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A Comparison of Cloud Based Office Productivity Suites

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Abstract

The growth of internet and cloud infrastructure has transformed the way businesses operate, especially in the field of application software. Earlier (pre-cloud days), individuals / businesses were required to buy their software licenses, install the software, manage it and run it for as long as they found it usable with support from the developer. Now, technology enables us to use software that we need on subscription (pay per use, monthly, annual) basis. Users need not install or maintain any IT infrastructure, all of it is managed by the provider. Users access the software through the internet (via a browser / mobile app). This delivery model is called Software as a Service (SaaS). In this paper, we discuss briefly about evolution of office productivity suites, how the market is moving towards a SaaS model and then compare products of the top 3 vendors (Google's Apps, Microsoft's Office 365 and Zoho's Docs) across a variety of parameters.

Keywords: Google Docs, Office Productivity Suite, Office Online, SaaS ,Office 365, Zoho

1. Evolution of Office Productivity Suites

Office productivity suites or software packages that help perform tasks like document creation / editing, spreadsheets, presentation making, messaging (email / chat etc) have been around in one form or other since PCs became popular (email came a bit later, i.e after internet). In the time of MS-DOS (1980s), such software were sold separately (and not as a package) by different vendors, primarily because each vendor had a single strong product in one of these areas. For example, the following were popular - WordPerfect for word processing, Lotus 1-2-3 or Quatro for spreadsheets, dBase for database, Harvard Graphics for presentations etc.

The idea of combining these productivity programs into a package offering them as a suite to consumers was logical and a latent market need. So, in the late 80s and early 90s such packages were introduced by various vendors. Lotus Symphony and IBM Works (which ran on OS/2) were one of the first packaged products to hit the market. During the same time, Microsoft had released Windows (version 3.1) and it became very popular as an operating system. Seeing its popularity, Microsoft came out with the first version of its Office suite (in 1990) which contained Word, Excel and Powerpoint.

The coupling of Windows and Office led to the surge in popularity and user base of MS Office. The smaller players could not match the dominance of Microsoft in the ecosystem. It had control over the operating system market of PCs and its competitors complained that it forced hardware vendors to buy and install office along with windows. It was one of factors that led to success of MS Office. Some of the other factors were Broad Focus (consumer and business), Quality & Market Turmoil. Office was a relatively better product (catering to

the needs of the largest consumer base) than those it was competing against. It greatly benefited from the turmoil in the market as it never faced head on competition from any single player. For example, Word Perfect & Quatro Pro were acquired by Novel, which released its own suite PerfectOffice in 1994. It was not well received and Novel sold Word Perfect and Quatro to Corel in 1996. Lotus was acquired by IBM and focused on the enterprise customers only.

The open source movement of the 1990s also came out with their products to provide an alternative to Microsoft. Their mission was to have an office suit that will run on all major platforms and provide access to all functionality and data through open-component based APIs and an XML-based file format. Sun Microsystems acquired a product called Star Office in 1999 from a German company. In 2000, it released the source code of it as open source as OpenOffice.org under both GNU LGPL and the SISSL (Sun Industry Standards Source License). It sponsored the growth of the program for next 10 years. In 2010, Sun was acquired by Oracle who then became a key contributor to Openoffice.org. On June 2011, the product (OpenOffice.org), its license, trademark, etc were donated to the Apache Foundation. Besides Apache Open Office there are few other derivatives of the Open Office platform like Libre Office (by The document foundation), Neo Office (for Macs), KOffice also available in the market.

While all this was happening, Microsoft kept updating its Office suite with newer features (bells and whistles) and added new tools to its package to meet needs of business users (like outlook, publisher, lync). As a result the package (in size and system demands) got heavier and heavier. For example Office 2010 is a package of 12+ products (Word, Excel, Powerpoint, OneNote, Outlook, Publisher, Access, Infopath, Sharepoint, Project, Visio, Lync, etc) and requires a minimum of 3GB hard disk space, 256MB RAM, and 500MHz processor.

