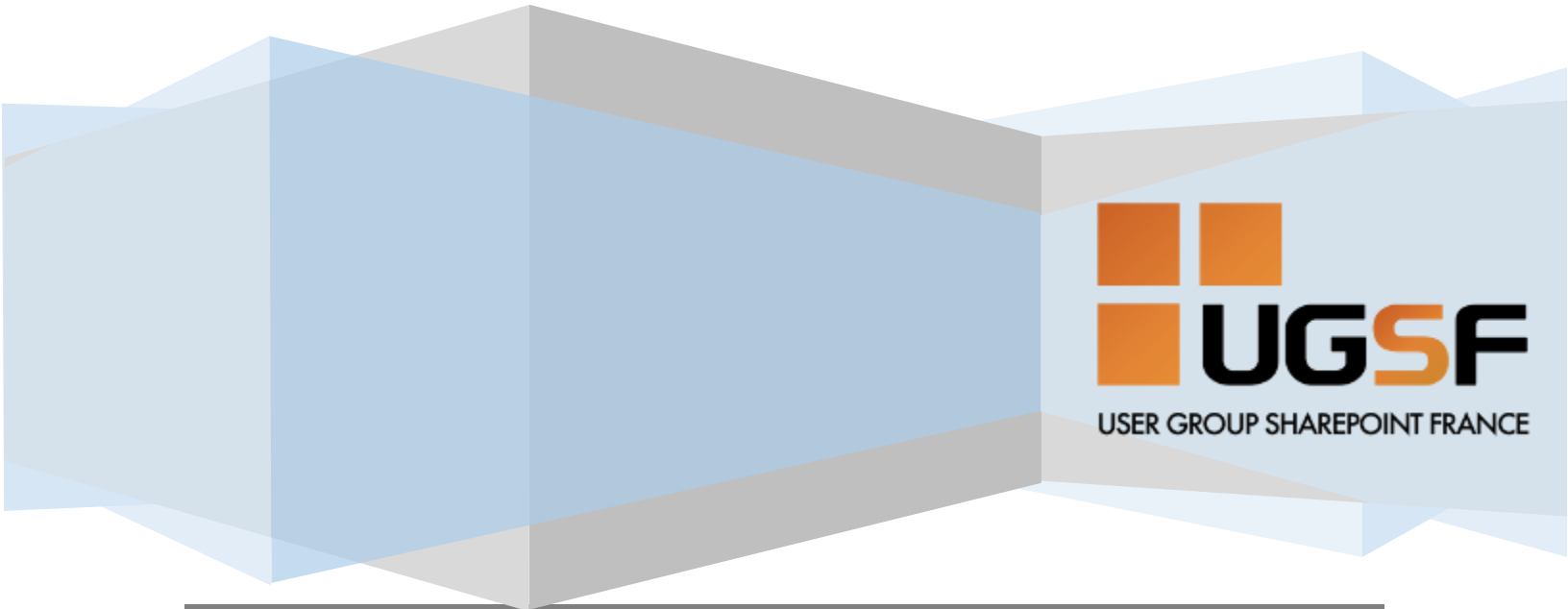
SharePoint Customer Auditing Process (SP|CAP)



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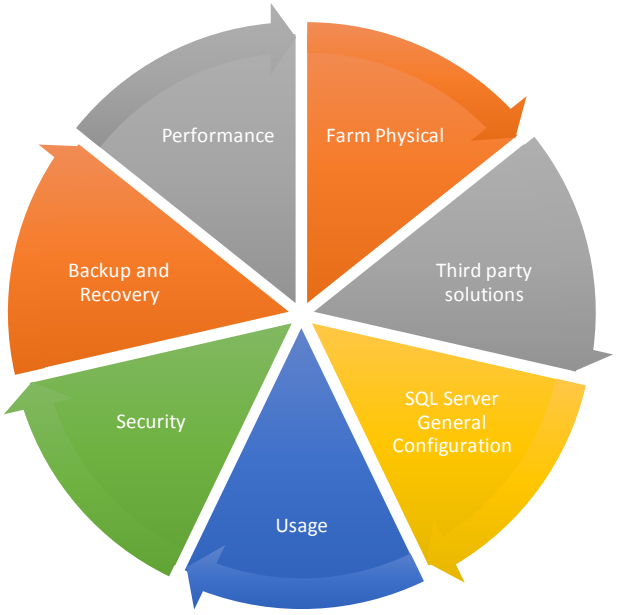
Introduction

Auditing SharePoint is one of the indispensable processes before deploying new solutions on the existing farm since SharePoint is going to be more critical to the corporate business. There are many reasons why auditing before SharePoint deployments is really important:

- Identifying things are properly configured in SharePoint farm
- Identifying the impaction of hardware and software on SharePoint performance
- Measuring security in several different aspects
- Infrastructure involved to operate SharePoint
- Customization maintenance

The wheel describes several parts you need to look at when conducting a SharePoint audit.



The goal of this whitepaper is to create a new process (like the Release Distribution Process created with Pascal Benois from Microsoft) and help you create an Auditing Document.

Authors

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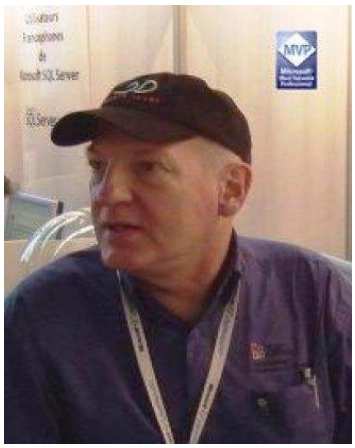
many “crazy” ideas that could arouse the community.



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His blog: http://dotnet4ever.fr

Introduction

Don't be ashamed to present yourself in the SharePoint Audit document. A Senior SharePoint Consultant, MCT or MVP is always better than a document without any name. Explain your way of work (methodology) in a few lines and use a calendar to show the customer what you have done.

Calendar can be:

Date	Activities
12/12/2013	SQL Server analysis
15/12/2013	SharePoint Server analysis + collecting data
22/12/2013	Final Report
24/12/2013	Presenting final Report

Methodology can be:

- We are using tool X and tool Y for collecting data.
- We will check Windows Logs and SharePoint Logs without any third party tool
- We will have an internal meeting with business users to understand the blocking SharePoint problems!
- ….

Who are we can be:

Benoit Jester

SharePoint Senior Consultant who is working since 2006 for Pegasus Corp as SharePoint Maintenance Coordinator.

Gokan OZCIFCI

SharePoint Infrastructure Consultant and Microsoft MVP

All these little things – **nothing Technical, more Presales** - will insure the customer.

Farm Physical Architecture

This is the first task you have to complete: identify the SharePoint farm, its servers and their characteristics, how the farm is integrated into the existing architecture, and which services are activated.

This is a high-level view of your audit.

Farm overview

Identify the main characteristics of the farm:

Name	Current Build	Latest Build	Version	Configuration Database	Servers in farm	Product Key	PassPhrase
Pegasus	15.0.4551.1001	15.0.4551.1001	Standard	Pegasus_Config	3	XXXXX-XXXXX-XXXXX-XXXXX-XXXXX	PegasusPOC

Farm topology

We will document physical servers or virtual machines involved in each farm. Each needs to have the following data:

- Server Name
- Operating System
- CPU
- Memory of RAM
- System Disk
- Data Disk
- Virtualized (Yes/No)
- Software

Identify the farm topology (which servers are in your farm), and what are their characteristics:

Name	Role	OS	IP	Memory	Type	Processors	Cores
PegWFE	WFE	Windows Server 2012	10.30.55.11	12	Virtual	4 (2,4 Ghz)	1
PegApp	APPE	Windows Server 2012	10.30.55.12	16	Virtual	4 (2,4 Ghz)	1
PegDB	SQL (Alias)	Windows Server 2012	10.30.55.13	24	Virtual	4 (2,4 Ghz)	1

