



Workshop: How CICS Applications become a Web Service in z/VSE

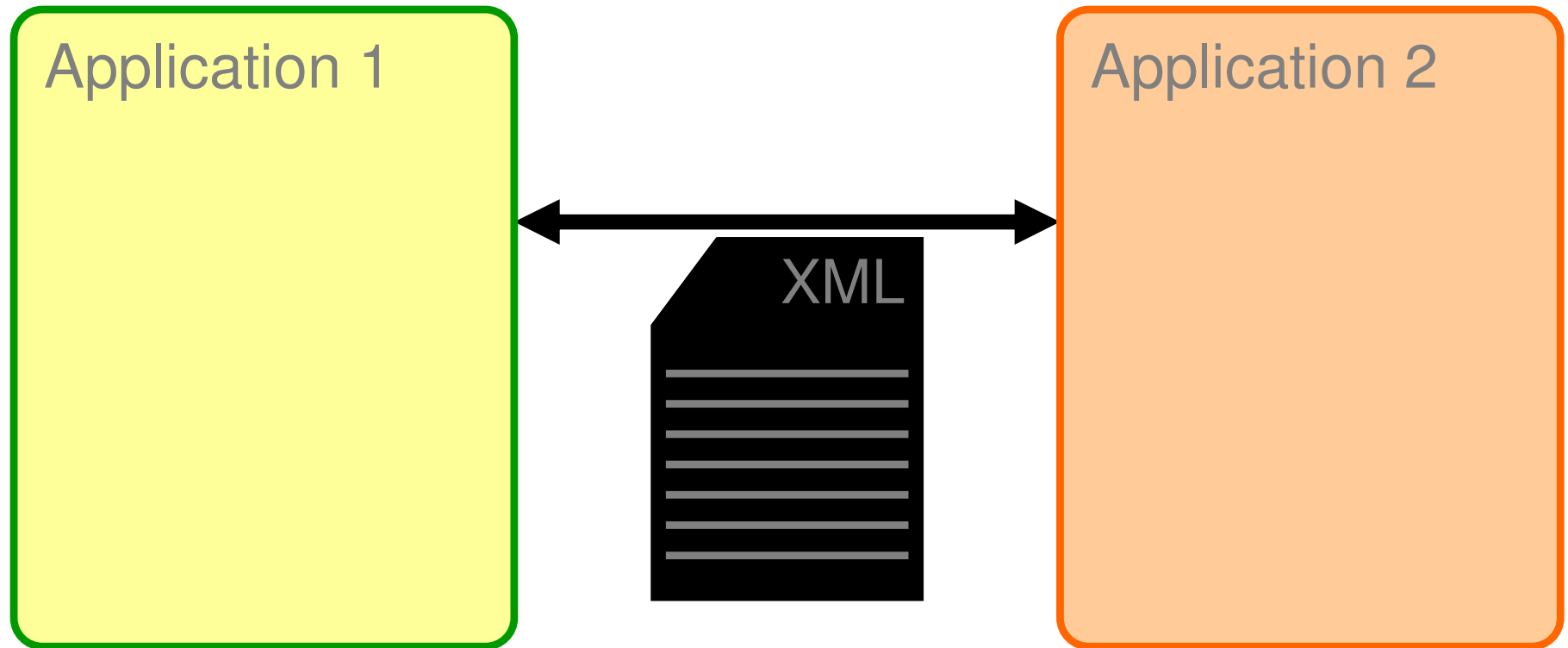
WAVV 2013

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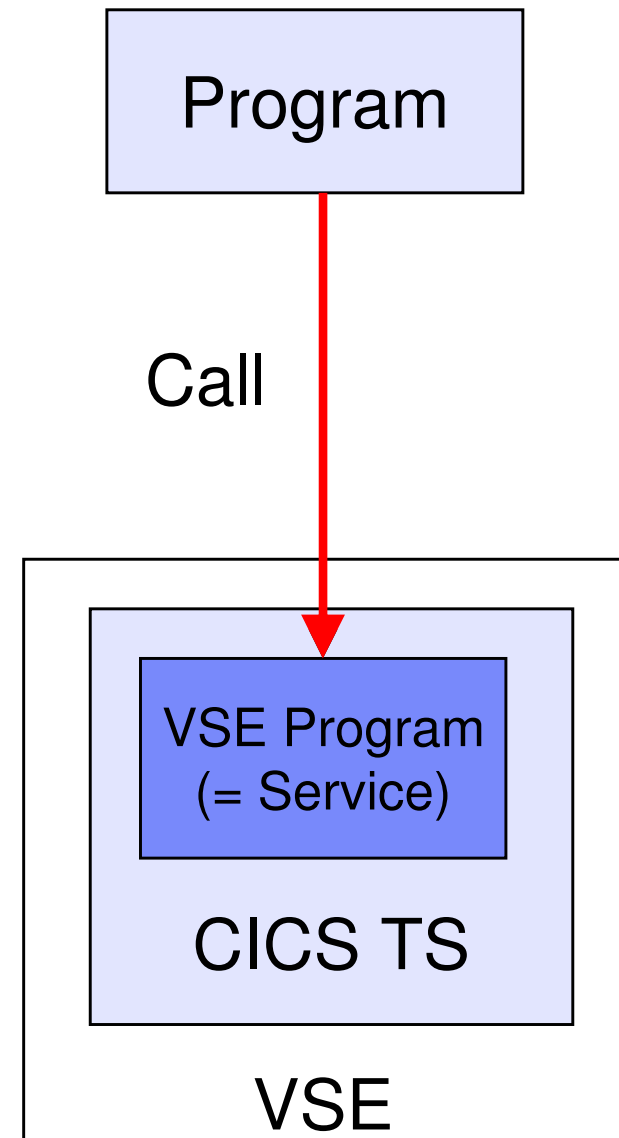
What are Web Services? Applications !

Platform independent applications can communicate !



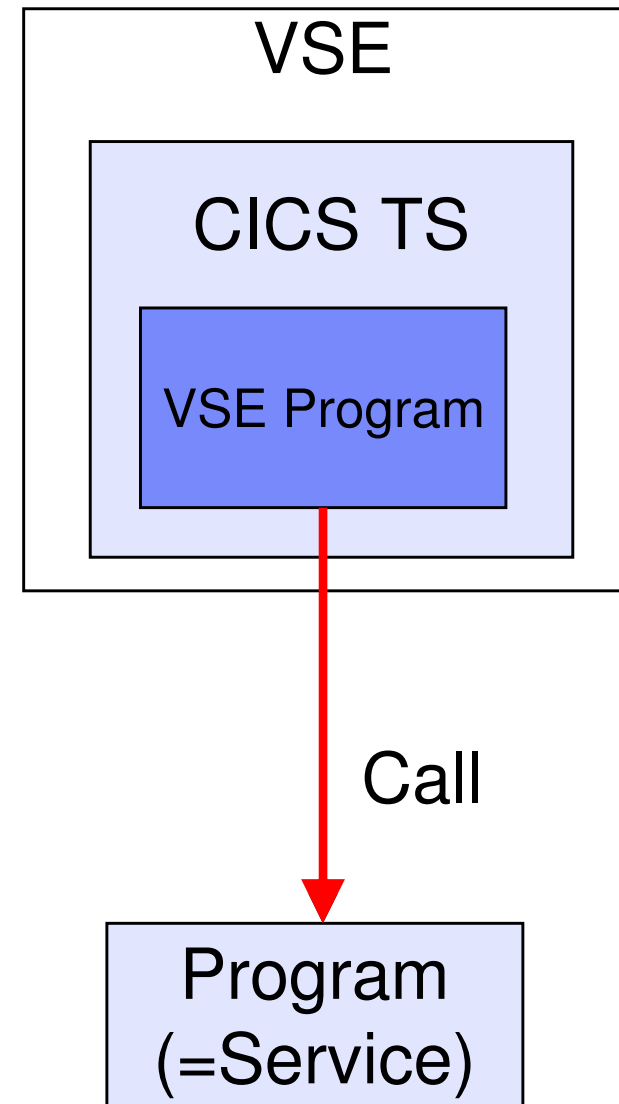
What is a Web Service in z/VSE ?

- Assume **you have a VSE program** that implements some kind of important business logic
- Someone else (outside VSE) wants to use this program
 - 1. Possibility: Rewrite the same logic
 - May need access to VSE data
 - Changes/Fixes in VSE code needs to be re-done in new code also
 - 2. Possibility: Call the VSE program from remote
 - VSE program can be called as a **Web Service**
 - **VSE is the Web Service provider**



How z/VSE applications call a Web Service?

- Assume **someone has a program** that implements some kind of important business logic
- You want to use this program inside a VSE application
 - 1. Possibility: Rewrite the same logic
 - May need access to the remote data
 - Changes/Fixes in code needs to be re-done in VSE code also
 - 2. Possibility: Call the external program from VSE
 - External program can be treated as a **Web Service**
 - **VSE is the Web Service Requestor**

