ASPENWARE

Microsoft® MVP Most Valuable Professional

Ben Hoelting

In truth, he's just a big kid. He loves designing systems that solve real world problems. There is nothing more satisfying than seeing something you helped develop being used by the end users. Ben is also involved in the technology community and runs the South Colorado .NET user group. He also enjoys speaking at tech groups and events around the country.

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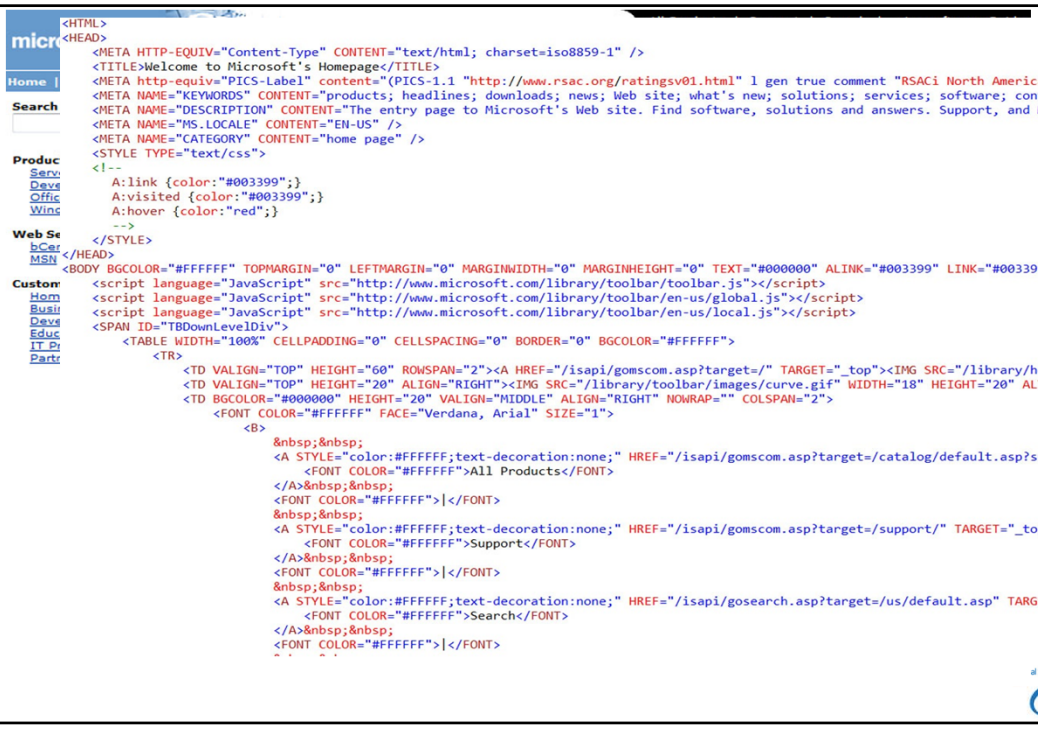
Visual Studio 25 YEARS OF CODING INNOVATION

Go back to the good old days

waybackmachine.org



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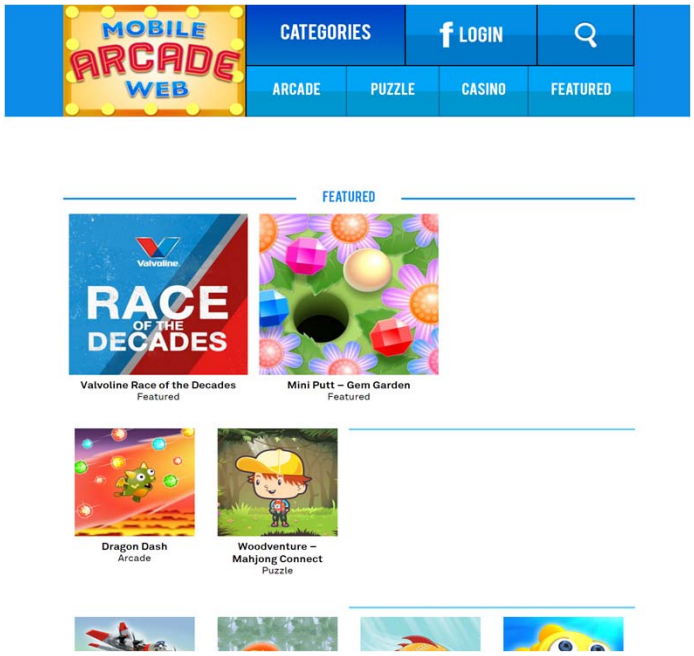
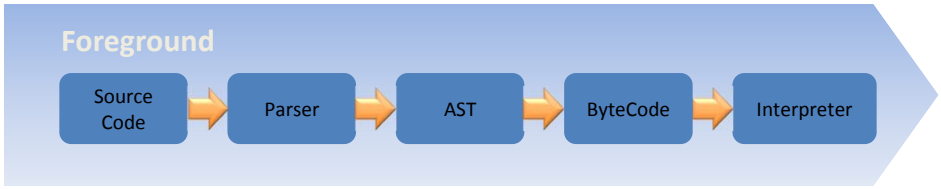
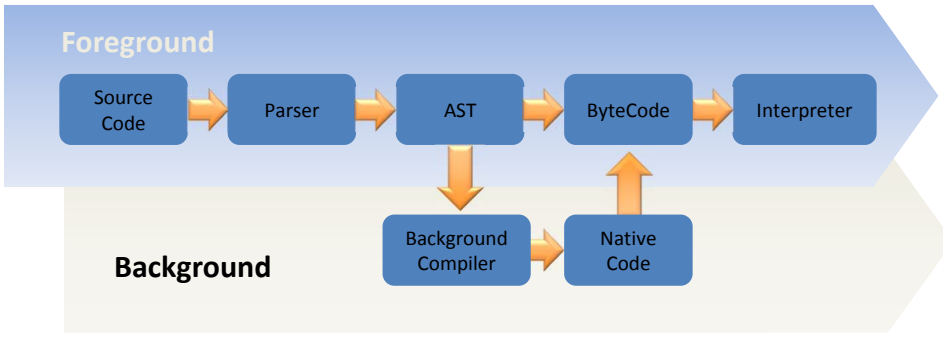


