



IBM Software Group

TXSeries for Multiplatforms

High Availability Solutions

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Agenda:

- **Work Load Management in TXSeries**
 - WLM Capabilities
 - WLM Configuration tools
- **High Availability solutions**
- **Discussion and Q&A**

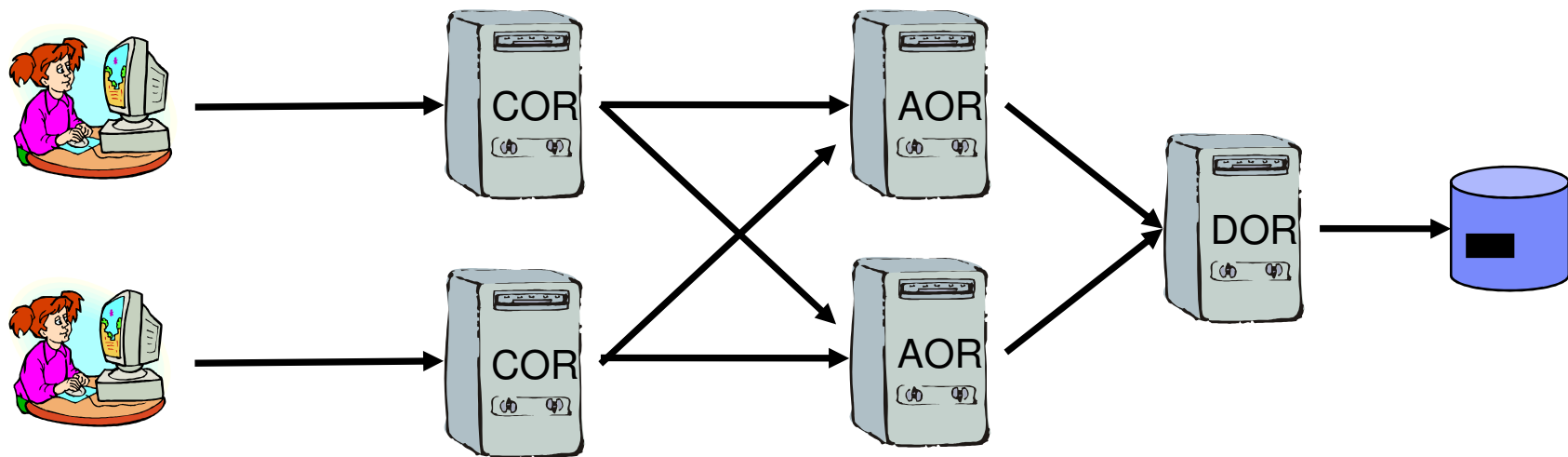
Work Load Management

- **A tool that distributes work requests, intelligently, to two or more CICS regions**
 - In general WLM provides,
 - Improved response times
 - Increased service availability
 - Balanced resource usage
 - Maintenance without interruption

- **Work Load Management can be done by,**
 - Using CTG user exits
 - Using WLM tool provided by TXSeries
 - Uses DPL and DTR ISC facilities
 - Uses various algorithms and feedback from target servers to make routing decisions:
 - Round robin, shortest queue, Load based, Partitioning
 - WLM available only on IBM AIX and Sun Solaris

Basic WLM Model: Group Common Resources

- **Create regions which contain similar resources**
 - Called a **SystemModel** (or **Group**) in WLM
 - In CICS terms, the regions can be categorized as:
 - Client Owing Regions (COR) or Terminal Owing Regions (TOR)
 - Application Owing Regions (AOR)
 - Data Owing Regions (DOR) or File Owing Regions (FOR) - optional



Requirements for WLM

- **Applications should be suitable to combine on 1 machine**
 - For example, cannot share same TDQ names
- **All required facilities must be available**
 - Systems must be cloned
- **All required application data must be accessible**
- **Applications cannot contain any affinities**
 - Dependence on state or data available on a particular CICS region

