Testing and Error Handling

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Overview

Testing handlers

Handling errors

Managing panics

```
import “net/http/httptest”

req := NewRequest(method, target string,
     body io.Reader)

rec := NewRecorder()
rec.Result()

srv := NewServer(handler http.Handler)

client := srv.Client()

srv = NewTLSServer(handler http.Handler)
```

◄ **Package with HTTP testing helpers**

◄ **Create a *http.Request for testing**

◄ **Create an http.ResponseWriter that records response**

◄ **Obtain a *http.Response to request**

◄ **Create server for testing handlers using HTTP over localhost**

◄ **Obtain an *http.Client that is configured to send requests to test server**

◄ **Secure servers can be created with temporary, automatically generated certificates**

Testing Handlers without HTTP

```
func TestWithoutHTTP(t *testing.T) {
  router := gin.New()
  router.GET("/users", func(c *gin.Context) {
    c.JSON(gin.H({
      "user1": "adent",
    }))
  })

  req := httptest.NewRequest("/users", http.MethodGet, nil)
  rec := httptest.NewRecorder()

  router.ServeHTTP(rec, req)

  res := rec.Result()

  // assertions go here
}
```

Testing Handlers with HTTP

```go
func TestWithoutHTTP(t *testing.T) {
  router := gin.New()
  router.GET("/users", func(c *gin.Context) {
    c.JSON(gin.H({
      "user1": "adent",
    }))
  })

  srv := httptest.NewServer(router)
  defer srv.Close()

  client := srv.Client()

  res, err := client.Get(srv.URL + "/users")

  // assertions go here
}
```

```
var c *gin.Context

var err *Error = c.Error(e error)

e.JSON() any
e.SetMeta(obj any) *Error
e.SetType(flags ErrorType) *Error
```

◀ **Attach error to current context**

◀ **Render error as JSON**

◀ **Add metadata to an error**

◀ **Set the error's type**

ErrorTypeBind – Context.Bind() failed

ErrorTypeRender – Context.Render() failed

ErrorTypePrivate – private error

ErrorTypePublic – public error

ErrorTypeAny – other error

- Can be combined with bitwise OR (|)

```
gin.Recovery()
```

◄ **Recover from panic that sends 500 response and records event in log**

```
gin.RecoveryWithWriter(out io.Writer)
```

◄ **Recover from panic that sends 500 response and records event to provided io.Writer**

```
gin.CustomRecovery(handle RecoveryFunc)
```

◄ **Recover from panic with custom behavior and records event in log**

```
gin.CustomRecoveryWithWriter(
    out io.Writer,
    handle RecoveryFunc)
```

◄ **Recover from panic with custom behavior and records event in provided io.Writer**

```
type RecoveryFunc func(
    c *Context,
    err any)
```

