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Implementing Sharepoint Migration in a Software Development Firm

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Implementing Sharepoint Migration in a Software Development Firm

by

Yashwanth Majji

A Starred Paper

Submitted to the Graduate Faculty of

St. Cloud State University

in Partial Fulfillment of the Requirements

for the Degree

Master of Engineering Management

December, 2015

Starred Paper Committee:

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Abstract

Company ABC, established in 2009, has headquarters in Fremont, California. Company ABC branches out to NC and TX. It had visions to travel beyond horizons. Company ABC offers a wide range of IT services that are needed for business development like Staffing Solutions, Consulting, Software Development, Cloud Computing and many other services. Company ABC's largest product is User Profile System (UPS). User Profile System store data on a server by creating logs. This makes the data hugely extensible and can be distributed across the clients very easily. Company ABC designs its consumer Profile System to collect modified information which can be explored easily. This is to not just listen to the clients but communicate with them and build trust. The UPS of Company ABC enable to run and allocate resources to especially definite set of applications.

Here the historical data of the users is analyzed to generate updated users profile. Thus application can give away modified online services to end users in genuine time basis. The consumer Profile System provides hold up to billions of end user through number of varied applications with different necessities end logic. The system generalizes the requirements of online user-profile applications and creates a common conceptual stratum which meets the specific requirement. Microsoft SharePoint was being used by this application to customize and maintain websites.

Various versions of SharePoint are used as critical document management repositories, customer extranets, business reporting tools, and many other use cases.

Acknowledgments

I am introducing you to my capstone project; this project document wouldn't have been possible without the valuable guidance and support from many individuals and organizations.

I would like to take this opportunity to thank Dr. Hiral Shah, Associate Professor, for Engineering Management Program, at St. Cloud State University without whose support, encouragement, and guidance this project would not have been a reality.

It gives me an immense pleasure to thank Dr. Ben Baliga, Professor and Graduate Director for Engineering Management Program, at St. Cloud State University for his support and guidance.

Also, I would like to thank Prof. Kasi Balasubrahmanian for serving on the committee and support throughout the project.

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Chapter I: Introduction

Introduction

Company ABC, established in 2009, have headquarters in Fremont, California. Company ABC branches out to NC and TX. It had visions to travel beyond horizons. Company ABC offers a wide range of IT services that are needed for business development like Staffing Solutions, Consulting, Software Development, Cloud Computing and many other services. Company ABC's largest product is User Profile System (UPS). User Profile System store data on a server by creating logs. This makes the data hugely extensible and can be distributed across the clients very easily. Company ABC designs its consumer Profile System to collect modified information which can be explored easily. This is to not just listen to the clients but communicate with them and build trust. The UPS of Company ABC enable to run and allocate resources to especially definite set of applications. Here the historical data of the users is analyzed to generate updated users profile. Thus application can give away modified online services to end users in genuine time basis.

The consumer Profile System provides hold up to billions of end user through number of varied applications with different necessities end logic. The system generalizes the requirements of online user-profile applications and creates a common conceptual stratum which meets the specific requirement. Microsoft SharePoint was being used by this application to customize and maintain websites. Various versions of SharePoint are used as critical document management

repositories, customer extranets, business reporting tools, and many other use cases.

Problem Statement

Company ABC provides quality IT Staffing Solutions, IT Services and IT Talent Management Expertise. There were some issues in the teams lately like lack of communication, not able to meet the deadlines; due to inbound and outbound reasons for SharePoint 2010 and 2013.

Nature and Significance of the Problem

Company ABC delivers specialty and unique IT Services to the clients with their strong network. Company ABC has its fine stretch in the Applications services and Network Infrastructure services. It had business partners like AT&T, Bank of America, Cisco, Direct TV, Sony, Syniverse and Wells Fargo, which use SAP enterprise solutions, Salesforce.com solutions, supply chain management, financial management, client relationship management, business analytics, enterprise reporting, HR and individual resources management, enterprise security and management and web expansion amongst other capabilities. There were inbound and outbound issues; to overcome those migration project was being considered.

Inbound: Company ABC had two teams working on SharePoint 2010 and SharePoint 2013 respectively. Because of those two different environments, some issues were being faced from the past, like lack of communication, not able to meet the deadlines, overload on server, etc.

Outbound: DirecTV and Syniverse were the two major business users for Company ABC and their environment was migrated to SharePoint 2013. So for easy communication, data transferring, data maintaining and smooth business, migration in Company ABC was also mandatory.

Objective of the Project

The primary objective of this project was to make the business more efficient by implementing the migration which is necessary in the Company ABC's environment to resolve the inbound and outbound issues.

Project Questions

1. What licenses will have to be maintained?
2. What effect will be on the servers?
3. What issues will be resolved?
4. What are the additional/new features?

Limitations of the Project

The following was the limitation to the project:

- Unavailability of resources to meet the deadline of project. In order to account for this additional resource (contractors with good domain experience) were hired. The hiring and training process increased budget.

Summary

This chapter brings the brief introduction of the problem encountered at the Company ABC. A clear project study objective has been highlighted. This chapter also discussed about the nature and significance of the problem. Further, the study

hypotheses were briefly presented which were verified throughout the project execution and answered along with the results. Project queries that are to be responded following the completion of the project, limitations of the project in addition to all the terms and definitions that are of primary importance for this project have also been detailed out in this chapter.

Chapter II: Background and Review of Literature

Introduction

This chapter focuses towards reviewing the literature of the problem, literature related to the methodology that has been implemented in the process of solving the problem and the background of Company ABC services and the issues related to it.

Background of the Problem

Company ABC is having its headquarters in Fremont, California is one of the leading technology and service provider. Its motto is “In this world of technology, quality defines success, we fuel your future”. Company ABC provides many business solutions using SAP enterprise solutions, Salesforce.com solutions, supply chain management, financial management, client relationship management, business analytics, enterprise reporting, HR and individual resources management, enterprise security and management and web expansion amongst other capabilities in different companies. SharePoint being the main environment in Direct TV and Syniverse, it has to be latest version with all the fixes and patches applied.

For these organizations, the SharePoint release cycle requires that they upgrade to the latest version to be able to take advantage of new functionalities. In addition, projects to consolidate multiple SharePoint farms into a single centralized environment may be required to reduce organizational cost or administrative complexity.

Literature Related to the Problem

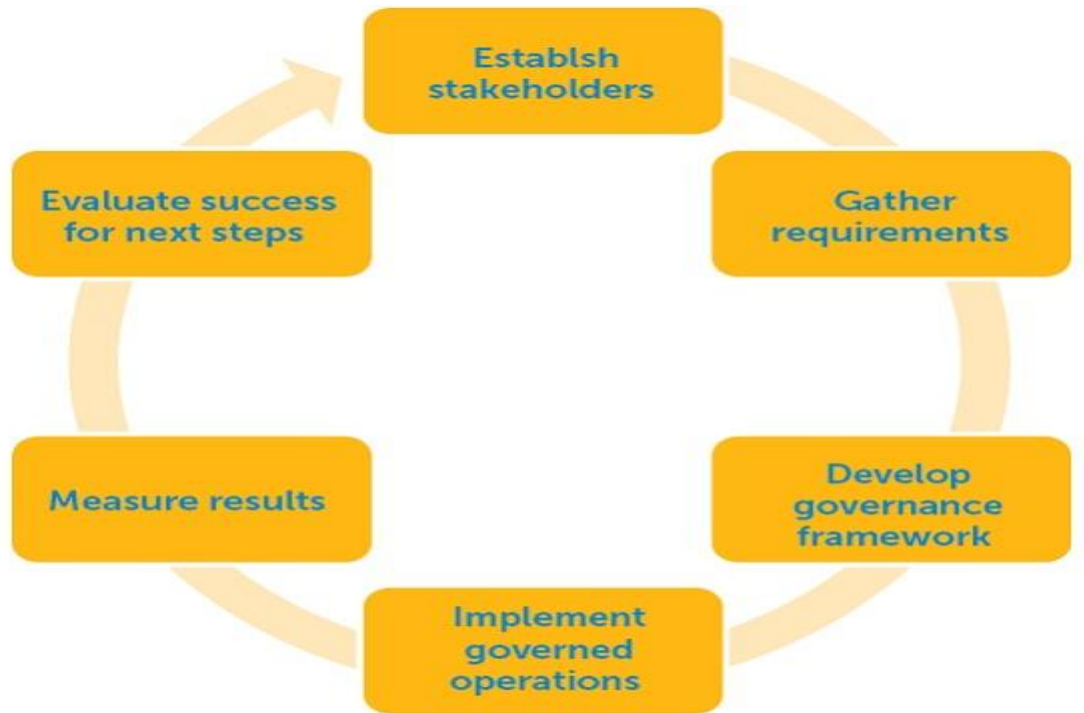


Figure 1: SharePoint Governance Cycle

Kim and Gershwin (2011) suggested the above cycle that shows the process of SharePoint how it works. It first have the stake holders then it goes for the requirements which are required for the holders according to their interests and then the cycle flows from governing of framework how it is required for the investors over the required product.

The next step flows as implementing the operations which were governed from the before process then it goes for the next operation which should perform as measure of results.

SharePoint consists of the following:

- Share
- Organize
- Discover

According to Kitson and Straus (2010) the key investment pillars of SharePoint are:

MANAGE RISK: Find the perfect balance between compliance and collaboration.

MANAGE COST: Efficiently manage infrastructure while maximizing uptime, minimizing failures and downtime.

