

Cincom Systems, Inc.

Sioux HTTP Server

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Why SiouX?

- ★ Established Cincom® VisualWorks® technology: VisualWorks Application Server (VWAS)
- ★ Applications served via Smalltalk Server Pages, Servlets or VisualWave.
- ★ Uses Opentalk: a generic framework to develop distributed applications.
- ★ Difficult to debug and maintain

Why SiouX? (continued)

- ★ Based on older standards (HTTP 1.0)
- ★ Doesn't allow to serve different technologies from the same server (e.g., Seaside + SSP + WS)
- ★ Limited or no support for new technologies as streaming and chunked messages.
- ★ Diverse and incompatible configuration tools
- ★ etc...

What's new?

- ★ It's light-weight, only a handful of classes
- ★ Minimum Http header fields parsing to improve performance
- ★ Provides file & directory management, as well as multiple log formats
- ★ Supports writing directly to the socket stream:
 - large objects don't have to be held in memory
 - using Server-Sent Events becomes easy

What's new? (continued)

- ★ Optional components to provide support for Session Management, Web Sockets & Servlets (backward compatibility)
- ★ Includes fortification options (e.g., to set the rate at which new connections are accepted, request line and header limits)
- ★ Integrated with SSL/TLS
- ★ Configurable, extensible request filters

Architecture

★ Key classes:

- Server —> has listeners and responders
- Listener —> accepts and manages connections
- Connection —> accepts and dispatches requests in a single process (one process per connection)
- Responder - handles requests

Architecture (continued)

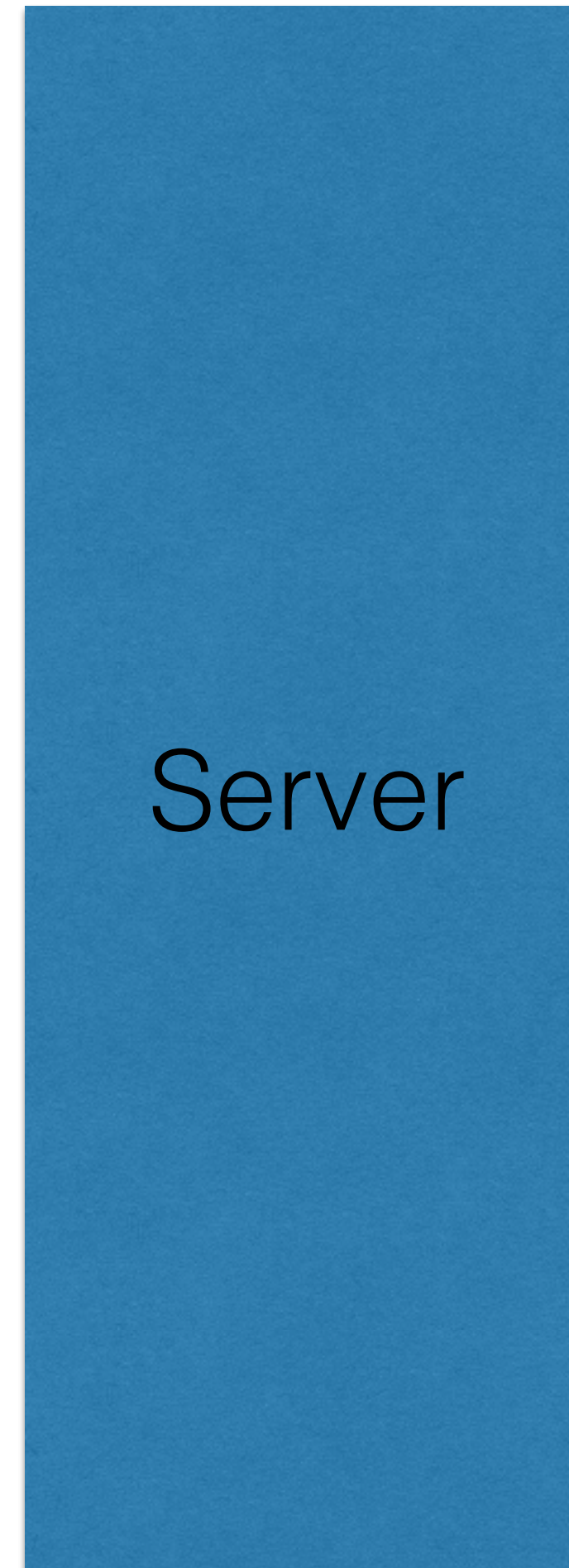
★ HTTP-specific classes:

- HttpRequest & HttpResponse
- HttpListener & HttpConnection

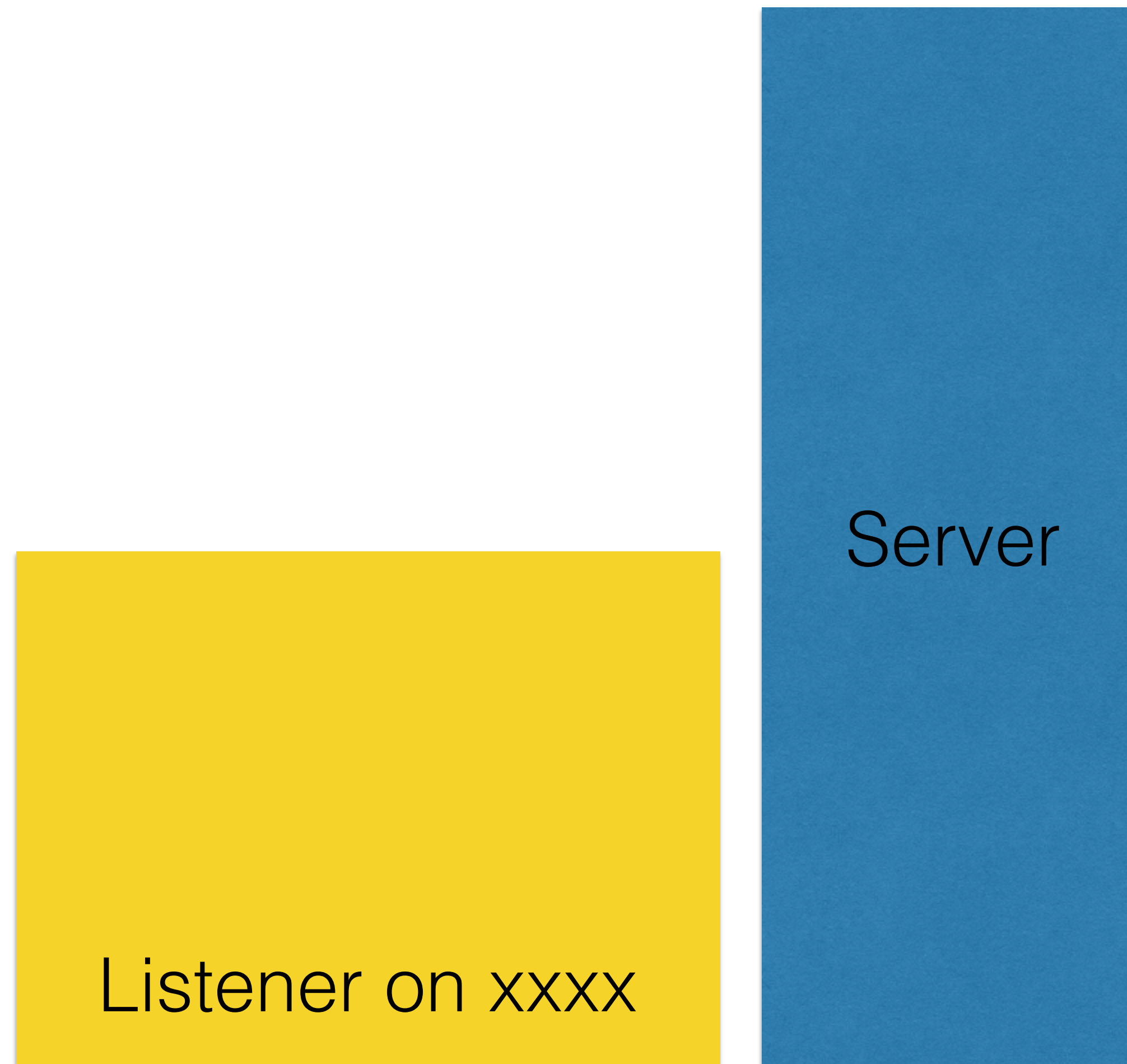
★ HTTPS:

- HttpsListener & HttpsConnection

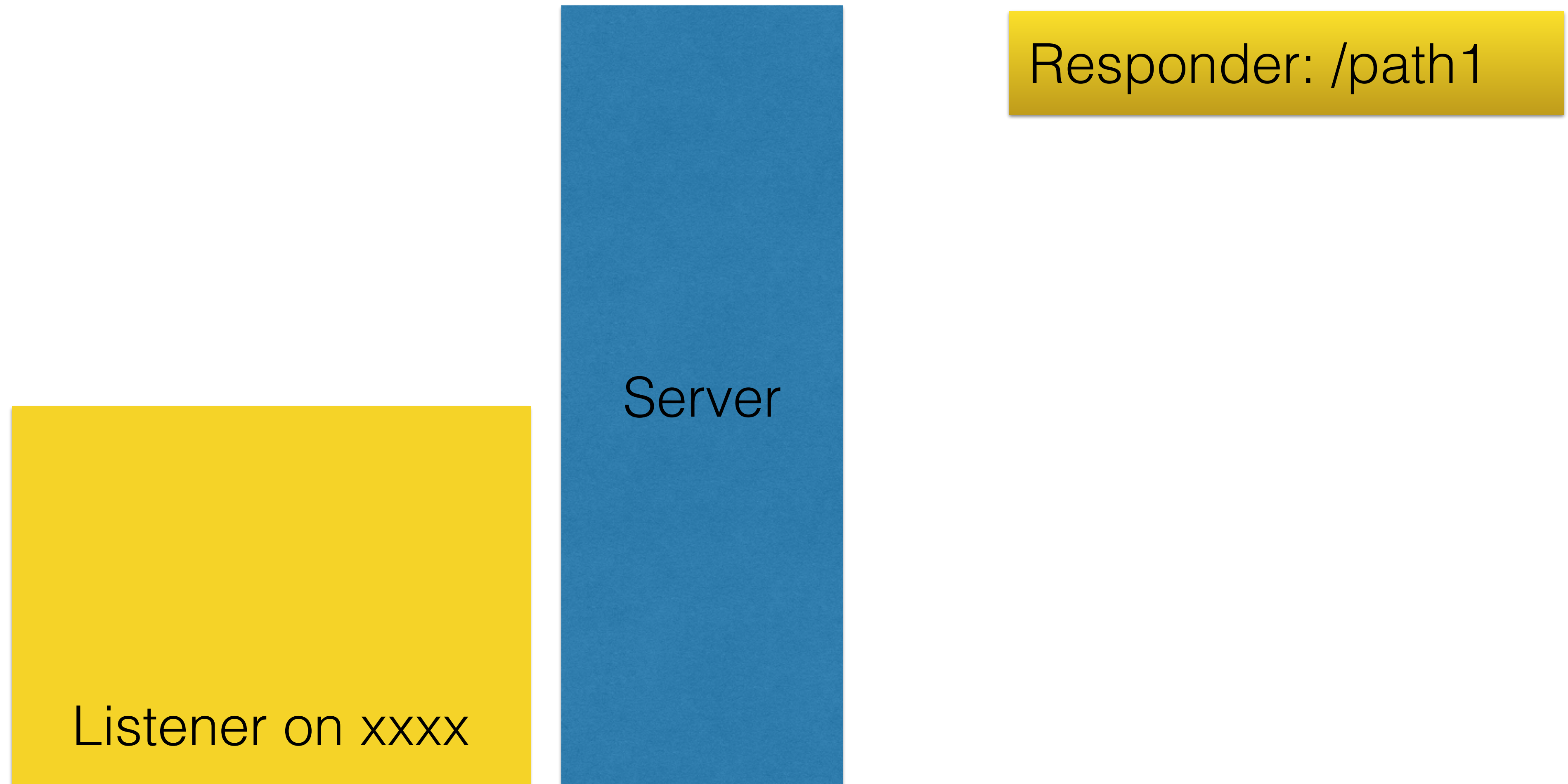
Architecture (continued)



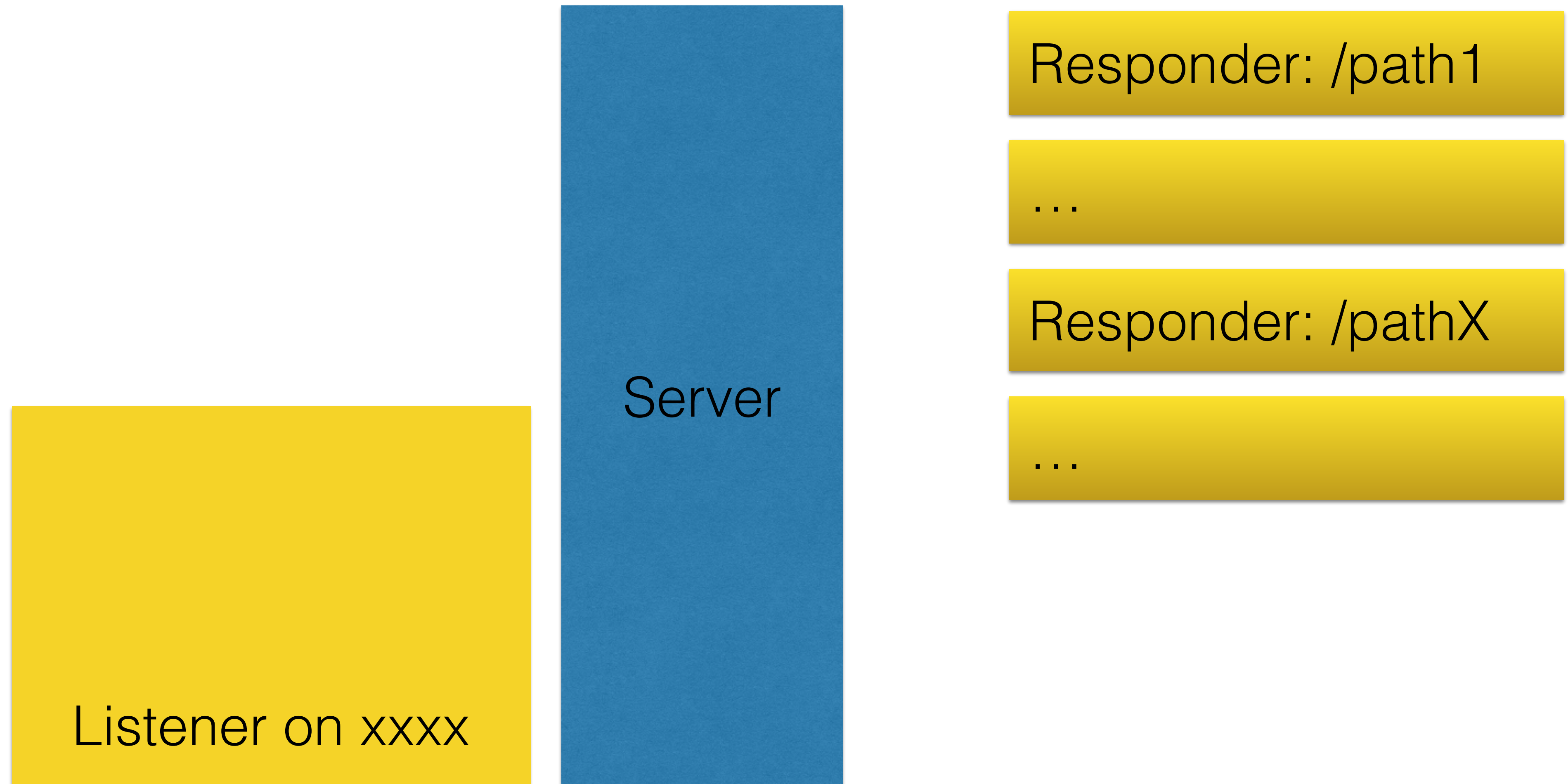
Architecture (continued)



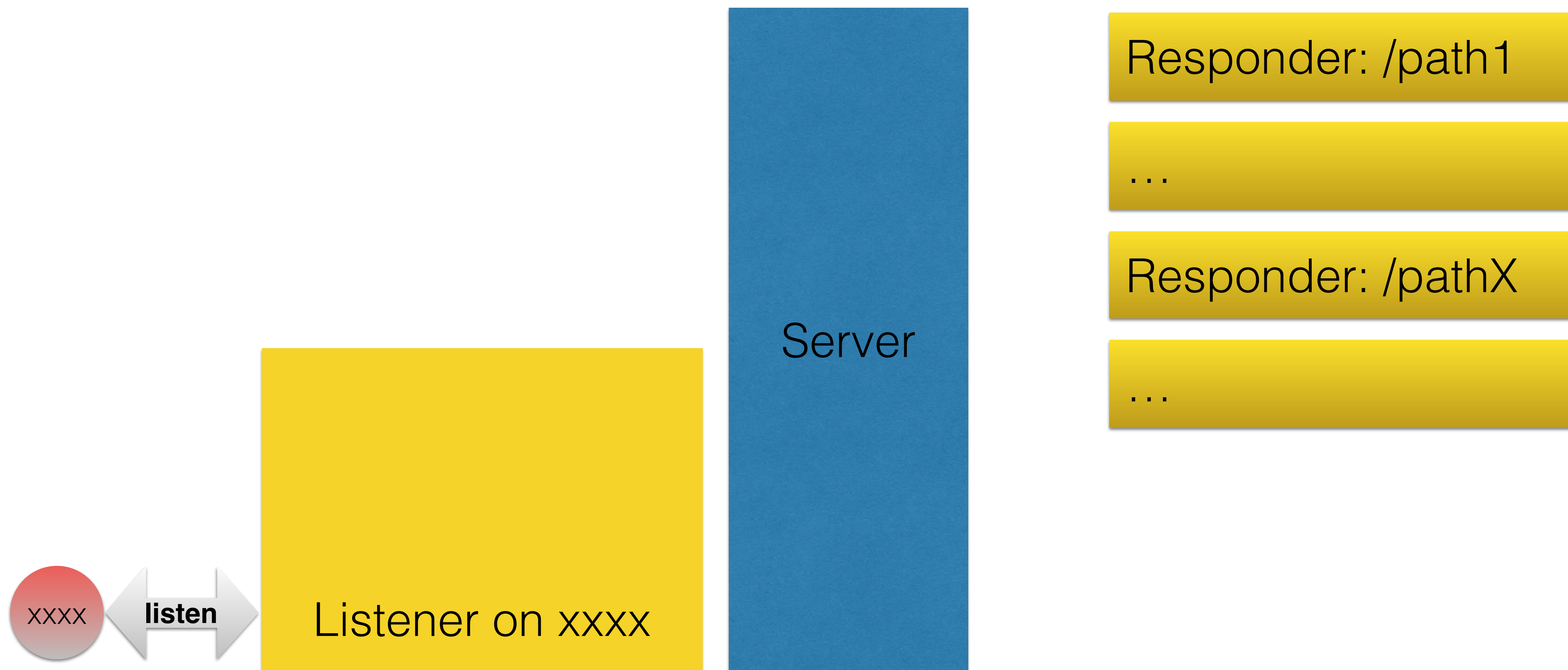
Architecture (continued)