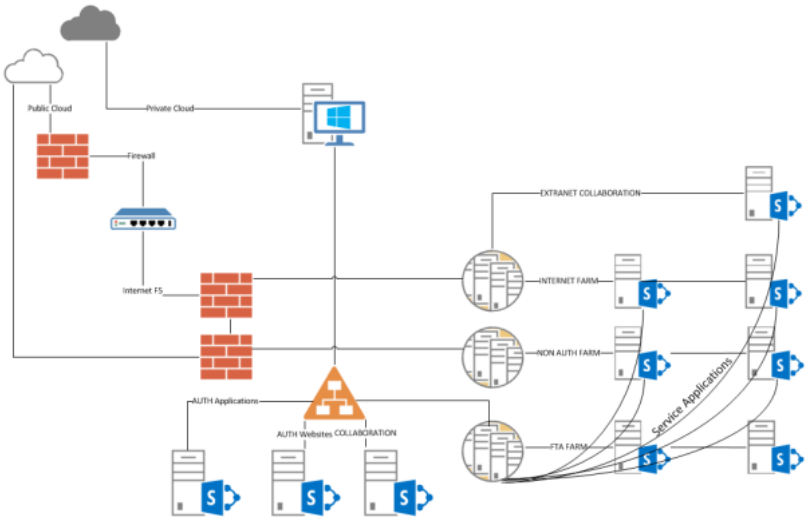
Architecture overview

This includes network topology, logical and physical architecture, and server farm details of the SharePoint farm you want to do an audit in. With network topology, hardware and network devices including firewall, router, switch or so on need to be documented. You don't have to necessarily perform an assessment on network device, but the least is to list down which network devices involved to be functioning for SharePoint.

With more specific to SharePoint farm, drawing a whole SharePoint farm is ideal. See the following sample:

Farm Name	Domain	Physical Location	Note
Production	Pegasus.corp	Pegasus Datacenter 01	The farm that hosts production SharePoint environment
Staging	Pegasus.com	Pegasus Datacenter 01	The farm that hosts Staging SharePoint environment
Recovery	Pegasus.net	Pegasus Datacenter 02	Disaster Recovery Farm

A Visio diagram should be joined to explain how servers are communicating with each other, and how the farm is integrated in the existing architecture:



Farm Logical Architecture

The Logical Architecture is not more a need to document logical topology for current SharePoint farm. The following scopes you should look at:

- **Service** (with server services are running relatively)
- **Service application** (with application pool account and service application database relatively)
- **Web Application** (Zone, Port, Host Header, Public URL)
- **Site Collection** (Web Application, URL, Template, Content Database)
- **Content Database** (Specific name, Description, Backup/Recovery Option)

You should be able to know how many web applications and site collections are available on the farm, as well as if there are any recycle available on the Application Pools, if are the basic best practices respected (like not exceeding the 200GB of content Databases sizes, having sexy - user friendly - names and not GUID, etc).

In summary, you have to go down one level in comparison with the previous chapter, and get down in the architecture.

You can create as example a table for the Service Applications like shown:

Name	Service	Proxy Group	App Pool	Database
Enterprise Managed Metadata	Managed Metadata Service	Default	pgsmetadata@pegasus	pgsMMD_DB
Enterprise Search	Search Service Application	Default	pgssearch@pegasus	pgsSSA_DB

Services activated on servers

Next to the Service Application overview, list all services activated on servers, example:

SharePoint Services	
Application Discovery and Load Balancer Service	Started
Central Administration	Started
Distributed Cache	Started
Microsoft SharePoint Foundation Incoming Email	Started
Microsoft SharePoint Foundation Web Application	Started
Search Host Controller Service	Started
SharePoint Administration	Started
SharePoint Timer Service	Started
SharePoint Tracing Service	Started

How to gather the data?

Solution 1

Separately from tools described in another chapter and because you certainly don't want to manually gather all data, you can have a look at this PowerShell script: SharePoint 2010/2013 : Export Web Apps infos to csv file and SharePoint list, which gathers the data associated with the farm Web Applications and export them to a csv file and optionally to a SharePoint list.

This will give you an idea of what can be done through PowerShell, to have a "user friendly" view of web applications data, for example as a list item.

Solution 2

You can have a look at this article Build an inventory before a SharePoint Migration and put it in Visio, to easily build an "Organization chart" displaying your web application data (site collections, template used, etc.), by using PowerShell and Visio.

Some practical examples

Software Boundaries / Common Best Practices

This point can be separated into 2 parts:

- The Software boundaries and limits
- The **common** best practices, as using a SQL alias, not configure the database files to be stored on the primary drive, configure backups, …

Software Boundaries and limits

The article mentioned above (available for SharePoint 2007/2010/2013) describes the boundaries/thresholds/supported limits for elements in SharePoint:

- **By hierarchy:** from the web application to the page
- **By feature:** for all service applications, apps …

These limits should be kept in mind during an audit because not respecting the Software Boundaries and limits can be the initial cause of each performance issue.

Common Best Practices

They are some "common" best practices that you could check and add into your audit report, here are some examples:

- Use a SQL alias instead of the SQL Server name; this way you can also change the default SQL Server ports used to enhance security,
- Set the **MAXDOP** parameter to 1 when using SharePoint 2010 (mandatory when using SharePoint 2013),
- Are regular content databases backups scheduled?
- Is the maximum memory that can be used by SQL Server limited?
- Did you left the database **auto growth** value as its default value?

Third party customizations

SharePoint has many out-of-the-box (OOTB) features that empower end-user to build business solutions without having to write code. This statement is correct. However, in many cases, custom solutions are deployed to fit specific needs. That said, every of them need to be documented with the following data:

- **Solution scope:** farm, web application, site collection, sandbox
- **Interaction:** solution may interact with external file server, or ASP.NET-based application.
- **Assemblies:** solution ID, assembly location, deployment target
- **Features:** feature ID, scope, purpose…etc.
- **Deployment guidance:** via PowerShell/STSADM, Central Administration

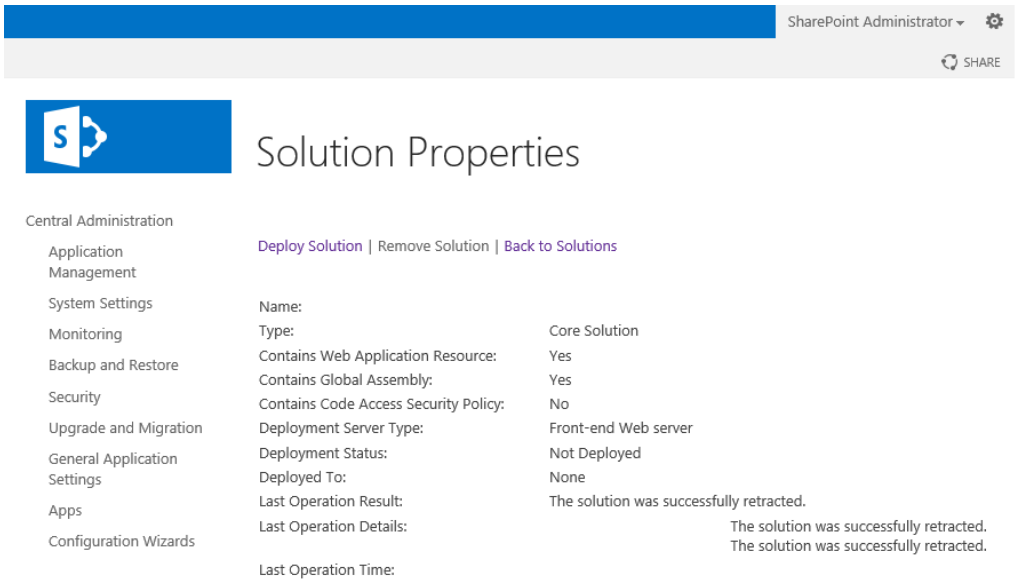
Generally many problems in SharePoint farms are caused by:

- Bad customizations,
- Customizations badly deployed (on one or more servers),
- Manual updates in the “hive”.

You have to know if there are solutions deployed on the different farms and check what these solutions are doing.

