



IBM Software Group

IBM® WebSphere® Application Server V7

z/OS® Fast Response Cache Accelerator (FRCA)



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This presentation covers the new Fast Response Cache Accelerator (FRCA) capability for WebSphere Application Server V7.0 on z/OS.

Agenda

- Fast response cache accelerator



A brief discussion of the Fast Response Cache Accelerator (FRCA) capability is provided.

Benefits

- HTTP request served from FRCA cache allows increase in:
 - ▶ Performance
 - ▶ Throughput
 - ▶ Capacity
 - ▶ Cost



An HTTP request can be served from the FRCA cache for a fraction of the processor cost as compared to serving it from the WebSphere Application Server Dynamic Cache. Although there are many factors that can influence the potential cost savings, such as the size of the response, initial measurements have shown requests served from the FRCA cache were about 8% the cost of requests served from the Dynamic Cache.

Configure external cache group

Application servers

Application servers > F70Server1 > Dynamic cache service > External cache group

Use this page to define sets of external caches that are controlled by WebSphere Application Server on Web servers, such as IBM Edge Server and IBM HTTP Server.

Preferences

New Delete

Select Name Type

You can administer the following resources:

Select	Name	Type
<input type="checkbox"/>	EsiInvalidator	Not shared
<input type="checkbox"/>	afpa	Not shared

Total 2

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To configure an external cache group on the application server, a new external cache group should be created. The name chosen does not matter, but it must be specified in the cachespec.xml files.

Delete the group from the above panel to deactivate an external cache group.

Configure external cache group (continued)

Application servers > F70Server1 > Dynamic cache service > External cache group > afpa > External cache group members > New

A single external cache that WebSphere Application Server controls.

Configuration

General Properties

Advanced Fast Path Architecture (AFPA)
 Adapter bean name:
 Port:

Fast Response Cache Accelerator
 Enable fast response cache accelerator
 Cache size: bytes
 Cache entries:
 Max entry size: bytes
 Stack name:
 Transaction class:

Edge Side Include (ESI)
 Adapter bean name:
 Address:

IBM Web Traffic Express (WTE)
 Adapter bean name:
 Address:

Other
 Adapter bean name:
 Address:

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To complete the configuration of the external cache group, complete these steps:

1. Click **Afpa > External cache group members**.
2. Click **New** on the External cache group members administrative console page.
3. Select AFPA
4. Check the *Enable fast response cache adapter*
5. In the Port field, select zero as the port number

The FRCA configuration names and descriptions are as follows:

The cache size is a value that specifies the size of the FRCA cache. The maximum size is limited by the amount of available CSM memory managed by the z/OS Communications Server. The value is rounded up to a 4K(4096) interval. The default is 102400000.

The cache entries value specifies the number of individual objects that can be placed in the FRCA cache. The maximum value is limited by the underlying support in the z/OS Communications Server. The default is 1000.

The max entry size value specifies the maximum size in bytes of a single object that can be placed in the FRCA cache. The default is 1,000,000.

The stack name specifies the name of the OE Physical File system supporting the TCPIP stack containing the FRCA cache. The stack name specified must match the name on the SubFileSysType statement in the Open Edition BPXPRMxx parmlib member.

This directive is only needed if the Open Edition Common Inet function is being used. Contact your system programmer to determine if Common Inet is in use, and if so, the name of the FRCA-enabled TCPIP stack. The default is none.

The transaction class name, which is eight characters or less, specifies the transaction class name that is used to classify the work done by FRCA. If the transaction class is specified, the FRCA processing is classified under WLM. If it is not specified, no classification will occur. The default is none.

Example: cachespec.xml entry

```
<cache-entry>
  <class>servlet</class>
  <name>/snoop</name>
  <cache-id>
    <component id="" type="parameter">
      <required>>false</required>
    </component>
    <component id="" type="pathinfo">
      <required>>false</required>
    </component>
    <component id="host" type="header">
      <required>>false</required>
    </component>
    <timeout>180</timeout>
  </cache-id>
  <property name="ExternalCache">afpa</property>
</cache-entry>
```



The ExternalCache value must match the name of the External Cache Group. Each application should have its own cachespec.xml file in the WEB-INF directory.

