



# Agile Business Suite Interfaces

Technology

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# It's a connected world

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- Most applications don't exist in isolation
- Your Application needs external sources of data and information
- Your Organisation needs to access to be access the information in your Application
- Your Customers what to use new ways to access their data



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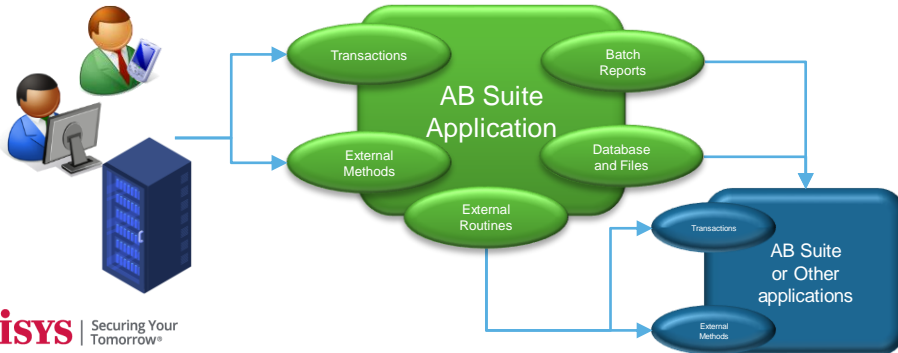


**So how does AB Suite help with all this?**

# Interface options – What types?

## Inbound (Client → Server/Service)

- GUI Desktop clients, Terminal Emulators
- Web Browser, Mobile Web App
- Application to Application
  - C2B (Consumer to Business)
    - Native Mobile App
  - B2B (Business to Business)

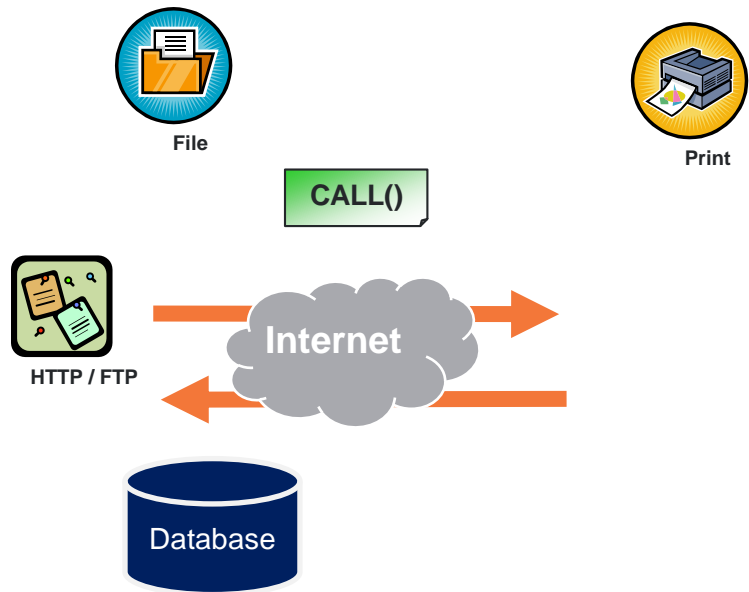


## Outbound (Server/App → Service)

- AB Suite Application calling an external service
  - Could be another Application
    - On the same server or another sever
    - AB Suite built or otherwise
  - Could be an external Web Service
- Batch/File interfaces
- Application to Application
  - B2B (Business to Business)
  - B2G (Business to Government)

# So how do you do that?

- In reality you have a lot of options
  - LINC then EAE and now AB Suite have through the years provided many options
  - Some examples:
    - Extract/Print Files
    - NOF, GLI, OFFLine, USER
    - External routines/libraries
    - Terminal emulators/Screen scrapping
    - RATL
    - HUB
    - Business Integrator (BI)
    - Direct Database Access





## Inbound Interfaces

# Inbound – Public Segment Methods

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- Allow you to expose standard LDL+ methods to outside applications
- Available to call:
  - Directly on the host platform
    - Both MCP and Windows have a programmatic interface that allows you to directly call Public Methods from other applications
  - From Windows to MCP via AIS
    - AB Suite can expose the Public Methods ready for use via AIS – **No need to write code**
      - AIS takes care of the message routing from Windows to MCP
  - Via Client Tools
    - Regardless of platform you can remotely access Public methods via Component Enabler



# Inbound - Windows

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- In addition to Public Methods, Windows has a direct Ispec interface
- Fully supported programmatic interface that utilises the Ispec Cycle
- Bypasses normal Component Enabler limits
  - Large multi Mb messages allowed
  - Support for individual fields up to 256k
    - One solution used 16 X 256k fields to provide for 4Mb message
- Consider need for multi threaded solution as each thread is equivalent to a user session



