

Managing the "PowerPivot for SharePoint" Environment

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SharePoint
Saturday

3/16/2013

About Melissa

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About Intellinet

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Agenda

Managing the PowerPivot for SharePoint Environment

- Definitions
- Overview of Environment
- System Management
- Security
- Data Refresh
- Desktops
- Management Dashboard
- Usage Reporting

*Out of scope:
installation &
configuration*

People > Process > Technology

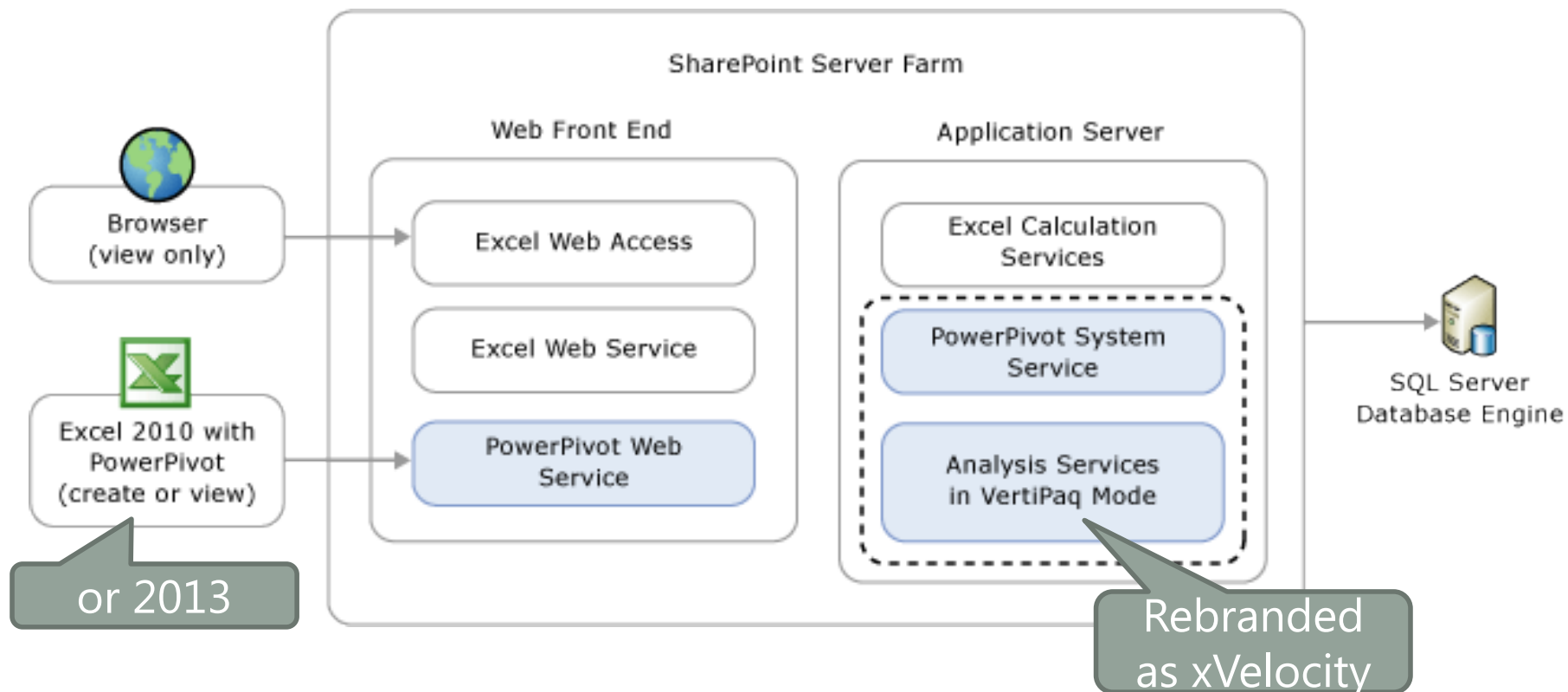
Defining PowerPivot for SharePoint and Managed Self-Service BI



PowerPivot for SharePoint

PowerPivot for SharePoint provides server hosting of PowerPivot (Excel) workbooks & Power View reports within SharePoint. Supports Self-Service BI initiatives in an environment which can be monitored and secured.

If PowerPivot data model remains in Excel: referred to as **PowerPivot for Excel**



PowerPivot

Add-in to Excel 2010 and 2013

In-memory solution for Self-Service BI data modeling needs

Based on **xVelocity** (Vertipaq)

Large volumes of data

Create “mashups” of data

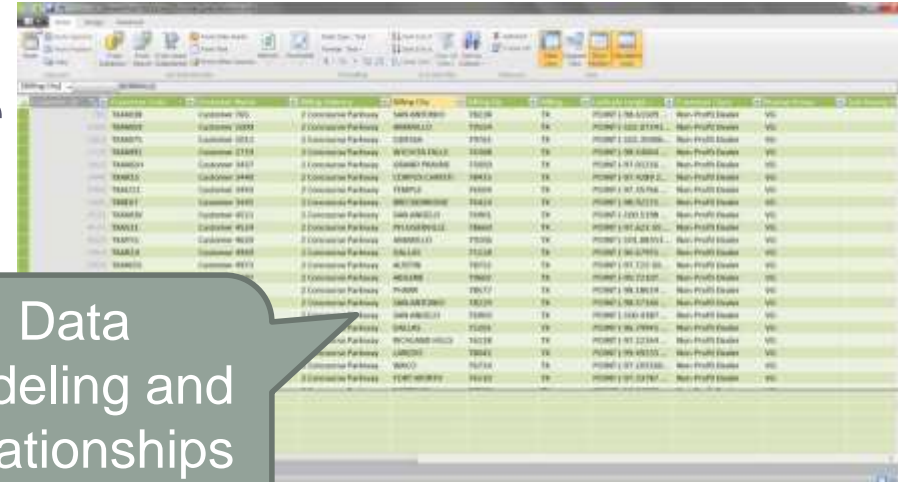
Data is **embedded**

Introduces **DAX** expressions

Schedule data refreshes in SharePoint

Can do visualization in familiar Excel environment, or another tool

Security per file (not row level)



Item	Category	Subcategory	Manufacturer	Price	Quantity	Revenue	Profit	Profit Margin	Profit Type
TA00010	Customer 767	2 Consumer Package	SAK AW00000	332.00	18	59760.00	1784.10	3.00%	Non-Profit Easier
TA00012	Customer 32073	2 Consumer Package	W00000000	770.00	24	164880.00	2224.10	1.35%	Non-Profit Easier
TA00076	Customer 10112	2 Consumer Package	00000000	270.00	18	48600.00	1111.00	2.28%	Non-Profit Easier
TA00078	Customer 2114	2 Consumer Package	W00000000	200.00	18	36000.00	1000.00	2.78%	Non-Profit Easier
TA00081	Customer 3417	2 Consumer Package	W00000000	200.00	18	36000.00	1000.00	2.78%	Non-Profit Easier
TA00082	Customer 2448	2 Consumer Package	000000000	280.00	18	50400.00	1000.00	1.98%	Non-Profit Easier
TA00083	Customer 0849	2 Consumer Package	000000000	280.00	18	50400.00	1000.00	1.98%	Non-Profit Easier
TA00087	Customer 3493	2 Consumer Package	W00000000	200.00	18	36000.00	1000.00	2.78%	Non-Profit Easier
TA00089	Customer 4011	2 Consumer Package	W00000000	200.00	18	36000.00	1000.00	2.78%	Non-Profit Easier
TA00091	Customer 4019	2 Consumer Package	W00000000	200.00	18	36000.00	1000.00	2.78%	Non-Profit Easier
TA00093	Customer 4029	2 Consumer Package	W00000000	200.00	18	36000.00	1000.00	2.78%	Non-Profit Easier
TA00094	Customer 0848	2 Consumer Package	000000000	280.00	18	50400.00	1000.00	1.98%	Non-Profit Easier
TA00095	Customer 4011	2 Consumer Package	W00000000	200.00	18	36000.00	1000.00	2.78%	Non-Profit Easier
TA00096	Customer 4011	2 Consumer Package	W00000000	200.00	18	36000.00	1000.00	2.78%	Non-Profit Easier
TA00097	Customer 4011	2 Consumer Package	W00000000	200.00	18	36000.00	1000.00	2.78%	Non-Profit Easier
TA00098	Customer 4011	2 Consumer Package	W00000000	200.00	18	36000.00	1000.00	2.78%	Non-Profit Easier
TA00099	Customer 4011	2 Consumer Package	W00000000	200.00	18	36000.00	1000.00	2.78%	Non-Profit Easier
TA00100	Customer 4011	2 Consumer Package	W00000000	200.00	18	36000.00	1000.00	2.78%	Non-Profit Easier

