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AB Suite Roadmap

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Agenda

- AB Suite Roadmap
  - Enhancing 24x7 availability
  - Development Productivity
    - Static Code Analysis
    - No & Low Code Enhancements
    - Improved connectivity
- Roadmap Schedule

Objectives of this session

- We will share our vision and future Roadmap thinking. It is intended to spark discussion and get your feedback on priorities of Roadmap features
- Roadmap content in this presentation are preliminary and should not be taken as a commitment
- Roadmap content, features and plan may be subject to change

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Enhancing 24x7 Availability

Enhancing 24x7 Availability

- Enabling higher availability and minimize application downtime for AB Suite ClearPath and Windows Runtime systems
  - New application feature deploy
  - IC upgrade

Roadmap Content and dates are subject to change

Enhancing 24 x 7 application availability

1. AB Suite MCP Deployments and Transfers support the following to minimize application downtime:
   i. Incremental Deployments and application Hotswap for user logic/ui changes
   ii. DMSII ReorgDB for all applicable database changes (user selectable via Configuration)
   iii. DMSII Migratedb for database structure additions and deletions (implicit)

2. However, an active application *must* be shut down for the first deployment or transfer after an IC installation.

3. Additionally, an application REBUILD must be performed after installing the IC to ensure runtime consistency.
   i. This is stated clearly in the readme
   ii. However there are no checks or reminders to ensure that this *actually* occurs.

4. So what are the solutions to issues (2) and (3ii) above?

Roadmap Content and dates are subject to change

Enhancing 24 x 7 application availability - Solution

1. A single solution will resolve, in most circumstances, both issues (2) and (3ii)!

2. The Runtime build, when creating the IC contents, compares the new IC sources to the previous IC/GCA sources (retained from the previous build) for six critical runtime files - LSS, COMS_LINC_TP, LINCSUPPORT, ENVIRONMENT, LOGIC and REPORT/DUMPINFO.

   i. If there are no source changes to any of the above files then we TAG the new source with the prior IC/GCA Mark/Level/Version and also apply this TAG to the corresponding new IC code file. For consistency we then copy the new source to the prior IC repository.

   ii. If there are source changes to any of the above files then we TAG the corresponding new IC code file with the new IC/GCA Mark/Level/Version and copy the new source (also tagged) to our prior IC repository.

3. The Installation process of the IC is unchanged.

4. During the next application deployment or transfer, the usual RELEASEID checks are performed to determine changes.

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Enhancing 24 x 7 application availability – Solution cont'd

5. If the RELEASEIDs differ, then we will perform additional checks for the same six runtime files: LSS, COMS_LINC_TP, LINCSUPPORT, ENVIRONMENT, REPORT/DUMPINFO and LOGIC.
   i. When checking LINCSUPPORT and the TAG of the new LINCSUPPORT matches the TAG of the existing <application>/LINCSUPPORT and the application is active then we do not immediately copy in the 'new' version as it contains no changes. Hence the application can remain active.
   ii. When checking LINCSUPPORT and the TAG of the new LINCSUPPORT does not match the TAG of the existing <application>/LINCSUPPORT then we must copy in the 'new' version now as it contains changes.
   For this scenario the application must be taken down (as per the current process).
   iii. When checking ENVIRONMENT, LSS or COMS_LINC_TP and the TAGS differ then, if the application is active, we generate a new message in the Build log stating the application should be restarted after the generate.
   iv. When checking LOGIC and the TAGS differ, and this deployment is not a REBUILD, then we generate a new message in the Build log stating that the application should be deployed with a REBUILD as soon as practical.
   v. When checking REPORT/DUMPINFO to the BATCHOPEN report and the TAGS differ then we generate a new message in the Build log stating that a REBUILD of all reports should be performed as soon as practical.

