

HOST: Hi, and welcome to the “Did you say Mainframe?” podcast series. This is where we regularly interview IBM technical experts who can help you to understand important IBM mainframe hardware and software issues. I'm your host Nick Garrod.

Today we're going to talk about [the integrated Event Processing support provided in CICS Transaction Server version 4.1]

Our guest today is [Catherine Moxey] from [CICS Worldwide Development in Hursley, UK]. Hi Catherine, it's great to have you here.

SME: Thank you very much Nick, and hello to everyone

HOST: Before we begin, I'd like to mention to our listeners that there is more information in [a white papers and a CICS Redbook.] I'll be giving out more information at the end of this podcast.

HOST Q1: Catherine, I've heard a lot about Business Event Processing recently, and I believe that the latest release of CICS has support for this?

SME A1: That's right. Business Event Processing is about gaining greater insight into the business processing you carry out, to be able to make better and faster decisions. This uses events that carry information about things that are happening in the business, such as an event when a customer orders an item, or when a stock trade is carried out. Given that so much business processing runs in CICS systems, we wanted a way to make that kind of information available; in other words, to make it easy to emit business events from CICS applications.

HOST Q2: What actually is a business event?

SME A2: That's a good question. A business event could be anything that happens which is of significance to the business, and by business I really mean anything that is important or gives value, not just commercial business, so this could apply to things that happen in education or healthcare and so on. Also, events about what is happening in the IT infrastructure could be business events - if a system has bottlenecks or inefficiencies then that impacts your business - but in CICS terms we are really focussed on events around the important things that an application does. So examples could be an order being placed, an insurance policy being taken out, customer account details being updated, enrolling on an education class, money being withdrawn, an item being scheduled for manufacture, and so on and so on. Those are the kinds of events that are actually being processed by CICS applications all the time, and now CICS provides a way to find out more about them.

HOST Q3: What kinds of things can I do with these events from CICS applications?

SME A3: CICS supports a variety of event formats and emission options, allowing you to use events to monitor processing by sending events to WebSphere Business Monitor, to look for particular patterns of events from CICS and other event sources using WebSphere Business Events, to drive additional processing when events occur, and much more. To take the example of the order being placed event, just by sending those events to WebSphere Business Monitor you could gain information on such things as which products are most popular, which customers are placing the highest value orders, or what times of day orders are most commonly placed. If you also emit events at other stages during the order processing, you could measure key performance indicators such as the average time taken from receipt of an order to dispatch. To consider a manufacturing scenario, you could use events to request parts from suppliers at the optimal times. Detection of event patterns could be used both to spot opportunities (if someone requests quotes on several types of insurance, but takes out only one, or no, policies, that could be an opportunity to offer them the other types), and to help with compliance to regulations (such as by detecting a suspicious pattern of stock trades).

HOST Q4: That sounds great, but how easy is it to use? Do I have to change my applications to use this?

SME A4: You don't have to change the applications. One of our main goals was to provide a means of extracting the events without having to make any changes or to recompile the applications. This is done by defining event specifications and deploying those into CICS for the events to be detected when they happen. The event specifications are created using tooling, defining the data to be included in the event, and specifying to the CICS runtime how to detect when the events happen, as well as indicating how they are to be formatted and where the events are to be emitted. The CICS runtime will then detect events with specifications which are currently enabled, and capture the events and emit them in the requested format.

HOST Q5: So how is CICS able to detect the events?

SME A5: This support makes use of the EXEC CICS commands which most CICS applications use to carry out their processing. An event capture specification indicates that when a particular command is issued (which can be one of a supported subset of the EXEC CICS API) and when various other filtering conditions are true, then this is an instance of the event. So, let's suppose that we want to emit an event when a customer places a high-value order, and let's also suppose that we have a program which processes orders, which gets linked to whenever an order is placed. So we could specify that the event is to be captured when the order processing program is invoked via EXEC CICS LINK, which would give us an event whenever an order is placed. To get the high-value orders, we could specify a condition, or predicate, based on the size of the order which is passed on the LINK command, either in a commarea or in a container within a channel. That data passed on the LINK could also be used to provide some information that is to be emitted as part of the event, such as the customer placing the order, the item ordered, and the order value. Or, to take another example, an insurance quote event might be triggered by an EXEC CICS READ FILE command on a particular file, with information about the type of

insurance obtained from the record read from the file, and included as event data. So, events can be captured when a supported EXEC CICS command is issued, and when command options or data available on the command have particular values.

HOST Q5a: Some applications can be rather complicated, how can I work out what to put in a capture specification?

SME A5a: This does require a degree of understanding of your applications, but there are some tools which can help with this. You can use CICS Interdependency Analyzer either standalone or as a plug-in to the CICS Explorer Use CICS IA to discover which transactions update which resources (such as where is my customer address file updated, where are order numbers read from the TS queue) and runtime flow (for example, which program is linked to when an insurance quote is requested).. WebSphere Studio Asset Analyzer provides code scanning and analysis. If all else fails, you could try defining some capture specifications which you think might be roughly right, and see what events arise.

HOST Q6: What if my programs don't use EXEC CICS commands?

