The New Business Operating System: Combining Office 365 and the Microsoft Cloud Ecosystem to Create Business Value

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Abstract

The combination of Office 365 and Microsoft's Cloud Ecosystem is the basis for a new business operating system. Businesses can consume base services such as email, unified communications, content management and collaboration sites, file storage, search, etc., and combine them with cloud or on-premises virtualized resources and custom applications. The **New Business Operating System (NBOS)** enables businesses to leverage commodity based IT Services and enables customizations to enhance business value. ThreeWill expects that this *NBOS* will be the collaboration platform of choice for many companies – from small businesses to large enterprises. What excites ThreeWill most is the extensibility of *NBOS* that will allow companies to **work together better**. In this document we will provide guidance, review the challenges, offer insights, and describe why we are firm believers in the *NBOS*.

Audience

The audience for this white paper is CIO's, CTO's, IT Pro's and Solution Architects. The information in this whitepaper is technical in nature and is designed to inform technical buyers, decision makers, IT service managers, and solution architects.

- CIO's and CTO's: Learn how to support your business strategy and maximize return on investment with the combination of Office 365 and the Microsoft Cloud Ecosystem
- IT Pro's: Learn how Office 365 and the Microsoft Cloud Ecosystem can enable and run business solutions in a cost effective, supportable and customizable way with a single control surface.
- Solution Architects: Learn how Office 365 and the Microsoft Cloud Ecosystem can enable the design and delivery of custom solutions that provide maximum business value.

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Why this Paper?

The release and growing adoption of Microsoft's Office 365 and SharePoint 2013 offerings have served to generate anxiety and uncertainty in organizations that have made significant investments in SharePoint. This anxiety and uncertainty has slowed, and even stopped, strategic investment in SharePoint by some business decision makers. Combined with the reduced strategic adoption and customization efforts, a wide array of contentious content has been generated in the SharePoint IT Pro and developer communities. The content and conversations have typically been negative responses to SharePoint's transformation from a license based, on-premises only product to a cloud and on-premises offering.

Enterprises who have strategic investments in SharePoint must now understand how Microsoft's "Mobile First, Cloud First" strategy impacts their investment. Microsoft's cloud enabling technologies span public (Microsoft Azure), private, and hybrid (the Microsoft Cloud Ecosystem) scenarios. ThreeWill contends that the combination of Office 365, SharePoint 2013, Microsoft Azure and the Microsoft Cloud Ecosystem is the ***New Business Operating System (NBOS)***. However, strategically aligning with this new "Mobile First, Cloud First" strategy can seem daunting to most enterprises. The myriad of options, architectures, financial impacts and potential customizations are the root of great concern for many enterprises. Increased integration points and a perceived decrease in control concerns IT and operations teams. Development teams are concerned that 10 years of accumulated expertise is no longer valuable or viable to their organizations, or the market at large.

This whitepaper is an attempt to describe and address some of the challenges faced by enterprises when moving to the *NBOS*. We will provide an overview of the current "Management of Change" (MoC) challenges regarding SharePoint 2013 and provide guidance and insights to how enterprises can derive business value from the *NBOS*. Some industry pundits paint SharePoint's future as bleak. ThreeWill believes these changes present compelling opportunities. We view the combination of the *NBOS* (Office 365, Microsoft Azure, and the Microsoft Cloud Ecosystem) and the new cloud development models as a disruptive innovation that will enable enterprises to create collaborative solutions that help organizations *Work Together Better*.

A Brief History Lesson

To best understand the source of some of the anxiety and uncertainty, let's take a look back at SharePoint's history. SharePoint is now in its fifth version. In the time since its 2001 release, SharePoint's history can be marked with four major phases.

Phase 1: Creating Collaboration Portals

The original vision of SharePoint largely relieved the overworked IT staff from the burden of provisioning inward-facing intranet sites. As internal departments clamored to have their own website, IT staff had to be intimately involved in the building of content. Ultimately, the technical staff was simply unable to keep up with the demand. SharePoint shifted the value of provisioning sites and creating content to the business user. It also provided the basic list, document management, and search capabilities that are the cornerstone of the product to the current day.

Phase 2: Customization

With the release of the second version of the product in 2003, a third-party developer community began to form. These products often took the form of software components (known as Web Parts) that empowered end users to create lightweight applications. Additionally, the concept of mashing up data from sources inside and outside of SharePoint started to take shape.

The 2007 release of SharePoint was a significant step forward. The advances in branding, customization, and ability to use SharePoint as a development platform were reasons ThreeWill focused our business on SharePoint. However, many tasks were still more cumbersome than necessary.

The SharePoint 2010 release was another significant release in the product's evolution. SharePoint 2010 provided viable options for customization and branding. Ultimately, SharePoint 2010 represented the most important point in SharePoint's history. The product could be used not only as a productivity tool for information workers, but as a platform upon which companies could build business process integrations. The market penetration and enterprise implementations continued to rise, but there was still a significant gap between SharePoint 2010 and Software as a Service (SaaS) based applications, web frameworks and solutions.

Phase 3: Moving to the Cloud

By 2012, consumers and enterprises had grown accustomed to cloud-based applications, with shortened software feature release cycles, subscription-based software, and cloud-based virtual environments. Microsoft's release of SharePoint 2013 made a bold declaration of their intentions to drive SharePoint as a subscription-based service via Office 365. SharePoint 2013 represents a cloud-first model where updates and innovations come to the cloud first, fast, and sometimes exclusively.

This cloud first, subscription based model has two significant implications. First, the cloud-based model introduces a completely new programming model for SharePoint 2013: the "App model" (Microsoft, 2014). Interestingly, the App model applies to Microsoft Office applications (Outlook, Word, Excel, and PowerPoint) as well. Simply put, the App model enables custom code to execute outside of Microsoft managed processes (see "What is the App model?" side bar). The App model enables a user's web browser or external servers (including non-Microsoft technologies) to enhance and extend Office *and* SharePoint applications. This 'out-of-process' model was a requirement to enable Microsoft to deliver on the "Mobile First, Cloud First" strategy *and* to increase stability of the platform for on-premises enterprise customers. In the end, the App model provides the capability to deliver a consistent application experience inside Office Apps (Office and SharePoint apps) in the cloud, and on-premises across multiple device formats. If Office 365 is the heart of the *NBOS*, and the Cloud Ecosystem is the brain, then the new App Model is the lifeblood for providing business value on top of the NBOS.

WHAT IS THE APP MODEL?

"Apps for Office and SharePoint are based on a new application model which shares a common approach for extending Office and SharePoint. It brings the value of apps we know on devices to the productivity applications you use on a daily basis.

