

# CICS Version 5 Portfolio *Technical Overview*

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# Notes

IBM® CICS® Transaction Server (CICS TS) V5.2 builds on the many advances in service agility, operational efficiency, and cloud capabilities delivered in CICS TS V5.1. These include the following significant enhancements in the areas of Service Agility, Operational Efficiency and Cloud.

CICS TS V5.2 was announced on April 7, 2014 and was made available June 13, 2014.

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# Session Agenda

- CICS TS 51 Review
- CICS TS 52 Overview
  - Service Agility
  - Operational Efficiency
  - Cloud
  - Explorer
- CICS TS 53 Open Beta
- Summary

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## Please Note

IBM's statements regarding its plans, directions, and intent are subject to change or withdrawal without notice at IBM's sole discretion.

Information regarding potential future products is intended to outline our general product direction and it should not be relied on in making a purchasing decision.

The information mentioned regarding potential future products is not a commitment, promise, or legal obligation to deliver any material, code or functionality. Information about potential future products may not be incorporated into any contract. The development, release, and timing of any future features or functionality described for our products remains at our sole discretion.

Performance is based on measurements and projections using standard IBM benchmarks in a controlled environment. The actual throughput or performance that any user will experience will vary depending upon many factors, including considerations such as the amount of multiprogramming in the user's job stream, the I/O configuration, the storage configuration, and the workload processed. Therefore, no assurance can be given that an individual user will achieve results similar to those stated here.

# CICS TS V5 Vision



## Service Agility

Runtime support for production ready web applications.

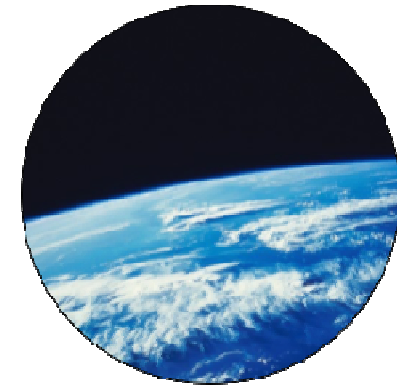
Integration with mobile applications.



## Operational Efficiency

Increased system capacity and capability to achieve more with less.

Automatic control of critical resources using policies.



## Cloud Enablement

Simplified system management and rapid application deployment.

On premise pattern based cloud deployment.

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# Notes

## Service agility

CICS TS V5.2 significantly enhances the portability of web applications into CICS, by upgrading WebSphere Application Server Liberty Profile to Version 8.5.5 and supporting a broader set of its features. Java™ database connectivity, transactionality, and security infrastructure are all functionally enhanced. This makes applications written in Java even more capable.

Service-oriented architecture (SOA) support is extended by integrating the JSON and REST capabilities, introduced in the CICS TS Feature Pack for Mobile Extensions, into CICS TS V5.2. This makes it easier to interact with mobile devices and mobile-optimized gateways, such as Worklight Server.

## Operational efficiency

For operational efficiency, the number of supported policy thresholds is expanded to cover an increased number of threshold types, safeguarding critical runtime resources. This enables a wider range of service-level agreement thresholds to trigger automatic actions.

The integration of CICS applications with distributed security standards has been simplified by incorporating the Security Assertion Markup Language (SAML) support, introduced in the CICS TS Feature Pack for Security Extensions, into CICS TS V5.2. Also introduced is support for Kerberos security tokens and stronger cryptographic ciphers. SAML support is provided for both inbound and outbound use of SAML tokens, and SAML tokens can now be augmented by adding new attributes.

## Cloud enablement

Major advances are made in CICS TS V5.2 in the area of cloud enablement, to enhance application lifecycle management by allowing different versions of a multi-program application to run concurrently, and simplify deployment of application updates or to easily rollback to an earlier version if required.


Application versioning assists with the consolidation of applications onto fewer CICS regions.

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# CICS TS 51 Review

## Operational Efficiency

- **Greater capacity** - achieve cost savings through consolidation
- **Managed operations** - control critical resource thresholds with policies
- **Increased availability** - reduce the need for planned downtime
- **Deeper insight** - extend performance and compliance information



125+  
requirements  
satisfied!

## Service Agility

- **First-class applications** - create agile services from existing assets
- **First-class platforms** - create agile service delivery platforms
- **Modern interfaces** - build rich web experiences for critical applications
- **Foundational enhancements** - extend core capabilities

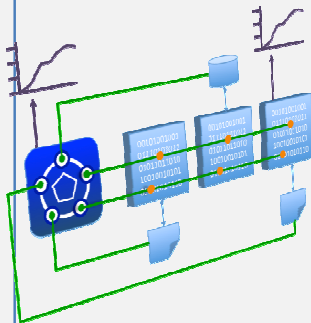
... *with Cloud Enablement*

Consistent with the IBM Cloud Computing strategy  
Positioning customers for the next transformational era in technology  
Moving towards a cloud oriented service delivery platform

# CICS TS 51 Review



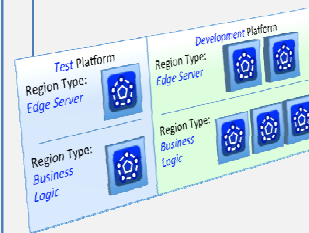
## First-class Applications



- Manage disparate resources as a single entity
- Rapidly move through the application lifecycle
- Automate dependency management
- Ensure rigorous yet flexible provisioning
- Measure entire application resource usage
- Dynamically manage applications with policies



## First-class Platforms



- Group new and existing regions as platforms
- Decoupling applications from the region topology.
- automatic resource deployment and validation
- De-provision resources when requested
- Deploy applications to regions within a platform
- Dynamically manage platforms with policies



## Modern Interfaces



- A production-ready web container
- Deploy lightweight Java servlets and JSPs
- Local access to CICS applications and data
- Roll-out of interface updates through OSGi
- Integration with applications & platforms
- Built on WebSphere Application Server Liberty profile for compatibility
- CICS TS Feature Pack for Mobile



## Foundational Enhancements



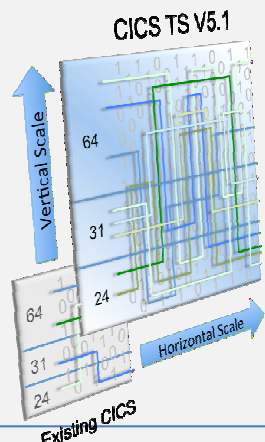
- CICS supports "one-to-many" event emission
- Greater-than-32KB across MQ (DPL) bridge
- Enhancements to IPIC add IMS support
- Reduced application storage needs with GET and PUT container
- Backup and restore entire CICSplex System Manager (CICSplex SM) systems
- Automatic adjustment of the CICS clock for daylight saving time changes



# CICS TS 51 Review...



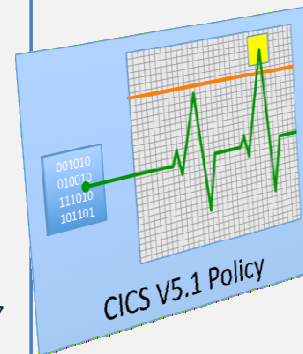
## Greater Capacity



- Doubling the MAXTASK limit to 2,000
- Increased 64-bit and reduced 24-bit storage usage
- Greater parallelism from threadsafe API and SPI
- Greater system parallelism through optimized TCB usage
- Performance improvements from 64-bit Java 7
- Greater access to 64-bit storage from Assembler programs



## Managed Operations



- Automated control over critical system resources
- Set data access thresholds on SQL or file access
- Set program loop thresholds on EXEC LINK
- Set storage request thresholds
- Set CPU time thresholds
- Policies can issue messages, abending tasks, or create events



## Increased Availability



- Upgrade CICS versions and releases without requiring a z/OS restart
- Modern batch feature pack
- Refresh Secure Sockets Layer (SSL) certificates
- Keep IPIC connections up and running
- Support more IBM GDPS/AA solutions
- Dynamically specify cross-system coupling facility groups
- Better reflect current best practices with updated and simplified defaults



## Deeper Insight



- Auditing of SPI commands that alter the system
- Improved auditing of user IDs that make requests over IP
- Extended identity propagation to include started tasks
- Cipher suites used for SSL connections to be stored in the performance records
- Calculate the actual and potential use of specialty processors
- Regular status updates provided while lost locks recovery is taking place

# Notes



The prior charts are a review of the new features and functions delivered in CICS TS V5.1.

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## The Evolution Continues...

- CICS Transaction Server V5.2
- CICS Transaction Server V5.2 Value Unit Edition
- CICS Transaction Server V5.2 Developer Trial
- CICS Tools V5.2
- CICS Transaction Gateway V9.1

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# Notes

## **CICS TS Developer Trial**

CICS TS Developer Trial V5.2, a try-before-you-buy edition of CICS TS V5.2, has a zero-cost license charge and does not initiate any single version charging (SVC) period. If you want to assess the value that could be gained from a CICS TS upgrade, before making an upgrade decision, you should order this product. The CICS TS Developer Trial V5.2 is now fully supported and can be upgraded to CICS TS V5.2 or CICS TS VUE V5.2 without the need for a full reinstallation. For more information, visit

<http://www.ibm.com/software/htp/cics/cicsdt/>

## **CICS TS Value Unit Edition**

CICS TS Value Unit Edition (VUE) V5.2 offers a one-time-charge (OTC) price metric for eligible workloads that are deployed in qualified System z® New Application License Charge (zNALC) logical partitions (LPARs).

The term Eligible Workload is defined as net new Java workload that executes within the CICS TS VUE Java Virtual Machine (JVM) server environment, on condition that the workload is qualified and approved through the zNALC qualification process.

The OTC price metric provides an alternative pricing model for new CICS Java applications and new CICS Java-based, service enablement workloads.

CICS TS VUE V5.2 is available through the normal ordering channels for IBM z/OS software.

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# Service Agility



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**Runtime support  
for production  
ready web  
applications.**

**Integration with  
mobile  
applications.**

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# Notes



The next slides will discuss the service agility features of CICS 52.

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# CICS TS 52 Service Agility

- CICS and Mobile
  - Provides support for RESTful web service requests
    - JSON in the http body
  - New JSON assistant programs
    - Generate a JSON schema and WSBIND file from a copy book
      - COBOL, PLI, C and C++
    - Create a language structure and WSBIND file from a JSON schema
  - New linkable interface
    - Equivalent to EXEC CICS XMLTRANSFORM
      - Allows application programs to process JSON data
  - Provides support for JAX-RS and JSON Liberty features

# Notes

CICS Transaction Server for z/OS, Version 5 Release 2 provides support for web service requests with JSON and the conversion between JSON and application data. Support for JSON greatly simplifies the use of existing CICS services by mobile applications, particularly those managed by IBM Worklight® Server. You can expose CICS applications as web services with JavaScript Object Notation (JSON) payloads, create new RESTful applications, call existing JSON applications, and convert JSON from any source to and from the application data.

