
From Prototype to the Store: Building Real-World Mobile Apps

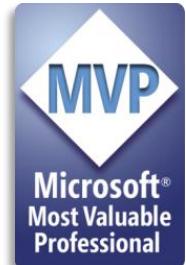
By Nick Landry

Senior Technical Evangelist – Microsoft
Nokia Developer Ambassador & Champion
ext-nick.landry@nokia.com
@ActiveNick – www.AgeofMobility.com



Who is ActiveNick?

- Senior Technical Evangelist – Microsoft
- Nokia Developer Ambassador & Champion
- Former Microsoft MVP 2005-2014: Windows Phone Development
 - Mobile Publisher – Big Bald Apps: <http://www.bigbaldapps.com>
- Speaker. Blogger. Author. Tweeter. Father. Gamer
- 20+ Years of Professional Experience
- Specialties:
 - Mobile Development
 - Location Intelligence & Geospatial Systems
 - Data Visualization, HPC, Cloud
 - Mobile Game Development
- Blog: www.AgeofMobility.com
- Twitter: [@ActiveNick](https://twitter.com/ActiveNick)



2005-2014



Agenda

- Fighting Inertia: Why Build Mobile Apps?
- Going Beyond the Prototype
 - Advanced Features
 - Giving your app an identity
 - Communicating with your users
- Monetizing your apps
 - Free vs. Paid Apps
 - App Trials
 - In-App Purchasing
 - In-App Advertising
- Demos
- Q&A



Publishing an App: The Hurdles

- Finding the motivation to be a mobile developer
- Finding the motivation to be a Windows Phone developer
- Finding the time to build a prototype app
- Learning Windows Phone Development
- Finding the right idea for a mobile app
- Turning the prototype into a real app that is ready to be published

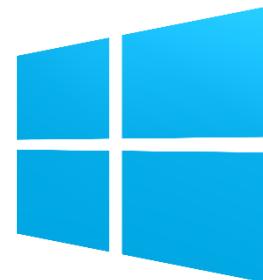


Why Mobile Development Matters

- Humans are lazy & reactive
- Users are more mobile than ever
- Miniaturization and the all-in-one device
- Smartphones & tablets: From luxury to commodity
- From a “Connected World” to a “Social World”
- Smartphones and tablets overtaking PCs & laptops
- The Enterprise and BYOD
- New monetization platforms
- Reaching millions of users & expanding your audience to developing markets
- Mobile apps are the new resume



Mobile Platform Options



HTML5





Finding the Time to Build Mobile Apps

My time sinks before 2013



The Elder Scrolls V



XBOX 360™

My time sinks now...



Learning Windows Phone Dev

- Developer Portal: dev.windowsphone.com
- Windows Phone 8 Development for Absolute Beginners
 - <http://channel9.msdn.com/Series/Windows-Phone-8-Development-for-Absolute-Beginners>
- Windows Phone 8 Jump Start Training: <http://bit.ly/wp8jump>
- Nokia Developer Center & Wiki: www.developer.nokia.com
- Get Started with the New App Studio
 - <http://appstudio.windowsphone.com>
- Books, blogs, articles, conferences, meetups, user groups, code camps, webinars, online training, etc.



