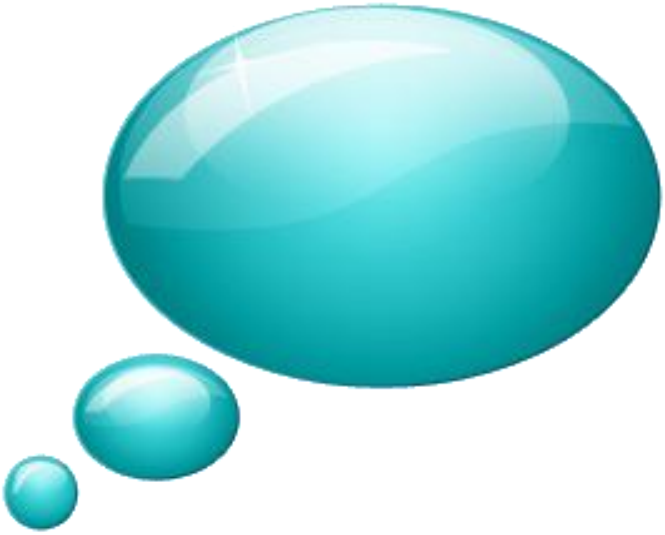
Evaluating Mobile Cloud Sync Solutions: From *A*pple MobileMe to Vodafone *Z*yb



White Paper

June, 2009

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I. Executive Summary

Mobile cloud sync is rapidly emerging as a major new category of mobile services. In the past several months, new and improved mobile cloud sync services have been introduced, with more solutions on the way. This white paper evaluated a cross-section of 12 representative mobile cloud sync solutions from four types of providers: device manufacturers, portals, mobile operators and specialists. The study identified trends, strengths and weaknesses of the solutions, and areas for improvement. The solutions evaluated were:

Mobile Device / Operating System Manufacturers

- Apple MobileMe
- Nokia Ovi Sync
- BlackBerry Internet Service (BIS, not BlackBerry Enterprise Server (BES))
- Palm Synergy
- Microsoft My Phone

Portals/Search Engines

- Google Sync
- Yahoo! Mobile

Mobile Operators

- AT&T Mobile Backup
- T-Mobile (USA) Mobile Backup
- Verizon Wireless Backup Assistant
- Vodafone Zyb

Mobile Cloud Sync Specialists

- Funambol

These solutions were compared across ten attributes: cost, supported devices, synced data, web portal, wireless desktop integration, social network sync, usability & performance, global readiness, open source & standards, and brandability and customizability for 3rd parties.

Key findings include:

- 75% of solutions are free
- 17% of solutions support one or two devices; 42% support a single family or small number of devices
- 41% of solutions only sync a single type of data (i.e. contacts, email or photos)
- 75% of solutions do not support wireless desktop integration
- 33% of solutions sync data with multiple social networks, such as Facebook, MySpace and LinkedIn
- 58% of solutions support four or more languages

The study calculated a **mobile cloud sync index** for each solution to illustrate its completeness. In general, the evaluation found that not all mobile cloud sync solutions are created equal, they varied greatly across the attributes. Solutions from device manufacturers exceeded portals and mobile operators, as they supported fewer devices, making it easier for their solution to perform well. Areas ripe for improvement include wireless desktop integration, social network sync and solution openness. Details about the mobile cloud sync index for each solution can be found in the Results section and the Appendix.

II. Introduction

Mobile cloud sync is rapidly emerging as a major new category of mobile services. In recent months, mobile cloud sync solutions have been introduced or improved by Apple, Nokia, Google, Microsoft, Palm and others, with several more solutions on the way.

Mobile cloud sync consists of syncing data and content on a mobile phone with a server and portal in the Internet cloud. The data and content can also be synced with email systems, desktop apps, social networks and more (see diagram below). The essential concept is that mobile cloud sync makes it easy for users to access their data and content, regardless of if it is on their mobile, the web, desktop app or social network. Everything should be in sync, and it should be accessible anytime, anywhere.

As mobile cloud sync is a new service, this white paper provides the results of a comparative analysis of 12 representative mobile cloud sync solutions. These solutions are from a cross-section of providers from four types of companies: device manufacturers, mobile operators, portals and specialists.

The analysis focused on the **syncing** of core mobile cloud sync data, such as contacts, calendars, email, photos and files. Some of the companies studied offer additional services, such as maps and music, that may be part of their suite of mobile services or they may be independently available. For example, Nokia has integrated maps and music loosely as part of its Ovi service, however, maps and music are not part of Ovi Sync. Another example is Apple iTunes, which provides music, video and other content, but iTunes is not part of Apple MobileMe. This study attempted to compare apples to apples by evaluating data and services that were primarily related to mobile cloud synchronization.

As a disclaimer, Funambol provides mobile cloud sync solutions to companies in the mobile industry. Other than including our own software in the study, as it is worthy of consideration, we did not include our customers' solutions in the study, to avoid a conflict of interest, with one exception. Due to a non-disclosure agreement with one of the solution providers in the study, we cannot identify that solution. Other than this, the solutions in this report are not based on Funambol.

One last note, this study did not evaluate independent sync apps that are available in app stores or that are independently available for some of the mobile devices mentioned in this report. This is because independent apps are not part of the mobile cloud sync solutions offered by the providers that were studied. In some cases, independent apps provide an alternative method for syncing mobile data and content with the cloud.

III. Methodology

This study evaluated 12 mobile cloud sync solutions from four types of providers:

Mobile Device / Operating System Manufacturers

- Apple MobileMe
- Nokia Ovi Sync
- BlackBerry Internet Service (BIS, which is not the same thing as BlackBerry Enterprise Server (BES))
- Palm Synergy
- Microsoft My Phone

Portals/Search Engines

- Google Sync
- Yahoo! Mobile

Mobile Operators

- AT&T Mobile Backup
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These solutions were compared across ten attributes: cost, supported devices, synced data, web portal, wireless desktop integration, social network sync, usability & performance, global readiness, open source & standards, and brandability and customizability for 3rd parties.

For each attribute, a rating of one to four was assigned to each solution. A rating of one meant that a solution was lacking in an area, a rating of four meant that a solution excelled. Each solution therefore had a possible total score of 10 to 40. The total score is referred to in this report as the **mobile cloud sync index**. The higher the index, the more comprehensive a solution.

Depending on your needs, you may want to emphasize or ignore certain attributes. If some attributes are more or less important for your needs, this will alter the mobile cloud sync index rankings for you.

Note that for RIM, the BlackBerry Internet Service (BIS) was considered, rather than the BlackBerry Enterprise Server (BES). This is because BIS is a mobile cloud sync solution that is comparable to the other solutions in this report, whereas BES is an enterprise solution.

If you would like to evaluate other mobile cloud sync solutions and share their ratings, please send the ratings to Hal Steger of Funambol, at hal@funambol.com. Upon validating your information, the report will be updated and republished periodically. Thank you in advance for your assistance and cooperation. Funambol reserves the right to publish contributed information at its discretion. You may want to use the following rating grid.

Solution name _____

Attribute	1	2	3	4
Cost				
Supported devices				
Synced data				
Web portal				
Wireless data integration				
Social network sync				
Usability & performance				
Global readiness				
Basis on open source and SyncML				
Brandability and customizability for 3rd parties				

Please refer to the Results section for details on the rating criteria for each attribute.

The evaluation was performed by a team of Funambol researchers over a period of several weeks in May and June, 2009. The team studied all available information for each solution, with the goal to learn as much about each solution as possible. This included reviewing their online descriptions and documentation, using the solutions to sync data and content, and spending time in user forums to understand user experiences. Several devices were used in the research, including an iPhone, BlackBerry Pearl, Nokia E71, Palm Pre, Windows Mobile and phones from Motorola, Samsung, Sony Ericsson and LG.

