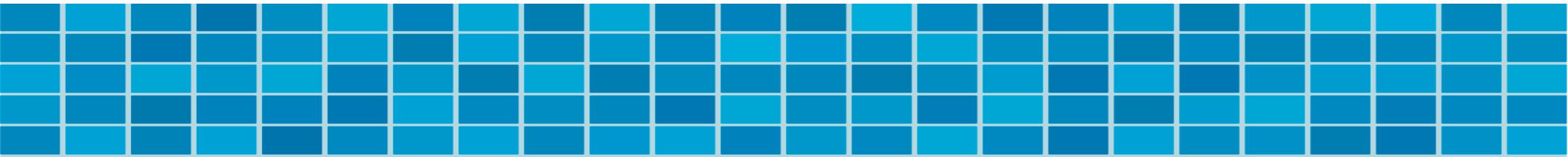


Everybody Into The Pool!

Node.js For .Net Developers



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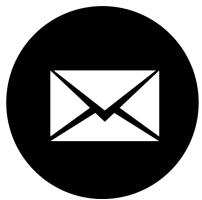
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The Pool's Lifeguard ... Matt



msoucoup@codemilltech.com



codemilltech.com



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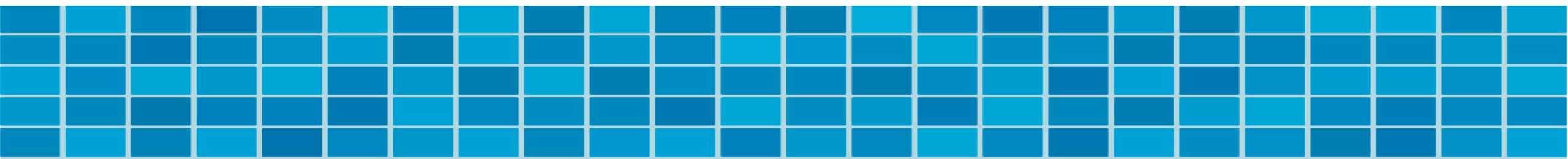
github.com/codemillmatt/Node-Pool



Everybody Into the Pool!

Overview

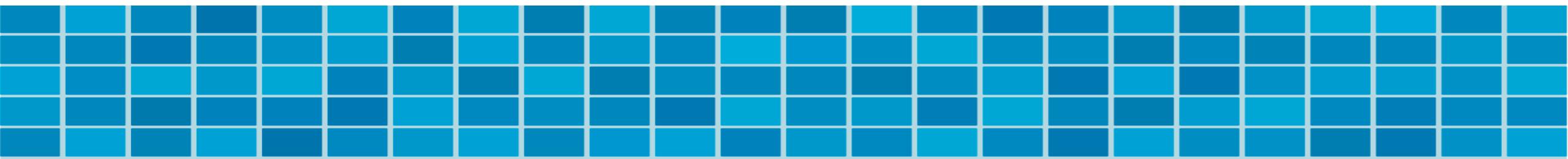
- Dipping Our Toes In
- Learning To Swim
- Into the Blue With Express & Azure and Off the Ledge with Edge



Everybody Into the Pool!

Part 1: Dipping Our Toes In

- What Is Node.js?
- When Should It Be Used?
- When Shouldn't It Be Used?
- Why Would a .Net Developer Want to Learn Node.js?



What Is Node.js?

Node.js is a platform built on Chrome's JavaScript runtime for building fast, scalable network applications. Node.js uses an event-driven, non-blocking I/O model that makes it lightweight and efficient.

“JavaScript ... for fast, scalable network
applications”

```
var name =  
'Matt';  
  
name =  
123;
```

“JavaScript ... for fast, scalable network applications”

- Fast
 - JavaScript runs in Chrome’s V8 engine
 - V8 and Node.js written in C
- Scalable
 - No multi-threaded overhead
- Network
 - http, dns, net, querystring, url



“Non-blocking I/O model”

