Module15

Handling Requests in ASP.NET MVC 4 Web Applications

Module Overview

- Using HTTP Modules and HTTP Handlers
- Using Web Sockets

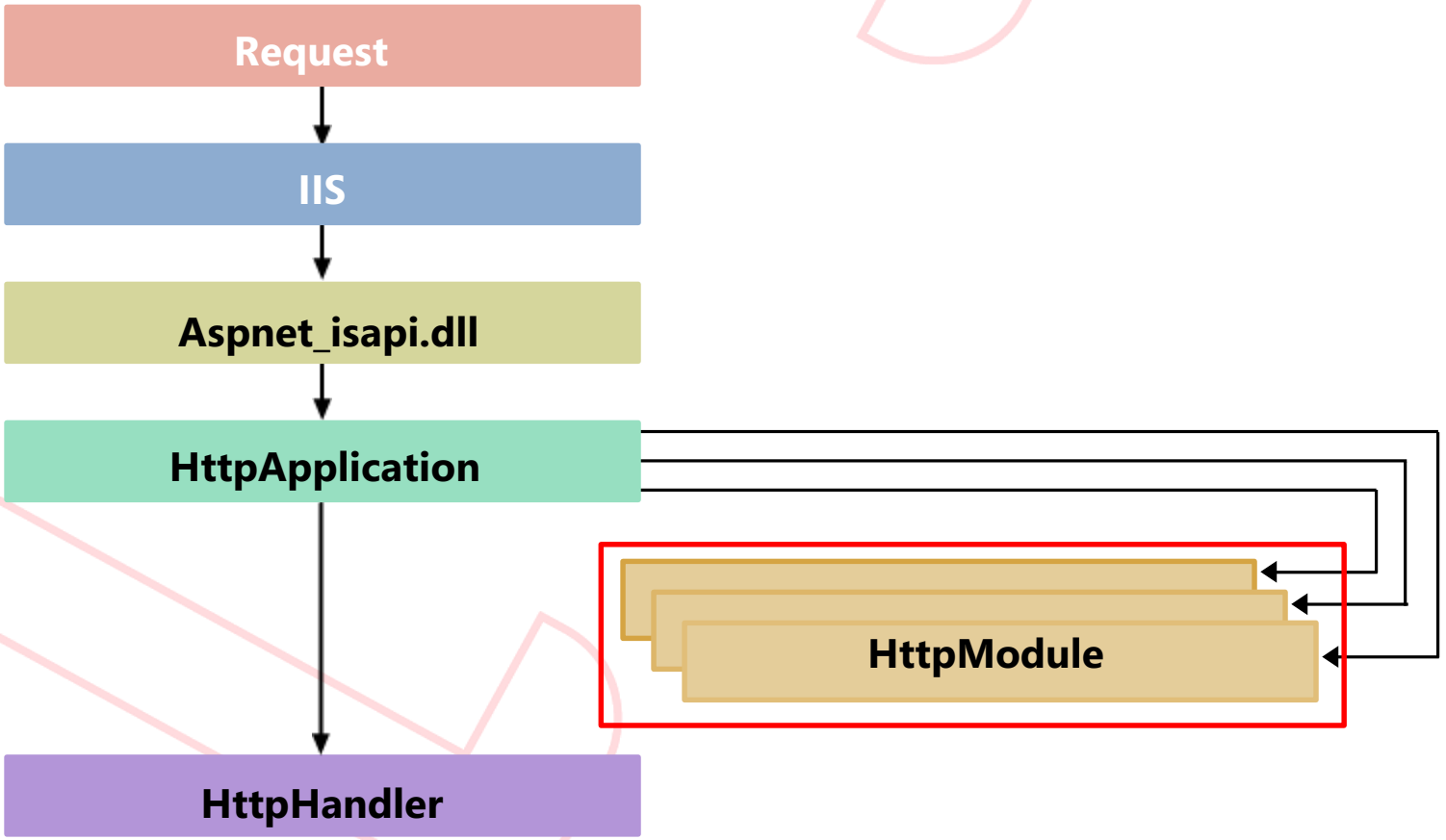
Lesson 1: Using HTTP Modules and HTTP Handlers

- What Is an HTTP Module?
- Creating HTTP Modules
- What Is an HTTP Handler?
- Discussion: Scenarios for HTTP Modules and Handlers

What Is an HTTP Module?

