



Capacity and performance management in SharePoint 2010

Kapacitet og performancemanagement i SharePoint 2010

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Session objectives

- Overview of the performance improvements in SharePoint 2010
- Guidance on considerations when deploying SharePoint 2010
- An overview of deployment scenarios

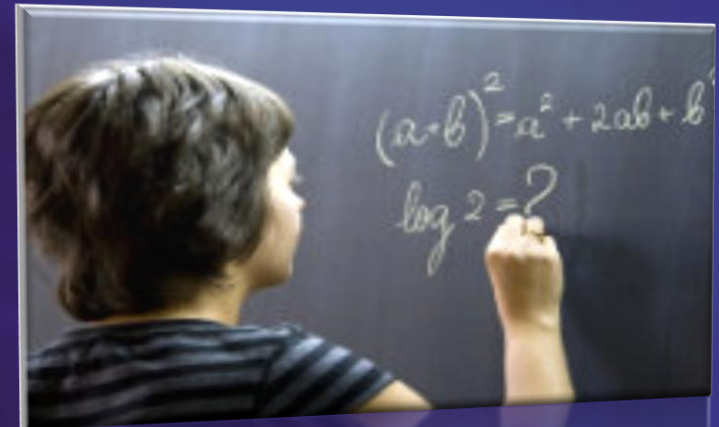
Who am I?



- Working with SharePoint architecture at Avanade
 - Started in internal IT in 1990 (public sector)
 - Consultant since 1998 within both infrastructure and development
 - Started with SharePoint in 2003
- Avanade is a joint venture by Microsoft and Accenture
 - Approx 9.000 consultants (approx 300 in the Nordics)
 - System integrator which is 100% focused on Microsoft technology
- Campus Days 2010 sessions
 - Kapacitet og performancemanagement i SharePoint 2010
 - Udviklingsmulighederne i SharePoint 2010

Agenda

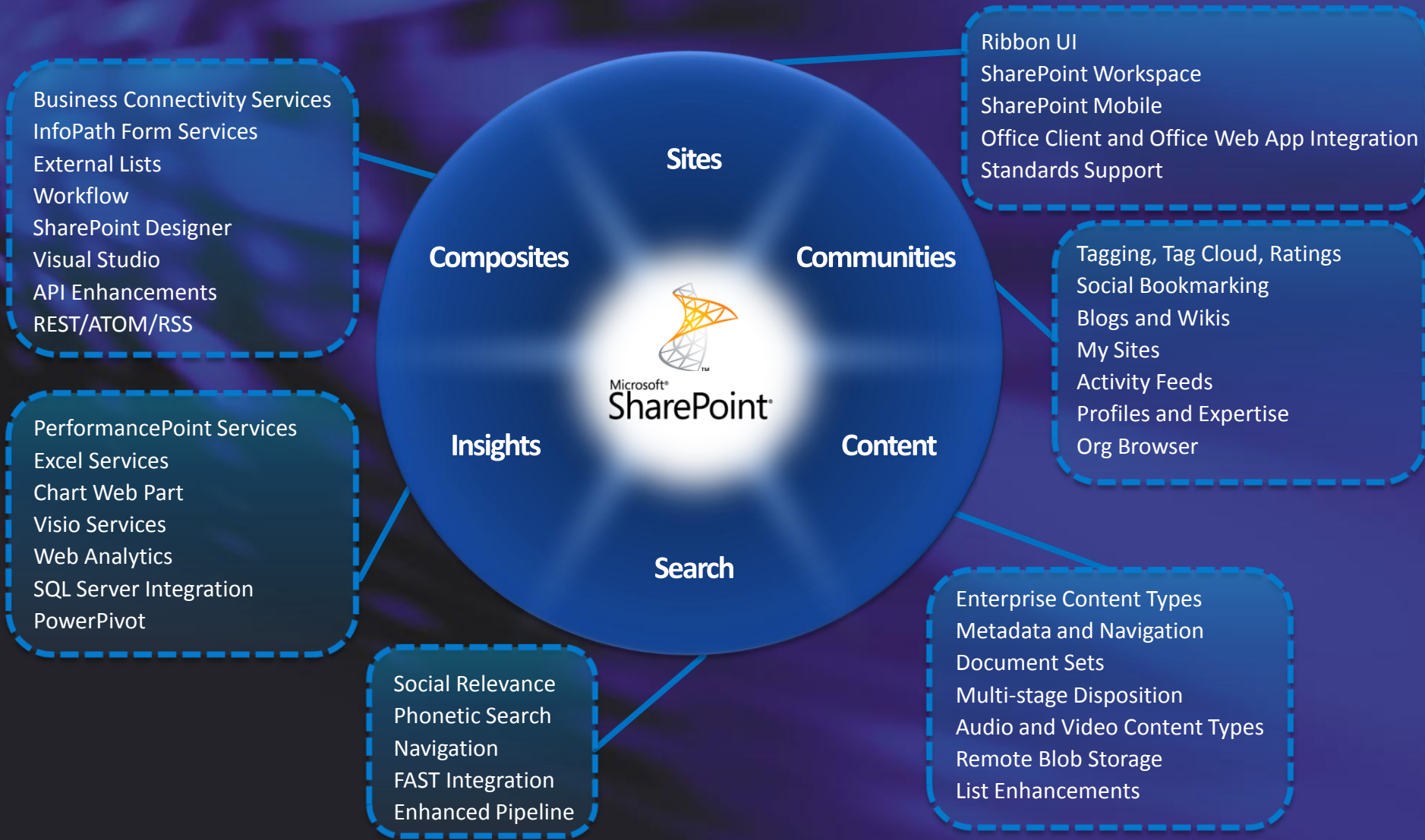
- What is the challenge?
- Performance Improvements
- Capacity Management
- SharePoint Deployments



