



E16

Options for Interoperability between CICS and Your Network

Wilhelm Mild

zSeries® EXPO

**FEATURING Z/OS, Z/VM, Z/VSE
AND LINUX ON ZSERIES**

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San Francisco, CA

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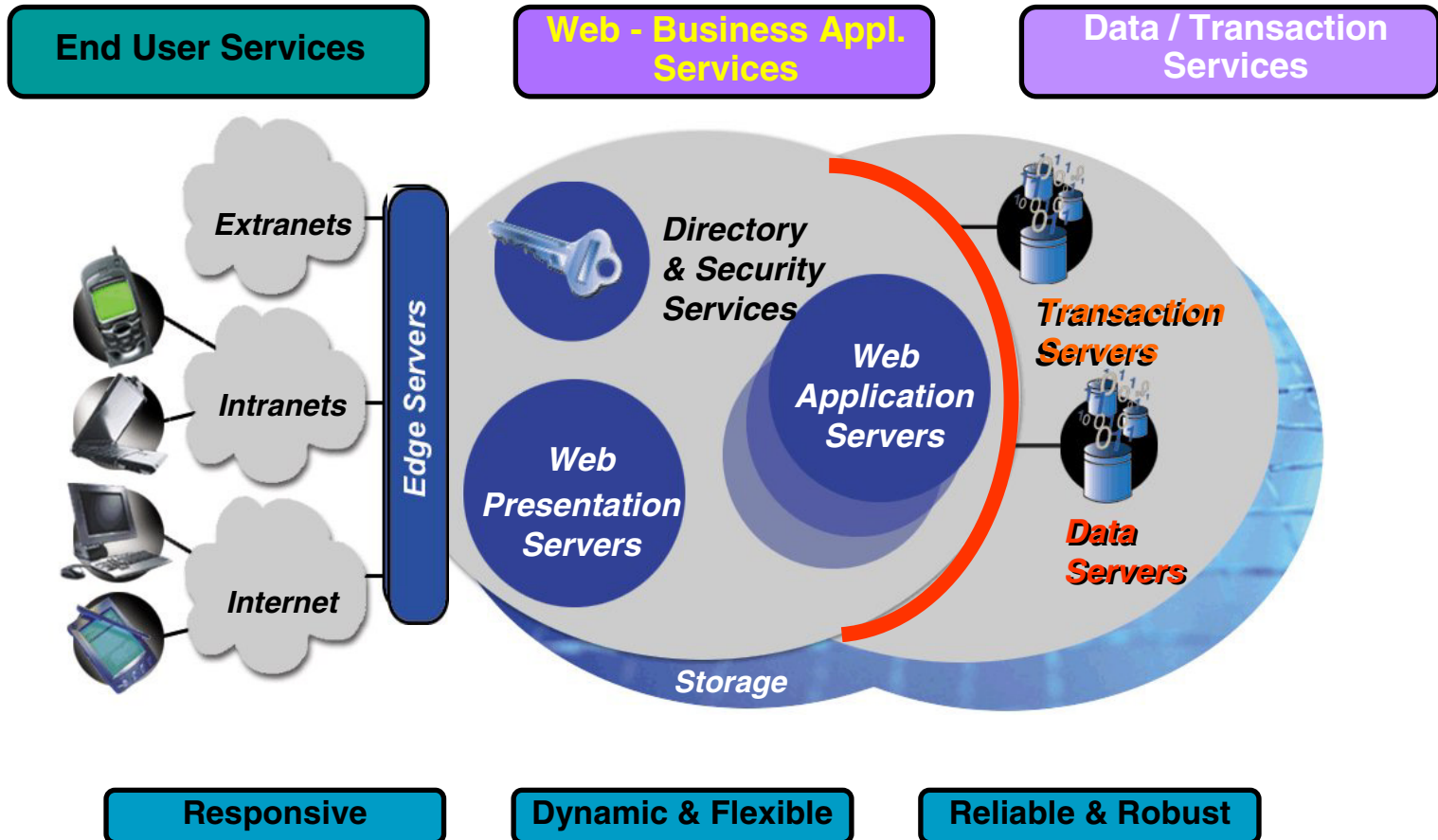
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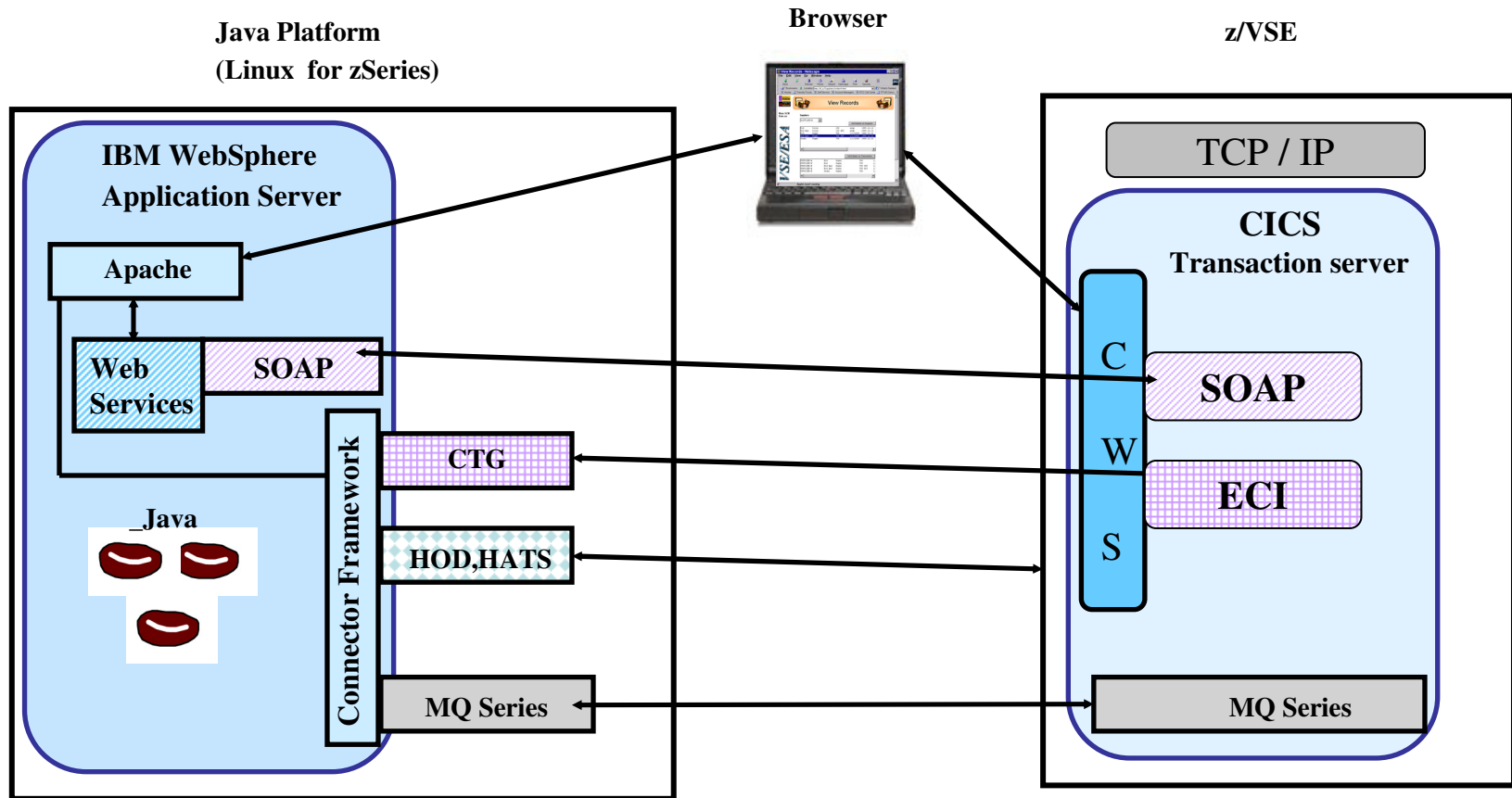
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Infrastructure



Access to CICS TS with z/VSE

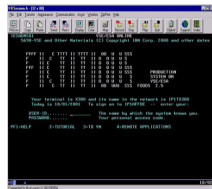


- CWS - CICS Web support (within CICS Transaction server 1.1 for VSE)
- CTG - CICS Transaction Gateway (Websphere CICS Connector)
- HOD - Host OnDemand (Websphere Host Integrator)
- HATS - Host Access Transformation server
- SOAP - Simple Object Access Protocol

CWS (CICS Web Support)

