

//re.build/

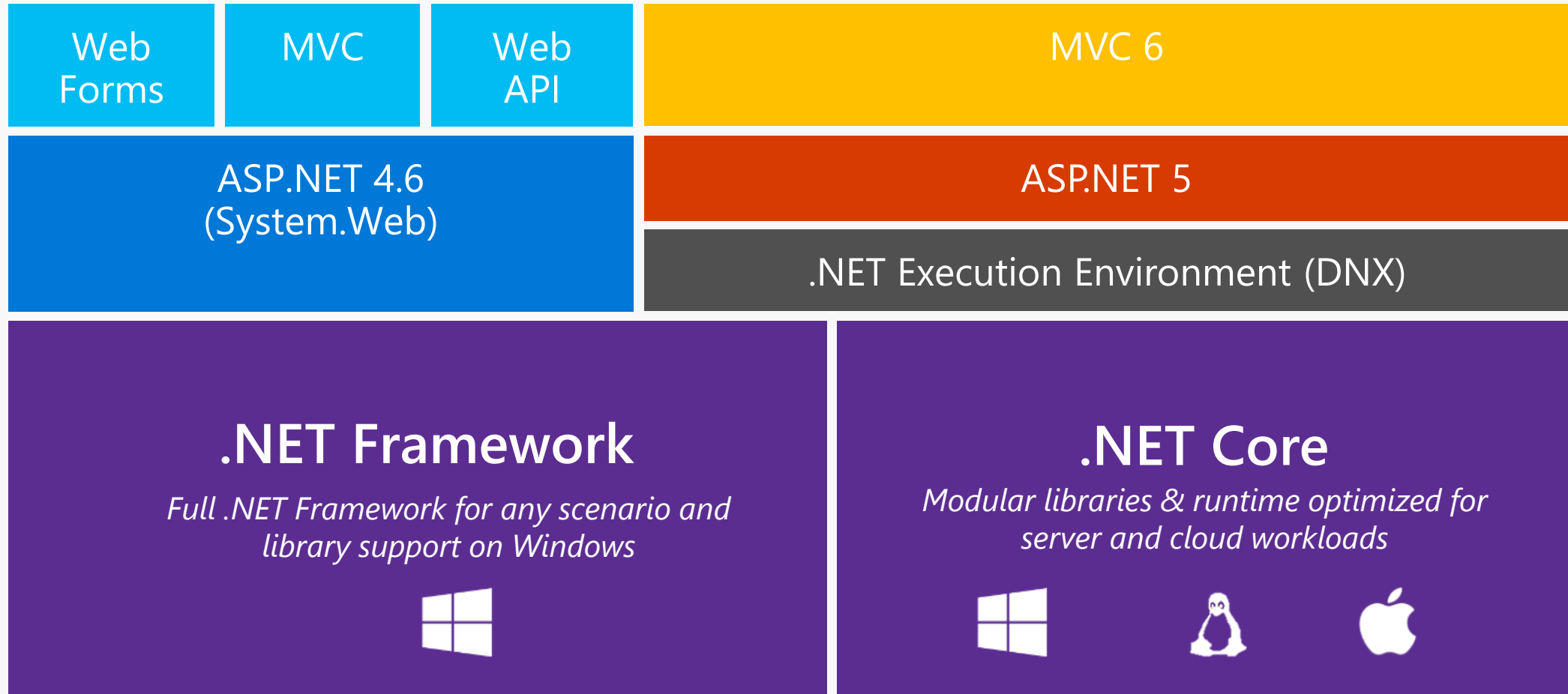


Neues für Webentwickler

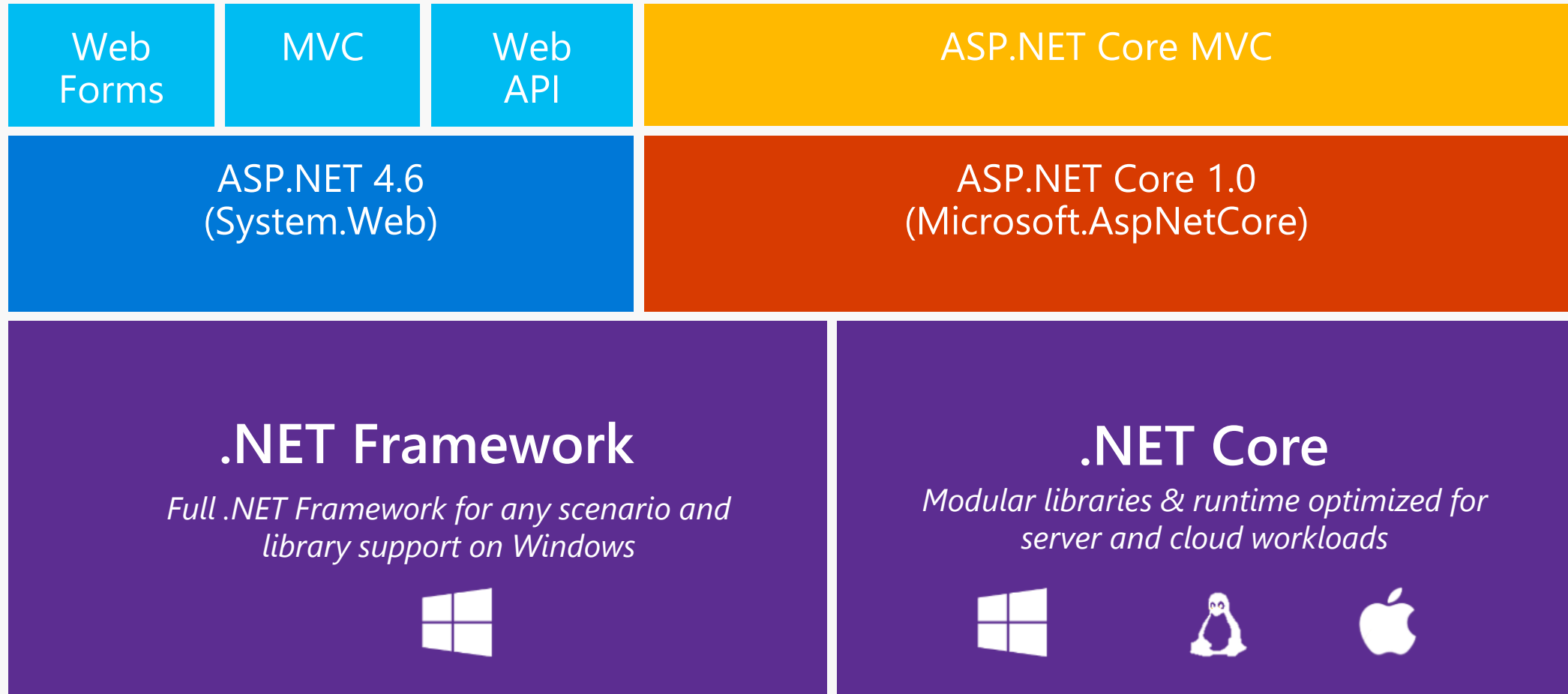
Malte Lantin
Technical Evangelist
Microsoft Deutschland GmbH

ASP.NET

ASP.NET 5 in a Nutshell

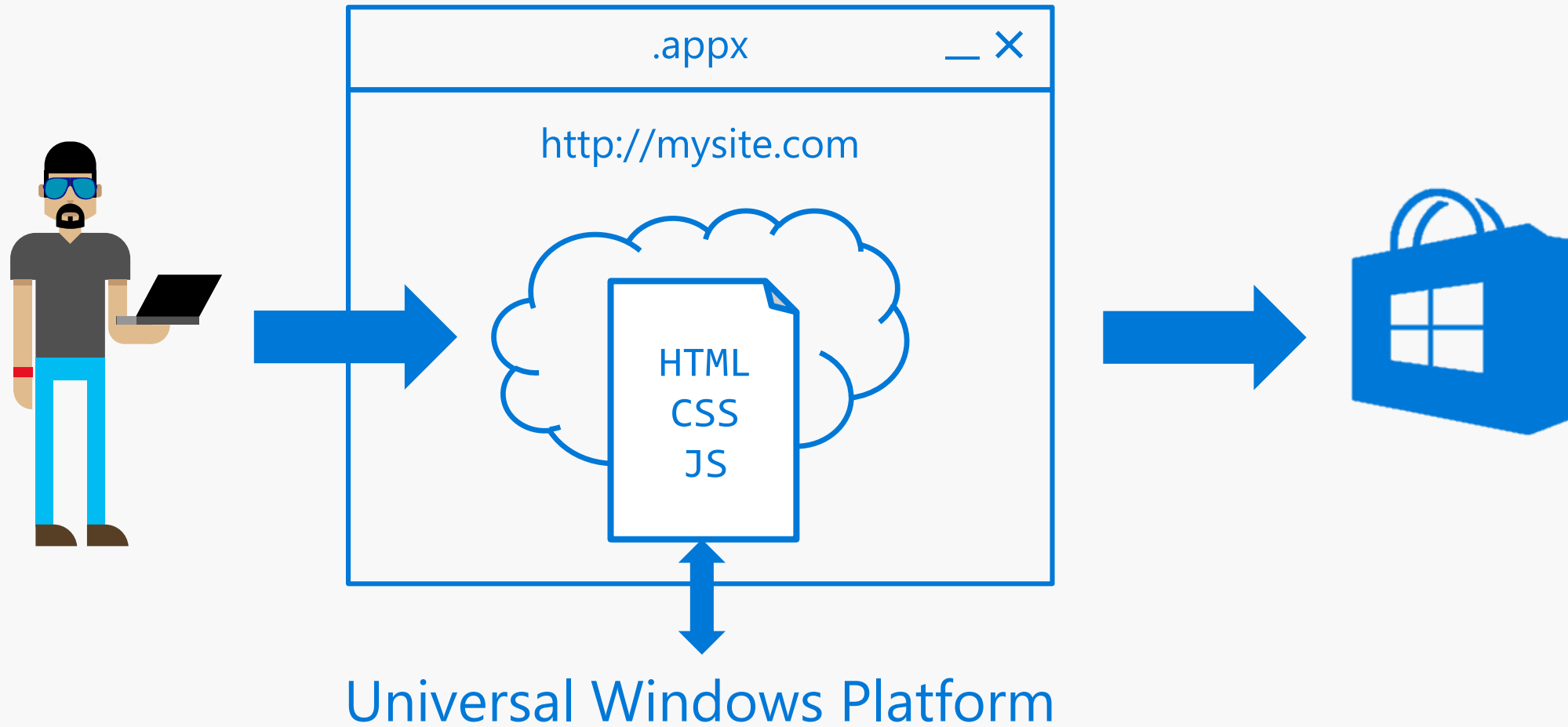


ASP.NET Core in a Nutshell



Hosted Web Apps

Web Apps on Windows



Edge Engine

Chakra

Packaged content
Offline first

Hosted content
Always up-to-date



Pick the right tool for the job



Publish packaged Apps
to different stores from
one code base



Run your app from your
web server, no need for
store deploys



manifoldjs

The simplest way to
create hosted apps across
platforms and devices

Generate Now

**Start using manifoldJS as
part of your build process**

```
$ npm install -g manifoldjs
```

www.manifoldJS.com

Demo

Who uses hosted web apps?

State of Web Apps

Many Popular Apps in Store are Web Apps

Pandora, Shazam, USAA, AMEX, Netflix, Yahoo Mail, Office Sway

Great UI Design

These web apps tend to have aesthetically pleasing and highly functional design

Integrate with the Platform

These apps integrate with the Windows OS

Integrations include System Media Transport Controls, Live Tiles, Cortana and more

Hosted Web Apps Available Now



The Great Courses
Plus
★★★★★



Match™ Dating-
Meet Singles
★★★★★



American Express
★★★★★



USAA
★★★★★



zulily
★★★★★



Yahoo Mail
★★★★★



BBC iPlayer
★★★★★



NORAD Tracks Santa
★★★★★



Hacker News Reader
★★★★★



TED
★★★★★



Sky Sports Football
★★★★★



Subway
★★★★★



Shazam
★★★★★



22tracks
★★★★★



Pandora
★★★★★

Intelligent APIs

Microsoft Cognitive Services

Give your apps
a human side

Cognitive Services



Vision

From faces to feelings, allow your apps to understand images and video



Speech

Hear and speak to your users by filtering noise, identifying speakers, and understanding intent



Language

Process text and learn how to recognize what users want



Knowledge

Tap into rich knowledge amassed from the web, academia, or your own data



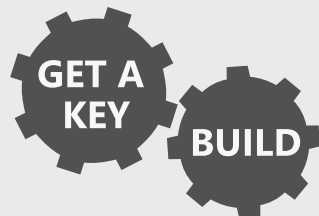
Search

Access billions of web pages, images, videos, and news with the power of Bing APIs

Why Microsoft Cognitive Services ?

