ASP.NET Output Caching

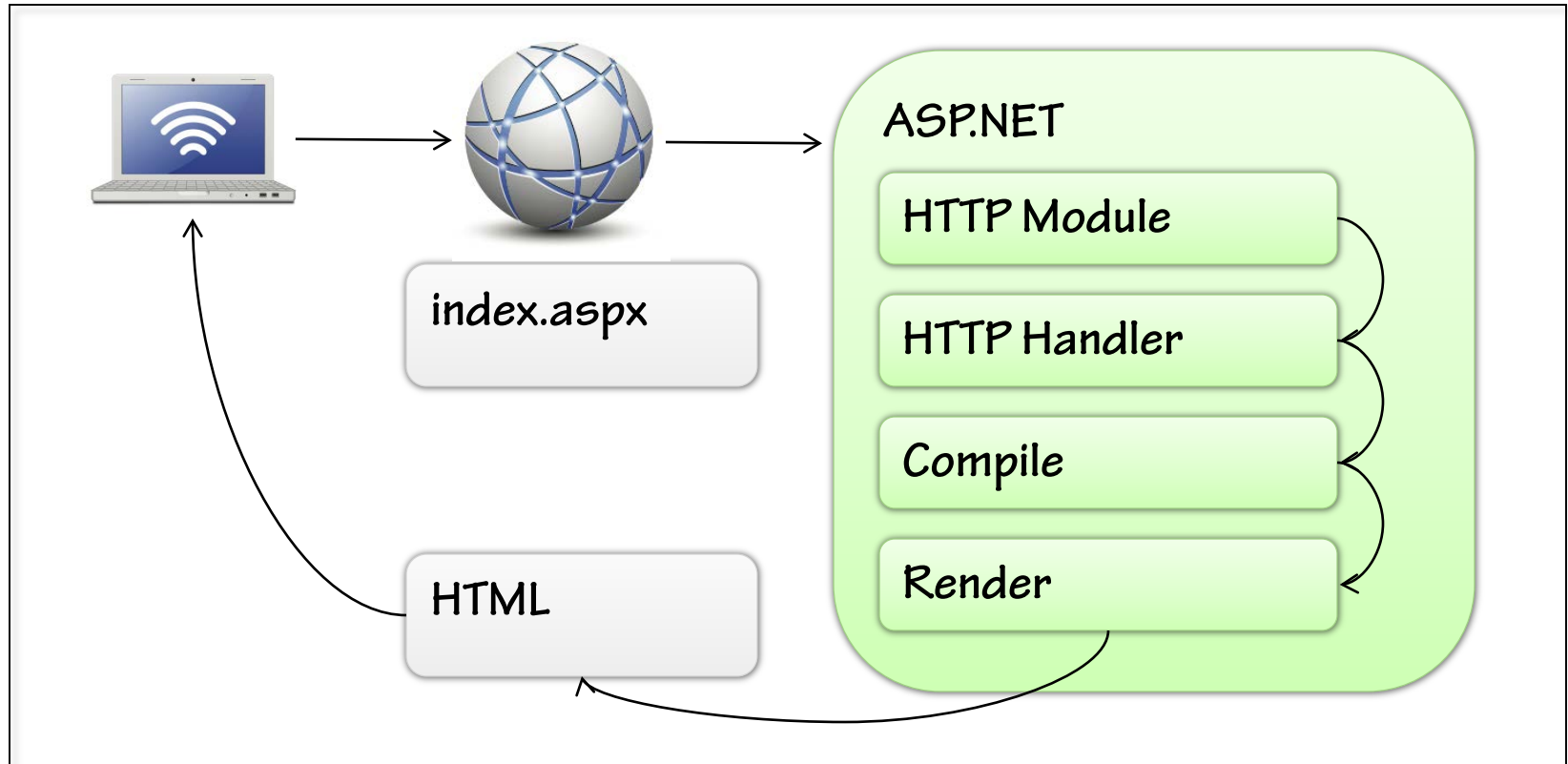Elton Stoneman

elton@sixeyed.com

Outline

- **ASP.NET output caching**
  - Caching content after first execution
