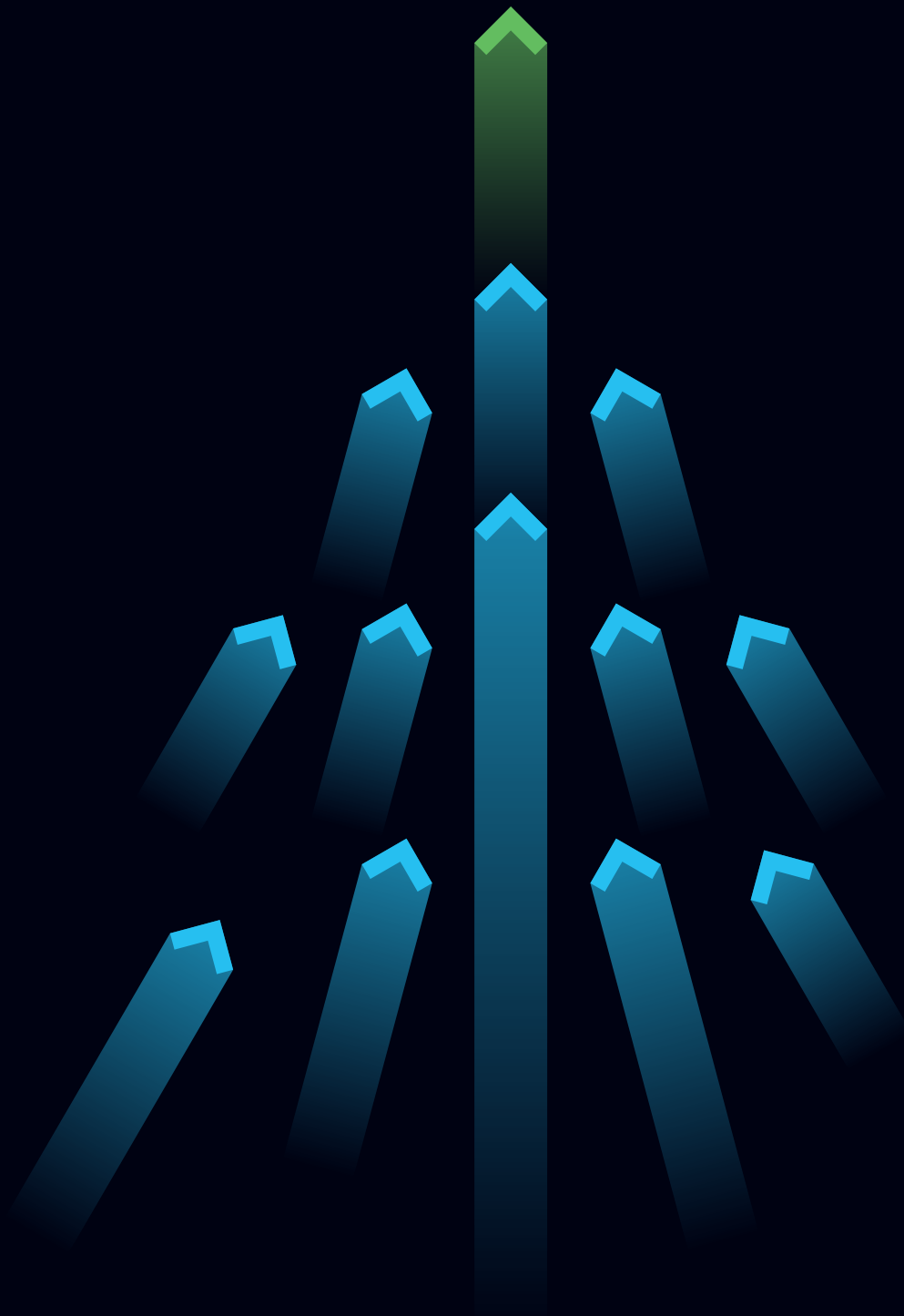


Email Migration to Office 365



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Chapter 1 – Understanding the Scope and Aims of your Project

If you're considering migrating your email to Office 365, are in the planning stage, or you've already started the process, you will probably know that a project like this can offer hidden challenges and complications.

Email is integral to business communications and operations, and ensuring that the process runs smoothly, adheres to the deadlines that have been outlined, and has minimal end-user disruption can seem like a real uphill struggle.

As such, our whitepaper on email migration to Office 365 aims to:

- highlight important aspects to consider
- help avoid some of the pitfalls that can happen during migration
- contribute to the success of your migration project.

We'll start at the beginning, before the decision to migrate has even been made.

How do you ensure your corporate email migration is a success?

For many organisations, email migration is the biggest obstacle they must face before they're able to realise the full productivity and cost benefits of Office 365. Deciding to migrate your email ecosystem to a cloud-based service can bring up a lot of issues and questions for companies of all sizes, for the following reasons:

- › Migration procedures must be legally defensible. You've got to be able to immediately lay your hands on accurate, uncorrupted data at any point.
- › The information must remain secure, and normal business operations should be able to carry on uninterrupted.
- › There are technical challenges in converting files types, de-duplication, ensuring archive integrity, supporting e-forensics, and physically moving the data.
- › It is crucial to plan around any bandwidth restrictions; you'll need to consider extended time-frames to physically transfer large archives.

Other aspects to consider...

- › Email is a corporate record, so before beginning any migration you'll need to ensure fundamental audit trails can be preserved together with clear chain-of-custody, and that specific roles and policies can be defined to control administrator access.
- › Except for the most basic projects, some level of automation will be essential. Automation helps manage resources, speeds up the process, reduces errors, deals with exceptions and ensures everything remains defensible.

The good news is that most migrations are performed from live mail, archive, offline file and shared folder structures with well-known characteristics, so there shouldn't be any need for nasty surprises. With appropriate tools, sound project planning, and support from experts, there is no reason why your migration can't be a complete success.



Reasons to migrate to Office 365

Let's start by summarising the motivating factors for migrating to Office 365:

Compliance

- › Able to meet regulatory and legal standards for retention and discoverability.
- › Ensure data resides in appropriate location/ geography.
- › Reconcile files with correct users (even if they have left the organisation).

Security

- › Prevent local 'PST' files being created, lost or stolen.
- › Improve protection against email-based viruses and attacks.
- › Centralise control over live and archive mailboxes.

Performance

- › Enable VDI and multi-device roll-out, and improve employee mobility.
- › Improve utilisation of existing network and system resources.
- › Improve business continuity and disaster recovery capability.

Cost control

- › Prevent expensive third-party remediation for unsupported products.
- › Improve management of licensing.
- › Reduce internal support cost of email administration and intervention.

Service enhancement

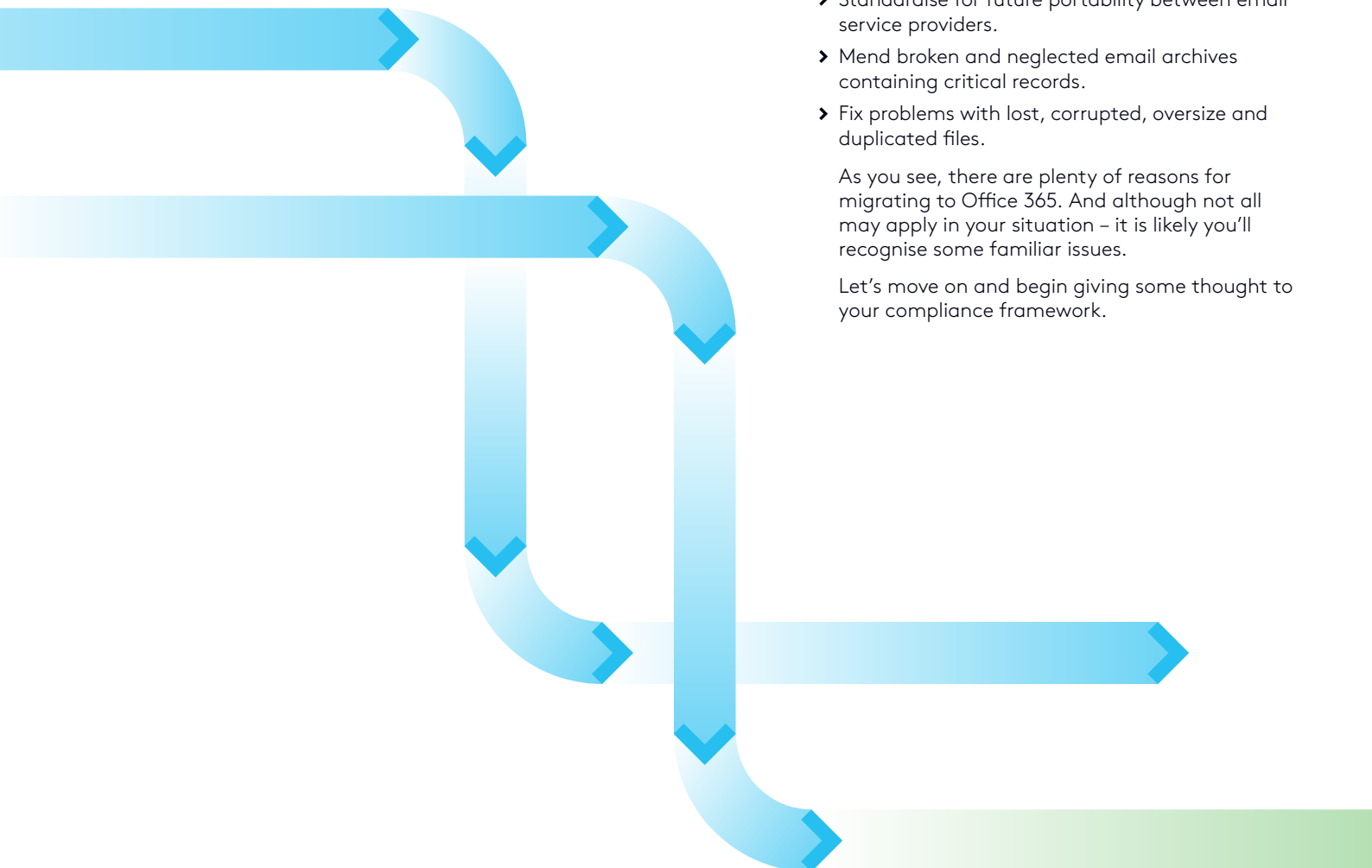
- › Enable adoption of cloud services that complement Office 365.
- › Improve scalability of email services against business requirement.
- › Consolidate systems following acquisition or merger.

