

DotVVM 5.0

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DotVVM 5.0 & AI Future

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update

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Timeline



4.0	4.1	4.2	4.3	5.0
March 2022	June 2023	November 2023	September 2024	August 2026

DOTVVM

Quick Stats

- 65 pull requests mentioned in release notes
- 176 pull requests since September 2024
  - + 23 pull requests backported to 4.3
- 16 authored by Copilot directly on GitHub
  - We used AI for almost all pull requests recently

DOTVVM

Big Features

- **Extensible `GridViewDataSet`**
- Switch from `Newtonsoft.Json` to `System.Text.Json`
- Resource binding in `DataContext` & `DataSource`
- Route localization & generating sitemap.xml
- Integration with ASP.NET Core Static Assets

DOTVVM

Extensible GridViewDataSet

- `GridViewDataSet<T>` now inherits from `GenericGridViewDataSet<T, TFilteringOptions, TSortingOptions, TPagingOptions, TRowInsertOptions, TRowEditOptions>`
  - Multi-criteria sorting
  - Token-based paging
- `GridView` & `DataPager` can use `staticCommand`

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LoadFromQueryableAsync

- .NET doesn't have interface with both `ToListAsync` and `CountAsync`
  - Each library has its own implementation
- We detect commonly used libraries by Reflection
  - Entity Framework Core
  - Entity Framework 6
  - Marten
  - *Feel free to open an issue for other library*



AppendableDataPager

- New paging component
- Can load automatically when scrolled to it, or by `{staticCommand: _dataPager.Load()}`
- Can display a template during loading
  - "Skeleton loading"



DEMO

Extensible `GridViewDataSet`

`LoadFromQueryableAsync`

`AppendableDataPager`



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Switch from `Newtonsoft.Json` to `System.Text.Json`

- `System.Text.Json` supports .NET Standard
  - Most perf improvements don't work in .NET Framework

- Less memory allocations
- Support for `NaN`, `Infinity`

- We don't support polymorphism (inheritance) yet



Performance Boost

- DotVVM 4.3

Method	Mean	Allocated
InitialGet	9.501 ms	6.88 MB
Postback	45.790 ms	20.93 MB

- DotVVM 5.0 Preview 7

Method	Mean	Allocated
InitialGet	3.092 ms	1.97 MB
Postback	7.612 ms	3.58 MB

3x faster serialization

6x faster deserialization

3,5x less memory for serialization

5,5x less memory for deserialization



Tested on a ~380kB viewmodel from a real-world app

Potential Breaking Changes

- Custom JSON converters
- `Newtonsoft.Json` attributes or customizing options
- Polymorphism
  - Property of base type (or **`object`** ☺) & value of concrete type
- Constructors with parameters

DOTVVM

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Resource binding in `DataContext` & `DataSource`

- Resource binding renders the value directly in HTML
  - No Knockout data-bind expressions generated
- Now it works for
  - Child objects passed as `DataContext`
  - Collections passed as `DataSource`
- You cannot use value bindings inside
- Mark the properties with `[Bind(Direction.None)]`
- Improves server-side rendering & SEO

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DEMO

Resource bindings



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Localizable routes

- Route can have more match options
  - /en/contact
  - /cs/kontakt
- New control `AlternateCultureLinks`
  - Generates links to alternate language versions



Sitemap.xml support

- New package `DotVVM.Sitemap`
- Generate sitemap from route table
  - Include/exclude routes
  - Set priority and change frequency
- Implement `ISitemapEntryProvider` to provide
  - last modification date
  - all possible parameter values



DEMO

Localizable routes & sitemap.xml



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- **Integration with ASP.NET Core Static Assets**



ASP.NET Core Static Assets

- Processes static resources (CSS, JS, images, ...)
  - Pre-compression using gzip & brotli
  - Calculating hashes
- Direct links in markup will be rewritten
  - ```
    <img src="~/Content/logo.svg" alt="Logo" />
    <!-- renders src="Content/logo.thu2ae9i.svg" -->
    ```
- Use as resources with `asset:` prefix
  - ```
    <dot:RequiredResource Name="asset:Scripts/app.js" />
    ```



Component Improvements

- New Components
  - `Timer`
  - `ValidationErrorsCount`
  - `AppendableDataPager`
- Improvements
  - `DataPager` – better templatability
  - `FileUpload` – signing allowed files & size configuration

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Other Improvements

- You can use RESX resources in value bindings
  - Any expression wrapped with `_page.Resource(…)`
- `IncludeInPage` renders content as a `template`
  - Prevents flashing
- Support for returning multiple files
- Can return validation errors
  together with viewmodel changes

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DotVVM Tailwind UI

- New modern UI kit based on Tailwind CSS
  - You don’t need to know Tailwind to use it
  - Customizable theme using CSS variables