# Inbound - Windows

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- Two further Inbound technologies available on Windows
- Client Framework – UX mode
  - This separates development of the User interface from the main AB Suite application
    - No painter at AB Suite level
  - Utilises alternative “Gateway” to RATL with additional capabilities for a better User Experience
- XML Framework – part of Advanced mode
  - Provides alternate Framework Cycle to process XML formatted messages
    - XSD wizard to create Class definition
    - AB Suite automatically Serialises/De-serialises XML data to/from defined class as part of processing cycle

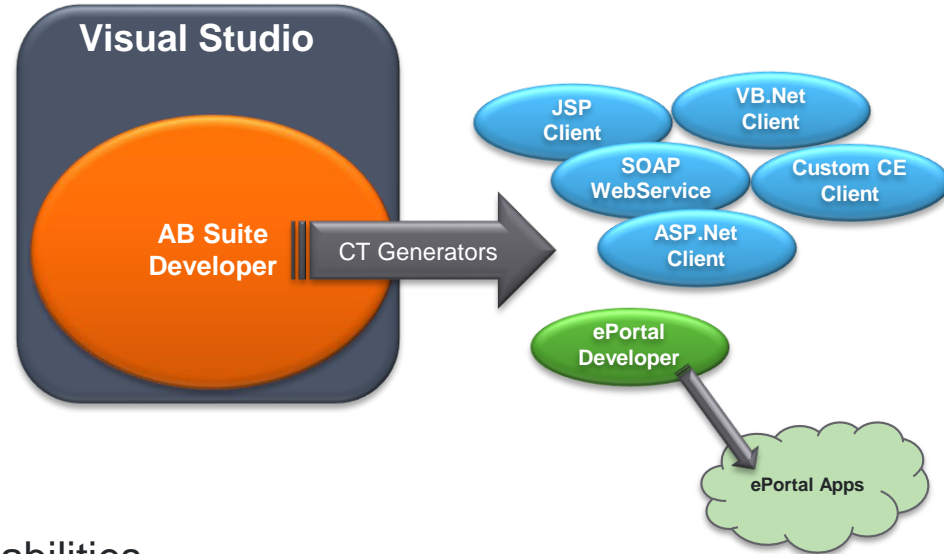
# In Bound– Client Tools

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- Terminology
  - Client Tools is the name of the product
  - Component Enabler (CE) is the API
    - Provides both .Net and Java based API's
  - “CE Clients” are the Client side applications that communicate with the host
  - RATL is the protocol used to talk between the Client running the CE API and the Host
  - Remote Access Server (RAS) - Host level listener
    - TCP/IP
    - Options for use with MSMQ - Windows
  - Generators – provide default CE Client applications

# Inbound – Client Tools 2

- Supplied with number of standard generators
  - Display standard painted screens
    - ASP.Net and JSP Browser clients
    - VB.Net Client
  - Services/Microservices
    - SOAP Web Services
    - ePortal generator
      - Provides for a many other interface options via ePortal Developer
  - Ability to customise generators
- Client Tools are also an enabler of other capabilities
  - Supports LDL+ extensions to send “Lists” to the client applications
    - Bypasses normal screen limits
  - Underling Technology that supports the display of Painted Graphical screens