Remediation

- › Standardise for future portability between email service providers.
- › Mend broken and neglected email archives containing critical records.
- › Fix problems with lost, corrupted, oversize and duplicated files.

As you see, there are plenty of reasons for migrating to Office 365. And although not all may apply in your situation – it is likely you'll recognise some familiar issues.

Let's move on and begin giving some thought to your compliance framework.



Understand your regulation and compliance imperatives

Before you even start considering how to migrate, you need to familiarise yourself with the requirements governing your data. Compliance laws vary between territories, but typically include controls on data protection, freedom of information, and data retention – all of which apply to email as much as any other correspondence.

Although most retention periods governed by law are typically less than ten years, retention of highly sensitive information can be compulsory for much longer in certain circumstances. For defending patents, for example, emails might be kept for up to 25 years. Failures in email retention can bring big fines. In just one example, [Barclays was fined \\$3.75m \(€3.35m\) by a US regulator](#) for allegedly failing to keep proper electronic records, emails and instant messages.

There are also specific rules covering individual industries – in particular those that are highly regulated, such as finance (e.g. the Sarbanes-Oxley Act, Financial Services Act and [Federal Rule of Civil Procedure 37E](#)) – that affect email governance. It may be that in your industry you still need to retain some element of email on premises. If so, you'll need to consider how this will interact with the Office 365 element as a hybrid configuration.

Your Office 365 servers will need to be compliant with the jurisdictions of individual territories. Fortunately Microsoft has bent over backwards and obtained [assurance from the EU](#) that it is able to meet any concerns in this regard. In addition, [an appeal court ruling issued on 14 July 2016](#) ensures that the US government cannot force Microsoft to give authorities access to the firm's servers located in other countries.

"The US government can no longer seek to use its search warrants on a unilateral basis to reach into other countries and obtain the emails that belong to people of other nationalities," said Brad Smith, president and chief legal officer of Microsoft. "It tells people they can indeed trust technology as they move their information to the cloud." In other words, Microsoft's enterprise cloud is not only subject to Europe's rigorous privacy standards no matter where that data is located on Microsoft's enterprise cloud services – including Azure and Office 365, but there's been an assurance that its data is secure from US government interference too. The legal and regulatory framework around products like Office 365 has grown increasingly mature, and is unlikely to cause you any problems.

The bottom line is that you are unlikely to fall foul of compliance problems as long as you understand and act in line with your existing obligations.



Chapter 2 – The Most Common Office 365 Migration Mistakes

Having decided that Office 365 email migration is the right decision for your organisation, what are the technical pitfalls that you should avoid? The most catastrophic scenarios are those where the migration has only been planned around live mail, breaking all the dependencies with other elements of the email ecosystem. The missing bits must be hurriedly retrofitted into the project, causing massive project delays, increased risk of downtime, and huge additional costs.

Live email

Theoretically it's easy to migrate live email as Microsoft provides basic tools that allow you to transfer data into Office 365/Exchange Online environment, although [large cutover migrations are especially difficult](#).

The trouble is that you need to consider more than your live mail. In many organisations, email is often the default 'database of record'. It's the only application that every single employee actively uses in order to do his or her job. Not only does it provide an audit trail of correspondence, but it's also used by many people as a quick way of accessing other documents, rather than filing attachments away.

You need to find a way of integrating your live mailbox migration with other elements of the email ecosystem from the outset if you are to avoid difficulties further down the line.

Archives

Over time, archiving of older emails in purpose-built electronic systems like Veritas Enterprise Vault often becomes essential to retain performance of the main system. It's easy to break the interactive shortcuts (or 'stubs') that users rely on if just the live mail system is moved.

Many organisations are now migrating archives into Office 365 – which creates the risk of incredible throughput bottlenecks and business interruption – while others have to remap their live mail and archive systems completely if a hybrid Office 365 with on-premises archive is the target solution. Both scenarios can be achieved painlessly if the right approach is taken from the outset.

Offline 'PST' files

The ubiquity of Microsoft Outlook and Exchange over the past 20 years created another problem. Emails are also stored in files with .pst extensions on local users' machines. That means there can be many thousands of unsecured and untracked 'PST' files containing sensitive data scattered around the organisation.

If PST eradication is not included in your Office 365 migration plan then the organisation may find itself unable to fulfil legal obligations on retrievability, because PSTs cannot be backed up centrally. You'll also be at heightened security risk. In the high-profile [2014 Sony Pictures hack](#), at least 179 'PST' files – including those of an executive at Sony Pictures Canada and one of its IT audit supervisors, along with many archive and backup PST files – were stolen. At least 170,000 individual emails were subsequently [published by Wikileaks](#), and Sony reputedly had to set aside \$15m to deal with the incident's fallout.

Public folders

Exchange public folders have been commonly used to share and collaborate for over 20 years. They typically build up plenty of redundant data spanning extremely large hierarchies and volumes, and can be very difficult to manage. Public folders don't provide versioning or other document management features, such as controlled check-in and check-out functionality, and automatic notifications of content changes. Migration is complicated by the need to arrange data logically for eDiscovery and compliance.

By the time Exchange Server 2010 was released, public folders had already become an optional feature, and in 2014 Microsoft decided the time was right to turn off [its own last on-premises public folders](#).

Tony Redmond, Microsoft MVP and all-round Exchange Expert suggests one target for public folders is Office 365 groups. According to Tony, a group is:

"...a combination of a distribution group and a [site mailbox](#) (or even a traditional shared mailbox) because when we look under the hood, we find elements of Exchange and SharePoint mixed together to deliver the collaborative potential that Microsoft envisages for Office 365 Groups. [Recent comments by Microsoft](#) indicate that groups are preferred to site mailboxes if you need a collaboration platform for a new project."



Chapter 3 – Technical Considerations

In chapter one, we took a look at the reasons to migrate to Office 365 and how you can make your project a success. We followed this with a discussion on [common mistakes](#) made during migration in chapter two. Next, we're examining some of the technical prerequisites you should be aware of.

Preparing the groundwork

Unless you have simple requirements and a small environment, lifting-and-shifting your email data into Office 365 isn't going to be a viable option. There's likely to be a wide range of considerations which need to be brought into the process before it can start. Questions about policies, existing technology, migration type, and timelines need to be addressed before your project can commence.

Your overall migration strategy needs to be governed by a comprehensive information management policy. This provides the basis for determining what data must be migrated for legal and regulatory reasons, and what can be disposed of as having no business value. Many organisations decide to attempt a partial migration in the first instance, but once they begin to evaluate the state of their data, they find it necessary to [move everything](#) as some files could present risks in their current state.

Throughout the process, it is vital to track any changes, monitor progress, and keep a full audit trail of activity. You can attempt to do this manually, but using reports from live tools is far more reliable from a quality control and resource management perspective. There are plenty of third-party solutions around to help with this, although some are more comprehensive and user-friendly than others.

Technical considerations

There are certain technical requirements that should be considered before you start a migration project, such as the performance and capacity of servers and networks. Even if your existing infrastructure isn't bursting at the seams, you won't want to overburden it and grind systems to a halt. The most important thing is for business to be able to continue as normal while data is collected and migrated.

Your chosen migration solution may also involve provisioning dedicated hardware. This can be an opportunity to repurpose old hardware – or to purchase new hardware with the intention of subsequently repurposing it into your production environment.

With some migration solutions, software may run in the cloud and you won't need any special hardware. However, the reliability of your wide area network (WAN) is even more important, as again you don't want to choke normal business data traffic.

- ▶ Backup windows – Backups are often run outside normal working hours, i.e. at the same time you'll want to be transferring data during migration. These need to be scheduled so that neither process compromises the performance of the other.
- ▶ Permissions to access data – Permissions need to be set on all source systems before data gathering commences. Where local files, such as PSTs, need to be accessed on individual machines it's important to communicate with staff and explain the reasons for access.
- ▶ Security issues – Misconfigured proxies and firewalls can be blockers to migration, as can overzealous security procedures that mean extensive customisation to the migration tools being used.
- ▶ Problems with existing implementation – there may be corruption or stability problems with your current Exchange implementation – maybe it has some peculiar plug-in configuration, or it may have existing business process baked tightly around an old version (e.g. Office 2003) that Office 365 doesn't readily support. These need to be fixed before your migration project can commence.



- Specialist resources – If some of the necessary skills are available in-house it's often necessary to employ external consultants to help with project governance (or even to carry out the hands-on work). Appropriate planning and tool selection can often reduce the cost associated with hiring specialists.

Assuming these initial considerations have been addressed, what else do you need to be aware of?

A matter of scale and complexity

Scale and complexity are big factors in delaying or obstructing migration success. Email migrations are far simpler when they take place on a smaller scale, and [the migration features](#) available in Office 365 should be able to deliver a smooth and rapid transition for smaller, simpler environments.