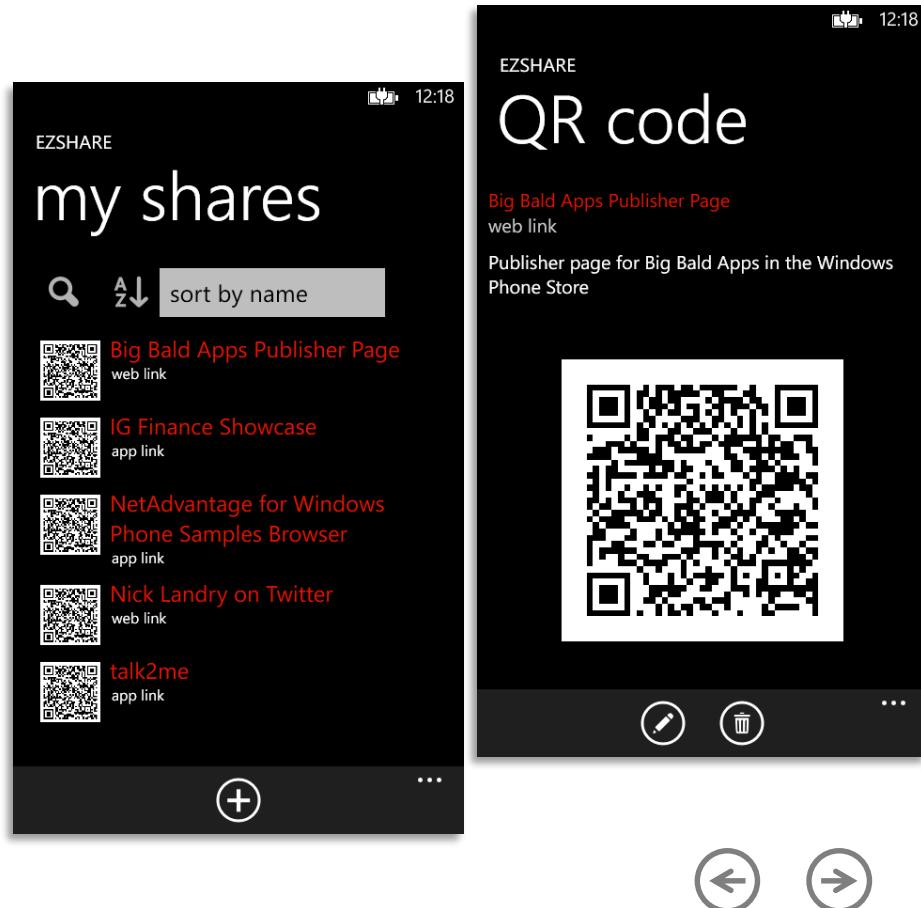
Finding the Right Mobile App Idea

- Don't build crapware, this is not 2007
- Start small & simple
- Build an app *YOU* will use
- Don't be deterred by the competition, most apps have lots of room for improvement
- Seek inspiration from Dvlup.com Challenges
- Spinoff new apps from existing ones based on user feedback



Introducing EZShare

- Simple app to share data without NFC
- Generates QR codes for text & links
- Maintain list of items to share



Building EZShare

Minimum Viable Prototype (MVP)

- Generate QRCode from url
- Generate QRCode from text
- Generate QRCode from vCard
- Save favorites in a searchable list with title & share item type
- Display a detail view of a share item
- Support and Manage Categories
- Edit share item in detail view
- Delete share item in detail view
- Context menu in list to edit / delete
- Pre-populate the list with seed list of mine only on first app run
- Tap QR Code to open link
- Create secondary tile with mini QR code scannable from the Start screen, and launch directly into QR code view
- Save QRCode image to the phone
- Share a QRCode via Share feature
- Tweet a QRCode by uploading it to Twitter, TwitPic, etc.
- Email a QRCode
- Search for apps in the Windows Phone Store to generate a QRCode for a specific app
- Add SkyDrive or Azure integration to persist app data when reinstalled
- Share data via NFC too!



Building EZShare

Minimum Viable Prototype (MVP)

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What I wanted
to add next

- Create secondary tile with mini QR code scannable from the Start screen, and launch directly into QR code view
 - Save QRCode image to the phone
 - Share a QRCode via Share feature
- Tweet a QRCode by uploading it to Twitter, WitPic, etc.
- E-mail a QRCode
- Search for apps in the Windows store
- Generate a QRCode for a specific URL
- Add SkyDrive or Azure integration
- Sync data when reinstalled
- Share data via NFC too!

What virtually
every user has
been asking
me for



From Prototype to the Store

You wrote some Windows Phone code, it builds & it runs
on your phone...

Now what?



How do you get noticed in the App Store?

Your first app



> 240,000 Phone Apps in the Windows Phone App Store

Content vs. Chrome vs. Less Chrome



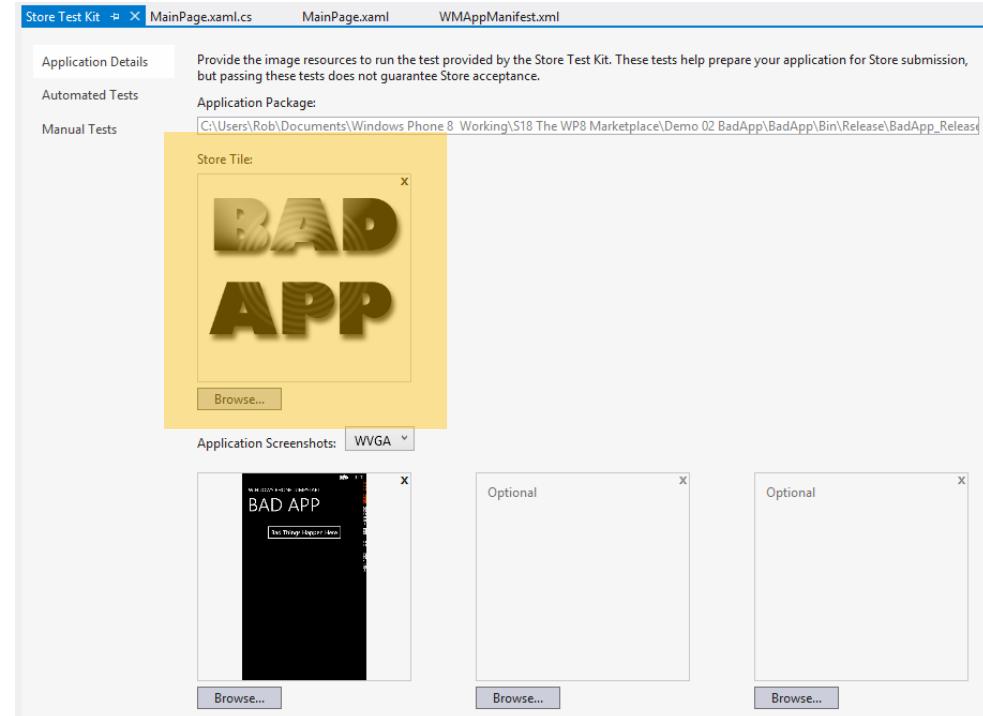
Polishing Your Apps

- Tile Images & Iconography, Screenshots, etc.
- Advanced Features
 - Live Tiles
 - Fast Application Switching / Resume
 - Push Notifications
 - Lock Screen Provider
 - Speech Integration
- Test & Squash Bugs
- Update Frequently
 - No need to release every feature on Day 1, find your MVP
 - Top 50 apps are updated every 2-3 months