6. Now we have a demonstration of a Build while the application is running. A *new* IC with changes to LSS, LOGIC, COMS_LINC_TP , REPORT/DUMPINFO and ENVIRONMENT was installed immediately prior to this Build. Note there are no code changes to LINCSUPPORT in this IC.

Enhancing 24 x 7 application availability - Summary

1. The proposed AB Suite MCP 9.0 solution both minimizes, as far as possible, the application downtime when deploying or transferring after an IC installation.

2. Additionally, during the Deployment or Transfer after the IC installation, the user is now informed if there are newer key runtime infrastructure components pending and what subsequent action is necessary.

Roadmap Content and dates are subject to change

Poll Question

- What platform do you use?
  - MCP
  - OS 2200
  - Windows
- How important is this feature to reduce downtime after IC (Interim Correction) Installation
  - 1. Not at all important
  - 2. Slightly important
  - 3. Moderately important
  - 4. Very important
  - 5. Extremely important

Poll Question

- How often do you install AB Suite ICs (Interim Corrections)
  - 1. Monthly
  - 2. Quarterly
  - 3. Others, please specify
- How important is it to minimize downtime during deployment of changes to your AB Suite application
  - 1. Not at all important
  - 2. Slightly important
  - 3. Moderately important
  - 4. Very important
  - 5. Extremely important

Poll Question

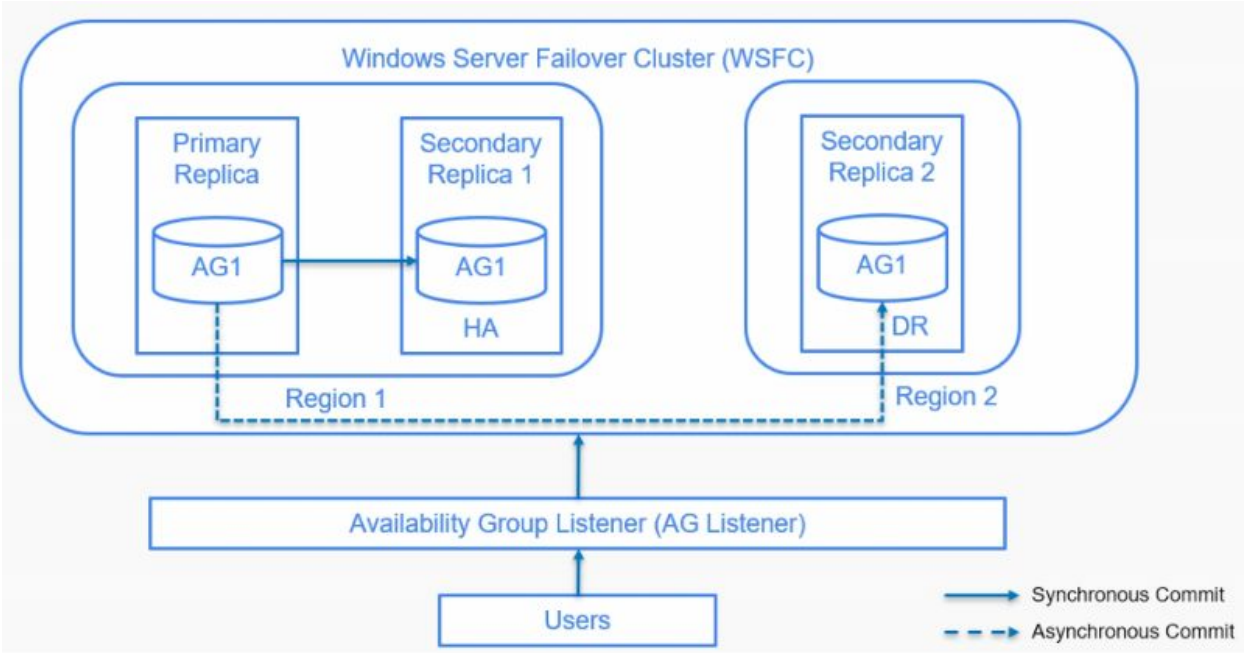
- Do you use direct deployment from AB Suite Developer or you use RTU (Runtime Transfer Utility)?
  - Direct Deployment
  - RTU (Runtime Transfer Utility)
- How often do you deploy change to your AB Suite application in Production environment?
  - 1. Weekly
  - 2. Fortnightly
  - 3. Monthly
  - 4. Others, please specify

