SPECIAL REPORT

Today's Microsoft Licensing Trends

From Office 365 to Software Assurance and into the Cloud: How does it impact the enterprise?

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THE WORLD'S SOFTWARE LICENSE MANAGEMENT EXPERT

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Executive Summary

Microsoft licensing remains extraordinarily complex. Beyond the technology decisions to satisfy requirements for the software edition, there are licensing particulars that can add costs, limit deployment, or introduce potential compatibility issues. As the numerous licensing questions arise, they can cause something of a boomerang effect. That is, the funding ends up driving the technology decisions, placing the burden on the IT team to recast the software supporting the infrastructure.

Three very specific trends seem to have emerged. The first is a continuing move towards consolidation and virtualization. As Data Center space grows constrained or its operating costs increase prohibitively, it becomes necessary to reduce the footprint of the equipment. Fewer, more powerful servers have replaced many, less powerful ones and various virtualization solutions (e.g., Hyper-V, VMWare) have been implemented as a way to govern these resources. In many cases, the licensing requirements have changed as a result of this new configuration. When this occurs, the funding of software is insufficient or, in the worst case, is not forecasted at all.

The second trend is more recent: the cloud. On March 4, 2010, speaking at the University of Washington, Steve Ballmer said, “For the cloud, we’re all in.” So in addition to its hosted services (e.g., Azure), Microsoft offered Business Productivity Online Suite (“BPOS”) which has now evolved into Office 365. Licensing these solutions differs substantially from licensing on-premise software and introduces new dependencies. Inter-operability challenges also surface for hybrid environments – that is, partially cloud-based and partially on-premise – and more questions arise on licensing requirements, tiers of service, license migration, and, of course, cost structure.

> ***Three** very specific trends seem to have emerged.*

Despite all this, or, perhaps, because of it, Microsoft continues to push Software Assurance, most frequently through its Enterprise Agreement volume license program and special platform offerings (e.g., Professional Desktop Platform or Enterprise Desktop Platform). To entice customers who might otherwise be contemplating the termination of Software Assurance as a cost-cutting measure, Microsoft has evolved Software Assurance beyond the ability to upgrade. This third trend is likely to continue as Microsoft seeks to protect this lucrative revenue stream.

This report will delve deeply into these trends and provide critical thinking points for customers wishing to best leverage their Microsoft investment.

Here are the main things you must focus on during the early preparatory stages.

Introduction

As Microsoft strives to meet the needs of a new computing dynamic, they, like all major software vendors, introduce new technologies, abandon others, create and break down software and service bundles, and/or integrate functionality, provide demanded compatibility, and develop new licensing models. This metamorphosis hardly pauses, let alone ceases. And this has fundamentally changed the software ownership paradigm.

The technical aspects of the software is the stuff of… technicians. This report focuses on software licensing. More specifically, it will present some of the trends occurring in the realm of Microsoft licensing:

- Cloud Offerings
- Office 365
- Acquisitions
- Pricing and Programs
- Software Assurance

But as the technical and financial departments converge, their perspectives collide. Commoditized hardware has reduced costs in that arena while software costs – both licensing and support – have soared. And software costs associated with infrastructure upgrades or reconfigurations are frequently overlooked and, consequently, left inadequately or entirely unfunded.

Software licensing is a significant expense within an organization's budget. And its management deserves a collaborative effort between CIO and CFO in order to provide reliable and scalable IT services in a cost-effective and value-enhancing way.

Trends

Cloud Offerings

During an address at the University of Washington on March 4, 2010, Microsoft CEO Steve Ballmer told the audience of Computer Science and Engineering students, "For the cloud, we're all in." Clearly viewing this as the future of computing, Ballmer noted that "anytime / anywhere" computing is essentially already here in the form of smart phones. People are no longer stuck in a particular place in order to conduct business. So a reliable and cost-effective way to provide access to critical information quickly, when it is needed, wherever the user might be, is the bastion of cloud services.

