

# RESOURCE GOVERNOR

## -SQL SERVER 2008



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# TAKE AWAY

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- ✖ 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

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- ✖ 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

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- ✖ 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

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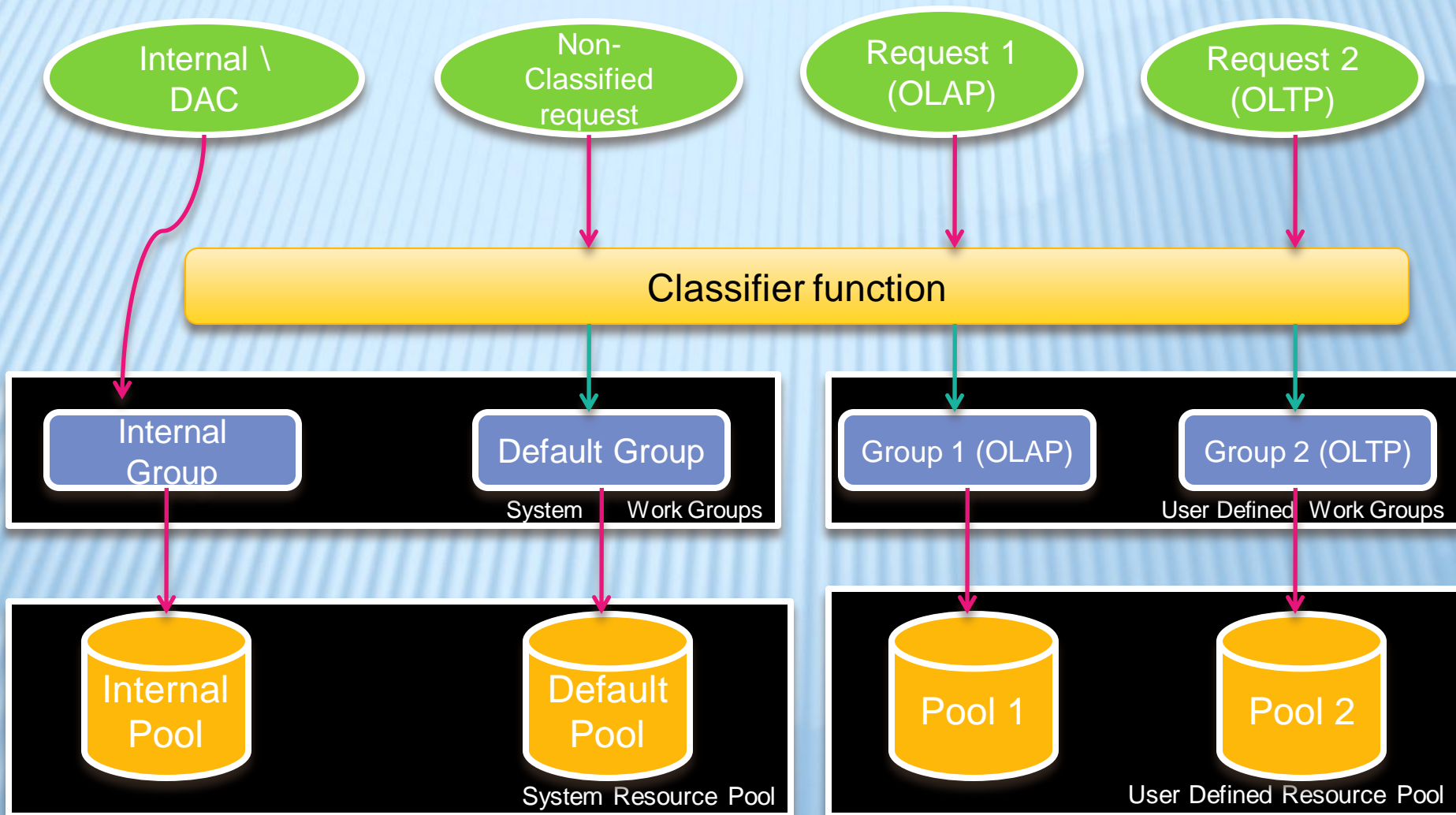
- ✖ Calculating Effective Max % and Effective Shared Max %
  - + Effective Max %
    - ✖  $\text{Min}(\text{Max pool \%}, 100 - (\text{sum}(\text{min\% except calculating pool})))$
  - + Effective Shared Max %
    - ✖  $\text{Eff Max \%} - \text{Min Pool \%}$