Here are some questions to which you should being able to answer:

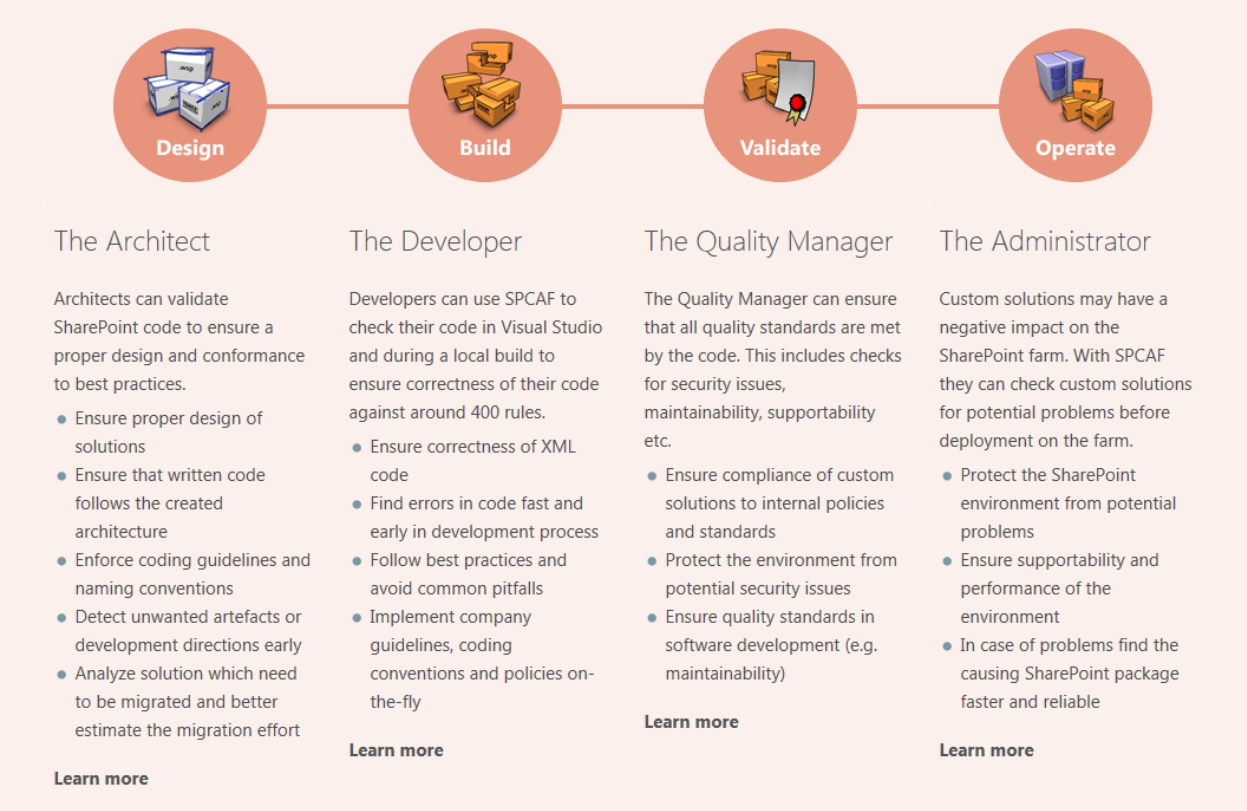
- Are these solutions deploying dll in the Global Assembly cache?
- Are these solutions activated in the Site Collection?
- Is this feature still active?
- Is it causing trouble?
- …



How to gather the data?

Solution 1

These above often get documented in SharePoint Custom Solution Documentation. If not, you would have to ask internal development team or use 3rd party tool to capture information. I strongly recommend SPCAF (SharePoint Code Analysis Framework) tool (http://www.spcaf.com/features/)



Solution 2

You can have a look at this PowerShell script, which gathers the data associated with your SharePoint farm solutions (WSP) and export them to a csv file and optionally to a SharePoint list: SharePoint 2007/2010/2013 : Export WSP info's to csv file and SharePoint list.

This will give you an idea of what can be done through PowerShell, to have a "user friendly" view of WSP data, for example:

Solution 3

One task you can have to do during a farm audit is to check the consistency between the servers, when elements are deployed by WSP solutions.

This is not a trivial task, as elements could have been manually replaced in the “hive” by the administrator, or WSP could have encountered an error during the deployment.

Here are some ways to achieve this task:

- Has an element been manually modified? Compare the last modified date of the element in the hive with the last WSP deployment date,
- Is there an inconsistency between the farm servers? Launch a comparison tool on the different “hives” folder and check if they are some differences,
- …

Are you sure to have the latest source code?

Especially in the case of a migration, you have to ensure that you can get the latest source code.

For example when migrating from SharePoint (2007 or 2010) to SharePoint 2013, check with the development team that all source code are available (TFS, File System) and up-to-date.

Patching level

You should apply cumulative updates only if it fixes problems on your platform and always follow the Service Packs from Microsoft. Check the Service Pack / Cumulative Update / Current version of SharePoint is still supported and if not warn you customer about that.

Example:

Patch level	Description	Installation date	End of support
15.0.4420.1017	RTM	02/10/2013	**12/12/2017**
15.0.4517.1005	March 2013 CU + June 2013 CU	11/05/2013	**12/12/2017**

Latest update available:

Patch level	Description
15.0.4551.1511	December 2013 CU

 If you're auditing a SharePoint 2013 farm which has never being upgraded, don't forget to mention that the march PU is mandatory:

> Due to a change in the package configuration introduced after SharePoint 2013 RTM the March Public update is a mandatory requirement in order to install subsequent SharePoint Updates.

Build numbers reference pages

Build Number	Build Name	Component	Information Link	Download Link	Notes
15.0.4128.1014	Beta	SharePoint Foundation 2013		Download	Bugs, Notes, & Regressions
15.0.4128.1014	Beta	SharePoint Server 2013		Download	
15.0.4128.1014	Beta	Project Server 2013		Download	
15.0.4420.1017	RTM	SharePoint Foundation 2013		Download	Bugs, Notes, & Regressions
15.0.4420.1017	RTM	SharePoint Server 2013		Download	
15.0.4420.1017	RTM	Project Server 2013		Download	

15.0.4433.1506	December 2012 Hotfix	SharePoint Server 2013	KB2752058	Download	Bugs, Notes, & Regressions
15.0.4433.1506	December 2012 Hotfix	SharePoint Server 2013 (coreserver)	KB2752001	Download	
15.0.4481.1005	March 2013 Public Update	SharePoint Foundation 2013	KB2768000	Download	Bugs, Notes, & Regressions
15.0.4481.1005	March 2013 Public Update	SharePoint Server 2013	KB2767999	Download	
15.0.4481.1005	March 2013 Public Update	Project Server 2013	KB2768001	Download	
15.0.4505.1002	April 2013 CU	SharePoint Foundation 2013	KB2751999	Download	Bugs, Notes, & Regressions
15.0.4505.1005	April 2013 CU	SharePoint Server 2013	KB2726992	Download	
15.0.4505.1005	April 2013 CU	Project Server 2013	KB775426	Download	
15.0.4517.1003	June 2013 CU	SharePoint Foundation 2013	KB2817346	Download	Bugs, Notes, & Regressions
15.0.4517.1005	June 2013 CU	SharePoint Server 2013	KB2817414	Download	
	June 2013 CU	Project Server 2013	KB2817415	Download	
15.0.4535.1000	August 2013 CU	SharePoint Foundation 2013	KB2817517	Download	Bugs, Notes, & Regressions
	August 2013 CU	SharePoint Server 2013	KB2817616	Download	
	August 2013 CU	Project Server 2013	KB2817615	Download	
15.0.4551.1001	October 2013 CU	SharePoint Foundation 2013	KB2825674	Download	Bugs, Notes, and Regressions
15.0.4551.1005	October 2013 CU	SharePoint Server 2013	KB2825647	Download	
	October 2013 CU	Project Server 2013			

15.0.4551.1508	December 2013 CU	SharePoint Foundation 2013	KB2849961	Download	Bugs, Notes, and Regressions
15.0.4551.1511		SharePoint Server 2013	KB2850024	Download	
15.0.4551.1508		Project Server 2013	KB2837668	Download	

Reference: http://www.toddklindt.com/sp2013builds

- SharePoint 2013: SharePoint 2013 Build Numbers,
- SharePoint 2010: SharePoint 2010 Build Numbers.

