Creating an API and Returning Resources

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Coming Up

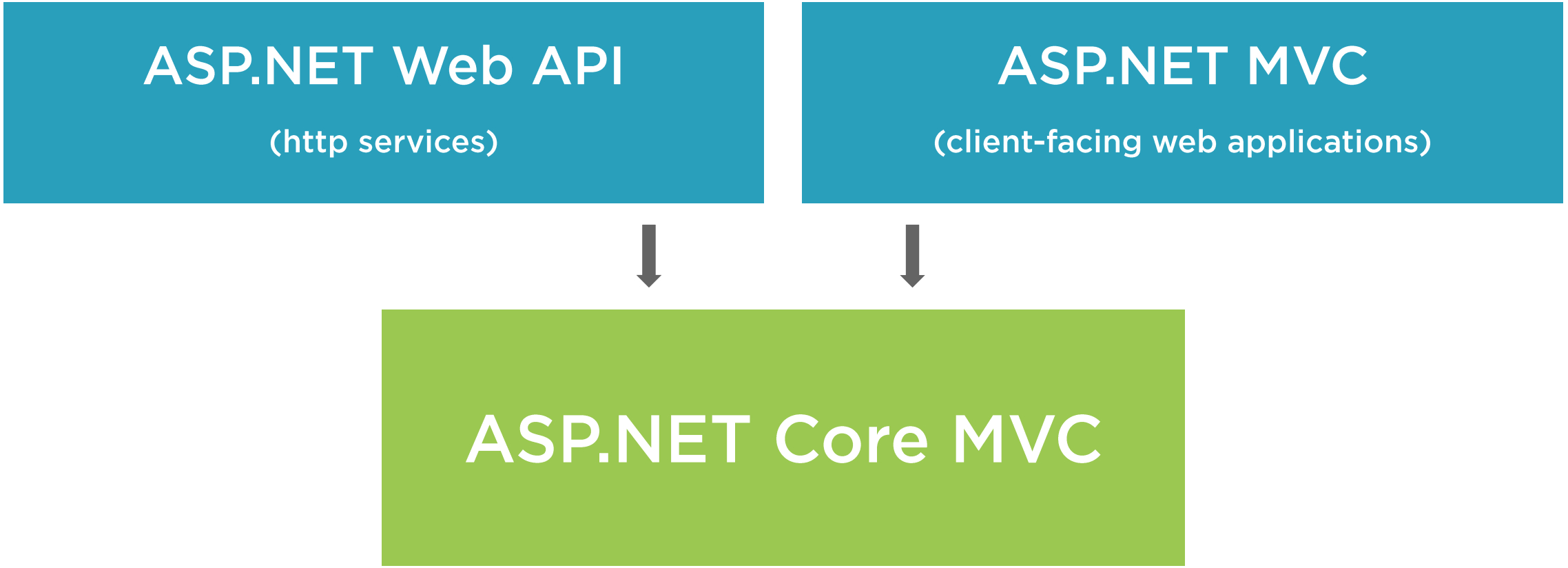
ASP.NET Core MVC Middleware

Returning Resources

Interacting with our API

Configuring the Response

Middleware for Building an API



Clarifying the MVC Pattern

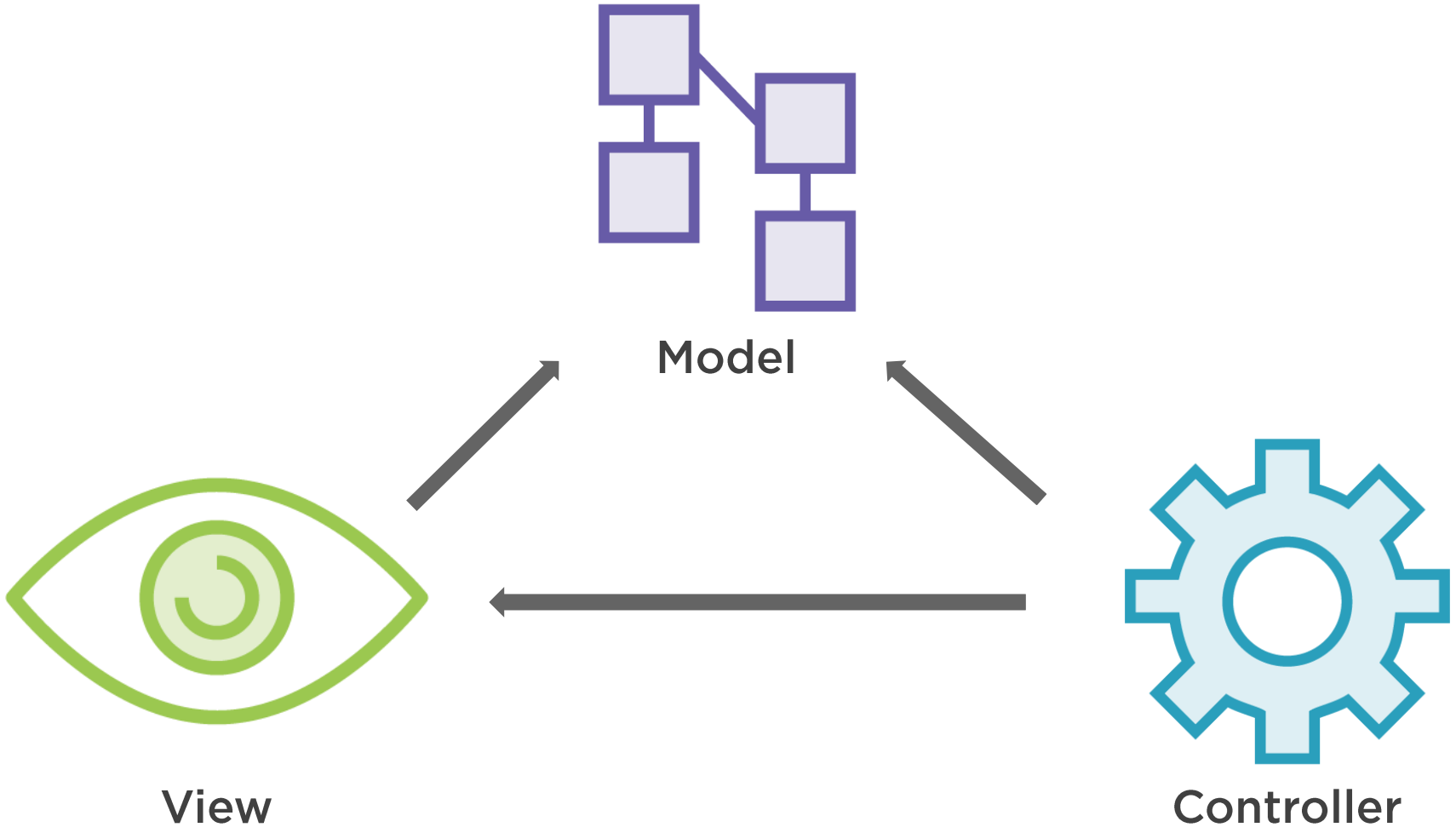
Model-View-Controller

Architectural pattern

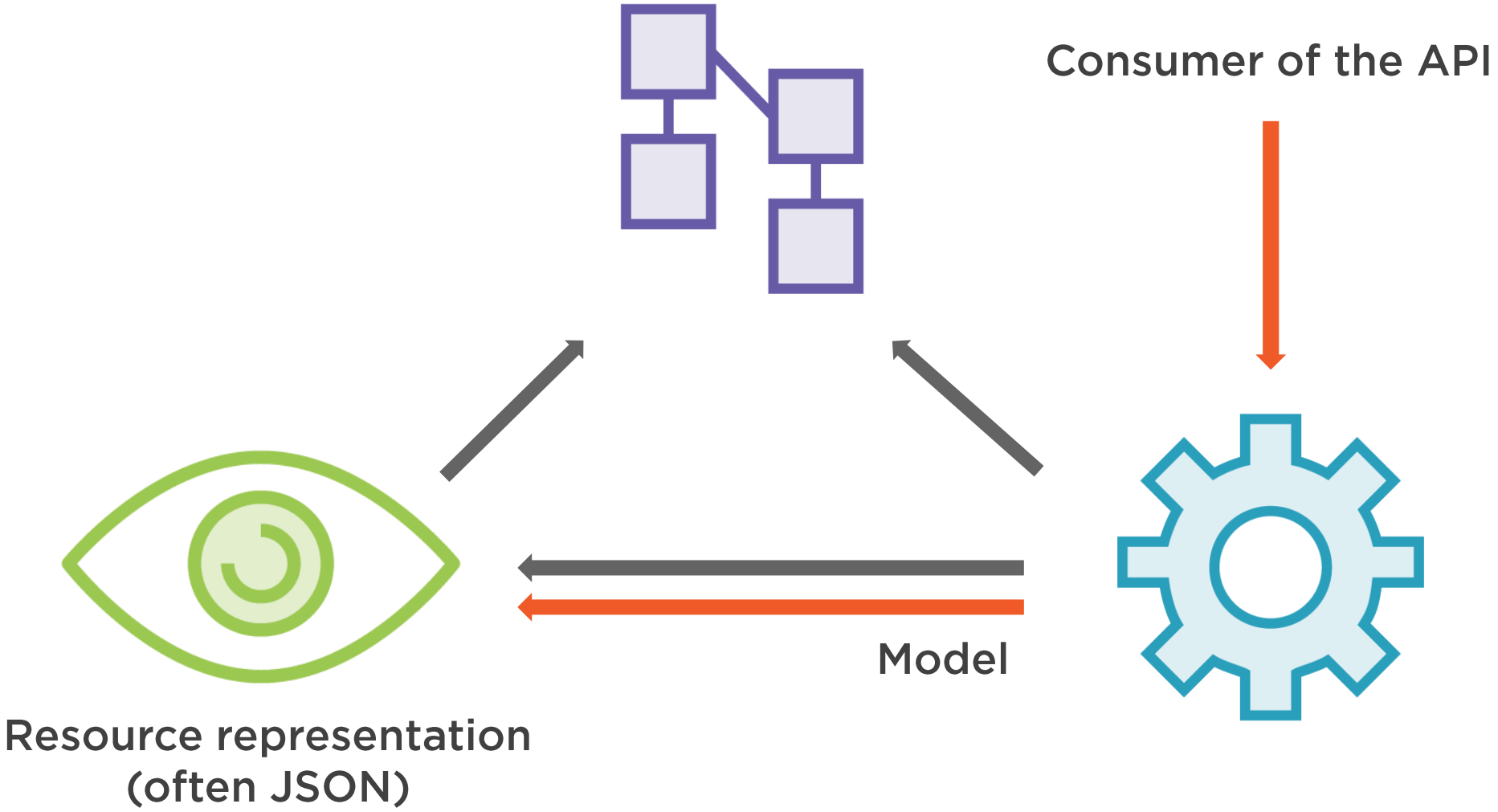
