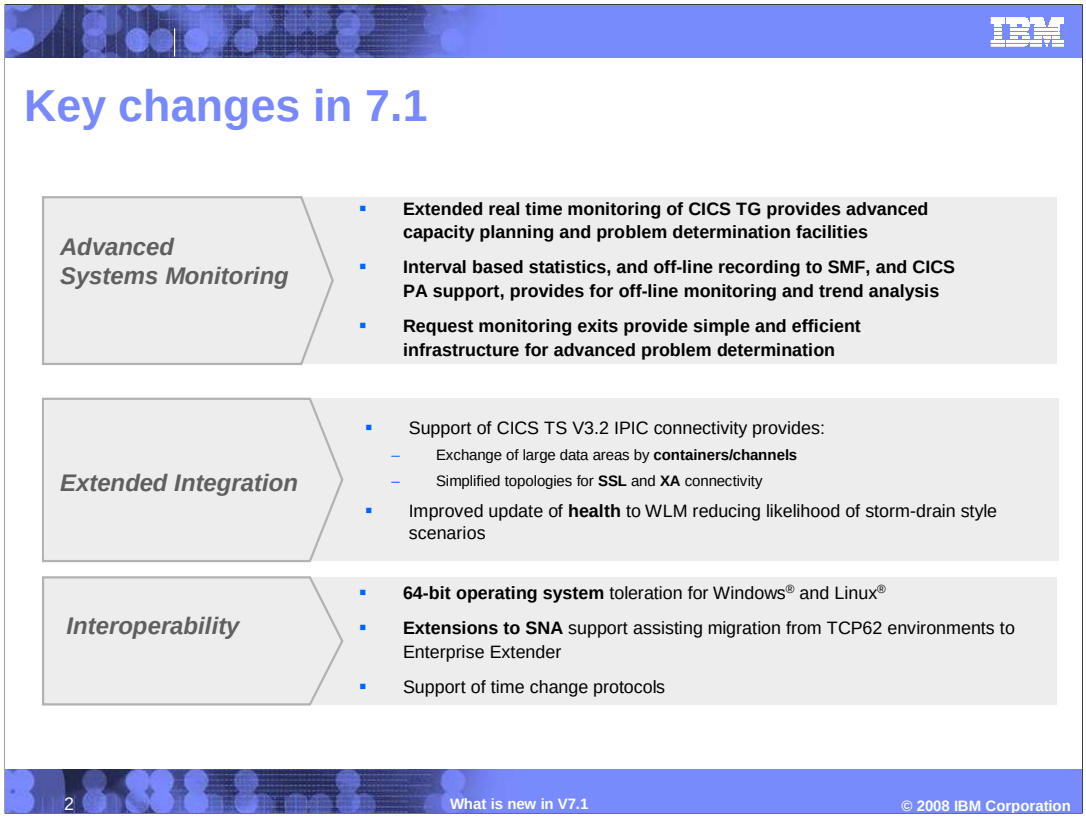

Welcome to this introduction to what is new in the latest version of the CICS Transaction Gateway. This presentation will introduce the new concepts and provide an overview of what they do.




Here we can see the three main areas that have been updated.

Advanced Systems Monitoring: This includes an increase to the number of statistics that the CICS transaction gateway produces and the introduction of the interval recording of statistics. This statistics can be recorded to SMF on z/OS® for retrieval by another application such as CICS PA.

Finally exit points are made available for a request monitoring exit which can work with information about every request processed by the Gateway daemon.

Extended Integration: CICS Transaction server version 3.2 introduced an new communication protocol known as IPIC which enables support for channels and containers and secure connections using the SSL protocol. Support for XA transactions is also available using a simplified topology.

Alongside this, the reporting of Gateway health to the Workload Management subsystem on z/OS has been updated to allow greater control on how regularly information is reported on how healthy a particular Gateway daemon is.

Interoperability: The CICS Transaction Gateway now tolerates running on 64bit versions of the Windows and Linux operating systems, has greater support for using the SNA protocol as a replacement for the TCP62 protocol and support for time changes occurring whilst the product is running.

## Advanced system monitoring

- Advanced system metrics:
  - Capacity planning, throughput and availability statistics for the Gateway daemon
    - Including response times, bytes sent, and region storage
    - Includes Client daemon statistics for multi-platform
- Interval statistics and off-line recording
  - Interval mechanism to reset statistics
  - SMF 111 records and analysis using CICS PA V2.1
  - APPLID support




Looking at the Advanced Systems monitoring in depth we find that the Gateway daemon now provides greater information for use in capacity planning, throughput and availability. This information is in the form of response times, amount of data being sent and received and the amount of region storage the Gateway daemon uses. If you are using the Gateway daemon on multiplatform then information is available from the client daemon about the CICS regions being communicated with.