From 3270 screens to browser interaction

3270 Terminal

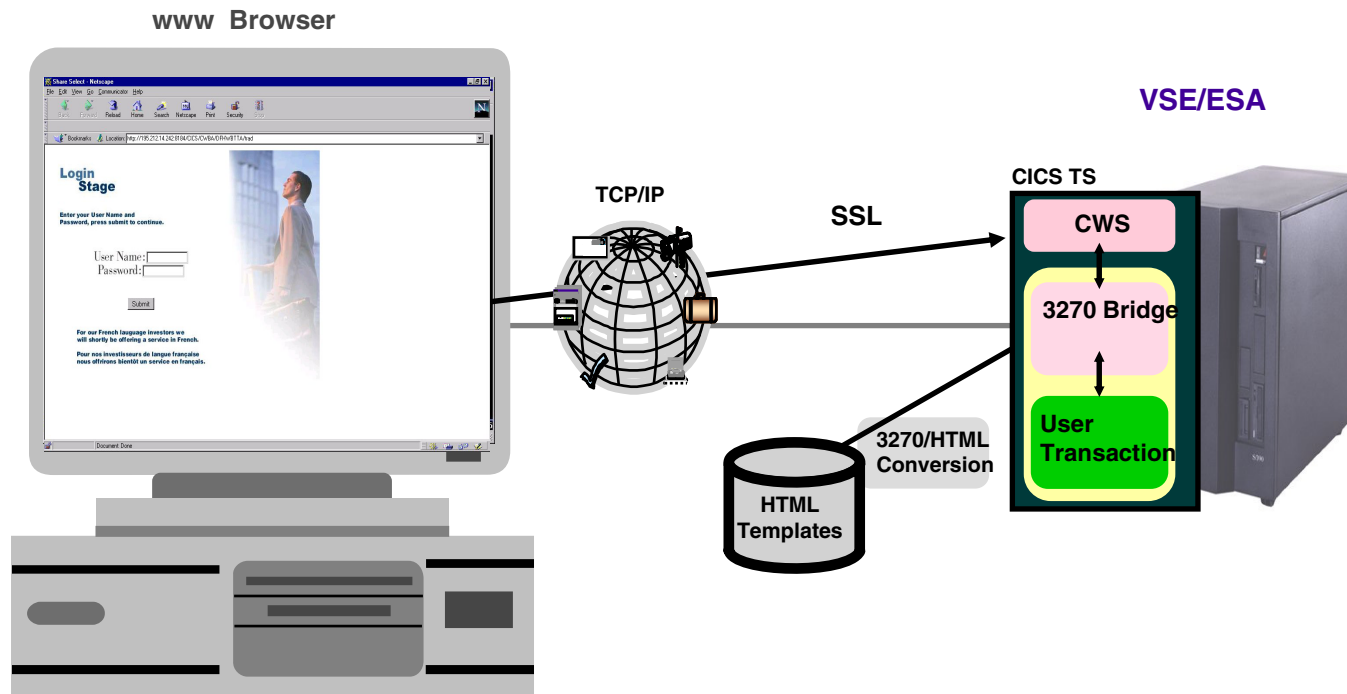


Browser



Direct access to VSE/ESA transactions via browser

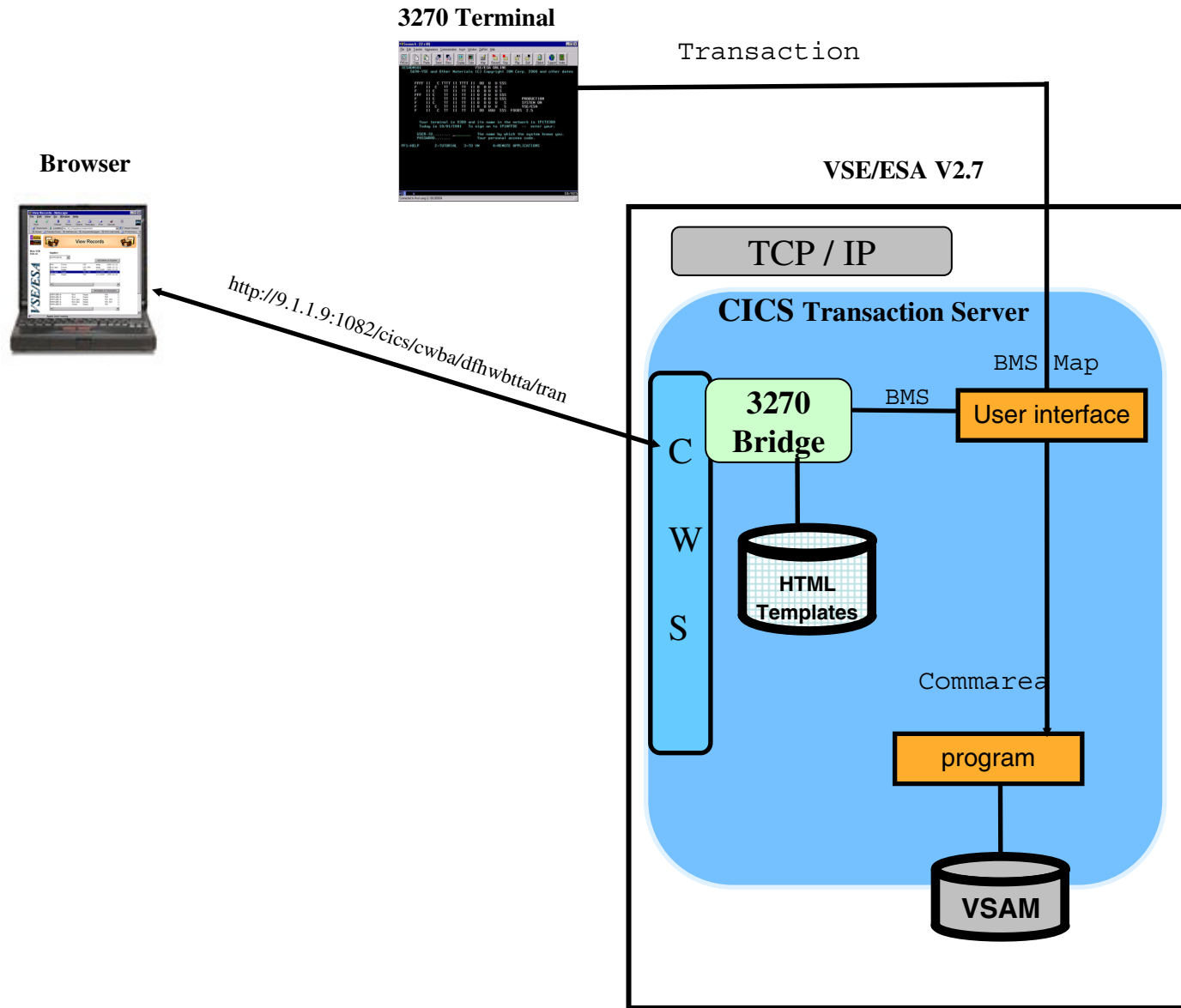
IBM CICS Web Support - Components



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

CICS Web Support (CWS)

From 3270 screens to Browser interfaces for CICS transactions



IBM CICS Web Support

- functional characteristics
 - ▶ direct access to VSE CICS transactions via a simple web browser
 - ▶ transaction security for the called transaction
 - ▶ secured connections (SSL) with VSE/ESA 2.6

- requirements
 - ▶ VSE/ESA 2.5 and higher


CICS Web Interface 3270 screen emulation - CEMT - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites History Print W

Links Customize Links Free AOL & Unlimited Internet Free Hotmail IBM Business Transformation IBM Internal Help

Address http://9.152.210.25:8081/cics/CWBA/dfhwbtta/cent Go Speichern Einordnen Notieren



CICS Web Support

CICS Web Interface 3270 screen emulation

STATUS: ENTER ONE OF THE FOLLOWING

Discard
Inquire
Perform
Set

SYSID=CIC1 APPLID=DBDCCICS

PF 1 HELP 3 END 9 MSG

PF1	PF2	PF3	PF4	PF5	PF6	PF7	PF8	PF9	PF10	PF11	PF12
PF13	PF14	PF15	PF16	PF17	PF18	PF19	PF20	PF21	PF22	PF23	PF24
PA1	PA2	PA3	Clear	Enter	Pen	Reset					

Done Internet

FFSTORES Demo CICS Program - Web enabled - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media Print W

Links Customize Links Google Free AOL & Unlimited Internet IBM Business Transformation IBM Internal Help

Address 3.82.56.149:8080/cics/cwba/dfhwbtta/ffst+ffst01 Go Speichern Einordnen Notieren

FFSTORES Demo CICS Program - Web enabled

FFSTORE DEMO CICS PROGRAM

FILE NAME: FFST01

STORE ID: 000001 (KEY)

STORE NAME: Frechdax

STREET: Elbeplatz 2

CITY: Boeblingen

ZIP: 71032

COUNTRY: Germany

REPRESENTANT: Hiller

VALUE 1: 00003000

VALUE 2: 00001500

DATE: 1999-09-29

WEB PICTURE 1: Map.gif

WEB PICTURE 2: Store1.gif

ACCESS CODE: password

Locate/Update Next Previous Insert Delete Exit

Done Internet

Enable CWS (CICS Web support) for CICS Transaction server

- CICS Web Support is a function of CICS Transaction Server in VSE.
- It is accessible via a TCP/IP service that has to be enabled.
- For each separate CICS partition in your system the CICS Web support can be enabled
- CWS is prerequisite for other CICS access methods (like CTG, SOAP) .

The following system changes are required to enable CWS:

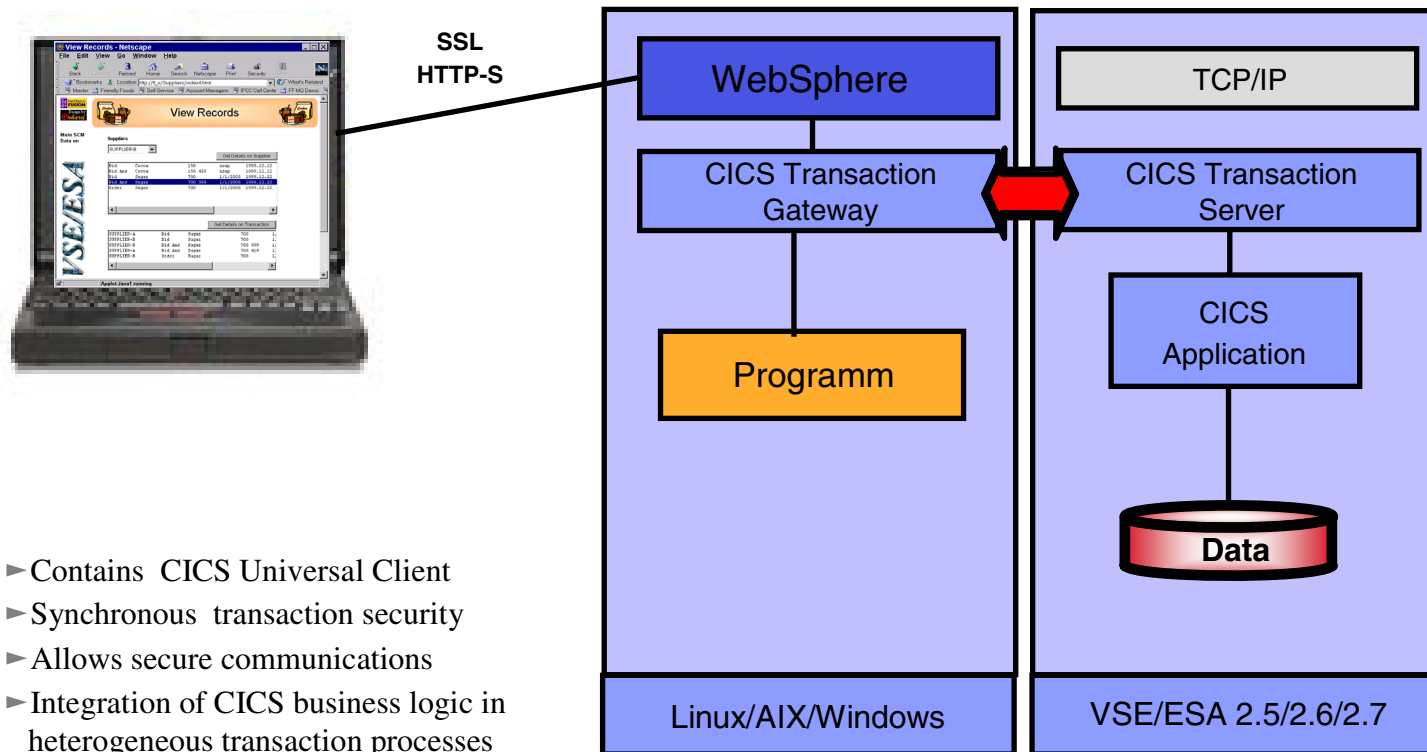
- Parameter change in **DFHSITxx** for the corresponding CICS TS partition **DBDCCICS**, to enable CWS.
 - Intersystem communication enabled **ISC=YES**
 - TCP/IP protocol enabled **TCPIP=YES**
- Build of the Conversion table **DFHCNV** (skeleton in **ICCF Lib 59**)
- The BMS maps for the transaction have to be compiled with option **SYSPARM='TEMPLATE'**
// OPTION NOLIST,ALIGN,DECK, SYSPARM='TEMPLATE'
- Update the **LIBDEF** statement in *CICS startup job* with **PRD2.DFHDOC** for the HTML Templates used
- Define a **TCPIP Service** (i.e. **CWSxx**)
CEDA DEF TCPIPS(CWSxx)
- Access the transaction via web browser:
<http://a.b.c.d:port/cics/cwba/dfhwbtta/tran>

