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Michael Noel and Alpesh Nakar

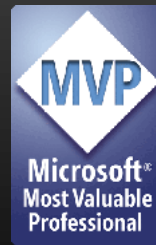
BACKUP AND RESTORE FOR SHAREPOINT: PROTECTING MISSION CRITICAL DATA WITH NEW TOOLS AND TECHNOLOGIES



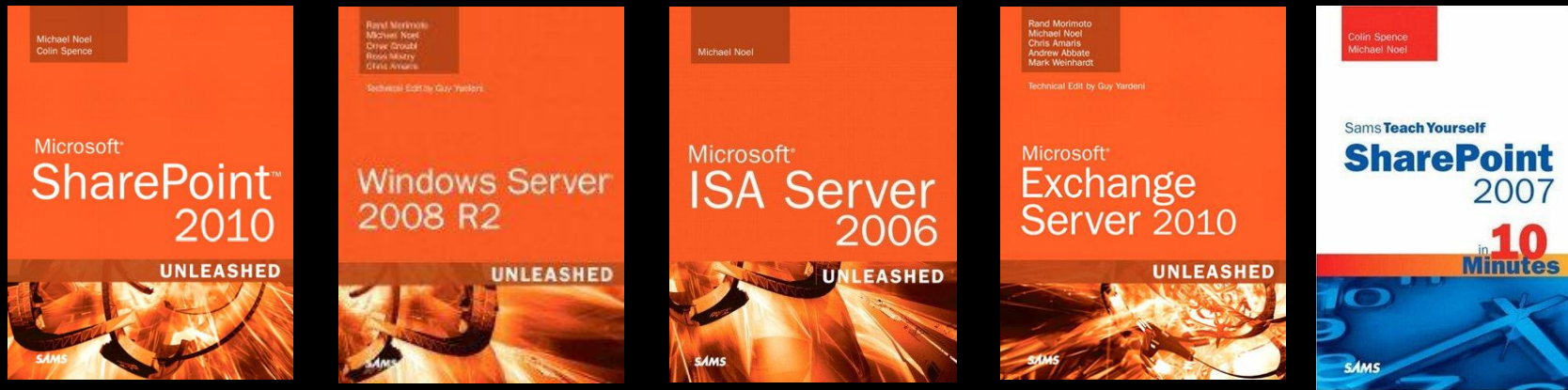
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MICHAEL NOEL



- Author of SAMS Publishing titles “SharePoint 2010 Unleashed,” “SharePoint 2007 Unleashed,” “SharePoint 2003 Unleashed”, “Teach Yourself SharePoint 2003 in 10 Minutes,” “Windows Server 2008 R2 Unleashed,” “Exchange Server 2010 Unleashed”, “ISA Server 2006 Unleashed”, and many other titles .
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SHAREPOINT CRITICAL COMPONENTS FOR BACKUP

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WHAT ARE THE CRITICAL SHAREPOINT 2010 COMPONENTS?

- SharePoint Databases
 - Config Database (typically excluded)
 - Content Database(s)
 - Services Databases
- IIS Configuration
- Web.config files in \inetpub directory
- Web part assemblies in %systemroot%\assembly
- Any custom templates



UNDERSTANDING THE SP2010 DATABASES

SHAREPOINT 2010 DATABASES (PART I)

Config

- Stores farm configuration data
- Mostly unchanged from 2007 ConfigDB

Content

- Used to store documents, sites, lists, etc.
- Mostly unchanged from 2007, Central Admin also has Content DB

Logging

- Used by Usage and Health Data Collection Service
- Temporarily stores health monitoring and usage data for use in reports

Administration

- Created for the Search Service, 2007 equivalent was SSP DB
- One Admin DB created per Search application

Property

- Also used for Search Service
- Stores crawled properties

Crawl

- Also used for Search Service, 2007 equivalent was Search DB
- Drives crawl component, hosts crawled data

Staging

- Used by Web Analytics Service to analyze traffic
- Stores fact data, queued batch data, and asset metadata

Reporting

- Also used by Web Analytics Service
- Stores report data, diagnostics info, etc.