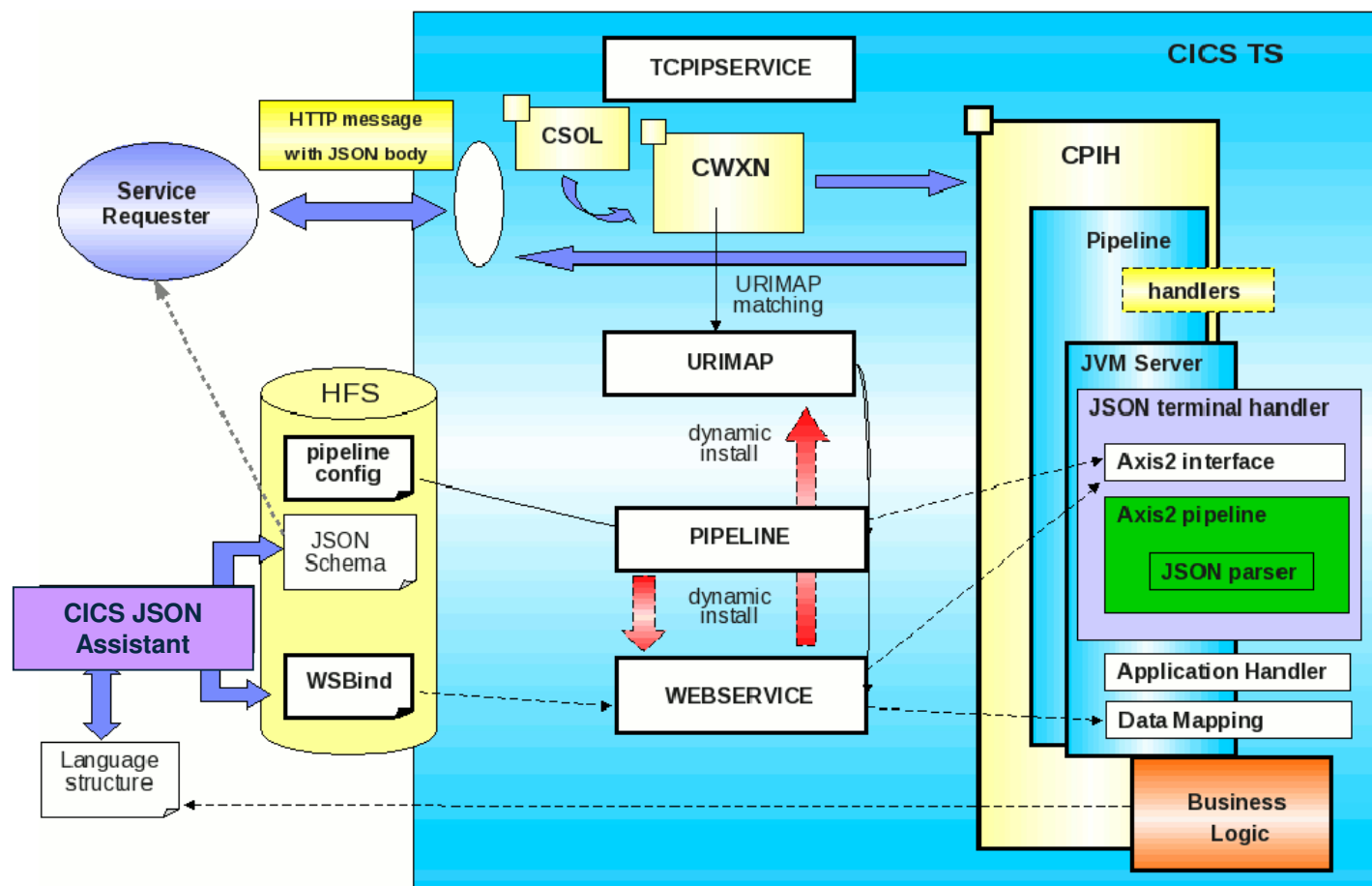
This support for JSON and REpresentational State Transfer (REST) was previously available in the CICS TS Feature Pack for Mobile Extensions.

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# CICS TS 52 Service Agility...

- Mobile Feature Pack integrated into base CICS



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# Notes



This chart shows the architecture of the Mobile function in CICS TS V5.2.

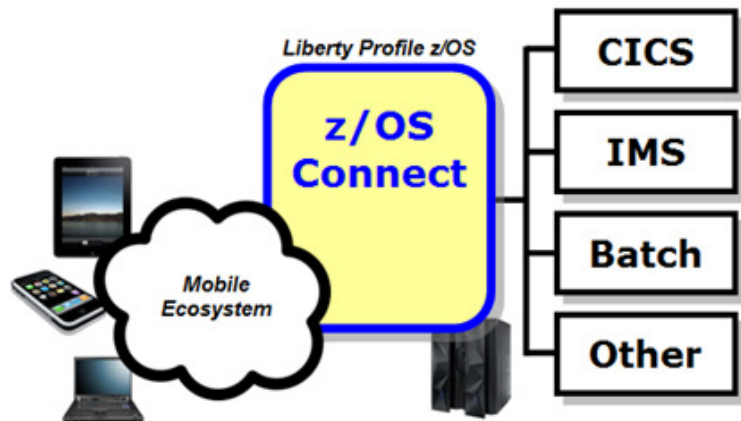
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# CICS TS 52 Service Agility...

## Why z/OS Connect?

This represents another component to configure and maintain in your environment. So what value does it bring?



You *could* enable Mobile access without z/OS Connect

z/OS Connect simplifies and makes the environment more consistent and manageable

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- Provides a common and consistent entry point for mobile access to one or many backend systems
- Java, so runs on specialty engines
- Shields backend systems from requiring awareness of RESTful URIs and JSON data formatting
- Provides point for authorization of user to invoke backend service
- Provides point for capturing usage information using SMF
- Simplifies front-end functions by allowing them to pass RESTful and JSON rather than be aware of or involved in data transformation

# Notes



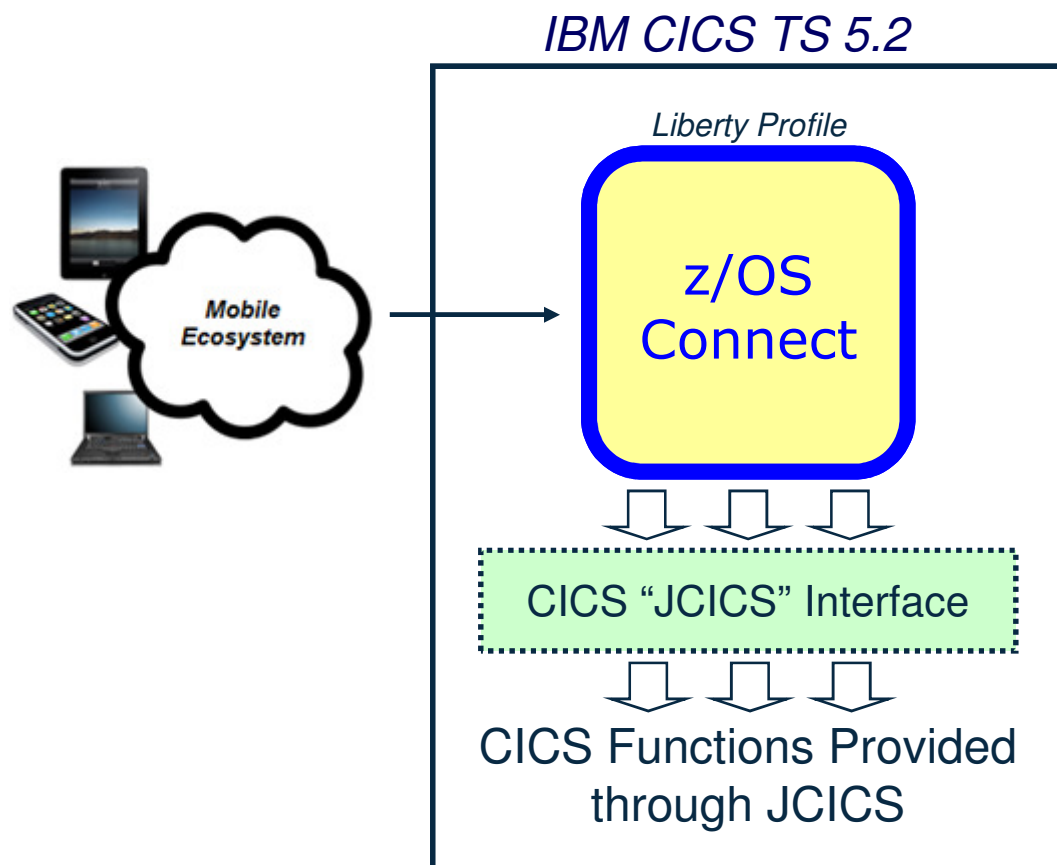
This chart shows the reasons you may wish to run z/OS Connect.

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# CICS TS 52 Service Agility...

z/OS Connect interacts with CICS using JCICS interface as documented in IBM US announcement letter ENUS214-107:



Liberty Profile runs *inside* the CICS region

The 'Service Provider' is only JCICS ... not WOLA

***z/OS Connect now available in CICS TS V5.2 (DType APAR PI25503)***

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# Notes



This chart shows the architecture of z/OS Connect running in CICS TS V5.2.

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## CICS TS 52 Service Agility...

- Web Service Enhancements
  - Simple Occurs Depending On and Occurs Indexed By clauses supported in native web services
    - Native web support
    - JSON
    - Axis2
  - AMODE 64 exploitation by native SOAP parser
    - Parser output stays in 64 bit storage
    - SOAP message built in 64 bit storage
    - Code page conversions use 64 bit storage
    - Benefit is 31 bit Virtual Storage Constraint Relief
  - Less TCB switching for DYNAMIC(NO) transactions

## Notes

Data mapping for SOAP and JSON web services supports UTF-16 data and more COBOL clauses, including OCCURS DEPENDING ON. With this support, you can represent a larger range of characters in web services application data and the TRANSFORM API. In the CICS® data transformation service for SOAP and JSON web services and the TRANSFORM API, Unicode characters are transformed to UTF-16 data in COBOL, C, C++ and PL/I. Unicode is the widely adopted standard for handling most of the characters in use today and can be used as a basis for globalization of CICS applications. This release of CICS also supports the COBOL clause OCCURS DEPENDING ON, when the field is last in the structure, and the clause OCCURS INDEXED BY.

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# CICS Transaction Gateway V9.1

*Mobile integration, robust connectivity, and strong security options*



## Service enablement

Mobile integration with JSON web services

- *Dynamic routing of mobile workload*
- *Shared tech with CICS TS + z/OS connect*
- *JSON xform from COBOL, C and PL/1*
- *Full monitoring and statistics*

## Secure connectivity

SSL for .NET applications

Full NIST SP800-131A compliance

TLS 1.2 secure connections for

- *Java JCA .NET APIs to the Gateway*
- *Gateway to CICS with IPIC connections*

## Foundation

Exploit zEC12 hardware with SDK 7.1

Virtualized CICS servers with IBM RTW

- *Build test-suites for Java/JCA ECI applications*

Channel data for request monitoring

API support for latest Windows

## Modern connectivity

Connection management

- *For 24x7 continuous operation*

Exploits IPIC heartbeat support

- *Improved availability across larger TCP/IP networks*

# Notes

CICS TG, V9.1 offering enables simple and rapid mobile integration of your enterprise CICS Transaction Server for z/OS (CICS TS) environment. You can build on your existing, proven architecture to quickly provide mobile connectivity to back-end systems by using JavaScript™ Object Notation (JSON) web services.

Mobile enablement can be achieved alongside traditional CICS TG for z/OS workloads without modification to existing environments. This minimizes both risk and cost, while retaining the benefits of the proven high availability and scalability of CICS TG for z/OS.

Other functionality that is introduced in the CICS TG V9.1 offering includes:

The exploitation of the CICS IP interconnectivity (IPIC) protocol heartbeat functionality. This reduces the impact of connectivity problems by allowing failures to be detected and resolved faster.

The ability to start and stop IPIC connections in a controlled way, or immediately. This eases planned changes or maintenance to a CICS TS system.

The exploitation of Secure Sockets Layer (SSL) connectivity for the .NET framework-enabled API, and full compliance with National Institute of Standards and Technology (NIST) Special Publication (SP) 800-131A for enhanced security.

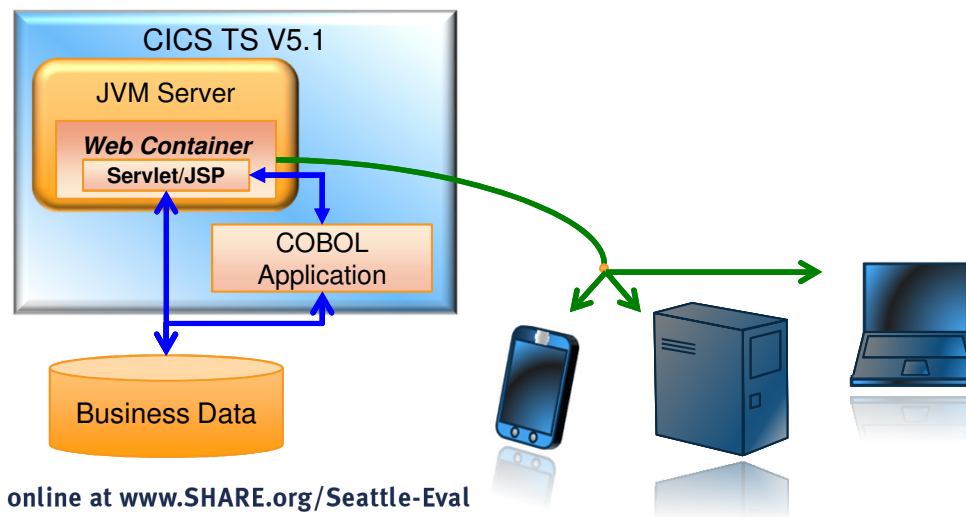
The introduction of the Gateway intercept plug-in to facilitate automated regression testing with products such as the IBM Rational® Test Workbench.

