Say goodbye to IConfiguration and embrace the power of the IOptions pattern

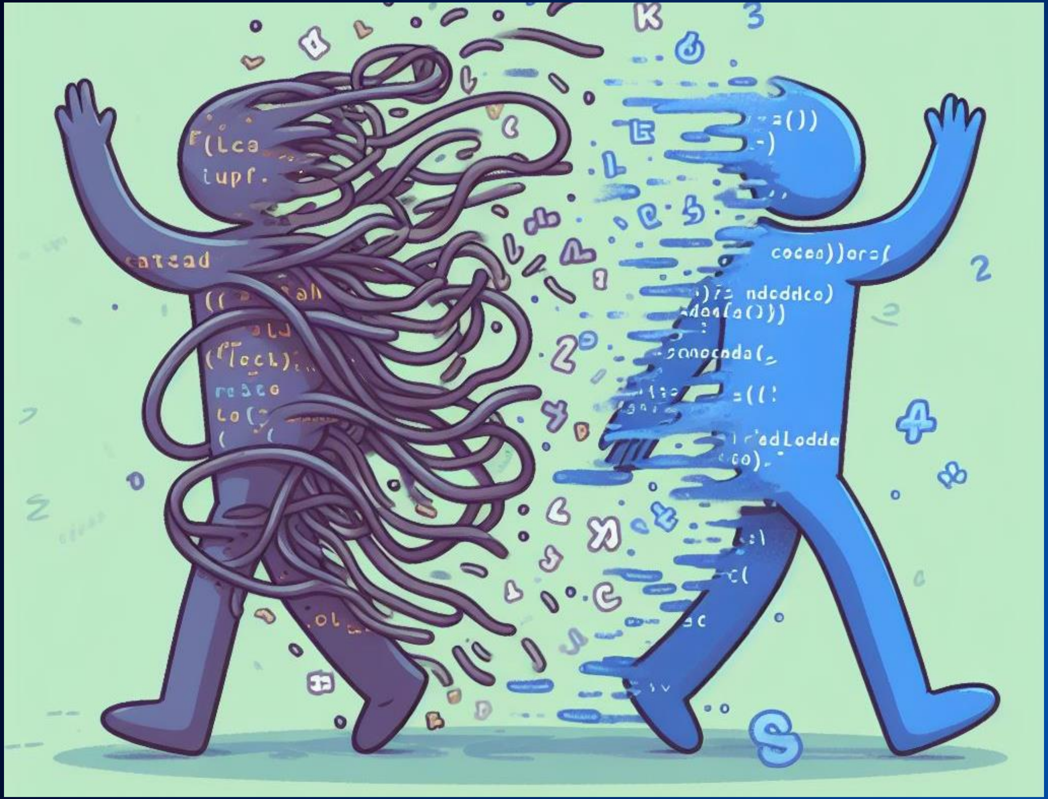
Pieter Samyn

About me

- **Name:** Pieter Samyn
- **Title:** Technology lead
- **Company:** ZF
- **Professional Background:**
  - Backend development
  - AWS serverless ecosystem
  - Performance
  - Maintainabilty