SME A6: In that case, there are two options available to you. Firstly, as well as the subset of EXEC CICS commands, you can also specify that an event is to be captured when a program is initiated, regardless of whether that is via start, entering a transaction ID at a terminal, a web service invocation and so on. Since business events are quite high-level concepts, that might be sufficient. The other option involves making a one-time change to the program, by using the new EXEC CICS SIGNAL EVENT command. This command doesn't do anything in itself, but it can be used in an event capture specification to cause events to be emitted. This command allows you, particularly if you are a vendor who provides CICS applications, to event enable a program. Data can be specified on the SIGNAL EVENT command either in a data area or in containers within a channel, and the capture specification can make use of that data for filtering or as data to be emitted in the event.

HOST Q7: How do I get this, and are there any pre-reqs?

SME A7: The functionality is provided as a base part of CICS Transaction Server, in the latest release, version 4.1. The tool for creating event specifications is the Event Binding Editor, and this is part of the CICS Explorer, an Eclipse-based interface for CICS available as a free download. If you want to monitor events using WebSphere Business Monitor, or to look for patterns using WebSphere Business Events, then those are both separate IBM products. If you send events out of CICS, to products such as these or to be consumed by other systems, then you would use WebSphere MQ as the transport for the events. Within CICS, you can drive a CICS transaction when an event is produced, or you can write the event to a temporary storage queue. The TS queue option is especially useful for testing that you get the events you are expecting.

HOST Q8: You mentioned that the tooling for event specifications is the Event Binding Editor. Why is it called that?

SME A8: Using the tooling, you create event specifications as part of an event binding, hence the name, and this groups together events which are to be formatted and emitted in the same way. Event bindings are actually deployed as part of a Bundle, which is a new resource type in CICS TS V4.1, so the Event Binding Editor allows you to create event bindings within Bundle Projects. You could, for example, include all the events for the Order Processing application within one bundle, some in an event binding which emits the events to WebSphere Business Monitor, and others in an event binding which drives a CICS transaction when the events occur. When the bundle is installed into CICS, which can be done via the CICS Explorer (or you could use CICSplex SM or CEDA), the event bindings will be installed and the event capture specifications will be enabled in CICS (assuming the bundle is installed as enabled).

HOST Q9: Can I use any of this capability on CICS version 3?

SME A9: Well, all the capabilities I have been talking about, such as non-invasive event capture using event specifications, and emission in a range of formats, are only included with CICS TS V4.1. However, there is a SupportPac for version 3, known as CB11, which can be used to emit events from CICS programs to WebSphere Business Events. This is intended to allow you to leverage the power of WebSphere Business Events with CICS version 3, and to use it you need to code a small change to your programs where you want events to be emitted, which invokes the SupportPac program and passes the event data. The SupportPac formats the events for consumption by WebSphere Business Events, using a format compatible with that produced by CICS TS V4.1, and emits the events via WebSphere MQ. The SupportPac will also run on CICS V4.1, but the recommendation is to migrate over to using event specifications, and the SupportPac documentation describes how to do that.

HOST Q10: The SupportPac sounds useful, in fact we did a Podcast on that last year (tinyurl.com/ep2wbe) but I would like to get to version 4.1 and start trying the full event support provided there. How can I find out more?

SME A10: The first place of reference is always the CICS Information Center, and there is a section on 'Event Processing - Start Here' which pulls together the main topics. We also have a couple of white papers and some YouTube videos, and I think particularly useful is a Redbook entitled 'Implementing Event Processing with CICS' which goes into full details of creating event specifications and integrating with various event consumers.

HOST: Thank you, [Catherine], I found that very interesting.

SME: Thank you very much, I always enjoy talking about our event processing support as I believe this can offer a lot of value.

HOST: Well, that wraps up this podcast discussion. To find out more about [CICS Events and the various information that is out there to help you understand and

implement some of the new function], [please go to the description for this podcast at:](http://www.ibm.com/software/os/systemz/podcasts/websphereonz/)
<http://www.ibm.com/software/os/systemz/podcasts/websphereonz/>
[[*To be updated appropriately*]]

Join us next time as we talk about another important mainframe topic. For now, this is Nick Garrod saying “Thanks for listening”.

Speaker information:

Title: CICS TS V4.1 Event Processing Support

Summary: Hear about how you can emit business events from CICS applications without having to change the programs.

Speaker Name: Catherine Moxey

Speaker Bio:

Catherine Moxey is an IBM Senior Technical Staff Member in CICS Transaction Server development, and leads the architecture and design for CICS Event Processing support.

Headshot from bluepages:
To be provided.

Offer: Download

References:

InfoCenter getting started topic

https://publib.boulder.ibm.com/infocenter/cicsts/v4r1/index.jsp?topic=/com.ibm.cics.ts.eventprocessing.doc/topics/dfhep_startHere.html

White Paper with overview of business event processing with CICS:

<ftp://ftp.software.ibm.com/common/ssi/sa/wh/n/wsw14043usen/WSW14043USEN.PDF>

White paper on CICS events in V4.1:

<ftp://ftp.software.ibm.com/common/ssi/sa/wh/n/zsw03120usen/ZSW03120USEN.PDF>

Redbook on CICS Event Processing:

<http://www.redbooks.ibm.com/abstracts/sg247792.html>