WEB DAY
2021
04 MARZO • ONLINE CONFERENCE

ASP.NET CORE SIGNALR, APPLICAZIONI REAL-TIME NEL BROWSER... ED OLTRE

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MANAGED DESIGNS
@ENOSRECANATI
Users expect real-time.

No need to hit the refresh button.
“ASP.NET Core SignalR is an open-source library that simplifies adding real-time web functionality to apps.”

“SignalR provides an API for creating server-to-client remote procedure calls (RPC).”

Source: https://docs.microsoft.com/en-us/aspnet/core/signalr/introduction
TRANSPORT

**WebSockets**
- Client ➔ Web Server
- Web Server ➔ Client
- Handshake

**Server Sent Events**
- Client ➔ Web Server
- Web Server ➔ Client
- `<EventSource>`

**Long Polling**
- Client ➔ Web Server
- Web Server ➔ Client
SERIALIZATION

**JSON**

```json
{
   "name": "Enos",
   "year": 2021
}
```

**MessagePack**

```
DF 00 00 00 02 A4 6E 61 6D 65 A4 45 6E 6F 73 A4 79 65 61 72 CD 07 E5
```

- Requires additional Packages for both the client and server.
HUB (SERVER)

- Handles connection management automatically.
- Sends messages to all connected clients simultaneously. For example, a chat room.
- Sends messages to specific clients or groups of clients.

```csharp
public class ChatHub : Hub
{
    public async Task SendMessage(string user, string msg)
    {
        await Clients.Others.SendAsync("MessageReceived", user, msg);
    }
}
```
CLIENTS

Browser & Node.js

.NET Core

Java 8 and later
DEMO

Simple Mutiplatform Chat
“You can access an instance of `IHubContext` via dependency injection. Use this instance to send messages to client.”

Source: https://docs.microsoft.com/en-us/aspnet/core/signalr/hubcontext
AUTHENTICATION

• ASP.NET Core authentication used to associate user with each connection.

• Authentication data can be accessed from `HubConnectionContext.User` property.

• `[Authorize]` Attribute.
DEMO

Simple Fruit Shop
HOSTING

- A SignalR connection is **persistent**.
- SignalR requires that all HTTP requests for a specific connection be handled by the same server process.
The server environment must be configured for sticky sessions.

When a server wants to send a message to all clients, it sends to the backplane.

The backplane knows all connected clients and which servers they're on.
DEMO

Sensor Dashboard
(with Redis backpane)
AZURE SIGNALR SERVICE

• Is a proxy rather than a backplane.
• Scales to handle any number of connections.
• Sticky sessions is not required.
# AZURE SIGNALR SERVICE PRICING

<table>
<thead>
<tr>
<th></th>
<th>Free</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concurrent Connections per Unit</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>Messages / Unit / Days</td>
<td>20000</td>
<td>Unlimited (first 1000000 messages free)</td>
</tr>
<tr>
<td>Price / Unit / Day</td>
<td>Free</td>
<td>€ 1,3578</td>
</tr>
<tr>
<td>Max Units</td>
<td>1</td>
<td>100</td>
</tr>
</tbody>
</table>

Additional messages: € 0,844 per million messages

Thank You!

Slides and Demo source code available at https://github.com/enosreccanati/WebDay2021-ASP.NET-Core-SignalR

Canale Discord UGI dotNET: #eventi-webday2021-track3!
https://discord.gg/77yC9N4A

get in touch


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