SharePoint 2010 – is more, more and more



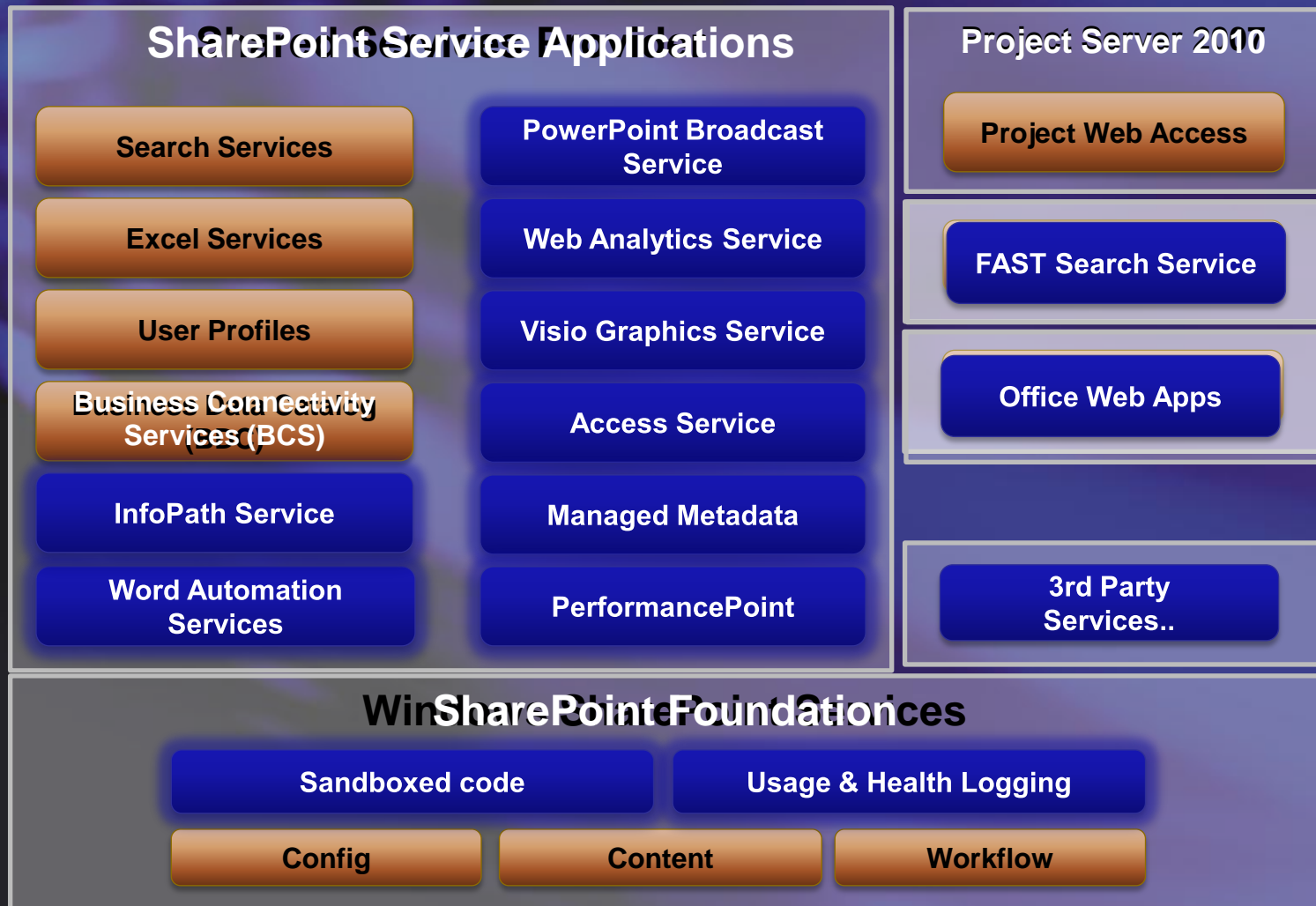
SharePoint 2010 investment areas



Client side challenges

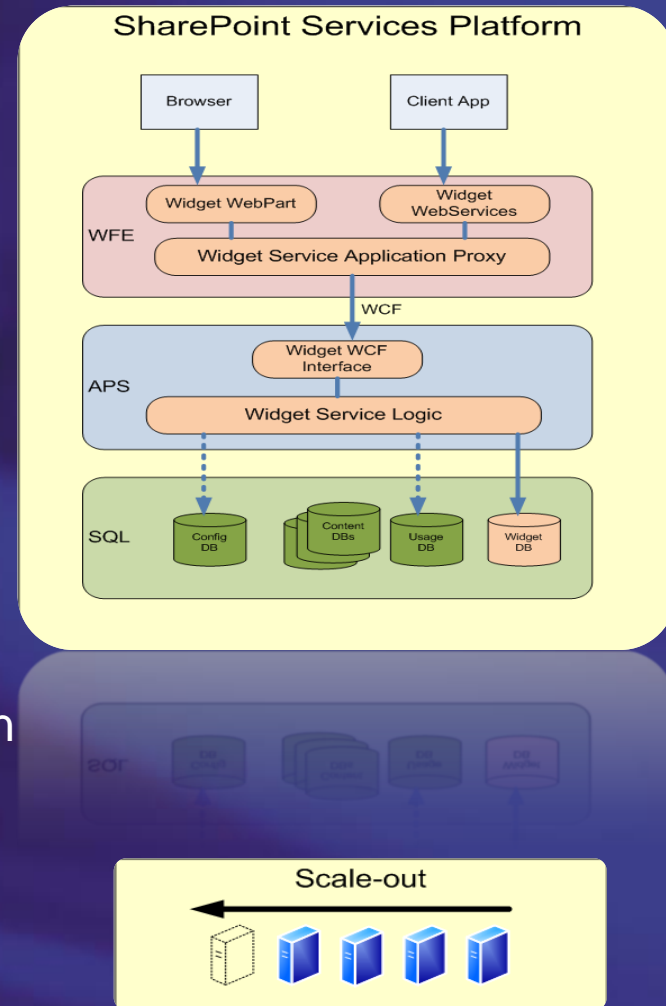


Server side challenges



Service Applications (SSP for 2010)

- Scalability
 - Scale out on WFE, application and database tiers
 - Amount of servers (scale out on all layers)
 - Will require extra system resources
 - New concept - Server “grouping”
- Flexibility
 - Multiple instances of the same Service Application
 - Federation – Cross-Farm “Federation”
 - Custom Service Applications



Managing Service Applications

DEMO

Agenda

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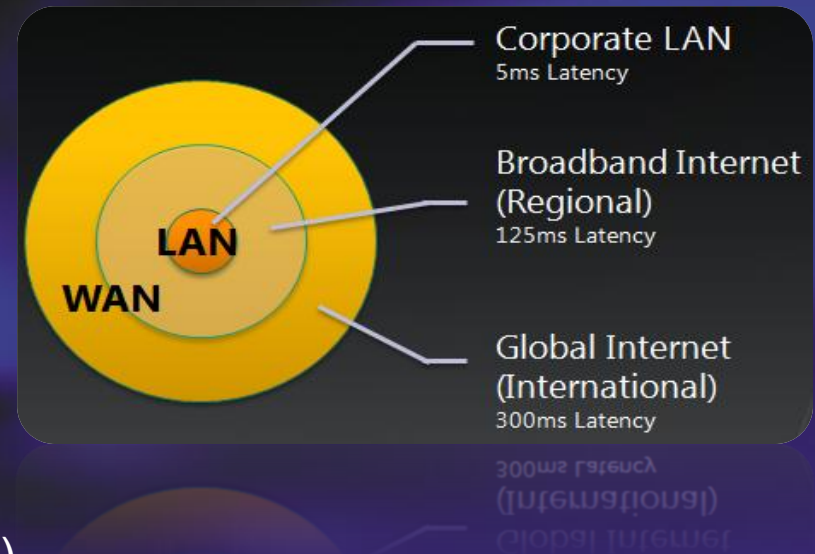
Performance Terminology

- End user perceived **Latency**
- **Throughput** and scale out
- **Capacity** and data scale
- **Reliability**



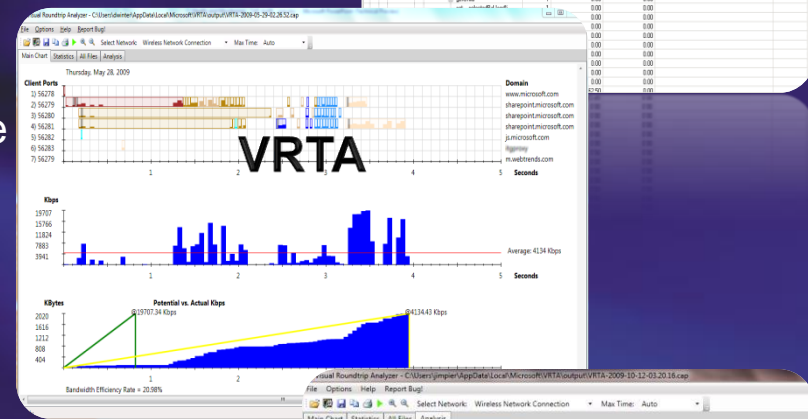
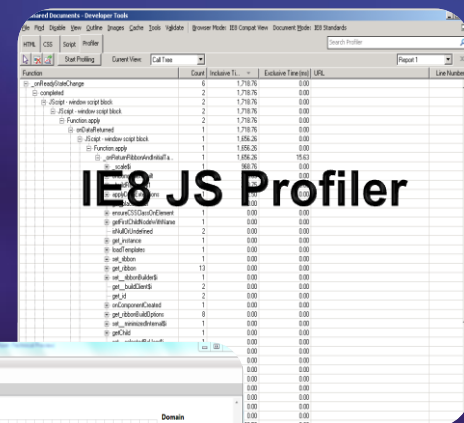
Latency improvements

- Page latency
 - Javascript cleanup
 - Early rendering
 - Lighter and faster pages (WAN optimized)
 - Dependent on content and customizations
 - Focused on popular scenarios
- Better first and second level Browsers
 - IE8 and similar newer browsers are better for WAN
- Office incremental file open / save
 - New protocol (Cobalt) (Save is done in the background)