# 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

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- ✖ 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

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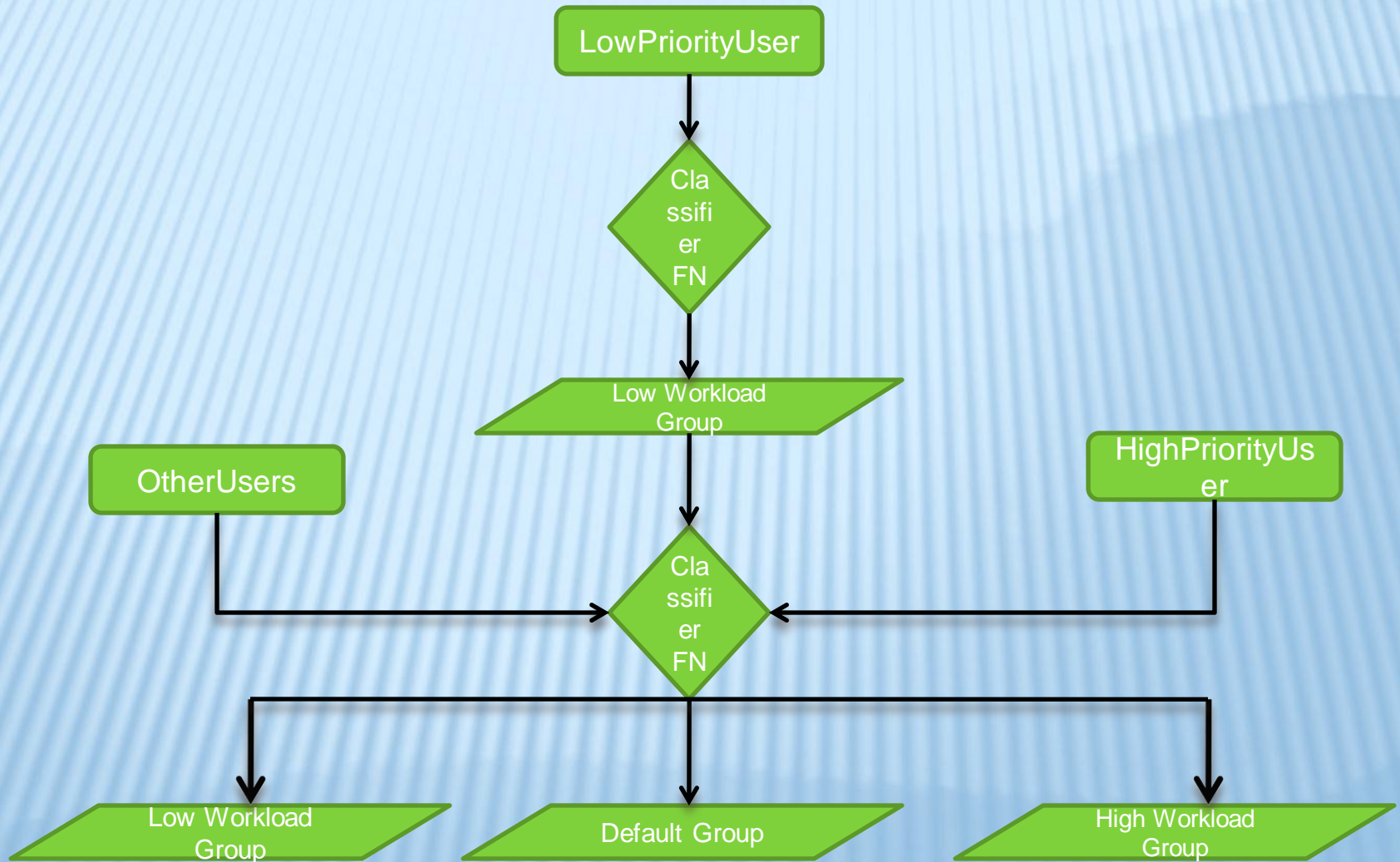
- ✖ Create classifier function in Master db
- ✖ Create Resource Pool
- ✖ Create Workload Group and associate with Resource pool
- ✖ Point Resource governor to the classifier function
- ✖ Enable & reconfigure Resource governor

# CATALOG VIEWS

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- ✖ 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

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- ✖ 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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