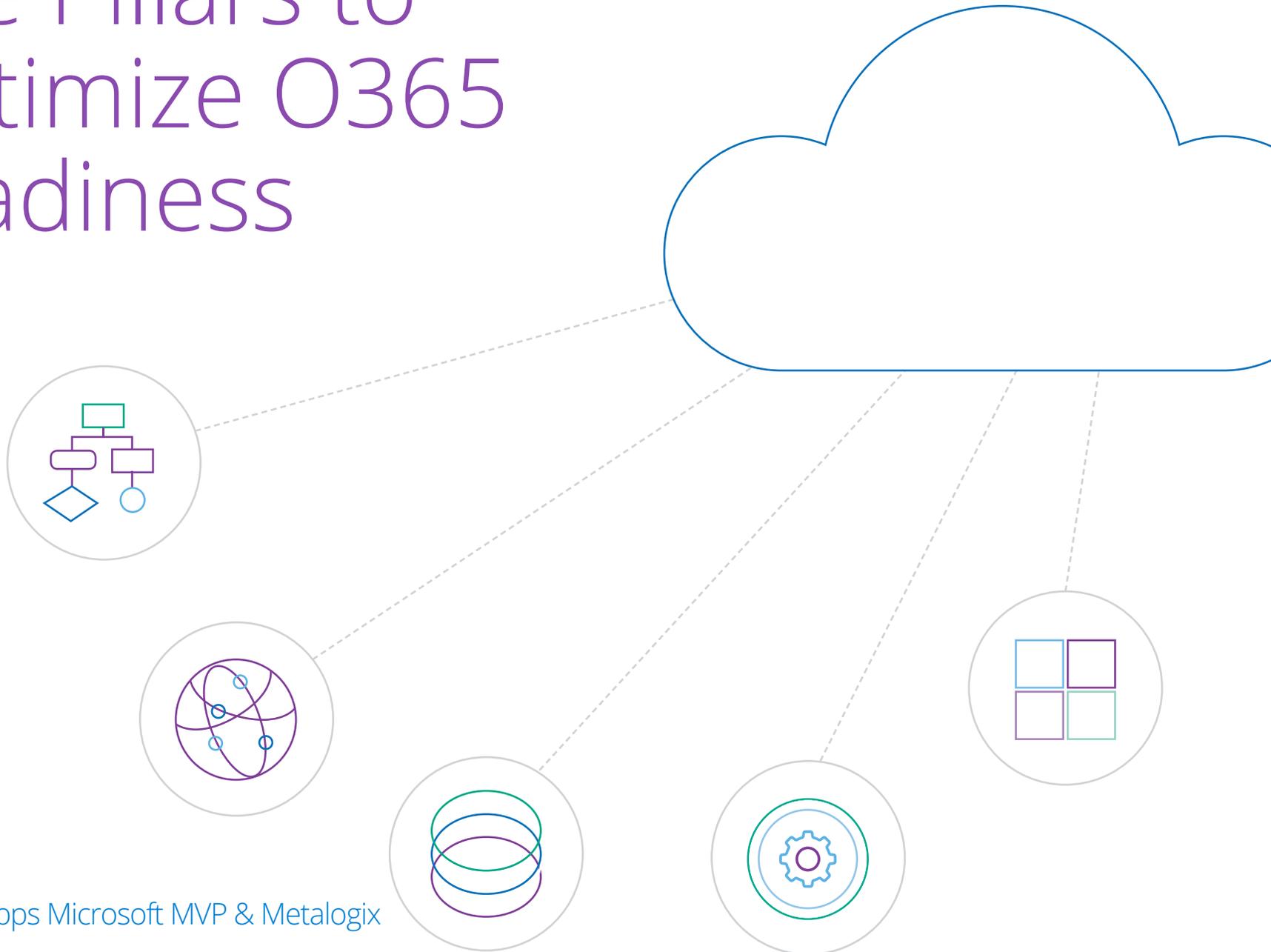


# Five Pillars to Optimize O365 Readiness



By Eric Shupps Microsoft MVP & Metalogix

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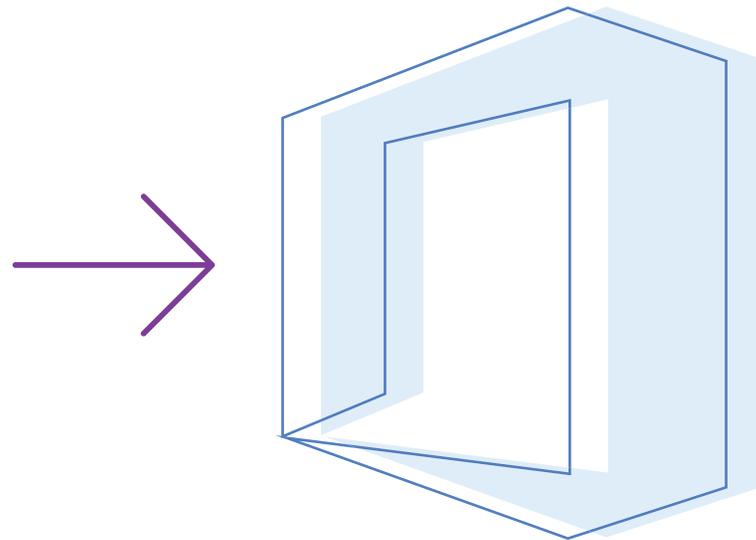
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# Synopsis

The benefits of moving your business to Office 365 are undisputed. A cloud enabled company gains mobile access, boosts productivity, reduces hardware costs and has access to all the latest innovations in enterprises technology. To gain these benefits, planning is essential to balance the features in Office 365 and existing on-premises SharePoint.

This ebook explores the five pillars required for Office 365 readiness. These pillars provide a baseline to analyze your current environment and have a comparative point for executive and user buy-in when your business moves to either a full or a hybrid Office 365 environment.

