



Upgrading Your Skillset for SharePoint 2013 App Model Development



Sean McDonough
(@spmcdonough)
Lead BitSmith and Owner
Bitstream Foundry



Before We Begin ...

- This is a 100-level session
- We're going to tour a number of different technologies and concepts in relatively quick fashion
- My goal is to provide you with starter resources you can review at your leisure



About Me



Lead BitSmith and Owner

- Software and App creation for SharePoint
- Customization and custom development
- Contributing to the SharePoint community

Previously

- Chief SharePoint Evangelist at Idera
- Product Manager at Idera (Idera SharePoint backup)
- SharePoint Team Lead at Cardinal Solutions Group

Motivation

SharePoint 15 ISV TAP

- SDR on the new (Cloud) App Model in Summer 2012
- Working with the new App Model since Fall 2012
- Have been through the design and deployment process

The Rules Have Changed

- App Model development isn't the full-trust solution development you may have done in the past
- You may strip a few gears getting up-to-speed ...

Who I'm Targeting

Grumpy Old Devs



- Well, not entirely accurate ...
- SharePoint devs who have focused on full-trust solutions and "core plumbing" solutions without much UI/UX
- Developers who don't know SharePoint and have heard that the new App Model might be good to learn

This talk was originally titled

"Learning How To Paint (From One Plumber to Another)"

- I've generally considered myself a plumber
- Building Apps under the new model uses different skills and technologies



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Devs

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The Tools You (May) Know

- Web Parts
- Timer Jobs
- Event Receivers
- Feature Receivers
- LAYOUTS Pages
- Custom Fields



- Web Parts
- Timer Jobs
- Event Receivers
- Feature Receivers
- LAYOUTS Pages
- Custom Fields



Bye Bye (mostly ...)



JavaScript
Libraries

Responsive
Design

HTML5 and
CSS3

JavaScript
and jQuery

CSOM and
REST

... and hello to some new friends*

new friends *

* "friends" is probably the wrong term, but your relationship with these concepts and technologies is probably going to get better than it was before you started with Apps 😊

but first

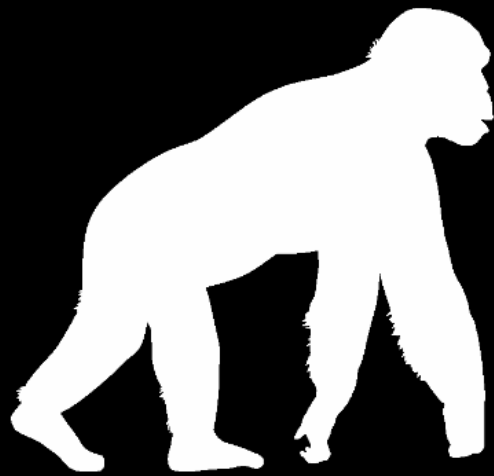
we should
rewind a
bit and ask



Why do we have a
new App Model?

The Evolution of Custom Application Development

SharePoint Edition



2003



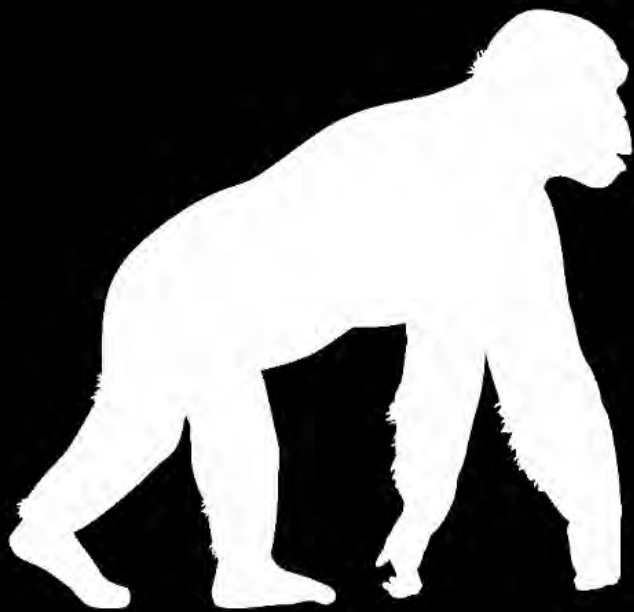
2007



2010



2013



2003

- Server-side only
- No development support
- No deployment support
- SharePoint unaware of any changes being made



2007

- Server-side mostly
- Community dev support
- Solution packages
- SharePoint aware of WSP-deployed changes



2010

- Server-side mostly with some client-side
- VS-based dev support
- Client-Side Object Model (CSOM)
- Sandboxed solutions

Upgrades, security, troubleshooting, performance ...



2013

The Cloud

- The Cloud App Model (or simply "App Model") is new with SharePoint 2013
- Full Visual Studio development and deployment support
- Sidesteps limitations associated with sandboxed solutions
- All-but-guarantees a better operations scenario ("love your admin!")
- Only model that will work in Office 365 and multi-tenant cloud environments

! CODE NO LONGER RUNS ON SHAREPOINT SERVERS !

wait ... did you just say
that code doesn't run on
SharePoint servers?