This new apps model is built on web technologies like HTML, CSS, JavaScript, REST, OData, and OAuth. If you're a web developer, you can use your existing skills to build apps and take advantage of familiar tools, languages, and hosting services. You can deploy, update and maintain your apps faster in the cloud and finally publish and sell your apps on the Office Store, or distribute IT-approved apps within your organizations by using a corporate App catalog." (Torre, 2012)

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Phase 4: The Future of Office Development

What is the future of Office and SharePoint solutions development based on SharePoint's collaboration roots, evolution into a platform for custom solutions, and the radical shift to a new application model? Short term, the changes represent significant learning and adoption challenges for the Office and SharePoint IT pro and development communities. Some very visible thought leaders in the SharePoint industry – including Andrew Connell (Connell, 2014), Chris O'Brien (O'Brien, 2014), Jeremy Thake (Thake, 2014), Doug Ware (Ware, 2014), Mark Rackley (Rackley, 2014), Joel Oleson (Oleson, 2014) - have openly opined that this new model requires exploration and discovery to reach new best practices. IT managers and business professionals that depend on SharePoint customizations should expect there to be a measurable learning curve for SharePoint developers and architects in the immediate future.

In our opinion, however, this new app model represents a very bright future. The new App model is architecturally sound and preserves or enables stability, performance, and scalability both in the cloud and on-premises, allowing Office solutions to break out of an "evolutionary backwater" (Hester, 2014), and embrace industry wide best practices for application development. One significant benefit of the *NBOS* is that the pool of potential operations resources and solution developers just grew exponentially. Becoming an "Office Developer" no longer requires joining a secret society with arcane rules, deep knowledge of product specific API's (application programming interface), and product specific best practices. The *NBOS* represents a subscription-based set of ubiquitous services, built on a composable, scalable, elastic, location transparent infrastructure that enables standard, cross platform integration opportunities to benefit the enterprise.

The Business Impact of a Cloud Ecosystem

Enterprises may choose to consume multiple "best of breed" cloud solutions, but competing, or even complimentary, vendors don't focus on making these solutions work together. For example, many organizations may use Salesforce for CRM needs and Box.com for file storage, but still need email, calendaring, and other line of business applications. Knowledge workers still need all of their tools to be integrated in order to collaborate and provide business value in their daily jobs. Line of business solutions still need to integrate and connect to cloud services, or even on-premises systems. These integrations are critical to solutions that work together to add value to the business. Unfortunately, most SaaS services provide value for their specific problem domains, but these solutions don't address all of the possible scenarios, specifically custom line of business integrations.

Cloud computing is a very overloaded term, so let's define some terms. For our purposes, the following definitions describe the three categories of services that can be delivered over a network, either private, public or hybrid.

Software as a Service (SaaS) - applications provided as software completely delivered in the internet, consumed by users accessing the software from cloud clients or native clients which access a cloud-based product (e.g. Office 365)

Platform as a Service (PaaS) - provides a computing platform and a solution stack as a service, typically built on top of a provider's IaaS infrastructure (private or public); enables focus on delivery of the application, not the maintenance of the infrastructure on which the application runs

Infrastructure as a Service (IaaS) – provides raw infrastructure services (virtual machines, virtualized disks or storage, networking and management, may include pre-installed / configured bundles with software, e.g. Azure Virtual Machines); requires maintenance, updates and patches be performed by consumer
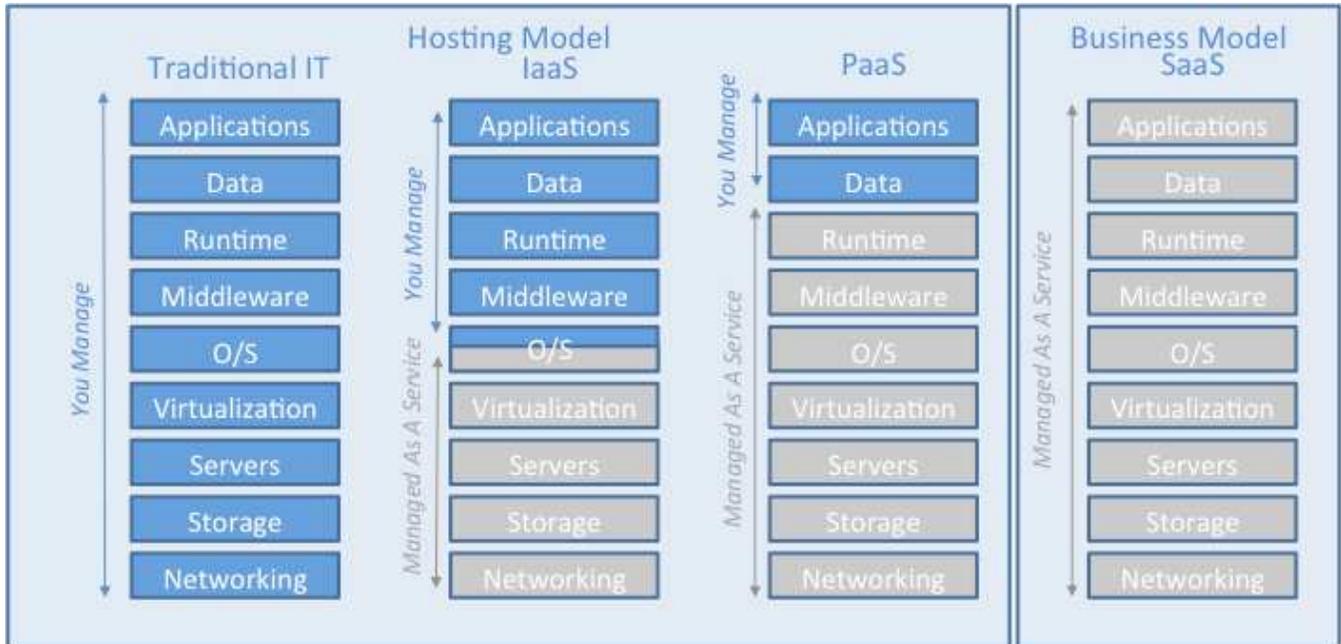
Although more specific details of these terms are beyond the scope of our discussion, we will make one assumption about cloud computing in general: The cost benefits of the cloud are proven and well documented. (CFO Research, 2012).

For over 10 years, Microsoft Office applications, including SharePoint, have dominated the business user landscape. There have certainly been challenges to this dominance, but the dominance of the Microsoft tools will remain for quite some time. The value of Microsoft's applications and platforms have served enterprises and small businesses well, and Microsoft is poised to provide increasing value to customers going forward.

The advent of collaboration capabilities that leveraged the consistency of the Office Suite and enabled creating, curating and centralizing content is one of the primary reasons SharePoint enjoys such incredible growth and market share. The preceding statements might be argued, but the number of SharePoint licenses and market penetration is an objective fact. By most accounts, the total number of SharePoint users exceeds 100 million.