Enhancements to CICS TG request monitoring to provide full access to channel and container payload data for monitoring tools.

Support for 31-bit and 64-bit versions of the IBM SDK for z/OS, Java Technology Edition, Version 7 Release 1. This release benefits from the enhancements to exploit zEC12 instructions and of new capabilities available with z/OS V2.1, IBM zEC12, and IBM zBC12.

# CICS TS 52 Service Agility...

- Liberty
  - Initially introduced in CICS 51
  - Light weight web container
    - Provides Servlets and JSPs support for CICS
    - Runs in a JVMServer
    - Access to CICS functionality through the JCICS API



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## Notes

CICS Transaction Server for z/OS, Version 5 Release 2 upgrades the WebSphere® Application Server Liberty profile to Version 8.5.5 and supports a broader set of its features. Java database connectivity, transactionality, and security infrastructure are all functionally enhanced. The Liberty profile is a lightweight development and application runtime environment that is well-suited to building web applications that do not require the full Java™ EE environment of traditional enterprise application server profiles.

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## CICS TS 52 Service Agility...

- Liberty in CICS 52
  - Core features
    - Java Transaction API (JTA 1.0)
    - Access to local DB2 resources (JDBC 1.0)
    - CICS Liberty Security
  - Liberty Features
    - Access to remote DB2 resources with T4 driver (JDBC 1.0)
    - Java API for RESTful Services (JAX-RS 1.1)
    - Java Script Object Notation (JSON 1.0)
    - Java API for XML Web Services (JAX-WS 2.2)
    - Java Architecture for XML Binding (JAXB 2.2)

## Notes

Support is provided for JDBC type 2 data sources. This support enriches your options for access to other data managers. You can use the JDBC DataSource API to access relational data that is stored in either a local DB2® database, managed by CICS resources, or a remote database using JDBC type 4 connectivity.

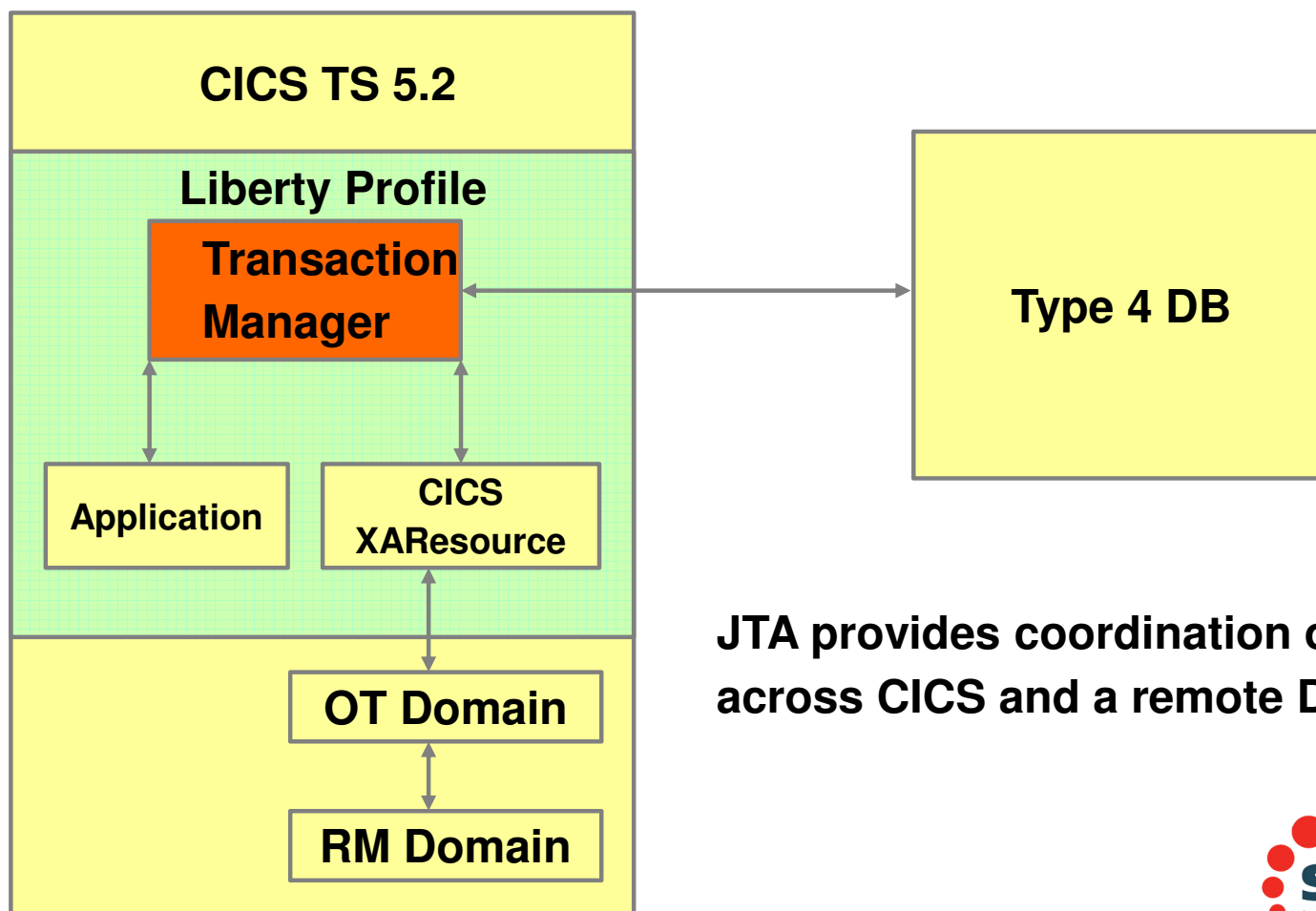
Java Transaction API (JTA) support enables transactional web application developing using JTA API to be run in a Liberty JVM server and to coordinate transactional updates to both CICS resources and other third party resource managers, such as a JDBC type 4 driver connection using a remote data source.

You can take advantage of the full range of WebSphere Liberty Profile application security functions. These include an extended range of authentication options, including HTTP basic authentication, single sign-on using LTPA cookies, form login, Trust Association Interceptors, and SSL client certificate mapping. Authorization options include both JEE role authorization and CICS transaction and resource security, which is based on the authenticated SAF userid. The Secure Sockets Layer (SSL) support in the Liberty JVM server HTTP listener is extended to support certificates that are stored in both System Authorization Facility (SAF) keyrings and Java keystores.

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# CICS TS 52 Service Agility...

- Java Transaction API



**JTA provides coordination of updates across CICS and a remote DB**

# Notes



This chart shows how JTA interacts with CICS through the Object Transaction Service Domain.

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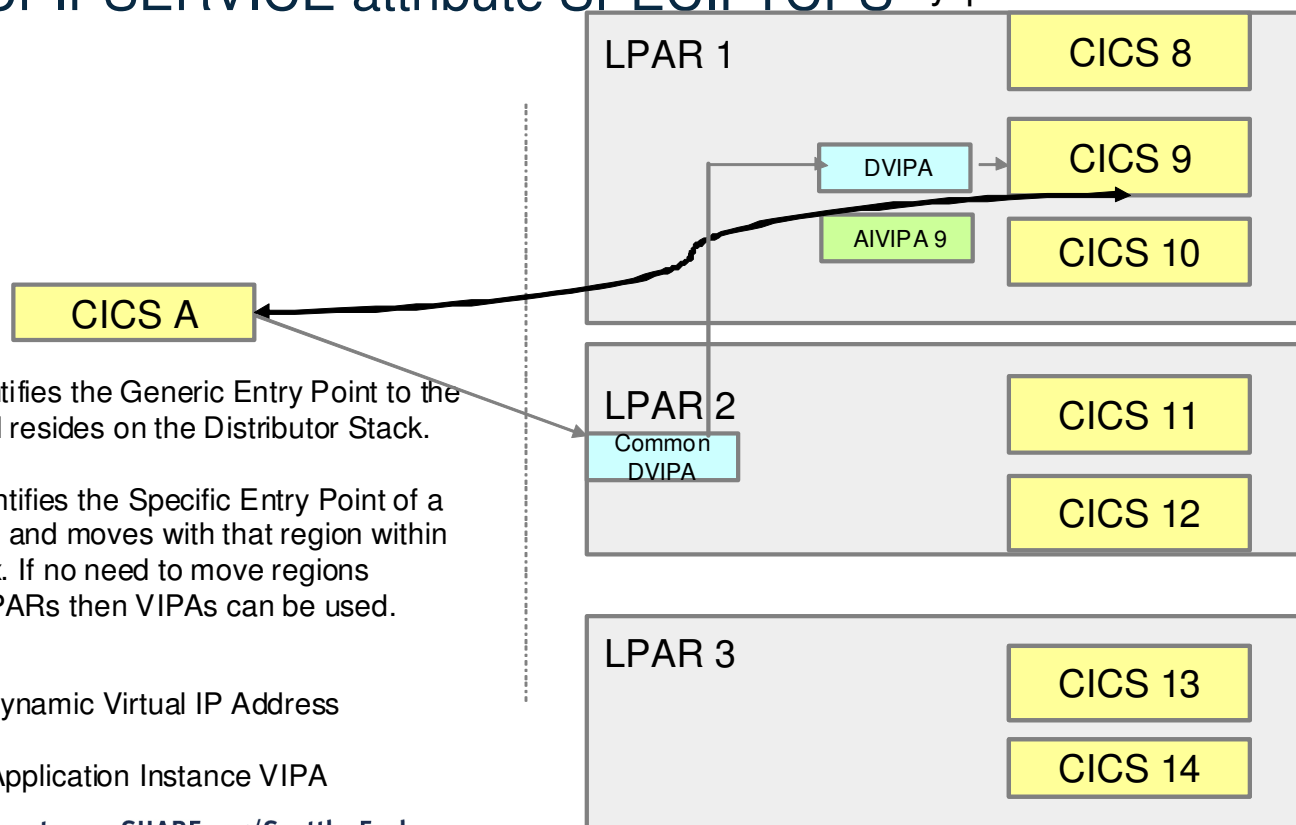




# CICS TS 52 Service Agility...

- IPIC High Availability

- Allows CICS to connect to a cluster entry point
  - Allows CICS to know the actual endpoint for recovery
- New TCPIP SERVICE attribute SPECIFTCPS Sysplex A



DVIPA identifies the Generic Entry Point to the cluster, and resides on the Distributor Stack.

AIVIPA identifies the Specific Entry Point of a HA Region, and moves with that region within the Sysplex. If no need to move regions between LPARs then VIPAs can be used.

