

node-webkit

app runtime based on Chromium and node.js

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Get node-webkit at <https://github.com/rogerwang/node-webkit>

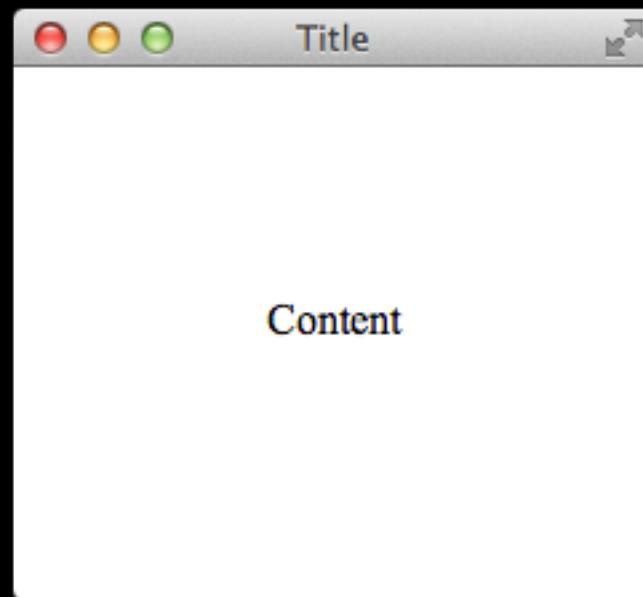
CONTENT

- What is node-webkit
- Use cases
- Quick start
- Implementation details
- Q&A

WHAT IS NODE-WEBKIT

It's a web app runtime

```
<html>
<head>
  <title>Title</title>
</head>
<body>
  <div>Content</div>
</body>
</html>
```