Correct.

- Code runs on another (non-farm) server and/or in the user's browser - depends on App Model chosen
- All interactions with "proper" SharePoint data occur through CSOM and/or REST
- No more server-side object model access
- No more free passes on security

It's okay if you need to rage about this for a bit. Go ahead. I'll wait.



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App Model is Here to Stay

- Improves SharePoint performance
- Simplifies upgrades (to farm and custom code)
- Simplifies troubleshooting
- Is open to developers on other stacks (e.g., J2EE)
- Needed for The Cloud

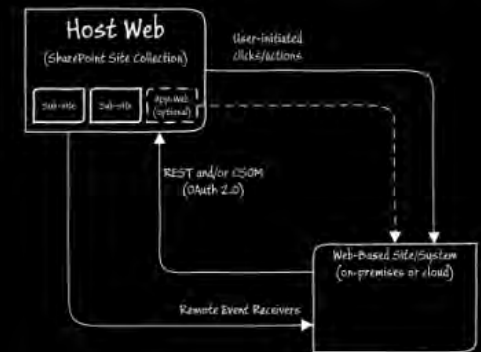
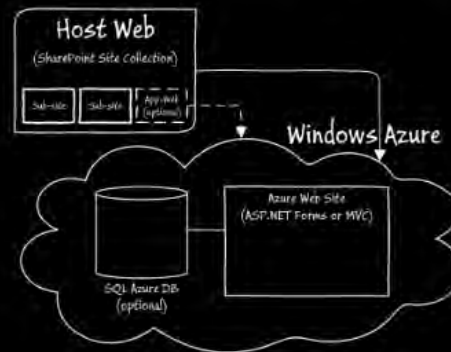
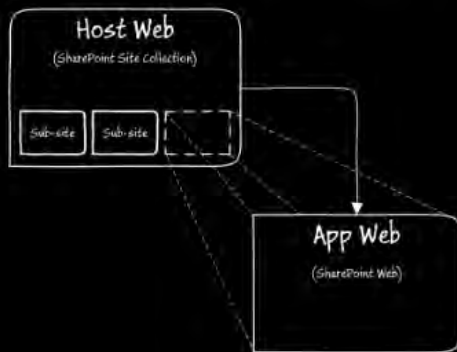
The App Model

"Cloud-Hosted Apps"