Easy

Roll your own with REST APIs
Simple to add: just a few lines of code required



Flexible

Make the same API code call on iOS, Android, and Windows
Integrate into the language and platform of your choice








Tested

Built by experts in their field from Microsoft Research, Bing, and Azure Machine Learning
Quality documentation, sample code, and community support



Cognitive Services

microsoft.com/cognitive

 Vision	 Speech	 Language	 Knowledge	 Search
Computer Vision	Custom Recognition	Bing Spell Check	Academic Knowledge	Bing Web Search
Emotion	Speaker Recognition	Linguistic Analysis	Entity Linking	Bing Image Search
Face	Speech	Language Understanding	Knowledge Exploration	Bing Video Search
Video	Translator	Text Analytics	Recommendations	Bing News Search
		WebLM		Bing Autosuggest

Apps Powered by MS Cognitive Services

I think it's a person sitting in front of a computer and he seems 😊. I am 99% sure that's **Bill Gates**



CaptionBot.ai

CelebsLike.Me

Which Oscar nominee do you look like?

Your Oscar nominee match is...



Anthony Hopkins

Celebslike.me



ProjectMurphy.net

Web Search API

Get relevant web and answer results and metadata with one API call

<https://bingapis.azure-api.net/v5/search?q=nasa>

Web
Results

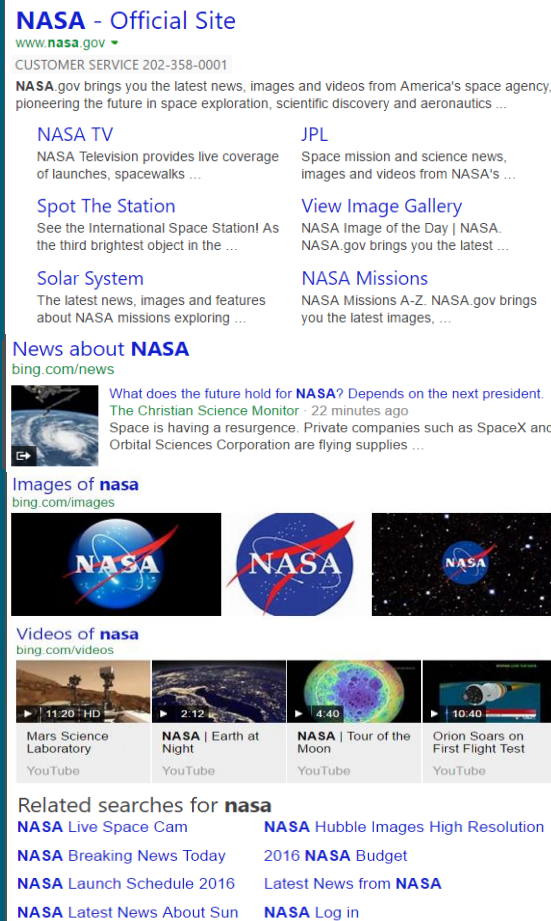
Deep
Links
(1st Algo)

News
Results

Image
Results

Video
Results

Related
Searches



The screenshot shows a Bing search results page for the query 'NASA'. It includes sections for the official NASA website, NASA TV, Spot The Station, Solar System, NASA Missions, News about NASA, Images of NASA, Videos of NASA, and Related searches for NASA. The results are organized into a grid-like layout with various links and images.



Search Response

```
{
  "_type": "SearchResponse",
  "queryContent": {...},
  "webPages": {...},
  "news": {...},
  "images": {...},
  "videos": {...},
  "relatedSearches": {...},
  "rankingResponse": {...}
}
```



Ranking Response

```
{
  "answerType": "WebPages",
  "resultIndex": 0, ...
},
{
  "answerType": "News",
  "resultIndex": 1, ...
}
```

*screenshots show actual search results on bing.com

Vertical Search APIs

Get more results, features and metadata tailored to each search vertical

Image Search API



source: nasa.gov

<https://bingapis.azure-api.net/v5/images/search?q=shuttle+launch>

- Enhanced metadata and filters (size, license, style, freshness, color)
- Image insights (entity recognition, visually similar)

Video Search API

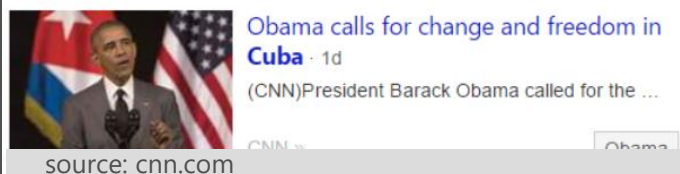


source: youtube.com

<https://bingapis.azure-api.net/v5/videos/search?q=viral+videos>

- Enhanced metadata and filters (price, resolution, length, freshness)
- Motion thumbnails (video preview)

News Search API



source: cnn.com

<https://bingapis.azure-api.net/v5/news/search?q=cuba>

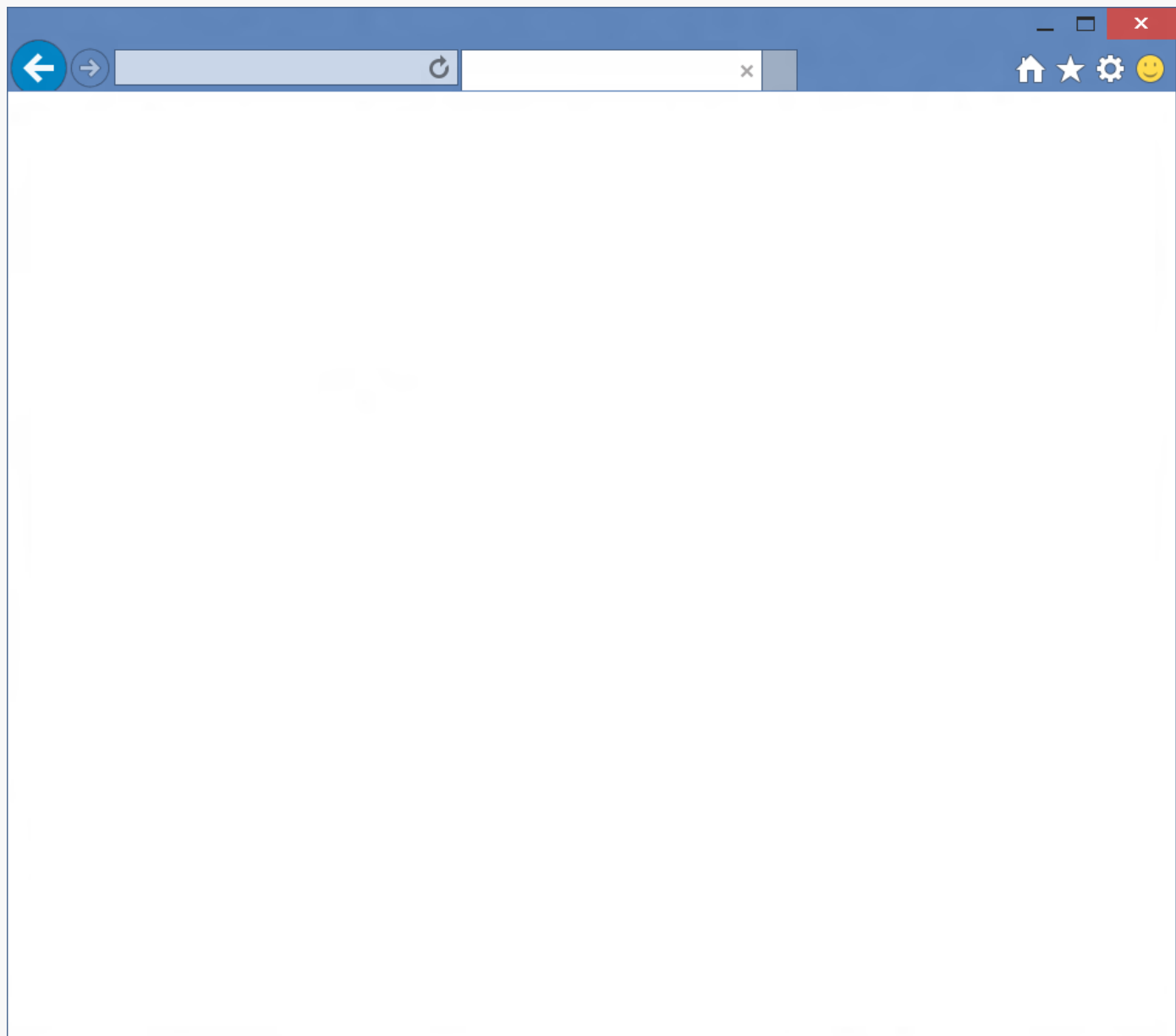
- News by category/market, and trending news
- Rich article metadata (featured entities)

*screenshots show actual search results in bing.com

Microsoft Edge

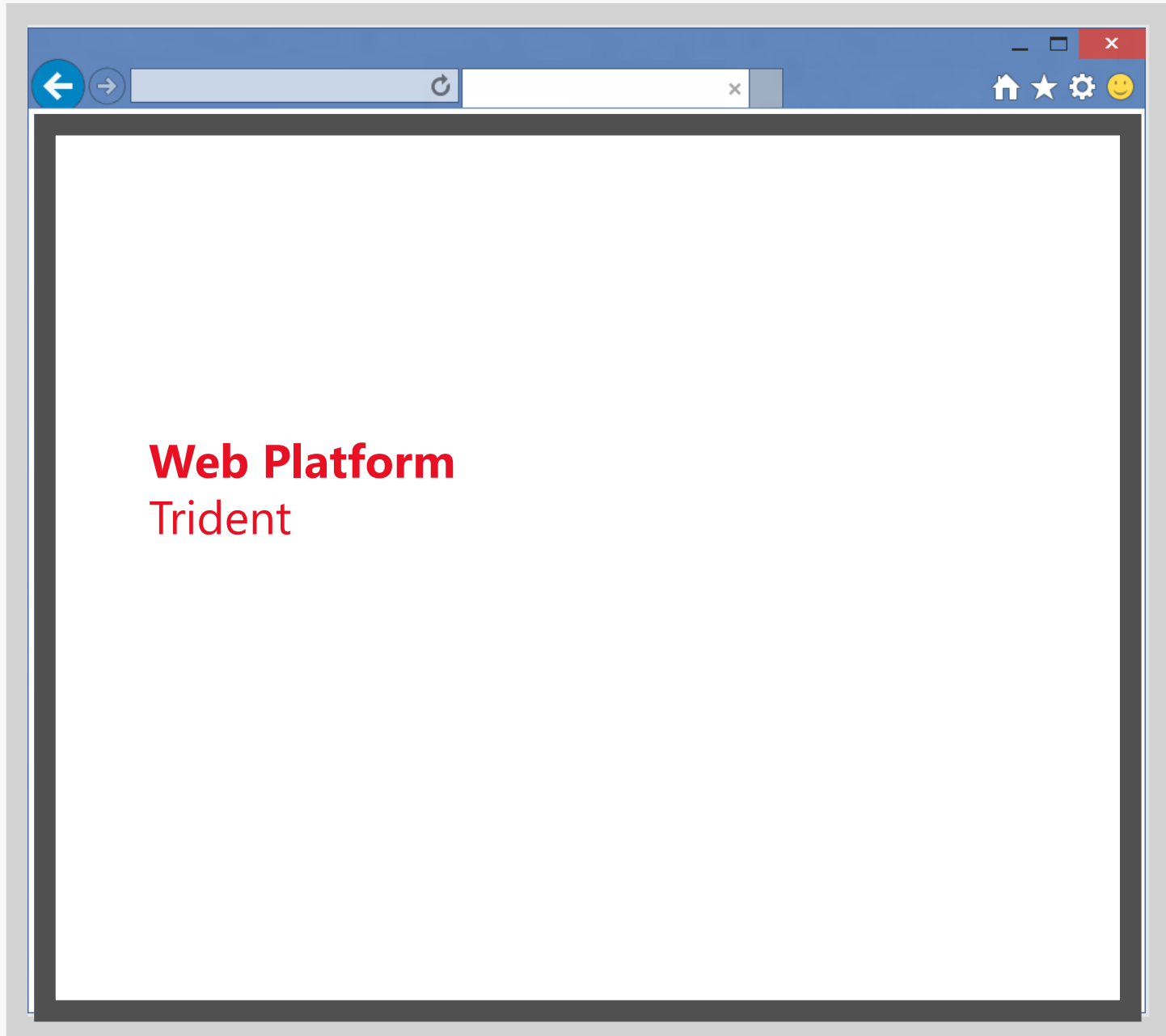
Why a new browser? Why a new engine?