The Business Impact of Continuous Delivery

For most enterprises, the historical context of SharePoint is defined by on-premises delivery with software releases based on 3-year cycles. Enterprises have become so entrenched in this release cycle that planning cycles parallel these timeframes. However, the release of Office 365 and Microsoft Azure changed much more than just these planning and release cycles. (Nadella, 2014)

Microsoft's introduction of Office 365 and SharePoint 2013 products disrupted the enterprise. Yes, many CIOs, IT Pros, and architects knew about BPOS (Business Productivity Online Suite) and were using cloud services like Salesforce and Box, but the development of line of business applications "inside of SharePoint" was still sacred ground as recently as 2013. Entire teams and considerable expertise was built around the on-premises, in-process model of SharePoint customization. The impact of the release of Office 365 and SharePoint 2013 can be described in one obvious statement:

> *Microsoft's introduction of Office365 and Microsoft Azure represent a fundamental shift to continuous delivery for their products and services that impacts feature prioritization, development, delivery, licensing, support, maintenance, and availability among many other facets.*

Microsoft's legacy licensing model will continue to decrease over time. CIO's/CTO's, IT organizations, and solution architects must determine how their use of Microsoft products, including Office 365 and SharePoint, fits in a cloud-based world. The "Mobile First, Cloud First" strategy and introduction of the new App model was absolutely necessary, and Microsoft has been executing this strategy quickly. How could there be uncertainty or anxiety regarding the relevance of SharePoint and Office in the NBOS? Shouldn't everyone be jumping for joy over this decision and direction? One would think so, but a review of recent blogs, whitepapers, and social media surrounding Microsoft's strategy is less than glowing. It is obvious that Microsoft's strategy has disrupted enterprise IT at all levels, causing anxiety and inaction across the enterprise. From decision makers to developers, many are asking questions like the following:

- How do Office 365 and the App model impact our technology strategy?
- Does this new platform support our strategic objectives?
- Is our strategy too shortsighted?
- How must our governance change to operate on this new platform?
- What new skills are required for me to stay relevant?
- Is my job safe?

Although these questions are related to the above statement, the underlying theme to these questions is a corollary to the above statement.

> *Microsoft's shift to a continuous delivery cycle of products and services necessarily and fundamentally changes the way CTO's/CIO's, IT Pros and Architects will deliver value to the business.*

Microsoft's change to a continuous release cycle is indeed a monumental shift, with far reaching impact in the enterprise. Strategic decisions are no longer concerned with a simple purchase of a suite of product licenses, an Enterprise Agreement (EA) or Software Assurance (SA) agreement, support hours and other typical services which have an ROI time horizon of the past.

The Compound Effects of Moore's Law and Cloud Computing

In general, continuous delivery (updates) to SaaS, PaaS or IaaS offerings is not new, but the impacts as applied to Microsoft's core business productivity suite are still emerging. The cloud has completely overturned the enterprise strategic planning apple cart. As Ben Hammersley has stated, "our ability to plan has been compromised." (Hammersley, 2013) Strategic technical decisions must now account for Moore's Law in ways that extend far past a PC refresh program, capitalizing server hardware, or planning for new software licensing agreements.

Moore's Law postulates that every 18 to 24 months processors will cost half as much to produce and will be able to perform twice as many operations. (Mirani, 2014) Businesses could plan on, and take financial advantage, of the innovation cycles Moore's Law predicts. Indeed, businesses have incorporated Moore's Law into their technology strategies for years. The typical business strategy accounted for infrastructure and software updates according to a 2-3 year maximum timeframe. But Microsoft now delivers new features to the cloud (both Office 365 and Azure) in increments as short as weeks. CFO's and CTO's can no longer rely on strategies with ROI in the 3-5 year time. Simply put, the cloud moves even faster than Moore's Law.

Moving to the Cloud On Your Own Terms

Some industry analysts view the decision to utilize cloud-computing as an "all or nothing" proposition. These analysts have indicated that *the question is not **if** you're going to the cloud, but **when**.* This view ignores a

number of real-world business challenges and vastly over simplifies reality. In our opinion, there are two strategic questions that must be asked to determine a path to the cloud:

1. How can your business move to the cloud on your terms?
2. Which cloud provider(s) enable moving to the cloud on your terms?

ThreeWill also believes the strategic considerations should be broader than simple cost-shifting scenarios.

> *The decision to move to the cloud is about much more than computing power or the cost of storage. The decision is about new opportunities – productivity, security, devices, notifications, big data, machine learning, on-premises, hybrid and public cloud integration.*

WHAT IS DEVOPS?

DevOps is a combination of "development" and "operations". The term refers to the communication, collaboration, and integration of software developers, and IT operations personnel to improve product delivery, quality testing, feature development, and maintenance releases in order to improve reliability, increase security, and provide faster development and deployment cycles. DevOps concepts and practices are derived from a combination of the Enterprise Systems Management and Agile software development movements.

To state this differently, the cloud vendor choice of an enterprise may reduce the ability to pursue new business models. With the advent of business domain API's, interchangeable services, the Internet of Things (IoT), RFID (Radio Frequency Identification), NFC (Near Field Communications), and much more, even small to medium size businesses can derive real value from emerging cloud advances quickly. However, businesses must have a service-centric IT strategy and the ability to process millions, perhaps even billions, of inputs. Using the *NBOS* to move to the cloud incrementally can provide you with the infrastructure necessary to take advantage of new processes, devices, sensors, and the accompanying large data sets much more rapidly. The ability to quickly provide elastic scale to leverage the proliferation of devices, signals and data specific to your business domain means gaining business insight quickly. Gaining business insight more quickly enables innovation and growth.

It is not enough to have an infrastructure (IaaS) strategy that re-hosts applications in virtual machines in the cloud (public or private) or to choose multiple best of breed SaaS solutions without an integration strategy. Business cloud strategy must anticipate a work streams future value, and DevOps must enable flexible architectures to deliver, manage and enhance that value over time. In short, business strategy now has to treat the business value proposition of the *NBOS* like an operating system – which has a base operating system (Azure/Azure Pack), standard applications (Office 365) and provides input and output options to provide added value immediately, on demand.