Data Modeling and Relationships in Excel



PowerPivot Gallery in SharePoint

Power View

Visual & *interactive*

Unique data discovery

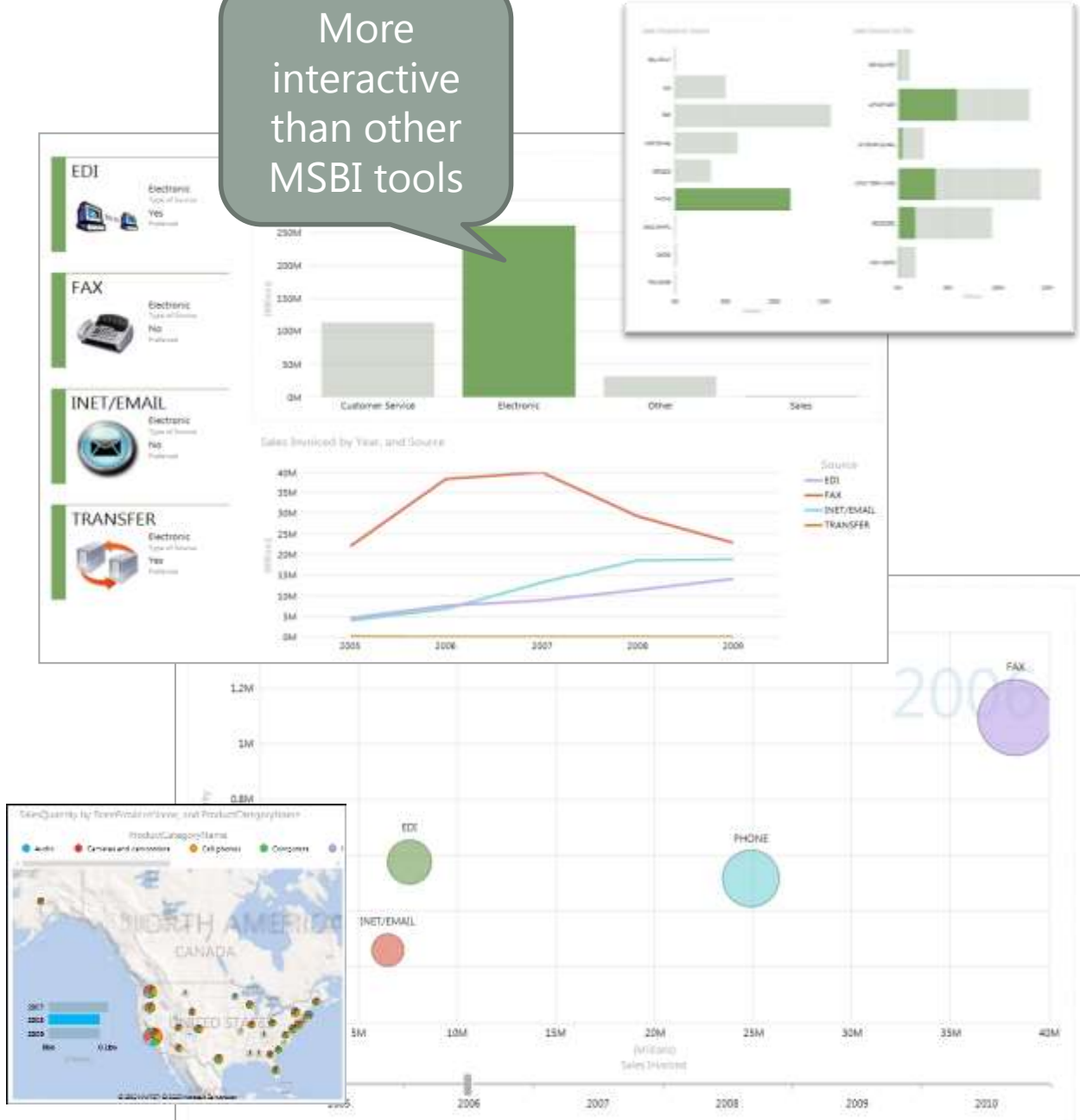
Presentation-ready
(like PPT slides)

Silverlight-based

Two design
environments:

- SharePoint (requires **Reporting Services** add-In)
- Excel (2013 only)

More interactive than other MSBI tools



Self-Service BI

Commonly thought of:

“Empower users to create their own reports so users get what they want without having to ask IT.”

Gartner definition:

“End users designing and deploying their own reports and analyses within an approved and supported architecture and tools portfolio.”



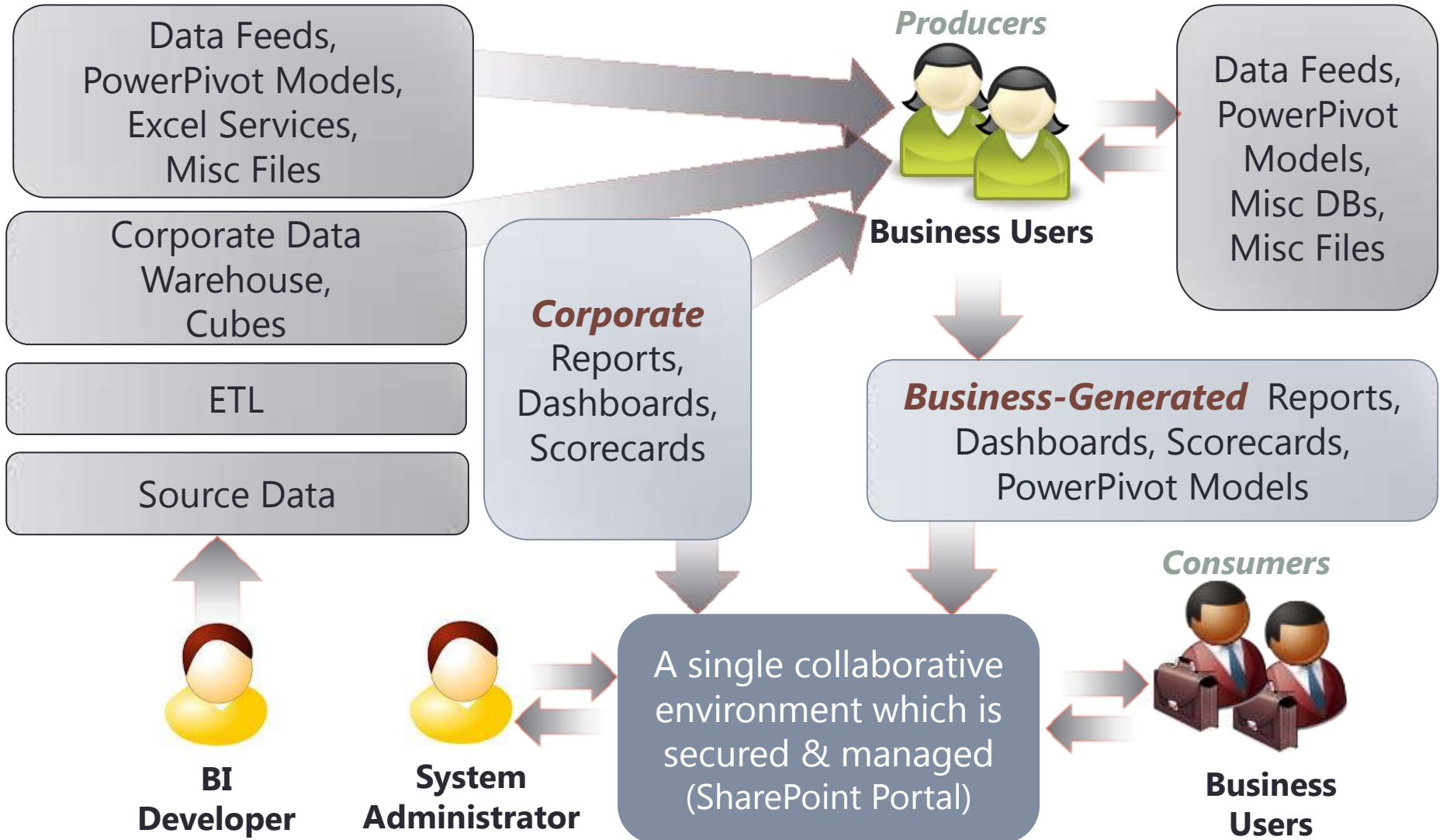
Business Users



IT Pro

Business & IT need to work together for Managed SSBI to succeed!

