

# Smartphone Primer





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 **Objectives**

Upon completion of this presentation you will be able to:

- Identify the factors used in selecting a smart phone and associated service provider (cost, coverage, data speeds, ease of use, and customer support)
  1. If cost is your primary factor should you pay full price for a smartphone?
  2. Coverage – voice and/or data determine who actually has the best coverage
  3. Data throughput speeds
- Explain the differences between the three basic cellphone types (basic, feature and smartphone)
- Identify the basic reasons why I should consider replacing my perfectly good 3 year old (or older), basic cell phone with an LTE smartphone
- Describe Smartphone security considerations.
- List 11 categories of smartphone Apps

Service Provider	Ownership	Subscriber counts	Consumer Reports 2012 rating	Data Technology Protocol	Voice Protocol	Class & Freq
Verizon Wireless	Verizon (55%) Vodafone (45%)	115 M	72	IS 95, 1xRTT, EV-DO, LTE	CDMA, LTE (future)	2G/3G = 850 & 1900 MHz 4G=700 MHz + 1700 & 2100 MHz (future)
AT&T Mobility	AT&T inc.	107 M	62	EDGE, GPRS, HSPA+, LTE	GSM, UMTS, LTE(future)	2G/3G = 850 & 1900 MHz 4G = 700, 1700 & 2100 MHz
Sprint/ Nextel aka Virgin Mobile, Boost, & Assurance Wireless	Sprint Nextel (30%) Softbank (70%)	55.6 M	66	EV-DO, WIMAX, LTE	CDMA, LTE(future)	2G/3G = 800 & 1900 MHz 4G=800 MHz, 1900 MHz, 2500 MHz
T-Mobile /MetroPCS	Duetsche Telecom	43.5 M	64	EDGE, GPRS, HSPA+, LTE	GSM, UMTS, LTE(future)	2G/3G = 1700/2100& 1900 MHz 4G= 1700/2100 MHz

Service Provider	Basic Mobile vs Smartphone w 2GB data & cost of LTE smart phone	Average Churn rates 2012	Average LTE vs 3G data speeds (Open Signal)*	Spectrum Leases total/LTE
Verizon Wireless	\$40 w 700 mou's vs \$100 w 2GB & SmartPhone @ \$199	1.2%	10 vs 0.61 MB per sec	2254/708
AT&T Mobility aka Aio Wireless	\$40 w 450 mou's vs \$70 w 3GB & SmartPhone @ \$199 + one time charge of \$36	1.4%	13 vs 1.88 MB per sec	2732/883
Sprint/ Nextel aka Virgin Mobile, Boost, & Assurance Wireless	\$40 w 450 mou's + one time charge of \$36 vs \$79 w unl & SmartPhone @ \$163.12 + one time charge of \$36	3.2%	7.7 vs 1.04 MB per sec	546
T-Mobile /MetroPCS	\$40 w 500 mou's vs \$90 w unl & SmartPhone @ \$380 + one time charge of \$36	3.0%	1.2 vs 1.6 MB per sec	827/304

Note: mou = minutes of use



## CELL PHONE GENERAL FACTS

Cell Phone penetration (321,716,905) exceeded the US population in June of 2012 and cell site numbers had grown to 285,561. The average cell site growth rate is 11% year over year. There are four major cellular service providers in the US which account for more than 90% of all cell phone subscribers.

LTE coverage will continue to expand for all four major national carriers. When considering the purchase or acquisition of a new smart phone. Devices which are not LTE capable should be ruled out.



## CELL PHONE TERMS

**Mobile Virtual Network Operator (MVNO)** is a wireless communications services provider that does not own the radio spectrum or wireless network infrastructure over which the MVNO provides services to its customers. There are 50 + MVNO's operating in the US. The largest MVNO in the US is American Movel with 22.2M subs (Tracfone, StraightTalk, Net10 Wireless, Simple Mobile and Telcel America).The following link provides a list of current US MVNO operators

[http://en.wikipedia.org/wiki/List\\_of\\_United\\_States\\_mobile\\_virtual\\_network\\_operators](http://en.wikipedia.org/wiki/List_of_United_States_mobile_virtual_network_operators).

**Prepaid** in the telecom industry means the customer pays for services in advance, before the service is provided. The prepaid subscriber advances the MVNO a flat set rate for the selected usage period (ranging from one day to 30, or by the minute applied against a deposit).

