



Session 8

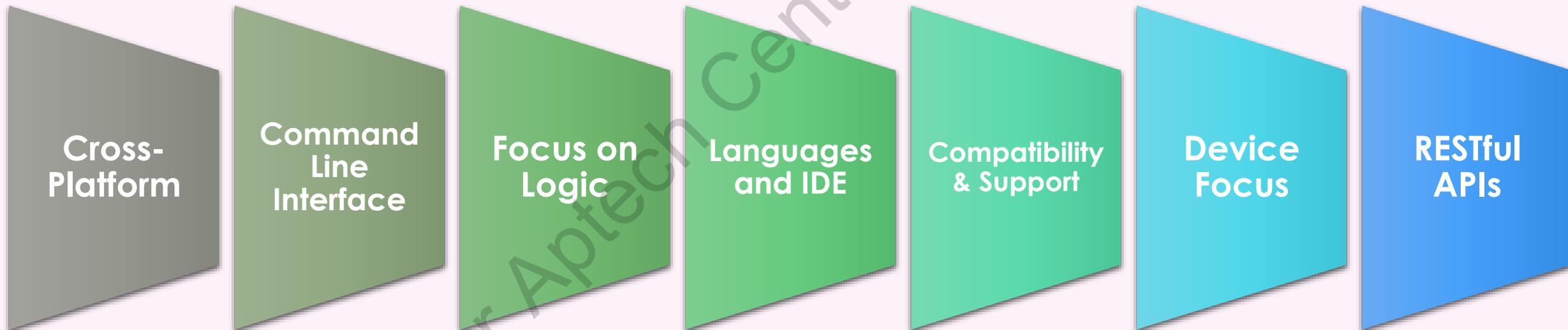
*.NET Core
Architecture
and Kestrel Web
Server
Implementation*

Session Overview

- Describe .NET Core architecture
- Detail the execution of Main method
- Describe the Kestrel server
- Describe the OWIN architecture
- Explain REST API architecture

.NET Core Architecture

Figure 8.1: .NET Stack



Features of .NET Core

Main Method in ASP.NET Core Applications

```
12 public class Program
13 {
14     public static void Main(string[] args)
15     {
16         CreateHostBuilder(args).Build().Run();
17     }
18 }
```

Figure 8.2: Main Method

```
public static void Main(string[] args)
{
    CreateHostBuilder(args).Build().Run();
}
```

1 reference


 IHostBuilder Program.CreateHostBuilder(string[] args)

Figure 8.3: CreateHostBuilder() Method

Kestrel Server

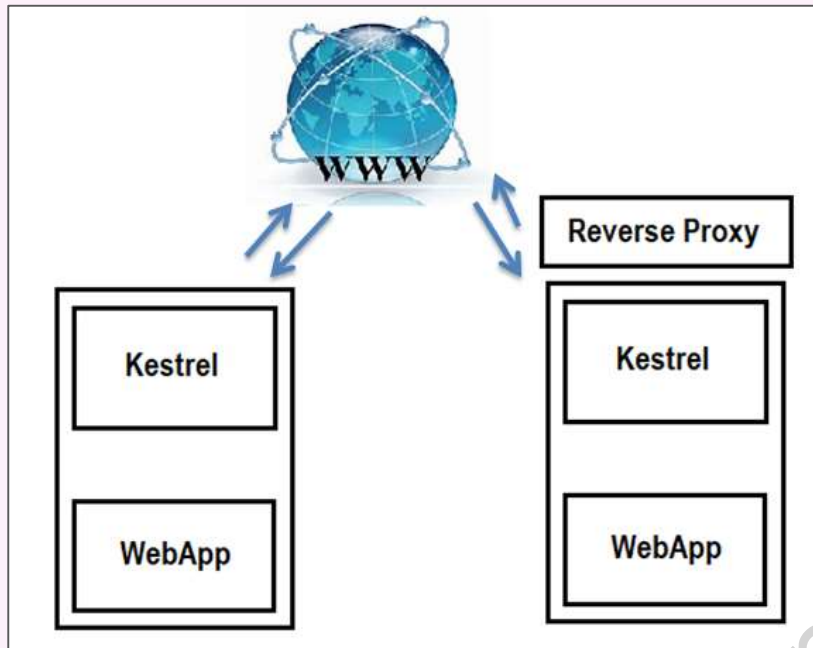


Figure 8.4: Kestrel Server

```
12 public class Program
13 {
14     public static void Main(string[] args)
15     {
16         CreateHostBuilder(args).Build().Run();
17     }
18
19     1 reference
20     public static IHostBuilder CreateHostBuilder(string[] args) =>
21     {
22         Host.CreateDefaultBuilder(args)
23             .ConfigureWebHostDefaults(webBuilder =>
24             {
25                 webBuilder.UseStartup<Startup>();
26             });
27     }
28 }
```