Corporate BI + Self-Service BI



Managed Self-Service BI

Self-Service BI Tools

Producer:
Data Analysts -or- IT

- PowerPivot
- Excel with Excel Services
- Power View
- Report Builder

Corporate BI Tools

Producer:
IT

- PerformancePoint
- Reporting Services
- Visio Services

Delivery:
SharePoint Portal

Managed, Monitored, Secured by:
IT Staff

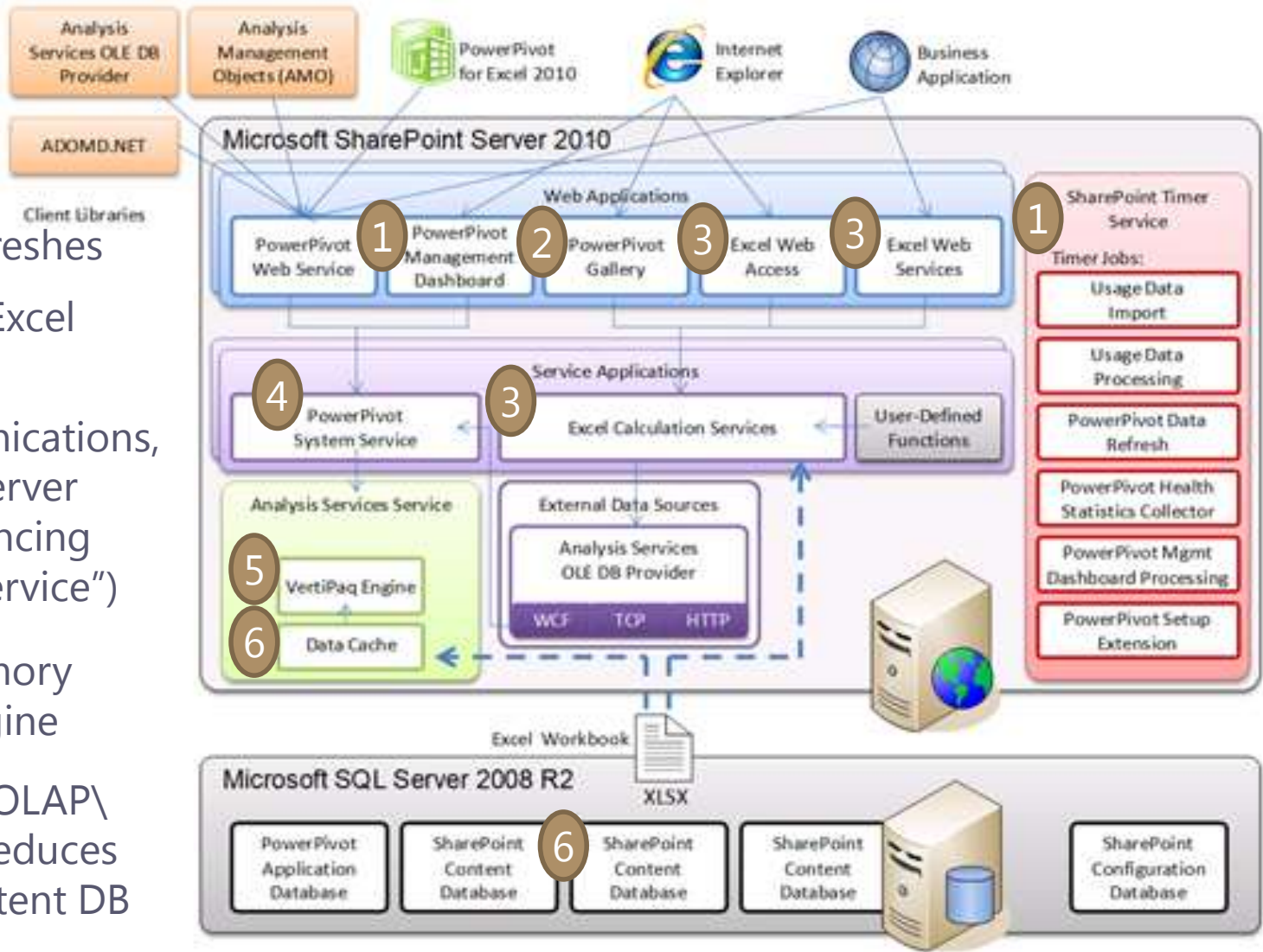
People > Process > Technology

Overview of the PowerPivot for SharePoint Environment

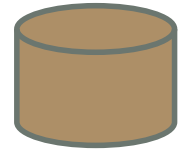


PowerPivot for SharePoint

- 1 Admin Mgmt; refreshed by timer jobs
- 2 Stores reports & models; data refreshes
- 3 Integrated with Excel Services
- 4 Handles communications, data refreshes, server health, load balancing (aka "Mid-Tier Service")
- 5 xVelocity in-memory columnstore engine
- 6 Cache stored in OLAP\ Backups folder reduces # of trips to Content DB



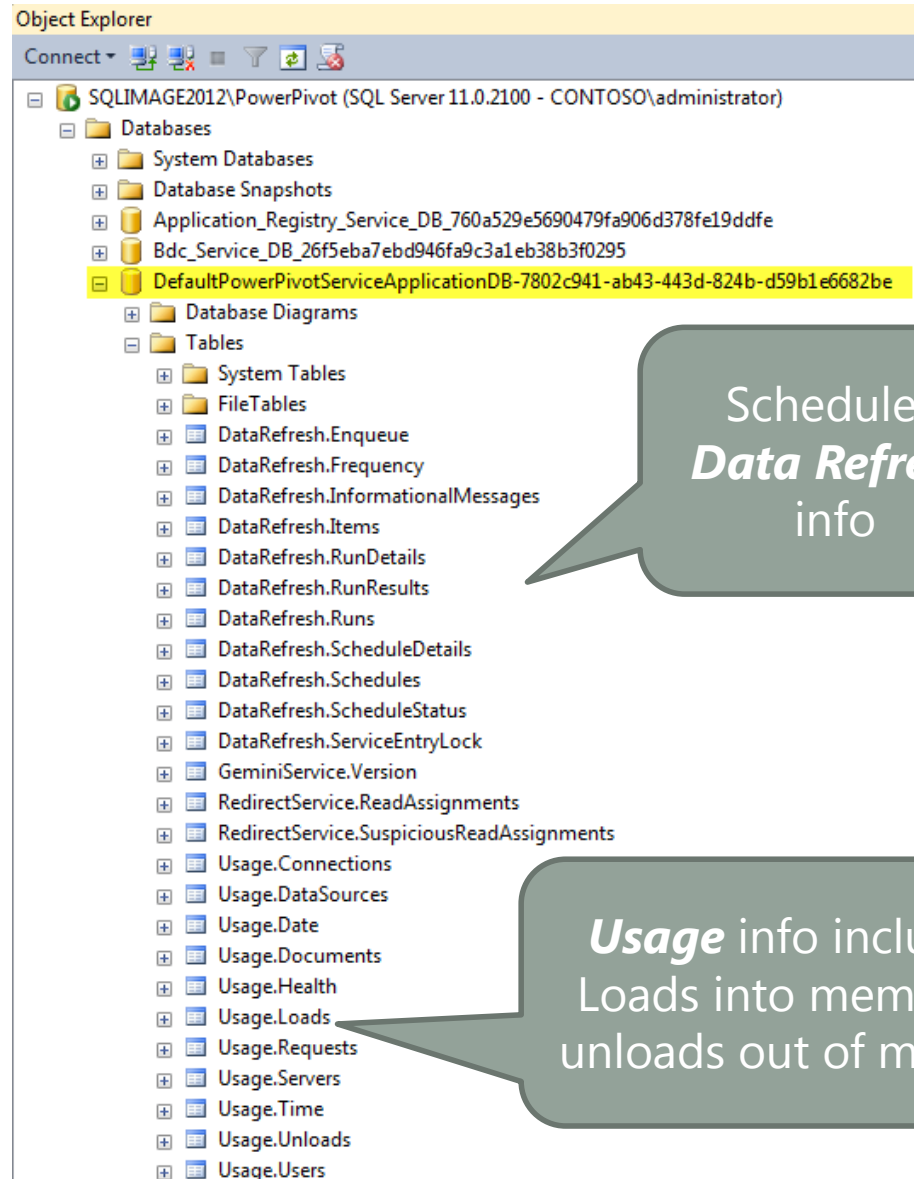
Relational PowerPivot Database



Default
PowerPivot
Service
Application DB:

Contains data
refresh
schedules &
usage data.

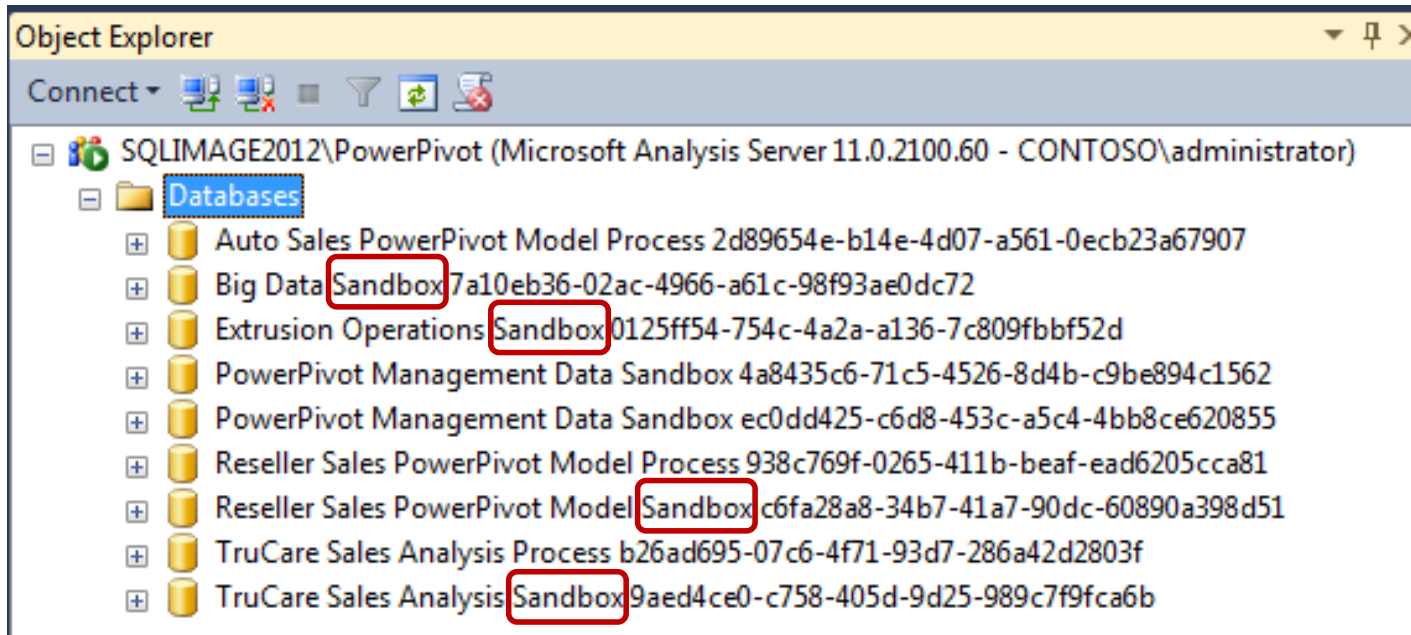
The actual
PowerPivot data,
however, is
stored in the
SharePoint
Content DB.