CTG (CICS Transaction Gateway)

Access to VSE transactions from remote

Integration of VSE/ESA transaction processes

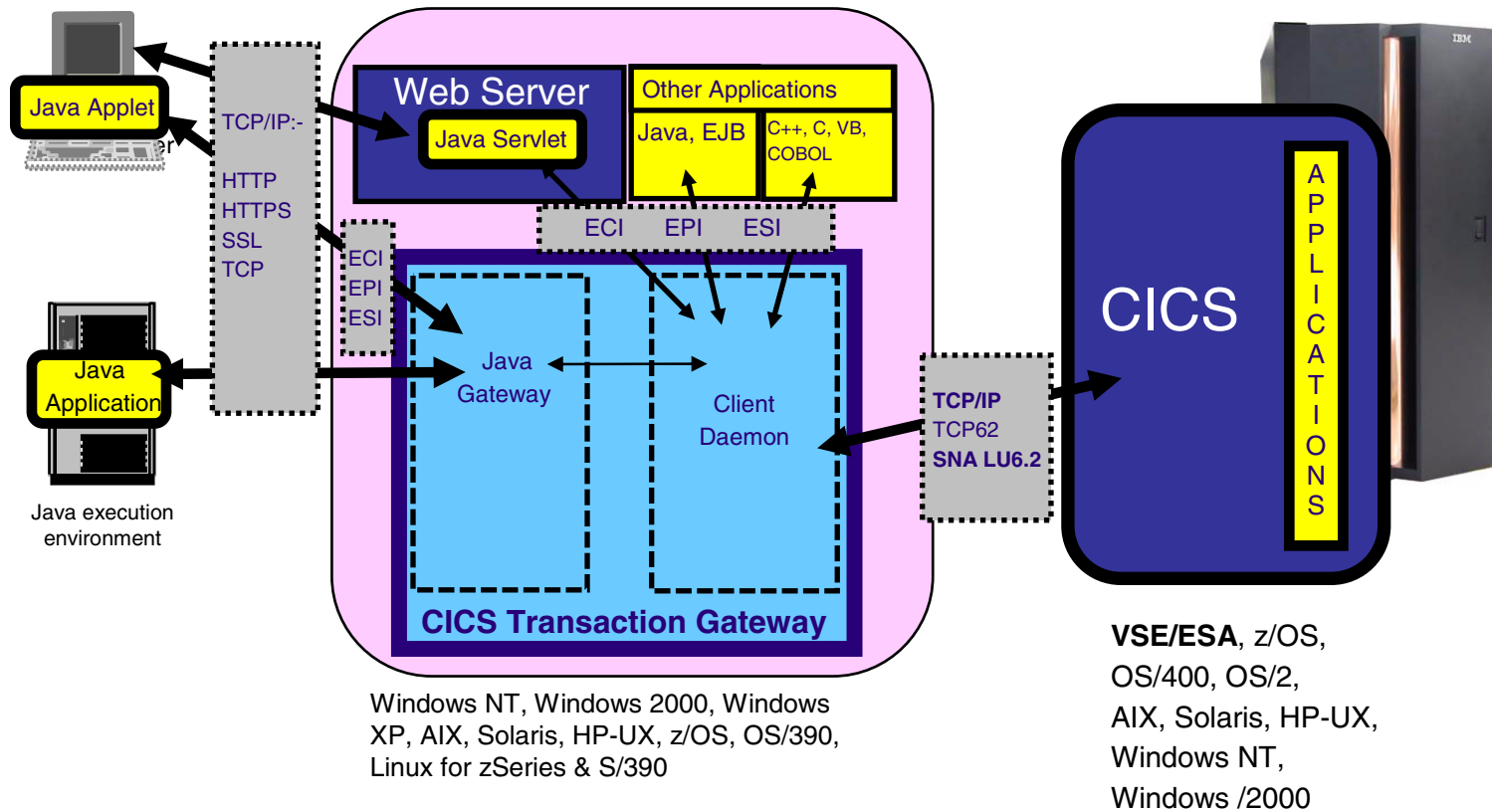
CICS Transaction Gateway - Implementation



- ▶ Contains CICS Universal Client
- ▶ Synchronous transaction security
- ▶ Allows secure communications
- ▶ Integration of CICS business logic in heterogeneous transaction processes

Integration of VSE/ESA transaction processes

CICS Transaction Gateway (CTG) - Components



CICS Transaction Gateway

- functional characteristics
 - ▶ access to VSE transactions from a remote platform (program communication)
 - ▶ transaction security for the called transaction
therefore, good integration in e-business Processes and WebSphere Application Server.
 - ▶ secured connections (SSL) to CICS Transaction Gateway

- requirements
 - ▶ VSE/ESA and the Product: CICS Transaction Gateway (CTG)
 - ▶ for External CICS Interface (ECI) with TCP/IP, VSE/ESA 2.6 and later is required with CICS Transaction Gateway Version 4 or later

Consolidation of VSE/ESA transaction processes

View Records - Netscape

File Edit View Go Window Help

Back Forward Reload Home Search Netscape Print Security Stop

Bookmarks Location: http://ff_s/Suppliers/index4.html What's Related

Master Friendly Foods Self Service Account Managem IPCC Call Centre FF MQ Demo

NetObjects FUSION Design by Enhard

View Records

Main SCM Data on

VSE/ESA

Suppliers

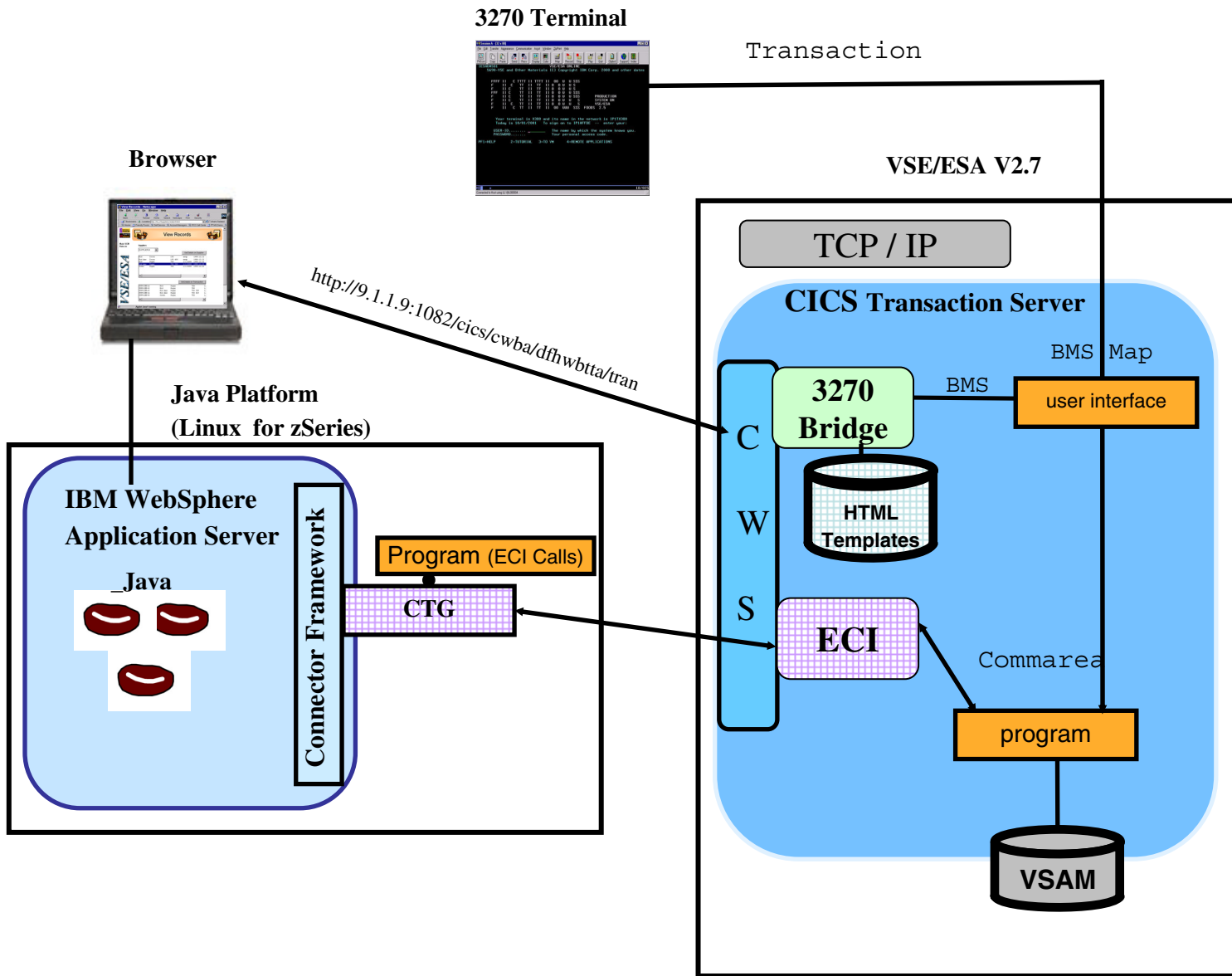
SUPPLIER-B

Bid	Cocoa	150	asap	1999.12.12
Bid Ans	Cocoa	150 450	asap	1999.12.12
Bid	Sugar	700	1/1/2000	1999.12.22
Bid Ans	Sugar	700 399	1/1/2000	1999.12.22
Order	Sugar	700	1/1/2000	1999.12.22

SUPPLIER-A	Bid	Sugar	700	1.
SUPPLIER-B	Bid	Sugar	700	1.
SUPPLIER-B	Bid Ans	Sugar	700 399	1.
SUPPLIER-A	Bid Ans	Sugar	700 419	1.
SUPPLIER-B	Order	Sugar	700	1.