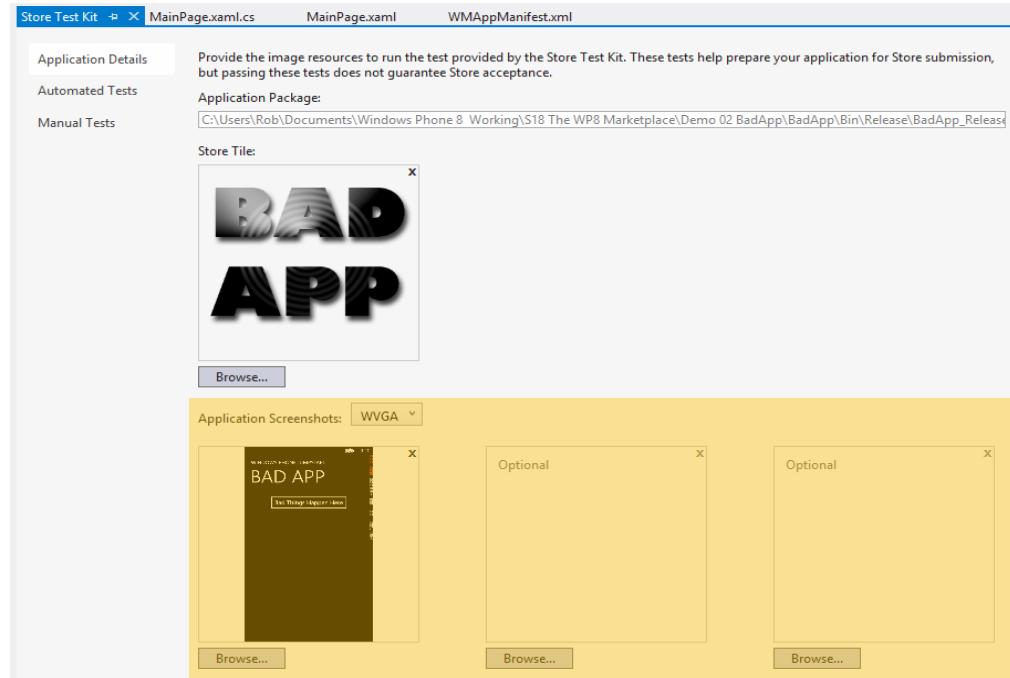
Store Tile & Iconography

- The Store Tile is provided as a 300x300 pixel image that is used for display in the Store
- You must provide one of these for your application
- Make your apps more attractive in the Windows Phone Store
 - Blog: <http://bit.ly/13LO5XG>



Application Screenshots

- You must provide at least one screenshot for each of the display resolutions that your application supports
- You can provide extra, optional ones if you wish
- This is a good way to promote your application
- Use the built-in tool in the emulator to easily capture screenshots



Improving Screenshots

```
// Show graphics profiling information while debugging.  
if (Debugger.IsAttached)  
{  
    // Display the current frame rate counters.  
    Application.Current.Host.Settings.EnableFrameRateCounter = false;  
}
```

- The screenshots for BadApp include the frame rate counters on the display
- This is a bad thing to do – it makes your program look very amateurish
- You can disable the display by changing the above setting in App.xaml.cs

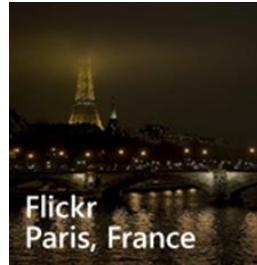
Live Tiles on Windows Phone

- Windows phone has the unique ability to provide the end user glanceable access to the information they care most about, via Live Tiles
- Push Notifications offer developers a way to send timely information to their applications even when they are not running
- In Windows Phone 7.1 and later, the Local Tiles API allows apps to create and update tiles
- Top 50 apps are 3.7x more likely to have Live Tiles



Live Tiles 101

- Shortcuts to apps
- All apps have at least one tile, known as the default tile
 - Created by user pinning your app to the Start Screen
 - Launch to app main page
- Apps can create secondary tiles
 - Created programmatically
 - Launch to any page in your app
- Static or dynamic
- Tiles can be updated
 - Application code
 - Background agents
 - Push Notifications
- In Windows Phone 7.1, only one tile size for third party apps
- In Windows Phone 8.0, you can support three different tile sizes



Tile Templates and Tile Sizes

- Windows Phone 8 supports three Tile templates
 - Flip – flips from front to back (similar to the WP 7.1 Tile template)
 - Iconic – clean iconic layout designed to reflect Windows Phone design principles
 - Cycle – cycles through up to nine images