Microsoft Edge: A technical view





Browser
Internet Explorer



HTML4, ES3, CSS2

Legacy Web

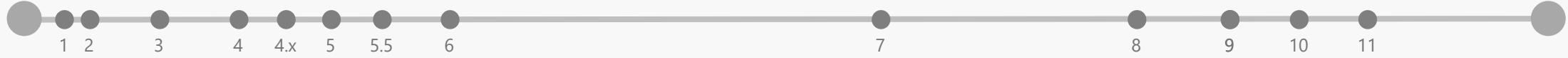
CSS2.1

Modern Web

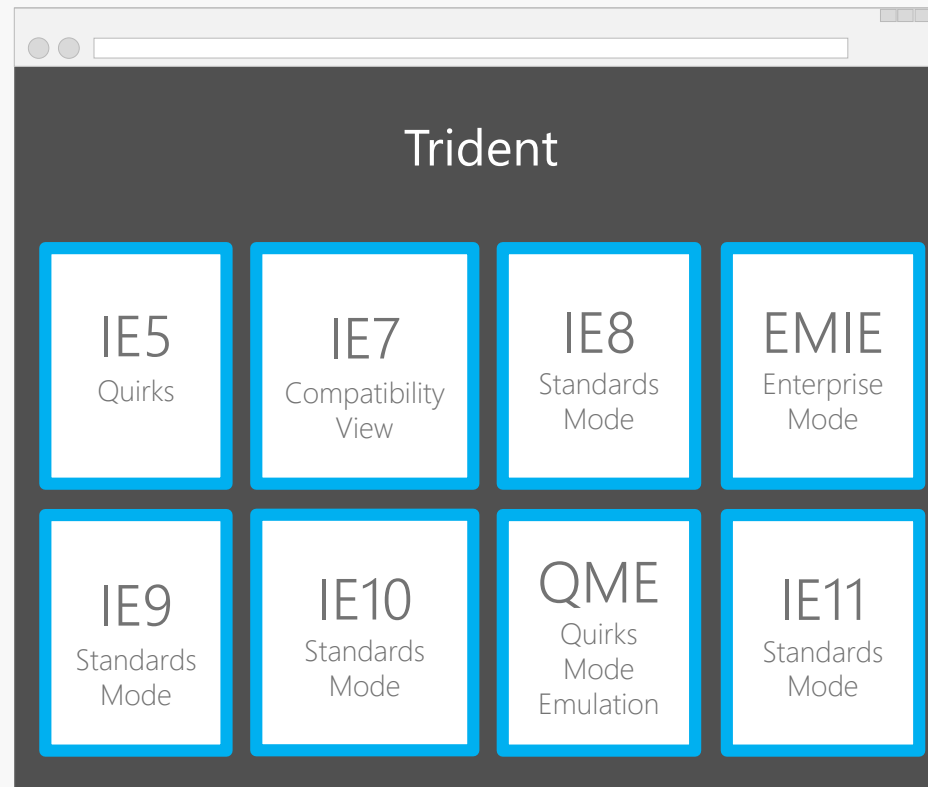
HTML5, SVG, ES5, CSS3

1995

2015

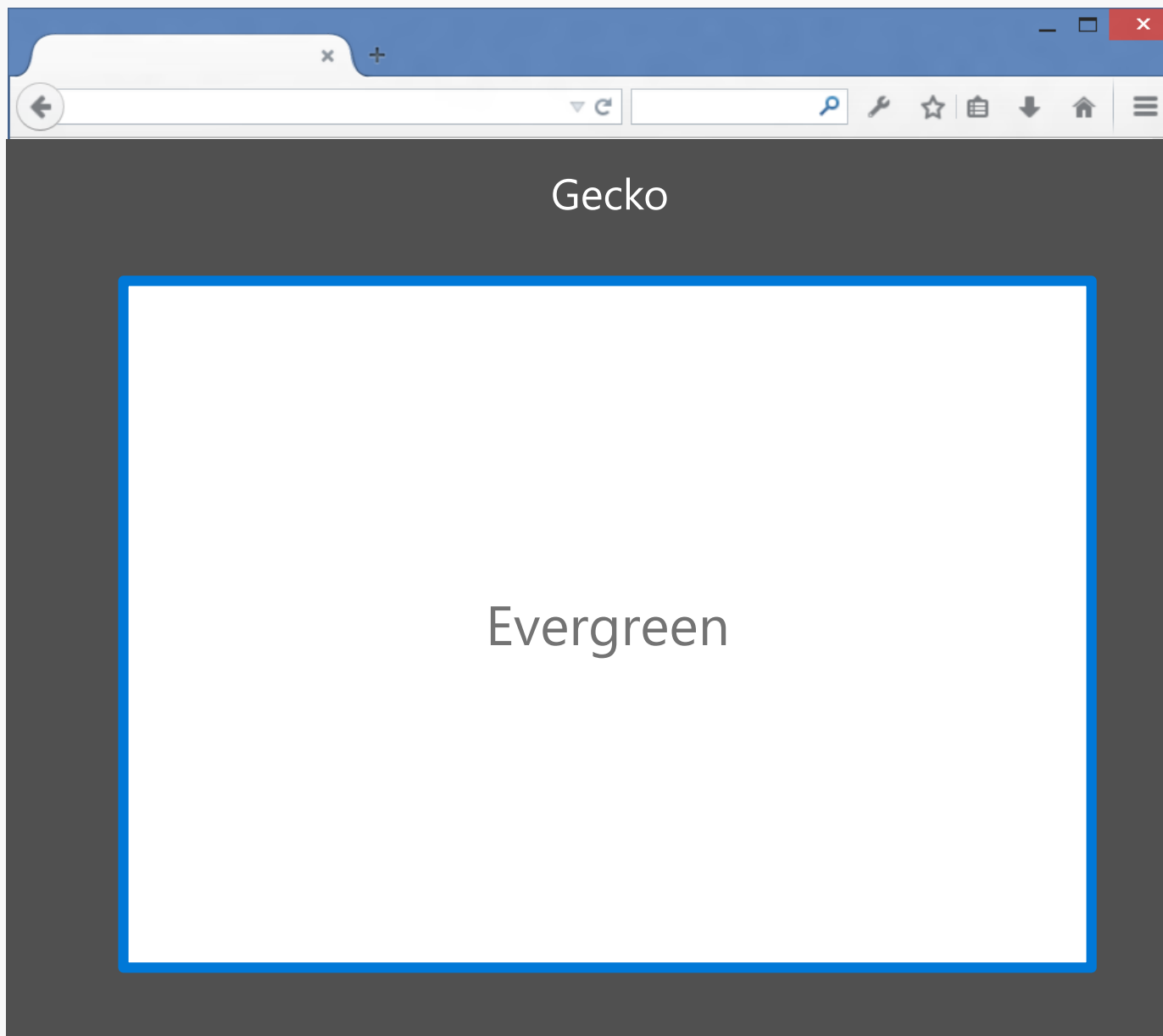


!DOCTYPE
x-ua-compatible



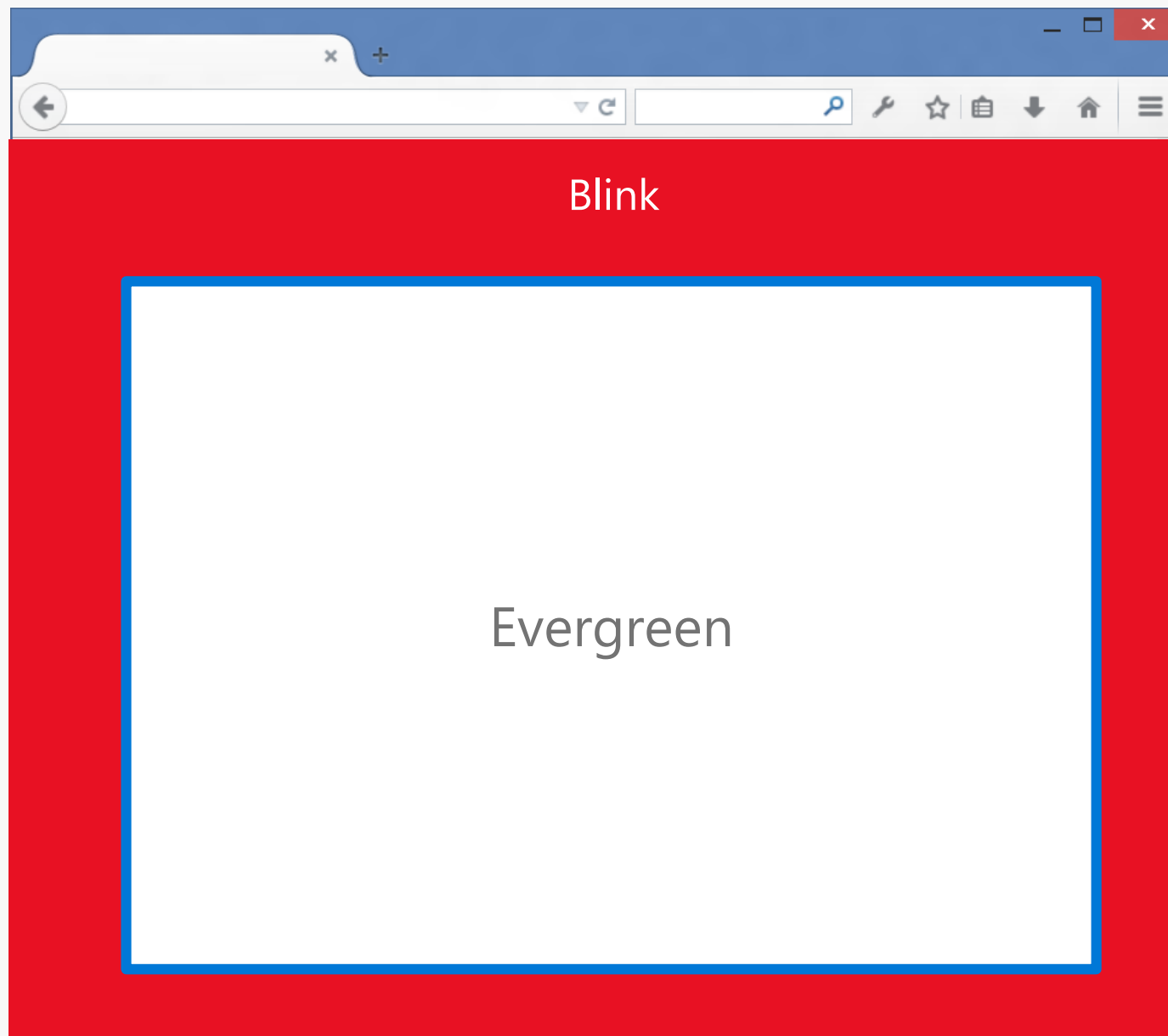


Browser
Firefox



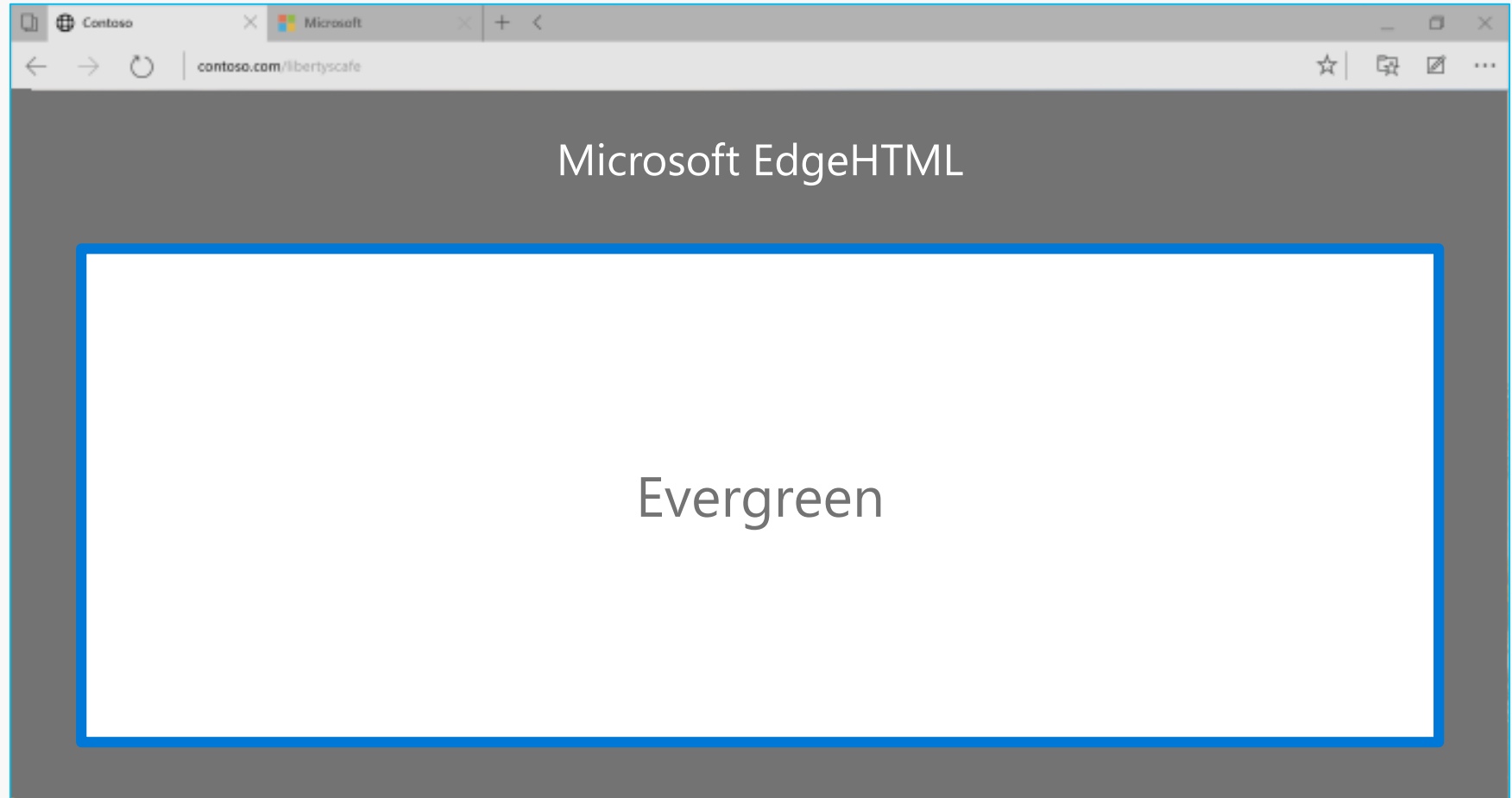


Browser
Chrome





Browser
Chrome



Microsoft Edge is...