◄ **Signature for custom recovery function**

Summary

Testing handlers

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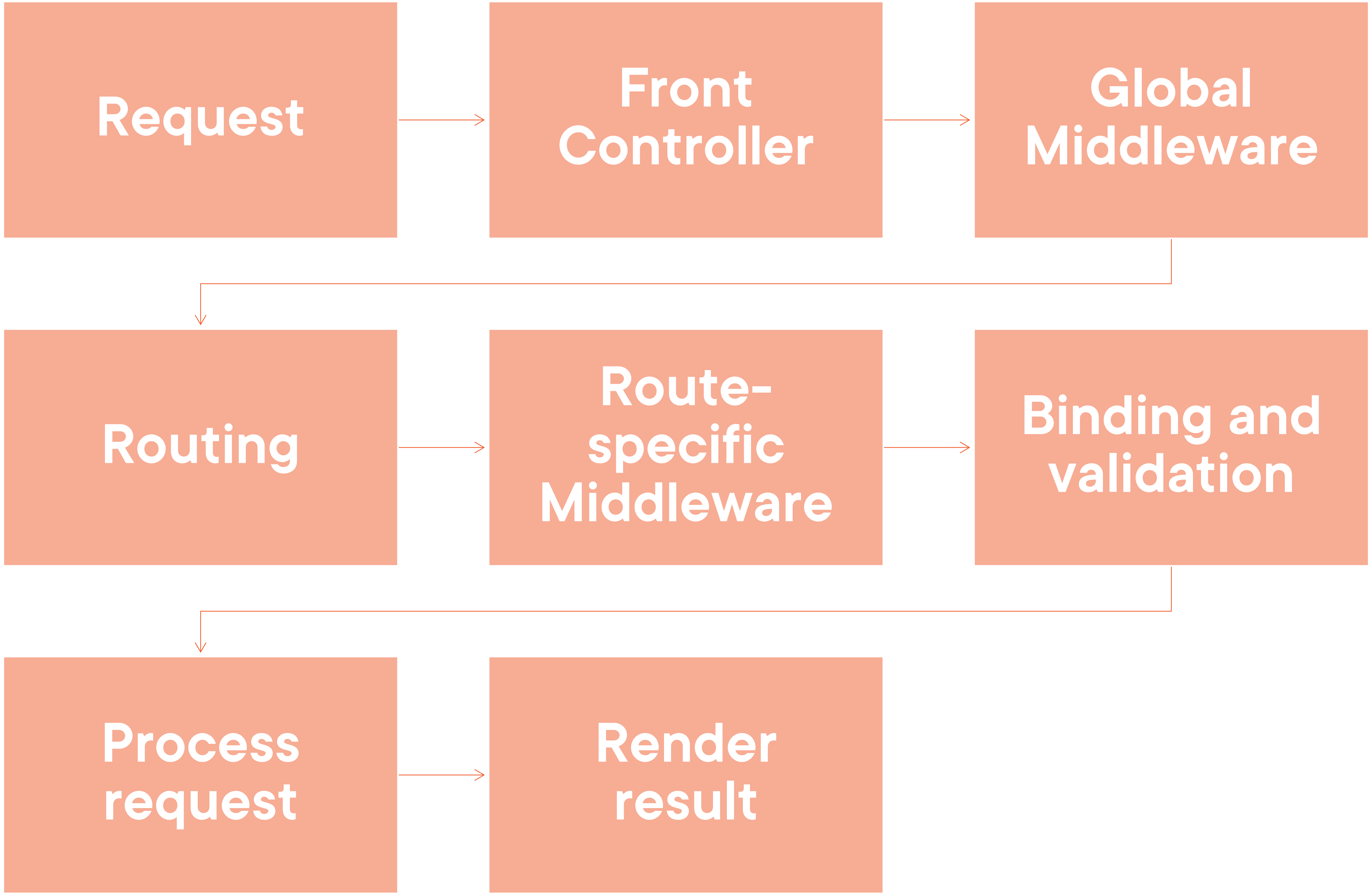
HTTP Request Pipeline



