

# Beta, Beta Everywhere

Bill Sheldon

**Blog:** [NerdNotes.net/blog](http://NerdNotes.net/blog)

**Twitter:** [NerdNotes](https://twitter.com/NerdNotes)

- Microsoft MVP - Visual Basic
- Author SQL Server Magazine
- Author Office Business Application Development (WROX)
- Author Professional Visual Basic (WROX)
- Instructor UCSD Extension (not recently)
- Senior Technical Analyst-Developer Rubio's Restaurants

# Session Focus

- ▣ This session is going to look at Visual Studio 2010.
  - Beta 2, There will be an RC in the coming weeks
  - The release slipped from March 22 by 'a few weeks'
- ▣ How can you leverage the Visual Studio 2010 Beta(s)
  - VPCs are limited
  - There are many Beta's not just Visual Studio
- ▣ Part of the focus is not just the Visual Studio Beta, but working with Beta software effectively

# Where are we?

- ▣ We are in a Microsoft Release Wave
  - The wave will peak and come to shore mid-2010
  - Windows 7/ Windows Server 2008
  - Visual Studio 2010
  - Office 2010 (including SharePoint)
  - Silverlight 3 is still new, 4 arrives this Spring
  - updated Expression tools, SQL Server 2008 R2, ...
  - Plus new concepts like Azure and online solutions
- ▣ The list continues, will this wave crash on you?  
or will you ride the wave?

# Beta Uses

- ▣ Beta software can be useful
  - You can often deploy solutions based on Beta or RC products – Microsoft GoLive Licensing
  - You can always create internal solutions based on Beta/RC
- ▣ Gives you a chance to keep up with your professional skills as new technology launches
  - This is important and a key reason for getting involved in a beta
- ▣ Allows you to find the best long term solution for something built with today's tools

# Managing Beta Software

- ▣ You don't want to install Beta software on your main 'machine'
  - It can break things that currently work
  - It never upgrades correctly and rarely uninstalls correctly
  - New releases show up more frequently than most of our development schedules so it expires quickly
  - Most of us don't have a spare physical machine we can rebuild to install next update
- ▣ Common answer in the past: VPC (or VM)

# Virtual Machines

- ▣ Both VM Ware and VPC provide a good solution (Desktop focus here not Hyper-V)
  - Build a virtual environment and then use that to host the beta software
  - Can run side by side with your main OS
  - Is portable between machines
  - Is a performance Dog... at times unusable
- ▣ Even in the best cases a VPC just doesn't have enough power for real work

# Boot to VHD

- ▣ Builds on the VPC implementation, but removes the underlying OS
  - Boot into the virtual machine
  - VHD's on your system (or external eSata)
  - Gives you close to full system performance
  - Limits portability – VHD is mapped to your hardware (part of performance advantage)
  - Allows for easy 'tear-down' replacement based on baseline image
  - Limits use of license keys for short lived environments

# Boot to VHD

- ▣ Came out during the Windows 7 Beta
  - Lots of posts out there have extra steps that were needed during Beta
  - Avoid these there is a new CScript that does the job
- ▣ Scott Hanselman has the complete solution but its split in two posts (Bing: Hanselman VHD Boot)
  - Newer post (Step by Step) illustrates new MSDN tool (demo tonight)
  - Older post has still valid BCDEdit instructions you'll need but does manual creation process
- ▣ MSDN has the Windows Image to Virtual Hard Disk Converter  
([code.msdn.microsoft.com/WIM2VHD](http://code.msdn.microsoft.com/WIM2VHD))

# Setting up Boot to VHD

- ▣ Windows 7 allows for a VHD to be mapped as a drive on your system.
  - Right click on 'computer' select 'Manage' and go to the Disk Management in the Computer Management console.
  - On the far right pane select More Actions from the Actions pane and select either Create or Attach VHD.
  - You'll need to recognize the VHD and assign it a drive letter.

*You should only do this if manually creating a bootable VHD something I'm going to show you how to avoid.*

- ▣ Boot to VHD leverages this capability.