Windows Runtime High Availability Features

- Support for SQL Server Always On
- Reduce downtime when deploying new version
  - Supports 24 x 7 operation
  - Application is continuously available

Roadmap Content and dates are subject to change

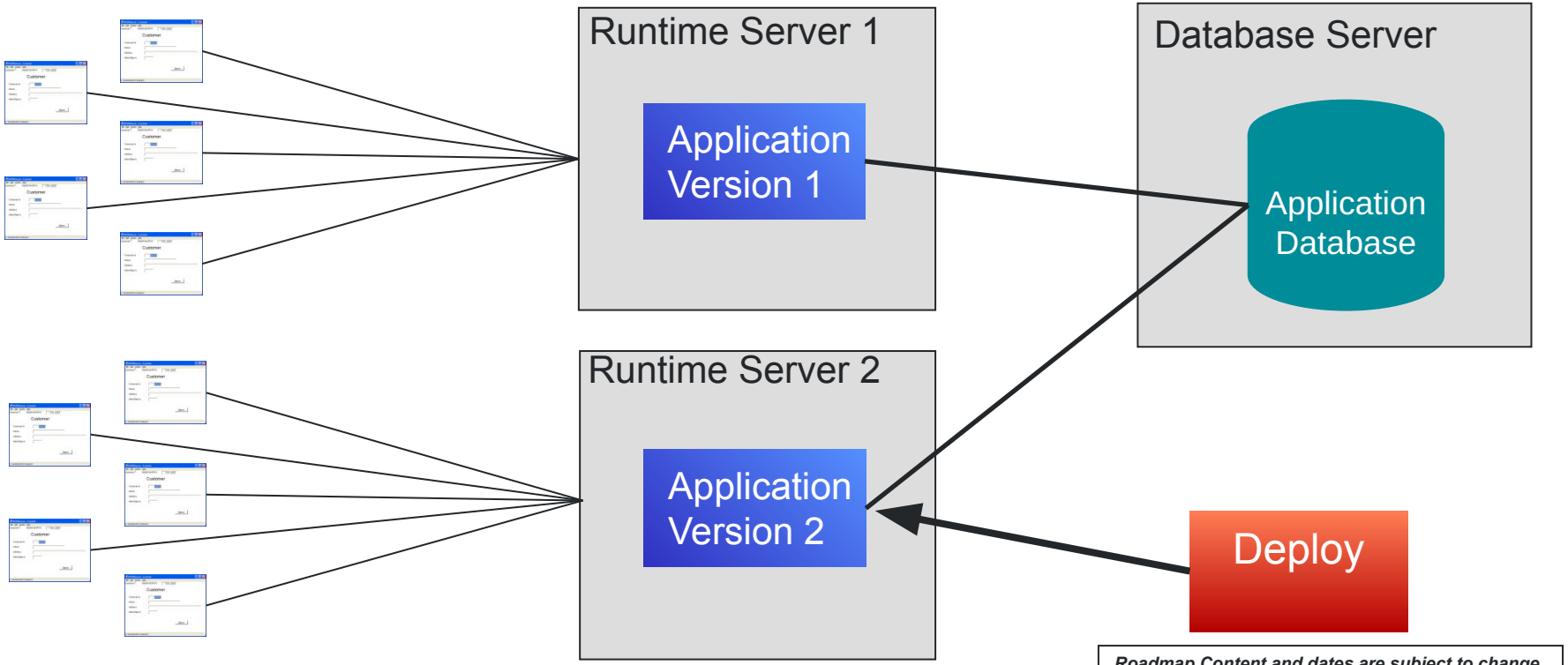
SQL Server Always On



- High Availability (HA)
  - Synchronous commit
  - Within a region
- Disaster Recovery (DR)
  - Asynchronous commit
  - Across regions
- AB Suite accesses DB via Listener

