

December 17, 2019

CA 2E, Robots, and SQL

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POLL #1 – CA 2E / Plex SQL



Today's Moderator
Mark O'Brien

The Agenda

Q&A at End of Webinar

Please enter questions in the
GoToWebinar Application

1

Introductions

Mark O'Brien

2

CA 2E Latest Features, Broadcom Update

By Raghu Daita, Broadcom / CA Technologies

3

Lighting Talks

1. Robotic Process Automation and 2. CA 2E SQL Right Now

By John Rhodes and Eamonn Foley, CM First

4

Q&A



Raghu Daita

CA 2E and CA Plex Community Webcast

Lightning Talk – “*CA 2E – Product Update*”

Raghunath Daita

17th Dec 2019



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Agenda

- CA 2E Roadmap
- What is in the upcoming Refresh Pack
- Supplementary Items
- Validation program



2E Roadmap

Delivered (v8.7)

- **Simplify conversion from DDS to DDL database** by allowing you to continue to use RLA functions without regenerating and recompiling them
- **Simplify deployment and Change Management** by allowing generated database objects to be compiled into any desired SQL collection or library as specified in the YSQLLIB model value
- **Ensure that indexes are protected from data corruption** by creating them with LVLCHK(*YES) when the RCDFMT keyword is used

- Change Management support for DDL objects

Customer Reported Issues

Planned (v8.7.1)

Q1'2020

Key Enhancements

- **REST Enablement**

Make it easier to consume web services by having meaningful names

Restful webservice deployment using input source *PATH_PARAM

- **Improve SQL Support** by adding enhanced support for SQL

Optimize for "N" Rows

Data access by file type - RLA for DDS and SQL for DDL/SQL files

Customer Reported Issues

Under Consideration

Key Enhancements

- **Make CA 2E Easier to Use** by adding native string handling routines
- **WebOption** Server enhancements (scalability)
- Improved century character handling in 2E
- Improve comment handling in source generation
- Better audit control on display model object screen

- **Improve SQL Support** by adding enhanced support for SQL

Select by Column Name

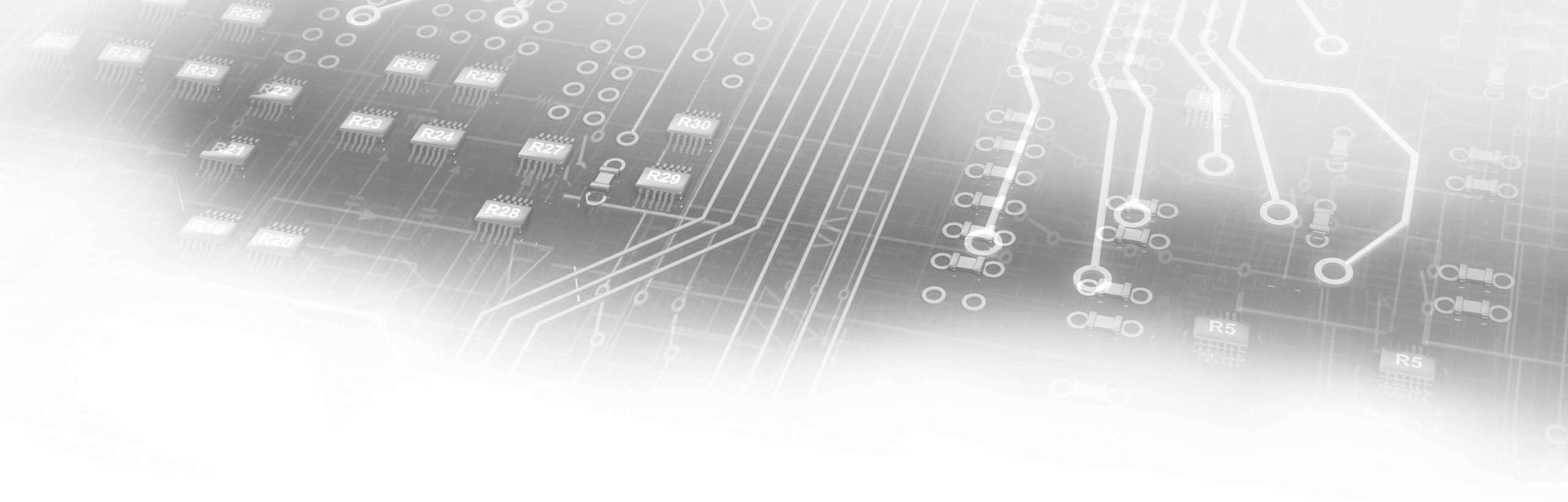
Custom Views

Customer Reported Issues

New Features

Supportability

Customer Voice



What is coming in upcoming Refresh Pack



Include the “OPTIMIZE for n ROWS” clause in generated SQL, to optimize SQL retrieval.