Figure 8.5: ConfigureWebHostDefaults Method

OWIN Architecture

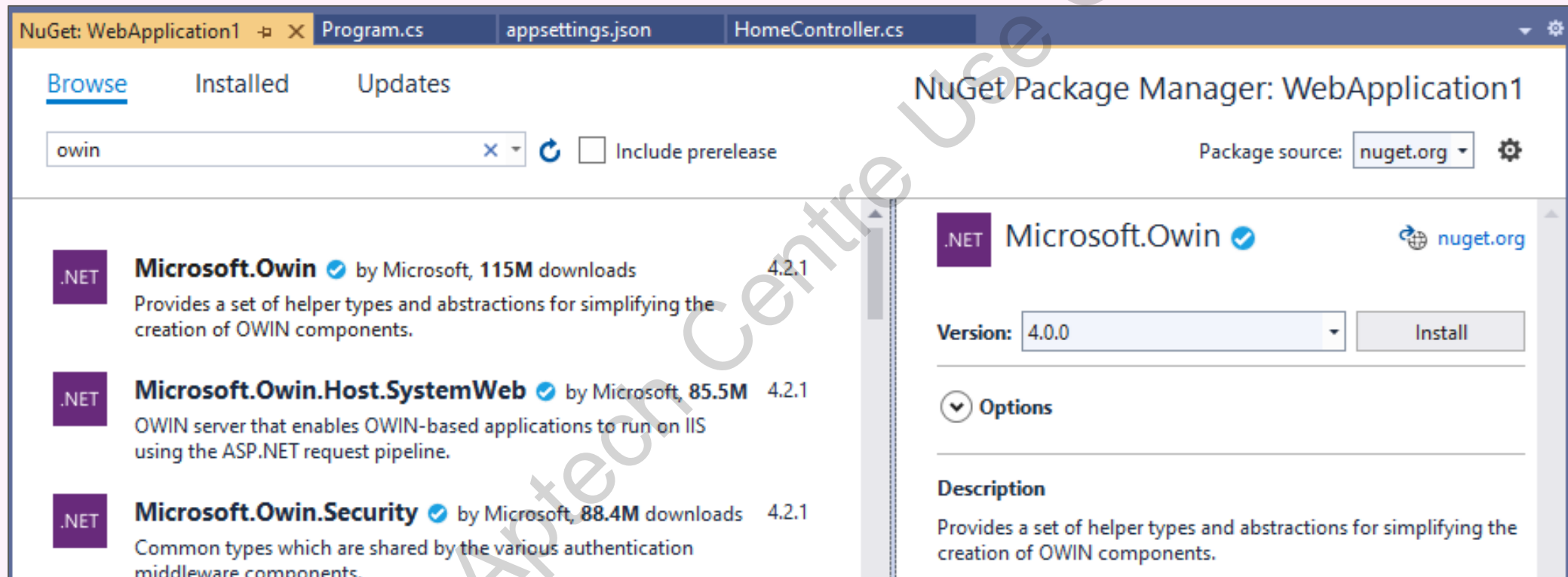


Figure 8.6: NuGet Package Manager

RESTful Web API

GET

To access a resource in a read-only mode

POST

To create a new resource

DELETE

To delete a resource

PUT

To update an existing resource or create a new one

Core HTTP Attributes in REST System



Figure 8.7: RESTful Web API

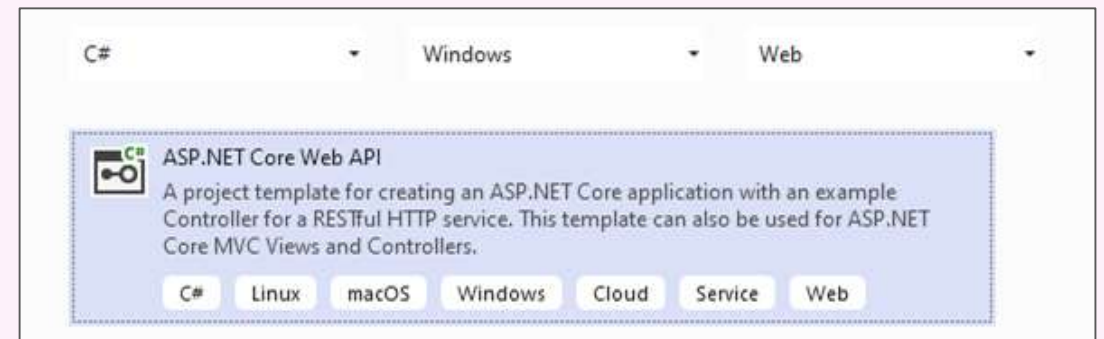


Figure 8.8: RESTful API Template

Summary(1-2)

- .NET Core is a platform where frameworks such as ASP.NET Core and Universal Windows Platform can use and extend the functionalities of the platform.
- Cross-Platform and architecture, Command Line Tools, Flexible CI/CD, Languages and IDEs, and Compatibility and Support are some of the features of .NET Core.
- The Main method is the entry point of the application in the ASP.NET Core application, which starts the execution from there.
- When the Main() method configures ASP.NET Core, the application becomes an ASP.NET Core Web application.
- Kestrel is a cross-platform Web server for ASP.NET Core that works with all .NET Core platforms and versions.

Summary(2-2)

- Kestrel is the internal Web server included by default in the .NET Core application.
- OWIN for .NET is an open-source framework that provides interface requirements to allow Web servers and applications to communicate.
- OWIN-based applications, servers, and middleware may communicate with ASP.NET Core applications and middleware.
- REST is an architectural approach for establishing standards among Web-based applications, allowing them to communicate more easily.
- Built on the REST architecture, RESTful API is a lightweight, maintainable, and scalable service.