This ebook will explain how your company can start today by monitoring current performance to not only lay the groundwork for a future move to Office 365, but also to ensure success in the new cloud-based environment.



# Key terms



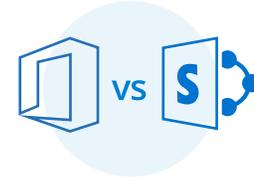
## WHAT IS THE CLOUD?

The cloud is a general term that describes outsourced data processing centers that have been transformed into computer resources that are more like a utility (aka electricity) that organizations can consume based on use. Key elements of the cloud that differ from other offerings are the ability for self-service provisioning of additional computing resources, the ability to scale up and down based on demand, and billing that is measured on a granular scale. Cloud services are typically more than a set of servers, but include an entire network, hardware and management infrastructure that is unseen by users.



## WHAT IS A SERVER?

A server is a large, powerful computer which is typically specialized towards carrying out one kind of computing operation. For example, a SQL (pronounced 'sequel') Server is particularly efficient at storing text files – such as a Microsoft Word document.



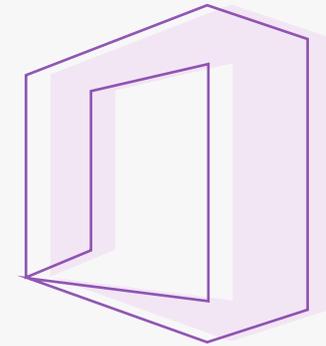
## WHAT'S THE DIFFERENCE BETWEEN OFFICE 365 AND SHAREPOINT?

Simply stated, SharePoint is both a standalone server product focused on supporting collaboration through documents and business workflows, and an important piece of Office 365. Office 365 unifies SharePoint, Exchange, Skype for Business, and Azure services within a single interface for organizations to be productive. Running in the cloud on Microsoft's Azure platform, Office 365 is optimized to deliver end-user experiences and allow for Microsoft to rapidly add technologies to its productivity offerings.

# Becoming cloud ready

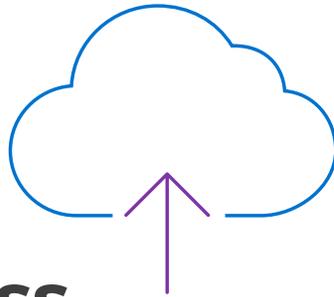
It is hardly surprising that Office 365 is so popular. Organizations which choose the platform gain access to the most powerful enterprise communications and collaboration tool ever created. Besides the power and productivity of the tools included in Office 365, a study from Forrester estimates an ROI of 321% in just two months for companies that move to the platform. Forrester analyzed the cost savings and the productivity boosts that Office 365 would bring to a medium sized business, and discovered that companies that chose the platform could save millions of dollars per annum.

While it is clear that Office 365 has enormous benefits for today's enterprise, moving to the platform still requires considerable planning and preparation. For organizations that already use Microsoft SharePoint, the move will require complex data migration, helping employees adapt to the new environment and require your company to change the way it works in many aspects.



Office 365 is officially the fastest growing business in Microsoft's history, according to their own analysis. The consumer version of Office 365 is seeing close to one million new sign-ups every month and the business iteration of the cloud platform accommodates up to 50,000 new small and medium-sized companies to the service every month. Office 365 is also used in 80% of Fortune 500 corporations too.

# Cloud readiness



The cloud is sometimes represented as a hassle-free option, easy to migrate to and easy to use. This is true to a degree. With a well-planned migration and experienced staff orchestrating the move, shifting your organization over to Office 365 can be fairly straightforward.

However, there are many stages in a migration to Office 365 where complications can arise and the supposedly smooth move becomes decidedly rough. Some of these complications are technical, some can be blamed on human error and some on poor planning. If you have not prepared for these potential obstacles, migrating to Office 365 can end up taking much longer than originally planned. Users will become frustrated and confused, and if content is not organized as expected, your employees may reject the platform.

Many companies move to Office 365 without a clear idea of what to expect. It is extremely important to understand what performance will be like, how your infrastructure and applications will integrate with Office 365 and how your current SharePoint environment is actually structured.

For example, years ago the standard rule for optimal page load time was eight seconds, which has now moved to three seconds as technology has improved and expectations shifted.

In SharePoint however, three seconds may not be possible or even practical. If you are viewing a page with multiple business intelligence dashboards, you fully expect it to take 30 seconds or more for the page to render because of the amount of data being retrieved and the graphical elements being displayed. If

you deploy a simple monitoring system to measure performance that doesn't account for such real-world scenarios, the data may indicate that the system is broken, when in fact, it is performing within acceptable limits.

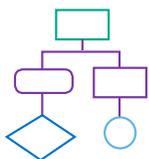
Expectations become even more complex when organizations transition to a hybrid infrastructure. Many organizations can benefit from a mixed on- premises/cloud approach because it offers them greater flexibility and allows them to maintain greater control over their data. However, while a hybrid infrastructure is certainly feasible in many situations, the on-premises and online versions of SharePoint don't always behave in the same manner, offer the same feature sets, or even expose the same service endpoints. Ensuring that an organization is ready for a hybrid deployment can be a complex and time-consuming task that requires a great deal of planning.



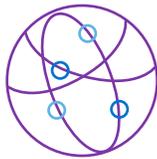
It is desirable to make the move to Office 365 as smooth as possible. The best way of avoiding these potential pitfalls is to thoroughly monitor the current environment and prepare for the move by setting appropriate expectations. Metalogix' Five Pillars to optimize Office 365 readiness detail the key areas you need to actively investigate before moving to Office 365.