As a 2E user, implementing an SQL or DDL database, I'd like the option for a generated EDTFIL to use "OPTIMIZE for n ROWS", to take advantage of SQL processing efficiency, for example when fetching a small number of rows to populate a screen.

Implementation Details

- Changes are currently implemented for EDTFIL only.
- Based on user feedback, can be extended to other function types as well.
- 2 New model values introduced
 - YOPTROW which has setting if the Optimize Clause has to be generated - *YES, *NO
 - YOPTNBR which has the value that “n” in Optimize Clause needs to take
- Generation of “OPTIMIZE for n ROWS” clause can be controlled at the Function Level
 - new function option for EDTFIL function type (3 possible values – M (-MDLVAL), Y (-Yes) and N (-No).

Control Database access (RLA vs SQL) based on individual file's generation mode

*As a 2E pgmr, I want to control SQL/DDI database access (RLA vs SQL) based on the individual file's generation mode, so that *within a single external function*, I can mix and match RLA and SQL access, depending on which is most appropriate for that file , e.g. for performance reasons.*

Implementation Details

- Changes are currently implemented for EDTFIL and EXCEXTFUN – RPG and RP4 only.
- Based on user feedback, can be extended to other function types and generators.
- New function level generation option – B (represents Mixed mode), in addition to M – MDLVAL, D – DDS, S – SQL, A – ACPVAL. No Model level option at this time
- When “Generation mode” function option set to “B”,
 - by default an SQL type source member is created.
 - based on referenced file generation mode, corresponding file access is generated accordingly –
 - RLA type access for DDS and DDL (YDDLDBA = *RLA),
 - SQL type access for SQL and DDL (YDDLDBA = *SQL)

CA 2E RESTful Web Services Support

*As a 2E pgmr, I want to be able to deploy the business logic in my model (contained with a *SRVPGM) as a RESTful Web Service, so that I can integrate my model logic with newer modes of consumption and form factors.*

Implementation Details

- New Model values for Meaningful names and REST Web Service support
- 2 types of Web Services can be deployed from CA 2E Model - *SOAP and *REST. 2 implementations of *REST - *RESTDFT and *RESTCFG.
- For SOAP services, meaningful names NOT mandatory. For REST services, meaningful names IS mandatory.
- Only input source type - *PATH_PARAM implemented for now. Other input source types would be included in subsequent refresh packs.
- Model support added for including the Meaningful Names and Web Service Type in processing
- YCRTWS command enhanced to tackle new parameters of meaningful names and web service types
- Web Service install scripts upgraded to be able to handle REST web services

CA 2E RESTful Web Services Support

Implementation Details

- New Integer support introduced in CA 2E
- 2 new commands - for generating meaningful PCML (for ensuring meaningful names) and generating properties file (for RESTful web services)
- Ancillary areas such as function copying, deleting, remote web services deployment, YCPYMDLOBJ etc. also enhanced to reflect the new REST services requirements



New Model values implemented

Model Value	Description	Values	Default Value
YMNGNAM	YMNGNAM Meaningful Names on Web Service interface	*YES, *NO	*NO
YPARDTL	YPARDTL Include additional info. on PCML params	*YES, *NO	*NO
YSRVTYP	YSRVTYP Default Web Service Type in CA 2E	*SOAP, *RESTDFT, *RESTCFG	*SOAP
YWSHDIR	YWSHDIR Default location for enhanced WS files	<IFS_Directory>	*USRPRF
YRSTINP	YRSTINP Content type of client input for REST method	*XML, *JSON, *ALL, *XML_AND_JSON	*ALL
YRSTOUT	YRSTOUT Content type of REST method output	*XML, *JSON, *XML_AND_JSON	*JSON
YWRPINP	YWRPINP Wrap Input Parameters on REST method	TRUE, FALSE	FALSE
YWRPOUT	YWRPOUT Wrap Output Parameters on REST method	TRUE, FALSE	TRUE