Audience knowledge

Introduction



IConfiguration

Concept

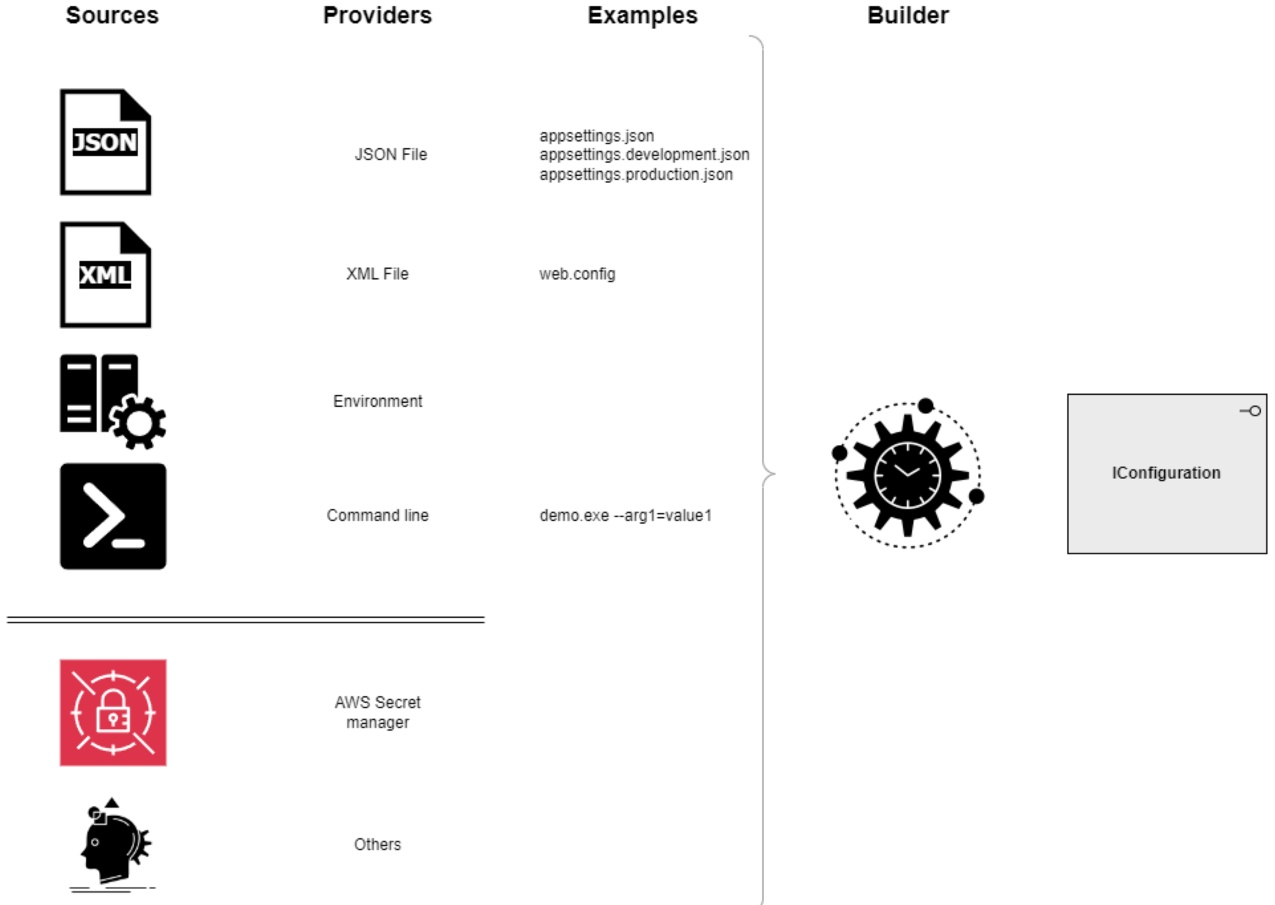
Providers

Binding

IConfiguration: Concept

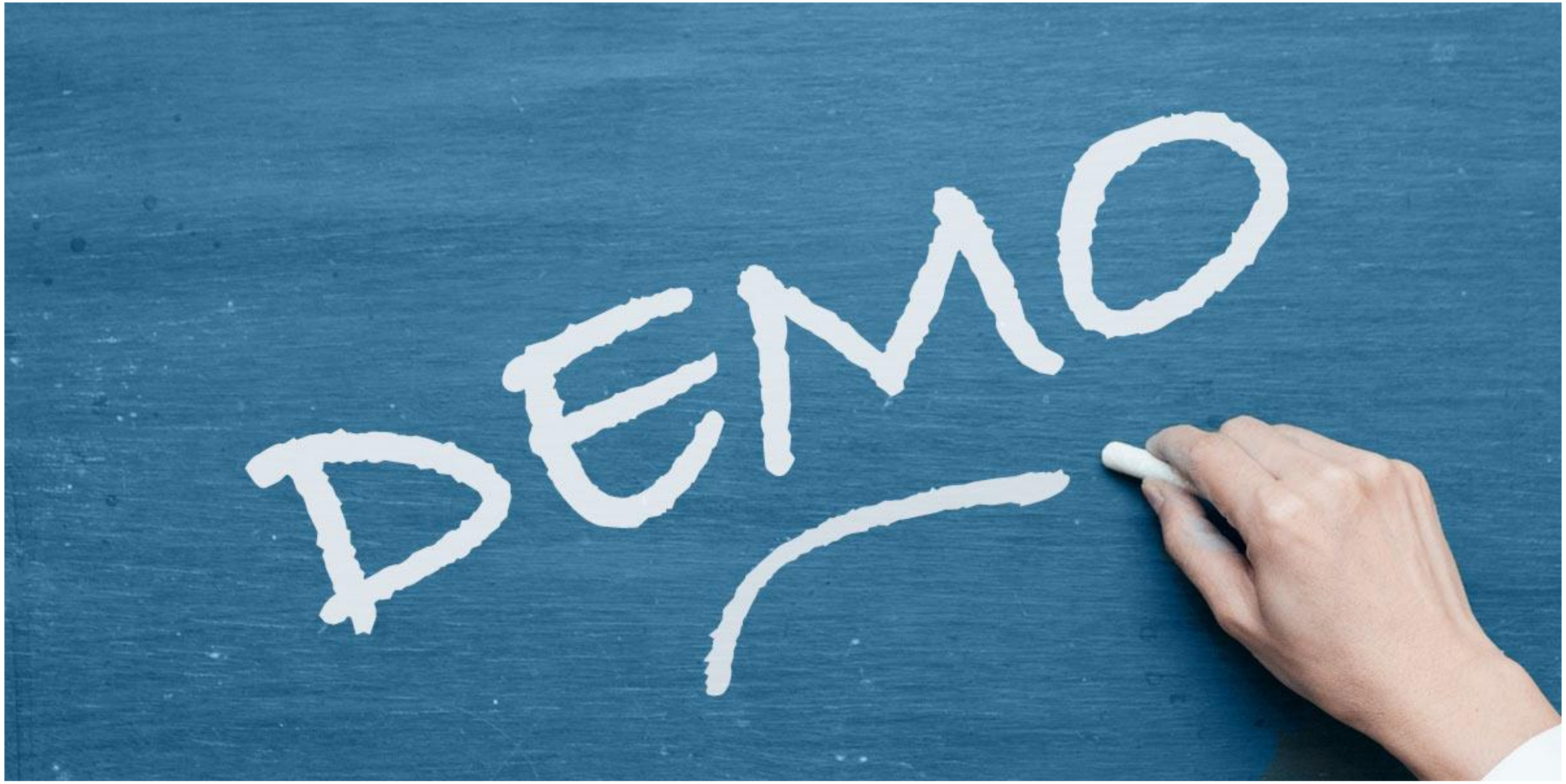
- Settings: timeout, uri’s, secrets, …
- Read only, view
- When applied, static vs dynamic