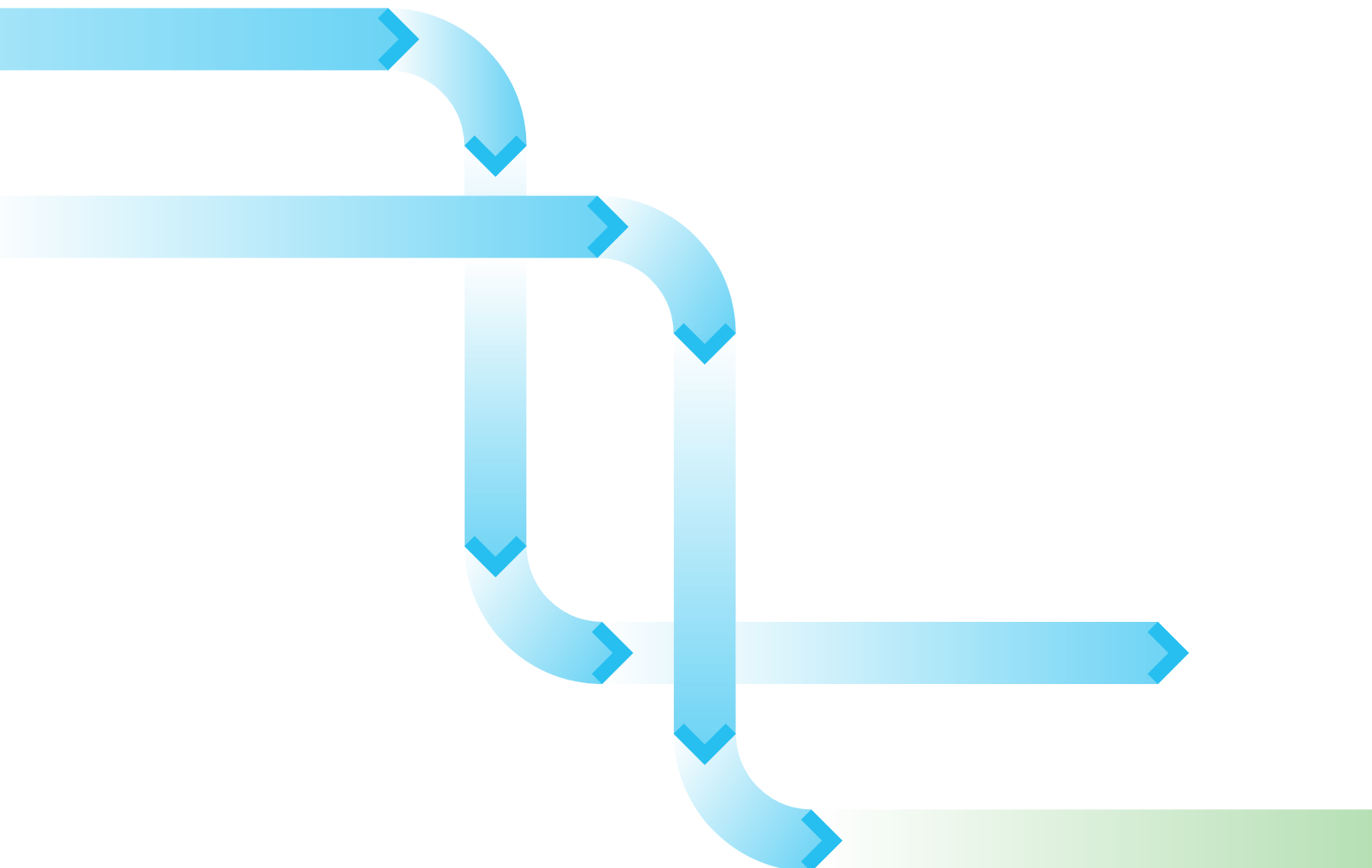
But what happens if you have more complex needs?

Many organisations have multiple offices scattered across different locations, and if some, or all, of these sites are running different versions of Exchange (or if they each have their own archiving system) the process can become extremely confusing and very slow. If you have one or more of these kinds of complications, especially when you're migrating a large environment, it might be time to seek third-party assistance. There are plenty of tools and services available to deliver better management, speed and efficiency when it comes to enterprise-scale migrations.

On the assumption you have already established the compliance and retention imperatives you need to achieve from your new environment, you face three main questions:

1. How do I minimise the data volume I need to transfer?
2. How do I ensure that I don't break the existing logic and interdependencies within my system?
3. What do I do with the stuff I no longer need?

And in the next chapter, we begin looking at data volume issues.



Chapter 4 – Managing Data Volume

It's time to take a long hard look at your data, especially the volume which needs to be moved across into your new system—in this chapter we explore the potential issues surrounding the management of your data volume.

Data volume and Office 365

We fully appreciate the process of migrating data is one filled with questions, and some of the most important ones are around the amount of data to be migrated. As tempting as it is to migrate everything, this isn't typically advisable. While storage in Office 365 might be far more affordable and flexible than on-premises, moving all your data could become an obstacle to productivity and mobility. Office 365 should enable you to streamline operations, reduce infrastructure and storage costs, and make it easier for your employees to be productive, if you still need to sift through large amounts of old, irrelevant, and perhaps even corrupt data, then you're less likely to reap the benefits that your new environment offers.

It is important to [minimise the data volume](#) that gets transferred over the WAN into Office 365, otherwise you may encounter network issues, IT performance problems, and a negative impact on business continuity. There are a number of different ways to ease this pressure, and reduce the impact on your network.

Microsoft offers [two options](#) for getting data ready for an Office 365 import:

- › **Network upload** – this involves uploading data files over the network to a temporary storage location in the Microsoft cloud, with the Office 365 import service then utilised to bring the data into your Office 365 system.
- › **Drive shipping** – the process of copying data files to a BitLocker-encrypted hard drive and then physically shipping the drive to Microsoft. Microsoft data centre staff then upload the data to a temporary storage location in the Microsoft cloud for subsequent use with the import service.

In email and archive migration projects, the data payloads being transferred can be very significant. Transferring large email ecosystems and data archives into Office 365 over the network can take up to several months for large enterprises, and so it's vital you use the most time and cost-effective method possible.

Of the two options highlighted, drive shipping is the more expensive ([at \\$2k per 1TB](#)), but in certain cases, it may be the only viable solution. There are third-party software solutions available to optimise the payload and ingestion process are optimised by purpose-built software, the network upload option remains the most preferable.

Besides having a negative impact on your own network, large data migrations are also affected by [throttling restrictions](#). Throttling is the intentional slowing of a service or system by its provider, and it is typically seen in the context of bandwidth throttling (the slowing down of Internet service by an Internet Service Provider).

Importantly – and interestingly – the [Exchange Online](#) service **“includes bandwidth throttling to help manage server access. The throttling components of Exchange Online are especially important, given that network resources in the data centers are optimized for the broad set of customers that use the service.”**

Office 365 deliberately slows migration uploads by employing:

- › **User throttling** – affecting migration from non-Microsoft platforms such as IBM Lotus Domino and Novell GroupWise
- › **Resource-based throttling** – to manage incidents affecting critical services
- › **Migration-service throttling** – in our case, this is the most relevant, as migration-service throttling may, for example, restrict the number of mailboxes that can be migrated simultaneously during simple Exchange migrations (by default, a maximum of three mailboxes can be migrated at any one time)

A more technical explanation of throttling and its limits can be found [here](#), but it's important to remember that the speed of upload is not just affected by throttling – intermittent and unreliable connectivity can be a problem (particularly from overseas locations), causing issues where uploads are constantly being halted and resumed.



Throughout the whole migration process, time is key; the longer the data upload takes, the more opportunities for something to go wrong unexpectedly, interrupting the process. For example, there could be crashes during import, or unforeseen bottlenecks constricting the flow of data. These could delay the project considerably and consequently put business continuity at risk, especially if you're aiming for a 'cutover' migration (one where you plan to simultaneously 'switch on' Office 365 at the same time as turning off the old environment).

The faster the migration can be completed, the fewer the risks. This brings us back perfectly to the need to reduce data volume before we even begin the actual migration process.

How do I minimise the data volume I need to transfer?

As part of the preparation and discovery process, you're likely to be able to identify data that **simply does not need to go into Office 365**. This data most often ranges from duplicate items and items so old they have no practical use, right through to corrupt and therefore unusable files.

For this reason, a data clean-up process should be at the start of every migration. It is a crucial activity, enabling you to streamline your new environment and optimise storage going forward.