CA 2E RESTful Web Services Support

***SOAP** – default Web Service type in CA 2E

***RESTDFT** – default mode for REST web service using model values and module naming standards for resource method information – useful for easy deployment

- Name of module to be deployed as a method, should be as follows
<HTTP_VERB_to_be_associated_with_module>_<module_name_used_as_uri.path.template>

Module	UUEAXFR
Model Name	GET_students

"-propertiesFile" entries
UUEAXFR.http.request.method=GET
UUEAXFR.uri.path.template=/students

- Resource Method properties such as input type, output type, wrap i/p params, wrap o/p params etc,, are picked up from Model Values mentioned in previous slide.

***RESTCFG** – new mode for REST web service using configurable values and module names for resource method information – useful for custom deployment



CA 2E RESTful Web Services Support

- New screen – “EXPORTED MODULES FOR WS OPERATIONS” has been created. This lists out all the exported modules from a *SRVPGM which is to be exposed as a Web Service.

New screen – “RESOURCE METHOD INFO FOR PROCEDURE” has been created. This enables us to enter the Resource Method Information for each of the exported procedure. These details are subsequently used on the .properties file used while deploying the REST service to IWS.

```
Op: DAIRA01 QPADEV002M 12/16/19 6:10:48
EXPORTED MODULES FOR WS OPERATIONS  WO_DEMOMDL

Function name . . : REST_students_WS      Model object type : Web service
Received by file. : Test_Student_Details  Web service type. : *SOAP
Service program . : REST_students

? Module      Library      Model name      Procedure
-
UUF8XFR      WO_DEMOGEN  GET_student     UUF8XFR
-
UUF9XFR      WO_DEMOGEN  GET_students    UUF9XFR
-
UUGEXFR      WO_DEMOGEN  PUT_student     UUGEXFR
-
UUGCXFR      WO_DEMOGEN  POST_student    UUGCXFR
-
UUF6XFR      WO_DEMOGEN  DELETE_student  UUF6XFR
-
```

```
Op: DAIRA01 QPADEV002M 12/16/19 6:13:18
RESOURCE METHOD INFO FOR PROCEDURE  WO_DEMOMDL

Function name . . : REST_students_WS      Model object type : Web service
Received by file. : Test_Student_Details  Web service type. : *RESTCFG
Service program . : REST_students

Exported procedure: UUF8XFR
Module name . . . : UUF8XFR      Module text . . . : GET_student

RESOURCE METHOD INFORMATION
uri.path.template . . . : student
wrap.input.parameters . . : FALSE      (*MDLVAL, TRUE, FALSE)
wrap.output.parameter . . : TRUE      (*MDLVAL, TRUE, FALSE)
http.request.method . . : GET      (GET, PUT, POST, DELETE)
consumes . . . . . : *ALL
produces . . . . . : *JSON      (*MDLVAL, *XML, *JSON, *ALL, *XML_AND_*JSON)
(*MDLVAL, *XML, *JSON, *XML_AND_*JSON)
```



Supplementary Items

- Installation of Refresh pack – similar to the PTF installation process using YAPYPTF command.
- Product Documentation @ <https://techdocs.broadcom.com/content/broadcom/techdocs/us/en/ca-enterprise-software/it-operations-management/ca-2e/8-7.html> is being streamlined.
- Looking to create a scenario document which will show the new validations introduced, the new screens and the screen flow and sample installations of REST web services (both *RESTDFT and *RESTCFG modes)



Validation Program

- Please register @ [Sign up for Plex and 2E Validation Programs](#)
- <https://forms.gle/qTumqEBspVSgsYKW9>



Thank You





John Rhodes



Benefits of Software Bots

- Work 24x7
- Don't "Fat Finger" data
- "Happy" to do repetitive, boring tasks
- Takes instruction well
- Isn't planning to retire (and if they do, their daily routine is documented)



RPA is not A.I. - Still Need Humans

- Train and Re-train the Bots, using best practices
- Handle Exceptions
- Work on higher level functions requiring intelligence
- However - Data Gathering is First step to A.I.