Michael and Stephen (2011) stated that SharePoint consist of enterprise content management which is build of following terms:

CREATE: Produce and arrange content easily with the help of pertinent discovered information.

CONTROL: Manage content policy, information architecture and taxonomy.

PROTECT: Reduce risk and manage compliance with centralized rediscovery tools.

Christian and Ben (2011) discussed SharePoint features that includes of Internet, Intranet and Dept sites which consist of the following:

- Design
- Publish
- Engage

Design: Use familiar tools to design rich and beautiful sites that represent your brand.

Publish: Create, reuse and consume content for any device and language used.

Engage: Exterior the correct content to the right user with adaptive experience.

Web content Management:

- Supports the tackle and workflows designer use variations and content translation.
- Search engine optimization.
- Cross site publishing.
- Image renditions.
- Metadata navigation.

Office mobile Web apps:

- Excel
- PowerPoint
- Word

Web browser:

- Internet explorer 8 or higher.
- Firefox(latest version)
- Google chrome(latest version)
- Apple safari (latest version)

SharePoint is an enterprise content management system (ECM). Where SharePoint functionality is to have web content management which is storage and retrieval of content and in this we can manage site hierarchy. The editing of page content present in the browser consist of some of important factor like we can upload the web files related to the HTML or JavaScript and we can also have the Branding support of master pages in the web content management.

SharePoint has the connected experience which consists of the following:

- Get connected: Engage in conversations to stay informed and make better decisions.
- Work together: Make it easier to work as a team and manage your projects.

End client software requirements:

Office 2010 or office 2013:

- Full offline and integrated experience.

SharePoint designer:

- SharePoint developer 2010 only works for SharePoint 2014 sites.
- SharePoint developer 2015 works for both SharePoint 2013 and 2015 sites.

The migration project was being considered to overcome inbound and outbound issues:

- Inbound: Company ABC had two teams working on SharePoint 2010 and SharePoint 2013 respectively. Resource requirement was increasing to

maintain two environments and take up new projects. Because of those two different environments, some issues were being faced from the past, like lack of communication, not able to meet the deadlines, overload on server etc.

- Outbound: DirecTV and Syniverse were the two major business users for Company ABC and their environment was migrated to SharePoint 2013. So for easy communication, data transferring, data maintaining and smooth business, migration in Company ABC was also mandatory. For these organizations, the SharePoint release cycle requires that they upgrade to the latest version to be able to take advantage of new functionalities and maintain single centralized environment.

Literature Related to the Methodology

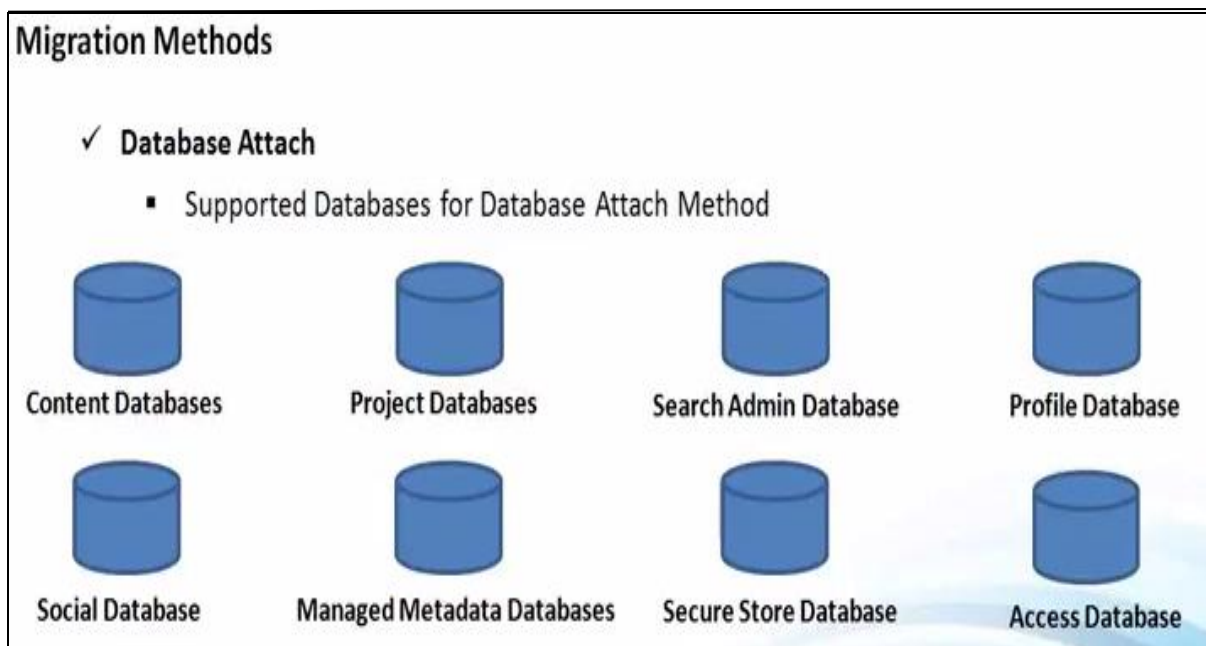


Figure 2: Migration Methods of SharePoint

SharePoint 2013 has the high improved visual designer which consists of the integrated Visio designer into SharePoint can switch between visual designer and sentence style which is different from the SharePoint 2010 editable properties helper is also provided in it.

Calling REST web series is also makes the difference. Designer supports some of the functions like cut/copy/paste also it consists of the improved email editor which is of rich formatting.

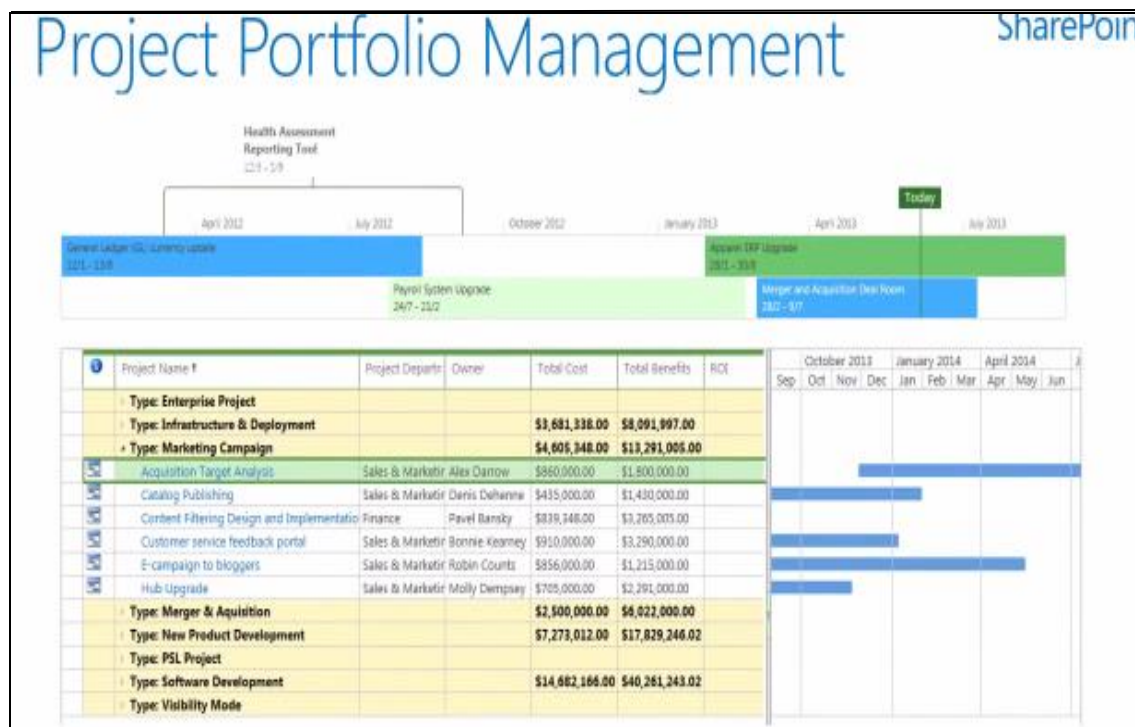


Figure 3: SharePoint Portfolio Management

Storey and Taylor (2012) suggested SharePoint Portfolio Management shown above.

Farm:

- Full trust solutions.

- Customizations to file system of servers.
- Classic model from 2007.

Sandbox:

- Declarative elements.
- Partially trust code examine still integrated for limited server side hold up.

SharePoint Apps:

- New Apps model.
- Deployed from catalog or office market place.
- Manage permission and licenses specifically.

MIGRATION VS UPGRADE:

The SharePoint up gradation is recommended for the following factors:

- The existing one of SharePoint 2007 or higher which means the things we cannot find in below version which is nothing but the SharePoint 2003.
- Taxonomy which is of existence should be well performed.
- The database contents and also the site collections also should be well and properly architected.
- The content which is of folder structure which are not too shallow should properly distribute.
- Site templates which consists the team site and also documents should also be included.

- The migration of SharePoint from a given version to the upgraded version which is updated.
- Source document is not in the SharePoint which is of SharePoint 2007 or higher version.
- Information architecture which is needed to be redesigned in a properly manner.
- The database contents should be split for the proper improvisation of database performance to meet the objectives of recovery time objective or else the recovery point objective.