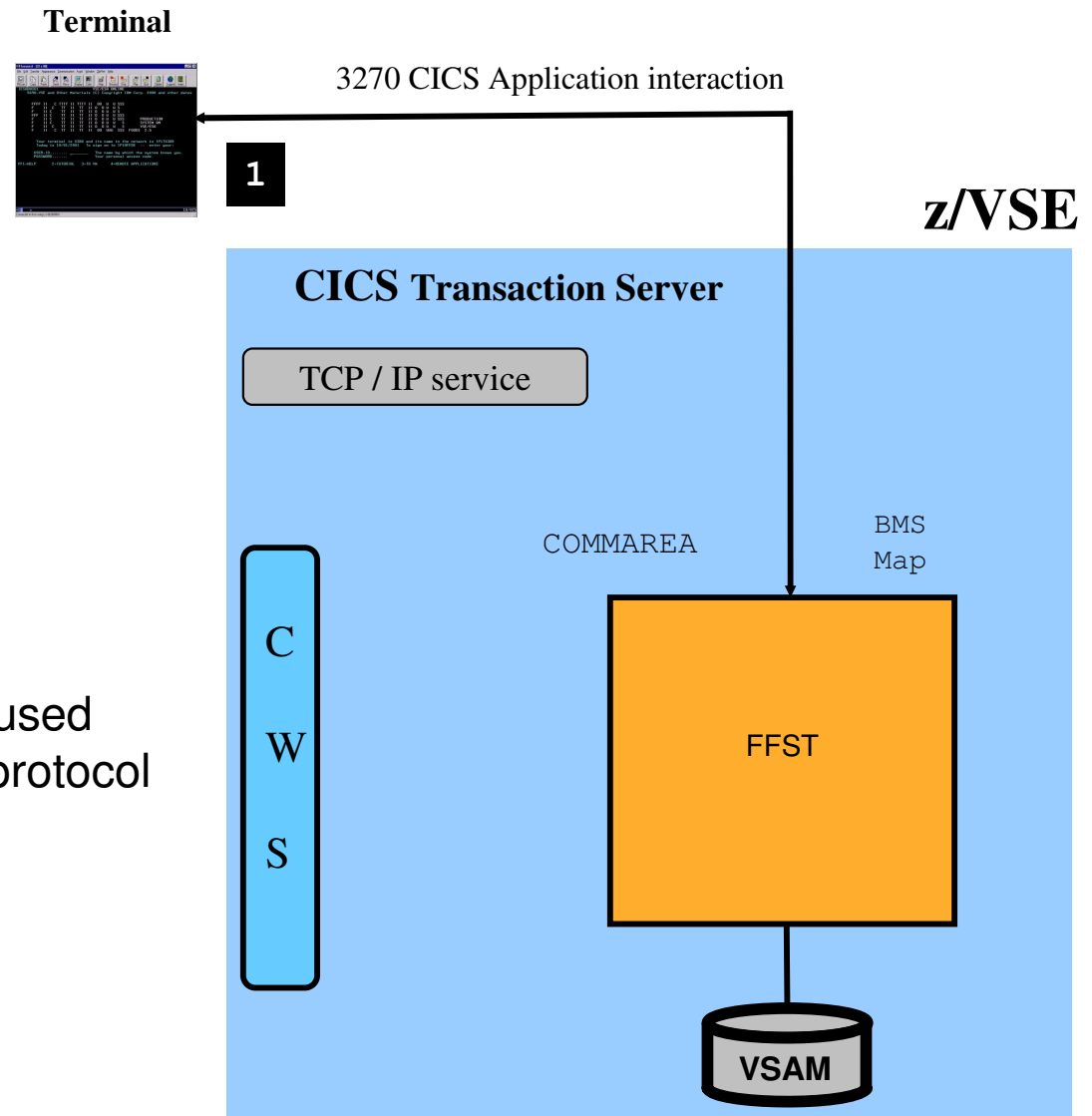


CICS applications and their behavior

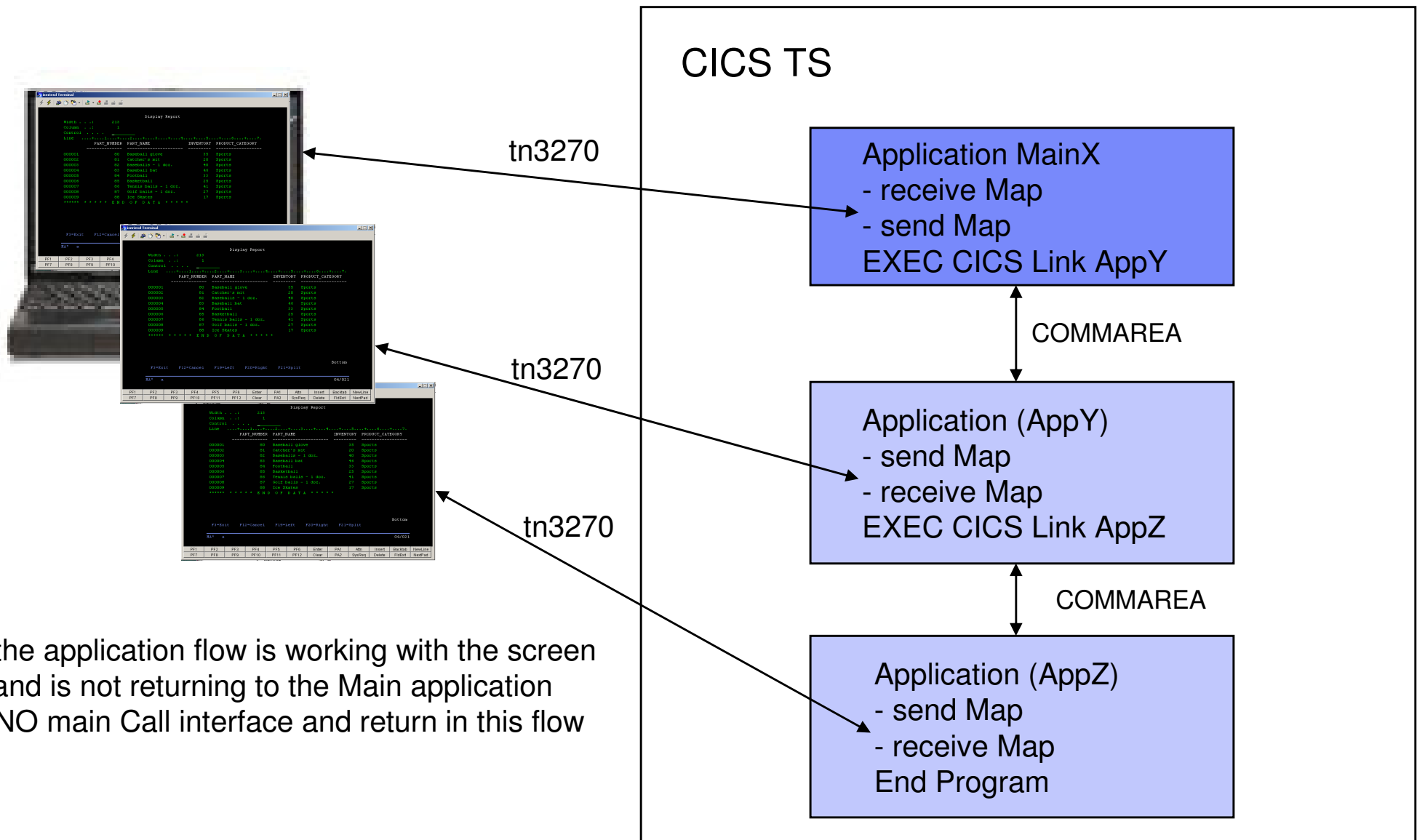
CICS Application interfaces:

- interaction via 3270 screen
- interaction via 3270 and BMS Maps
- interaction via Commarea
- interaction via TS Queues

Note: For Web Services a **proxy code** is used to translate between Web Service protocol and CICS application



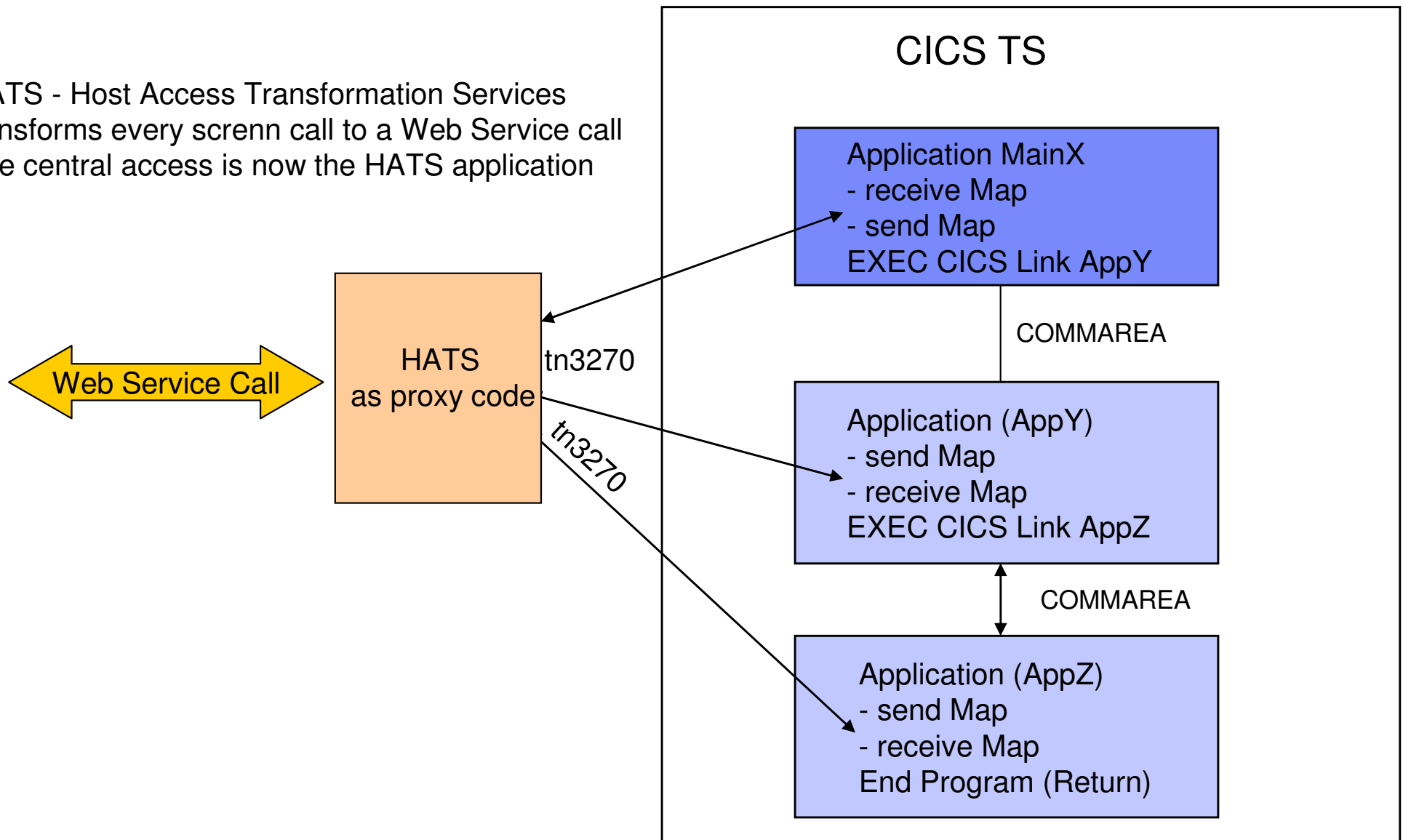
CICS TS applications and their behavior



- the application flow is working with the screen and is not returning to the Main application
- NO main Call interface and return in this flow

CICS 3270 applications as Web Services

- HATS - Host Access Transformation Services transforms every screen call to a Web Service call
- The central access is now the HATS application



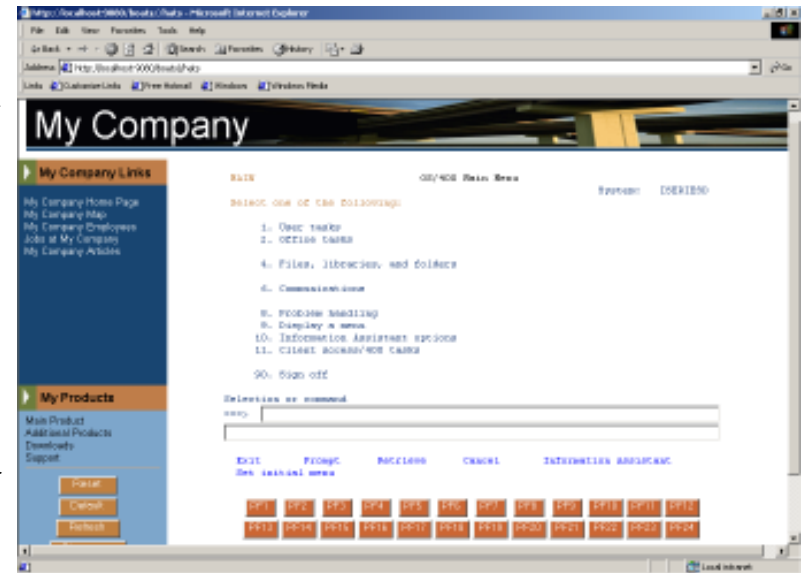
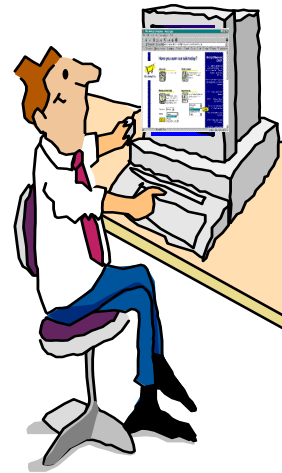
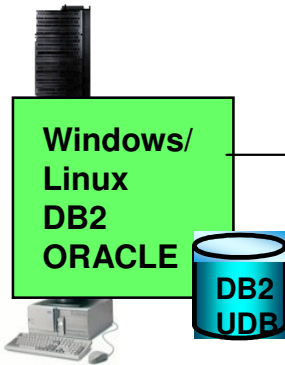
Application Integration with Host Access Transformation Services (HATS)

- No software download to the client
- Uses the screen buffers
- Integration with distributed applications
- **Web Service on the fly**

```

iseries Terminal
-----
Display Report
Width . . . : 213
Column . . . : 1
Control . . . :
Line . . . . .:
-----
PART NUMBER  PART NAME          INVENTORY  PRODUCT_CATEGORY
-----
000001      00  Baseball glove      35  Sports
000002      01  Catcher's mit       20  Sports
000003      02  Baseballs - 1 doz.  40  Sports
000004      03  Baseball bat        46  Sports
000005      04  Football            33  Sports
000006      05  Basketball          25  Sports
000007      06  Tennis balls - 1 doz. 41  Sports
000008      07  Golf balls - 1 doz.  27  Sports
000009      08  Ice Skates          17  Sports
***** ***** END OF DATA *****
-----
Bottom
F3=Exit  F12=Cancel  F19=Left  F20=Right  F21=Split
MA* a 04/021
PF1 PF2 PF3 PF4 PF5 PF6 Enter PA1 Attn Insert BackTab NewLine
PF7 PF8 PF9 PF10 PF11 PF12 Clear PA2 SysReq Delete FldExit NextPad
  