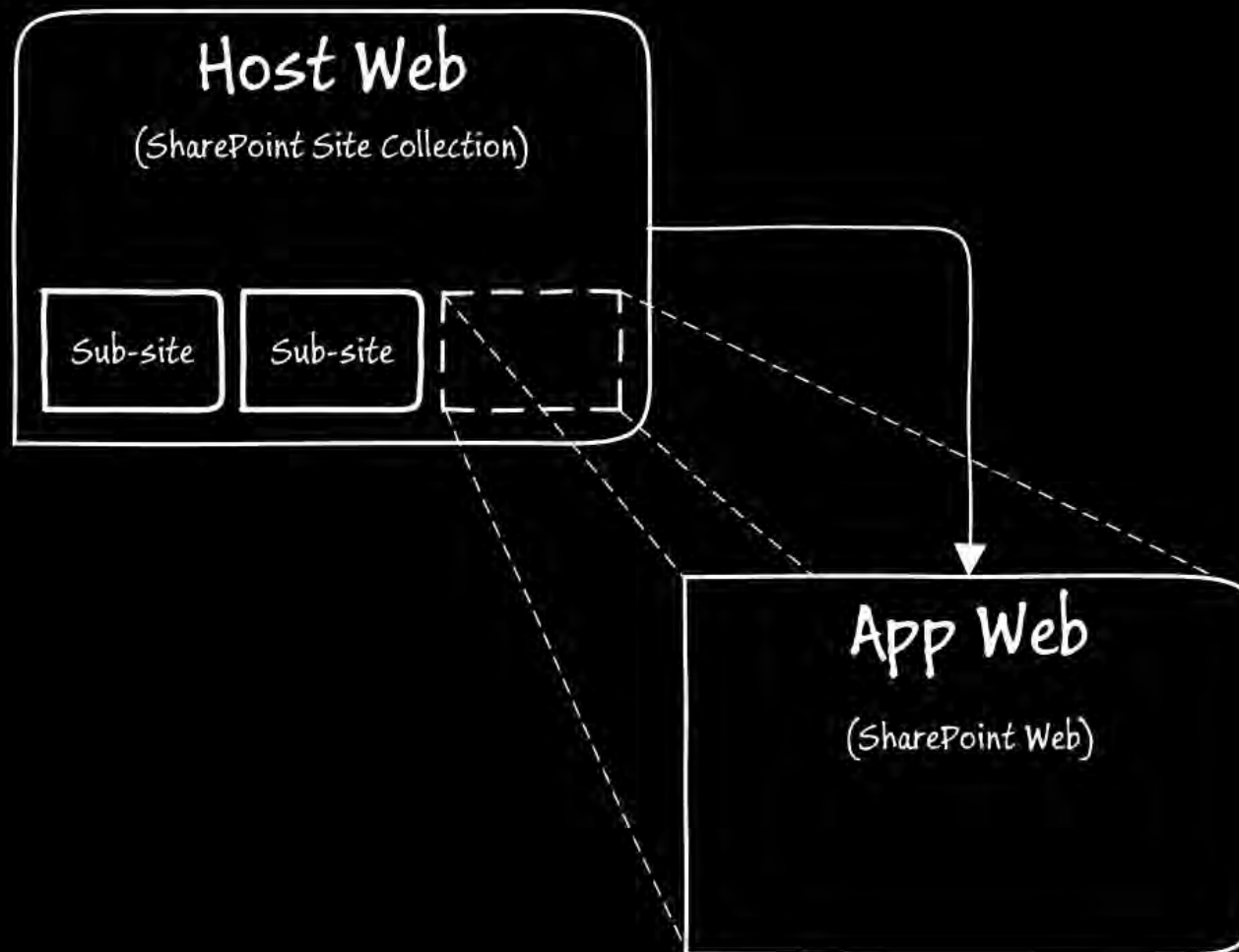
SharePoint-Hosted Apps

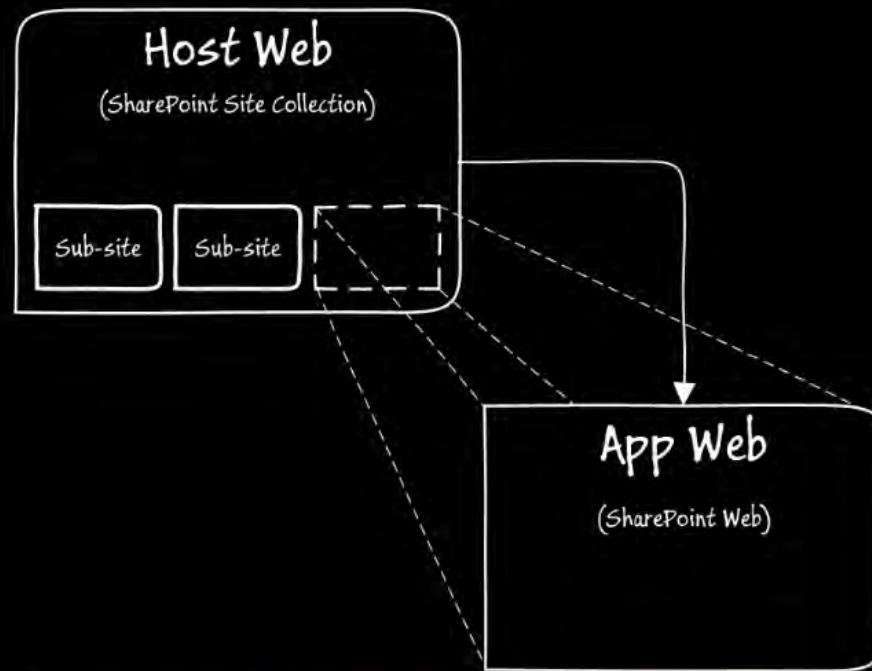
Autohosted apps

Provider-Hosted Apps



SharePoint-Hosted Apps





SharePoint-Hosted Apps

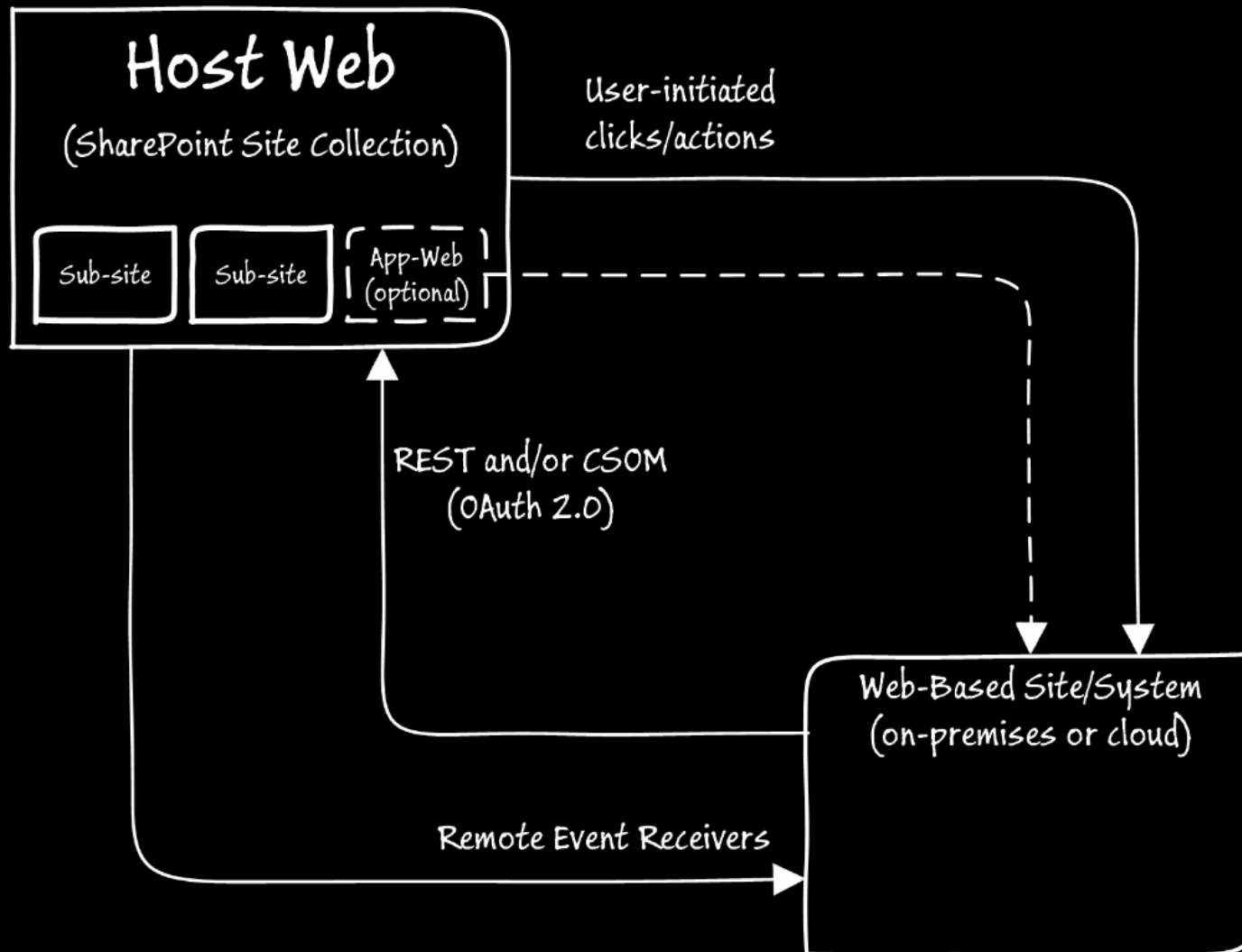