Some of the difficult tasks which were considered for the SharePoint are as follows:

VERSION MIGRATION:

- Some of the source systems which are in support for branching the SharePoint do not.
- There are different migration codes which will depend on the versions such as major or minor in support where the custom export is always required.
- SharePoint projection storage always becomes more complicated when the RBS is enabled.
- SharePoint usually requires the mode which is known as the “legacy mode” migration which is opposed for the much faster “Express mode”.

- Legacy API is mostly COM interlope based which can be the lead for memory leaks and exporter crashes.
- Additional migration management is time consuming.

SharePoint data assessment consists:

- Interrogates the corpus data
- Counts the document class and also by year.
- Document types such as PDF, TIF, and OFFICE DOCS. Whereas collaborative documents are known as DOCX AND XLSX.
- Identifies the content which suits for migration where certain content for the compliance and other purposes are included.

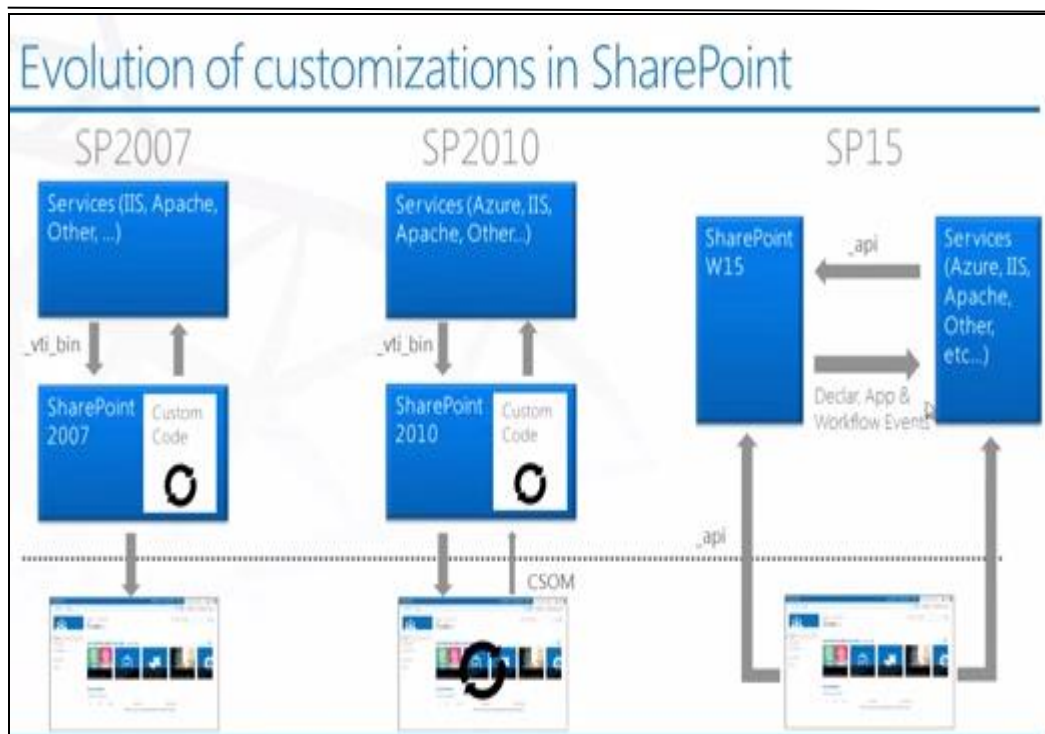


Figure 4: Evolution of Customizations in SharePoint

SharePoint Host web app:

- Sub web site collection
- Apps can organize only network scoped skin tone site collection resources deployed using classic solutions.
- None of app deployed features are visible outside of app.
- End users cannot manipulate app web to evade flouting of the apps using browser or share point Designer.

Summary

The concentration of this chapter has been focused towards making the readers understand more about the background of the problem, in depth details of the literature related to the problem. Also, all the background literature review towards the methodology of the project has been explained in a detailed manner.

Chapter III: Methodology

Introduction

In this SharePoint methodology, various methods were measured to accomplish the main aim or intention of the current study. The main reason of this study was to learn the importance of regulating the metrics for refining the performance of the process. This process with various research methods which were beneficial in an effective completion of the development is explained. Beside this, the advantages and disadvantages of each method are clarified evidently. The SharePoint methodology gives particulars about the every step of the development process. The project of the investigation, the approach, the methods used in gathering the necessary data and the development of analyzing this data.

The most critical part of a SharePoint migration or upgrade project involves planning for the migration itself. At the same time, the primary principles of project organization still are relevant; these include clear possession of the project, a different scope, and the use of a development plan with clear milestones.

The sheer number of variables involved and the limitations of out-of-the-box migration approaches can complicate the project and introduce unacceptable risk.

Design of Study

Initial requirement meeting: The approach from the client with the belief that the organization can deliver the product that can meet all the requirements which are being expected from the client, an initial start-off meeting involving the Vice President, the Director of the Research & Development function, Senior Manager and

the Project Manager took place in order to discuss the realities of delivering a project of specified requirements, expectations, and also within the specified time.

After having internal discussions it was finalized that for the project to be considered as deliverable additional resources must be added. Contractors with good domain experience were hired. The main tasks in initiating the project are:

- a) Setting the objectives for the project.
- b) Defining the scope of the project.
- c) Establishing the strategy for the project.
- d) Detailing the Work Breakdown Structure.

A migration plan was built for the project. The contents required for this project building are:

- Migration order to be performed
- Content of the mapping
- Primary/initiative strategies for migration

Necessary steps for the execution are as follows:

- Management for the migration
- Maintenance for the migration integrity
- Mitigation of the exception

For finalizing of the migration measurements:

- Backup of the entire project
- Final validation should be done
- Reconciliation of the project should be performed.

Data Collection and Analysis

Inventory and audit content: A detailed report is made of what content currently exists across an organization and what content should be migrated. This can comprise content as of a selection of sources, such as the following common locations:

- File shares
- Exchange Public Folders
- Legacy SharePoint (Windows SharePoint Services [WSS] 2.0, WSS 3.0, SharePoint Portal Server [SPS] 2003, Microsoft Office SharePoint Server 2007 [MOSS]) sites and servers
- Legacy document management systems

The obtainable information structural design and nomenclature of the organization's systems should also be audited. This includes documenting and auditing the following key areas:

- Permissions
- Users
- Features
- Customizations (including custom code)
- Integration with other systems

Preparing migration prerequisites: In addition to general migration testing the following requirements will be designed developed and tested:

- Custom code that needs to be ported
- Custom list templates
- Custom site templates, such as the “Fob 40” templates
- Custom web parts
- Feature mapping, including deprecate skin tone, such as portal listings

Migrate SharePoint content: After a diagram has been shaped, in sequence governance strategies are enacted and the migration process will be tested, the process of migration pleased from basis to the target begins. Objective environments running on versions of SharePoint 2010 or a lot of SharePoint obscure contributions do not include built-in migration approaches. Hence third-party migration products or manual uploads of content will be implemented.

Migration concepts:

- Setting expectations
- Migration vs. upgrade
- Expensive migration tasks

Assessment:

- Know your data
- Know the environment whether it is inbound or outbound

The main point of the migration is unpredictability in many ways as:

- The duration of migration is virtually impossible to predict which is not possible without live metrics.

- The migration tends to run for in order of the documents which were created as of the older documents which may be of large or else of small than the documents new.
- The source system, destination system and also the migration farm should be always in the harmony in migration.
- Factor like the overloading of the system which is of source.

These can be rectified by maintaining storage space and database log files.

ENVIRONMENT:

Legacy system:

- Database version and also the current storage requirements.
- API or direct DB or the file access which is of express mode.

Destination SharePoint environment:

- Database server resource which is for migration and also SharePoint.
- Storage resources and also the expandability of them.
- RBS vs. SQL storage.
- Access to run tools which are directly on SharePoint servers to configure the migration servers as of the SharePoint servers.

SharePoint content mapping for migration plan:

- To identify all source fields and data types
- The identification of any data which needs cleanup should be converted into different or multiple fields.

- Content types and site columns information to contain the destination content
- Determine the destination of the web or site collection structure.
- Applications which are unique of the web applications for the migrated content of the previous system known as crawl benefits.
- The migrated contents should always be sub site collection of a clear mannered path which is not the root site collection.
- Evaluate the impacts which are caused for the RBS on the number of documents which were stored in a particular site collection mainly.
- Use data interrogation for the extrapolate things necessary for the SharePoint database and migration information storage requirements.
- The storage architecture which is comprehensive is recommended.