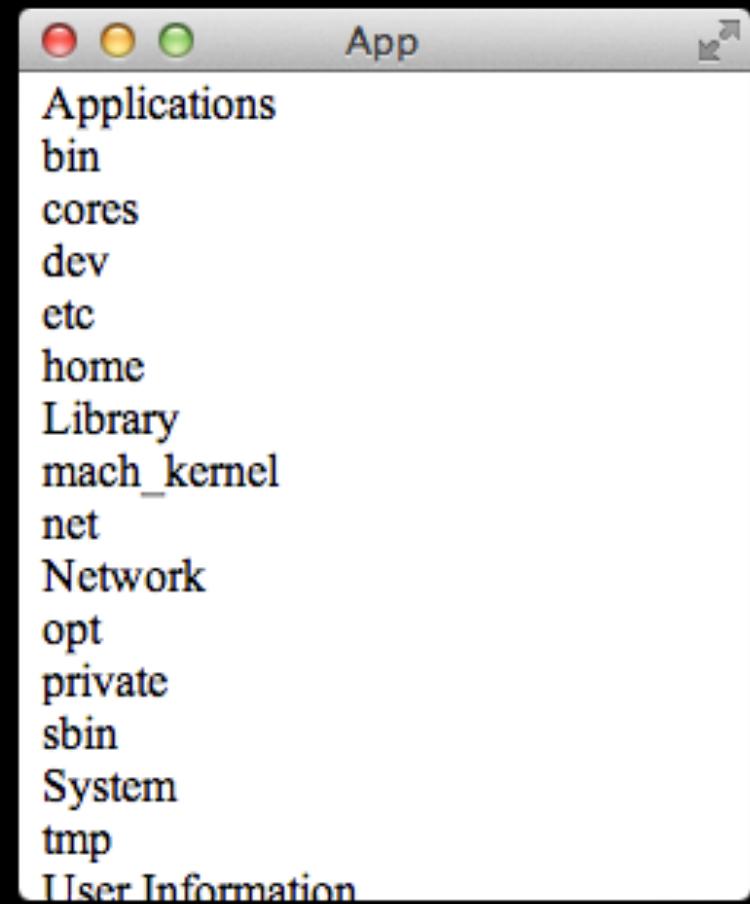
node-webkit

WHAT IS NODE-WEBKIT

It integrates node.js functions into WebKit

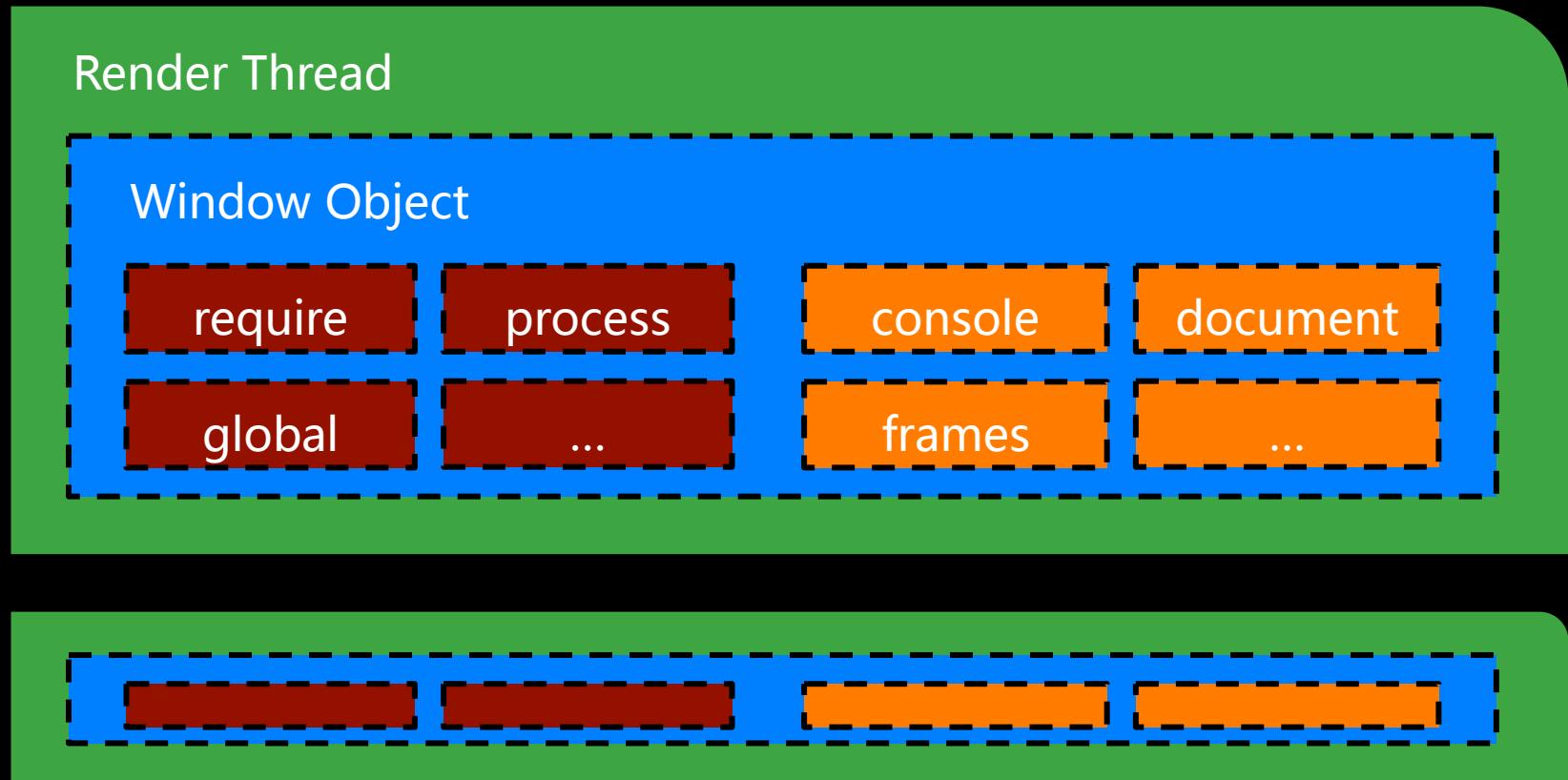
```
<html>
<head>
  <title>App</title>
</head>
<body>
  <script>
    var fs = require( 'fs' );
    fs.readdir(..., function(...) {
      for (var i in files) {
        document.write(files[i]);
      }
    });
  </body>
</html>
```