  - In-memory cache
- **Output caching with a solution cache**
  - OutputCacheProvider
  - ICache wrappers
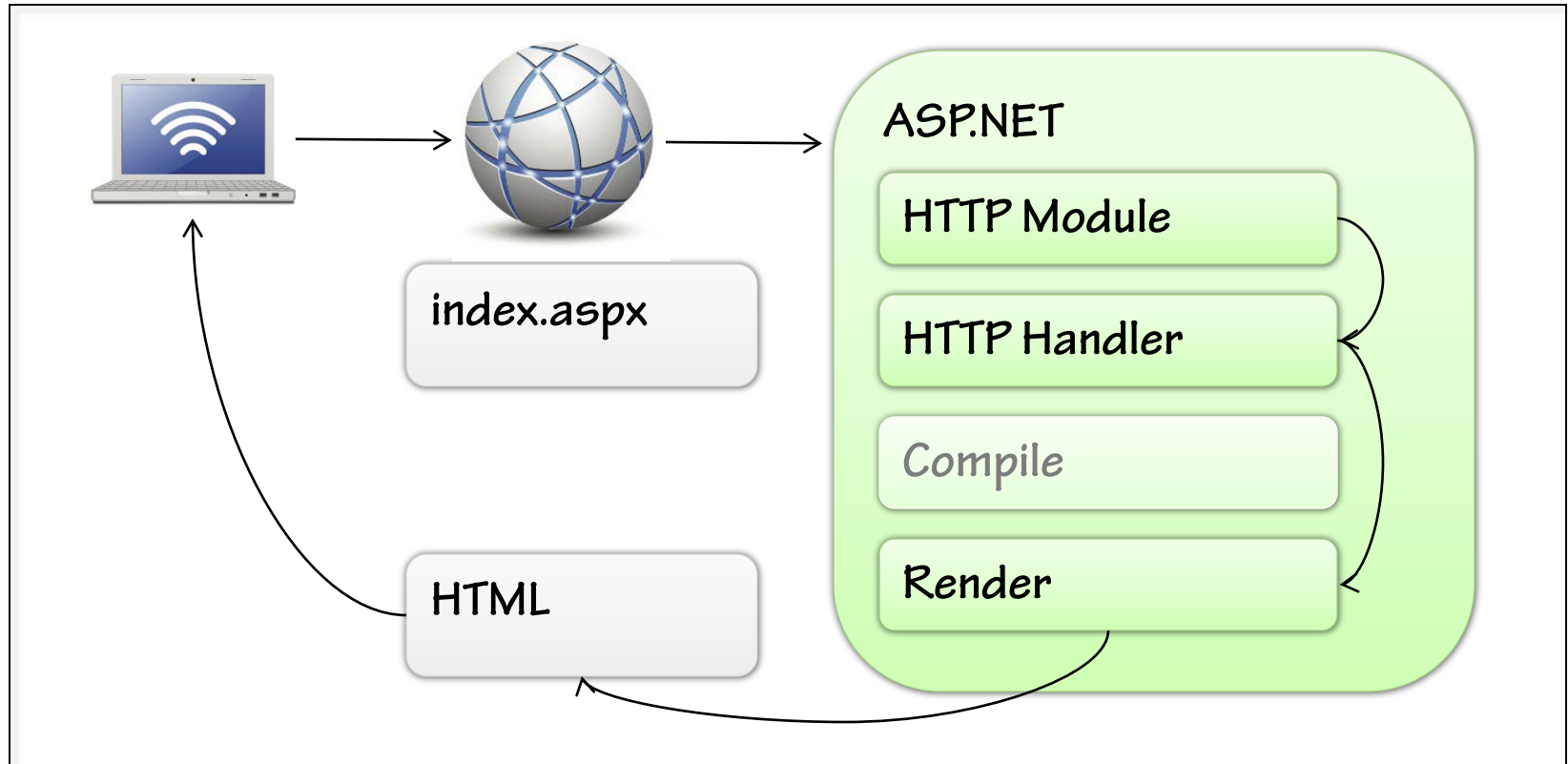- **Matrix for output caching**

