

Overview of ASP.NET Core SignalR



Roland Guijt

MVP | CONSULTANT | TRAINER | AUTHOR

@rolandguijt rolandguijt.com



Module Overview



What is SignalR?

Transports

RPC

Hubs

Differences

Scaling out



SignalR is an open source
framework that wraps the
complexity of real-time web
transports



SignalR and Transports

SignalR

Transport



ASP.NET Core SignalR Benefits

Cross platform

Fast

Light weight



Understanding ASP.NET Core 2.x



Two Parts

Server side

Client side



Transports

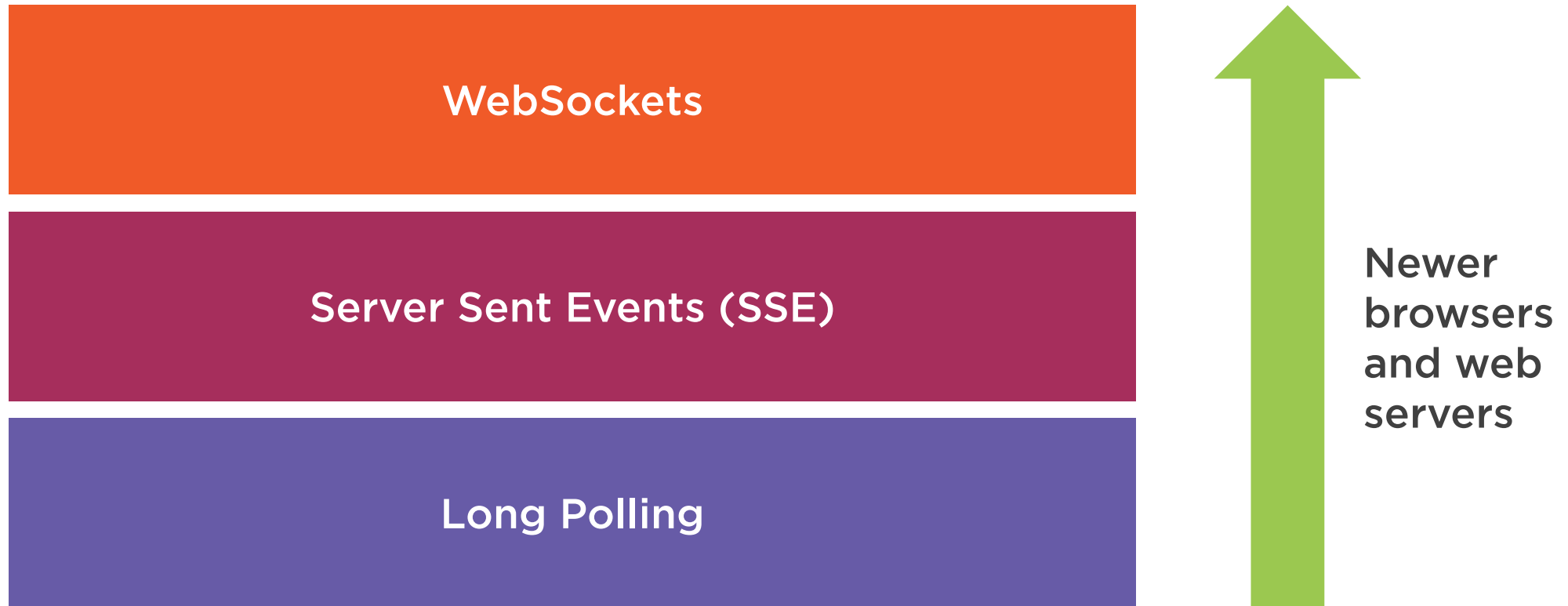
**WebSockets, Server Sent Events,
Long Polling**

**Requires client and server that supports
transport**

Fallback mechanism



Transports and SignalR



Remote Procedure Call (RPC)

Browser

Server

```
SendMessage(Message message)  
{
```



Remote Procedure Call (RPC)