**Post-paid** carriers provide service and then require payment for services rendered. Typically, postpaid subscribers in the US are committed to a two year contract. Approximately 88% of US subscribers opt for post-paid plans.



## FACTORS USED IN SELECTING A SERVICE PROVIDER

1. Actual **cell phone coverage** can be found in several web sites including:
  - <http://www.rootmetrics.com/check-coverage/>
  - <http://www.signalmap.com/>
  - <http://www.deadcellzones.com/coverage-maps.html>
  - <http://www.cellreception.com/>
 Rootmetrics also has a SmartPhone app (**CoverageMap**)for voice and data coverage. In addition there is an app called **Coverage?** which identifies coverage maps claimed by the four major service providers.
2. The facing chart provides **cost comparisons** for the four major postpaid service providers. If an iPhone 5 was purchased from Verizon for \$199 with a 2 year contract @ \$2,400. The total cost of ownership would be \$2,599. If an iPhone 5 was purchased from Straight Talk for \$650 with an unlimited data package @ \$1080 the total cost of ownership is \$1,730 or a savings of \$859 over the two year period. Both alternatives run on the Verizon network.  
 One low cost alternative is StraightTalk unlimited voice , message and data available at \$495 per year + \$650 for an iPhone 5 or an average of \$68.33 per month.  
 StraightTalk iPhone5 plans run on the Verizon network.  
 Average data speeds (provided by Open Signal Feb 2013)





## WHAT IS A SMARTPHONE?

**Basic mobile phones** or dumb cellphones provide voice, texting capabilities and in some cases, a camera.

**Feature phone** - PC magazine defines a feature phone as cellphone that contains a fixed set of functions beyond voice calling and text messaging, but is not as extensive as a smartphone. For example, feature phones may offer Web browsing and e-mail, but they generally cannot download apps from an online marketplace. Feature phones have proprietary operating system (OS) firmware. If they support third-party software, it is only via a relatively limited platform such as Java or BREW. In 2011, feature phones accounted for 60 percent of the mobile telephones in the United States and 70 percent of mobile phones sold worldwide. In 2013, feature phones' share will drop as smartphones become more popular, half of all mobile phones will be smartphones.

**Smartphones** are the Swiss army knives of the telecom industry. They provide the functionality of a feature phone as well as the advanced application programming interfaces (APIs) on smartphones for running third-party applications.

SmartPhones may run on a variety of operating systems including but not limited to:

- Apple's iPhone Operating System or **iOS** is used for iPhone's, iPads, iPods, and Apple TV. The iPhone App store contained 775,000 iPhone apps as of January 2012. The Apple iPhone accounts for a 43.5% smartphone sales as of 2/13. Iphones account for 37.8% of smartphones deployed in the US
- Google's **Android** is a Linux-based operating system designed primarily for touchscreen mobile smartphones. In October 2012, there were approximately 700,000 apps available for Android from Google Play, the primary app store for Android devices. The Android operating system accounted for 51.2% of the Smartphone sales in February and 52.3% of total smartphones deployed in the US.
- Microsoft **Windows Phone** is the primary operating system for Nokia Smartphones it is also present on some HTC, Huawei, and Samsung devices. The Windows Phone Store contains approximately 150,000 app's and the Windows OS is projected to capture on 19% - 22% of the Smartphone market share.
- **Blackberry OS** is used for Blackberry devices and the OS is projected to grow to 13% of the Smartphone market share.

Ref: (<http://techland.time.com/2013/04/16/ios-vs-android/>)

SmartPhone	Samsung Galaxy S IV (S4)	Apple iPhone 5	HTC One	Nokia Lumia 920
Service Providers	T-Mobile, AT&T, Sprint, Verizon	AT&T, Verizon, T-Mobile, Sprint, & MVNO's Straight Talk on Verizon	AT&T, Verizon, Sprint, T-Mobile	AT&T
Price with & w/o contract	\$249.99 vs \$649.99	\$99.99 vs \$649.99	\$99.99 vs \$649.99	\$0.01 to \$499.99
Memory OS	16 or 32 GB Android™ v4.2 (Jelly Bean)	16 to 64 GB iOS® 6	32 to 64 GB Android™ v4.1 (Jelly Bean)	Windows® Phone 8
Standby time (days)	Up to 12.5	Up to 9.375	Up to 19.2	Up to 10.79
Talk time (hours)	Up to 17	Up to 8 on 3G <sup>4</sup>	Up to 26.2	Up to 7.5
Video	1080p with dual camera mode, slow motion video capture	1080p HD video recording	1080p HD	1080p HD video capture
Rear-Facing Camera	13MP autofocus with LED flash	8MP iSight® camera with panorama	HTC UltraPixel Camera	8MP autofocus with dual-LED flash, f/2.2 aperture, 26mm focal length and Carl Zeiss® optics
Front-Facing Camera	2MP	FaceTime® HD camera for video calls <sup>2</sup>	2.1MP with HD video capture and playback	