Scheduled
Data Refresh
info

Usage info including
Loads into memory &
unloads out of memory

SSAS Instance for PowerPivot



If "Sandbox" is displayed in SSMS: The workbook is actively loaded to memory

User uploads workbook → Added to Content DB
Query issued → Data loaded into memory

All Sandbox DB's are in memory concurrently

SSAS Instance for PowerPivot



User uploads workbook → Added to Content DB

Query issued → Data is loaded into memory

- Workbook is kept in memory for **48* hours** (if no memory pressure & if no data refreshes are executed)
- After **48* hours** data is unloaded to the cache where it is kept for another 72 hours
- If **120 hours*** passes with no activity, cache file is physically deleted

PowerPivot Settings

(General Application Settings Central Admin):

Keep Inactive Database in Memory(in hours)

Specify the number of hours to keep an inactive PowerPivot database in memory to service new requests.

48

Valid value: >=1 hour, defaults to 48 hours (2 days)

Keep Inactive Database in Cache (in hours)

Specify the number of hours after which an inactive PowerPivot database is deleted from the cache. This value must be greater than the 'Keep Inactive Database in Memory' setting.

120

Valid value: >=1 hour, defaults to 120 hours (5 days)

Cache files stored: \Microsoft SQL Server\MSAS11.PowerPivot\OLAP\Backup

PowerPivot Gallery



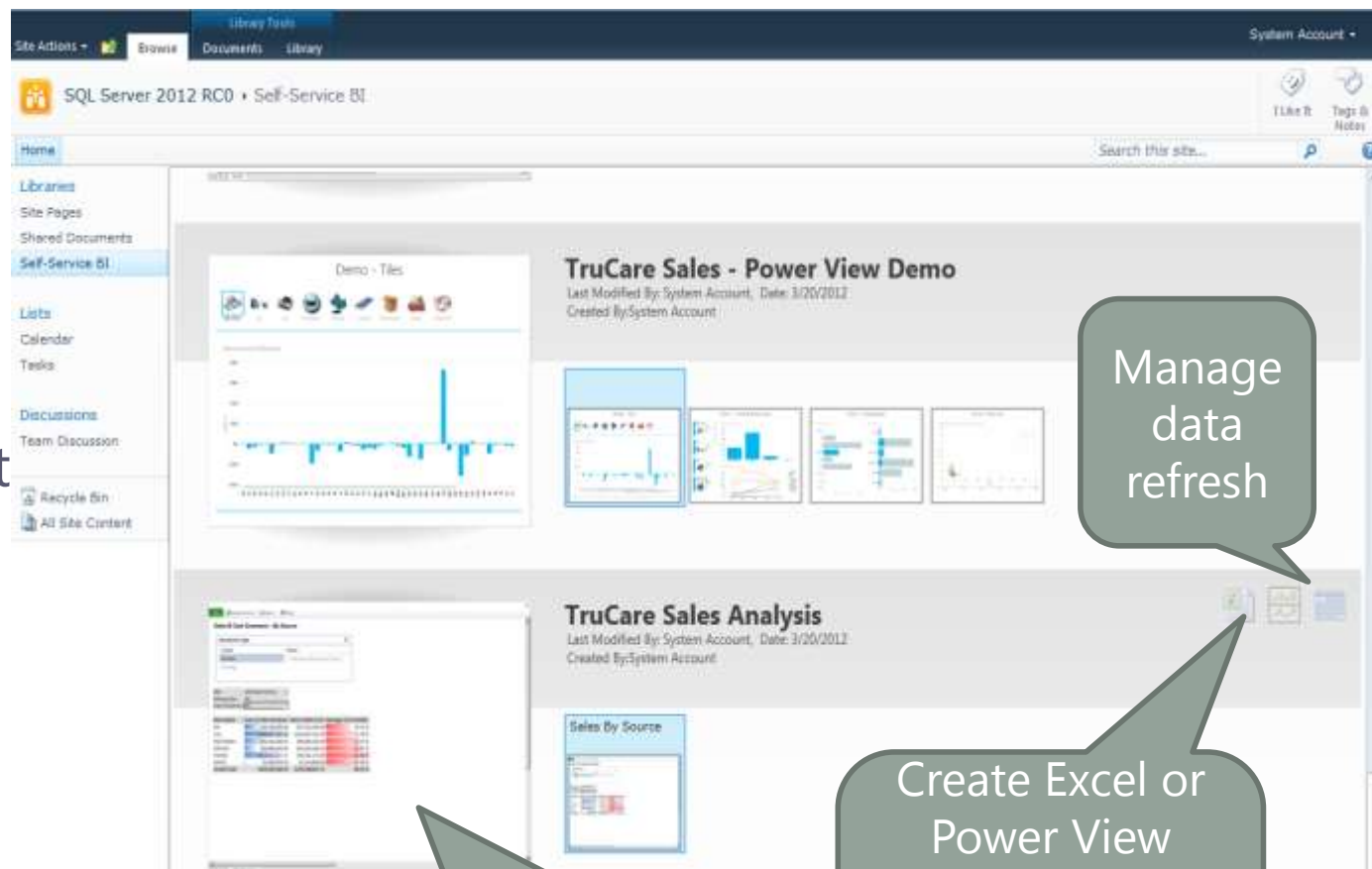
Specialized
SharePoint
document library

Silverlight-based

Thumbnail
previews of
PowerPivot report
contents

Manage data
refreshes for
PowerPivot
workbooks

Creation of Power
View and Excel
reports



Manage
data
refresh

Thumbnails show
preview of report (Excel
& Power View only)

Create Excel or
Power View
report using this
PowerPivot
model as data
source

Demo: PowerPivot Gallery

Library Tools | System Account

SQL Image 2012 + Self-Service BI

Home | My Site | Search this site...

Pictures
 Images
 Libraries
 Site Pages
 Shared Documents
Self-Service BI
 Training Documentation
 Data Connections
 IT Reports
 Finance Reports
 Marketing Reports
 Sales Reports
 Subscription Reports
 Lists
 Calendar
 Tasks
 Discussions
 Team Discussion
 Recycle Bin
 All Site Content

Sales by Region and Time

Contoso Telco Product Mix Sample
 Last Modified By: System Account, Date: 4/24/2012
 Created By: System Account

Operational Analysis
 Last Modified By: System Account, Date: 4/24/2012
 Created By: System Account

Contoso Telco Sales and Marketing

Contoso Telco Sales and Marketing
 Last Modified By: System Account, Date: 4/24/2012
 Created By: System Account

Emmy Awards PowerPivot Model

Last Modified By: System Account, Date: 2/10/2013
 Created By: System Account

Sheet1

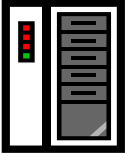
Product Line	Unit Sales	Unit Volume	Unit Price	Unit Cost	Unit Profit	Unit Margin
Product Line 1	100	100	100	50	50	50%
Product Line 2	200	200	100	50	50	50%
Product Line 3	300	300	100	50	50	50%
Product Line 4	400	400	100	50	50	50%
Product Line 5	500	500	100	50	50	50%
Product Line 6	600	600	100	50	50	50%
Product Line 7	700	700	100	50	50	50%
Product Line 8	800	800	100	50	50	50%
Product Line 9	900	900	100	50	50	50%
Product Line 10	1000	1000	100	50	50	50%
Total	5000	5000	100	50	50	50%

Create Power View Report

System Management Considerations



Managing PowerPivot in SharePoint



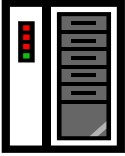
Memory

- Teach data modelers not to retrieve every field available (it's all in memory after all!)
- Manage memory availability: all db's in use are in memory concurrently (leaving ~10%-20% buffer)

Disk Space

- Monitor disk space & file uploads as PowerPivot files are far larger than typical Excel files (data is embedded in workbook)
- Files are cached to avoid round trips to the Content DB

Managing PowerPivot in SharePoint



Naming & Versioning

- Teach producers of data to continue using same name for the model (i.e., avoid habit of V1, V2 or dates in name)
- Consider minimal versioning in document library (Content DB size concerns since data is embedded in workbook – up to 2GB per file)

Metadata

- Requiring certain metadata fields for reports & models will aid with Search
- Cannot see custom fields in the PowerPivot Gallery view (need to use “All Documents” view)

Securing PowerPivot in SharePoint



Securing PowerPivot in SharePoint



Permissions to Publish

- Limit number of people who are permitted to publish data for others to consume
- Consider using workflows for approval of new models

Access to Models & Reports

- Access to the document library
 - Based on content
 - Based on security
- Permissions to individual models
- Permissions to individual reports (preferably same as underlying model – inherit from parent)

Securing PowerPivot in SharePoint



Thumbnail Previews

Starting with SQL Server 2012 SP1:

1. Report & workbook must reside in same PowerPivot Gallery
2. Both must inherit permissions from the parent

If both rules aren't met:  instead of preview

Until SP1 is in place, to avoid the potential of showing a preview for data the user doesn't have permission to see:

- Ensure permissions on reports are same as its underlying model
- Use a regular document library (instead of PowerPivot Gallery) if preview is of concern



Library

Model

Report

Securing PowerPivot in SharePoint



Access to Data in the Workbook

View Only permissions (Viewers): user will get a “snapshot” only; no data is exposed

Contribute permissions (Members): user can download full workbook & access all data stored within the PowerPivot model

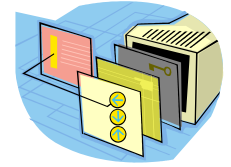
Starting with SQL Server 2012 SP1:

Read permissions will be required to connect to a PowerPivot workbook from a client application

Managing Data Refreshes



Data Refreshes – 2 Approaches



PowerPivot for Excel

Manual refreshes.