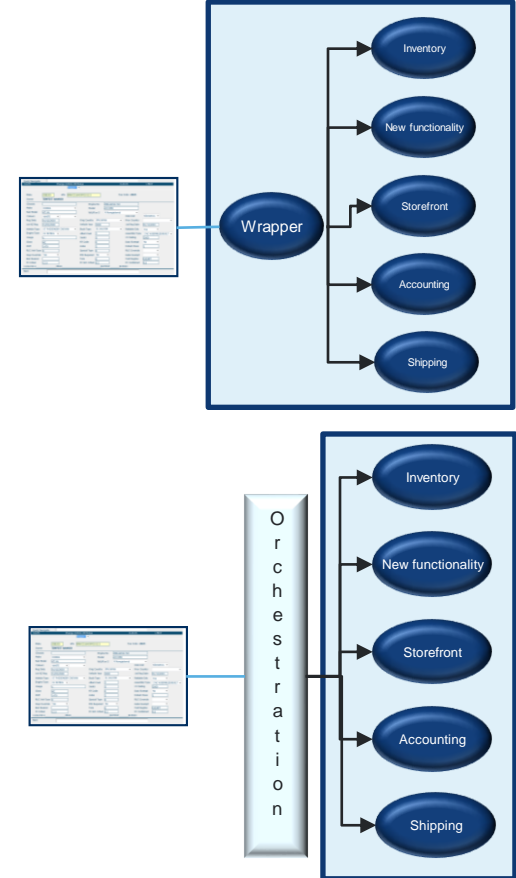
# Inbound – Client Tools - State

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- Traditionally online transaction systems tend to be “stateful”
  - During a session information from one transaction to the next is kept by the server, and is unique to the user
    - User log in and access permissions
    - Sales total, Shopping cart, Running account balance
  - In AB Suite, state information is typically kept in GLB.WORK
    - If an application uses GLB.WORK to store data between transactions, it is probably not stateless
- Stateless
  - Information from one transaction to next is not stored
    - So each transaction must include everything needed in one transaction
      - Access Permissions, transaction data etc.
    - Web Services are by design Stateless

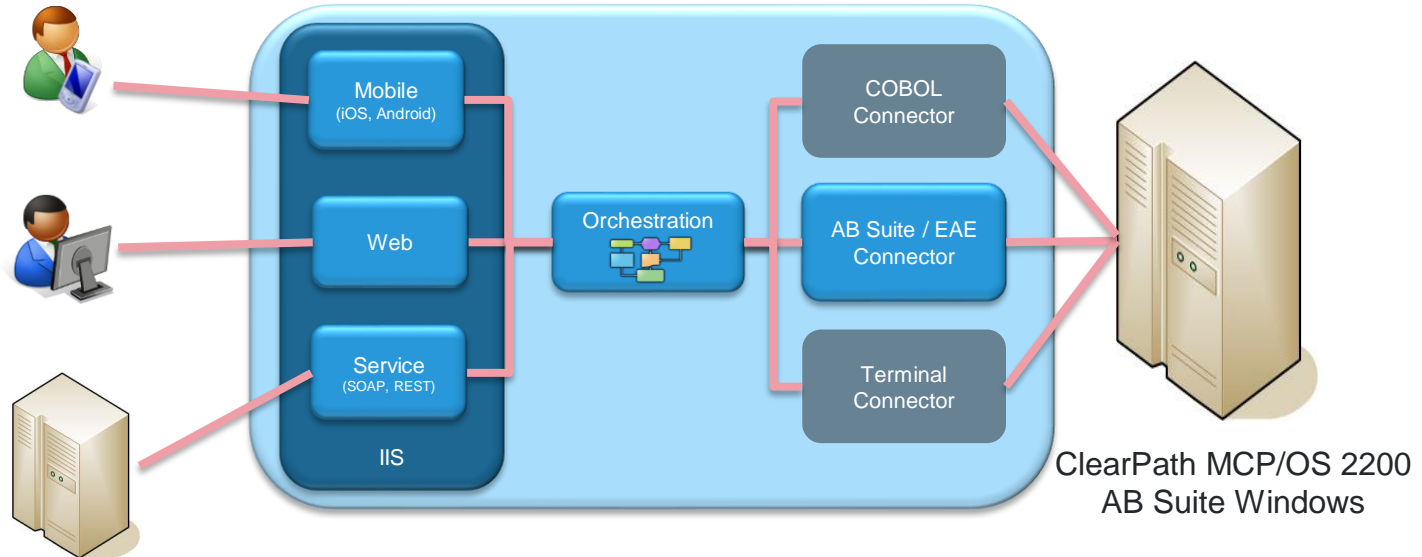
# Inbound – Client Tools – State 2

- Using existing transactions in a Stateless way
  - Some users have written “wrapper” Ispecs that combine functionality of several Ispecs into a single transaction
    - log on
    - Validate account and address
    - Retrieve account balance
    - Transfer funds
    - Update account balance
    - Log offAll in one message
  - Alternatively, use Orchestration (e.g. in ePortal or a Websever Application) to combine several AB Suite “transactions” into a single Input/Output message
  - Excellent way to rapidly prototype new functionality and deploy new application products, then refactor later



