Microsoft SQL Server

PowerPivot

For Excel 2010

Self Service BI

{Who} am I?

Shree Prasad Khanal

MCSD - MCDBA - MCSA – MCAD - MCT - MCPD Enterprise Developer
MCITP Database Administrator, Database Developer & BI Developer
+25 MCTS

Freelance Consultant
Database and Business Intelligence
shree@sqlpassnepal.org
www.sqlpassnepal.org

What is PowerPivot?

- PowerPivot (previously known as Gemini) is Microsoft's entry into the self-service BI sector
  - Qlikview, Tableau, SiSense Prism and Spotfire are competing tools
- Allows <u>power users</u> to integrate data from multiple sources and do analysis/reporting
- Storing data in column-oriented databases means:
  - Query performance is fast
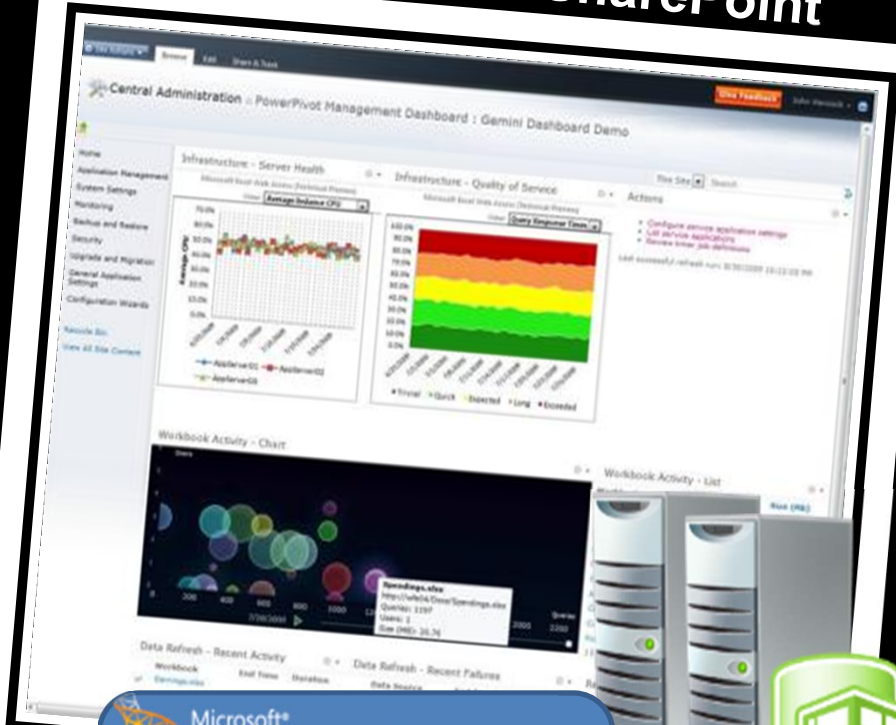 - They can handle very large amounts of data