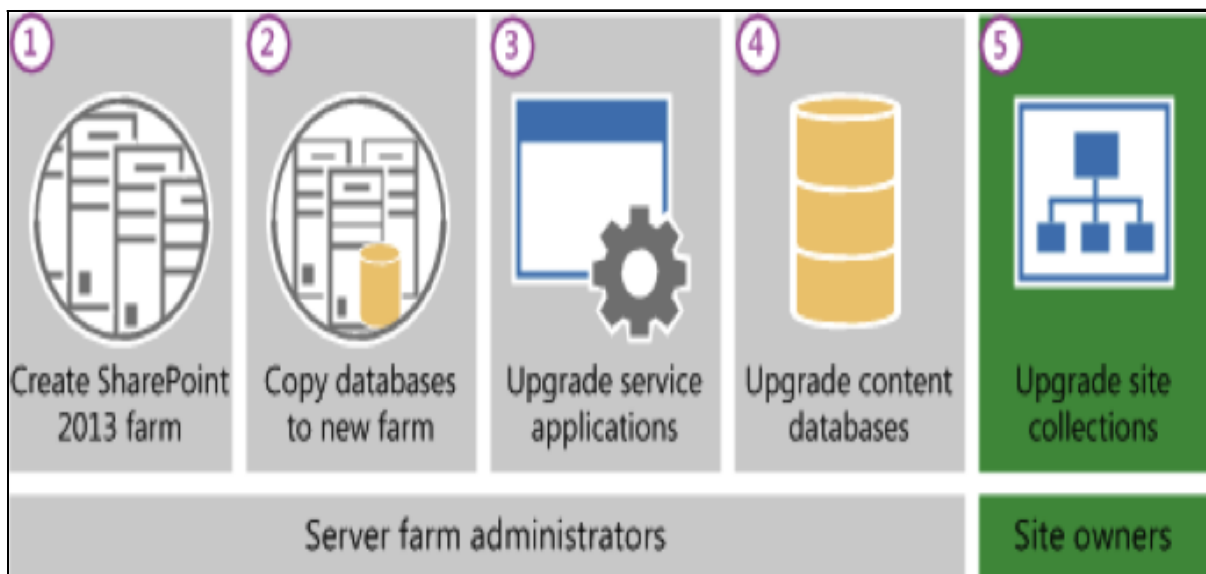


Figure 5: Upgradation of SharePoint 2013

Strategies for the migration to be considered:

Sample migration:

- Look over the comprehensive sample of the sample which provides the business users with a set of documents that can be manually compared and validated.

Primary migration:

- Dump of initial metadata and migration of documents is part of the captured metadata at a point in time.
- If a new document management system is live then there may only be a primary migration.

Delta migration:

- The content that was added or modified in time of initial metadata dump.
- Usually there is one delta migration which is over weekend.

Execution of the migration management of SharePoint: Before launching any migration, test must be performed to ensure the sample migration which is executed and also verify all documents and metadata which matches exactly both the source and destination of system which is performed. Business users or the power users are the best people to signoff the testing.

SharePoint environment configuration:

- The migration process from start till end must be audit logged of each and every document.

- There must not be any crawling in the content until the process of migration is completed.
- Turn off full database of recovery at destination content DBs.
- Perform nightly full backups and full mode will fill up the SQL logs immediately.
- Ensure SharePoint resources will handle all end users of migration process simultaneously.
- SharePoint and SQL resources should be monitored.

Power shell commands used:

Farm:

- Upgrade SharePoint farm- *STSADM -o addcontentdatabase*

Content database:

- Mount SharePoint content database- *Mount-SpcontentDatabase -name %nameofdb% -webapplication %nameofwebapp%*
- Test SharePoint database content- *stsadm -o preupgradecheck*
- Upgrade SharePoint database content- *name %Nameofdb% -webapplication %http://nameofwebapp%*

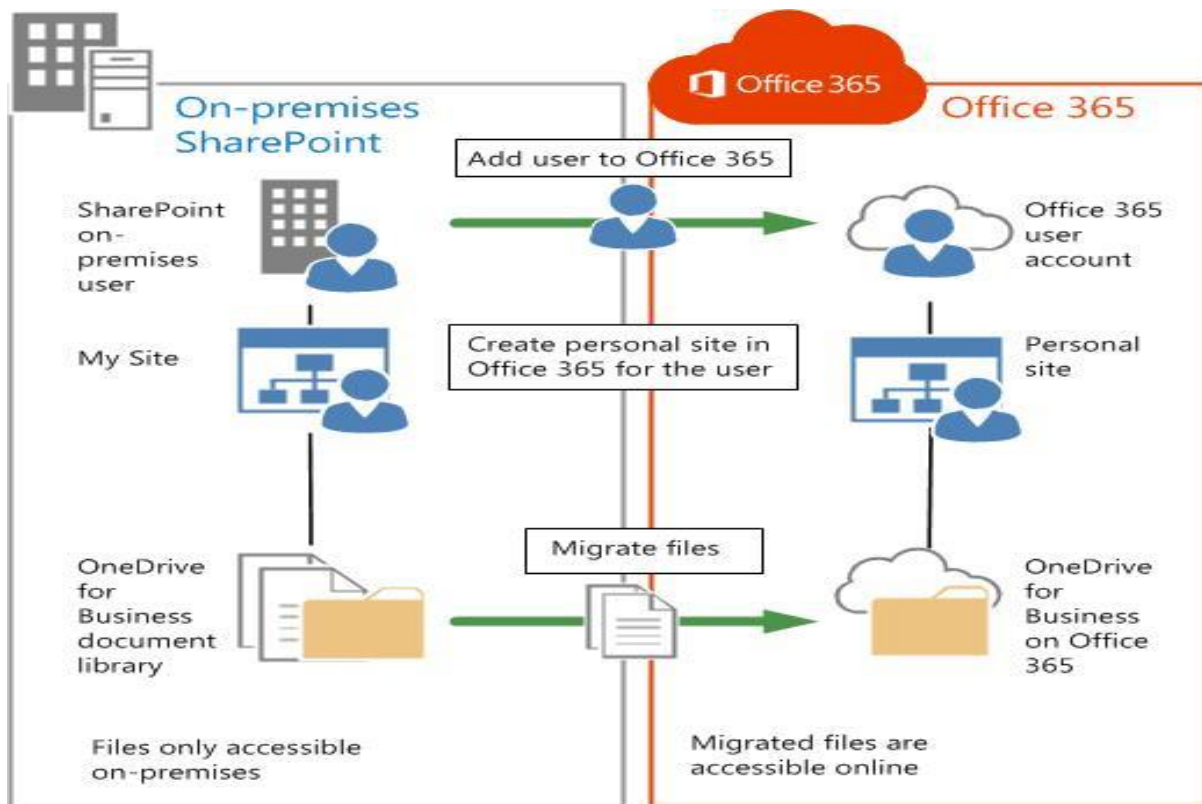


Figure 6: Migrating SharePoint Environment

SharePoint migration from on premises environment to Office 365 is shown in the above figure.

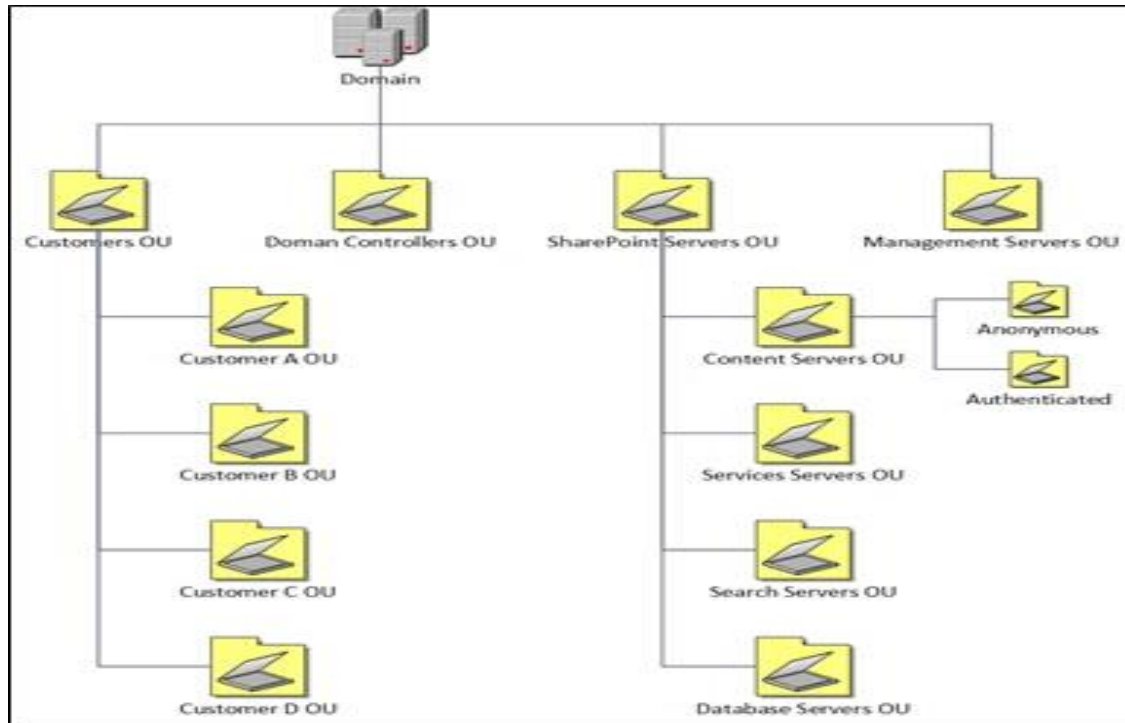


Figure 7: Environmental Structure Reporting of SharePoint 2013.

In the test environment, primarily platform migration check is done to verify the migration from development to test and from test to production. In this environment migration procedure validation, performance test, final SharePoint validation test, incremental load test, scheduled and cascaded load. It is a day time migration platform with a migration roll back option and also a warm server back up with some limitations.

Production environment delivers the content of SharePoint or the dashboards to the user. Triggered reload, incremental reload, cascaded reload are opened in server for additional interface development facility to front end users.

