

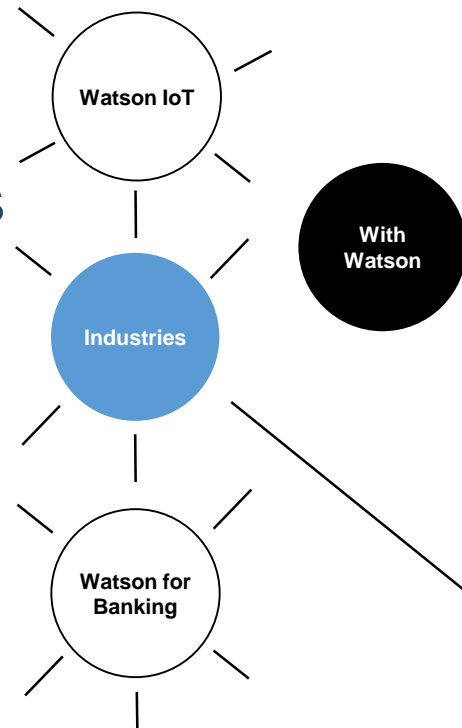


IMS in an API and Cognitive World

Dusty Rivers
Director, z Systems Software
GT Software
drivers@gtsoftware.com

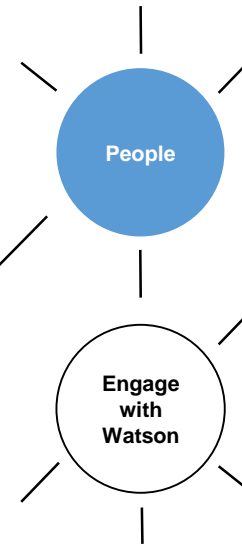
Transforming Industries

Business leaders will experience what it takes to become a cognitive business. Attendees will learn from professionals in industries such as Finance, Insurance, Education, Retail and Healthcare how to move beyond simply being a digital business to one that infuses digital intelligence, allowing them to outthink the competition.



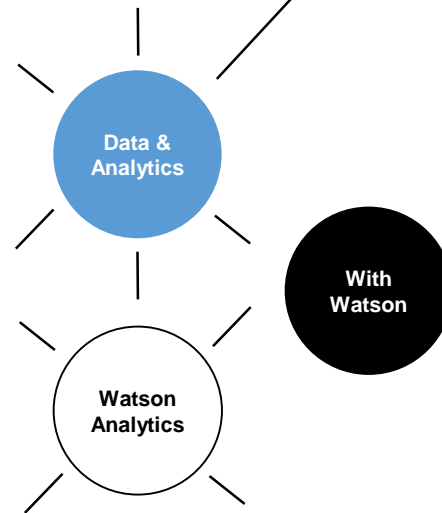
Reimagining Professions

Individuals will experience how their professions are transforming based on a new era of computing - a cognitive era. From Operations to Finance to IT and C-Suite, attendees will learn how data, analytics and cognitive services are coming together to enhance, scale and accelerate human expertise and outthink limits.



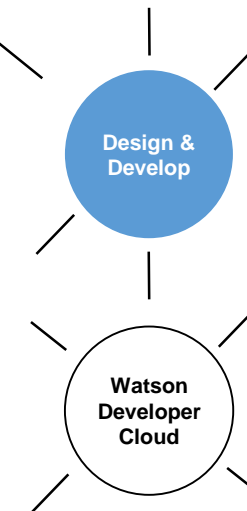
Monetizing Data

Business professionals, IT, data and analytics experts will ignite their curiosity by discovering new ways to realize the value hidden in all data more easily, and reveal unexpected insights through the power of data science and cognitive technologies. Attendees will learn how to harness data and generate deeper insights with the latest services and solutions that enable them to outthink possibilities.



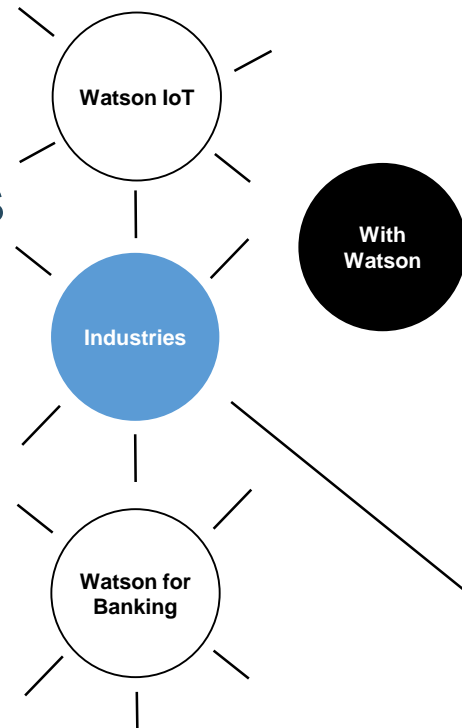
Redefining Development

Developers will be exposed to the latest innovations in data and analytics, intelligent **APIs** and services, Internet of Things, and agile development methodologies. Attendees will elevate their skills and build solutions from the ground up in hands-on labs, exploratory demos, intensive educational sessions and unique Watson on Bluemix experiences giving you the tools to outthink obstacles.