```

3270 or 5250 data stream

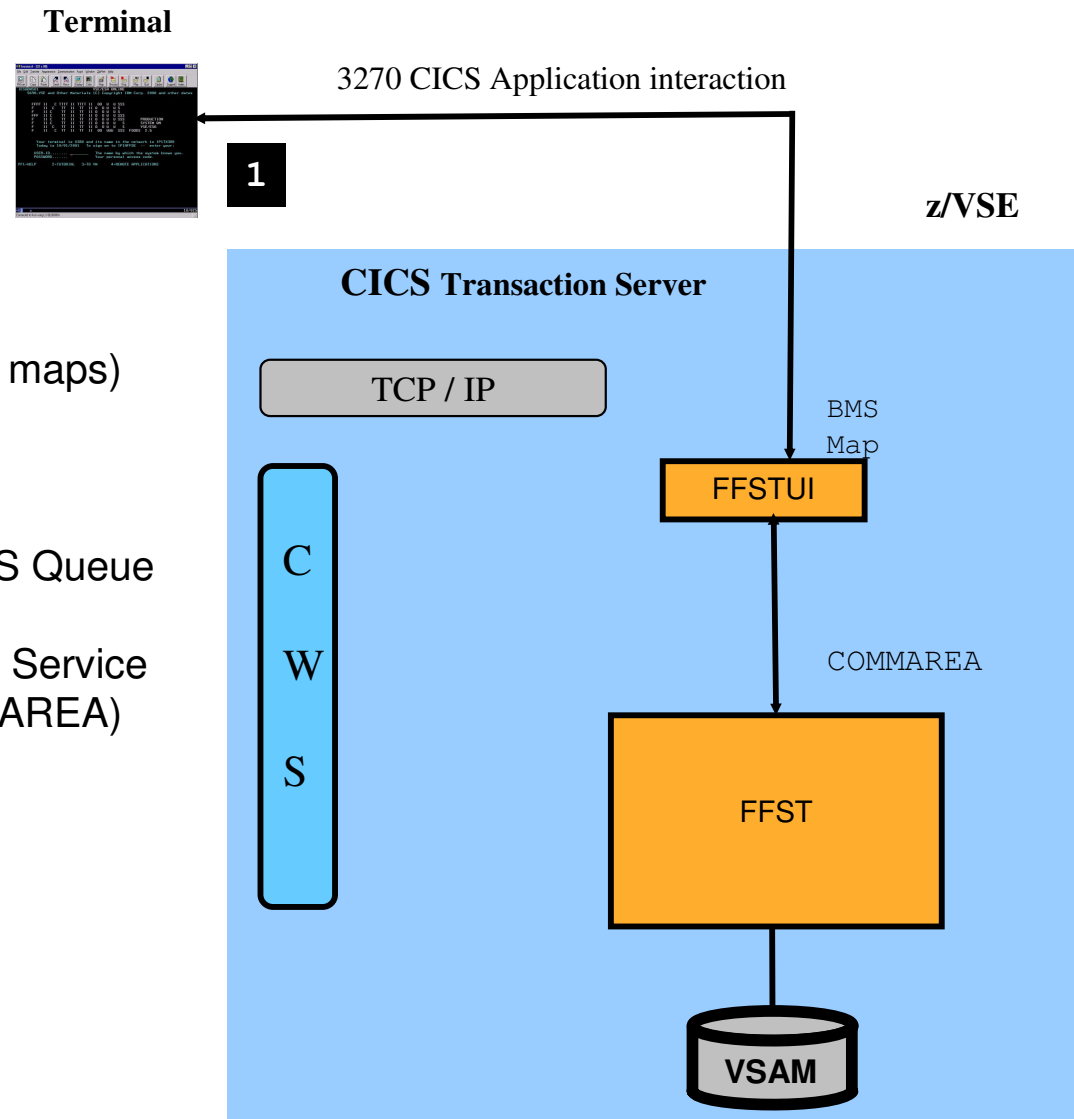


Screen transformation rules running on WebSphere Application Server

HTML in a Browser

Ideal CICS application structure for Web Services

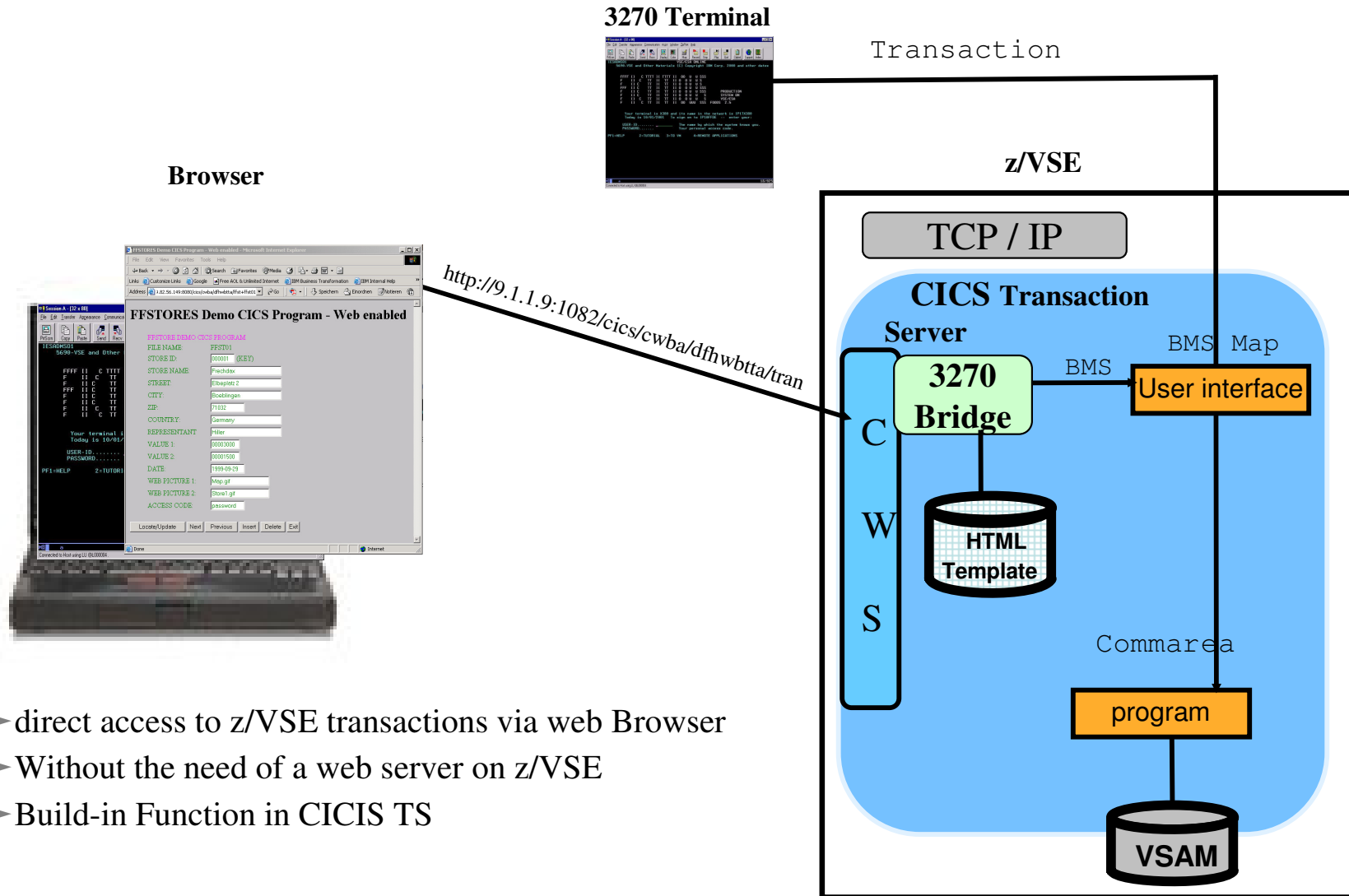
- the application has a presentation logic (BMS maps) that can consist of multiple screens and
- the application has a callable business logic with a main Call interface via Commarea or TS Queue and one return point in the flow
- the COMMAREA can then be used for a Web Service interface - using a proxy code (XML - COMMAREA)



CICS Web Support (CWS)

From 3270 screens to Browser interfaces for CICS transactions

Note: CWS is not a 'Web Service', it is a guification based on BMS maps only

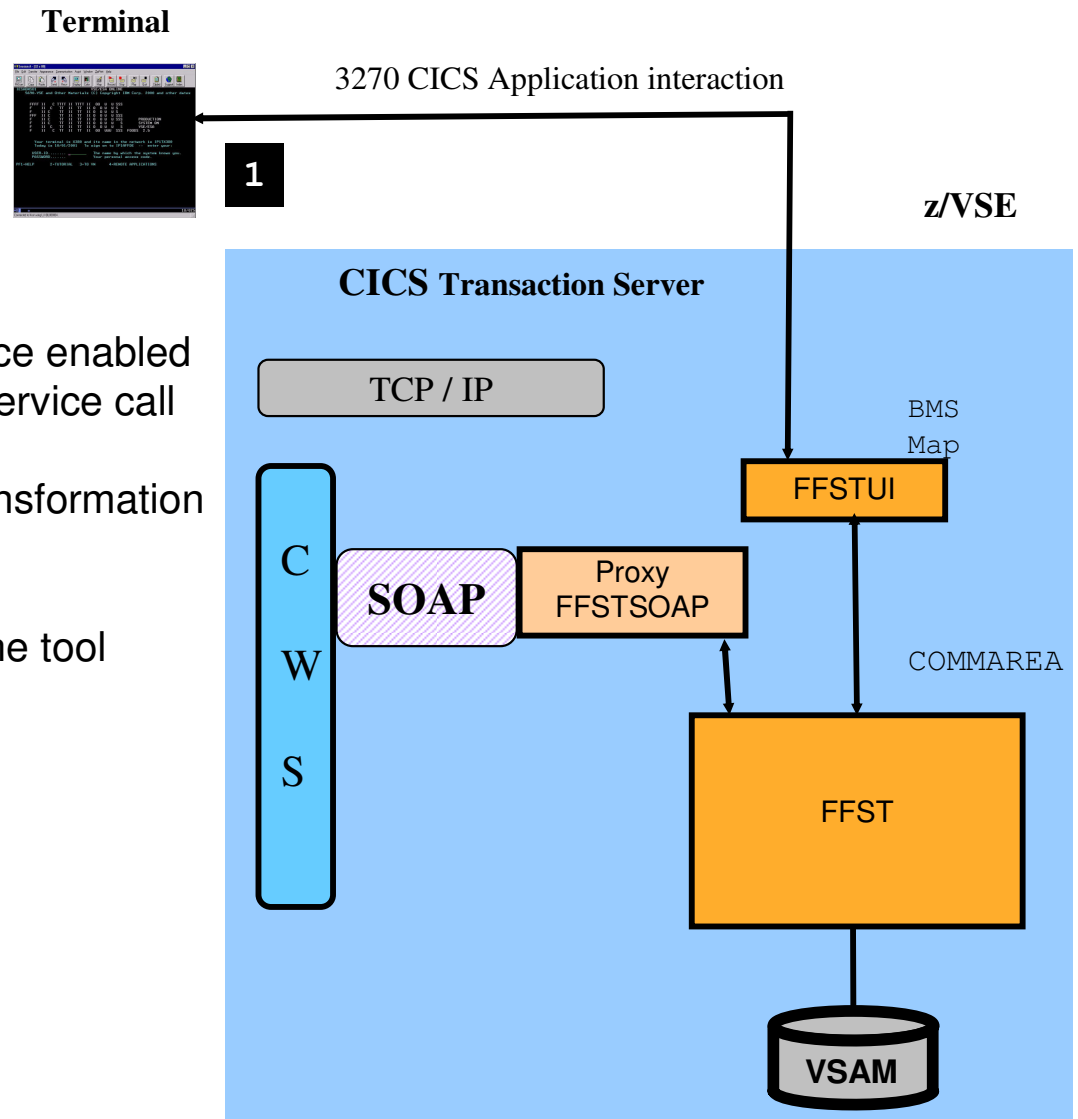


- ▶ direct access to z/VSE transactions via web Browser
- ▶ Without the need of a web server on z/VSE
- ▶ Build-in Function in CICS TS