Request

Front Controller

Global Middleware

Routing

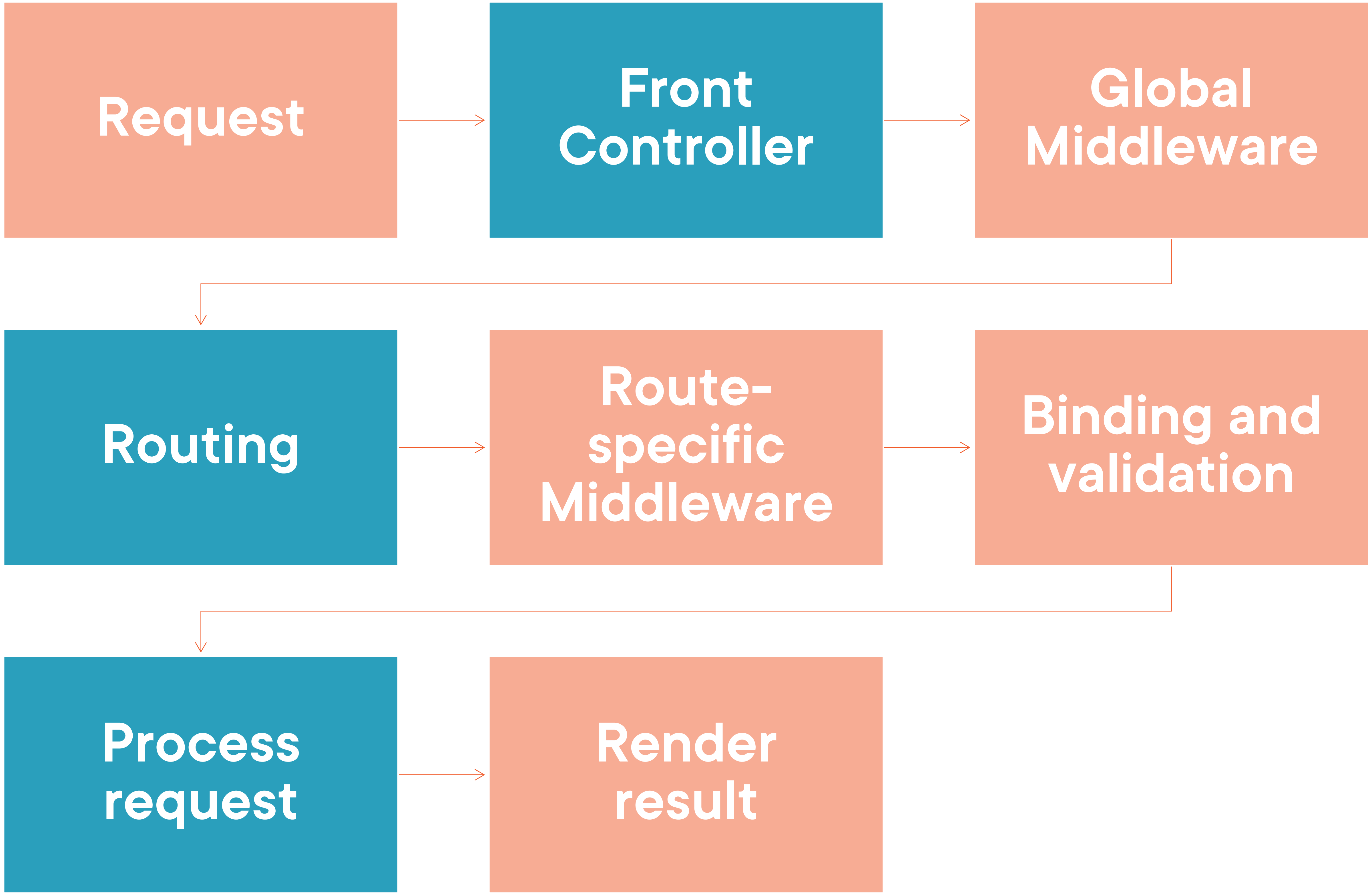
Route-specific Middleware

Binding and validation

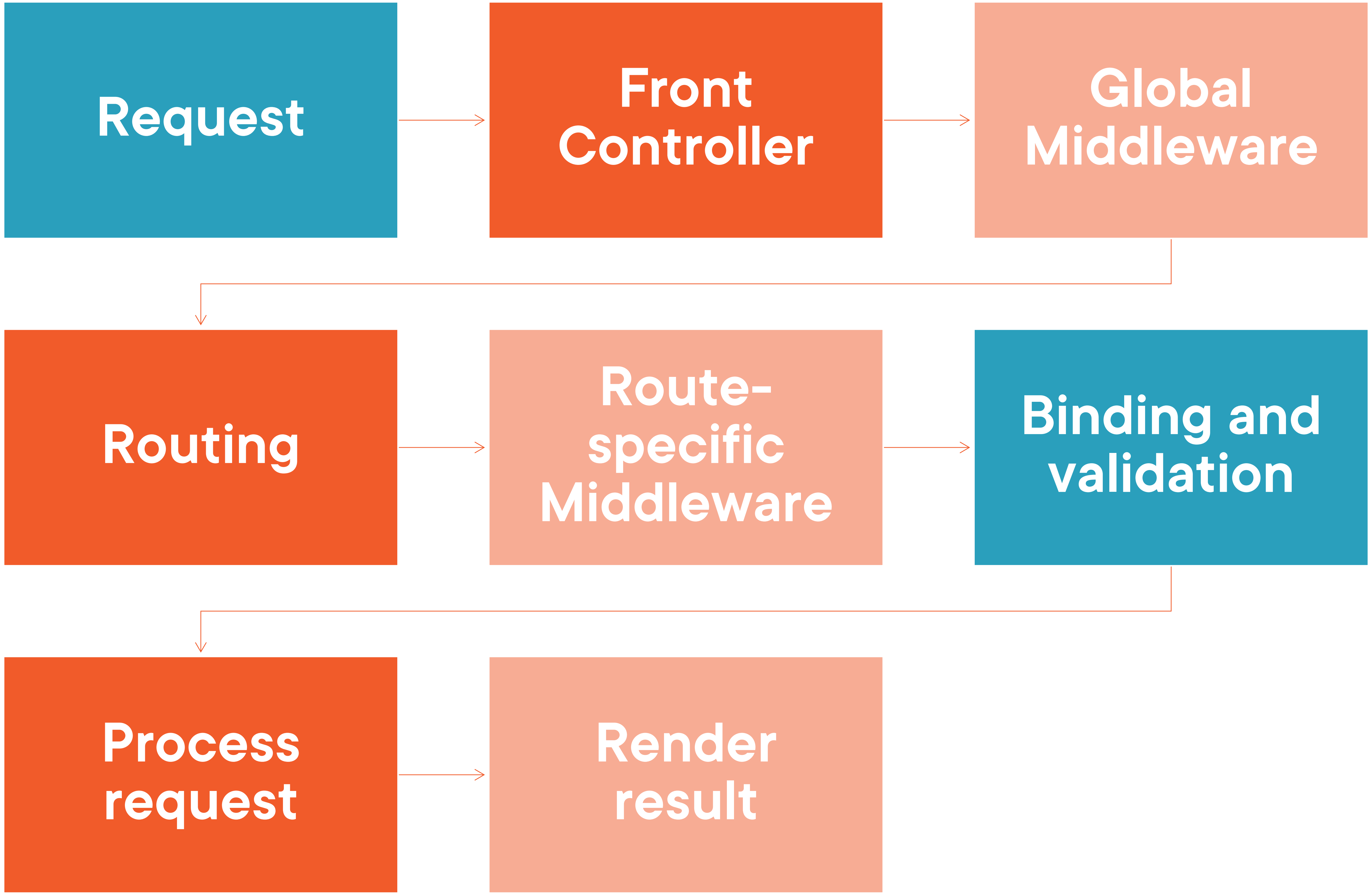