Often working with certified partners, Microsoft has long offered hosting services such as Windows, Exchange, and SharePoint, and other more recent solutions including some developer platforms and CRM. These had been targeted for small- and medium-sized businesses whose ability to support an IT environment – and an IT staff – is limited. But Microsoft is reframing the benefits for larger companies who experience the same issues, but on a larger scale. In these situations, the use of hosted solutions for part of the environment – perhaps Development and Test – will allow for expansion of the Production environment without expanding the Data Center or increasing electrical and cooling costs. Configured correctly,[1] this can defer costly facility build-outs.

Recognizing that a single solution will not accommodate the vast number of customers that they hope to attract, Microsoft has broadened its range of offerings with Dedicated versus Multi-Tenant environments. This is an important aspect for those organizations with stringent security requirements.[2] But it may be equally important for organizations with highly integrated applications that are tightly coupled with the environment. In this case, the environment would need to remain static – not patched or upgraded – until the applications are properly modified. Of course, a dedicated environment is more costly than a multi-tenant environment.

In July 2009, Microsoft confirmed the availability of Windows Azure for commercial accounts and announced its pricing structure. And Microsoft has been enhancing this "pay-as-you-go" program ever since with, among other features, support for SQL Server and Business Intelligence. This particular pricing model allows for developing, deploying and scaling an application without imposing the time and effort of an infrastructure upgrade on the customer. There are metrics for Windows instances charged in "compute hours" and for SQL Server databases charged by size in gigabytes ("Gb").

Microsoft is aiming to become a seamless extension of its customers' Data Centers. From Miro's experience, it is only just beginning to gather momentum as the challenges of availability, compatibility, and security are resolved.

[1] This can be achieved through data encryption and other data security measures.

[2] These would include Payment Card Industry Data Security Standard ("PCI DSS"), Sarbanes-Oxley ("SOX"), Graham-Leach-Bliley ("GLB"), and/or Health Insurance Portability and Accountability Act ("HIPAA").

Office 365

In 2009, Microsoft introduced *Business Productivity Online Suite*[3] ("BPOS"). Then in 2010, Microsoft re-launched BPOS as Office 365 as its replacement Software-as-a-Service offering.

Licensing Office 365 begins with a series of questions:

- **How many users must be supported?**

  The plans are designed for specific user population sizes, which may make the customer ineligible for some of the plans.

- **Will the user base increase?**

  Migration from certain smaller plans to larger plans (based on the user population) is not supported.

- **Where are the users located?**

  Currently, Office 365 is not offered in every worldwide location, though the major markets through North America, Europe, and Asia are supported.

- **What functionality is required?**

  The customer can choose from e-Mail, basic Office file viewing and editing, document sharing, voice support, full Office Professional licensing, and more.

- **What plan best satisfies the requirements?**

  There are seven (7) plans for use by small- to mid-sized companies to large enterprises to kiosk locations.

- **What are the price points?**

  Each of the seven (7) plans has a price per user / per month.[4]

  And none of these questions address the migration, availability (i.e., scheduled or unscheduled downtime), inter-operability, and other technical considerations.

[3] BPOS is also referred to as Business Productivity Online Services and Business Productivity Online Standard Suite.

[4] Microsoft has and, likely, will offer introductory promotions and some allowances for Enterprise Agreement customers.

Office 365 *(continued)*

But back to the focus of this report: licensing. Office 365 is in direct competition with Google Apps. Where a functional comparison can be made, Google Apps typically wins the price war. But Microsoft is relying on its broad install base and familiarity that so many millions and millions of users enjoy with the Office software. By embedding many software products that its customers already have, or may be considering, within the Office 365 plans, Microsoft is skewing the return-on-investment ("ROI") whereby the on-premise software is abandoned – partially or entirely – in favor of the hosted software.

Nevertheless, a relatively straightforward three (3) year comparison can be made between Office 365 Plan E2 ("Enterprise Level 2") with Office Standard, Forefront Protection, and the Core Client Access License ("CAL").

- Office 365 Plan E2: $576 per user
- On-premise solution[5]: $885 per user

These costs do not include the license and Software Assurance costs for the Exchange, SharePoint, and Lync server software which may be required if not already licensed. This is an additional cost of approximately $9,000. The costs would be reduced to $500 per user and $4,600 for the server software if Software Assurance for all of the on-premise software is removed from the equation. However, Office 365 provides the latest version of the products as they become available – the Software Assurance benefit of upgrades, essentially. So such a comparison is unequal.