RPA Overcomes Typical Modernization Challenges

- Rewriting Applications Massively Expensive (Exception 2E -> Plex).
- Adopting packages limit the business and also carry high expenses, risk, and vendor lock-in.
- Building a complete Services layer requires significant Investment

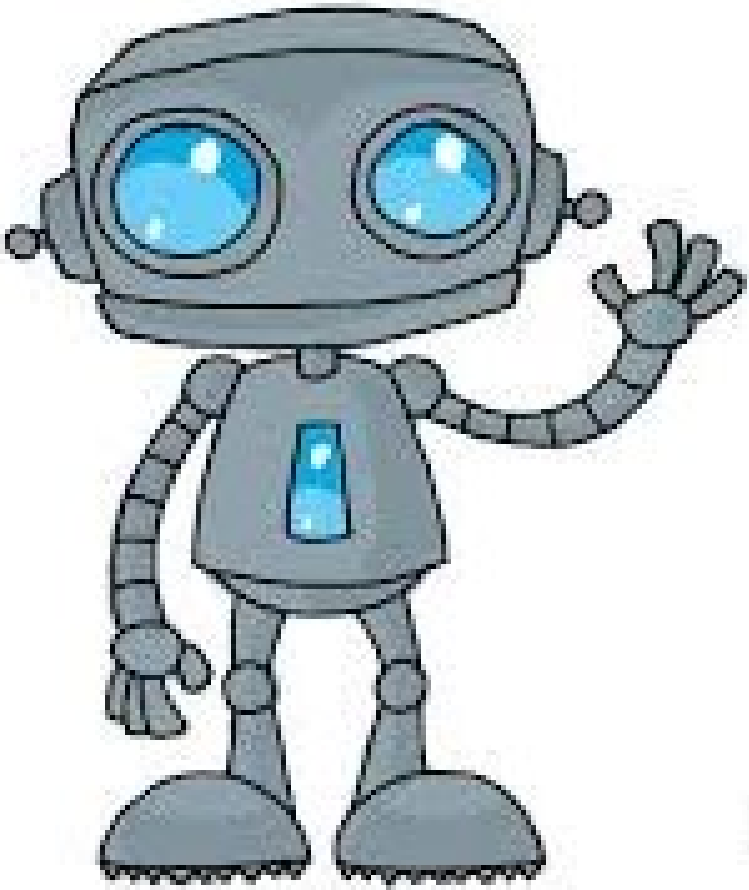
RPA = ROI

Typical RPA Use Cases



- User Provisioning
- Excel Automation
- Data Extraction
- Report Distribution
- File Transfer Automation
- Batch Processes

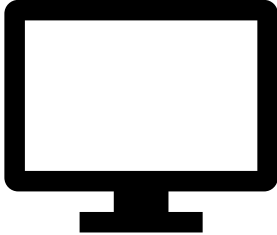
A day in the life of a Bot



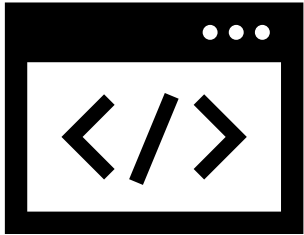
Read email,
OCR attached
forms



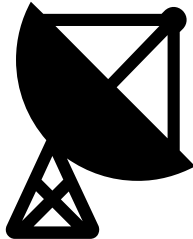
Operate Green
Screen Apps
(CA 2E) and Plex
Apps



Work with Enterprise App
(Salesforce, Oracle,
HelpDesk)



Transmit secure
files to partners



Demo using

 helpsystems | Automate



POLL #3 – RPA Adoption



Want to use embedded SQL with CA 2E, but concerned about limitations?

Let me show you the way in 10 minutes or less.