# Helper Technology - ePortal

- ePortal Runtime

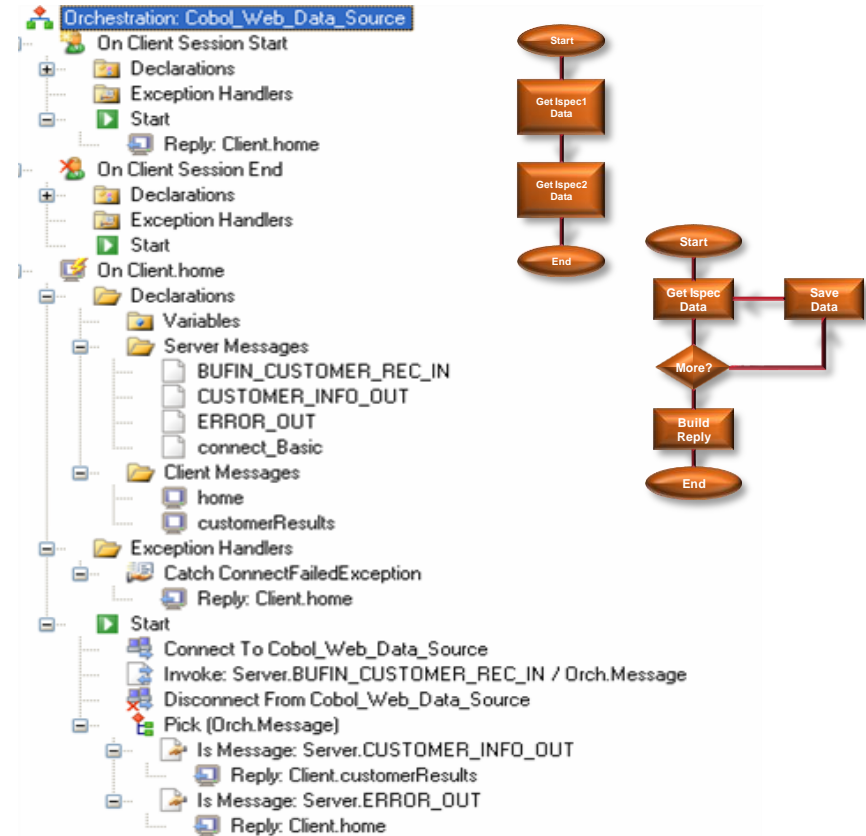


## ePortal Platform

Orchestration enables you to combine different resources into a single application or transaction

# Helper Technology - ePortal 2

- Orchestration
  - Allows you to consolidate several Ispecs or transactions into a single user web page, mobile page or web service invocation
  - Orchestration potentially executes multiple transactions on behalf of a client request
  - Visual environment for orchestrating interactions
    - Events, Loops, Conditionals...







Outbound

# Outbound Interfaces – External Routines

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- Methods on Class defined as IsExternal
  - CALL; command in EAE
- No longer limited to single parameter of GLB.Param
- Can pass multiple Parameters
  - String
  - Number
  - Boolean
  - File
- Get a Return value, or use I/O Parameters
- Limitless possibilities

# Outbound External routines – what can you call

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- MCP
  - ALGOL or COBOL developed Libraries
  - Helper Technology - Prebuilt or limited code options
    - WebAppSupport Wizard
    - Application Integration Services (AIS)
    - ClearPath Extension Kit for MCP®
    - Co-Routines
      - AB Suite Reports
- Windows
  - .Net and non .Net Dlls (old EAE way)
  - Command line Shell
  - Executables

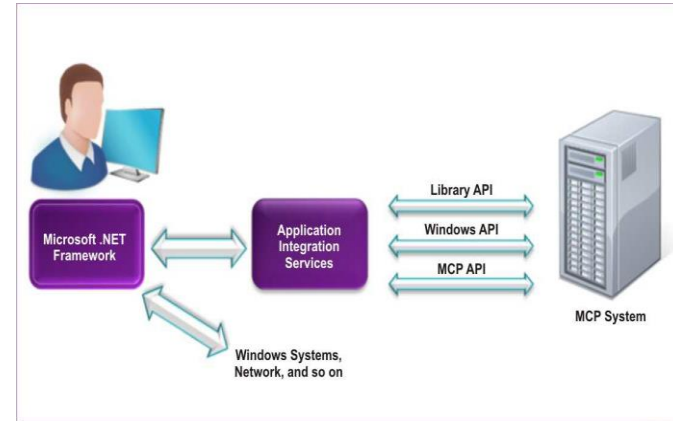
# MCP Helper Technology - WebAppSupport

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- The MCP Web Transaction Server provides external access to HTTP(S) Web sites amongst other things
  - WebAppSupport provides an API layer to the MCP Web Transaction Server
- Wizard supplied as part of the AB Suite 6.1 release to make it easier to access and define access to Web Services via WebAPPSupport
  - Add New Item => Web Service
- See Developing Agility article for more information
  - [https://www.app5.unisys.com/offerings/da/DevelopingAgility\\_October2018.pdf](https://www.app5.unisys.com/offerings/da/DevelopingAgility_October2018.pdf)