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UNDERSTANDING THE SP2010 DATABASES

SHAREPOINT 2010 DATABASES (PART II)

Term Store	<ul style="list-style-type: none">• Used by Managed Metadata Service• Stores Managed Metadata for use data layer
State	<ul style="list-style-type: none">• Used by the State Service• Stores temporary state info for InfoPath Forms Services
Profile	<ul style="list-style-type: none">• Part of the User Profile Service• Stores user and associated information
Synchronization	<ul style="list-style-type: none">• Used by User Profile Service• Stores Configuration and Staging Data for Prof Sync
Social Tagging	<ul style="list-style-type: none">• Also used by User Profile Service• Stores social tags and notes from users
BCS	<ul style="list-style-type: none">• Used by Business Connectivity Service to store external objects
Store	<ul style="list-style-type: none">• Used by Secure Store Service to map credentials• Replaces SSO DB in 2007, can be used by ERP/DRM Systems
tempDB	<ul style="list-style-type: none">• Not a SharePoint Database, but included in this list as it is critical to SP• Highly critical for performance! Do not underestimate!
(Others)	<ul style="list-style-type: none">• Other Services Databases

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TOOLS TO BACKUP

- Two-stage Recycle Bin
- SharePoint Central Admin Tool
- PowerShell
- IISBack.vbs
- SQL 2005/2008 Tools (Maintenance Plan)
- Microsoft System Center Data Protection Manager (DPM) 2007/2010
- Third-party (Quest, Metalogix, AvePoint)



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BACKUP WITH THE SHAREPOINT CENTRAL ADMIN TOOL

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WHAT DOES THE CENTRAL ADMIN BACKUP TOOL DO?



- Full fidelity backups of all SharePoint content and indexes
- Backs up all SharePoint databases except Config DB, which is not needed.
- Similar to SQL level backup, except can be more granular at the Web Application level
- SP2010 now has status indicators
- SP2010 now allows for Site Collection Backup from Central Admin

DISADVANTAGES OF CENTRAL ADMIN BACKUP TOOL

- Not automated
- If XML catalog is damaged, entire backup can be at risk
- No item-level restore capabilities
- Not enterprise level



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POWERSHELL BACKUPS



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POWERSHELL BACKUP IN SP2010

- PowerShell can be used to automate Backups
 - Backup-SPConfigurationDatabase
 - Backup-SPFarm
 - Backup-SPSite
- Equivalent to Central Admin or STSADM
- Can pipe out results and backup multiple site collections, etc.

WINDOWS POWERSHELL BACKUP & RESTORE CMDLETS

Cmdlet	SharePoint Component
Backup-SPFarm	Entire Farm
	Service Applications
	Web Applications
	Content Databases
Restore-SPFarm	Entire Farm
	Farm Configuration Only
	Service Applications
	Web Applications
Backup-SPConfigurationDatabase	Content Databases
	Farm Configuration Only
	Site Collection
	Sites
Backup-SPSite / Restore-SPSite	Subsites
	Libraries
	Lists
Export-SPWeb / Import-SPWeb	



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POWERSHELL - FARM CONFIGURATION BACKUP

- **Farm Configuration Only Backup**
 - backup-spfarm –backupMethod full –directory \\servername\SP2010Backup -configurationonly
- **Complete Farm Backup**
 - Backup-spfarm –backupmethod full – directory \\servername\SP2010Backup
- Backup-SPFarm specific parameters
 - -BackupMethod
 - -BackupThreads

POWERSHELL - CONFIGURATION DB BACKUP

- **Configuration Database Backup**

- Backup-spconfigurationdatabase –directory \\servername\sp2010backup –databaseserver server –databasename mss_configdb

- **Backup Farm Configuration Information**

- Information Rights Management
- Workflow
- Diagnostic logging
- Customizations [solutions deployed]
- Outbound e-mail configuration
- Antivirus settings