Process request

Render result

HTTP Request Pipeline



HTTP Request Pipeline



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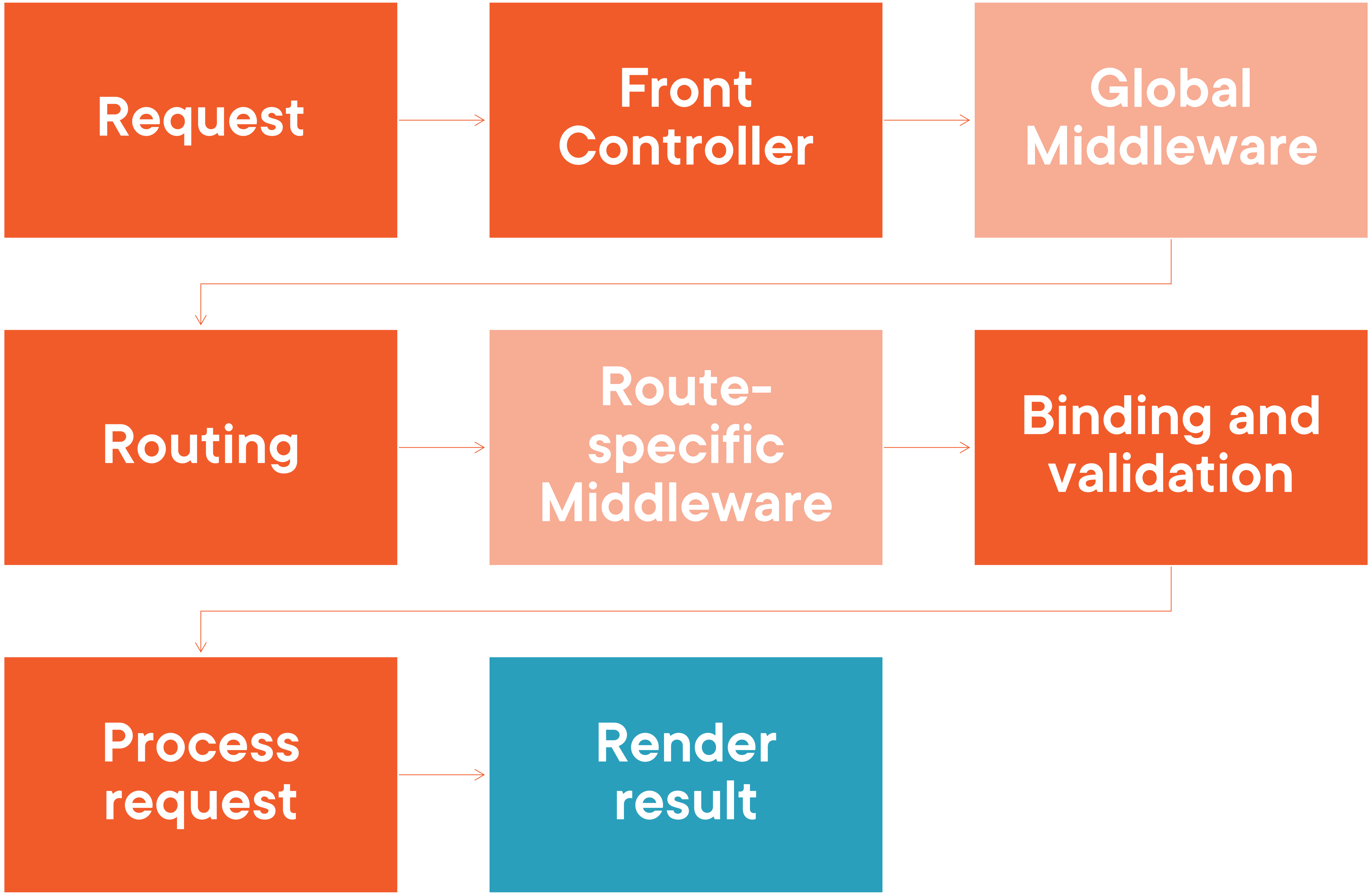