# MCP Helper Technology - AIS

- Unisys is trying to help by making it simpler to access/consume external clients/resources and have aspects of their AB Suite application more easily exposed for consumption by external clients residing on other platforms.
- Application Integration Services (AIS)
  - Capability allowing for easy access to/from Windows components:
    - .Net routines from MCP
      - AB Suite - External Libraries
    - MCP routines from Windows
      - AB Suite - Public Segment Methods
  - Limited programming knowledge required
    - Toolset generates Proxy libraries that can be used directly on both MCP and Windows
    - For more details see Developing Agility July 2019 article » [Read More](#)



# MCP Helper Technology - ClearPath Extension Kit for MCP®

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- Provides a way to invoke Docker containers residing on the Windows® partition from the associated ClearPath® MCP environment via an MCP object file
  - Available as a Tech Preview – i.e. not currently released
    - Only available for ClearPath MCP Software Series
  - Runs within the security perimeter of the MCP environment
- Allows access to standard Docker interfaces (STDIN, STDOUT and STDERR)
  - Access via standard COBOL or ALGOL port files
  - White paper providing details and sample code on how to access via AB Suite available
    - [https://www.support.unisys.com/abs/docs/WhitePapers/Agile%20Business%20Suite\\_ClearPath%20Extension%20Kit%20for%20MCP%C2%AE.pdf](https://www.support.unisys.com/abs/docs/WhitePapers/Agile%20Business%20Suite_ClearPath%20Extension%20Kit%20for%20MCP%C2%AE.pdf)

# Windows – External routines

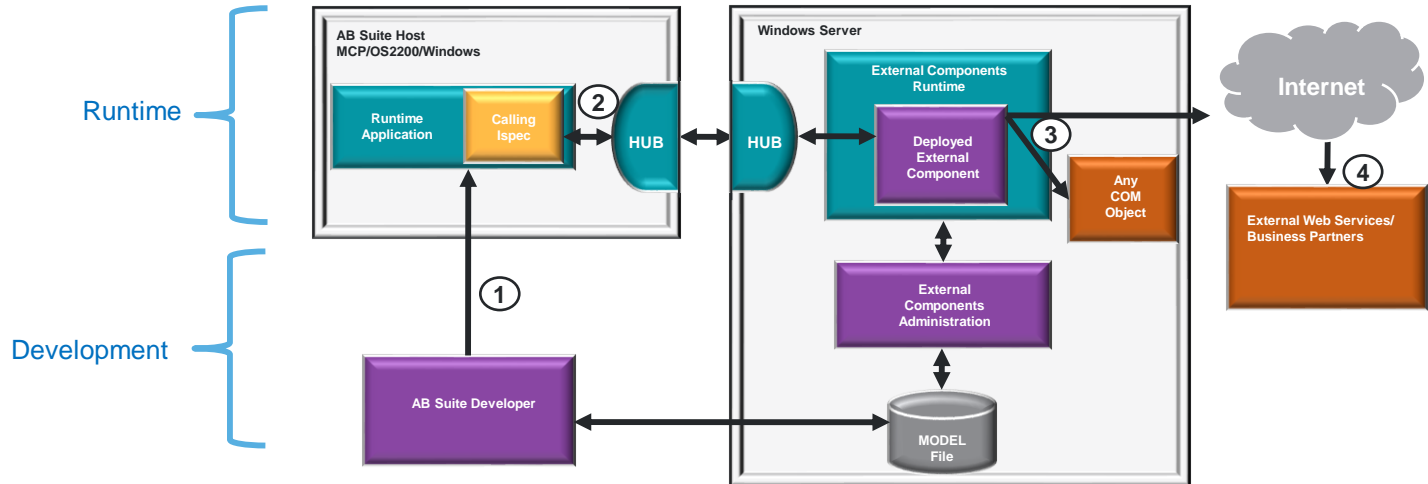
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- Not just limited to Libraries
  - Call the command prompt (Shell)
    - Pass in command line as Parameter
    - Get back the output from StdOut
    - Options are limitless – why not call a Docker container?
  - Similar capability to call Executables
- Tips for use when calling Libraries
  - Always return a value even if it works
    - Failures in external Libraries don't always cause the code to halt
  - Use the Attach feature of Debugging to help Debug the .Net Library



# Business Integrator (BI)

1. Import external component interface into AB Suite Developer as an Ispec definition
2. Runtime “calls” External Component Ispec
3. External Components Runtime executes script, calls COM Object, etc...
4. External Web Service executes and returns response



# Summary

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- Lots of options
- Just because you have done it that way before does not make it right or best now!
  - Software and options always evolving – particularly with AB Suite
- Often more than one right answer
  - Start with determining the problem not the solution
  - Obvious answer is not always the best or easiest
- Talk to us – vast experience of many challenges
  - Next presentation will cover a few practical examples

# Thank You