The mobile cloud sync solutions covered by this study are evolving. Several are in beta. Some are closed to new users. This comparison reflects their status as of the research period. In some cases, future capabilities were described for some solutions, which was noted by the researchers. A dutiful effort was made to verify the accuracy of all information, yet due to the complex subject matter, it is possible that errors were made. If corrections are needed, please email the relevant information to Hal Steger of Funambol at hal@funambol.com. Reasonable efforts will be made to update the report periodically.

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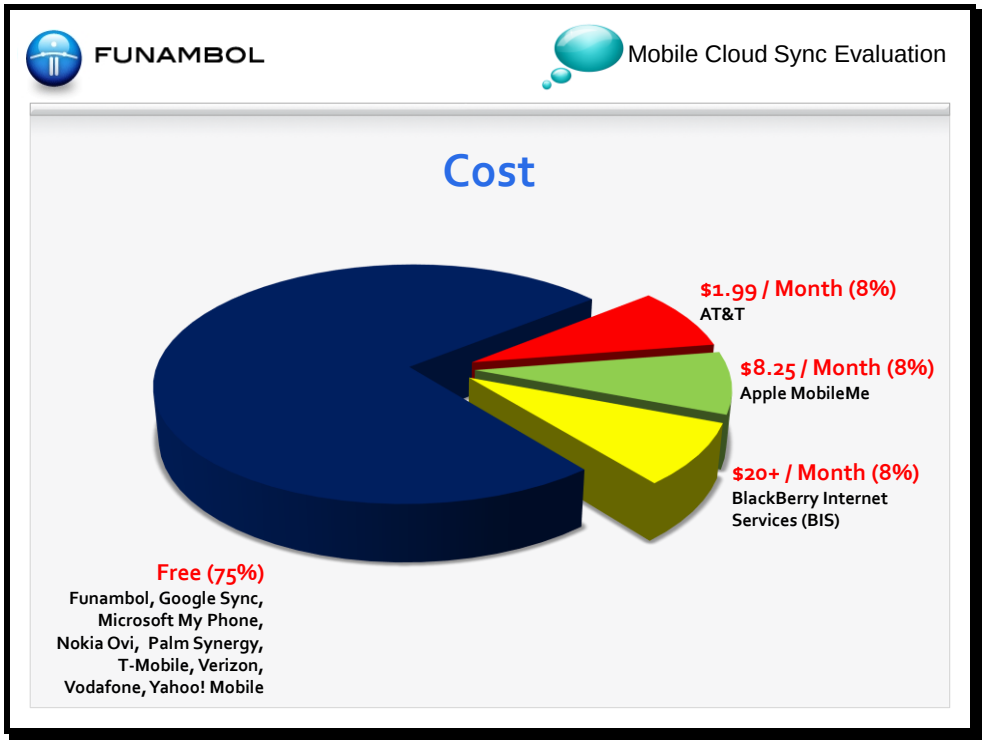
IV. Results

The following pages present the results of the evaluation, as described in the Methodology section. At the end of the section, the **mobile cloud sync index** that was derived for each solution is listed. A compilation of the detailed results and ratings appears in the Appendix.

Attribute 1. Cost



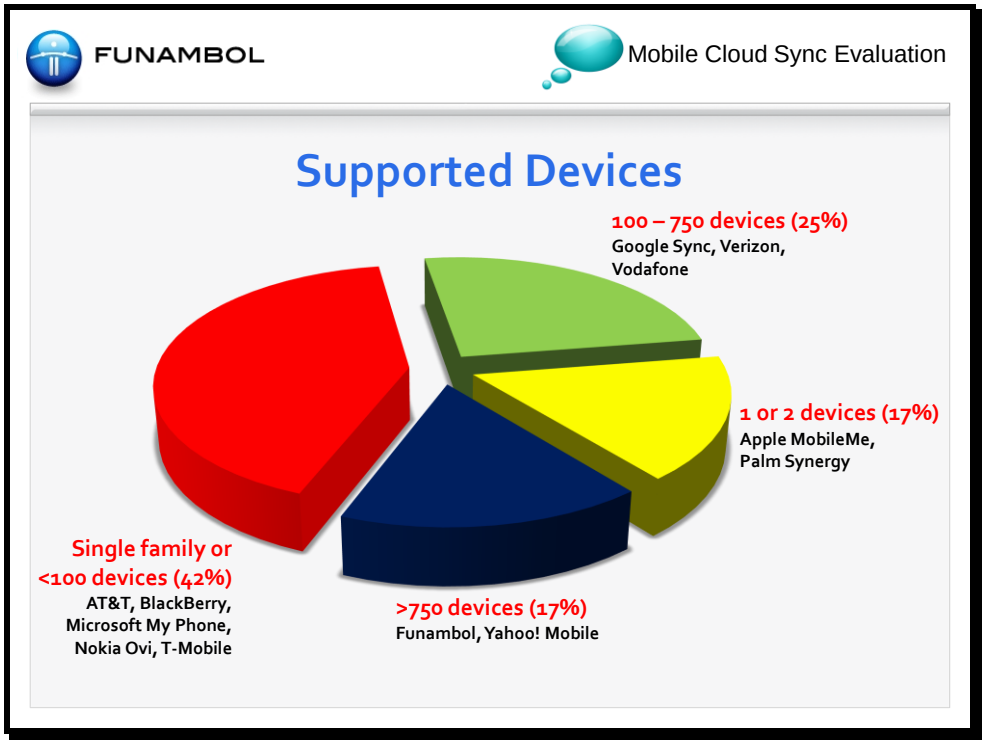
75% of the mobile cloud sync solutions are free. Notable exceptions were costs of $20+ per month (BlackBerry Internet Service (BIS), although BIS only provides push email, it does not sync other data) and $8.25 per month (Apple MobileMe, which charges $99 per year after a free 60 day trial). However, the trend is to provide mobile cloud sync for free, as a way for providers to foster customer and brand loyalty, and to raise switching costs for users, to make it difficult for users to change providers.

In the reported costs, for most solutions, data costs are not included. There are exceptions, such as BlackBerry IS, whose monthly fee includes the data cost, and AT&T, which bundles the data cost in its monthly fee. This makes a strict comparison of costs an apples to oranges comparison. Cost comparisons are further muddied as the solutions consist of different features. For example, MobileMe includes a certain amount of data storage for large files in its fee, whereas Nokia Ovi is a free service, however, it provides optional disk space for a monthly fee. Other solutions do not charge for storing files, and storing photos is universally free. As can be seen, cost is a 'cloudy' area of mobile cloud sync, with price points that are evolving. When considering a solution, check the fine print and consider the data costs.

For the mobile cloud sync index, the lower the cost, the more points received:

Free	Four points
$1.99/month	Three points
$8.25/month	Two points
$20+/month	One point

Attribute 2. Supported Devices



17% of the solutions supported one or two devices (Palm Synergy, Apple MobileMe), while 42% supported a single family of devices (BlackBerry, Microsoft My Phone, Nokia Ovi) or a relatively small number of phones (AT&T, T-Mobile). At the other end of the spectrum, two solutions stood out, Yahoo! Mobile (a WAP-based service that runs on any mobile phone with a WAP-enabled web browser) and Funambol, which supports more than 750 device models.