Applet Java1 running

From 3270 screens to Browser interfaces for CICS transactions

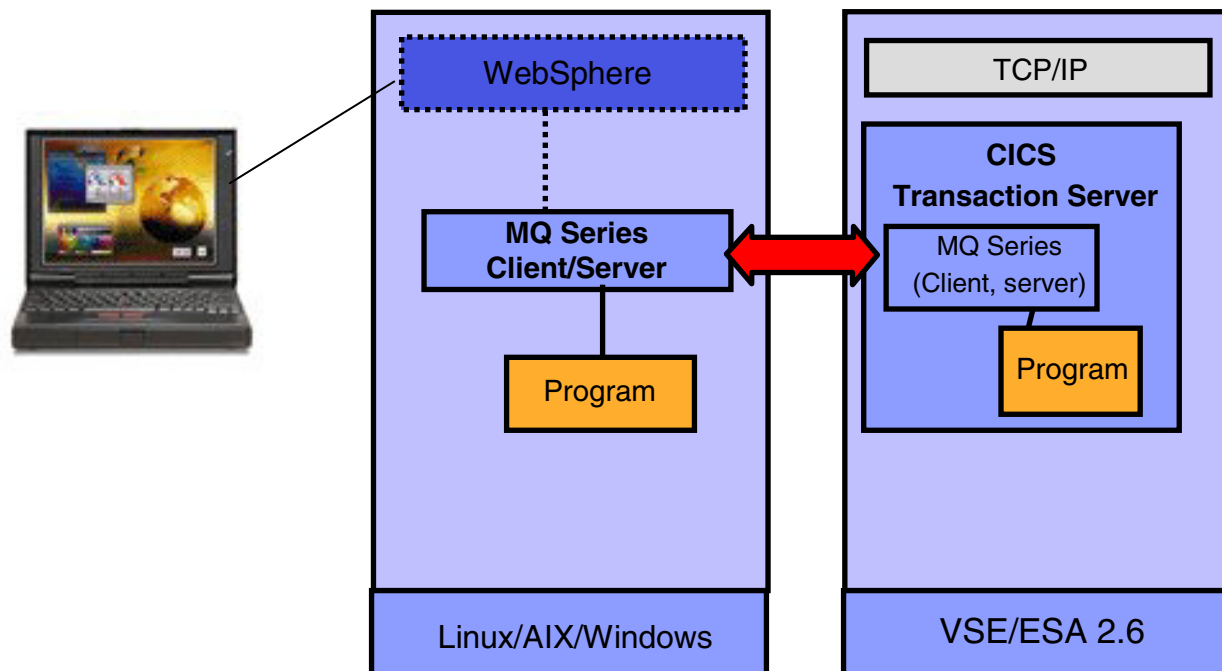


MQ Series

**Synchronous/Asynchronous data transfer
and distribution**

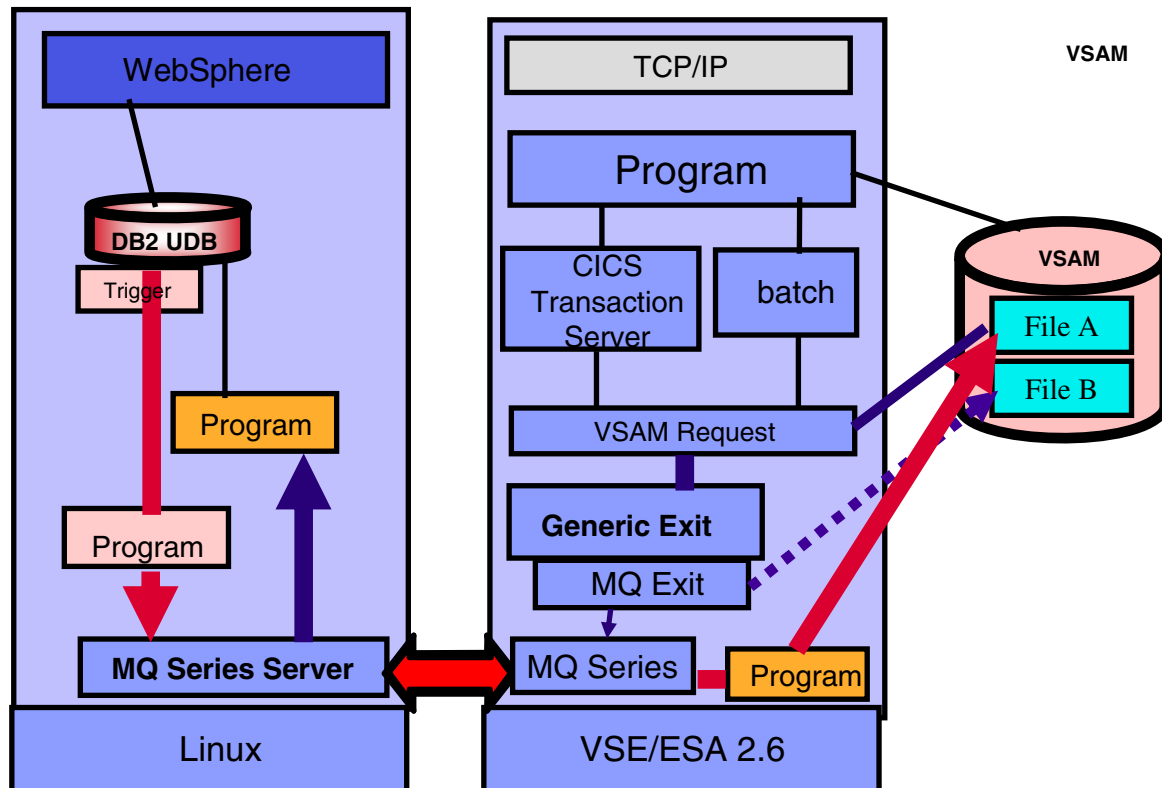
Asynchronous work with CICS transactions

MQ Series - Implementation



- ▶ asynchronous data exchange using message queuing
- ▶ guaranteed and 'only once' delivery
- ▶ integration into Web Application servers (WebSphere)

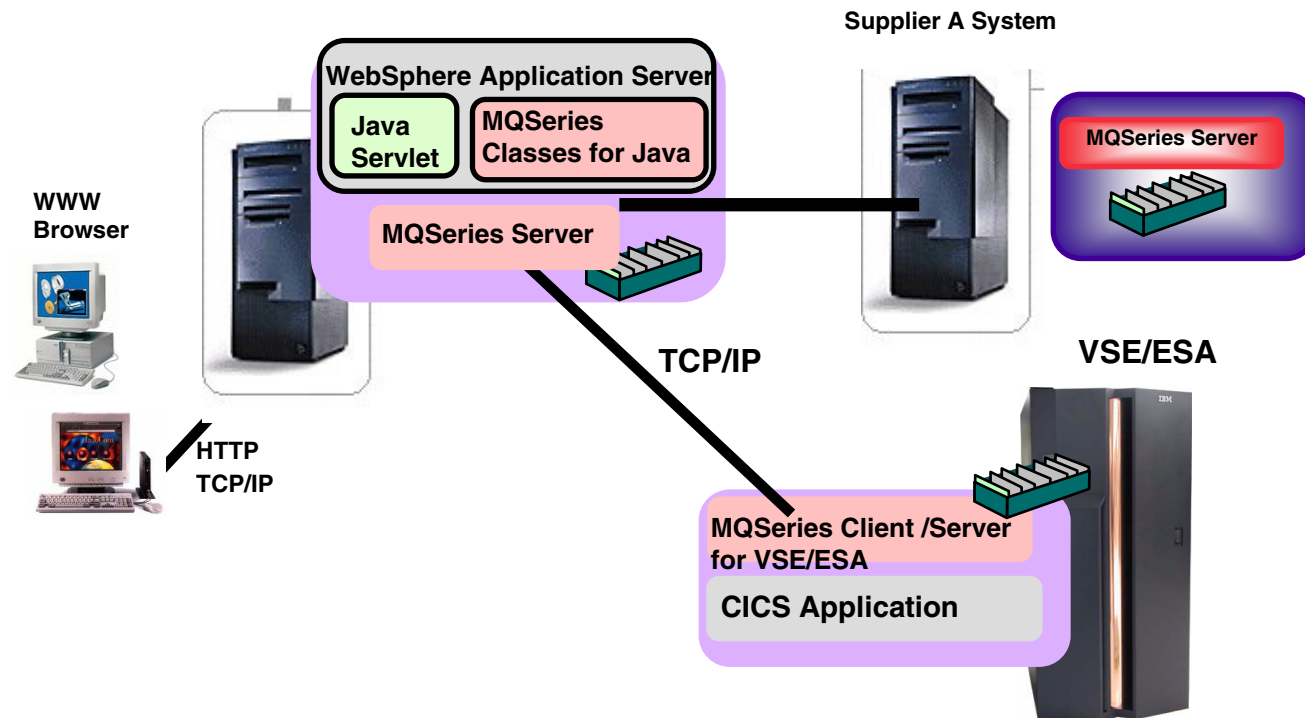
Integration of VSE Programs with MQ Series



- ▶ Data distribution via MQ Series technology
- ▶ NO changes to VSE programs – using MQ Exit and VSE VSAM Redirector
- ▶ NEW: WebSphere MQ Series Client for VSE – free of charge – enablement for MQ environments and modern solutions

Asynchronous work with CICS transactions

MQ Series - Components



- ▶ asynchronous data exchange using message queuing
- ▶ Various platforms supported
- ▶ integration into Web Application servers (WebSphere)

MQ Series - asynchronous transactions

■ functional characteristics

- ▶ guaranteed, secured asynchronous data access for remote systems
- ▶ same API for all supported MQ Series platforms
- ▶ transaction security, therefore appropriate for e-business processes
- ▶ integration with WebSphere Application Server
- ▶ works well for Business-to-Business (B2B) environments

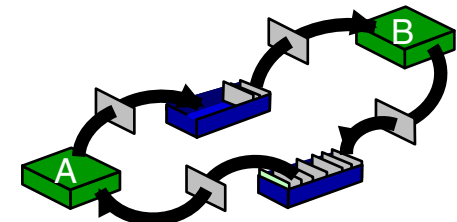
■ software requirements

▶ For VSE/ESA :

- ▶ VSE/ESA 2.6/2.7
- ▶ MQ Series Server
- ▶ Program that interfaces with MQ Series server on VSE/ESA

▶ On the remote system:

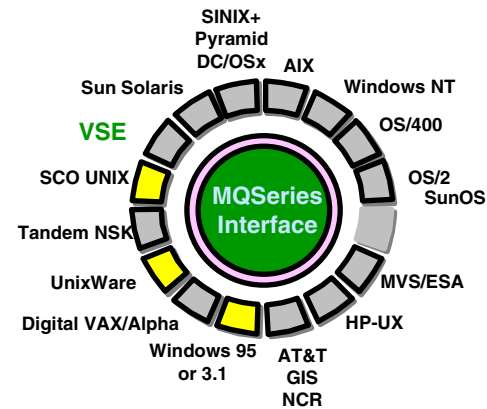
- ▶ MQ Series Client / Server
- ▶ Program that interface with MQ Series