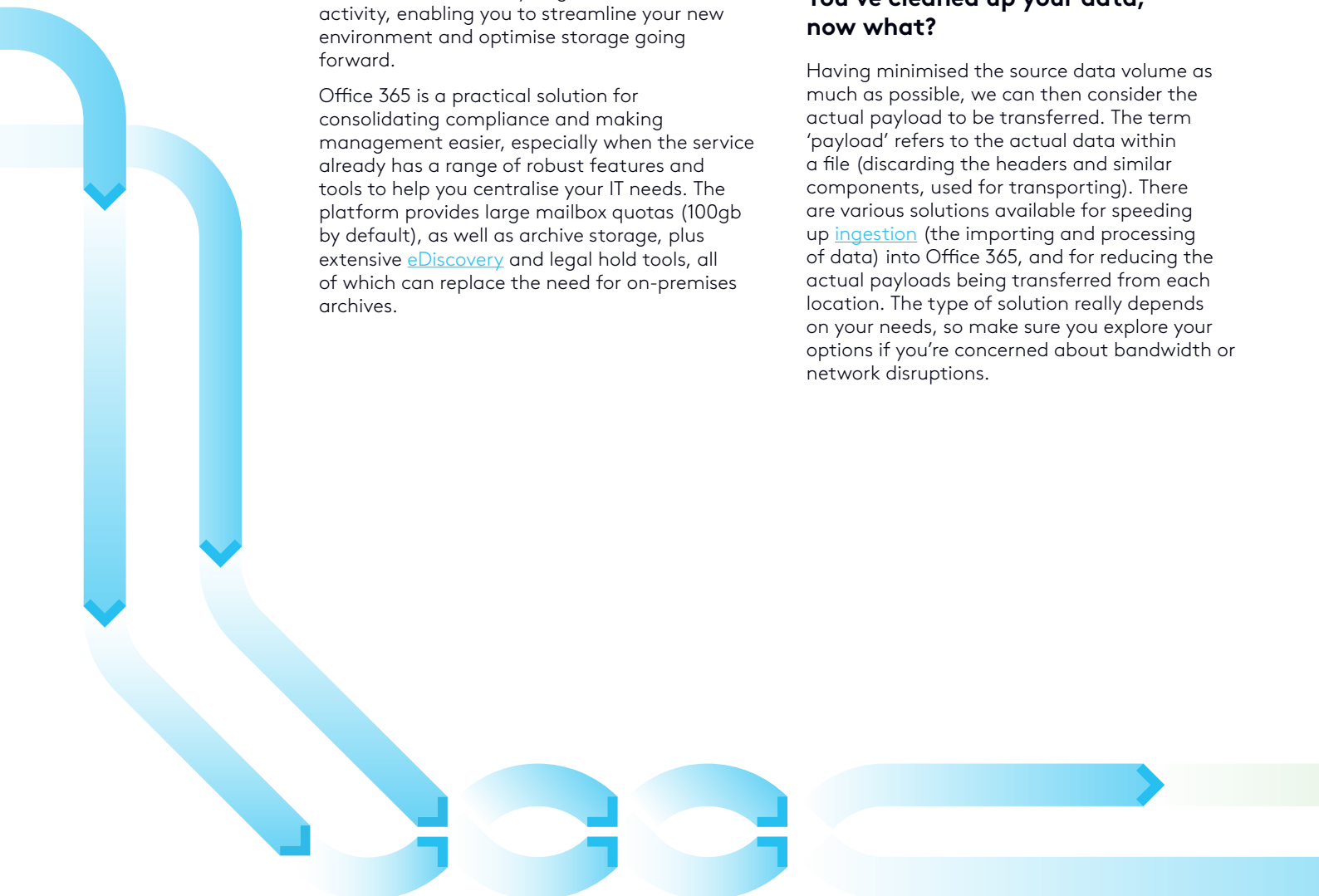
Office 365 is a practical solution for consolidating compliance and making management easier, especially when the service already has a range of robust features and tools to help you centralise your IT needs. The platform provides large mailbox quotas (100gb by default), as well as archive storage, plus extensive [eDiscovery](#) and legal hold tools, all of which can replace the need for on-premises archives.

The cost and complications of maintaining archive vendor solutions alongside Office 365 is one of the reasons for migrating everything into one compliant, manageable destination. That said, many organisations choose to implement a 'hybrid' environment, whereby part of the email ecosystem (such as the archive) remains on-premises. This configuration is better suited to certain organisation's needs or requirements (some have issues configuring line of business (LOB) systems, others are restricted because certain types of data [cannot be stored in the cloud](#)). It can also help minimise end user disruption during a migration, and take some of the pressure or urgency out of the transition for Administrators.

Cleaning up your data, where possible, before migrating it over the WAN to Office 365 approach will obviously reduce the overall transfer data volume, not to mention the additional efficiencies achieved by consolidating and rationalising legacy systems. Ultimately, the decisions affecting how much is retained and how much is archived (and where) depends on your individual circumstances as an organisation, and whether you are able to streamline the data you bring into this new system.

You've cleaned up your data, now what?

Having minimised the source data volume as much as possible, we can then consider the actual payload to be transferred. The term 'payload' refers to the actual data within a file (discarding the headers and similar components, used for transporting). There are various solutions available for speeding up [ingestion](#) (the importing and processing of data) into Office 365, and for reducing the actual payloads being transferred from each location. The type of solution really depends on your needs, so make sure you explore your options if you're concerned about bandwidth or network disruptions.



Chapter 5 – Interdependencies and Data Elimination

Email is a corporate record. Before beginning any migration, you need to ensure fundamental audit trails can be preserved, together with clear chain-of-custody (chronological documentation), so that specific roles and policies can be defined to control administrator access. Similarly, retaining data access throughout the project – so normal business isn't interrupted – is vital.

Most email users regularly access not only the live mail server, but also archives, public folders and local files stored in PST format. Shortcuts and 'stubs' between them need to be preserved as far as possible, in order to avoid disruption.

Office 365 does not recognise existing shortcuts to Enterprise Vault archives. If you're considering [virtual desktop infrastructures \(VDI\) based on Microsoft's Azure cloud platform](#), it's vital you're aware that **running Office 365 with tools such as Azure RemoteApp won't work with PST mailboxes or old EV shortcuts.**

As such, it is important to carefully consider and plan for these factors before your migration begins, otherwise they can cause a whole array of issues and complications during the process.

How do I ensure I don't break the existing logic and interdependencies within my system?

You should be able to reconcile mailbox accounts against individual, named users (if users have left the company, you still need to be able to archive and retrieve their emails) and in the [first chapter of this whitepaper](#) we touched on the necessity of tracking down [rogue PST files](#). This exercise should be carried out early in the planning stage to provide an insight into the scale of any problem and understand how it can best be addressed.

What should I do with our archives?

When possible, there are various cost and performance benefits to migrating your email archive straight into Office 365. With generous storage available and ways to archive leavers' mailboxes at no additional cost – not to mention the option to centralise all your data into one accessible system – Office 365 certainly provides a tempting feature-set for those looking to move their archive out of third-party or legacy services.

Whether your archive moves with you or not, it's important to discover and understand what you have, and plan for it to remain accessible, readily discoverable and workable post-migration. The specifics of this vary from company to company, but can quite easily involve extracting blobs (binary large objects) and rebuilding the archive elsewhere with the relevant links 'rehydrated' from the main system.

Now another challenge arises in the form of older public folders. Over the years these folders expand quickly, and ad hoc, as team members use them as shared repositories for all manner of documents (which are not always email). The folder hierarchies are controlled by users, which means it can be extremely challenging for IT admins, as they are unable to govern or manage these folders effectively.

Fortunately, there are several possible targets for legacy public folder data if you are switching off an old Exchange installation, such as [modern public folders, Office 365 Groups and SharePoint Online](#). However, it's important to avoid a 'move everything' approach, as the result is likely to involve moving huge volumes of potentially old, unused or irrelevant data unnecessarily. Take this route and you run the risk of making your new environment as obtuse, cluttered and inaccessible as the one you're moving from.



Eradicating and discarding data

Having decided what data needs to be migrated (and how to ensure everything is accessible and discoverable once the move has completed) – what happens to everything that appears to be redundant and no longer needed? Can you just ignore it and move on?

[As Steve Goodman mentions](#), the answer is almost certainly no, and “your goal should be reducing the footprint of your on-premises Exchange infrastructure to a bare minimum or removing it entirely.”

What do I do with the data I no longer need?

You have to be extremely careful about deleting data. Retention policies must be obeyed, and even if you believe that the files will never need to see the light of day again – there is always a possibility that one of those files could be requested and cited in a court case one day. This means that if you are going to eliminate old data, **you need to do so in a demonstrable way** and be able to explain the reasons for that decision.

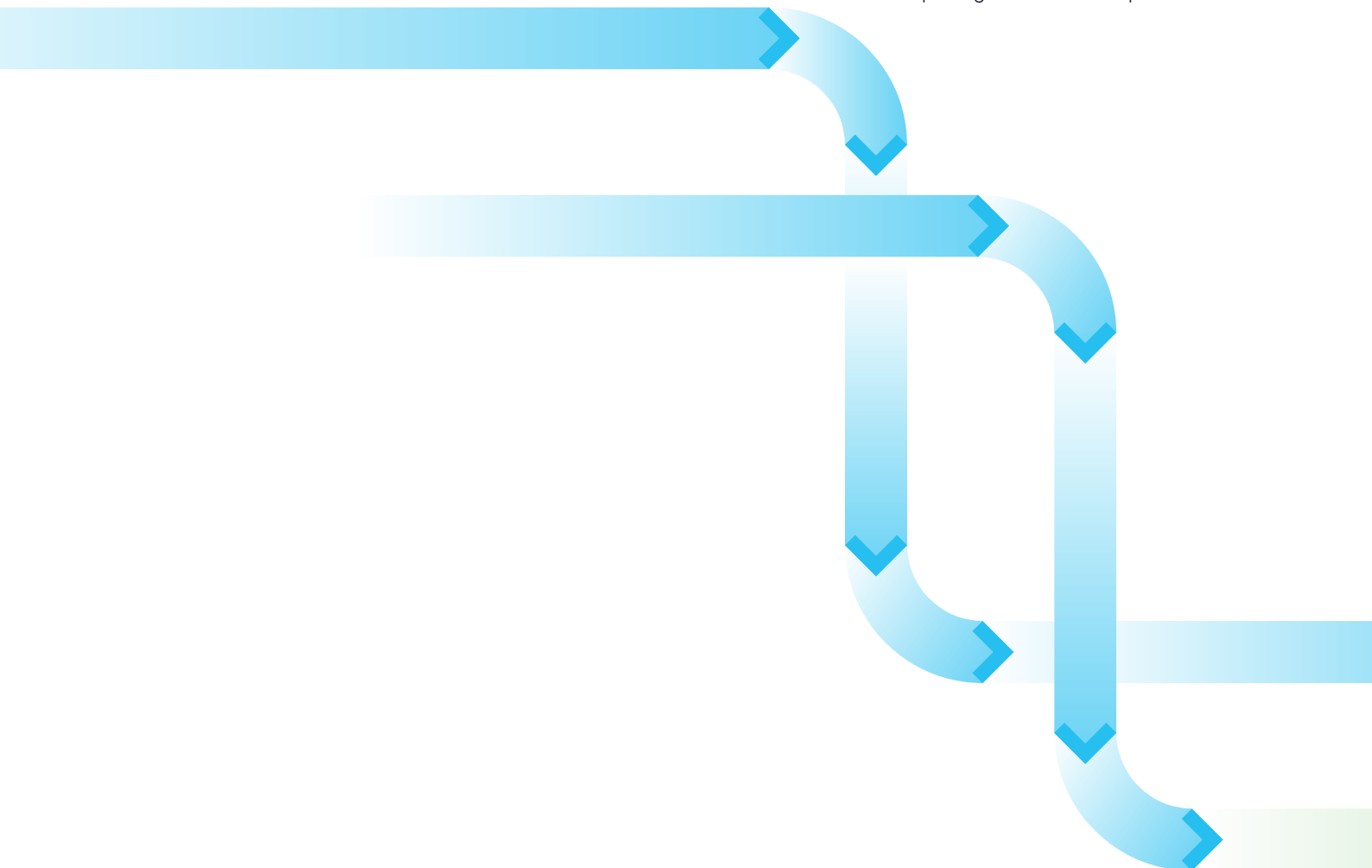
Consider a scenario whereby you’re trying to defend a patent at some point in the future, or perhaps you’re dealing with an employee dispute that ends up in court. The reality is some of these files, hiding amongst duplicates, corrupted files, low quality, and business-irrelevant files, still hold value. These files, and the data within them, need to be retained securely and entirely, so they’re available if they’re ever needed.