Pros

- Easier to develop
- Fewer security concerns
- Easier to deploy
- Less complex

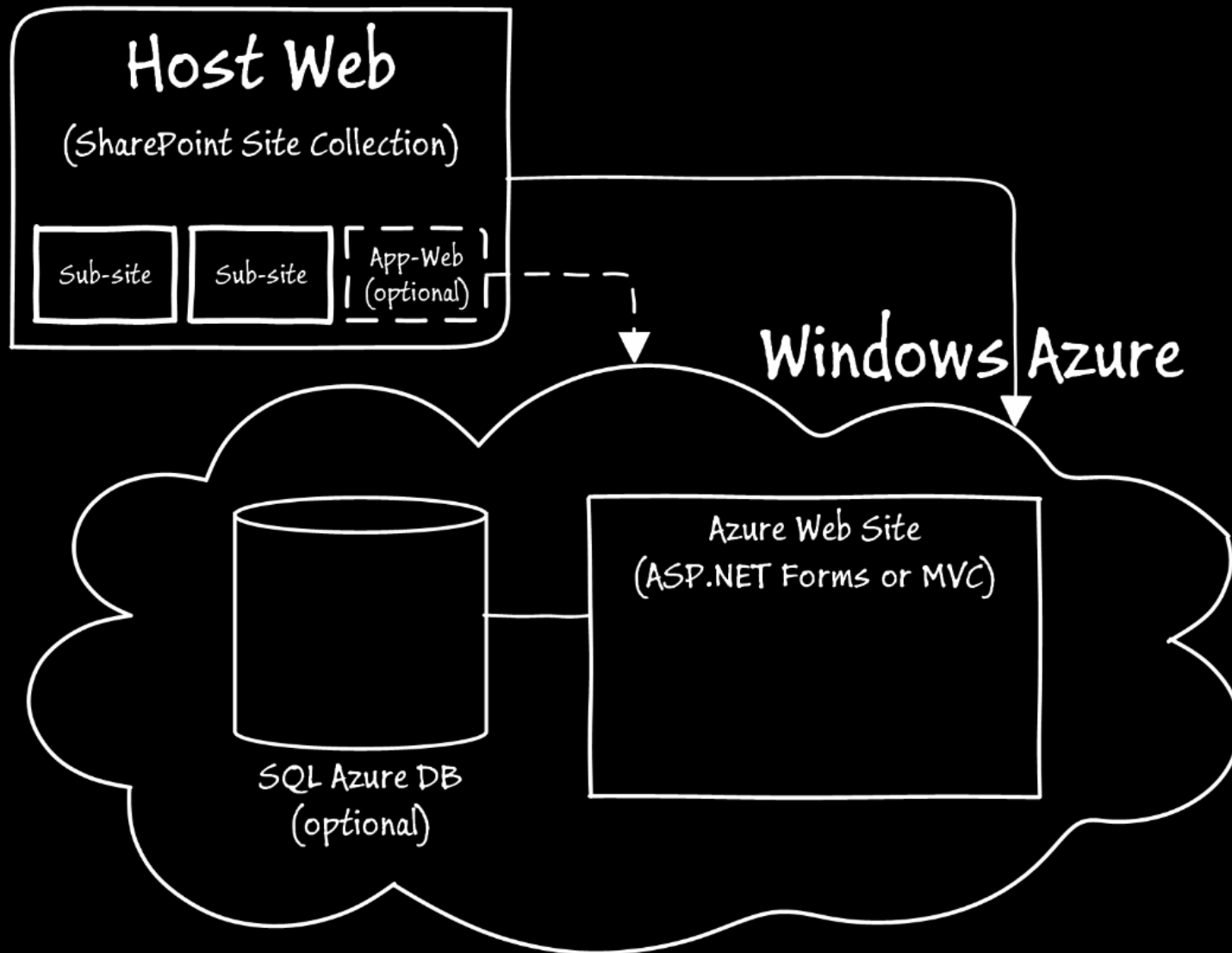
Cons

- No compiled code
- No unattended execution
- Generally less capable
- Scoped to just a sub-site