Secondly statistics information can be recorded at regular intervals to SMF as 111 records which can then be read and analyzed by another application such as CICS performance analyzer. This functionality uses the new APPLID support in the Gateway daemon which provides a unique name for each running Gateway daemon.

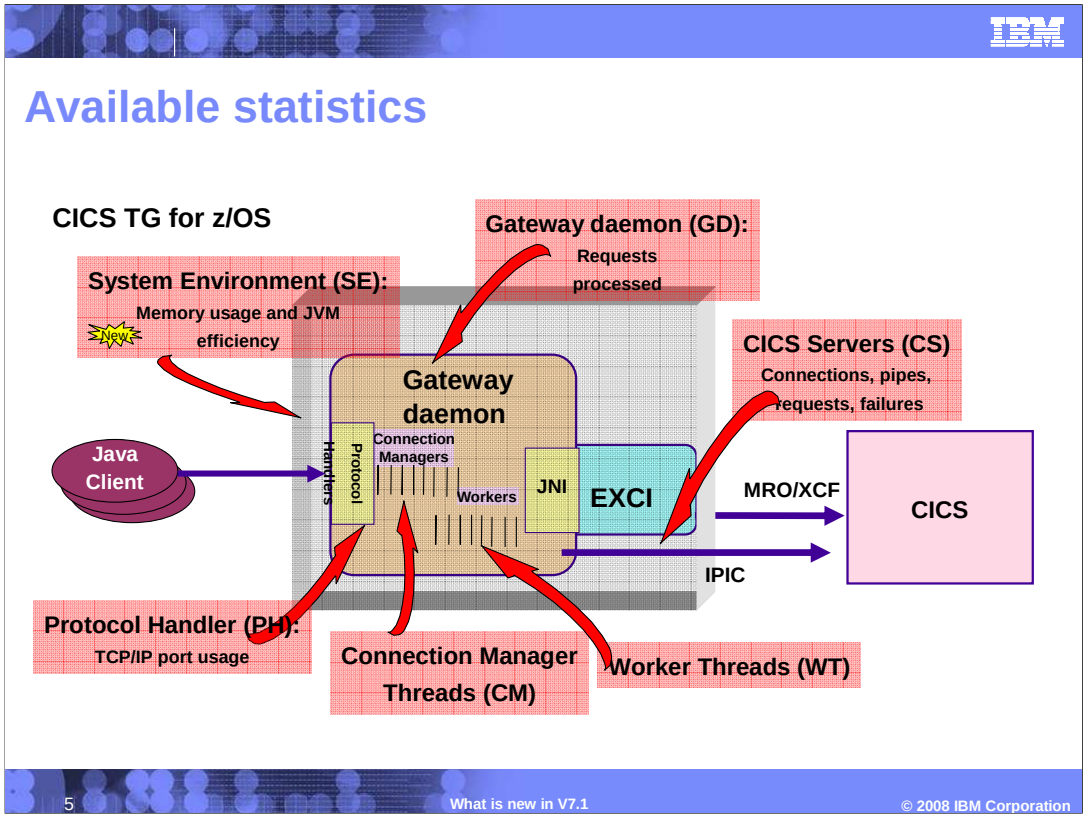
## Advanced system monitoring

- Advanced workload monitoring
  - APPLID support for CICS TG.
  - Point of origin information for IPIC requests
  - Transaction correlation for IPIC requests using CICSPlex® SM.
- Transaction monitoring
  - Request level exit infrastructure
  - Provides ability to build transaction tracing and monitoring solutions
  - Works in local and remote mode
  - Includes request analysis and response time data
  - Set of working samples provided




To aid workload monitoring, the APPLID functionality again comes into play. Each Java™ client application can have it's own APPLID and APPLID qualifier uniquely identifying it to the Gateway daemon. This information can then be used as part of the Origin Data functionality which is part of the new IPIC functionality. This data is passed on unchanged to every CICS region that a transaction is required to use. This information can then retrieved using CICSPlex SM to see where work is being sent in from.

Finally we have the transaction monitoring exits which provides an infrastructure for tracing transactions or monitoring the CICS Transaction Gateway. These exits can be configured in remote and local mode and have access to a wide range of data about each request, including response times and payload size. A set of working samples is provided which can be used directly or used as the basis of a bespoke solution.




