Rise of the (Virtual) Machines

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From Native To Virtual

- Back in the early 90's....
  - C
  - C++
  - Assembly
  - Faster Compilers
- Native Code was King

VM Systems Existed

- Lisp
- Smalltalk
  - Tended to run on custom hardware
  - Or ran *very* slowly

Now…

- Fast General purpose hardware won
  - But developers are still the bottleneck
  - You really need an iterative approach
- Memory is plentiful
  - In 1993, using 8MB was bloated
  - Now, an 11 MB image seems small

Bottlenecks

- Hardware has gotten faster and cheaper
- Tools have improved
  - Developers aren't really any faster
  - We can still only juggle a few items at once
  - In development, we need all the help we can get

Bottlenecks

- Back in the 90's, we couldn't afford (performance-wise) virtual
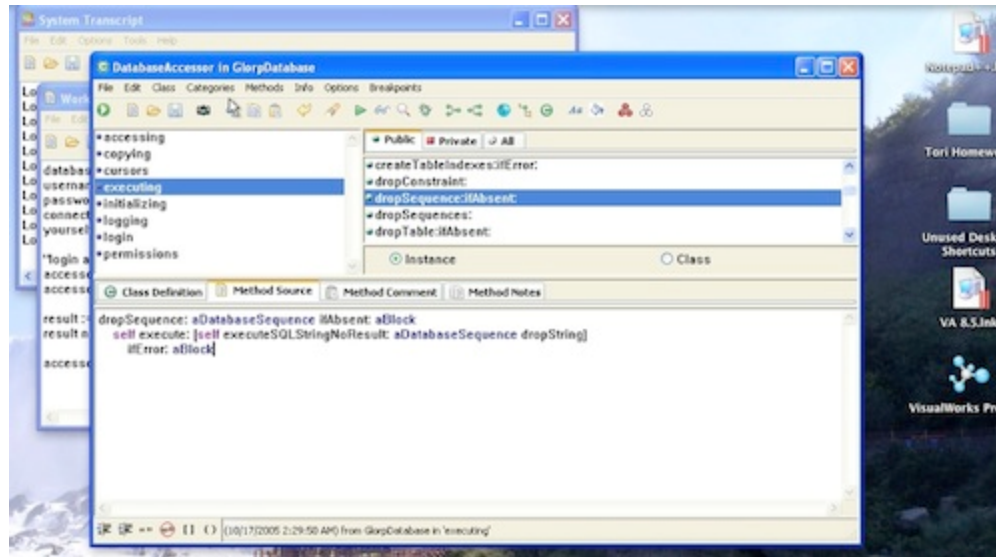- Now, Can we afford *not* to?

Now….

Virtual Machines

- Run Windows on a Mac
- Run Linux on Anything
- Amazon Elastic Computing
- Java
- .NET
- ...

Virtual Machines

From the Serious….

Virtual Machines

To the Frivolous....

Virtual Machines

Why Should You Care?

- Abstracts you away
  - Easily create a clone of what you have
  - Patch quickly and easily
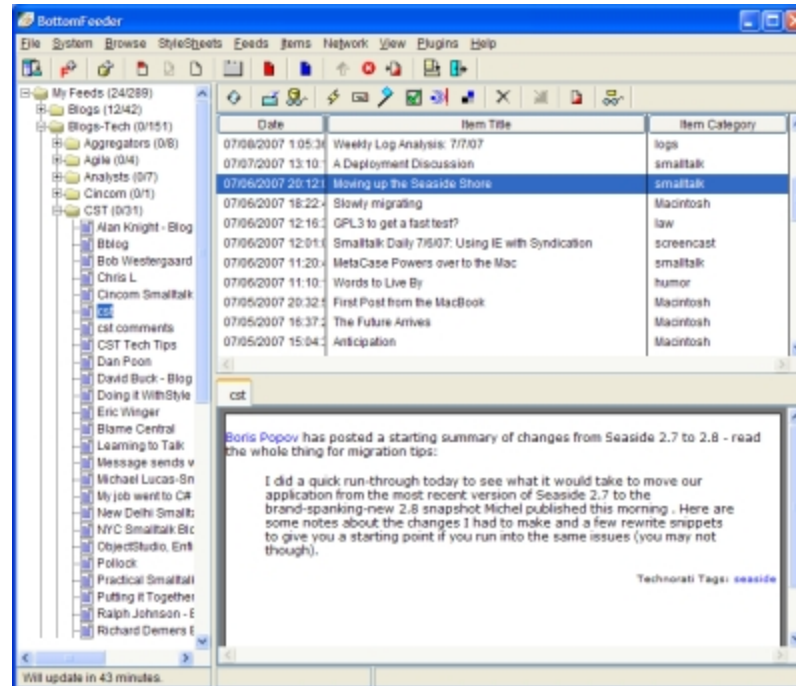 - … Even when running

Clone Demonstration

VM and Image

- The VM runs the system
- The image gives you a sandbox
- Java gives you the pieces, but not the open sandbox
- .NET Does the Same Thing
  - Akin to the difference between an open world video game (Skyrim) and a linear shooter (Gears of War)

The Smalltalk Image

- You write in high level code
  - The VM compiles that to byte code
  - Fast Execution
    - JIT Compiler
  - Flexible Execution
    - Develops like an interpreter
  - *This is where productivity comes from*

Demonstration

Smalltalk Plays Well Here

- Virtual Private Servers are Inexpensive
  - Amazon
  - Rackspace
  - Many, many more

Smalltalk Plays Well Here

- Buy a Domain
- Get a VPS Server set up
  - I use Linux
- Install your Smalltalk Image
  - http://www.jarober.com/blog/blogView?entry=3439652561
- Off you go

Runtime Patching

- You don't want downtime
- You need to patch and update your apps
  - A VM/Image based system lets you do that

Runtime Patching Demo

Everywhere

Smalltalk on Mobile

- Squeak and Pharo can be used for IOS development
  - http://www.mobilewikiserver.com/Welcome.html
- There's active work going on for Android

Summary

- Everyone uses a VM now
  - Inexpensive
  - Flexible
  - Easily cloned
- Why not move that way for development, too?

Questions?

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