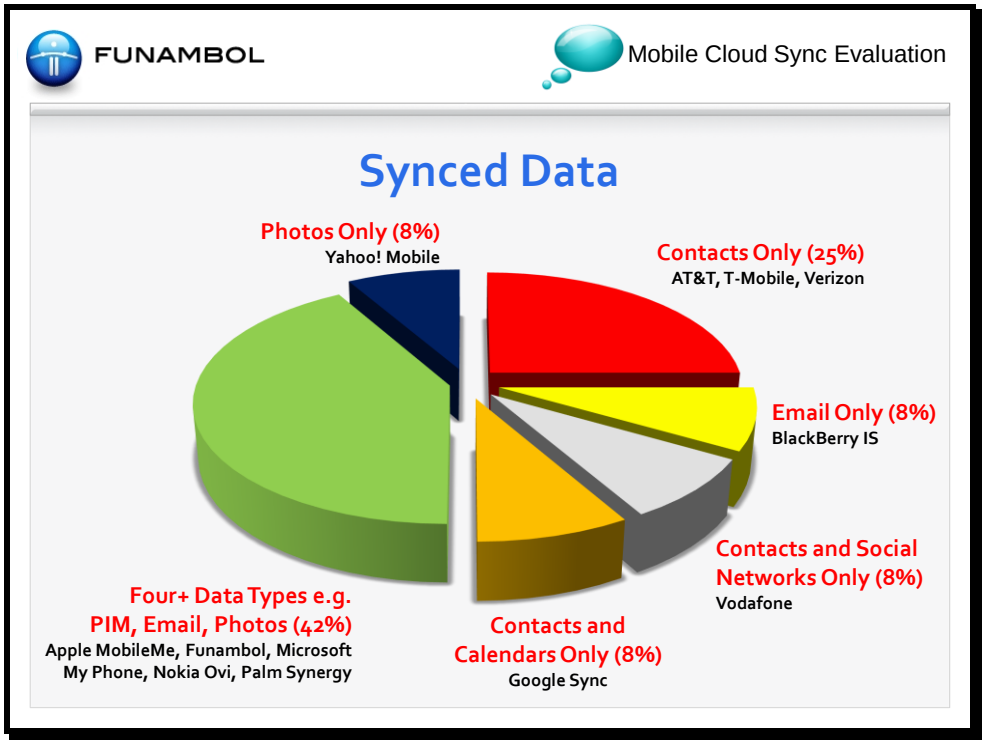
The number of devices supported is a function of the purpose of the solution. If the solution's objective is to provide mobile cloud sync or backup just for a manufacturer's own device(s), it makes sense to support a limited number of phones. For organizations other than a device manufacturer, the greater the number devices, the more potential users there are of the solution.

When it comes to supporting new devices, if a solution already supports a large number of heterogeneous devices, the probability is greater that it will be able to support new devices more quickly, as evidenced by the large number of devices they already support.

For the mobile cloud sync index, the more phones supported, the more points received, as follows:

>750 device models	Four points
100-750 device models	Three points
Single family or <100 devices	Two points
One or two devices	One point

Attribute 3. Synced Data



The solutions varied widely in the types of data synced. 41% synced a single item (contacts, email or photos), while the rest synced several items, such as contacts, calendars, tasks, notes, email, photos, files, SMS, bookmarks and social network content.

In addition to the data types synced, there were several notable differences with data syncing, such as:

- duplicated data -- when data items are synced, sometimes duplicates were created, due to minor variations in names, phone numbers, email addresses, etc.
- import vs. sync -- some solutions import data, such as contacts, rather than perform true sync
- one-way vs. bi-directional -- some solutions sync some data only one way e.g. from device to server, not both ways
- field mapping -- if a solution just syncs one or two devices to one server/portal, it is pretty easy to sync all of the data properly. When syncing multiple devices with multiple systems, it is non-trivial to sync all data properly. For example, a device may have one or two address lines or email addresses, but the synced system may store that information differently. This may result in data loss or changed data, which can also lead to duplicates. This is a non-trivial issue affecting any mobile cloud sync solution that supports multiple devices and sync systems. The degree to which this is gracefully handled varied greatly between the solutions. The bottom line is that field mapping involves a large degree of complexity
- multiple calendars -- some solutions support the syncing of multiple calendars, others do not
- large amounts of data -- some solutions are better at handling large amounts of data items

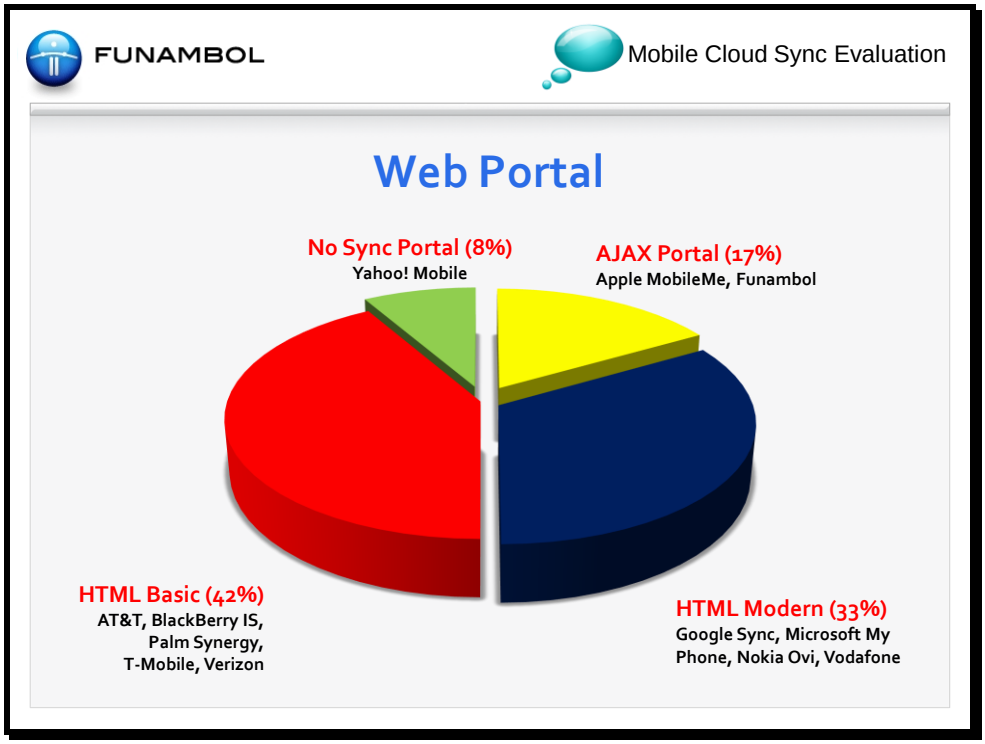
Although it may seem conceptually simple to sync data from a mobile phone to a portal, email systems and desktops, with mobile cloud sync, the reality is that the details are critically important. It is recommended that users try a solution before committing to it long-term, to make sure it meets their needs. Users should also back up any data before syncing it initially to ensure they have a master copy for safekeeping purposes.

In summary, synced data types is an evolving area, one that should progress in the months ahead.

For the mobile cloud sync index, the more data items synced, the more points received, as follows:

4+ data items	Four points
3 data items	Three points
2 data items	Two points
1 data item	One point

Attribute 4. Web Portal

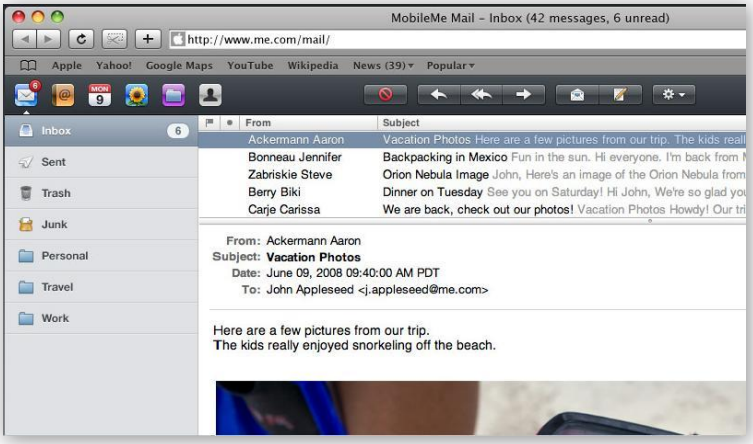


The solutions differed substantially with respect to providing a dedicated web portal to assist users in the mobile cloud sync process. They range from a state-of-the-art AJAX portal to no portal provided. In between, some solutions provided a modern or a basic HTML portal. The screenshots on the following pages illustrate examples of these.