The Old JavaScript Engine



New JavaScript Engines



Compiled JavaScript | In The Background | Using Multiple Cores

Agenda

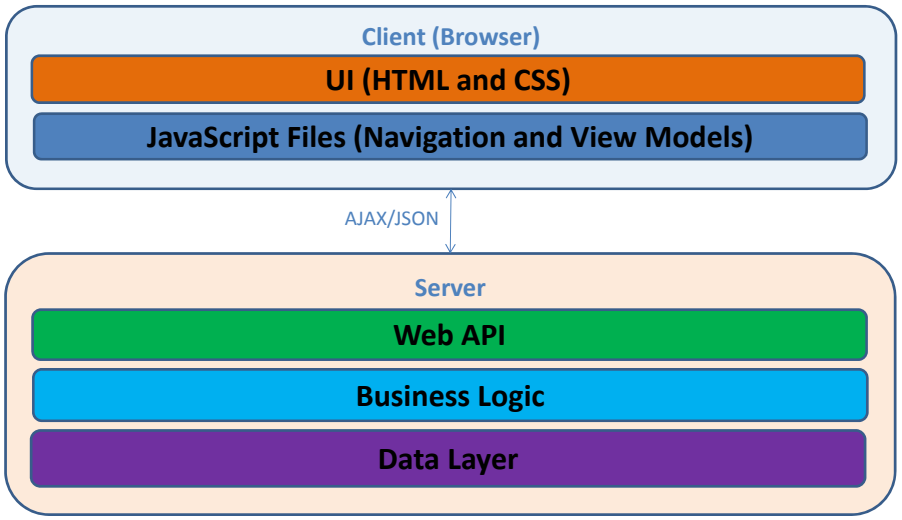
- What is modern web development?
- What are modern web development tools?
- Using these tools with existing applications in ASP.NET
- Using these tools with ASP.NET Core

Modern Web Development (MWD)

Modern Web Development

- Runs on the local machine
- Takes advantage of modern browsers
- Modern browsers compile\support the latest HTML, ECMAScript and CSS Standards
- Moderns browsers take advantage of local hardware on the client

Single Page Applications (SPA)



So, We Need Tooling

- C# code is “built” before execution
- HTML, CSS and JavaScript are “built” by the browser
- We need a build process for developing these types of apps
- NPM, Gulp, Webpack, Etc. can help

The Benefits of Compiled Code

- Smaller/Quicker Developer Feedback Loop
- Code Optimization for Runtime
  - IL for C#
  - Efficient JavaScript for the Web
- Code Optimization for Size
  - Remove white space and compress variables.

MWD Tools

Package Managers
Module Loaders
Transpilers
Build Tools

Package Managers

NuGet

- Used to download .Net libraries
- Understands dependencies
- Can also be used by the enterprise to manage their packages.

Node Package Manager (NPM)

- Used to install developer tools
- Can also be used to execute some tasks using scripts
- Runs on NodeJS
- Can also run scripts

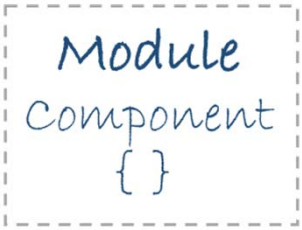
Bower

- Used to download front-end libraries
- Think of Nuget for the front-end
- Also understands dependencies
  - This used to be the only technology that did dependencies. NPM does that now.