Blocking Example:
The ATM

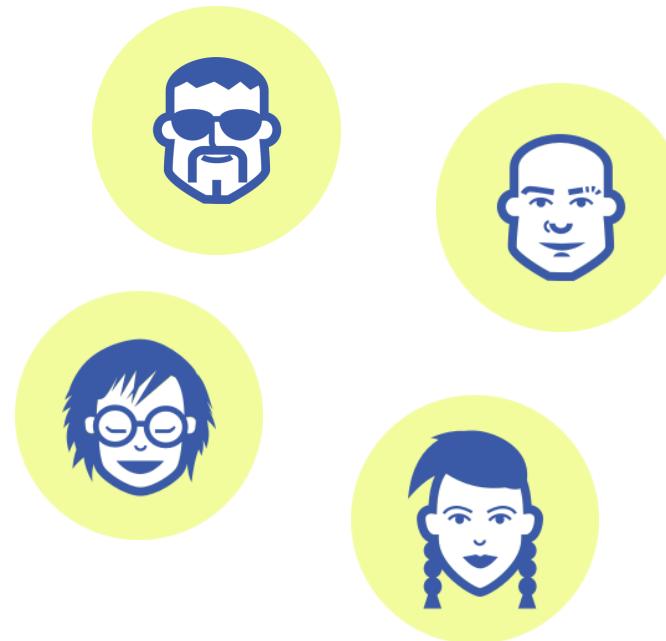
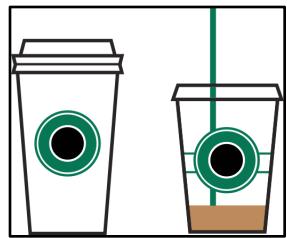


Idea inspired by Shawn Wildermuth:

<http://www.pluralsight.com/courses/nodejs-dotnet-developers>

“Non-blocking I/O model”

Non-Blocking Example:
Coffee Shop



- CPU
- Pick up “coffee back”
- Whole coffee shop is a “coffee loop”

“Event-Driven”

DO NOT BLOCK THE EVENT LOOP!

A circular diagram representing an event loop. It consists of four green triangular arrows pointing clockwise in a circle. A thick grey line forms the outer boundary of the circle. A small vertical green bar is positioned above the top arrow.

Node.js in a Nutshell...

- Fast, scalable, network apps
 - Chrome's V8
 - Modules focused on scalable networking
- Non-blocking
 - Designed to be asynchronous
- Event-driven
 - Events, call-backs and event loops

Use Cases

What is it good for?

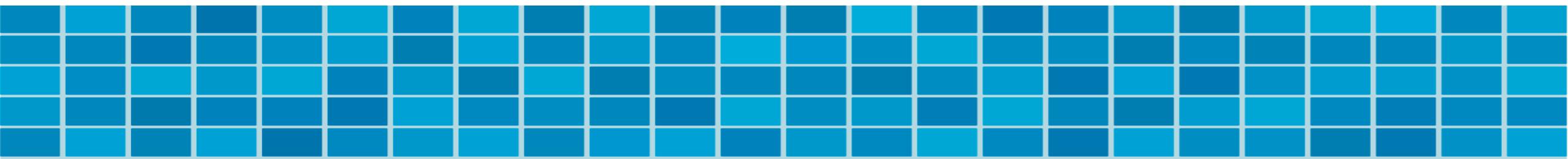
- Real-time web
 - Chat apps, stock tickers
- The glue
 - REST servers, message queue
- Streaming data
 - File uploading
- Serve large amounts of clients
 - Ad server, IoT

What isn't it good for?

- CPU intensive work
- Non-I/O
- Just because it's cool

Why Node.js For .Net Developers?

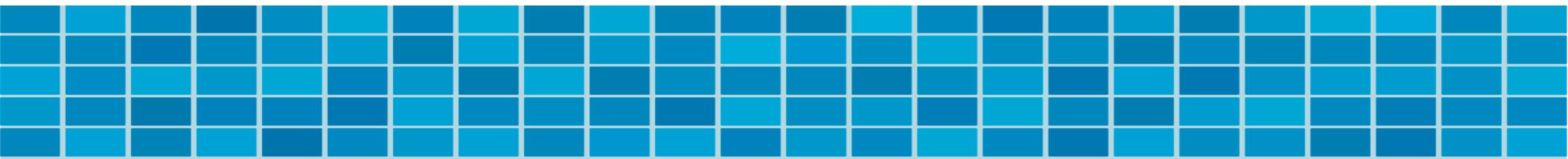
- Teaches us how to handle async
- Javascript is lingua-franca
- Microsoft & keep existing investments
- Great community developing node modules
- Give clients more choice



Everybody Into the Pool!