DVIPA – Dynamic Virtual IP Address

AIVIPA – Application Instance VIPA

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# Notes

IP-connectivity (IPIC) support is extended to support more high-availability scenarios. This support helps to minimize the impact of issues that can arise when CICS® communicates across a wide area network, for example, if the network fails to respond. Groups of regions from CICS Transaction Server for z/OS, Version 5 Release 2 can be clustered together and accessed through a shared TCP/IP end point from other client regions of CICS Transaction Server for z/OS, Version 5 Release 2 . This support enables individual CICS regions to be removed as a single point of failure, while permitting planned or unplanned outages of individual components, and provides a migration path for VTAM® generic resource support when moving from SNA to an IP network

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# Operational Efficiency



**Increased system capacity  
and capability to achieve  
more with less.**

**Automatic control of  
critical resources using  
policies.**

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# Notes



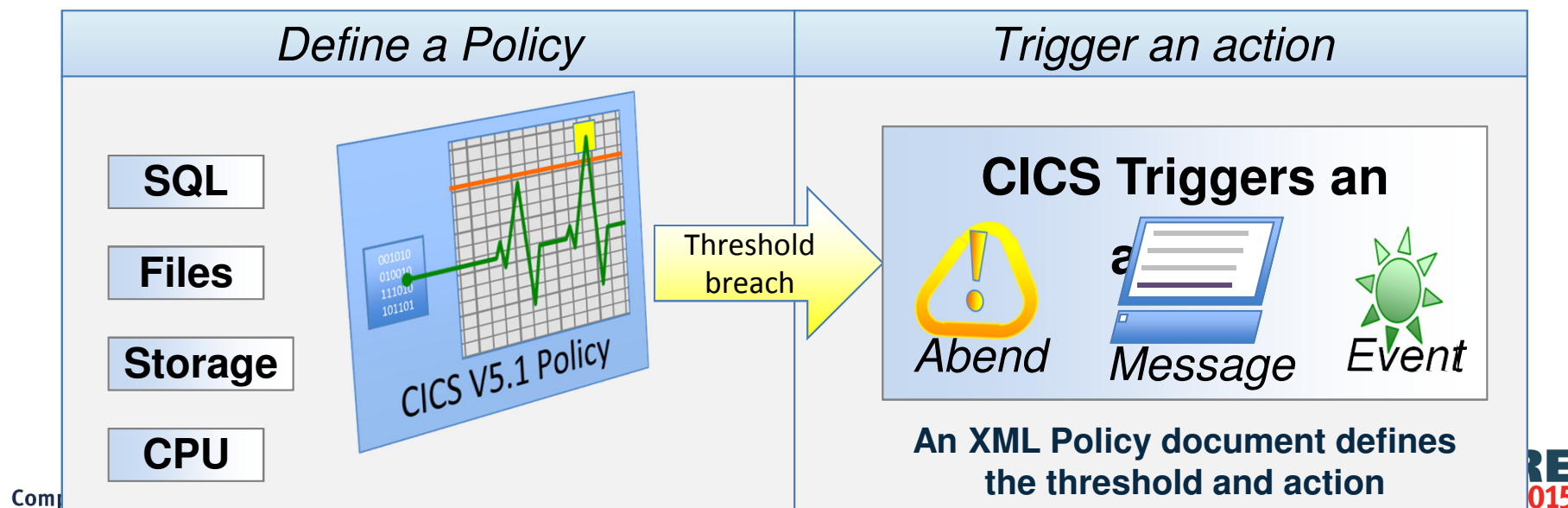
The next slides will discuss the Operational Efficiency features of CICS 52.

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# CICS TS 52 Operational Efficiency

- Policy Based Management
  - Resource threshold and action
  - Action can be:
    - Emit a message
    - Emit a system event
    - Abend the task



# Notes

Managed operations are provided through the introduction of policies, which deliver automated control over critical system resources

A new, dynamic policy-based management capability is introduced in support of both applications and platforms. Policies enable the behavior of applications and platforms to be managed by determining whether tasks running as part of a platform, as an application, or as types of operation within an application, exceed certain predefined thresholds.

Task thresholds can be set based on data access requests, storage usage, program loops and processor time used. For example, a threshold could be defined based on the amount of above-the-line storage used by a task, the number of times a task accesses IBM DB2 or a file, or the number of EXEC LINK requests issued by a user task.

After a threshold is exceeded, CICS can issue a message, or abend the task with a specific abend. Additionally, policies can be defined to trigger one or more CICS events, which can in turn initiate other actions.

CICS policies are a declarative way of ensuring that applications and platforms continue to run effectively. A policy can be applied to any combination of applications and platforms. Additionally, policies can also be deployed into a single region, independently of defining a platform. Policies are applied dynamically during production operations.

# CICS TS 52 Operational Efficiency...

- New thresholds in CICS 52
  - Temporary Storage
    - Number of requests or amount of data written
  - Transient Data
    - Number of requests
  - Elapsed Time
    - Check is made at dispatch
    - Action triggered at next API call
  - STARTs
    - Number of requests
  - Syncpoints
    - Number of requests
  - Program Link
    - INVOKE APPLICATION is now included

# Notes

The number of supported policies thresholds is expanded to cover a wider range of task thresholds that can be used to trigger autonomic actions.

Thresholds can be set on requests for start, syncpoint, transient data (TD) queues, temporary storage (TS) queues, and elapsed time on a user task.

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## CICS TS 52 Operational Efficiency...

- Support for TLS 1.2 protocol and FIPS 140.2 Cryptographic Standards
  - FIPS 140.2 mandated by NIST SP800-131A directive
    - Cipher suites can now be defined in XML in a zFS file
    - Greater flexibility and ease of definition
    - APAR PM97207 available for TS 5.1
- System Initialization parameters
  - ENCRYPTION={ALL|TLS12|STRONG|}
  - USSCONFIG={/var/cicsts/dfhconfig|directory}
    - Cipher XML files in USSCONFIG/security/ciphers

## Notes

Cryptographic ciphers enable CICS to enforce the use of TLS 1.2, and check for conformance to the NIST-SP800-131a security standard.

Support for stronger cryptographic standards allows you to permit all system SSL supported ciphers and protocols, or restrict to those that are supported by Transport Layer Security (TLS) 1.2.

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## CICS TS 52 Operational Efficiency...

- Extend NIST SP800-131A checking beyond sockets domain
  - New System Initialisation parameter
    - NISTSP800131A={NOCHECK|CHECK}
    - CHECK means CICS is required to check for compliance with the NIST SP800-131A security standard
    - Checked by Sockets (SO), Java (SJ) and Pipeline (PI) domains

# Notes

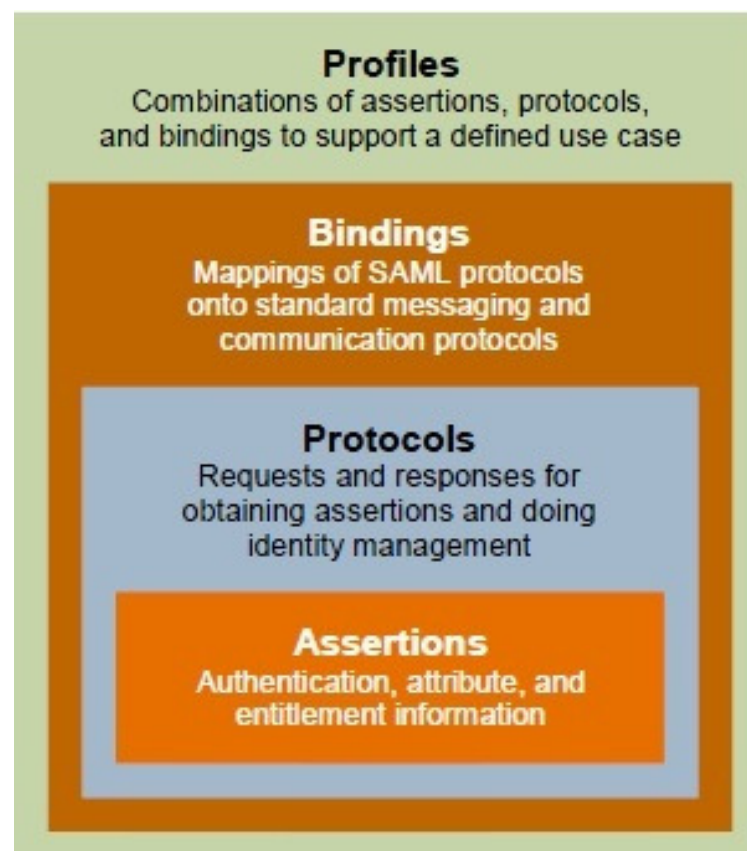
Cryptographic ciphers enable CICS to enforce the use of TLS 1.2, and check for conformance to the NIST-SP800-131a security standard.

CICS can check and report on conformance to the guidelines in the National Institute of Standards and Technology (NIST) Special Publication 800-131A (NIST-SP800-131A), which includes support for TLS.

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# CICS TS 52 Operational Efficiency...

- Security Assertion Markup Language (SAML)
  - OASIS open standard
  - “XML based framework for describing and exchanging security information between on-line business partners.”
  - Web Single Sign-On
  - Dynamic creation of Identity Federations (SSO across domains)



# Notes

Security Assertion Markup Language (SAML) is an XML-based framework for describing and exchanging security information between online business partners. This security information is expressed in the form of portable SAML assertions that applications working across security domain boundaries can trust. The OASIS SAML standard defines precise syntax and rules for requesting, creating, communicating, and using these SAML assertions.

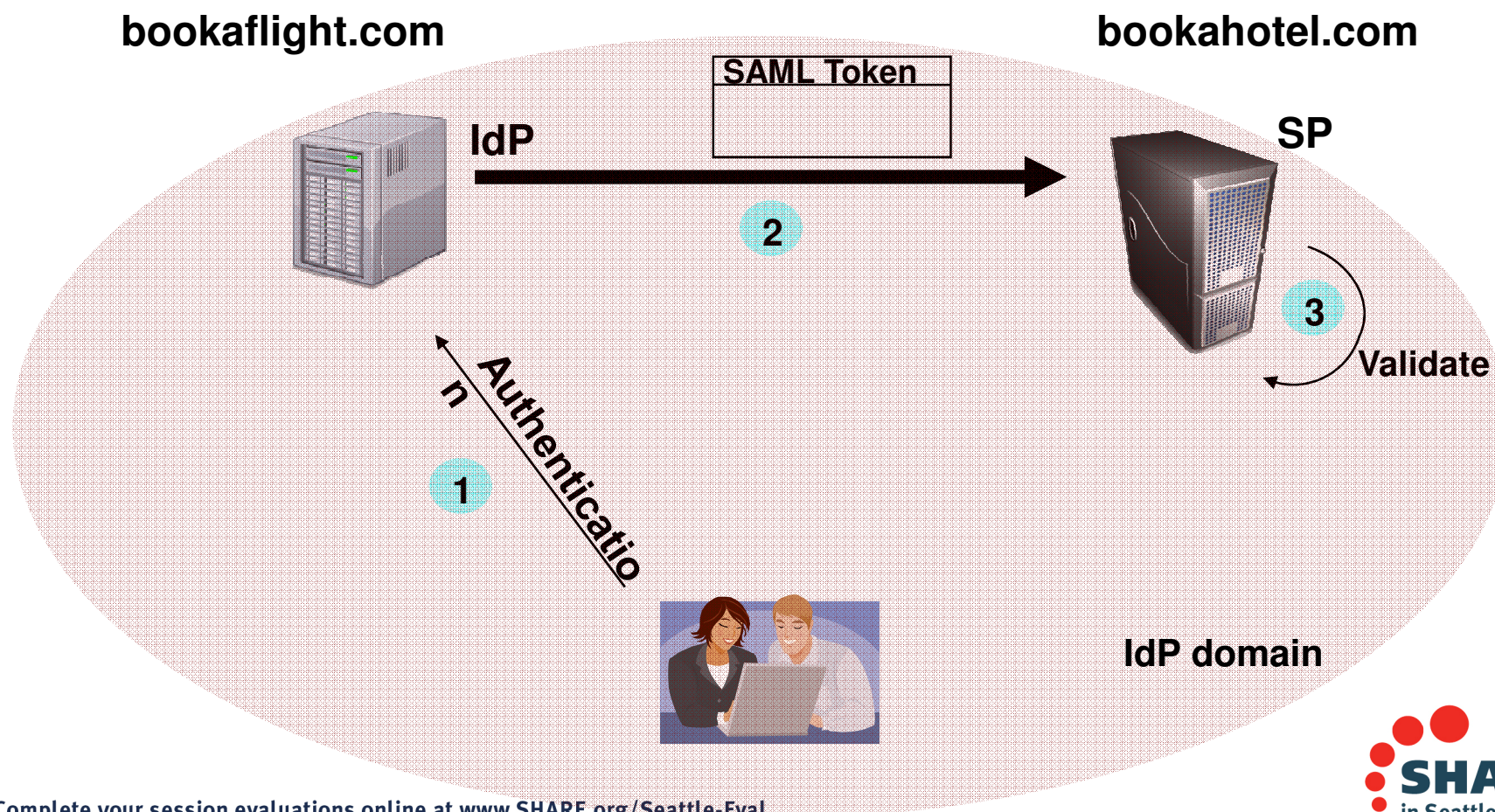
SAML provides a solution for a number of problems:

- It provides an open standard for exchanging security information between Service Providers, also known as Federated Identity.
- It provides a means for end-to-end auditing.
- It provides a common source for user role or authority-based information

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# CICS TS 52 Operational Efficiency...