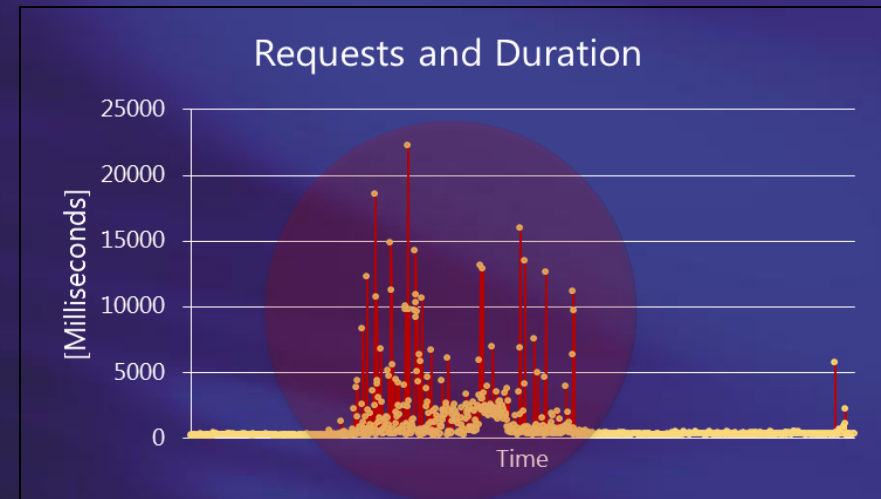
Optimize Your Own Web Pages

- IE8 JS Profiler - Hit F12 in IE8
 - Analyzing where JS is spending it's time
- VRTA (Visual Round Trip Analyzer)
 - Visualizes the network traffic, and reports on the page's health and best practices violations
 - [download](#)
- Visual Studio Team System 2010
 - Web testing with WAN Emulation using VSTT10
 - [more info](#)
- Fiddler
 - Know what the browser is fetching
 - [more info](#)



Throughput & Reliability Improvements

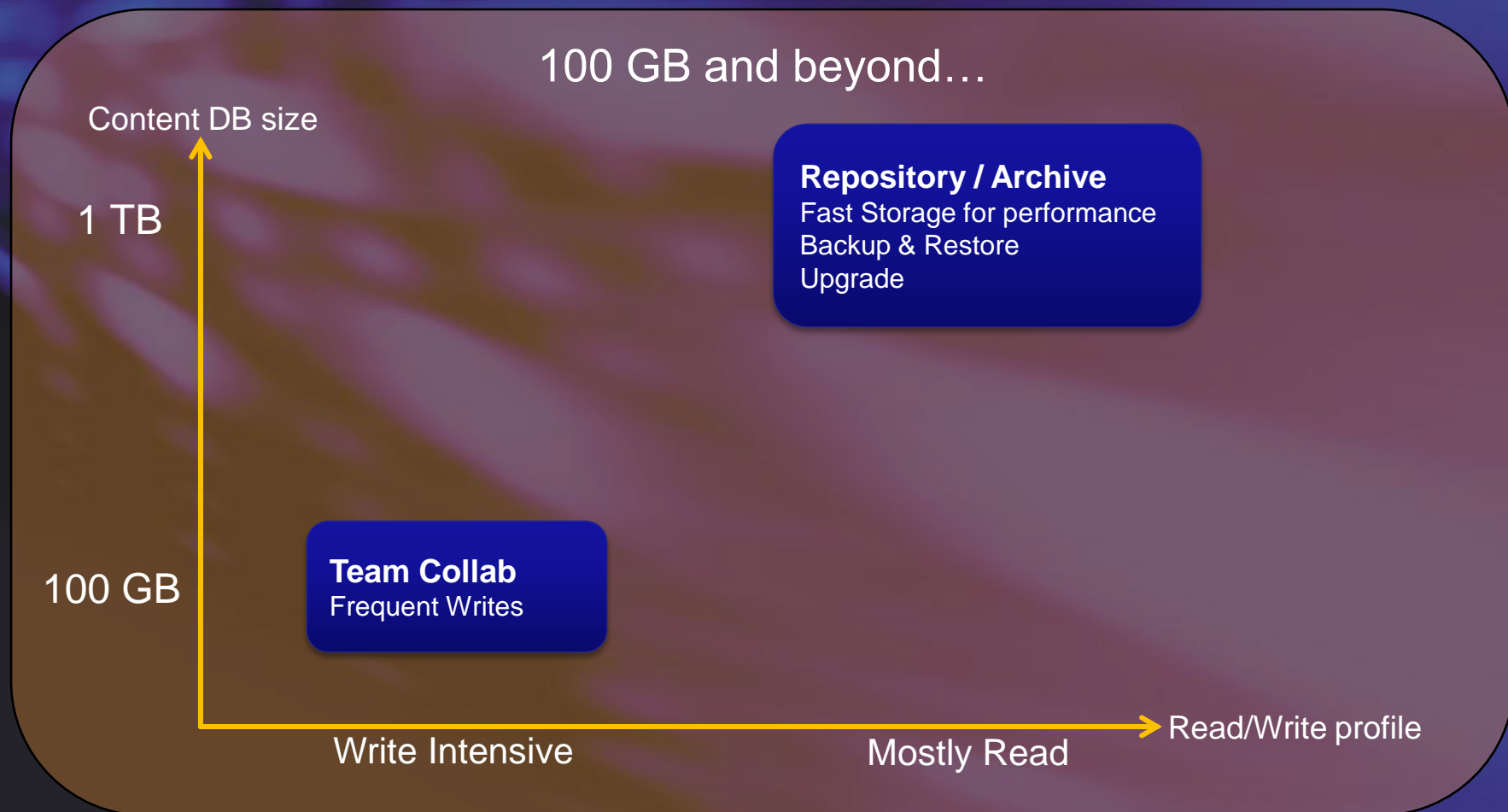
- Optimized Key Scenarios – reducing transaction cost
- Optimized SQL to sustain higher load
- Added protection to reduce latency spikes
 - Throttling Excessive Client Load
 - Large List Throttling



Data scaling improvements

- Enabling new deployment scenarios in 2010
 - 100 Million Items per Search Index (1 Billion with Fast 2010)
 - 2007 = 50 millions
 - Tens of Millions of Documents/Items in a single List
 - 2007 = 5 millions
 - View/Query 5000 items at a time
 - 2007 = General rule is 2.000
- Many recommendations/limits stay the same
 - Site Collections per web application (150.000)
 - Site Collections per content database (50.000)
 - Content DB Size (100 GB)