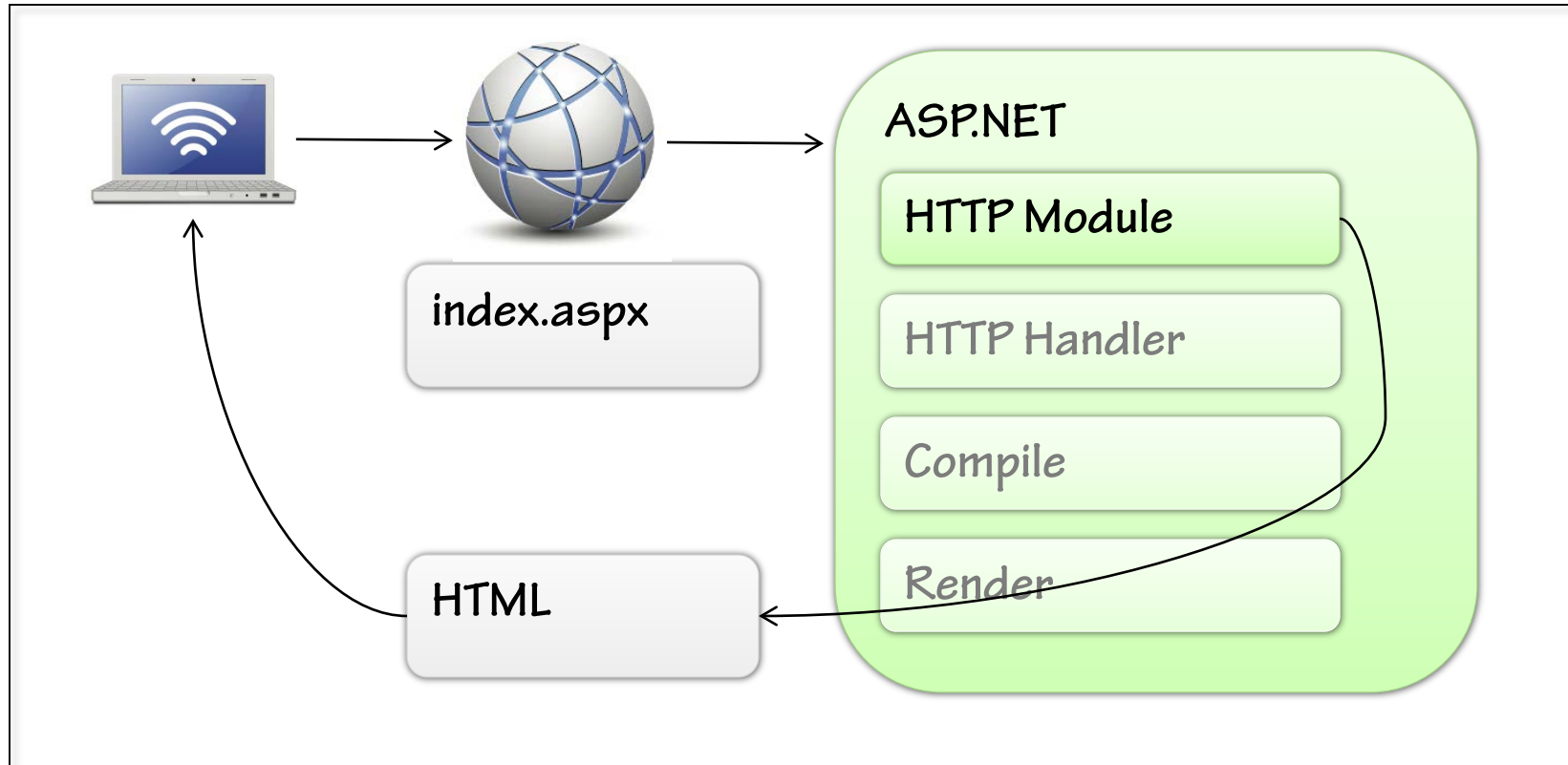# ASP.NET Output Caching

- **Execution pipeline: first access**

ASP.NET Output Caching

- **Execution pipeline: repeat access**

ASP.NET Output Caching

- **Execution pipeline: repeat access with output caching**

ASP.NET Output Caching

- Demo

ASP.NET Output Caching

- **Basic functionality**
  - OutputCache page directive in ASP.NET

```
<%@ OutputCache Duration="10" VaryByParam="none" %>
```