Managed Self-Service

PowerPivot for Excel
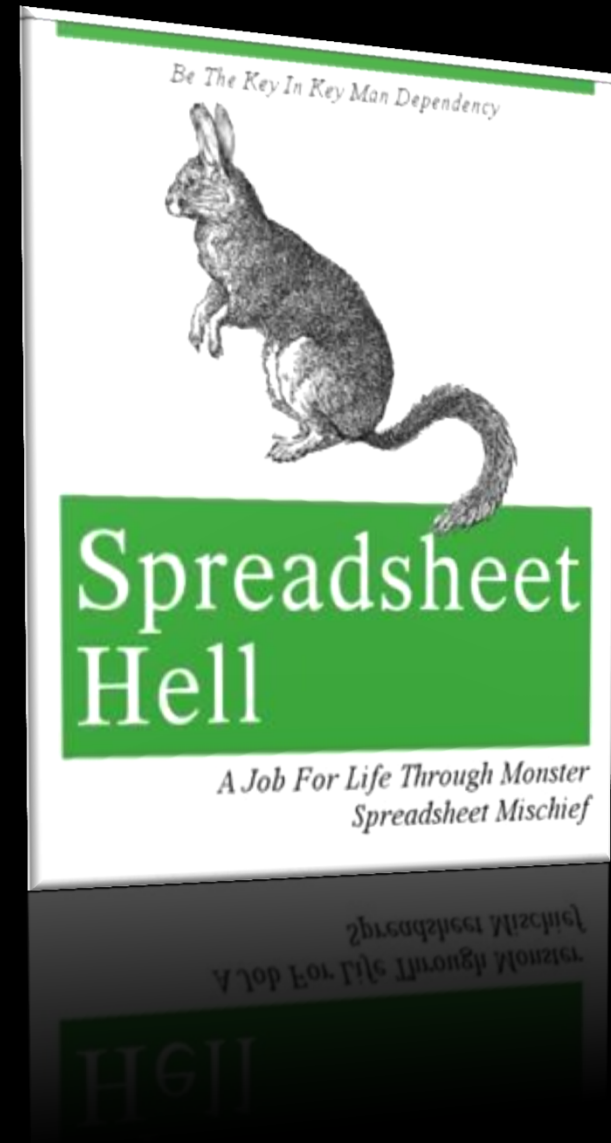
PowerPivot for SharePoint

A Single Version of the Truth?

"Where is the single version of the truth in this architecture? I've just spent 4 years of my life trying to convince users to stop using Excel as a data store and here are Microsoft positively encouraging it. Hell will freeze over before this capability is used responsibly in most organisations"

Mick Horne, EMC Consulting

Spreadmart Hell!

- There is constant war between IT and power users
- For power users, IT is unresponsive and restrictive
- For IT, power users duplicate (often out of date) data in thousands of Excel databases
- Power users often only work with IT when they have reached the limits of the tools to which they have access

Be The Key In Key Man Dependency

Spreadsheet Hell

A Job For Life Through Monster Spreadsheet Mischief

Is it really so bad?

- A compromise is necessary
- Users will always want Excel – it's more addictive than crack
- Users will also want
  - Data that isn't in the data warehouse, and probably shouldn't ever be
  - Analysis that isn't possible with standard BI tools (maybe that involves hacking data)
- PowerPivot aims to give users this but also allow IT to control usage and sharing
- <u>Not</u> an alternative to a data warehouse