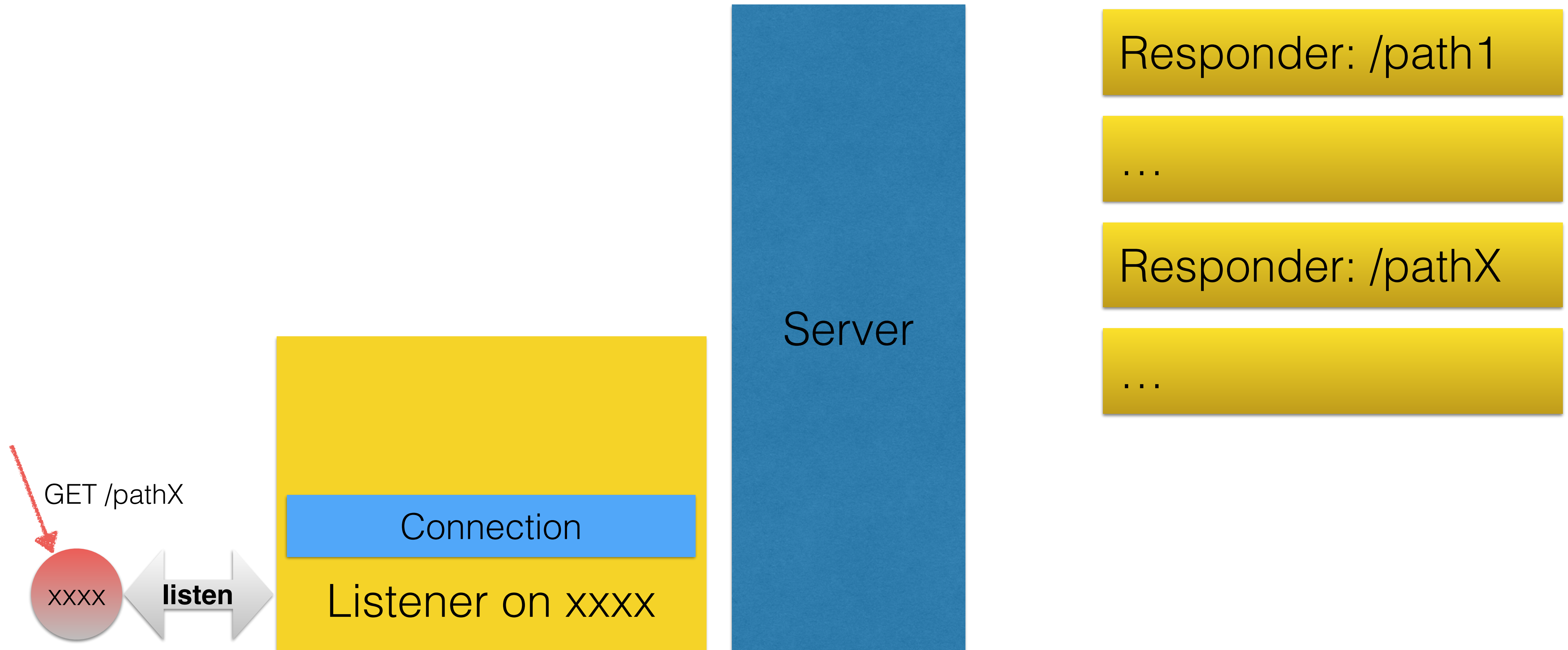
Architecture (continued)



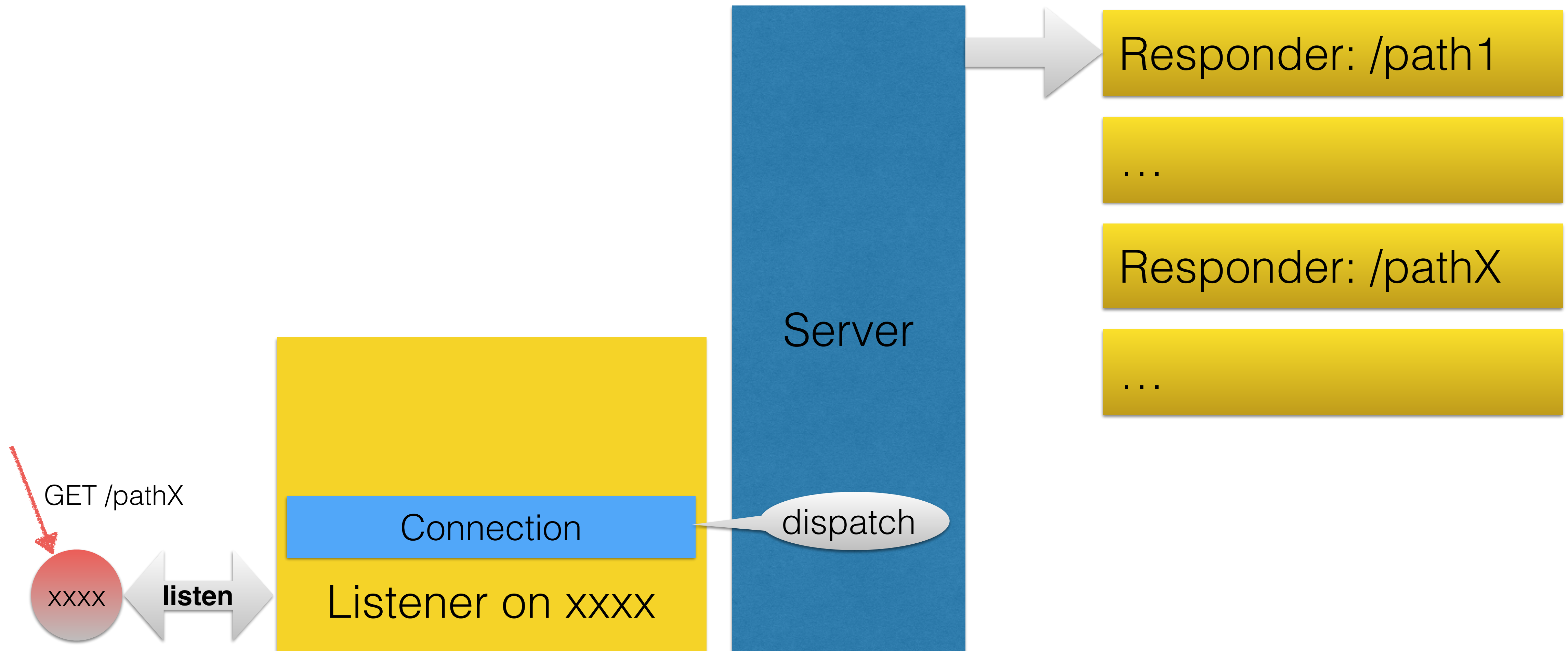
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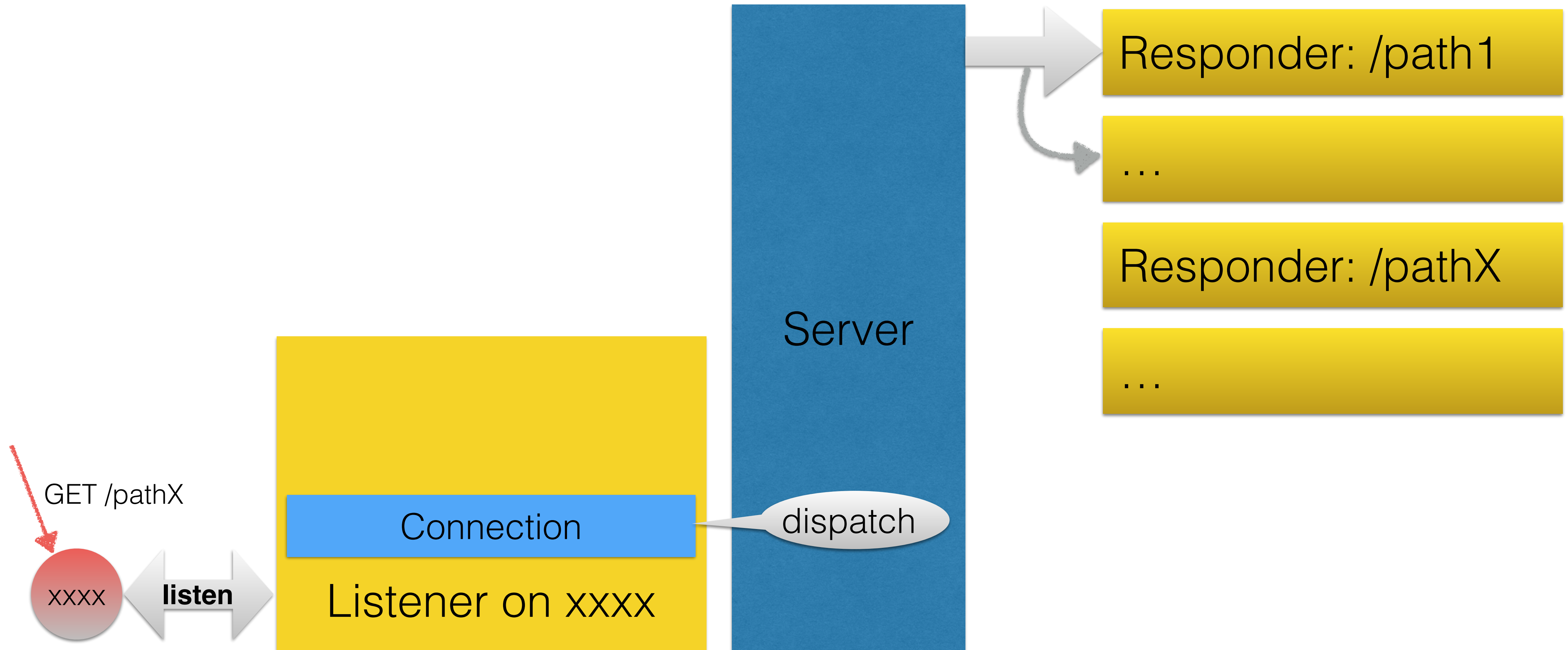
Architecture (continued)