- Security Assertion Markup Language (SAML)



Complete your session evaluations online at [www.SHARE.org/Seattle-Eval](http://www.SHARE.org/Seattle-Eval)

# Notes

An example of a security assertion while booking a flight and deciding to add a hotel. The identity provider asserts the user's identity to the next service provider.

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## CICS TS 52 Operational Efficiency...

- SAML Feature Pack integrated into CICS 52
  - Linkable interface program DFHSAML
  - Channel and containers to provide input and output
  - DFHSAML links to Secure Token Service (STS), running inside a dedicated JVM server (preferably in a dedicated CICS region)
  - STS parses and validates SAML token
    - Most of STS function is zIIP off loadable

# Notes

CICS supports SAML by providing an application programming interface (API), which consists of a linkable interface DFHSAML, a channel, and a set of containers. The API provides the means to enable CICS applications to validate SAML tokens, to extract SAML parts, and to augment SAML assertions by adding attributes.

SAML support for web services provides the following facilities:

- Automatic token validation and extraction of SAML parts for inbound SOAP messages
- Addition of a SAML token into a web service request
- Augmentation of a SAML token before it is added into an outbound SOAP message

## CICS TS 52 Operational Efficiency...

- Outbound SOAP support for reusing inbound SAML Tokens
  - Previously validated tokens only
  - Requester pipeline retrieves token from DFHSAML-OUTTOKEN container and puts in in WSSE security header of the SOAP request
  - Input SAML token is passed on unchanged
  - Configuration sample samlrequester.xml provided
- Using the DFHTRANSACTION channel
  - No application changes are necessary

# Notes



This chart shows how CICS can support outbound web services with SAML

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# CICS TS 52 Operational Efficiency...

- Transaction Channel & Containers
  - Created for use by SAML, but can be used independently
  - No changes to EXEC CICS API
    - A PUT CONTAINER can create the Transaction Channel
      - CHANNEL(“DFHTRANSACTION”)
    - If the Transaction Channel does not exist, a GET CONTAINER command will return CHANNELERR
  - New JCICS method in Task class

```
Task t = Task.getTask();  
Channel tranChan = t.getTransactionChannel();
```

# Notes

A transaction channel allows applications to be able to make use of containers throughout the transaction, without the need to restructure COMMAREA-based programs.

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# CICS TS 52 Operational Efficiency...

- Kerberos Support
  - Support for inbound tokens from Kerberos systems
  - RACF definitions can map the Kerberos principal to a RACF userid
  - Web services can be configured to handle Kerberos tokens as the security token
    - Alternatively, the userid extracted from the Kerberos token can be used to run the request
  - CICS API enhancement to validate a Kerberos token/extract the RACF userid

```
EXEC CICS VERIFY  
      TOKEN() TOKENLEN() TOKENTYPE(KERBEROS)  
      <ISUSERID(>  
      <ESM_RESPONSE(> <ESM_REASON(>
```

# Notes

CICS Transaction Server for z/OS® provides support for Kerberos.

CICS supports Kerberos using the external security manager (ESM). The level of support depends on the support provided by the ESM. If your ESM is RACF®, support is based on Kerberos Version 5 and Generic Security Services (GSS).

CICS can verify a Kerberos token by configuring a service provider pipeline or by using the API command VERIFY TOKEN.



# CICS TS 52 Operational Efficiency...

- Threadsafe Commands
  - EXTRACT, INQUIRE, SET STATISTICS
  - INQUIRE, SET MONITOR
  - INQUIRE, SET DISPATCHER
  - INQUIRE, SET SYSTEM
  - INQUIRE MVSTCB
  - INQUIRE, SET, DISCARD PROGRAM
  - INQUIRE, SET, DISCARD TRANSACTION
  - INVOKE APPLICATION

# Notes

EXEC CICS commands which are now thread safe in CICS V5.2.



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# CICS TS 52 Operational Efficiency...

- Dispatcher Statistics
  - New fields to understand the TCB pool performance
    - Last Excess TCB Scan
      - Date/time of the last CICS dispatcher excess MVS TCB scan that did not detach any TCBs
    - Last Excess TCB Scan–No TCB Detached
      - Date/time of the last CICS dispatcher excess MVS TCB scan
    - Pool Limit reached
      - Time when pool limit reached
    - Dispatchable Queue (only applicable to the single TCB non-Open TCB modes):
      - Current number of dispatchable tasks queued for the TCB
      - Peak number of dispatchable tasks that have queued for the TCB
      - Average number of dispatchable tasks have queued for the TCB

## Notes

**DSGLXSCN** The date and time of the last CICS dispatcher excess MVS TCB scan that did not detach any TCBs. If the DFHSTUP report shows the date and time as --/--/---- --:--:--:---- then that indicates then an excess TCB scan has not happened yet.

Reset characteristic: not reset

**DSGLXSND** The date and time of the last CICS dispatcher excess MVS TCB scan. If the DFHSTUP report shows the date and time as --/--/---- --:--:--:---- then that indicates then an excess TCB scan has not happened yet.

Reset characteristic: not reset

**DSGTMCDQ** The current number of dispatchable tasks queued for the TCB.

Reset characteristic: not reset

**DSGTMPDQ** The peak number of dispatchable tasks that have been queued for the TCB.

Reset characteristic: reset to current

**DSGTMADQ** The average number of dispatchable tasks that have been queued for the TCB.

Reset characteristic: reset to current

**DSGLTCBL** The time at which the pool reached the maximum TCB limit. If the DFHSTUP report shows the time as --:--:--:---- then that indicates that the pool limit has not been reached since the statistics were last reset.

Reset characteristic: reset to zero

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# CICS TS 52 Operational Efficiency...

- Transaction Statistics
  - New fields to understand the TCB pool performance
    - Time MAXTASKS last changed
    - Time last transaction was attached
    - Time MAXTASK was last reached
    - Currently at MAXTASK indicator
- New Monitoring Domain statistics fields
  - Number of user transactions ended in interval
  - Number of system transactions ended in interval
  - Time last transaction attached
  - Time last transaction ended
  - MAXTASK at last transaction attached
  - Current user tasks at last transaction attached
  - Average user response time
  - Peak user response time
  - Time of peak user response time

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# Notes

There are new statistics records for the Monitor Domain to help you understand how your CICS system is processing user transactions.

Complete your session evaluations online at [www.SHARE.org/Seattle-Eval](http://www.SHARE.org/Seattle-Eval)

## CICS TS 52 Operational Efficiency...

- Private resource statistics
  - New records to support multi-versioning for private resources
    - Library record
    - JVM Programs
    - Programs
    - Program definitions
  - New fields for Platform, Application and Version
  - Reports via DFHSTUP

# Notes



There are new statistics records for the private resources available with the multi-versioning support in CICS TS 52.

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# CICS TS 52 Operational Efficiency...

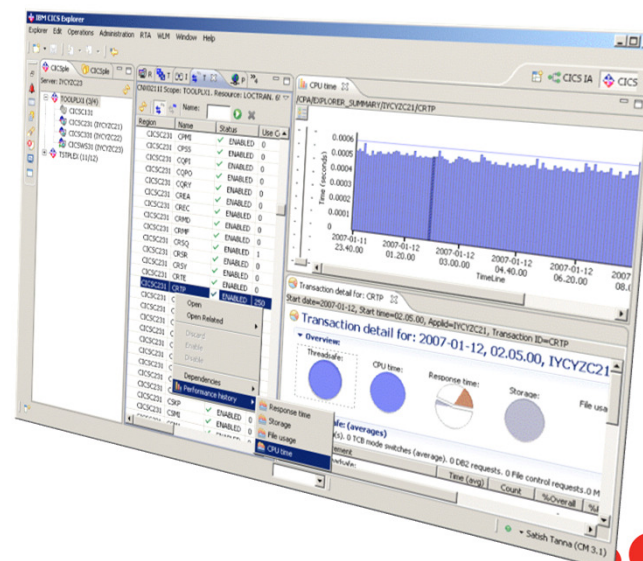
- CICS Performance Analyzer 52\*

## What's new in CICS PA V5.2?

- IBM CICS Transaction Server V5.2 support
- Performance summary reports for platforms and applications
- Multi-version analysis of applications
- Reporting, visualization, statistics alerts and analysis enhancements
- Transaction Performance Alert plug-in view
- Visualization of the performance of individual transactions

## CICS PA enables you to...

- Comprehensive Performance Reporting and Analysis for CICS including DB2, WebSphere MQ, and MVS System Logger
- Understand trends and develop capacity plans
- View statistics and create statistical alerts



\* Separate Product

Complete your session evaluations online at [www.SHARE.org/Seattle-Eval](http://www.SHARE.org/Seattle-Eval)

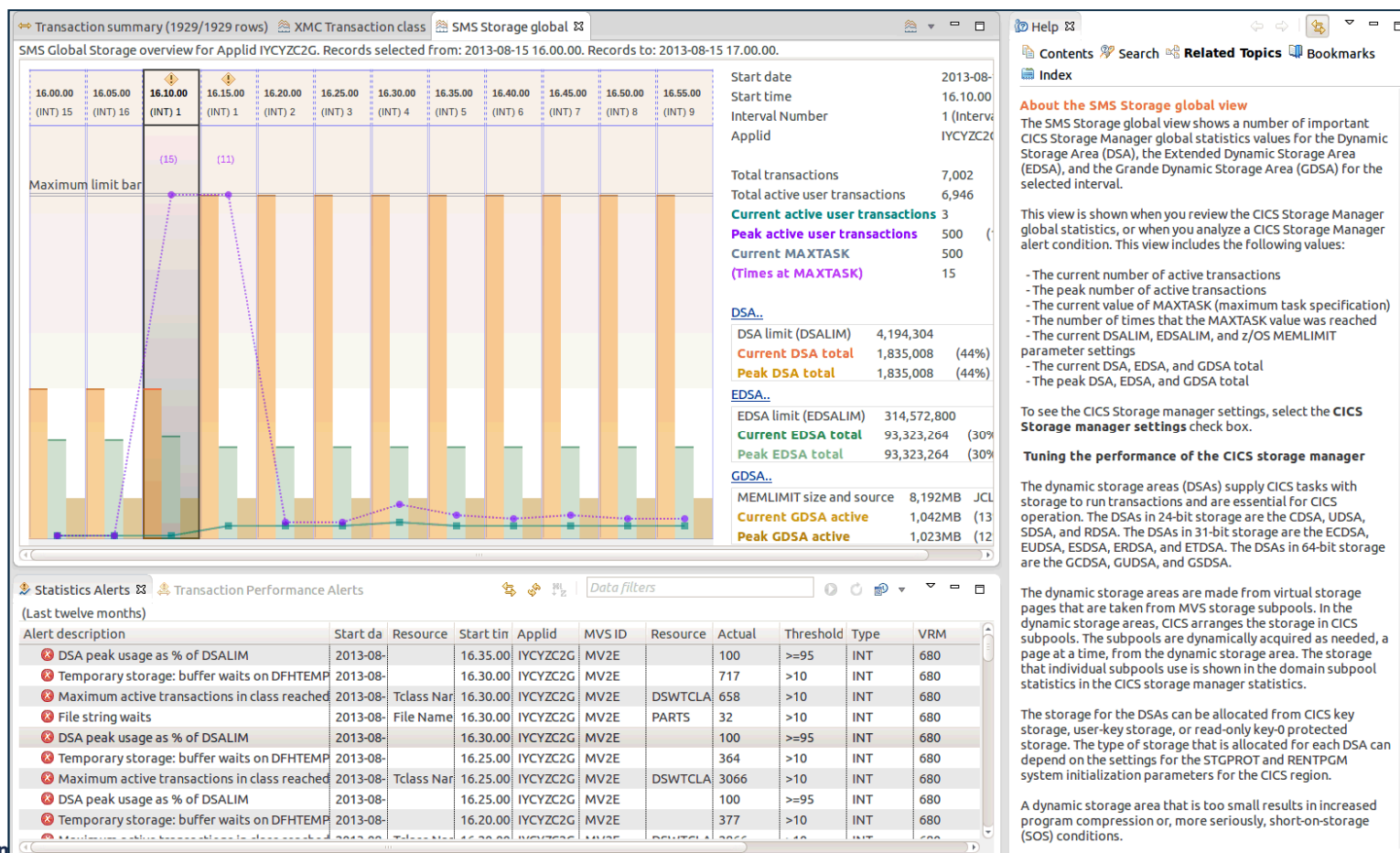
# Notes

CICS PA V5.2 supports the CICS cloud with new Performance Summary reports for platforms and applications, while multi-version application support enables fine-grained analysis of ever-changing mobile applications. New, simply configured, batch reporting of CICS TS and CICS TG statistics provides a wealth of valuable diagnostic and planning information. Plug-in enhancements, which include new Performance Alerts, and more advanced visualization and analysis, help development and systems staff to identify and resolve performance issues quickly.