An AJAX-based portal provides the usability of a desktop app in a web browser, improving the look-and-feel of the end user experience. The research team found that a good, dedicated mobile sync portal made a significant difference in overall system usability. As time goes on, it is expected that the solutions will continuously improve their portals to support more data types and improve ease-of-use.

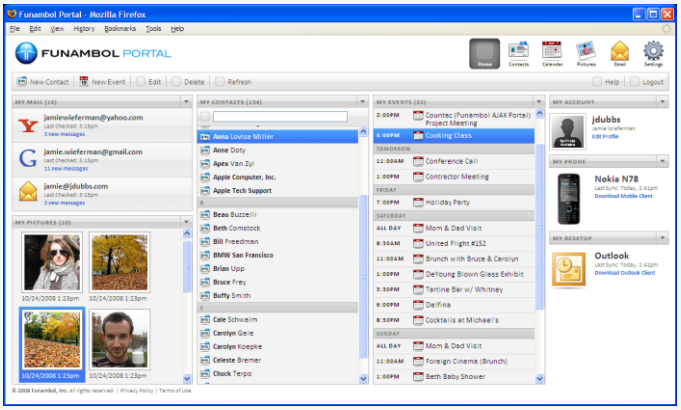
FUNAMBOL Mobile Cloud Sync Evaluation

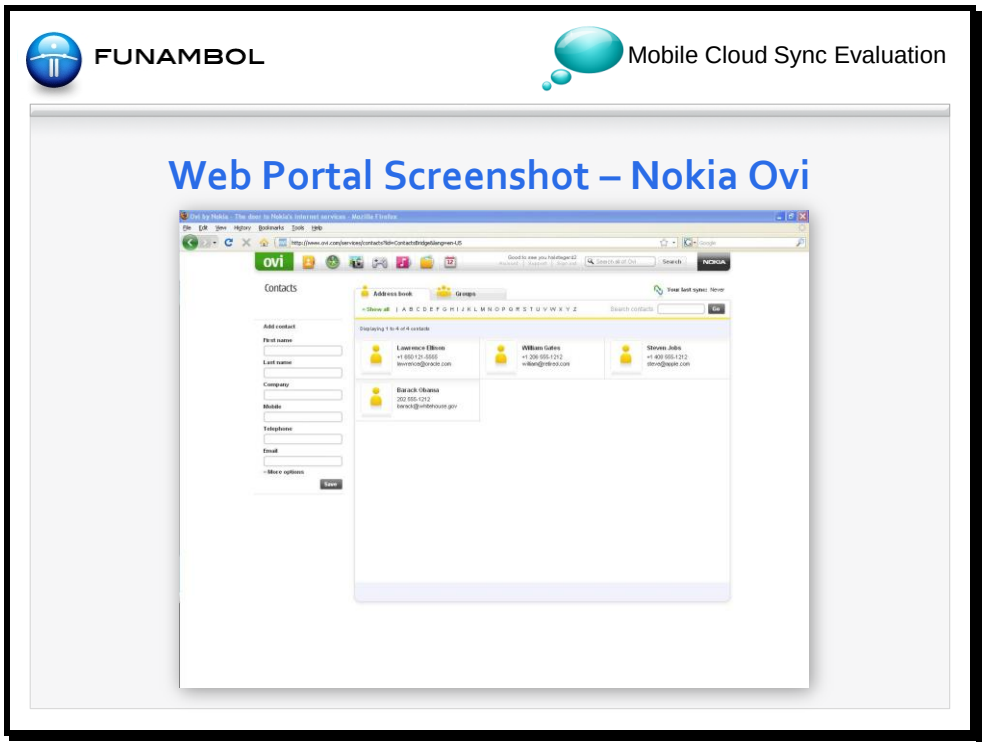
Portal Screenshot – MobileMe (AJAX)



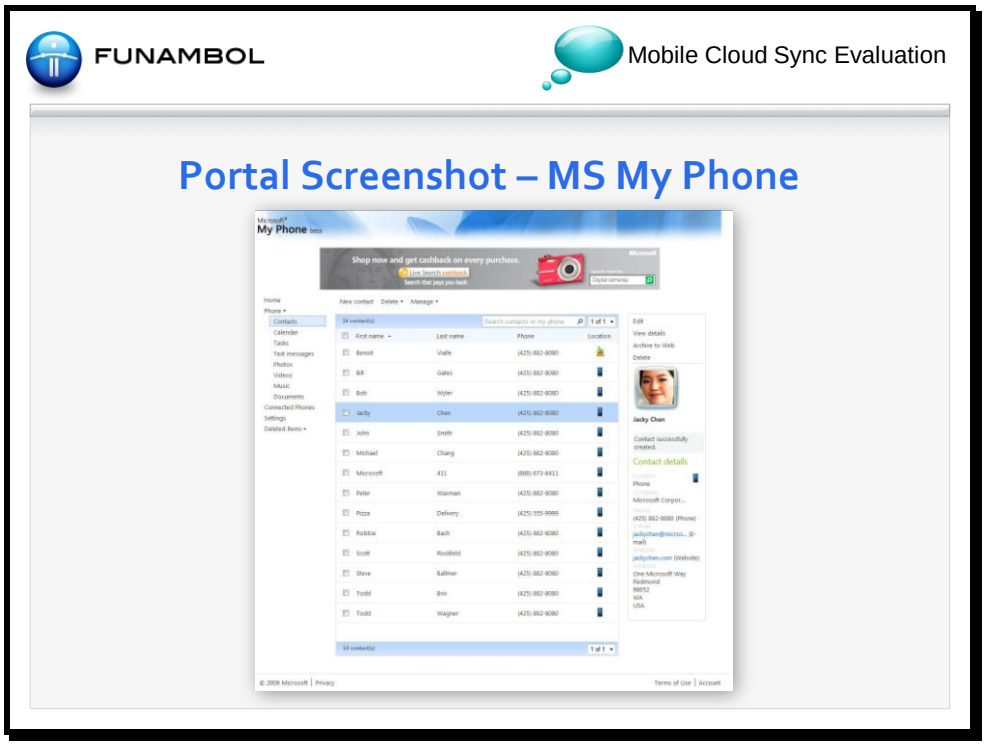
FUNAMBOL Mobile Cloud Sync Evaluation

Portal Screenshot – Funambol (AJAX)