# The Five Pillars for optimizing Office 365 readiness

In this section we outline the five key pillars required to optimize your readiness for a migration to Office 365. Our approach looks at key steps organizations need to consider as they lay the foundations for their move, as follows:



ARCHITECTURE



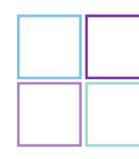
NETWORK



DATABASE

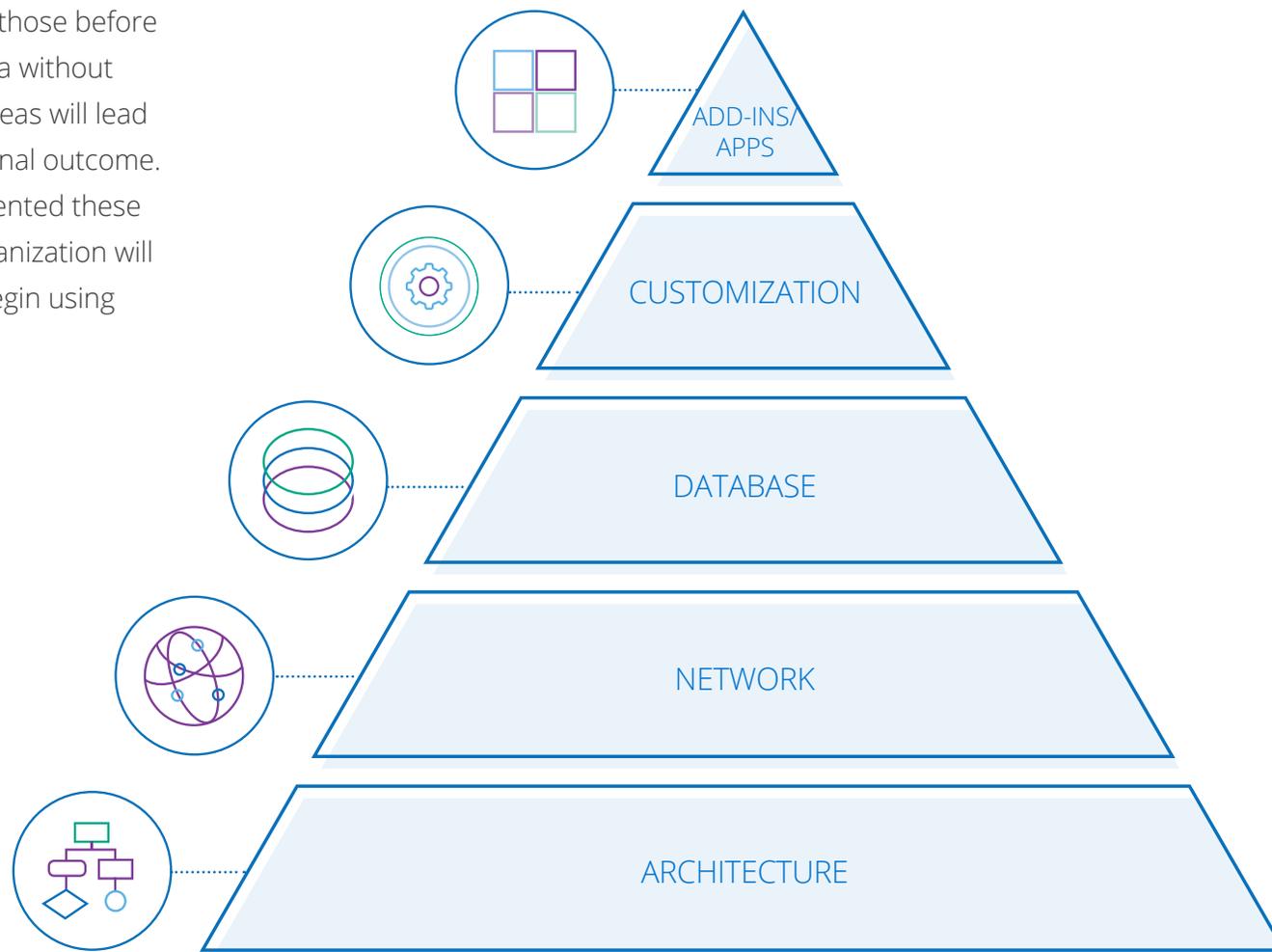


CUSTOMIZATION



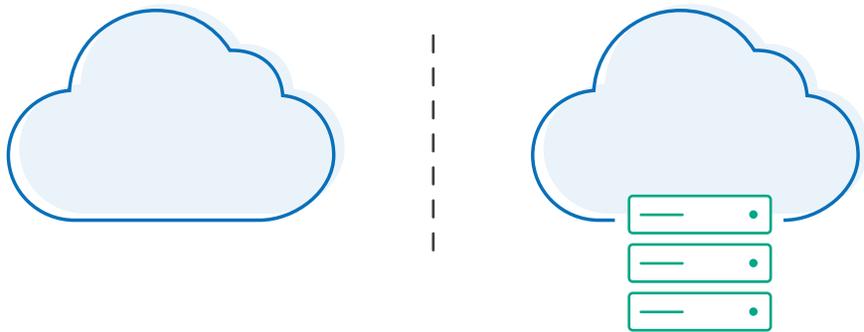
ADD-INS/APPS

Each pillar depends on those before it – focusing on one area without addressing the other areas will lead to a less-than-optimal final outcome. Once you have implemented these requirements, your organization will be well positioned to begin using Office 365.



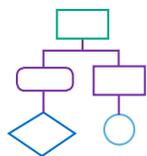
# Full cloud or hybrid?

Throughout this ebook we refer to a full cloud approach or a hybrid approach. While the difference is implicit in the name, each approach has specific implications for your migration.



**FULL CLOUD:** you move all your documents and processes out of SharePoint and remove or archive your SharePoint environment, never to use it again.