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# CICS TS 52 Operational Efficiency...

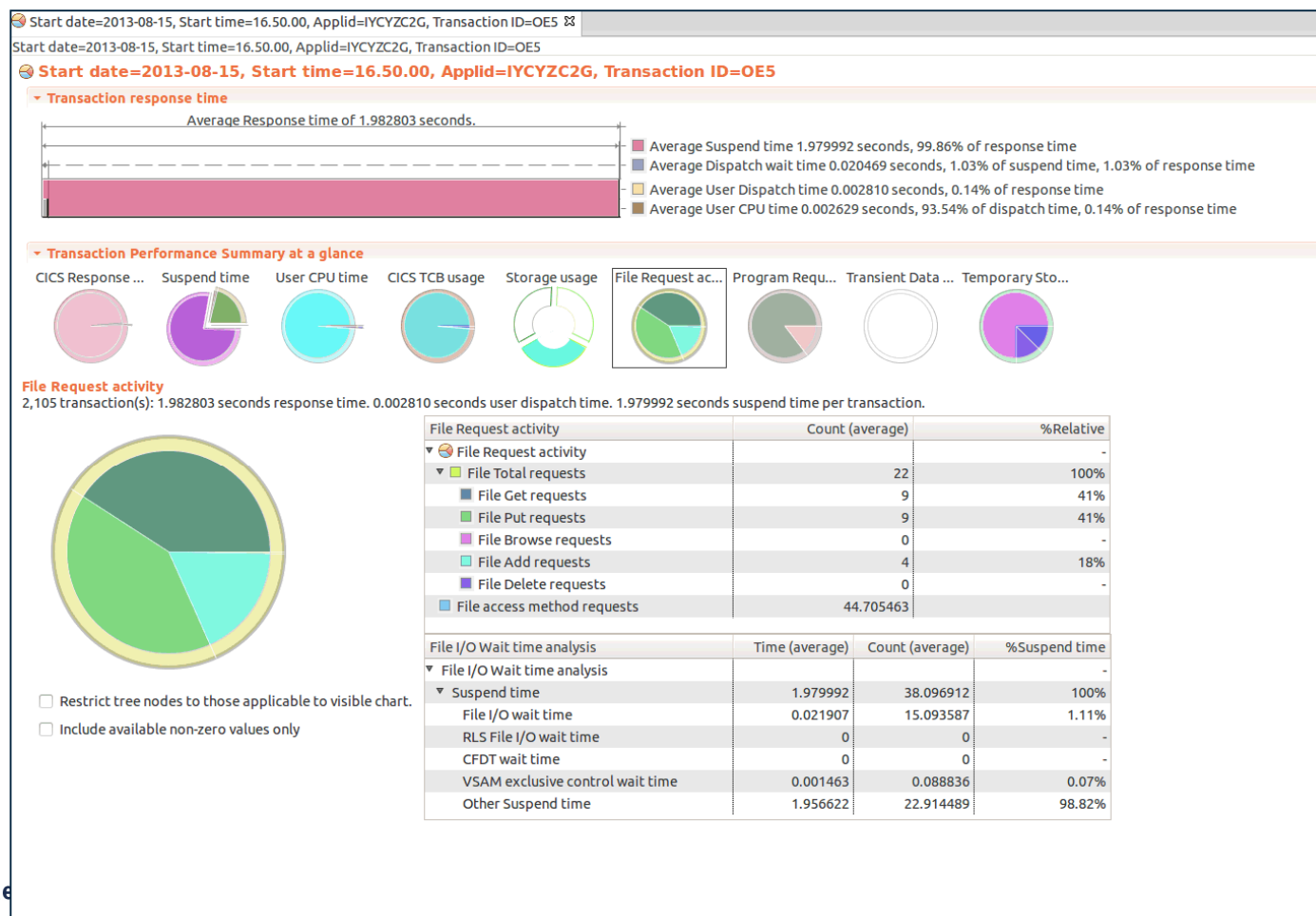
- CICS Performance Analyzer 52
  - Alert Visualizations for Storage, dispatcher, loader, monitoring, etc



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# CICS TS 52 Operational Efficiency...

- CICS Performance Analyzer 52
  - Alert Visualizations for Storage and Dispatcher



Comple

# Cloud



---

**Simplified system  
management and rapid  
application deployment.**

**On premise pattern based  
cloud deployment.**

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# Notes

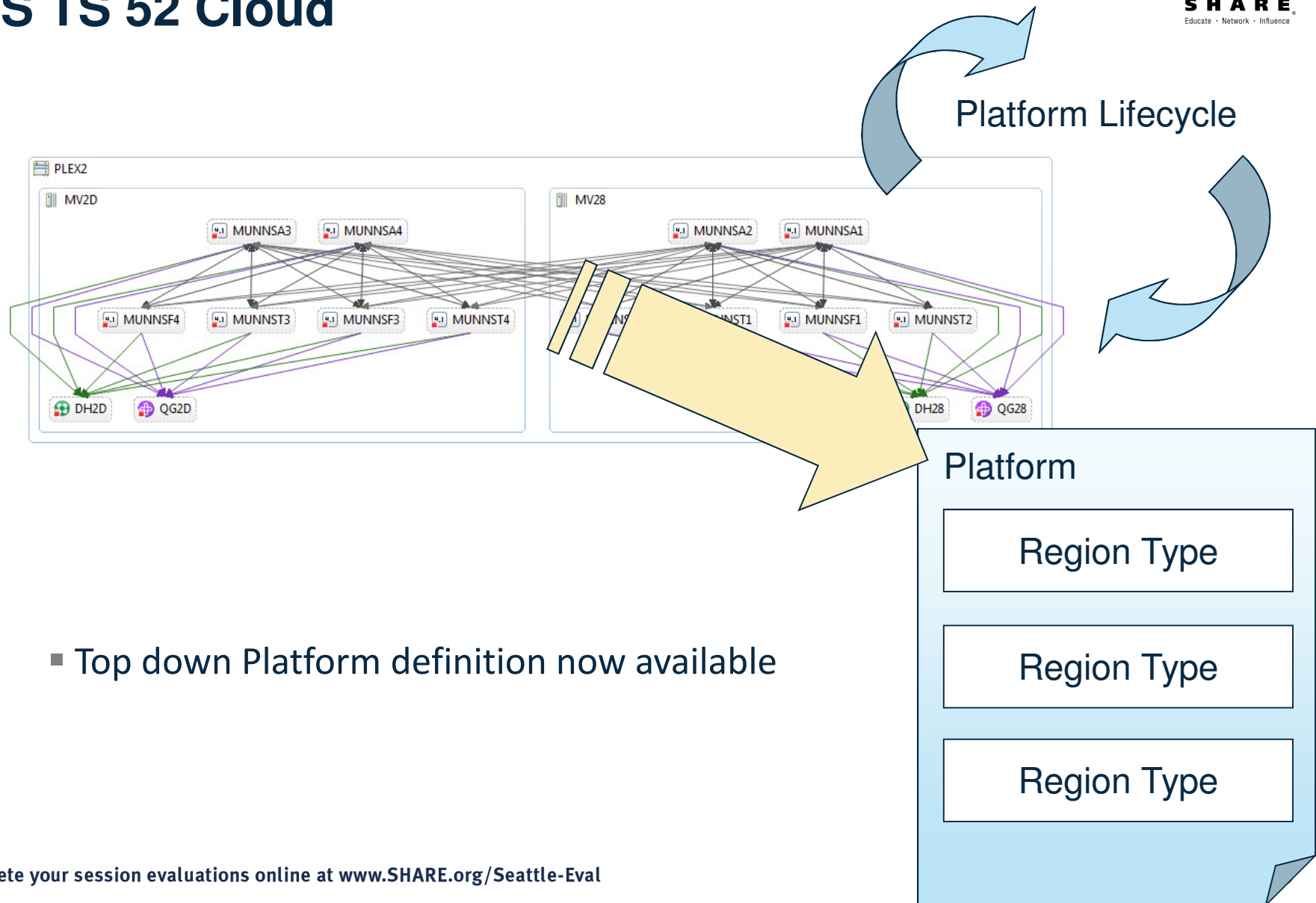
The next slides will discuss the Cloud features of CICS 52.



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# CICS TS 52 Cloud



- Top down Platform definition now available

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# Notes

You can package a CICS platform into a platform bundle to deploy, manage, and monitor it as a single entity. With a platform bundle, you can install and manage the resources for the platform in all of the CICS regions in a platform.

You can use platforms to help you manage your requirements as a single entity. This has a number of benefits; for example:

- You can manage legal requirements for specific geographies.

- You can manage applications, resources, and policies as a group.

- You can manage system characteristics in one place.

- You can monitor applications or system resources as a group.

You can monitor platforms as a logical whole, helping users to manage resource usage and process internal charge-back billings.

- You can easily drill down to the resource consumption of individual resources.

You can undertake problem determination starting with the overall platform and drilling down to individual applications, resources, and policies.

Use a platform instead of a CSYSGRP when you want to manage several groups of systems as a single entity. A CSYSGRP is a method of grouping CICS regions together. A platform provides a point of control for deploying, managing, and monitoring the lifecycle of several groups of systems as a single entity.



# CICS TS 52 Cloud...

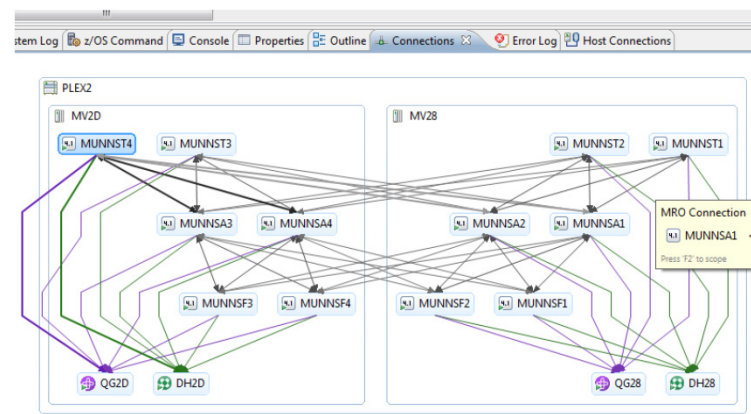
- CICS Deployment Assistant for z/OS V5.2\*

## What's new in CICS DA V5.2?

- Support for IBM CICS Transaction Server V5.2
- New RESTful API to access model
- Cloning of unmanaged and cross-logical partition (LPAR) regions
- New Comparison view
- New TCP/IP usage report.