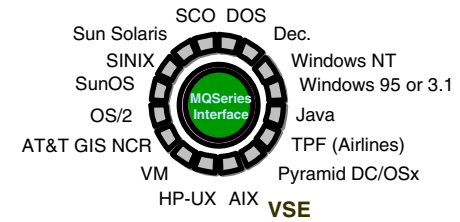
MQSeries servers and MQSeries Clients



Servers



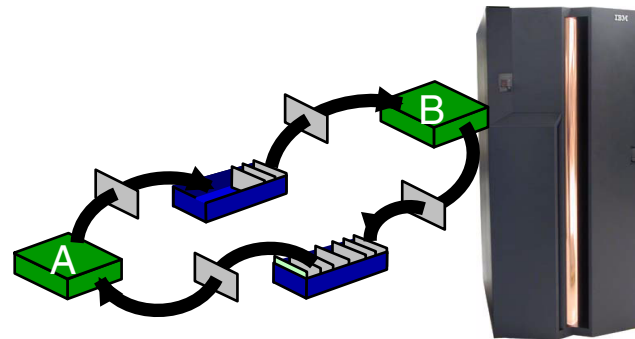
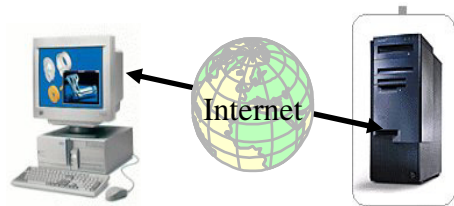
Clients



MQI Channel



Server with Client support

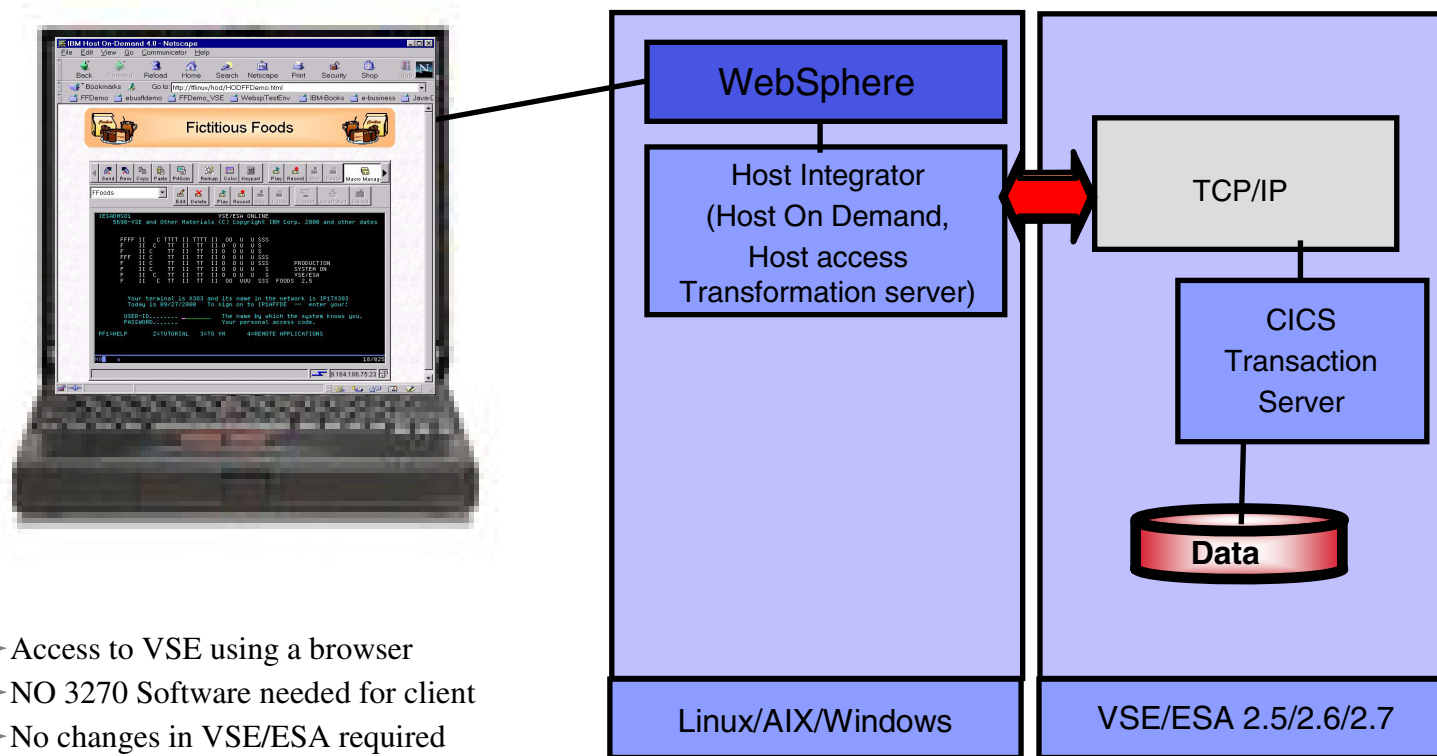


HOD, HATS
(Host OnDemand, Host Access Transformation Server)

Create graphical interfaces for existing Applications

General access to VSE/ESA via browser

Websphere host Integrator - Implementation

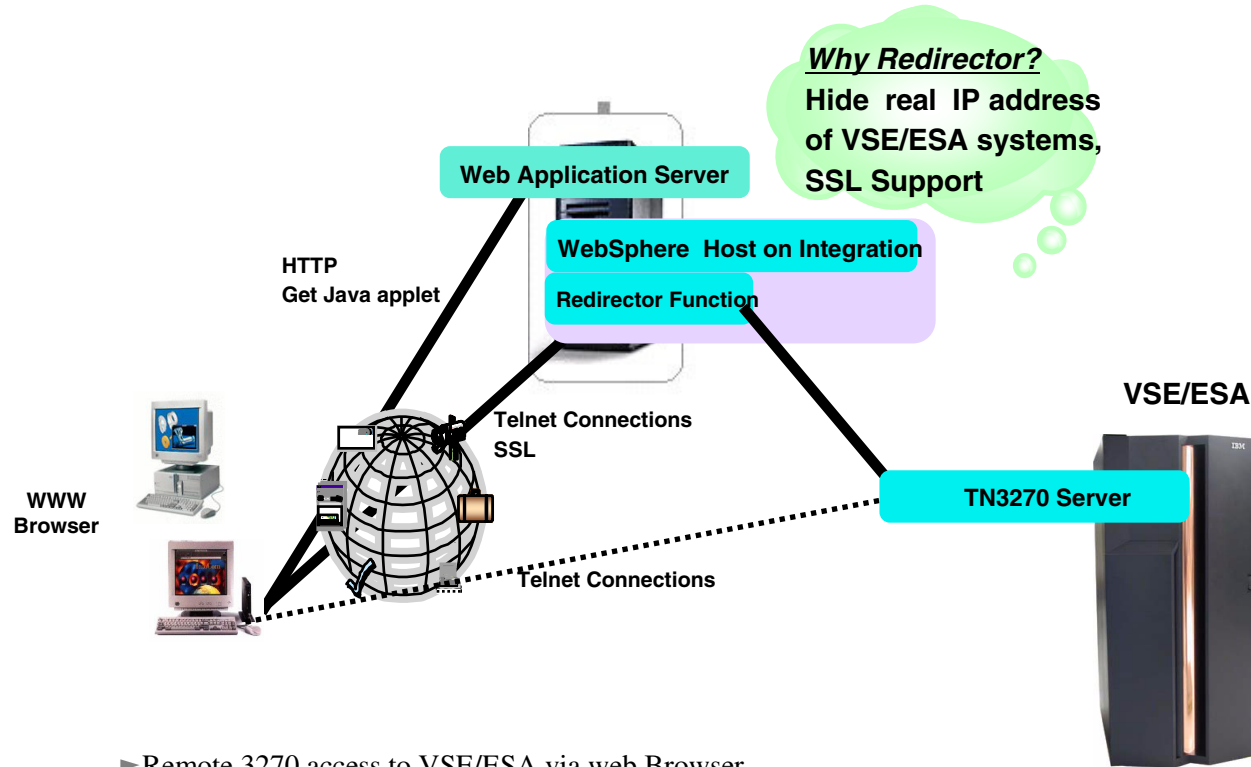


- ▶ Access to VSE using a browser
- ▶ NO 3270 Software needed for client
- ▶ No changes in VSE/ESA required

**NEW: IBM Communication Server (TN3270, APPN) and
IBM Communication Controller (374x replacement)
-> available for Linux for zSeries**

General access to VSE/ESA via browser

WebSphere Host Integration – Components



- ▶ Remote 3270 access to VSE/ESA via web Browser
- ▶ No changes in VSE/ESA required