IConfiguration: Providers



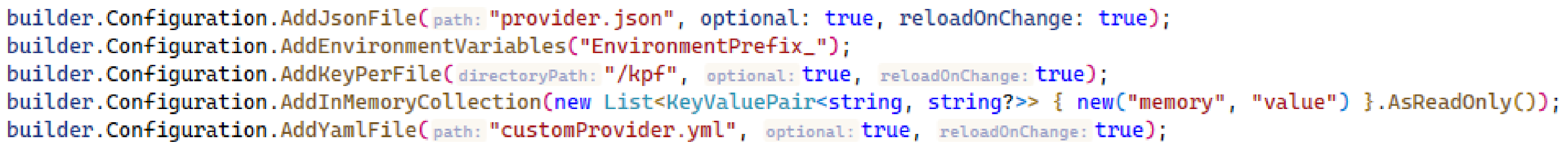
Sources	Providers	Examples
	JSON File	appsettings.json appsettings.development.json appsettings.production.json
	XML File	web.config
	Environment	
	Command line	demo.exe --arg1=value1
	AWS Secret manager	
	Others	

IConfiguration: Providers



IConfiguration: Provider flavors

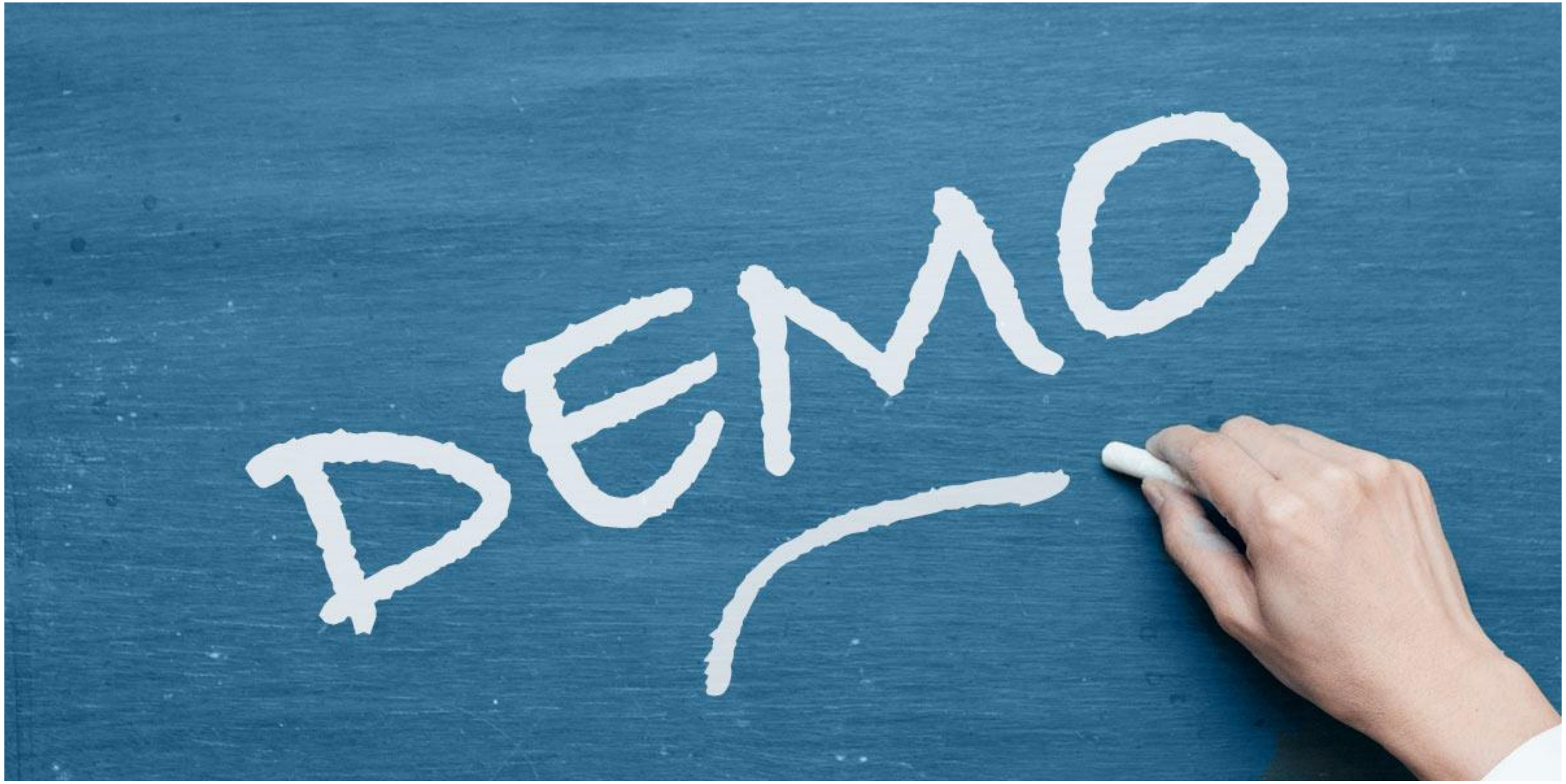
- Each provider is different



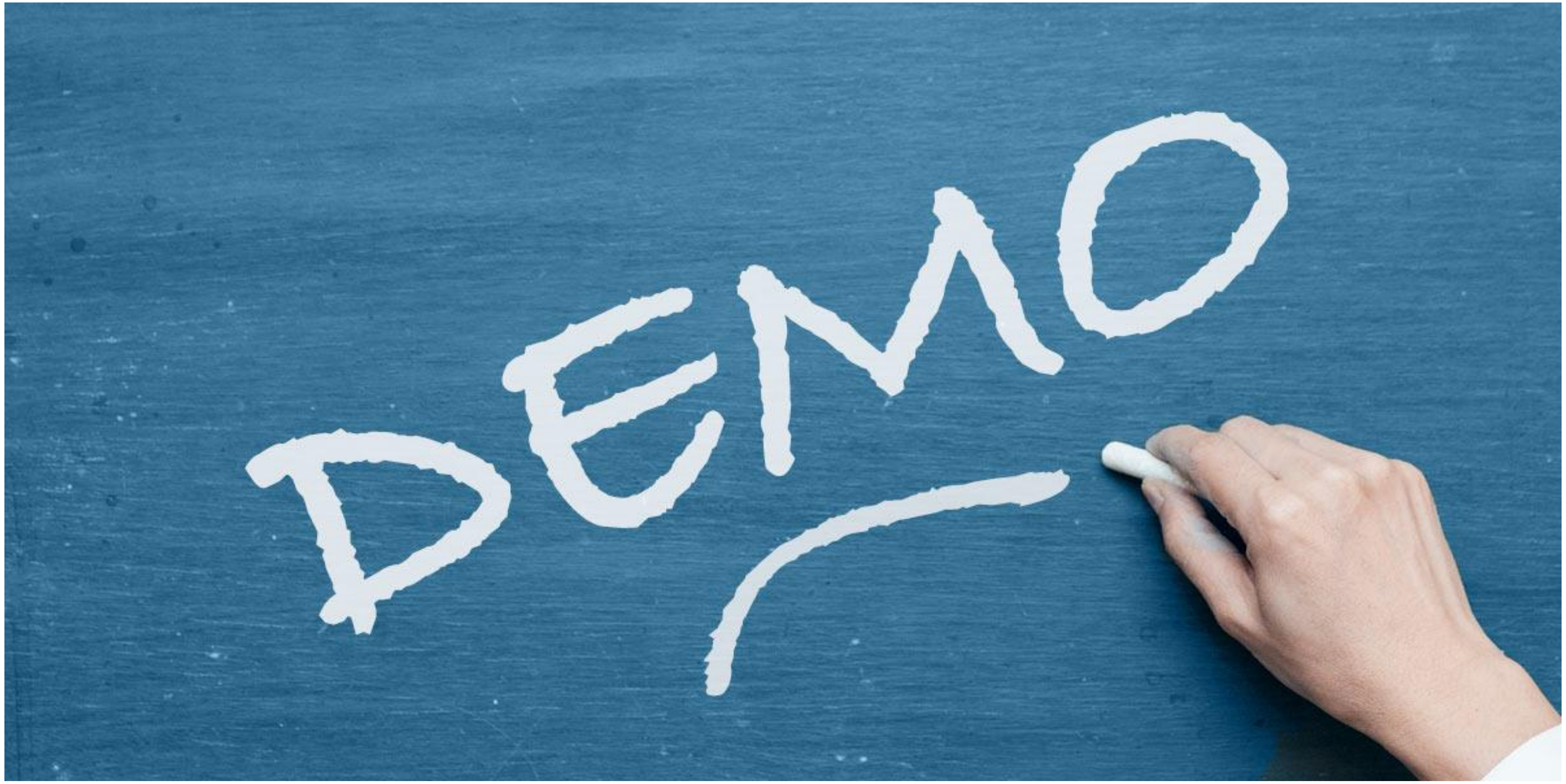
```
builder.Configuration.AddJsonFile( path: "provider.json", optional: true, reloadOnChange: true);
builder.Configuration.AddEnvironmentVariables("EnvironmentPrefix_");
builder.Configuration.AddKeyPerFile( directoryPath: "/kpf",  optional: true,  reloadOnChange: true);
builder.Configuration.AddInMemoryCollection(new List<KeyValuePair<string, string?>> { new("memory", "value") }.AsReadOnly());
builder.Configuration.AddYamlFile( path: "customProvider.yml",  optional: true,  reloadOnChange: true);
```