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Contoso



Contoso



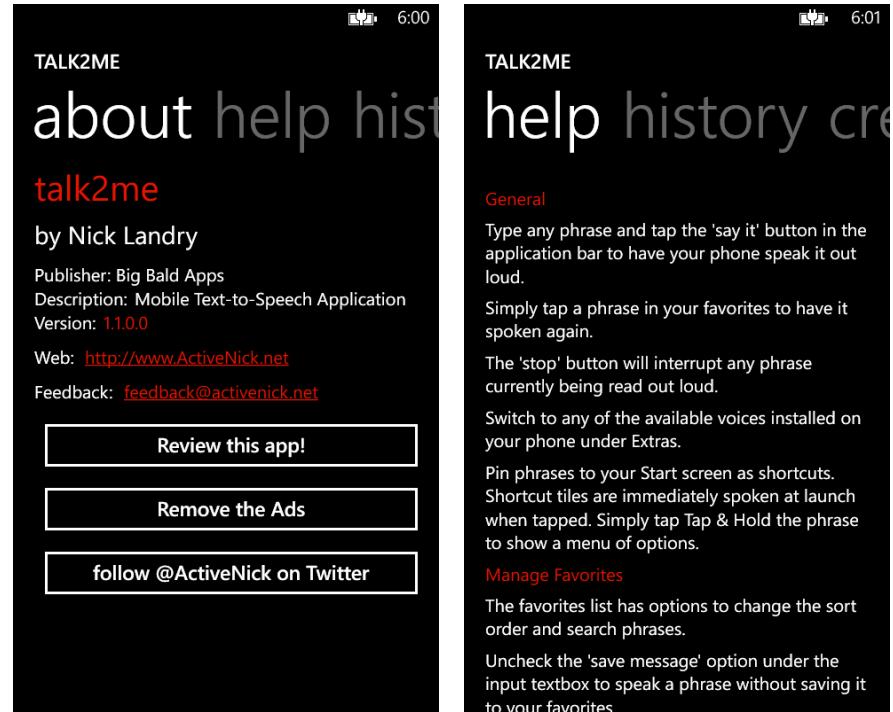
Filtrinsic



Filtrinsic

Giving Your App an Identity

- About Screen
- Version & Update History
- Help / User Instructions
- Tutorial

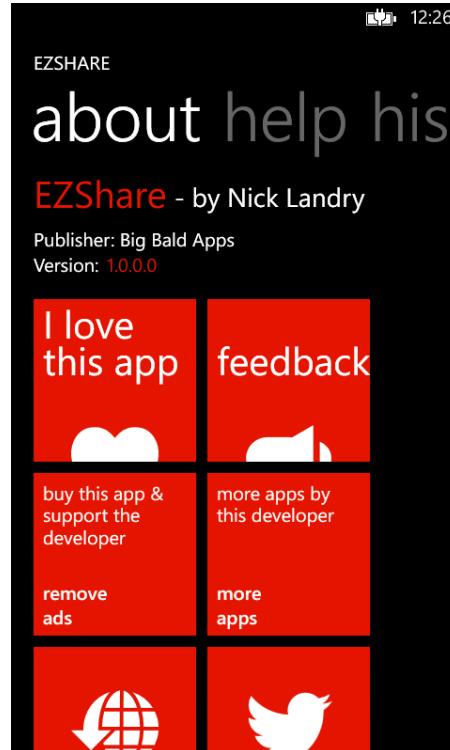
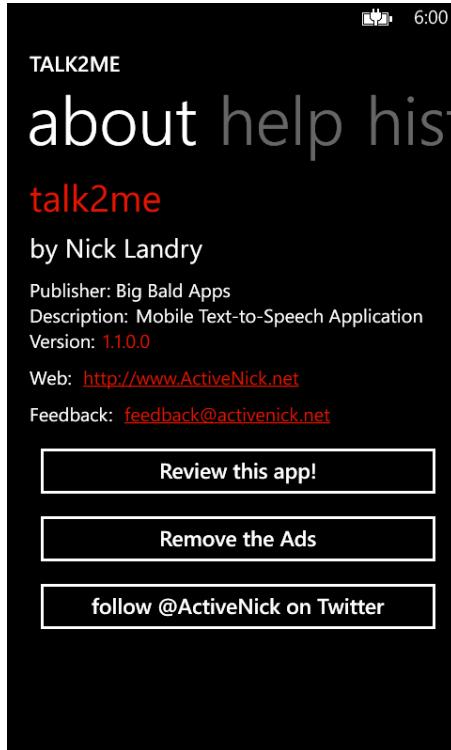


Communicating With Your Users

- Communication is a two-way street
- Give users a chance to voice their opinions & request features
 - Prompt for reviews every X startups of your app (you figure out what X is)
- Be responsive, respond to emails & feedback
- Be thankful even for negative feedback
 - Negative email > 1-star negative rating
- Multiple Communication Channels Available:
 - Crash logs
 - “Review This App” Shortcut
 - Feedback Form
 - Twitter / Social Media Links



User Engagement Tips



- **I Love This App**
 - Redirect to Rating Screen in Windows Phone Store
- **Feedback / Support**
 - Redirect to a form to gather more input from the user
 - Prepopulate an email that goes to your feedback alias

Monetizing Your Apps



Chasing that “Angry Birds” money...