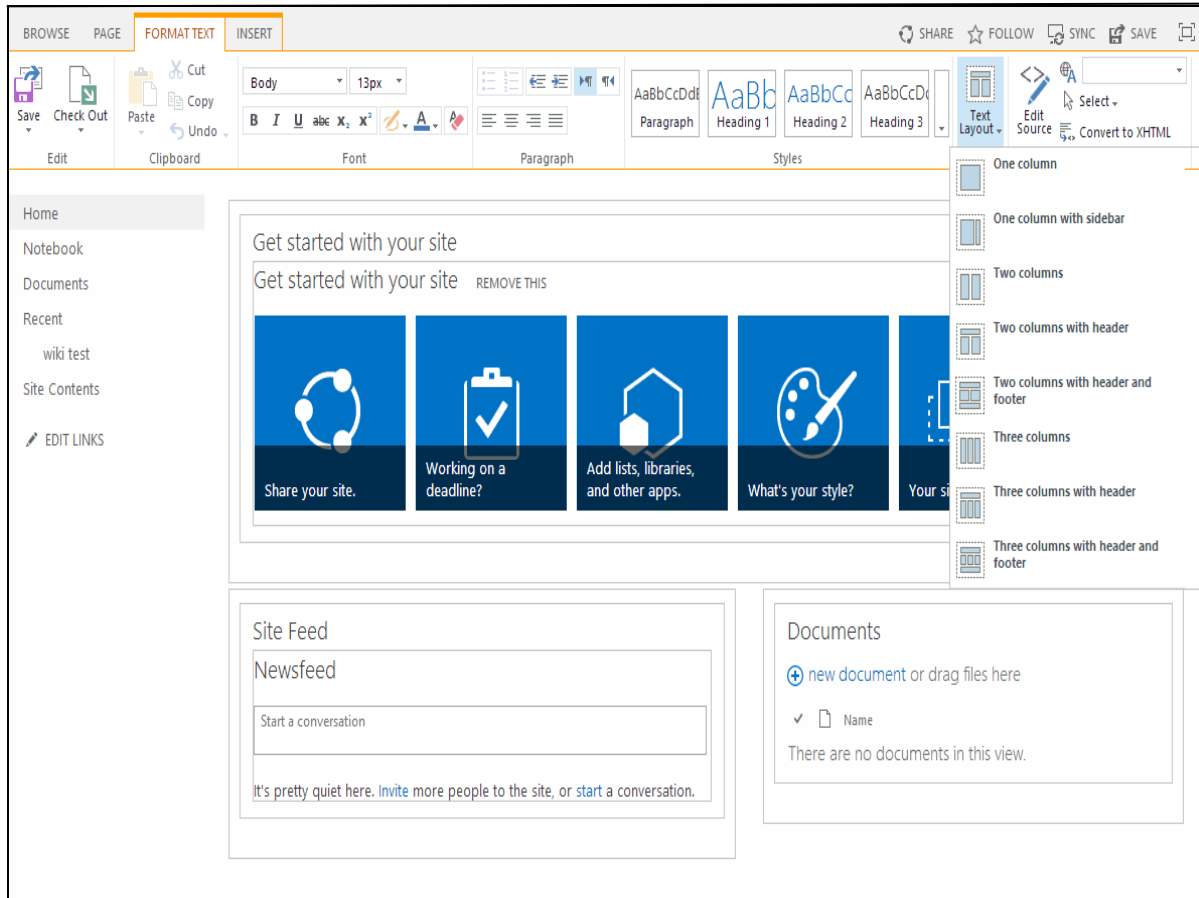


Figure 8: SharePoint 2013 Layout

Maintaining migration integrity of SharePoint:

- Updating of SQL statements which are usually executed during data scrubbing.
- Delete the SQL statements which are rarely used.
- Numerous documents versions which should be treated as one document for the purpose of documents reconciliation.
- Where the database is offline link level consistency should be maintained and re validated and compared with migration database, or the RBS storage fails.

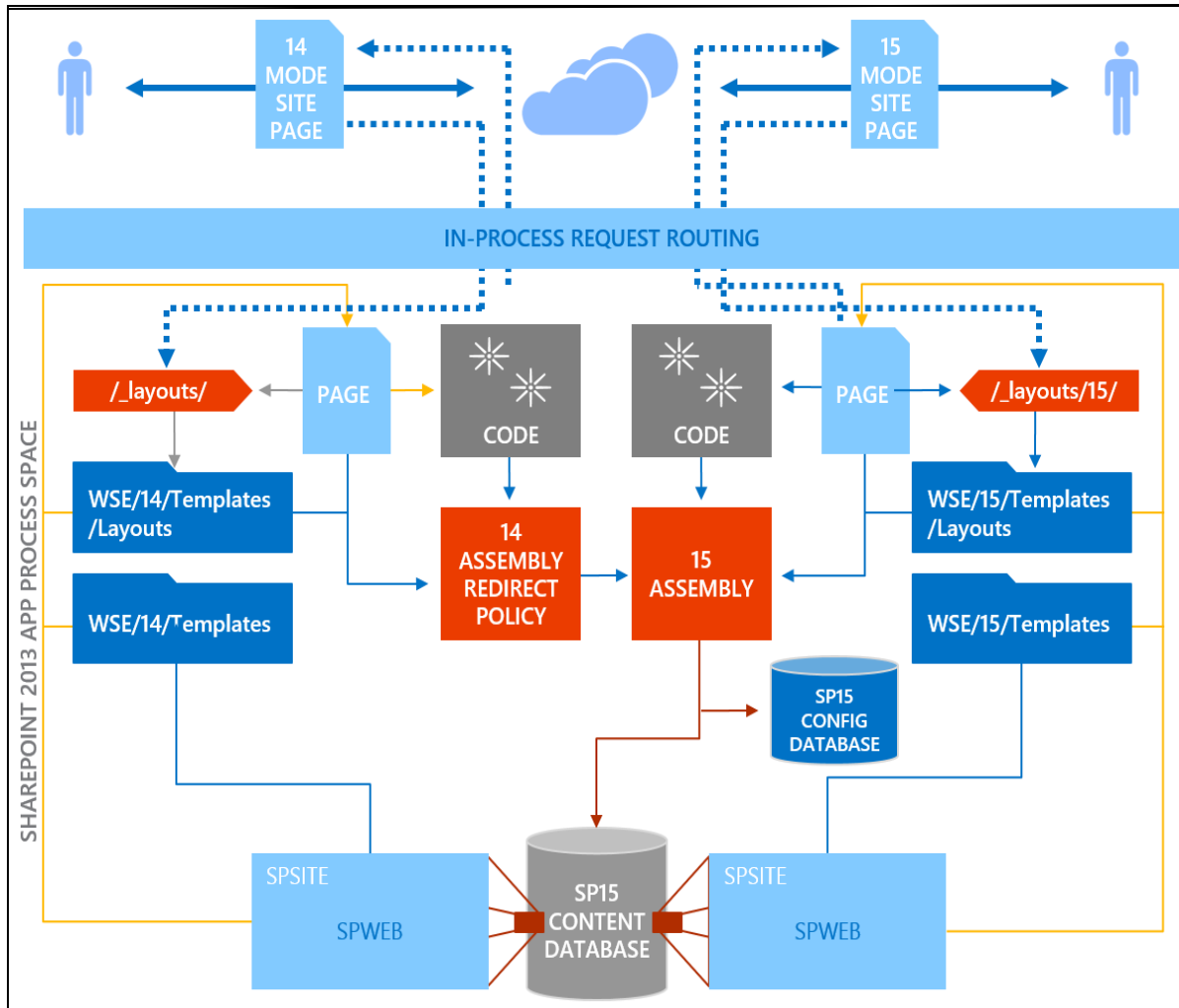


Figure 9: Migration Integrity of SharePoint

The migration database and information in SharePoint reports must be in sync.

When a document fails to upload validate the document is not in SharePoint, check the metadata and mark as 'migrate is necessary'.

Investigation of root cause and mitigate as necessary:

- Broken in system of source.
- The document which is not accepted may not migrate into SharePoint directly.
- SharePoint content DB log is out of space and further upload the file not possible.
- Data type transformation which causes the issues will often causes the errors while uploading which are usually related to improperly formatted dates.

Backup of everything: During database migration the resources containing audit logs which are key to any audit are backed. If there are any documents which are problematic in the system audit logs can be used to determine any issues in migration and also metadata used to re migrate the document.

Post-migration checklist:

Following the migration to a new SharePoint farm, the following tasks are to be implemented by the testing personal:

- If a third-party migration solution is used, copy alerts from the source to the target environment so that they don't fire off events during the actual migration.
- Run any incremental jobs created pre-migration.
- Send automated e-mail to site owners or site collection administrators after the site migration completes.

- Spot checking that data exists doesn't allow for metadata, version history, and other key information to be ascertained from the source and target copies.
- Compare content database.
- Review service applications.
- Verify farm/web application.
- Reset farm settings.
- List down all the customizations.

Third-party tools like Migration Manager for SharePoint, on the other hand, allow for a comparison to be performed, validating that the source and target environments have been correctly migrated and that all metadata and versions have been preserved.