2. Movement towards SaaS (Software as a Service Model)

In a bid to save on infrastructure and licensing costs of managing productivity software, businesses first adopted a client-server model. Applications were installed on the server and accessed via a thin-client (or remote desktop) by user machines. With advent of Virtualization technologies (like Microsoft's App-v), it became possible to have virtual instances of the applications running on the local desktop.

The internet boom of late 1990s / early 2000s took this idea further by moving hosting of these packages on the cloud by ASPs (Application Service Providers). Applications were hosted in ASP data centers and maintained and updated by the providers. Originally coined by IDC, the term "Application Service Provider (ASP)" referred to companies that met a strict set of defining characteristics. These included the following (as per a white paper from Software & Information Industry's Association, www.siia.net):

- Application centric. The core value of the ASP service is providing access to and management of an application that is commercially available.
- An ASP "sells" the application access. Part of the value of the ASP services is that customers gain access to a new application environment without making up-front investments in the application license, servers, people, and other resources. The ASP is able to add this value to these services either by owning the software or having a contractual agreement with the software vendor to license access to the software as part of the ASP's offering.
- Centrally Managed: The application service is managed from a central location rather than at each customer's site.
- One-to-many service. The ASP service is designed to be a one-to-many offering.
- Delivers on the contract. There are many partners working together to provide and ASP Solution. The ASP is the firm that is responsible, in the customer's eyes, for delivering on the customer contract; that is, seeing that the application service is provided as promised.

Key Benefits for the Consumers:

i. *Buy Vs Rent* : Customer's no longer needed to pay upfront costs in buying software licenses. Only needed to pay operational expense/subscription in a pay as you go model.
ii. *No head-ache of managing infrastructure:* No need to maintain servers / buy computers with enough processing power to run these suites.
iii. *Auto upgrades:* Upgrades to the software will be managed by the vendor. Newer versions will be available to customer for use without paying any new fees on the same subscription rates.
iv. *Availability & High Uptime:* 24x7 availability with minimal downtime.

It sounded good in theory, but it didn't work out so well in practice because many companies that did not meet these criteria also called themselves ASPs and created confusion in the market. One of the challenges was that the applications themselves weren't designed to be delivered over the Internet and bandwidth speeds at customer / consumer ends was not high which made their use even more difficult. As a result, customers got less output than they expected and providers were also not able to make money and many of them went bust.

With the advent of internet, better processing speeds, faster bandwidths, newer technologies – vendors started building applications to be delivered via the internet (ground up). And they ended up extending the ASP model into SaaS (software as a service). The key differences between ASP and SaaS approaches are (as per Wikipedia entry on Software as a Service):

- Whereas most initial ASPs focused on managing and hosting third-party independent software vendors' software, as of 2012 SaaS vendors typically develop and manage their own software.
- Whereas the software architecture used by most initial ASPs mandated maintaining a separate instance of the application for each business, as of 2012 SaaS solutions normally utilize a multi-tenant architecture, in which the application serves multiple businesses and users, and partitions its data accordingly.

In the world of cloud based productivity suites, we saw the arrival of Zoho Docs(a web based word processor) in 2005. Zoho wanted to ride the web 2.0 and SaaS wave and over time expanded its portofolio into Zoho Office Suite which includes applications like spreadsheets, Mail, a calendar, contacts list, and also began to offer other business-oriented programs such as CRM, Survey Tools, Accounting Tool, HR tool etc. Most of the Zoho Suite products offer a free edition and a host of paid editions for business needs. It relies on subscription model from businesses for its revenue.