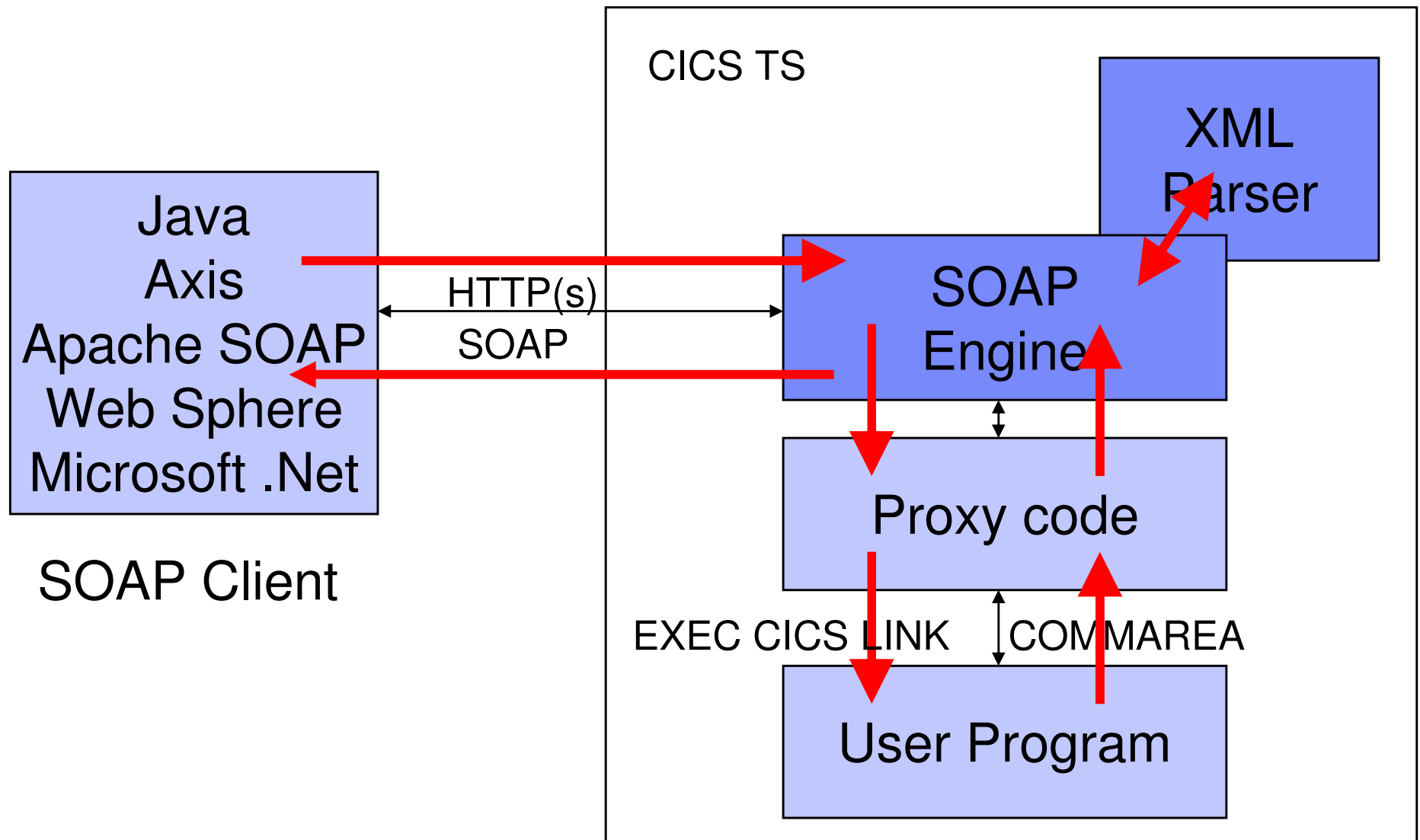
CICS application structure for Web Services - with Proxy Code

- the application presentation logic, BMS maps remain unchanged if application is Web Service enabled
- CWS - is used as Listener in CICS for Web Service call
- the Proxy FFSTSOAP is the proxy code used for a Web Service to CICS interface transformation (i.e. XML - COMMAREA)

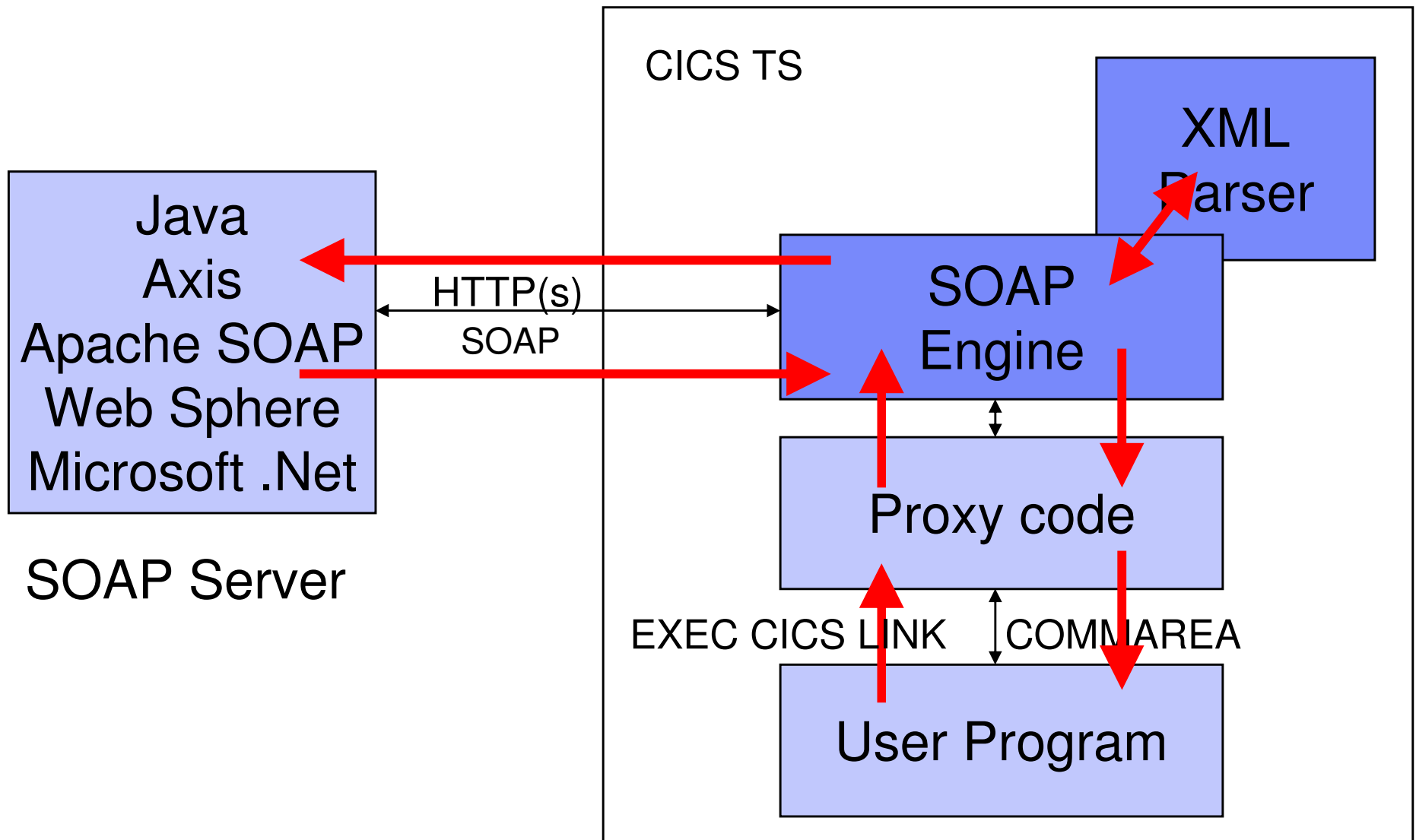
Note: This proxy code can be generated with the tool CICS2WS.



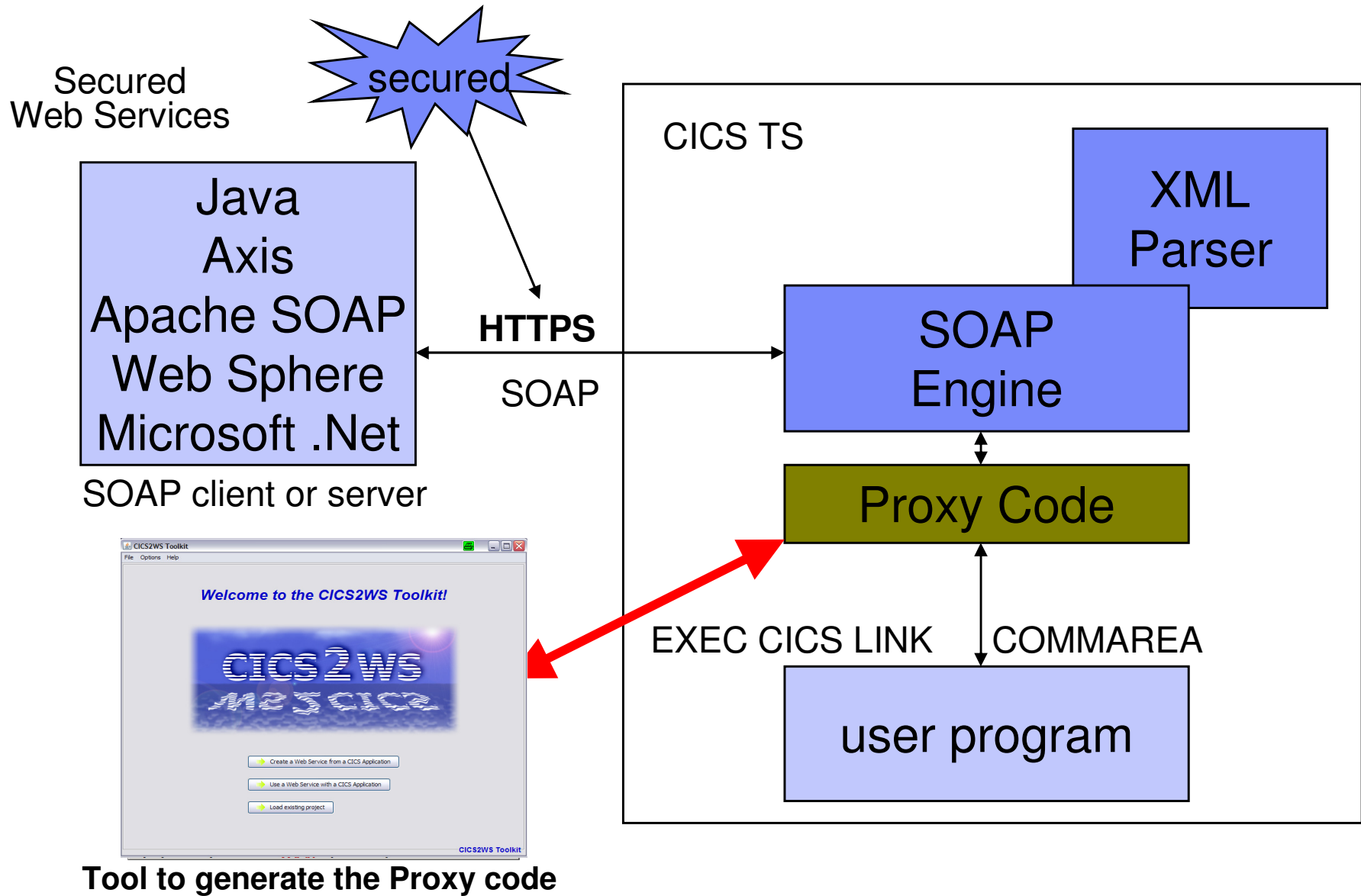
Providing Web Services with VSE – SOAP server



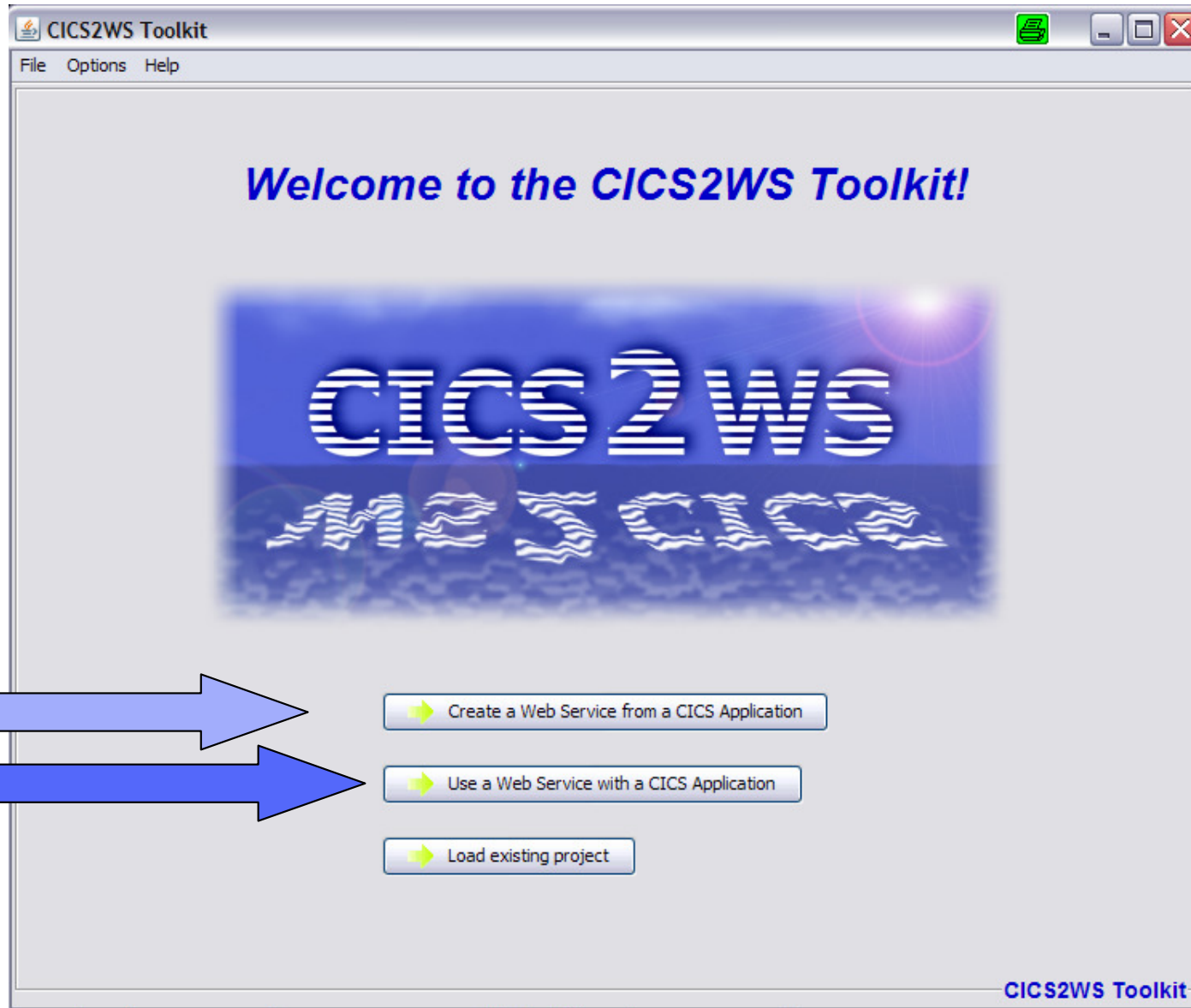
Using Web Services with VSE – SOAP client