Timeline

S.No.	Task Name	Duration	Start	Finish
	SharePoint Migration in a software development firm	110 days	04/03/2015	09/03/2015
1.	Project idea Formulation and Research	11 days	04/03/2015	04/17/2015
2.	Project Proposal Write-up	9 days	04/20/2015	04/30/2015
3.	Inventory and audit content	13 days	05/01/2015	05/19/2015
4.	Preparing an information architecture plan	8 days	05/20/2015	05/29/2015
5.	Team formation	5 days	06/01/2015	06/05/2015
6.	Meetings and discussions	10 days	06/08/2015	06/19/2015
7.	Preparing migration prerequisites	20 days	06/22/2015	07/17/2015
8.	Migrate SharePoint content	20 days	07/20/2015	08/14/2015
9.	Post-migration checklist	5 days	08/17/2015	08/21/2015
10.	Project Write-up	9 days	08/24/2015	09/03/2015
11.	Final Defense	1 day	09/16/2015	09/16/2015

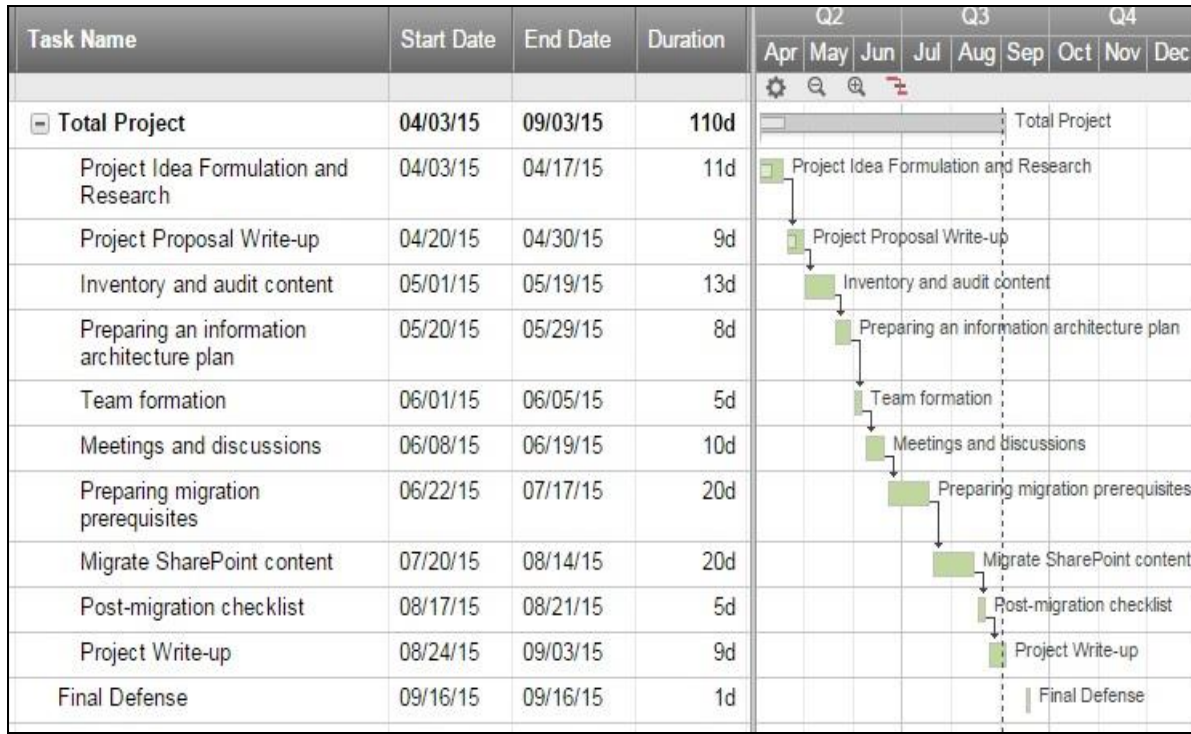


Figure 10: Gantt Chart for Project Schedule

Summary

The intention of this chapter is to explain the process of the project life cycle using SharePoint methodology, its main deliverables and behavior for each stage and the project background. The migration and analysis techniques which best suited the project scope were detailed. Details tools used and evaluation would help future projects of similar kind. The timeline details were also shared.

Chapter IV: Data Presentations and Analysis

Introduction

This chapter will focus on the data, interpretation and strategies used to analyze and formulate the recommendations. Also this chapter will outline the process and evaluations performed to optimize the migration process.

Data Analysis

The data analysis is performed using Objective evaluation and Subjective evaluation.

Objective evaluation:

- Success by task—did a tester complete given task successfully
- Average time on task—how long did it take a tester to complete a task

Subjective evaluation:

- System usability scale—satisfied was the tester with experience.
- Usability issues or challenges found—analysis encountered during the test by users.

Objective evaluation:

Success by Task:

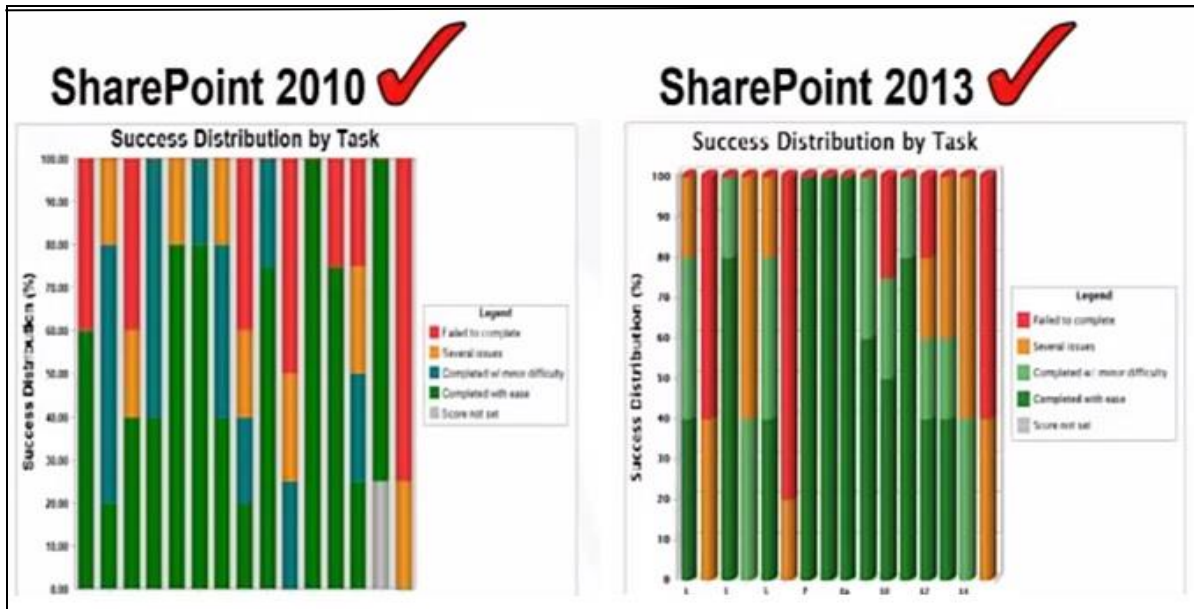


Figure 11: Success by Task

After migration is completed successfully different tasks are performed in both environments and the success distribution is measured. The above figure shows task success distribution in both SharePoint 2010 and SharePoint 2013 environments.

Success by task rate generated by Success Distribution Simulation:

SharePoint 2010–78%

SharePoint 2013–84%

Average time on task:

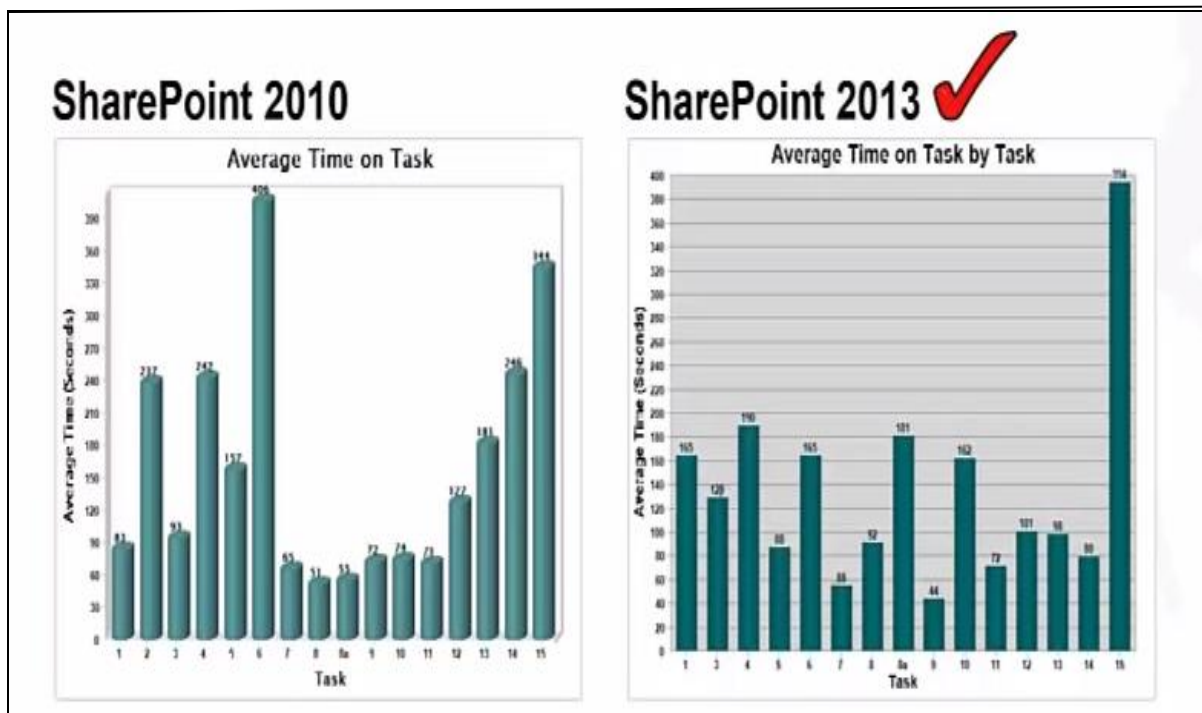


Figure 12: Average Time on Task for SharePoint 2010 and 2013

The time consumed for successfully completed tasks is calculated in both environments. The additional features in SharePoint 2013 reduced the average time on task.

