Module 15:
"Chain of Responsibility"

Agenda

- Introductory Example: Screening Messages
- Challenges
- Implementing the Chain of Responsibility Pattern
- Pattern: Chain of Responsibility
- Overview of Chain of Responsibility Pattern

Introductory Example: Screening Messages

```
class SalesScreener : IMessageScreener
{
    public ScreeningResponse Screen( IMessage message ) =>
        message.Contents.ContainsAnyOf("order", "purchase", "buy") ?
            ScreeningResponse.Accepted : ScreeningResponse.Unprocessed;
}
```

```
foreach (IMessageScreener screener in screeners)
{
    ScreeningResponse response = screener.Screen(message);
    if( response != ScreeningResponse.Unprocessed)
    {
        Console.WriteLine( $"Message was {response}");
        break;
    }
}
```

Challenges

- The request sender has to provide the bookkeeping logic of asking each screener – and process return values
- Each request sender is coupled to all receivers

- This logic is present at the wrong level
  - not the responsibility of the request sender
- This logic will have to be repeated for any other receiver

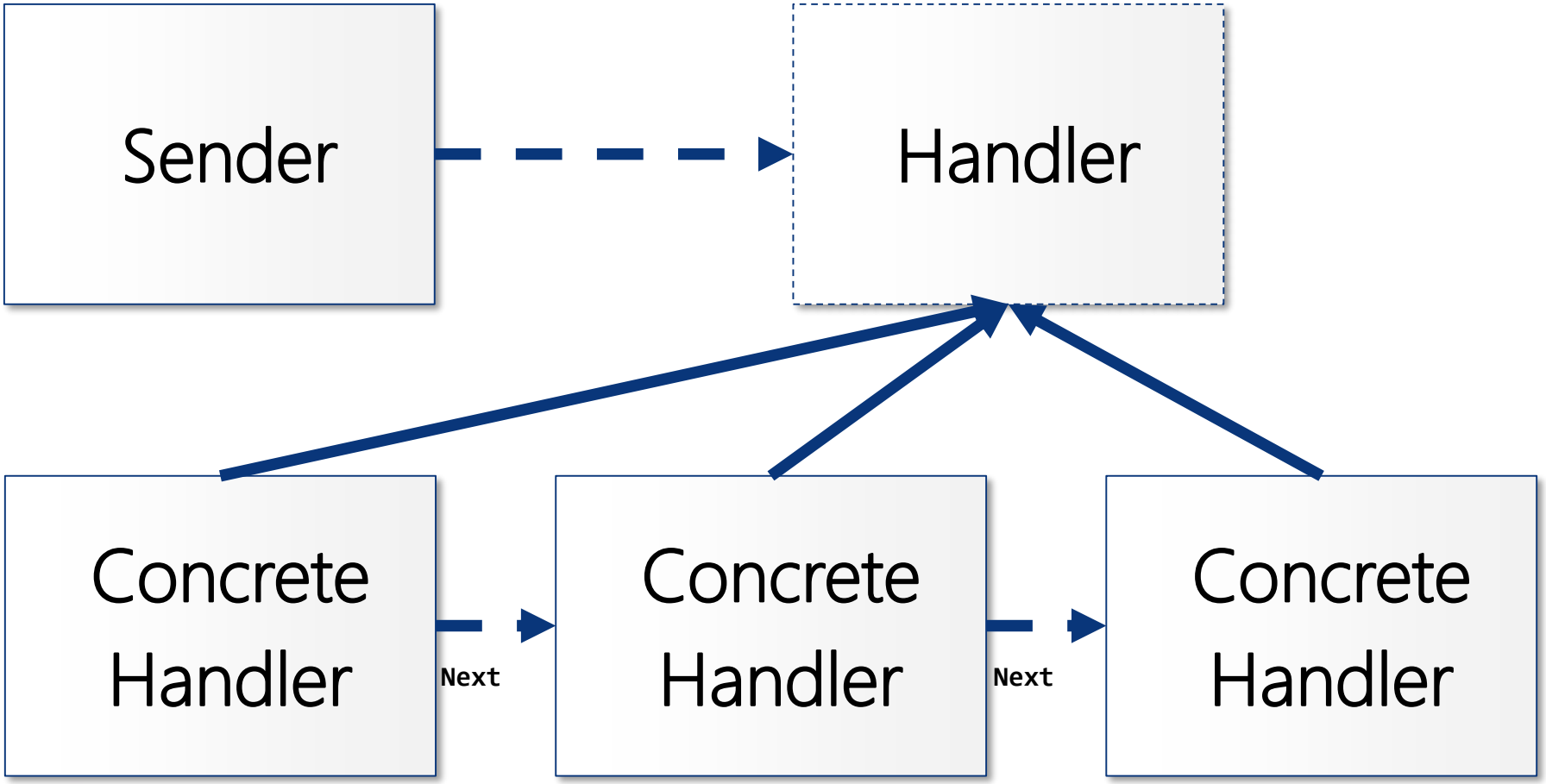
Pattern: Chain of Responsibility

- *Avoid coupling the sender of a request to its receiver by giving more than one object a chance to handle the request. Chain the receiving objects and pass the request along the chain until an object handles it.*