  - OutputCache action filter in ASP.NET MVC

```
[OutputCache(Duration=10)]
public ActionResult GetQuotes()
```
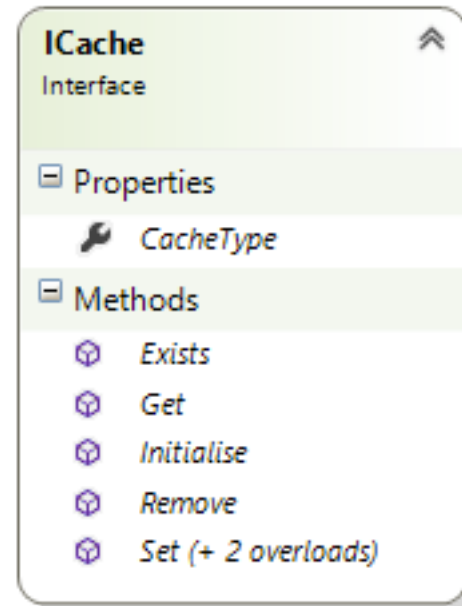
- **Cache Profiles**

```xml
<system.web>
  <caching>
    <outputCacheSettings>
      <outputCacheProfiles>
        <add name="ShortLived"
          duration="20"
          varyByParam="none"
          location="Server" />
```
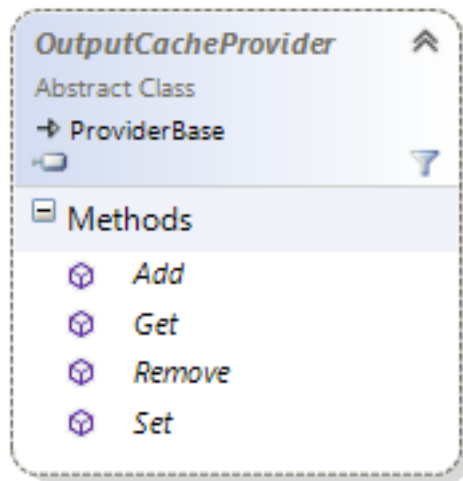
ASP.NET Output Caching

- **More functionality**
  - VaryBy*
  - Fragment caching & partial views
  - "ASP.NET MVC Advanced Topics" – Scott Allen
  - "ASP.NET 3.5 Working With Data" – Fritz Onion & Keith Brown
- **In-memory cache**
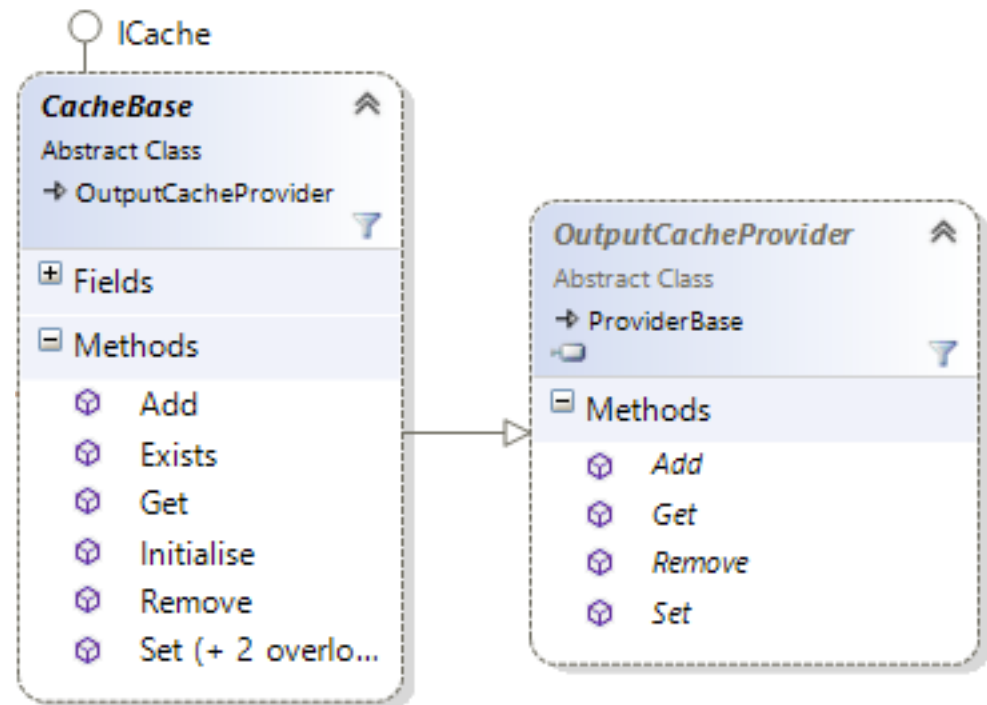 - Custom caches from ASP.NET 4