Office 365 is in direct competition with Google Apps.

There is a period of time during the transition to Office 365 where expenses are duplicated. In other words, there will be an overlap in costs between Office Professional Plus licenses purchased under Select Agreement, for example, and the Office Professional Plus licenses acquired with an "E3" Office 365 plan.

When viewing the cost disparity, it might seem illogical that Microsoft is pushing cloud services such as Office 365 as vigorously as they appear to be. But it is shrewd. And that shrewdness can be summed up in a single word: Entrenchment. Entrenchment, or, more politely, standardization, more firmly establishes Microsoft within its customers' operation. And it makes it far more challenging to install alternative solutions. Office 365, and, indeed, all cloud solutions, is subscription-based.[6] Once the subscription lapses, the use of the software lapses with it. Microsoft is betting on long-term relationships with its customers, some of whom discontinued Software Assurance as a cost reduction measure and, in the same vein, deferred purchases of upgraded software. The trend here is for long-term commitments – and revenue generation – versus larger, more immediate, and often one-time transactions.

[5] Prices derived from the August 2011 Select Plus price list for license and three (3) years of Software Assurance at Level "A".

[6] This is not to be confused with Subscription Licensing as part of a volume license program, which is a temporary (or "term"), on-premise methodology.

Acquisitions

In terms of quantity, though not necessarily of deal value, Microsoft's pace of acquisitions has slowed considerably since 2008, when they acquired 16 companies (equaling the prior year's total). In 2009, just five (5) companies were acquired. And only two (2) companies were acquired in 2010 and 2011, respectively.

Many of the acquisitions were regarded as a protective reaction to competitors' acquisitions, such as the acquisition of aQuantive following Google's acquisition of DoubleClick. However, Microsoft has apparently been considering cloud solutions for some time. Three (3) notable acquisitions since 2008 include:

- Danger, developer of mobile computing software that offers hosted data storage;
- Mobicomp, whose solutions allow users to share and backup mobile phone content;
- Skype, the leading provider of computer-to-computer and computer-to-telephone VoIP ("Voice over Internet Protocol") services

In addition, Microsoft has invested in key technologies, the most notable being Facebook.

While many of the acquisitions and investments have involved gaming, search, and advertising, Microsoft's tempered pace of acquisitions appears to signal that a new strategy is forming. Microsoft is in the forefront of user technology, meaning that its hundreds of millions of licensed software installs worldwide make it a very familiar name to customers who use it every day. With that mighty position, Microsoft can make inroads to the next generation of users. Specifically, the members of the "Gen-X" and "Millennial" generations who will alter the work world by accepting, using, and demanding new and more intuitive technologies. By redefining the concept of a workspace, these new users will be indifferent to where infrastructure is located. They will expect "always-on" capability so they can be productive wherever they are. If the reading of these signals is accurate, Microsoft is not merely following the trend to cloud-based services, but helping to create it.

> ***Microsoft** is in the forefront of user technology.*

The rumors surrounding Microsoft's possible acquisition of either Research in Motion ("RIM"), the purveyors of the Blackberry, or Nokia seem to sense this new dynamic. If it were to happen, the pundits predict, the newest evolution of Windows could very well be device-agnostic, allowing Windows to run on laptops, tablets, and smart phones.

[7] Source: http://www.businessinsider.com/microsofts-15-biggest-acquisitions-so-far-2011-5#1-aquantive-advertising-software-and-services-for-6-billion-15

[8] Interesting sidebar: http://apps.americanbar.org/lpm/lpt/articles/mgt08044.html

Pricing

The Enterprise Agreement offers the least expensive licensing costs of all of Microsoft pricing models. This remains true for on-premise licensing – and only when compared with alternative licensing programs, such as Select Plus or Open License, when Software Assurance is included.[9]

However, cloud-based offerings are changing the picture. As described in the section Office 365 on page 3, the relative three (3) year cost for equivalent product functionality is lower for Office 365 than it is for an on-premise solution. Nevertheless, a strong presence of on-premise deployments is likely to remain for the foreseeable future, especially for larger companies with significant investments in their Information Technology infrastructure, and the supporting staff and facilities. Capital expenses for new software as well as operating expenses for ongoing maintenance and support, therefore, are top of mind in many of these organizations.

