fff8fa7cc2c sleep + 61
3   SpikingThread                   0x0000000107ac1da6 thread_two + 22 (main.c:29)
4   libsystem_c.dylib               0x00007fff8fac68bf _pthread_start + 335
5   libsystem_c.dylib               0x00007fff8fac9b75 thread_start + 13

Thread 3:
0   libSystem.B.dylib               0x00007fff85b542df sqrt + 15
1   SpikingThread                   0x0000000107ac1dc9 thread_three + 25 (main.c:38)
2   libsystem_c.dylib               0x00007fff8fac68bf _pthread_start + 335
3  libsystem_c.dylib                0x00007fff8fac9b75 thread_start + 13
```

GDB Output (live)

```
(gdb) info threads
  (gdb) info threads
  4                      0x00007fff85b542df in sqrt$fenv_access_off ()
  3                      0x00007fff8616ee42 in __semwait_signal ()
  2                      0x00007fff8616ee42 in __semwait_signal ()
• 1 "com.apple.main-thread" 0x00007fff8616ee42 in __semwait_signal ()

(gdb) info thread 4
Thread 4 has current state "WAITING"
[…]
          total user time: 18446744072923834312
          total system time: 740808000
[…]

(gdb) info thread 3
Thread 3 has current state "WAITING"
          total user time: 816000
          total system time: 3579000
[…]

(gdb) info thread 1
Thread 1 has current state "WAITING"
[…]
          total user time: 635000
          total system time: 5381000
[…]
```

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June 22, 2012	Introduction to Pattern-Driven Software Diagnostics (Free Webinar)
July 11-16, 2012	Accelerated Windows Memory Dump Analysis
July 20-23, 2012	Advanced Windows Memory Dump Analysis
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