Web Services in VSE

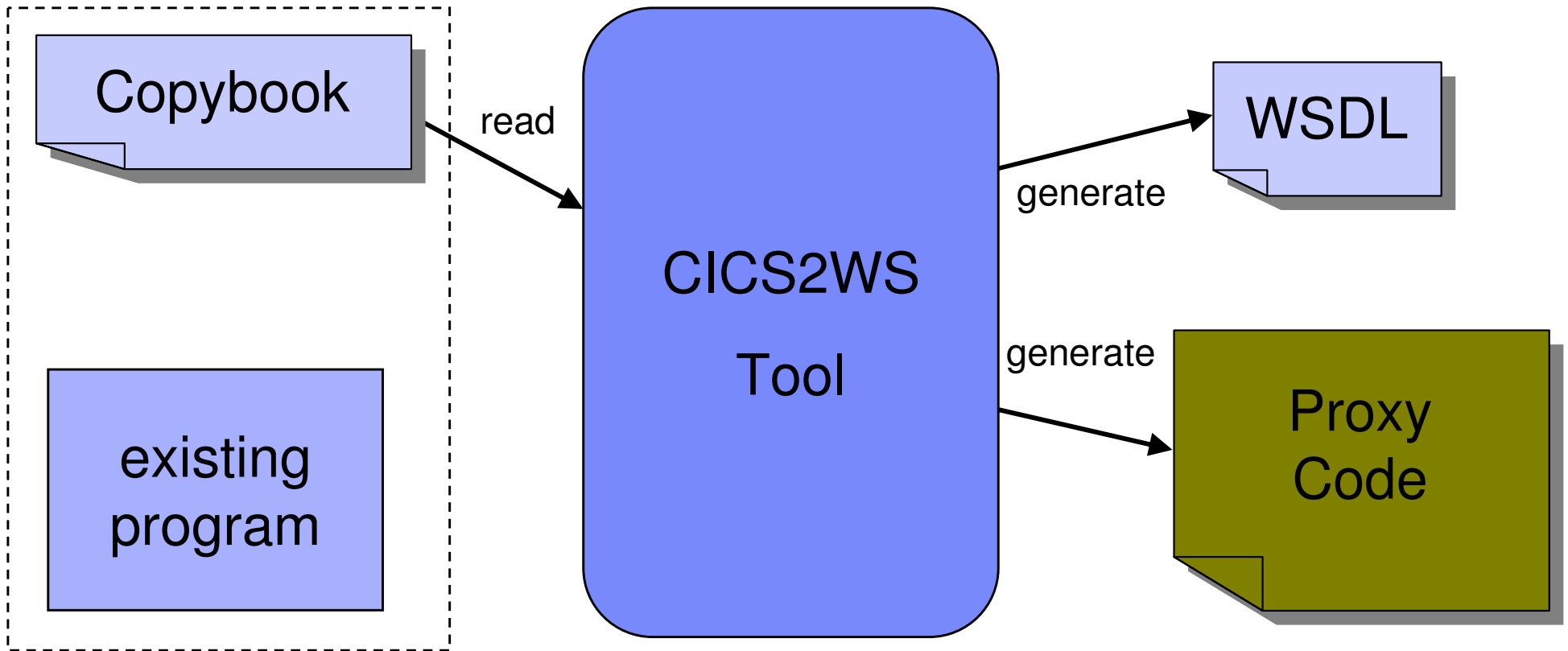


CICS to Web Services Tool

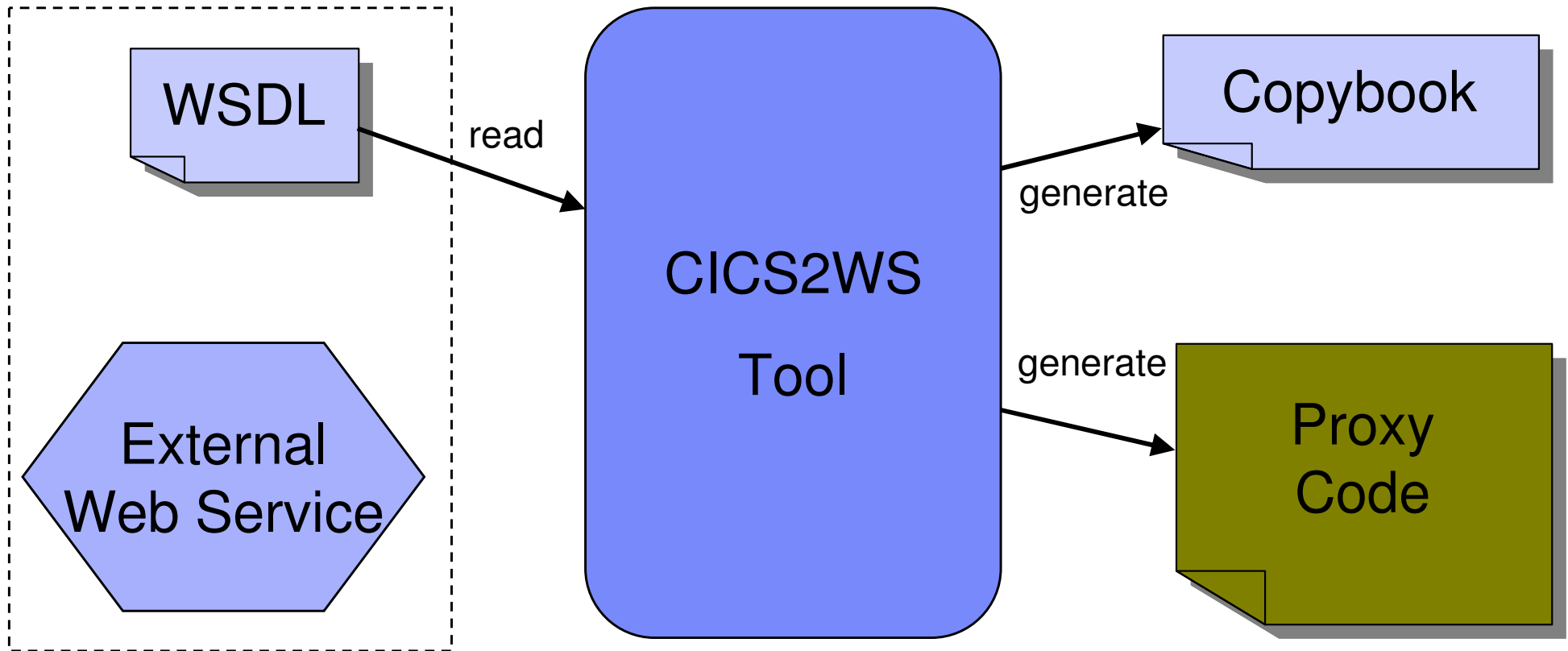


<http://www-03.ibm.com/systems/z/os/zvse/downloads/>

VSE as a SOAP server (service provider)



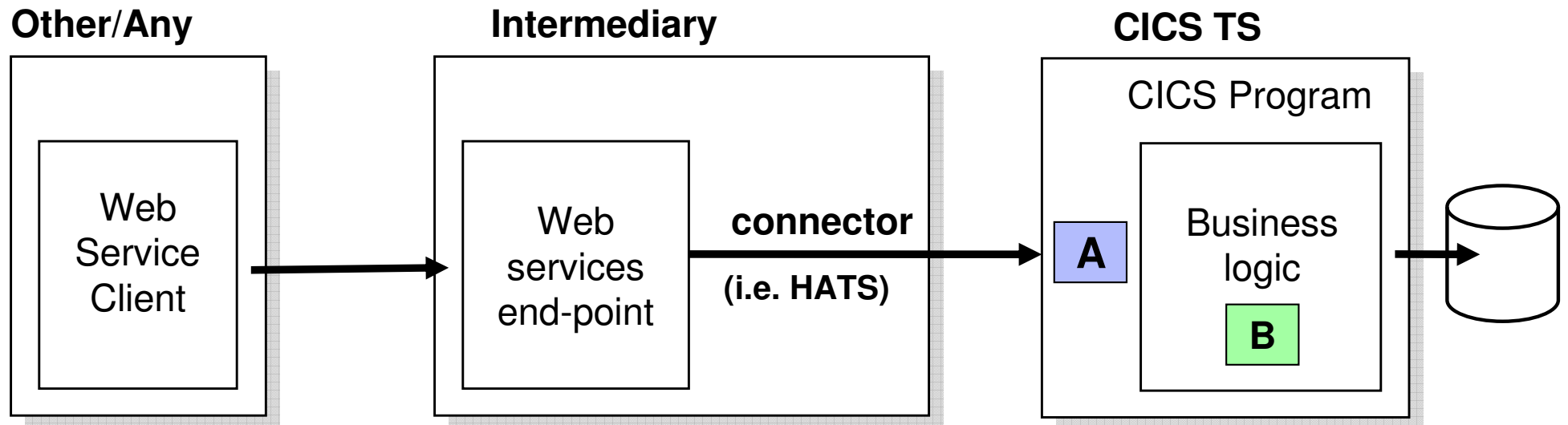
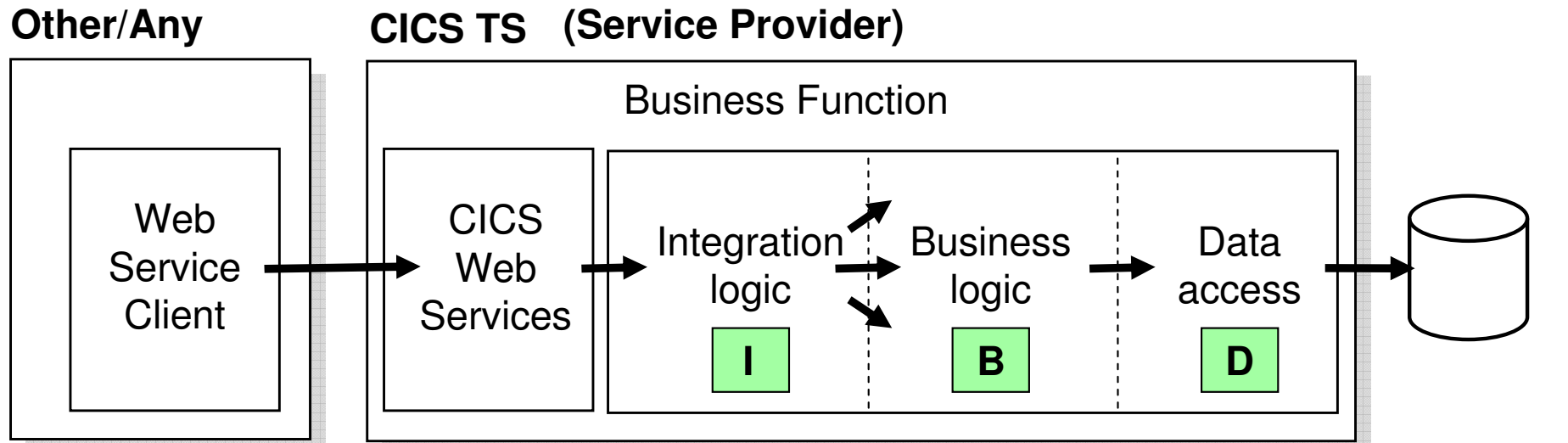
VSE as a SOAP client (service requestor)