Built for Windows 10

Built on the new Universal App Platform for phone, tablet, desktop and beyond

Updated frequently, along with Windows 10

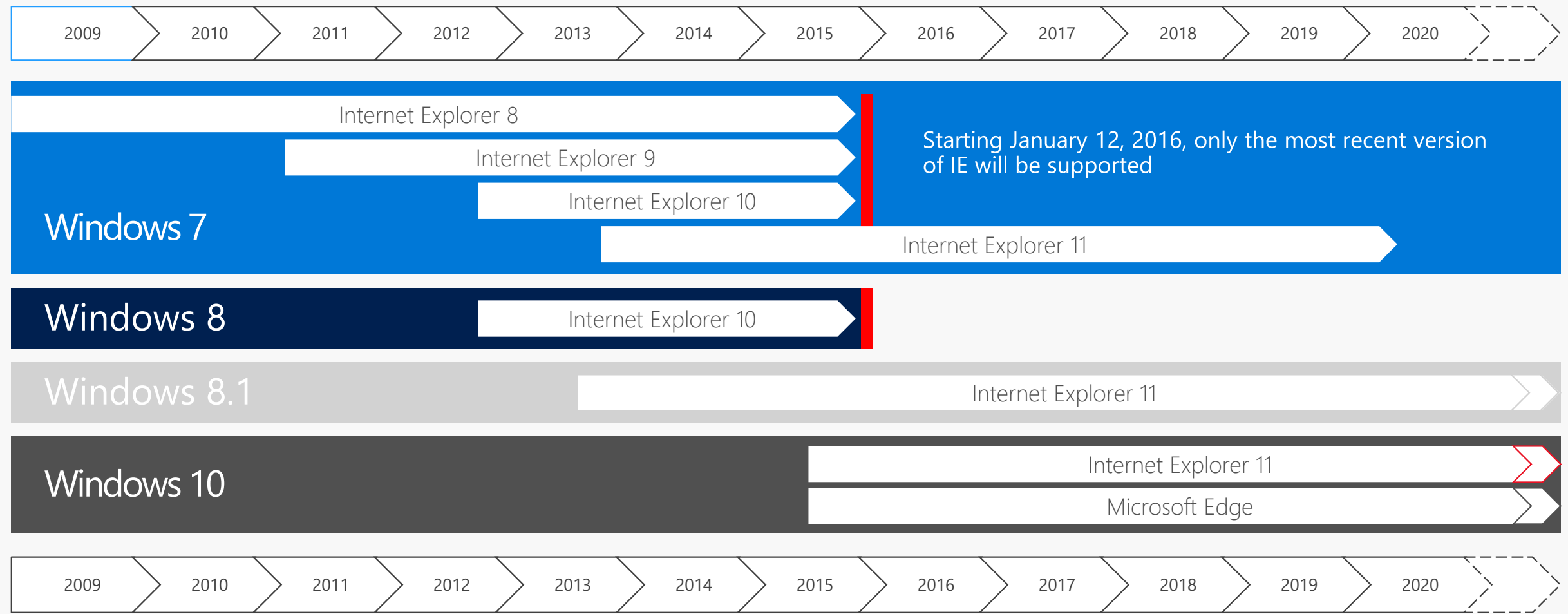
Ready for the future

Free from legacy IE extensibility points like ActiveX, Toolbars and Browser Helper Objects

Built on top of modern security protections (64-bit, AppContainer, Enhanced Protected Mode)

Able to launch Internet Explorer when needed for backwards compatibility

Windows Browser Roadmap



Legacy Compatibility

Legacy Compatibility

IE will be moved into the “Windows Accessories” folder in Start

IE will not be pinned to the taskbar
Recommend sites to communicate directly with users if not compatible with MS Edge

Enterprises with a lot of content that requires legacy IE functionality can choose to enable IE11 as the default browser while they transition content to modern standards

Enterprises can also configure Microsoft Edge to launch IE using the Enterprise Mode Site List
IE11 on Windows 10 will continue to support Enterprise Mode for high fidelity IE8 emulation

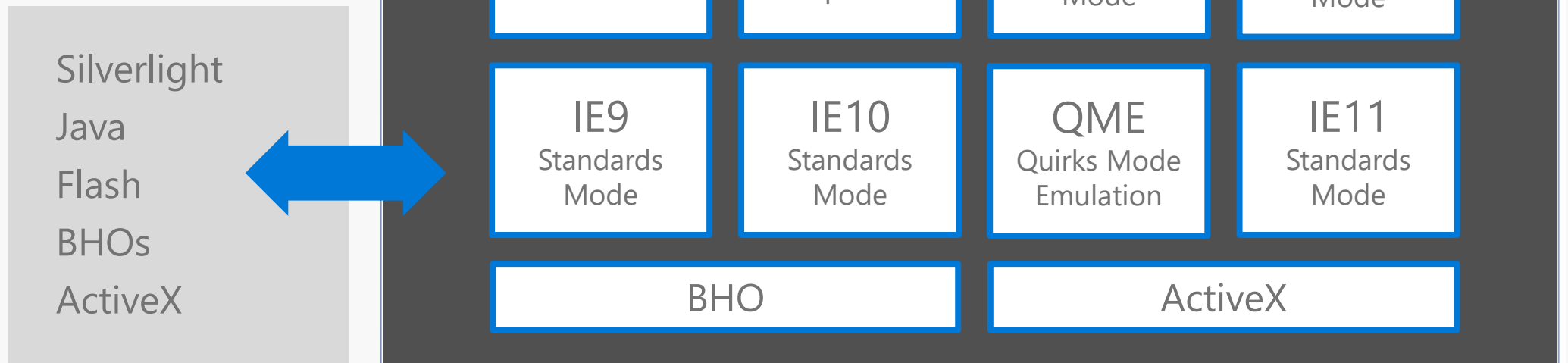
IE11 on Windows 10 has full parity with IE11 on Windows 7/8.x for compatibility

Eases transition to Windows 10 for some enterprises with legacy web app needs



Internet Explorer

- Internal engine switch enabled by **CV lists**, **x-ua-compatible** and **meta** tags
- For sites requiring ActiveX or BHO



Modern web interoperability

Interoperability goals

Our goal is “the web just works”

Sites authored for Firefox, Chrome and Safari “just work” with Microsoft Edge

Evolve at the speed of the web and only support latest version

Use standards as a reference but prioritize real-world interop (and then fix standards if needed)

Allow web developers to target a single version

Internet sites use the new rendering engine (EdgeHTML) by default

New update cadence to ensure browser is always up-to-date

Make a clean break from the past

Interoperable user-agent string to get the same content as other browsers (no IE specific code)

Over 8000 interoperability fixes, and 45+ new features to render it correctly

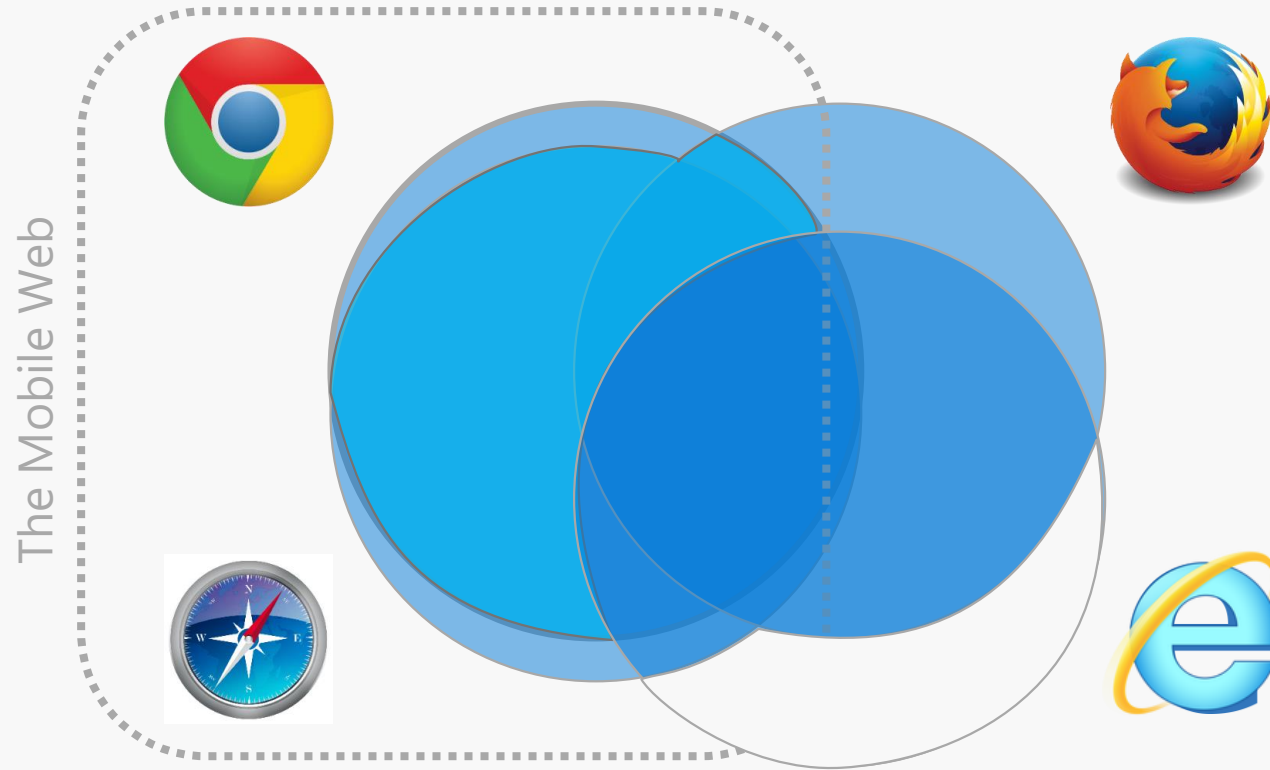
Remove IE specific behaviors

Removing the hurdles of cross-browser development

0

cross-browser interop fixes since IE11

Our starting goals:
interoperability *and* compatibility



Interoperable UA string

Microsoft Edge

Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko)
Chrome/46.0.2486.0 Safari/537.36 Edge/13.10586