Monetizing Your Apps

- Free vs. Paid Apps
- App Trials
- In-App Purchasing
- In-App Advertising



Free vs. Paid Apps

Free Apps

- Totally free apps don't make any money, make sure you have a reason for publishing them
 - Only 100 (!) free app submissions per developer per year
 - Additional free application submissions at an extra cost of \$20 per submission
- Will generate more downloads & more ratings (either way)
- Apps can start free to gain visibility, and later switched to a paid model if/when successful in the store
- Free apps can be monetized in other ways
 - In-app purchasing
 - In-app advertising

Paid Apps

- No cap on number of paid app submissions
- Paid apps generate revenue, but you'll get fewer downloads
 - You keep 70% of the revenue
- Compare your price with other similar apps
- Harder to get higher ratings for paid apps
- Trials help drive downloads of paid apps
 - Paid + No Trial = No Confidence
- Avoid advertising in paid apps, it looks like a money grabbing scheme
 - (*cough* HuluPlus *cough*)
- In-app purchasing allowed/possible in paid apps, but thread carefully



“Try before Buy” Mode

- Applications can be free or paid
- Developers can also allow customers to use an application in “try before buy” mode
- Your application can determine which mode it is running in by calling a status API
- Applications sold on a “try before buy” basis don’t show up as Free Applications
- This may reduce the number of people who will download it
 - Some people only browse the free lists
- 70x More Downloads, 7x More Revenue



Detecting Trial Mode

```
using Microsoft.Phone.Marketplace;  
LicenseInformation info = new LicenseInformation();  
if ( info.IsTrial() )  
{  
    // running in trial mode  
}
```

- It is easy for an application to determine whether it is running in Trial mode
- But remember that a paid application with Trial Mode will not show up as free in the Windows Phone Store
- It might be more effective to also distribute a free “lite” version of your application which can be upgraded by an in-application purchase

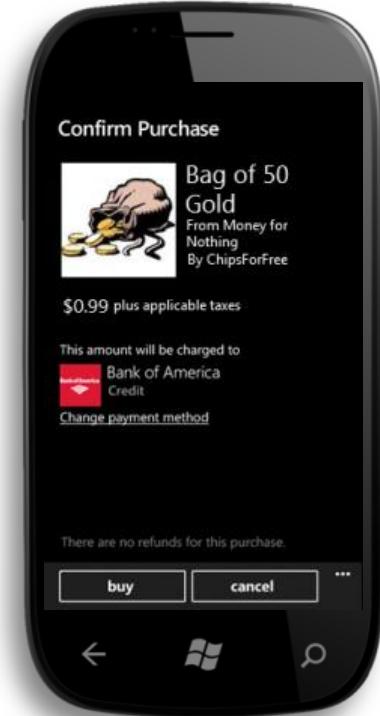
In-App Purchases used for digital content

- Offer Digital Assets
 - Durables: buy once & own forever, e.g. new game levels, maps, game items
 - Consumables: game currency, movie rentals, access to digital magazines for 6 months, etc.

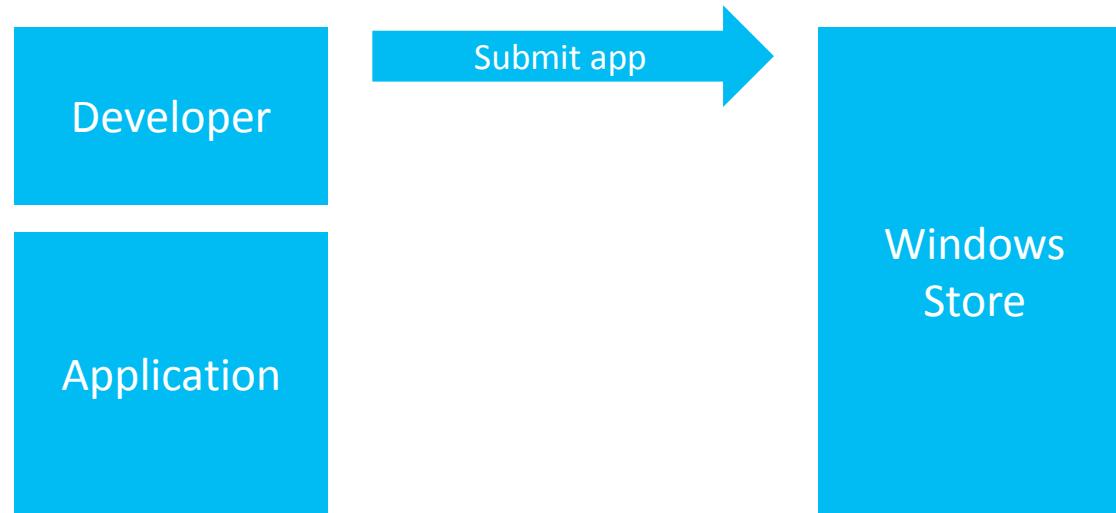


In-App Purchase: Sell items in your app

- Define In-App Item
 - Use App Hub to define Consumable (bullets) or durable (guns)
- Integrate In-App to app experience
 - Use SDK to sell items
- Choose Countries and Pricing
 - Use App Hub to define item price; change as frequently as needed
- Manage, monitor and respond
 - Use App hub to manage sales reports, by item, region, date

