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codice/plastico

#CDays13 – 27 e 28 febbraio 2013

COMMUNITY DAYS

grazie a...

Sponsor



Technical
Conferences



Visual Basic tips&tricks
Dai 1996 la community su VB e VB.NET



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Do you really know
javascript?

COMMUNITY DAYS 

COMMUNITY DAYS 

> [] + []

COMMUNITY DAYS 

> [] + []

''

COMMUNITY DAYS 

COMMUNITY DAYS 

> [] + {}

COMMUNITY DAYS 

> [] + {}

{ }

COMMUNITY DAYS 

COMMUNITY DAYS 

> { } + []

COMMUNITY DAYS 

> { } + []

0

COMMUNITY DAYS 

COMMUNITY DAYS 

> {} + {}

COMMUNITY DAYS 

> {} + {}

NaN

COMMUNITY DAYS 

COMMUNITY DAYS 

> **Array(10)**

COMMUNITY DAYS 

> **Array(10)**

[, , , , , , , , ,]

```
> Array(10)
```

```
[ , , , , , , , , , ]
```

```
> Array(10).join('yo')
```

```
> Array(10)
```

```
[ , , , , , , , , , ]
```

```
> Array(10).join('yo')
```

```
yoyoyoyoyoyoyoyoyoyoyo
```

```
> Array(10)
```

```
[ , , , , , , , , , ]
```

```
> Array(10).join('yo')
```

```
yoyoyoyoyoyoyoyoyoyoy
```

```
> Array(10).join('yo' + 1)
```

```
> Array(10)
```

```
[ , , , , , , , , , ]
```

```
> Array(10).join('yo')
```

```
yoyoyoyoyoyoyoyoyoyoy
```

```
> Array(10).join('yo' + 1)
```

```
yo1yo1yo1yo1yo1yo1yo1yo1yo1yo1yo
```

> **Array(10)**

[, , , , , , , , , ,]

```
> Array(10).join('yo')
```

```
> Array(10).join('yo' + 1)
```

yo1yo1yo1yo1yo1yo1yo1yo1yo1yo1yo1yo

```
> Array(10).join('yo' - 1) + ' Batmaaan'
```

```
> Array(10)
```

```
[ , , , , , , , , , ]
```

```
> Array(10).join('yo')
```

```
yoyoyoyoyoyoyoyoyoyoy
```

```
> Array(10).join('yo' + 1)
```

```
yo1yo1yo1yo1yo1yo1yo1yo1yo1yo1yo
```

```
> Array(10).join('yo' - 1) + ' Batmaaan'
```

```
NaNNaNNaNNaNNaNNaNNaNNaNNaNNaN NaN Batmaaan
```

Agenda

- What is node.js?
- Architecture
- Installation
- Building applications
- Modules

I am...

SOFTWARE ENGINEER AND
ARCHITECT IN CODICEPLASTICO.
WRITES WEB APPS IN C#,
JAVASCRIPT E RUBY.



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What is node.js?

- A development framework that uses event driven, non blocking I/O
- Built on javascript
- Based on Google V8 engine
- Ideal for high performance

History

- Created by [Ryan Dahl](#) in 2009
- He is trying to find the best way to notify the user in real time
- Written in C
- <https://github.com/joyent/node>



Curious facts

- It's one of the most watched project on Github
- The community has build more than 21k modules
- It's not only for web apps

Web apps scalability

- Synchronous:
 - Every request could block the others
- Multithread
 - Hard times with thousands connections

Node keep it simple

Single thread

WHAAT!

YHUR SO CRAZY

Non-blocking

- Blocking

```
var result = db.query('select ...')
```

- Non blocking

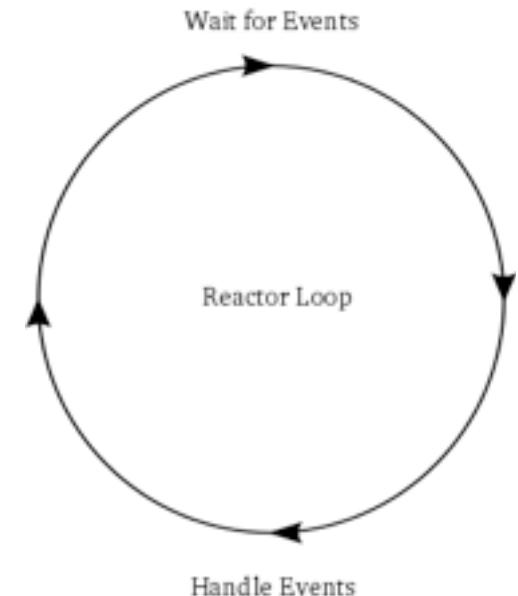
```
db.query('select...', function(result) {...})
```

Why didn't I think at it before?