Chrome

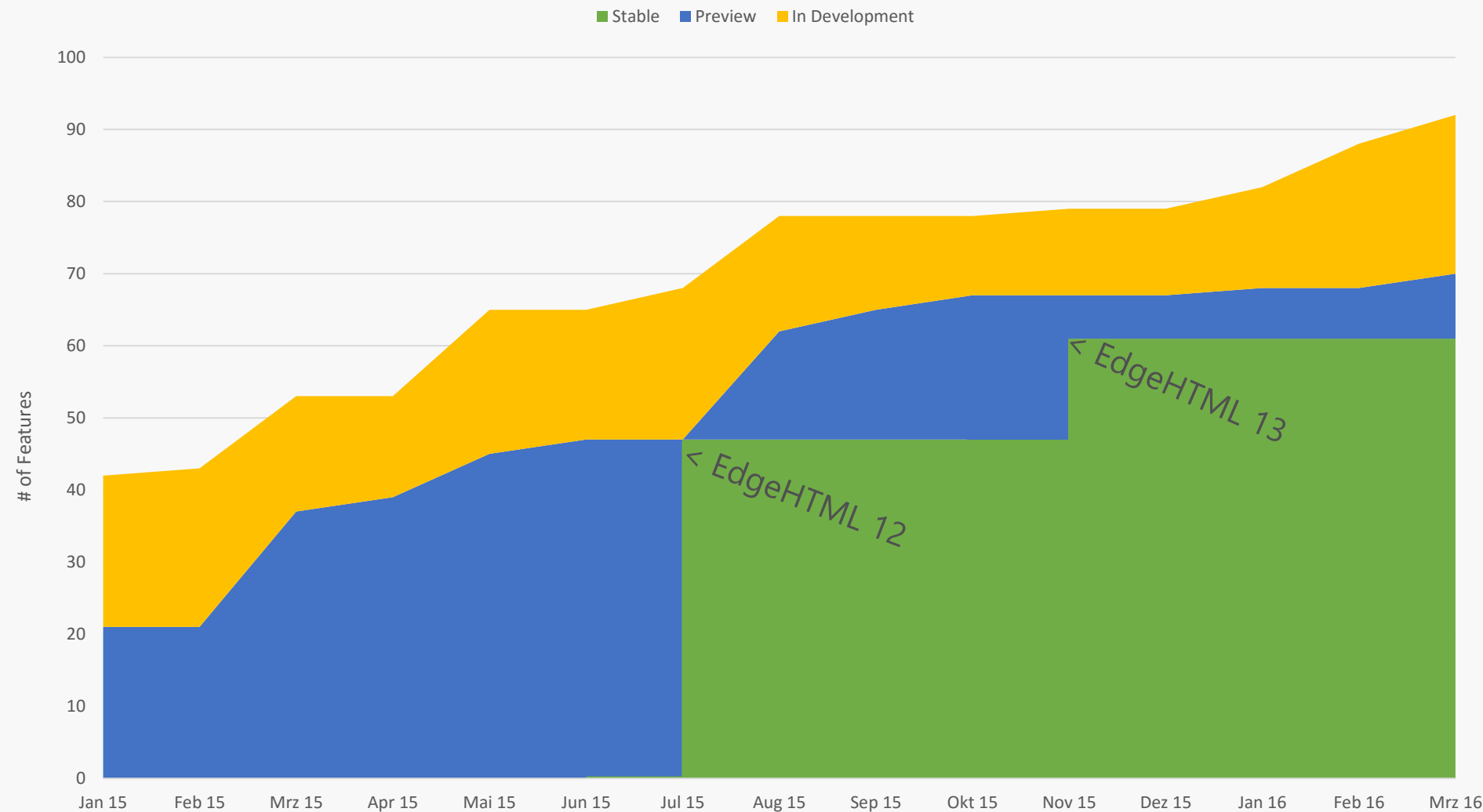
Mozilla/5.0 (Windows NT 10.0; WOW64) AppleWebKit/537.36 (KHTML, like Gecko)
Chrome/49.0.2623.112 Safari/537.36

What's new?

A year of EdgeHTML in review

Our open roadmap to interoperability

status.microsoftedge.com




HTML5Test Scores


IE
11 336

e
12 402

e
13 458

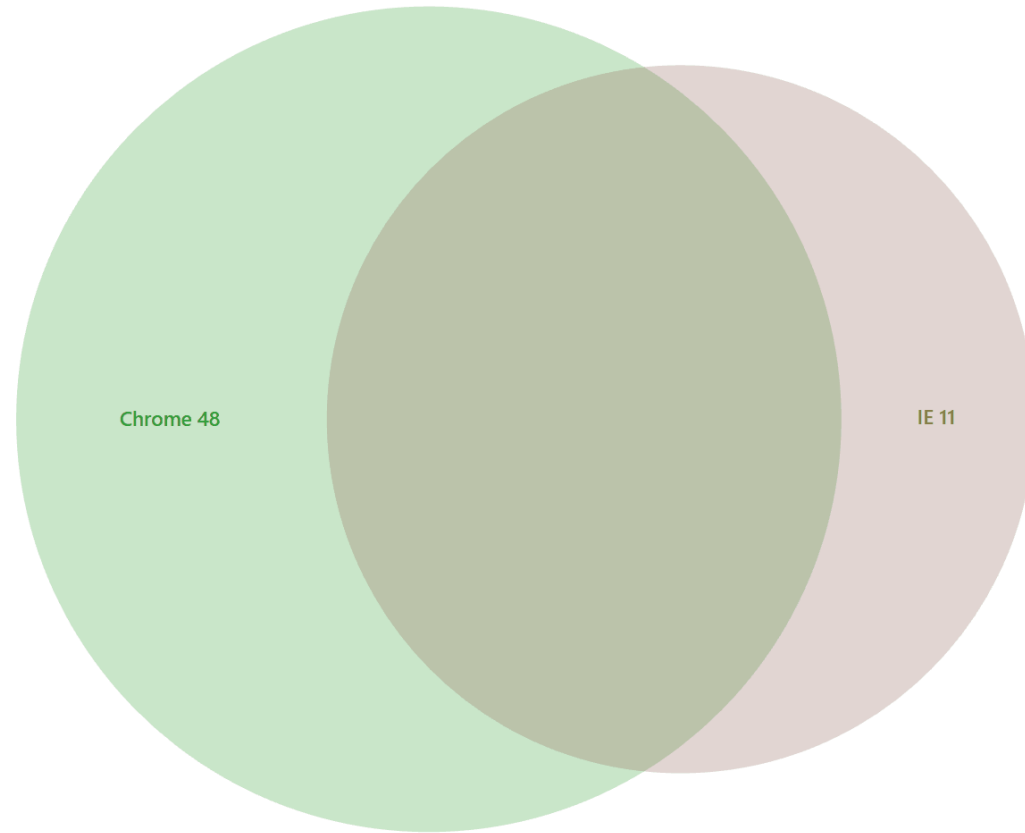
 51 **525**

 14 **486**

 48 **484**

 9.3 **414**

Real world interoperability



<https://developer.microsoft.com/en-us/microsoft-edge/platform/data/>

2016 Web Platform Priorities

Extensions

Deliver a modern extension platform powered by web technologies and the Windows Store

Accessibility

Empower all Microsoft Edge customers through accessibility and inclusive design

Fundamentals

Continue to reinforce Microsoft Edge fundamentals; security, performance and efficiency

Future technology

Build thoughtfully for the future of the web

Openness

Embrace more channels for community feedback and participation

What's new: Microsoft EdgeHTML

Accessibility and Inclusive Design

- High Contrast improvements
- Accessible name and description computation
- Additional semantic elements:
 - `<input type=color>` control
 - `<time>` element
 - `<output>` element

Touch



one arm



arm injury



new parent

See



blind



cataracts



distracted driver

Hear



deaf



ear infection



bartender

Speak



non-verbal



laryngitis



heavy accent

F12 Accessibility Inspection

Analyze how your page elements are being interpreted by the browser and accessibility tools

Toggle the
accessibility tree view

The screenshot shows the Chrome DevTools F12 Accessibility Inspection tool. The top bar includes tabs for DOM Explorer, Console, Debugger, Network, Performance, Memory, Emulation, and Experiments. The DOM Explorer panel on the left displays the HTML structure of a page, with the `<input id="guess1_text" aria-invalid="false" aria-labelledby="guess1_label" type="text" size="3" />` element selected. The Accessibility Tree panel in the middle shows the accessibility tree structure, with the selected input element highlighted. The Accessibility Properties panel on the right shows the accessibility properties for the selected element, including `isPassword: False`, `labeledBy: #guess1_label`, `localizedControlType: Number`, and `type: edit`. The breadcrumb at the bottom indicates the path: `html > body.win-type-... > div > div#guess1 > p.input > input#guess1_te...`.

```
<html>
  <head>...</head>
  <body class="win-type-body">
    <div role="application">
      <div class="guess" id="guess1">
        <h2>Guessing Game</h2>
        <p>...</p>
        <p class="input">
          <label id="guess1_label" for="guess1_text">Guess a number between 1 and 1_</label>
          <input id="guess1_text" aria-invalid="false" aria-labelledby="guess1_label" type="text" size="3" />
        </p>
        <p class="feedback" id="guess1_alert" role="alert"></p>
        <p class="input">...</p>
      </div>
    </div>
    <button onclick="addNodeMutation()">ADD A NODE!</button>
    <button onclick="removeNodeMutation('ID_2')">REMOVE A NODE!</button>
  </body>
</html>
```

Document Name="ARIA Example"

- Heading Name="Guessing Game"
Text Name="Guessing Game"
- Paragraph Name="Instructions: in thi...
Text Name="Instructions"
Text Name="In this game you gu..."
Client Name=""
Text Name="A Dialog box will dis..."
- Paragraph Name=""
Label Name="Guess a number..."
Text Name="Guess a number..."
- Paragraph Name=""
Button Name="Check my guess"
Button Name="Play again"

Styles Computed Layout Events Changes **Accessib...**

Filter Accessibility Properties

isPassword: False
labeledBy: #guess1_label
localizedControlType: Number
type: edit

html > body.win-type-... > div > div#guess1 > p.input > input#guess1_te...

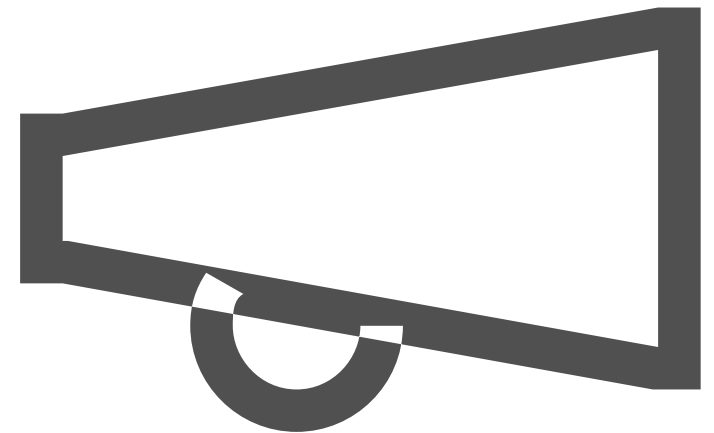
View element specific
accessibility properties

Speech Synthesis

```
window.speechSynthesis.speak( 'Hello World' );
```

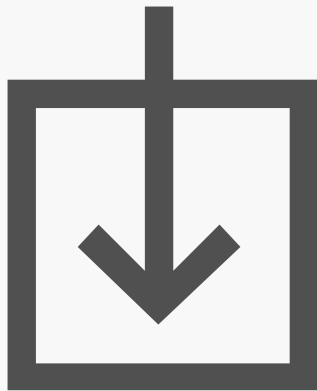
Support for

- BCP-47 language selection (subject to Windows installed languages)
- Voice selection
- Volume
- Rate
- SSML inputs



Fetch API

- Generalizes network Request and Response
- Promise-based
- Building block for ServiceWorker network management



```
fetch(url, {
  method: "POST",
  headers: {
    "Content-Type": "text/plain"
  },
  body: object
}).then(function(res) {
  if (res.ok) {
    alert("Sent!")
  } else if (res.status == 401) {
    alert("Oops! You are not authorized.");
  }
}, function(e) {
  alert("Error!");
});
```

Beacon

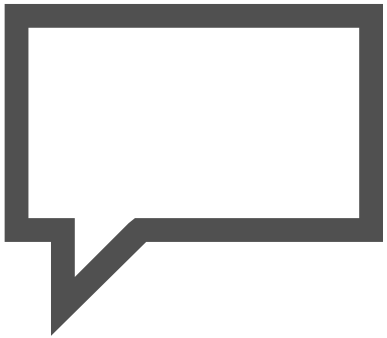
```
navigator.sendBeacon(url, data)
```



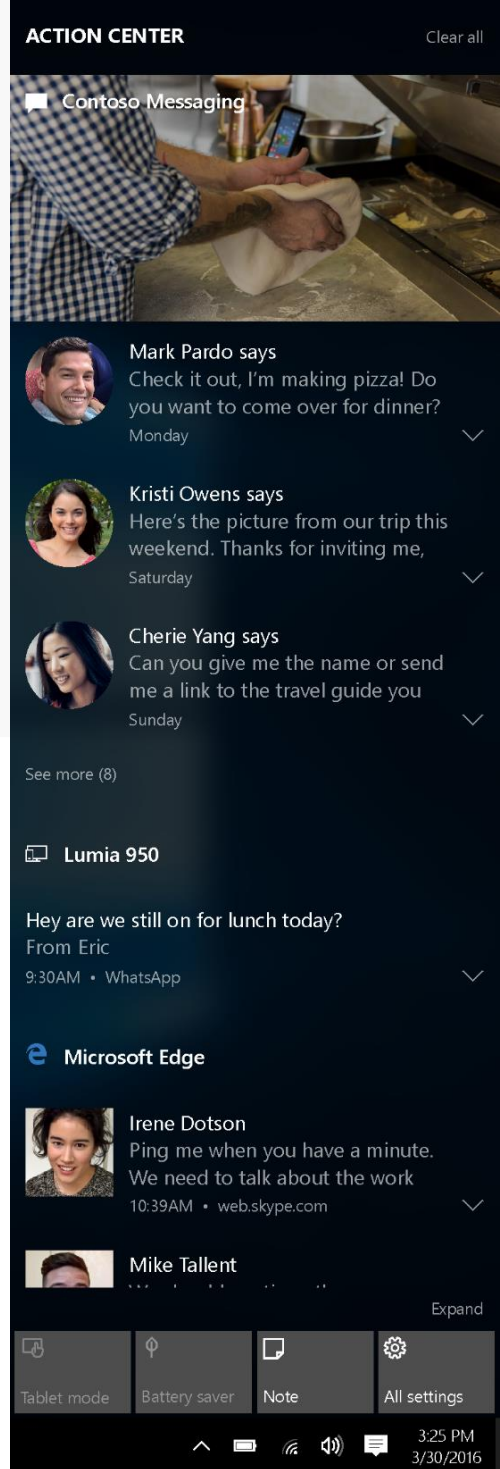
- Fire and forget
- Useful for telemetry and other scenarios where a response is not necessary
- Network requests deprioritized
- Browser guarantees completion without blocking

