IoT.js: a Platform for the Embedded World

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Overview

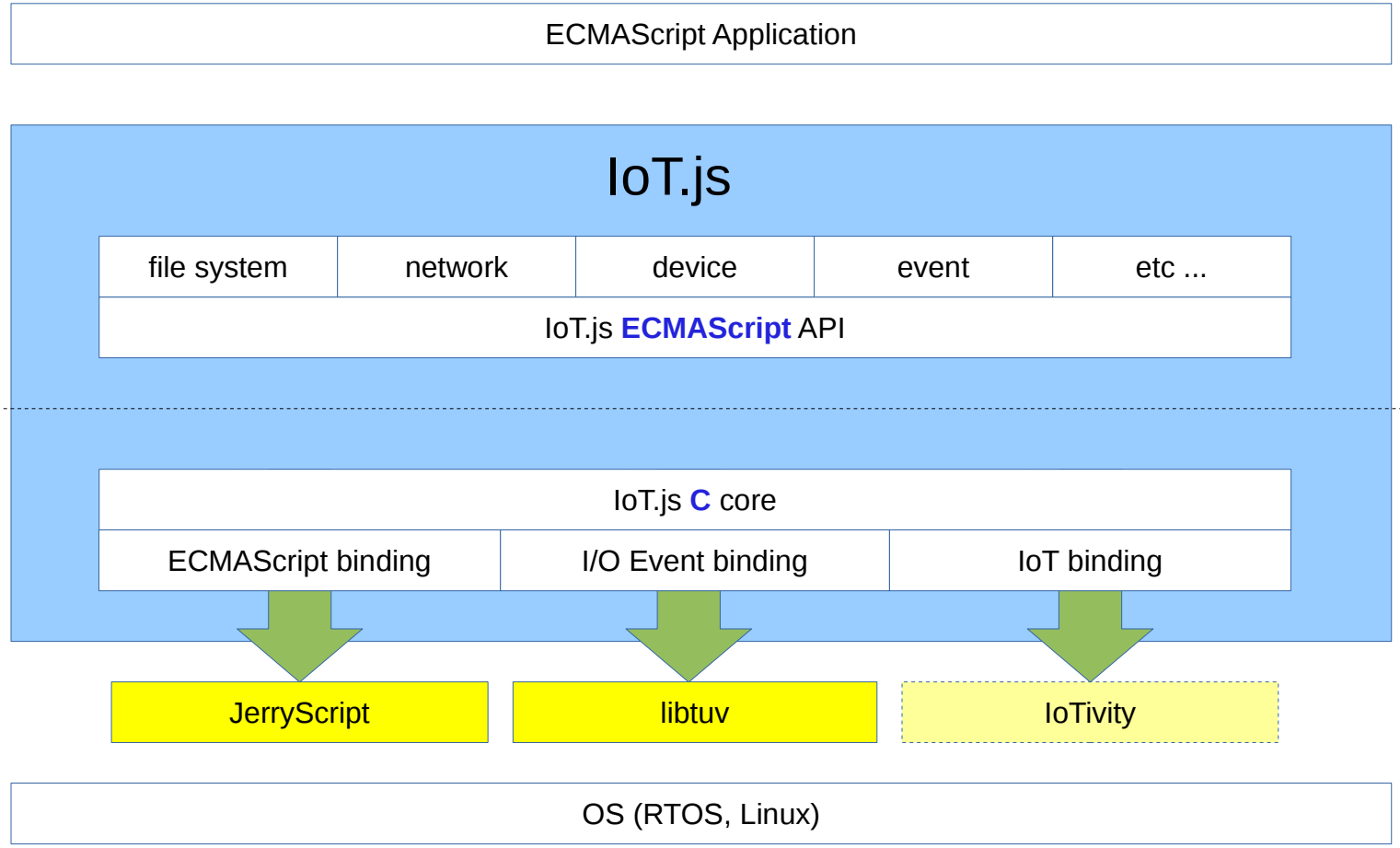
- Introduction to IoT.js
- Railroad Demo
- Twitter Demo
- Summary

Introduction

Platform for IoT Devices

- Aims at providing an inter-operable service platform for connected devices
  - Runs ECMAScript applications which can access device resources (network, file system, etc.)
- Version **1.0** was released on July 5, 2017
- Open source
  - https://github.com/Samsung/iotjs/
  - http://iotjs.net/

IoT.js Architecture



Architecture (2)

- The architecture should be familiar to Node.js developers
- Asynchronous, event driven I/O
  - Libtuv: simplified version of libuv
- Has a module system
  - Supports both native and JS modules
- Supports a subset of core Node.js modules
  - assert, buffer, console, dgram, events, fs, http, net, stream