Pricing trends are typically illustrated over a three (3) year period as this aligns with the most common term of an Enterprise Agreement[10] and, until July 1, 2011, the most common term of a Select Agreement as well.[11] The three (3) year period from August 2008 through August 2011 is reflected in the graphics on pages 3 and 3 for Office Professional Plus and four (4) popular server software products: Windows Server Enterprise, SQL Server Enterprise, SharePoint Server, and Exchange Server Enterprise.

[9] Software Assurance is automatic with an Enterprise Agreement.

[10] Enterprise Agreements typically have three (3) year terms; however, a one (1) year term is available.

[11] Select Agreements are no longer sold as of July 1, 2011. They have been replaced by Select Plus Agreements which do not expire. Select Plus Agreements were first introduced in October 2008.

Pricing *(continued)*

Select Agreement

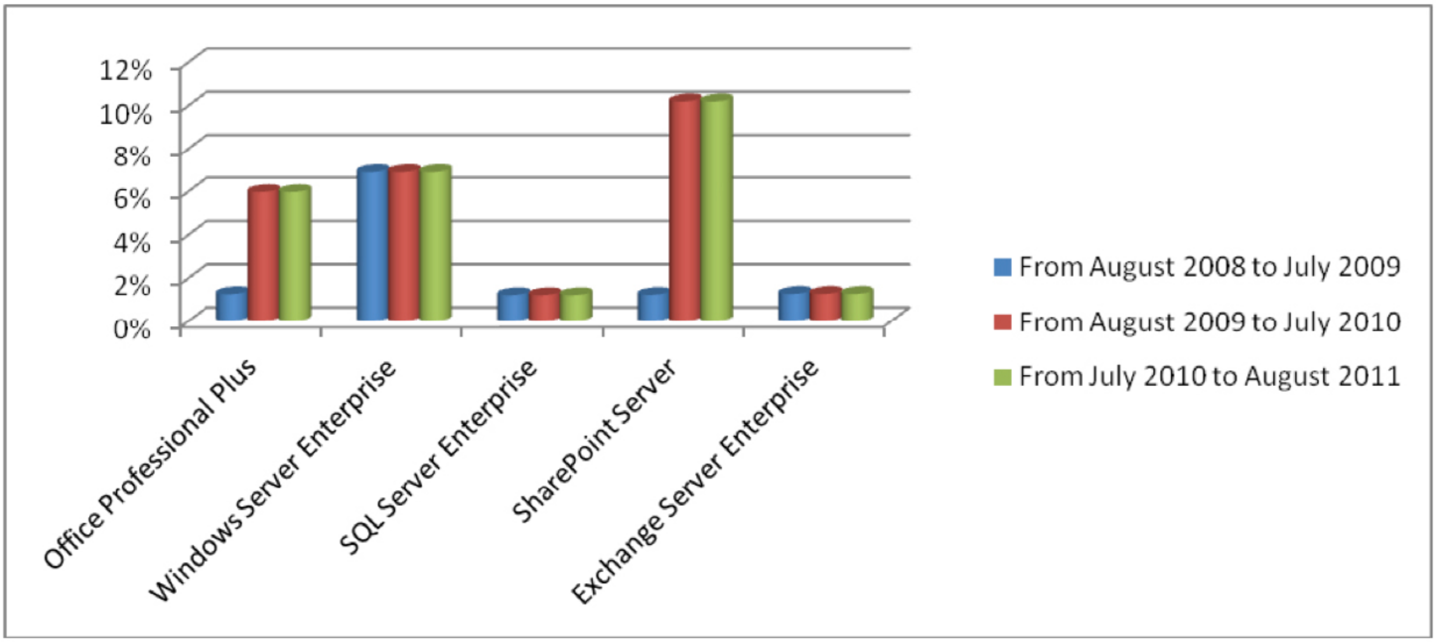

Figure 1: Select

Figure 1 above illustrates the price point trajectory for Select Agreements from August 2008 through August 2011. It shows an appreciable license fee increase (which increases Software Assurance costs for which the prices were included in this analysis) for Windows Server Enterprise from 2008 through 2009.