**HYBRID:** you move some of your operations to the cloud, but retain others in local servers. Typically, businesses choose to store some of their most sensitive files in local servers where they can vouch for their security. This is particularly important in countries where the law proscribes saving citizens' private data outside the country's physical boundaries. Because cloud data centers may be based in far off countries, a hybrid solution that isolates data from its country of origin can often be a good trade-off between cloud benefits and data security.



# Architecture

The architecture of your SharePoint system can be compared to the architecture of a traditional brick-and-mortar office. Instead of rooms,

SharePoint uses servers (the dedicated computers which process all the information treated by your organization) and a logical distribution of sites, libraries and lists. Rather than mixing all the rooms together, it is far more efficient to have different rooms optimized for different activities.

For example, in the basement you might have a room full of shelves containing company files – this would equate to the dedicated SharePoint database server. You might also have a room full of employees whose job

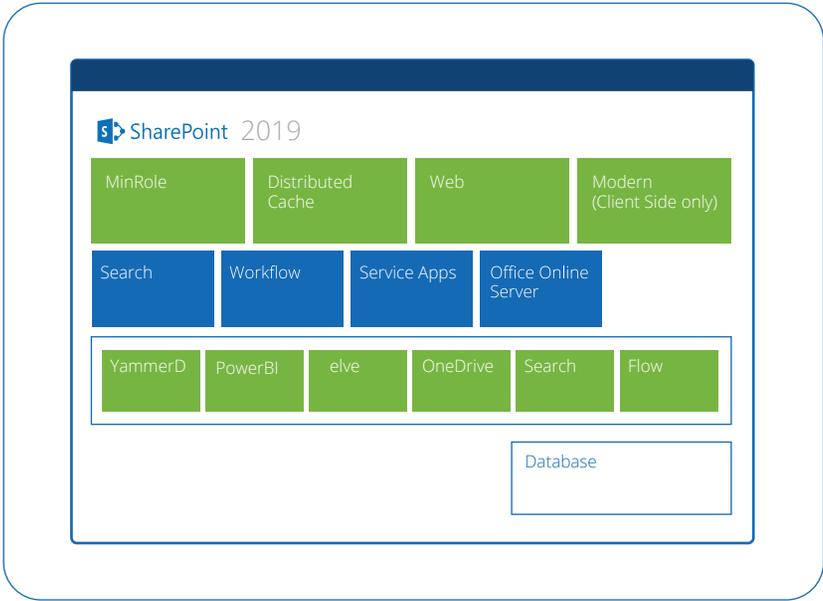
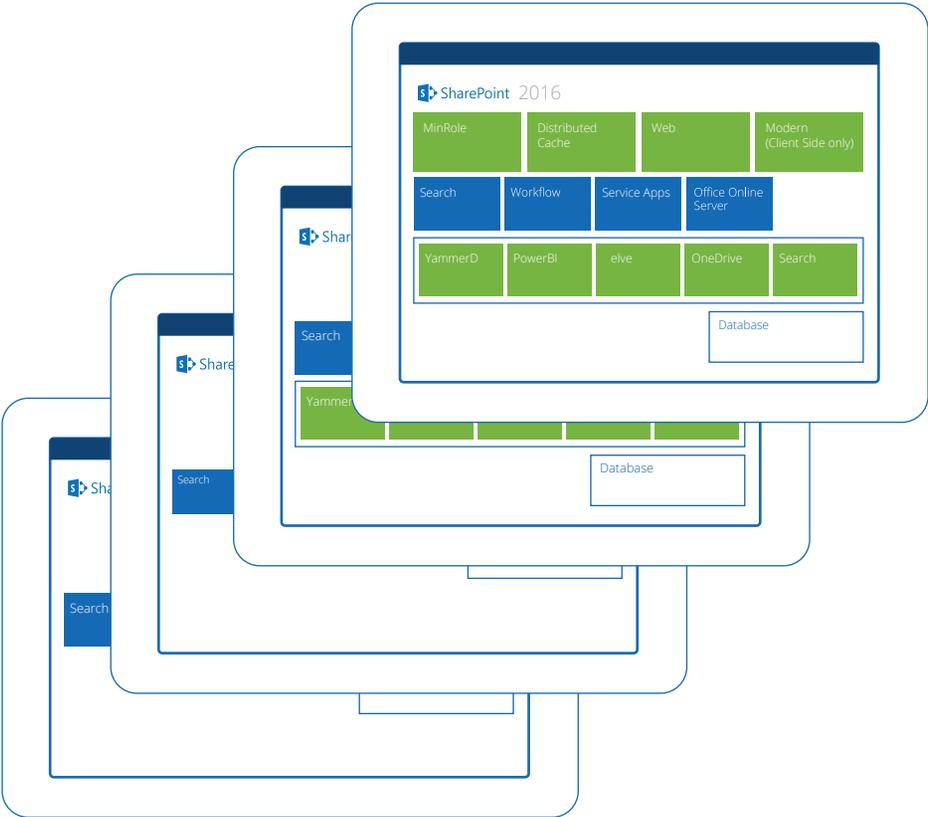
involves retrieving files stored in the basement room as they are needed by the business. When someone searches for files in SharePoint, a search service is responsible for pulling up relevant results quickly when someone types something into the search box. The public face of a traditional brick- and-mortar company might be served by a dedicated 'front of house' desk, welcoming employees and staff in each day. SharePoint uses a similar concept of front end servers and top-level sites to help display pages and content to end users, offering them navigational choices and consolidating information from multiple sources into a single welcome page or dashboard.

When someone searches for files in SharePoint, a search service is responsible for pulling up relevant results quickly when someone types something into the search box.