Whilst this process is determined by your own retention and compliance policies (or dictated by law), keeping accurate records is a process that should be automated wherever possible. Doing so demonstrates compliance and ensures accuracy.

This is one of the main reasons [eradication is a genuine technical challenge](#). You must retain accurate, defensible reports relating to what has been deleted and is no longer accessible. ‘Cleaning up’ and reporting effectively after switchover is ultimately one of the most vital technical challenges affecting migration.

Golden rules?

It perhaps sounds too simple, but to meet the golden rules of migrating only the data you need, making sure relevant items remain available and disposing of unwanted data effectively, you need the right technology – which is precisely what we will be exploring in our next chapter.



Chapter 6 – Selecting Third Party Products and Services

As you'll have noticed throughout this whitepaper, email migration to Office 365 involves a lot of moving parts – all of which need to continue moving throughout the duration of the process. Taking the manual approach to migration, without any support from tools or solutions that can help align these 'moving parts' and keep them in motion, is a significant undertaking.

If you need to optimise speed, and ensure business continuity, there's simply not enough room for error. Some of the most notable issues within migrations come as a result of migrating rapidly without planning, and [as Microsoft MVP Brien Posey mentions](#), whilst easier than it once was "the migration process is still tedious and requires a lot of advanced planning".

Migrating without planning is clearly not an ideal situation, and the use of toolsets and specialist consultants are available to assist. The right tools and consultants can:

- › Speed up planning, testing and execution
- › Transfer useful knowledge to better maintain and manage your new environment
- › Enable in-house staff to continue focusing on their day-to-day business during the project

As a comparatively low-cost and low-risk way of ensuring all bases are covered, migration consultants are also able to help build your business case. Legacy systems can be costly to support, and there are often clear operational savings to be made using Office 365. An experienced consultant can help you calculate licensing costs for email and archive services, as well as any migration tools you may need. They can also make sure the benefits are fully realised, and that any risks of service interruption are anticipated and minimised.

Furthermore, consultants can ensure all stakeholders understand the timescales and any potential impact on normal operations. Depending on your migration requirements, they can also help you decide how much migration infrastructure you need to provision for the project – or alternatively, whether opting for a cloud-based or managed service would be a better option.

Email migration is not a new challenge. There are well-tried policies and conventions that can accelerate successful completions. What's more, real-world experiences are constantly being fed back into toolsets by vendors to automate common tasks, and minimise the necessity for administrative intervention.

Third party tools

There is a bewildering array of third party migration tools available for Office 365, but often, each solution only addresses part of what's needed. For example, one vendor may specialise in archive migrations and another in [live mail](#). This means that many organisations need to have multiple solutions for the different areas of their project.

To cover the entire email ecosystem – including PSTs and public folders – you or your consultant may need to select and coordinate several different suppliers (with different contracts, service level agreements and requirements) during the project's lifespan. By trying to minimise the number of vendors you use (whilst avoiding any compromise on service quality or suitability) you can reduce the hassle of coordinating different solutions, projects, and processes. Not only that, you also have less people involved in the migration, which is bound to make the transition smoother, and more cohesive.

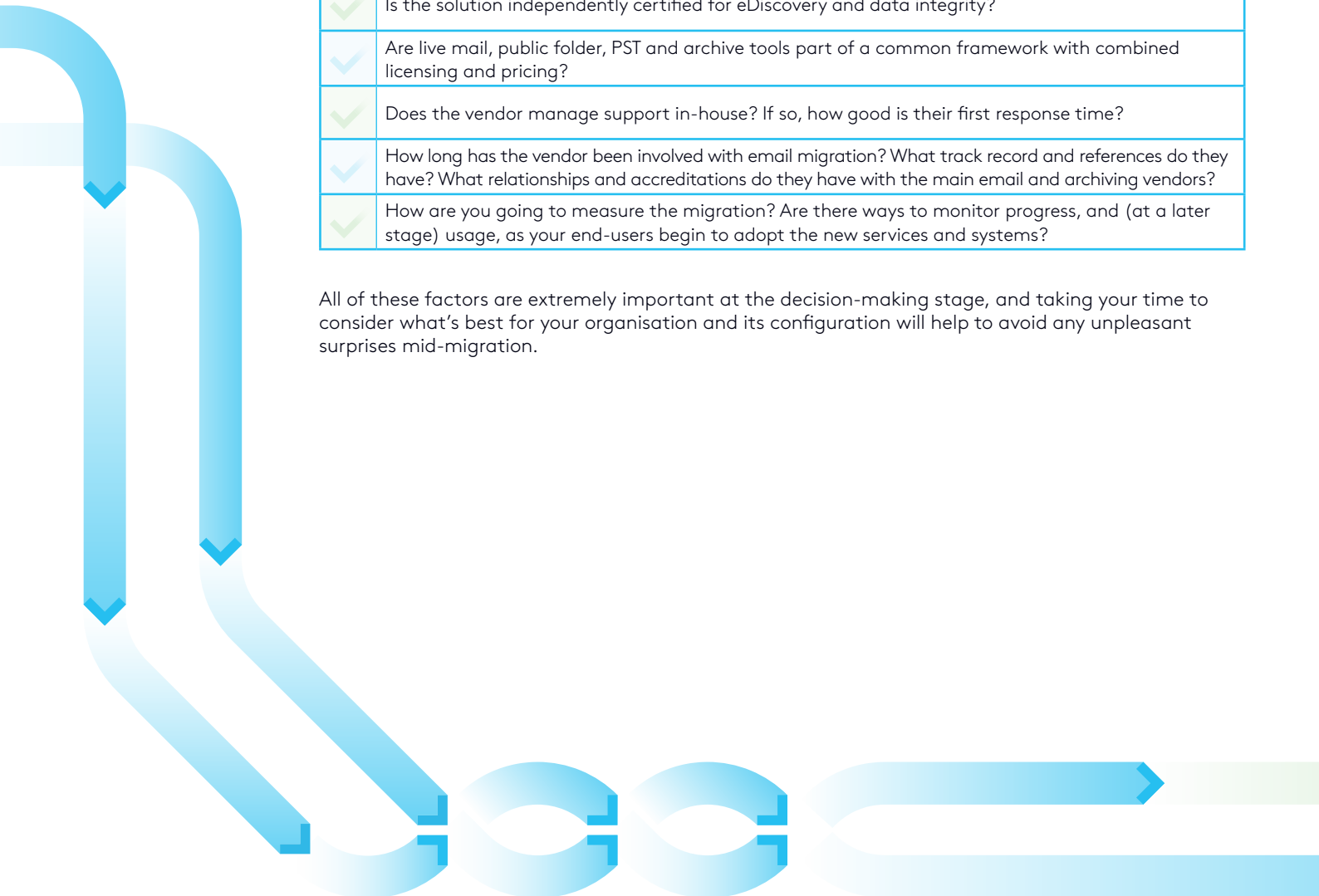


Evaluating potential of Office 365 email migration tools

If you've got to the final stages of reviewing potential third-party suppliers, there are several pertinent questions that need to be asked:

✓	What source environments are supported? Are there any special features optimised for key platforms?
✓	Are duplicates readily identified and stripped out to reduce data size?
✓	How effectively are user accounts reconciled against actual mailboxes?
✓	How are leavers/terminated accounts and other exceptions handled (including those that happen during migration)?
✓	How clear and transparent are the alerts requiring manual administrator intervention?
✓	Can PSTs be identified, retrieved and deleted from all sources – including USB drives?
✓	How efficiently are data payloads prepared for transmission?
✓	What is the typical 'Time To First Item' migrated? (TTFI is the speed at which you're able to get from project start to actual item migration)
✓	Does the vendor's ingestion protocol offer any speed advantages over comparable formats?
✓	What infrastructure is needed for data processing and conversion?
✓	Is the solution available on premises, as a cloud service and/or as a managed turnkey service?
✓	Is the solution independently certified for eDiscovery and data integrity?
✓	Are live mail, public folder, PST and archive tools part of a common framework with combined licensing and pricing?
✓	Does the vendor manage support in-house? If so, how good is their first response time?
✓	How long has the vendor been involved with email migration? What track record and references do they have? What relationships and accreditations do they have with the main email and archiving vendors?
✓	How are you going to measure the migration? Are there ways to monitor progress, and (at a later stage) usage, as your end-users begin to adopt the new services and systems?