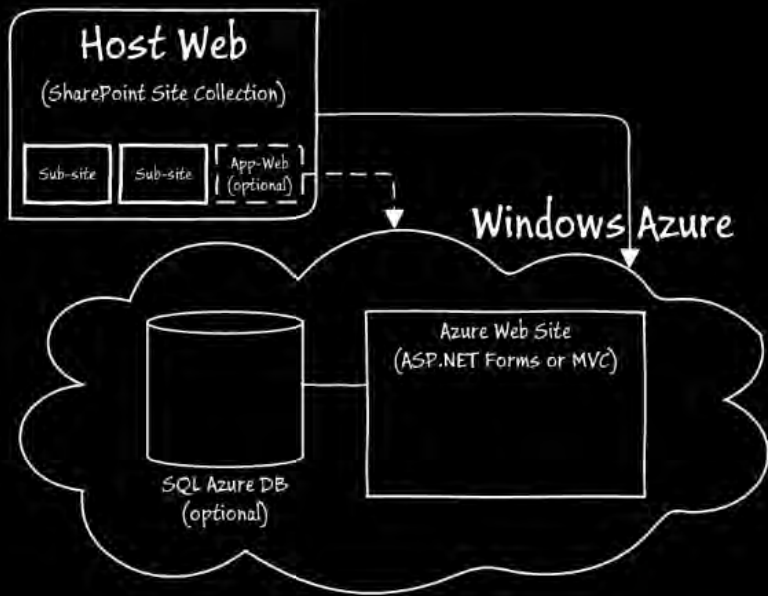
Provider-Hosted Apps



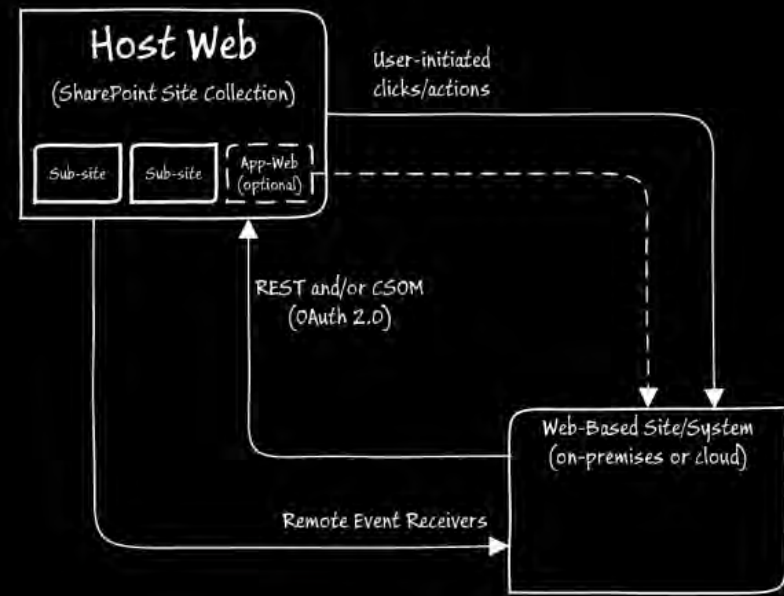
Autohosted apps



Autohosted apps



Provider-Hosted Apps



Cloud-Hosted Apps

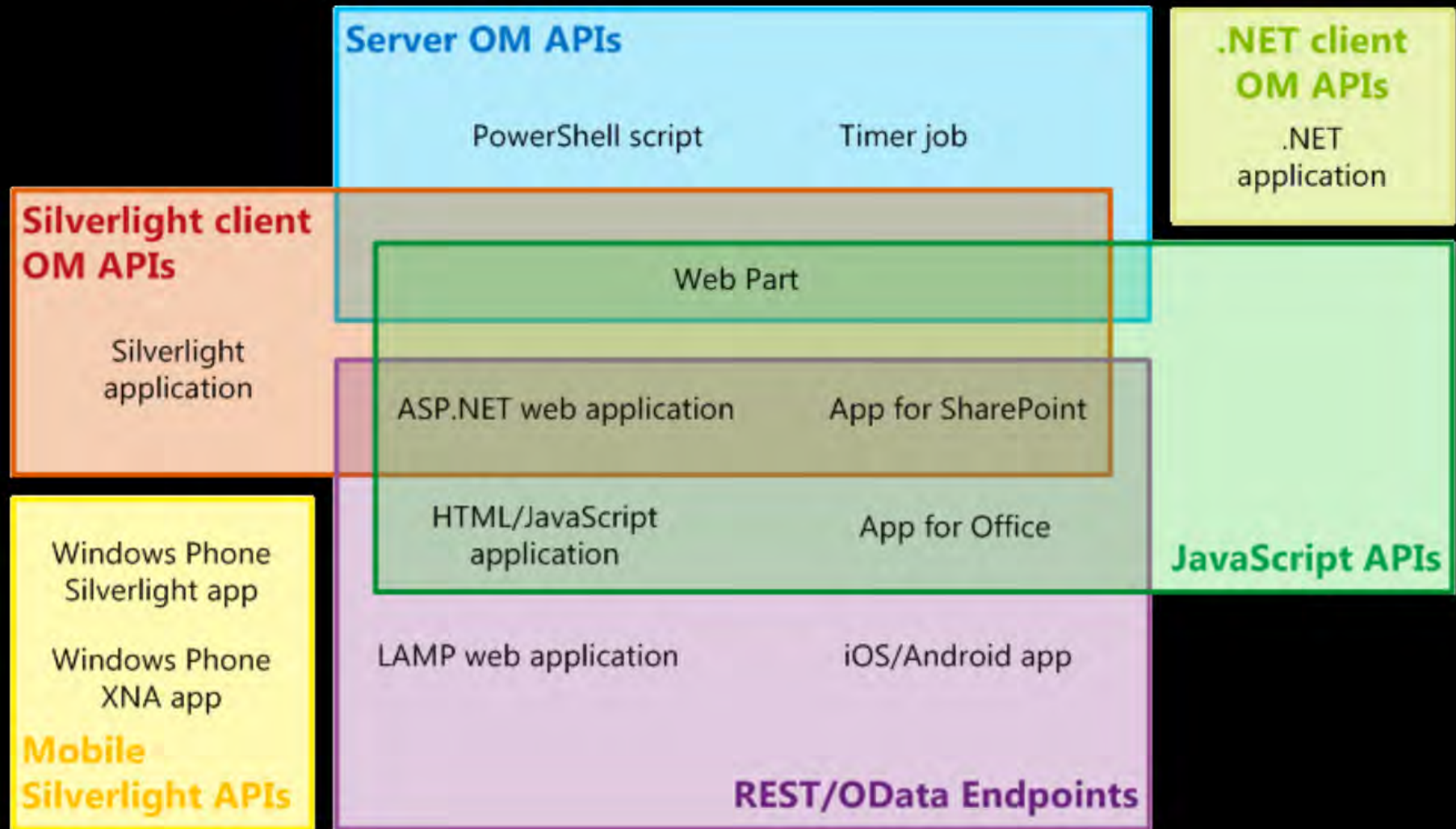
Pros

- Much more capable
- Apps can act on their own
- Open to non-SharePoint devs
- You control everything

Cons

- (Potentially) complex deployment
- Tougher security configuration
- Requires external hosting
- Still not a full-trust solution

Choose the right API and strategy for the task