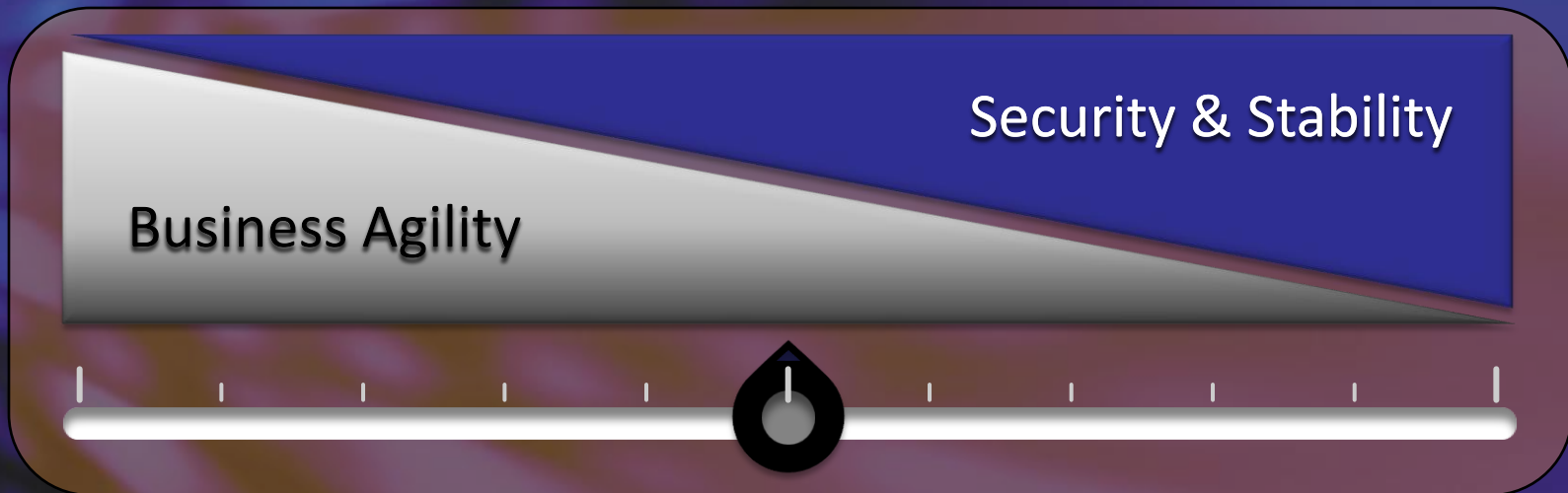
Content database size considerations



Caching

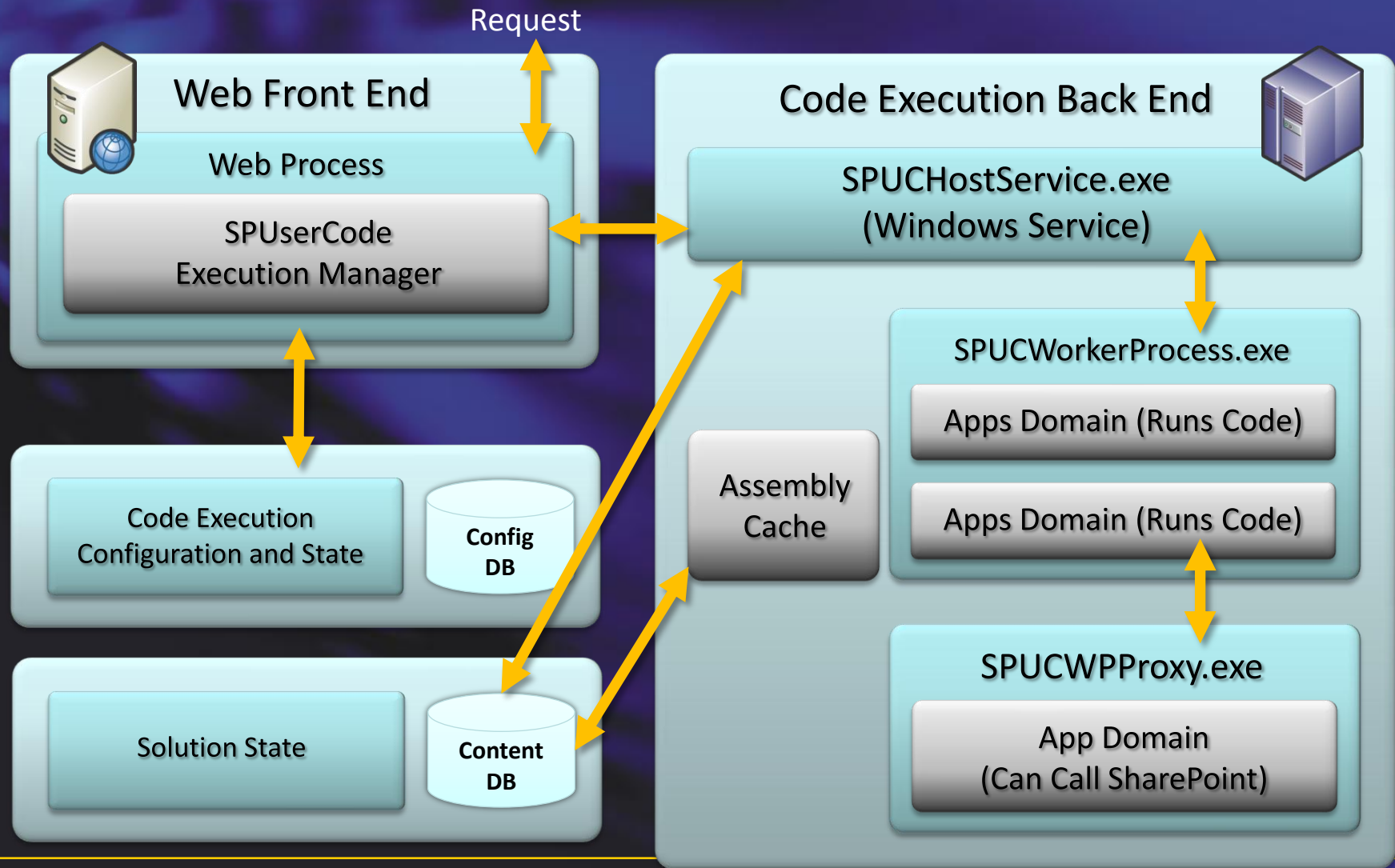
- BLOB Caching
- Object Caching
 - Performance Counter
 - SharePoint Publishing Cache / Total number of cache compactions
 - <http://sharepointinterface.com/2009/08/30/moss-object-cache-memory-tuning-is-not-an-intuitive-process/>
 - Now in web.config
 - `<ObjectCache maxSize="100" />`
- Output Caching
 - Now in web.config
 - `<OutputCacheProfiles useCacheProfileOverrides="false" varyByHeader="" varyByParam="*" varyByCustom="" varyByRights="true" cacheForEditRights="false" />`

Reliability through Sandboxed Solutions



- Essential Agility
 - Easy Deployment
 - Iterative Development
 - Access To Shared Servers
 - SharePoint Online
- Essential Stability
 - Safe for Other Users
 - Limited API Access
 - Monitored Resources
 - Separate Process
 - Site Collection Limits

Sandboxed Solutions



Sandboxed Solutions

- Supported Solutions

- Content Types
- Site Columns
- Custom Actions
- Declarative Workflows
- Event Receivers, Feature Receivers
- JavaScript, AJAX, jQuery, Silverlight
- List Definitions
- Non-visual web parts
- Site Pages
- InfoPath Forms Services (not admin-approved)

- General rule

- Everything below the site collection

- Not supported

- Network access
 - Including web services
- Service Applications
 - Profiles
 - Search
- File system
 - E.g. Visual WebParts
- Only a limited Microsoft.SharePoint.dll
 - Access controlled through special dll and assembly redirect
 - ..\14\UserCode\web.config

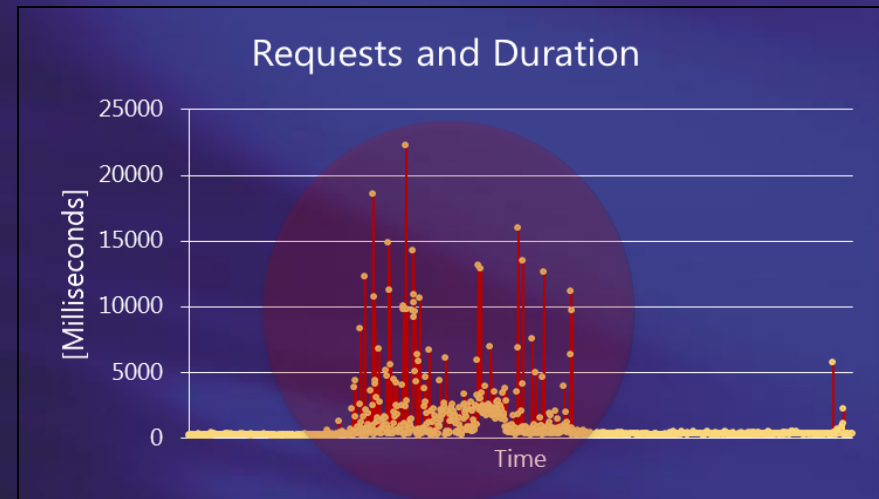
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Throughput & Reliability Improvements

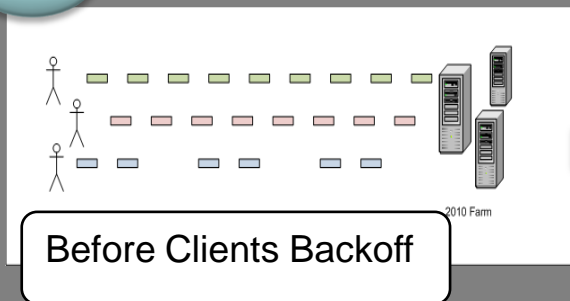
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 - Throttling Excessive Client Load
 - Large List Throttling



Throttling Excessive Client Load

- The server informs clients on its health condition
- The 2010 clients tune down the sync frequency (backoff) when the server is in stress/overloaded
- The server starts throttling “low-priority” requests once under stress, and becomes more aggressive just before going down