All of these factors are extremely important at the decision-making stage, and taking your time to consider what's best for your organisation and its configuration will help to avoid any unpleasant surprises mid-migration.



Chapter 7 – Running A Migration Project

In our view, the best way to provide an insight into the steps involved within a migration is to provide a walk-through of a typical workflow – the clear process for running an email ecosystem migration into Office 365.

At a high level view, there are two basic migration methods from traditional Exchange environments – cutover and staged:

Cutover

Using IMAP or RPC to extract all user email messages from your on-premises servers, cutover migrations then copy the data to the cloud. With the messages moved, the DNS records are amended to point to the hosted Exchange servers.

Whilst both 'active' options, even if your current Exchange Server supports them, large cutover migration projects can be logistically very difficult to perform. What's more, many experienced Office 365 consultants consider the [practical limits of both cutover and staged migration methods to be just 150 live mailboxes](#).

Many organisations carry out [hybrid migrations](#), involving both on-premises Exchange and Exchange Online, which rely on directory synchronisation. This is a suitable option for organisations that need to prioritise business continuity above all else, minimise disruption, and/or need to take more time over the process, as it is possible to operate with a hybrid configuration for as long as you require.

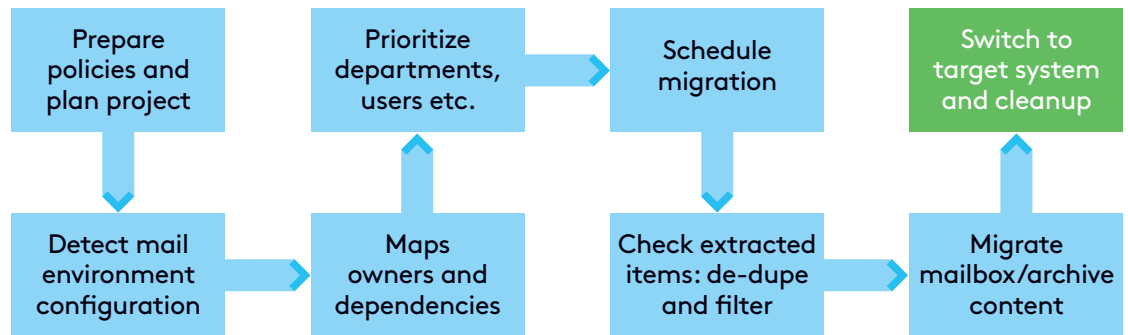
Staged

Similar in principle to cutover migrations, staged migrations differ by migrating users in groups or batches, meaning there's a period whereby there's activity on both the on-premises and hosted environments

Yet for real flexibility and a full transition to Office 365, a third-party 'sync 'n' switch' approach is generally considered the most preferable choice.

The main reason behind this is that the migration takes place in the background, and can be tested without affecting accessibility or productivity – users are seamlessly switched over to Office 365 when the environment is fully prepared.

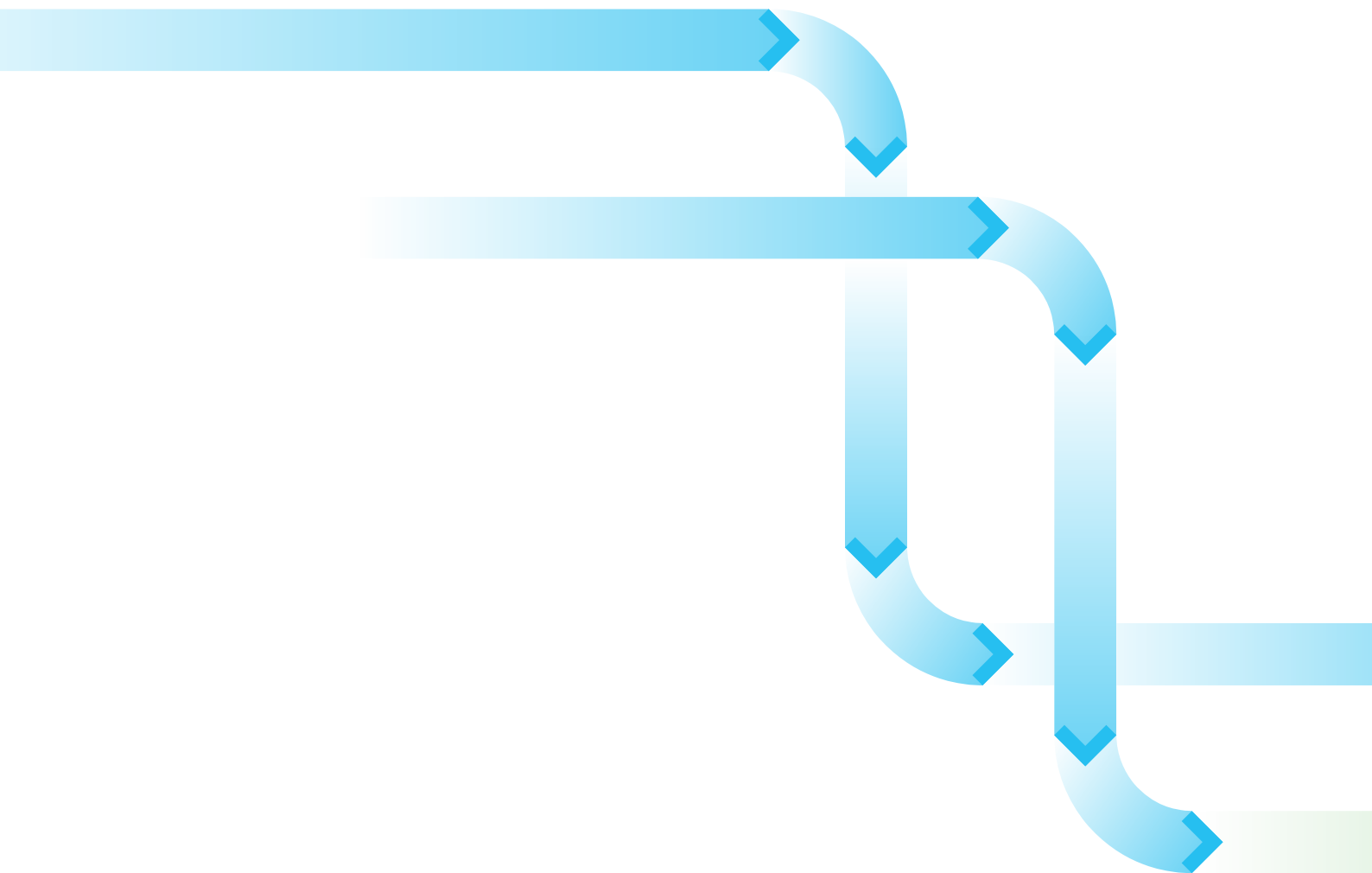
Control and reporting



As you can see from the diagram above – **every part of the migration process depends on adequate preparation.** Once a migration is underway, as with any project, it's primarily a matter of keeping everything on track to see the required end results. For many organisations, this itself isn't the problem – the real challenge is understanding what you have in your current environment and deciding what to do with it.

As noted [in chapter three](#) of this whitepaper, the overall programme needs to be [governed by a comprehensive information management policy](#) and schedule. This may already exist, but it's commonplace to have it reviewed and enhanced.

Regardless of the technology imperatives, legal and compliance teams [regularly insist all items requiring retention are migrated](#), primarily as they present risks in their current state.



For this reason it's vital to ensure there are no current or pending lawsuits that could affect an archive that is to be migrated. Similarly, relevant data must be found and secured as soon as possible, and it must also remain in its native state as of the date it was placed on legal hold.

Technical planning, visibility of progress and an audit trail should be maintained from the outset. This can be achieved using manual methods, however, a console-based solution that's directly linked to live tools is preferable. This is largely because it ensures:

- › Continuity, as it is auto-updated with progress and details (with no chance of human error)
- › Quality control
- › Efficient resource management

An automated solution or process enables you to report to stakeholders and all relevant lines of business more effectively. It also allows the operation of a unified helpdesk for users affected by the migration.

What's more, as we covered more extensively in chapter [three](#), technical issues (such as performance and capacity of existing servers and networks, backup windows and permissions to access data) need to be taken into account during planning.

Discovery

According to best practices, the general scale, type and location of data to be migrated should have been identified in the early planning stage. If this is not undertaken, or carried out to a sufficient extent, it is impossible to get a clear idea of the shape and size of the environment you plan to migrate – and ultimately, where everything should go.

If this is not completed beforehand, then once the process is underway, you could be constantly dealing with 'unknown' items, and being prompted to decide where items should be placed ad hoc, which is not at all ideal, nor time/ resource efficient.

Once the migration is under way, migration agent tools should interrogate the email ecosystem (local disks, shared drives, USB sticks, central storage and multiple Enterprise Vault archives, for instance) to gather details on mailboxes, public folders, PST files and archives. These tools should also identify the relationships and dependencies between the data.



Extraction

The toolset being used should allow users to set options for which operations should be performed on what email. For example, this may cover include/exclude options, as well as procedures for dealing with orphaned, corrupt and other item exceptions.

Similarly, password removal can be automated, and the system should be expected to manage bandwidth control – and therefore the timescale of the process.

Filtering, deduplication, and reconciliation of data – particularly for PST files – does not feature in all toolsets. For this reason the system should understand how different mail systems and archives store data, and as a result use appropriate APIs and conversion techniques.

The most sophisticated tools use various policies for user types based on:

- › Local environment
- › Regional restrictions
- › Platform
- › Local language
- › Regulatory requirements
- › Infrastructure constraints

With this information, the transfer speed for each individual user and location can be managed.

Ingestion

There are a number of ingestion protocols provided by migration vendors, but these can inflate the data that needs to be ingested by up to 300%. The effect of this kind of inflation can be extremely detrimental for bandwidth and speed.