Smaller increases occurred for Office Professional, SQL Server Enterprise, SharePoint Server, and Exchange Server Enterprise.

From 2009 through 2010, Office Professional saw a moderate increase in license fees. In contrast, SharePoint Server saw a sizeable increase from 2009 through 2010.

Throughout the three (3) years, the license fees for SQL Server Enterprise and Exchange Server Enterprise were not increased.

Little, if any, increases occurred for these particular products from 2010 through 2011.

So, in summary, the Select Agreement license fees for the products analyzed incurred a net 5% increase in fees over the three (3) year period from August 2008 to August 2011. Three (3) periods prior to that had shown greater increases. This more modest increase is thought to result from the economic downturn from 2008 through 2009.

Pricing *(continued)*

Enterprise Agreement

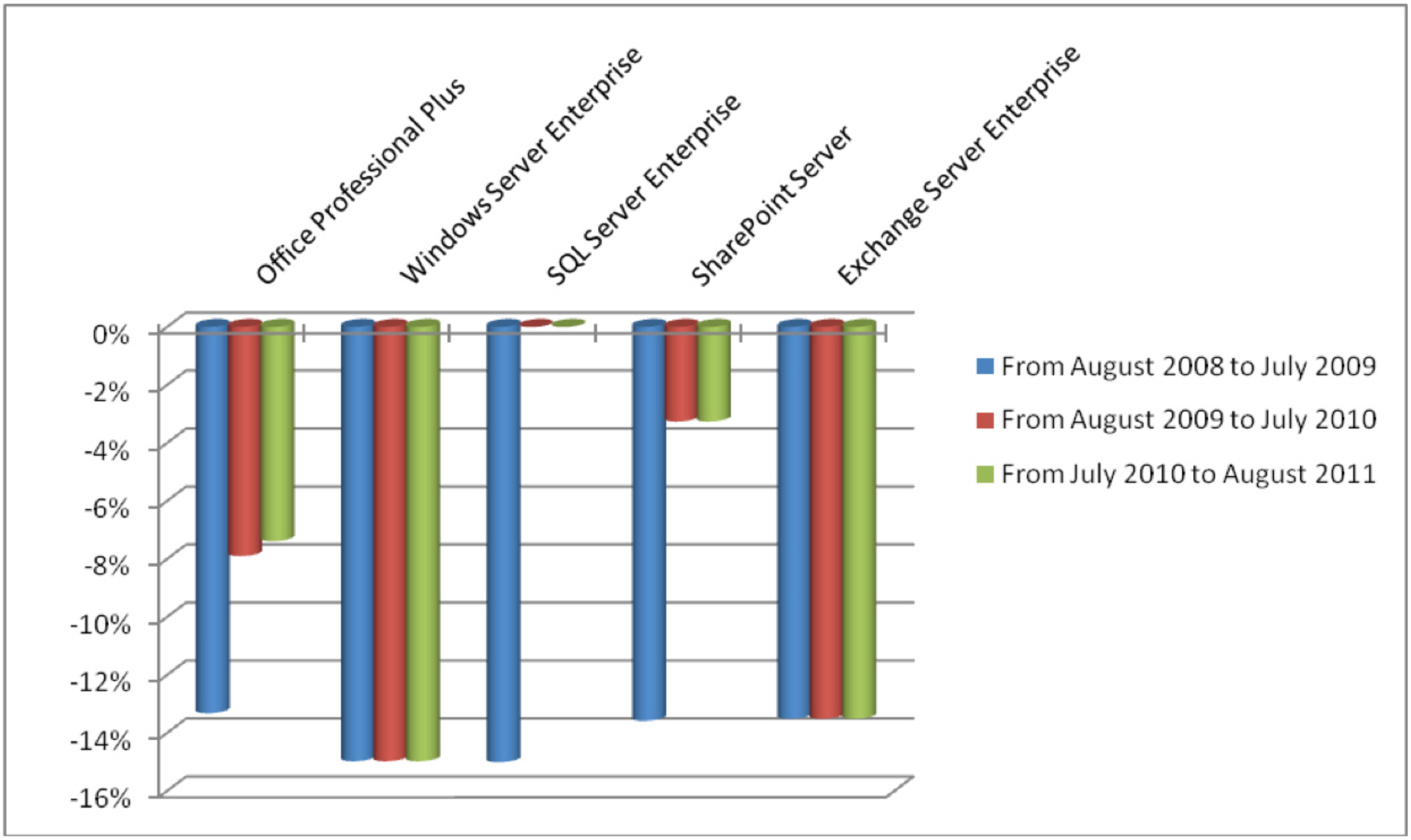

Figure 2 - Enterprise Agreement Price Trend - August 2008 through August 2011

The trend shown in Figure 2 above is a bit more challenging to recognize. For the same period for the same five (5) products: Office Professional Plus and four (4) popular server software products: Windows Server Enterprise, SQL Server Enterprise, SharePoint Server, and Exchange Server Enterprise, this graphic actually illustrates an increase in the license fees, but beginning the period with a significant price reduction.

All of the products saw a steep price decrease in the first year of the period. That is, from August 2008 through July 2009.

The following year, August 2009 through July 2010, Windows Server Enterprise and Exchange Server Enterprise remained at the discounted price. And that continued through the final year of the period for these products.

After the initial decrease, the license fees for SQL Server Enterprise rose back to their original 2008 levels and remained there through August 2011.

Pricing *(continued)*

Enterprise Agreement *(continued)*

A similar pattern occurred for SharePoint Server; however, the increase did not return the price point to its original 2008 level, but rather came to within about 4% of that level.