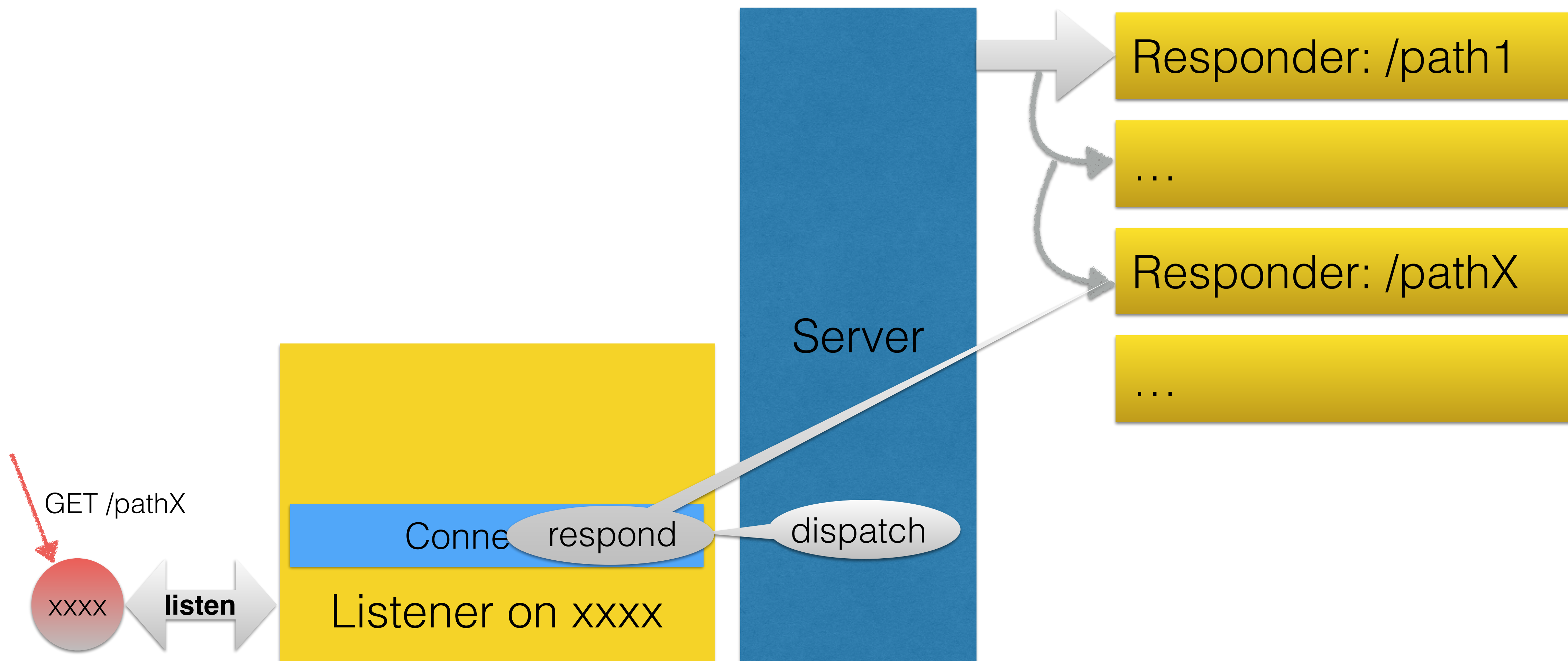
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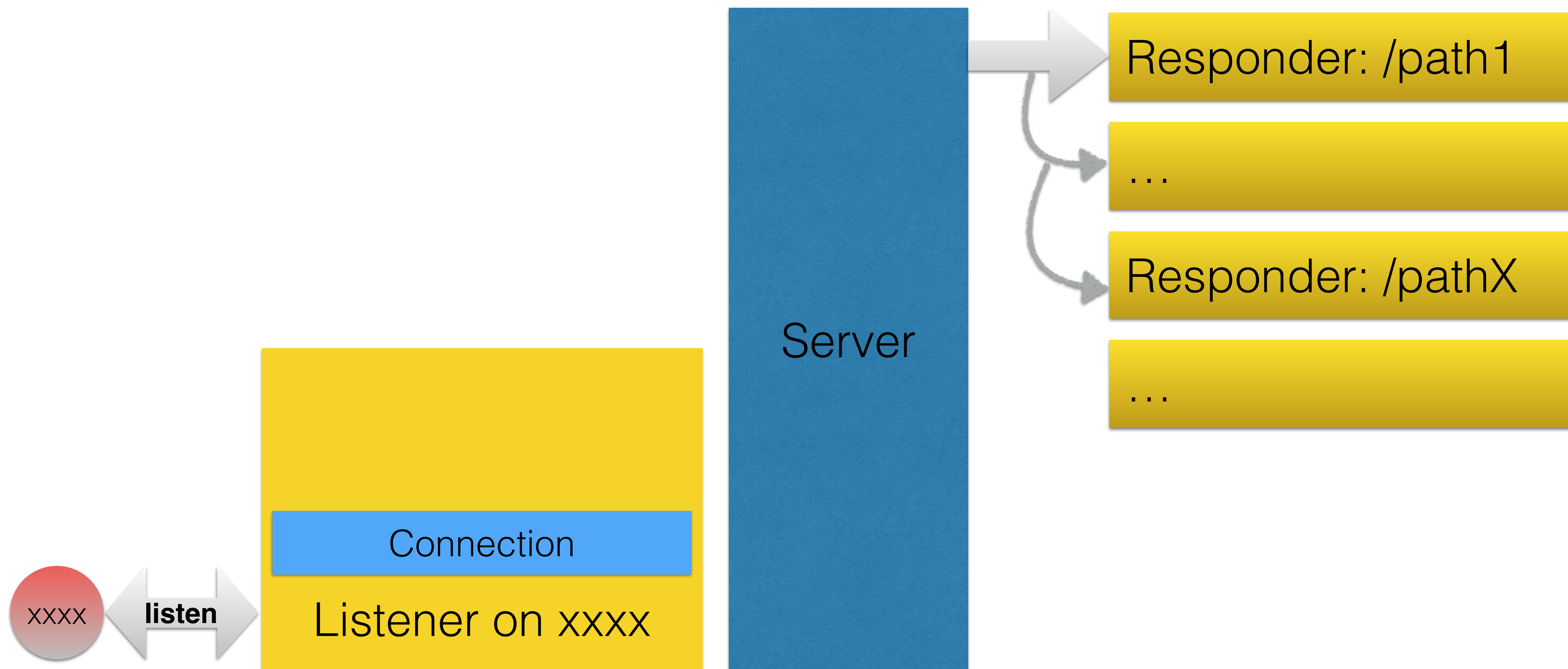
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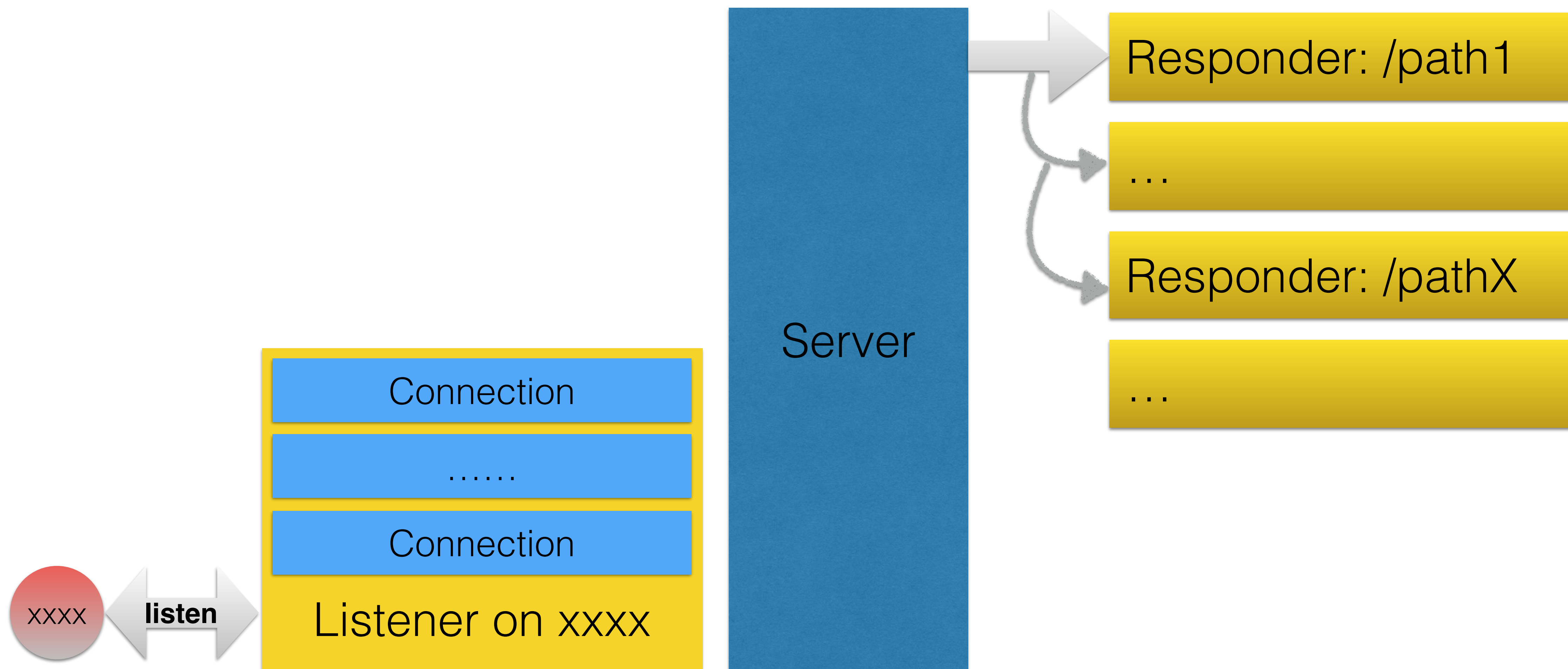
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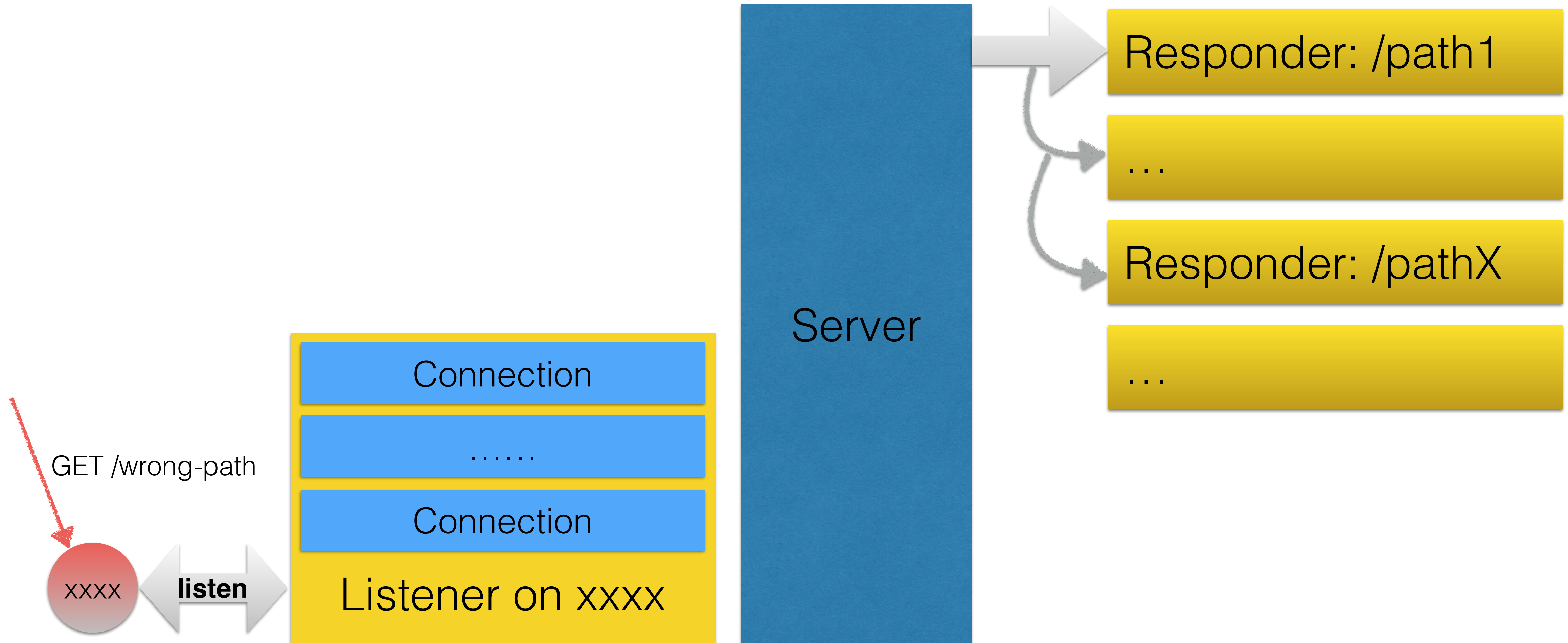
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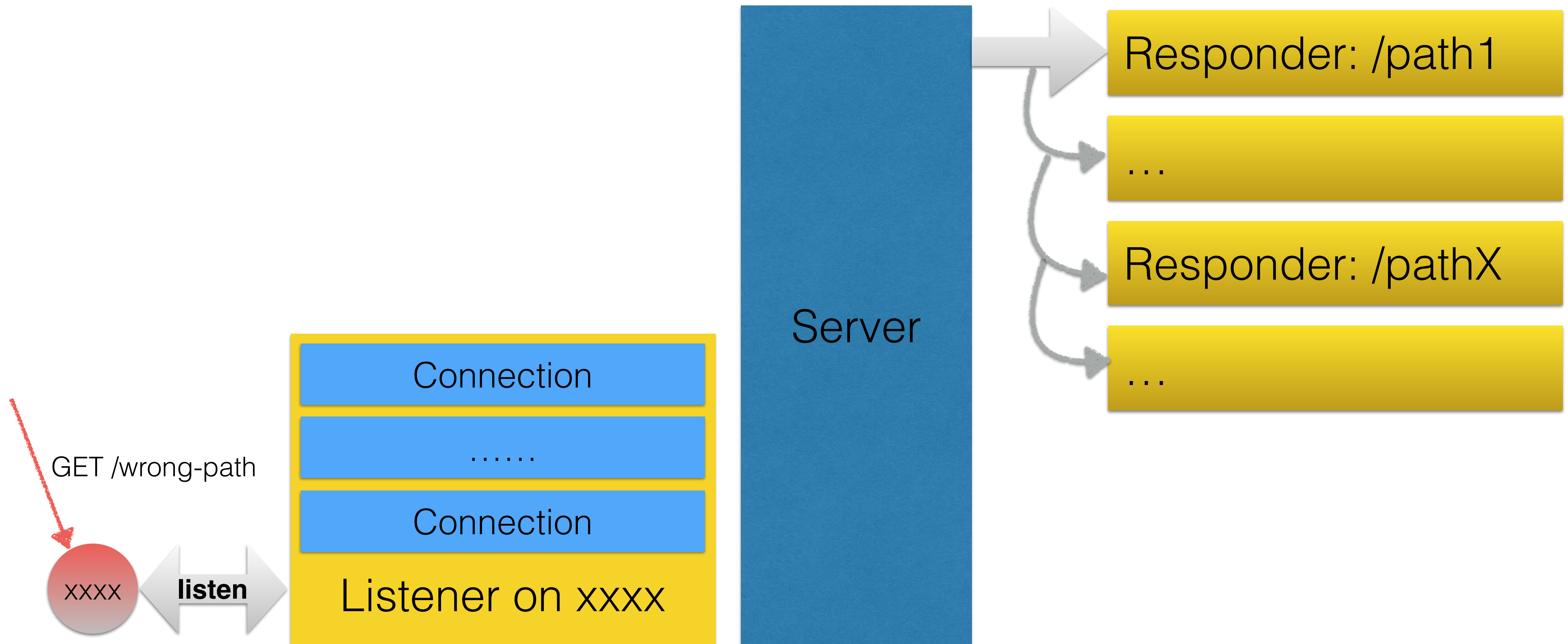
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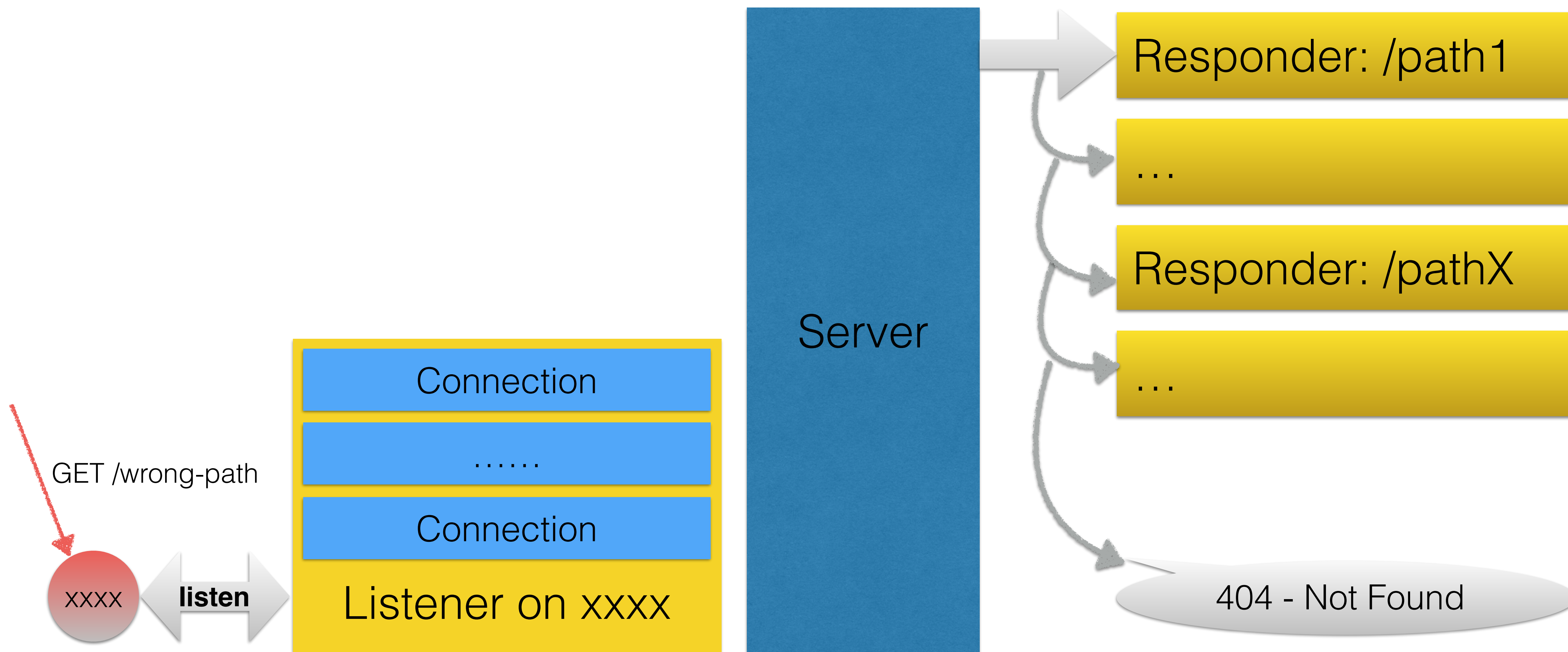
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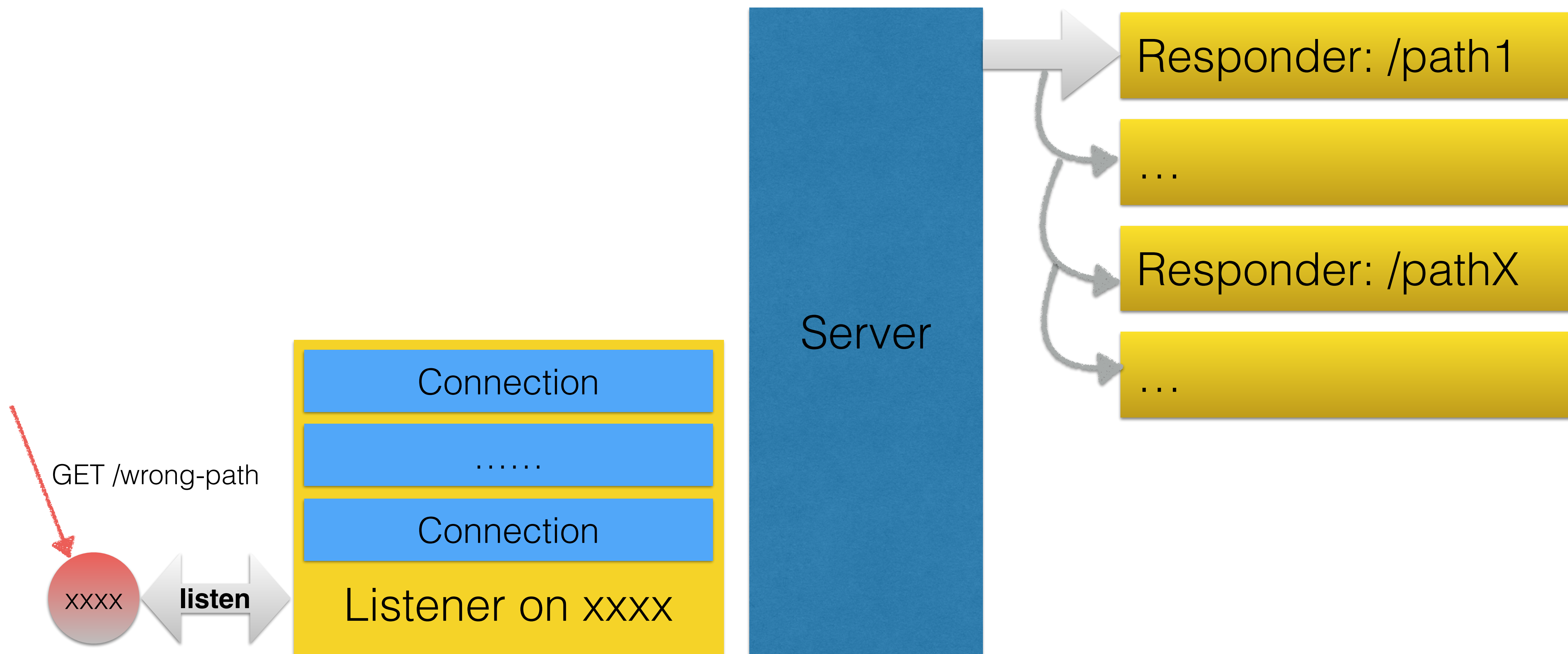
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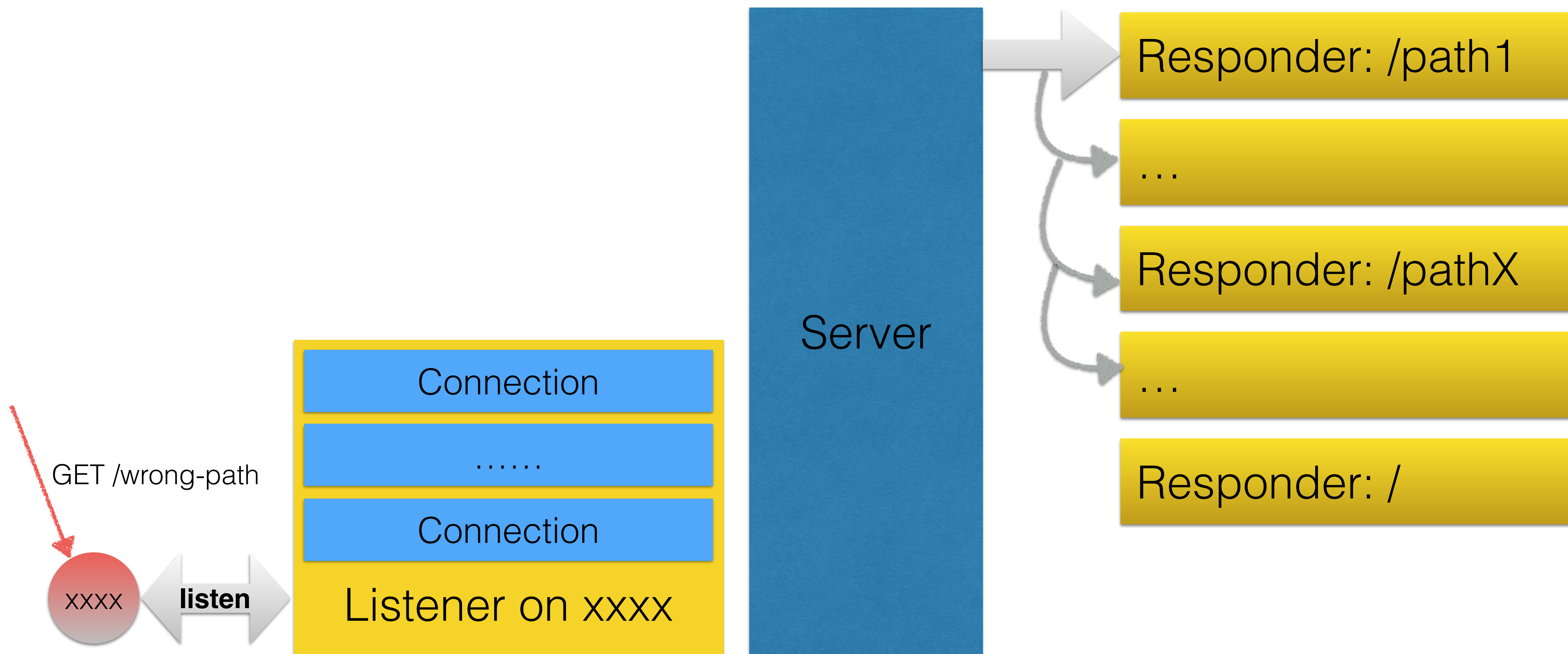
Architecture (continued)