The New Business Operating System
The Cloud - On Your Terms
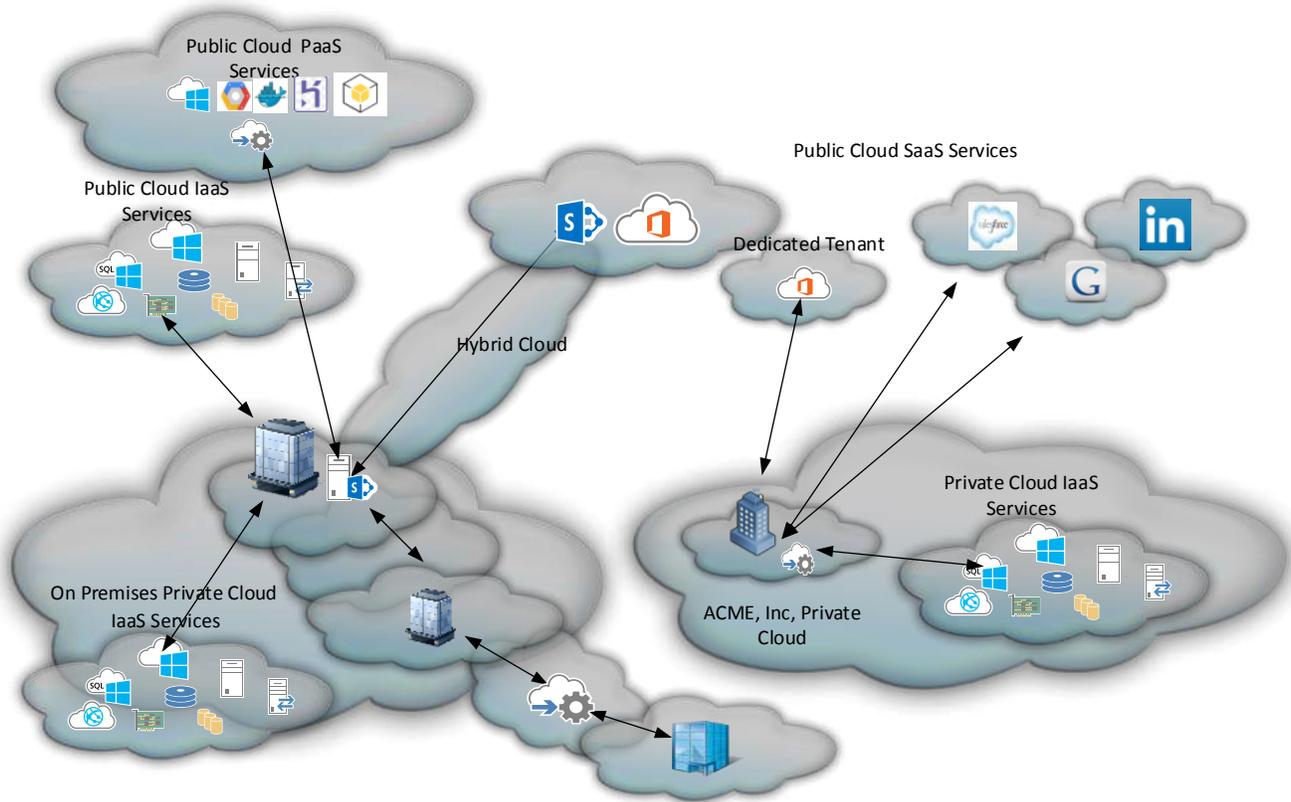
The combination of Office 365, Microsoft Azure, and Microsoft's Cloud Ecosystem is the reason Microsoft is poised to continue providing increasing value to their customers. Computing power and devices continue to expand exponentially, and the number and variety of processes, services and devices enterprises will need to interact with, manage and gain insight from will as, well. Microsoft's Office 365, Azure and Cloud Ecosystem, is the **New Business Operating System (NBOS) and NBOS is the cloud on your own terms**.

The New Business Operating System

The combination of Office 365, Microsoft Azure, and Microsoft's Cloud Ecosystem is a compelling combination of cloud-computing capabilities. Enterprises can leverage *NBOS* on-premises, in hybrid implementations, or completely in the cloud.

New Business Operating System

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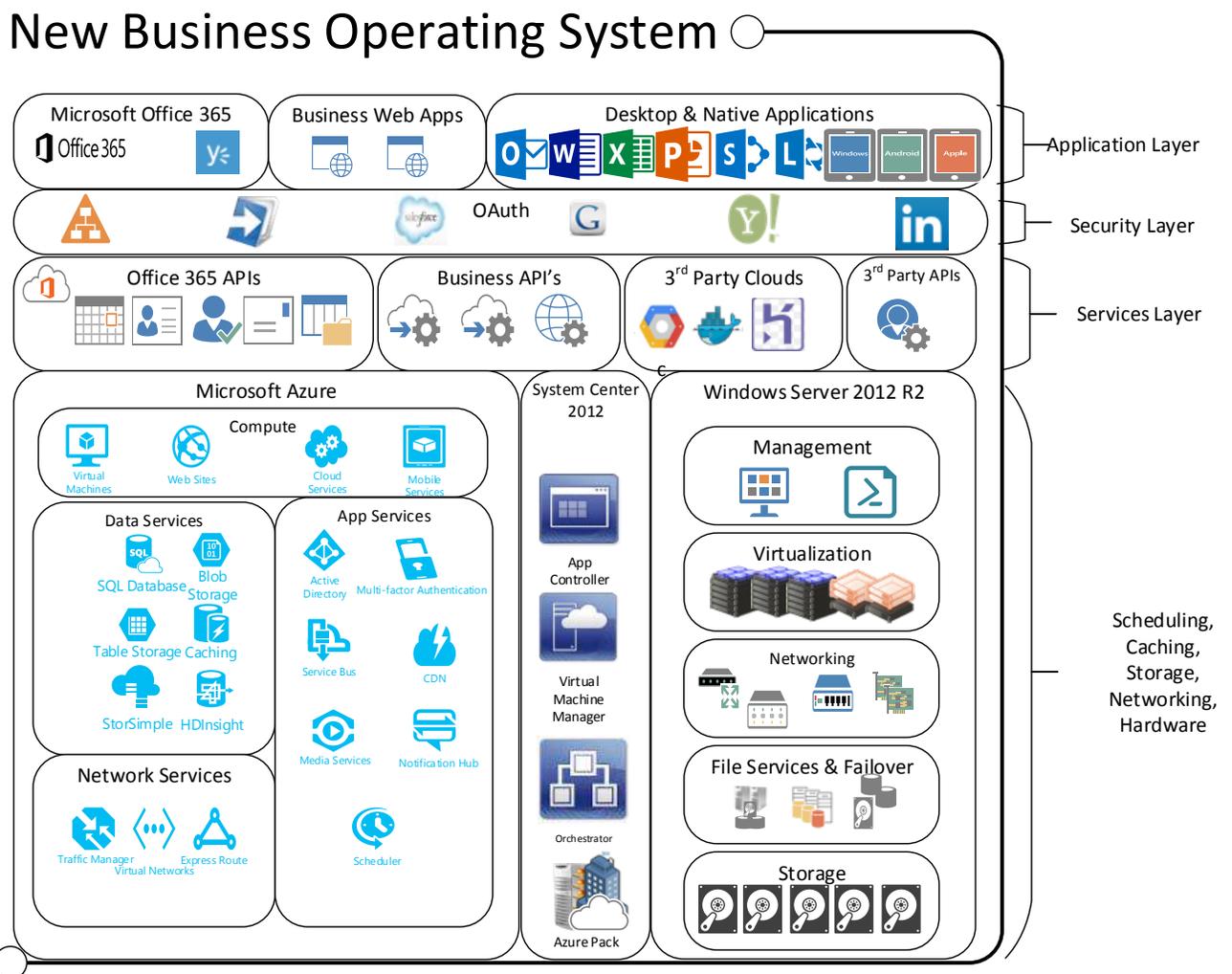
In our previous whitepaper about SharePoint 2010, we described SharePoint as an operating system:

> *"…the collection of software that directs a computer's operations, controlling and scheduling the execution of other programs, and managing storage, input/output, and communication resources." (Dictionary.com)*

By definition, an 'operating system' must enable and schedule 'programs', manage storage, control I/O and enable a wide array of communication paths. The combination of Office 365 and Microsoft's Cloud Ecosystem provides standard and custom programs, storage, I/O, and enables inter-process communication. A *business operating system* must enable management and execution of a *business strategy*. We'll define "business strategy" as:

> *"The collection of policies, processes, and procedures that directs resources, scheduling and execution to achieve business objectives (deliver value, products, services, etc.)." (ThreeWill)*

We know an enterprise's ability to develop long-term strategies is impacted by Moore's Law and Continuous Delivery. However, why do so many enterprises still lack a coherent business strategy that exploits the benefits of the NBOS and the new App model.