- Custom providers

IConfiguration: Custom provider



IConfiguration: Binding



IOptions

Concept

Types

Validation

Configure

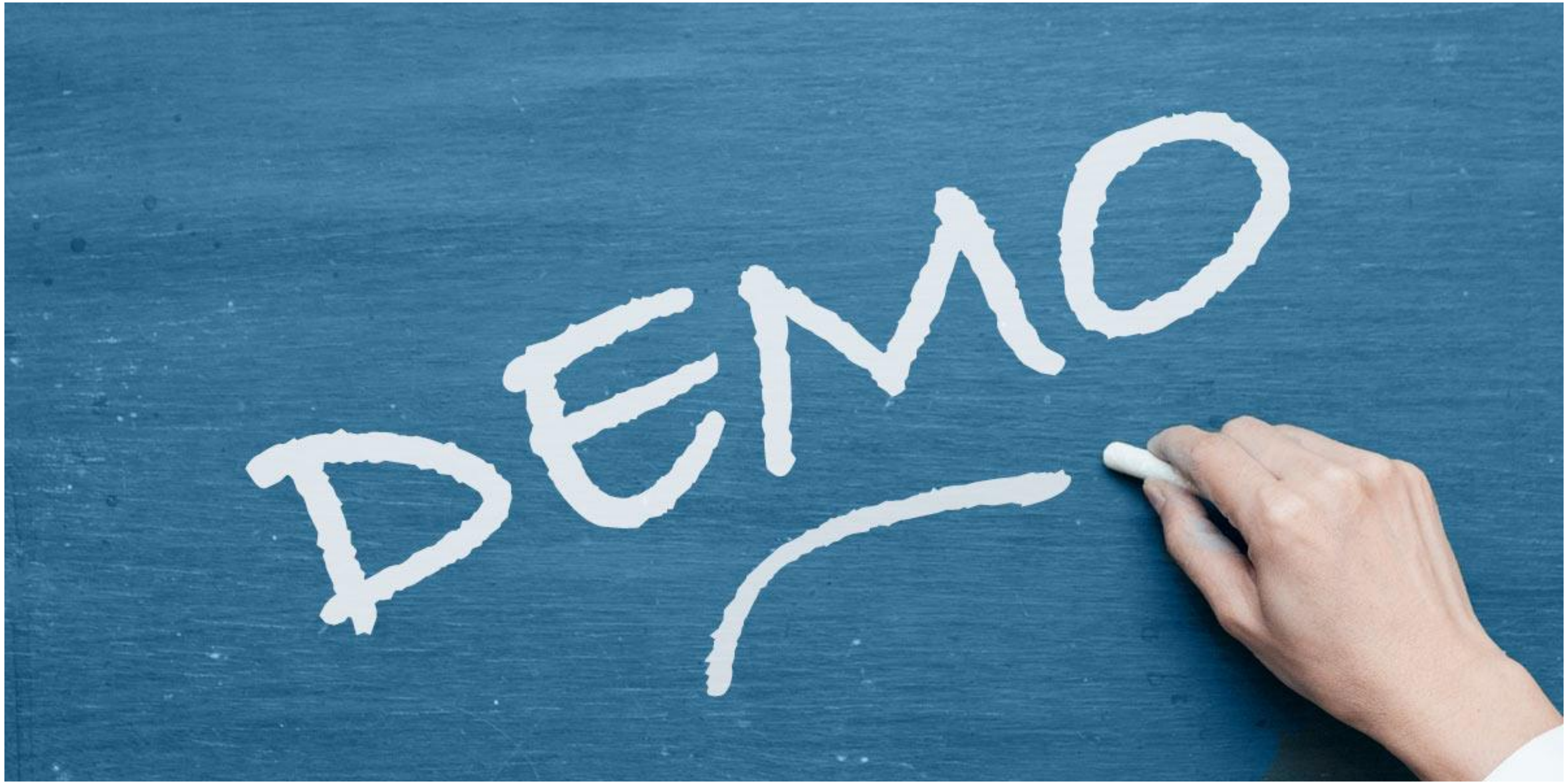
IOptions: Concept

- Interface Segregation Principle (ISP)
- Separation of Concerns
- Validation
- DI resolving