Google also ventured into this market with the launch of Google Mail for business (in 2006). It had acquired a company called Upstartle in 2005, which had an online world processor product called Writely. Which was modified and released as Google Docs. Google then acquired a company in 2006 called 2WebTechnologies which had an online spreadsheet product called XL2Web. Which was modified and released as Google Spreadsheet along with Google Docs (made from Writely). Both of these products were combined and released in a package along with Gmail - called Google Apps in 2007. Google continued to innovate and added more products to its portfolio of productivity tools. Like Google Forms, Google Drawing, Equation Editor, etc. Google Apps is free to individual users but it charges $5 /month from businesses (goes up to $10 if option of Vault is used for mail tracking and archiving).

Microsoft was a bit late in responding to the challenges posed by these and other cloud based suites as it continued to the dominant vendor in offline world. However, when many businesses with simple productivity needs / ones that needed collaboration on the go / lower costs, started shifting to such providers, Microsoft was forced to release its Office Web Apps (in 2010) and was rechristened it as Office 365 in 2011. This allows users to edit / create documents used web browser based versions of its Office family of products like Word, Excel, Powerpoint. The web based versions have similar look and feel as offline versions but are light weight in terms of features that are available in them compared to offline versions.

3. Market overview

In a 2013 webinar, Gartner claimed that MS Office had 80% to 96% market share of the total market (offline + online). The same Gartner presentation stated that, in 2013, 50 million of the 630 million office suite users (8%) leverage a cloud-based service. It also projected that by 2022, 695 million of the 1.2 billion office suite users (or 58%) will be creating and editing their productivity docs in the cloud. The study also claimed that Google Apps share increase from 10% of the cloud-based office market in 2007 to 50% in 2012. In a June 2013 study of market share by BitTitan which compared market share of Google Apps vs Office 365 it was 86%-14% globally. This study does not include other players – if they were to be added to the market than shares for both players will drop (Google will come in 70-80% and MS will come in 5-10% range).

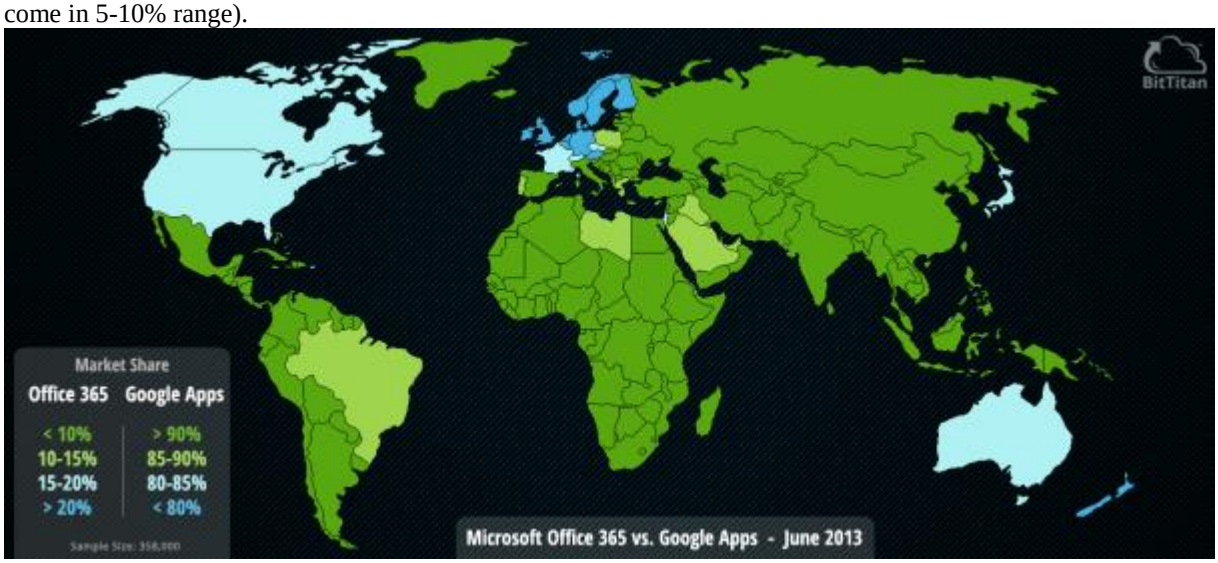


Figure 1

(Source: http://blog.useractivation.com/2013/07/18/office-365-vs-google-apps-showdown-market-shares-by-geographic-location-june-2013/)