SQL Server general Configuration

Check SQL Server configuration and summarize all main parameters:

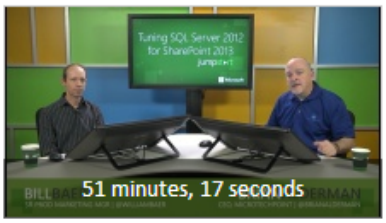
Parameter	Value
Server name	SP15SQL
Data location	D:\SQLData
Log location	E:\SQLLogs
Backup location	F:\SQLbackups
Collation	Latin1_General_CI_AS_KS_WS
High Availability	No
SQL Alias	-
Maximum Server Memory	Fixed : 12 Go
Maintenance Plan	Yes
Backups	Daily, 10 PM
Backups compressed	True
“Model” database recovery model	Full

Then all SharePoint databases and their properties, for example:

Database name	Size	Space available	Recovery model
SP15_WA1	xx	xx	Simple
SP15_WA2	xx	xx	Full
SP15_WA3	xx	xx	Full

Check the: Tuning SQL Server for SharePoint

Many customers don’t want that you’ll have all the control on SQL Server. So it’s better to know about the Best Practices for SharePoint 2013! Please have a look at these magical videos about Tuning SQL Server for SharePoint.



Tuning SQL Server 2012 for SharePoint 2013: (02) Best Practices for SQL Server Database Settings

Tuning SQL Server 2012 for SharePoint 2013
Mar 20, 2013 at 7:29 PM 0
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Lots of SQL Server best practices regardless of version

You can check all these options and write down each one who is not properly configured:

Do not enable **auto-create statistics** on a server that hosts SQL Server and SharePoint Server. Enabling auto-create statistics is not supported for SharePoint Server. Set the **MAXDOP** (max degree of parallelism) setting to 1 and nothing else. Setting the max degree of parallelism to any other number can cause a less optimal query plan to be used that will decrease SharePoint Server 2013 performance.

To help simplify maintenance, such as to make it easier to move databases to another server, create **DNS aliases** that point to the IP address for all instances of SQL Server. For more information about DNS or Hostname aliases

- As a best practice disable **mixed mode authentication**
- During installation set the default Collation to **Latin1_CI_AS_KS_WS**
- **Use individual domain Service Accounts** whenever possible (SSDE, SSAS, SSRS, SSAGENT)
- SQL storage should meet performance criteria per **sqlio.exe**
- Ensure **Full Recovery Mode**
- Set the **Minimum** and **Maximum** Memory for SQL
- Set **Autogrowth** for MDF / LDF higher to 100 MB / 50 MB

Reference: http://social.technet.microsoft.com/Forums/sharepoint/en-US/ca801ddf-8b0b-4cdd-8bf9-5418992ee572/install-sql-server-2012-for-sharepoint-2013?forum=sharepointgeneral and http://technet.microsoft.com/en-us/library/hh292622.aspx

Usage

SharePoint 2013 doesn't have a real Analytics feature but you can with the current one extract many statics that you can present to the customer. How many Average requests / day? The Site Collection Usage Summary etc… All these reports - relevant at least - can be showed in the SP|CAP

SharePoint 2013 Web Analytics

Analysis of the data has been completely redesigned and is now a component Search Service Application: it analyzes the content and the actions taken by users on the site of the content. This information uploaded by the analysis is then injected into the index to improve the relevance of research.

Advantages

- The new analytics engine finds relevant information based on clicks, views, etc.
- You can get hot indicators and usage numbers based on number of views and number of unique visitors
- You can understand how much content has been used
- This engine is extensible for 3rd parties
- Counting clicks / views for each document
- Recommendation of content
- Search results influenced by the priority of an item
- Ability to sort the results by "hit"

The search recommendations framework works in the following way

When users interacts with a SharePoint Server 2013 — for example, when the users clicks a link, presses a button, or views a document — actions are stored as usage events.

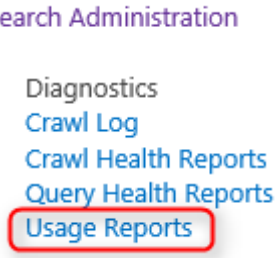
Usage events are counted and analyzed. The recommendations algorithm in the Analytics Processing Component counts and analyzes the usage events.

Information is added to the index. After processing in the Analytics Processing Component, the information is added to the search index and the Reporting database.

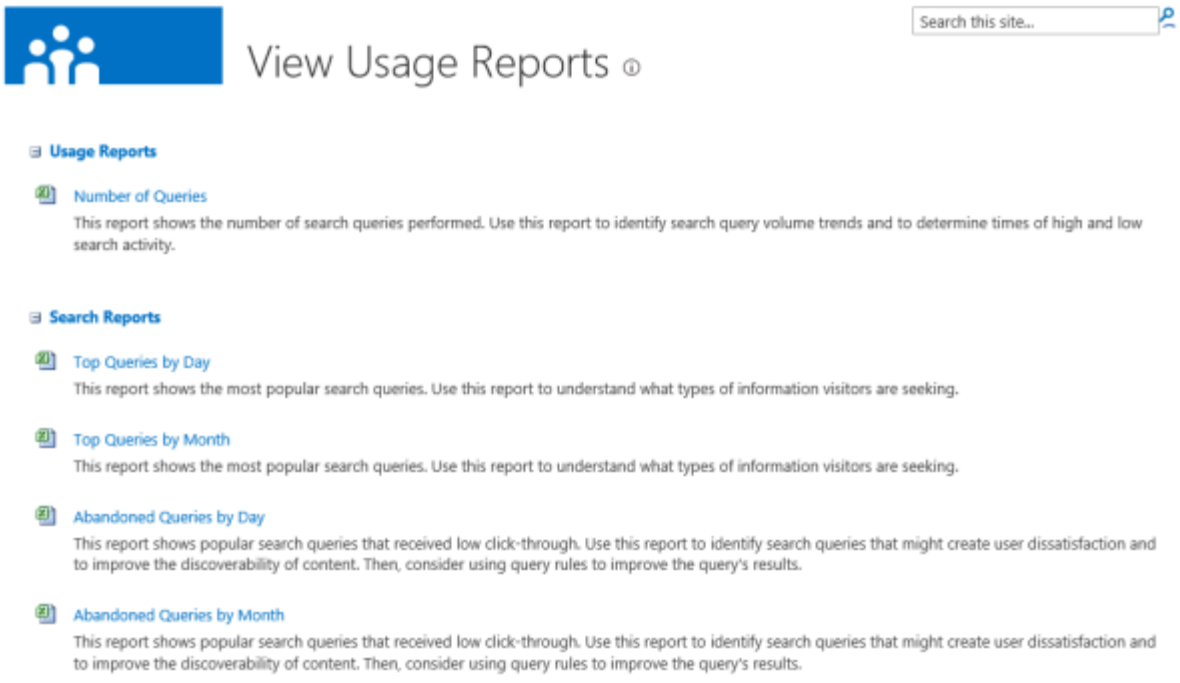
How does it work

1. Under Central Administration open your Search Service Application.

2. At the left side clique on « Usage Reports ».



3. You can now see a lot of reports that you can extract and see information:



Explanation of each report

Number of Queries

This report shows the number of search queries performed. Use this report to identify search query volume trends and to determine times of high and low search activity.

Top Queries by Day

This report shows the most popular search queries. Use this report to understand what types of information visitors are seeking.

Top Queries by Month

This report shows the most popular search queries. Use this report to understand what types of information visitors are seeking.

Abandoned Queries by Day

This report shows popular search queries that received low click-through. Use this report to identify search queries that might create user dissatisfaction and to improve the discoverability of content. Then, consider using query rules to improve the query's results.