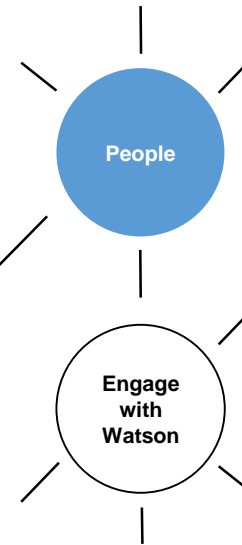
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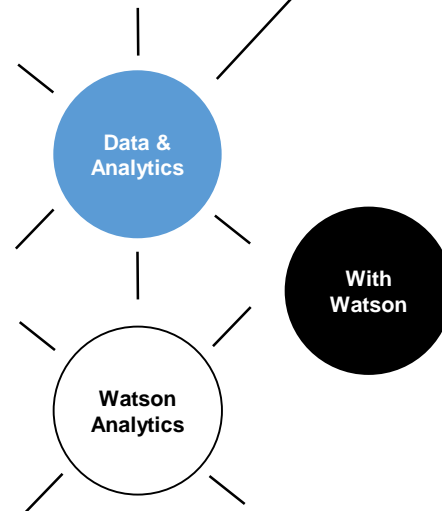
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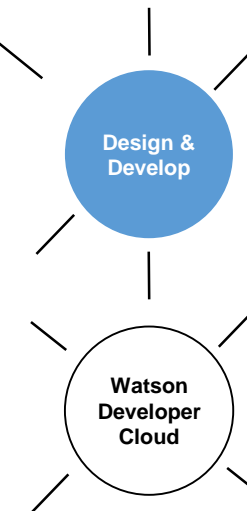
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The New World and IMS



...It's Possible!



Transforming Industries



Monetizing Data

IMS/TM



z/OS



Reimagining Professions



Redefining Development

Are you kidding me???? IMS!



Break It out!!!



COBOL

ASM
PL/1

RACF

3270

Other!

IMS/TM
Transactions

CICS
Transactions

DB2

VSAM

DL/1

Another Bridge!!



API's



REST/JSON, SOAP, JDBC, ODBC

Simple

API's

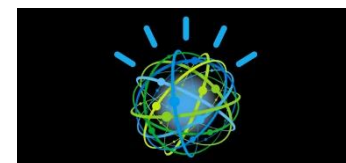
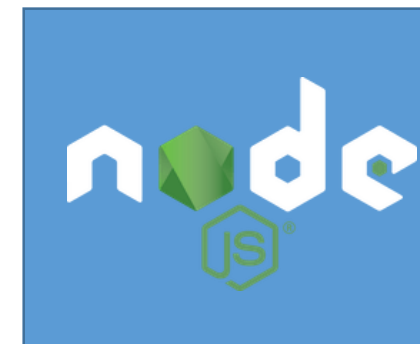


REST/JSON, SOAP, JDBC, ODBC

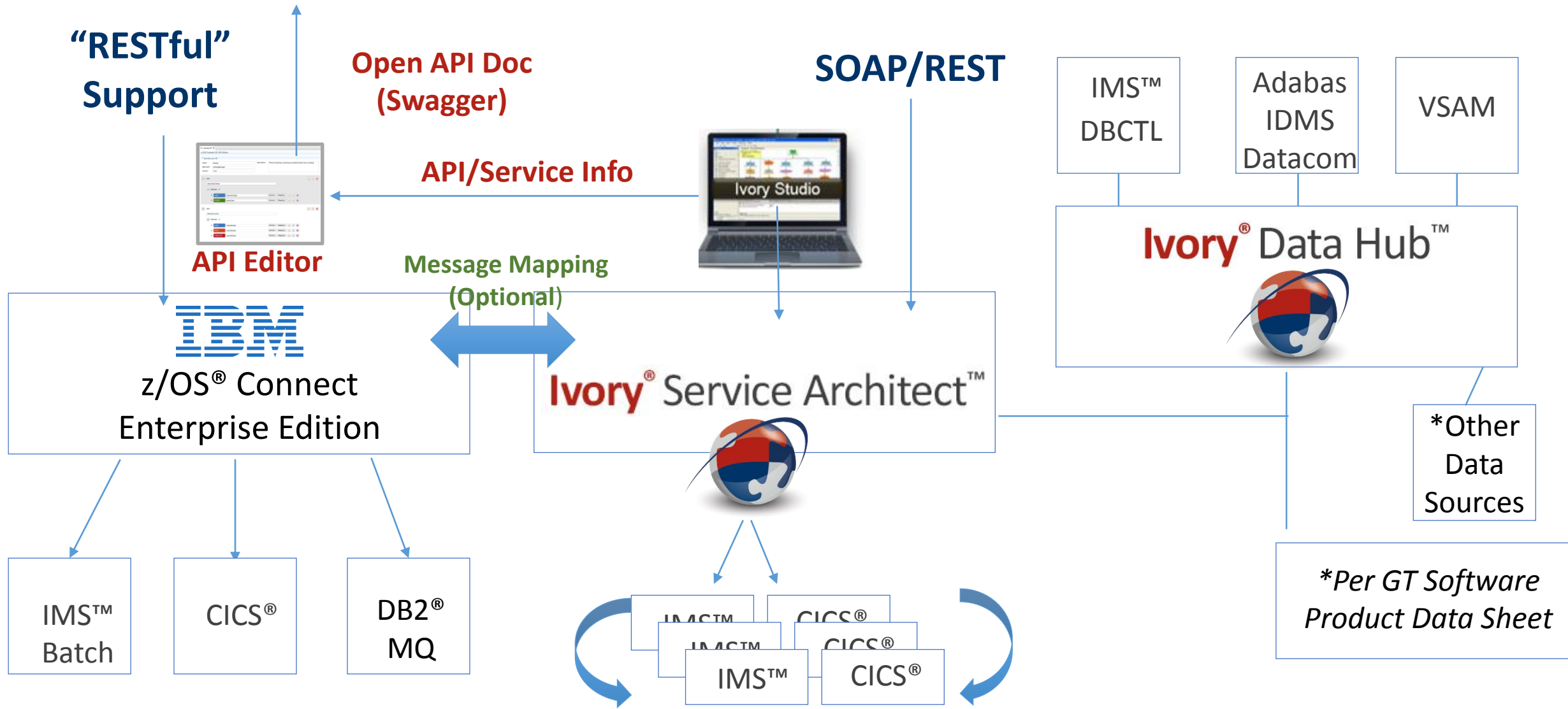
GetSavng{}
GetChkng{}
GetCredit{}
GetMortg{}