Three Perceived Barriers to the New Business Operating System

Many enterprises are moving to the cloud cautiously, or not all, continuing to invest in on-premises SharePoint 2013 upgrades. These 'lift and shift' upgrades do not embrace the value proposition of the *NBOS* or the new App model. There are a wide variety of reasons for this cautious approach, especially in regard to SharePoint. Unfortunately, these concerns often preclude open dialog about the benefits of the *NBOS*, regardless of private, public or hybrid implementations. There are three common characteristics to cautious investments in SharePoint 2013 or Office 365.

1. Compliance
2. Control
3. Customization

The first two characteristics are more organizational than technical. There are significant MoC challenges when moving to the cloud. Indeed, it is not simply a technical challenge to be addressed. Training, migration, and adoption of these new technologies are real concerns.

Compliance

Compliance typically refers to adhereance to governmental, regulatory, business security, and data handling requirements. With all of the recent events regarding government-based surveillance, on-premises security breaches (Target and JP Morgan), the "HeartBleed" virus, and many others, enterprises are hyper-sensitive to compliance and security requirements. Even a perceived loss of governance, increased risk, or misaligned strategic direction can impact planning, brand recognition, innovation, and most importantly, revenue. While many CIO's and IT Pro's may still believe that a dedicated server (i.e. on-premises) is more secure than one in the cloud, the *NBOS* provides multiple options to aid in compliance.

While CIO's and IT Pro's may choose to keep on-premises resources and not to relinquish the responsibility in areas of security and regulatory compliance, the NBOS does offer options to take advantage of the operational and process improvements that cloud implementations provide. Considering full public cloud options using Office 365 and Azure or hybrid cloud solutions, combining more features of *NBOS* can address the concerns once only possible with purely on-premises solutions. For example, consider the fact that Microsoft is the only cloud

provider currently holding certification of EU privacy compliance. In addition to the privacy compliance available, Microsoft also meets FedRAMP, HIPPA, PCI DSS, FERPA and many more standards. (Microsoft, 2014) Enterprises can address most compliance challenges by trusting Microsoft's security and compliance features in the public cloud, and augmenting these compliance and data security services with on-premises or hybrid implementations as needed.

Control

As a perceived barrier, control refers to a perceived loss of control from an operations and governance perspective. While the CIO is most concerned about risk exposure, business value, and cost, the operations teams add the following concerns:

- IT governance, including provisioning, and de-provisoning
- Physical access and management of resources
- User management, including provisioning and termination
- Patch management
- Data security
- Disaster recovery
- Risk management

While virtualization and abstraction of on-premises services has increased over the past 5-10 years, many operations team prefer to keep infrastructure 'in-house.' The responsiblility to ensure uninterrupted business value from infrastructure and applications seems to rule out even IaaS options for many operations teams, and PaaS solutions are often not even considered.

However, the responsibility to ensure a controlled and governed infrastructure does not preclude the use of the *NBOS*. In fact, it is highly likely that your users are already using cloud resources, regardless of your ability to govern and control them. The control benefit of the *NBOS* lies in the platforms integration options and control surface. Location transparent control of your *NBOS* infrastructure can be provided by hybrid cloud implementations. The consistent control surface of *NBOS* benefits operations teams by providing a consistent interface to manage development, deployment, identity, virtualization, and storage across on-premises, hybrid and Azure based resources.

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Customization

The final perceived barrier, customization, is least likely to impede providing business value with the *NBOS*. However, there is anxiety and fear in the development community regarding the complexity, integration, and skills required to add value with the new App model.

> *The new App model is a significant departure from prior SharePoint and Office development models, which requires retaining SharePoint skills, acquiring new skills, and applying new patterns to derive business value in on-premises, hybrid, and full public cloud solutions.*

The *NBOS* and the new App model also add new design patterns, architectures, and delivery models for development staff. These new patterns and models enable solutions to be designed and built using technologies best suited to support the business objectives. Too frequently, pre-2013 SharePoint solutions frequently utilized SharePoint services exclusively, even when they were suboptimal for the solution, for the sake of keeping the solution 100% SharePoint. As some examples:

- Solutions best served by relational databases were shoe-horned into SharePoint rather than using alternatives which would have accelerated development and added value faster.
- Mobile solutions and views were frequently not even developed due to increased effort and cost of doing so *in SharePoint.*
- Integration efforts were often hampered, complex, or cancelled completely due to complexity of security, lack of audit, and risk of 'elevated privilege' code.

The *NBOS* and the App model enable customizations to benefit from languages, frameworks and processes that may be new to SharePoint developers. The bad news is that many of these skills may be new, or are skills that may have atrophied over the last several years. The good news is that the knowledge SharePoint developers have of the Office and SharePoint application landscape is still extremely valuable. Even better, the new languages, frameworks and processes are standard web tools and processes and are no longer unique to SharePoint and Office.

CLOUD APP PATTERNS

When creating custom cloud based solutions, there are several critical architectural patterns that must be understood and applied in specific situations. Microsoft's free e-Book "Building Cloud Apps with Microsoft Azure" (Guthrie, Simms, Dykstra, Anderson, & Wasson, 2014) describes many of these patterns. Specifically, patterns that can enable your DevOps teams to focus on adding business value include: continuous integration, data storage and partitioning, fault handling, caching, queued processing. These patterns are integral to the *NBOS*, and therefore critical to providing you the most benefit from the *NBOS*.

Focusing on Business Value

The *NBOS* enables enterprises to take advantage of the cloud on your terms by using commodity SaaS services (e.g. email, storage, unified communications) when feasible, hybrid approaches when compliance and control need to be augmented, and on-premises approaches when your business requires them. Since "statistics regularly show that up to 80% of IT budgets are tied up in routine maintenance" (McKendrick, 2013), the use of *NBOS* represents a significant value proposition to your business. As strategy and risk tolerance allows, enterprises should move closer to PaaS solutions and reduce low value routine maintenance costs.

> *"Statistics regularly show that up to 80% of IT budgets are tied up in routine maintenance." (McKendrick, 2013)*

To state the obvious, 'business solutions' must provide value to the business, and a business operating system must enable your 'programs' to work together seamlessly to achieve your business objectives. However, the more your operations teams focus on routine maintenance, the less time they spend adding value to your business. Shifting your enterprise to "commodity" SaaS services and utilizing IaaS services where possible enables investment in higher value hybrid and PaaS-based solutions. The higher your ratio of PaaS solutions, the more your operations and development staff can focus on innovation and increase productivity.