## SharePoint 2007, 2010, 2013, & 2016

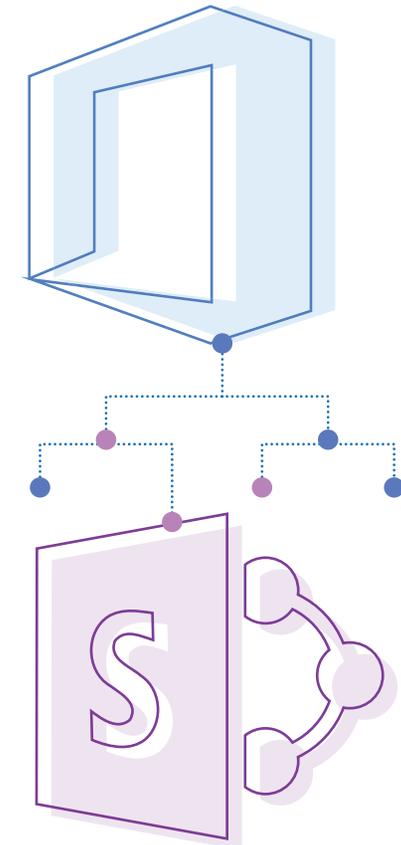
## SharePoint 2019



# How to get your architecture Office 365-ready

If your organization is planning on using Office 365, either stand alone or as part of a hybrid system, you will need to prepare your existing SharePoint environment for this change. Importantly, depending on how your current SharePoint environment is configured and the level of customization in place, users could have quite a different experience in Office 365. Whether you decide to move completely to the Cloud or choose a hybrid approach, a number of factors will weigh on your capacity to make this move:

- ▶ Speed of connection
- ▶ Geolocation of data centers



## SPEED OF CONNECTION

The speed of your connection to the outside world, and the various connections in use by mobile personnel, will have a direct impact on the overall user experience. The connection speed will vary depending whether:

**a.** In a hybrid scenario, if the corporate connection to the Internet is slow, but your connection to local servers is fast, users will find the variation between the environments disorientating. The reverse applies to mobile workers, if their connection to the cloud from home or on the road is fast but connections to the corporate network are slow, the user experience is inconsistent and frustrating.

**b.** In a cloud-only scenario, employees will compare the perceived speed of the external connection against that of the internal network, which is almost always faster. There are various ways of connecting out to Office 365, with most companies using their normal connection via the 'public' Internet but this connection, previously used for browsing and simple file downloads, may not be optimized for the amount of two-way traffic inherent in a collaboration environment like SharePoint. In this case speed may be limited by the available options from

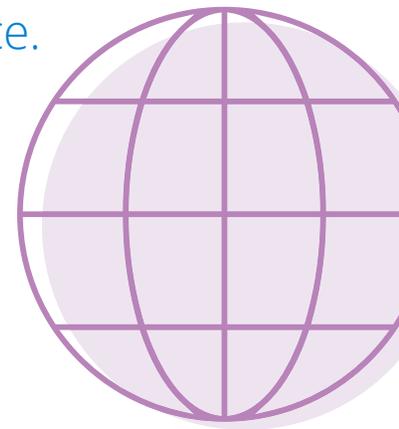
the local Internet Service Provider, which can sometimes be out of the company's control. Expectations should be set with users beforehand if it becomes apparent that external connection speed might be an issue. Customers looking for a fast, more reliable connection can consider Microsoft ExpressRoute, which offers a direct connection from the customer network to Microsoft's data centers. An ExpressRoute connection operates on a dedicated virtual circuit, therefore offering greater reliability, faster speeds, lower latency and higher security than typical shared Internet connections.

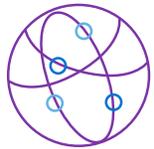
## GEOLOCATION OF DATA CENTERS

**a.** In a hybrid deployment, users in other geographic locations, especially those overseas, may have to traverse undersea WAN links to the local SharePoint environment, and even onshore or near-shore users may need to use secure VPN connections anytime they are outside the company firewall. This adds significant latency and overhead, slowing down the experience for some users and making it less suitable for daily work activities.

**b.** In a cloud-only deployment, you will have to think about where the data center that your tenant has been provisioned in is actually physically located. Although Microsoft is continually building new data centers in order to be closer to users, and their infrastructure includes a significant number of traffic localization and load balancing components, employees may still find themselves far from the closest data center, which could impact on their experience in the same manner as a remote user connecting back into the corporate network.

If your company has offices around the world, you will need to prepare for how this will change your IT set up if you move to Office 365, and how it will impact user experience.



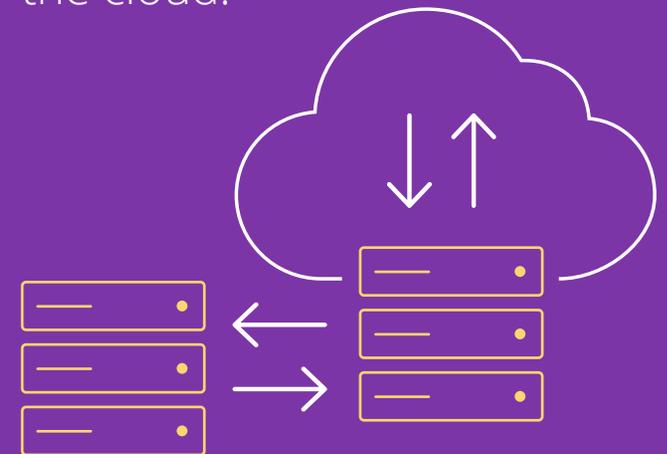


# Network optimization

Returning to the example of a brick-and-mortar office again, no company would function very well if corridors between rooms were narrow and cluttered with boxes, tables and photocopiers, or if employees had a difficult time getting there in the first place. It is far more sensible to design an office so it has numerous entries and exits and connections to nearby means of transport.

The same goes for SharePoint and Office 365. You need fast, uncluttered connections between servers, and you also need a speedy (preferably dedicated) connection to the cloud. If these are disorganized and weak, you will face congestion across the network and lead to employees feeling frustrated.