POWERSHELL – SITE COLLECTION BACKUP

- Backup Site Collection
 - Backup-SPSite –Identity <http://justsharepoint.com/Sites/demo> -Path \\servername\sp2010backup\demosc.bak -Force
- Other Parameters –
 - -NoSiteLock – use with caution, possible data corruption
 - -UseSQLSnapshot – use content database snapshot when doing a backup
- Can be run multiple times and/or scripted to automate backups
- Extremely useful approach to backing up WSS Site collections and personal sites

GRANULAR BACKUP/RESTORE

- New in SharePoint 2010 -
 - Granular Backup/Restore From Central Administration
 - Site Collection Backup
 - Export a site or list
 - Recover data from an unattached content database
 - Granular Backup Job Status indicators
- Granular restore operations only using PowerShell
- Workflows are not included when exporting a site or a list

POWERSHELL – EXPORT SITE / LIST

- You cannot export a site, library, list with SQL Server or DPM
- Export-SPWeb –Identity
<http://justsharepoint.com/sites/demo/> -path
<\\server\sp2010backups\featurelist.bak> -itemurl
“features” –force
- Option to include user security and versions

UNATTACHED CONTENT DATABASES

- New feature of SharePoint 2010
- Granular restores of SharePoint content
- Read-only content databases
- Restored SharePoint content databases
- Content database snapshots
- Restore Site Collections, Sites, Libraries and Lists



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The screenshot shows the DPM 2007 Administrator Console interface. The main window displays a list of protection groups under the 'Protection' tab. The 'SharePoint Content' group is selected, and its details are shown in the lower pane.

Protection Group Member	Type	Protection Status
Protection Group: Active Directory (Total members: 4)		
Protection Group: Active Directory - Root Domain (Total members: 3)		
Protection Group: Auxiliary SQL Databases (Total members: 5)		
Protection Group: Exchange Mailboxes (Total members: 25)		
Protection Group: File Servers (Total members: 2)		
Protection Group: SharePoint Content (Total members: 1)		
Protection Group: SharePoint SQL Databases (Total members: 12)		

Details: SharePoint Content	
Status:	There are no alerts which are associated with this protection group
Protection method:	Short-term using disk
Short-term recovery:	8 days Synchronization just before creating a recovery point.
Disk space allocated:	70.00 GB
Performance optimization:	On-wire compression: Disabled Express Full Backup-6:00 AM Everyday