Abandoned Queries by Month

This report shows popular search queries that received low click-through. Use this report to identify search queries that might create user dissatisfaction and to improve the discoverability of content. Then, consider using query rules to improve the query's results.

No Result Queries by Day

This report shows popular search queries that returned no results. Use this report to identify search queries that might create user dissatisfaction and to improve the discoverability of content. Then, consider using query rules to improve the query's results.

No Result Queries by Month

This report shows popular search queries that returned no results. Use this report to identify search queries that might create user dissatisfaction and to improve the discoverability of content. Then, consider using query rules to improve the query's results.

Query Rule Usage by Day

This report shows how often query rules trigger, how many dictionary terms they use, and how often users click their promoted results. Use this report to see how useful your query rules and promoted results are to users.

Query Rule Usage by Month

This report shows how often query rules trigger, how many dictionary terms they use, and how often users click their promoted results. Use this report to see how useful your query rules and promoted results are to users.

Google Analytics

So if you do not want to use the native “Web Analytics” of SharePoint 2013 there is another way to get statistics from your site.

The solution is based on the Google Analytics solution for SharePoint 2010. It enables on all pages the Google Analytics code or some other JavaScript without modifying the underlying master pages or any other file delivered from Microsoft. The solution runs as a non-code sandbox solution. That should limit deployment difficulties.

Download: http://www.fiechter.eu/blog/Solutions/Wsp365.GoogleAnalytics.zip

Codeplex: http://googleanalytics365.codeplex.com/

Performance

There is several common types' performance testing: performance test, load test, stress test, and capacity test. Each of them has different benefits and challenges. I strongly suggest following Performance Testing Guidance from Microsoft patterns & practices written by Microsoft (http://msdn.microsoft.com/en-us/library/bb924375.aspx)

Take a look at the following helpful tools:

- Microsoft Visual Round Trip Analyzer
- Visual Studio Test
- Dashboard Designer
- Forefront Identity Manager (used to see the duration of profile synchronization)

Use the **Perfmon** or **PAL** to extract data for the last 48 hours as baseline and present this to the customer. You can check the CPU, Memory Usage, Buffer cache hit ratio and IO Read/Write …

Performance Analysis of Logs (PAL) tool

Ever have a performance problem, but don't know what performance counters to collect or how to analyze them? The PAL (Performance Analysis of Logs) tool is a powerful tool that reads in a performance monitor counter log and analyzes it using known thresholds.

Features

1. Thresholds files for most of the major Microsoft products such as IIS, MOSS, SQL Server, BizTalk, Exchange, and Active Directory.
2. An easy to use GUI interface which makes creating batch files for the PAL.ps1 script.
3. A GUI editor for creating or editing your own threshold files.
4. Creates an HTML based report for ease of copy/pasting into other applications.
5. Analyzes performance counter logs for thresholds using thresholds that change their criteria based on the computer's role or hardware specs.

How to use PAL

The PAL tool is primarily a PowerShell script that requires arguments/parameters passed to it in order to properly analyze performance monitor logs.

Download Link

http://pal.codeplex.com/

Performance Monitor

Performance Monitor is a simple yet powerful visualization tool for viewing performance data, both in real time and from log files. With it, you can examine performance data in a graph, histogram, or report.

Membership in the local **Performance Log Users** group, or equivalent, is the minimum required to complete this procedure.

To start Performance Monitor

1. Click **Start**, click in the **Start Search** box, type **perfmon** , and press ENTER.
2. In the navigation tree, expand **Monitoring Tools**, and then click **Performance Monitor**.

You can also use Performance Monitor to view real-time performance data on a remote computer. Membership in the target computer's **Performance Log Users** group, or equivalent, is the minimum required to complete this procedure.

To connect to a remote computer with Performance Monitor

1. Start Performance Monitor.
2. In the navigation tree, right-click **Reliability and Performance**, and then click **Connect to another computer**.
3. In the **Select Computer** dialog box, type the name of the computer you want to monitor, or click **Browse** to select it from a list.
4. Click **OK**.

Windows Performance Monitor uses performance counters, event trace data, and configuration information, which can be combined into Data Collector Sets.

Performance counters are measurements of system state or activity. They can be included in the operating system or can be part of individual applications. Windows Performance Monitor requests the current value of performance counters at specified time intervals.

Event trace data is collected from trace providers, which are components of the operating system or of individual applications that report actions or events. Output from multiple trace providers can be combined into a **trace session**.

Configuration information is collected from key values in the Windows registry. Windows Performance Monitor can record the value of a registry key at a specified time or interval as part of a log file.

Source: http://technet.microsoft.com/en-us/library/cc749249.aspx

What should you monitor?

\Processor(_Total)\% Processor Time: The percentage of elapsed time that the processors spend on executing active threads. It's the percentage of time that the processor(s) are busy!

\Memory\% Available Mbytes: Available MBytes is the amount of physical memory that is available for use by applications and processes

\PhysicalDisk\Avg. Disk Sec/Read: Shows the average in milliseconds to read from disk. The recommended average should be less than 10 milliseconds.

\PhysicalDisk\Avg. Disk Sec/Write: Shows the average in milliseconds to write to disk. The recommended average should be less than 10 milliseconds.

\Memory\ Pages/sec: Measures the number of pages per second that are paged out of RAM to Virtual Memory (HDD)or 'hard faults' OR the reading of memory-mapping for cached memory or 'soft faults' (systems with a lot of memory).

Security

SharePoint 2013 can be configured to use one or multiple service accounts.

SharePoint and Managed Service Accounts

For SharePoint Service Accounts, do not create Active Directory Domain Services accounts that are Managed Service account or Virtual Service account. These two type of service accounts were introduced in Windows Server 2008 R2 and Windows 7. They are not supported in SharePoint 2013.

For SQL Server services use Managed Service account, if using SQL Server 2012. Managed Service account is now supported in SQL Server 2012. For example, you can use MSA for the SQL Server Engine and SQL Server Agent. Use MSA for SQL Server accounts that will not be used to login to the server. You can't use MSA to login to a server. The use of MSA for SQL Server services is considered as best practice. MSAs are limited to a total of 15 characters (this does not include the DOMAIN\ part). The following provides a good reference on how to enable MSA (http://blogs.technet.com/b/rhartskeerl/archive/2011/08/22/sql-server-code-name-denali-adds-support-for-managed-service-accounts.aspx)

SharePoint Service Account Character Length

SharePoint service accounts (managed accounts) are limited to a total of 20 characters - including the Domain Name (for example **Pegasus\SP_Name** - total characters should be less than 20). This limitation is not imposed on SQL Server service accounts or SharePoint's Setup User Account (ex: SPAdmin). But to be on the safe side, I would still follow the 20 to 25 character limit.

The reference article you have to consider for this part is this one: Plan for administrative and service accounts in SharePoint 2013.

Check all the Managed Accounts that do not respect the best practices or "**least-privileges**"

Overview

The account name is arbitrary. But, ensure the length of the account is within the character limits (see below: SharePoint and Managed Service Accounts and SharePoint Service Account Character Length) and the name is short while at the same time descriptive enough.