Output Caching with a Solution Cache

- **OutputCacheProvider**
  - Plug-in model for output cache store
  - Web.config

Output Caching with a Solution Cache

- Inherit CacheBase from OutputCacheProvider

Output Caching with a Solution Cache

- Demo

Output Caching with a Solution Cache

- **Modified CacheBase**
  - Inherit from OutputCacheProvider
  - Explicitly implement ICache Get() and Set()
  - Generate cache key
  - Binary serialization in OutputCacheProvider Get() and Set()
- **Specify solution caches in Web.config**

```xml
<system.web>
  <caching>
    <outputCache defaultProvider="Disk">
      <providers>
        <add name="Disk"
type="Sixeyed.Core.Caching.Caches.DiskCache, Sixeyed.Core"/>
        <add name="AzureTableStorage"
type="Sixeyed.Core.Caching.Caches.AzureTableStorage, Sixeyed.Core"/>
```

- **ICache implementations unchanged**
  - L1, L2 and L3 caches available for output caching
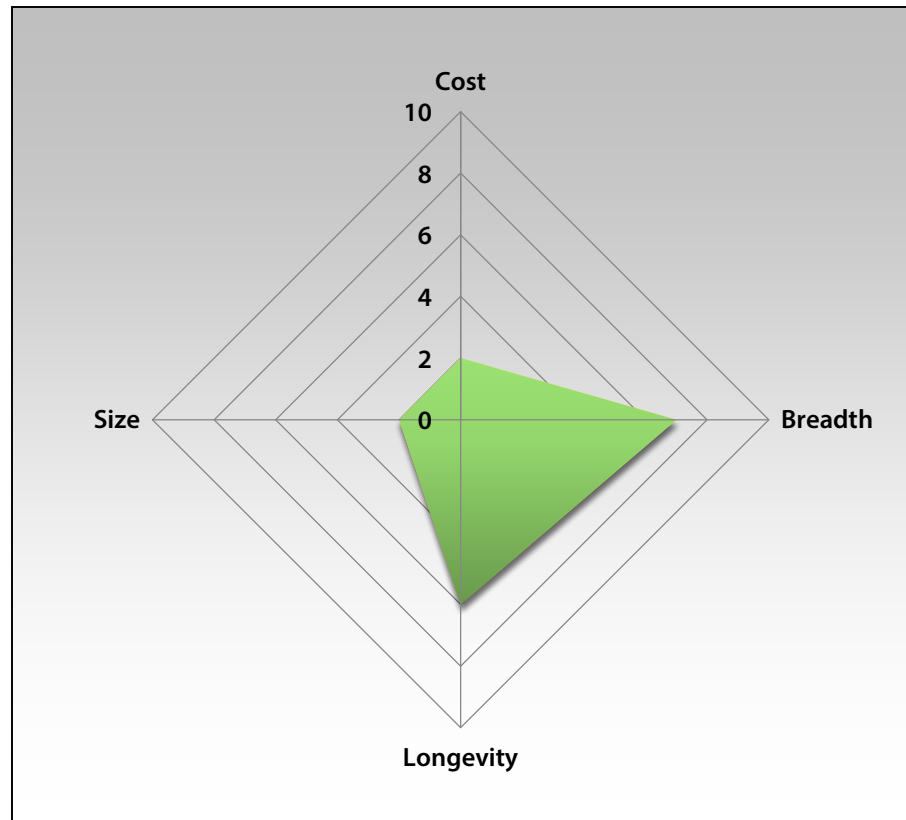
Output Caching with a Solution Cache