IOptions: Types

	Singleton	Reloadable	Named support
IOptions<T>	✓	✗	✗
IOptionsSnapshot<T>	✗	✓	✓
IOptionsMonitor<T>	✓	✓	✓

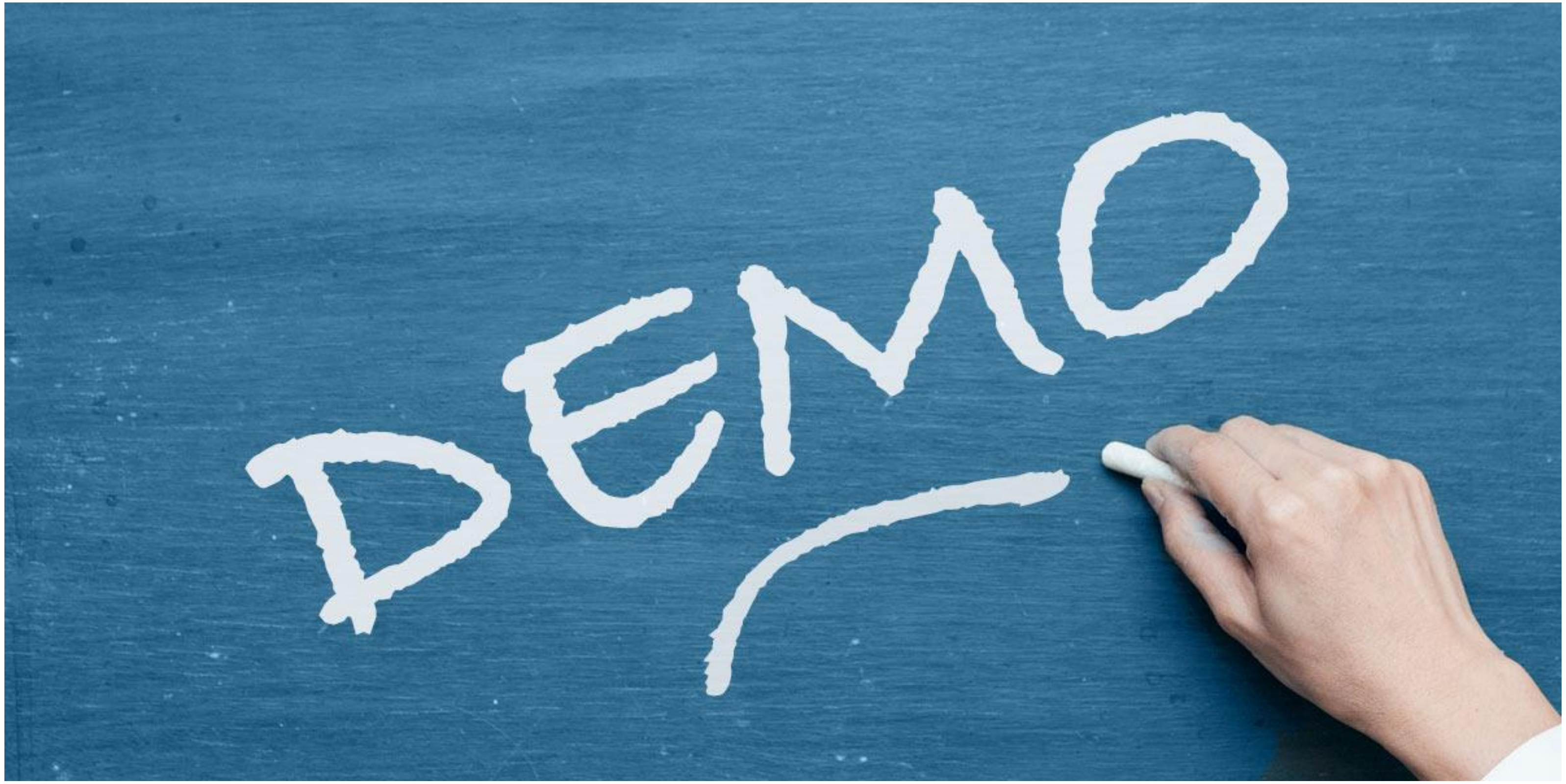
IOptions: Types



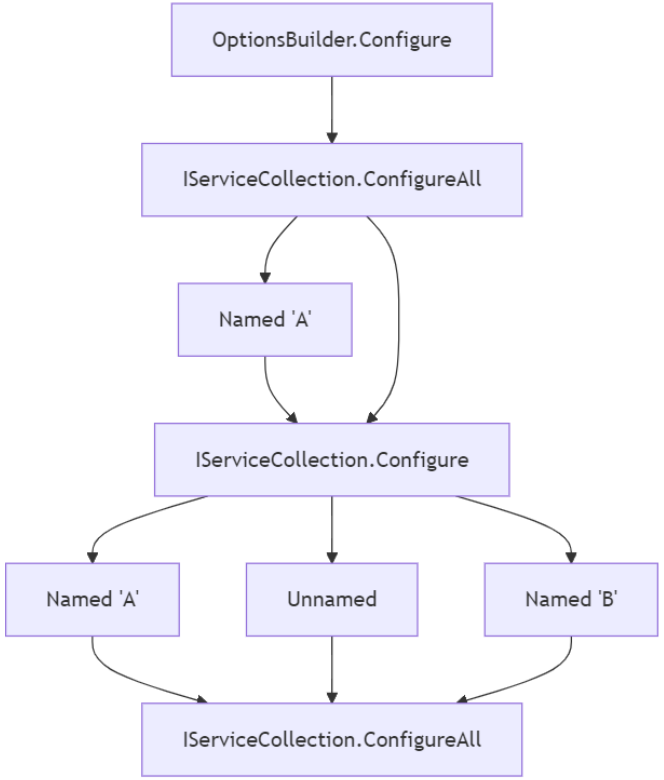
IOptions: Validation

- Microsoft.Extensions.Options.DataAnnotations
- On first usage
- On startup
- Custom validation
- Validation in a separate class
- Source generated