GetPart{}
GetDesc{}
GetInv{}
GetOrder{}

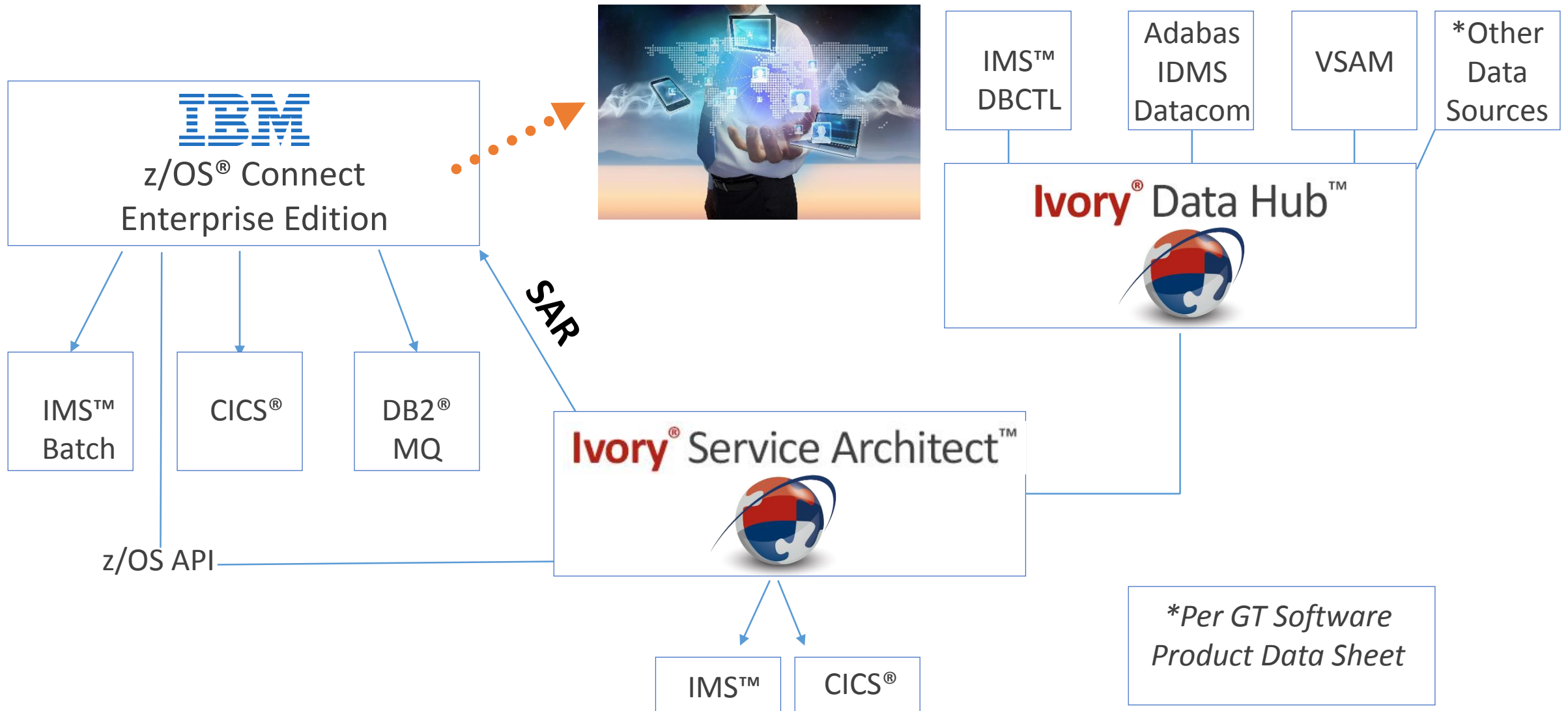
API's



How z/OS Connect EE and GT Products Work Together



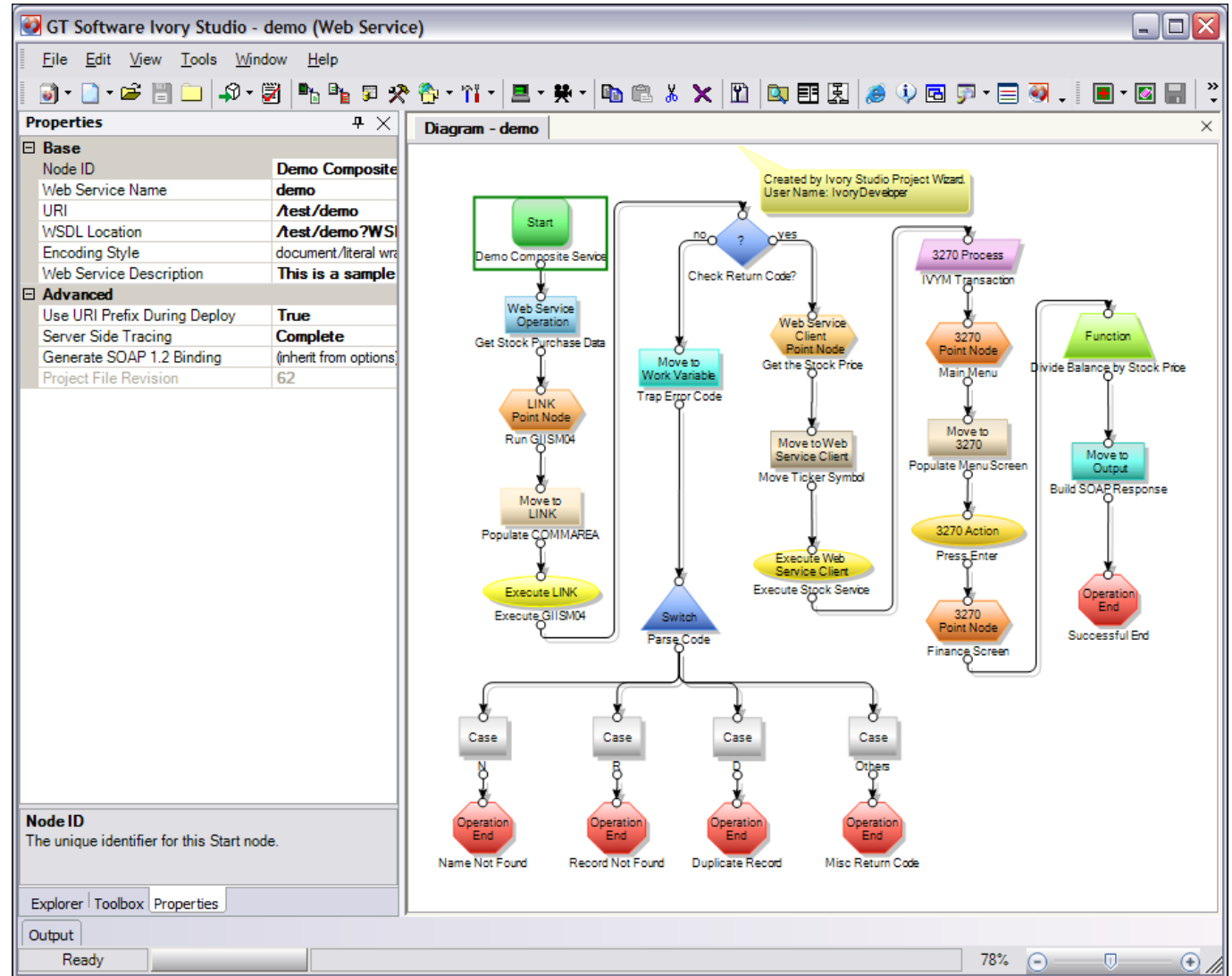
How z/OS Connect EE and GT Products Work Together