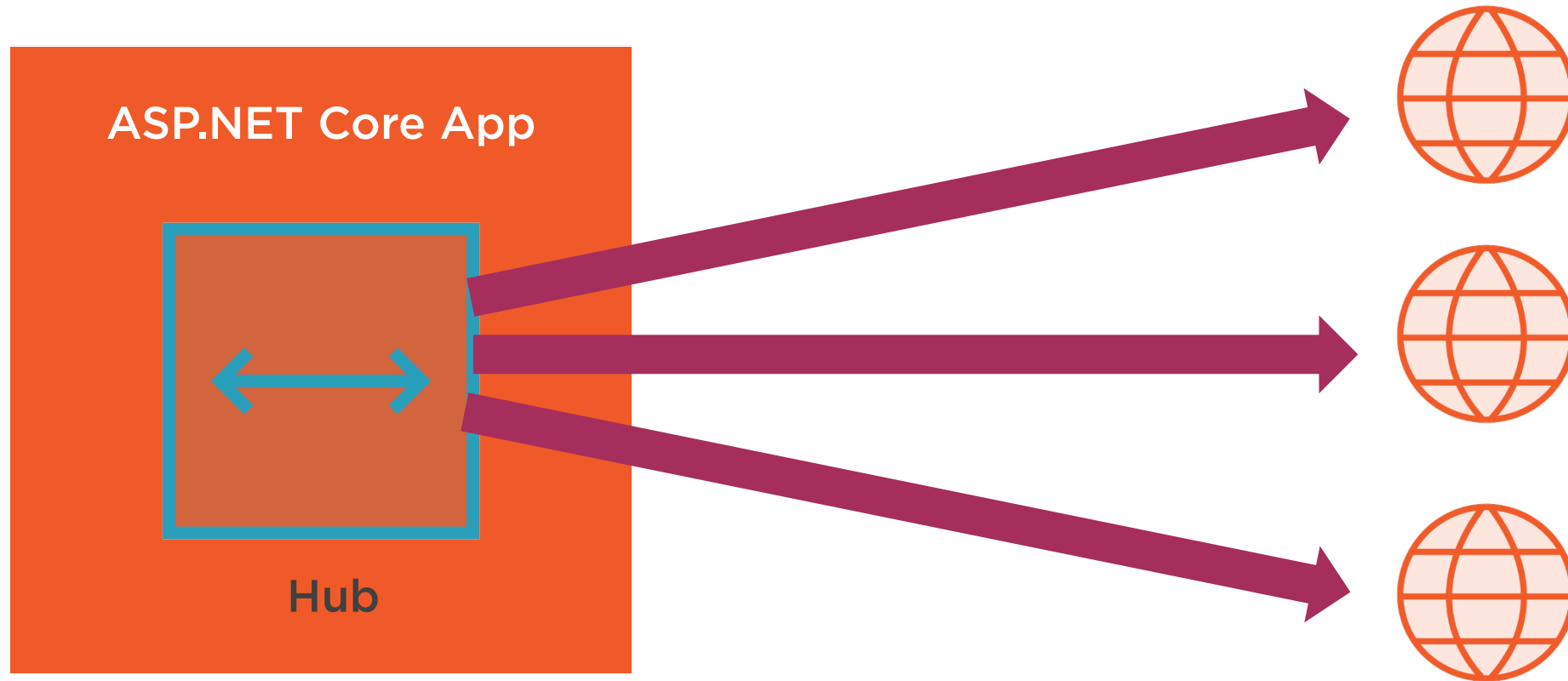
Remote Procedure Call (RPC)



