

RESOURCE GOVERNOR

-SQL SERVER 2008



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TAKE AWAY

- ✘ What is Resource governor
- ✘ Enhancement Overview
- ✘ Scenarios
- ✘ Goals of Resource governor
- ✘ Concepts & details
- ✘ Demo
- ✘ Limitations

WHAT IS RESOURCE GOVERNOR

- ✘ An addition to database engine
- ✘ A technology to have control on CPU \ Memory
- ✘ Ability to allocate resources based on connection handshake
- ✘ Assigning priority within SQL processes
- ✘ In simple, assigning right priority to the right process at the right time

ENHANCEMENT OVERVIEW

SQL Server 2005 and lower versions

Internal

DAC

Other Requests

All Available Resources

SQL Server 2008

Internal

DAC

Other Requests

Internal

Pool 1

All Available Resources

SCENARIOS

- ✘ Run Away queries
- ✘ Workload prioritization
- ✘ Unpredictable workload execution
- ✘ Segregate resources between maintenance operations and other processes

GOALS OF RESOURCE GOVERNOR

- ✘ Identify \ differentiate workloads
- ✘ Associate connections to the work groups
- ✘ Monitor resource usage per work group
- ✘ Ability to set priorities for workloads
- ✘ Set resources to the processes to minimize run away queries

CONCEPTS

- ✘ 3 Main concepts – Resource Pools, Workload groups & Classification
 - + Resource Pools
 - ✘ Allocation \ segregation of resources (CPU \ Memory)
 - ✘ Max 20 pools can be created. 2 System pools (default & internal) rest 18 for user defined
 - + Workload Groups
 - ✘ Container for a set of tasks
 - ✘ Unlimited workload groups can be created. 2 system work groups will be created (default & internal)
 - + Classification
 - ✘ User defined function to classify the incoming requests
 - ✘ Classify requests by user, Windows group, server role, application name etc

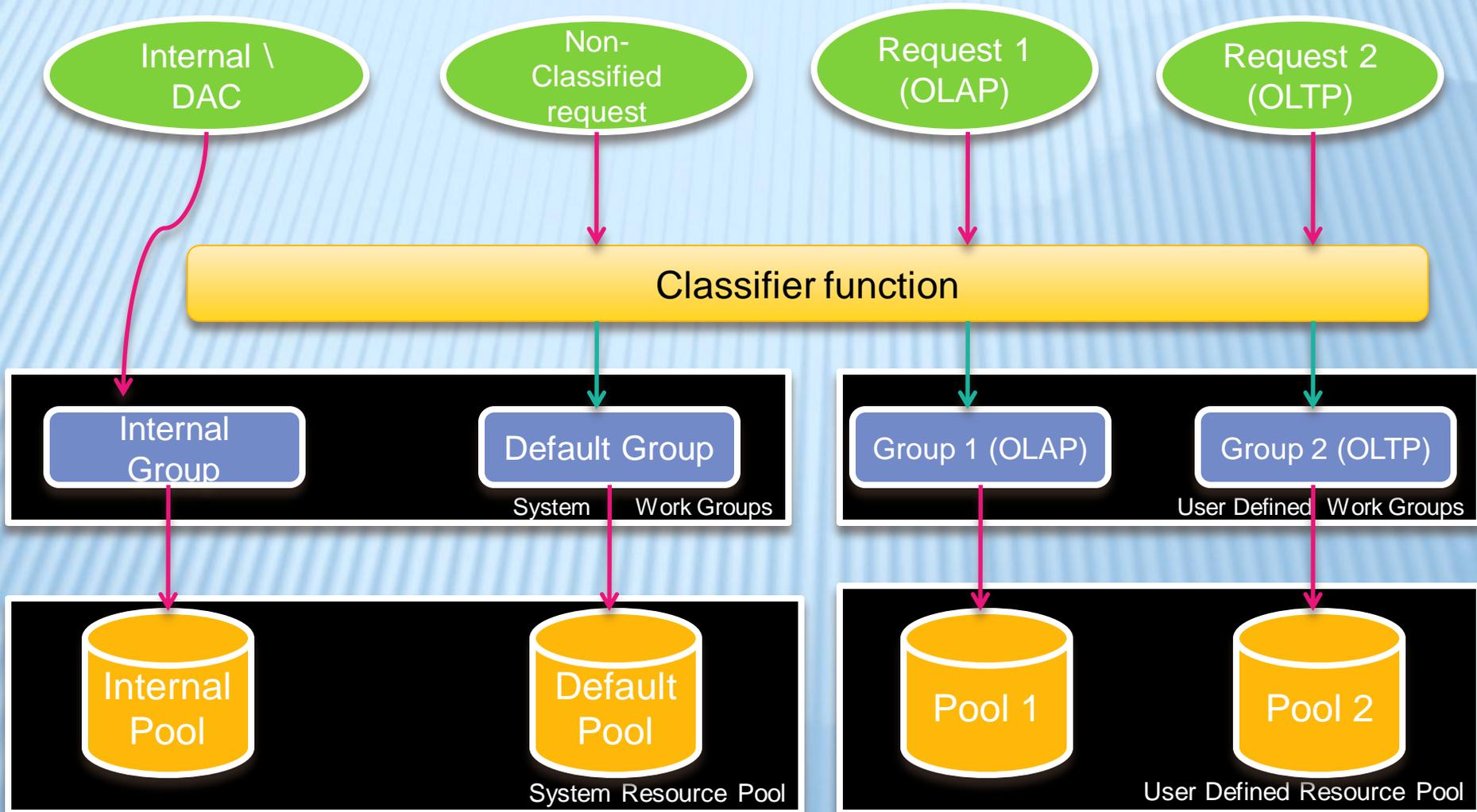
CONCEPTS

- ✘ Calculating Effective Max % and Effective Shared Max %
 - + Effective Max %
 - ✘ $\text{Min}(\text{Max pool \%}, 100 - (\text{sum}(\text{min\% except calculating pool})))$
 - + Effective Shared Max %
 - ✘ $\text{Eff Max \%} - \text{Min Pool \%}$