Ivory Studio

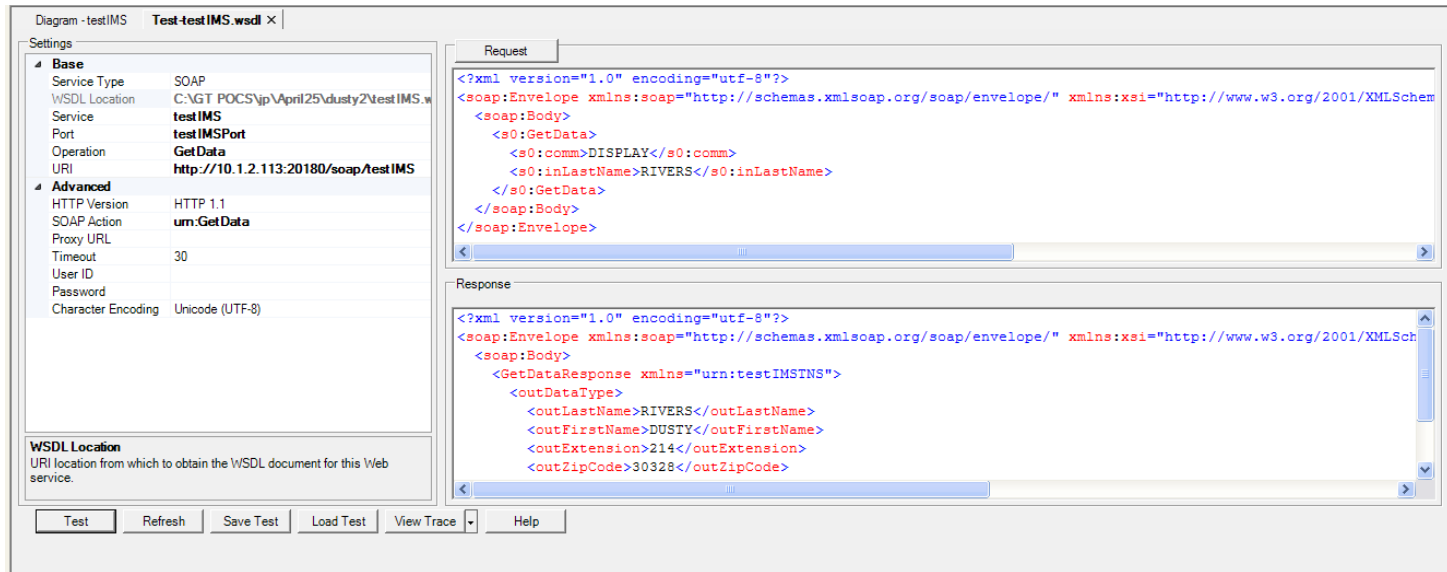
Ivory Studio's Workflow Orchestration Facility

- Easy drag-and-drop, no coding, project wizards
- Supports bi-directional integration of on and off mainframe sources
- Enables complex “unit of work” flows involving multiple sources (e.g, CICS dialog, IMS program, external web service, SQL, ...)
- Supports WSDL-first, custom schemas, industry standards
- Generates SOAP/XML and REST/JSON services
- Built-in SOAP and REST testing facilities



Ivory Studio

SOAP Service Example



The screenshot shows the Ivory Studio interface for a SOAP service. The left pane displays settings for the service, including the WSDL location, service name, and operation. The main area shows the request and response XML. The request is a SOAP envelope containing a `GetData` operation with parameters `comm=DISPLAY` and `inLastName=RIVERS`. The response is a SOAP envelope containing a `GetDataResponse` with output data: `outLastName=RIVERS`, `outFirstName=DUSTY`, `outExtension=214`, and `outZipCode=30328`.