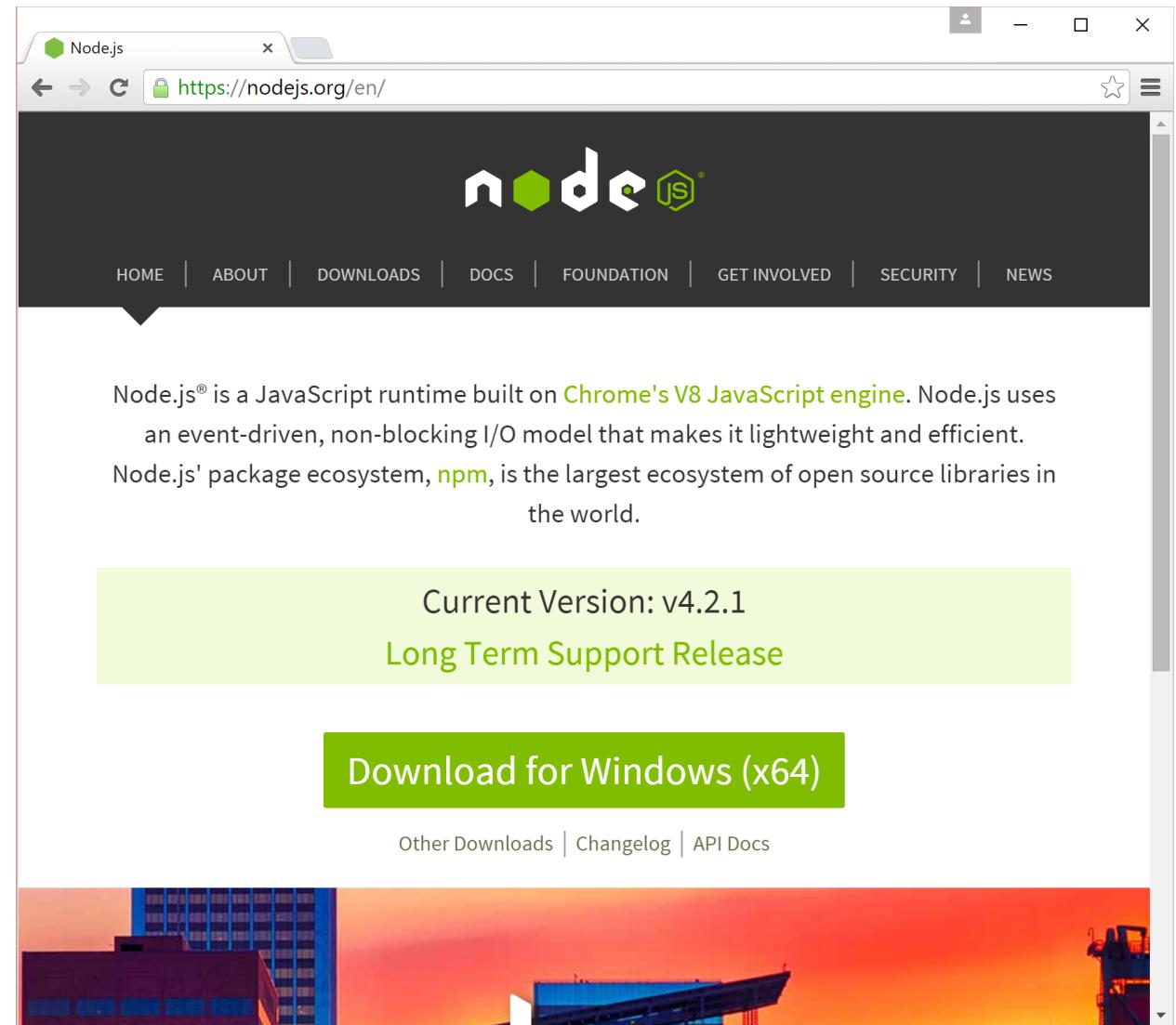
Part 2: Learning To Swim

- Installing Node.js
- npm
- Node.js Tools For Visual Studio
- Jump Into the Water With a Demo