run
→



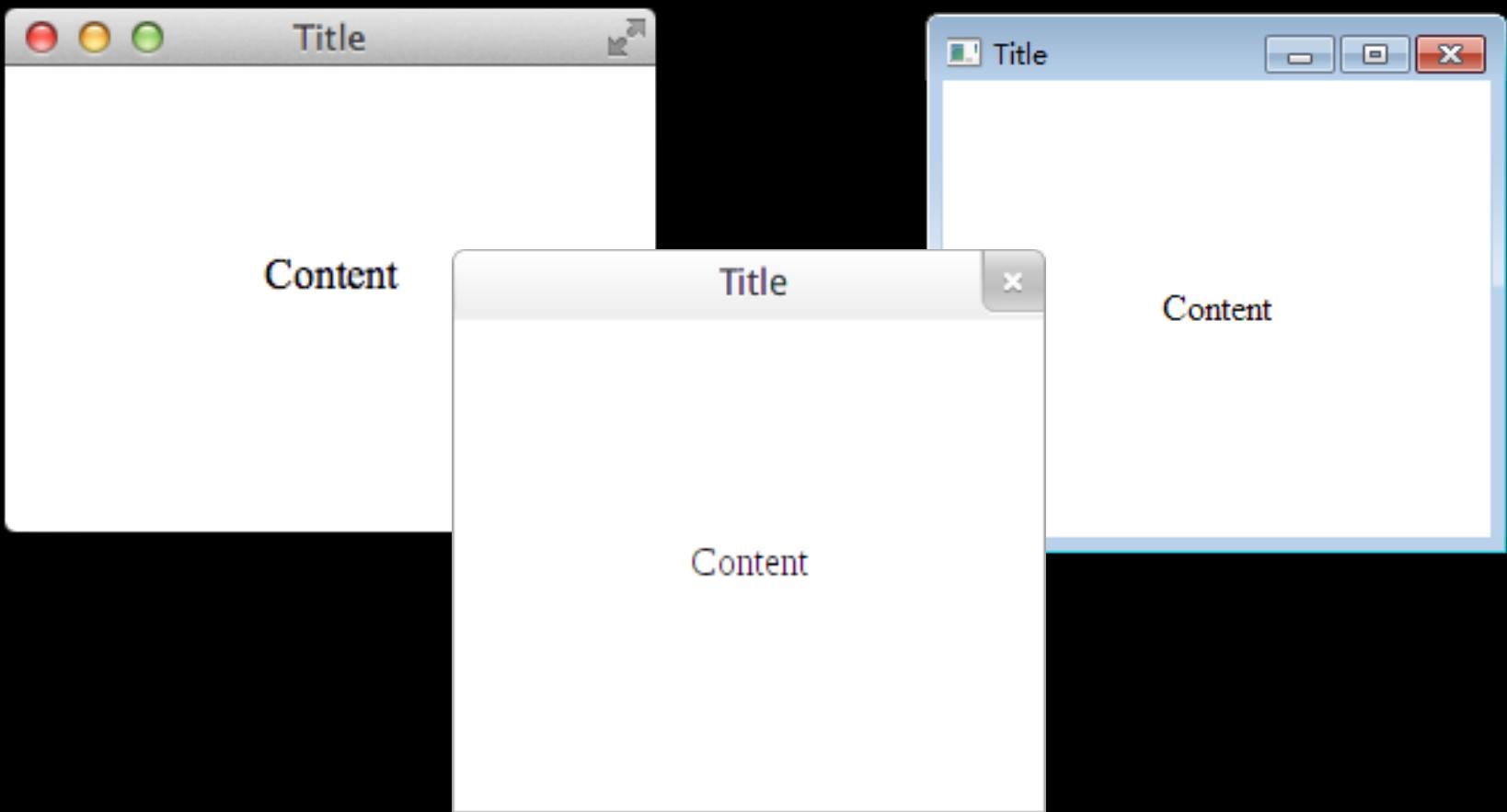
WHAT IS NODE-WEBKIT

node.js functions live in the renderer thread



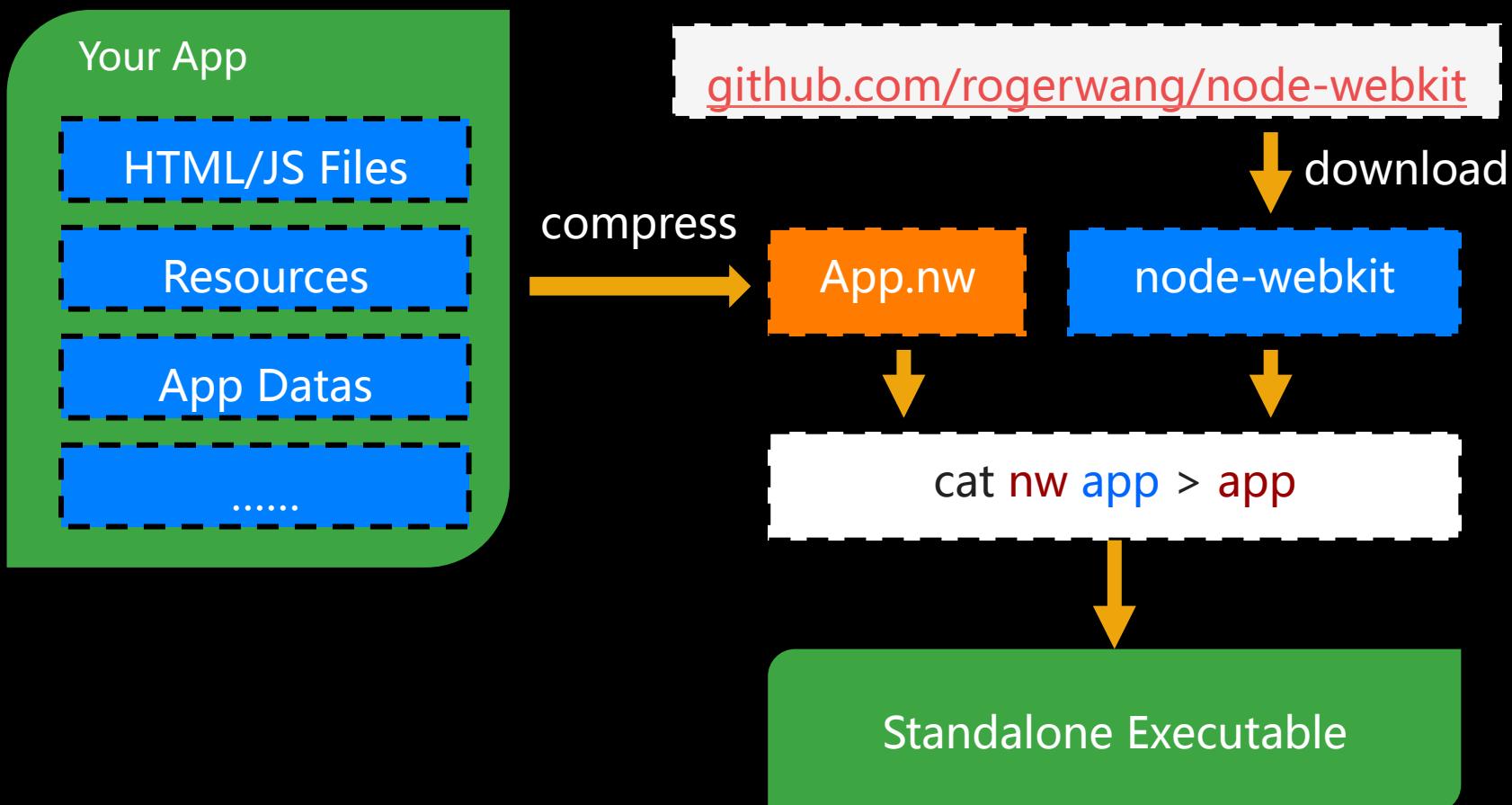
WHAT IS NODE-WEBKIT

It runs on OS X, Windows and Linux



WHAT IS NODE-WEBKIT

It is easy for packaging and distribution



WHAT IS NODE-WEBKIT

It supports node.js third party modules

node-webkit apps

Node.js Third-party Modules

Jade

underscore

...