- Culture: The non blocking code seems more difficult to get
- Infrastructure: single threaded event loop require non-blocking I/O

The event loop

- Every operation **must** be non-blocking
- Lots of callbacks
- The result will be available in one of the next ticks



The event loop

- No code in the main method
- All I/O operations are asynchronous
- Be quick to respond

YOU HAVE TO THINK IN
CALLBACKS

Javascript

- Seems the best choice:
 - Anonymous functions, closures
 - One callback at a time
 - None were using it on the server side

Who are using it?



Cloud9 IDE
The Javascript IDE
for Javascripters by Javascripters

<https://github.com/joyent/node/wiki/Projects,-Applications,-and-Companies-Using-Node>

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What can you do with node?

Web Server

TCP Server

Robot controller

Command line apps

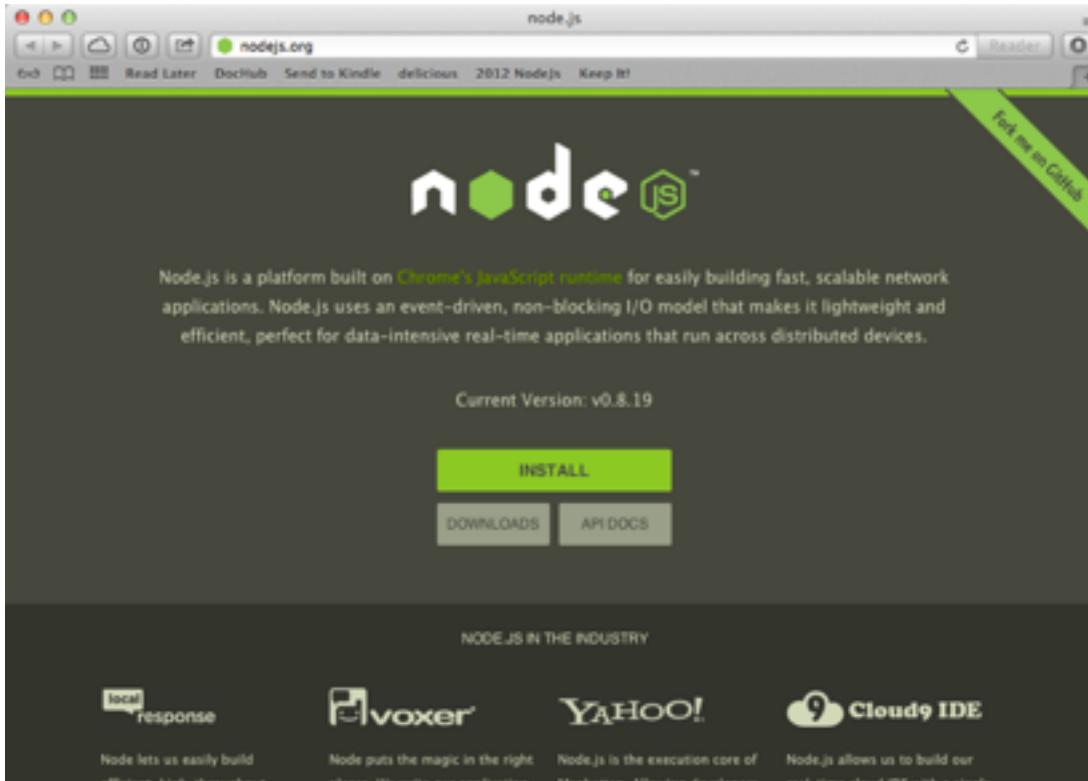
Proxy server

Streaming server

VoiceMail server

Music machine

Install



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What you get?