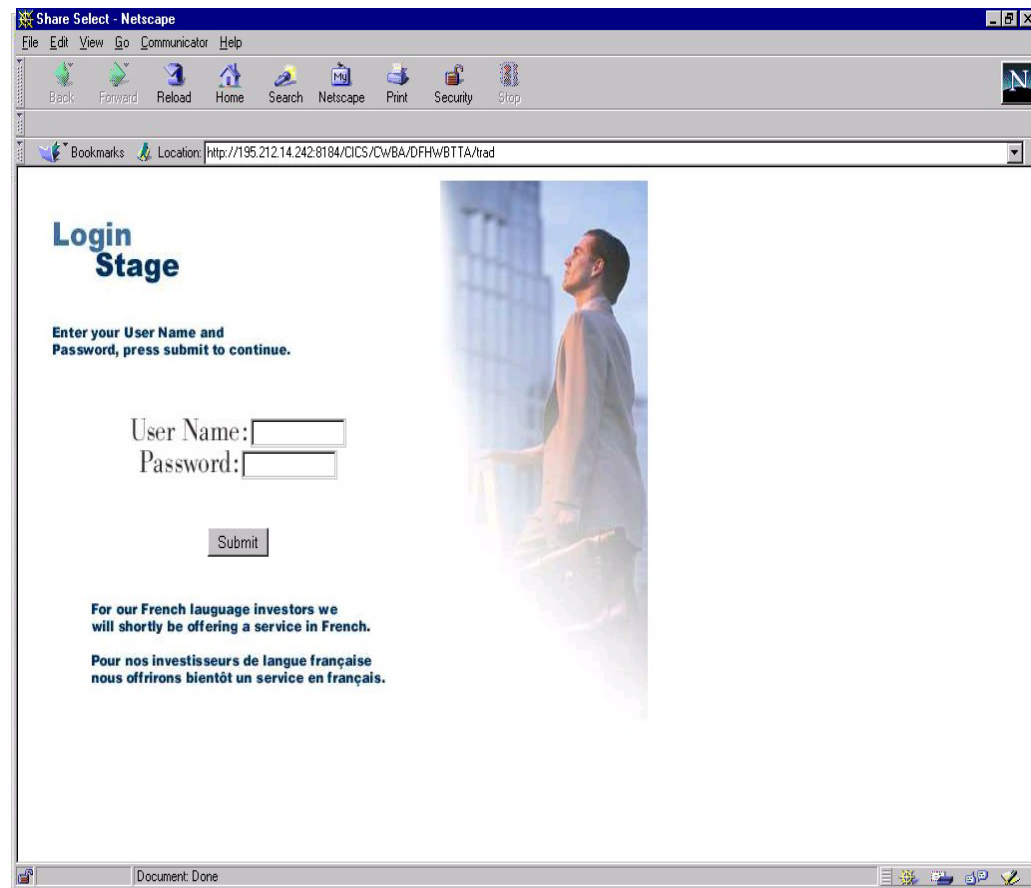
Host Access Transformation Server

- functional characteristics
 - ▶ access to VSE/ESA via browser
 - ▶ the access is similar with a local access via 3270 emulator
 - ▶ can be used in Intranet or Internet and /or
 - ▶ integrated with WebSphere Application Server
 - ▶ support for secured connections (SSL) to the HostOnDemand Server and a redirector to mask the real IP addresses
 - ▶ Host Access Transformation Server – for 3270 screen scraping
 - ▶ Host Publisher - a bean generator to create the Java Beans (Integration Objects), to provide legacy access for new Web applications.

- Requirements
 - ▶ WebSphere Host Integration products on middle tier
 - ▶ NO additional software on VSE/ESA required

Benefit: Easily extend existing applications to the web

Interaction with VSE/ESA via browser



Interaction with VSE/ESA via browser

The screenshot displays a web browser window (Microsoft Internet Explorer) and a terminal window (iseriesd Terminal) interacting with the JK Enterprises website. The browser window shows the website's main page with a navigation menu, an inventory table, an inventory graph, and a delivery schedule.

JK Enterprises Website Interface:

- Navigation Menu:** Home, Links, Information on JK Enterprises, JK Enterprises Home Page, SiteMap, Employees, Jobs at JK Enterprises, Press Articles, Support.
- Inventory Table:**

Description	Number in Stock
Baseball glove	35
Catcher's mit	20
Baseballs - 1 doz.	40
Baseball bat	46
Football	33
Basketball	25
Tennis balls - 1 doz.	41
Golf balls - 1 doz.	27
Ice Skates	17
- Delivery Schedule:**

August 2002

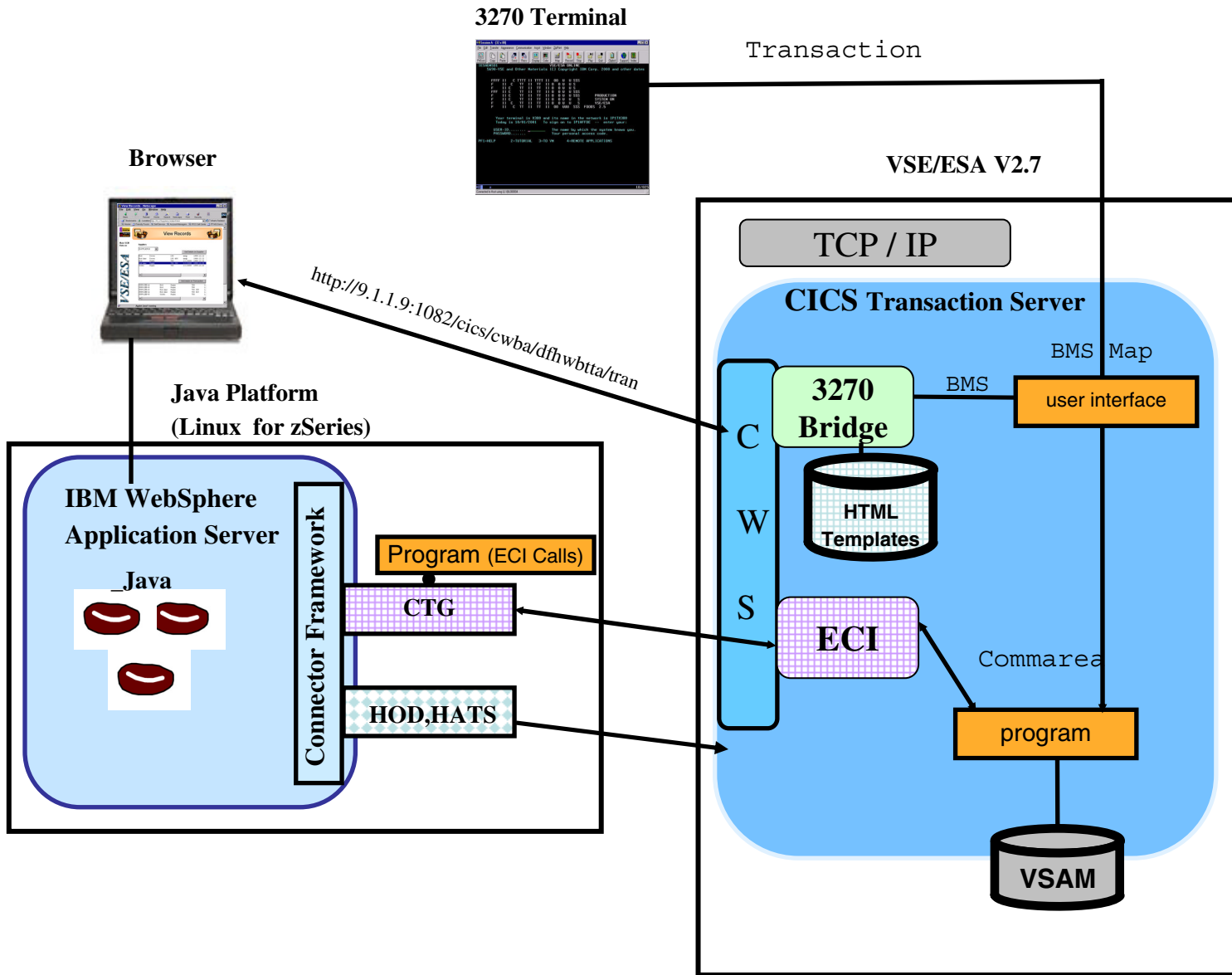
Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

Submit Order
- Current Order:**

Current Order	Quantity	Image
Catcher's mit	10	Photo
Baseball bat	20	Photo
Football	10	Photo
Basketball	10	Photo

The terminal window shows a list of menu items and their corresponding line numbers, with a cursor positioned at the bottom of the list.

From 3270 screens to Browser interfaces for CICS transactions

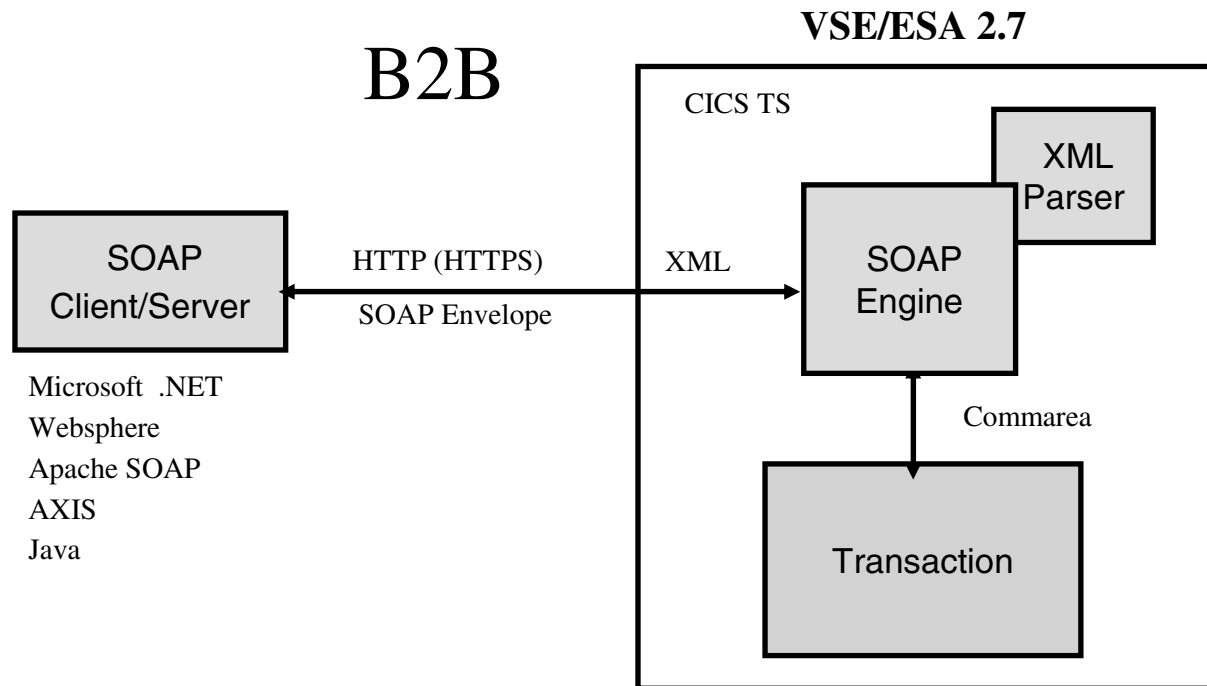


Web Services

**Modern architecture of program communication
using XML data stream and SOAP protocol**

Web Services with VSE/ESA 2.7

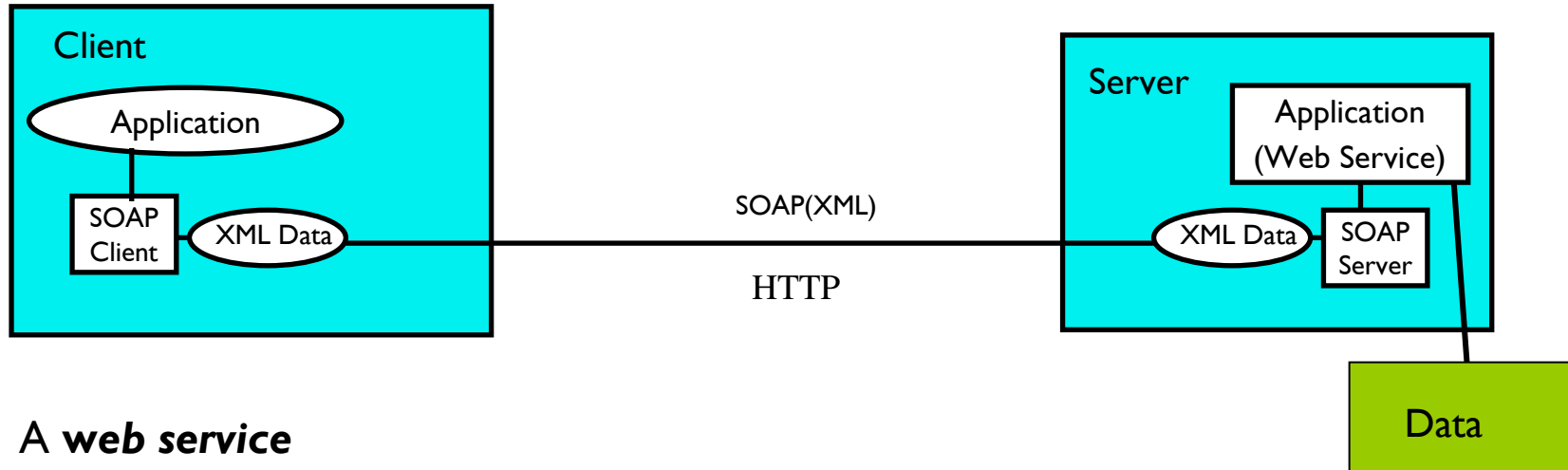
XML data interchange with CICS transactions