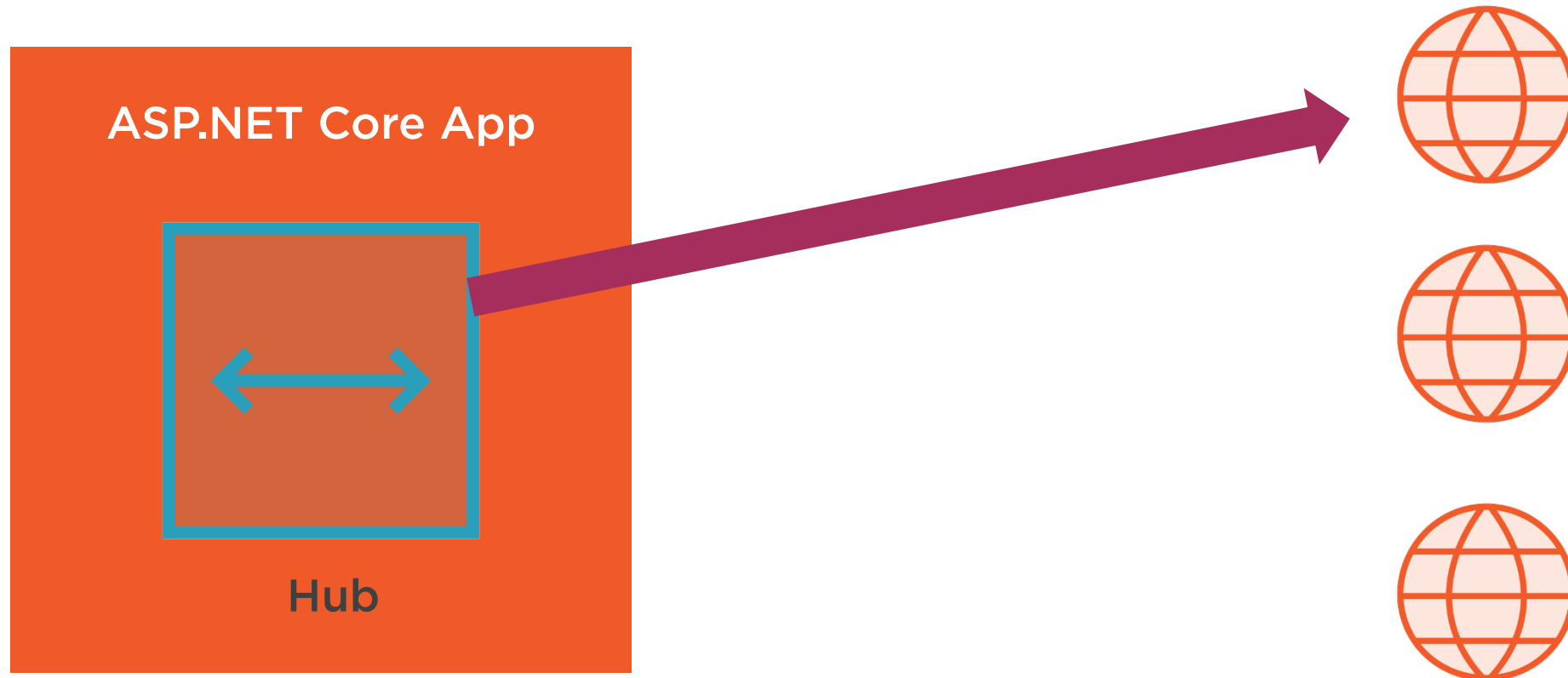
A hub is a server-side class that sends messages to and receives messages from clients