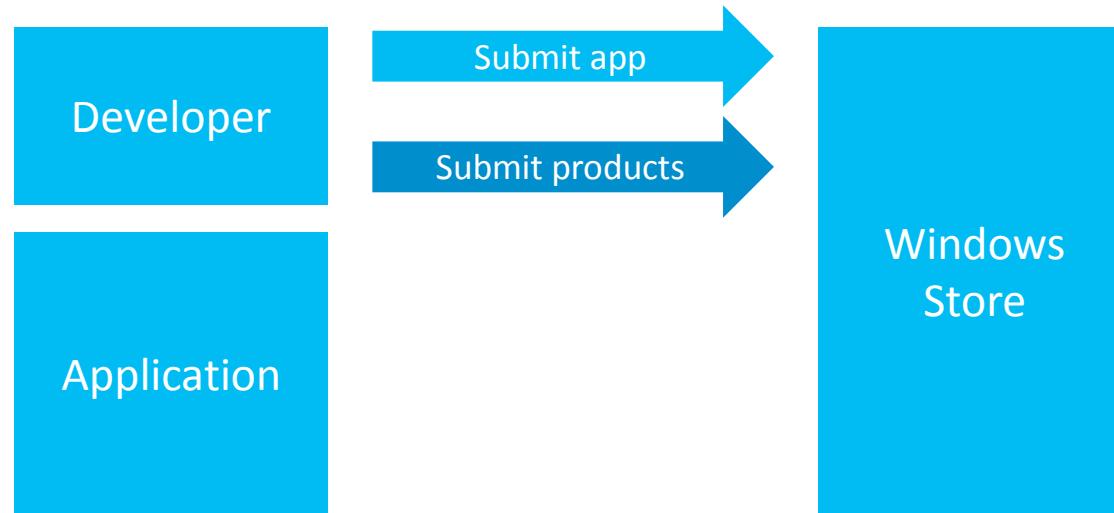


Creating an App that uses products



- The developer creates the application and submits it to the Windows Store

Creating an App that uses products



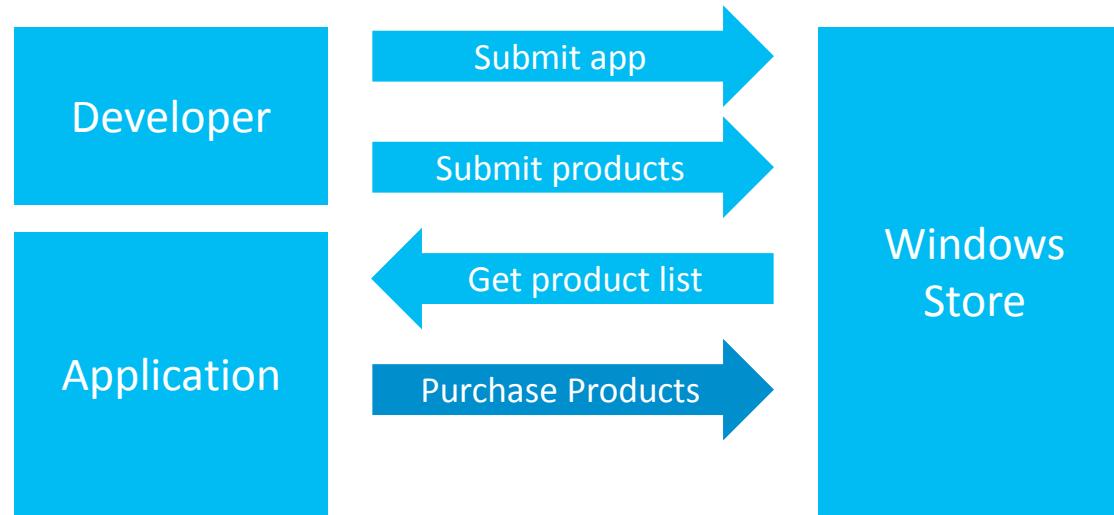
- The developer creates the list of products that can be sold alongside applications

Creating an App that uses products



- When the application runs it can request a list of products that are associated with that application
- This list can be used to drive in-app purchasing options

Creating an App that uses products



- The user can initiate the purchase operation
- This is managed in just the same way as Windows Store purchases

Creating an App that uses products



- When the application starts, and after a purchase operation, it can activate the purchased feature or load the purchased content

Creating an App that uses products



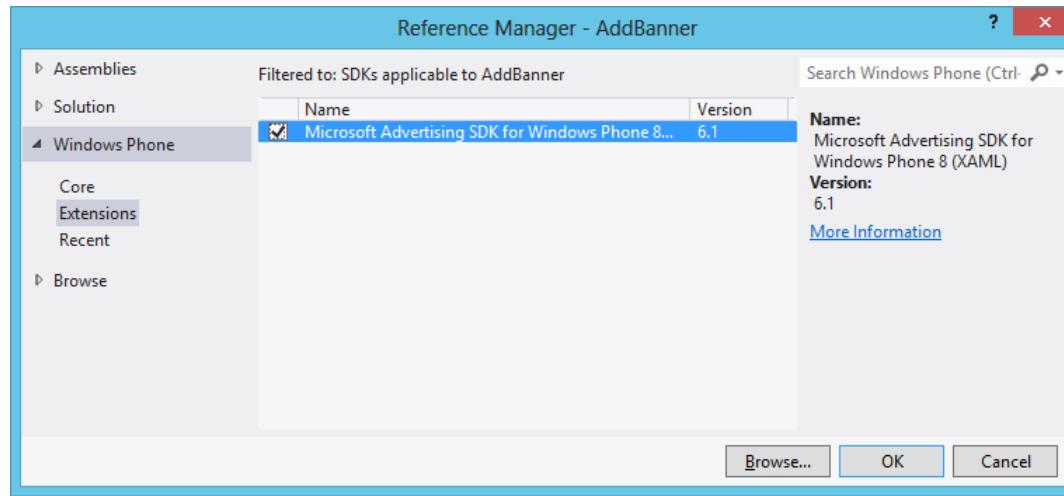
- The store will also supply a digitally signed receipt that can be used to manage access to external resources provided to the user via the application