★ VSE/ESA Transactions as Web Service

Web Services

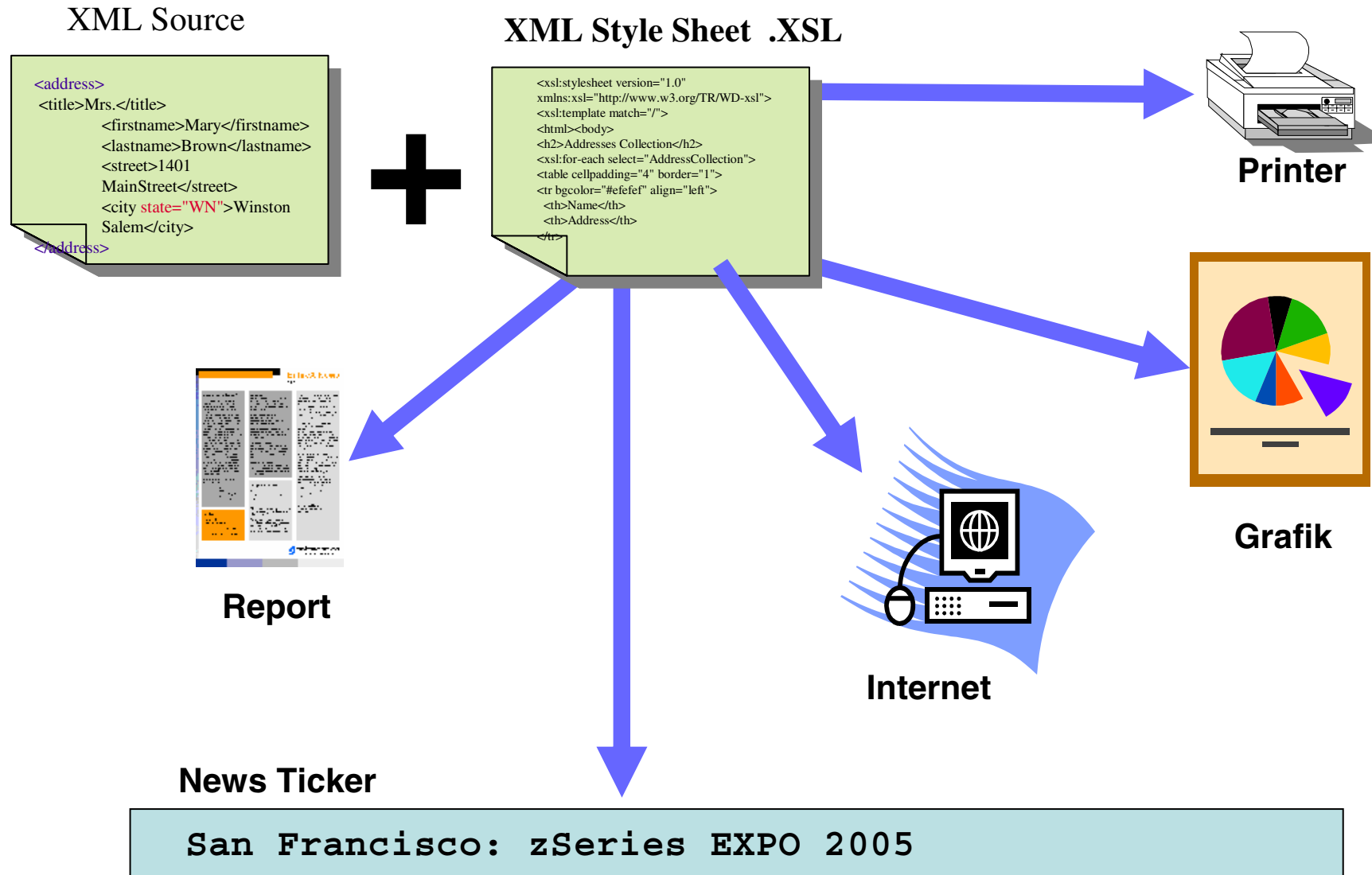
XML Document + SOAP Protocol = Web Services



A *web service*


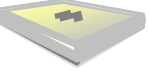
- ☞ implements a business, application or system functionality
- ☞ is intended for application communication
- ☞ is useable in internet, intranet, extranet
- ☞ is useable for browser-based solutions up to the B2B integration between companies
- ☞ uses only standard internet technologies

XSL – formatting of XML documents



What is SOAP?

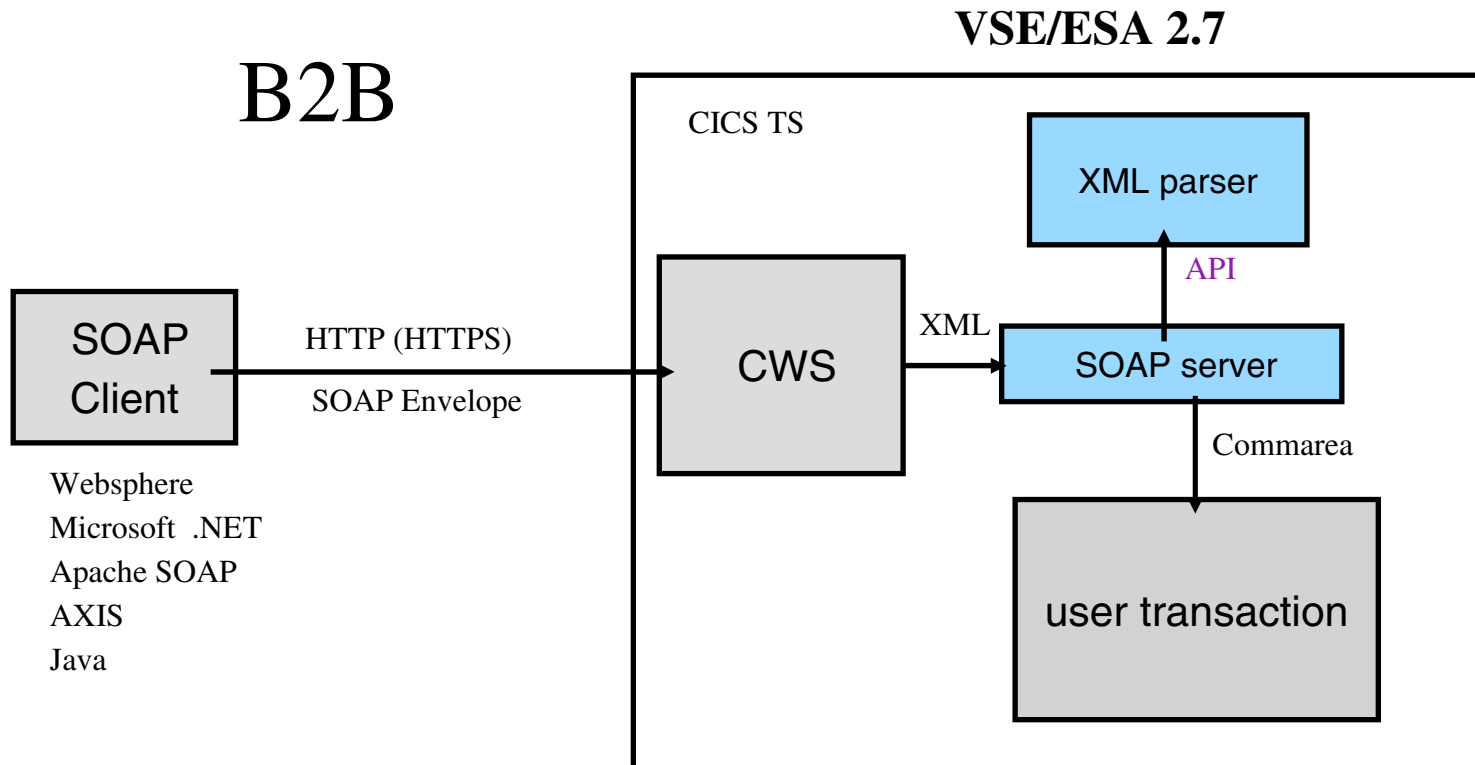
Simple Object Access Protocol

- SOAP is an **XML** based protocol for communication between two remote applications:
 - is based on RPC messaging
 - is language independent (de-couples interface from implementation)
 - represents remote procedure calls and responses
- A SOAP message consists of:
 - Envelope 
 - Wraps the message itself
 - Defines rules for decoding the message
 - Message 
 - Request (method to invoke on a remote object and parameters)
 - Response (result of running the method and exceptions)

VSE/ESA as SOAP server

Web Services (SOAP)

SOAP - Simple Object Access Protocol
(platform independent remote procedure call)