Microsoft has a lot at stake in the battle for cloud productivity market than other players which is why it will be trying its best to capture more share in this market. The productivity suite represents a large chunk of Microsoft's revenue. The single most profitable division at Microsoft is the Business Division (which owns Office) and it contributes ~30% of total revenue and 60- 65% of its operating income (or profit) as per 2012 results. It reorganized its business divisions in 2013 and offline office is now part of a division called Devices and Consumer Licensing which contributes ~22% of revenue and 32% of its OI (as per company's Q3 2014 earnings report). This is the cash cow division for Microsoft and loss of revenue here will hurt its overall business. While for Google, the Apps business only contributes to 1.5% of its revenue as major chunk of revenue comes from advertising. For Zoho, a private company with a workforce of around ~2000-2200 (currently), it is all about establishing a footprint in the fast growth markets of office productivity and enterprise space (like CRM etc). It wants to become a strong alternative to the 2 big players (Google and MS) in office productivity space and challenge biggies like Salesforce, Oracle, MS, SAP etc in the enterprise space. It does not disclose its revenues but in a news article one of its executives claimed that they have sales of ~$500million and growing at double digit rates.

4. Comparison

We will now compare these 3 online productivity suites across the following parameters.

a) Product Stack:
b) Richness of Features
c) Cost of basic use
d) Security Aspects, Multi-tenancy & Hosting Options
e) Mobile Strategy
f) Integration with offline office
g) Future Ready

4.1 Product Stack

All the 3 players provide a similar set of offerings to customers, however Zoho has more products available in the SaaS mode the other 2 players. Google allows other 3rd party Apps to be integrated and used with its products, while MS has other products like Project, Dynamics (which provides CRM Online) that are not part of productivity suite.

Table 1

Application	Google Apps for Business	Microsoft Office 365 (Enterprise E1)	Zoho Office
Word Processor	Docs	Word Web App	Writer
Spreadsheet	Sheets	Excel Web App	Sheet
Presentation	Slides	PowerPoint Web App	Show
Email	Gmail	Outlook Web App	Mail
Calendar	Calendar	Outlook Web App	Calendar
Site Builder	Sites	Sharepoint	Sites
Messaging/Conferencing	Hangouts (within Google+)	Lync	Chat/Meeting
Note Organizer	Keep (separate)	OneNote	Notebook
Project Management	-	-	Projects
Database	-	Access Web App	Reports
Storage	Google Drive	Onedrive	Docs

4.2 Richness of Features

When compared to offline office – Google Apps are like basic versions for online usage which don't provide that many features but they provide enough for people to get their work done. It has embedded its search feature (called Research) within the document so that you can search web from it. We can translate text into another language from within the document.

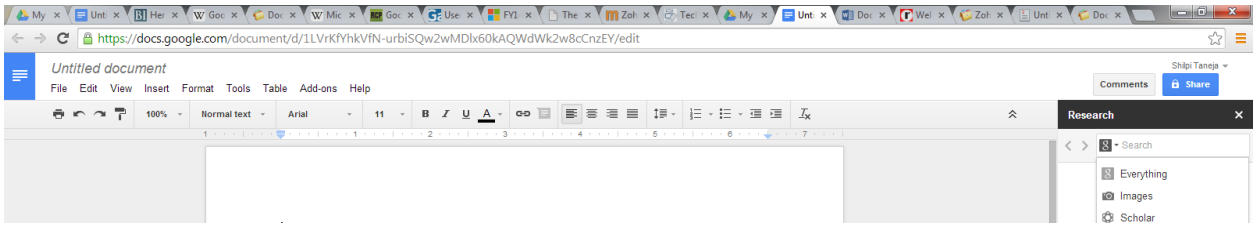


Figure 2

Zoho's products have a look and feel like office of 2003 (pre-ribbon days) and have some innovate features built-in, for example, a drop-down formatting menu to enclose selected text with assorted quotation marks or brackets, and another that changes selected text to all caps, or simply capitalizes each word.