The bottom line is that the *NBOS* can add significant value to the enterprise. The *NBOS* enables the transformation of your data center, and can transform the relationship between your business and IT. The *NBOS* has the capability to turn IT into an organization whose objective is to "Innovate Together" (Hanselman, 2014) with the business. The *NBOS* adds "commodity" value to your business immediately, reduces long-term control costs gradually, and enables productivity and innovation as your business objectives dictate.

Defining Your Business Cloud Profile

In order to derive the full benefits of the *NBOS*, an enterprise must identify compliance, control and customization profile attributes. One typical approach to identifying a business cloud profile involves simply mapping attributes of compliance, control, and customization and assigning an on-premises, hybrid or public cloud designation.
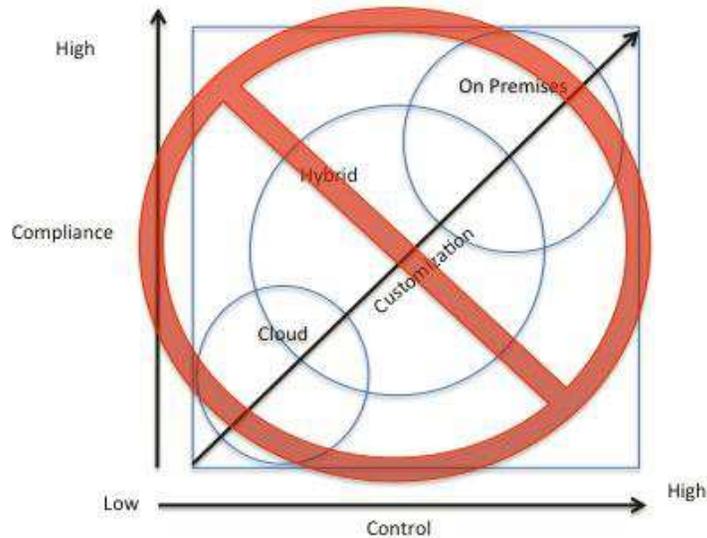
However, developing a cloud profile in a facile manner does not produce a viable strategy. As the preceding image depicts, an attempt to simplify the decision to use the cloud may fail to consider the subtleties and complexities of a viable cloud strategy. This approach assumes only "three knobs" can be used to dial in your cloud profile. However, a viable *NBOS* strategy must begin to think in terms of moving to a PaaS-centric strategy. Determining compliance, control and customization criteria is still essential to any cloud strategy, but businesses need to analyze and model their strategy at a greater level of detail and complexity in order to gain the most value from the *NBOS*.

Risk, regulatory, business, and data needs are typically well known. For example, Personally Identifiable Information (PII) data, financial records, and legal documents all require high-risk designations. Where you map them in the *NBOS* is dependent on your business risk and whether there are options in the *NBOS* that support your compliance and risk concerns. If you have identified a high-risk compliance requirement, you are not necessarily constrained to an on-premises implementation, and may not preclude using a SaaS solution from the *NBOS*, as many compliance requirements are already addressed in Office 365 and Azure (Microsoft, 2014).

Compliance, security, and governance (control) may be less well known and may require some investigation, analysis and documentation in order to properly inform an *NBOS* strategy. The assumption that the more specific the need for control, the more likely you are to be on-premises is also false. The *NBOS* has many options for configuration and management in SaaS, PaaS and IaaS solutions including the option of using on-premises capabilities of Systems Center and the Azure Pack to gain the flexibility of the cloud without the loss of control.

The customization profile requires the business processes to be analyzed for cohesion and coupling. The concepts of "strong cohesion" and "weak coupling" have been applied to software design for years, but here is our *NBOS* definition:

- Cohesion is a measure of how well-defined a sub-process is within a larger business process.
- Coupling is a measure of how interconnected a sub-process is in a larger business process.

The *NBOS* allows these concepts to be applied to the process engineering space. The concept that your business processes should be orthogonal to the cloud resources consumed is critical to increasing your PaaS solution ratio over time. As your business processes become more cohesive and less coupled, your ability to implement PaaS solutions increases. The less cohesive your processes, the less likely you will be able to move that process to the cloud and consume SaaS solutions or create custom PaaS solutions. In addition, the more tightly coupled your business processes, the more likely that those processes will require remediation or complete redesign to benefit from SaaS or PaaS solutions.

Are you likely to go "all in" on the cloud to start? For most CIO's today the answer is "No!" Mission critical systems, high bandwidth business critical processes, transport security, and other requirements are likely to stay on-premises or use a private hybrid environment. But can you leverage the *NBOS* today in ways that create an advantage for your business? Absolutely, and working on your Business Cloud Profile is the place to start.

If your cloud profile will not allow a complete cloud migration, you can move to the cloud incrementally. Connecting on-premises implementations to cloud services, creating hybrid solutions, and enabling migration over time is a highly viable option. Just as the architects and developers in the enterprise should be designing and building cohesive and decoupled systems, your cloud profile should be built with these same principles in mind: your processes, infrastructure and solutions should be built to be highly cohesive and loosely coupled. The business and IT must "innovate together" to define the appropriate solutions that use the appropriate mix of *NBOS* features solutions for your business strategy.

Cohesion and coupling may sound like esoteric software design terms, and to some degree they are, but huge benefits can be realized by applying these concepts to business strategy as well. Systematically reviewing business processes increases process cohesion over time. Well-defined processes lead to more integration opportunities, increasing your ability to capitalize on, and innovate in, the cloud. The inclusion of business process coupling and cohesion review as part of long term strategic planning is a recognition that "our ability to plan has been compromised." (Hammersley, 2013) This inclusion is also a recognition that an enterprise business cloud profile will change over time. Enterprises that integrate continuous review of business process cohesion and coupling as part of strategic planning processes will be best positioned to address changes in their business cloud profiles quickly and maximize the use of the *NBOS* on their terms.

Top 5 Benefits of the New Business Operating System

Once you have identified your Cloud Profile and reviewed your processes, what are the benefits of the NBOS and the new App model? Let's review 5 benefits of the *NBOS*:

1. "Innovate Together"
2. Promotes business process cohesion
3. Reduces infrastructure maintenance
4. Enables "on-your-terms" architectures
5. Technology stack agnostic

Innovate Together – By enabling the move to the cloud on your terms, enterprises gradually reduce the amount of resources required for infrastructure maintenance and routine management. This also increases the ability to focus these resources on adding business value by creating solutions that increase productivity, efficiency or innovative solutions.

Promotes business process cohesion - The *NBOS* increases your ratio of PaaS solutions by promoting design and delivery of processes that are cohesive and loosely coupled. However, cloud enabling your processes doesn't necessarily mean moving your data to the cloud. Cohesive and decoupled business processes enable contextual applications that can integrate data from Office 365 applications, third party solutions, devices and platforms.

Reduces infrastructure maintenance - The *NBOS* can reduce or eliminate infrastructure requirements, even if a cloud profile dictates some on-premises services. The often-cited benefit of continuous delivery is the reduction of overall maintenance of core, commodity IT services. But the often-overlooked benefits of continuous delivery of IaaS and PaaS services can significantly reduce your maintenance burden. App model solutions can range from 0% -100% in the cloud (public, private, or hybrid), and are built cloud-ready.