TXSeries WLM Capabilities

- **TXSeries WLM can do the following:**

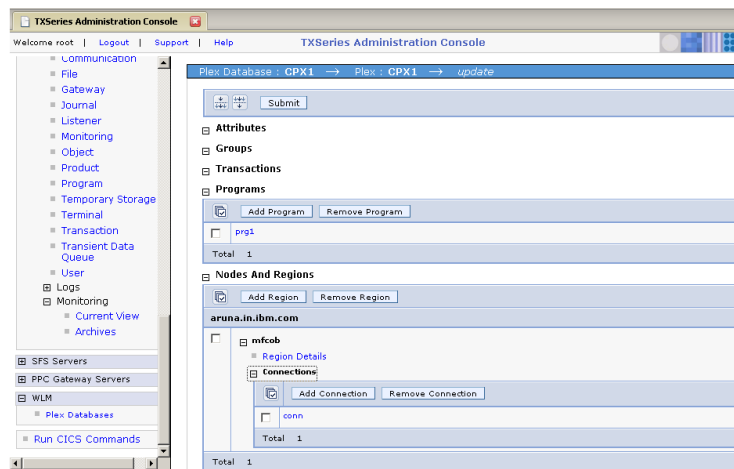
- Collect information about the health of a CICS regions periodically
- Make routing decisions based on CICS regions health
- Make data dependent routing decisions
- Manage distribution of work to servers

- **Also, you can...**

- remove or add more CICS systems without requiring a restart to the WLM environment
- specify a load factor for each CICS system, allowing a balanced distribution of work
- specify the maximum number of application servers available in each CICS system, allowing better utilization of each CICS system

WLM Configuration: Available Tools

- **“cicswlmcfg” command line WLM configuration tool**
 - Easy to use commands to add, modify, list, verify and delete WLM objects
 - Scripts can check the exit code to see if the command has executed successfully or not
- **TXSeries Web Administration Console**



```
# cicswlmcfg -?
The general cicswlmcfg usage:
cicswlmcfg [-?|([-vf] [<command> <object_type> <object_variable> <option_lists>
<attribute_lists>]]]
where,
    valid command are:
        create
        add
        modify
        delete
        list
        verify
    valid object_type are:
        wapdb
        wap
        plexdb
        plex
        group
        region
        connection
        program
        transaction
```


WLM Configuration: Using Administration Console

The screenshot displays the TXSeries Administration Console interface within a Mozilla Firefox browser window. The address bar shows the URL `http://ananya.in.ibm.com/txseries/admin`. The console's navigation pane on the left lists the following items:

- ananya.in.ibm.com
- Regions
- SFS Servers
- PPC Gateway Servers
- WLM
 - Plex Databases
- Run CICS Commands

The main content area is titled "Plex Database : cfgddb1 → Plex : wlmplex1". It contains several sections for configuration:

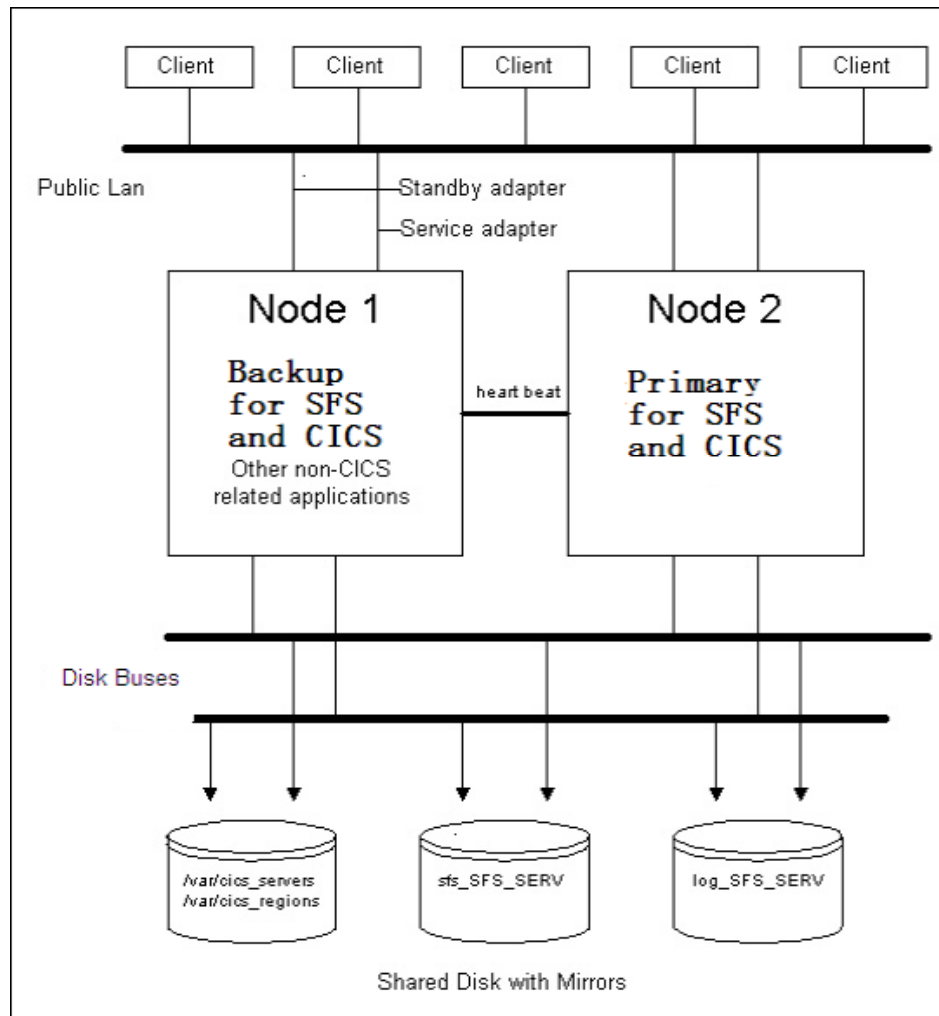
- Attributes**: A section with a "Submit" button.
- Groups**: A section with an "Add" button and a "Remove" button. It lists two groups: GROUP1 and GROUP2, each with an unchecked checkbox. A "Total" row shows a value of 1.
- Transactions**: A section with an "Add Transaction" button and a "Remove Transaction" button. It lists one transaction: TRNA, with an unchecked checkbox. A "Total" row shows a value of 1.
- Programs**: A section with an "Add Program" button and a "Remove Program" button. It lists one program: PROGRAM1, with an unchecked checkbox. A "Total" row shows a value of 1.

The status bar at the bottom of the browser window indicates "Done".

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- Work Load Management in TXSeries
- **High Availability solutions**
 - HACMP
 - Reference Architecture
- Discussion and Q&A

