

# Architecting WPF and Silverlight Applications

## **Duration**

5 days

## **Instructor**

Brain Noyes

## **Class Limit**

20 students

## **Prerequisite**

None

## **Price**

On-site

Please contact SPC  
for pricing (contact  
information on page 2)

Public Training

\$3,250 (5 days)

\*Discount available  
for early registration

## **Materials Provided**

- Student manual containing the course slides
- Student handouts with class exercises

To build great compelling, responsive, secure smart client and web applications with WPF or Silverlight you need to master not just the basic building blocks of WPF and Silverlight but how to compose the rest of the application that sits behind the façade of the user interface. You need to understand user interface presentation patterns to have good separation between your UI definition and the supporting logic code. You need to have loose coupling between different pieces of functionality in your application so they can be independently developed, maintained, tested, and deployed. You need to be able to communicate between the loosely coupled parts of your application with events and commands. You need to secure the application, collect credentials from the user, authenticate them, authorize actions and authenticate against remote services, databases, and other external resources. You need to manage concurrent and asynchronous work in the client and deal with the threading issues of the UI context. You need to retrieve and update data, even cache it locally for offline use, and synchronize that data when you go back online. You also need to make calls to services and be notified on events outside of your application, such as changes to back end data. And finally, you have to deploy your application.

Obviously, there is much more to WPF and Silverlight development than just adding elements to a UI and creating styles to make the UI look pretty. This class is all about how to apply WPF and Silverlight in the context of a modern application, the patterns and techniques required addressing the issues above. The class starts by reviewing the key building blocks of WPF and Silverlight (which overlap at least 80%), how and when to best use them. Next, you'll learn how to build composite UI applications with dependency injection, modularity, dynamic UI composition, loosely coupled commands and events. The class then gets into the system issues of handling multithreading and concurrency, securing your application, and making client calls to services. Data caching and synchronization are covered, followed by working with cloud services & pub/sub service notifications of back end events.

The focus of the class is on how to properly apply WPF and Silverlight and tie them in with the rest of your application, rather than the technology itself, enabling you to successfully build the rest of your smart client application so that it is testable, maintainable, extensible, and flexible.

The class uses a combination of frontal presentations, code demonstrations, and hands-on lab exercises to reinforce all of the concepts presented. The demos provide a code library to refer back to when building your own applications, and the labs help cement the key learning elements of the class using step-by-step procedures to accomplish the tasks covered.

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## Instructor

Brian Noyes is not only a Chief Architect with IDesign, he is also Microsoft's Regional Director for the Mid-Atlantic Region, a Microsoft Most Valuable Professional (MVP), with over 17 years of programming, engineering, and project management experience. Brian specializes in smart client architecture and development, presentation tier technologies including Windows Presentation Foundation, Windows Forms and ASP.NET, and middle tier technologies including workflow, services and data access. Brian's latest publication is Developing Applications with Windows Workflow Foundation, a LiveLesson training DVD, and his two previous books Smart Client Deployment with ClickOnce and Data Binding with Windows Forms 2.0 continue to sell well.

## Intended Audience

Any .NET developer or architect responsible for building smart client applications with WPF or web applications with Silverlight will benefit from the training. Some exposure to the basics of WPF or Silverlight concepts is helpful. WCF familiarity is a plus.

For more information on this or other SPC Springboard courses, please visit [www.spcspringboard.com](http://www.spcspringboard.com) or e-mail SPC at [info@spc.ca](mailto:info@spc.ca)

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## Outline

### WPF and Silverlight Essentials

- WPF and Silverlight Capabilities
- Development Tools & Models
- XAML Programming & Best Practices
- Compilation and Packaging

### WPF and Silverlight Architecture

- Application structure
- Dependency Properties
- Routed Events and Commands
- Behaviors, Triggers and Resources
- WPF Windows Forms Interop

### Controls

- Control types, Layout and sizing
- Styles, Control Templates
- Custom controls

### Data Binding

- Data sources, DataContext and Bindings
- Data Templates
- Collection Views and Data Providers
- Value conversion and data validation

### Graphics

- 2 D Vector Graphics
- Bitmaps, Animation, 3D constructs

### Design Principles

- S.O.L.I.D. Principles
- Interface-based programming
- Service Orientation
- Design for testability
- Separated UI Patterns (MVC, MVP, MVVM)
- Dependency Injection

### Composite UI Applications

- Prism Overview
- Application architecture
- Modules
- UI Composition
- Composite Events
- Composite Commands

### System Issues

- Multithreading and concurrency
- Security
- Deployment
- Data caching and synchronization

### Working with Services

- WCF Overview
- Creating client proxies
- Working with data contracts
- Calling cloud services
- Pub/sub service events