Web Notifications

- Integrated in the Windows 10 Action Center
- Custom icons, titles, messages



```
notify.onclick = function() {  
    var notify = new Notification(  
        "New message from Bob!",  
        {icon: "bob.png", title: "Microsoft Bob"}  
    );  
};
```



Demo

RTC Interop

API support

	ORTC	Web RTC 1.0
EdgeHTML 13	Yes	No
EdgeHTML 15	Yes	Yes



Video format support

	H.264 UC	H.264	VP8
EdgeHTML 13	Yes	No	No
EdgeHTML 15	Yes	Yes	Yes

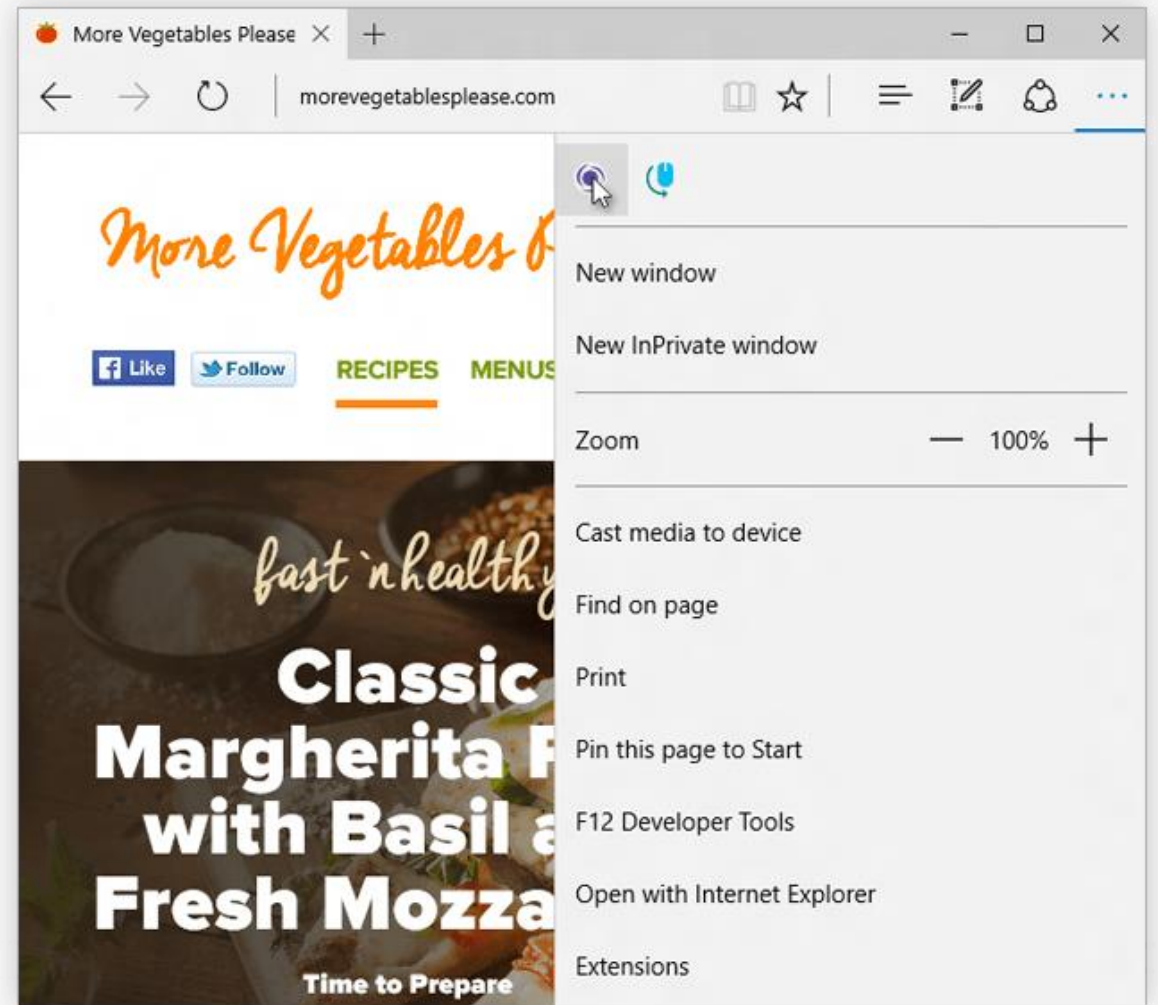
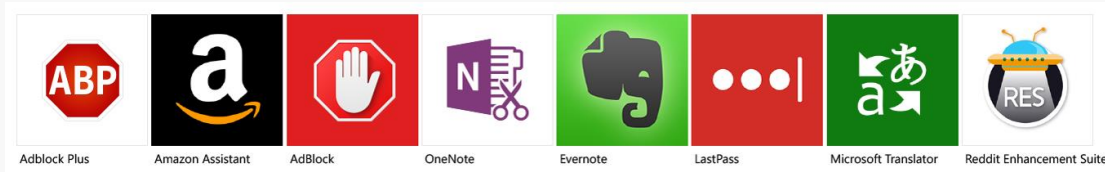
Many others

- OPUS open audio codec
- VP9 open video codec
- High Resolution Time Level 2
- Folder Drag Drop

Microsoft Edge extensions

Preview extensions for Microsoft Edge today!

- Available in the Windows Store
- Curated set that addresses top user scenarios, more will be added