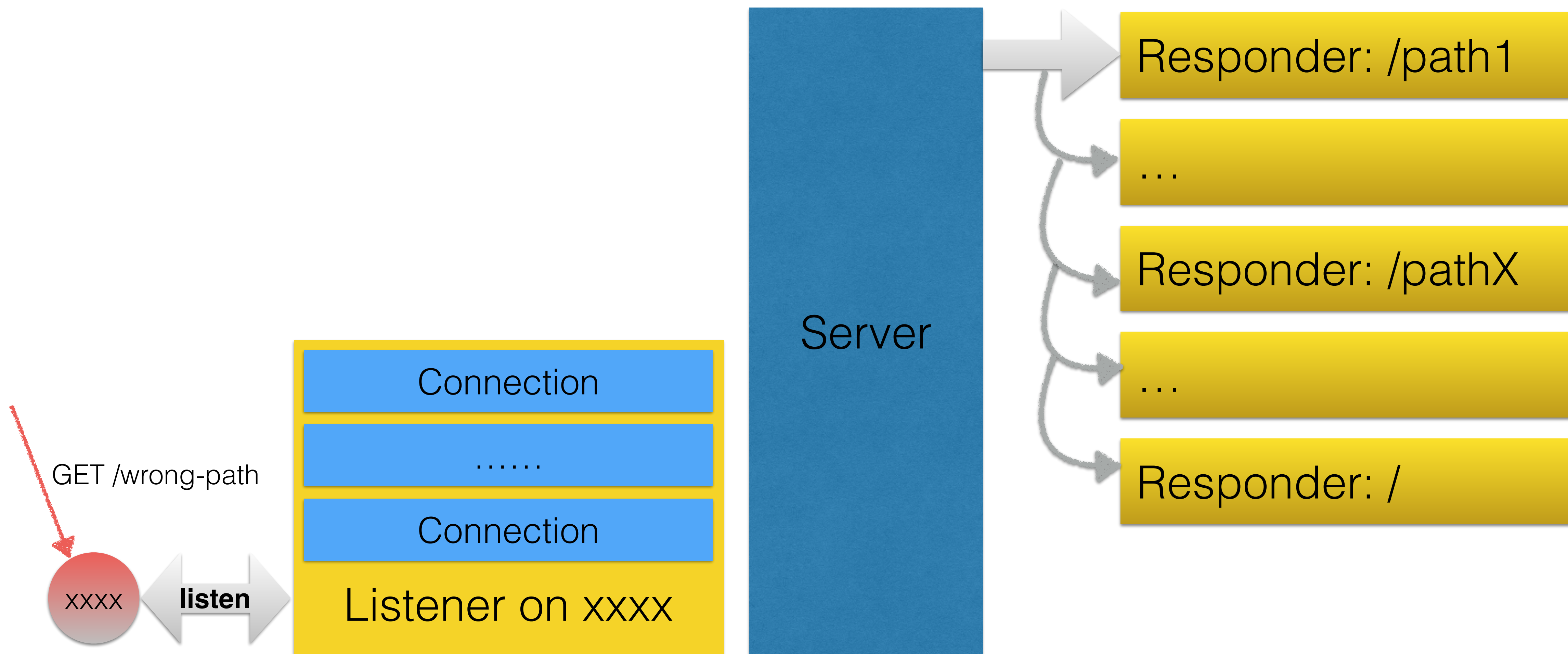
Architecture (continued)