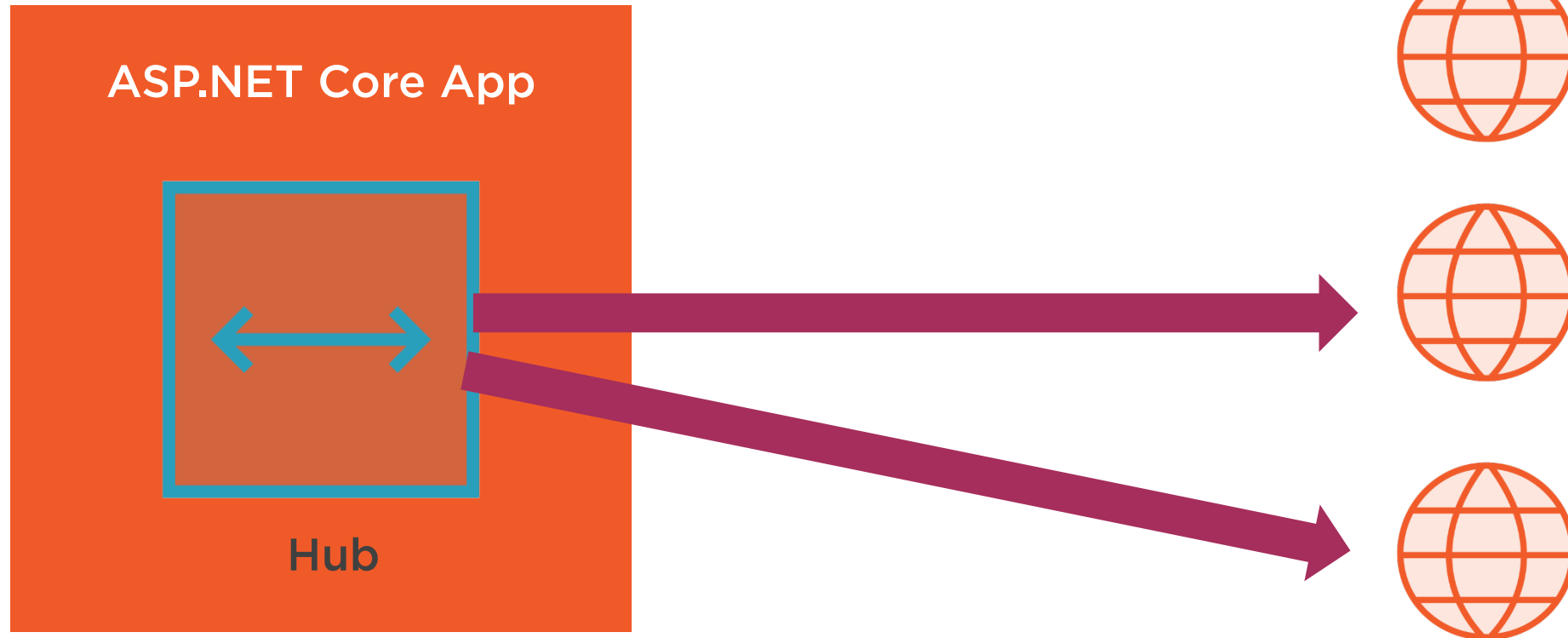
Hubs and Clients



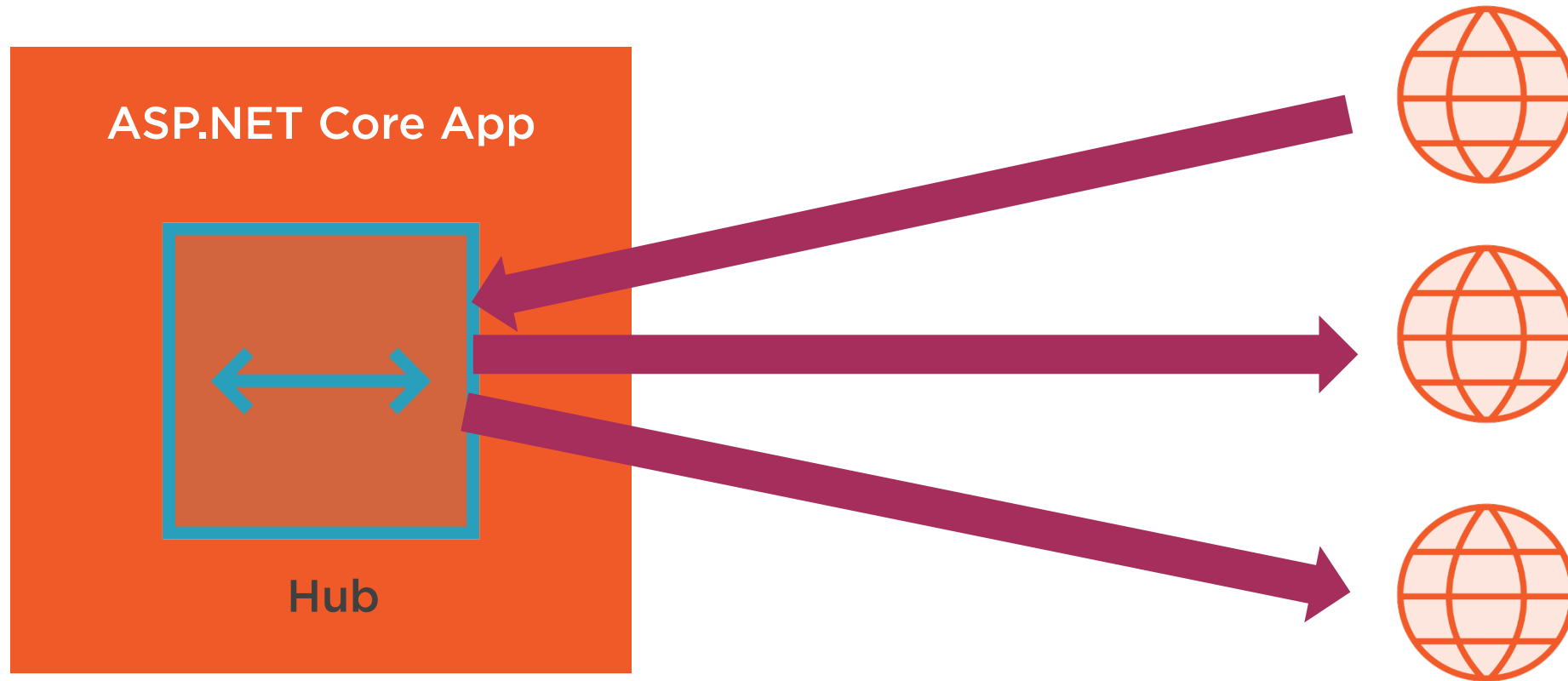
Hubs and Clients



Hubs and Clients



Hubs and Clients



SignalR and Transports

SignalR

Transport



A hub protocol is a format used to serialize parameters to and deserialize parameters from



JSON and MessagePack

JSON (38 bytes)

```
{"Product": "Americano",  
  "Size": "Vente"}
```

MessagePack (30 bytes)

```
82 a7 50 72 6f 64 75 63 74 a9 41  
6d 65 72 69 63 61 6e 6f a4 53 69  
7a 65 a5 56 65 6e 74 65
```