IoT.js Hello Example

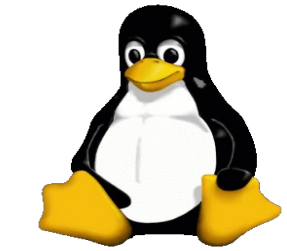
```
var net = require('net');

var port = 22702;
var server = net.createServer();

server.listen(port, 5);

server.on('connection', function(socket) {
  socket.on('data', function(data) {
    console.log(data.toString());
  });
  socket.on('end', function() {
    socket.end();
    server.close();
  });
});

var socket = new net.Socket();

socket.connect(port, '127.0.0.1', function() {
  socket.end('Hello IoT.js!');
});
```

I/O Control

- IoT.js provides modules for controlling the hardware modules
- GPIO, I2C, SPI modules

Supported Operating Systems

- Linux / Raspberry Pi2 (https://www.raspbian.org/)
- NuttX / STM32F (http://nuttx.org/)
- Tizen IoT Headless / Raspberry Pi3 (https://www.tizen.org/)
- Tizen RT / ARTIK 053 (https://wiki.tizen.org/Tizen_RT)

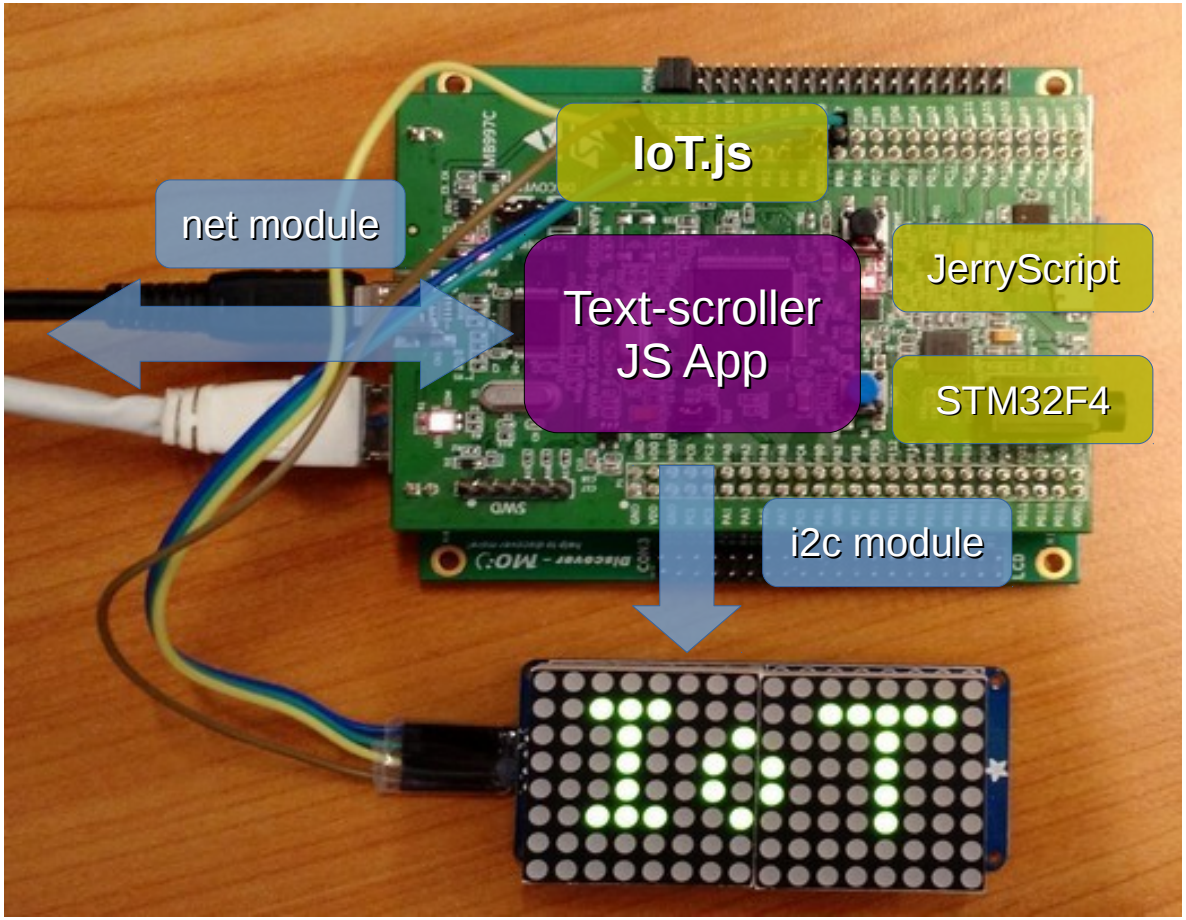


Demos

Railroad Demo

- Train controlled by IoT.js
- http://iotjs.net/demo/

Demo: Text Scrolling



Demo: Scrolling Twitter Messages

- Twitter ID: **@node_iotjs2017**
- The STM32F4 board displays and scrolls the last tweet (message)

Summary

Summary

- Platform for IoT Devices
- Asynchronous, event driven I/O
- Version **1.0** was released on July 5, 2017
- Many IoT.js apps can run on Node.js without modification

Future Work of IoT.js

- Community feedback (Node.js minimal?)
- Support more targets
- Improve tooling
- Further improve binary size and memory consumption

Thank you.