



# Touch Me, Stretch Me, Squeeze Me The Windows 7 WPF Multi-Touch Story



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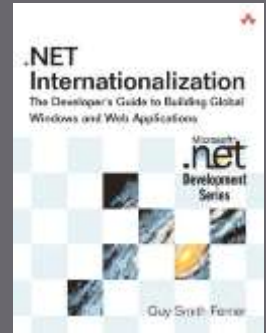
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# About...

- ▣ Author of .NET Internationalization
  - Visit <http://www.dotneti18n.com> to download the complete source code
- ▣ The .NET Developer Network
  - <http://www.dotnetdevnet.com>
  - Free user group for .NET developers, architects and IT Pros based in Bristol
- ▣ DDD South West 3
  - <http://www.dddsouthwest.com>
  - Saturday 11<sup>th</sup> June 2011



# Agenda

- ▣ Good, Better, Best
- ▣ What you need to get started
- ▣ Manipulation API
- ▣ Raw touch API
- ▣ Surface Toolkit For Windows Touch

# Good, Better, Best

- ▣ Good (e.g. calc.exe, any regular WPF app)
- ▣ Better (e.g. Windows 7, Paint)
- ▣ Best (e.g. Microsoft Surface Collage, Microsoft Surface Lagoon)

# Microsoft Touch Pack For Windows 7

- ▣ Free download from Microsoft including:-
  - Microsoft Blackboard
  - Microsoft Garden Pond
  - Microsoft Rebound
  - Microsoft Surface Globe
  - Microsoft Surface Collage
  - Microsoft Surface Lagoon
- ▣ Videos of all applications in use
  - <http://windows7center.com/news/windows-7-touch-pack/>

# What You Need To Get Started

- ▣ Either:-
  - a multi-touch laptop/desktop
- ▣ Or:-
  - a regular laptop/desktop
- ▣ Windows 7
- ▣ Visual Studio 2010
- ▣ 'Optionally'
  - Surface Toolkit For Windows Touch
  - Surface SDK

# Simulating Multi-Touch

- ▣ Multi-Touch Vista
  - <http://multitouchvista.codeplex.com>
- ▣ Works with Windows Vista and Windows 7
- ▣ Emulates multi-touch using multiple mice



# Demo

Getting Started with the Manipulation API



# Touch Comparison With Mouse

| Touch Event      | Mouse Event      |
|------------------|------------------|
| TouchDown        | MouseDown        |
| PreviewTouchDown | PreviewMouseDown |
| TouchMove        | MouseMove        |
| PreviewTouchMove | PreviewMouseMove |
| TouchUp          | MouseUp          |
| PreviewTouchUp   | PreviewMouseUp   |
| TouchEnter       | MouseEnter       |
| TouchLeave       | MouseLeave       |
| GotTouchCapture  | GotMouseCapture  |
| LostTouchCapture | LostMouseCapture |

# Demo

Getting Started with the Raw Touch API

# Surface Toolkit For Windows Touch

- ▣ Download from:-
  - <http://www.microsoft.com/downloads/details.aspx?FamilyID=801907A7-B2DD-4E63-9FF3-8A2E63932A74&displaylang=en&displaylang=en>
- ▣ Includes:-
  - Replacement controls that understand multi-touch
  - New controls that are appropriate for multi-touch
  - Touch visualizations (auras, trails and tethers)
  - Drag and drop framework for multi-touch
- ▣ Not available for Silverlight

# Surface Toolkit Traditional Controls Comparison

| WPF Control  | Surface Toolkit Control |
|--------------|-------------------------|
| Window       | SurfaceWindow           |
| Button       | SurfaceButton           |
| CheckBox     | SurfaceCheckBox         |
| InkCanvas    | SurfaceInkCanvas        |
| ListBox      | SurfaceListBox          |
| ListBoxItem  | SurfaceListBoxItem      |
| RadioButton  | SurfaceRadioButton      |
| ScrollViewer | SurfaceScrollViewer     |
| Slider       | SurfaceSlider           |
| TextBox      | SurfaceTextBox          |

# Demo

Surface Toolkit Traditional Controls

# Demo

Surface Toolkit ScatterView and Library  
Controls

# Information Resources

- ▣ Natural User Interfaces in .NET, Joshua Blake, Manning (due Summer 2011)
- ▣ Developing for Microsoft Surface, Dr. Neil Roodyn
  - ebook available from  
<http://www.nsquaredsolutions.com/surfacebook>
- ▣ Microsoft Surface Design and Development Training videos
  - <http://www.microsoft.com/surface/en/us/Pages/Technical/Training.aspx>

# Microsoft Surface 2.0

- ▣ Uses PixelSense
  - 4" thick
- ▣ Runs on Windows 7
- ▣ Surface 2 SDK to be released in 2011
- ▣ Samsung SUR40 costs \$7600





# Free Surface 2 Controls

- ▣ As soon as the Surface 2 SDK is released InfoStrat will release free "Data Visualization Controls"
  - DeepZoom
  - PowerPoint Viewer
  - PivotViewer
  - PhysicsCanvas
- ▣ Watch a video:-
  - <http://www.youtube.com/watch?v=lEVtjHlrf4I>

# Summary

- ▣ If you do nothing touch is promoted to mouse
- ▣ There are two touch APIs for WPF:-
  - Manipulation API for high level
  - Raw Touch API for low level
- ▣ Use the Surface Toolkit for most of the application
- ▣ Use the APIs for building user controls and customized behaviour