C/Net <http://reviews.cnet.com/best-cell-phones/>



## **WHY CONSIDER REPLACING MY 3 YEAR OLD, BASIC CELL PHONE WITH A SMARTPHONE?**

How often should you replace your cell phone? The answer depends on who your carrier is and whether you are under a postpaid 2 year contract or prepaid month to month service.

If your carrier is Verizon, AT&T or Sprint you probably have a postpaid cell phone contract. Postpaid contracts in the US subsidize cell phone purchases up to \$450 for the 2 year term of the contract obligation. That subsidy is embedded within your monthly fee's. if you plan to continue your service with Verizon, AT&T or Sprint consider upgrading your cell phone every two years. When you choose not to replace your cell phone at the end of your two year commitment you are effectively donating up to \$18.75 per month to your service provider.



## **WHICH SMARTPHONES ARE CONSIDERED TO BE A “BEST BUY”?**

**Samsung Galaxy S IV (S (T-Mobile, AT&T, Sprint, Verizon)** Android Jelly Bean O/S with a 12 Mega pixel camera\_rear camera and a 2 megapixel front camera  
“Smart Pause” will know to hold things when you look away “Smart Scroll” technology deploys a sensor in the front-facing camera to use face-recognition software which allows you to tilt the phone up or down to scroll through a page.

“S Voice” drive activate when you start your car and will read incoming text messages aloud, let you dictate text messages, or use navigation features with your voice so you don't have to take your eyes off the road.

“S Health” uses its accelerometer to track your steps or cycles for exercise. The S4 supports a 64 Gig micro SD card. “Group Play” lets you touch one phone to the next to trade music, pictures, etc.

**Apple iPhone 5 (AT&T, Verizon, Sprint, Straight Talk on Verizon)** C/NET quote  
“The iPhone 5 completely rebuilds the iPhone on a framework of new features and design. It's absolutely the best iPhone to date with baked-in turn-by-turn navigation, a smarter Siri, and Passbook, a location-aware digital wallet app for storing documents like gift cards, boarding passes, and tickets

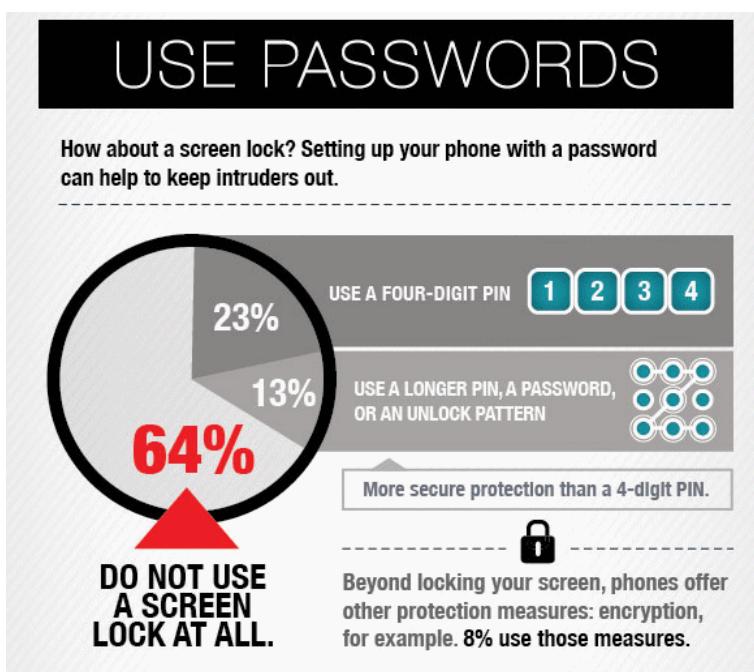
**Delta's:** Apple Maps is buggy; The smaller connector renders current accessories unusable without an adapter. There's no Near Field Communications (NFC is a contactless, Wi-Fi-lite style technology), and the screen size pales in comparison to jumbo Android models.