Roadmap Content and dates are subject to change

Reduce Downtime when Deploying New Version - POC



Roadmap Content and dates are subject to change

Poll Question

- How important is SQL Server Always On feature
  - 1. Not at all important
  - 2. Slightly important
  - 3. Moderately important
  - 4. Very important
  - 5. Extremely important

Poll Question

- What are your High Availability needs?
  - The application must be on-line and available 24 x 7 with no exceptions.
  - We like the application to be available 24 x 7, but need to occasionally take it down for upgrades. We would like to reduce this downtime.
  - We like the application to be available 24 x 7, but can occasionally take it down briefly for upgrades.
  - We have regular windows of time when the application is quiet or not in use (e.g. weekends or overnight) and can be taken down for upgrades

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No & Low Code Enhancements

Static Code Analysis

- AB Suite models are translated using secure code patterns into COBOL code for ClearPath and .NET code for Windows. As part of code generation, care is taken to protect applications from vulnerabilities.
- Quality assurance process for AB Suite 8.0 Release
  - Integration with leading static code analysis tools has been set up for automatic code vulnerability scans during regression testing. These tests support an aggressive criteria for release acceptance, which require fixes to all critical and high reported code vulnerabilities. These tests are run for both Product and Sample application shipped with Product.
- If you have audit requirements to test generated code from your AB Suite application model, you can engage with use through Engineering Services Engagement.
- Analysis of AB Suite Model – Static and Dynamic, with update capabilities

Roadmap Content and dates are subject to change

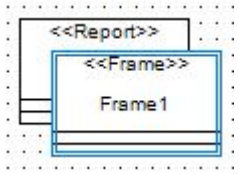
No Code Enhancements

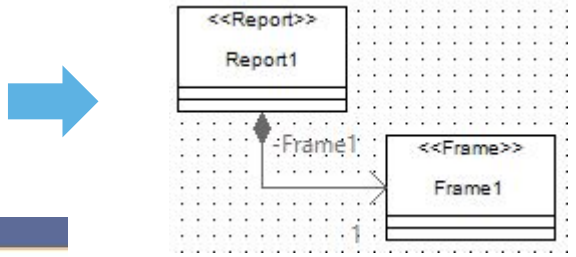
- Most of us can create a PowerPoint or an Excel Spreadsheet. Imagine what we could achieve by dragging them into AB Suite for our citizen developer.
- Creating AB Suite objects via Wizards is not foreign, we just need to take it to the next level with a little more intelligence and higher level inputs
  - PowerPoint □ AB Suite Event & Ispec Classes
  - Excel □ AB Suite Persistent Classes (with supporting files to load the data)
  - Reports created on selection
- Following are a series of videos showing these ideas in action

Roadmap Content and dates are subject to change

Demo CitizenUI,CitizenDB,CitizenReport

Low Code Enhancements





- Intelligent Drag n Drop
  - Diagrams
  - Logic

```
PrintWalks.Main [Logic]
    beginpage PageHeader
    determine actual GroupWalks
        Details.Print()
    end
```

```
PrintWalks.Main [Logic]  PrintWalks.DT_GroupWalks
    beginpage PageHeader
    DT_GroupWalks()
```

- Code Analysis + Quick Action
  - Type management
  - Repetitive pattern detection
  - Non performant code detection
  - Unused object detection (Methods, Attributes, Types)
  - Project based policies

```
x := y
warning: attributes x and y have different types
```

Roadmap Content and dates are subject to change

Poll Question

- Where do you spend a majority of your time in the AB Suite System Modeler?
  - Class View
  - Painter
  - Logic Editor
  - Members pane
  - Debugger
  - Solution Explorer
  - Other

Poll Question

- Do you consider writing clean code important?
  - Yes, it is absolutely essential that all code is clean, readable and follows standards. We enforce this with peer reviews of all new code.
  - Yes, we like all code to be clean, but we don’t usually do code reviews.
  - We generally like all code to be clean, but we leave it up to the individual developers.
  - This is the responsibility of individual developers.