Differences with "Classic" SignalR

Simplified connection model

Single hub per connection

Async

Binary and custom protocols

**No jQuery dependency for
JavaScript client**

Sticky sessions required



Scaling Out

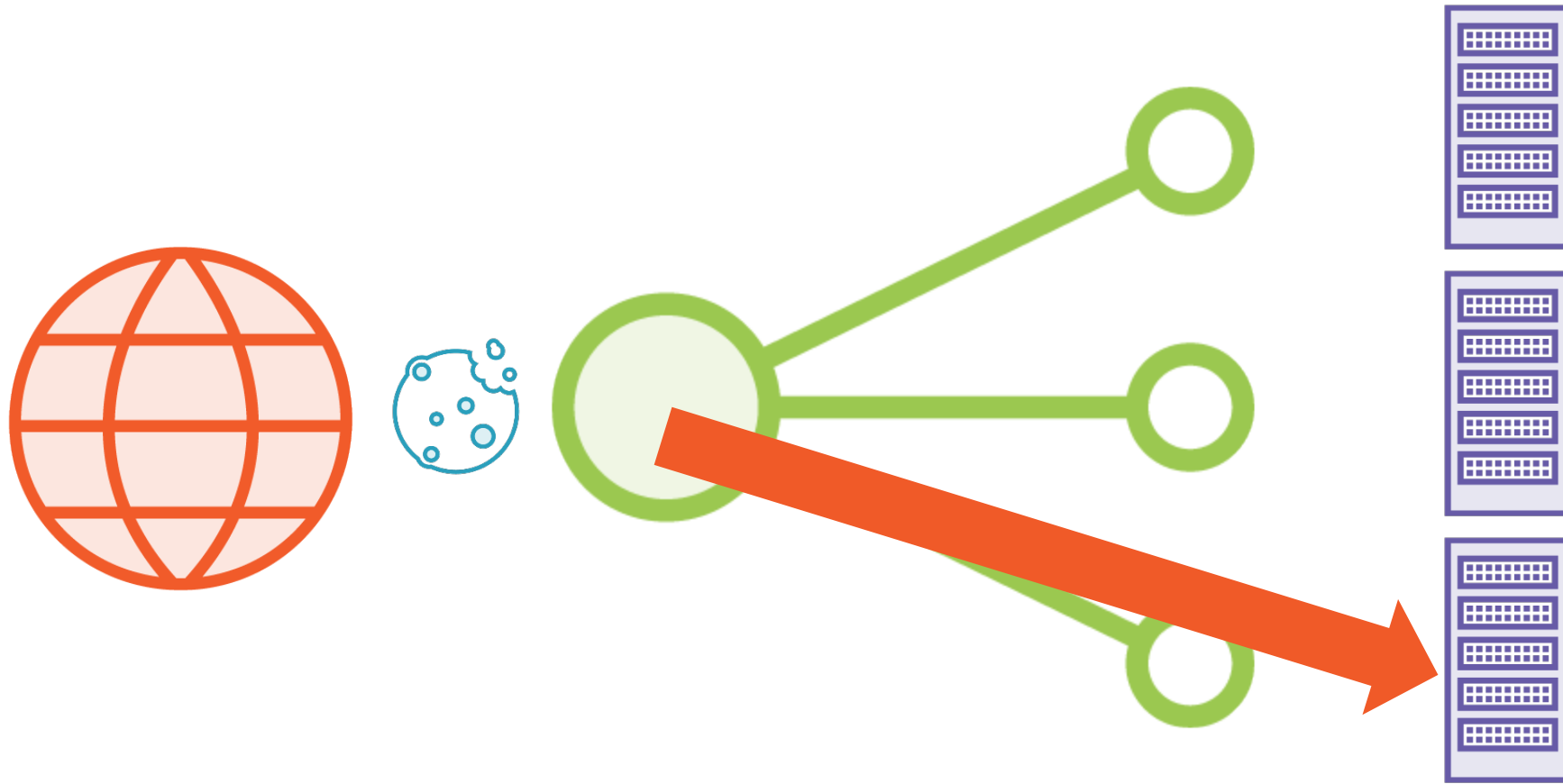
Running on multiple servers

Load balancer picks server

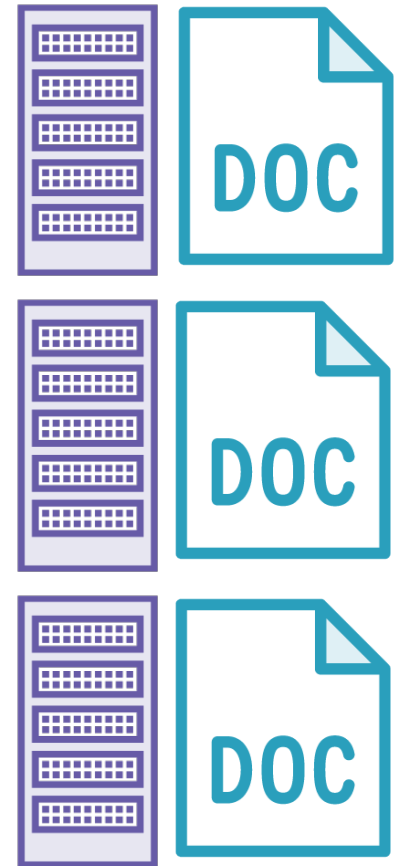
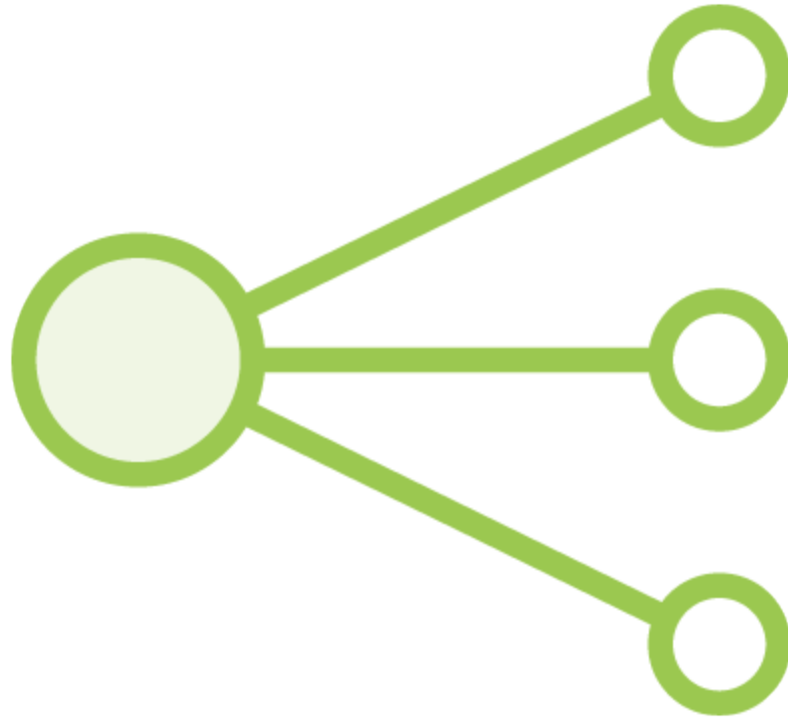
Problem with non-WebSockets transport