Office Professional Plus license fees increased in both the second and third years of the period – from August 2009 through July 2010 and again from August 2010 through August 2011. In June 2009, Microsoft announced enhanced functionality for Office Professional Plus, which involved improved interaction with SharePoint and with Office Communications Server (now renamed to Lync). These increases are likely the result of those enhancements.

In summary, the Enterprise Agreement license fees for the products analyzed incurred a net 8% decrease in fees over the three (3) year period from August 2008 to August 2011. Three (3) periods prior to that had shown significantly greater price increase trajectories. The downward re-pricing is believed to stem from Microsoft's recognition of declining Enterprise Agreement revenue during the economic downturn from 2008 through 2009.

Product Use Right Changes

When Microsoft introduced Windows Server 2008 R2, it introduced new virtualization rules. No longer could Windows Server Enterprise Edition be used in support of an unlimited number of virtual instances. That benefit is reserved for the Datacenter edition, while Enterprise Edition is limited to four (4) virtual instances and one (1) physical instance which may be used solely for supporting the virtual instances.[12] If an organization is relying on heavy use of virtualization to complete a server consolidation project, there is a good chance that additional costs will be borne for the new Datacenter Edition licensing, which is offered only in the Per Processor license model, and whose license fee for that single Processor license roughly equals the fee for the Enterprise Edition server license. Thus, the licensing for a four (4) processor server licensed with Datacenter Edition will be roughly quadruple the price than if licensed with Enterprise Edition.

A similar change occurred for Windows Standard Edition which, beginning with 2008 R2, is limited to one (1) virtual and one (1) physical instance which may be used solely for supporting the virtual instances.[13]

[12] This is referred to as the "1+4" licensing rule.

[13] This is referred to as the "1+1" licensing rule.

Software Assurance

Software Assurance has been cited frequently within this report. Perhaps this is rightly so as it remains something of a bane to Microsoft customers. It is commonly referred to as a gamble.[14] Microsoft is determined to make it less so in two important ways.