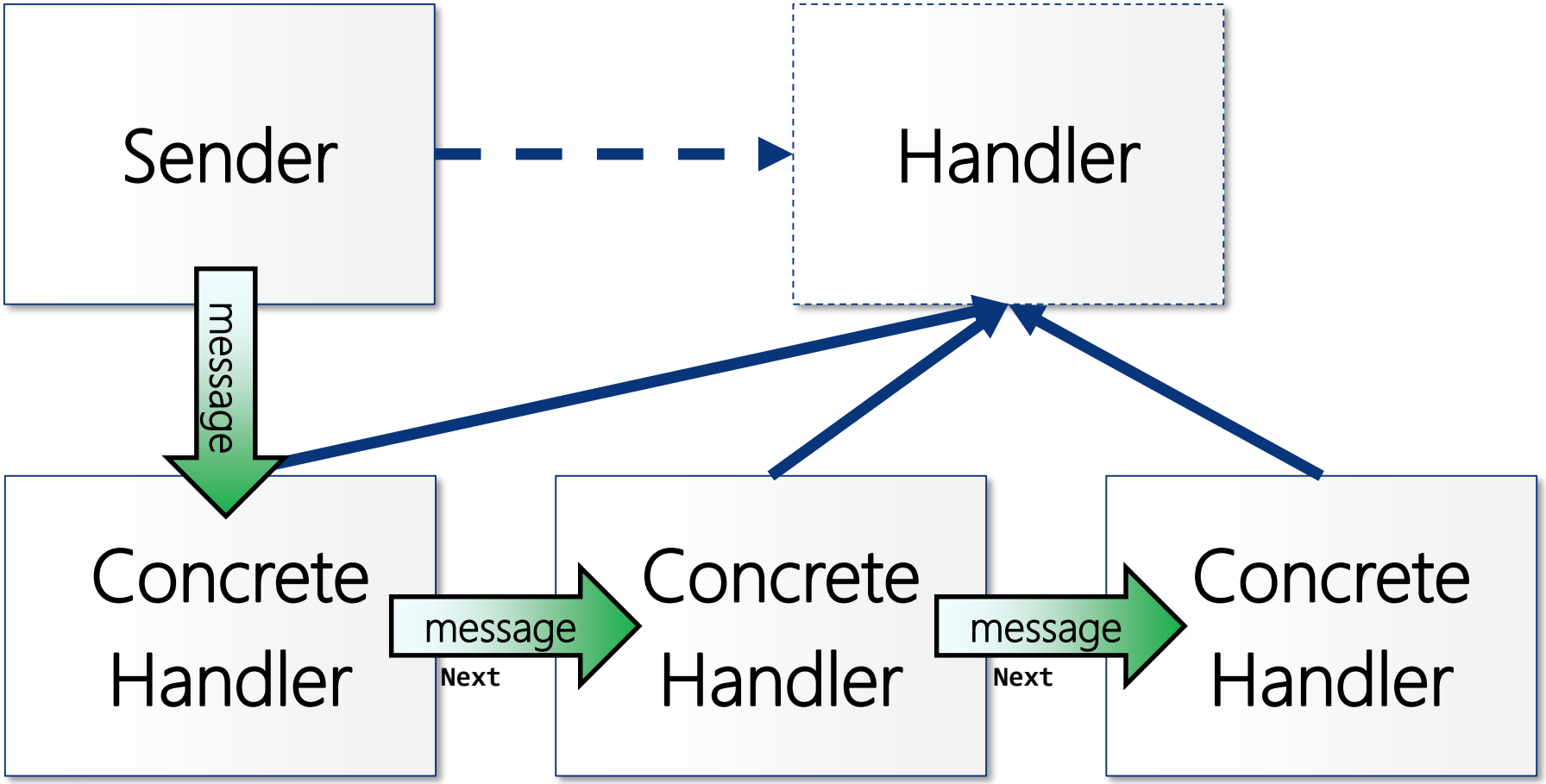
- Outline
  - Senders and receivers are decoupled
  - It is possible for more than one receiver to handle a request

- Origin: Gang of Four

Overview of Chain of Responsibility Pattern



Overview of Chain of Responsibility Pattern



Overview of Chain of Responsibility Pattern

- Sender
  - Interacts with only a single Handler
  - Has no knowledge of which concrete handler is called
- Handler
  - Interface or base class to handling functionality
- Concrete Handler
  - Handler instance class performing concrete handling functionality
  - Decoupled from Sender and other Concrete Handlers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