Here we can see what statistics are available in the CICS Transaction Gateway. The GD resource group provides an overview of the work that a Gateway daemon has done including the number of transactions that have been processed broken down by success or failure. The CS group looks at the work that has been sent to CICS, while the CM and WT groups allow the systems administrator to see how much of the Gateway resources are in use and whether there is a backlog of work anywhere. The SE resource group is new this release and provides information about how the JVM is performing and how much memory is being used by the Gateway daemon process.

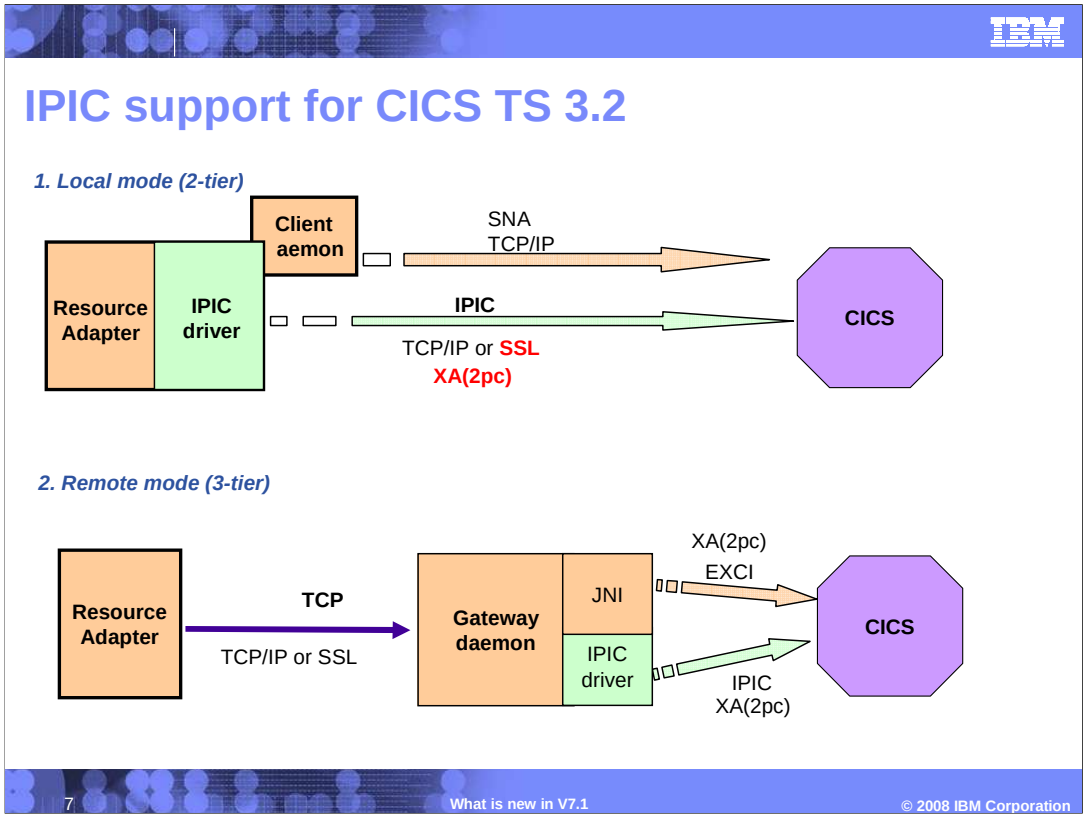
## Extended integration

- Channels as modern-day COMMAREAs
  - Exploitation of CICS TS V3.2 IPIC protocol
- Simplified topologies for XA and SSL support
  - New XA (two-phase commit) and SSL options directly into CICS TS V3.2
- TCP/IP network optimizations
  - Improved response times for remote Java clients




Extended Integration focuses mainly on the new IPIC protocol which allows for communication into a CICS region in a similar to way to EXCI or TCP/IP. This has a couple of major advantages over existing protocols, the first is the use of Channels and Containers as a replacement to COMMAREA based communication and allows for larger and more structured data to be passed into a CICS program. Secondly if your environment requires the use of the XA (2 phase commit) protocol, or secure connections using the SSL protocol these are both available directly into CICS using a simplified topology to previous releases.

Also in this are the TCP/IP communications both from a Java client application and to CICS has been optimized to help improve response times.




Looking at how IPIC can be used in various topologies we can see that it is supported in both local and remote mode. When using local mode the resource adapter is able to use IPIC directly and is able to connect to CICS using TCP/IP or SSL. It is also possible to use the XA protocol directly into CICS without the need of a separately configured Gateway daemon.

If using remote mode on z/OS the Gateway daemon can use XA via EXCI or IPIC into CICS allowing for easy migration from EXCI to the new protocol.