First, Microsoft has continued to push for releases of its major products every three (3) years or even more frequently. And they have been largely successful. This virtually assures that properly-timed Enterprise Agreement terms will enjoy the primary benefit of version upgrades.[15]

There are other benefits with Software Assurance[16] including training vouchers and e-Learning material, the Home Use program, step-up licensing, deployment planning services, and more.[17] However, fewer than 25% of Microsoft's customers with active Software Assurance actually use as many as three (3) of these benefits.[18]

Despite the common and oft-repeated claim that "Software Assurance is not support", it does relate to support incidents. When at least one (1) Server License is covered with Software Assurance the customer receives a complimentary phone support incident, plus unlimited Web support for all the Servers covered with Software Assurance. The customer is also entitled to an additional phone support incident for every $200,000 spent on Software Assurance for Systems (e.g., Windows Desktop) and Applications (e.g., Office); and for every $20,000 spent on Software Assurance for Server software (e.g., SQL Server) and CAL licenses. Based on the resulting arithmetic, there may be inadequate support incident availability. Problem Resolution Support can be augmented with a Premier Support Agreement. But this is an additional cost that traditionally begins at about $40,000 for a single year term.

The second way in which Microsoft has evolved the value of Software Assurance is through licensing modifications. . For example, customers with Windows Desktop under Software Assurance (as of July 1, 2010) were given greater virtualization rights that precluded the need for additional Virtual Desktop Access ("VDA", also sometimes referred to as Virtual Desktop Infrastructure or "VDI"). More recently, Software Assurance was linked to "license mobility benefits" for customers contemplating a move from on-premise solutions to cloud-based solutions.

[14] At least one critic has termed it "the rip off that keeps on ripping".

[15] Customers are eligible for any versions made generally available while their Software Assurance was active. The actual upgrade can occur after Software Assurance has been terminated.

[16] Software Assurance benefits vary by product.

[17] Microsoft phased out the Employee Purchase Program benefit in March 2010.

[18] Source: Directions on Microsoft Licensing Boot Camp.

Software Assurance *(continued)*

IThere is one somewhat obscure change in the machinations of Software Assurance. It occurs within the Select Plus Agreement, which has replaced the Select Agreement. The two have many similarities. A customer still accumulates points for each purchase that will result in future price reductions based on a tier level. And the customer can choose whether or not to have a new license covered under Software Assurance.

But unlike the Select Agreement, a Select Plus Agreement does not expire. Because of this, Software Assurance is no longer prorated to the end of the agreement's term. So for the initial order, Software Assurance is for a full 36 months. Succeeding renewals are also for the standard 36 month term. However, Microsoft permits aligning different purchases to common renewal dates by offering modified "extensions" of Software Assurance coverage that last between 25 and 35 months.

Microsoft is compelling its customers to commit to longer Software Assurance terms and to commit to greater investment – just another example of Microsoft protecting its Software Assurance revenue stream.

Summary

Cloud Offerings

Microsoft's play in the cloud space is significant and expanding. From Windows and SharePoint and Exchange to SQL Azure to Office 365, Microsoft is building "custom-fit" solutions for a broad range of existing customers and new prospects.

By offering both Dedicated and Multi-Tenant environments, Microsoft is generating interest by those organizations who have expressed concerns with security, availability, and inter-operability with their applications.

Microsoft is aiming to become a seamless extension of its customers' Data Centers.

Office 365

Microsoft skews the investment calculations with Office 365. With seven (7) different tiers to choose from, a customer can find an offering that reduces the cost of licensing for widely used products such as Word, Excel, PowerPoint, Outlook, and more. This is the short-term gain. With hosted applications like Office 365, the ability to terminate Software Assurance and remain on down-level software versions is surrendered. So the potential long-term¬ arrangement results in an ultimately greater spend.

Choosing the correct Office 365 offering cannot be based purely on its cost. There are several technical assessments that have to be made, including size and location of the user population, compatibility with existing applications, and the required functionality.

During the transition to Office 365, expenses are duplicated between already-purchased licenses for use on-premise and the corresponding Office 365 functionality.

Microsoft further entrenches itself into its customers' business operations by making the decision to implement alternative solutions more complex. What this means is that once a customer adopts a cloud-based environment – in the case of Office 365, everything from e-Mail to SharePoint and Lync (formerly Office Communications Server) and even Office functionality – they are signing up for a subscription whose right to use is terminated when the subscription is not renewed. Compare that to on-premise solutions, which are perpetual licenses, and regardless of whether there is Software Assurance in place, or even if the particular version of the product is no longer supported, the customer can still use them.