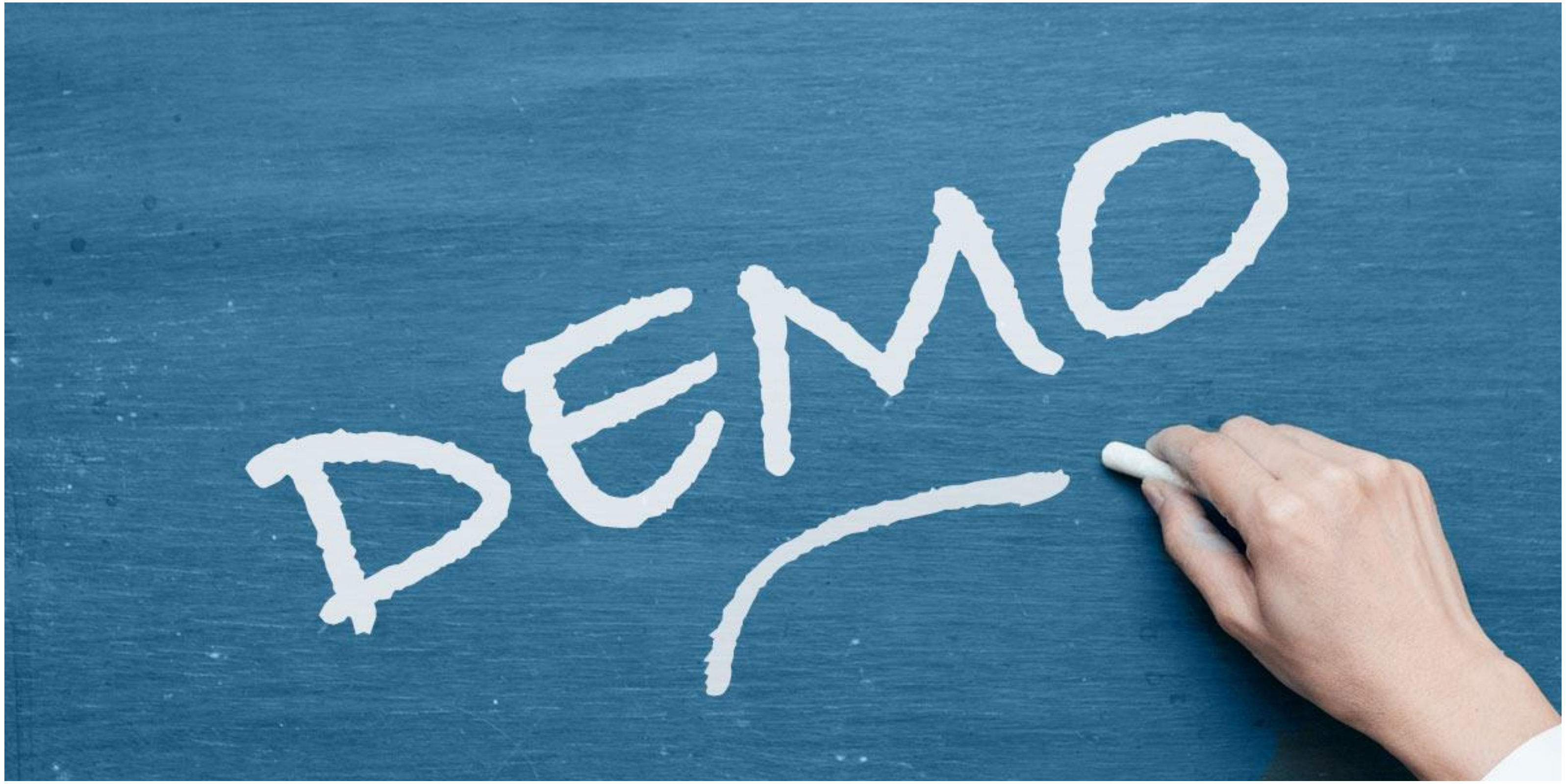
IOptions: Validation



IOptions: Configure


OptionsBuilder.Configure
IServiceCollection.ConfigureAll
Named 'A'
IServiceCollection.Configure
Named 'A'
Unnamed
Named 'B'