Poll Question

- How important is Static analysis?
  - 1. Not at all important
  - 2. Slightly important
  - 3. Moderately important
  - 4. Very important
  - 5. Extremely important

Poll Question

- How important is modern User Interface and leveraging cool web UI and Mobile app
  - 1. Not at all important
  - 2. Slightly important
  - 3. Moderately important
  - 4. Very important
  - 5. Extremely important
- What is your preferred UI technology/tools choice
  - UI from ePortal
  - Windows WPF and XAML
  - Angular
  - React

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Improved connectivity

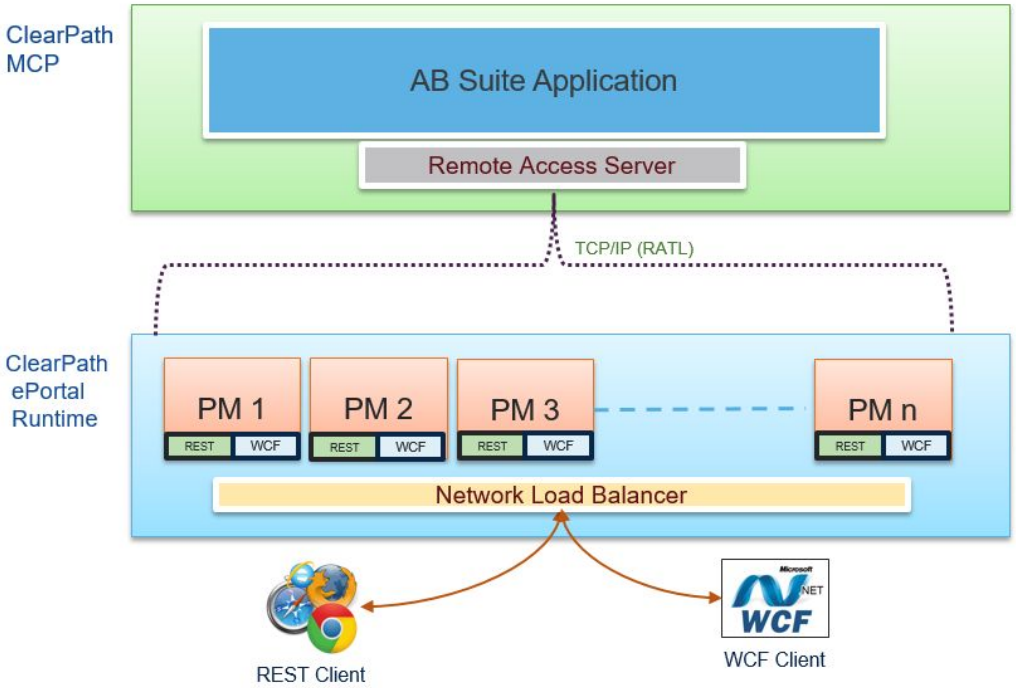
Connecting AB Suite with external systems – Inbound and Outbound

- AB Suite provides variety of tools to connect with external systems
  - Business Integrator
  - ASP .NET Web Service Generator
  - MCP Web Application Support
  - ClearPath® ePortal
- Whitepaper on connecting with external systems using ePortal already available
- Improved integration with ePortal Outbound Services planned as part of Roadmap