demo

Excel Client

Make PowerPivot Enterprise Ready

PowerPivot Client Architecture

- PowerPivot comes as an Excel addin
  - Only works with Excel 2010 though…
- Behind the scenes it is actually a modified version of Analysis Services
- Main change is storage method
  - Not MOLAP, HOLAP or ROLAP
  - Vertipaq – an in-memory column-store database
- Gives much faster querying
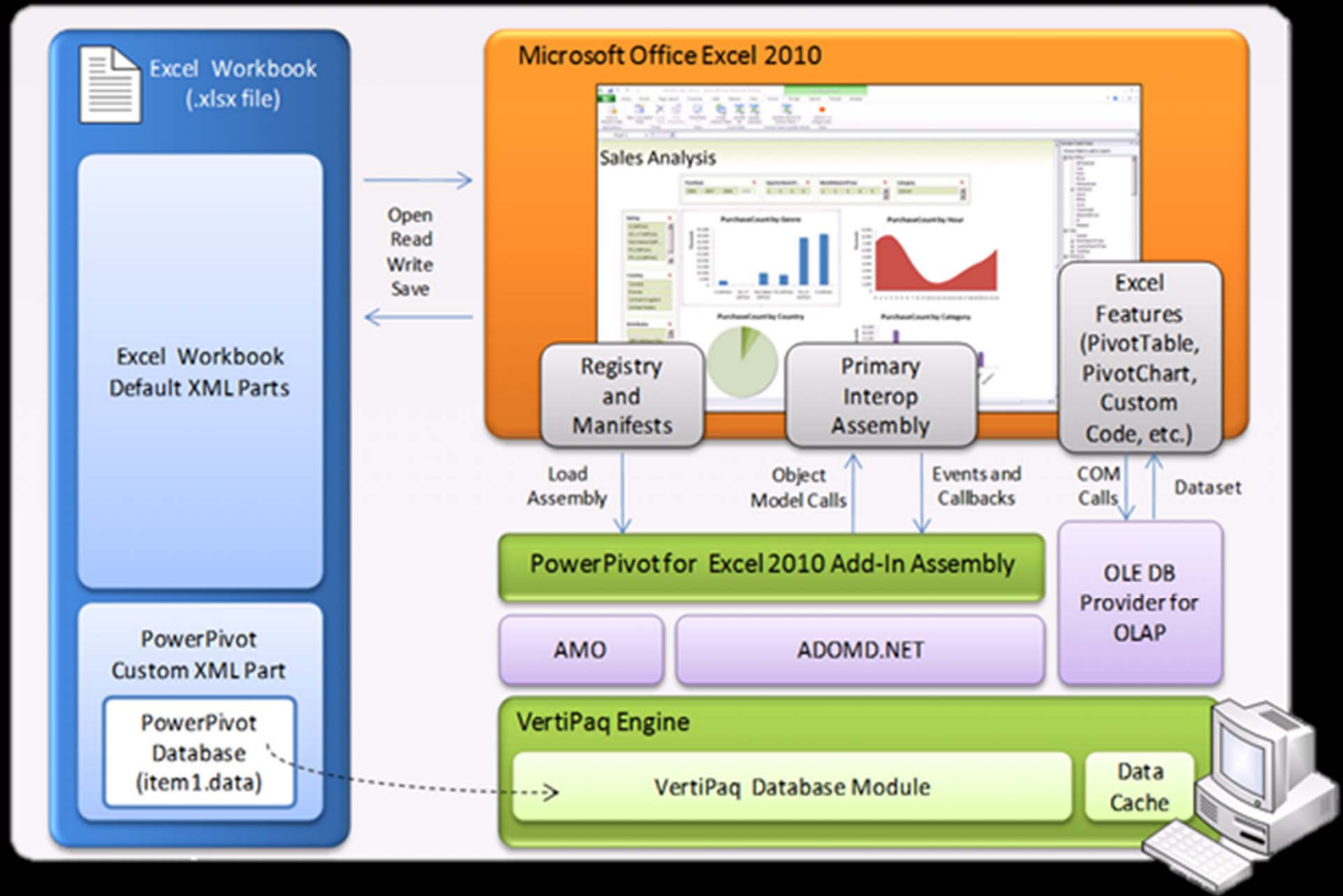- Compression means large amounts of data can be stored in memory

Column vs Row Oriented

EmpId		Lastname		Firstname		Salary
1		Khanal		Swornima		40000
2		Khanal		Shree		50000
3		Shrestha		sharwan		40000

1,Swornima,Khanal,40000; 2,shree,khanal,50000; 3,Sharwan,shrestha,40000;

1,2,3; khanal,khanal,shrestha;swornima,shree,sharwan; 40000,50000,40000;

PowerPivot: Client Architecture

PowerPivot Client Workflow

1. Switch from Excel to PowerPivot UI
2. Connect to data sources
3. Load 'tables' of data, filtering if necessary
4. Define joins between tables loaded into PowerPivot
5. Hide/Show, rename columns
6. Define calculated columns
7. Switch back to Excel and query data through pivot tables/Excel cube functions
8. Define calculated measures

Supported Data Sources

- Relational databases
  - Entire tables
  - SQL queries
- Excel tables (plus paste from clipboard)
- OData ATOM feeds, including
  - SSRS R2 reports using new 'data feed' rendering
  - Project Dallas
  - ADO.Net Data Services
  - Sharepoint 2010 Lists
- Analysis Services cubes or PowerPivot
- Text files