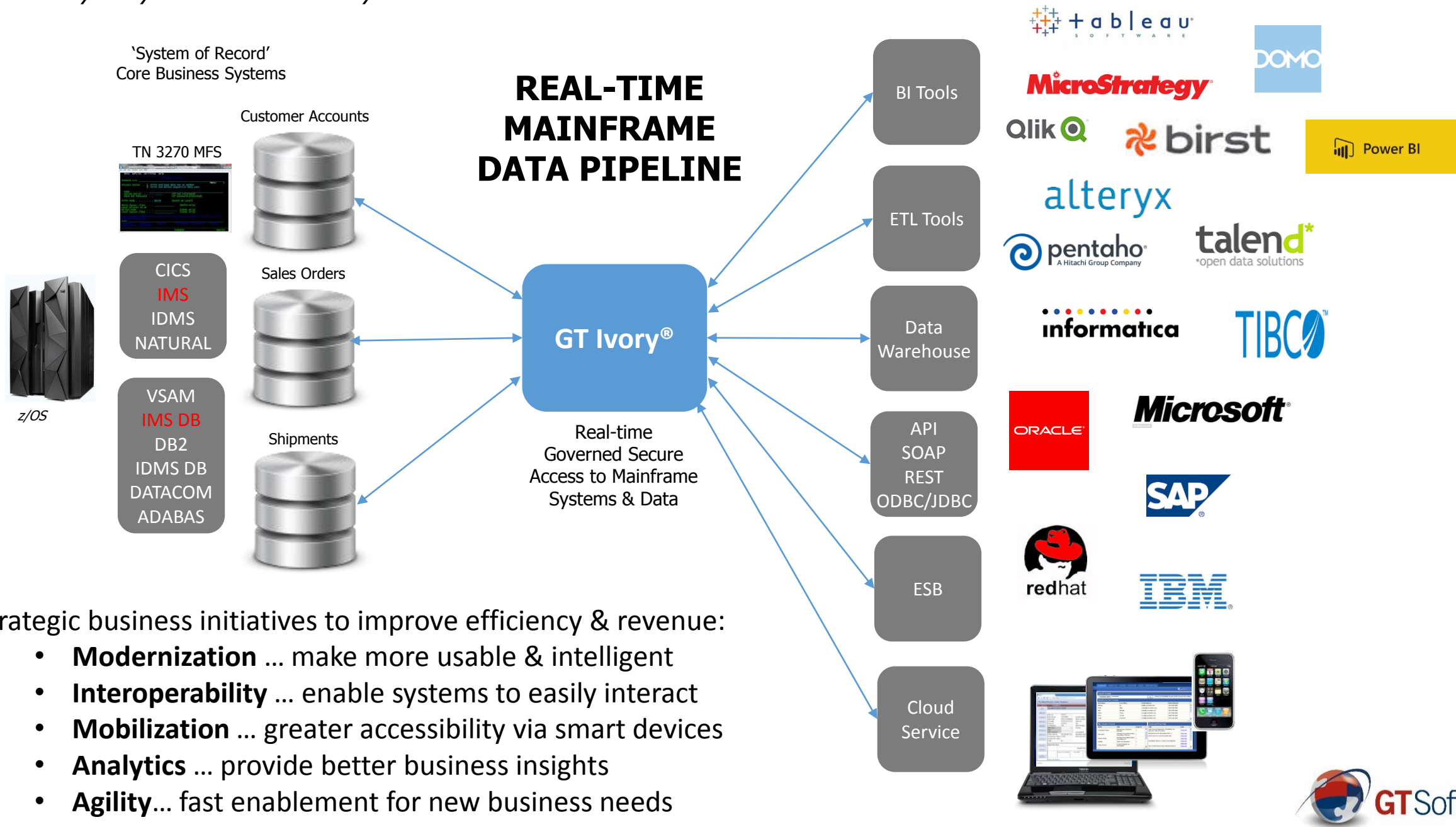
REST Service Example



The screenshot shows the Ivory Studio interface for a REST service. The left pane displays settings for the service, including the WSDL location, service name, and operation. The main area shows the request and response JSON. The request is a JSON object with `comm: "DISPLAY"` and `inLastName: "RIVERS"`. The response is a JSON object with `outDataType: { "outLastName": "RIVERS", "outFirstName": "DUSTY", "outExtension": "214", "outZipCode": "30328" }`.