Enables "On-Your-Terms" architectures - The *NBOS* provides a wide range of options and architectures to ensure you can meet your business cloud profile requirements. Combining on-premises, dedicated tenant, or hosted models provide a wide array of compliance, control and customization options. The entire ecosystem enables moving to the cloud as your business objectives allow or dictate for commodity services, storage, identify management, search, and business specific processes.

Technology stack agnostic – The *NBOS* enables using the right tool for the right job. If business objectives require solutions better managed by alternative development stacks like MEAN (MongoDB, EmberJS, AngularJS, NodeJS), LAMP (Linux, Apache, MySQL ,PHP) or others, use them. With today's trends of mobile first design, burgeoning web standards advances, and cross platform compiling, a cloud provider choice has to be flexible and adaptive.

Reeds Law and the New Business Operating System

There is an interesting relationship between the *NBOS* and Reed's Law. Reed's Law, simply stated, asserts that the value of many-to-many networks, particularly social networks, scales exponentially with the size of the network. Reed's Law of Group Forming Networks (GFN) is typically expressed as 2^n. David Reed described this law in his Harvard Business Review article, "The Law of the Pack" (Reed, 2001), by presenting America Online's (AOL) service offerings as presented in the figure below. Reed states, "The Internet is a network of networks, and its value lies in the connections it enables." Reed's article, although 13 years old, pinpoints the reason the *NBOS* and the App model can add value to your business. As the number of PaaS based services created increases, the opportunity to integrate with other services increases exponentially. This is where innovation occurs.
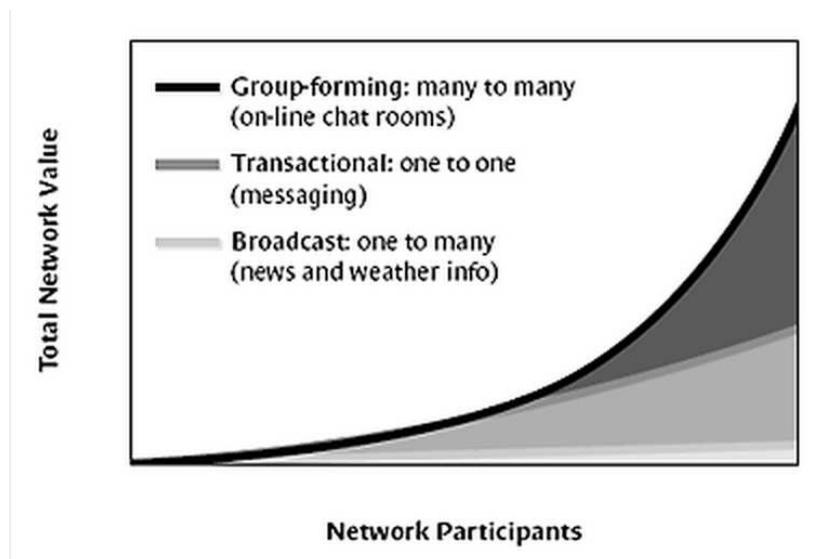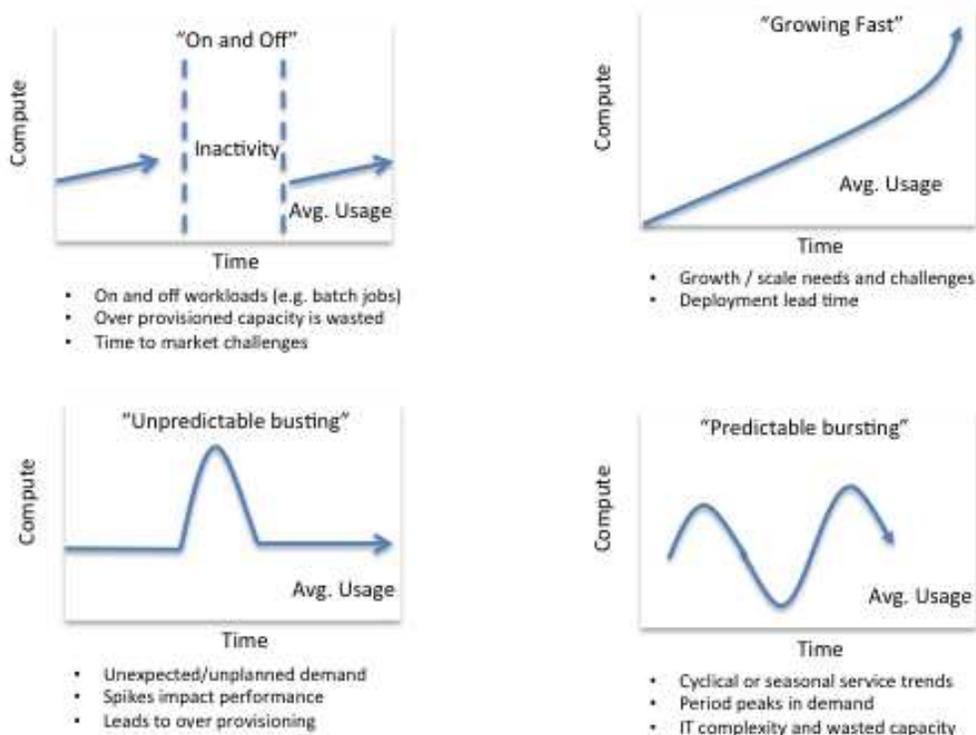

The application of cohesion and coupling principles to business processes has been a general trend for more than 10 years. The entire science of business process management (BPM) is based on improving corporate process efficiency, adaptability, and profit by optimizing business processes. Discrete processes (services)

designed to be "strongly cohesive and loosely coupled" can more easily be delivered as PaaS solutions. These coherent processes enable granular business processes to provide value – e.g. sending email, document storage, even business-specific forms processing. By combining the science of BPM, cohesion and coupling, and the *NBOS,* we move closer to Reed's true vision:

> *"…the most powerful application of Reed's Law, is in the business-to-business space. Exchanges and similar Net-based business networks can help customers band together to request customized products and services from suppliers, and they can help suppliers organize alliances to create new products and services."*

Simply put, the five benefits of *NBOS* above all combine to create a synergistic effect. Yes, other cloud providers have had SaaS and IaaS solutions for a while. Amazon EC2 can host your legacy business applications in IaaS. Heroku can host apps on a variety of stacks. Google has very competitive storage solutions. Salesforce can manage your CRM. But the *NBOS* is a more compelling solution than any other to this point.