- **SQL Server Accounts**
  - **SQL Admin**
  - **SQL Service**
- **SharePoint Server Accounts**
  - **SP Admin**
  - **SP Farm**
  - **SP Web Application**
  - **SP Services**
  - **SP C2WTS**
  - **SP Cache Super User**
  - **SP Cache Super Reader**
  - **SP Excel User**
  - **SP Visio User**
  - **SP PerformancePoint User**
  - **SP Profile**
  - **SP Profile Sync**
  - **SP Search Crawl**
- **Project Server Accounts and Groups**
  - **PS Project**
  - **PS Workflow Proxy**
  - **PS Project Report**
  - **PS Project Report Authors**
  - **PS Project Report Viewers**
  - **PS Project External Report Viewers**

Service Accounts: SQL Server

SQL Admin

- Setup User Administrator Account
- Used for:
  - SQL Server Administrator (this account has unrestricted access to the DB engine)
  - SQL installation/update/upgrade
- Domain account
- Local Admin on SQL Server machine

SQL Service

- Used for:
  - Running SQL Server engine and SQL Server Agent.
- Domain account
- Preferably Managed Service Account
- Optionally, for more secure environments you will want to create multiple account (all domain accounts and MSA) for each of SQL Server services.
  - **SQL Service** - for SQL DB Engine
  - **SQL Agent Service** - for SQL Agent
  - **SQL AS Service** - for SQL Server Analysis Services
  - **SQL RS Service** - for SQL Server Reporting Services
  - **SQL IS Service** - for SQL Server Integration Services
  - **SQL DR Controller Service** - for Distributed Replay Controller
  - **SQL DR Client Service** - for Distributed Replay Client

Service Accounts: SharePoint Server

SP Admin

- Setup User Administrator Account
- Used for:
  - SharePoint installation
  - Running the SharePoint Product Configuration Wizard
  - Other Farm configurations
- Domain account
- Local Admin on APP and WFE servers

SP Farm

- SharePoint Database Access Account (AKA SharePoint Farm Service Account)
- Used for:
  - Central Administration app pool identity
  - Microsoft SPF Workflow Timer Service account
- Domain account
- During User Profile Synchronization application provisioning needs to be local admin and have Log On Locally rights on the Server that will be hosting the UPS application
  - After UPS application provisioning remove the local admin privilege but keep the Log On Locally rights
  - After giving this account local admin and Log On Locally rights permissions, it is important that you logout and log back into the server (or restart the server)

SP Web Application

- Web Application Pool Account
- Used for:
  - Application pool identity for the main web application IIS website
- Domain account

SP Services

- SharePoint Web Services Application Pool Account
- Used for:
  - Application pool identity for the SharePoint Web Services IIS website
- Domain account

SP C2WTS

- Claims to Windows Token Service Account
- Used as the identity for the Claims to Windows Token Service account
- Create this dedicate account if you plan to use Excel, Visio, PerformancePoint, or Office Web Apps Excel services.
- Domain account
- Local Admin on SharePoint Servers that will be running any of the following services:
  - Excel Services
  - Visio Service
  - PerformancePoint Service
  - Office Web Apps Excel Service

SP Cache Super User

- Portal Super User
- Used for:
  - Super user cache account
- Domain account
- This account requires Full Control access to the web application.

SP Cache Super Reader

- Portal Super Reader
- Used for:
  - Super reader cache account
- Domain account
- This account requires Full Read access to the web application.

SP Excel User

- Excel Service Unattended Service Account
- Used for:

    - Connecting to external data sources that require a username and password that are based on OS other than Windows for authentication
- Domain account

SP Visio User

- Visio Graphics Service Unattended Service Account
- Used for:
    - Connecting to external data sources that require a username and password that are based on OS other than Windows for authentication
- Domain account

SP PerformancePoint User

- PerformancePoint Service Unattended Service Account
- Used for:
    - Connecting to external data sources that require a username and password that are based on OS other than Windows for authentication
- Domain account

SP My Site Application Pool Account

- My Sites Application Pool Account
- Used for:
    - My Site application pool
- Domain account
- If you are hosting My Site site collection under the same web application as other site collections, then you don't need this account. Create this account only if you are creating a dedicated web application of My Site site collection, in which case you set the web application app pool account to this account.

SP Profile Synchronization

- Synchronization Account
- Used for:
    - Connecting to a directory service
    - User Profile Services to access AD
    - User Profile Services to run profile synchronization
- Domain account
- This accounts requires Replicate Directory Changes in AD DS on the domain node
    - The Grant Replicate Directory Changes permission does not enable an account to create, change or delete AD DS object. It enables the account to read AD DS objects and to discover AD DS object that were changed in the domain.

SP Search Service

- Search Service Account
- Used for:
  - Windows user credentials for the SharePoint Search service
- Domain account

SP Search Crawl

- Default Content Access Account
- Used for:
  - For Search service application to crawl content.
- Domain account
- This account must have read access to external or secure content sources that SharePoint will be crawling.
- For SharePoint sites that are not part of the server farm, this account must explicitly be granted full read permissions to the web applications that host the sites

Reference and big thanks to Magriet Bruggeman and the TechNet Wiki Community for that TechNet WIKI article: https://social.technet.microsoft.com/wiki/contents/articles/14500.sharepoint-2013-service-accounts.aspx

Backup and recovery plan

Identify the farm backup and recovery plan:

- What are the objectives (RTO / RPO / RLO)?
- What strategy is used to protect the data?
- What is the backup frequency?
- Are backup/restore tests regularly scheduled between environments (production and staging for example)?
- Are any third-party tools used?

Then summarize all these data:

Backup type	File Location	Schedule
Farm	-	None
SQL	\\SQLData\Backups	Every night : 10 PM
PowerShell / stsadm	-	None

SharePoint 2013 Backup Requirements

Be sure that the account used for the backup needs some permission on both the configuration database and on the server on which you're running the SharePoint Command Shell.

- On SQL instance: securityadmin role.
- On SQL database (for any that you're backing up): db_owner.
- On SharePoint server that you're running SharePoint PowerShell on: Local Administrator

No backup? PowerShell is your help!

1. Create PowerShell Script to backup all your configurations and SA in a month-by-month folder structure
2. Create Scheduled Task to execute that PowerShell Script
3. Create Maintenance Plan on your SQL Server to:
    I. Check integrity of all SharePoint Content Databases
    II. Backup them up to a folder structure, with one folder per database
    III. Delete backup history older than 9 weeks
    IV. Delete all files older than 8 weeks

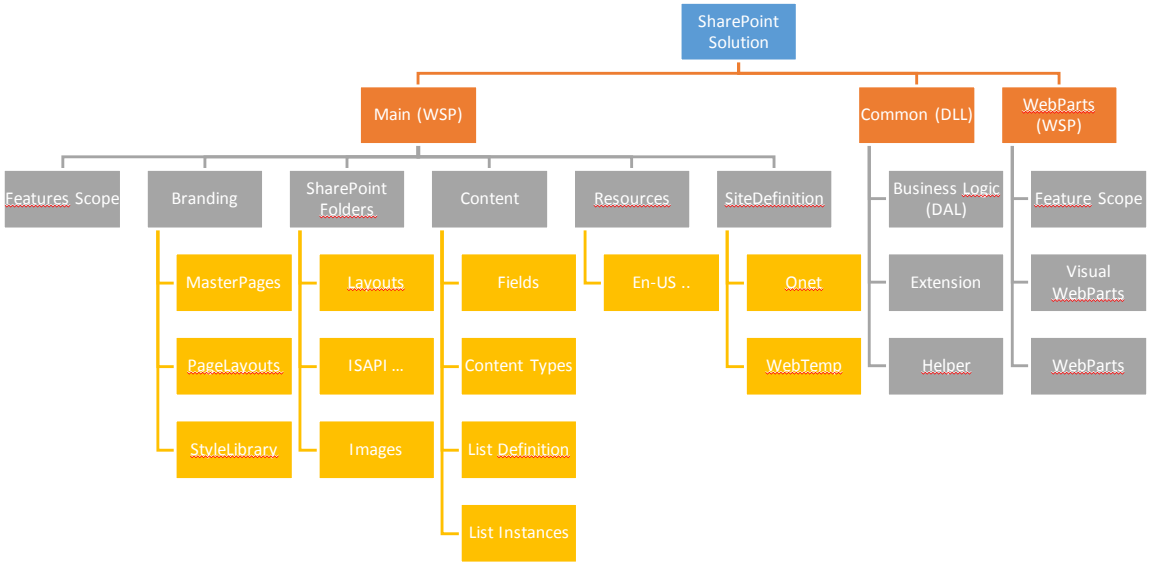
You can get a Powerhsell script here: My SharePoint Adventure.

Development

Different elements have to be taken in consideration concerning the audit of development when you begin with an environment that you don't know.

Structure

Basically, you can retrieve solution architecture as the following, of course it can be different from an environment to another, but mainly the approach it's still the same.