IServiceCollection.ConfigureAll

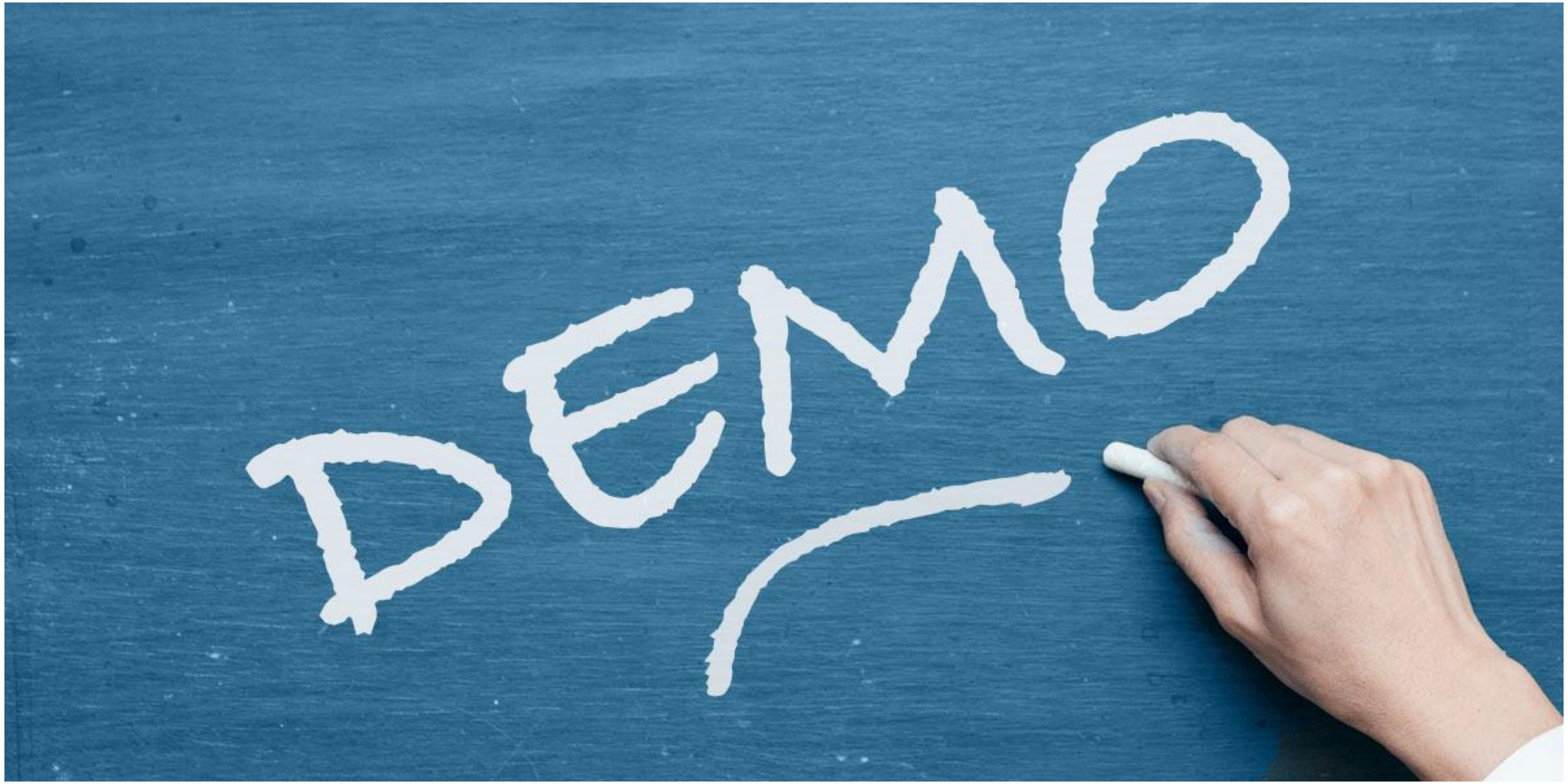
IOptions: Configure



Summary

- IConfiguration
  - Providers
  - Binding
- IOptions
  - Types
  - Validation
  - Configuration

Examples



Q&A