"On and Off"
- On and off workloads (e.g. batch jobs)
- Over provisioned capacity is wasted
- Time to market challenges

"Growing Fast"
- Growth / scale needs and challenges
- Deployment lead time

"Unpredictable busting"
- Unexpected/unplanned demand
- Spikes impact performance
- Leads to over provisioning

"Predictable bursting"
- Cyclical or seasonal service trends
- Period peaks in demand
- IT complexity and wasted capacity

What if your business strategy exceeds mere application hosting in IaaS, or a specific SaaS vertical solution? What if you have a manufacturing system that needs high compute power and processing, unpredictable cloud compute patterns, mobile access and synchronized offline storage, batch processing, big data analysis, massive notifications and more? Most importantly, what if your business objectives require loosely coupling your processes, internally or externally, with other publicly available processes?   The most compelling combination of *NBOS* is the composable application integration story, the implicit promotion of Reed's Law at the process and PaaS levels. As Reed indicated, the long term opportunity for businesses is the ability to integrate services into larger networks of services, enabling innovation, new markets, new business opportunities, or simply increased ROI through productivity.   The ability to customize and create "composable" applications is not new. The consumer space has a history of many examples, including IFTTT (If This, Then That) (IFTTT, 2014) and Zapier (Zapier, 2014). The *NBOS* and the App model promote contextual integration, this is the real business value of Microsoft's *NBOS*.

Over the next 3-5 years, the major business drivers for Microsoft's enterprise customers will focus on two pillars: Azure and Office 365. The Office and SharePoint App models align perfectly with those pillars. Is SharePoint going away? Is SharePoint "dead" as some have proclaimed? Hardly! But as Spencer Johnson stated in <u>Who Moved My Cheese?</u> "noticing the small changes early helps you adapt to the bigger changes to come." (Johnson, 1988) Recognizing the general trend of businesses creating and exposing discrete services, and specifically Microsoft's delivery of Office, SharePoint, Yammer, Office Graph, and other API's, will enable you to develop long term strategies that derive value in this environment.

New Business Operating System Case Studies

At ThreeWill, we have been pushing the envelope with solutions that demonstrate our understanding of the power of the *NBOS*. Our client projects and proofs of concepts with the *NBOS* stretch back over several years. Our history as the leading integrator of social business solutions and recent work with emerging collaboration technologies (including non-Microsoft technologies) has helped clarify the advantages the *NBOS* for our clients. The following are a few case studies that demonstrate the advantages of the new "cloud development models" and display our strength of creating solutions that help companies *Work Together Better*:

Case Study: Popcorn

A Microsoft Azure-based sales enablement application that uses contextual based content (e.g. incoming caller ID), to search and aggregate content from multiple SaaS based services (Salesforce, LinkedIn, Evernote, Office 365) to enable efficient customer engagement. Context based actions can be performed pre-, on-, and post-call

to interact with SaaS based services individually or in parallel making sales people more efficient. By retrieving disparate SaaS business data, combined with personal context, the solution provides a better contextual conversation. Common authentication standards, combined with Microsoft Azure PaaS services, provide this ability to span different services with one login, providing authentication, secure data access, and enabling easy integration of additional data sources. To see this ThreeWill Labs product in action, you can visit www.popcornplatform.com and create a free account.

Case Study: Seasonal Staff Management Web Portal

An Office 365 and Azure based web application that eliminates a paper and Excel based hiring and termination process. The solution provides an Azure based, public facing web site and an internal Office 365 SharePoint application to provide end-to-end automation for seasonal resource onboarding, including: application, review, hiring, background check, and termination processes. The solution provides proper separation of internal versus external processes, easily spanning a public Azure web site and a corporate Office 365 tenant, securely and without complex network infrastructures. This solution provides a predictable business process, leverages elastic compute cycles, and enables management by a lean IT organization, all without on-premises resources.

Case Study: Pointer for iOS

A native iOS phone app for accessing documents from Office 365 SharePoint sites. The application demonstrates the multi-platform Single Sign On (SSO) features of Office 365 and application delegation features of Azure. The application provides native search, offline storage and sharing of SharePoint document library content from iOS devices. This ThreeWill Labs product is currently under review in the App Store.

Case Study: Hybrid Office 365 and On-Premises Solution

A hybrid on-premises SharePoint 2013 and Office 365 search integration enabling SSO and search across on-premises and Office 365 content for a large media company. This solution provides a single login and location to deliver aggregated search results from on-premises SharePoint content and Office 365 content. This solution enables users to search and retrieve content from a single location and displays both on-premises SharePoint and cloud based Office 365 relevant results. See http://www.threewill.com/tag/hybrid for more technical details on implementing hybrid Microsoft collaborative solutions.

Conclusion

In the end, the *New Business Operating System* is a highly cohesive and loosely coupled set of services that provides value to your business. Satya Nadella, Microsoft's new CEO, recently commented, "hybrid cloud is more than just the connections. The main part of hybrid cloud is the management control plane." (Dignan, 2014) Using the *NBOS* today can benefit your business by increasing operating margins and reducing capital expenditures. The use of *NBOS* can also provide enterprise IT a common control plane for the infrastructure and services provided to the business. The value created when integrating well-defined business processes into a unified control plane is a true differentiator that enables innovation.

If current business circumstances do not enable an "all in" public cloud strategy today, *NBOS* can still provide significant value. Enterprises will develop a strategy that enables incremental capital and operating benefits of the cloud. However, enterprises can gain an advantage by developing a "*Business Application Cloud Profile*" earlier than their competitors. Identifying applications and business processes that can migrate to *NBOS* today can begin to gain productivity and innovation benefits of the cloud more quickly. The following are some attributes of processes or applications that are excellent candidates for productivity or innovation gains from the NBOS and the App model:

- New applications or processes (build cloud-ready)
- Legacy applications due for upgrade or replacement
- Processes / applications with highly variable compute requirements (seasonal or elastic)
- Processes or applications that integrate internal and external user interactions
- Processes with batch or long running processes (notifications, workflow)
- Applications that required large scale push notifications (mobile)
- Search dependent processes (search and incorporate data into documents/email)
- Processes requiring custom document viewing, authoring, or generation experiences
- Processes requiring business analysis and business intelligence reporting
- Collaborative processes requiring multi-user input (real-time multi-user access applications)
- New processes or opportunities requiring proof of concepts application validation

These are just a few of the candidate processes and application types the *NBOS* enables today. The move to the cloud should be strategic and calculated, not a response to a competitive edge lost, or shrinking profit margins. In the end, the decision to move to the cloud should come down to one of analysis of business objectives. The cloud should help you meet your business objectives. In the near term, this will likely mean hybrid and incremental adoption. Is *NBOS* the only platform your business will consume for SaaS, IaaS and PaaS? Not

likely. However, the *NBOS* is certainly the most capable platform for delivering value today, providing business continuity, and enabling future expansion. The *NBOS* provides access to your business processes, data, and insights, managed through a common control plane, all with location and device transparency. The *NBOS* is the cloud on your terms

Next Steps

ThreeWill's passion, excitement, and successes with the *NBOS* and App model demonstrate the value and promise of Office 365 and the Microsoft Cloud Ecosystem. We want to help CIOs, business units, IT Pros, and Architects wade through the murky waters of deriving business value from the cloud "on your terms." The benefit in the *NBOS* is the flexibility, incremental path, and common control surface they provide to allow you to be successful in the cloud. Reach out to ThreeWill today to see how we can help you accelerate your move to the cloud on your terms.

Contact us to get started by defining your "Business Application Cloud Profile."

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