

Microsoft SQL Server 2008

Reporting Service Architecture Drill Down
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Module Overview

- ▶ Understanding Architectural Changes
- ▶ Reviewing Report Engine Improvements
- ▶ Managing the SSRS Environment



Understanding Architectural Changes

- ▶ Benefits of Eliminating IIS from the SSRS Architecture
- ▶ Reporting Services 2008 Architecture
- ▶ Migration of IIS Settings
- ▶ URL Reservations
- ▶ Authentication

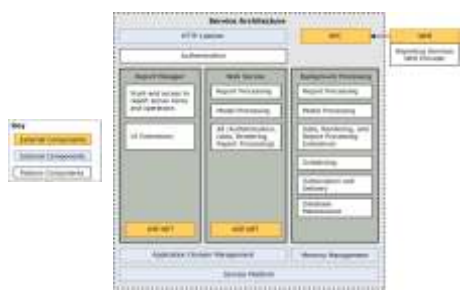


BENEFITS OF ELIMINATING IIS FROM THE SSRS ARCHITECTURE

- ▶ Easier configuration
 - IIS settings for other applications impact SSRS
- ▶ Better resource management
 - IIS designed for static or dynamic HTML pages, not report execution for large reports to many concurrent users
 - Memory management easier to implement outside of IIS
- ▶ Consolidation of two services into one
 - Communication process between services eliminated
 - More efficient allocation of memory across server
- ▶ Elimination of deployment obstacles
 - SQL Server DBAs lacking IIS skills
 - IT policies prevent IIS and SQL Server on same server



Reporting Services 2008 Service Architecture



Reporting Services 2008 Service Architecture

- ▶ HTTP Listener
 - Uses HTTP.SYS directly from operating system
 - Accepts requests directed to the configured URL and port
- ▶ Authentication Layer
 - Confirms identity associated with request
 - Supports Windows, Basic, or Anonymous Access with a custom authentication
- ▶ Application Domains
 - Provide a front-end component with Report Manager
 - Process reports interactively with Report Server Web service
 - Support scheduled operations with background processing
- ▶ Application Domain Management
 - Replaces IIS functionality



Reporting Services 2008 Service Architecture

- ▶ Memory Management
 - Extends SQL Server memory management features
 - Monitors thread processing
- ▶ SQL Server Service Platform
 - Supplies networking interface for HTTP requests
 - Provides SQL CLR for ASP.NET and Microsoft .NET Framework support
- ▶ RPC
 - Communicates with WMI provider



Migration of IIS Settings

- ▶ Automatic upgrade from SSRS 2000 or SSRS 2005
 - IP address, host headers, port settings
 - SSL certificates
 - Security: NTLM, Kerberos, Negotiate, Basic, Custom
- ▶ Configuration tools for post-upgrade modifications
 - URL and SSL: Reporting Services Configuration Manager or WMI API
 - Security: RSReportServer configuration file
- ▶ Ignored Settings
 - Anonymous and digest authentication
 - Client certificates
 - ISAPI settings



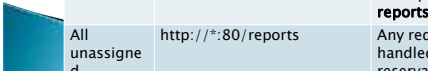
URL Reservations

- ▶ Specify URL endpoints for Web applications

Scheme	Host Name	Port	Virtual Directory
http://	adventureworks.com	80	ReportServer

- ▶ Support multiple URLs for an application
- ▶ Conform to a hierarchy

Type	Example	Result
All assigned	http://+:80/reports	All requests on port 80 for reports virtual directory
Specific	http://adventureworks.com:80/Reports	Only requests for adventureworks.com on port 80 for reports
All unassigned	http://*:80/reports	Any request not handled by another reservation



Defining a Report Server URL Reservation

- ▶ Use the Reporting Services Configuration Tool



Authentication

- ▶ Windows Authentication Types
 - RSWindowsNegotiate Default
 - RSWindowsKerberos
 - RSWindowsNTLM
 - RSWindowsBasic
- ▶ Custom Authentication
 - Anonymous requests only
 - ASP.NET Forms authentication required
 - Web.config modification required



Authentication and ISAPI Filters

- ▶ Unsupported IIS feature in SSRS 2008
- ▶ Recommended alternatives
 - Implement ISA Server (recommended)
 - Replace with ASP.NET HTTP modules



Reviewing Changes to the Report Engine

- Report Engine Improvements
- Processing and Rendering Architecture
- Memory Usage Management



