Welcome to this IBM Rational podcast, Using the System Architect Migration Toolkit to Migrate Your DoDAF 1.5 model to DoDAF 2.0. I'm Kimberly Gist with IBM. Many IBM Rational System Architect users have an inventory of model assets in the U.S. Department of Defense Architecture Framework -- or, DoDAF -- that include Version 1.5 and other sources.

These model assets can be in DoDAF Classic, DoDAF ABM, in other models, or in all these forms. The Department of Defense has issued a directive calling for the use of DoDAF Version 2.0, which necessitates migration or rebuilding of these existing assets.

Today Chuck Faris, Senior Enterprise Architecture Specialist with IBM Unleash the Lab, joins us to discuss the System Architect Migration Toolkit and how it has been designed to reduce the cost and time needed for the migration of model assets to DoDAF 2.0. Chuck, thank you for joining us today. I'm looking forward to our question and answer period.

FARIS: Thanks, Kimberly. It's a pleasure to be talking with you.
GIST: Well, great. Our first question, really simple. What is the purpose of the DoDAF 2.0 Migration Toolkit?

FARIS: So the DoDAF 2 Migration Toolkit actually does what its name says: it supports the migration or transformation of System Architect DoDAF 1.5 and other data into DoDAF 2.

GIST: Well, great. In the past, migrations to new versions were done automatically when an encyclopedia was opened for the first time. Why was a tool kit approach taken for the migration to DoDAF 2.0?

FARIS: You're right. Previous migrations were completely automated. For example, the migration between DoDAF 1.0 and DoDAF 1.5 or the migration between versions of ULM or DPMN or other migrations were completely automated. But as many in the DoDAF community have said, standard migration -- a hardcoded migration between DoDAF 1.5 and DoDAF 2 -- just can't be done because of conceptual difference between them.

Another important reason for a tool kit rather than the hard coded migration approach is that customers captured data differently in DoDAF 1.5, and the mapping of that captured
data into DoDAF 2 is going to be different for each customer. If you think of the frequently used example of operational node and system node in DoDAF 1.5, they could be used to represent one of several different types in DoDAF 1.5 -- things like performer, organization, person, system, location, service or something else.

So, an external means of allowing customers to specify exactly what they used it as and what their mapping to DoDAF 2 is going to be was needed. And in some cases, conditional mapping was needed. They're not always as straightforward as take every operational node and turn it into a performer; there's clearly some cases where that's going to be somewhat different.

Clearly an automated mechanism was needed to support many customers with the inventory of models that Kimberly spoke about in DoDAF 1.5 in both Classic and ABM. And our customers in both the DOD and Aerospace and Defense made it really clear that they needed to continue making use of these model assets while complying with the directive to use DoDAF 2.

So despite the conceptual differences between them and the technical changes in System Architect, an automated migration was clearly needed and in fact, it was just the right thing to do.
GIST: Well, you mentioned that there are some clear differences between DoDAF 1.5 and 2.0. What are some of them?

FARIS: So besides the different objects and relationship types, DoDAF 2 requires that all of the knowledge, all the information including the relationship information, is contained in the data. The diagrams, while meaningful, are simply views of the relationship. So the diagrams express the relationships that are already contained in the database.

And DoDAF 2 requires pretty extensive sub-typing to be implemented properly. The implementation of these changes necessitated the use of what we call heterogeneous references that contain subtypes and do it throughout the System Architect implementation.

GIST: Great, Chuck. Well, how would you say that DoDAF 2.0, the Migration Toolkit will work?

FARIS: So the challenge was to give customers control over this migration while providing an automated migration...an automated transformation. And as I said earlier, we needed to externalize the mapping from DoDAF 1.5 to DoDAF 2 to give customers the ability to adjust to their
specific DoDAF usage in 1.5 and what they were going to do in DoDAF 2, as well.

We considered several different ways to make the conversion mechanism flexible and external so that users could control it, and we decided on using the System Architect Report Generator as the external part of the conversion. It's the place where customers would control the mapping and they did control the transformation, including conditional transformation.