Subjective evaluation:

System usability scale (SUS): In response to these requirements, a simple usability scale was developed. The System Usability Scale (SUS) is a simple, 10-item scale giving a global view of subjective assessments of usability.

	Strongly disagree				Strongly agree
1. I think that I would like to use this system frequently	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	1	2	3	4	5
2. I found the system unnecessarily complex	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	1	2	3	4	5
3. I thought the system was easy to use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	1	2	3	4	5
4. I think that I would need the support of a technical person to be able to use this system	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	1	2	3	4	5
5. I found the various functions in this system were well integrated	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	1	2	3	4	5
6. I thought there was too much inconsistency in this system	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	1	2	3	4	5
7. I would imagine that most people would learn to use this system very quickly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	1	2	3	4	5
8. I found the system very cumbersome to use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	1	2	3	4	5
9. I felt very confident using the system	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	1	2	3	4	5
10. I needed to learn a lot of things before I could get going with this system	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	1	2	3	4	5

SUS Chart: The SU scale was used after the tester has had an opportunity to use the system being evaluated, but before any debriefing or discussion takes place. Respondents were asked to record their immediate response to each item, rather than thinking about items for a long time.

SUS yields a single number representing a composite measure of the overall usability of the system being studied. Note that scores for individual items are not meaningful on their own.

To calculate the SUS score, first sum the score contributions from each item. Each item's score contribution will range from 0 to 4. For items 1, 3, 5, 7 and 9 the score contribution is the scale position minus 1. For items 2, 4, 6, 8 and 10, the contribution is 5 minus the scale position. Multiply the sum of the scores by 2.5 to obtain the overall value of SU.

SUS scores have a range of 0 to 100.

Average SUS scores calculated for SharePoint 2013:

$$4+4+3+3+3+4+4+3+3+2= 33$$

$$\text{Total Score} = 33$$



$$\text{SUS Score} = 33 \times 2.5 = 82.5$$

Usability issues or challenges found:

SharePoint 2010:

- Issue editing text on page
- Issue changing site icon
- Issue changing navigation
- All issues were site administration tasks

SharePoint 2013 covers all the issues faced by SharePoint 2010.

	SharePoint 2010	SharePoint 2013
Server:	SharePoint Server for Internet Sites Standard or Enterprise (SPFIS)	SharePoint Server 2013 license
Internal Users:	CALs are not required	CALs are not required (see CAL waiver below)
External Users:	CALs are not required	SharePoint CALs are not required; the server license permits external user access.
Optional:	FAST Search Server for SharePoint Server (FS4SP)	FAST technology has been directly integrated with the SharePoint Server for 2013. There is no need to buy a separate server license to leverage FAST technology with SharePoint 2013.

Figure 13: SharePoint 2010 vs. SharePoint 2013 Servers

Changing site icon is also more flexible in 2013 than the 2010 and also changing navigation key is also well supported in SharePoint 2013 than 2010.

Merits of SharePoint 2013 over 2010

- SharePoint 2013 interface is an overall satisfying experience than the users of SharePoint 2010.
- SharePoint 2013 will provide considerable improvements in usability for the typical administrative site tasks.

- SharePoint 2013 has a very good modern look.
- SharePoint 2013 had better average time on task.

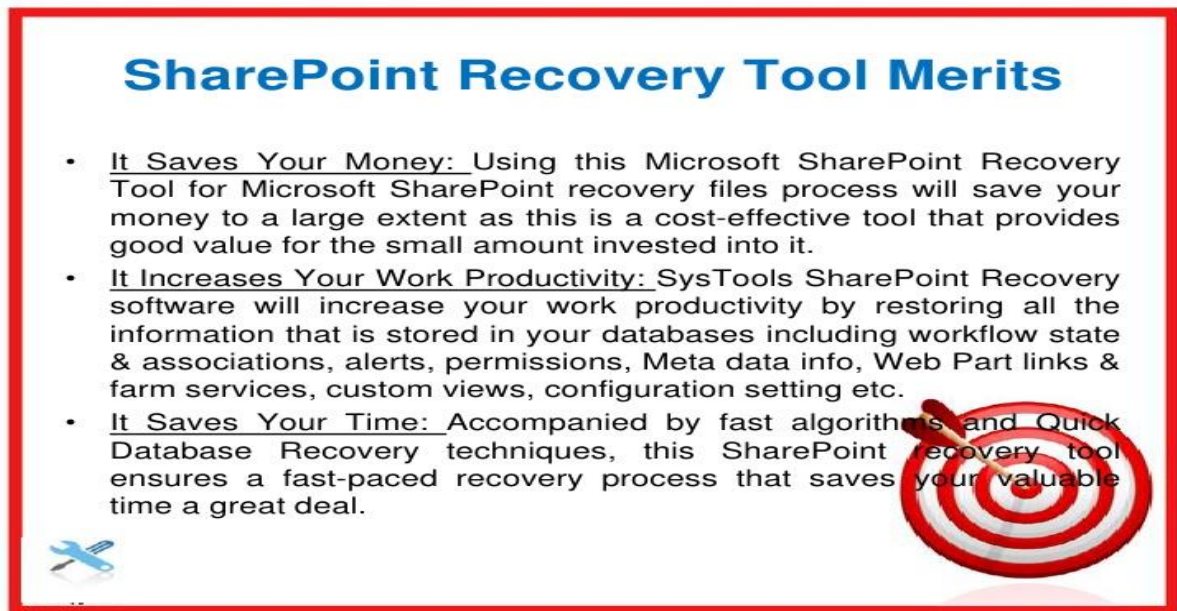


Figure 14: Merits of SharePoint 2013

Summary

Data presentation and analysis explains how data imports will be done, and also what are the key characteristics of data and objects. Different evaluation methods used to calculate the output after testing are explained. The merits and additional features are detailed. The next chapter will cover the result of the project, conclusions based on the results and possible recommendations for the betterment of the organization.

Chapter V: Results, Conclusion and Recommendations

Introduction

This chapter focuses on providing the final result of the project. Subsequently, the project questions posed before conducting this study are answered briefly. Possible recommendations are made based on the result and conclusion for further possible improvement opportunities.

Results

The Migration from SharePoint 2010 to SharePoint 2013 was successfully completed using database attach detach method.

The project questions which were posed at the start of the project study are discussed below.

1. What licenses will have to be maintained?

The total environment has been migrated to SharePoint 2013 and the content database is maintained by SharePoint 2013 server. Hence the license for SharePoint 2010 is terminated reducing the overall maintenance cost.

2. What effect will be on the servers?

Previously four front end servers and two app servers were used to maintain both SharePoint 2010 and SharePoint 2013 environments which increased load on them. Now all the six servers are used to host only SharePoint 2013 which reduces the load.

SharePoint Server 2013 provides a disk-based binary large object (BLOB) cache that reduces load on servers and increases browser performance for users.

BLOB cache informs when to be used and list key in consideration for development. It also contains in sequence about when to use that improves video presentation for users when serving videos as part of organization digital assets in SharePoint Server 2013.

Other caches are available in SharePoint Server 2013 which describe the boundaries of upload file size limits, and lists consideration for adjust the size limit for file transfers on the server.

<i>SharePoint 2010 vs. SharePoint "2013" Comparison:</i>		
Component	SharePoint 2010 Minimum Requirements	SharePoint "2013" Minimum Requirements
SQL Server	The 64-bit edition of Microsoft SQL Server 2005 with Service Pack 3 (SP3).	The 64-bit edition of Microsoft SQL Server 2008 R2 Service Pack 1.
	The 64-bit edition of Microsoft SQL Server 2008 with Service Pack 1 (SP1) and Cumulative Update 2	
	The 64-bit edition of Microsoft SQL Server 2008 R2	
Windows Server	The 64-bit edition of Windows Server 2008 with SP2	The 64-bit edition of Windows Server 2008 R2 Service Pack 1 (SP1)
	The 64-bit edition of Windows Server 2008 R2	

Figure 15: SharePoint 2010 and 2013 Servers

3. What issues will be resolved?

Before the migration two teams were working on SharePoint 2010 and SharePoint 2013 respectively. Because of those two different environments, some issues were being faced from the past, like lack of communication, not able to meet

the deadlines, overload on server. Now both teams are collaboratively working on SharePoint 2013 eliminating those issues.