# Setting up Prerequisites

- ▣ To automate the process of creating a VHD uses 2 tools
  - WIM2VHD – this is a CScript which handles file creation
  - Microsoft Automated Installation Kit (AIK) for Windows 7 – 1.5 Gig download from Microsoft
- ▣ You only need to install the AIK on the machine where you want to run WIM2VHD
  - An admin tool and we can bypass most of its details

# Setting Up Overview

## ▣ Overview – Two steps

### 1. Create a new VHD file

- ▣ This can take two forms a static file that represents the full VHD
- ▣ A dynamic VHD similar to what most people are familiar with on VPC
- ▣ Can convert an existing VPC but it can get ugly
- ▣ Can do this with the WSH script

### 2. Map that VHD as a valid start-up partition

- ▣ This is where you'll end up using the command line to modify your startup with BCDEdit

# Setting up Boot to VHD

- ▣ Once the tools are installed get your Windows 7 installation disk
  - Can put in DVD drive or mount files on the network
  - To find the versions of Windows on the DVD use DISM.exe
- ▣ The only tool you run to create your new VHD is WIM2VHD with command line parameters
  - There is a documentation file with the tool – get it for all the parameter details

```
Wim2vhd.wsf /wim:E:\Sources\install.wim /sku:4  
/vhd:[path] /size:[in MB] /disktype:[fixed | dyna]
```

# Setting up Boot to VHD

- ▣ Once the .VHD file has been created you are ready to map it to the Boot Manager
  - Need register valid VHD with BCDEdit
  - Does NOT support USB external drive
  - Does support an eSata external drive (like mine)
- ▣ BCDEdit will default to your main OS (unless you explicitly change it)
  - If settings are bad, you'll get a message but still get into your system.
  - Can use delete to clean up mistakes  
`bcdedit /delete {guid}`

# Setting up with BCDEdit

- ▣ Copy your current settings

```
Bcdedit /copy {current} /d "VHD Windows 7"
```

- ▣ Note {current} is literal.

- ▣ Next need to update the newly copied entry to point to your VHD

- This line requires [] around the drive letter
- {guid} is not literal but the GUID copied from the results of the copy operation

```
Bcdedit /set {guid} device vhd=[F:]\vhdboot\my.vhd
```

# Setting up Boot to VHD

- ▣ Once the device is mapped repeat for the OSDevice setting
- ▣ Finally need to have the image detect the Hardware Abstraction Layer

Bcdedit /set {guid} detecthal on

- ▣ That's it, you are ready to go a new machine in under 30 minutes (or as few as 15 with copy)
  - ~15 minutes to build a new VHD from scratch
  - ~5 min to set up BCDEdit (can move VHD files once this is done once.)
  - ~10 minutes for first startup and settings

“Demo”

Examine my Environment

# Application Migration

- ▣ Isn't this a Beta discussion... Yes but you should approach VS 2010 as phase 1 of the migration of Visual Studio to .NET
  - Visual Studio was originally written predominately in C++, this release puts a WPF front end on VS
  - VS 2010 will still be a core C++ application and be limited to running in a 32-bit environment.
  - Note VS 2010 can create 64-bit applications but it runs as a 32-bit application.
  - VNext will include new compiler(s) written using .NET

# Visual Studio 2010 & .NET 4.0

- ▣ A major revision to Visual Studio and the .NET Framework
  - VS 2010 ships with .NET 4.0
  - Supports backward compatibility to .NET 2.0
  - Redesigned Editor based on WPF
  - Support for Dynamic Language Runtime (DLR)
  - Iron Python, Iron Ruby and F# become 'mainstream' languages
- ▣ New Team Suite tools and features
  - Historical debugging (note turned on by default in the beta)