- `node` executable
- npm (the node packet manager)
- REPL

DEMO

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IDE

- **WebMatrix** on windows
- Cloud9
- WebStorm
- Don't forget about the command line + text editor

Not only for web apps

- Useful for I/O intensive tasks
- Scripts for DevOps
- Build (jake)
- Not suitable for intensive CPU tasks

Modules (npm)

- NPM is the Nuget for noders
- No version clash
- package.json to manage app dependencies

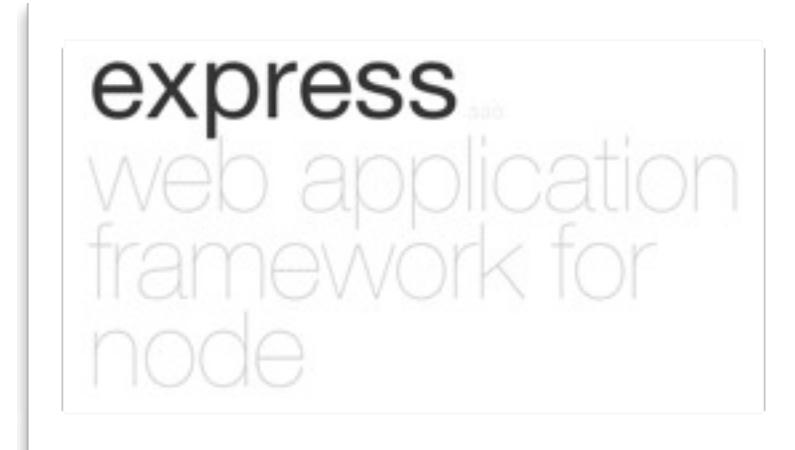


DEMO

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Express.js

- Minimal MVC framework
- Verb oriented
- Middleware
- Templating



Express.js

```
var express = require('express');
var app = express();

app.get('/', function(req, res){
  res.send('hello noders');
});

app.listen(3000);
```

Jade

```
doctype 5
html(lang="en")
  head
    title= pageTitle
    script(type='text/javascript')
      if (foo) {
        bar()
      }
  body
    h1 Jade - node template engine
    #container
      if youAreUsingJade
        p You are amazing
      else
        p Get on it!
```

DEMO

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Azure

- You can deploy your app to [Windows Azure](#).
- Using the [CLI](#)
- From [WebMatrix](#) (for IDE addicted)

Node on Azure

- Web sites
- Cloud services
- Virtual machines

Deploy on azure

```
$ azure site create nodeisfun --git  
$ git add .  
$ git commit -m'first commit'  
$ git push azure master  
$ azure site browse
```

DEMO

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PACKAGES

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mongodb

```
var MongoClient = require('mongodb').MongoClient;

MongoClient.connect("mongodb://localhost:27017/myDb",
function(err, db) {

  var collection = db.collection('myCollection');

  collection.findOne({mykey:1}, function(err, item){
    console.log(item)
  });
});
```

node-sqlserver

```
conn.queryRaw("SELECT * FROM Employees", function (err, res) {  
  if (err) {  
    console.log("Error running query!");  
    return;  
  }  
  for (var i = 0; i < res.rows.length; i++) {  
    console.log(res.rows[i][0] + " " + res.rows[i][1]);  
  }  
});
```

WebSockets

- Full-duplex communication over TCP
- W3C standard
- The server calls the browser!!

WebSockets: socket.io

```
var io = require('socket.io').listen(80);

io.sockets.on('connection', function (socket) {
  socket.emit('news', { hello: 'world' });
  socket.on('my other event', function (data) {
    console.log(data);
  });
});
```

WebSockets: socket.io

```
<script src="/socket.io/socket.io.js"></script>
<script>
  var socket = io.connect('http://localhost');
  socket.on('news', function (data) {
    console.log(data);
    socket.emit('my other event', { my: 'data' });
  });
</script>
```

DEMO

- A collaborative Drum Machine
 - Node.js/express
 - Azure
 - WebSockets
 - Web Audio API

LET'S DRUM

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Conclusions

- Node is an interesting platform
- It worth a look
- It's becoming popular

Not all problems
should be solved in C#

Q&A

Slides and demos available here

<http://www.communitydays.it/>

<http://github.com/emadb/>

<http://slideshare.net/emadb/>