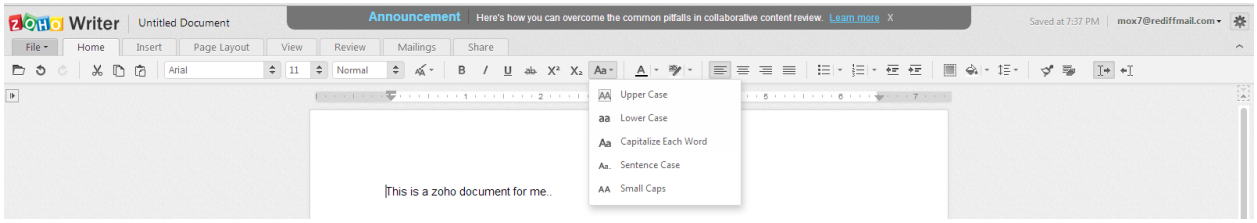
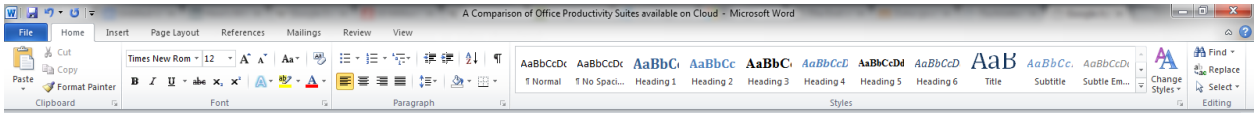


Figure 3

Office 365 Apps look similar to their offline counterparts. However, they allow only a fraction of functionality of their desktop namesakes when one scratches below the surface. Given below are two images which show us the difference of features available in offline vs online versions.



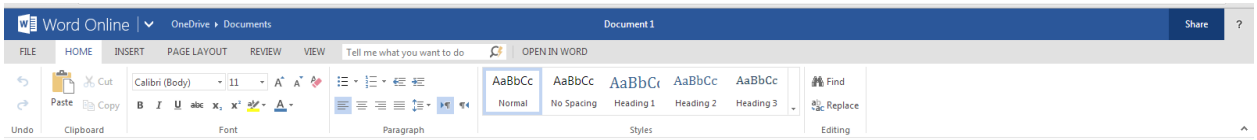


Figure 4

Hence, without offline office integration they are probably on par with Google Apps but behind Zoho in online functionality. The only thing in Office 365's favour is that they have a similar look like offline office which means users will not have any learning curve when they migrate from offline office to online. However, for new businesses / small businesses it may not be that sticky criteria but for larger / more established businesses it may provide MS the option to hold on to its fort in the enterprises.

All 3 tools allow concurrent and collaborative editing of documents by multiple users. Which is one of the driving benefits for businesses to consider using a cloud based productivity tool.

4.3 Cost of Basic Use

Table 2

Application	Google Apps for Business	Microsoft Office 365 (Small Business Premium)	Zoho Office
Cost per user/month	$5 or $10 (with Vault)	$12.50	Free & up * ($5 or $8/ user for Zoho Docs),

Google Apps have a very basic pricing model. They charge $5 / user / month or $50 / year. There no options for selecting individual services – the package is sold as a whole. A business user cannot opt-in for Gmail and Docs if that is what they need. They will get the whole bouquet and can chose to not use the features that they don't need.

Zoho offers its products free with reduced functionality (for example only 5GB space and 100MB file limit on document size, only 3 users can work concurrently on an app) and businesses that need additional features like more storage space, more concurrent users can opt for Standard ($5/user/month) or Premium ($8/user/month) plans.