Data Access Expressions (DAX)

- DAX is the new language for defining calculations in PowerPivot
- Builds on relational and Excel concepts, rather than multidimensional
  - Easier to learn?
- DAX is not a replacement for MDX (or is it?)
  - Not a query language
- Allows you to create:
  - Calculated measures
  - Calculated columns in tables to act as attributes

New features in Pivot Tables

- Slicers – much better than the old dropdown boxes for slicing pivot tables
- Improved search for members on hierarchies
- User-defined named sets
  - Gives almost total control over what you can see on rows and columns
  - Simple UI or enter your own MDX
- Improved 'Show As' – makes it easier to display common calculations in a pivot table
- Sparklines – in-cell charting

What You Can't Do (Yet)

- Security
  - Limited to allow/deny access to everything
- Advanced modelling
  - No hierarchies
  - No parent/child relationships
  - No many-to-many
- Advanced calculations
  - No calculated members on non-measure dimensions
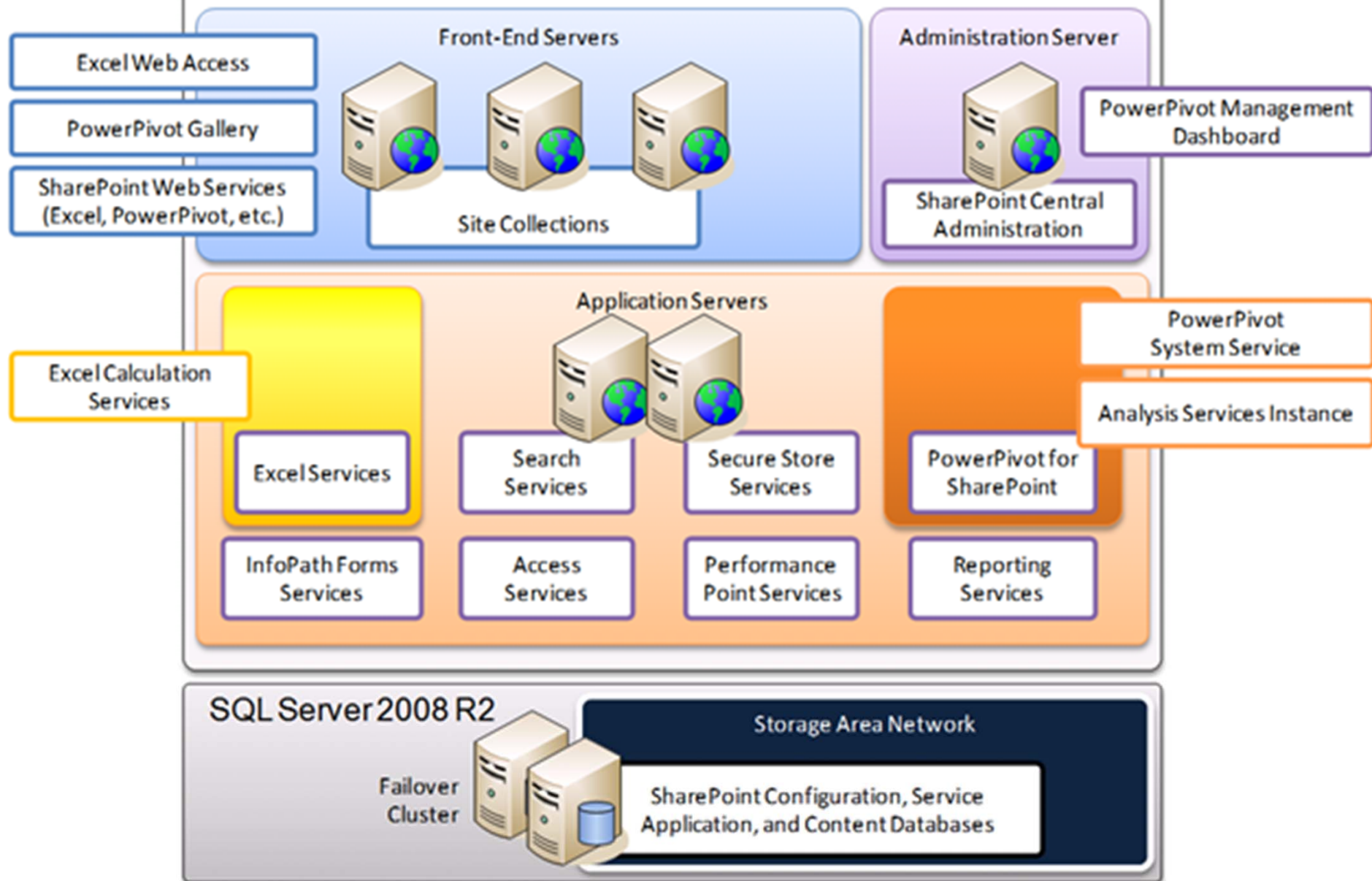 - No cell assignments