- AI was used to implement most of it
- We plan to expand it with more components in the future

- https://www.dotvvm.com/products/dotvvm-tailwind-ui

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DotVVM AI Skills

- https://github.com/riganti/dotvvm-skills

- Skilly pro práci s DotVVM
  - `dotvvm` – obecný skill k používání frameworku
  - `dotvvm-security` – detekce častých chyb ve viewmodelech
  - `dotvvm-ui-prototyping` – generování klikatelných prototypů aplikací pomocí Tailwind UI



HYPEless AI
by Update

Episode #3

Live Q&A

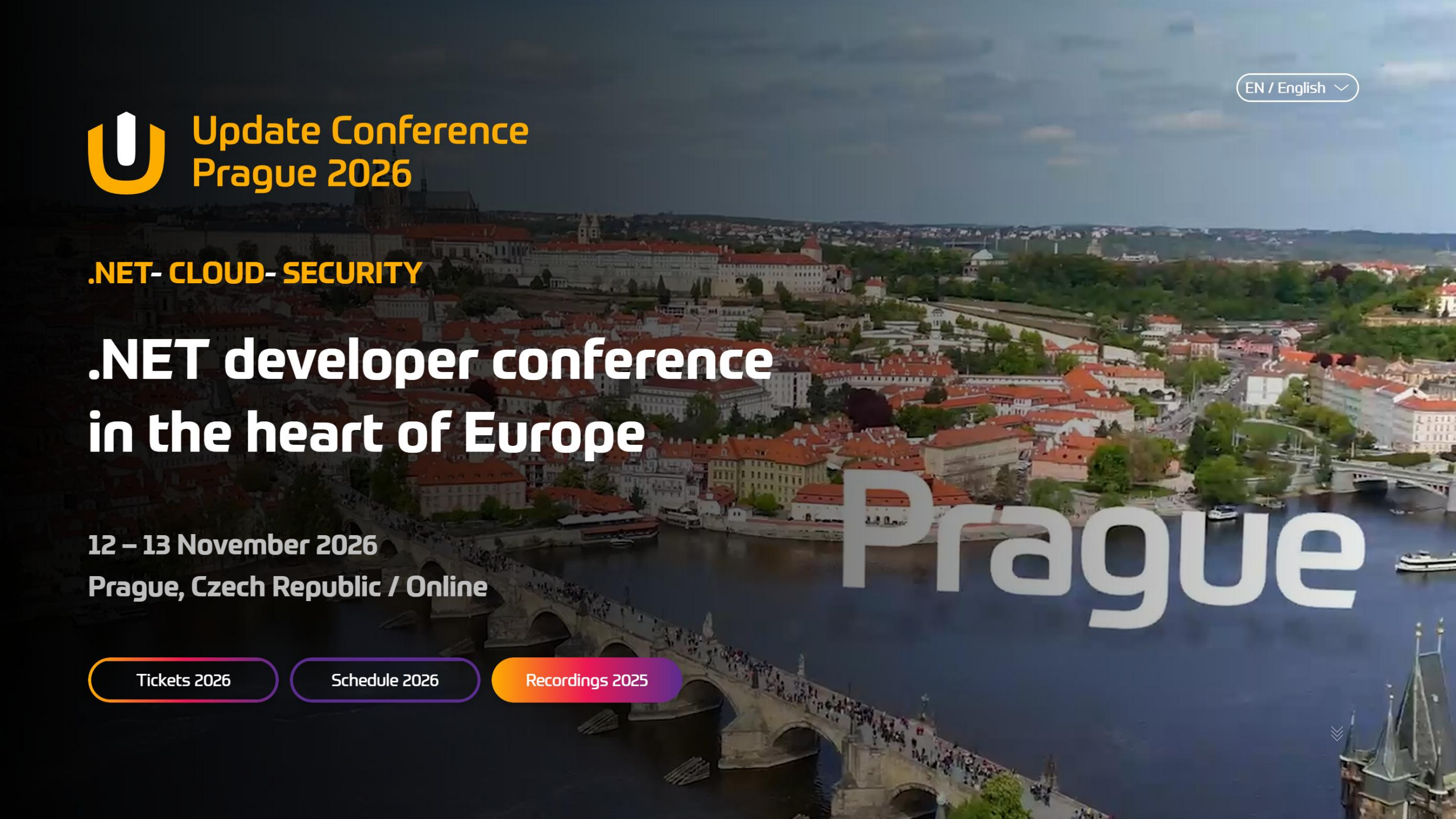
Build. Break. Defend. Repeat:

Automating AppSec for .NET with AI

featuring Niels Tanis



Thursday, Sep 24, 2026 • 1:00 PM – 5:00 PM CET


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Q&A

https://forum.dotvvm.com