1



After Clients Backoff

2



Large List Throttling

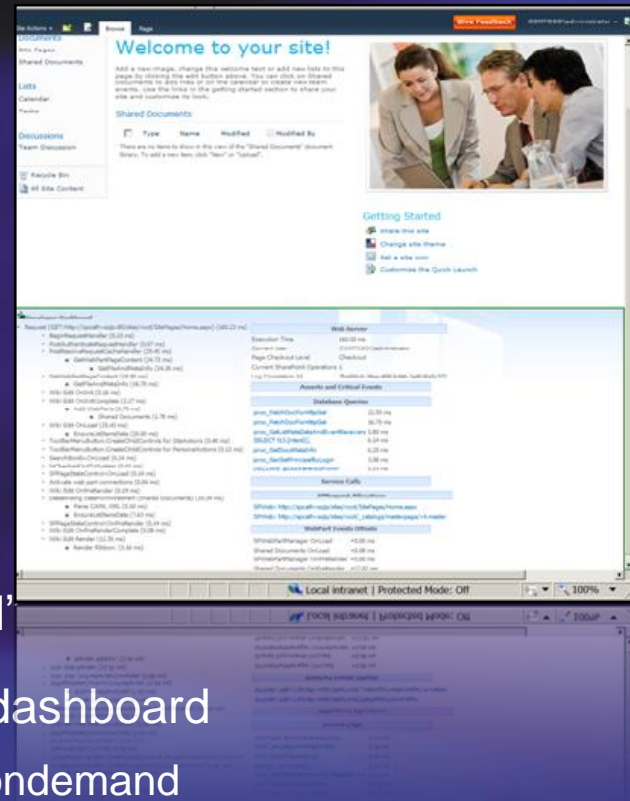
- Default 5.000 items allowed in a query
 - Higher for administrators and auditors
 - Can be overridden from the object model
 - Object model override can be disabled by admin
- A window can be configured for large queries
 - E.g. Allowing large queries during the evening and night

Large List Throttling

DEMO

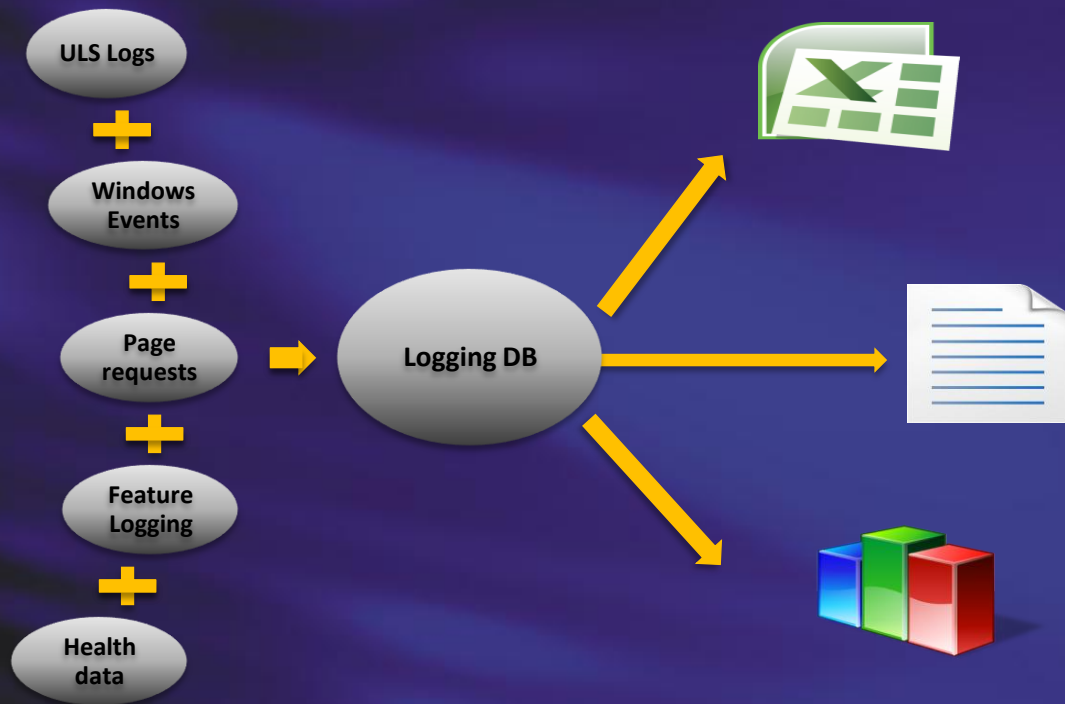
Monitoring in SharePoint 2010

- The logging database
- The Developer Dashboard
 - Disabled by default
 - Can be configured to either “always” or “on demand”
 - Use PowerShell or STSADM to add the developer dashboard
 - stsadm -o setproperty -pn developer-dashboard -pv ondemand
 - stsadm -o setproperty -pn developer-dashboard -pv on
 - stsadm -o setproperty -pn developer-dashboard -pv off



Logging database

- One Stop Shop for Health and Usage data
- “Data Providers” gather data across boxes
- Extensible framework
 - Unified Logging
 - Out-of-the-box reports
 - Richer Web Analytics
 - Open Schema
 - SCOM Integration
- SPDiag*

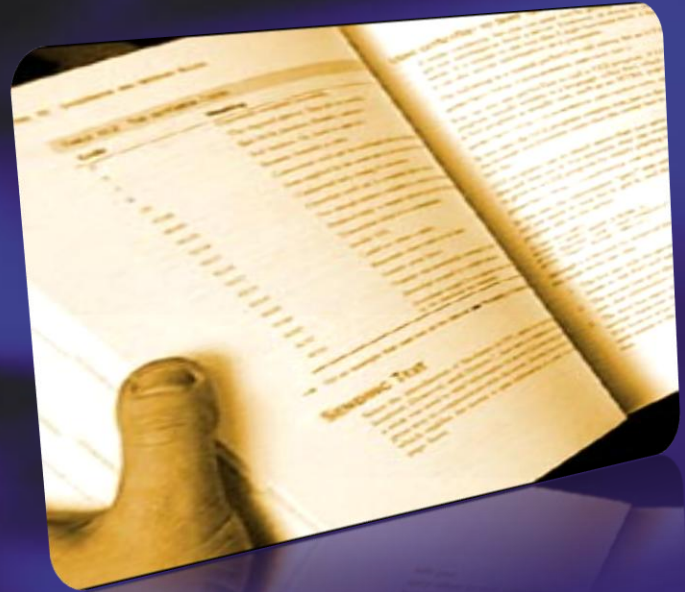


* These tools will ship as part of the SharePoint Administration Tool Kit



Developer Dashboard

DEMO



Reporting samples

DEMO

SharePoint 2010 Capacity Management

Study, Experiment and Model

Pilot +Deploy



Over Sizing



~~Under Sizing~~



Testing and
Optimizing

*Load Test Kit 2010

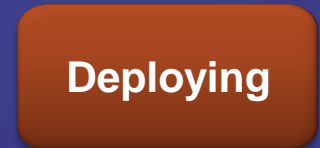
Modeling

Deploying

* SPDiag 2010

Production
Monitoring

Analysis



* These tools will ship as part of the SharePoint Administration Tool Kit

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What Differentiates SharePoint Deployments?



Hardware, Setting and Topology

Facts: # of servers, HW spec, roles

Tuning Options: Add WFE or App Server, tune settings



Workload

Facts: purpose, services, # of Total users, concurrency, RPS

Tuning Options: Split farms, disable services, block clients



Dataset

Facts: #of Site collections, DBs, Web Apps, Data Size

Tuning Options: Split Site Collections, Balance Content DBs

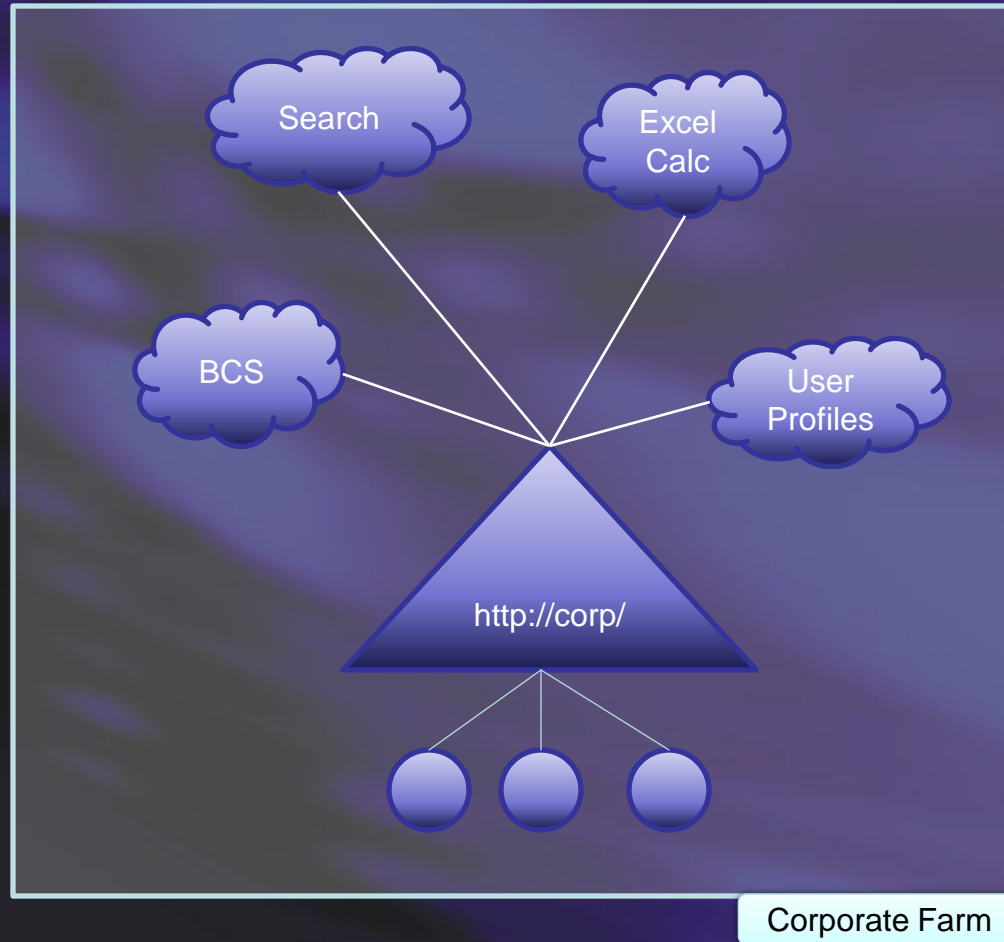
Service Level Agreement (SLA)