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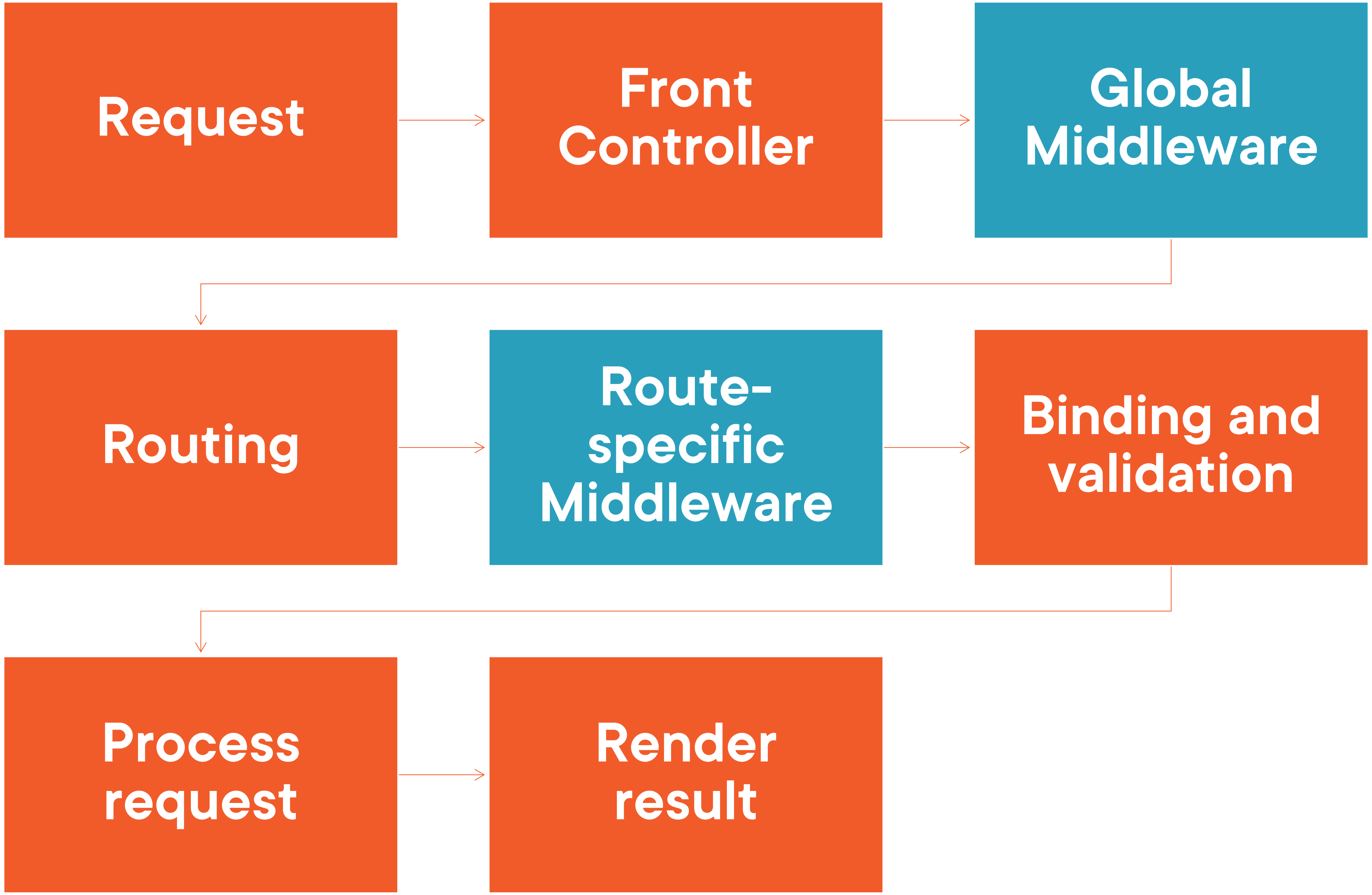