- **Layered caches**
  - Output cache expires
  - CMS cache current
  - Double performance boost
- **Expiry synchronisation**
  - CMS content expired
  - Output cache serving stale response

Decision Matrix for Output Caching

- **Extensible output cache provider**
  - Any ICache implemenation
  - Only one per-site
- **Custom extension**
  - Application startup
  - Override GetOutputCacheProviderName
  - Per-request
- **One provider per site**
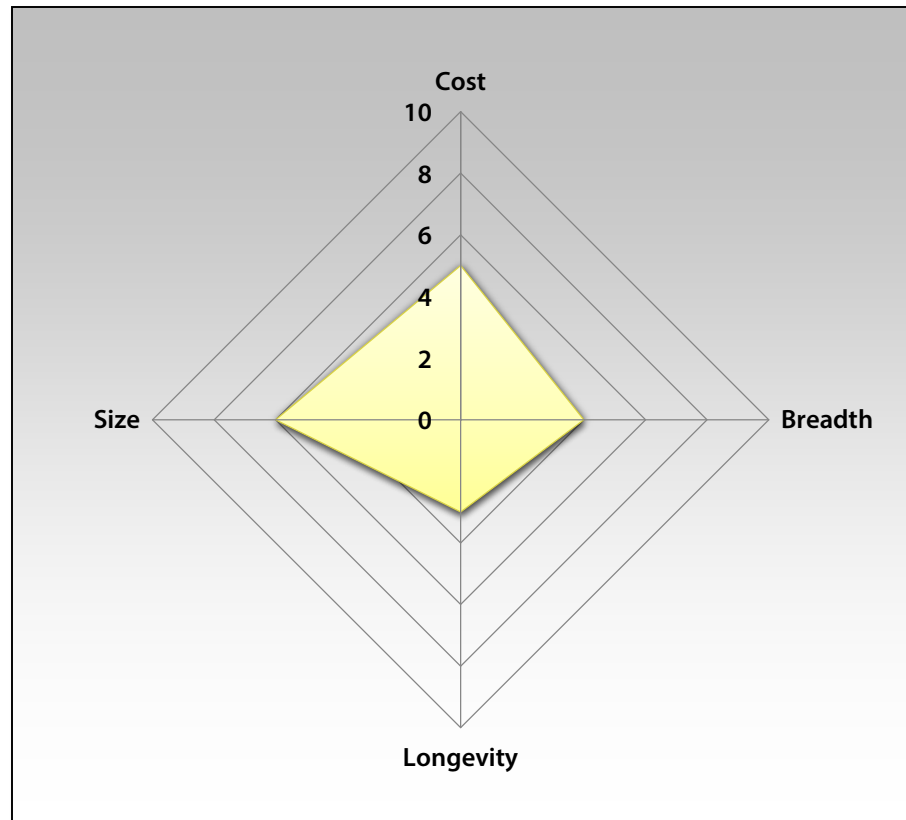 - Based on average response profile

Decision Matrix for Output Caching

- Demo solution: small, fast pages, good breadth & longevity

Decision Matrix for Output Caching

- **Alternative: large, slow pages, less breadth & limited longevity**

Summary

- **Introduction to ASP.NET output caching**
  - WebForms and MVC
- **Output caching with a solution cache**
  - OutputCacheProvider + ICache
  - Persistent stores
- **Matrix for output caching**
  - One provider
  - Average response profile