**HTC One (AT&T, Verizon Wireless)**

**Nokia Lumia 920 Windows OS (AT&T)**

## SMARTPHONE SECURITY

Smart Phone's can be quite secure if you take a few basic precautions.





Graphic's from Consumer Reports article .

<http://www.consumerreports.org/cro/magazine/2013/06/keep-your-phone-safe/index.html>

 <b>SMARTPHONE APP'S</b>	
Examples of Smartphone app's include but are not limited to:	
  	<p><b>1. Security app's –</b></p> <p><b>Lookout Security &amp; Anti- Virus</b> free version includes a locate function with an alarm and the ability to track the device, anti-virus and scheduled scanning. The paid version includes safe browsing, remote lock and wipe, privacy reports on apps, as well as advanced backup capabilities (photos and call history) <i>iPhone &amp; Android</i></p> <p><b>Avast Mobile Security</b> has antivirus protection, scans your apps to provide details on what they are doing, and has a Web shield that scans URLs for malware. There is also an impressive anti-theft component. <i>Android</i></p> <p><b>TrustGo Anti-virus &amp; Mobile Security</b> has a standard security scanner for on-demand or scheduled scans, supports secure Web browsing, a system manager to help you manage data, memory, and battery usage. There is also a secure app search to deal with the malware problems triggered by users downloading and installing dubious apps or updates. Finally, TrustGo includes a privacy guard, a backup option, and anti-theft tools for locating a missing phone and remotely wiping it. <i>Android</i></p>
 	<p><b>2. Camera app's –</b></p> <p><b>Analog Camera</b> designed for novice users who want to jump straight into the action without having to learn complicated gestures and fumble with settings.</p> <p><b>Snapseed</b> free photo editing software with a feel similar to Picasa.</p> <p><b>Camera Zoom FX</b> \$3.99 photo post processing app with more than 90 effects.</p> <p><b>Camera+</b> includes touch exposure and focus, stabilizer to steady your SmartPhone, Photo flashlight used as a fill light, digital 6x zoom, lightbox for editing, FX effects, scene modes for food sunsets etc , digital flash, cropping, borders.</p> <p><b>Photosynth</b> interactive panorama app from Microsoft.</p>
  	<p><b>3. GPS app's</b> which follow all have the ability to replace a stand-alone GPS.</p> <p><b>Copilot Live Premium HD USA</b> (\$ 19.95) most compelling feature is that it can be configured with the vehicle specified as an RV. The app includes a full set of maps, making it possible to navigate without a data connection. The app also includes both 2D and 3D maps as well as a speed limit indicator. By default, the app is set to provide an audible warning when you exceed the speed limit.</p> <p><b>TomTom USA</b> (\$44.99) includes full maps, adaptive routing, provides speed camera alerts.</p> <p><b>Navigon USA</b> (\$49.99) During navigation, Navigon displays current speed, ETA, trip distance remaining, distance to the next turn, and the upcoming street or exit name. The app is almost as informative as TomTom (for iPhone) in this regard, and you get plenty of options via the menu button on the top right. On the highway, Navigon's Reality View Pro displayed accurate depictions of upcoming exit signs. The app also showed separate lane assistance arrows in the regular 3D map view. Speed limit signs appeared on local routes as well as interstates. You can also pinch zoom the map to get a broader view.</p>