Roadmap Content and dates are subject to change

ePortal Inbound Services

- ePortal has supported Web based client access to AB Suite for many years



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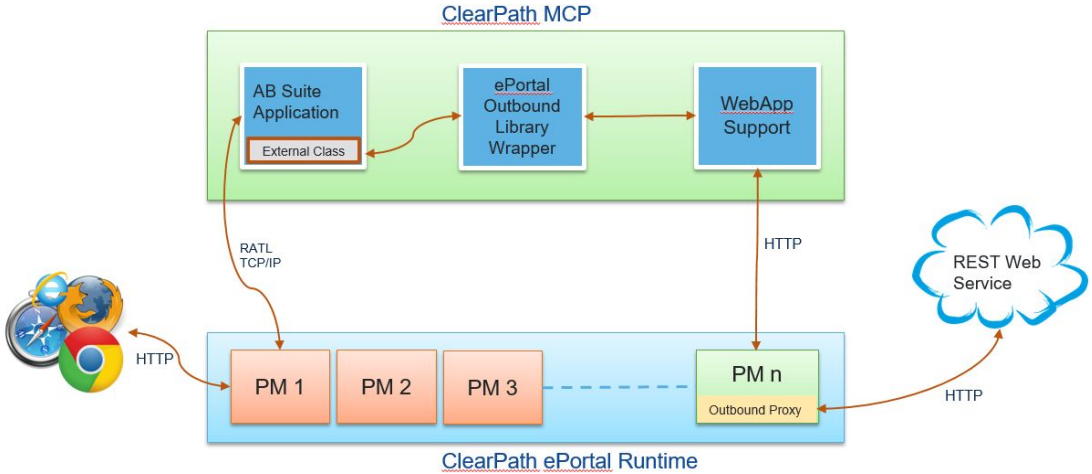
Integration with ePortal Outbound Services

- AB Suite MCP 6.1 supported calls to WebAppSupport from the LDL+ allowing Web Service access from the application.
- In AB Suite MCP 9.0 we plan to integrate with ePortal Outbound Services.
- ePortal also uses WebAppSupport but it provides a library wrapper interface that simplifies the calls.



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Integration with ePortal Outbound Services (continued)

- AB Suite Developer will import the REST Web Service Open API schema into AB Suite.
- The LDL+ required to access the Web Service will require 7 steps:
  - Setup the Web Service and connection properties e.g. Server Ip address, base path, operation id, log level, timeout, port number, tracing, timeout, SSL (some of these have default values)
  - Invoke methods in the ePortal Outbound Library to:
    - Initialize the interface and the HTTP objects
    - Create the HTTP session
    - Pass the data packet request to the Web service
    - Receive the returned data packet from the Web Service
  - Process/consume the returned data packet contents
  - Invoke the Close method in the ePortal Outbound Library to exit the HTTI

Roadmap Content and dates are subject to change

Integration – Web Services

- Improved Integration – Outbound calls to:
  - SOAP Web Services and/or
  - REST Web Services
- Web Service Definition imported to AB Suite
  - Modelled generically in AB Suite with classes and methods
- Invocation of the web service at runtime is simply a method call from logic