In-App Advertising & Marketing

- Microsoft pubCenter
 - <http://pubcenter.microsoft.com>
- Inneractive (no more Nokia Ad Exchange)
 - <http://www.inner-active.com>
- AdDuplex
 - <http://www.adduplex.com>
- Marketing Your Windows Phone Apps
 - Blog Post: <http://bit.ly/12k3Qoo>
 - Nokia Marketing in a Box:
https://developer.nokia.com/Distribute/Promoting_your_app



Adding the SDK to an Application



- The Advertising SDK is distributed as part of the Windows 8 SDK
- You need to add the assembly to any project that wants to include adverts

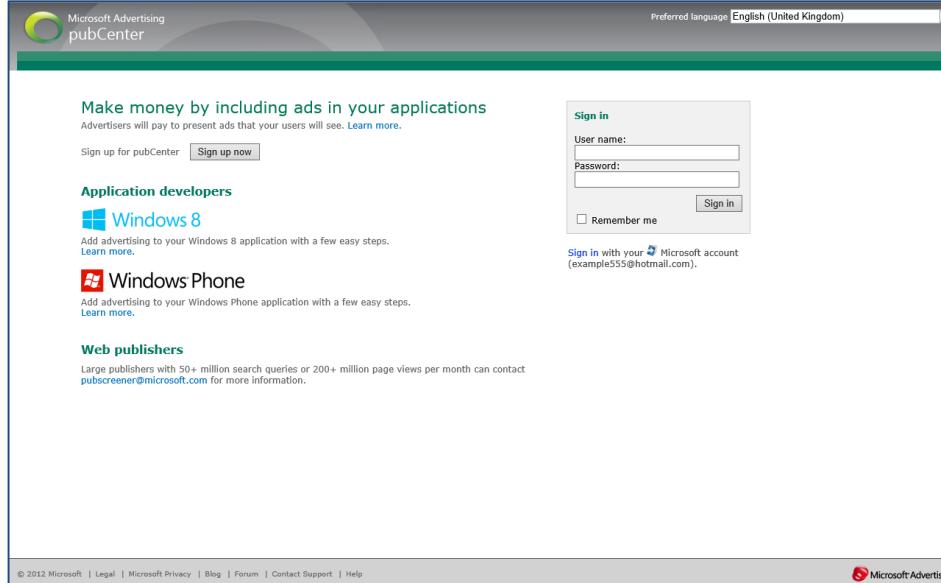
Adding Advertisements to Applications

```
AdControl adControl = new AdControl("test_client",    // ApplicationID  
                                    "Image480_80",    // AdUnitID  
                                    true);           // isAutoRefreshEnabled
```

- Very easy to incorporate ads into applications
- The Ad-Control SDK provides the adControl that can put adverts onto your application
 - The AdManager can be added to XNA games
- Users can click through an advertisement to a web site or call the advertiser from within your app or game
 - Advertisements are specifically targeted at each user demographic
 - More local relevance drives higher eCPM
- You get 70% of the revenue

Microsoft pubCenter

- Sign up here so that you can incorporate ads in your apps & games
<http://pubcenter.microsoft.com>