You need fast, uncluttered connections between servers, and you also need a speedy (preferably dedicated) connection to the cloud.



# How to get your network Office 365-ready

First, ensure that your current SharePoint environment is performing correctly. SharePoint can be the cause of a lot of traffic over the network.

There are various actions that technical architects can implement to speed up traffic between SharePoint servers and improve overall network performance, with one of the most effective being traffic isolation, in which the physical and virtual connections between system components are kept separate from each other.

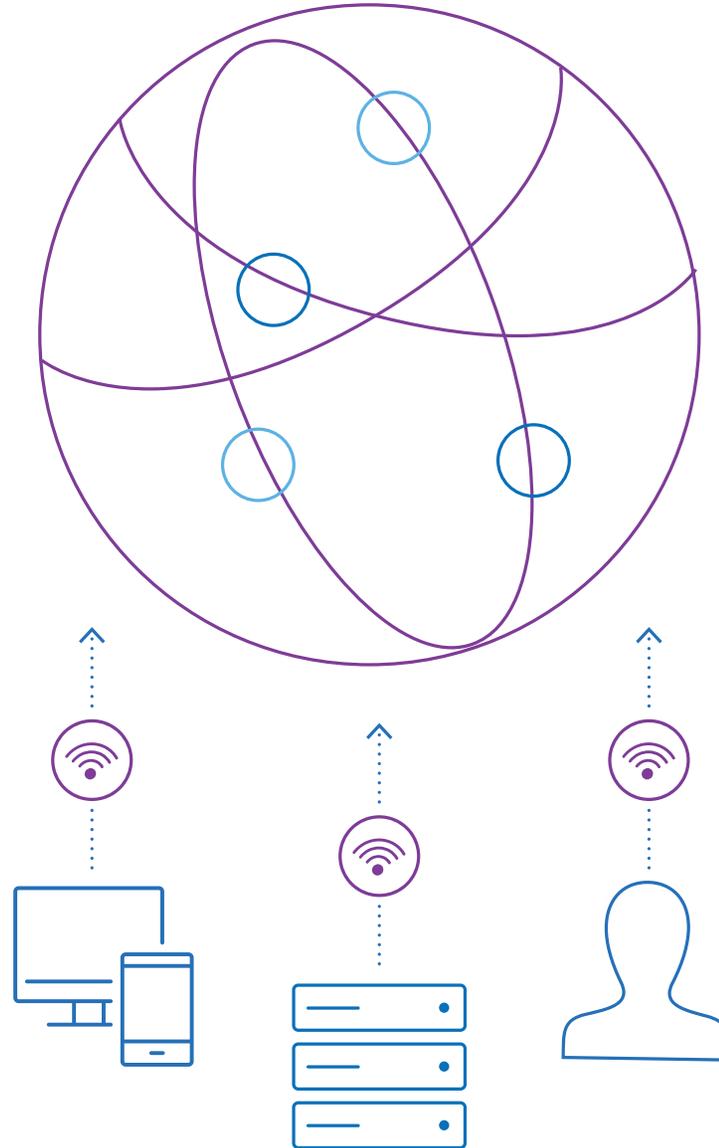
Implementing traffic isolation can be a fairly straightforward process depending upon the existing network configuration and design. By way of example, consider a typical small SharePoint deployment that consists of one database server, one application

server, two web servers and a directory server. In many cases, these components all have a single network interface connected to a shared switch. A more efficient approach would be to utilize multiple network interfaces in each server and connect them to virtual local area networks (VLAN) on the same switch. For example, the web servers may have three interfaces, one which connects to the corporate network, one which connects to an authentication network, and one which connects to a database network. In this manner traffic between the web servers and the database, which comprises the bulk of

SharePoint network communication, can be isolated to a single interface separate from the interface used by employees to browse pages and upload files. Similarly, communication with directory services to facilitate logins and authentication requests will have its own channel to exchange information.

Another very useful technique is to configure SharePoint services that generate a lot of network traffic, like search, to only communicate with a dedicated server instead of the general-purpose web servers.

Implementing traffic isolation can be a fairly straightforward process depending upon the existing network configuration and design.

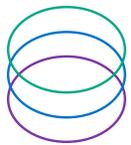


## Moving to the cloud



Once your on-premises network is optimized you are in a better position to consider moving data to the cloud and deploy hybrid services. Office 365 supports automated means of moving large quantities of data, but speeds as low as 1 gigabyte per hour are not uncommon. So clearly there is a need for not only proper planning of time and resource allocation, but also incoming and outgoing bandwidth.

On-premises servers need to be running optimally, as migration tasks consume additional bandwidth on top of normal collaboration activities, and external links must be optimized to facilitate a great deal more traffic than normal day-to-day web browsing.



# Database migration

Any time data is moved from one system to another it places a burden on available resources. The more data that has to be relocated the greater the overall burden and time to completion. Any steps that can be taken to reduce the amount and size of data will make the process more efficient. This offers a good opportunity to remove unnecessary information from the system by archiving or deleting it.

The same goes for migrating SharePoint to the cloud.

Documents that are rarely accessed can be moved to local file storage, old sites can be archived, page content can be trimmed, document versions deleted and search indexes rebuilt to conserve space, all of which will make the transition easier and less time-consuming.