When opting for a subscription service, and then attempting to opt out of it, two things can happen:

1. If the customer is moving to another cloud-based server, such as Google Apps, the level of cooperation from Microsoft should be anticipated to be poor or non-existent. Getting copies of files, e-Mails, etc. will be the responsibility of the customer and must be done in advance.

2. If the customer is returning to an on-premise solution, then the infrastructure, software, and staffing – all of which was very likely dismantled and/or dismissed as a part of the move to the cloud – must be re-established.

In either case, there are duplicate funding requirements. The old solution cannot be turned off unless and until the new solution is fully operational and stabilized.

Making the move to cloud-based environment is a huge step and ought to be thoroughly researched and thought through from virtually every conceivable angle that a customer can determine.

Acquisitions

The pace of Microsoft's acquisitions has slowed considerably over the last several years (at least in terms of the quantity of acquisitions versus the value of the transactions). This may be a signal that Microsoft is forming a new acquisition strategy that focuses on cloud offerings, hosted solutions, and rise of "anytime / anywhere" computing.

Pricing

Miro's analysis has shown that Select Agreement license fees have risen about 5% during the three (3) year period from August 2008 through August 2011. This is based on the analysis confined to some of the more popular products.

Conversely, Enterprise Agreement license fees for the same software have decreased by about 8% during the same time period. While the products have increased their prices recently, most are less costly in August 2011 than they were in August 2008.

The economic downturn during 2008 and into 2009 may have been the catalyst for both the modest increase in Select Agreement pricing and the decrease in Enterprise Agreement pricing. However, it is also thought that the downward price adjustment for the Enterprise Agreement stems from Microsoft's recognition of declining Enterprise Agreement renewals and, perhaps, slow adoption of new Enterprise Agreements.

Software Assurance

Software Assurance continues to be a contentious topic. While the value Software Assurance brings can be indeterminate based on the availability of product upgrades and resources to execute those upgrades, Microsoft has tied Software Assurance to other benefits that can reduce license complexity and potentially license costs.

It is estimated that only 25% of Microsoft's customers with active Software Assurance actually use as many as three (3) of the available Software Assurance benefits.

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Tim Hegedus is an accomplished professional with over 25 years in Information Technology, including over 10 years in IT management. Currently the Senior Manager of the Analyst team at Miro, Tim brings a wealth of knowledge and insight to this clients, especially on Microsoft licensing issues.

Tim's hands-on experiences include Operations, Database Administration, System Administration and Engineering, Storage Administration, Information Security, and System Integration. He has led teams of System Administrators and Engineers, Networking Specialists, Database Administrators, Information Security professionals, and has held primary responsibility for Data Center facilities (including the construction of two new Data Centers).

As Director of Technical Services for a financial services firm, Tim was responsible for the budgeting, acquisition, and compliance of all hardware and software within the organization, including sites in central and northern New Jersey and in Columbus, OH. He implemented several asset control programs and methodologies still utilized by this heavily-regulated and extensively-audited organization.

Tim began his IT career working for an international pharmaceutical firm and then moved onto a major northeast retail logistics firm gaining experience in Operations, Development, Technical Support, Database Administration, and Project Management.

Since 2000, Tim has ascertained and defined the licensing and technical support requirements of the software used throughout these Data Centers, most specifically Oracle and Microsoft products. This encompassed the specifics of the licensing metrics, the associated options and/or restrictions, and other terms and conditions surrounding the deployment of the software. Tim has successfully negotiated countless software contracts, leading to very favorable concessions that resulted in measurable cost containment.

Tim attended Clemson University for his degree in Building Science (Architecture) and has advanced his post-baccalaureate studies at Rutgers University. Tim holds multiple technical certifications including those for Microsoft, Oracle, DB2, and Unix and management certifications for project management, IT leadership, and managerial excellence.

About Miro Consulting

Miro Consulting helps companies analyze and negotiate enterprise software contracts - specifically Microsoft and Oracle licensing. In addition, the company offers software asset management consultation services. Since 2000, the NJ-based company has negotiated over $1 billion in software licensing transactions. Miro has helped 500+ clients throughout North America to optimize their total cost of ownership (TCO).