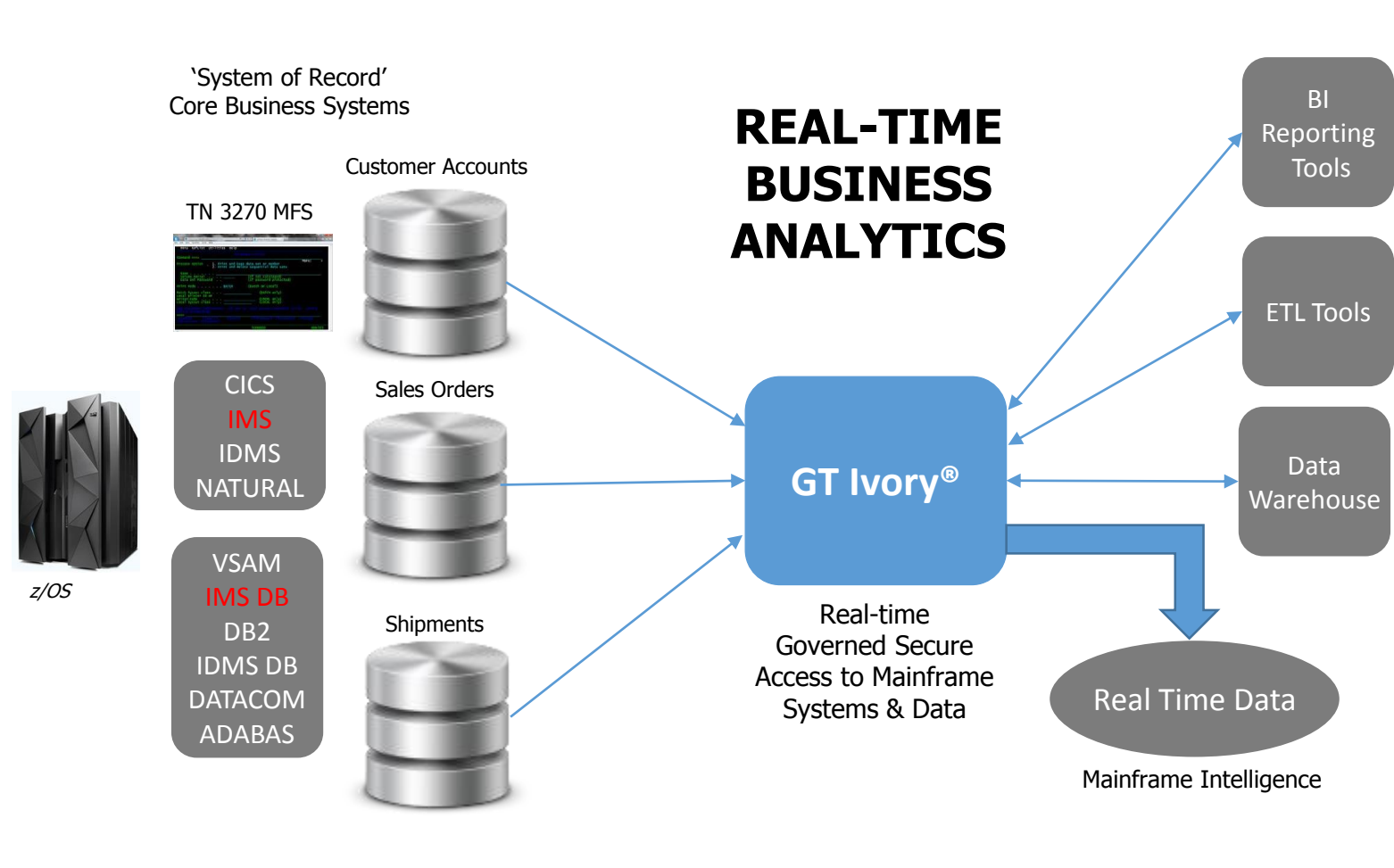
- Wizard within Ivory Studio generates the service definition from the orchestration workflow
- A service can be created as SOAP/XML or REST/JSON
- Can have an orchestration exposed as both a SOAP and REST service
- Services can be tested real-time with multiple levels of tracing for debugging
- A test (input data) can be saved and repeated in support of iterative development
- Ivory can be used as a validation tool against application modifications