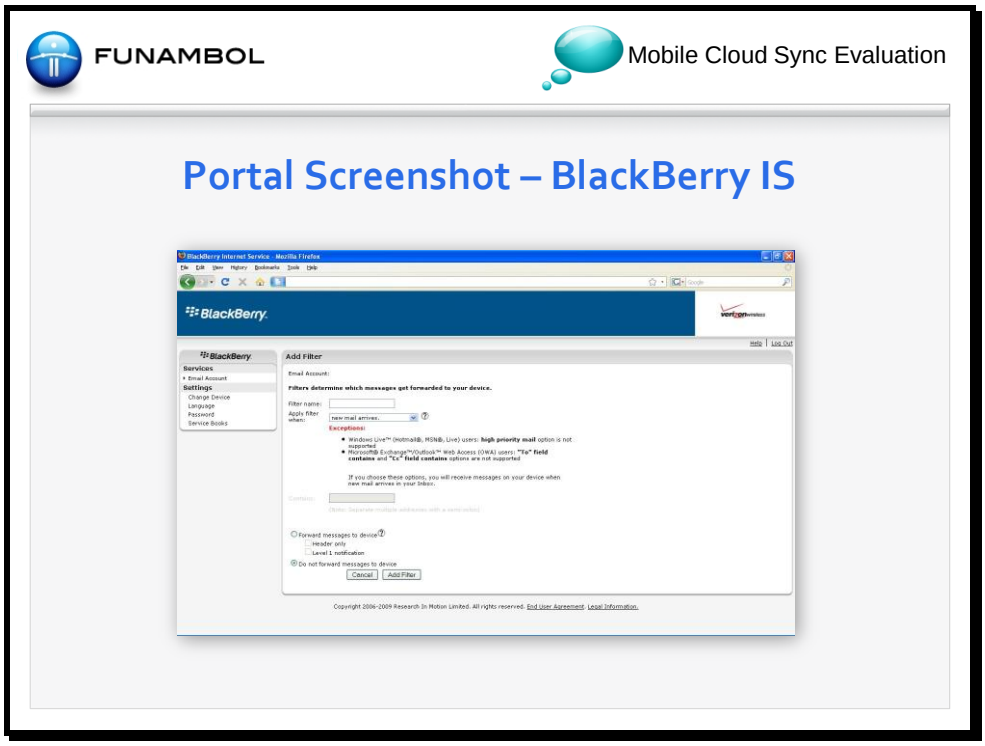




Modern HTML-based Portal



Modern HTML-based Portal

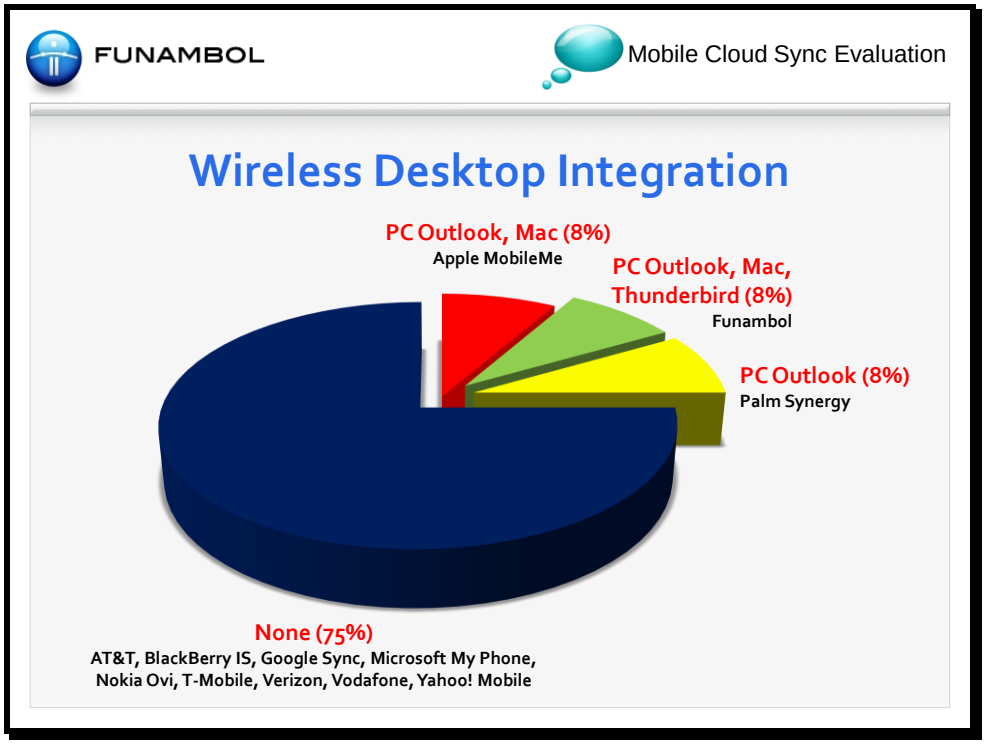


Basic HTML Portal

For the mobile cloud sync index, the better the portal look-and-feel and usability, the more points received:

AJAX portal	Four points
Modern HTML portal	Three points
Basic HTML portal	Two points
No portal	One point

Attribute 5. Wireless Desktop Integration



Wireless desktop integration is characterized by two traits: 1) it must be accomplished without a cable; and 2) it does not consist solely of running a web browser on a desktop computer but rather, it requires integration with one or more native apps on a desktop computer. This distinction is important because some solutions say they support desktop PCs, however, they only support it via a web browser that does not integrate with native desktop apps. This negates the capabilities of the desktop operating system, such as the ability to integrate contacts and calendars with other desktop software.

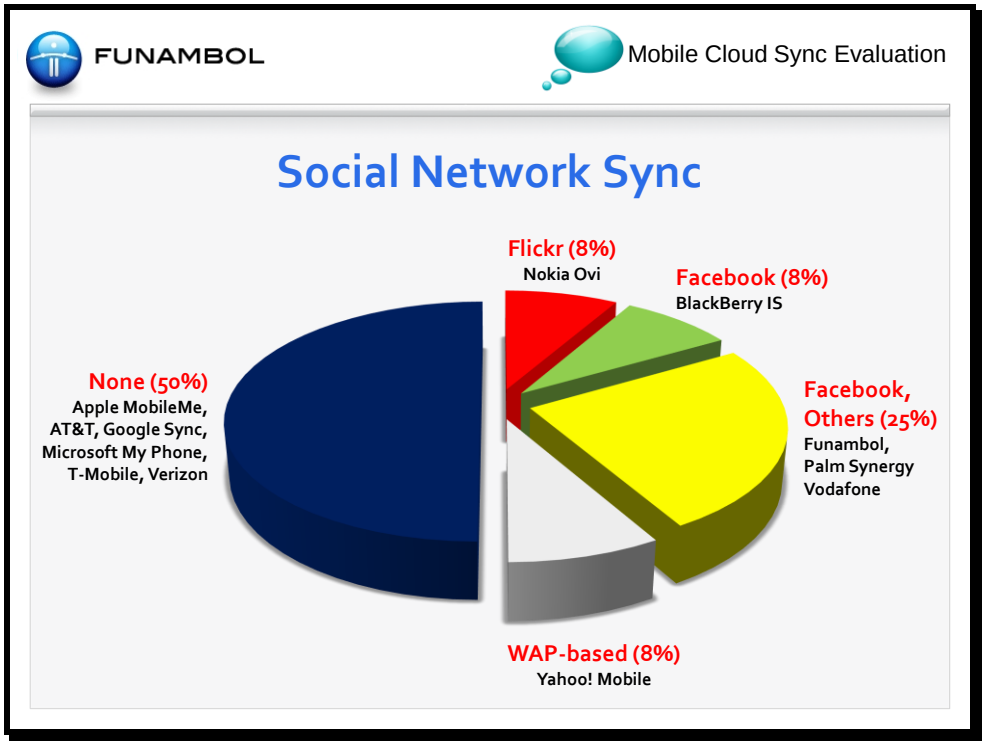
Syncing data from a mobile phone to a cloud-based portal is one thing, but without sync with other apps and sites that people use, this creates another island of user data. Many users want to avoid this by seamlessly syncing the content on their phones with the apps and sites they use every day. Further, many people do not want to use cables to sync, as that negates the convenience of mobile cloud sync.

75% of the solutions did not support wireless desktop integration, though several of these provided alternative integration (e.g. via .csv files). Exceptions were Apple MobileMe, which syncs with Outlook on Windows and Macs, and Funambol, which syncs with Outlook as well as Thunderbird on Macs and Linux. In general, this is an important area of opportunity for all of the solutions.