Microsoft offers differently priced plans for different sets of users (Home / Small Business / Enterprise). The plans start at $5/user/month and simplest one for Enterprise start at $8/user/month (package with features we have listed earlier). These plans don't offer subscription for desktop versions office. Those start at $12.50/user/month. For offices with more than 25 users, the plans start at $15/user or $20/user/month and come with offline office licenses. Microsoft is clearly charging a premium for its brand and services compared to Google and Zoho, but it is also offering offline office licenses.

4.4 Security Aspects, Multi-tenancy and Hosting Options

In terms of security, all 3 platforms are very secure. All of them offer 2 tier security options where user gets authenticated by password and security code (via SMS etc). Their data centers are also secure (in undisclosed locations) with appropriate biometric / level based access. Google's privacy policy states that they could scan data passing through their servers for potential future use. It is a point about which Microsoft ran a full campaign (called Scroogled) in 2012/2013 to raise awareness to business users. Google does not allow local hosting of its Apps while Microsoft and Zoho offer those options to its users. Zoho also has opened its APIs with which partners can integrate its components into their workflows. All 3 services are built on multi-tenancy principle – meaning that data of more than one company resides on same physical servers (though virtually compartmentalized). Microsoft offers the options of dedicated servers (and has different plans available) for companies intending to have more control over their data due to compliance / security related aspects at higher costs.

Table 3

Application	Google Apps for Business	Microsoft Office 365 (Enterprise E1)	Zoho Office
2 Tier Security	Yes	Yes	Yes
Scanning User Data	Yes	No	No

Suitalbe for healthcare (HIPAA) and Financials Services	Yes (for some levels)	Yes	Yes
Data Center Security	Yes	Yes	Yes
Local Hosting	No	Yes	Yes
Multi-tenancy	Yes	Yes	Yes

4.5 Mobile Strategy

All 3 players are focused on mobility and provide various options to their users to access their products through different devices. Zoho being the smaller player offers most flexibility. It has a mobile site (m.zoho.com) and provides Apps for IOS and Android to its users. It does not provide any App for Windows Phone platform for its Office Suite but it does for one of its other products called Books (accounting software). Google also provides Apps for IOS and Android. Microsoft provides Apps for IOS, Android and Windows Phones. The only constraint MS places is on use of iPads – certain plans do not provide access to Office apps on iPads and users will need higher end plans to have the same access. Microsoft has had to change its strategy in the last 2 years. Earlier it was not providing apps for other platforms but because the ecosystem of Windows Phone is very small (~3-4% globally), it was forced to release apps for IOS and Android platforms and make it free for users so that people would stop migrating to open source / other office suites and would be more open to using its products in the mobile world as well.

Table 4

Mobile Strategy	Google Apps for Business	Microsoft Office 365 (Enterprise E1)	Zoho Office
Mobile Site	No	No	Yes
Mobile Apps	Yes	Yes	Yes
iPhone	Yes	Yes	Yes
Android	Yes	Yes	Yes
Windows Phone	No	Yes	No

4.6 Integration with Offline-Office

Office 365 provides the best integration with Offline Office documents because the product comes from MS and are tightly integrated. When we try to open a Office document using Gooogle Docs or Zoho Writer certain formatting information gets lost. The loss is slightly more in Google Apps compared to Zoho but can be a cause of concern for businesses that already have office documents and want to migrate to a cloud based system.

Table 5

Integration	Google Apps for Business	Microsoft Office 365 (Enterprise E1)	Zoho Office
Offline Office	Yes (but loss of data)	Best	Yes(some loss of data)

Given below is a picture which shows what happens when we open a simple word document in Zoho and Google Apps.