Availability, Latency, Throughput, Responsiveness,
Failure Rate...

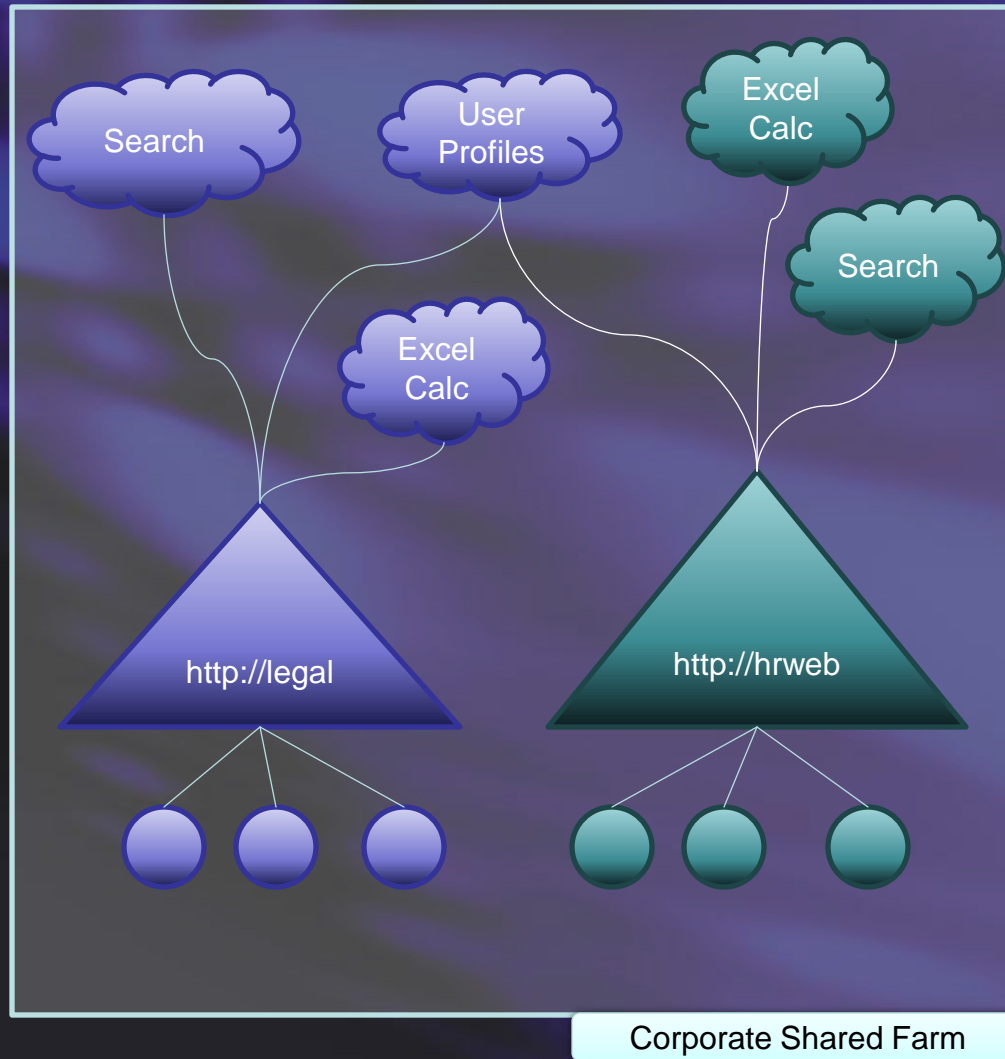
- Internet
- Extranet
- Intranet
- Collaboration
- Document mgmt
- Records mgmt
- Business Intelligence
- Custom applications
- Search

Service Applications

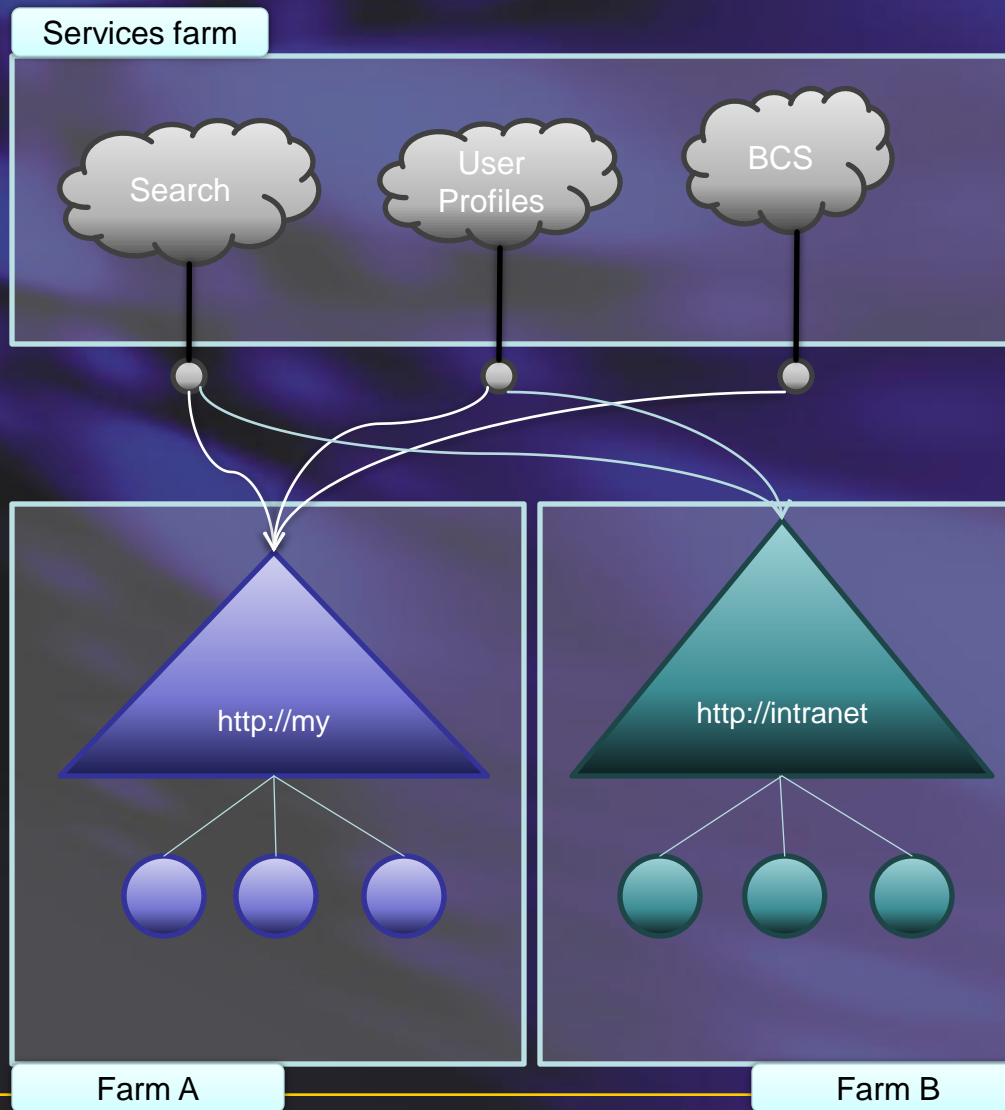
Service Applications - Single Farm



Service Applications - Isolated Hosting



Service Applications - Services farm



Search

SharePoint 2010 Search



Microsoft®
Search Server 2010
Express



Microsoft®
SharePoint Server 2010



Microsoft®
FAST Search Server 2010
for SharePoint®

Quick, easy, powerful
search (for free!)