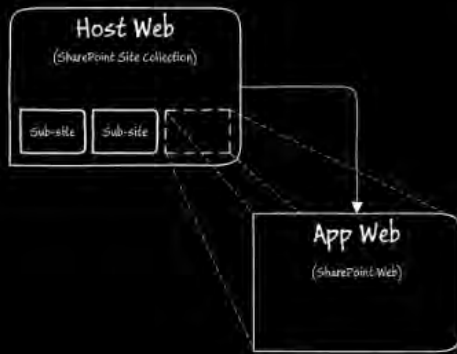
The App Model

"Cloud-Hosted Apps"

SharePoint-Hosted Apps

Autohosted apps

Provider-Hosted Apps



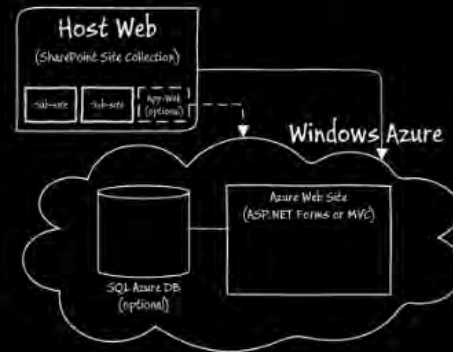
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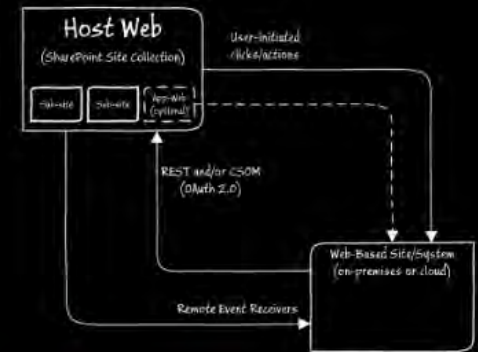
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Cloud-Hosted Apps

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Common App Model Themes

- Embrace web standards
- Build rich experiences
- Get off the server!