The HTTP module:

- Runs the application logic on a webpage, before ASP.NET renders the webpage
- Provides features such as security, logging and statistics, and custom headers and footers



Creating HTTP Modules

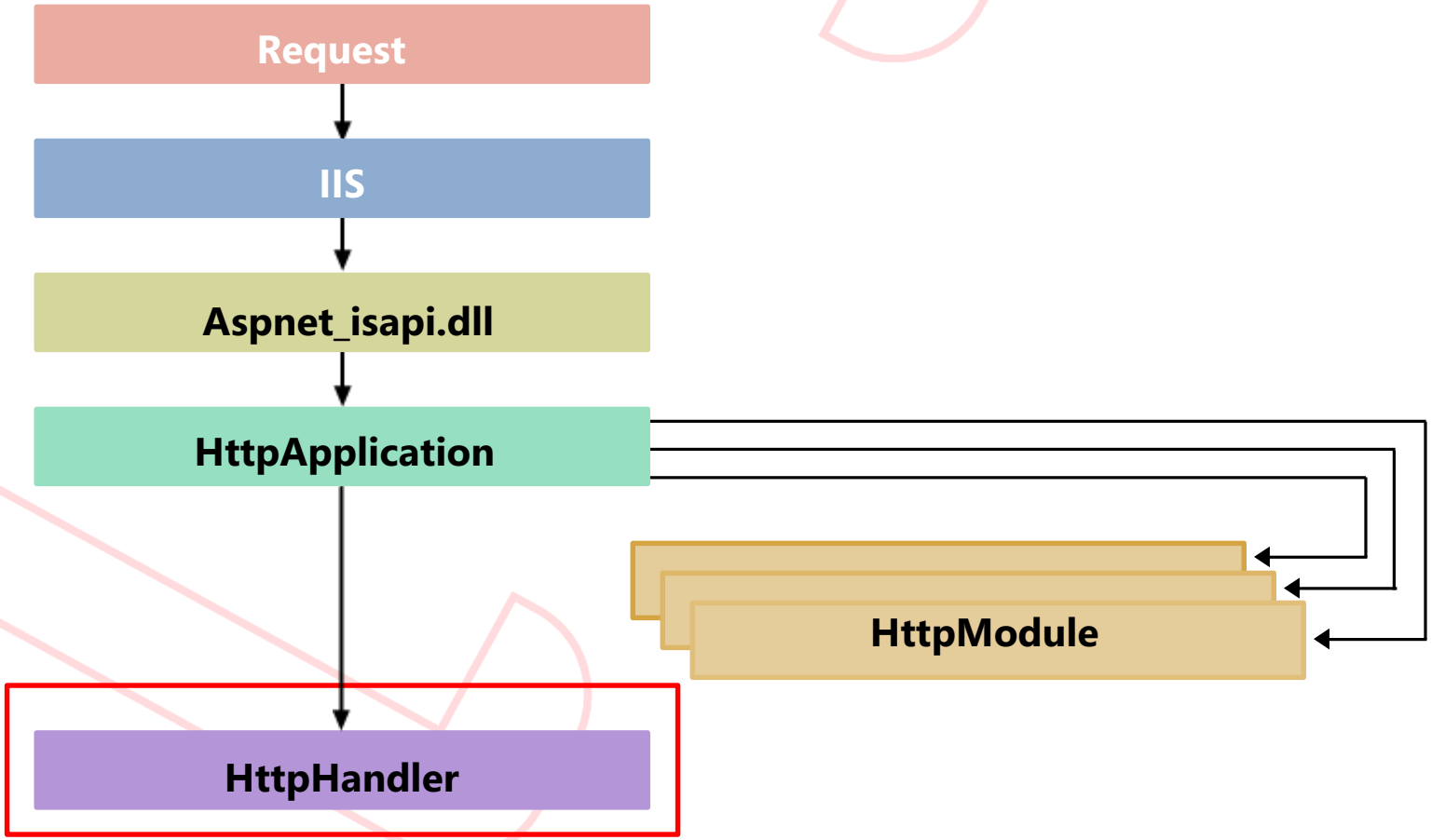
To create HTTP modules:

- Add the **CustomModule** class to implement the **IHttpModule** interface
- In the **CustomModule** class, implement the **ModuleName** property and the **Init** function
- Modify the Web.config file to register the HTTP module

What Is an HTTP Handler?

HTTP Handlers:

- Process specific requests
- Comprise functions such as ASP.NET page handler (*.aspx), web service handler (*.asmx), generic web handler (*.ashx), and trace handler (trace.axd)



Discussion: Scenarios for HTTP Modules and Handlers

Discuss the following scenarios:

- A photo sharing application that renders photos to users, from the database table, without requiring users to first save the file on the system
- A REST-based business API that requires a custom HTTP header, before accepting a request
- A business API that provides content in custom XML format
- An application that saves diagnostic information about the header of an HTTP request

Lesson 2: Using Web Sockets

- What Is the WebSocket Protocol?
- Coding Web Sockets Connections
- What Is SignalR?
- Demonstration: How to Add a Chat Room to a Web Application by using SignalR

What Is the WebSocket Protocol?

Characteristics of web sockets:

- W3C provides web sockets protocol to ensure that browsers support web sockets as part of the HTML5 implementation
- Web sockets facilitate two-way communication between client and server systems
- Web sockets eliminate the need to re-create requests multiple times
- Microsoft Internet Explorer 10 and Windows 8 applications are compatible with web sockets
- Web sockets function in a similar manner as traditional network sockets

Coding Web Sockets Connections

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Creating web sockets connection:

- Install the **Microsoft.WebSockets** NuGet package
- Create a REST service and use the WebSockets library to handle the operations of web sockets in the server
- Add code to handle the communications when the client system sends messages to the service application hosted on the web server
- Use the **WebSocket** object to establish two-way communication between the client and server systems
- Add JavaScript functions to respond to events
- Use the **WebSocket.send** function to send messages to the server

What Is SignalR?

- SignalR is a library developed to simplify development for bidirectional real-time communications in web applications
- SignalR includes a .NET library for handling server-side communications
- SignalR includes a JavaScript library for handling client-side communications

Demonstration: How to Add a Chat Room to a Web Application by using SignalR

In this demonstration, you will see how to:

1. Add a SignalR hub for a message over web sockets.
2. Create a broadcast method on the hub.
3. Script SignalR connections and messages in client-side code.

Lab: Handling Requests in ASP.NET MVC 4 Web Applications

- Exercise 1: Creating a SignalR Hub
- Exercise 2: Creating a Photo Chat View

Estimated Time: 60 minutes

Lab Scenario

The Adventures Works board and managers are pleased with the Photo Sharing application, but have requested that interactivity should be maximized to encourage users to register and participate fully in the community. Therefore, you have been asked to add chat functionality to the application. Authenticated members should be able to start a chat on a particular photo from the Display view. Chat rooms for each photo should be separated from each other. Users in the chat room should be able to send a message to all other users in that chat room, and they should be able to see all the messages that have been sent since they joined the chat room.

You have decided to use SignalR to implement the chat room over Web Sockets.

Lab Review

- In the chat functionality that you created, each photo in the Photo Sharing application has a separate chat room. How is this separation possible with one SignalR hub?
- In Exercise 2, you wrote JScript code that called the chat.server.join() and chat.server.send() functions. In which script file are these functions defined?

Module Review and Takeaways

- Real-world Issues and Scenarios
- Review Question(s)