## CICS DA enables you to...

- Visualize and manage your CICS topology
- Discover existing regions and sub-systems
- Automation creates new CICSplex
- Plexify and clone CICS regions
- Start and stop a CICS region
- Share model with other applications



\* Separate Product

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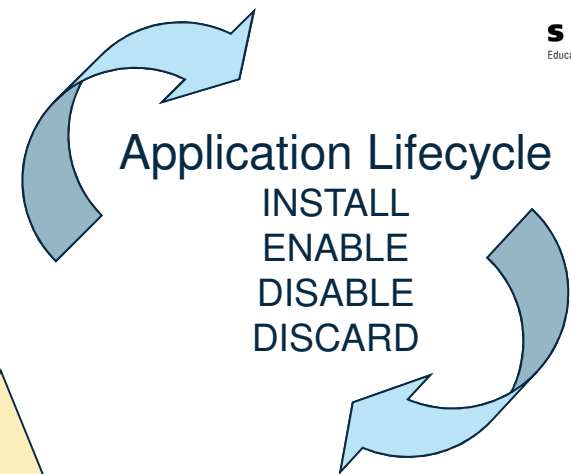
# Notes

CICS DA V5.2 introduces a new RESTful API that allows the deep insight captured in the discovered model to be shared with other management tools, or viewed from mobile devices and browsers. New cloning options deliver value to a wider range of client environments. A new compare option highlights key differences in region configuration and helps to ensure standards conformance and system reliability.

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# First-class applications



## Application

**Name**  
- org.maw.banking.Loans

**Version**  
- 1.2.1

**Resources**  
- LIBRARY, PROGRAM, TRANSACTION, URIMAP  
- (EVENTBINDING, OSGIBUNDLE, ...)

**Dependencies**  
- DB2CONNECTION, JVMSERVER, TCPIPService, ...

**Entry points**  
- operation: browse, update, ...  
- resource: PROGRAM

- A collection of one or more CICS bundles
- Life-cycle as a single entity
- Measure and control resource usage
- Develop in Eclipse/Rational
- Share and promote through SCM

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## Notes ...

You can package a CICS® application into an application bundle to deploy, manage, and monitor it as a single entity. With an application bundle, you can install and manage the resources for the application in all of the CICS regions in a platform.

- Dependency management is handled by CICS, and multiple applications can share individual resources.
- Applications can be monitored as a logical whole across multiple CICS regions within a platform, helping users to manage resource usage and process internal charge-back billings.
- The ability to drill down to the resource consumption of individual application operations is simplified.
- Problem determination can start with the overall application and drill down to individual tasks and resources.

When you have developed a CICS application, you can use the CICS Explorer® to package it for deployment into a Platform. If your application includes Java™, use the CICS Explorer SDK.

To package an application, you first create a CICS bundle for each application component. In the bundle manifest, the CICS bundle declares all the resources that are needed for the application component, grouping them together and enabling you and CICS to manage them as a single entity. The bundle also declares any dependencies on other resources outside the bundle that must be available in the CICS region where the application component runs.

To group together all the resources for all the application components, you then create an application bundle. The application bundle is a type of management bundle that describes the whole application. The application bundle references the CICS bundles that contain the dependencies and resources for each of the application components. When you have created the application bundle, you can export it to the platform where you want to run the application. Each platform has a home directory in zFS where applications and policies are stored.

You also create an application binding to define how the application is deployed to a platform. The application binding is an association that maps the bundles in an application to the region types in the target platform. For example, three bundles might be installed into a single CICS region, or one bundle might be deployed to a region type within the platform, and the other two bundles deployed to another region type within the platform. You may also create more complex application bindings to deploy different bundles to different platforms and region types. The application binding is also stored in the home directory for the platform in zFS.

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## CICS TS 52 Cloud...

- Bundle definition support for additional resources
  - FILE
  - JVMSERVER
  - TCPIP SERVICE
  - PIPELINE
  - WEBSERVICE

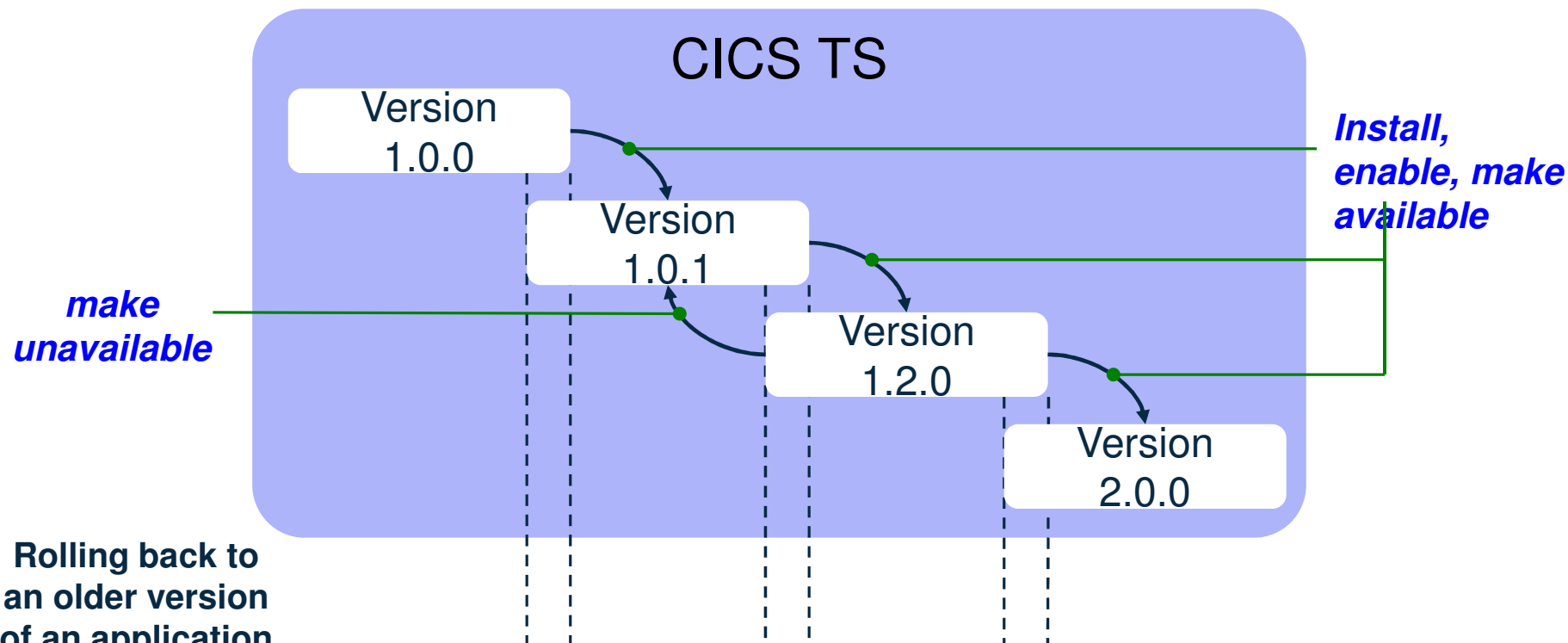
# Notes

The type of resources that can be defined in CICS bundles and managed as part of a platform is broadened to include files, JVM servers, pipelines, TCP/IP services, and web services. In addition, library and program resources that are defined in CICS bundles as part of an application are made private to that version of the application. This facility avoids resource name clashes between applications and application versions, and is particularly useful for server consolidation.

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# CICS TS 52 Cloud...

- Application Multi-versioning



Rolling back to an older version of an application is a simple operation - mark the version as 'unavailable'

*Transition to newer (or older) version*

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Versioning provides support for the "major.minor.micro" system



# Notes

CICS TS V5.2 enables a platform to host multiple versions of the same application, and multiple applications at the same time. New versions of an application can be deployed to the platform without the need to disable or remove the previous version, and be made available to users without service interruption. This can improve service agility and reduce the business risk of deploying applications as users can be progressively switched to the new version to gain confidence in it, or switched to an older version if there are any issues.

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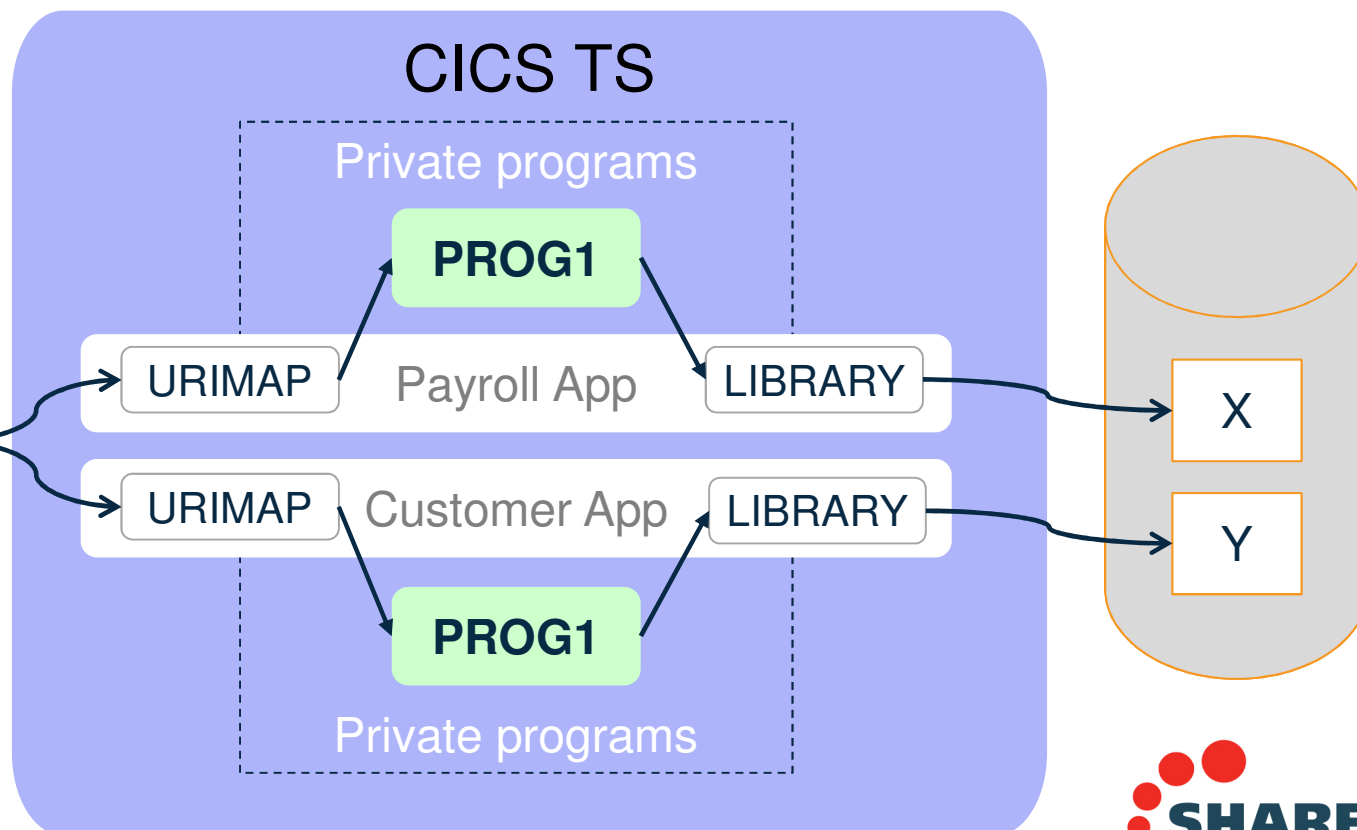


# CICS TS 52 Cloud...

- Application Multi-versioning

Resources private to an application

**PROGRAM LIBRARY**



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# Notes

Library and program resources that are defined in CICS® bundles as part of an application can be made private to that version of the application. This separation avoids resource name clashes between applications and application versions, and is useful for server consolidation.

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# CICS TS 52 Cloud...