PowerShell

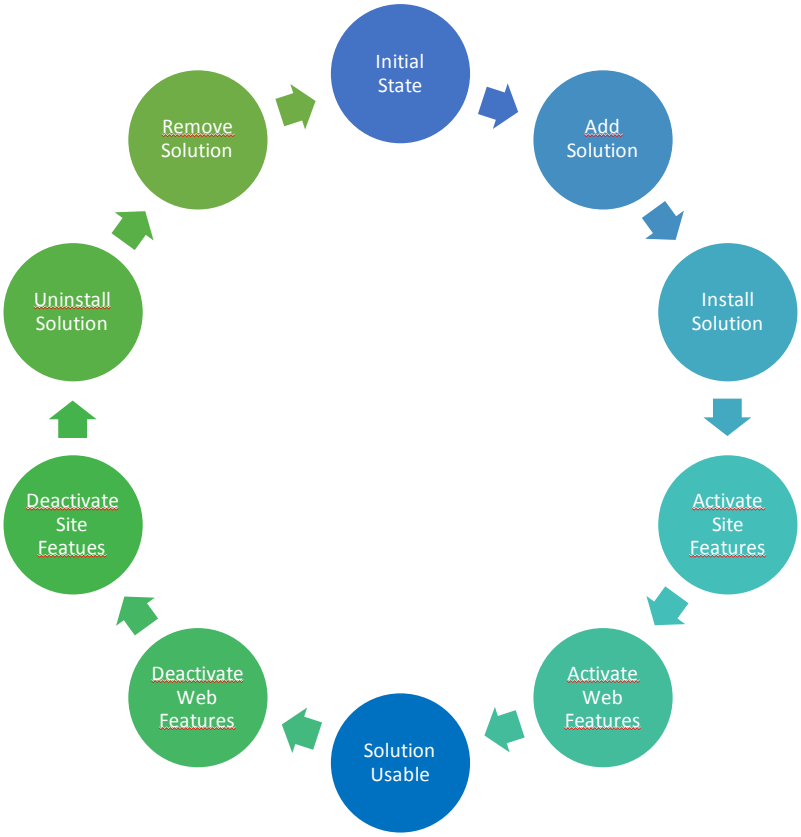
Auditing the PowerShell is also important, because it allows you to better understand some aspect of the project that isn't in the SharePoint Solution. For example:

- How is the structure?
- Does it have a specific order?
- How WSPs are deployed?
  - .Bat file?
  - Does-it takes parameters?
  - Does-it has any specificity? (Restart the Application Pool, Timer Service ...)
- Features are they automatically activated?
- Does-it log?
- What about provisioning data?
- Does he modify the Web.config?
- How do I know if the program is correctly executed?

All these points must be taken in consideration when a Delivery PowerShell is created.

Process of deployment

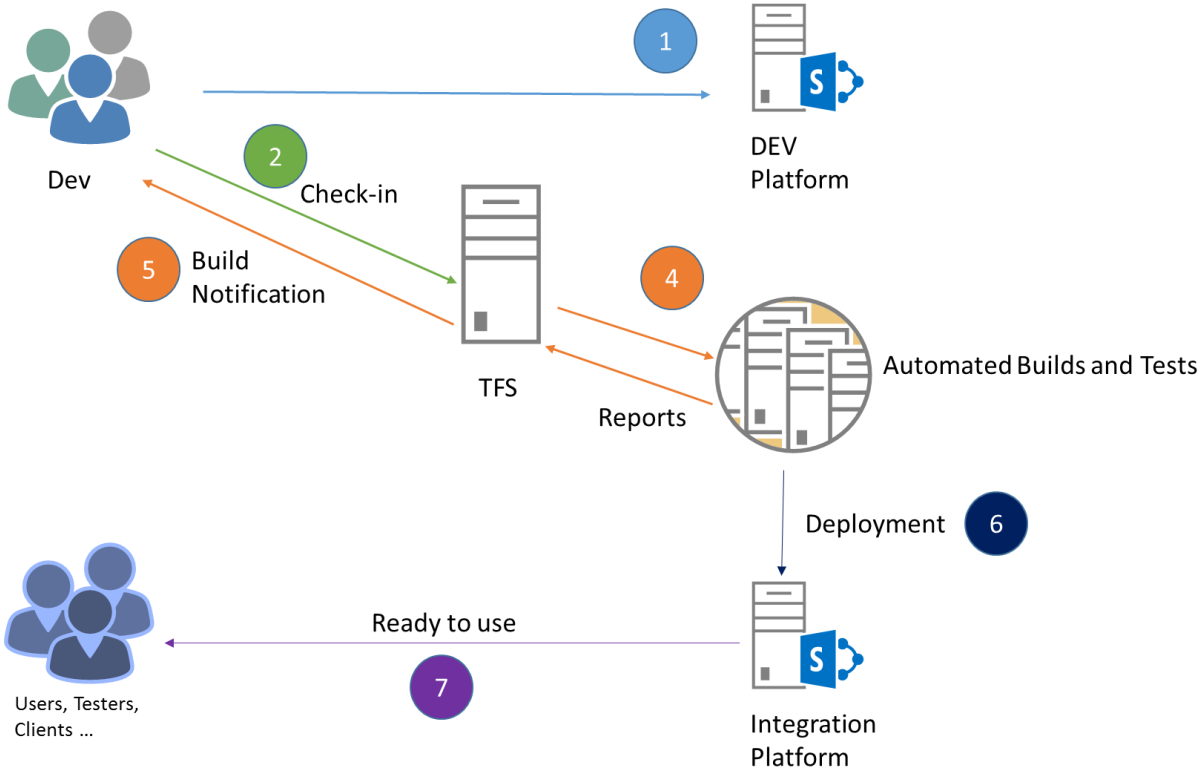
Knowing the process of deployment can be useful. Here is a global overview.



You can also use a tool that helps you deploying your packages, SPSD (*SharePoint Solution Deployer*) can be downloaded here: https://spsd.codeplex.com .

Continuous Integration

Knowing what it is set for the continuous integration can be helpful. As a global overview the continuous integration contains the following elements:



Useful links:

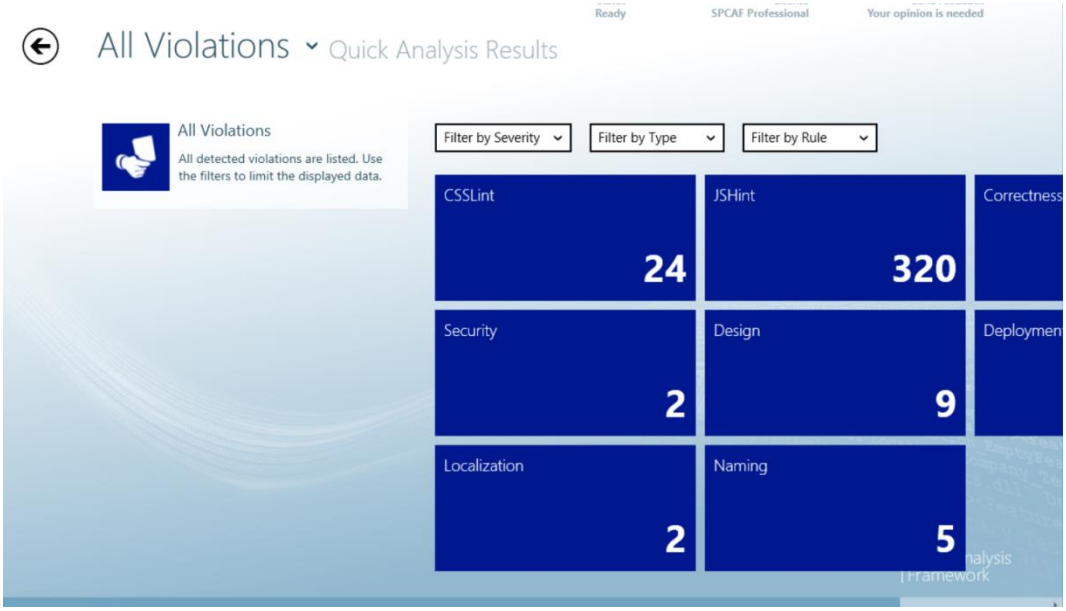
- SharePoint with TFS

1. Continuous Integration - Why do it?
2. TFS 2010 Team Build installation and configuration
3. Creating your first TFS Build Process for SharePoint projects
4. Implementing assembly versioning
5. Using PowerShell to deploy the WSP
6. Running tests as part of a build
7. Integrating additional tools in the build (code profiling, code analysis, SPDisposeCheck, etc.)