Configuring logging

Application servers > s7sr01a > NCSA access and HTTP error logging

Use this page to configure HTTP error logs, National Center for Supercomputing Applications (NCSA) access logs, and Fast Response Cache Accelerator (FRCA) logs. FRCA logs are a specialized form of NCSA logs that can only be created if the product is running on z/OS.

Configuration

General Properties

Enable logging service at server start-up

FRCA logging

Enable FRCA logging

* FRCA log file path
\${SERVER_LOG_ROOT}/frca

FRCA log maximum size
500 MB

Maximum number of historical files
1

* FRCA log format
Common

NCSA Access logging

Enable access logging

* Access log file path
\${SERVER_LOG_ROOT}/http

Access log maximum size
500 MB

Maximum number of historical files
1

* NCSA access log format
Common

FRCA logging

NCSA access logging

There are modifications to the HTTP error and NCSA access logging panel. The ability to specify a separate NCSA access log for requests served from the FRCA cache is now provided. From this panel FRCA logging is enabled / disabled.

Configuring FRCA on Web container transport channel

Application servers

Application servers > F70Server1 > Web container transport chains > WCInboundDefaultSecure > Web container inbound channel (WCC_4)

Use this page to view and configure a channel between the HTTP inbound channel and the servlet and JSP engines.

Configuration

General Properties

* Transport channel name
WCC_4

Discrimination weight
10

* Write buffer size
32768 bytes

Disable FRCA caching

Apply OK Reset Cancel

Additional Properties

- Custom properties

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By default the FRCA cache is active on all channel chains that contain a Web container channel and do not contain an SSL Channel. Modifications to the Web Container transport channel panel were also made to add the ability to enable/disable FRCA at this level, allowing you to disable it for a specific channel chain and listener port.

Configure logging on Web container transport channel

NCSA access logging

FRCA logging

NCSA Access logging

Use global logging service
Enable access logging: true
Access log file path: \${SERVER_LOG_ROOT}/http_access.log
Access log maximum size: 500
Maximum number of historical files:
NCSA access log format : COMMON

Use chain-specific logging

Enable access logging
Access log file path:
Access log maximum size:
Maximum number of historical files:
NCSA access log format:

FRCA logging

Use global logging service
Enable FRCA logging: true
FRCA log file path: \${SERVER_LOG_ROOT}/frca_error.log
FRCA log maximum size: 500
Maximum number of historical files:
FRCA log format : COMMON

Use chain-specific logging

Enable FRCA logging
FRCA log file path:
FRCA log maximum size:
Maximum number of historical files:
FRCA log format:

Error logging

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The HTTP Channel panel has been modified to provide the ability to set a specific NCSA Access and error logs for the chain. This was only provided with custom properties in previous releases. The ability to specify a FRCA NCSA Access log just for this chain is also provided.

Fast response cache accelerator

- Display FRCA cache statistics
 - ▶ From MVS console: `f <serverName>,display,frca`
 - ▶ From MVS console: `display tcpip,,netstat,cach`
 - ▶ From TSO: `netstat cach`
- FRCA resources can be protected with RACF®
 - ▶ These commands permit the control region user ID, CBSYMCR1, authorization to the SERVAUTH class (shown here, system name is SY1. TCP/IP procname is TCPIP):
 - `PERMIT EZB.FRCAACCESS.SY1.TCPIP CLASS(SERVAUTH) ID(CBSYMCR1) ACCESS(READ)`
 - `SETROPTS RACLIST(SERVAUTH) REFRESH`

The WebSphere modify display FRCA command shows what is cached. The TCP/IP netstat command displays FRCA cache statistics including hits and misses. If the SERVAUTH class and the FRCA resource, EZB.FRCAACCESS.SY1.TCPIP, is defined, then the user ID of the Control Region needs read access to it. If the Application Server does not have authority to the FRCA Services then message “BBOOnnnnE FRCA INITIALIZATION FAILED. SERVER NOT AUTHORIZED TO USE FRCA SERVICES. IOCTL RV=%d, RC=%d, RSN=%08X ” is issued.

Summary

- Reviewed the fast response cache accelerator (FRCA) capability



This presentation reviewed the new fast response cache accelerator function available in WebSphere Application Server for z/OS V7.

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