Modern Extension Architecture

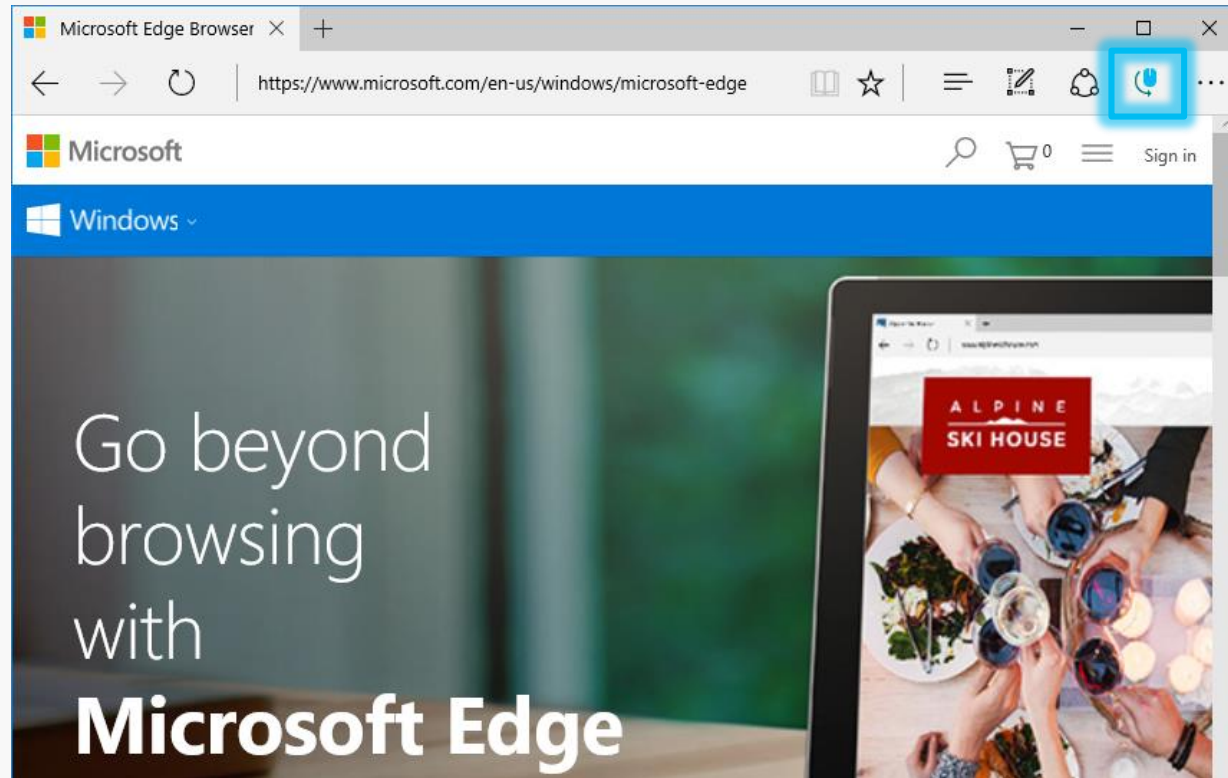
Package

manifest.json

background.js

popup.js

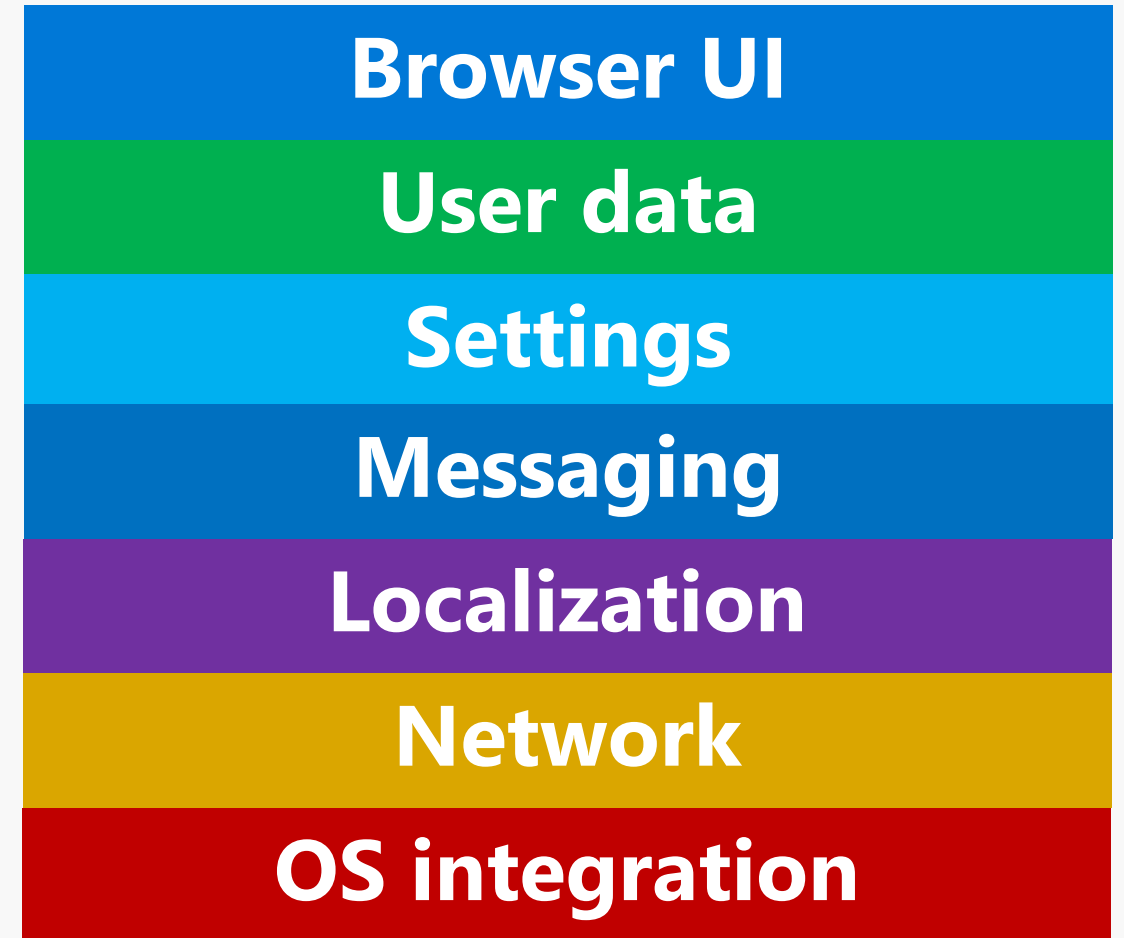
content.js



Extensions APIs

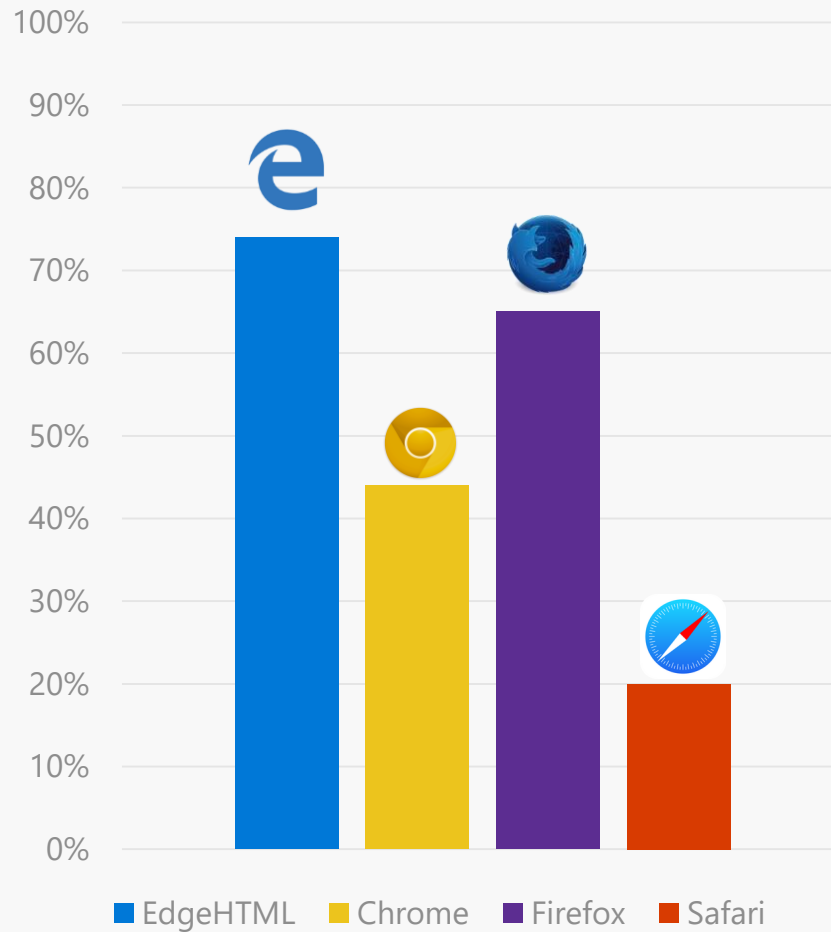
Roadmap:

<http://aka.ms/extensions-api>

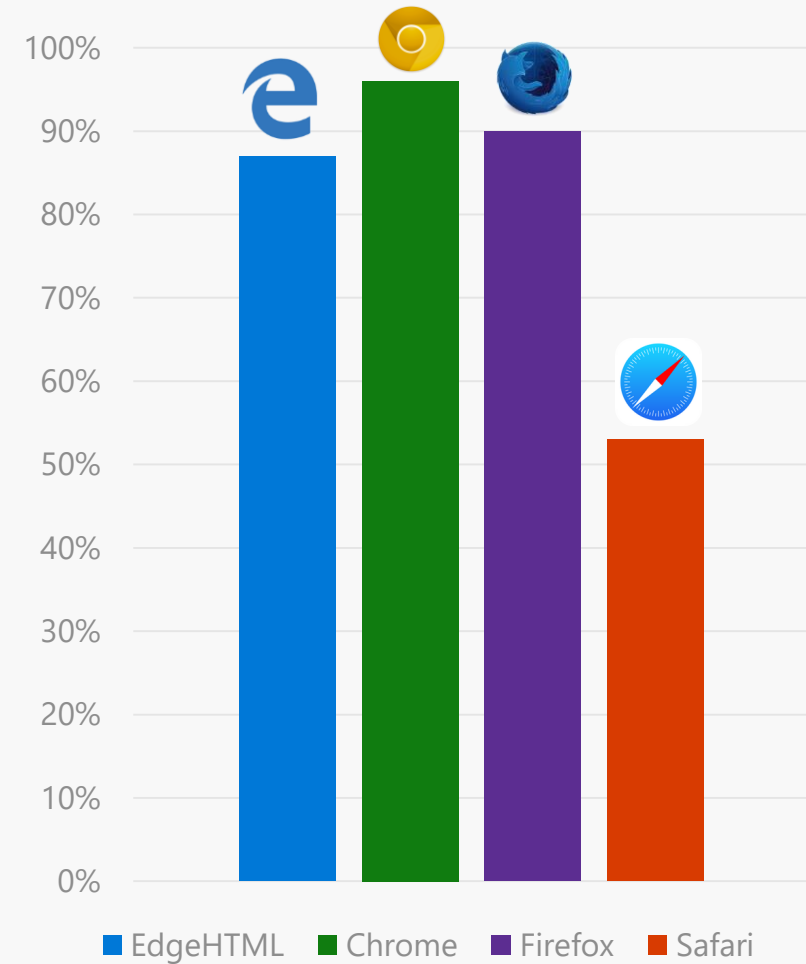


What's new: Chakra

ES2015 – interoperability



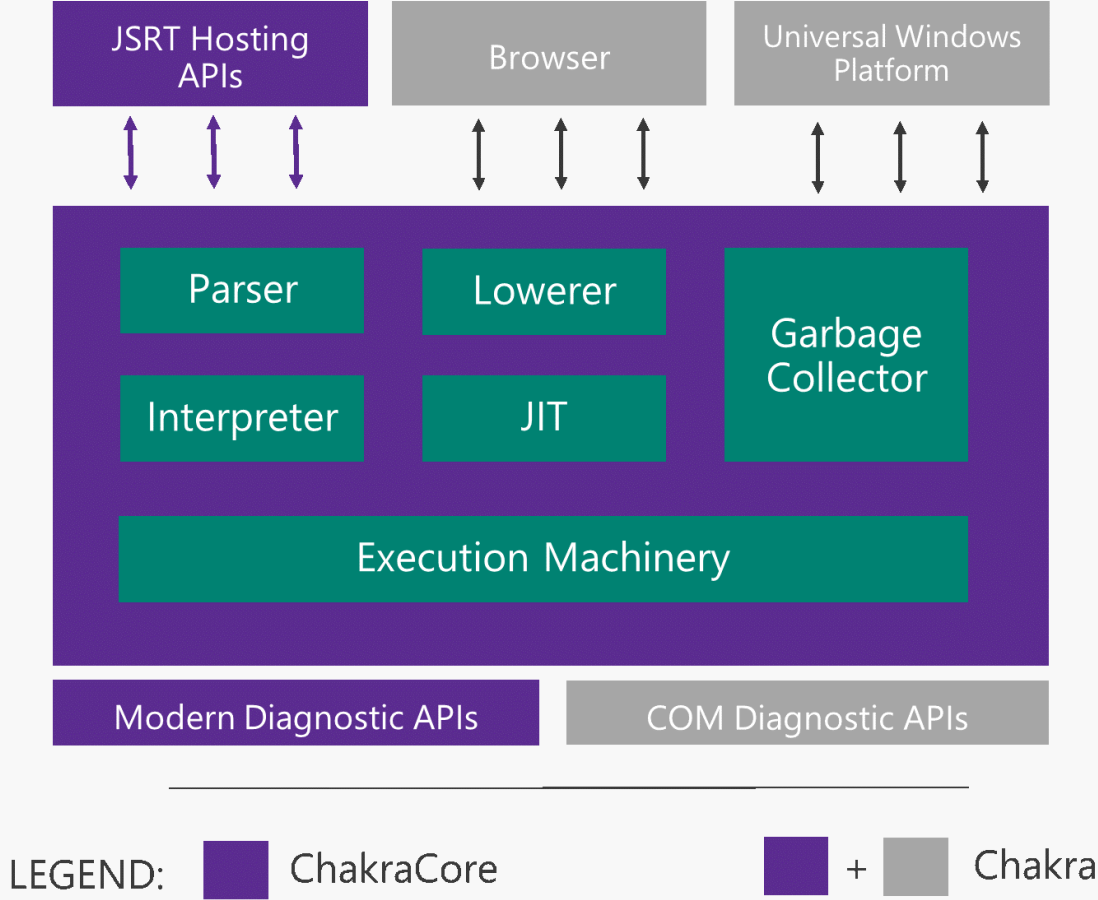
March 2015



March 2016

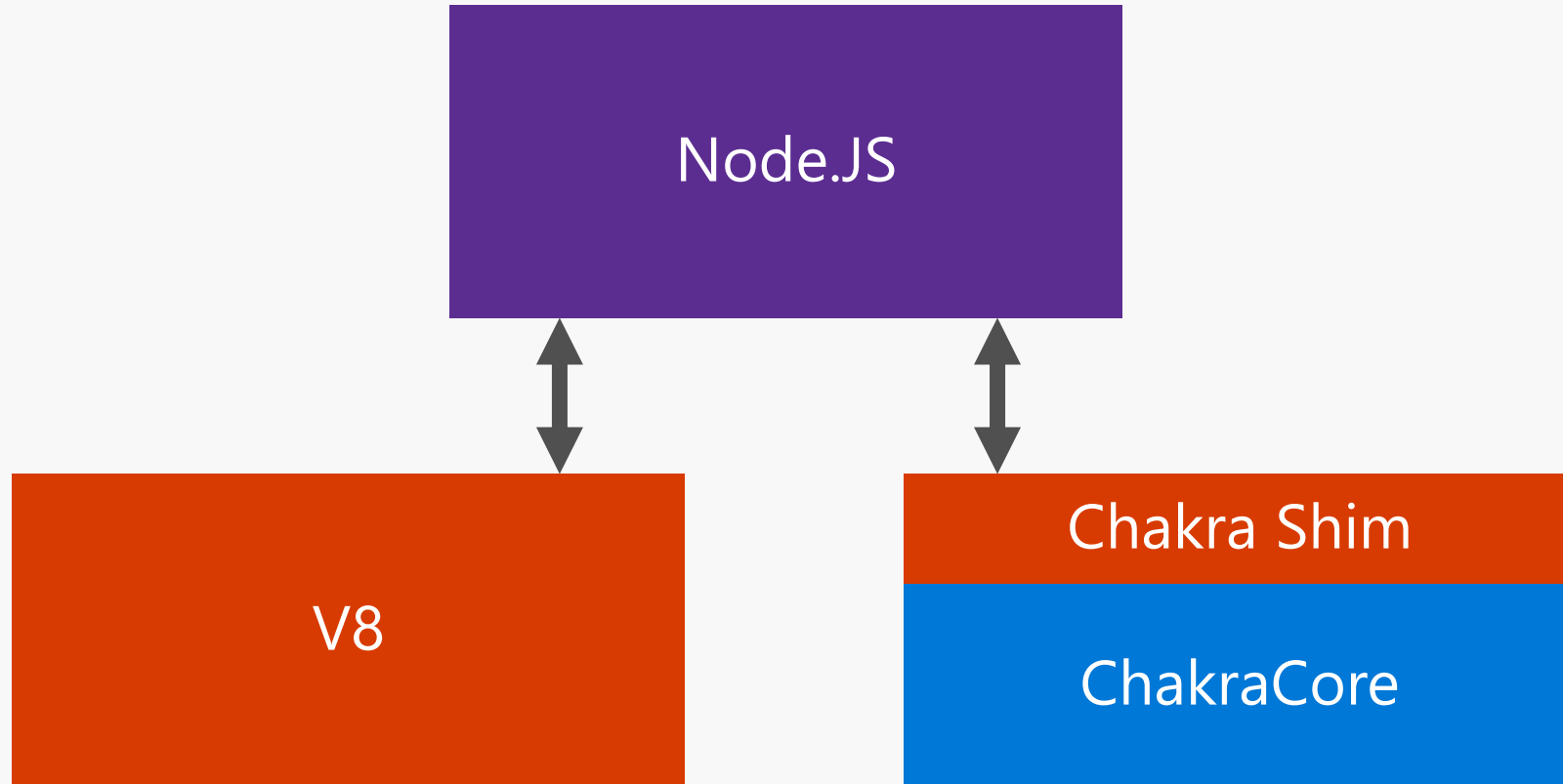
ChakraCore JavaScript engine now open source