This was scary for me at first!

I'll share some of the resources that helped me make the transition





JavaScript
Libraries

Responsive
Design

HTML5 and
CSS3

JavaScript
and jQuery

CSOM and
REST

HTML5

and CSS3

Essential pieces in any App user interface

HTML5 and CSS3



HTML: HyperText Markup Language

- The content you want to share

CSS: Cascading Style Sheets

- How the content is presented

Yes, very
basic



Mark Brown & Jerry Honeycutt



Using
Special Edition

Using HTML 4

Fourth Edition

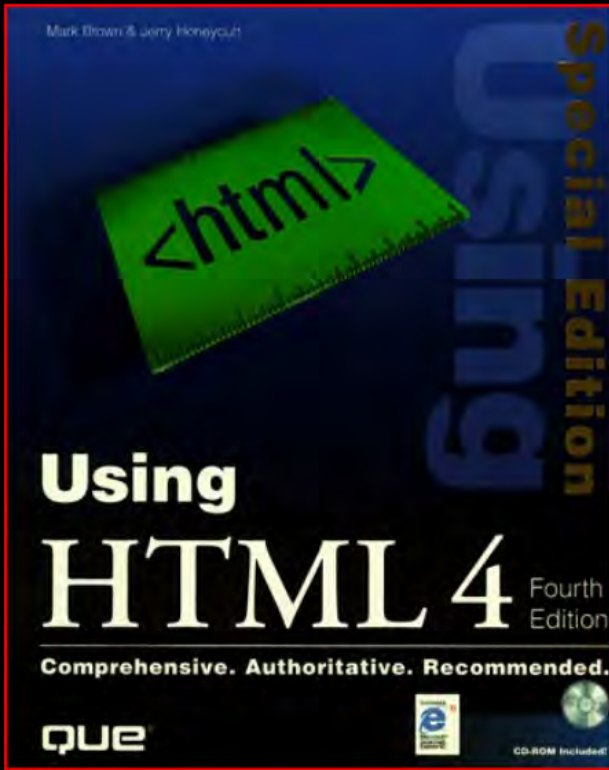
Comprehensive. Authoritative. Recommended.

que



CD-ROM Included!

This is
my old
HTML
reference



This is
my old
HTML
reference

Published
in 1997!



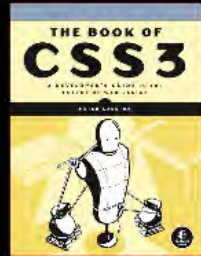
- Been under a rock?
- If you're used to ASP.NET web forms, you probably have some bad behaviors





Thoughts for Grumpy Old Devs

- Get a good HTML and CSS reference
at least understand the latest spec updates
- Stop using tables and tools that abuse them
Tables are no longer okay for arbitrary formatting
- Get out of the habit of using inline styles everywhere
It's a bad habit that tends to come with too much ASP.NET dev
- It's okay to use CSS3. Really
The spec isn't as volatile as some might have you believe





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Responsive Design



Responsive Design

- Fluid design and layout typically through a grid system and CSS3 media queries
- Flexible images/media resize to container as needed

Why?

Two big reasons

The one you've probably heard

- Traffic to your Apps is going to come from a variety of devices and form factors



Why?

Two big reasons

Why?

Two big reasons

The one you probably haven't heard (yet)

- Apps provide HTML for a variety of containers

IMMERSIVE
FULL PAGE



A diagram showing a white square outline representing a container. Inside it is a smaller yellow square outline, representing the content area.

PART



A diagram showing a white square outline representing a container. Inside it is a white square outline representing a sub-container. Within this sub-container are two smaller white rectangles and one yellow rectangle, representing different components or parts.

UI CUSTOM
ACTIONS



A diagram showing a white square outline representing a container. Inside it is a white square outline representing a sub-container. Within this sub-container are several white lines representing text or UI elements, with two yellow rectangles highlighting specific areas, representing custom actions.



Thoughts for Grumpy Old Devs

- Get (or build) a CSS-based grid system
Tons of free ones available
- Browser sniffing: not so cool these days
Still in the arsenal, but a rigid approach
- Learn the basics of media queries
Not hard to write and leverage



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JavaScript and jQuery

The Nuts and Bolts of Many Solutions

JavaScript and jQuery



- JavaScript = "function" ← *loosely speaking*
- jQuery = "events & behavior"

What I actually mean
when I say this 

Nuts and Bolts

Cloud-hosted Apps

- helpful for rich UI/UX
- essential for client-side processing & behavior

SharePoint-hosted Apps

- Your sole option for business logic
- Yes, this means your App is written entirely in JavaScript!