## Channels and containers

- "Modern day COMMAREAs"
- Recommended usage is to have more containers with less data inside each
- Containers:
  - One of many in a channel
  - No CICS enforced size limitation
    - Containers are stored above the bar (64 bit storage) in CICS TS v3.2
  - Are either binary (BIT) or of a specified codepage/ccsid (CHAR)
  - ccsid is numeric value (37) equivalent to a code page string (IBM-037) and is used as internal meta-data for each container
- CTG container data built by default in UTF-8 encoding
  - CICS converts received data to EBCDIC when GET CONTAINER is issued
  - CICS converts response data to code page of the channel when PUT CONTAINER is issued




Channels and Containers were a new feature in CICS TS 3.1 and the CICS TG is now able to make use of these "modern day COMMAREAs". Each channel is made up of a number of containers which contains the specified data which can be character or binary data. If character data is used then information on the codepage is was created in stored against the container and translation occurs whenever the container is retrieved which removes the need for a DFHCNV macro for each program being called. Good programming practice recommends that a channel consists of a number of smaller containers each containing a specific piece of data.

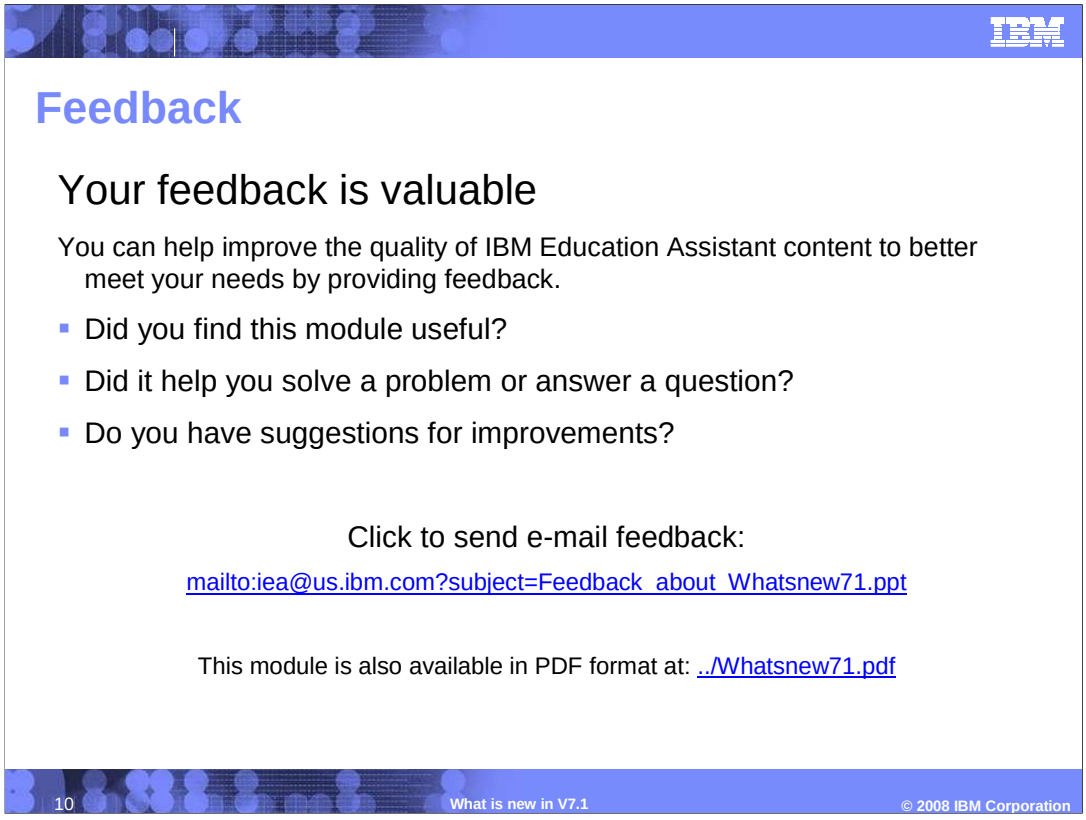
Containers created by the CICS TG Java API will be encoded using UTF-8 by default and is converted to EBCDIC by CICS when the container is retrieved from the Channel.

## Further information

- Information center
  http://publib.boulder.ibm.com/infocenter/cicstg/v7r1m0/index.jsp
- Announce letter
  ftp://ftp.software.ibm.com/software/htp/cics/pdf/ENUS207277.PDF




Further information about the CICS Transaction Gateway version 7.1 can be found in the information center and announce letter at these locations.

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