Complete intranet
search

High-end search delivered
through SharePoint

Basic search

Intranet-wide search
People and expertise search

Visual, highly customizable and
advanced content processing.
Powerful platform to build on

- 360° customer views
- Research portals
- Reputation analysis
- ...

MOSS 2007 Search Scale-out



Query Role



Dedicated
indexing WFEs



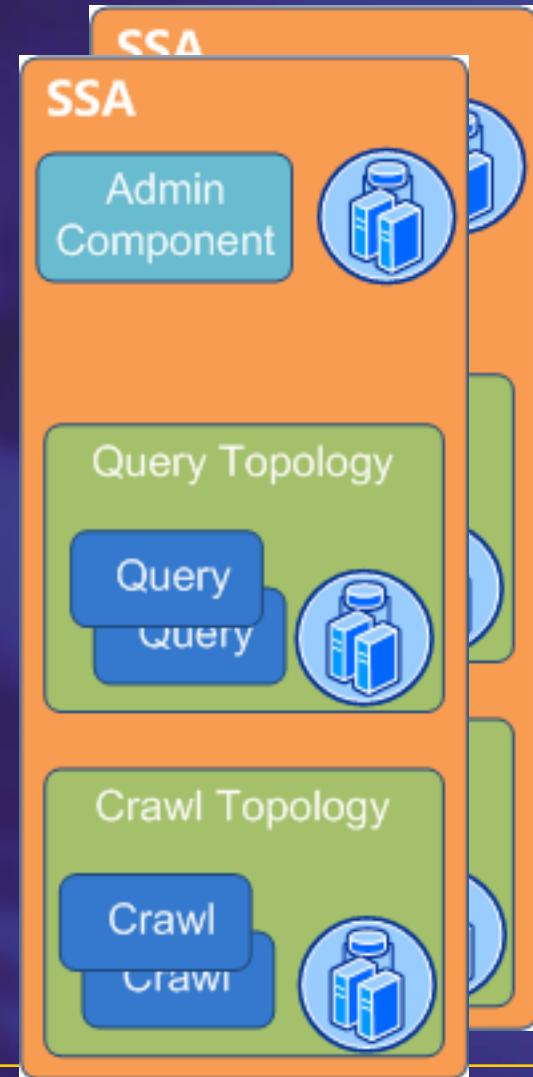
Indexer



Property DB

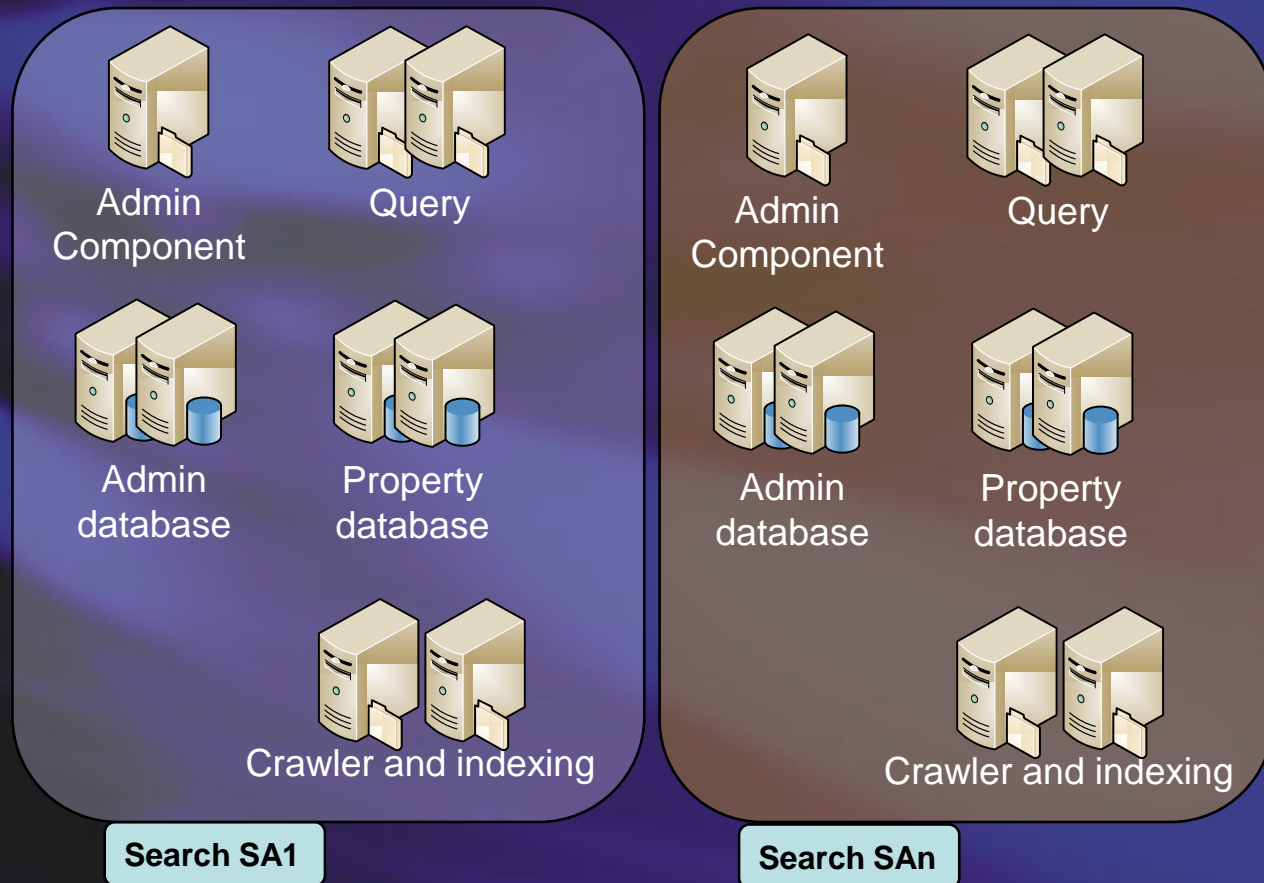
SharePoint 2010 Search Service Applications

- Each Search Service Application:
 - Administration component , database
 - Query Topology
 - Query Components (1+)
 - Property Databases (1+)
 - Crawl Topology
 - Crawl Components (1+)
 - Crawl Databases (1+)
 - Services (Query, Admin)



SharePoint 2010 Search Scale-Out

- Multiple indexers
- Stateless crawlers
- Crawl distribution
- Query mirroring
- Index partitioning
- Multiply property databases
- Admin db and component



SharePoint 2010 FAST Search

- Search on steroids
 - See "SharePoint 2010 - søgning på steorider"
 - Friday January 15th at 12:45