Installing Node.js

- <http://nodejs.org>
- Download installer package



Installing Node.js

- <http://chocolatey.org>
- Machine Package Manager
 - NuGet for applications!



```
C:\> choco install nodejs.install
```

npm Package Management

- Package manager
- ~ NuGet for JavaScript
- 204,000+ modules



<http://npmjs.com>



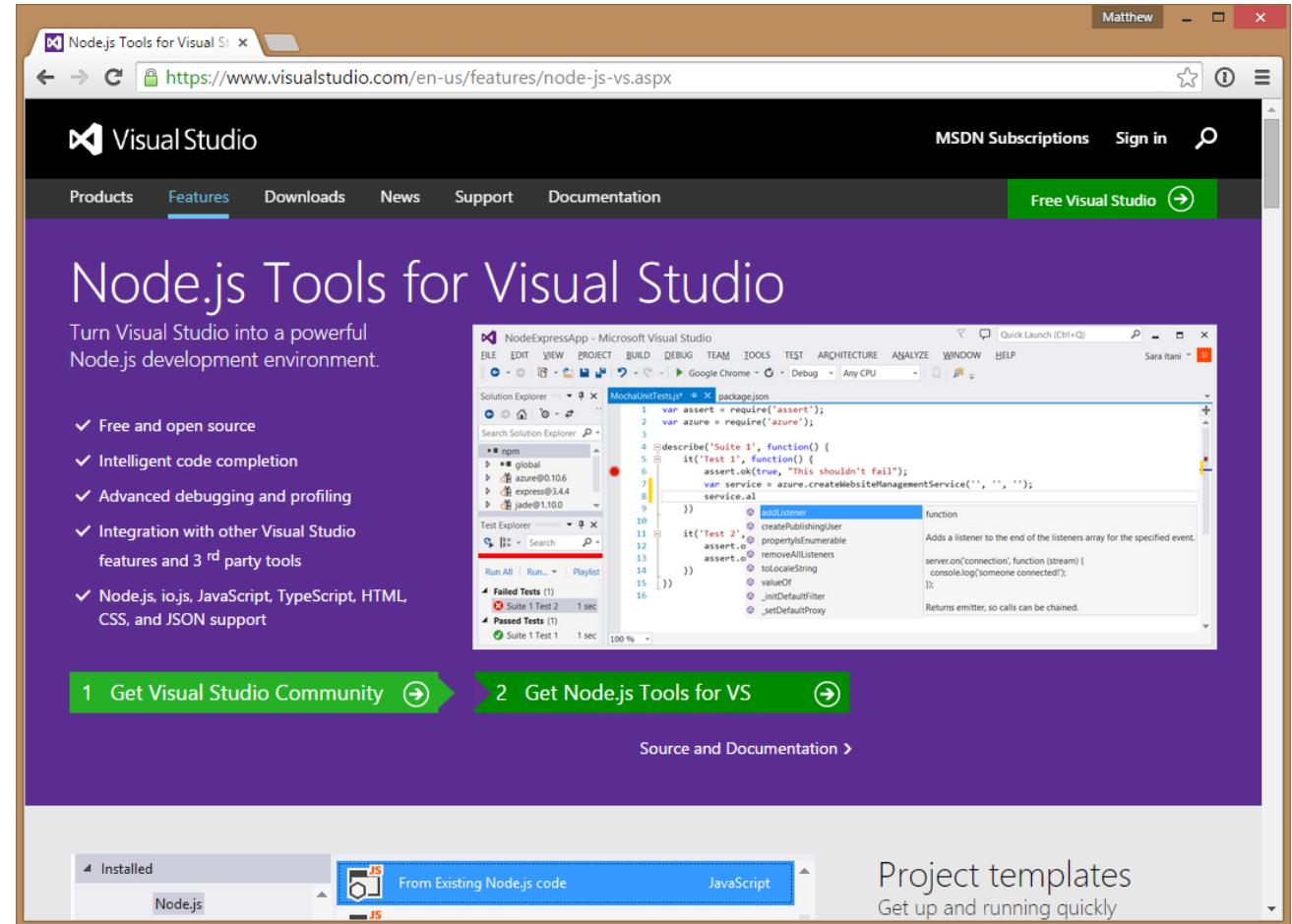
Handy Modules For the .Net Dev

- express
 - Middleware
- restify
 - REST services
- edge
 - Call .Net functions from Node.js and Node.js functions from .Net
- node-sqlserver
 - Microsoft's driver to access SQL Server from Node.js
- azure
 - Access to many of Azure's services