A range of proprietary [specialist ingestion protocols](#) are able to lighten server and network loads, and can provide substantial increases in speed.

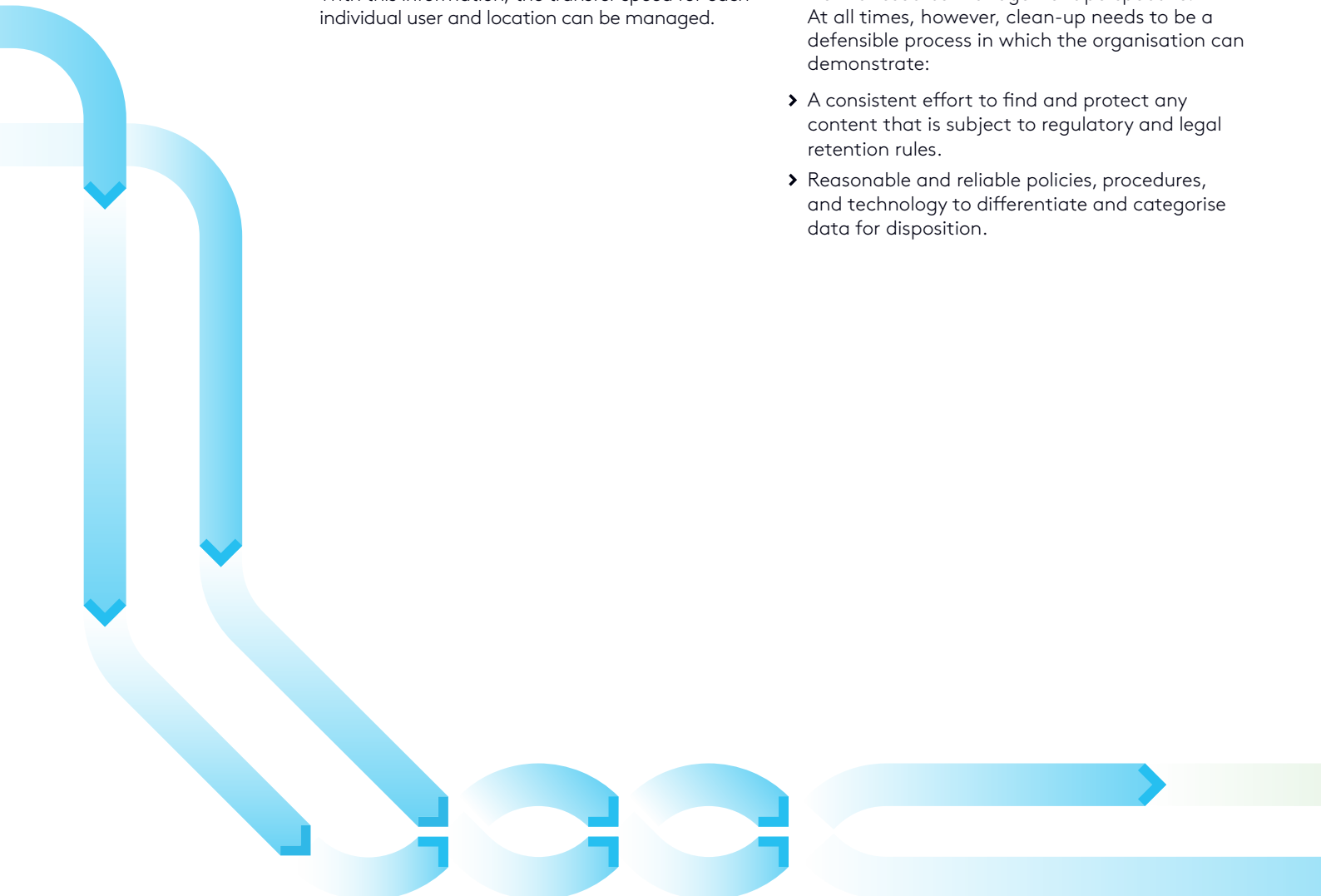
Although most of the process is automated, there are still instances when manual intervention is required. A prime example is if an item doesn't meet minimum thresholds, it should be blocked from ingestion until a specialist has reviewed it.

Testing, switchover and clean-up

By using a '[sync 'n' switch](#)' approach, it's possible to verify the integrity of migrated data before triggering the switchover from the old system. This means users can carry on working as normal, without interruption.

Clean-up can be performed either before or after ingestion – the latter being preferable from a resource management perspective. At all times, however, clean-up needs to be a defensible process in which the organisation can demonstrate:

- › A consistent effort to find and protect any content that is subject to regulatory and legal retention rules.
- › Reasonable and reliable policies, procedures, and technology to differentiate and categorise data for disposition.



Chapter 8 – Are You Ready To Migrate?

To round up the white paper, we've included the following checklist from our previous guide '[Kickstart your email migration](#)'.

The 20 questions below cover everything from compliance, policies, business case, technology and business risks. We're confident that these will help you to assess your organisation's position in terms of readiness to commence your migration project.

The Questions

Prerequisites

1. Are you aware of the retention requirements for your industry sector(s)?
2. Do you have clear user policies defining email usage, retention and security?
3. Do you have a full understanding of your current live mail, public folder and archive environments?
4. Have you carried out an assessment on the extent of PST use in your organisation?
5. Do you have compelling business reasons to migrate, and improvements you want to achieve (e.g. scalability, increased performance, better security, fix broken archives, cost savings, merger/acquisition/consolidation, or improved mobility?)

Preparation

1. Have you carried out a risk assessment covering the migration period and the effect on users?
2. Have you determined interdependencies with other work streams or projects?
3. Have you assessed whether your existing hardware and network infrastructures can handle migration loads acceptably?
4. Have you assessed whether you have the people/expertise/resources to manage the migration in-house?
5. Have you ensured existing data formats are compatible with the migration process?

Project planning

1. Do you have a strategy for reverting back should the project hit difficulties?
2. Do you have a procedure for fixing problems with lost, corrupted and duplicated items during migration?
3. Do you have a procedure for reconciling the correct users with the appropriate items (including leavers)?
4. Do you have a helpdesk planned to assist users in case of difficulties during migration?
5. Can specific emails still be retrieved if required (e.g. for legal requirements) during migration?

Solution assessment

1. Have you determined your target environments? Are they compatible with each other?
2. Does your selected target environment (including cloud) meet all legal and regulatory requirements?
3. Have you determined how to minimise licensing and storage costs in the target environment?
4. Does your selected migration toolset/service meet chain-of-custody, reporting and auditing requirements?
5. Have you ensured your selected migration toolset/service minimises licensing costs and resource requirements?

If you can answer all of these questions with a Yes, then chances are you're ready! If there's still a significant amount of No's cropping up throughout the questionnaire, you may need to address or develop some areas of the process before you get started. If you think you're ready? Good luck! We hope your migration is a fast, successful and causes minimal impact.

What's next?

A successful migration might feel like the finishing line, but there's a lot to consider once you're in your new Office 365 environment. This is the beginning of transforming your IT, improving productivity, end user agility and mobility, not to mention taking advantage of the enhanced security and administrative capabilities.



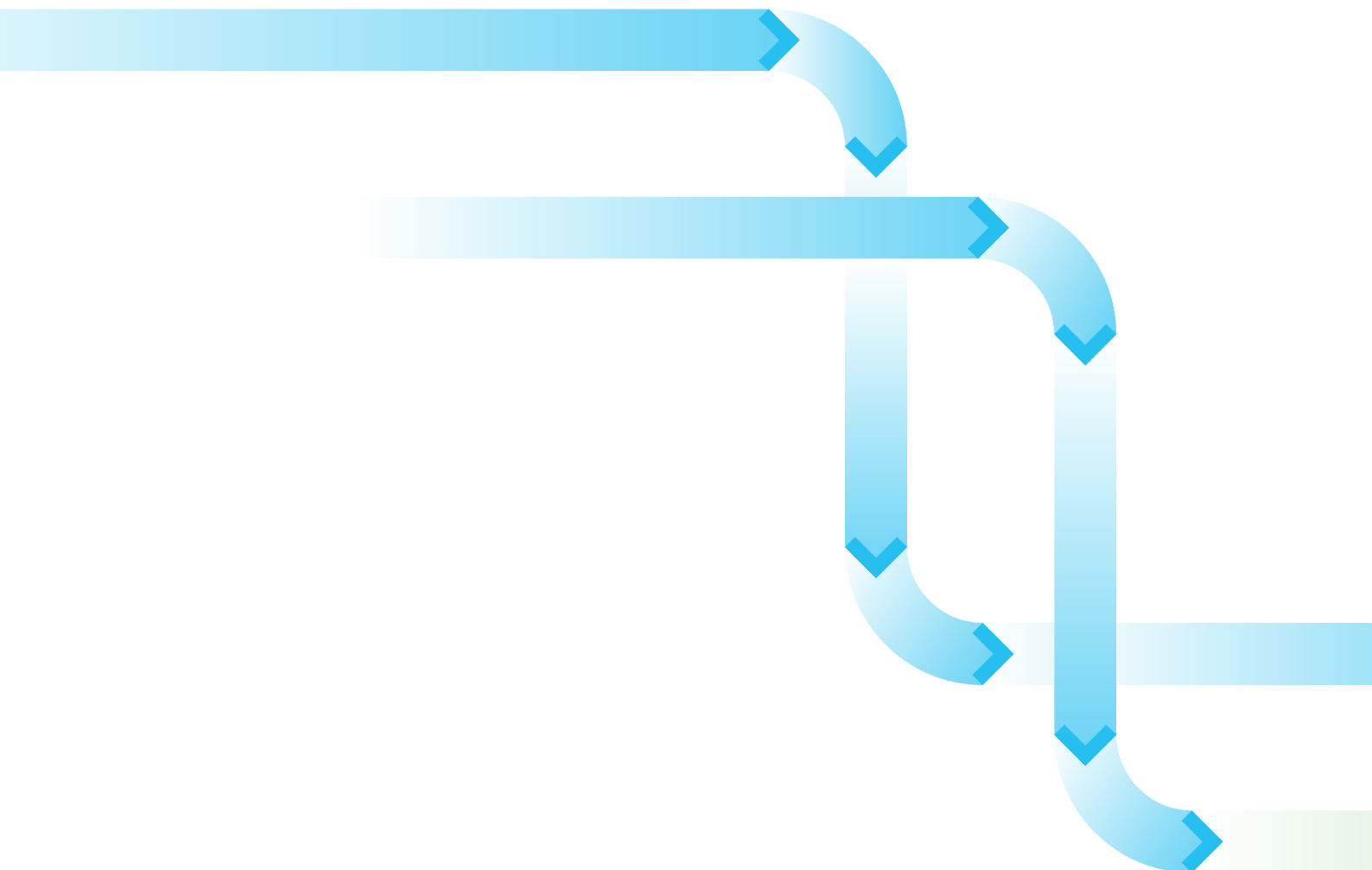
Chapter 9 – Migration Completed. Now what?