Loose coupling, separation of concerns: testability, reuse

Not the full application architecture!

Clarifying the MVC Pattern



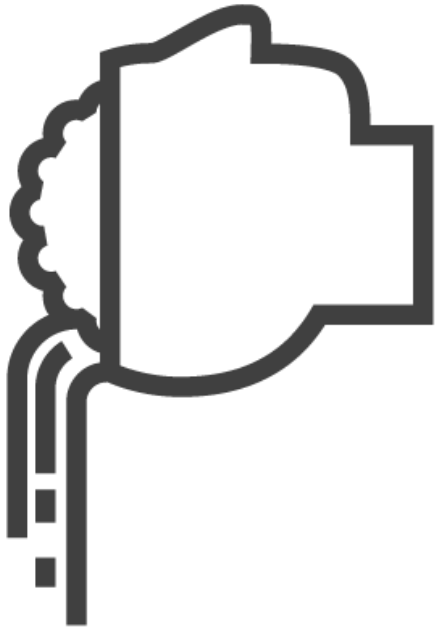
Clarifying the MVC Pattern



Demo

Adding the ASP.NET Core MVC Middleware

ASP.NET Core 2 Metapackage and Runtime Store



Modularity comes with a set of potential issues

- It can be hard to find the functionality you need
- Keeping track of version numbers is cumbersome

ASP.NET Core 2 Metapackage and Runtime Store

ASP.NET Core 2.0 introduces the Microsoft.AspNetCore.All metapackage

- Referenced by default for new ASP.NET Core 2.0 applications
- The metapackage adds references to a list of packages

ASP.NET Core 2 Metapackage and Runtime Store

Microsoft.AspNetCore.All includes:

- All supported ASP.NET Core packages
- All supported Entity Framework Core packages
- Internal and 3rd-party dependencies used by ASP.NET Core and Entity Framework Core