Node.js Tools for Visual Studio

- Project templates
- Intellisense
- Debugging
- Profiling
- REPL
- Unit testing
- npm integration

Visual Studio 2012 +



<http://visualstudio.com/en-us/features/node-js-vs.aspx>

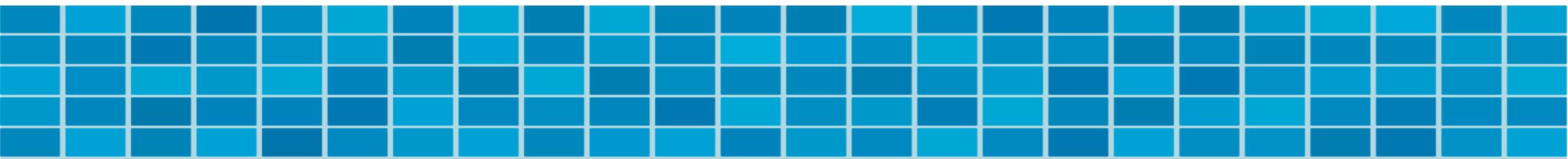
Look mom, I can swim!



Everybody Into the Pool!

Part 3: Into the Blue With Express & Azure and Off the Ledge with Edge

- Express.js – Minimal Middleware
- Azure's Node.js Functionality
- Deploying Web Apps Into Azure
- Edge.js – Invoking .Net From Node.js



Express.js

Middleware for Node.js

- Web Application Framework
- Can Compose Middleware Functions
 - Middleware = request handler chaining
- Minimal and Lightweight
- Many Plugins Available
 - Routing, Logging, Error Handler, Template Engines



What Can Azure Do With Node.js?

Host Node.js Applications

- Web Apps/Sites
 - Azure Mobile Services
 - Cloud Services
 - Virtual Machines
-
- Including npm modules!
 - Specific Azure modules!