Let's do it

Workshop time

The Two CICS Models of SOA Integration



The SOA Architecture - Standards

- **Web Services**
 - defined Services

- **XML** (eXtended Markup Language)
 - platform independent data representation

- **SOAP** (Simple Object Access Protocol)
 - protocol for Web Services

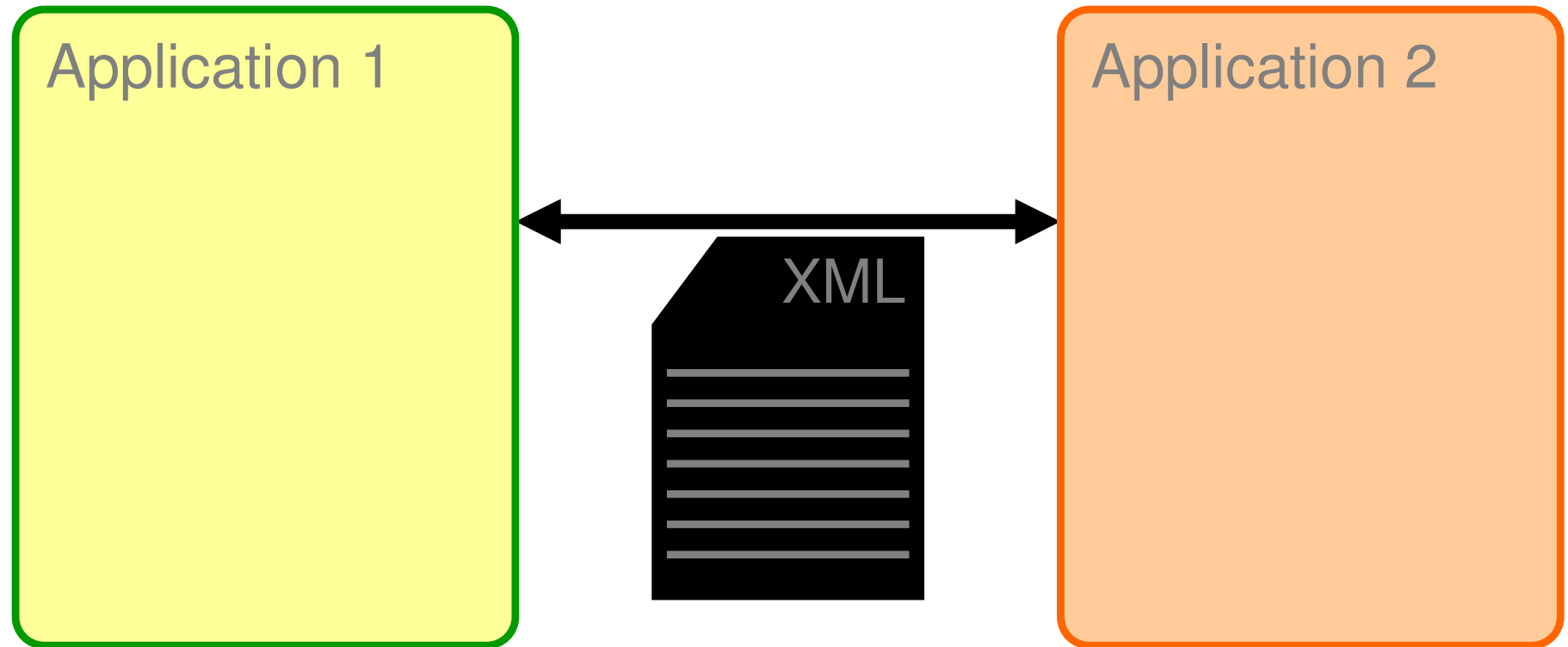
- **UDDI** (Universal Description Discovery Integration)
 - catalog to register and find Web Services

- **WSDL** (Web Services Description Language)
 - language in which the Web Services describes

- **Enterprise Service Bus**
 - The Plug for the Services

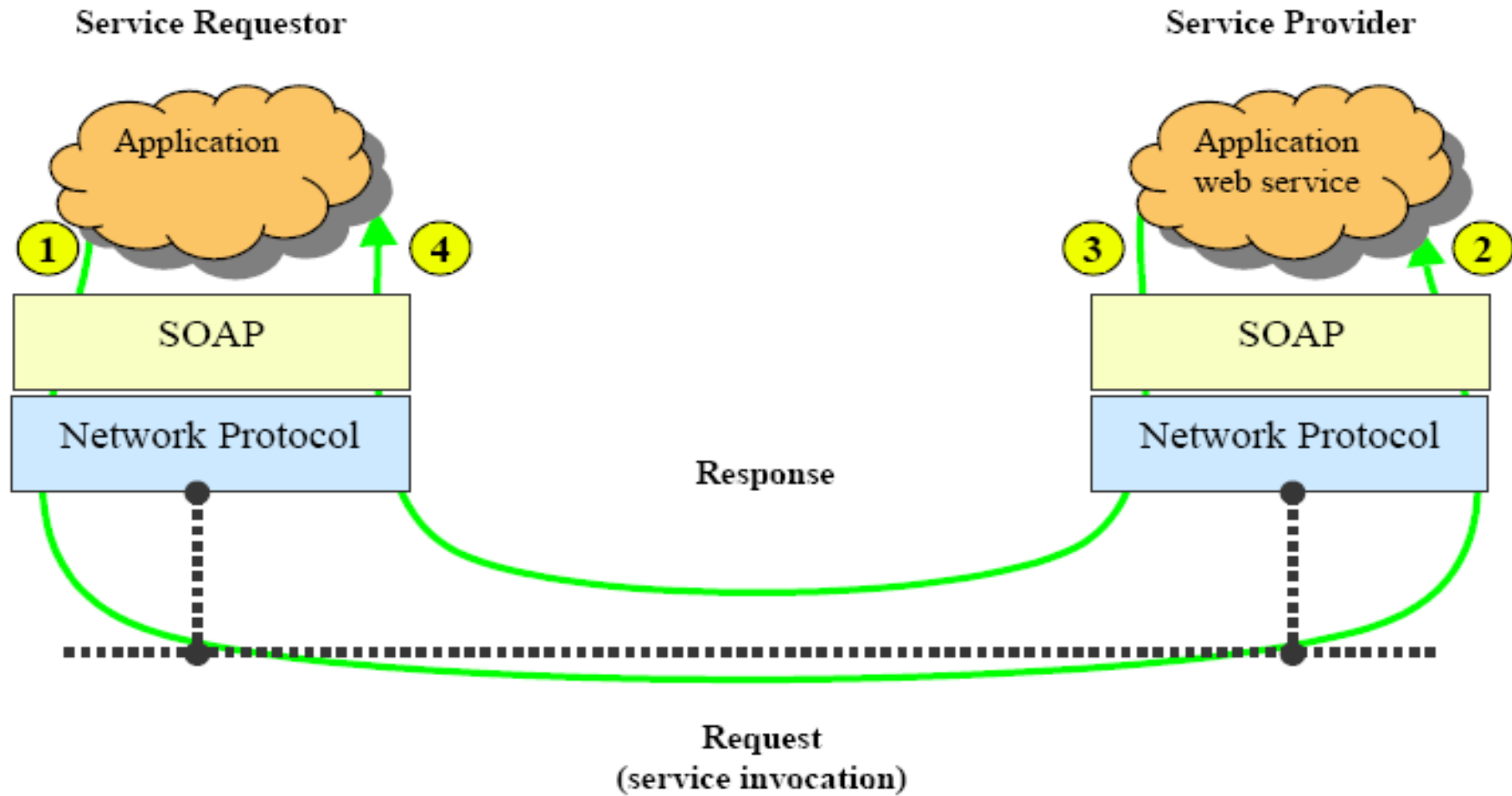
What are Web Services? Applications !

Platform independent applications can communicate !



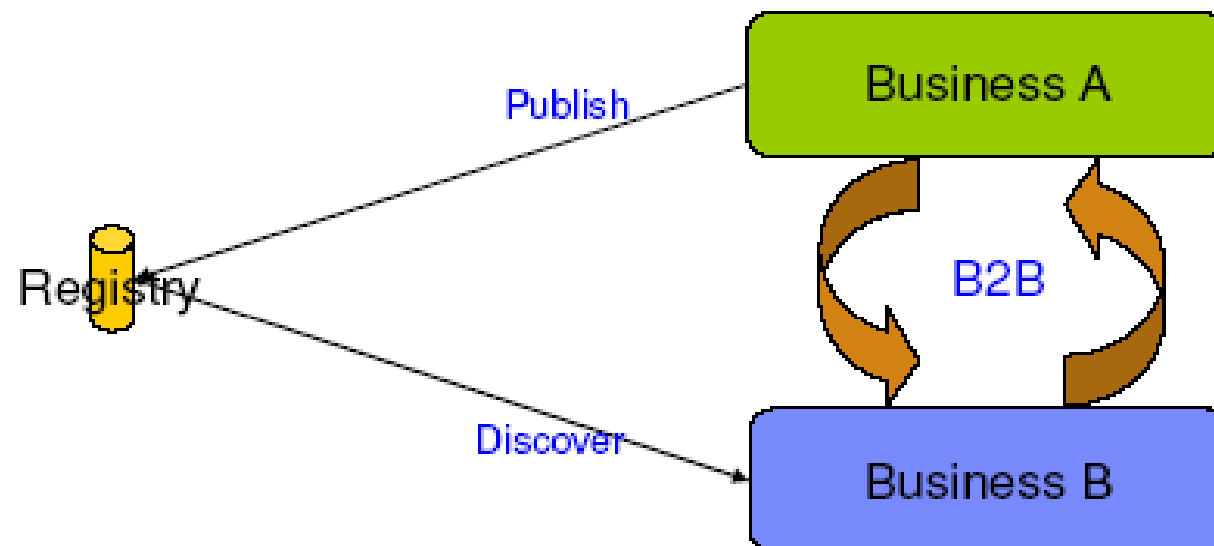
What is Simple Object Access Protocol (SOAP)?

Application communication protocol with XML !

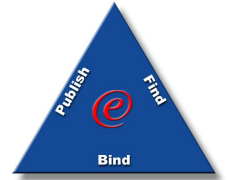


What is a Registry?

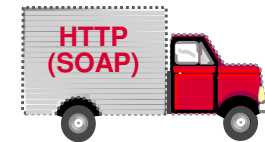
- An infrastructure that enables the publishing and discovery of Web Services
- Facilitates business-to-business (B2B) interactions



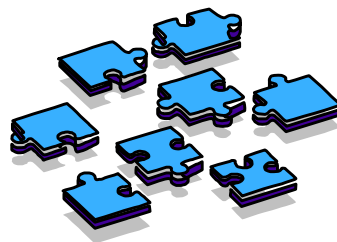
What is WSDL?



- **Web Services Description Language**
- **WSDL is an XML based vocabulary for defining a Web Service:**
 - interfaces
 - operation types (i.e. one-way, request-response, notification)
 - messages defining a Web Service interface
 - definition of data types (XML Schema)
 - access protocol (i.e. SOAP over HTTP)
 - contact endpoints (i.e. Web Service URL and URNs¹)



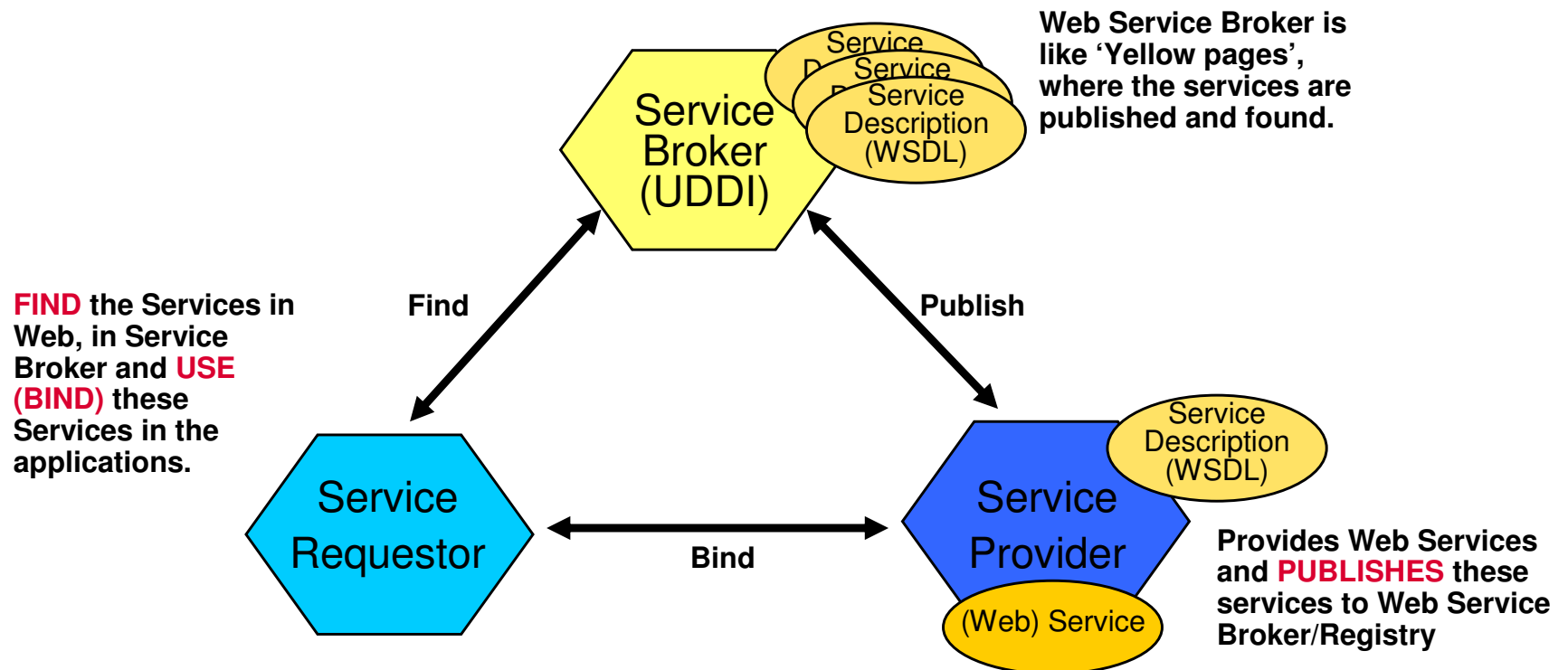
(1 URNs are location independent pointers to a file, or to different representations of the same content. In most ways they can be used like URLs)