TXSeries/HACMP



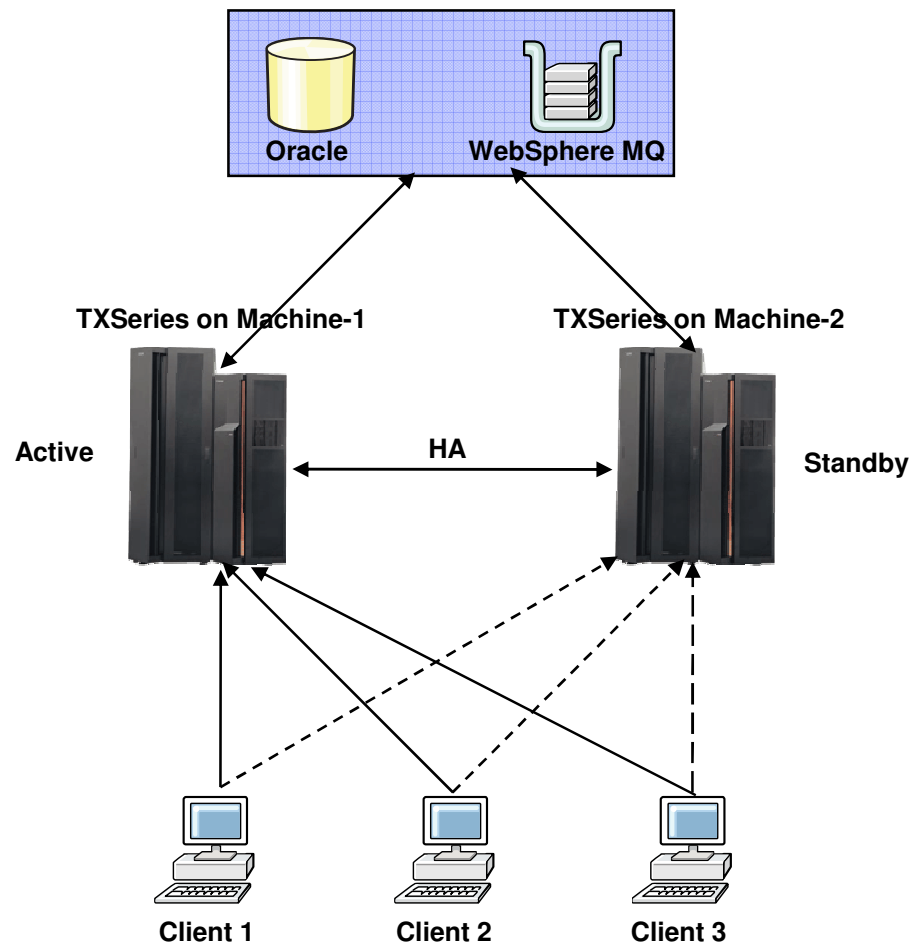
- **IBM High-Availability Cluster Multi-Processing (HACMP) software is widely used with TXSeries for building highly available environment for mission-critical applications**
- HACMP takes measures to ensure that the application remain available to client processes even if a component fails in a cluster

How to setup TXSeries with HACMP?

■ **Setting up TXSeries with HACMP**

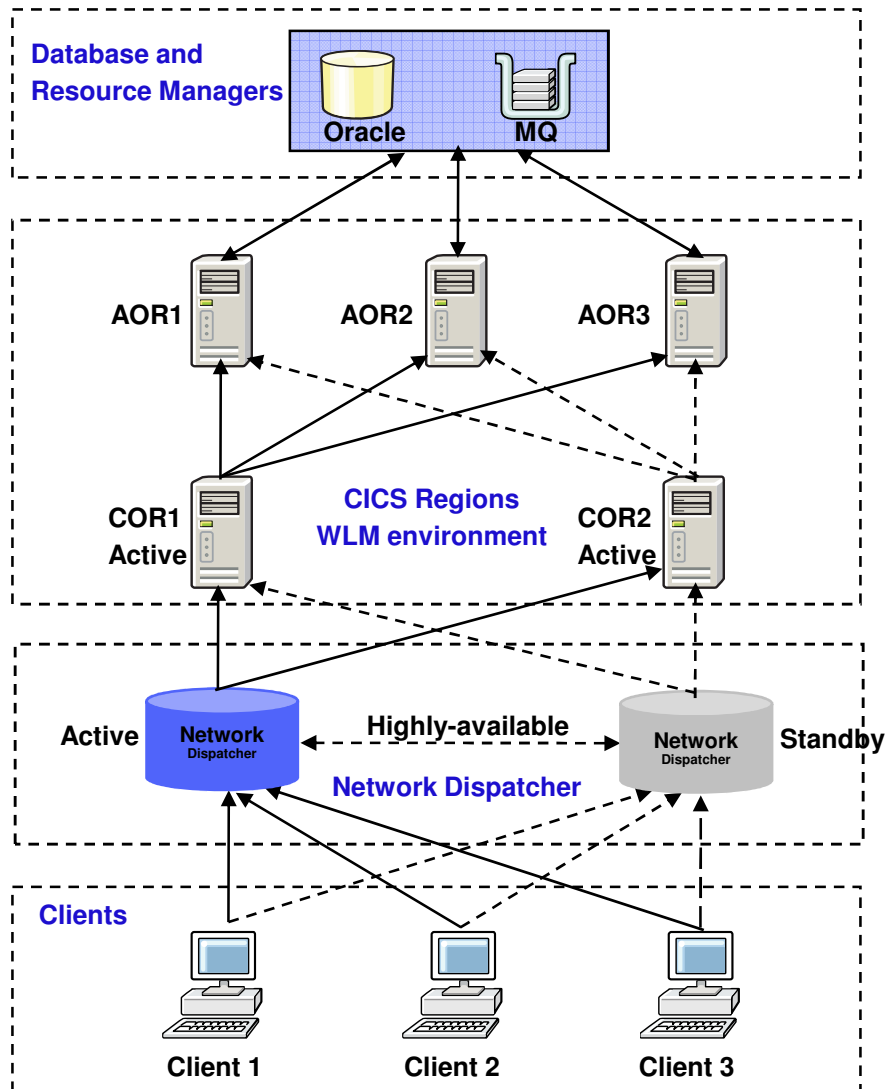
- Refer to “Revealed! The Next Generation of Distributed CICS”
 - <http://www.redbooks.ibm.com/abstracts/sg247185.html?Open>
- Section 5.3 High-availability solution
- The above Redbooks take you through the step-by-step configuration on setting up TXSeries with HACMP