## MIGRATIONS/INITIAL DATA TRANSFER

- ▶ Internal & External Bandwidth
- ▶ ExpressRoute
- ▶ Azure Storage



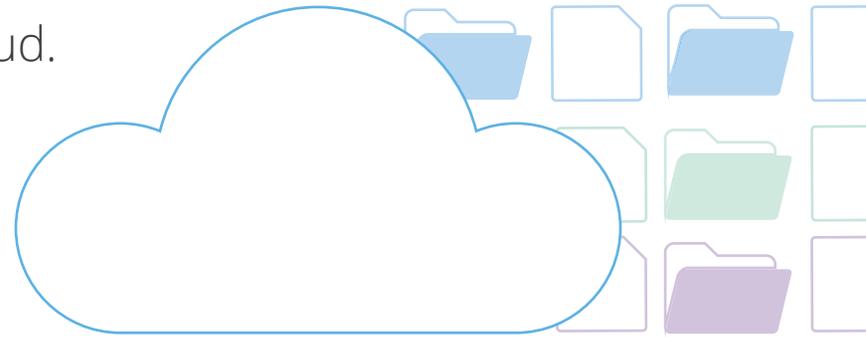
## CLOUD

- ▶ Content Delivery Network
- ▶ Geographic Distribution (WAN link balancing)
- ▶ Page contents

# How to get your data Office 365-ready

There are several key areas to focus on when migrating content stored in SharePoint to the cloud. These include:

- 1 Some content will simply not function in the cloud. Office 365 offers a different set of features than on-premises SharePoint. Some page components are not available, certain types of sites don't exist and many customizations are either deprecated or ill-advised. A review of all the content pages with a focus on what will and won't work online can result in a great deal of data storage savings as pages are refactored to be cloud-ready. There is little point in wasting time and bandwidth trying to move items to the cloud that simply won't function in that environment.



- ② Document versions can consume a huge amount of database space. Prior to SharePoint 2013, each version of a document resulted in a duplicate of the object being stored separately in the database. Over time this can result in gigabytes of storage that serves no useful purpose. Examining each document library and modifying version control settings to truncate old versions can greatly reduce the amount of data in the current on-premises database and minimize what gets sent over the wire to Office 365.
- ③ Sites and workspaces that are accessed infrequently on-premises are unlikely to be accessed any more frequently in the cloud. These can either be excluded from the migration process or the content archived and the site deleted. A thorough review of existing sites by content owners often results in the discovery of many unused sites, the elimination of which can provide a tremendous amount of storage savings.



## MIGRATION

- ▶ Content archiving
- ▶ Page cleanup
- ▶ Data purging
- ▶ Shrink files Versions!



## OPERATIONS

- ▶ Disk I/O
- ▶ Index maintenance
- ▶ Auto-growth
- ▶ Quotas



## DISASTER RECOVERY

- ▶ Database size
- ▶ Available bandwidth



# Customizations

Returning to our analogy, SharePoint is like an open-plan office which you can design in any way you like, whereas Office 365 has rigid walls which you cannot move around at all (we'll explain why in the next section).

While it is perfectly possible to move tables, partitions and equipment wherever you want, it's generally best practice to stick to the original designer's plan to avoid confusion. If employees must change their desks around, this request should be submitted to a professional office designer to avoid a chaotic working environment for everyone.

Second, most SharePoint pages contain links to supporting files, including javascript and style sheets, which require additional time to retrieve and execute. Designers can alter the way in which SharePoint pages retrieve these files through a technique called "delayed loading", which essentially loads the linked files in the background while the rest of the page is rendering, allowing users to view content without waiting for all the back-end processing to take place.

Finally, resist the urge to open SharePoint designer and start modifying the contents of a page directly. This results in the entire page being stored in the content database, from which it must be retrieved each time a user makes a request for it, circumventing the built-in caching mechanisms in SharePoint.

## Page customizations should be made on a component-level basis whenever possible and leverage common script, file and style sheet resources.

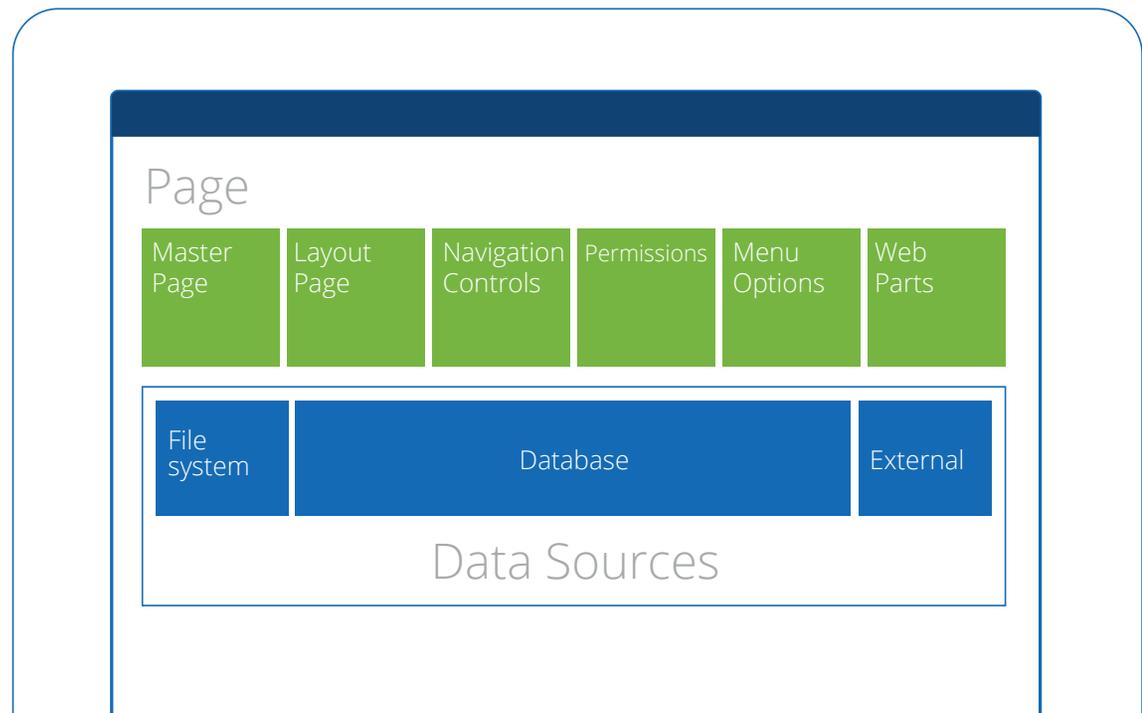
Page customizations should be made on a component-level basis whenever possible and leverage common script, file and style sheet resources. It is also a good practice to employ the use of content delivery networks for external libraries (such as JQuery) and images.