The Report Generator is a well-known part of System Architect, and users typically know it. The changes needed to support the Migration Toolkit are fairly easy to learn and it's a skill that most System Architect users already have.

A major advantage of using a tool kit for the migration is that that Report Generator contains knowledge of the objects, their attributes and relationships that are in the meta model in DoDAF and System Architect. And they can constrain the mapping to only those things that are actually in the meta model in DoDAF 1.5.

So while the Report Generator is kind of the central core unit of this Migration Toolkit, there are several other parts to the tool kit as well.
GIST: Chuck, what would you say are the advantages and disadvantages of the tool kit approach?

FARIS: Well, Kimberly, let me, I'll cover the disadvantage first. I've already mentioned it. There is no hard coded conversion that simply converts your DoDAF 1.5 model to DoDAF 2 for reasons we've already talked about.

As you'll see though, there are many Report Generator reports that are included in the tool kit and either used as is or modified to each customer's specific use. So a customer can take into account his specific use of node as we talked about before and its conversion into a subtype or performer.

There are several advantages to the tool kit, obviously. And that is that in the end it supports the migration of DoDAF 1.5 model assets to DoDAF 2 while giving customers control over the transformations.

As we noted earlier, the tool kit contains many reports which can be used as templates or starting points in the transformations. And the tool kit provides the needed flexibility to specify the transformations that is specific to each customer's use of DoDAF.
So the tool kit...the use of the tool kit creates a data-centric DoDAF 2 encyclopedia by capturing the definitions and relationship information from DoDAF 1.5 and creating DoDAF 2 definitions that are kind of the fundamental building block of data centricity.

The data-centric definitions then are used to generate diagrams, matrices, and reports in DoDAF 2. And while this is accomplished using a Report Generator and a style sheet that ships with it, that basically outputs the System Architect XML which is then imported directly into the DoDAF 2 encyclopedia.

GIST: Okay. Well, then Chuck, our final question for today would be, what does the Migration Toolkit contain. Is it more than the Reporter Generator reports? Or less? What should you expect to get in the Migration Toolkit?

FARIS: So it contains all the tools needed to migrate from DoDAF 1.5 to DoDAF 2. The Reporter Generator reports are part of the tool kit, and let me also mention that each report is documented in a separate Word document that talks about the specific transformation that each report accomplishes.

The tool kit also contains a macro that primes the DoDAF 1.5 encyclopedia with needed Global Unique IDs -- GUIDs -- to
accommodate some symbol transformations that has to happen. So these GUIDs are used in these transformations, and the macro simply runs against the encyclopedia and presets GUIDs into symbols as needed.

The tool kit also contains the transformation style sheet that creates System Architect XML as Reporter Generator output. The style sheet has a little accompanying table that goes with it the controls, the transformation of property types. The reference properties are transformed as you do these migrations.

And this, like everything else, is preset to support the Report Generator tools in the tool kit. And the reports themselves, there's actually three sets of Reporter Generator reports. There are those that can be applied to DoDAF Classic, those that are applied to DoDAF ABM and a set of reports that can be applied to both DoDAF ABM and DoDAF Classic.

One more that I'll mention is that there's a Migration Toolkit Workshop that you can use for self study or you can use instructor training. Services will gladly deliver that training. But it's available out on the Web, as is everything else. The tool kit is actually available on IBM developerWorks.
GIST: Well, thank you, Chuck. Some great key points for our listeners to consider that you gave us with some excellent foundational tools and direction. We appreciate your time and valuable expertise today, and we're looking forward to the deep dive technical Webcast, which is planned for this particular subject in the near future.

That was Chuck Faris, the Senior Enterprise Architecture Specialist with IBM Unleash the Labs, providing valuable insight around today's topic, Using the System Architect Migration Toolkit to Migrate Your DoDAF 1.5 Models to DoDAF 2.0.

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