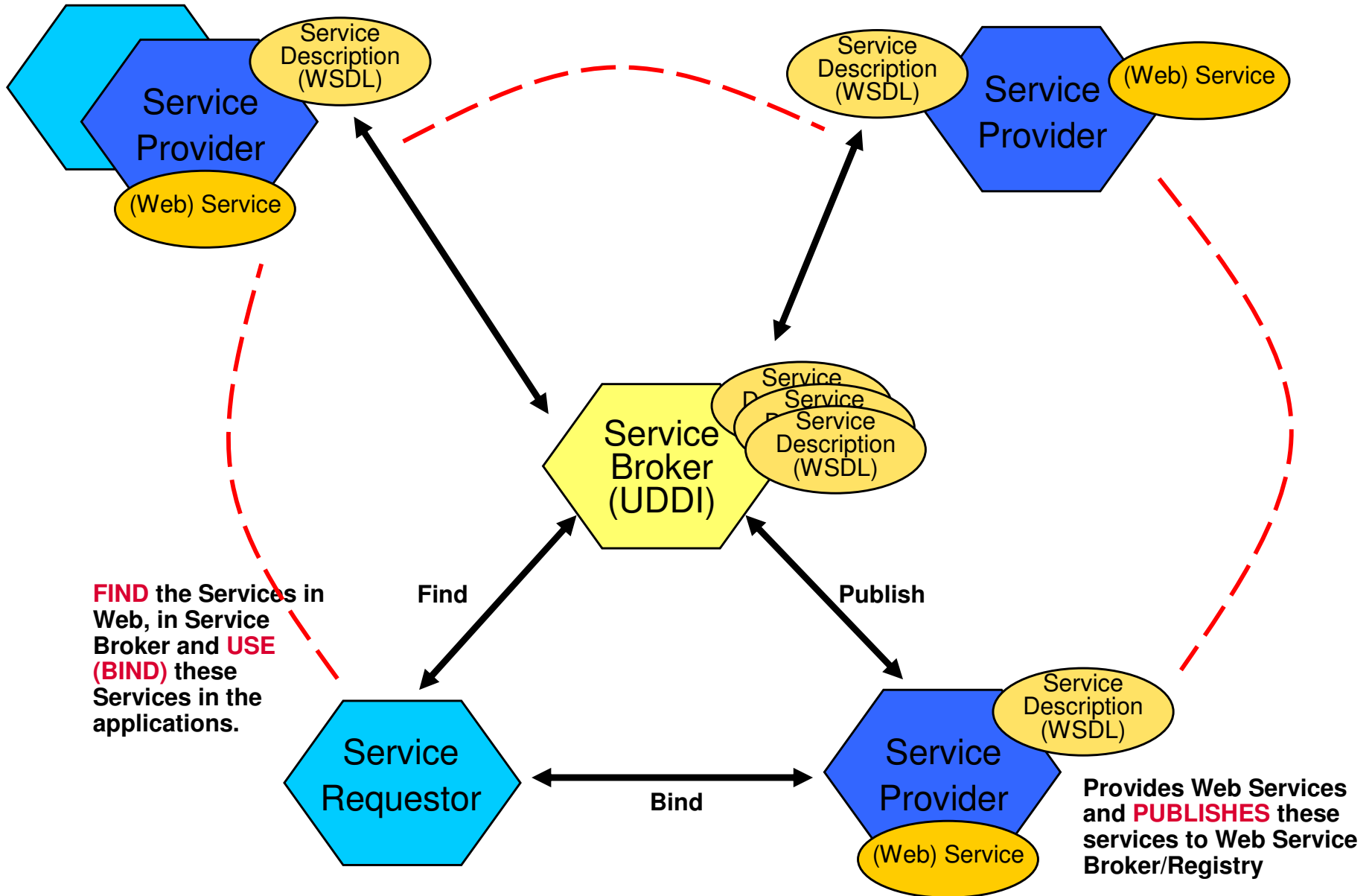
How Web Services work

„WebServices are self-contained, modular applications that can be described, published, located, and invoked over a network, generally, the World Wide Web.“ **IBM**

“A WebService is programmable application logic, accessible using standard Internet protocols“ **Microsoft**



How Web Services work



FIND the Services in Web, in Service Broker and **USE (BIND)** these Services in the applications.

Provides Web Services and **PUBLISHES** these services to Web Service Broker/Registry

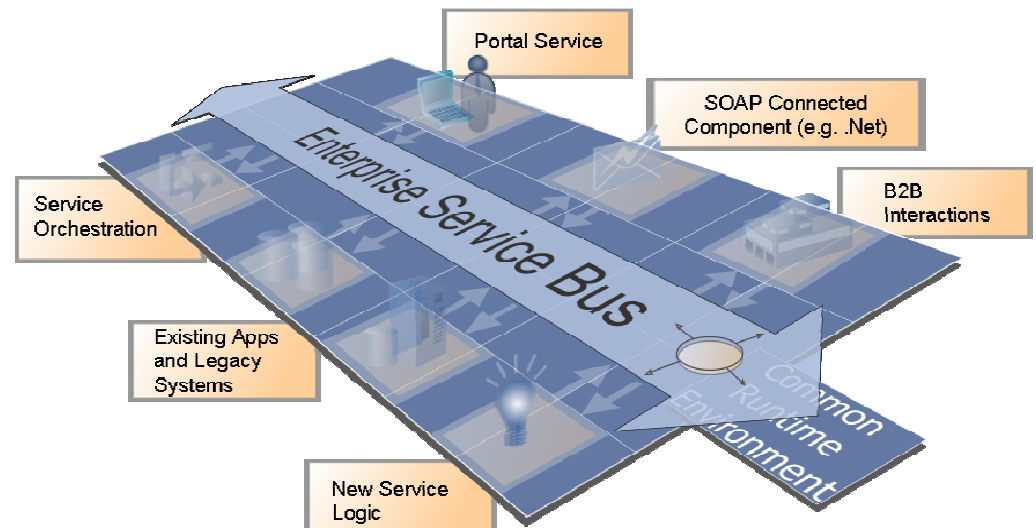
What is an Enterprise Service Bus?

An Enterprise Service Bus (ESB) is a flexible Infrastructure for services and application integration

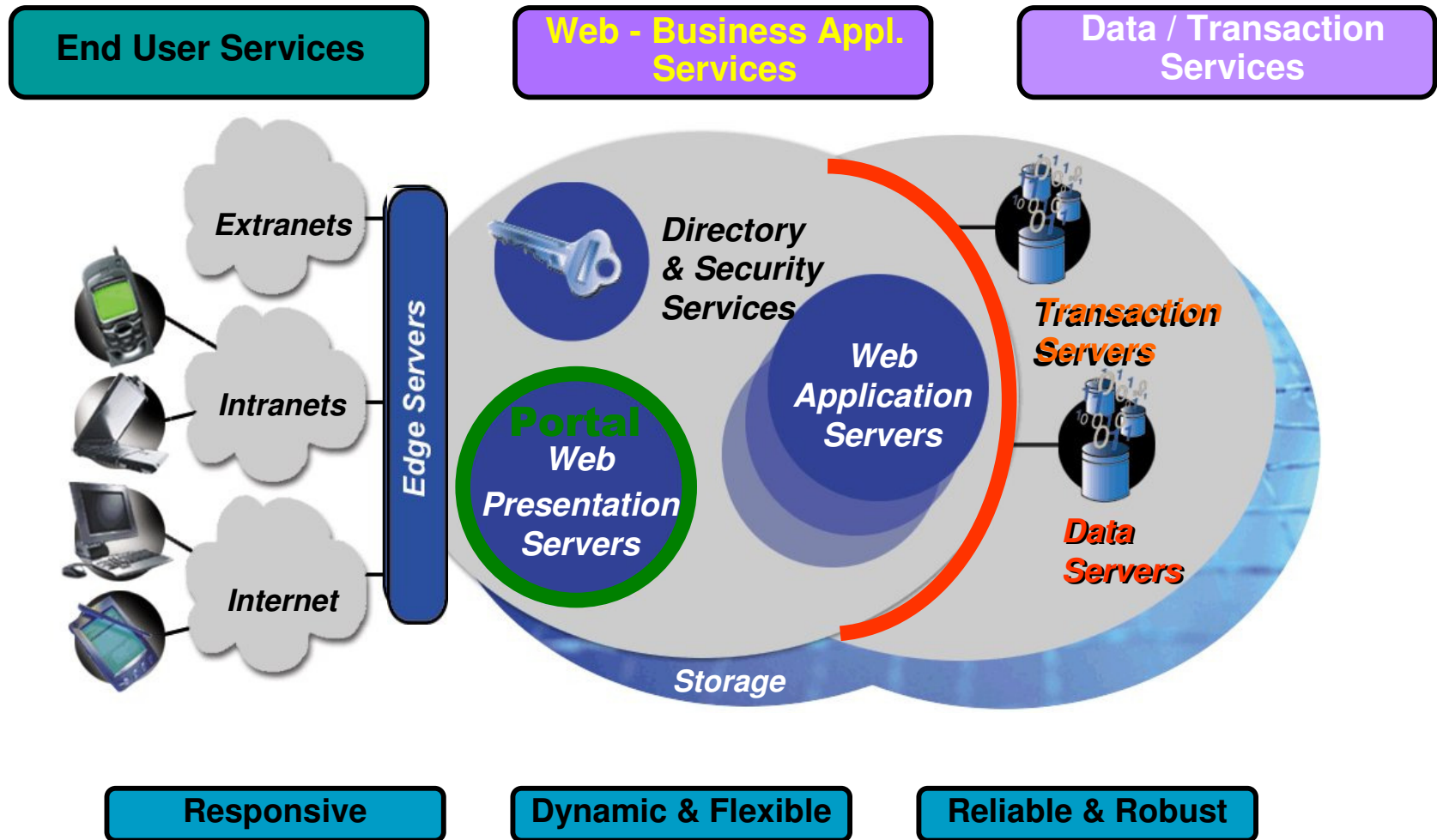
An ESB reduces the number, size and complexity of your interfaces in a SOA solution.