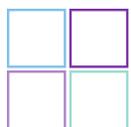
The above approaches can help optimize page load times and make the move to the cloud easier but in some cases customizations deployed on-premises are simply not compatible with Office 365, where Microsoft reserves the right to change the base user interface components at its discretion. This can cause a great deal of frustration when carefully designed pages suddenly

change based on a system update. A good way to avoid this situation is to simply avoid major interface changes altogether and concentrate instead on the modification of content within pages rather than the pages themselves.

Revert existing content to out-of-the-box master pages and remove all page-

level customizations prior to migration in order to ensure a smooth transition. Then, after the content has been moved to the cloud, revisit those pages where some in-page customizations using the supplied content controls (such as the Content Editor Web Part and Wiki pages) will enhance the user experience.





## Add-ins and apps

In SharePoint, as we have seen, introducing customizations is relatively easy. When looking toward Office 365, customization is more challenging and subject to greater volatility.

### WHY IS THIS?

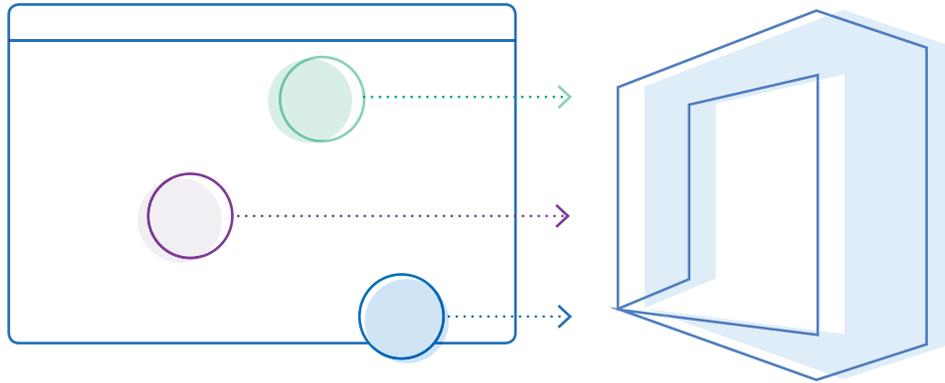
Because Office 365 is a cloud service, it needs to offer a stable performance service to all users. Customizations, as with any custom code solution, can introduce performance issues and bugs to the environment. Microsoft simply cannot allow this to happen to Office 365, which is used by thousands of other companies.

Customizations can be achieved through various methods, these include the Add-in Model, The SharePoint

Framework with app extensions and external Azure functions while adhering to the PnP framework.

We might compare this once again to a 'paper-based' office. Were your company to move to a large office building, shared with a number of other companies, it would not be acceptable for you to go around building extra walls or rooms where it suited you – this would only hinder others.

You might, however, be allowed to bring your own pre-fabricated solutions into the new building – maybe a mobile partition which you could place down the middle of your own office, or seats your colleagues found more comfortable than those supplied by the new office building. This would be fine as long as your changes don't alter the physical structure of the building.



## How to get add-ins ready for Office 365

Office 365 add-ins can be used to create standalone applications accessible via Site Contents or the Application Launcher, embedded page components very similar to web parts, or administrative resources that deploy branding customizations, provision sites, assign permissions, and so on. The client object model, which offers various application programming interfaces via .NET, JavaScript and REST services, can be used to meet a variety of requirements previously served by full-trust code on-premises.

For more information on how to use the add-in model to customize and extend Office 365, visit <http://dev.office.com>.

From a readiness perspective, when moving to a cloud or hybrid environment you need to look at existing customizations in light of the Add-in model:

- ▶ Can customizations be rewritten? Do they need to be, or can out of the box functionality in Office 365 replace them?
- ▶ Does your organization have the staff and expertise to create Add-ins?
- ▶ How are provider hosted apps to be provisioned and supported? Do you have the infrastructure and web servers needed?
- ▶ Are you prepared to support the level of remote interaction at the same performance baselines?

# Next steps

The five pillars needed to optimize your organization's Office 365 readiness are an essential step in your migration to the cloud. Once you have implemented these steps, you will be prepared for a much smoother journey to Office 365. How should these pillars be implemented?

## ANALYZE YOUR STRENGTHS AND WEAKNESSES

The most important step in implementing the Five Pillars is to begin assessing how your company is doing in each area. Your IT team will need to carry out a thorough analysis of how your current SharePoint environment is performing and identify the areas which will need the most improvement.

## REMEDiate AND RECOMMEND

Unpack your content and solutions into what can be done, what should be done and what cannot be done. This will drive your action plan. What cannot be done should be either rebuilt or decommissioned.

## DEVELOP AN ACTION PLAN

Once you have a clear idea of where you need to optimize readiness, your next goal should be to develop a strategy for your migration by focusing especially on pillars where you are currently underperforming.

# Conclusion

Migrations might seem simple on the surface but there are many factors that could impede the process and invariably cause uncertainty and doubt within the organization that their existing environment can in fact, be moved and or migrated.

It is with this in mind that we believe that by following the guidelines set out in this document, companies will have conducted the necessary preliminary assessments and investigations so that they are fully aware of the as is and will be able to progress to the to be with confidence.

# About Metalogix

Metalogix's award-winning cloud, hybrid, and on-premises solutions provide organizations with the freedom and control to migrate, manage, and protect content within enterprise collaboration platforms. Over 20,000 clients trust Metalogix to optimize the availability, performance, and security of their content across the collaboration lifecycle.



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