Reference Architecture for high-availability – Solution 1



- A simple reference architecture for providing high-availability solution
- Provides transparent access for clients to connect to TXSeries on Machine-2 should there be any system failure in TXSeries on Machine-1
- A minimal downtime is applicable as the services needs to be started when the take-over takes place on the standby machine
- The switch-over does not happen when there are CICS region crashes or stalls – clients will continue to abend

Reference Architecture for high-availability – Solution 2



- Provides complete high-availability and load-balancing solution with a combination of Network Dispatcher and WLM software components
- Transparent access to clients is provided by the Network Dispatcher component – does not require a separate HA product
- Network Dispatcher provides HA and helps in passing requests to one of the available CICS regions (COR1 OR COR2)
- Work requests received in COR1 OR COR2 will be load-balanced across AOR1, AOR2 and AOR3 respectively by the WLM component
- Can do maintenance of CICS regions without stopping the business
- Can sustain from CICS region crashes and stalls apart from any other system failures

Terms used in the diagram:
 COR – Client Owning Region
 AOR – Application Owning Region

TXSeries Monitoring Solution with Tivoli

- **This solution is an “availability and performance monitoring solution” for TXSeries for Multiplatforms. The monitoring solution integrates with IBM Tivoli Monitoring V6.1 using the IBM Tivoli Universal Agent FILE and SCRIPT data provider.**
 - Check for presence of any dumps, symrec, ASRA or traceback files
 - Extract ratio of free/used SFS pages
 - Check status of region and SFS
 - Scan the current console for Error / Warning / Severe messages
 - Tail the console.msg
 - Extract latest set of CMF records for a specific list of transactions
 - Use watchtran tool to look for stuck SFS transactions
 - Extract region pool and task-shared pool (storage) statistics

TXSeries Monitoring Solution with Tivoli

- <http://catalog.lotus.com/wps/portal/topal>
- **NavCode: 1TW10TM5C**
- **Title : TXSeries for Multiplatforms V6.1 Monitoring Solution**



Agenda:

- Work Load Management in TXSeries
- High Availability solutions
- Performance Analysis in TXSeries
- Monitoring & Statistics
- **Discussion and Q&A**



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Questions & Answers