demo

Sharepoint 2010 & PowerPivot

PowerPivot Server Architecture

- PowerPivot models can be shared by publishing workbooks to Sharepoint
  - Can then be queried by *any* SSAS client tool
  - Excel Services is the obvious choice
- Requires Enterprise Edition!
- PowerPivot server components:
  - PowerPivot System Service
  - SSAS 2008 R2 in Vertipaq mode
  - PowerPivot Web Service

Data Refresh

- Data in a PowerPivot model deployed to the server can be refreshed on a schedule
  - Basically SSAS processing
- Jobs run by the WSS Timer Service
- Needs a Windows user account with Contributor rights to open the Workbook
- Can impersonate a Windows user or store credentials to connect to data sources
- Can't get data from the C:\ drive of a user's laptop when he's turned it off and gone home

demo

IT Operations Dashboard

SharePoint 2010   Central Administration ▸ PowerPivot Management Dashboard : DefaultPowerPivotServiceApp

I Like It   Tags & Notes

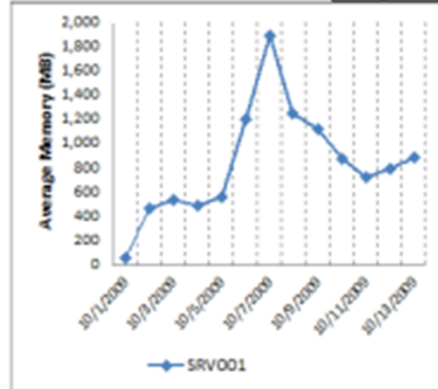Search this site...

Central Administration

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

Recycle Bin
All Site Content

Infrastructure - Server Health

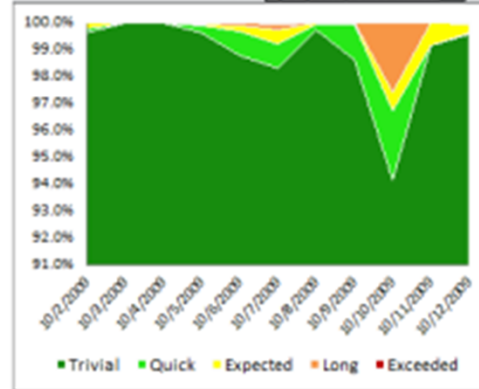Microsoft Excel Web Access (Technical Preview)

View: Average Instance Memory ▾

SRV001

Infrastructure - Quality of Service

Microsoft Excel Web Access (Technical Preview)