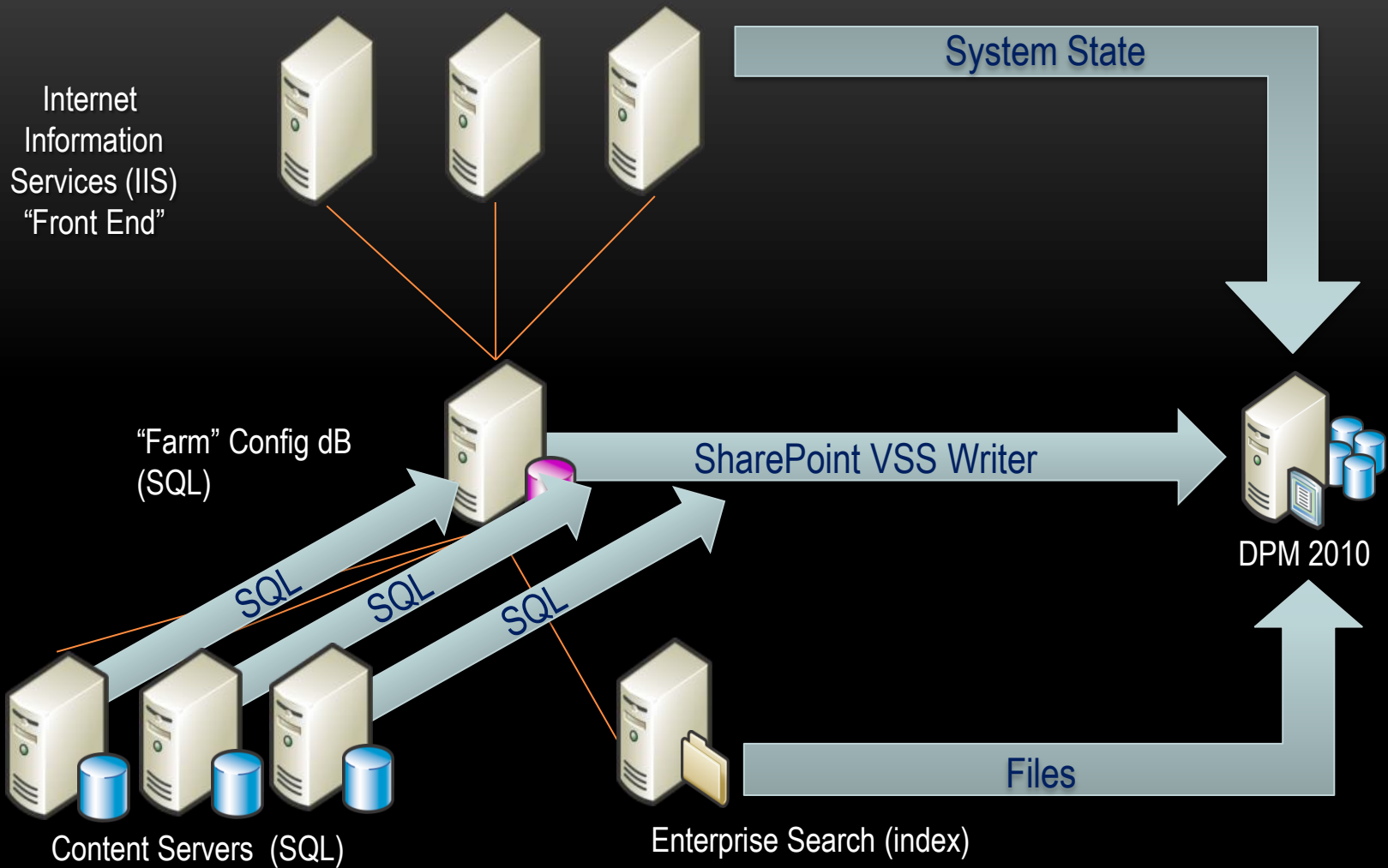
SYSTEM CENTER DATA PROTECTION MANAGER 2010



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FEATURES OF DPM FOR SHAREPOINT

- Item-level recovery of Documents and List Data
- VSS Snapshot Integration, can snapshot SQL Databases every 15 minutes
- Backup to Disk (near-term), Backup to Tape (long-term) – Direct integration
- Not only SharePoint, but File Data, Exchange, SQL, and Bare-metal recovery



DPM BACKING UP A SHAREPOINT FARM

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ARCHITECTING A DPM 2010 ENVIRONMENT FOR SHAREPOINT

- 64bit Console (Windows Server 2008 or Windows Server 2008 R2)
- Single console, no built-in redundancy
- Attach large pool of disk to server for near-term backups
- Attach supported tape library for long-term backups
- Console requires location to store SQL database, can be local SQL Server Express or remote SQL. Critical DB, must be backed up also.
- For backups of the console, use a second DPM Server that will backup the first (DPM SRT being retired)



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REPLICA VOLUMES AND RECOVERY POINT VOLUMES

- Replica volume required for each 'unit' that is being backed up
- Recovery Point volume also required for each 'unit', such as farm
- Plan for 3x-4x the amount of space in DPM as exists in SharePoint
- Replica volume must be as large as you think the content will grow.
- Recovery Point volume must be as the data churn multiplied by the time you keep the data on disk.



DPM LICENSING

- Check with local MS first!
- Standard Edition License – One license for each file server or non-application server.
- Enterprise Edition License – One for each server that runs the following:
 - SharePoint (One front-end generally)
 - SQL (each cluster node requires a license)
 - Exchange (MB Servers)
 - Any system that is backed up by the SRT, this may include the DPM Console
- Generally cost competitive...
- Virtualization Licensing Options...