  	<p><b>4. Food and Restaurant app's –</b></p> <p><b>Yelp</b> database of business listings and user-submitted data make it a must-have app for every mobile user. Yelp provides information like hours, addresses, phone numbers, menu's where available, as well as user-submitted reviews.</p> <p><b>Foodspotting</b> is a visual app for finding and rating individual dishes, not just restaurants. So, if you want a particular dish this app will help you find a restaurant which offers the dish. The app also includes expert guides from the likes of Anthony Bourdain. Foodspotting also will allow the user to open Yelp to see other user reviews.</p> <p><b>Urbanspoon</b> app allows you to browse a full list of restaurants by cuisine and price range, or shake your SmartPhone for a random restaurant idea. Once you identify a good dining spot, Urbanspoon also includes user ratings, pictures, and menus</p>
  	<p><b>5. Showrooming &amp; Shopping</b></p> <p><b>Red Laser</b> scans your desired product's barcode and then gives you a list of the local and online prices. RedLaser licensed data feeds from Google, The Find and other sources to provide the backend data</p> <p><b>ShopSavvy</b> is very similar to RedLaser. The biggest difference is that ShopSavvy backend system is the real value of the app – ShopSavvy's results are far and away the best in the industry and folks from Walmart, Deloitte and even Ebay concur. ShopSavvy also includes consumer product reviews as well as the ability to purchase items within the app from e-tailers (Target , Buy.com, etc.).</p> <p><b>GroceryIQ</b> includes all the features you would expect in a powerful grocery app, including a barcode scanner, list sharing, and integrated coupons. If you are like me and buy the same things every week, the favorites list will help you save time. You can also edit your list online and it will update automatically on the app</p>
  	<p><b>6. News feeds and Social media</b> – The key application for Social media and news feeds is <b>Flipboard</b>. The app takes your chosen news feeds, along with any social media accounts you want to add, and it turns them all into a whizzy digital magazine. It even finds a suitable image to use as the cover. It creates a great mix of content .If there is content you would like to review later there is a very good companion app,</p> <p>Pocket. <b>Pocket</b> lets you save articles through two methods. First a bookmarklet in your web browser that automatically saves the page you're viewing when you click it; As an alternative, you can email the URL to your private account for later reading. Flipboard, lets you save links to Pocket for later reading.</p> <p><b>Podcasts</b> is a way to discover, subscribe to, and play your favorite audio or video podcasts. Examples of RV podcasts include "Living the RV Dream", "RV Navigator" and "American RVer"</p>

  	<p>7. <b>Weather app's</b> – It is difficult to identify a single weather app for all functions. Some app's are designed for severe weather while others are designed to address the more general weather forecast for the next few days. <b>Weatherbug elite</b> (\$1.99) packs just about everything you would want to know about the weather into a few compact screens, and touching portions of those screens often brings up even more data. One of the features My Storm Tracker Alerts, provides updates on the proximity of lightning, and it gives you a threat index based on your GPS derived location. The app also provides Dangerous Thunderstorm Alerts (DTAs) which monitors high winds, hail, tornadoes and large volume rain rates. <b>MyRadar Pro</b> (\$1.99) displays animated weather radar around your current location, allowing you to quickly see what weather is coming your way. start the app, and your location pops up with animated weather, allowing you to easily see if rain is headed your way. Additional options include weather warnings and alerts, complete with push notifications, to warn you of severe weather in your area. Excellent app for the start of thunderstorm and tornado season. <b>WeatherRadio</b> (\$9.99) uses a smart device's geo-location technology to keep users informed of National Weather Service watches and warnings. If the app is left active when a notification is issued for your current location your phone will issue a distinctive alarm tone. If there is no severe weather near your location, you can still use the app to view and listen to general forecast information.</p>
  	<p>8. <b>Medical app's</b> – smartphones are capable of saving lives, saving money and improving health care in a dramatic fashion <b>WebMD</b> includes a Symptom Checker lets you identify the part of the body that is troubling the injured person, choose the symptoms, &amp; learn about potential conditions or issues that could be associated with it. Search through the app's database for information on Drugs, Supplements, &amp; Vitamins entries includes uses, side effects, warnings, etc. Find the closest physician, hospital, &amp; pharmacy to your location or search by city, state or zip. <b>iStethoscope Pro</b> turns your SmartPhone into a stethoscope, allowing you to listen to your heartbeat and see your heart waveform. <b>Sleep Cycle</b> uses your phone's accelerometer to track your movements as you sleep to determine when you are moving in out and of the different stages of the sleep cycle. It then uses a 30-minute window (<i>based on an alarm time that you set</i>) and gently wakes you up at when you're not in the deepest phase of sleep.</p>

