Improving HttpClient Instance Management with HttpClientFactory

Kevin Dockx
ARCHITECT

@KevinDockx https://www.kevindockx.com

Coming Up

The Problem with Disposing HttpClient

Working with HttpClientFactory

- Direct
- Named
- Typed

The Problem with Disposing HttpClient Instances (Part 1)

When disposing HttpClient the underlying HttpClientHandler is disposed, which closes the underlying connection

- Reopening the connection is slow
- As it takes time to close a connection, we might not have a socket available for a new one

Demo

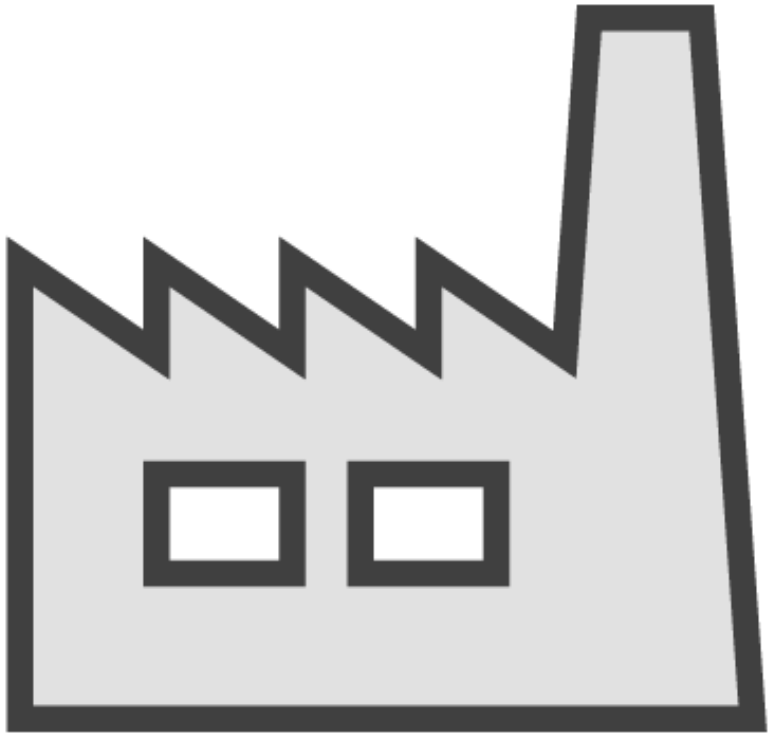
The Problem with Disposing HttpClient Instances

The Problem with Disposing HttpClient Instances (Part 2)

When we reuse HttpClient/HttpClientHandler instances (and thus the connection), DNS changes aren't honoured

- Can lead to requests not arriving at the correct server
- Leads to issues when using Azure PaaS services