- ALM for SharePoint Apps and TFS
    - Part 1 - ALM for SharePoint Apps: Configuring a TFS Build Server with Team Foundation Service
    - Part 2 - ALM for SharePoint Apps: Implementing Continuous Integration
    - Part 3 – ALM for SharePoint Apps: Customizing the Build Process
    - Part 4 – ALM for SharePoint Apps: Understanding Provider Hosted App Publishing

Code Review

Reviewing the code is very useful for knowing if the solution respects the good implementation of Microsoft. In that case, using a tool like SPCAF can really help you. You can run it as client application or as a Visual Studio Plugin.



Of course you can use also to check if the code contains memory leaks with the famous SPDisposeCheck http://archive.msdn.microsoft.com/SPDisposeCheck, or track the good implementation of SharePoint code with SPCop, SPCOP - Visual Studio Gallery! This tool will analyze your code with the correct rules needed.

Every Best Practices that you are using in SharePoint 2010 can also be used in SharePoint 2013.

You can refer to the following documentation:

- SharePoint 2010 - Best Practices Development
- SharePoint 2013 - Best Practices Development

Naming Convention

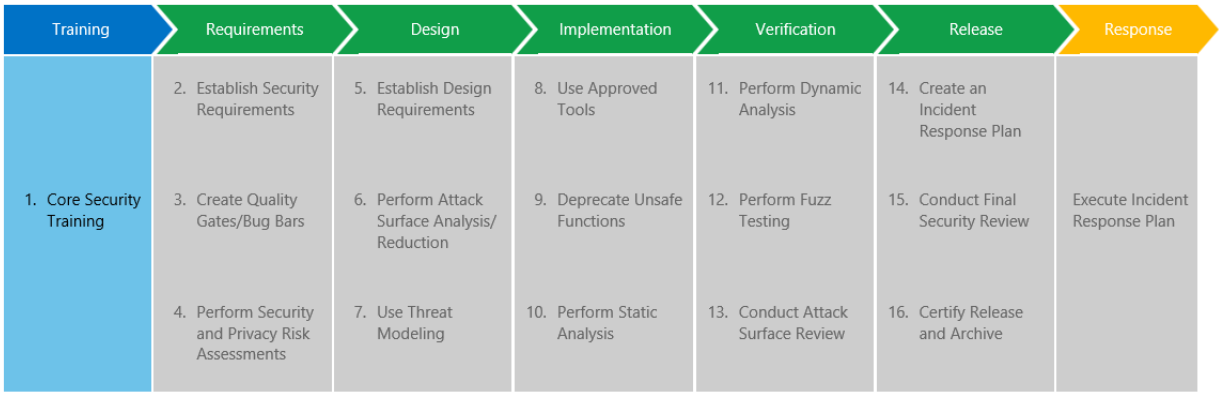
Naming convention is really important because it helps in better understanding the program and also the readability of it.

Using the **StyleCop** can be very useful concerning SharePoint Structure and the Feature declaration. You can declare the feature name as following:

- **[Project_name].[Feature].[Scope]** => SPProject.WebParts.Site

Security aspect

One of the most difficult aspects is to audit the security aspect of the development. Most of the time you refer to the IT security aspect but for the development it's a different way of working. In that case Microsoft helps you in providing guidelines for Security Development Lifecycle.



If you do Agile Development, the phases give you all need for being sure that you don't forget anything. Microsoft provides SDL Agile Development Template for Visual Studio, SDL Tools and SDL Designer and SDK.

- SDL Site : http://www.microsoft.com/security/sdl/default.aspx
- SDL Tools
  - Attack Surface Analyzer
  - SDL Threat Modeling Tool 3.1.8
  - Mini Fuzzer
  - Regex Fuzzer
  - CAT.NET 64 bits
  - Anti-XSS
  - FxCop 10.0
- SDK Kit : http://www.microsoft.com/security/sdl/adopt/starterkit.aspx

Performance aspect

Metrics

One of the most common aspects is what about my code metrics. When you develop with Visual Studio you can use the Metrics Power Tools (http://visualstudiogallery.msdn.microsoft.com/adceaf09-3fb8-47dc-91b3-cfb3f9b7fafa)

It will analyze the following items:

- Maintainability Index
- Cyclomatic Complexity
- Depth of Inheritance
- Class Coupling
- Lines Of Code (LOC)

Here a link to better understand on how to use it:
http://blogs.msdn.com/b/zainnab/archive/2011/05/17/code-metrics-cyclomatic-complexity.aspx

Another tool is also very useful is SPCAF (SPMetrics). It will give, thanks to a report file, all the different metrics of SharePoint that you have to be aware of. It will analyze the following items:

- Features By Elements
- Features By Scope
- Solution Artefacts
- Assembly Artefacts
- Security Relevant Code
- Impact Farm Stability
- Code languages
- Exception

Documentation

Documenting the code is also important and it can save you a lot of time. That's why since the beginning you should use tools like GhostDoc or VsDocman.

Documentation Tools:

- GhostDoc: http://visualstudiogallery.msdn.microsoft.com/46A20578-F0D5-4B1E-B55D-F001A6345748
- VsDocMan: http://visualstudiogallery.msdn.microsoft.com/C6649C4D-38F8-4626-BE3F-E6FBC8B9F679

Recommended Tools

Documentation ToolKit for SharePoint

This tool is a must-have in your toolbox, as it can:

- Easily generate an entire SharePoint farm documentation,
- Check all the configuration options against latest SharePoint best practices,
- Create comprehensive reports of SharePoint permissions.

More information on the tool's website: http://www.spdockit.com

SPCAF (SharePoint Code Analysis Framework)

SPCAF (http://www.spcaf.com) is a useful tool which analyses your solutions (WSP), and generates reports.

Check all the features: http://www.spcaf.com/features and http://www.spcaf.com/purchase/feature-comparison.

Metalogix Migration Expert

This (free) tool will help you during a SharePoint migration; but it can also be useful during a SharePoint farm audit as it:

- Find content databases that break Microsoft guidance,
- Identify large site collections that can be difficult to migrate,
- Analyze site usage for potential clean-up of unused content.

Conclusions and recommendations

There are lots of things in SharePoint you would have to count in or may be asked by the client. The reality is that you don't really have enough time to cover all. So before conducting SharePoint audit, you need to identify and ask the client what need to be audited. For example, if you are to configure high availability solution, look at infrastructure scope first.

In terms of report, it should at least include the following:

- Issue
- Description
- Priority (Critical, High, Medium, Low)
- Category
- Recommendation (optional)

General Note example:

- The performance of the SharePoint and SQL server is good.
- All the indicators are good for SharePoint Server but can be better for SQL Server.
- The performance on each server, depending the data that we extracted the last 48h is very bad compared to with other SharePoint Farms. More memory is needed on each Server.

Recommendation:

Issue	Description	Category	Priority
Service Pack is not installed	Any Service Pack has been installed on SharePoint 2010	SharePoint Server	**High Priority**
Database Configuration	Max Memory value and Minimum Memory	SQL Server	Medium
SharePoint Server Configuration – Best Practices	Content database exceeds 200 GB of data	SharePoint Server	**High Priority**
IIS Server Configuration – Best Practices	Move IIS Logs and SharePoint Logs to another disk drive.	SharePoint Server	Medium
Blob cache not configured	Blob cache should be enabled due to big files present on your platform	SharePoint Server	Medium
Search Crawl error	Search Errors	SharePoint Server	Low
Database Configuration	Set your Database Recovery Model for important databases	SQL Server	Medium
Patching level	SharePoint 2013 Cumulative Update is missing	SharePoint Server	**High Priority**