github.com/Microsoft/ChakraCore



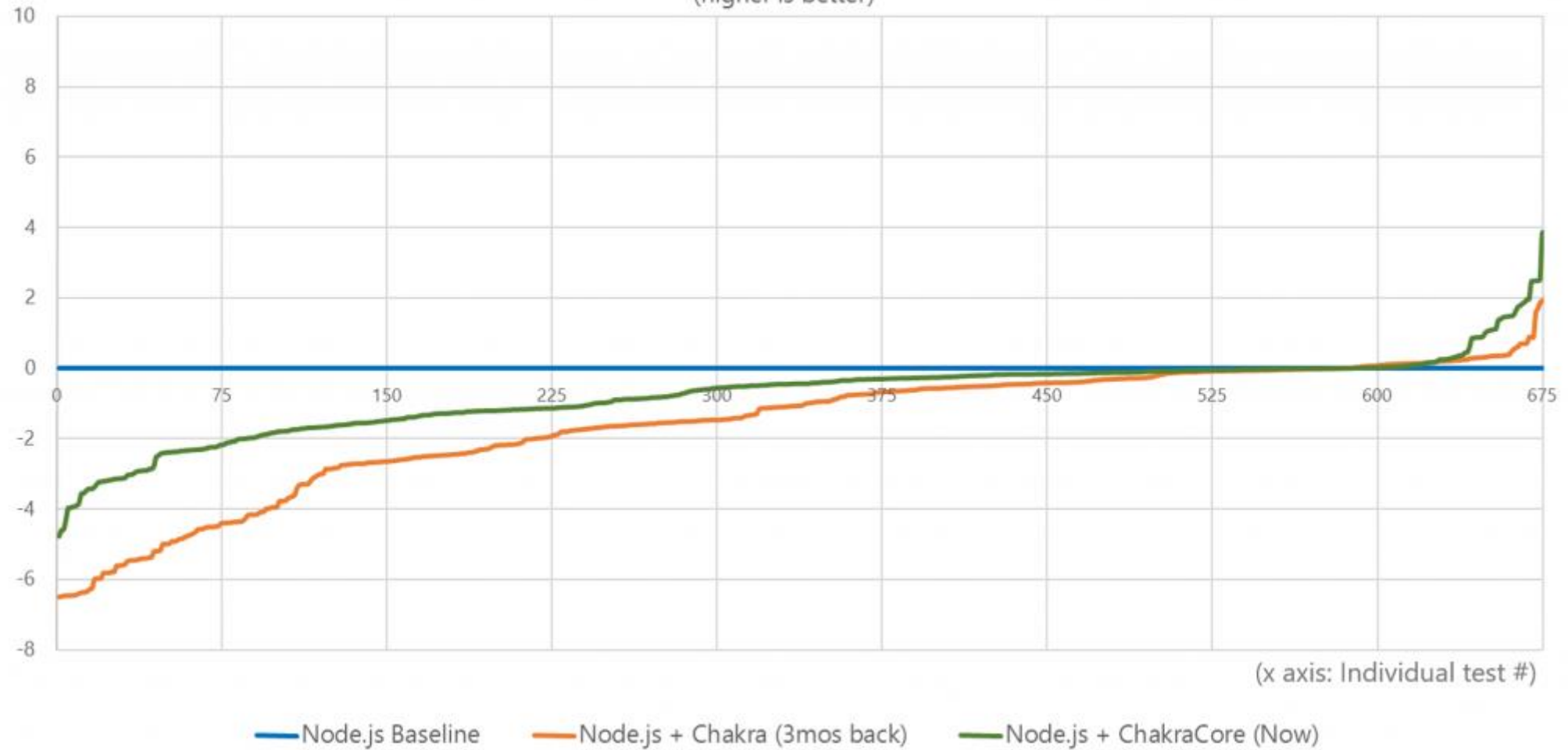
What's included in ChakraCore

NodeChakra



Node.js Benchmark Performance

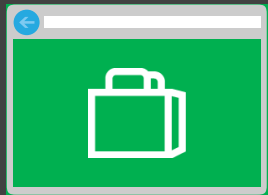
(higher is better)



System info: Intel Core i5-34755 @ 2.90Ghz with 4.0GB RAM running Windows 10

New in Azure: Functions

Apps



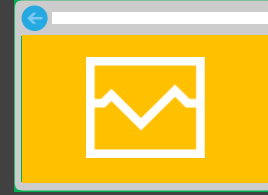
eCommerce



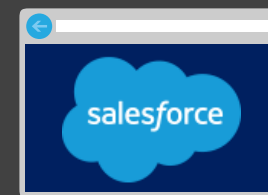
Digital Global Presence



Custom Apps



LOB



API / Services / ISV

App Service



Web Apps



Mobile Apps



API Apps



Functions

Fully Managed Platform

- Limitless/Auto
- OS and Framework
- Load balance
- Something else

Development

- Languages and Framework
- Superior DevOps
- Self served
- Something else

Enterprise Grade

- Enterprise grade SLA
- Secure and Compliance
- On-Premise Connectivity
- Something else

What is Azure Functions?

Code Azure Functions Events + data



Supported Languages

- 1st class support
 - Node/JavaScript
 - C#
- Experimental support
 - F#
 - Python
 - PHP
 - Batch
 - Bash
 - PowerShell

Supported bindings

Type	Service	Trigger	Input	Output
Schedule	Azure Functions	✓		
HTTP (REST or WebHook)	Azure Functions	✓		✓
Blob Storage	Azure Storage	✓	✓	✓
Queues	Azure Storage	✓		✓
Tables	Azure Storage		✓	✓
Tables	Azure Mobile Apps Easy Tables		✓	✓
No-SQL DB	Azure DocumentDB		✓	✓
Streams	Azure Event Hubs	✓		✓
Push Notifications	Azure Notification Hubs			✓

Demo

Servers when you want them...

Servers when you want them...

serverless when you don't

More Tools and Services for Web Devs



VORLON.JS

INTRODUCING VORLON.JS

build succeeded npm package 0.2.1 Slack 1/17

An open source, extensible, platform-agnostic tool for remotely debugging and testing your JavaScript. Powered by node.js and socket.io.

www.vorlonjs.com

Web Tooling

Web Tooling in Visual Studio 2015



Client-side package

JavaScript libraries, CSS frameworks



Task runners

Client-side automation



Tooling (and client-side package)

Task runners, compilers, bundlers, minifiers

Goals

First-class citizens

- Solution Explorer integration

- Task Runner Explorer

- Feels natural

No VS specifics

Extensible

Optional



node.exe



npm



Bower



grunt-cli

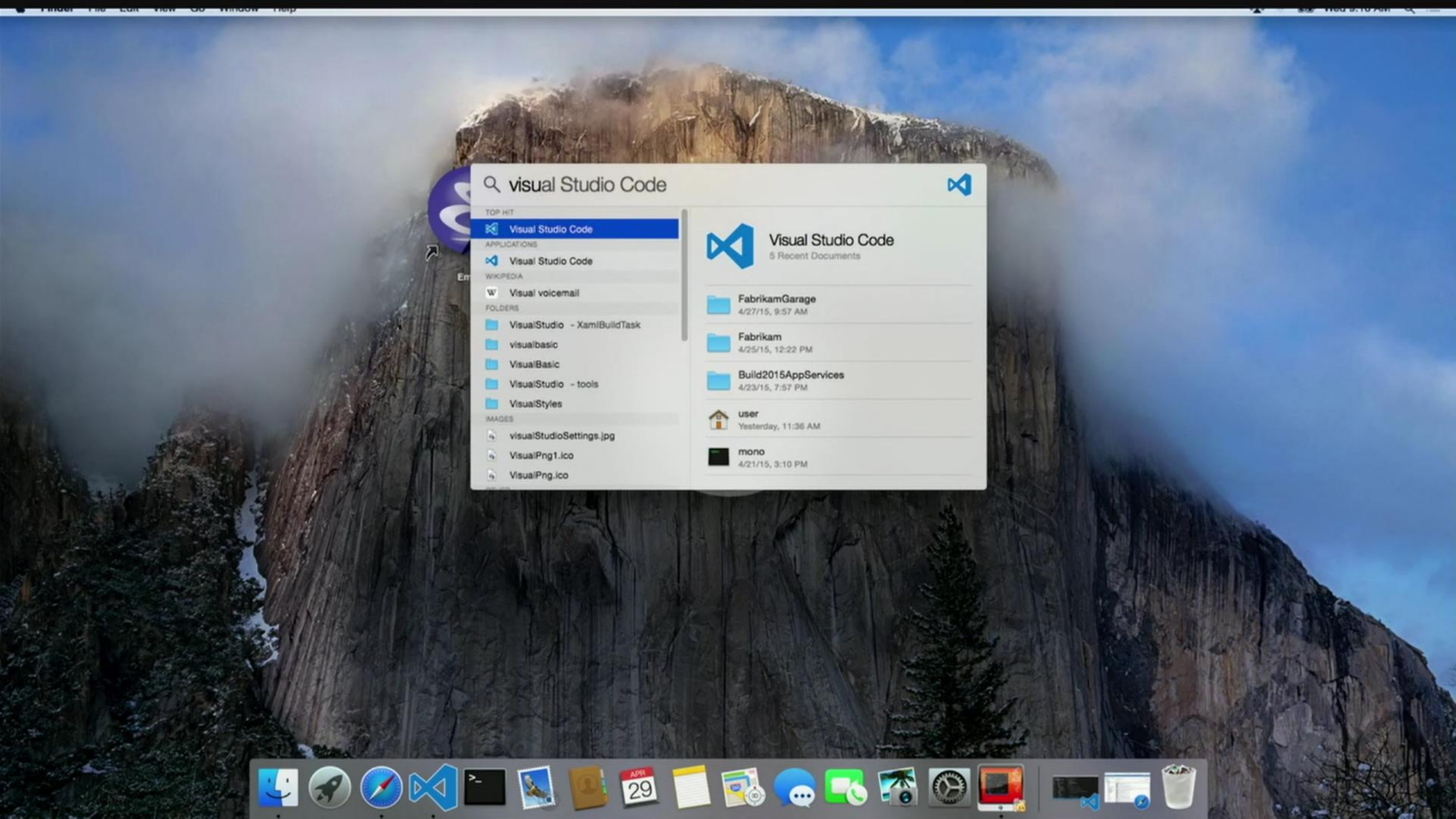


git



FREE!

Announcing
Visual Studio Code



visual Studio Code

TOP HIT

Visual Studio Code

APPLICATIONS

Visual Studio Code

WIKIPEDIA

Visual voicemail

FOLDERS

VisualStudio - XamiBuildTask

visualbasio

VisualBasic

VisualStudio - tools

VisuaStyles

IMAGES

visualStudioSettings.jpg

VisualPng1.ico

VisualPng1.ico

Visual Studio Code

5 Recent Documents

FabrikamGarage

4/27/15, 9:57 AM

Fabrikam

4/25/15, 12:22 PM

Build2015AppServices

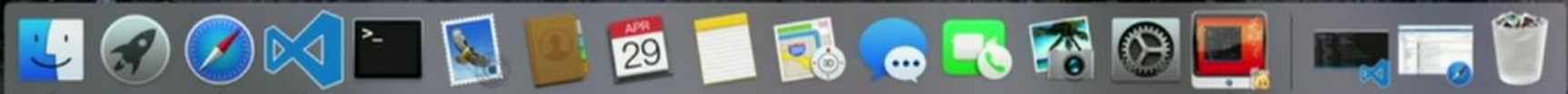
4/23/15, 7:57 PM

user

Yesterday, 11:36 AM

mono

4/21/15, 3:10 PM





HelloWorld.cs - ConsoleApp - Code

EXPLORE

WORKING FILES

HelloWorld.cs /

CONSOLEAPP

.settings

launch.json

tasks.json

user.build.json

user.launch.json

user.tasks.json

bin

obj

.gitignore

HelloWorld.cs

HelloWorld.csproj

HelloWorld.exe

HelloWorld.sln

HelloWorld.cs /

```
4 using System;
5
6 0 references
7 internal class Program
8 {
9     0 references
10     private static void Main(string[] args)
11     {
12         //DrawMac();
13         DrawLinux();
14         Console.WriteLine();
15         Console.WriteLine("Press ENTER to exit ...")
16         Console.ReadLine();
17     }
18
19     0 references
20     private static void DrawWindows()
21     {
22         Console.WriteLine("Hello, Windows...");
23     }
24 }
```

Ln 21, Col 35 C#



DEBUG Launch



HelloWorld.cs /



VARIABLES

Locals

char c 10 '\n'

string ? "\n \n @@@@@"

Terminal int ? 0

CALL STACK

Program.DrawLinux

Program.Main

BREAKPOINTS

☐ All exceptions☐ Uncaught exceptions

```
107
108
109 ";
110     foreach (char c in Penguin)
111     {
112         if (c == '\n')
113         {
114             Console.ResetColor();
115             Console.WriteLine();
116         }
117         else
118         {
119             ConsoleColor cc =
120                 c == '*' ? ConsoleColor.DarkMagenta :
121                 c == '@' ? ConsoleColor.Black :
122                 c == '-' ? ConsoleColor.Yellow :
123                 ConsoleColor.White;
124             Console.BackgroundColor = cc;
125             Console.ForegroundColor = cc;
126             Console.Write(" ");
127         }
128     }
129
130     Console.ResetColor();
131     Console.WriteLine();
132 }
133
134 0 references
135 private static void DrawMac()
136 {
137     Console.WriteLine("Hello, Mac...");
138
139     const string Apple = "@"
140                          , ++
141                          @@@@@@+
```

Demo Visual Studio Code

A silver laptop is shown from a side-front perspective. The screen is filled with a solid blue color, and the word "FREE!" is written in large, white, sans-serif capital letters. The laptop's bezel and keyboard area are visible at the bottom.

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