# VS 2010 Features

## (another view)

New Look & Feel

Extensible Test Runner

C++ Enhancements

Breakpoint Grouping

Generate From Usage

WPF-based Editor

Highlight References

Breakpoint Labeling

Click-Once Enhancements for Office

Call Hierarchy

Improved WPF Tooling

Web Deploy

Historical Debugging

Sharepoint Tooling

MVC Tooling

Inline Call Tree

Mini-dump Debugging

Quick Search

Concurrency Profiler

JQuery Intellisense

Breakpoint Import/Export

Document Map Margin

64-bit Mixed-Mode

F# Integration

Parallel Stacks Window

Dynamic Data Tooling

HTML Snippets

Silverlight Designer Support

Improved Multi-Monitor

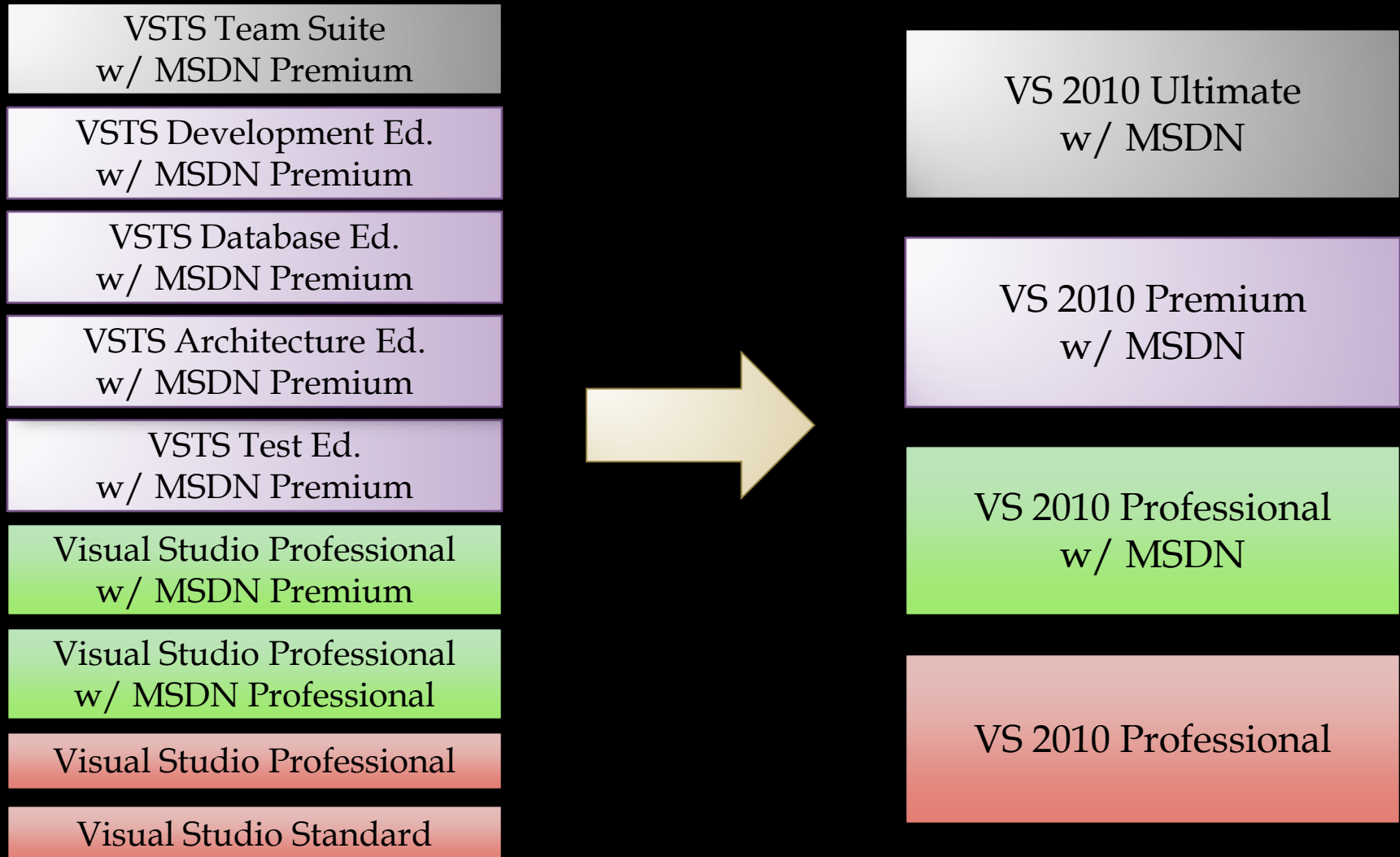
web.config Transformation

Parallel Tasks Window

Detachable windows

Intellitrace debug window

# MSDN Product Structure



# The .NET Framework

WPF

Win  
Forms

DLR

ASP.NET

WCF

LINQ

...