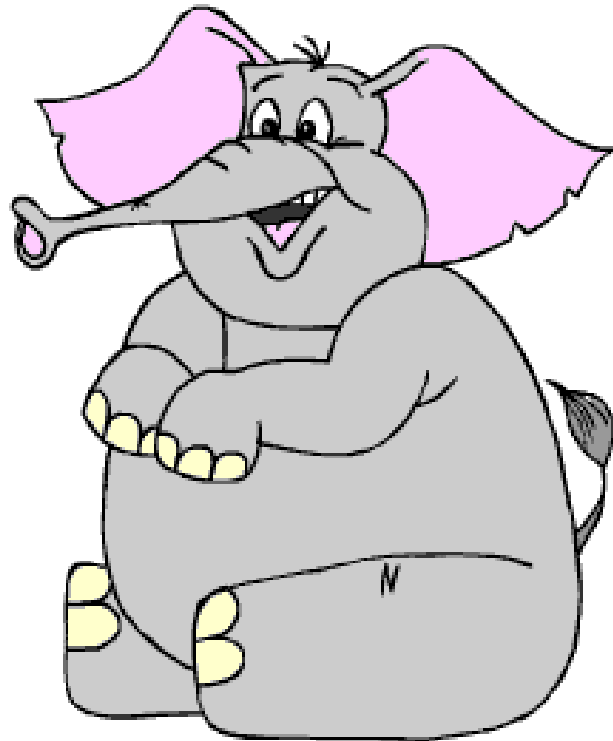
Eamonn Foley
CM First

Benefits of replacing DDS with SQL

- Improved Query Engine
- Scalability
- Flexibility
- Widespread Adoption
- IBM Says So (And they invented SQL early 70's)

CA has added capabilities to CA 2E for SQL Generation BUT...

“SELECT *” is the elephant in the room



More or less a “Worst Practice” in SQL program development. Adding / Deleting Columns is just as problematic as DDS.

Fortunately, there is a good solution right now...

Demo



Upcoming Events

1

January 15 – IBM Power Data Privacy

Featuring IBM Data Privacy expert Stephanie Hazlewood and a demo of Guardium Data Protection on IBM i

2

Mid March 2020

Spring CA Plex / CA 2E Community Webinar

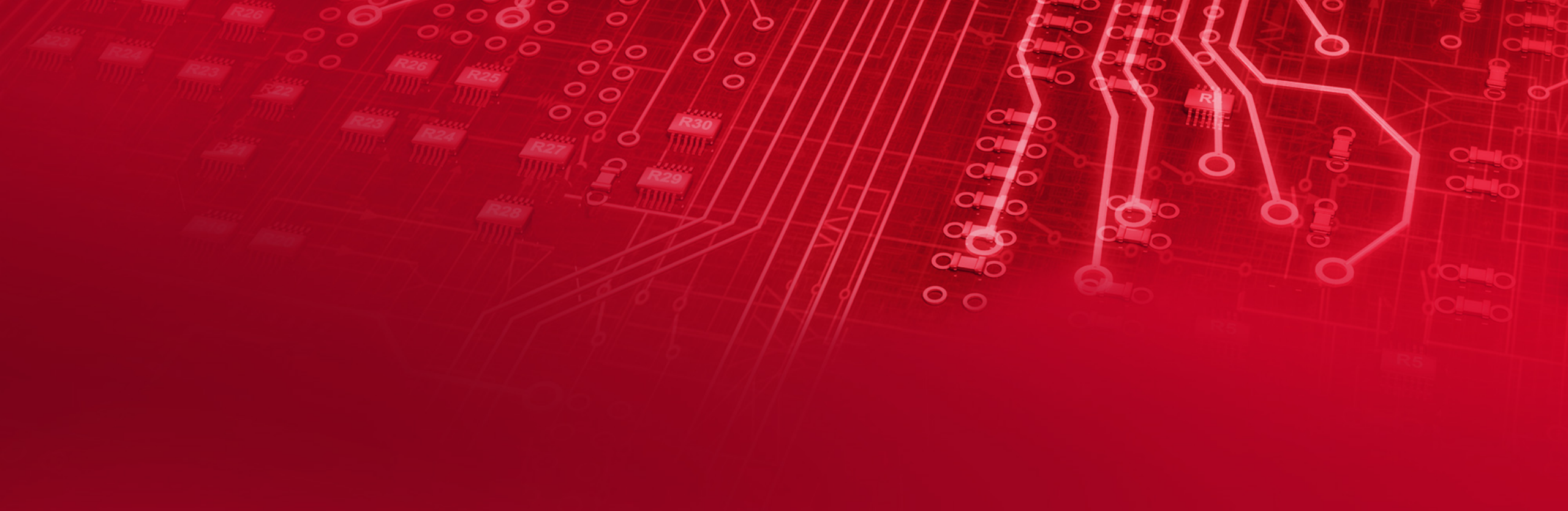
3

Fall 2020

11th World Wide Plex/2E Developer Conference



POLL #4 – MINT



Thank You and Until Next Time