For the mobile cloud sync index, the better the integration, the more points received, as follows:

Integration with 2+ desktops	Three points
Integration with 1 desktop	Two points
No wireless integration	One point

Attribute 6. Social Network Sync



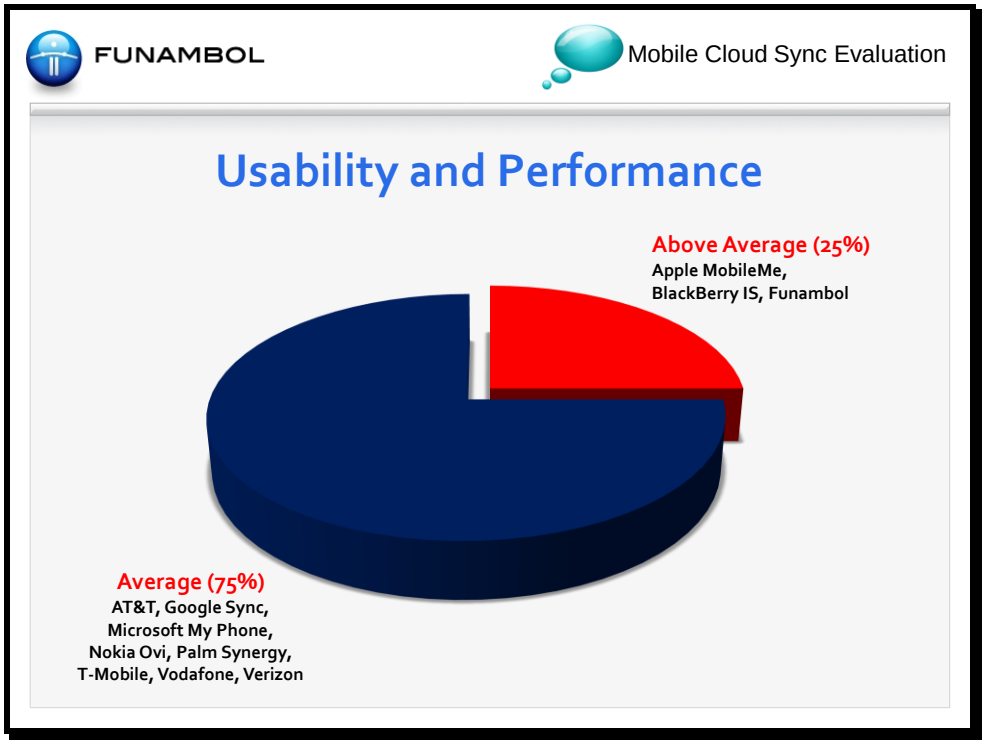
Social networking has exploded in popularity, and mobile usage is no exception. Data indicates that more users are accessing social networks via their mobile phones. The solutions in this report support the syncing of social network content to some degree. 33% of the solutions can sync data with multiple social networks, such as Facebook, MySpace and LinkedIn, while 17% sync one social network and 50% that do not yet sync social network information.

This is another major area of opportunity for the solutions. They are likely to evolve to sync aggregated social network data and content such as contacts, calendar events, photos and more, to mobile phones, and to make it easy to publish user-generated content from handsets to multiple social networks.

For the mobile cloud sync index, the more social networks supported, the more points received, as follows:

One+ social network(s) synced	Three points
WAP-based support	Two points
No support	One point

Attribute 7. Usability and Performance



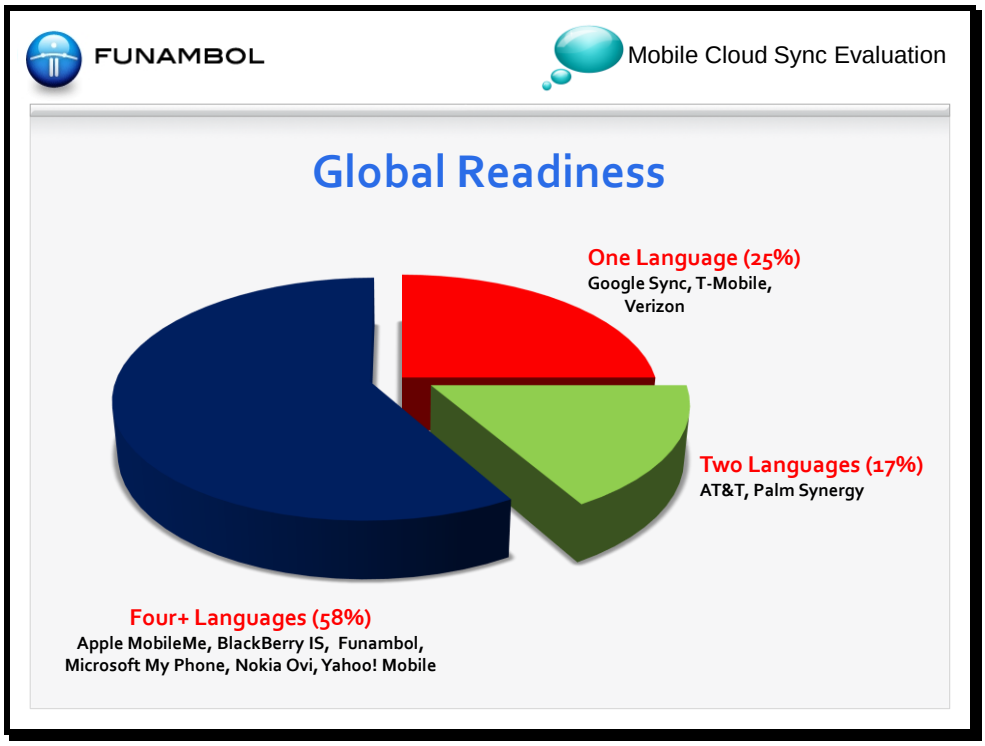
Usability and performance consist of several areas, including ease-of-initial-setup, over-the-air handset configuration, sync performance and push notification of updates. Each solution was evaluated in these areas to derive a usability and performance rating.

This is a more subjective aspect of this research project, as it consisted of the research team's perception of these different areas. Based on the team's experience, the solutions divided into two groups: average and above-average performance. Average performers were characterized by an acceptable experience of sign-up, setup and sync, while above-average performers were better in these areas. For example, above average performers synced more quickly or reliably than average performers. More details about usability and performance can be seen in the tables in the Appendix.

For the mobile cloud sync index, the better the usability and performance, the more points received, as follows:

Above-average	Three points
Average	Two points

Attribute 8. Global Readiness

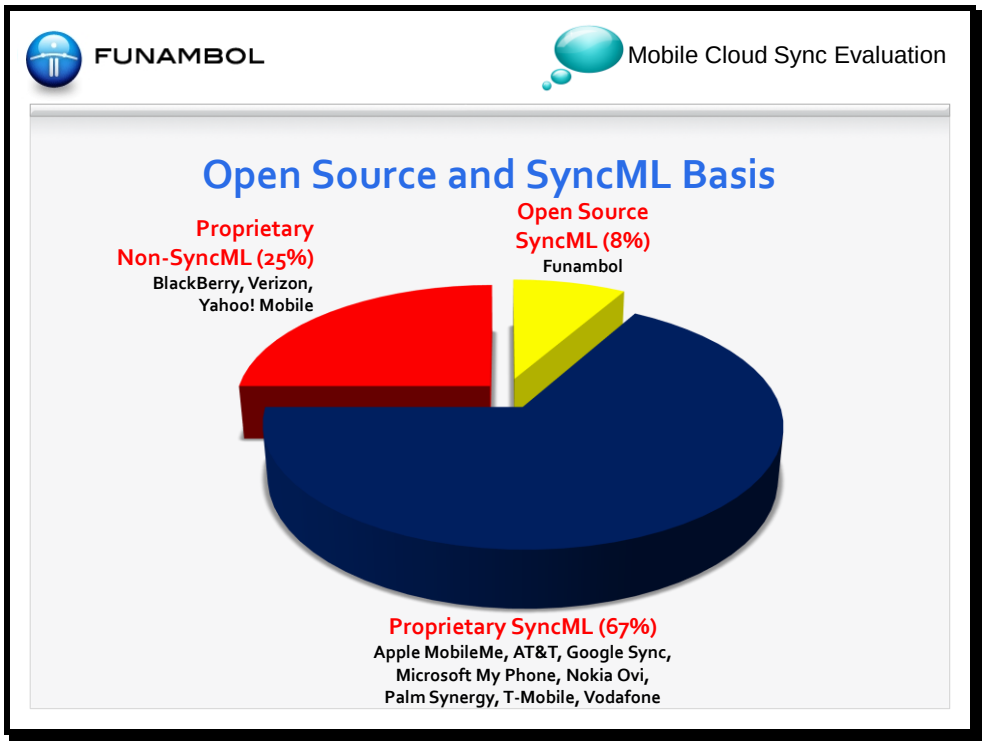


Global readiness consists of multiple factors, including the number of languages for a solution, whether a solution can sync multiple character sets, and the location of support centers around the world to assist users. 58% of the solutions supported four or more languages.

For the mobile cloud sync index, the more a solution was ready for global usage, the more points received:

Four or more languages	Four points
Three languages	Three points
Two languages	Two points
One language	One point

Attribute 9. Open Source and SyncML Basis



As can be inferred from the discussion about field mapping, implementing a mobile cloud sync solution involves more than meets the eye. These solutions are inherently difficult to implement due to the complexity of syncing mobile devices with multiple systems.

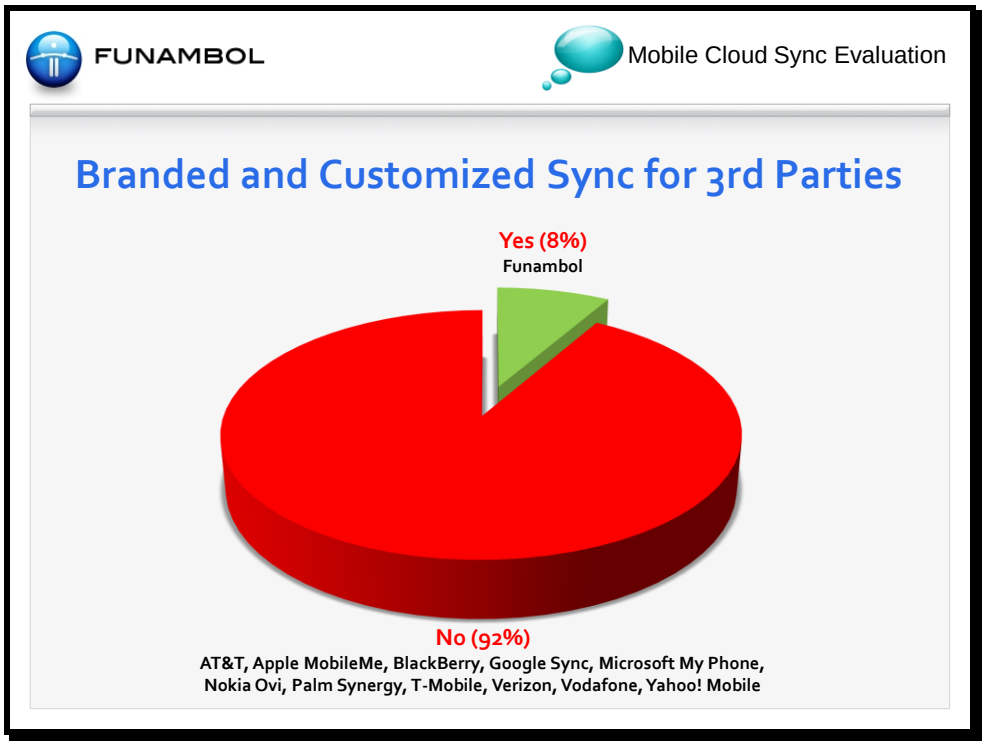
The more open a solution, and the more it is based on important mobile sync standards, the greater the probability that a solution can meet complex user requirements.

For this reason, the solutions were evaluated on the basis of whether they were open source, so that they could be readily adapted at a source code level, and whether they supported SyncML, arguably the most important mobile sync standard, as their sync protocol.

For the mobile cloud sync index, the more open and standards-based the solution, the more points received:

Open source and SyncML-based	Four points
Proprietary and SyncML-based	Three points
Proprietary and non-SyncML-based	One point

Attribute 10. Branded and Customized Sync for 3rd Parties



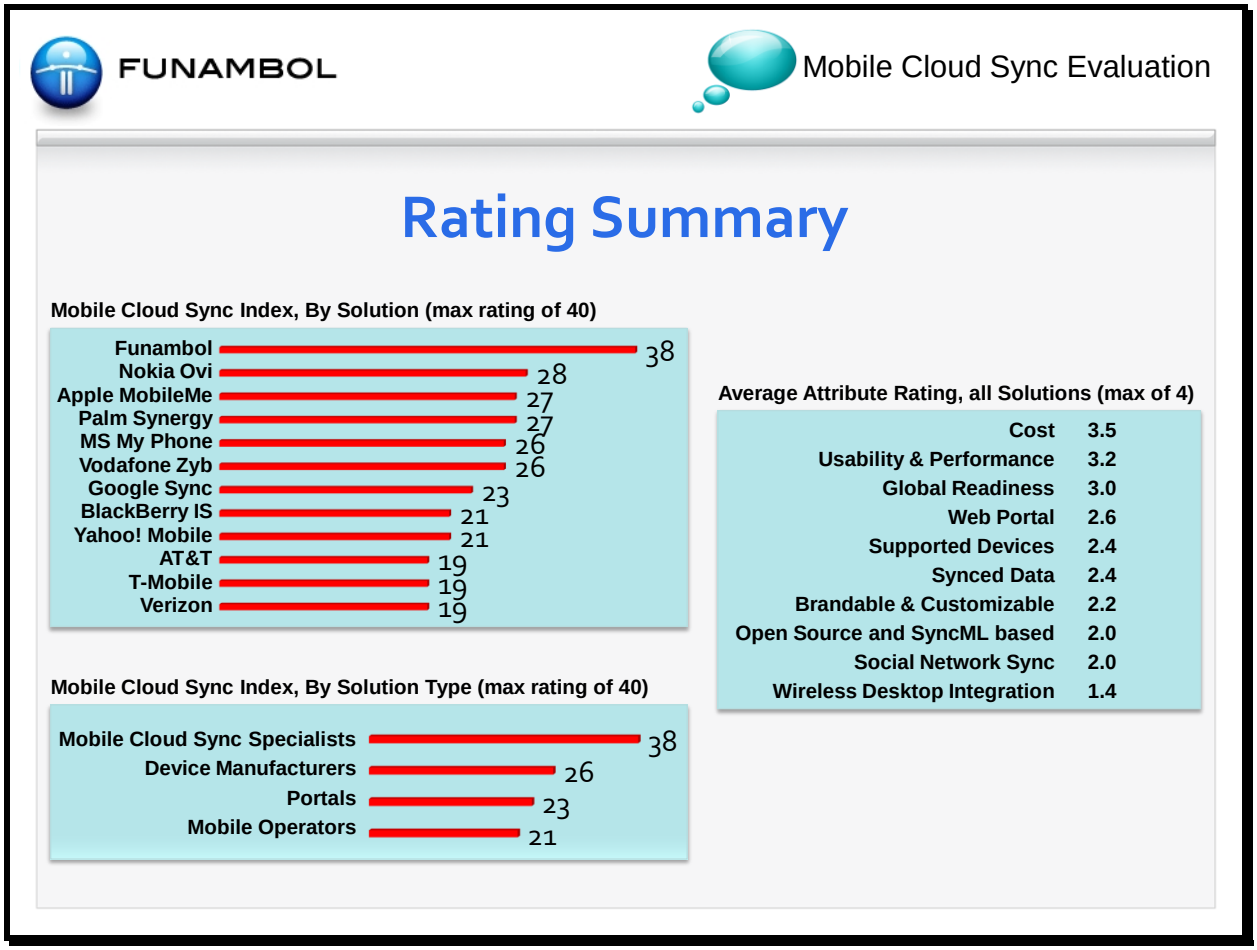
Many organizations want to deploy a mobile cloud sync solution for their user base. They do not, however, have the resources or expertise to create their own solution. Rather, they would prefer to modify an existing solution and to brand it with their logo and look-and-feel.