Base Class Libraries

## The CLR

JIT &  
NGEN

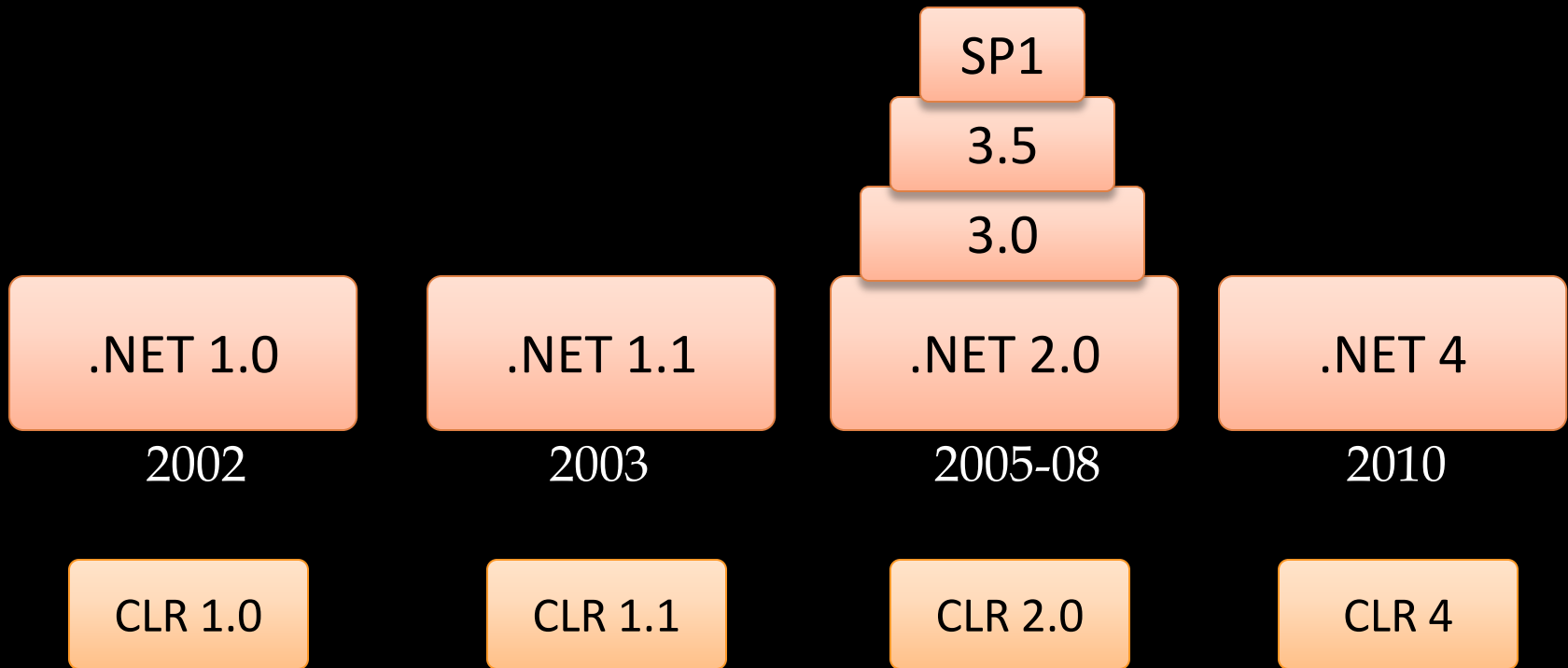
Garbage  
Collector

Security  
Model

Exception  
Handling

Loader &  
Binder

# .NET Framework Versions



# Demo

A look at Visual Studio 2010 B2

# C# and VB

- ▣ This is the first release to start to reflect the change in architecture/design direction
  - In the past C# and VB had different 'target audiences'
  - features were prioritized differently and one language would get or have 'features' that the other didn't.
- ▣ Starting with VS 2010 goal is to have VB & C# feature parity termed: CoEvolution
  - This is reflected in the features each language is getting in .NET 4.0

# C# 4.0

- ▣ C# features include several capabilities familiar to VB developers
- ▣ Named Parameters
- ▣ Optional Parameters
- ▣ Variance/CoVariance
- ▣ Interop with Dynamic languages (IDynamicObject)
- ▣ Improved Interop (dynamic import)
- ▣ Compilation without PIA's

# Demo

C# Enhancements

# VB 10.0

- ▣ VB features include several capabilities familiar to C# developers
- ▣ Implicit line continuation
- ▣ Multi-line lambdas and no return value lambdas
- ▣ Auto-Implemented Properties
- ▣ Nullable optional parameters
- ▣ Collection Initializers
- ▣ Array Literals (like XML literals)
- ▣ Variance/CoVariance
- ▣ Interop with Dynamic languages (IDynamicObject)
- ▣ Compilation without PIAs

# Demo

VB Enhancements

# Summary

- ▣ For developers Boot to VHD allows them to try out these products without corrupting their core system
- ▣ Visual Studio 2010 is in Beta 2, RC will arrive soon – you should be working with it
- ▣ The two main VS languages are moving to shared feature sets
- ▣ .NET 4.0 is a full .NET update (not like 3.0 or 3.5)

# Questions

- ▣ RIDE THE WAVE – It's a blast and will keep your skills marketable
- ▣ Questions?