4. What are the additional/new features?

SharePoint 2013 additional features:

- Social enterprise
- Strong and also effective enterprise search
- Web content management
- Sharing
- Storage infrastructure improvements
- Increases the end user productivity
- Apps and the market place
- Governance automation
- Easy moving from SharePoint 2013 to office 365

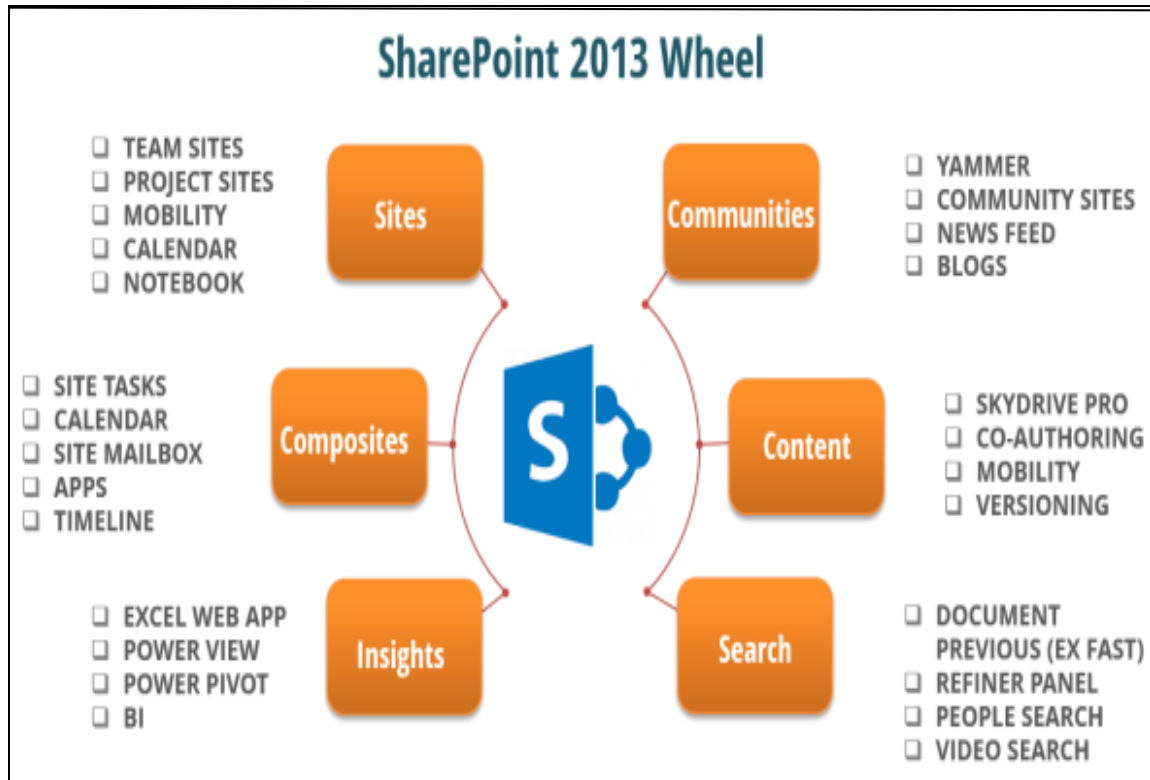


Figure 16: SharePoint 2013 Wheel

Social:

- Personal sites
- Communities

Cloud:

- Office 365
- Services

Documents:

- Sky Drive pro for documents sync and offline working

Compliance:

- Policy and discovery across SharePoint or exchange.

Work management:

- Full spectrum and unified tasks.
- Site mailbox

Interoperability:

- Business connectivity services
- Hybrid

Mobile:

- Anywhere access on windows 8
- Windows phone
- IOS compatibility

Windows azure workflow in SharePoint 2013:

- Workflow now treated as a service.
- Moved to windows Azure workflow.
- No longer required to run on SharePoint WFE/App servers.
- Improves stability, scalability and transparency.

The pictorial representation of SharePoint 2013 of features is shown as below:

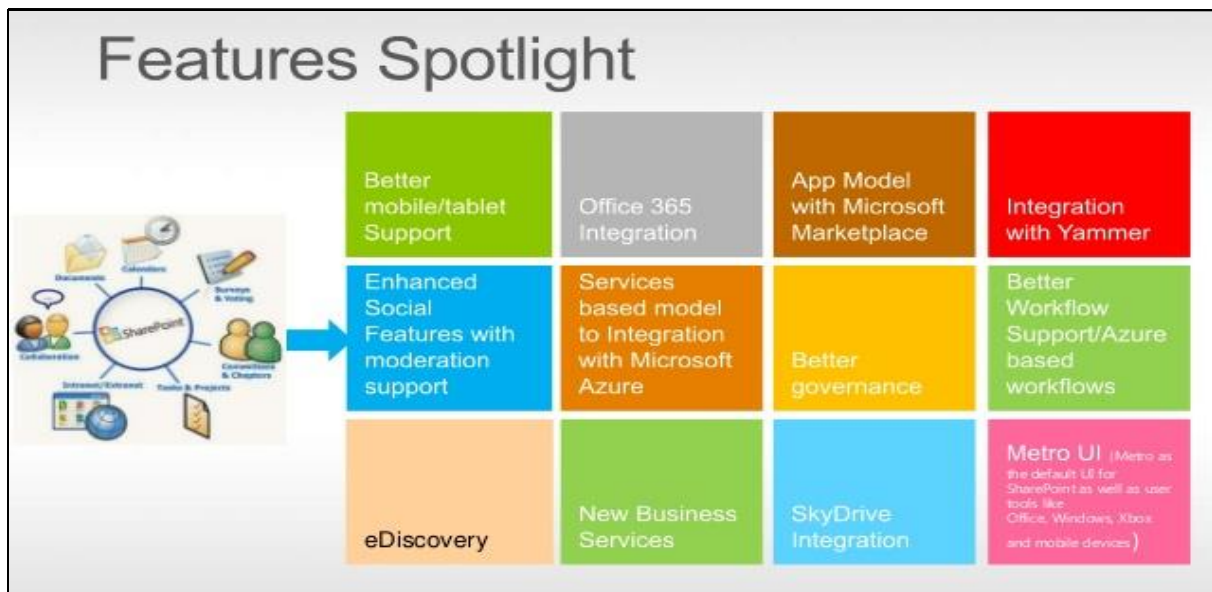


Figure 17: Features of SharePoint 2013

Some of the web Apps in SharePoint 2013 is shown in form of a web diagram which clearly represents the flow of work in web apps in Company ABC this clearly represents the picture in a detailed version.

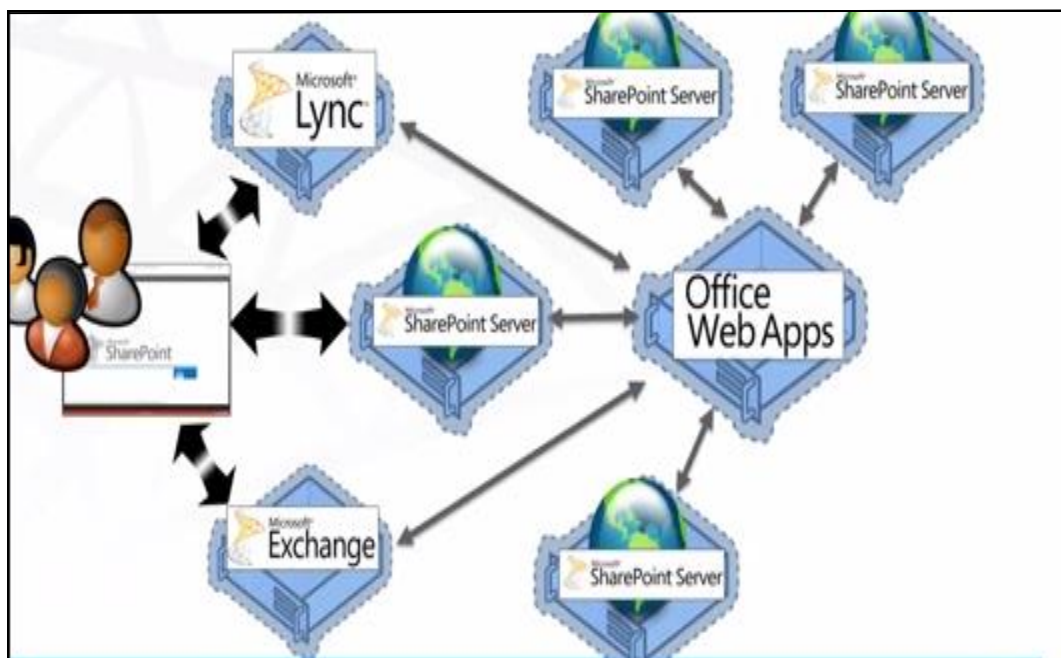


Figure 18: SharePoint Office Web Apps

SharePoint 2010 web Apps:

- Service application
- Co-authoring
- Docs.com

SharePoint 2013

- Brand new server product
- Built for a rapid release cadence.
- Consists some of the important feature as FrontPage of the server extensions and also the Microsoft site server.
- It is evolved into a rich portal which is of the platform of about SP2007 mainly.
- Consists scalability which improves the service architecture also with office 365.
- Includes most of enterprise license agreements (ELAs).

Conclusion

This migration project has been considered as one of the most prestigious projects handled by the organization and the result was hugely appreciated by the business users. The reduction of inbound and outbound issues is the most important problem that was addressed by this project. New features and other additional functionalities will enhance the user's experience. The reduction of errors and unexpected breakdowns during migration was also one of the key aspects that was

achieved in this project. These aspects directly portray the reduction in the utilization of the resources by the organization.

The Agile software development methodology that was implemented in the project resulted in a well-planned, developed, flexible and a robust product. Additional requirements and changes in the specifications that were needed at various stages of the project were also included in the end product. Some of the customizations were customer specific and implementation of those features made this project more appealing to potential business users. It is a conceptual framework that promotes foreseen tight interactions throughout the development cycle.

Based on the final results of the project, it has been a user friendly, innovative, and a flexible outcome. Also, the project has been appealing to the customers while the company started to establish relations with new additional users.

Recommendations

The study established that the Database attach detach approach is very suitable for process migration projects.

- Reduce the input code which makes the future migrations simple without any possible errors or breakdowns.
- At regular intervals, the team must reflect on how to become more effective through meetings and interacting with the prospective customers, fine tune and adjust the behavior accordingly.
- If possible extend the timeline rather than hiring new resources which increases the budget.

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