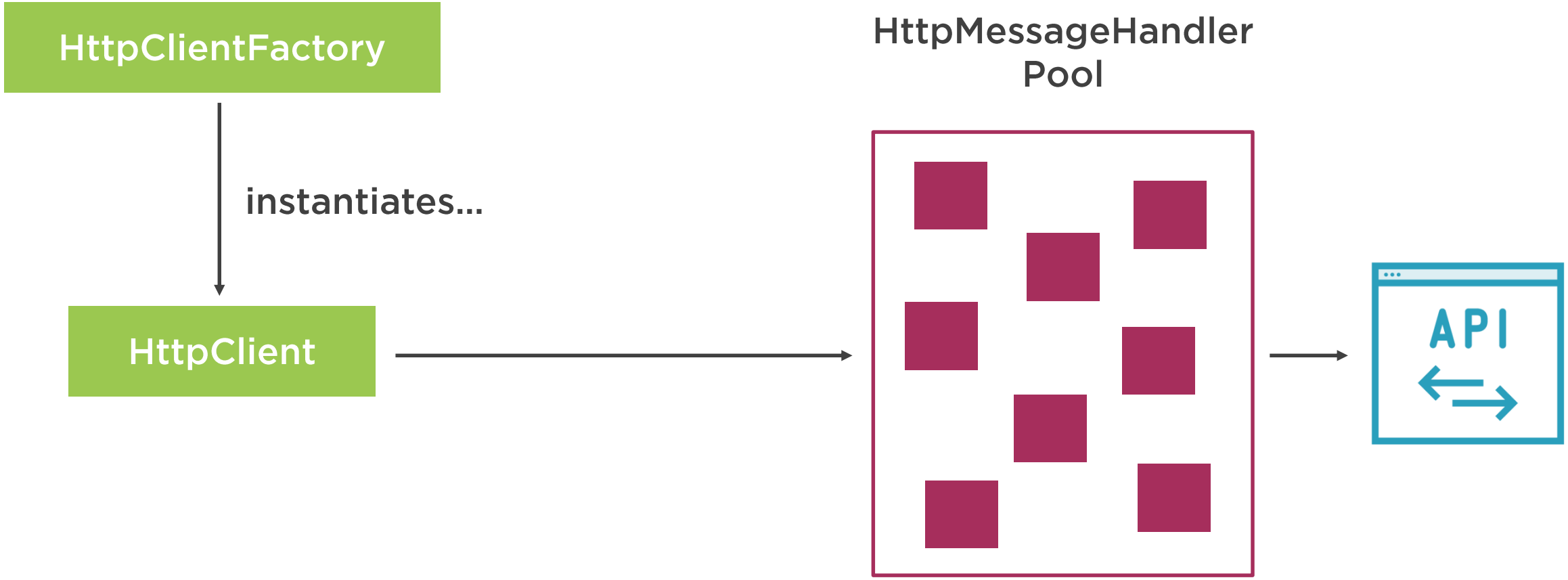
Introducing HttpClientFactory



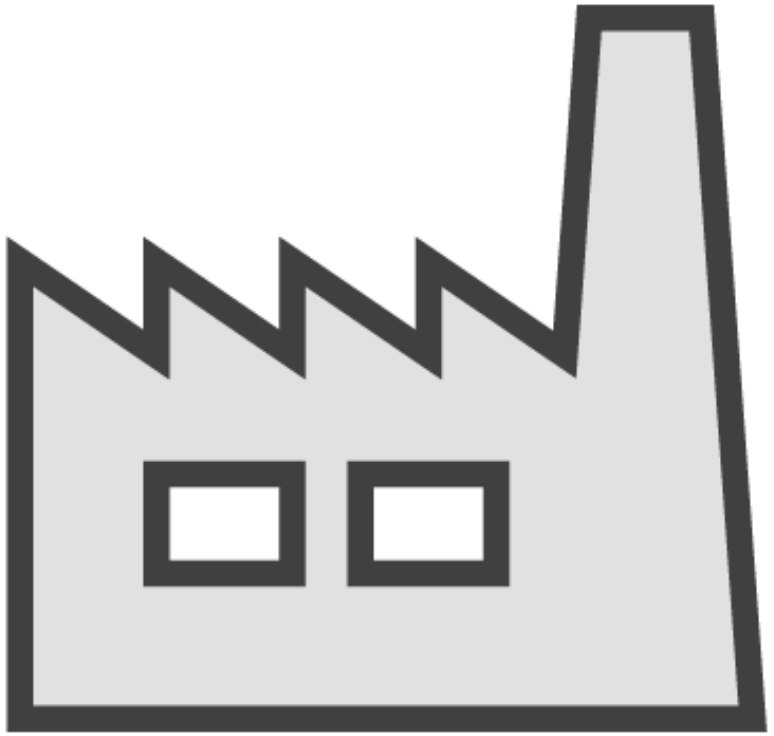
HttpClientFactory

- Introduced with .NET Core 2.1
- Used to create and manage instances of HttpClient and underlying handler(s)

Introducing HttpClientFactory



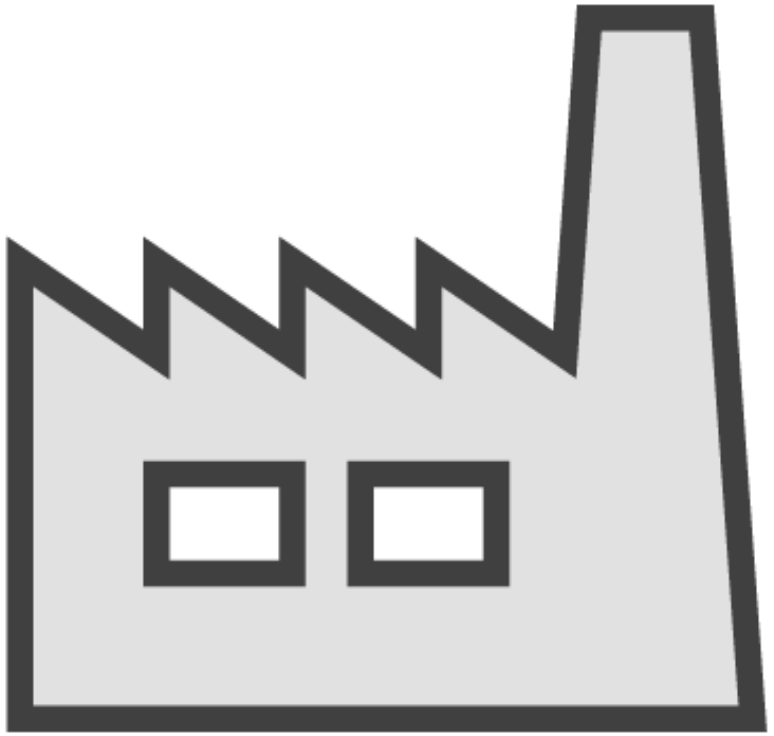
Introducing HttpClientFactory



Reusing handlers allows reusing the underlying connection, which solves the socket issue

Disposing of handlers after 2 minutes (=default) solves the DNS issue

Introducing HttpClientFactory



HttpClientFactory provides a central location for naming and configuring logical HttpClients

For these, we can configure handlers and policies

Demo

Using HttpClientFactory to Manage HttpClient Instances

Demo

Using Named Instances and Defaults

Demo

Configuring the Primary Message Handler

Demo

Using Typed Instances

Demo

Using Typed Instances with Type-scoped Configuration

Demo

Extending Typed Instances with Interaction Methods

Summary

Problems with HttpClient

- When we dispose HttpClient the underlying HttpClientHandler is disposed, which closes the underlying connection
- When we reuse the connection, DNS changes aren't honoured

Summary

HttpClientFactory mitigates these issues

- Supports direct, named and typed instances