The solutions in this study were evaluated on the basis of whether they were available to third parties and could be branded, customized and integrated with 3rd party infrastructure.

For the mobile cloud sync index, points were received as follows:

Brandable and customizable for third parties	Four points
Not brandable and customizable for third parties	One point

Results Summary and Discussion



The mobile cloud sync solutions varied substantially in the attributes evaluated in this study. The above charts list the mobile cloud sync index for each solution, by provider type, and the average attribute rating across solutions. The mobile cloud sync index had a maximum theoretical score of 40. The higher the index, the more complete the solution.

Funambol had the highest mobile cloud sync index, which is not surprising, as it was the only specialist provider, while mobile cloud sync is just one of many services offered by the others. Funambol aside, device manufacturers fared better than portals and mobile operators. This is generally because they had fewer devices to support, making it easier for their solutions to perform well.

Overall, the largest areas of opportunity going forward include better wireless desktop integration, social network sync and solution openness.

As a practical note, users are reminded to try a mobile cloud sync solution before committing to its use long term, to ensure it meets their needs. Also, users should back up their data before initially syncing.

V. Appendix

The appendix, on this and the next page, contains a compilation of the evaluation results for the solutions considered in this white paper. The column BEFORE each solution lists the rating for that attribute, according to the criteria in the Results section.

Solution Provider	Score	Apple	Score	Nokia	Score	RIM	Score	Palm	Score
Solution Name		MobileMe		Ovi		BlackBerry Internet Service (BIS)		Synergy	
Cost	2	$99/yr after 60-day trial; includes 20G storage	4	Contacts and Calendar free; files 10G $9.99/mo	1	Starts at $20 per month	4	Free	4
Mobile Devices	1	iPhone, iPod Touch	2	100+ Nokia devices	2	BlackBerry devices	1	Pre	2
Synced Data	4		4		1		4		4
Contacts		Yes		Yes		No		Yes	
Calendar		Yes		Yes		No		Yes	
Tasks		No		Yes		No		Yes	
Notes		No		Yes		No		No	
Email		Yes		Ovi Mail (beta)		Yes		Yes	
Email Systems		.me & .mac		Ovi Mail		Any		Any	
Pictures		Yes		Ovi Share		No		No	
Other		Files, Safari and IE browser bookmarks		Maps, Games, Music		No		Social networks	
Web Portal	4	AJAX	3	HTML	2	HTML	2	HTML	3
Wireless Desktop Int	3	Outlook, Mac	1	None	1	None	2	Outlook	1
Social Networks	1	None	3	Flickr	3	Separate Facebook app	4	Facebook, others	1
Sign-up Process		Good		Good		Good		Good	
Usability	4	Good	3	Good	4	Good	3	Good	3
Performance		Good		Fair		Good		Fair	
Push Notification		Yes		No		Yes (for email only)		Yes	
Global Readiness	4	English, Japanese, French, Dutch	4	English and 11 others	4	English, others	2	English, Spanish	4
Openness/Std based	2	Proprietary	2	Proprietary	1	Proprietary	3	Proprietary	2
Brandable/Custom.	2	No	2	No	2	No	2	No	2
Mobile Cloud Sync Index	**27**		**28**		**21**		**27**		**26**

Solution Provider	Score	Microsoft	Score	Google	Score	Yahoo!	Score	Funambol
Solution Name		My Phone		Google Sync		Yahoo! Mobile		Funambol
Cost	4	Free	4	Free	4	Free	4	Free
Mobile Devices	2	Win Mobile 6+ devices supported	3	iPhone, WM, BB, Nokia S60 + Std, SE	4	Many	4	>750 device models (28+ total)
Synced Data	4		2		1		4	
Contacts		Yes		Yes		No		Yes
Calendar		Yes		Yes		No		Yes
Tasks		Yes		No		No		Yes
Notes		No		No		No		Yes
Email		No		No		No		Yes
Email Systems		No		NA		NA		Any
Pictures		Yes		No		Yes (via Flickr)		Yes
Other		Docs, Videos, SMS, Music		No				Files
Web Portal	3	HTML	3	AJAX	1	None	4	AJAX
Wireless Desktop Int	1	None	1	None	1	None	3	Outlook, Mac, Linux
Social Networks	1	None	1	None	2	WAP, not mobile-based	3	Facebook, others
Sign-up Process		Good		Good		Good		Good
Usability	3	Good	3	Good	3	Good	4	Good
Performance		Fair		Fair		Fair		Good
Push Notification		No		Every two hours or manually updated		No		Yes
Global Readiness	4	English + 19 others	2	English	4	English, others	4	English, several others
Openness/Std based	2	Proprietary	2	Proprietary	1	Proprietary	4	Open Source
Brandable/Custom.	2	No	2	No	2	No	4	Yes
Mobile Cloud Sync Index	**26**		**23**		**23**		**38**	

Solution Provider	Score	Vodafone	Score	T-Mobile	Score	AT&T	Score	Verizon Wireless
Solution Name		Zyb		Mobile Backup		Mobile Backup		Backup Assistant
Cost	4	Free	4	Free for customers	3	$1.99/month	4	Free for My Verizon customers
Mobile Devices	3	Several hundred devices	2	28 devices (Moto, Nokia, Samsung, SE, T-Mobile)	2	66 devices	3	111 devices
Synced Data	2		1		1		1	
Contacts		Yes		Yes		Yes		Yes
Calendar		No		No		No		No
Tasks		No		No		No		No
Notes		No		No		No		No
Email		No		No		No		No
Email Systems		NA		No		No		No
Pictures		No		No		No		No
Other		Social network info		No		None		No
Web Portal	3	AJAX	2	HTML	2	HTML	2	HTML
Wireless Desktop Int	1	None	1	None	1	None	1	None
Social Networks	3	Yes	1	None	1	None	1	None
Sign-up Process		Fair		Good		Good		Good
Usability	2	Fair	3	Good	3	Good	3	Good
Performance		Fair		Good		Fair		Fair
Push Notification		Yes		No		None		No
Global Readiness	4	English, 11 others	1	English	2	English, Spanish	1	English
Openness/Std based	2	Proprietary	2	Proprietary	2	Proprietary	1	Proprietary
Brandable/Custom.	2	No	2	No	2	No	2	No
Mobile Cloud Sync Index	**26**		**19**		**19**		**19**	

VI. About Funambol

Funambol is the leading provider of mobile open source cloud sync and push email software. Funambol open source software has been downloaded over three million times by 50,000 developers in more than 200 countries. The commercial version of Funambol has been deployed at or hosted on behalf of mobile operators, portals, device manufacturers, service providers and ISVs, including customers such as AOL, 1&1, EarthLink and CA, Inc. Funambol is headquartered in Redwood City, California with an R&D center in Italy. For more information, please visit www.funambol.com. You can also follow Funambol on Twitter at twitter.com/funambol.

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