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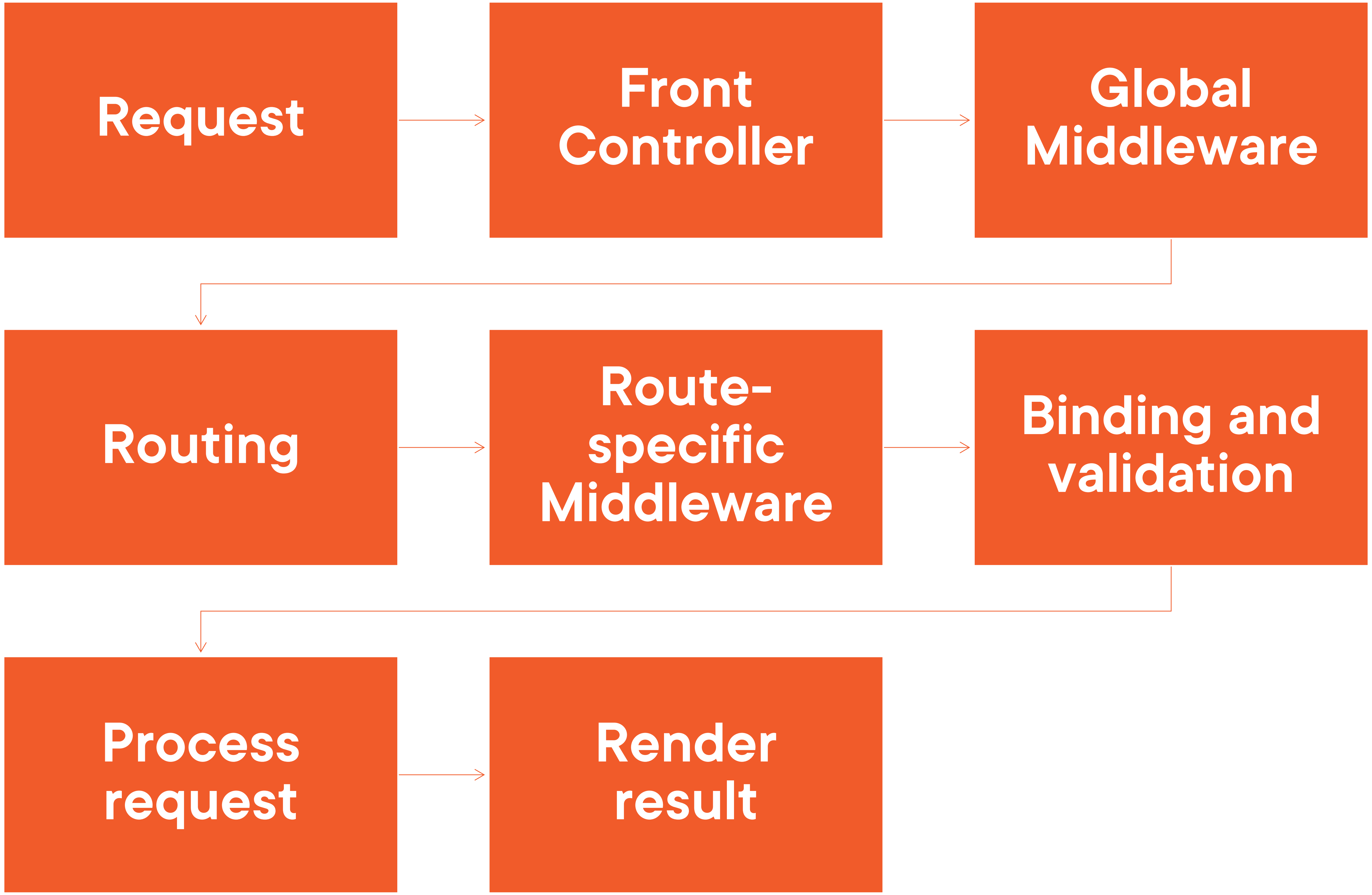

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