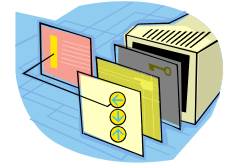
PowerPivot for SharePoint

User refreshes while the workbook is open. This technique does NOT refresh data in the PowerPivot database.

OR

User sets up scheduled data refreshes. This method does refresh both the Excel workbook & the PowerPivot database.
(It actually sets the "Refresh on Open" flag in the Excel workbook to make the Excel file update itself when the user opens it.)

Managing Data Refreshes



Data Refresh

- Data modelers set up their own data refreshes
- Anyone with **Contribute** permissions can modify
- Data is refreshed **in full** based on query
- Individual credentials typically used for data access
- Challenging: terminations, transfers, **PW changes**

A screenshot of a PowerPivot model interface. The main area displays a line chart with two data series: 'Sales of Sales Network' (blue line) and 'Sales of Manager' (red line). The x-axis represents years from 2006 to 2010. To the right of the chart is a table with columns for 'Year' and 'Sales'. The table data is as follows:

Year	Sales
2006	282,213,470.00
2007	289,763,350.00
2008	287,363,450.00
2009	291,480,750.00
2010	327,000,750.00
Grand Total	1,528,061,460.00

Auto Sales PowerPivot Model
Last Modified By: System Account, Date: 11/3/2012
Created By: System Account

Manage Data Refresh

Sheet1

Demo: Data Refresh Settings

Auto Sales PowerPivot Model
 Last Modified By: System Account, Date: 11/3/2012
 Created By: System Account

Warning: this page is not encrypted for secure communication. User names, passwords, and any other information will be sent in clear text. For more information, contact your administrator.

Schedule Information

Name: Auto Sales PowerPivot Model.xlsx
 Schedule Last Updated By: CONTOSO\administrator
 Schedule Last Updated: 1/13/2013 8:07:33 PM
 Current Status: Succeeded
 Last Successful Refresh: 1/13/2013 8:08:38 PM
 Next Scheduled Refresh: 1/13/2013 [Configure Schedule ...](#)

History

	Started	Duration	Comments
📄 ✓	1/13/2013 8:08:06 PM	00:00:31	
⚠	1/13/2013 8:07:33 PM	-	The schedule settings have been altered by user CONTOSO\administrator.
📄 ✓	11/13/2012 12:08:16 PM	00:01:07	
⚠	11/13/2012 12:07:53 PM	-	The schedule settings have been altered by user CONTOSO\administrator.
✗	11/12/2012 2:42:22 PM	00:00:00	The data refresh job failed because it did not run within the time period allotted for running this schedule.

Data Refresh

Specify if you would like to turn Data Refresh on or off.
[Click here](#) to learn more about this page.

Enable

Schedule Details

Define the frequency (daily, weekly, monthly or once) and the timing details for the refresh schedule.

Daily
 Weekly
 Monthly
 Once
 Every day(s)
 Every weekday
 On the following days:
 Sunday Monday Tuesday Wednesday
 Thursday Friday Saturday

Managing Data Refreshes



Data Refresh Options in PowerPivot Gallery

> 1x per day
cannot be
scheduled

Actual start time
is controlled by:

- (1) **Business Hours** defined by Administrator,
- (2) How often the Power **Pivot Data Refresh Timer Job** is scheduled to run,
- (3) Sufficient **system resources**, and
- (4) How many **concurrent refresh jobs** are allowed to run

Data Refresh

Specify if you would like to turn Data Refresh on or off.
[Click here](#) to learn more about this page.

Enable

Schedule Details

Define the frequency (daily, weekly, monthly or once) and the timing details for the refresh schedule.

Daily

Every day(s)

Weekly

Every weekday

Monthly

On the following days:

Once

Sunday Monday Tuesday Wednesday
 Thursday Friday Saturday

Also refresh as soon as possible

Earliest Start Time

Specify the earliest start time that the data refresh will begin

After business hours

Specific earliest start time:

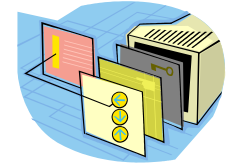
: am pm

E-mail Notifications

Specify e-mail address of the users to be notified in the event of data refresh failures.



Managing Data Refreshes



Data Refresh Options in Central Admin

Business Hours represent when priority is given for querying rather than refreshes. *(Considerations: international users; timeframes to query source systems; need at least a small window or the "After Business Hours" option will cause a failure.)*

By default, PowerPivot will discontinue refreshing workbooks that continue to fail, or don't get queried often.

May want to increase

Data Refresh

Settings to control data refresh.

Business Hours

Start Time 4 00 am pm

End Time 8 00 am pm

PowerPivot Unattended Data Refresh Account

PowerPivotUnattendedAccount

Allow users to enter custom Windows credentials

Maximum Processing History Length

The maximum number of days of processing history to keep

365

Valid value: ≥ 1 , ≤ 5000 (days)

Disable data refresh due to consecutive failures

Specify the number of consecutive failures after which a data refresh schedule is disabled. Specify 0 to never disable a schedule based on data refresh failures.

10

Valid value: 0(never), ≥ 1 failures, default 10

Disable data refresh for inactive workbooks

Specify the number of data refresh cycles to check for inactivity. If a workbook has not been accessed by an interactive user during this period, the data refresh schedule will be disabled, Specify 0 to never disable a data refresh schedule based on inactivity.

10

Valid value: 0(never), ≥ 1 cycles, default 10

Managing Data Refreshes



Data Refresh Options in PowerPivot Gallery

3 Options:

- Use the data refresh account configured by the administrator
- Connect using the following Windows user credentials
- Connect using the credentials saved in Secure Store Service (SSS) to log on to the data source. Enter the ID used to look up the credentials in the SSS ID box

Considerations:

- What account is executing the process on the server?
- What account is being used to query the underlying data sources?
- Account must be from same domain, or from a trusted domain

Further details:

See <http://www.sqlchick.com/entries/2012/11/17/powerpivot-data-refresh-options.html>

Managing Data Refreshes



Data Refresh Options in PowerPivot Gallery

1

- Use the data refresh account configured by the administrator
- Connect using the following Windows user credentials
- Connect using the credentials saved in Secure Store Service (SSS) to log on to the data source. Enter the ID used to look up the credentials in the SSS ID box

Data Queries

Refresh operation performed by

PowerPivot

Unattended Account

If Windows Auth: uses "current user" (security considerations)

If ID/PW in connection string: user specified

Pros

Simple for workbook owner to use

Few concerns with password changes, terminations & transfers

Cons

Not suitable when row level security is implemented on the source system being queried (only 1 Unattended Account per service app – needs broad permissions to satisfy refresh for all workbooks)

Managing Data Refreshes



Data Refresh Options in PowerPivot Gallery

2

Use the data refresh account configured by the administrator

Connect using the following Windows user credentials

User Name:

Password:

Confirm Password:

Connect using the credentials saved in Secure Store Service (SSS) to log on to the data source. Enter the ID used to look up the credentials in the SSS ID box

Data Queries

Refresh operation performed by **Windows user** specified

Pros

Less complication with source system permissions

Retain same security upon refresh as when set up

Cons

Management of terminations, transfers, and password changes

PW changes: user needs to update Data Refresh Schedule in every workbook

Managing Data Refreshes



Data Refresh Options in PowerPivot Gallery

3

Use the data refresh account configured by the administrator

Connect using the following Windows user credentials

Connect using the credentials saved in Secure Store Service (SSS) to log on to the data source. Enter the ID used to look up the credentials in the SSS ID box

ID:

Data Queries

Refresh operation performed by Windows user associated to the **SSS ID** specified

(Similar to Option 1, but not limited to one acct per svc app)

Pros

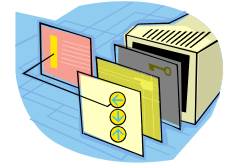
No name or password shared with users

Few concerns with password changes, terminations & transfers

Cons

If being used to “simulate” user security, need to carefully manage which ID goes with which user account

Managing Data Refreshes



Workbook Size Limits

- If a data refresh will force the workbook to exceed the 2GB size limitation, the refresh will fail

Write Access

- If workbook is open or being edited, refresh will fail

Drivers & Versions

- If data modeler used a custom driver on their machine that doesn't exist on the server, the refresh will fail
- If version of PowerPivot on user's desktop differs from the server (ex: 32-bit instead of 64-bit or Excel 2010 vs. 2013), the refresh will fail

Managing PowerPivot on Desktops



Managing PowerPivot on Desktops



RAM

- RAM upgrades may be needed on user machines
- Minimum 4GB. Give 6-8GB or more if possible

64-bit vs. 32-bit

- 32-bit cannot handle data volumes > ~1M rows
- 64-bit may not be compatible with all Office add-ins

Installation – Office 2010

- Requires .NET 3.5 SP1 and Office Shared Features

Installation – Office 2013

- Much easier install – just enable it in COM add-ins
- Available in “Professional Plus” versions only
- File size limitation is gone (SPS still a consideration)

PowerPivot Management Dashboard



PowerPivot Management Dashboard

- 1 Five server health reports
- 2 # of Queries and # of Users, by Workbook, by Day
- 3 Data Refresh Activity & Failures
- 4 Report links
- 5 Workbook Activity
- 6 Admin links