 	<p><b>9. Fitness &amp; Health</b> – There are lots of Fitness and Health app's. In this category the app's need to be customized to the individual. To determine what is appropriate I would suggest looking at the app's with the highest volume of downloads on the iTunes store and/or Google Play. App's you may find worth the effort include:</p> <p><b>Nike Training Club</b> is intended to help you choose a workout that fits your goals from a list of more than 100 workouts. App provides detailed instruction with pic's for each exercise.</p> <p><b>Gipis Running</b> and <b>Walk Tracker</b> are designed to track walking, running, or cycling. The app's provide goal oriented training and progress reports. Personally I use <b>Nike+ Running</b> for my runs. <b>Couch to half Marathon</b> provides the 12 week training plan with runs, core training and cross training</p>
    	<p><b>10. Utility/Productivity app's</b> – This is an eclectic grouping of app's</p> <p><b>SignNow</b> Need to sign a document or get someone's signature on a document? The app makes it easy to do both, and forget about printing, scanning, or faxing.</p> <p><b>Dropbox</b> is one of several cloud computing apps. It lets you bring all your photos, docs, and videos anywhere and share them easily. Access any file you save to your Dropbox from all your computers, SmartPhone and even the Dropbox website.</p> <p><b>Appbox Pro</b> is a group of 30 app's flashlight, Battery Life, Dashboard, Date Calculator, Surface Level, Bubble Level, Loan Calculator, Price Grab, Random Number Generator, Sale Price Calculator, System Info, Tip Calculator, Web Games, Web Apps Links, etc.</p> <p><b>Theodelite</b> serves as a compass, GPS, map, zoom camera, rangefinder, and two-axis inclinometer. Theodelite overlays real time information about position, altitude, bearing, and horizontal/vertical inclination</p> <p><b>Path Input Pro</b> Input a word by drawing its path on the keyboard. When you input words continuously with Path Input, the space between them will be automatically inserted.</p>

11. **Games** are actually the largest category of SmartPhone app's . In fact there are a number of game phone app categories incuding:

[MMO Games Apps](#)    [Photo Games Apps](#)    [Strategy Games Apps](#)

[Action Games Apps](#)    [Adventure Games Apps](#)    [Arcade Games Apps](#)

[Board Games Apps](#)    [Card Games Apps](#)    [Casino Games Apps](#)

[Dice Games Apps](#)    [Educational Games Apps](#)    [Family Games Apps](#)

[Kids Games Apps](#)    [Music Games Apps](#)    [Puzzle Games Apps](#)

[Racing Games Apps](#)    [Role Playing Games Apps](#)    [Simulation Games Apps](#)

[Sports Games Apps](#)    [Trivia Games Apps](#)    [Word Games Apps](#)

App's that are popular on one platform (Ios, Android, Windows) may be available on another platform or there may be an equivalent app for the other platforms. One viable tool for this function is the Crossover app finder <http://appfinder.lisisoft.com/>

## CLOUD COMPUTING

Cloud computing is the practice of using a network of remote servers hosted on the Internet to store, manage, and process data, rather than a local server.

A more detailed description can be found at the following link. [http://blog.rv.net/2013/05/what-is-cloud-computing/?utm\\_source=feedburner&utm\\_medium=email&utm\\_campaign=Feed%3A+RvnetBlog+%28RV.net+Blog+Daily+Updates+Feed%29](http://blog.rv.net/2013/05/what-is-cloud-computing/?utm_source=feedburner&utm_medium=email&utm_campaign=Feed%3A+RvnetBlog+%28RV.net+Blog+Daily+Updates+Feed%29)

### Comparison of Major Cloud-Computing Services

	 Microsoft SkyDrive	 Google Drive	 Dropbox	 Apple's iCloud
<b>Free Space</b>	7 GB	5 GB	2 GB	5 GB
<b>\$ for more</b>	\$10/yr for 20 GB	\$2.49/mo for 25 GB	9.99/mo for 100 GB, but you can earn more free space	\$20/yr for 10 GB
<b>Sync Method</b>	Download SkyDrive desktop app for Windows or Mac	Download Google Drive for your PC or Mac	Download Dropbox for Windows, Mac, or Linux	Download iCloud for Macintosh, Windows, or AppleTV
<b>Web Apps Included</b>	Word, Excel, Powerpoint, One Note, Excel Survey	Google Docs: Docs, Sheets, Slides, Form, Drawing	None (3rd Party apps available)	iOffice: Pages, Numbers, Keynote
<b>Mobile platforms</b>	Windows Phone, iPhone, iPad, Android	Android, iPhone, iPad,	Android, iPhone, iPad, Blackberry, Kindle Fire	iPhone, iPad, iPod Touch,
<b>Sharing with others</b>	Easy, including sharing with groups	Easy	Easy, you can even just right click a file and share via a URL	Not so easy, iCloud is designed to synchronize all of your Apple devices