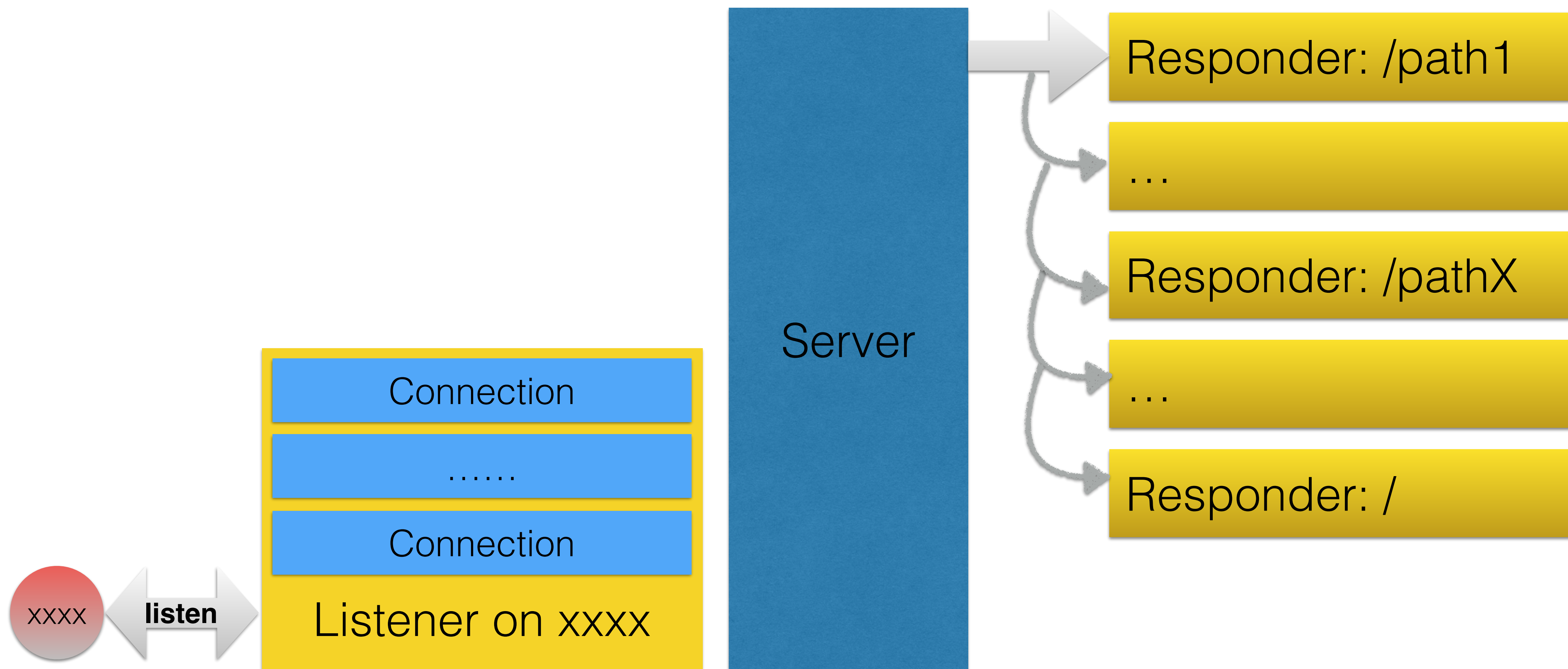
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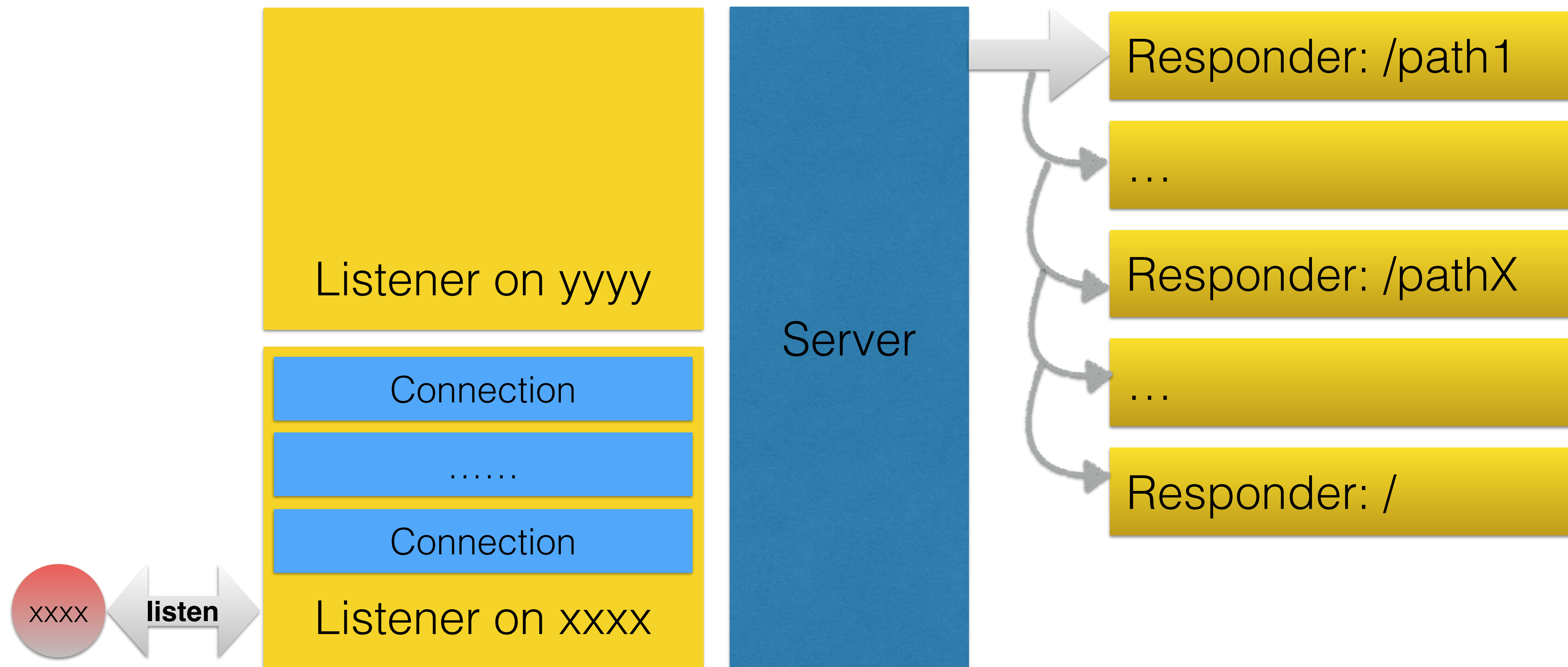
Architecture (continued)