Module Loaders

CommonJS, AMD and SystemJS

- Maps and Determines Dependencies and dynamically pulls them for use.
- CommonJS used the most
- SystemJS is used by Angular2



Transpilers

Babel

- Used to “compile” ES6/2015 scripts to ES5 for a wider browser support.
- Lets us use new JS features before they are widely supported by browsers

Typescript

- Also compiles to ES5 or lower
- Also allows us to use new JS features
- Adds syntax help that allows developers to define types for their code

Demos

NPM (From Scratch)
Transpilers (Angular and Aurelia)

Build Tools

Gulp/Grunt

- Automation using JS Code or Configuration
  - Compile Typescript, Less, Sass, etc.
  - Pre-parse your JS for errors
  - Run unit tests
  - MSBuild for JS

Browserify vs. Webpack vs. JSPM

- Mature Products (Some Over 4 Years Old)
- Can do all the stuff Gulp and Grunt does using plug-ins or loaders
- Uses CommonJS, AMD or SystemJS to load modules at build time


webpack
MODULE BUNDLER

NPM Scripts

- What's wrong with Gulp and Webpack
  - Dependence on plugin authors
  - Frustrating debugging
  - Disjointed documentation
- Gulp and Webpack are abstractions of build tooling and might not be needed.

npm

Yeoman

- What if I'm not using Visual Studio?
- Some people like GUI, Others like CLI
- Scaffolding for the web
- Is used to create boiler plate code for web projects
- "File – New" for non VS people.

CLIs

- Again, What if I'm not using Visual Studio?
- Most Frameworks now Provide their own CLI
  - Dotnet CLI (Core CLI)
  - Angular CLI
  - Etc…

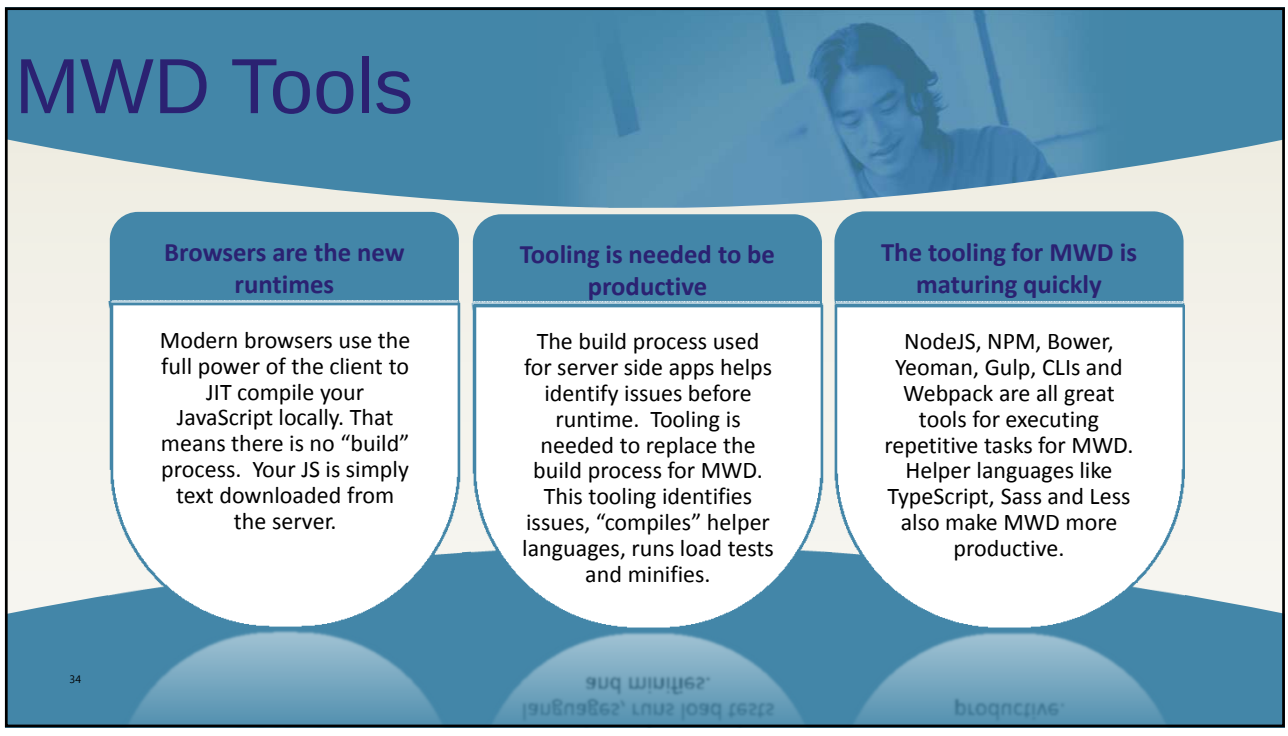
Demos

Gulp (From VS Studio)
NPM Scripts (From Angular)
Webpack (From Angular)
Dotnet CLI

Bundling\Building in ASP.NET Core

- JSON Bundling.config file
- Use the new Environment tag to switch between bundled and unbundled files
- New Asp tags that help with versioning and fallback for CDN use.

Demo ASP.NET Core



Resources:

- http://www.asp.net/vnext
- https://docs.microsoft.com/en-us/aspnet/core/client-side/bundling-and-minification
- https://medium.freecodecamp.com/why-i-left-gulp-and-grunt-for-npm-scripts-3d6853dd22b8
- https://www.sitepoint.com/beginners-guide-to-webpack-2-and-module-bundling/
- https://www.keycdn.com/blog/webpack/
- https://www.contentful.com/blog/2017/04/04/es6-modules-support-lands-in-browsers-is-it-time-to-rethink-bundling/

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