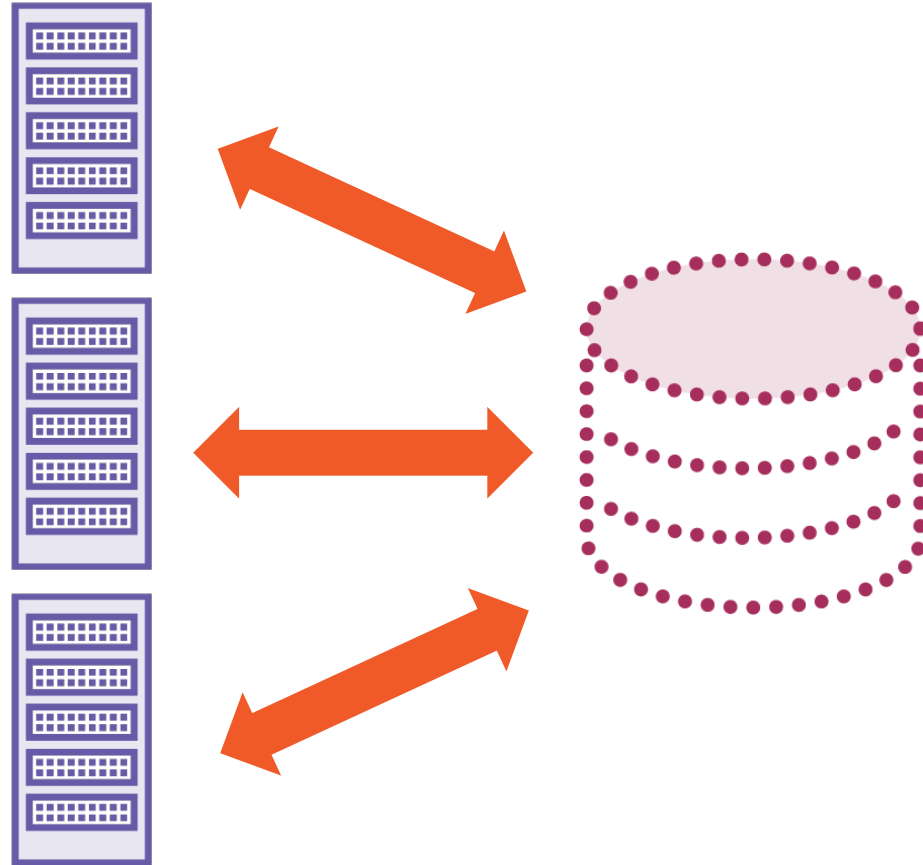
Scaling Out



Scaling Out



Scaling Out



Azure SignalR Service Recipe

Create ASP.NET Core SignalR app

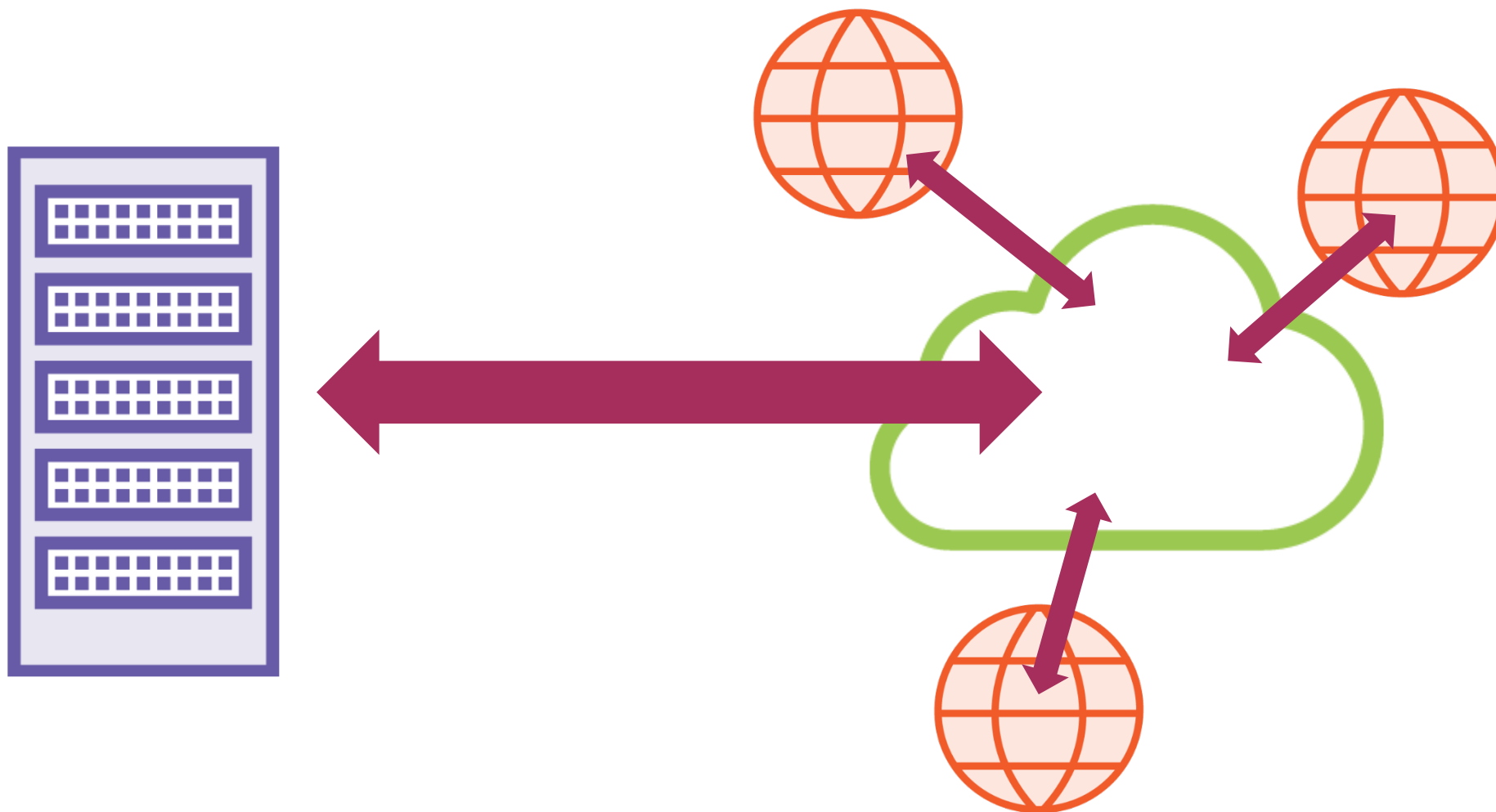
Create SignalR service in Azure portal

Get connection string

Use connection string in app



Azure SignalR Service



<https://4sh.nl/signalrservice>



Summary



SignalR simplifies real-time applications

Utilizes transports

Calls functions over the wire

Hubs can receive and send messages

Core version is different

Complexity when scaling out