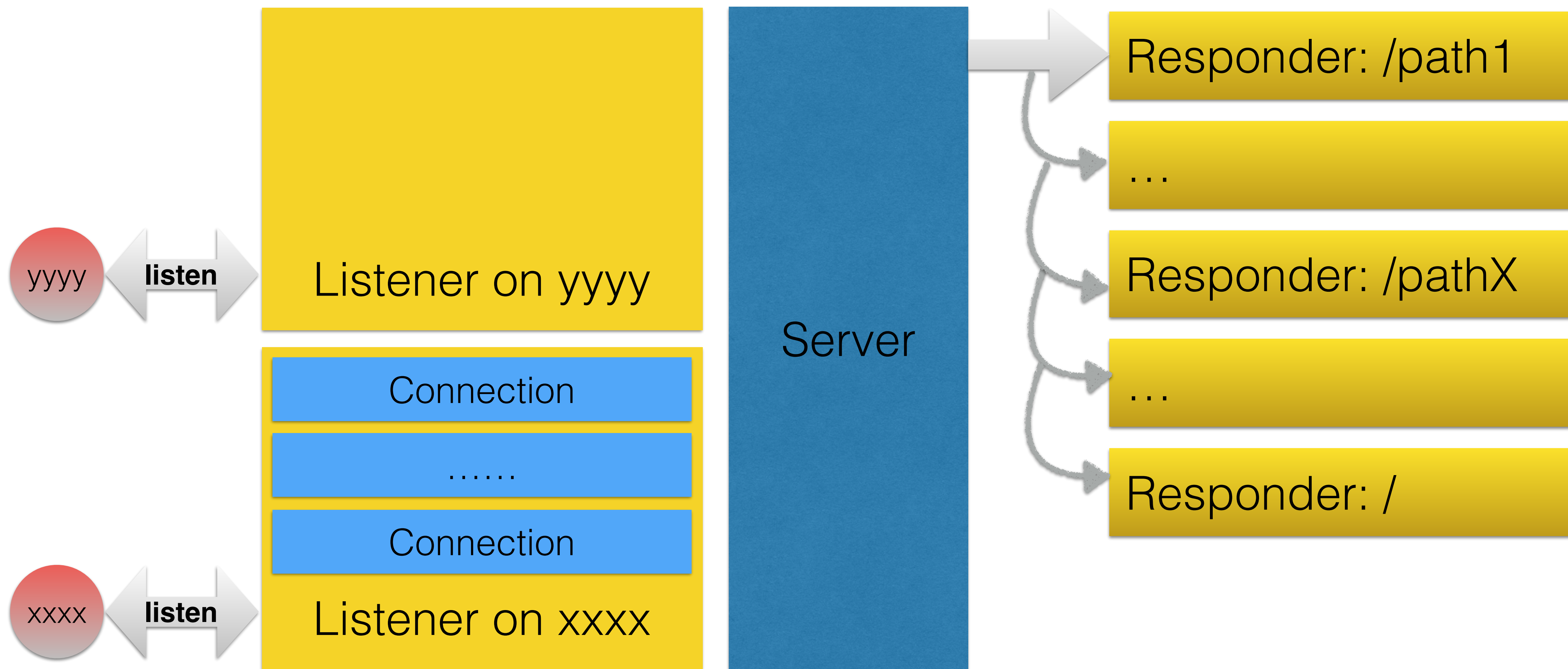
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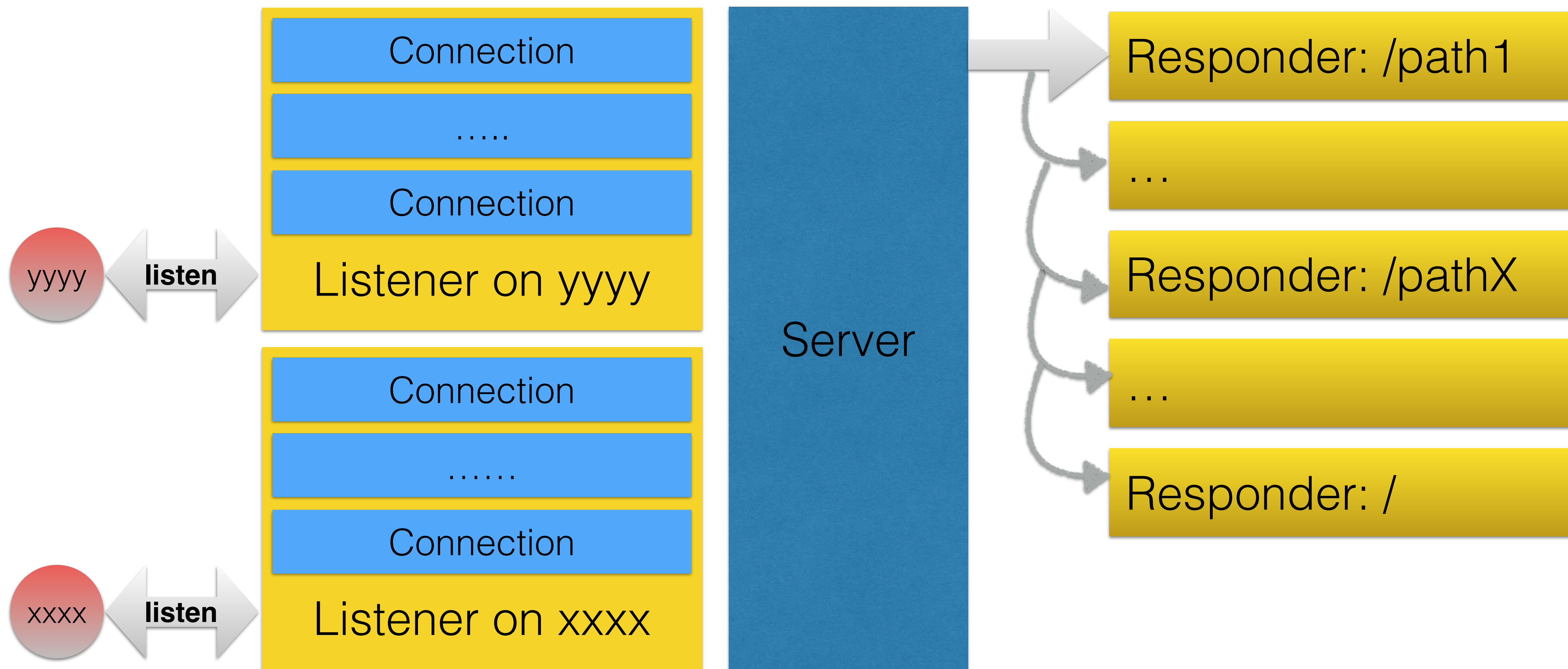
Architecture (continued)