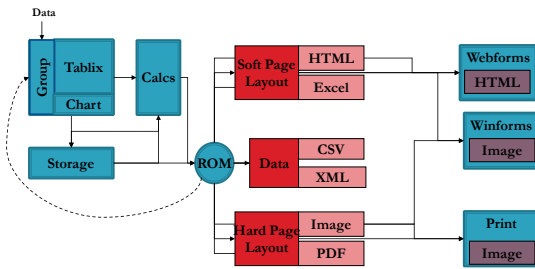
Report Engine Improvements

- Processing
 - On-demand processing redesigned for scalability
 - Page to page response time is constant
 - Hierarchical cursor-based object model
- Rendering
 - New rendering architecture
 - Rendering extensions rewritten



Processing and Rendering Architecture

2008 Architecture



Memory Usage Management

- Introducing Changes to Memory Management
- Understanding Memory Management Policies
- Configuring Memory Settings

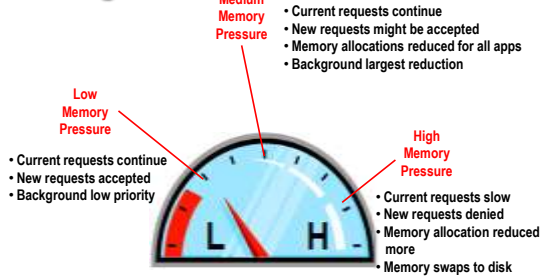


Introducing Changes to Memory Management

- Memory Broker monitors and responds to memory pressure fluctuations
- Memory events trigger switch from RAM to file system cache as needed
- Configurable thresholds determine report server response to memory pressure changes



Understanding Memory Management Policies



Configuring Memory Settings

```

<WorkingSetMaximum>
<MemoryThreshold>
<MemorySafetyMargin>
<WorkingSetMinimum>

```

Boundaries of medium pressure
Full Memory Range
KB

- WorkingSetMaximum } High memory pressure
- MemoryThreshold } Medium memory pressure
- MemorySafetyMargin } Low memory pressure
- WorkingSetMinimum

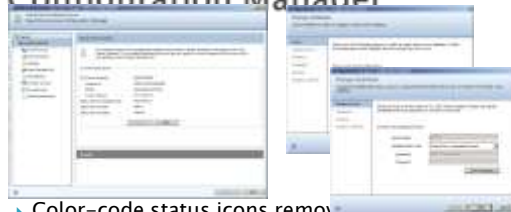
Managing the SSRS Environment

- Understanding Changes to Management Tools
- Disabling Report Server Features
- Introducing New SSRS Logs

Understanding Changes to Management Tools

- Reporting Services Configuration Manager
- Report Manager
- SQL Server Management Studio

Reporting Services Configuration Manager



- Color-code status icons removed
- Revised pages to configure URL settings for Report Manager and Report Server Web service
- Improved workflow for managing the report server database and working with the database connection

SQL Server Management Studio

- Stop running processes
- Configure role definitions
- Create and manage shared schedules
- Set server properties
 - My Reports
 - Report execution logging
 - Client-side printing
 - Report history server defaults



Report Manager

- Manage report content
- Generate report models
- Set model item security
- Associate clickthrough reports to model entities



Disabling Report Server Features

- ▶ Report Manager
 - RSReportServer.Config \ IsReportManagerEnabled
- ▶ On Demand Processing
 - RSReportServer.Config \ IsWebServiceEnabled
- ▶ Scheduled Events and Report Delivery
 - RSReportServer.Config \ IsSchedulingService
 - IsNotificationService
 - IsEventService
- ▶ Report Builder
 - SQL Server Management Studio \ Server Properties
- ▶ Report Server Windows service
 - SQL Server Configuration Manager

Introducing New SSRS Logs

- ▶ Trace Log (ReportServerService_timestamp>.log)
 - System information (operating system, version, number of processors, and memory)
 - Reporting Services component and version information
 - Application log events
 - Errors and exceptions
 - Low resource warnings
 - SOAP envelopes inbound and outbound
 - HTTP header, stack trace, and debug trace information
 - Report delivery status, recipient, and number of delivery attempts
- ▶ HTTP log (ReportServerService_HTTP_<timestamp>.log)
 - All HTTP requests to report server
 - Client IP, action or SOAP method, HTTP status

Resources

- ▶ Application Domains for Report Server Applications, [msdn2.microsoft.com/en-us/library/bb934330\(SQL.100\).aspx](http://msdn2.microsoft.com/en-us/library/bb934330(SQL.100).aspx)
- ▶ Configuring Authentication in Reporting Services, [msdn2.microsoft.com/en-us/library/bb283249\(SQL.100\).aspx](http://msdn2.microsoft.com/en-us/library/bb283249(SQL.100).aspx)
- ▶ About URL Reservations and Registration (Reporting Services), [msdn2.microsoft.com/en-us/library/bb677364\(SQL.100\).aspx](http://msdn2.microsoft.com/en-us/library/bb677364(SQL.100).aspx)
- ▶ Report Server Service Trace Log, msdn2.microsoft.com/