Virtualization

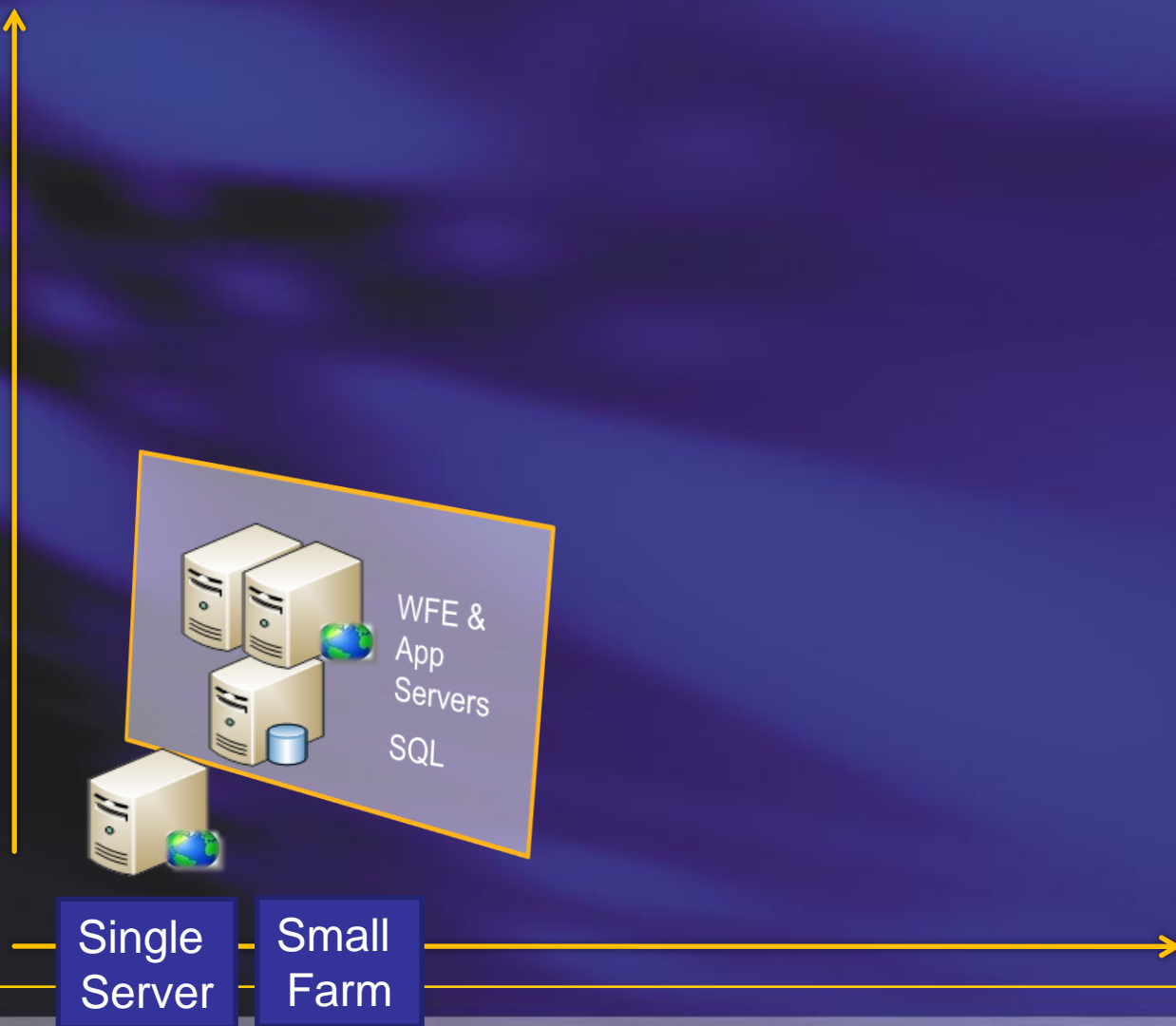
- Virtualization is supported by Microsoft on Hyper-V
- Consider which roles
 - Web Frontend
 - Service Applications
 - Indexing
 - Database
- Environments
 - Development, Staging, Test, QA, Production

Standard Architectures

Schematic Diagram,
not to be use as a
recommendation for
Server Counts

Limited deployments
minimum services
5000 users

Demos and Dev
Boxes



Standard Architectures

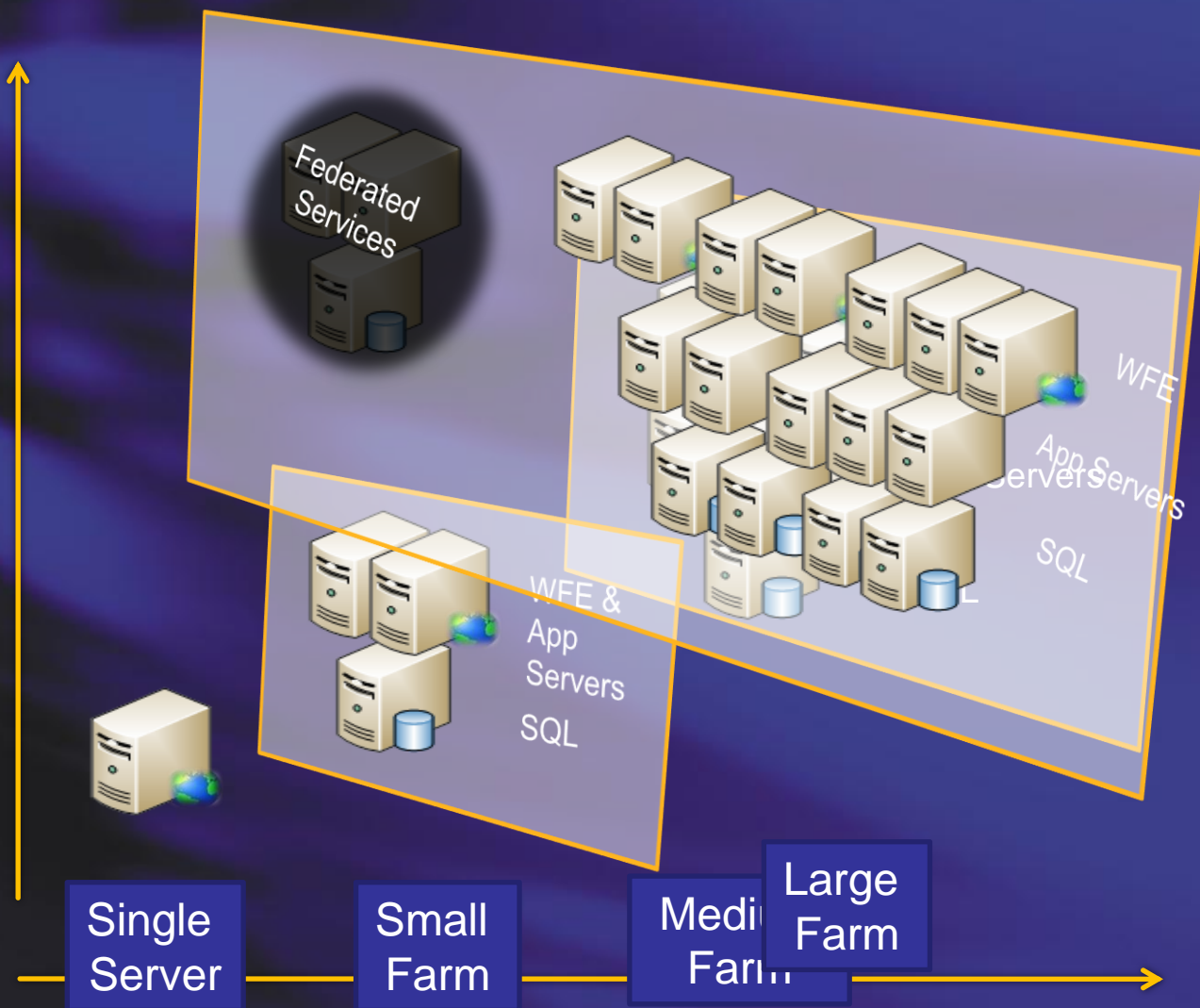
Schematic Diagram,
not to be use as a
recommendation for
Server Counts

Large Enterprise
500.000 users

Common Enterprises
10.000 - 50.000 users

Limited deployments
minimum services
5000 users

Demos and Dev
Boxes



SharePoint 2010 beta system requirements

- SharePoint Server 2010 is 64-bit only
 - Windows Server 2008 x64 or Windows Server 2008 R2 x64
 - Developers can use Windows Vista SP1 or Windows 7
 - SQL Server 2005 x64 SP3 with CU3 or SQL Server 2008 SP1 x64 CU2
- Recommended Hardware Requirements*:
 - WFE and Apps Servers** - Dual processor, 8 GB RAM
 - SQL Server** - Quad Core, 16 GB RAM
- Recommended Software Requirements
 - Client – IE7 (IE8 preferred) / Fire Fox 3.5 / Safari for Mac browsers
 - IE6 is not a level 1 browser anymore

* These is initial guidance and is subject to change

** Recommended requirements to hold a production deployment

Summary

- SharePoint 2010 is
 - Bigger, Richer, Scalable and Flexible
 - Faster, and more Reliable
 - Easier to Diagnose
- Plan, Prototype, Measure
- Expect more guidance in RTM

Related sessions

- Opgradering og administration af SharePoint 2010
 - Fredag kl 10.45
- SharePoint 2010 - søgning på steorider
 - Fredag kl 12.45
- SharePoint Governance - Erfaringer og nyheder i SharePoint 2010
 - Lørdag kl 09.00
- Fremtidens serverrum - BPOS
 - Lørdag 10.45

Welcome Reception

- Remember the welcome reception tonight

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QUESTIONS