View: Query Response Times ▾

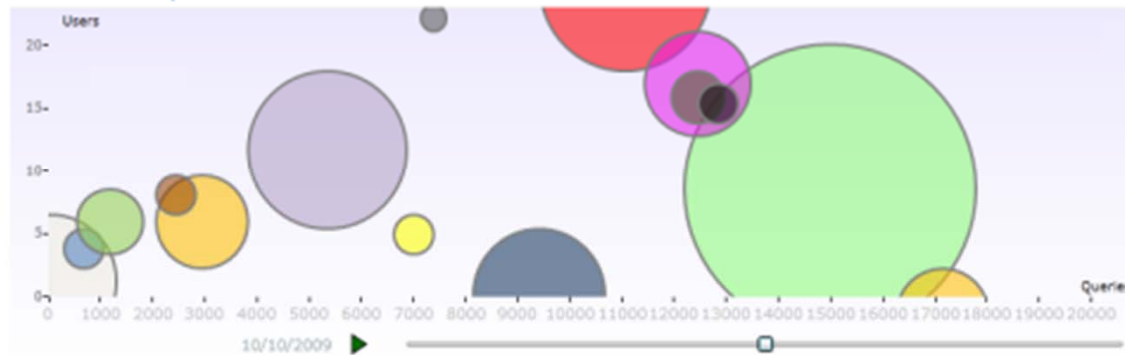■ Trivial ■ Quick ■ Expected ■ Long ■ Exceeded

Actions

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

Last successful refresh run: 10/13/2009 10:24:00 PM

Workbook Activity - Chart

10/10/2009 ▶

Workbook Activity - List

Workbook	Queries	Users↓	Size (Mb)
ITOps.xlsx	21762	22	2.58
AS K1.xlsx	2117	19	2.42
SQLVSTSDefectsCTP3.xlsm	1486	7	19.44
Test2.xlsx	909	5	2.03
RelationshipDetectionDAX.xlsx	664	5	1.06
NZCensus.xlsx	706	4	43.60
DataSourceReport.xlsx	121	3	0.27
BingShopping.xlsx	334	3	150.85
Book1_134001.xlsx	295	3	35.47

1 2

Data Refresh - Recent Activity

Workbook	End Time	Duration (seconds)

Data Refresh - Recent Failures

1 2 3 4 5 6

Reports

Operational Monitoring

- PowerPivot collects information on
  - Resource (memory, CPU etc) usage
  - Querying
  - Data Refresh
- Stores it in… A PowerPivot model!
- PowerPivot Management Dashboard is a set of predefined reports and webparts
- Should a PowerPivot model be turned into a formal BI app?

Conclusions

Pro's, Con's and what the Future holds

PowerPivot Positives

- (for Microsoft) sells Office 2010 and Sharepoint 2010
- Makes Excel power users very happy
- Makes BI easy for non-BI IT professionals
- Great for developing PoC applications
- Acts as a feeder for bigger BI projects
- Very, very, very fast and scalable
- Lots of fun to use

PowerPivot Negatives

- Leads back to spreadmart hell, massive duplication of data and multiple versions of the truth
- Creates 'good enough' BI and prevents spending on formal data warehouse projects
- Distracts MS from developing its traditional, corporate BI products
- When will companies be ready to upgrade to Office 2010?
- Can they afford Sharepoint 2010 Enterprise Edition?

The Future

- Excel is the Microsoft BI client tool of choice
- Sharepoint is the means of sharing data and reports between users
- Self-service BI gets equal priority to traditional centralised, data-warehouse based approaches
- Vertipaq engine likely to be seen in other, more traditional, BI scenarios

Links

- http://blogs.msdn.com/powerpivot/
- http://www.powerpivot.com/
- http://powerpivotgeek.com
- http://powerpivottwins.com/
- http://powerpivotpro.com/
- http://www.powerpivot-info.com/
- http://social.msdn.microsoft.com/Forums/en-US/sqlkjpowerpivotforexcel/threads

Are you {**Ready**} for SQL 2008**R2** ?

Get {**Ready**} for SQL 2008 **R2**!
But {first} …complete your evaluation form

Shree Prasad Khanal
Database and Business Intelligence
shree@sqlpassnepal.org

Thank you

URL: http://www.sqlpassnepal.org
Email: shree@sqlpassnepal.org