An ESB realizes following tasks between requestor und service

- **ROUTING** of messages between Services
- **CONVERTING** the transport protocol between requestor and service
- **TRANSFORMING** message formats between requestor and service
- **HANDLING** of business events between different types of services

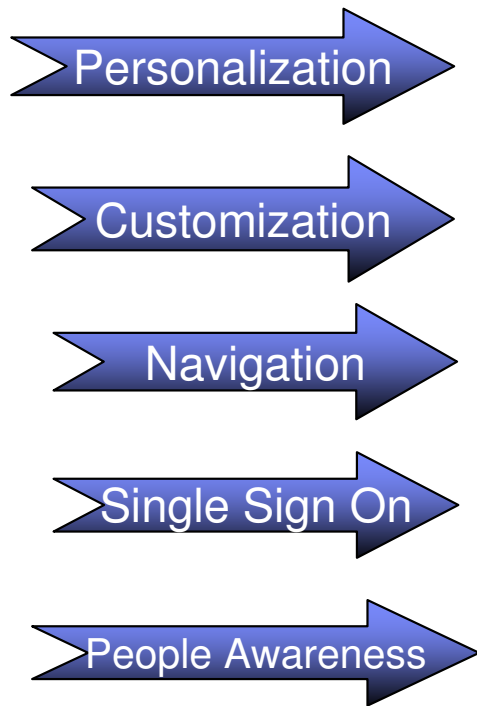


Integration with z/VSE Applications

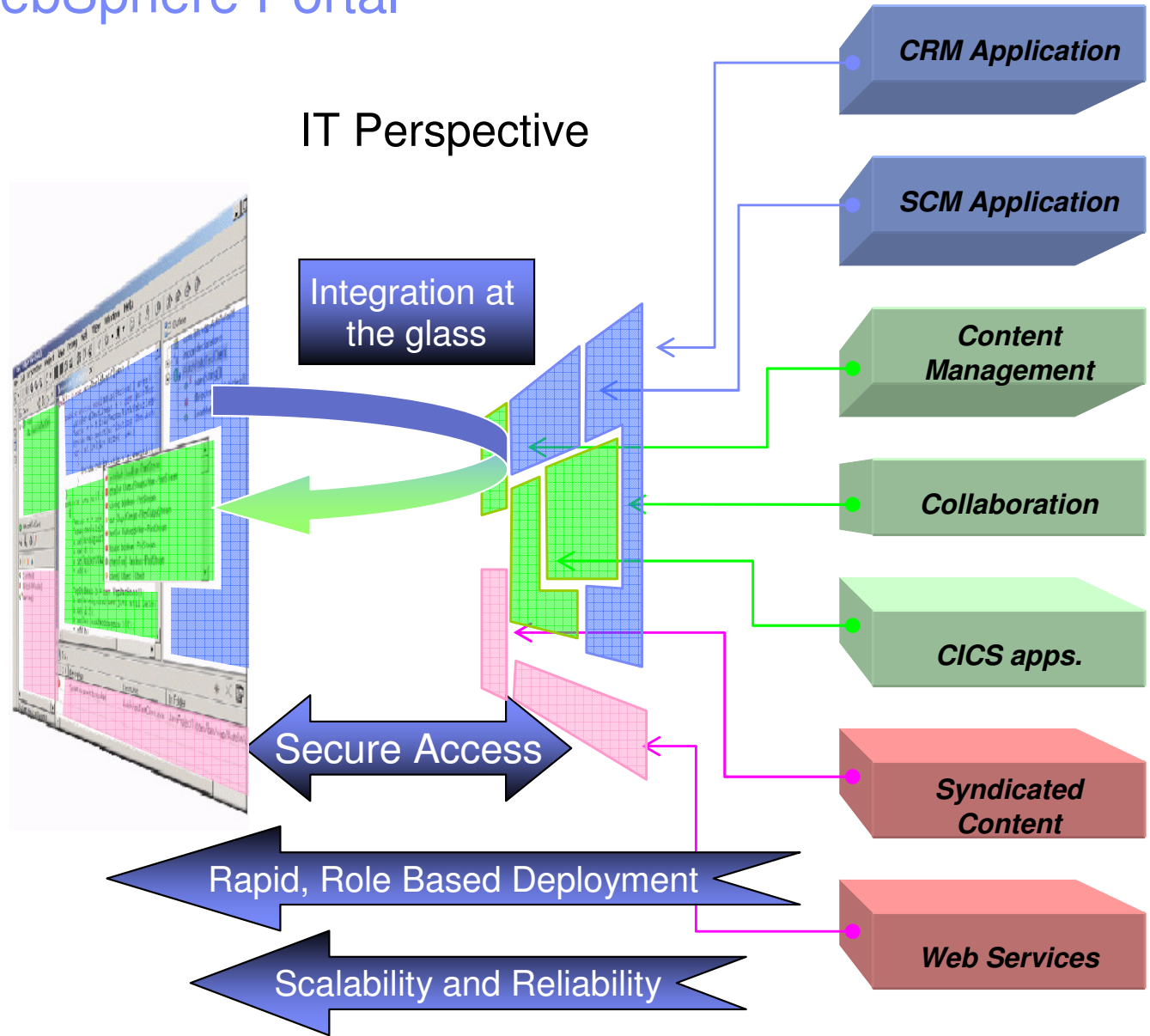


Integration variety of WebSphere Portal

User Perspective

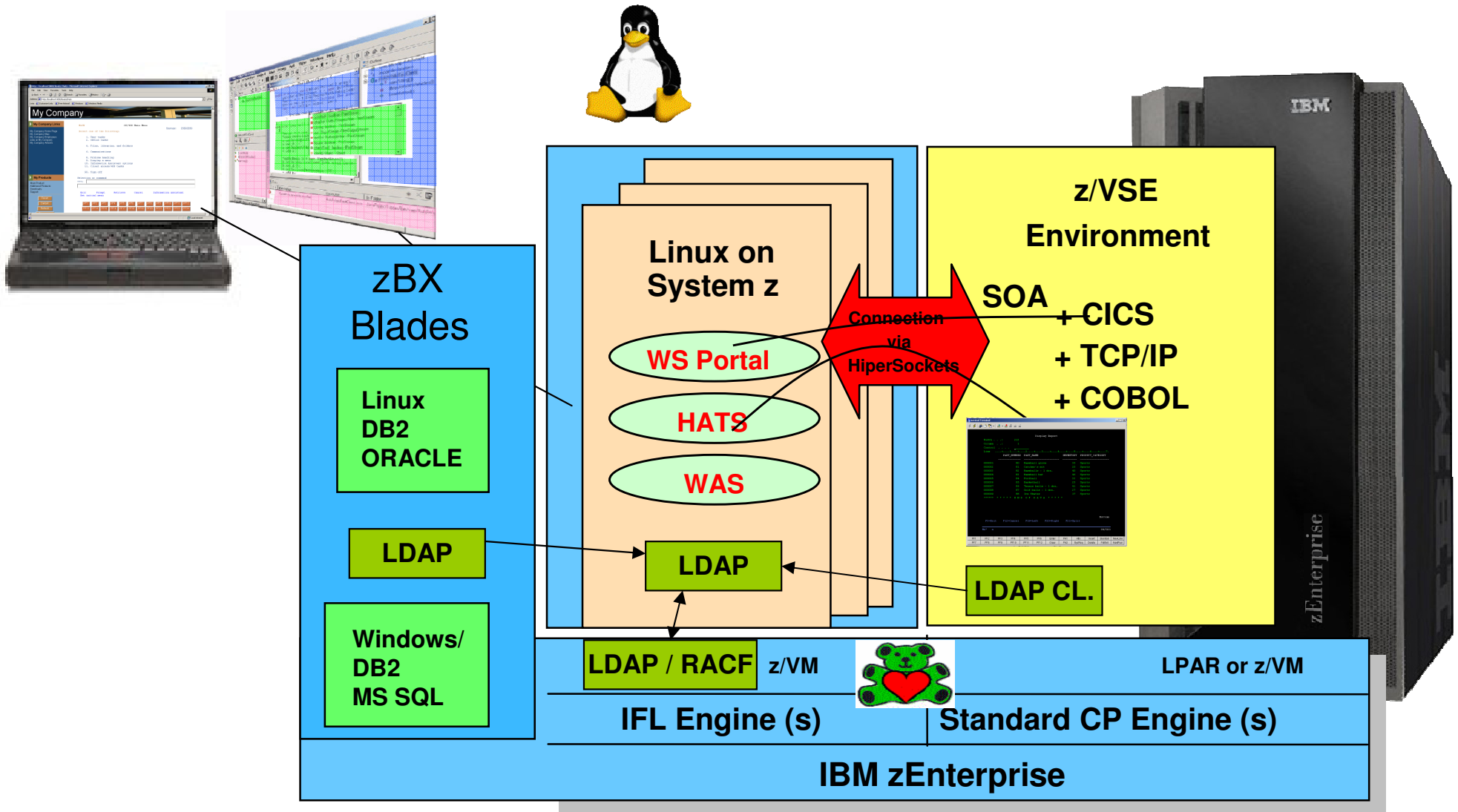


IT Perspective



Central Authentication Options – LDAP in Linux or LDAP/RACF in z/VM

Single sign on, Web enable, improve interface, simplify, extend existing applications



Why you should use Web Services with z/VSE

- **Easy integration of existing VSE programs and processes**
 - Reducing the interface complexity
 - Reuse of existing application logic as services
 - Use of standard protocols (XML, SOAP, HTTP)

- **Integration is platform independent**
 - independent of application programming language
 - independent of the data involved

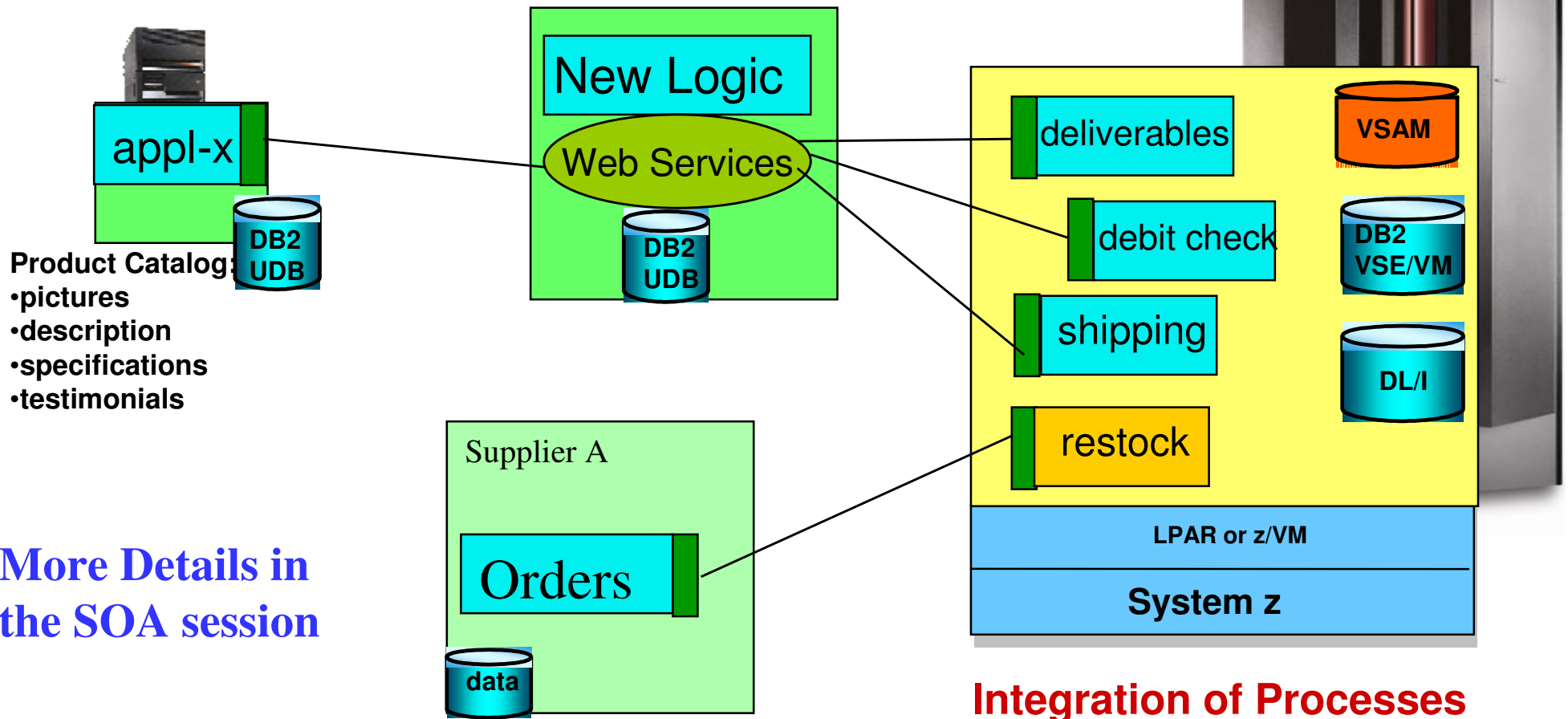
- **Integration of VSE into a Microsoft .Net environment**
 - without the use of Java
 - the most incompatible environments can be integrated

- **SOA enables the extension of VSE applications**
 - to other platforms and architectures
 - to partners and open world

SOA – the way to new applications and processes

- Applications look the same for all users
- Core applications can be enhanced with an interface (independent of their language, COBOL, ASM, PL/I)
- New business logic is built

Increased success for the Company



More Details in the SOA session

Integration of Processes

For more information, please see the z/VSE web site:

<http://www.ibm.com/zvse/>

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z/VSE V5.1.1 is available

Built on a heritage of ongoing refinement and innovation that spans more than four decades

IBM z/VSE V5.1 - Additional enhancements

In addition to function delivered at general availability of IBM z/VSE V5.1, you get supplemental enhancements:

- **Support for IBM CICS Explorer - "The new face of CICS Transaction Server for VSE/ESA V1.1"**
CICS Explorer V1.1 capabilities can now be used with CICS TS. The CICS Explorer is the new systems management framework for CICS TS. It provides read-only capabilities to display CICS resources. Please see the [CICS web page](#) for additional information and updates.
- **The Fast Path to Linux on System z function (Linux Fast Path) in a logical partition (LPAR) environment**

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