Infrastructure - Server Health

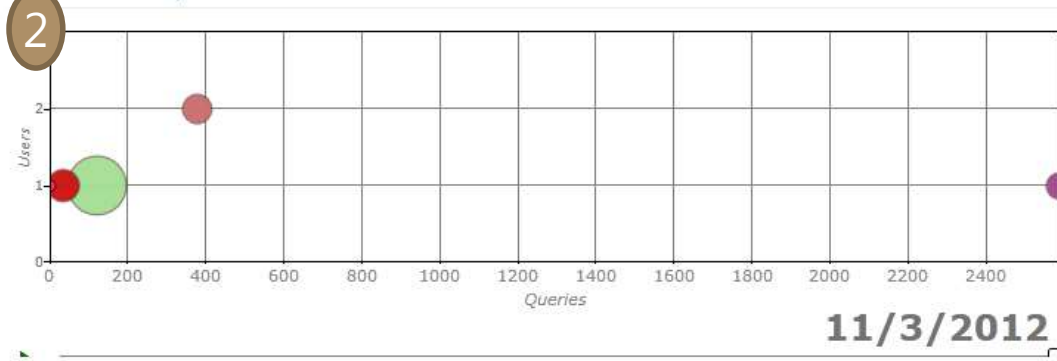


6 Actions

- Configure service application settings
- List service applications
- Review timer job definitions
- Configure usage logging

Last successful refresh run: 11/3/2012 2:52:28 PM

Workbook Activity - Chart



5 Workbook Activity - List

Workbook	Users	Queries	Size (Mb)
Auto Sales PowerPivot Model.xlsx	2	378	3.43
Extrusion Operations.xlsx	1	0	0.52
Reseller Sales PowerPivot Model.xlsx	1	35	4.70
TruCare Sales Analysis.xlsx	1	122	63.04
PowerPivot Management Data.xlsx	1	4639	2.46

3 Data Refresh - Recent Activity

Workbook	End Time	Duration (seconds)
Reseller Sales PowerPivot Model.xlsx	11/3/2012 9:33:12 AM	55
TruCare Sales Analysis.xlsx	11/3/2012 9:33:07 AM	73
Auto Sales PowerPivot Model.xlsx	11/3/2012 9:21:15 AM	81

3 Data Refresh - Recent Failures

Data Source	End Time
AdventureWorksDWDenali denali-imagex Reseller Sales PowerPivot Model.xlsx	11/3/2012 9:33:12 AM
BIDemoAnalyticsDW ATLSQL03 TruCare Sales Analysis.xlsx	11/3/2012 9:33:06 AM

4 Reports

Type	Name
Server Health	Server Health
Workbook Activity	Workbook Activity
PowerPivot Management Data	PowerPivot Management Data

+ Add document

Data Source: Management Data Sandbox (an SSAS Tabular Model)

PowerPivot Management - Reports

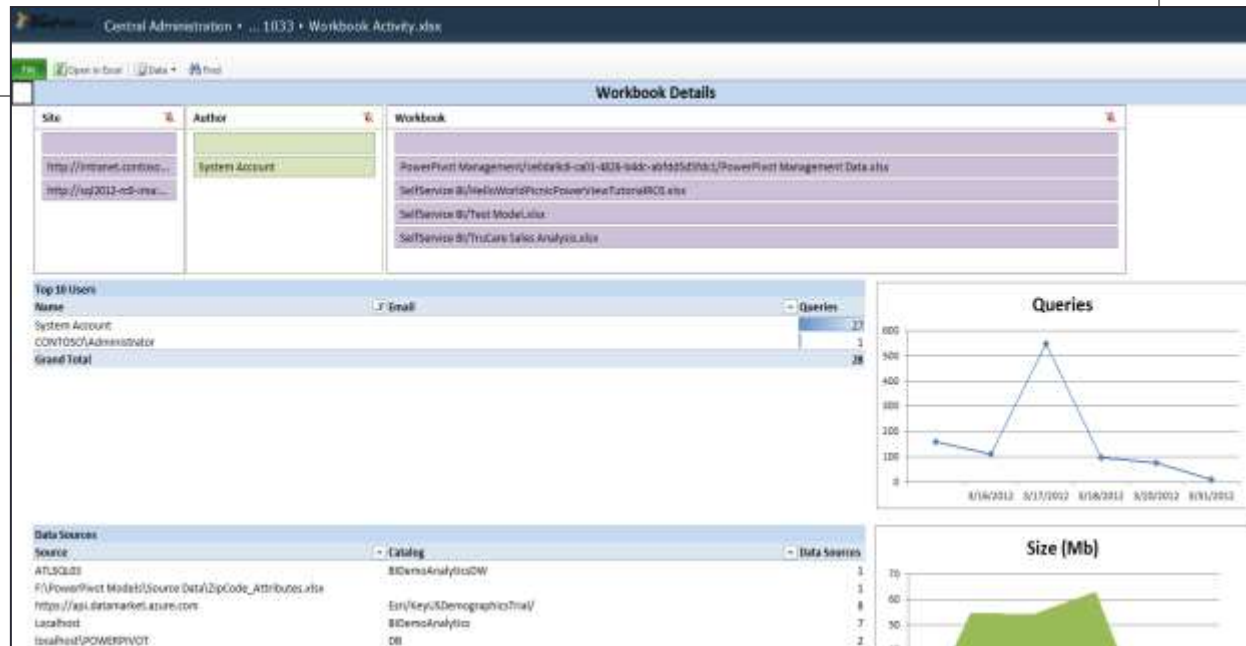
SharePoint 2010 Central Administration > ... 1033 > Workbook Activity.xlsx

File Open in Excel Data Find

Workbook Activity by Document

Year	Document	Users	Total Queries	Load Size Max (MB)
2009	+ SelfService BI/Test Model.xlsx	2	212	63
2010	+ SelfService BI/TruCare Sales Analysis.xlsx	1	11	0
2011	+ PowerPivot Management/ce0da9c8-ca01-4826-b4dc-abfd5d5fdc1/PowerPivot Management Data.xlsx	1	504	3
	+ SelfService BI/HelloWorldPicnicPowerViewTutorialRC0.xlsx	1	102	1
	Grand Total	2	1,003	63

Month: April, December

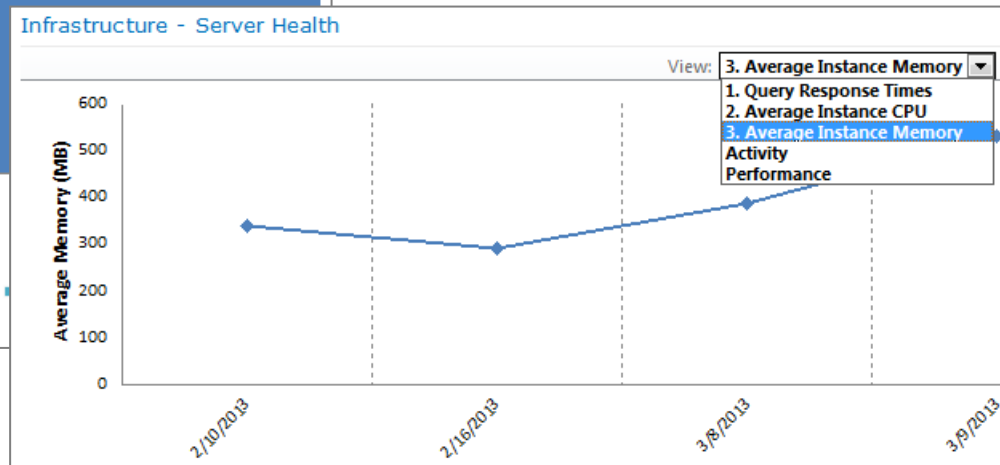
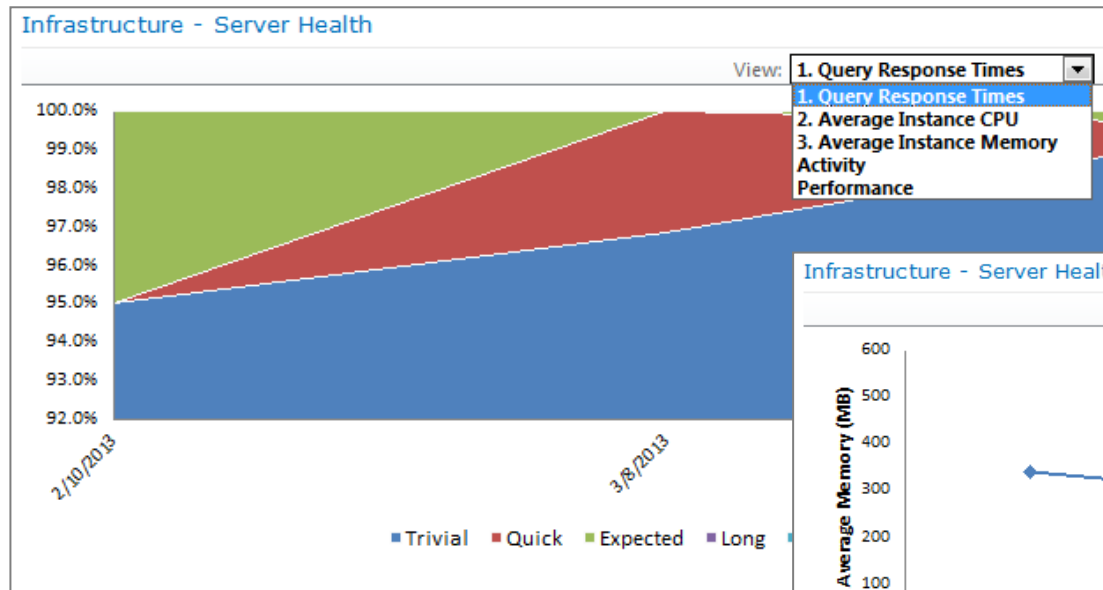