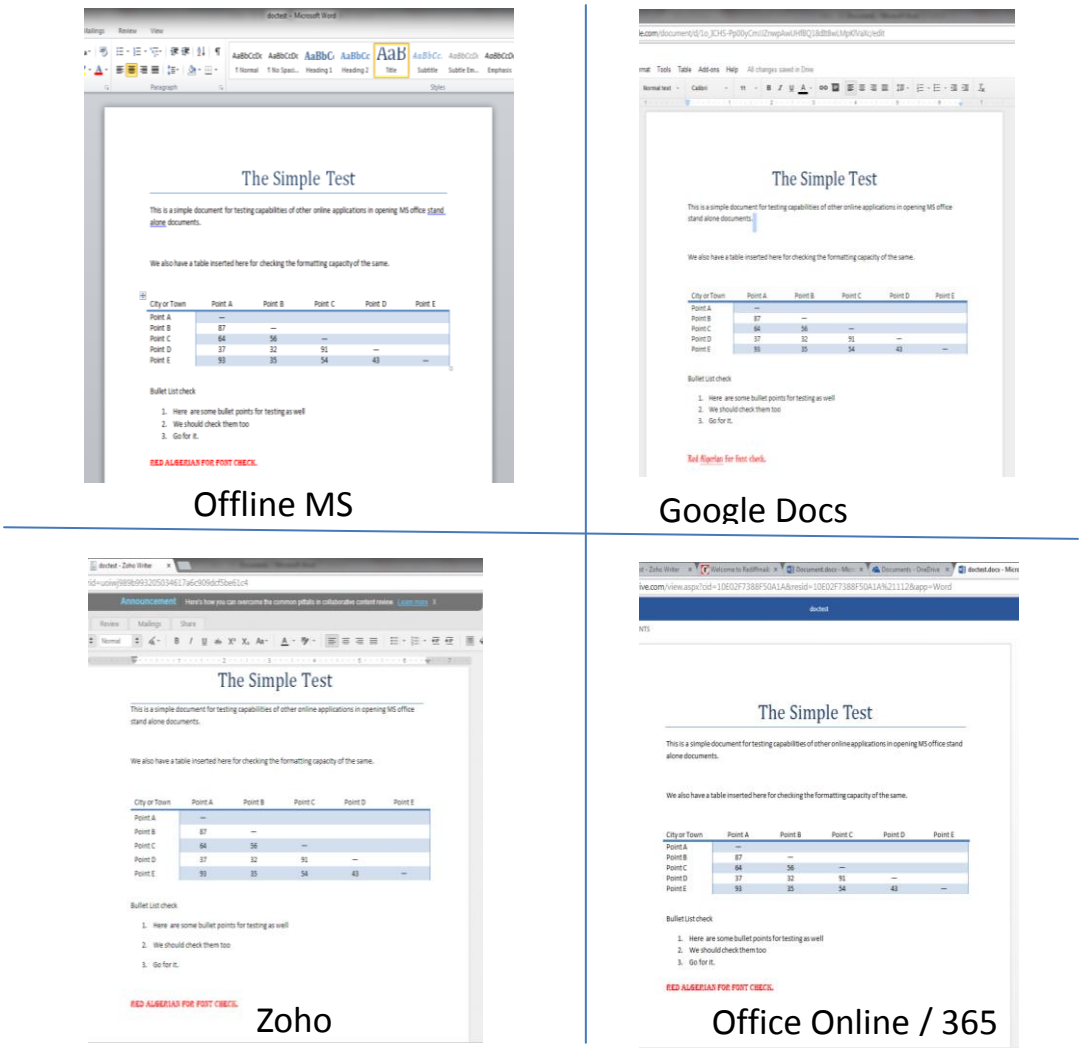


Figure 5

When importing into Google Docs – we see the following changes. The line below headline is not there and Algerian Font gets converted to a different font. When importing the doc into Zoho we find that formatting is very much intact and Algerian font is also available but the spacing in the bulleted list increases. Opening the file in Office Online keeps the same formatting as Offline Word 2010.