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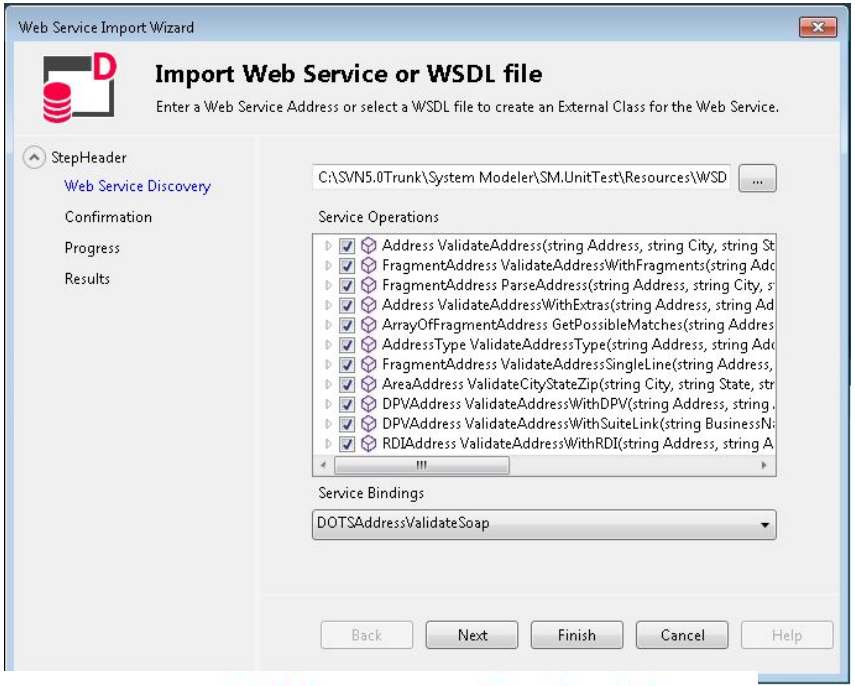
Integration – Web Services

- Import web service definition



- Invoke web service

```
CurrentWeather := GlobalWeather.GetWeather("Melbourne", "Australia")

Message CurrentWeather.Temperature "Is the current temperature"
```

Roadmap Content and dates are subject to change

Poll Question

- How important is Outbound Webservice invocation from AB Suite application?
  - 1. Not at all important
  - 2. Slightly important
  - 3. Moderately important
  - 4. Very important
  - 5. Extremely important
- Do you prefer to use REST API or SOAP based Webservice for connectivity with external systems?
  - REST API
  - SOAP based Webservice

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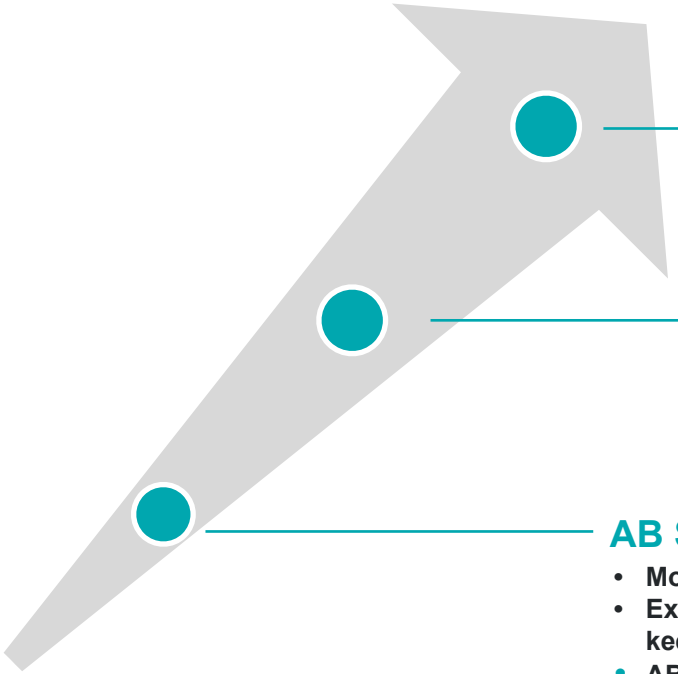
EAE End of Phase 1 Support

- End of Phase 1 Support for EAE ClearPath is March 31, 2023.
- EAE clients should upgrade to AB Suite at earliest

AB Suite Roadmap



AB Suite 9.0 (3Q 2023)

- TBD

AB Suite 8.0 (Jan 2022)

- AB Suite for OS 2200
- DMSII Structure Level Encryption (SLE)
- SQL Server TDE
- NFS from clients

AB Suite 7.0 (May 2019)

- Modes enable flexible development experience
- ExportAs feature to upgrade Dev environment while keeping Prod environment on one prior major release
- AB Suite Developer and Debugger enhancements

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Thank You