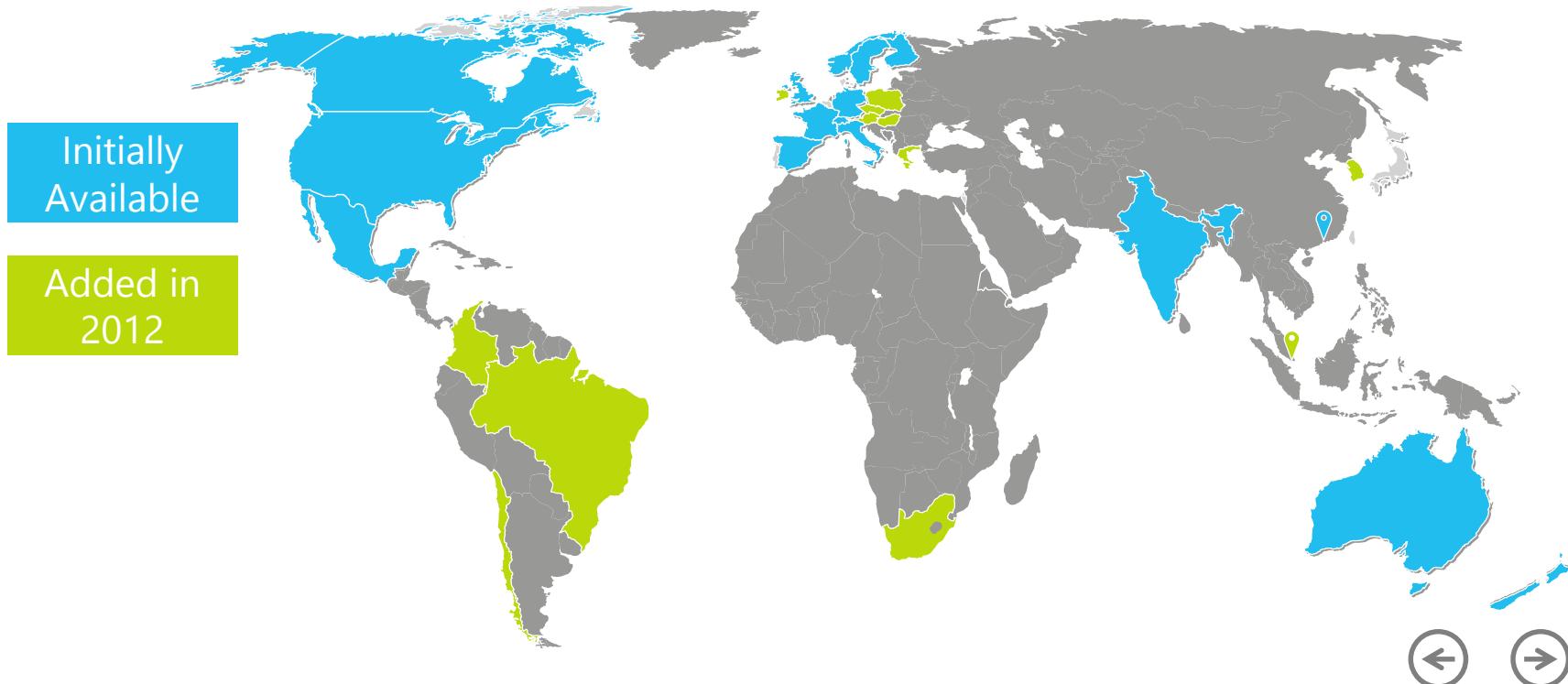


The screenshot shows the Microsoft pubCenter homepage. At the top, there's a navigation bar with the Microsoft Advertising logo and the pubCenter name. A dropdown menu for 'Preferred language' is set to 'English (United Kingdom)'. Below the header, a green banner reads 'Make money by including ads in your applications' and 'Advertisers will pay to present ads that your users will see. [Learn more.](#)'. There are two buttons: 'Sign up for pubCenter' and 'Sign up now!'. To the right of the banner is a 'Sign in' form with fields for 'User name:' and 'Password:', a 'Remember me' checkbox, and a 'Sign in' button. Below the sign-in form is a link: 'Sign in with your Microsoft account (example555@hotmail.com)'. The main content area features sections for 'Application developers' (Windows 8 and Windows Phone), 'Web publishers' (with contact info: pubscrneer@microsoft.com), and links for 'Legal', 'Microsoft Privacy', 'Blog', 'Forum', 'Contact Support', and 'Help'. At the bottom right is the 'Microsoft Advertising' logo.



Microsoft pubCenter

- 36 Developer Countries, 17 new



Summary



- Building the core functionality is not enough
- Professional-looking & well-rounded apps get better ratings
- Advanced features help differentiate your apps
- Communication with your users is key to understanding the features – and apps – they want
- Several options are available for monetization
 - Paid Apps
 - App Trials
 - In-App Purchasing
 - In-App Advertising

Summary and Next Steps...

1

Get Ready to Become a Windows Phone Developer

Download the SDK at dev.windowsphone.com

Explore the Microsoft samples and start building apps in Visual Studio

2

Learn More About Windows Phone Development via Official Microsoft Videos

Windows Phone 8 Jump Start Training: <http://bit.ly/wp8jump>

Windows Phone 8 Dev for Absolute Beginners: <http://bit.ly/wp8devAB>

3

Check Out Additional Learning Resources

Pluralsight WP Training: www.pluralsight.com/training/Courses#windows-phone

Nokia Developer: <http://developer.nokia.com>

4

Download Additional Resources & Become an Expert

Download the Windows Phone Toolkit: phone.codeplex.com

Nokia Developer Offers: <http://bit.ly/nokiadevoffers>



Windows Phone Resources

- Windows Phone Developer Blog: blogs.windows.com/windows_phone/b/wpdev
- Windows Phone Consumer Blog:
blogs.windows.com/windows_phone/b/windowsphone
- Nokia WP Wiki:
www.developer.nokia.com/Community/Wiki/Category:Windows_Phone
- Nokia Dvlup Challenges & Rewards: www.dvlup.com
- Nokia Conversations Blog: <http://conversations.nokia.com>
- Microsoft App Studio: <http://apps.windowsstore.com>
- Nick Landry's Blog: [ActiveNick.net](http://ActivNick.net)
- Windows Phone Developer Magazine (online): <http://flip.it/95YFG>
- GeekChamp (WP & Win8 dev): www.geekchamp.com
- Windows Phone Central (News): www.wpcentral.com



Thank You!

Slides will be posted on SlideShare

Let me know how you liked this session. Your feedback is important and appreciated.



Blog: www.AgeofMobility.com

Twitter: [@ActiveNick](https://twitter.com/ActiveNick)

Email: ext-nick.landry@nokia.com

Mobile Apps: www.bigbaldapps.com

LinkedIn: www.linkedin.com/in/activenick

Website: www.mobility42.com

Slideshare: www.slideshare.net/ActiveNick