Web Libraries & Frameworks

jQuery

bootstrap

Dojo

...

Node.js Native Modules

net

crypto

fs

.....

DOM

window

document

.....

WHAT IS NODE-WEBKIT

Background

- node-webkit is based on Chromium and node.js.
- It is created and developed at Intel.
- It is open-sourced at github on Dec' 7 2011, now we have 419 followers and 14 Wiki pages.
- Get it at:
<https://github.com/rogerwang/node-webkit>
- We provided prebuilt binaries to ease development, it has about 500 downloads per month.

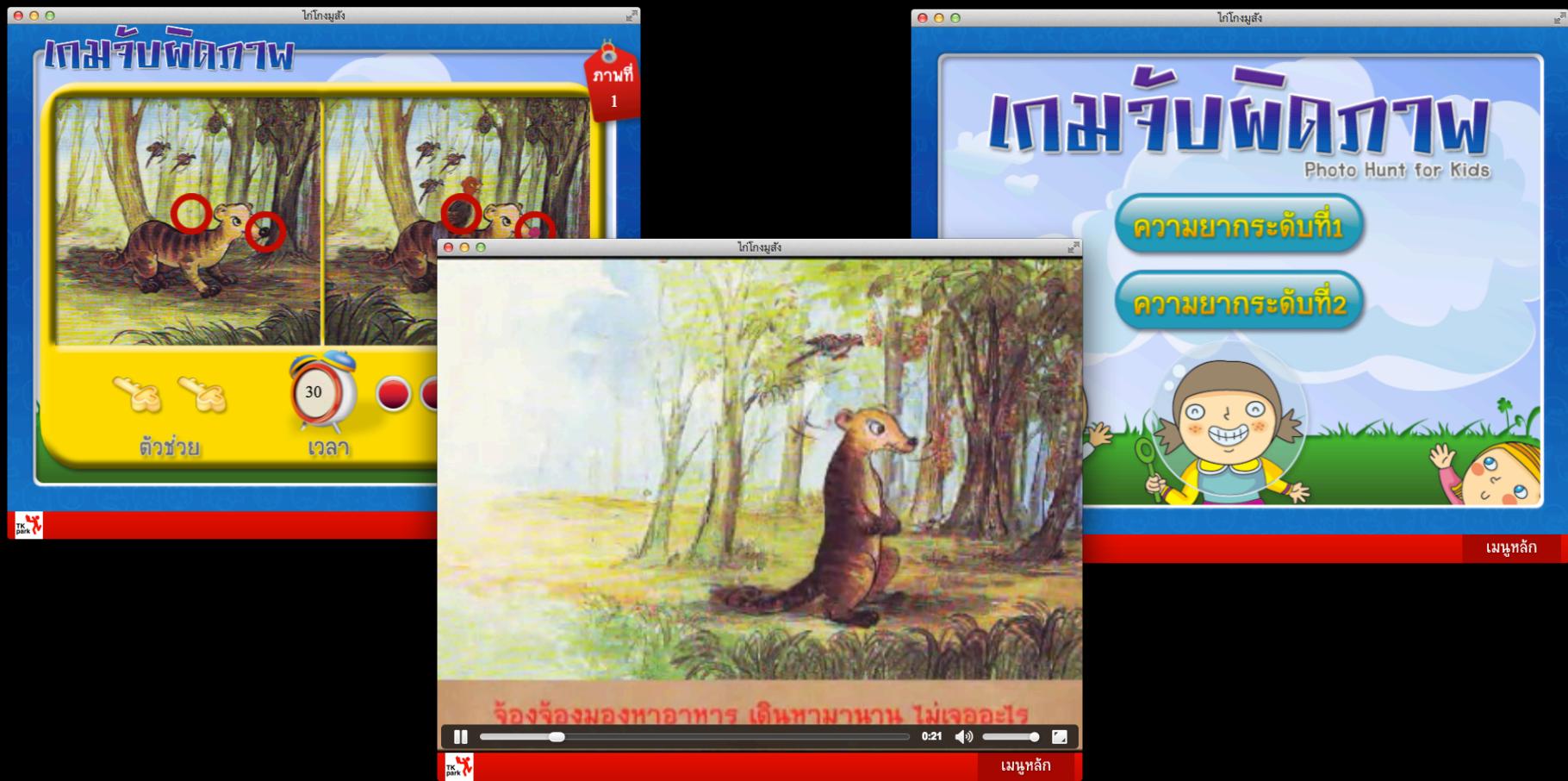
USE CASES

Distribution platform for HTML5 games

- node-webkit supports most HTML5 features
- node-webkit is GPU accelerated
- Video and audio support
- HTML5 game frameworks/libraries like cocos2d-html5 work out of box on node-webkit

USE CASES

Real case: a HTML5 game for children, written by
@haxpor and @suebphatt



USE CASES

File explorer & file editor

- You can choose node's fs module or HTML5 file API
- You can invoke file select dialogs in javascript
- Direct dragging files into browser is supported
- File explorer demo
<https://github.com/zcbenz/nw-file-explorer>
- And brackets, a file editor written in pure HTML and Javascript, is also ported to node-webkit
<https://github.com/zcbenz/brackets>