- CICS Interdependency Analyzer\*

## What's new in CICS IA V5.2?

- Support for CICS® Transaction Server V5.2
- Enhanced cloud application analysis
- New resource use and dependencies by platform
- New visualization of TCB, region, and application switches
- New plug-in view for Program Details
- New affinity analysis in the plug-in
- New Dependency collection sampling technique
- Deeper thread-safe analysis

## CICS IA enables you to...

- Visualize application flow and structure
- Identify mobile and web service candidates
- Identify threadsafe / non-threadsafe programs
- Isolate and remove affinities
- Speed CICSplex® SM workload management

Program ID	Program Name	ASST	Consistency	User
TSTACV0A	CICSIAO.TEST.LOADLIB	CICSAPI	QUASRNT	USER
TSTACV0B	CICSIAO.TEST.LOADLIB	CICSAPI	QUASRNT	USER
TSTACV0C	CICSIAO.TEST.LOADLIB	CICSAPI	QUASRNT	USER
TSTACV0D	CICSIAO.TEST.LOADLIB	CICSAPI	QUASRNT	USER

Commitment	Function	Type	Object	Object Len.	Object ID	Program	Use Count	Thread
MD	CLDRF	Q	QURIFP	6	000003..	000079..	3	Y
CICS	INQUIRE	Q	COUPTL	0	000003..	000079..	3	Y
MQ	INQUIRE	Q	QURIFP	6	000003..	000079..	8	Y
CICS	TRUC	Q	PROCPAL	6	000003..	000079..	3	Y
CICS	TRUC	Q	PROCPAL	6	000003..	000079..	2	Y
MQ	OSPL	Q	QURIFP	6	000003..	000079..	2	Y
CICS	RCPTM	M	MAP	7	000004..	000079..	3	N
CICS	RCPTM	M	MAP	7	000004..	000079..	6	N
CICS	RCPTM	M	MAPSET	7	000004..	000079..	2	N
CICS	RCPTM	M	MAPSET	7	000004..	000079..	6	N
CICS	SEND	M	MAP	7	000004..	000079..	2	N
CICS	SEND	M	MAP	7	000004..	000079..	6	N
LIB	SEND	M	MAPSET	7	000004..	000079..	4	N
CICS	SEND	M	MAPSET	7	000004..	000079..	6	N
CICS	SEND	M	MAPSET	7	000004..	000079..	7	N

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# Notes

CICS IA V5.2 collects more information about applications and platforms, to help clients create a more dynamic CICS cloud environment. The new Command Flow visualization provides yet more insight into program behavior. A new variable sampling technique is introduced to help reduce the CPU overhead by up to 75% while collecting data. This technique can be applied to production regions to balance the impact of collection, the fidelity of the data collected, and production throughput.

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# CICS TS 52 Cloud...

- CICS Configuration Manager\*

## What's new in CICS CM V5.2?

- Plug-in support for migration schemes
- New deployment analysis from plug-in
- New support for IBM CICSplex SM topology and workload management definitions
- New support for NIST SP800-131A security standard
- New migration of TCPIP SERVICE and IPCONN definitions for high availability connections

## CICS CM enables you to...

- Manage changes throughout the life-cycle
- Create reports to identify redundant definitions, show resource relationships, and change management history
- Manage audit, back-out and change authorizations



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# Notes

CICS CM V5.2 improves DevOps collaboration with new plug-in support for Migration Schemes and Deployment Analysis. New support to manage CICSplex SM Topology and Workload Management definitions allows dynamic mobile workloads to be quickly reconfigured.

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# CICS TS 52 Explorer

- Support for new Bundle and Policy definitions
- Purge action for shared TS Queues
- Mixed case credentials
- System group editor
- New views
  - Dumps
  - Task related user exits
  - Repository view
  - Active workloads

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# Notes

CICS Explorer, the strategic management interface for CICS TS, is upgraded to CICS Explorer V5.2. This is a major update to support the latest CICS TS and CICS Tools capabilities.

CICS Explorer V5.2 is updated to include support for the new and enhanced capabilities of this CICS TS deliverable, such as:

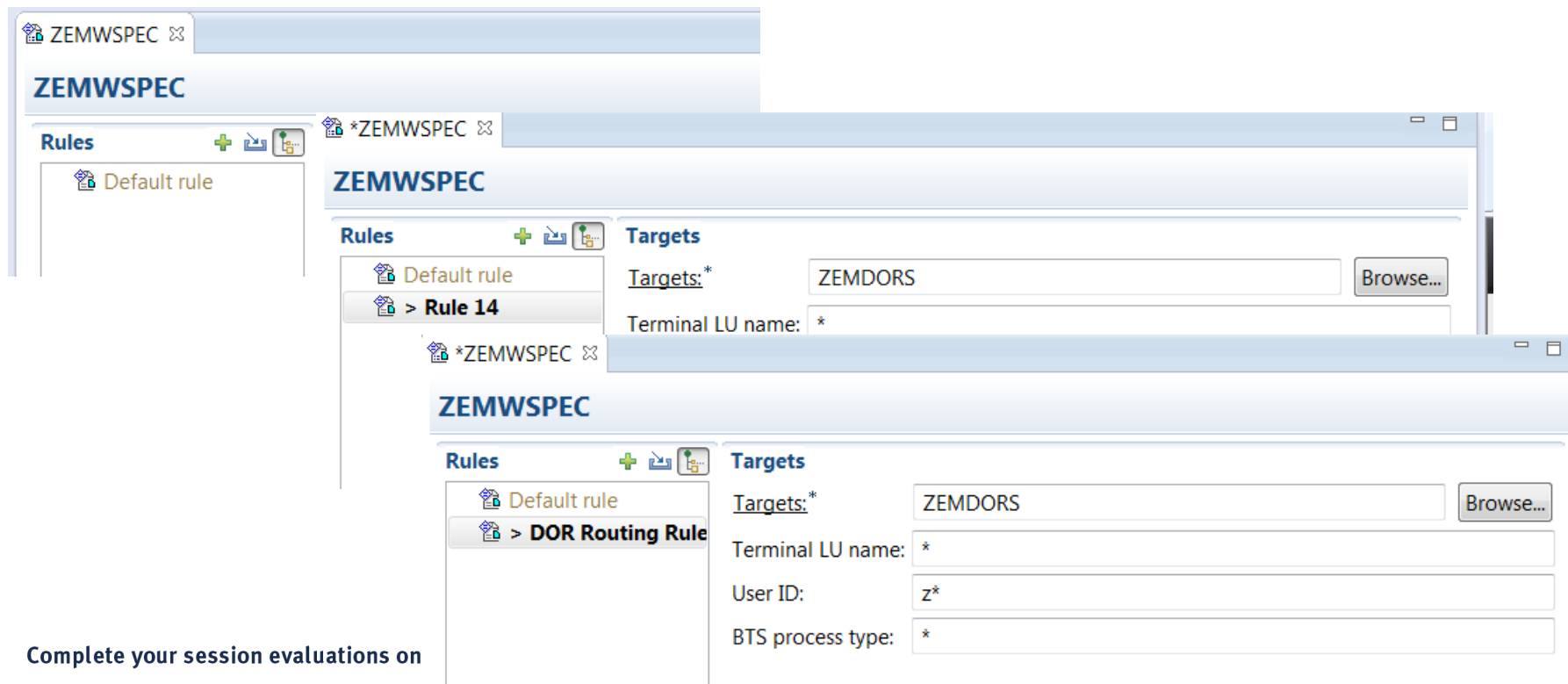
- \* Enhanced support for CICSplex SM WLM
- \* Improvements in support for modification of associated CICSplex SM workload definitions, using a new sophisticated editor
- \* Intuitive access to information about the state of running workloads

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# CICS TS 52 Explorer...

- Workload specification editor
  - Creates default routing rules
  - Add and rename additional routing rules
  - Can import an existing rule



Complete your session evaluations on

## Notes

CICS Explorer presents a new way of managing your CICSplex SM workloads. There is no change to the way the CICSplex SM workload management operates, but by using CICS Explorer you can get a simplified and consolidated view of the CICSplex SM elements that control where, and how, the work is distributed in a workload.

Complete your session evaluations online at [www.SHARE.org/Seattle-Eval](http://www.SHARE.org/Seattle-Eval)

# CICS TS 52 Documentation

- IBM Knowledge Center
  - All IBM product documentation from one URL
  - Replacing online Information Centers for all supported versions of CICS from March 2014
    - Downloadable ICs will still be available

**<http://www.ibm.com/support/knowledgecenter/>**



# Notes

Documentation for CICS® is supplied in the IBM® Knowledge Center. This format offers benefits in searching, filtering, saving, customizing, and printing documentation for all IBM products. IBM Knowledge Center provides information for over 2500 IBM products. The information that was previously provided in product information centers is in IBM Knowledge Center. IBM Knowledge Center provides integrated tools for finding, filtering, customizing, saving, and sharing information.

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# CICS TS 52 Documentation...



The screenshot shows the IBM Knowledge Center interface. At the top, there is a navigation bar with the IBM logo, 'IBM Knowledge Center', 'Sign In', and 'English' dropdown. Below this is a search bar with a magnifying glass icon and a 'Save Search' button. A breadcrumb trail shows 'Products: CICS Transaction Server 5.2.0 open beta' with 'Clear' and 'Add Products...' options. On the left, a 'Table of Contents' sidebar is open, showing a tree view under 'CICS' > 'CICS Transaction Server' > 'CICS Transaction Server'. The main content area is titled 'IBM Knowledge Center' and contains a welcome message: 'Welcome to the new home for IBM product documentation. Customize IBM Knowledge Center to design the experience that you want with the technology, products, and versions that you use. You can also interact with IBM and with your colleagues by using the "My Knowledge Center" features.' Below the welcome message are three columns of links: 'Getting Started' (with a search icon), 'My Knowledge Center' (with a book icon), and 'Resources' (with a person icon). Each column contains several descriptive links.

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# Notes

## Integration

IBM Knowledge Center is one place to go to find information about all IBM products that you use.

## Consistency

There were differences in the presentation and function of information centers between products. IBM Knowledge Center provides the same set of functions for all product information.

## Customization

You can use IBM Knowledge Center filtering capabilities to select the information that you need to use. You can build the information that you need into customized collections. For example, you might create a collection about the products that you use regularly, or a collection about a particular task, involving multiple products, that you plan to do in the coming months. IBM updates to the information in your collection are automatically reflected and you can create PDFs of your collections.

## Feedback

You can rate the quality of topics and share your comments and tips with other users in the IBM Knowledge Center. You can continue to send feedback privately to IBM, if you prefer.

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# IBM CICS Transaction Server z13 exploitation

## Statement of Direction

IBM intends that a future release of IBM CICS Transaction Server for z/OS will support 64-bit SDK for z/OS, Java Technology Edition, Version 8 (Java 8). This support will enable the use of new facilities delivered by IBM z13 which are exploited by Java 8, including 'Single Instruction Multiple Data' (SIMD) instructions for vector operations and simultaneous multithreading (SMT).

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# IBM CICS Transaction Server V5.3 open beta

enterprise grade mixed language application serving



## Service Agility

Enhanced support for Java and the WebSphere Liberty profile

- Additional Liberty features
- Enhanced interoperability
- Simplified management
- Enhanced Java SE support



## Operational Efficiency

Performance optimizations, enhanced metrics and additional security

- Web service optimizations
- Performance improvements
- Enhanced metrics
- Additional security options



## Cloud with DevOps

New cloud and DevOps support to automate CICS deployments

- Automated builds
- Scripted deployments
- UrbanCode Deploy support
- Enhanced cloud enablement

*Planned open beta availability : 23<sup>rd</sup> Mar 2015*

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# IBM CICS Transaction Server V5

the premier enterprise grade mixed language application server



## Service Agility

Runtime support for production ready web applications.

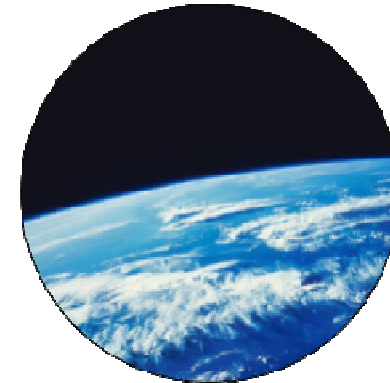
Integration with mobile applications.



## Operational Efficiency

Increased system capacity and capability to achieve more with less.

Automatic control of critical resources using policies.



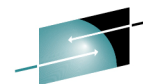
## Cloud Enablement

Simplified system management and rapid application deployment.

On premise pattern based cloud deployment.

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