Visibility into:

- Queries
- CPU
- Memory
- Connections
- Workbook Sizes
- Users & Authors
- Usage Increase & Decrease
- Data Refresh

Data Source: Management Data Sandbox (an SSAS Tabular Model)

Demo: Management Dashboard



Data Refresh - Recent Activity

	Workbook	End Time	Duration (seconds)
✓	Auto Sales PowerPivot Model.xlsx	1/13/2013 8:08:38 PM	32
⚠	TruCare Sales Analysis.xlsx	1/13/2013 7:37:54 PM	110

Workbook Activity - List

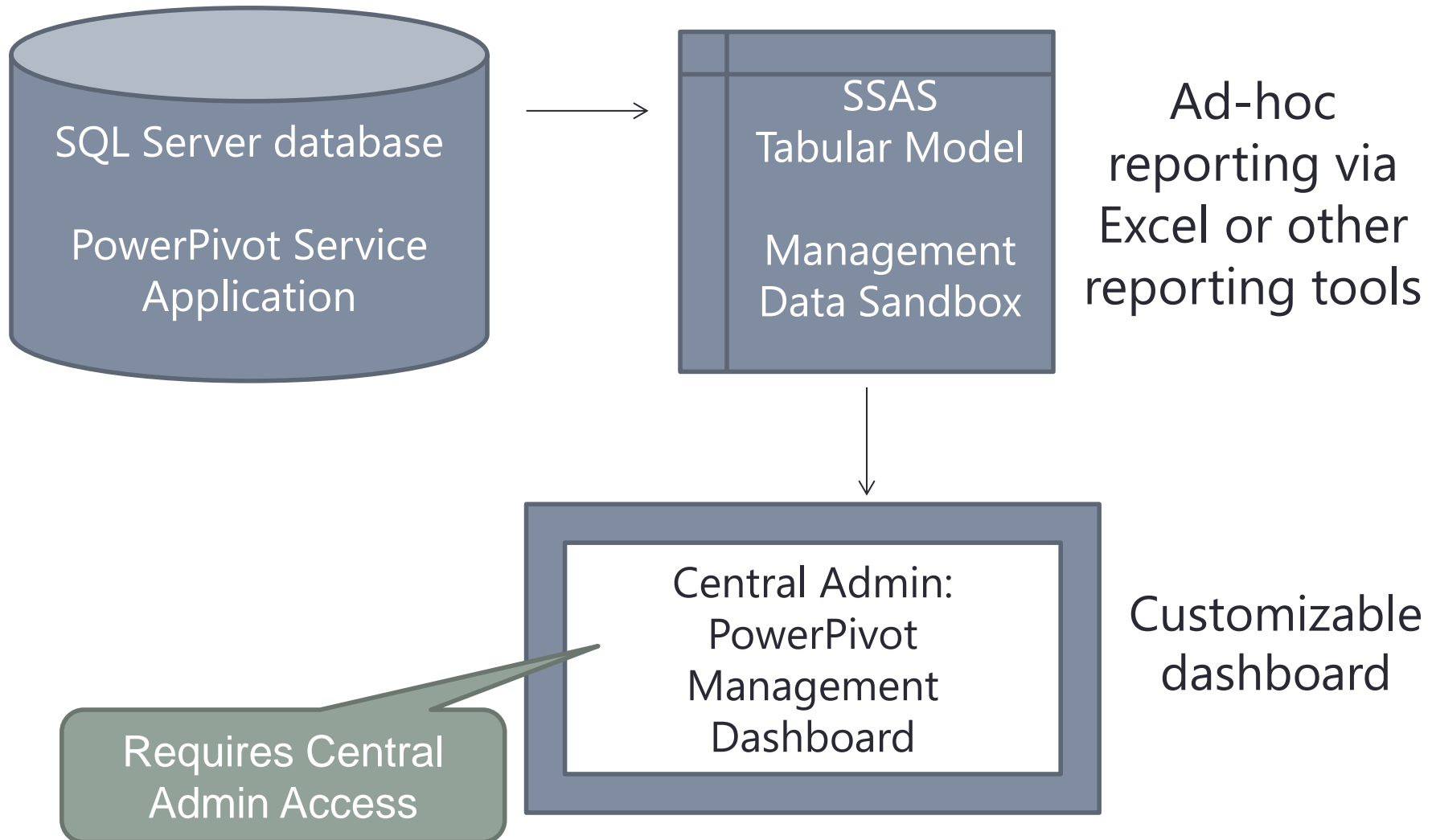
Workbook	Users	Queries	Size (Mb)
TruCare Sales Analysis.xlsx	2	1641	63.04
Reseller Sales PowerPivot Model.xlsx	1	60	4.70
Auto Sales PowerPivot Model.xlsx	2	3066	3.68
PowerPivot Management Data.xlsx	2	18413	2.55

PowerPivot Usage Reporting



Usage Reporting

PowerPivot Management Data:



Usage Reporting – Refreshing Data

Refreshing Data in the Management Data Sandbox

Component	Default schedule
SharePoint 2010 Timer Service (SPTimerV4)	
Microsoft SharePoint Foundation Usage Data Import timer job	Every 30 minutes
Microsoft SharePoint Foundation Usage Data Processing timer job	Daily at 3:00 A.M.
PowerPivot Data Management Dashboard Processing timer job	Daily at 5:00 A.M.

Relies on 3 timer jobs

Usage Reporting - Options

PowerPivot Settings

(General Application Settings Central Admin):

Query Reporting Interval

The number of seconds to gather query response statistics before reporting it as a usage event.

Valid values: must be ≥ 1 (in seconds).

Usage Data History

The number of days to retain a history of usage data and server health statistics. Setting this value to zero keeps all history indefinitely.

Valid values: must be ≥ 0 (in days).

By default, usage data is retained for 1 year.

Limits defined for Trivial/Quick/Expected/Long query times affect the Management Data reports.

Trivial Response Upper Limit

An upper limit (in milliseconds) that sets the threshold for completing a trivial request, such as server-to-server communications that establish a user connection to PowerPivot data. Trivial requests are excluded from report data.

Valid values: must be > 0 and $<$ Quick Response Upper Limit (in milliseconds).

Quick Response Upper Limit

An upper limit (in milliseconds) that sets the threshold for completing requests quickly. For reporting purposes, a quick request might include querying a small dataset.

Valid values: must be $>$ Trivial Response Upper Limit and $<$ Expected Response Upper Limit (in milliseconds).

Expected Response Upper Limit

An upper limit (in milliseconds) that sets the threshold for completing a query in an expected amount of time. For reporting purposes, most queries for PowerPivot data should fall into this category.

Valid values: must be $>$ Quick Response Upper Limit and $<$ Long Response Upper Limit (in milliseconds).

Long Response Upper Limit

An upper limit (in milliseconds) that sets the threshold for completing a long running request. Relatively few requests should fall into this range. Long running requests are acceptable as long as their overall number is small relative to the total number of processing requests.

Valid values: must be $>$ Expected Response Upper Limit (in milliseconds).

Demo: Usage Reporting

SharePoint 2010 Central Administration > ... 1033 > Workbook Activity.xlsx

File | Open in Excel | Data | Find

Year	Workbook Author	Users	Total Queries	Load Size Max (MB)
2009	System Account	3	23,262	63
2010	SelfService BI/Auto Sales PowerPivot Model.xlsx	2	3,066	4
2011	SelfService BI/TruCare Sales Analysis.xlsx	2	1,641	63
	PowerPivot Management/4c9603b5-7fb1-4e31-beae-9bda4e61c96c/PowerPivot Management Data.xlsx	2	18,413	3
	SelfService BI/Reseller Sales PowerPivot Model.xlsx	1	60	5
	SelfService BI/Extrusion Operations.xlsx	1		1
	SelfService BI/Emmy Awards PowerPivot Model.xlsx	1	82	1
	Melissa ContributeUser	1	81	2
	Grand Total	3	23,343	63

Month: December, February, January, March, May

User: CONTOSO\administrator, Melissa ContributeUser

Row Labels	SizeMBMax	DataSource Loads Count	DataSource Connections Count	DataSource Requests Count
http://intranet.contoso.com/SelfService BI/Auto Sales Model -	2.193359375	1	6	
http://intranet.contoso.com/SelfService BI/Auto Sales PowerPivot	3.6796875	3	434	37
http://intranet.contoso.com/SelfService BI/Emmy Awards PowerPivot	1.186523438	2	4	3
http://intranet.contoso.com/SelfService BI/Extrusion Operations.xlsx	0.517578125	4	6	3
http://intranet.contoso.com/SelfService BI/Reseller Sales PowerPivot	4.69921875	4	6	3
tyTest.xlsx	0.111328125	1	6	2
re Sales Analysis.xlsx	63.04101563	3	48	24
nt Data.xlsx	2.53125	17	1081	45
	63.04101563	31	1585	114

Reports

- Server Health
- Workbook Activity
- PowerPivot Management Data**

PivotTable Field List

Show fields related to: (All)

- Connections
 - DataSource Connections Count
 - UserDont
 - UserDontRolling52Weeks
- Health
 - CPUActAvg

Drag fields between areas below:

Report Filter: Column Labels:

Row Labels:

Defer Layout Update

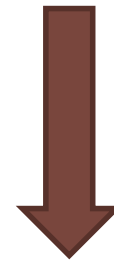
Conclusion



Recap

Managing the PowerPivot for SharePoint Environment

- Definitions
- Overview of Environment
- System Management
- Security
- Data Refresh
- Desktops
- Management Dashboard
- Usage Reporting



People > Process > Technology

Working Together: Business & IT

People > Process > Technology

- People: Mutual respect & understanding
- Process: Achieving balance between flexibility & rigidity
- Technology: Insight to activities & opportunities

Utilization of business expertise

- Validation; Active & Passive Prototyping

Liaisons between Business & IT

- Technical SMEs within business units
- Support & training within business units

Personal BI > Team BI > Corporate BI

Support from influencers, evangelists & executives

“PowerPivot for SharePoint” Projects

Good candidates

- Small projects
- Infrequent or one-time analysis
- Rarely used data
- Unpredictable analysis
- Prototyping

Poor candidates

- Large sets of data
- Incremental data loads are required
- Refresh of data more often than once per day is required
- Complex requirements
- Row-level security is required

Challenges

Training of data producers on data & tools

- Need to understand the data and how to use the tools and how to be analytical and derive insights

Adequate IT support

- Some IT staff have the “users can’t handle it” syndrome
- Less of an IT backlog for report development;
different demands: data, training, support, documentation

Access of questionable data sources

Non-standard data definitions, calculations, & interpretations

Duplication of effort

Potential for chaotic, unorganized environment

Lack of testing & validation

Lack of governance & change management

Keys to Success

Figure out how Business & IT can support each other

Work with strengths & limitations of Self-Service BI

Find where SSBI complements Corporate BI in your org

Create a population of "savvy" power users

User support, training, and documentation

Executive support & evangelists

Balance of governance and flexibility for business users

Change management

People > Process > Technology

Further Reading

[Increasing Productivity by Empowering Business Users with Self-Serve BI](#)

[Choose the Right Business Intelligence Technology to Suit Your Style](#)

[Self Service Key to Creating Enterprise Business Intelligence Heroes](#)

[A Primer on PowerPivot Topologies and Configurations](#)

[Self-Service BI: Remember to Plan for the Back-End Infrastructure](#)

[Enabling Data as a Service for Self-Service Business Intelligence](#)

[PowerPivot Management Dashboard](#)

[TechEd 2012 Presentation: Deploying and Managing a PowerPivot for SharePoint Infrastructure Using Microsoft SQL Server 2012](#)

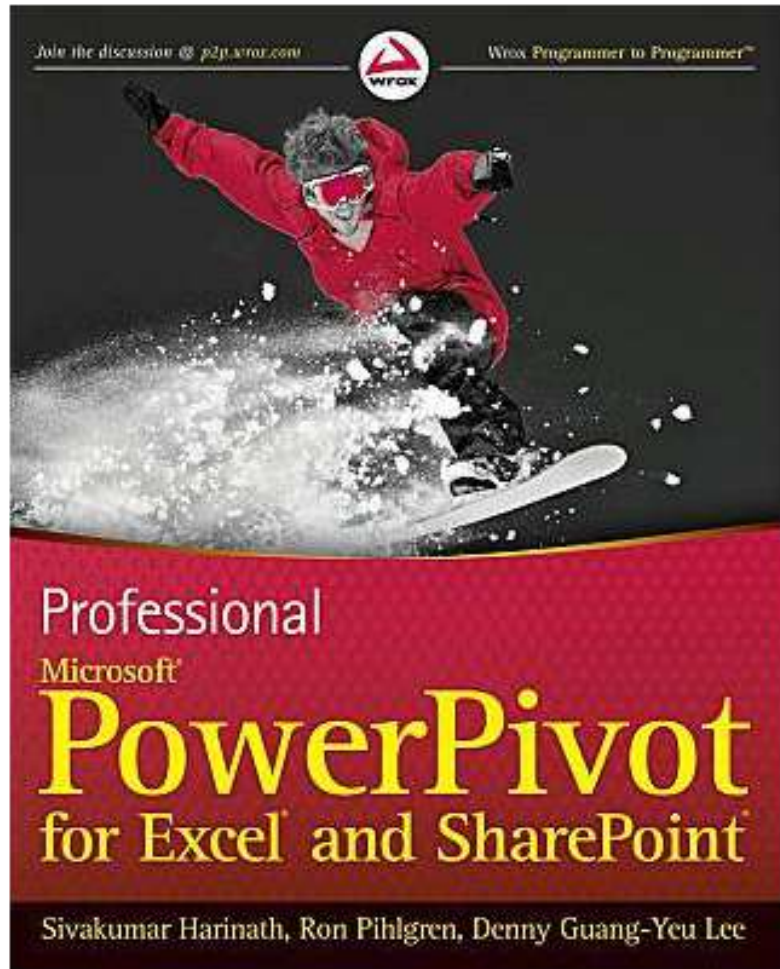
[Customizing the PowerPivot Management Dashboard](#)

[The State of Self-Service Reporting](#)

Book Recommendation

Currently, most PowerPivot books available focus on creation of the data model and DAX formulas.

More than half of this Wrox book focuses on management & configuration.



Thanks for attending!

Managing the “PowerPivot for SharePoint” Environment



Slides at
sqlchick.com
(Presentations page)

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Appendix



Central Admin

Common places to find PowerPivot management settings

The screenshot displays the SharePoint 2010 Central Administration interface. The top navigation bar includes 'Site Actions', 'Browse', 'Service Applications', and 'System Account'. Below this is a ribbon with 'New', 'Connect', 'Delete', 'Manage', 'Administrators', 'Properties', 'Publish', and 'Permissions' buttons. The main content area is a table of Service Applications.

Name	Type	Status
Access Services	Access Services Web Service Application	Started
Access Services	Access Services Web Service Application Proxy	Started
Application Discovery and Load Balancer Service Application	Application Discovery and Load Balancer Service Application	Started
Application Discovery and Load Balancer Service Application Proxy_6b0a625d-3340-402a-b078-7c07547e21cf	Application Discovery and Load Balancer Service Application Proxy	Started
Application Registry Service	Application Registry Service	Started
Application Registry Service	Application Registry Proxy	Started
Business Data Connectivity Service	Business Data Connectivity Service Application	Started
Business Data Connectivity Service	Business Data Connectivity Service Application Proxy	Started
Default PowerPivot Service Application	PowerPivot Service Application	Started
Default PowerPivot Service Application	PowerPivot Service Application Proxy	Started
Excel Services Application	Excel Services Application Web Service Application	Started
Excel Services Application	Excel Services Application Web Service Application Proxy	Started

On the left side of the interface, there is a navigation pane with the following sections:

- Central Administration
- Application Management
- System Settings
- Monitoring
- Backup and Restore
- Security
- Upgrade and Migration
- General Application Settings
- Configuration Wizards

Below the navigation pane, there are several service-related links:

- External Service Connections
- InfoPath Forms Services
- Site Directory
- SharePoint Designer
- Search
- Content Deployment
- SQL Server Reporting Services (2008 and 2008 R2)
- PowerPivot Management Dashboard

Two callout boxes with arrows point to specific settings:

- A callout box labeled 'Excel Services Service Application Settings' points to the 'Excel Services Application' row in the table.
- A callout box labeled 'PowerPivot Service Application Settings' points to the 'PowerPivot Management Dashboard' link in the left navigation pane.

Central Admin (cont'd)

Common places to find PowerPivot management settings

The screenshot displays the SharePoint 2010 Central Administration interface. The top navigation bar shows 'Central Administration > Monitoring'. A left-hand navigation pane lists various administrative tasks, with 'Monitoring' selected. The main content area shows a table of services on a server. A red arrow points to 'SQL Server Analysis Services' in the table. Another red arrow points to 'Timer Jobs' in the 'Monitoring' section. Two callout boxes provide additional context: one for 'Timer Job Definitions & Job Status' and another for 'Analysis Services Services on Server'.

Microsoft SharePoint 2010 Central Administration > Monitoring

Microsoft SharePoint 2010 Central Administration > Services on Server: SQL...

Use this page to start or stop instances of services on servers in t...

Central Administration

- Application Management
- System Settings
- Monitoring
- Backup and Restore
- Security
- Upgrade and Migration
- General Application Settings
- Configuration Wizards

Health Analyzer
Review problems and solutions | Review rule definitions

Timer Jobs
Review job definitions | Check job status

Reporting
View administrative reports | Configure diagnostic logging | Review Information Management Policy Usage Reports | View health reports
Configure usage and health data collection | View Web Analytics reports

Server: SQL...

Service	Status	Action
Access Database Service	Started	Stop
Application Registry Service	Started	Stop
Business Data Connectivity Service	Started	Stop
Central Administration	Started	Stop
Claims to Windows Token Service	Started	Stop
Document Conversions Launcher Service	Stopped	Start
Document Conversions Load Balancer Service	Stopped	Start
Secure Store Service	Started	Stop
SharePoint Foundation Search	Stopped	Start
SharePoint Server Search	Started	Stop
SQL Server Analysis Services	Started	Stop
SQL Server PowerPivot System Service	Started	Stop
Microsoft SharePoint Foundation Subscription Settings Service	Stopped	Start
Microsoft SharePoint Foundation Web Application	Started	Stop
Microsoft SharePoint Foundation Workflow Timer Service	Started	Stop
PerformancePoint Service	Started	Stop
Search Query and Site Settings Service	Started	Stop

Central Administration

Application Management

System Settings

Monitoring

Backup and Restore

Security

Upgrade and Migration

General Application Settings

Configuration Wizards

Timer Job Definitions & Job Status

Analysis Services Services on Server