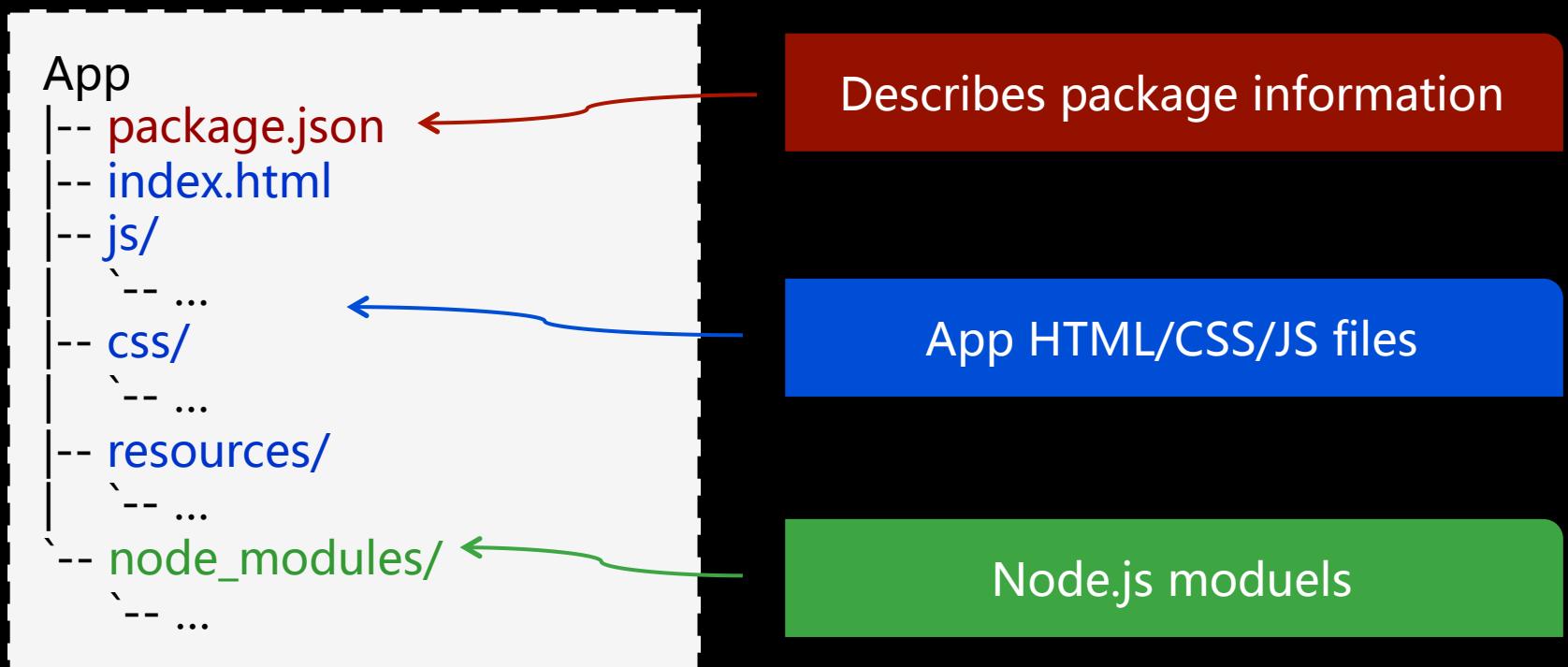
USE CASES

Media applications

- getUserMedia is supported in node-webkit
- Audio recording and camera capturing is enabled
<http://neave.com/webcam/html5/>
- <video> and <audio> tag is supported, can play ogg and webm formats

QUICK START

Structure of an app



QUICK START

package.json

```
{  
  "name" : "nw-demo",  
  "window" : {  
    "width" : 800,  
    "height" : 600,  
    "toolbar" : false  
  },  
  "main" : "index.html"  
}
```

“main” specifies initial page showed to user

“name” specifies app’ s configuration directory’ s name. On Linux app data will be stored in ‘~/.config/nw-demo’ , on Mac OS X it is ‘~/Library/Application Support’

“window” specifies the startup window’ s features. “width” and “height” define window’ s size. “toolbar” defines whether to show the window’ s toolbar. “position” defines window’ s initial position.

QUICK START

Install node.js modules

```
# You can freely install node.js modules via npm
```

```
$ cd /path/to/your/app  
$ npm install jade
```

```
App  
|-- ...  
`-- node_modules/  
    '-- Jade
```

QUICK START

Write the app

```
<html><head><title>Show Root Files</title></head>
<body><script>
var generate = require('jade').compile([
  '- each file in files',
  ' .file #{file}',
].join('\n'));
require('fs').readdir('/', function(err, files) {
  if (err)
    document.write(err);
  else
    document.write(generate({
      'files': files
    }));
});</script></body></html>
```

QUICK START

Package and run it

```
# Compress app to a zip archive  
$ zip -r app.zip /path/to/your/app/*  
# Then you can run it with nw  
$ nw ./app.zip
```

Make a standalone package if you don't want an extra install of node-webkit on user's computer

```
# On Linux  
$ cat /path/to/nw ./app.zip > app  
# On Windows  
$ copy /b nw.exe+app.nw app.exe
```

WANT MORE DETAILS?

- How to run apps
<https://github.com/rogerwang/node-webkit/wiki/How-to-run-apps>
- How to package and distribute your apps
<https://github.com/rogerwang/node-webkit/wiki/How-to-package-and-distribute-your-apps>
- Manifest format
<https://github.com/rogerwang/node-webkit/wiki/Manifest-format>
- And even more on our Wiki!
<https://github.com/rogerwang/node-webkit/wiki>

IMPLEMENTATION

Merge node.js and Chromium' s message loop

- Chromium uses MessagePump* family to support its internal message loop
- node.js uses libuv for message loop
- node-webkit implements MessagePumpForUv to use libuv for Chromium' s message loop

IMPLEMENTATION

Insert node.js symbols into WebKit

- WebKit initializes javascript context only on demand
- node is initialized before entering message loop
- Node's symbols is transferred into WebKit's context immediately after DOM is installed

IMPLEMENTATION

Downgrade WebKit's security level

- Some operations in javascript are disabled for non-user, like clicking on <input type= 'file'>
node-webkit treats all script operations as user gesture in WebKit
- Cross-orgin access in request and js call are both disabled in WebKit
node-webkit sets all pages' security token as the same one with node, and grant global access for local pages

Questions?

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