DPM AGENT INSTALLATION

- To protect a farm, DPM needs to install the agent on the following servers
 - Any Web front end server (that is used to invoke the writer) This can be a dedicated server in larger farms.
 - The Index Server
 - All back end SQL servers
- After agent installation, run 'Configuresharepoint.exe – EnableSharePointProtection' on SP Server from DPM Server directory

DPM AGENT GUEST PREREQUISITES

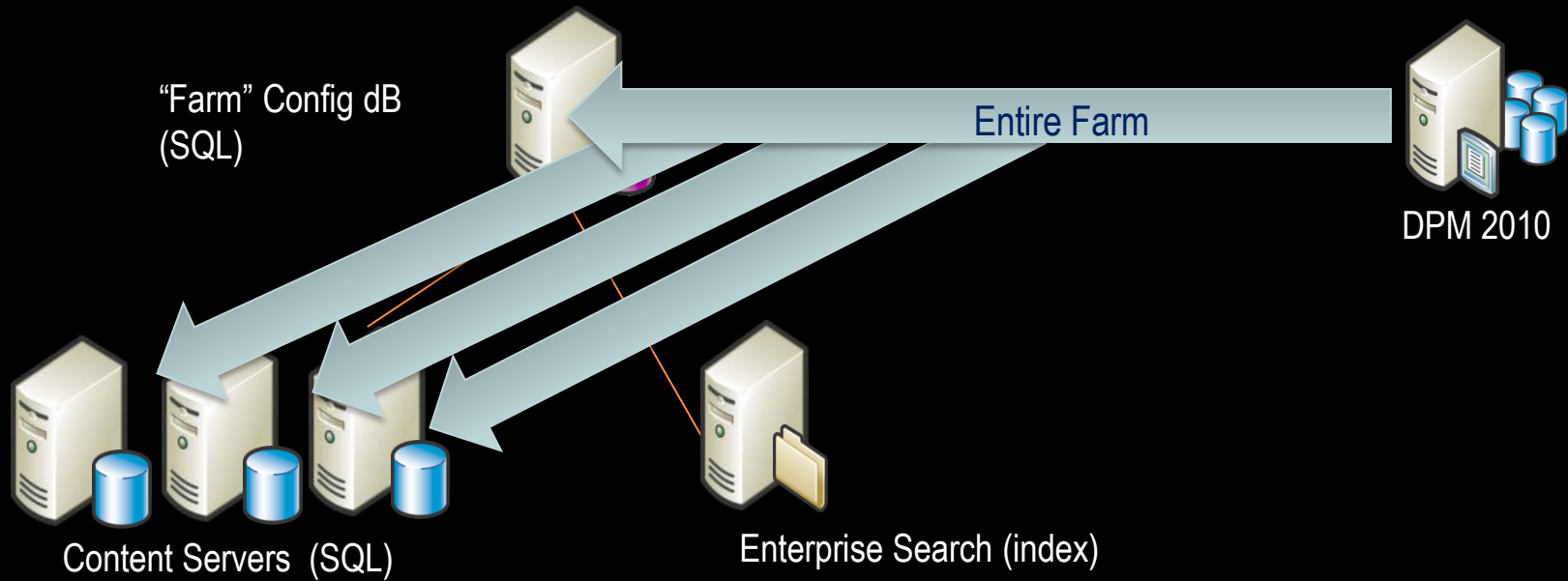
- Windows Server 2008, 2003 SP1 or SP2
- Microsoft KB Patch 940349 (VSS Writer)
- SQL Servers
 - SQL 2000 SP4, SQL 2005 SP1/SP2, SQL 2008 (Experimental support)
 - SQL VSS Writer service must be running
- SharePoint Web Frontend(s)
 - KB Patch 941422 Installed (on legacy SP)
 - WSS VSS Writer Service running
 - Run ConfigureSharePoint.exe tool to give farm credentials

DPM PROTECTION – KEY FEATURES

- DPM protects the entire farm data by a single check box
- DPM leverages the WSS writer to determine all the components to back up
- At the time of backup, DPM works across multiple servers in the farm and backs up the data from across all these servers
- DPM only performs express full backups for SharePoint
- After the backup is done, DPM queries the SharePoint object model to get all the information about the sites, items, etc.
- DPM 2010 does not require Recovery Farm!