Your email migration is complete. After months of planning, and a smooth execution, you're sat looking at your Office 365 environment with its shiny new Admin Center, and the various options and features that are now at your fingertips.

Now what?

We fully understand how tempting it can be to sit back and relax, Migration complete. Even the smoothest migration involves extensive planning and investment (in both time and resources). It's an upheaval, and once it's done, it can feel like a huge weight off everyone's shoulders. However, in many ways, a completed migration is actually the start of a wider process; an approach to make things more effective and efficient than you've previously seen.

Everything's been moved over, and it should be in place, now it's time to ensure the migration is an ongoing success, and delivers the benefits that kick-started the project in the first place. It's important to be aware that when we're talking about success here, we aren't talking in terms of direct financial returns or ROI. Of course, these are extremely vital indicators, which should be considered throughout the process, but our indicator of 'success' here is based on end user adoption, itself a crucial, contributing factor of ROI.



How do you ensure the greatest Office 365 adoption rate?

If you've migrated, all your users are up and running, and they're embracing all of the new services and features that they now have access to – fantastic. From a productivity and adoption standpoint, the migration can be considered successful.

If your users are not interacting with their new platform as they should, if they're still relying on legacy systems and seem hesitant to transition to their new environment, then this is a problem. You will need to create a strategy to remedy this, and a clear action plan needs to be implemented to ensure the greatest levels of adoption are achieved as quickly as possible.

The problem is: **How do you know whether your end users are embracing their new environment, or not?**

The solution is data: the information is in Office 365, and there are a number of ways to access, and use it. There are three main ways to find this information. You can build PowerShell scripts (the Cogmotive Resource Center has plenty to get you started), you can use the reporting and analytics available in the Admin center (if you have the correct access rights) or using PowerBI, or you can explore the range of third party solutions which gather, process and present this data to you.

Each of these options have their pro's and con's:

- ▶ PowerShell is an effective way to make and run custom-built reports. Unfortunately it is also time-consuming, complicated, and it requires someone with technical experience to use it effectively. The other potential issue is that if Microsoft make a change to Office 365, this can sometimes break script(s), which can be difficult to identify ahead of time.
- ▶ The built-in reporting and analytics features of Office 365 are improving with time, but they still don't always provide reporting insights in a way that can be customised, exported, or filtered effectively. They're great for small-mid sized companies, but they don't offer the granularity or customisation that large enterprises need for the vast amount of data they generate. Another option is PowerBI which is more detailed, but as a result, it can be difficult to understand and manipulate, (find out more about this option)
- ▶ The third option is reporting solutions created by ISVs (Independent Software Vendors). There are a number of these solutions available, offering a wider range of reports, more customisation and far more detail – with additional features like scheduling and exporting available. But as you might expect, these additional features and reports come at an additional cost. That's why it's important to assess the capabilities of various providers against your reporting needs and typical use cases.

As for us, we fall into the final category. Cogmotive Reports provides advanced reporting analytics that go beyond the capabilities of the services available within Office 365, and ensure you get the information you need to drive adoption, reduce costs and improve security.



Key Exchange Online adoption indicators

No matter what reporting solution you choose, it's important to know what you need to look for when it comes to service adoption. As this series has been focused on email migration (and it's usually the first workload that companies choose to migrate), we explore some key indicators for Exchange Online adoption.

What are you looking to see:

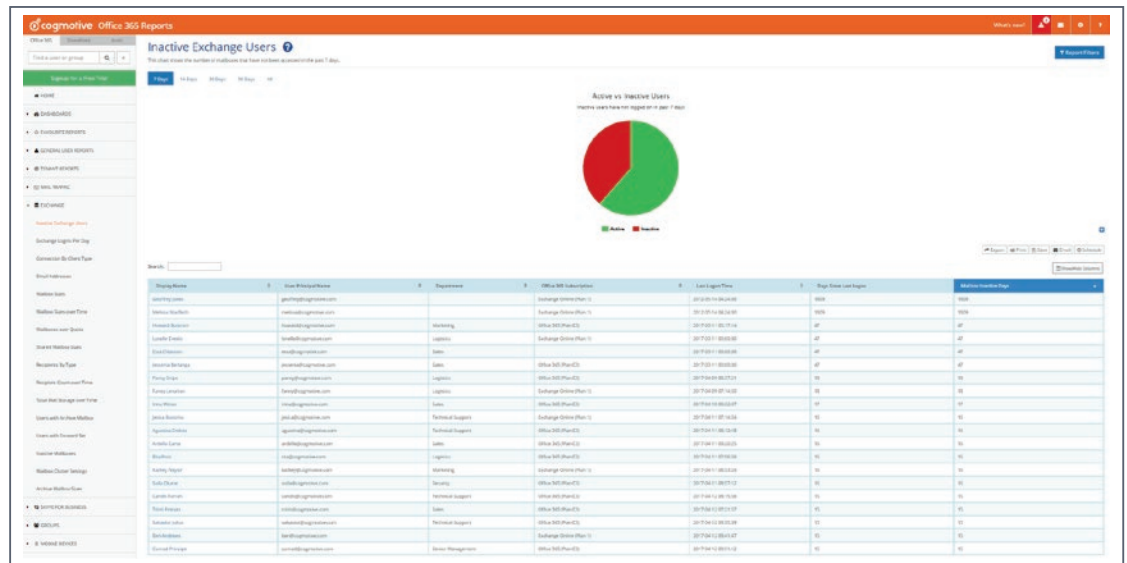
- › **Recipient count over time.** This metric is important during the migration, as well as in the early stages of adoption. It can give you an insight into the progress of your project; as recipients increase, you know that mailboxes are being moved over effectively, and users are able to access and use their new email service.
- › **Active/inactive users on Exchange Online.** Comparing the two figures over time, you can track adoption trends, and begin to understand the uptake for the new service.
- › **Exchange Online 'log ins' per day.** If you are able to track how many mailboxes are 'logged in' in comparison to the total mailboxes, and you see there is a huge disparity between the two numbers, it could suggest that there are problems with adoption.

- › **Top senders and receivers in Exchange Online.** It's just as important to identify users, departments, or regions which have adopted successfully, and might even be 'power-users', as well as those who are lagging behind. This allows you to assess what 'worked', as well as adoption strategies that might need more improvement.

The information for these key indicators is available in Office 365 using the options we described above, but to get **useful, actionable, insights**, you need more than just the reports – you have to be able to interact with the data, to filter it by specific parameters, and identify where the problems (and successes) are.

For example, take our Active vs Inactive users report (shown below). You can add filters that show activity by department, and you can order the data by 'Mailbox Inactive Days'. As you can see here, there are a significant amount of people in the 'Technical Support' department who have not accessed their mailbox for over two weeks. Given the period of inactivity, and the nature of these user's role, this inactivity could be quite concerning. Based on this information, you may choose to investigate this issue further, to identify any concerns or problems which are prohibiting usage.





The advanced filtering enables you to create targeted adoption strategies based on actual usage trends. You can create training plans, or 'drop-in' sessions for specific departments or regions (for example, you might notice that an entire location has lower adoption rates than they should). You can also use data trends to A/B test your training and adoption strategies, all you have to do is monitor usage and activity before, during, and after, to assess the effectiveness of different approaches.

The more data you have, the more effective you can be

Having a clear understanding of your Office 365 environment is critical for achieving ongoing success, and reaping the benefits that the service has to offer. Without knowing what's happened or currently happening, you cannot react to real-time trends or events in your environment, and this insight is the key to developing a truly effective and efficient email eco-system for your organisation. Detailed insight into adoption isn't just for email, or for the newly migrated – this applies no matter whether your Office 365 deployment is brand new, or long established. As you begin to implement other workloads, like Skype for Business, OneDrive, and SharePoint Online, the importance of understanding adoption only grows bigger.

We all know that knowledge is power. The more data you have, the more knowledgeable you are and as such, the more control you have over your environment.

Discover the power of detailed reporting for your environment with a free trial of Office 365 Reports [here](#).



About Quadrotech.

Quadrotech specializes in email migration projects of all sizes. In the past two years alone, we have migrated over 11.6 Petabytes of data and almost 4.7 million mailboxes. Our single-vendor approach allows the management and co-ordination of migration across four email content locations. We provide direct export and import connectors for the major on-premises, cloud email, and archive platforms.

Our services don't stop at migration. We are also the market-leading provider of Office 365 reporting, analytics and auditing tools. Offering a suite of over 100 reports covering all major Office 365 services, our reporting solutions help customers gain the business insight to control their Office 365 environment on a global scale.

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