CONCEPTS

Pool Name	Min % Setting	Max % Setting	Effective Max %	Effective Shared max %
Internal	0	100	NA	NA
Default	0	100	15	15
Lowendpool	5	50	20	15
Highendpool	80	100	95	15

CONCEPTS - ARCHITECTURE



HOW IT WORKS

- ✘ Classify the incoming connection
- ✘ Session workload is routed to the assigned workgroup.
- ✘ If not workgroup is specified then default workgroup will be assigned
- ✘ Workgroup will use the resource pool associated with it
- ✘ The resource pool provides and limits the resources required by the application

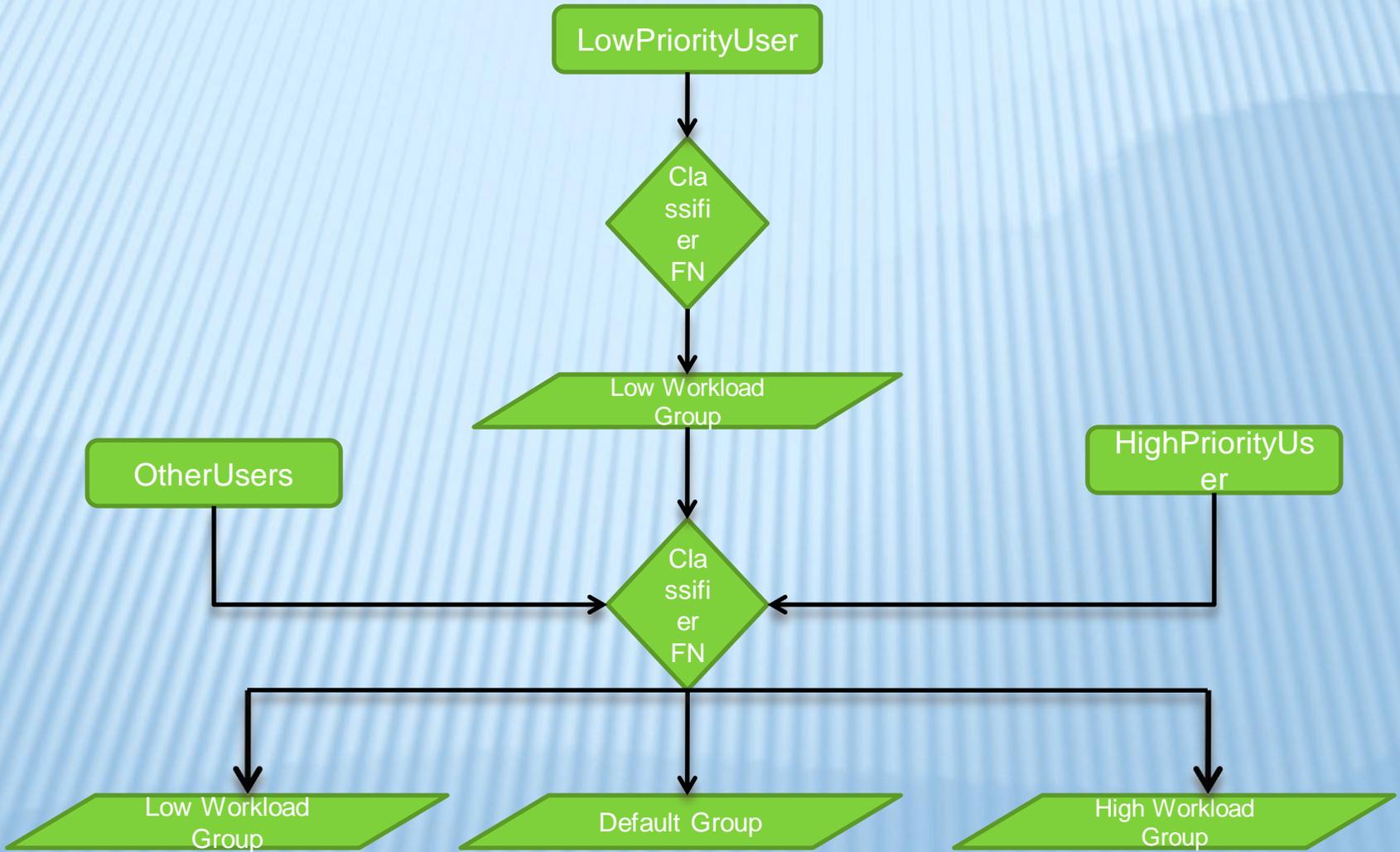
CONFIGURING

- ✘ Create classifier function in Master db
- ✘ Create Resource Pool
- ✘ Create Workload Group and associate with Resource pool
- ✘ Point Resource governor to the classifier function
- ✘ Enable & reconfigure Resource governor

CATALOG VIEWS

- ✖ 3 New catalog views for resource governor
 - + `sys.dm_resource_governor_workload_groups`
 - ✖ Returns workload group statistics and in-memory configuration
 - + `sys.dm_resource_governor_resource_pools`
 - ✖ Returns current resource pool state, statistics and configuration
 - + `sys.dm_resource_governor_configuration`
 - ✖ In memory configuration state of resource governor

DEMO



LIMITATIONS

- ✘ Resource Governor works only with Database Engine
- ✘ It focuses only one instance
- ✘ Controls CPU and Memory only. Disk IO is not taken care
- ✘ Available only In Enterprise Edition

THANK YOU!

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