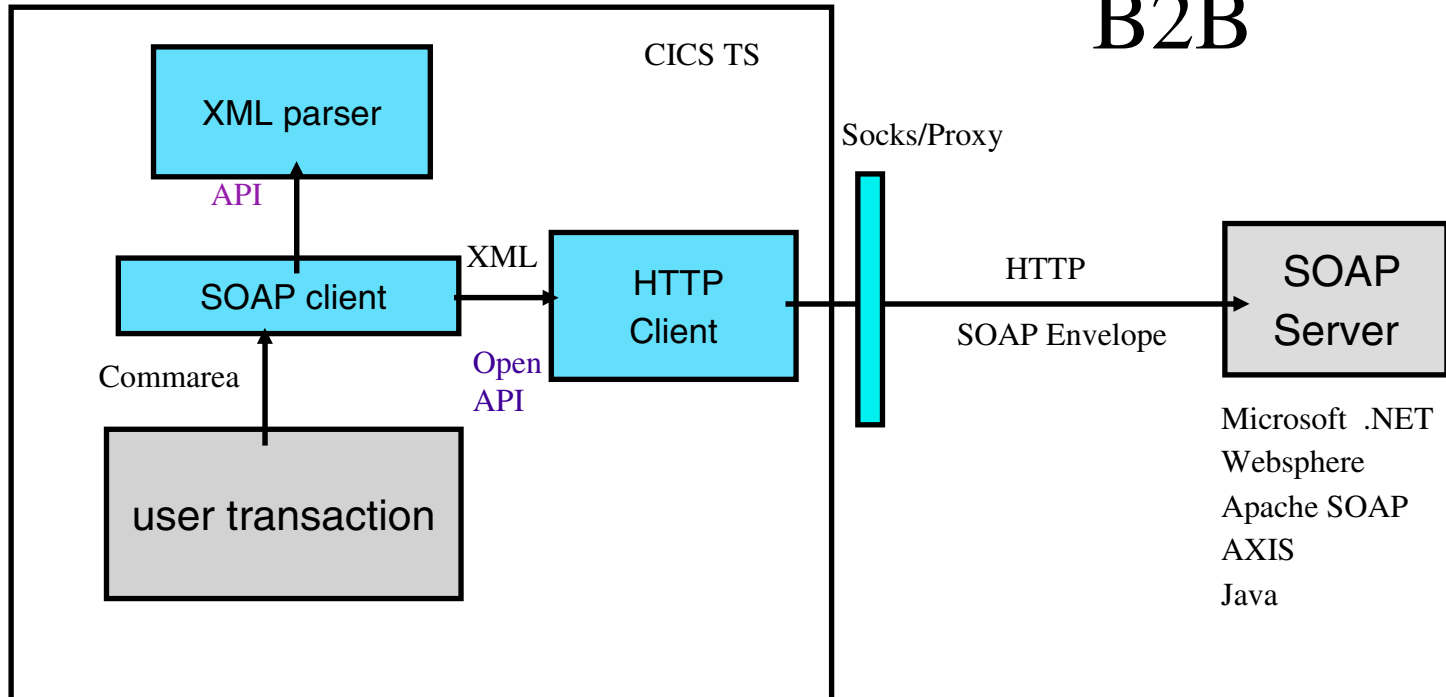


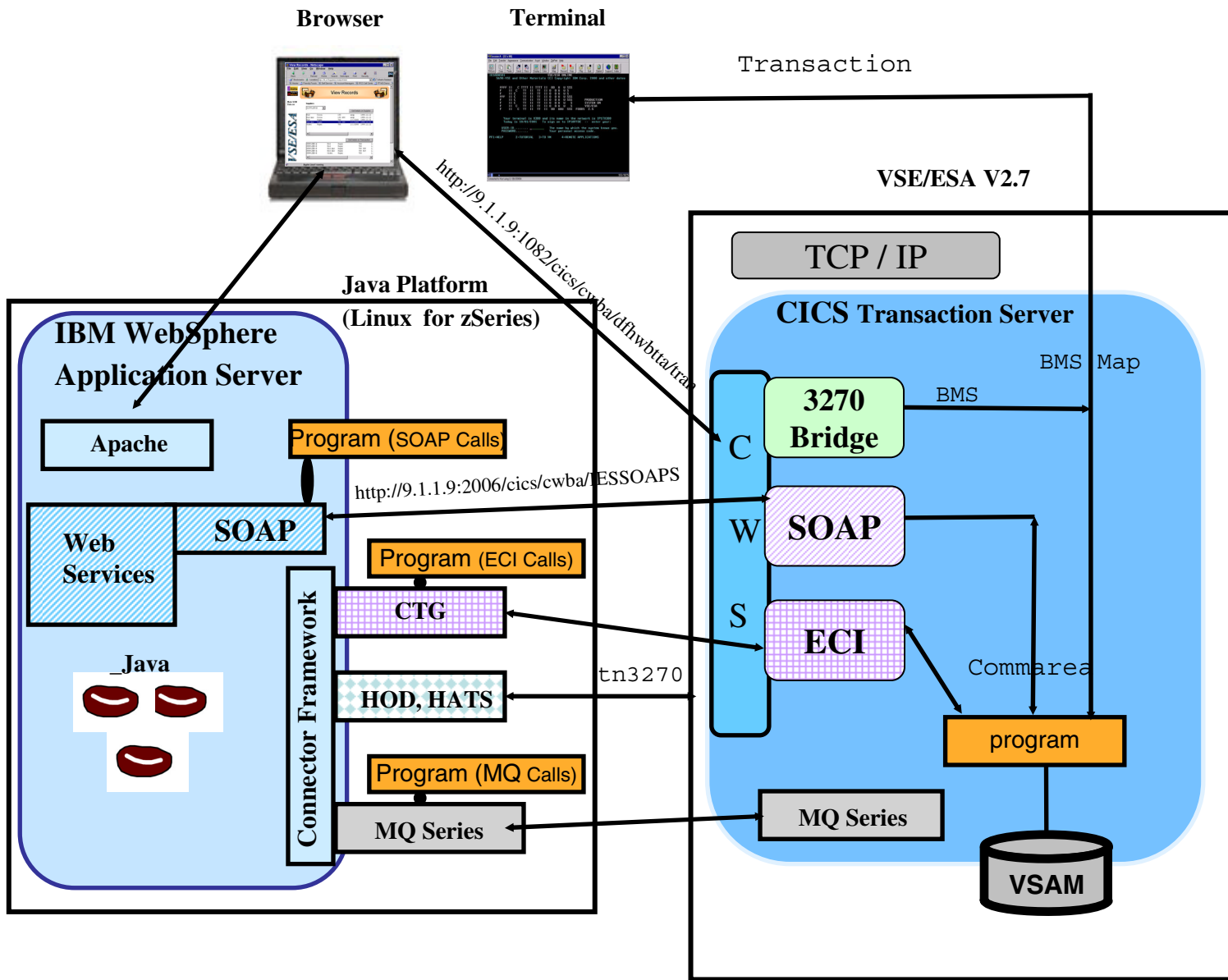
VSE/ESA 2.7 as SOAP client

Web Services (SOAP)

SOAP - Simple Object Access Protocol
(platform independent remote procedure call)

VSE/ESA 2.7





Transactional processing with CICS TS

Solution	Connector to use
Webify	<ul style="list-style-type: none">▪CWS – CICS Web Support▪HATS – Host Access Transformation server▪HOD – Host on Demand server
CICS application access from remote	<ul style="list-style-type: none">▪CTG – CICS Transaction Gateway▪MQ Series (Client or Server)
Flexible, platform independent CICS application integration	<ul style="list-style-type: none">▪Web Services – using XML data and SOAP protocol

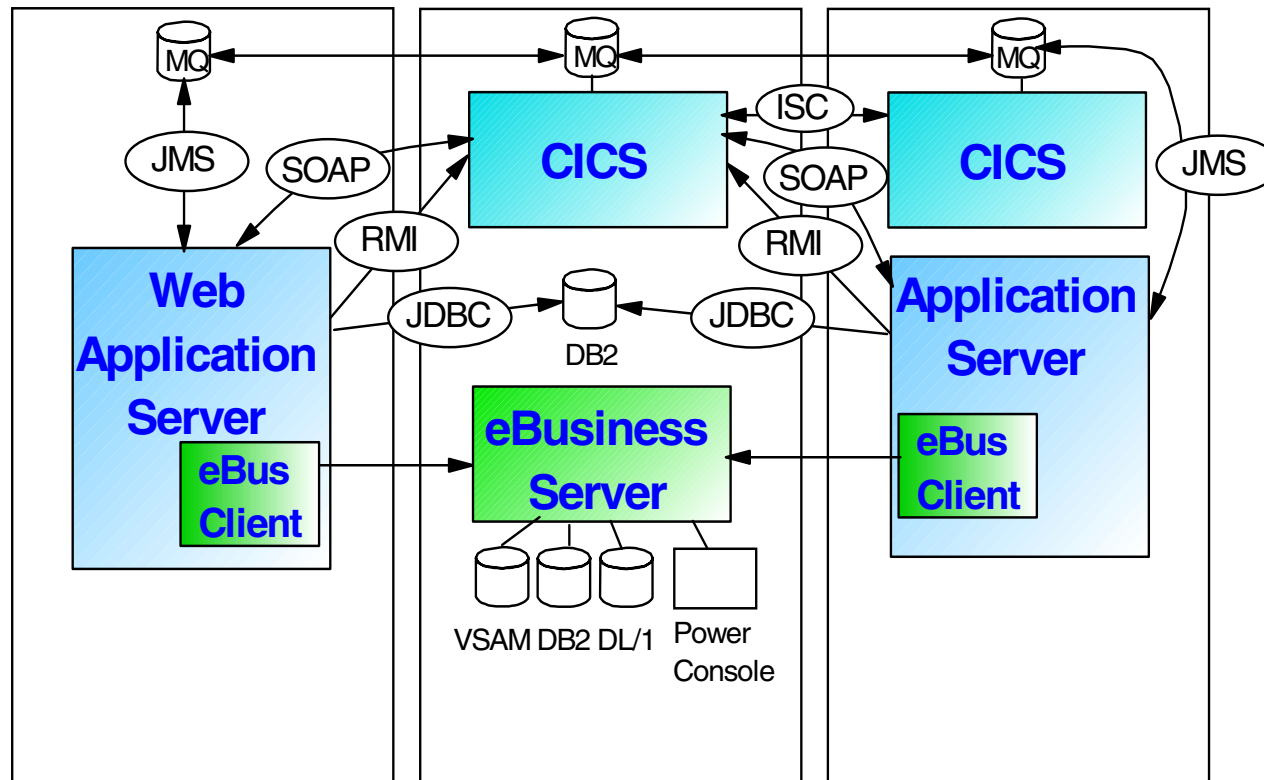
Hands-On Lab on Wednesday 9:00 AM (E13 – Franciscan C/D Lab Room)

Modern zSeries CICS interconnections

Linux for zSeries

VSE/ESA

z/OS



Additional Information

- **z/VSE Home Page**

<http://www.ibm.com/servers/eserver/zseries/zvse/>

- **Solutions for VSE**

<http://www.ibm.com/servers/eserver/zseries/zvse/solutions/>



- **e-business Connectivity for VSE/ESA**

SG24-5950

- **e-business Solutions for VSE/ESA**

SG24-5662

- **Servlet and JSP Programming**

SG24-5755

- **Linux Web Hosting with WebSphere,
DB2, and Domino**

SG24-6007

- ***NEW: Websphere Handbook (Connectors to z/OS and VSE) SG24-7042***

We appreciate your comments at zvse@de.ibm.com