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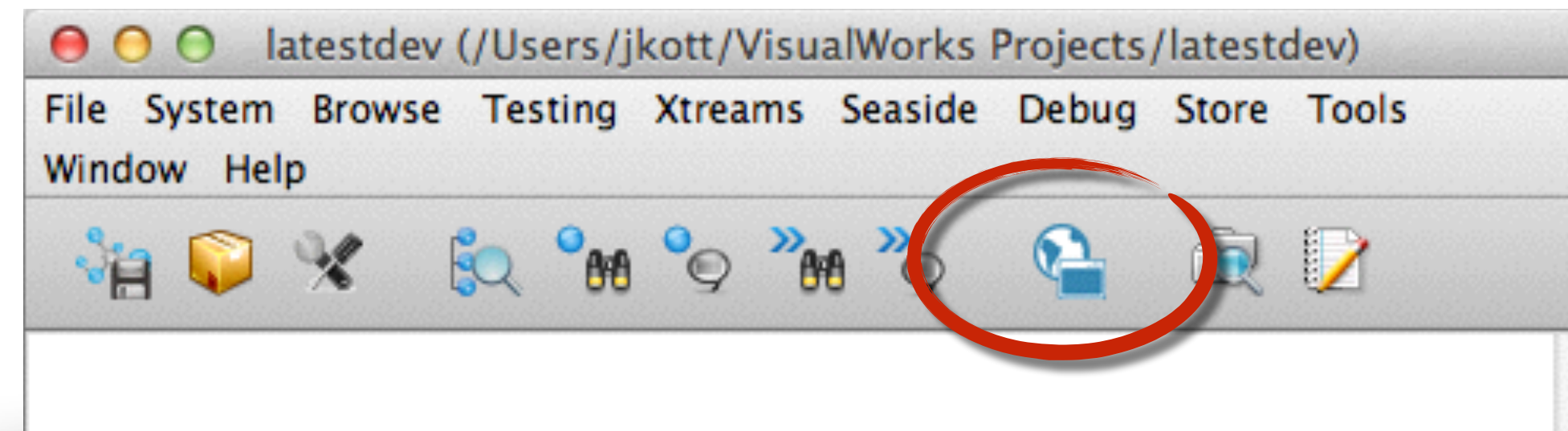


Components

- ★ Open Parcel Manager
- ★ Category: Web Development
- ★ Key Parcels:
 - SiouX-Server
 - SiouX-Http
 - SiouX-Tools
 - plus more...

Tools

- ★ GUI and Web Based
- ★ Easy access from the Launcher



Tools (continued)

GUI:

The screenshot shows a desktop application window titled "Web Servers". It has a menu bar with "Servers", "Responders", and "Help". Below the menu is a toolbar with various icons. The main area is divided into two sections: "Servers" and "Responders".

Servers	Addresses	Running	Debugging	Logging
ServerMonitor	0.0.0.0:8001*	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Seaside	0.0.0.0:7777*	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Examples	0.0.0.0:8888*	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Path	Class	Description
/facebook	FacebookApp	
/hello	Hello	A trivial responder that accepts any requests and responds with HTML "Hello World" response.
/local-hello	LocalHello	A responder that accepts requests and responds with HTML "Hello World" response in the language requested by the user agent.
/appex/simplest-app	SimplestApp	SimplestApp a minimum-requirement web application to demonstrate what developers need to get started.
/appex/static-files	StaticFilesFromDisk	StaticFilesFromDisk is an example web app that shows how static files might be served from a web application.
/appex/ajax-file-upload	AjaxFileUpload	AJAX-based File upload demo.
/appex/event-source-demo	EventSource	EventSource is an example of a custom implementation of a server event notifications using the <code>EventSource</code> API.
/appex/chat-room-demo	Chat	Chat is an example of server event notifications using the <code>WebSocket</code> API.
/appex/file-upload	FileUpload	File upload demo.
/appex/d3/bar	D3Bar	D3Bar is an example application of a bar graph using the <code>D3.js</code> library.

Web:

The screenshot shows a web browser interface for "Web Servers". It has a top navigation bar with "Create a Server" and "Add a preconfigured Server" buttons, and "Ping" and "Help" links. The main content area is titled "Examples" and shows a server status for "0.0.0.0:8888" which is "Running". There are buttons for "Debugging", "Logging", and "Log contents". Below this is a "Statistics" section, a "Listeners" section with an "Add HTTP" button, and a "Responders" section with "Create..." and "Add..." buttons. The responders are listed in a table:

Path	Class	Description
/facebook	FacebookApp	
/hello	Hello	A trivial responder that accepts any requests and responds with HTML "Hello World" response.
/local-hello	LocalHello	A responder that accepts requests and responds with HTML "Hello World" response in the language requested by the user agent.
/appex/simplest-app	SimplestApp	SimplestApp a minimum-requirement web application to demonstrate what developers need to get started.
/appex/static-files	StaticFilesFromDisk	StaticFilesFromDisk is an example web app that shows how static files might be served from a web application.

Configuration

- ★ From the GUI tool
- ★ From the Web based ServerMonitor tool (limited)
- ★ Programmatic, using pragmas and the Server / Responder API
- ★ From an XML configuration file. The XML conf. file can be loaded using a command line into a headless image.

Configuration (continued)

Configuration methods with pragmas:

Server class>>examples: {Sioux}

Browser Edit Find View Class Method Tools Help

Package Class Instance Class Shared Variable Instance Variable

Sioux-Sessions PrivateKey 10 accessing examples:
 Sioux-Server-Sec Server 2 announcements
 Sioux-Http ServerLoadRule 9 configuration

Source Comment Definition Rewrite Code Critic

examples: server

"This is an example server configuration.
 Other configuration can be created by implementing methods with #server: pragma.
 A configuration method like this one receives an instance of Server in the argument, allowing developers to add listeners and set additional configuration parameters on the server instance."
 "

```
<server: 'Examples'>
server listenOn: 8888 for: HttpConnection
```

Method: #examples: (configuration) Package: Sioux-Examples
 Method: #examples: (configuration) Package: Sioux-Examples

LocalHello class>>serverConfiguration

Browser Edit Find View Class Method Tools Help

Package Class Instance Class Shared Variable Instance Variable

Sioux-Sessions LocalHello 1 configuration serverConfiguration
 Sioux-Server-Sec PrivateKey
 Sioux-Http Server

Source Comment Definition Rewrite Code Critic

serverConfiguration

"
 Configure aResponder by adding a LocaleFilter to enable the setting of a locale during the processing of each request.
 Locale's are set on a 'first come, first serve' basis, so even if multiple rules have been set in SessionLocaleFilter, once a locale has been set for a given request, the rest are ignored.
 Once the server has been started and configured with this responder, check out the multilingual response:
<http://localhost:8888/local-hello>
 "

```
<position: 10.110>
<server: 'Examples' path: '/local-hello'>
<requestFilter: #'Sioux.LocaleFilter' configuration: 'LocalHello configuration' >
```

Method: #serverConfiguration (configuration) Package: Sioux-Examples
 Method: #serverConfiguration (configuration) Package: Sioux-Examples

Demo time!

Demo time!

The screenshot shows the 'Web Servers' application window. It has a menu bar with 'Servers', 'Responders', and 'Help'. Below the menu bar is a toolbar with various icons. The main content area is divided into two sections: 'Servers' and 'Responders'.

Servers Section:

Servers	Addresses	Running	Debugging	Logging
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Seaside	0.0.0.0:7777*	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Examples	0.0.0.0:8888*	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Responders Section:

Path	Class	Description
/facebook	FacebookApp	
/hello	Hello	A trivial responder that accepts any requests and responds v
/local-hello	LocalHello	A responder that accepts requests and responds with HTML
/appex/simplest-app	SimplestApp	SimplestApp a minimum-requirement web application to de
/appex/static-files	StaticFilesFromDisk	StaticFilesFromDisk is an example web app that shows how
/appex/ajax-file-upload	AjaxFileUpload	AJAX-based File upload demo.
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/appex/file-upload	FileUpload	File upload demo.
/appex/d3/bar	D3Bar	D3Bar is an example application of a bar graph using the D:

Demo time!

★ Create a Server
➤ Add a preconfigured Server
Ping
? Help

Examples

|| Running
🔧 Debugging
📄 Logging
📄 Log contents
🗑 Remove this server...

Statistics

Listeners

➤ Add HTTP

|| (0.0.0.0:8888)
Connections:
⚙️ ✖

Responders

★ Create...
➤ Add...

Path	Class	Description
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Demo time!

Thank you!

★ Download from Cincom Smalltalk web site:

- <http://www.cincomsmalltalk.com/main/developer-community/trying-cincom-smalltalk/try-cincom-smalltalk/>

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★ Q & A