ASP.NET Core 2 Metapackage and Runtime Store

The runtime store is a location on disk containing these (and other) packages

- Faster deployment
- Lower disk space use
- Improved startup performance

ASP.NET Core 2 Metapackage and Runtime Store

Self-contained

Default for ASP.NET Core 1.x

No need to install the runtime on the machine you're publishing to

Framework dependent

Default for ASP.NET Core 2.0

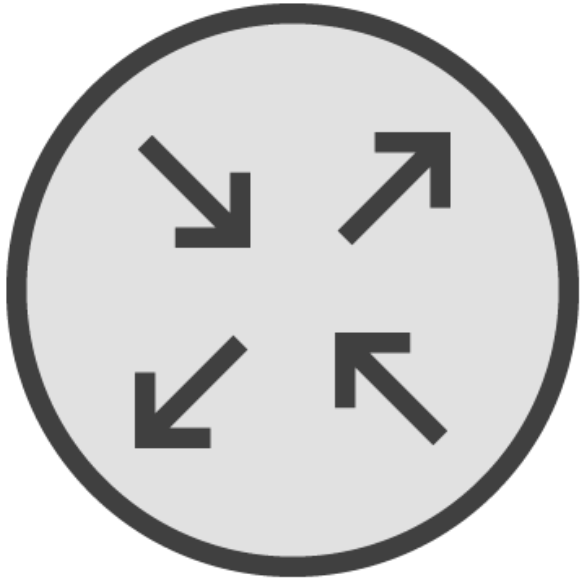
The correct version of the runtime must be installed on the machine you're publishing to

This is optional. You can still add the packages you need instead of the metapackage.

Demo

Returning Resources (part 1)

Learning About Routing



Matches request URI to controller method

Convention-based and attribute-based routing

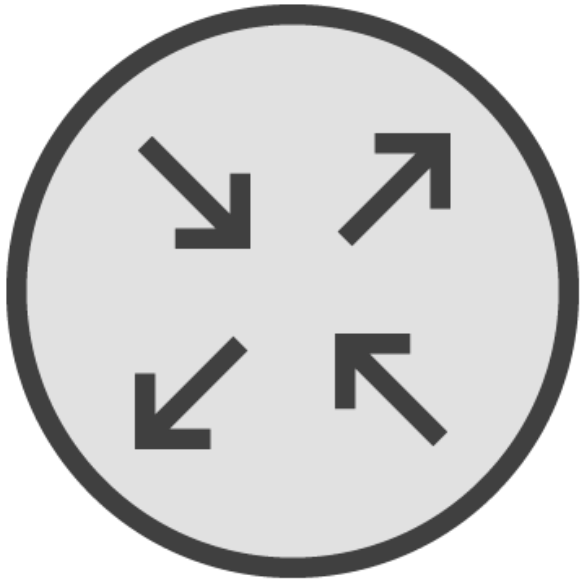
```
app.UseMvc(config => {
    config.MapRoute(
        name: "Default",
        template: "{controller}/{action}/{id?}",
        defaults: new { controller="Home", action="Index" }
    ); });
```

Convention-based Routing

Conventions need to be configured

Not advised for API's

Attribute-based Routing



Attributes at controller & action level, including an (optional) template

URI is matched to a specific action on a controller

Routing

HTTP Method	Attribute	Level	Sample URI

Demo

Returning Resources (part 2)

Demo

Improving the Architecture with Model Classes

The Importance of Status Codes

Part of the response

Provide information on

- Whether or not the request worked out as expected
- What is responsible for a failed request

The Importance of Status Codes

Level 200 Success

200 – OK

201 – Created

204 – No Content

Level 400 Client Error

400 – Bad Request

401 – Unauthorized

403 – Forbidden

404 – Not Found

409 - Conflict

Level 500 Server Error

500 – Internal Server Error

Demo

Returning Correct Status Codes

Demo

Returning Child Resources

Demo

Working with Serializer Settings

Formatters and Content Negotiation

Selecting the best representation for a given response when there are multiple representations available

Media type is passed via the Accept header of the request

- application/json
- application/xml
- ...

Formatters and Content Negotiation

Output formatter

Deals with output

Media type: accept header

Input formatter

Deals with input

Media type: content-type header

Demo

Formatters and Content Negotiation

Summary

Model-View-Controller

- Model: application data logic
- View: display data
- Controller: interaction between View and Model
- More reuse, better testability

Routing: maps URI to controller method

Summary

Content negotiation: selecting the best representation for a given response

- Output formatters (accept header)
- Input formatters (content-type header)