What I actually mean

INSTANT

JavaScript



A comprehensive tutorial in JavaScript for Web developers with HTML knowledge

JavaScript applications demonstrated in detail

Covers Dynamic HTML and its relationship to JavaScript

- ▲ Extensive coverage of both Netscape's JavaScript and Microsoft's Jscript
- ▲ Includes details of the ECMAScript standard
- ▲ Full reference for core language features and compatibility issues



Nigel McFarlane

This is my old
JavaScript
reference from

1997

JavaScript is not a "toy" language

Lots of Goodness ...

- object oriented
- function & lambda-based programming
- prototypal inheritance
- object literal notation and JSON

... but some ??? stuff too

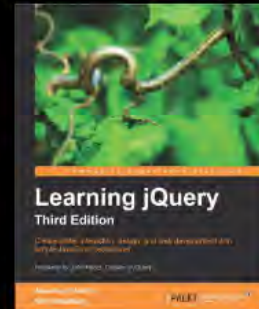
- global object / common namespace
- loose typing and easy (slippery?) coercion
- function-level (not block-level) scoping
- no compilation (and thus no compile-time help)



Thoughts for Grumpy Old Devs

- just like HTML/CSS, get some good (newer) references

"JavaScript: The Good Parts" is fantastic



- if you want or need a more "classical" approach, consider learning about TypeScript

Try giving JavaScript a "fair shake" first, though

- there are tools that can help you along the way

VS web Essentials 2012, ReSharper, JSLint, and more



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JavaScript

Libraries

JavaScript Libraries



Chances are that someone else tried to climb the mountain before you

with a little luck, they packaged the result as a JavaScript library



Libraries I've Found Helpful

- jQuery (of course!)
- jQuery UI
- Modernizr
- Knockout
- JsRender
- Google's Cookie Library

It's oftentimes worth trying to find a library before you "roll your own" ...



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CSOM and
REST



CSOM : Client-Side Object Model

REST : Representational State Transfer

This is how your
App will interact
with SharePoint

CSOM
REST



- `_api` web services all-the-way
- even for SharePoint-hosted Apps
- no more "free" `SPContext`
- no more `RunWithElevatedPrivileges()`
- "so long" to synchronous operations



Thoughts for Grumpy Old Devs

- Prepare to spend some time learning AJAX and JSON
ASynchronous operations and calling patterns are quite different than what you're probably used to
- CSOM, REST, or both? Learn when to use each
Choice generally depends on App Model variant used ...
- Can't get there from here?
Learn to use the web proxy and cross-domain library



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Do you feel a bit like this?

App Model

You



It's okay

It doesn't hurt as bad
as you might think



- Patch-up Visual Studio 2012
- Download the Office Tools
- Get an Office 365 Tenant
- Play around and see what you can create with the new model!

Some resources ...

This document contains the references and resources to accompany my "Upgrading Your Skillset for SharePoint 2013 App Model Development" session. This is by no means an exhaustive list, but it does contain resources that I found extremely helpful as I sought to come up-to-speed with development and associated concerns pertaining to SharePoint 2013's new App Model.



If you have comments, questions, or other feedback, then I encourage you to visit my blog (<http://SharePointInterface.com>) or contact me via email (sean@sharepointinterface.com) or Twitter (@spmcdonough). I'd love to hear from you!

Last updated on April 18, 2013

- Sean McDonough

App Model Ramp-Up

- **Apps for SharePoint Overview.** This MSDN page provides an end-to-end walk-through on the new SharePoint 2013 App Model, its characteristics, what it seeks to address, and more. <http://tinyurl.com/pfp-appsoverview>
- **Microsoft Office Developer Tools for Visual Studio 2012.** If you're going to build Apps for SharePoint 2013, you need the right tools. You can get the tools you need for Visual Studio 2012 here; just use the *Download the tools* link midway down the page. <http://tinyurl.com/pfp-vstools>
- **Choose the Right API Set in SharePoint 2013.** The new App Model isn't appropriate for every development scenario. The information on this MSDN page will help guide you in selecting the appropriate technology for a particular development challenge. <http://tinyurl.com/pfp-appsapi>
- **Microsoft SharePoint 2013 App Development.** This book by Scot Hillier and Ted Pattison is a wonderful and concise resource for understanding the App Model development landscape. This book does not teach SharePoint development in general and assumes that readers are already familiar with general (full-trust) SharePoint development and SharePoint in general. <http://tinyurl.com/pfp-appdevbook>
- **Web Essentials for Visual Studio.** This Visual Studio extension (available from within Visual Studio 2012 itself) provides a number of accelerators and helpers to improve your experience when working with JavaScript, CSS, and other App Model technologies. <http://vswebessentials.com/>

HTML and CSS

- **The Definitive Guide to HTML5.** This book by Adam Freeman is an end-to-end reference on

- Items I found helpful while getting up-to-speed
- available on my blog under "Resources"

My blog



<http://SharePointInterface.com>

sean@sharepointinterface.com

@spmcdonough

<http://www.linkedin.com/in/smcdonough>