Microsoft is now selling Office 365 subscription with offline office licenses built in. Included in the base price of Office 365 Home / Professional are desktop versions of Word, Excel, PowerPoint, Outlook, OneNote,

Publisher and Access. Paying $9.99 allows Office 365 subscribers the ability to load these desktop Office apps on up to 5 PCs and Macs. It also has a plan for Single users at a slightly lower price point which allows loading of desktop version on 1 PC instead of 5. This is one of the biggest aces up its sleeves and is helping MS close the GAP on Google's dominance. However, given that there are many subscription plans for Office 365 - not all versions come with this option and users will need to chose one (at slightly higher cost) to get offline office licences.

4.7 Future Ready

Google Apps and Zoho Office have been built for the cloud ground up while Office 365 is still tightly integrated with Office Offline (2010/2013) to provide to provide backward compatibility and to retain hold over a customer base which the offline office dominates. It may be because of Microsoft's strategy to provide the widest choice to its customers. While Zoho and Google Apps will get auto-updates of all features, in Office 365 it will depend on business to business on when they want to migrate (which is good from a business risk perspective).

Zoho has released APIs of its Office components for them to get integrated in other company's workflows. What it means is that users will see a Zoho Writer / Zoho Sheet in their browser instead of opening the files separately and inherent data is not coming from Zoho but user's computers. This feature called componentization can be explained with a simple example. Earlier there used to big stereos (there are some available now) which were miniaturized into walk-mans/ ipods and then as a component in mobile phones. What Zoho is allowing is for its office suite constituents to be added as components into products / programs of other companies while Google and Microsfot have focused only on miniaturization (taking offline office to online) till now. We think it gives Zoho a head start over other 2 players in making a space for itself in the market of the future. Google does allow other components (apps) to be added to its Docs for enhancements but it does not share Apps API for use by other players. Microsoft also allows developers to build widgets/addins for use in its office applications.

The one area where Microsoft has lead over the two players is integration amongst individual products like Word and Powerpoint or Word and Excel (because of its offline legacy). Google and Zoho also allow it but MS products deliver it the best. We think it will be easier for MS to come out with a product enhancement that allows one to easily convert (on a click) a word document or excel file into a PowerPoint presentation than for the other 2 players. Microsoft's product road map is focusing on next version of Office and hence its energy is being diverted in working towards upgrading an offline product, integrating it closely with Office 365 and staying ahead in the game in terms of innovation from Google, Zoho and other competitors. Microsoft will be forced to chase the innovations put forth by nimble cloud competitors however its offline hold on the market gives it time ~4-5 years in which it can refocus and try to get back on even terms because businesses are not likely to shift to cloud of Google / Zoho if MS continues to offer them an option that provides benefits of cloud and power of offline products (as it has started with Office 365).

Table 6

Application	**Google Apps for Business**	**Microsoft Office 365 (Enterprise E1)**	**Zoho Office**
Built for Web (ground up)	Yes	No	Yes
Componentization	No (but can support)	No (but can support)	Yes
Innovation	Yes	Yes	Yes

Integration amongst individual products & with other collaborative tools	Yes (some with other Google tools)	Yes (best integration with MS products)	Yes (to a limited extent)

5. Conclusion

Based on our assessment, we can see that Zoho edges out Google and Microsoft in terms of providing good features / functionality. Google is very competitive on pricing while Microsoft offers the option of integration with offline office & offline licenses with its Office 365 subscriptions to remain competitive. Whether Zoho will be able to make a bigger dent into this market because of its product; Whether Microsoft will be able to reclaim its lead in the cloud (like it has in offline world) from Google given how strong an influence it has on the internet (gmail/google) and mobile world (due to android) – only time will tell. There are many factors that may push a business towards one of these players (or even a player that we have not listed here) as each business will have its own criteria for deciding which cloud based productivity suite they will want to use.

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