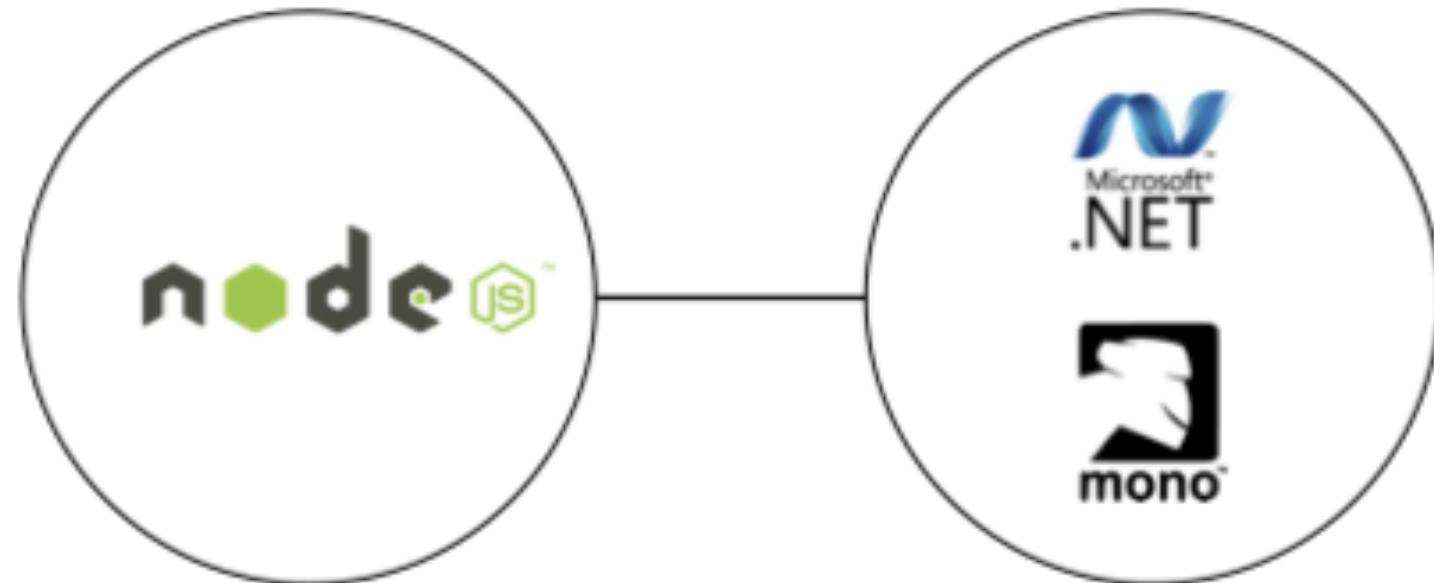


Where Is Matt Swimming ... In Azure!!



Edge.js

- Allows us to invoke .Net code from Node.js (and vice versa)
- Inline C#
- C# files
- Compiled DLLs



node.exe

CLR thread
CLR thread
CLR thread
CLR thread

Func<object, Task<object>>



v8 thread (singleton)

```
function (payload, callback) {
  callback(error, result);
}
```



Dropping Off The Ledge ... With Edge.js



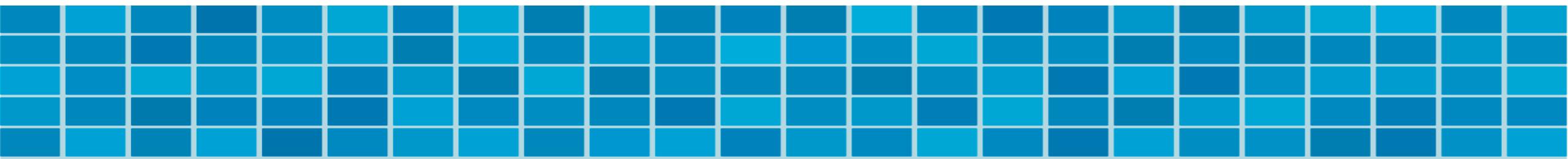


The Future – Node.js 4

- From 0.12 to 4.0 ... what?
- Merge with io.js
- Uses latest V8 engine
- Faster!
- Can use ES6
- Long term support plan

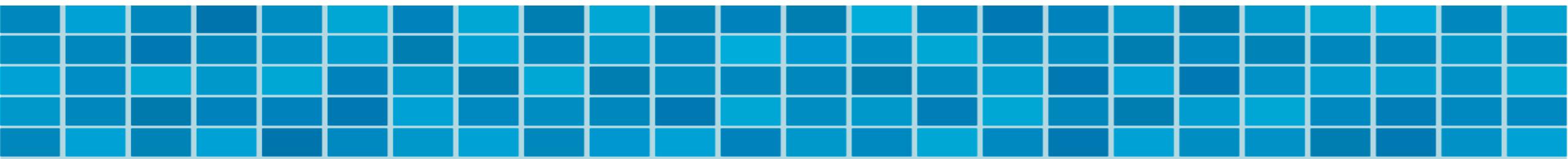
Where To Go From Here?

- Dive In!
- Node.js can be the glue
- Node.js can be microservice
- Node.js can invoke .Net

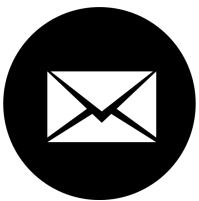


Toweling Off

- Node.js – fast, non-blocking, event-driven
- Full support in Visual Studio
- Express and Azure
- Edge and .Net code reuse



Reach Out!



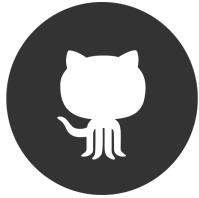
msoucoup@codemilltech.com



codemilltech.com



[@codemillmatt](https://twitter.com/codemillmatt)



github.com/codemillmatt/node-pool