SHAREPOINT RECOVERY

- The Entire Farm

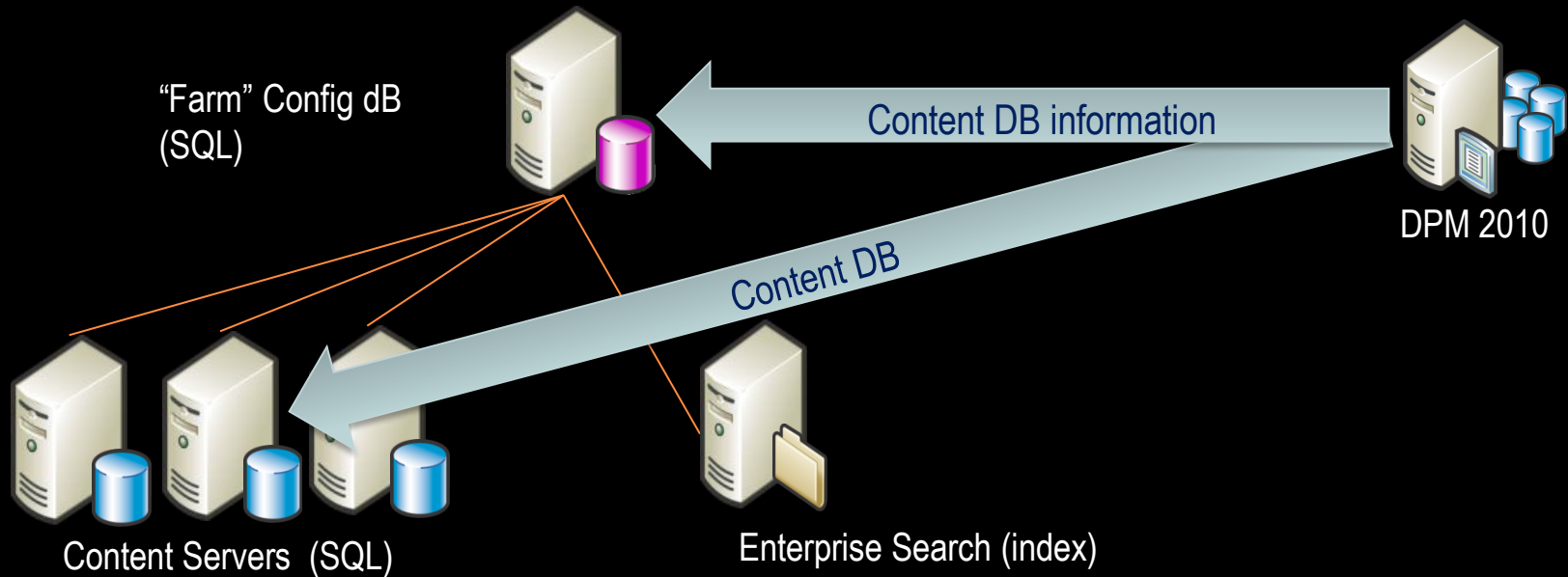


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SHAREPOINT RECOVERY

- The Entire Farm
- A Content DB

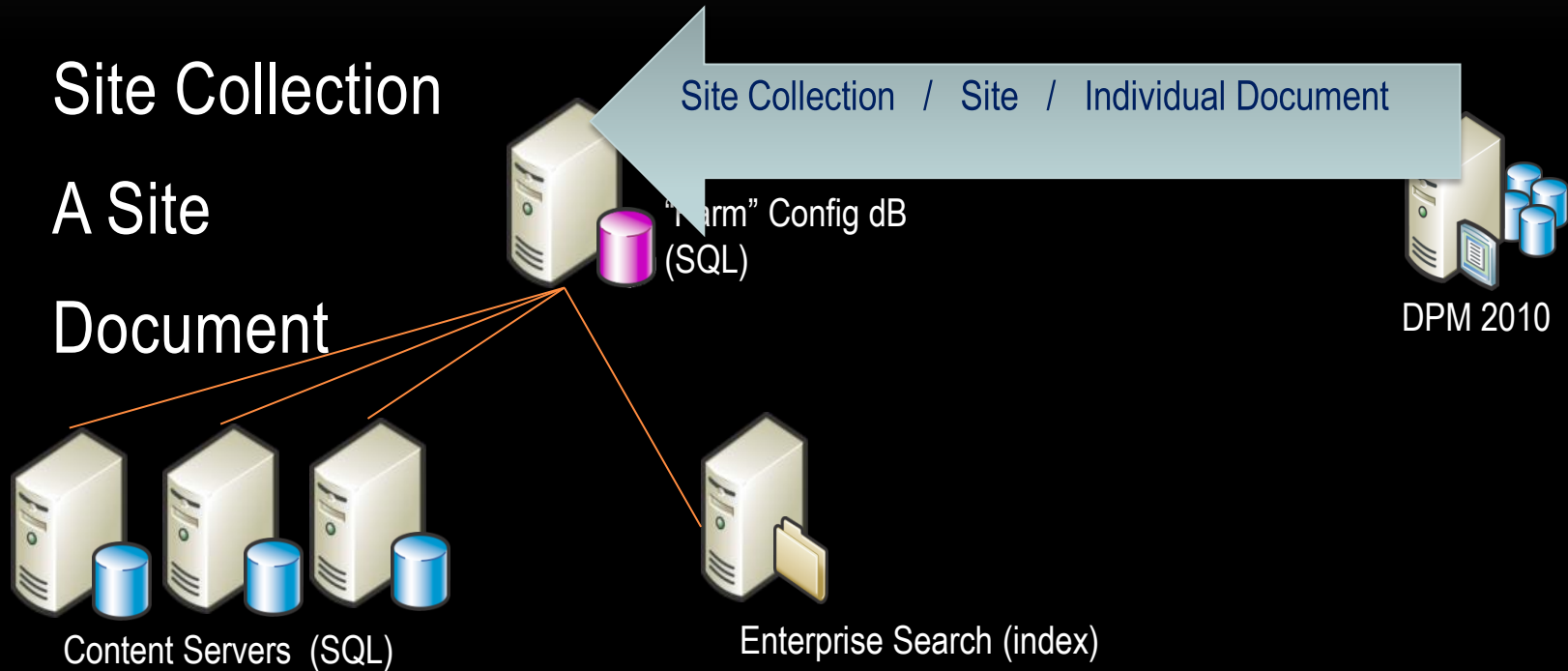


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SHAREPOINT RECOVERY

- The Entire Farm
- A Content DB
- Site Collection
- A Site
- Document



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KEY BENEFITS OF DPM 2010

- Near zero data loss for Exchange Server, SQL Server, and SharePoint Server
- Seamless disk-to-disk-to-tape for backups
- Recoveries within minutes instead of hours
- Unified policy allows protection of multiple data types to any media – in one schedule and with common tuning options
- Eliminate the backup window of your production servers
- Shrink potential data loss down to 15 minutes
- Application recovery direct from backup UI – no pre-staging
- Enable end-users to perform their own recoveries (file servers only)
- Remove tapes from branch offices and centralize backups at the datacenter
- Better Admin in 2010 (Auto Consistency checks, auto resizing of volumes)

Taking a look at DPM 2010 for SharePoint 2010 Backup

DEMO



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THIRD-PARTY BACKUP SOLUTIONS

- Metalogix Selective Restore Manager
- Quest Recovery Manager for SharePoint
- DocAve AvePoint Backup for Microsoft Office SharePoint Products and Technologies
- Commvault Galaxy Data Protection
- Symantec Backup Exec/NetBackup
- Many others...
- Provide for item-level recovery and complex DR scenarios

SESSION SUMMARY

- Examine existing tools to backup and restore SharePoint, but understand their limitations.
- Use STSADM Site Collection backup if needing to move Site Collections between farms
- Consider the use of DPM 2010 for item level recovery and snapshot capabilities

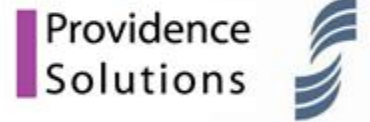
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