"Why do you have IMS today?"



Strategic business initiatives to improve efficiency & revenue:

- **Modernization** ... make more usable & intelligent
- **Interoperability** ... enable systems to easily interact
- **Mobilization** ... greater accessibility via smart devices
- **Analytics** ... provide better business insights
- **Agility**... fast enablement for new business needs

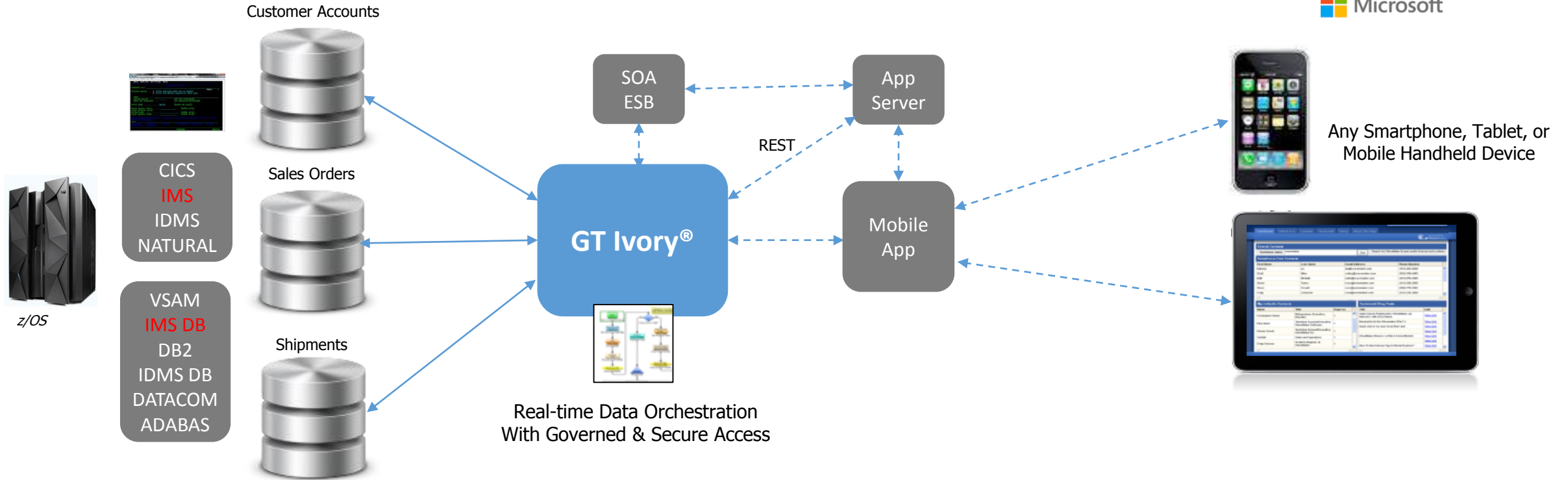


- Enable any Business Intelligence (BI) or supporting ETL tool to request “real time” data from the mainframe “system of record” to blend into an analysis
- Fully governed and secure access via an Ivory orchestration workflow
- Provide “on demand” self-service access for Business Analysts
- Data can be blended from both mainframe data files and transactions
- Integrate with both mainframe and distributed data sources



Core "System of Record"
Business Systems

REAL-TIME MOBILE-TO-MAINFRAME



Ivory Studio SDK
(workflow orchestrations)

Any Device (desktop, laptop, tablet, smartphone)
Any Platform (web, mobile, cloud)

App, Portal,
ESB,
BI Tool

Request to Ivory
via SOAP or REST

GT Ivory
Server
(Java, Linux, IFL)

Ivory calls via
Web Service or API

External
App / Svc

Distributed
Database

Bi-Directional Access from
Mainframe Programs

Cobol call to
Web Service

TN3270



Ivory VisualConnect

Data
Warehouse,
App, BI Tool

Also Supported:

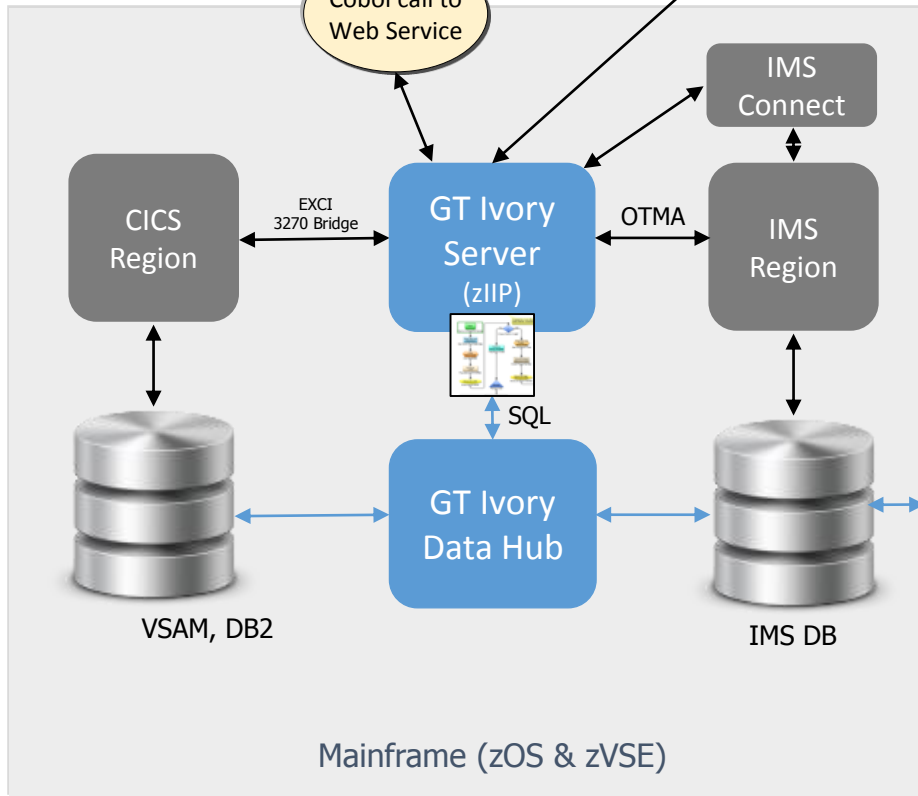
- CA IDMS
- CA DATACOM
- NATURAL
- ADABAS

Security
Integration:

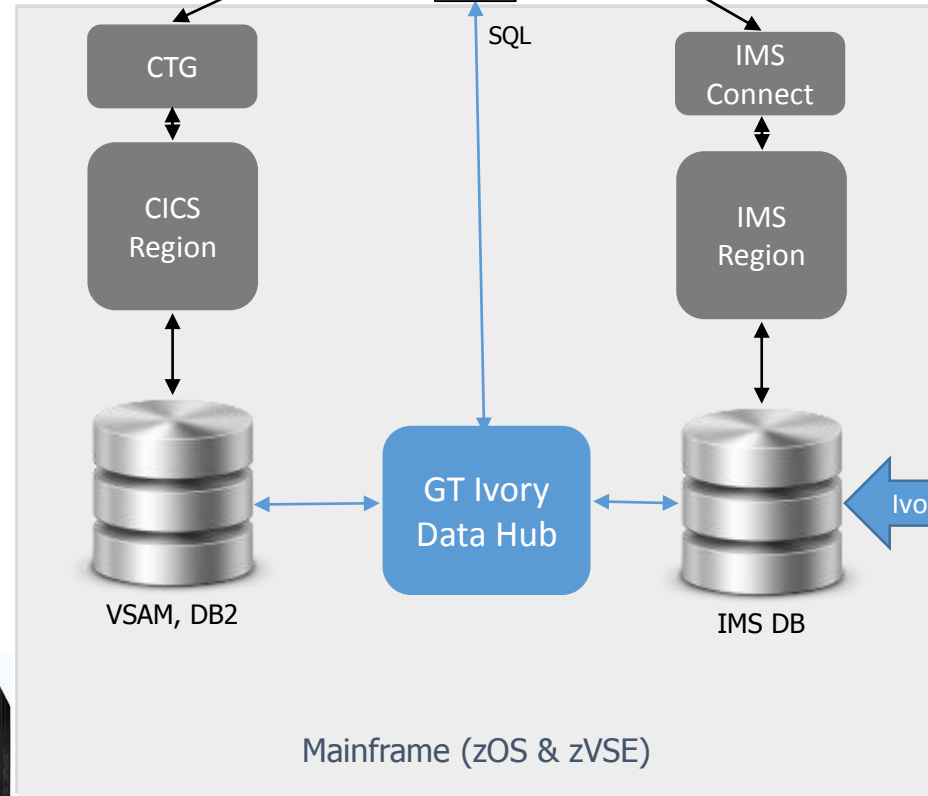
- RACF
- ACF2
- AT-TLS
- LDAP
- Active Directory
- Custom

Environments:

- WebSphere
- Red Hat
- Java
- .Net
- Oracle
- Other



GT Ivory deployed on mainframe



GT Ivory deployed off mainframe

- Extract
Transfer
Load
- SQL Server
 - Oracle
 - Sybase
 - DB2 LUW
 - Other

Mobile Interface



American Airlines Aircraft Detail Discrepancies Manuals Apps History Admin Nov 17, 2015 15:19 GMT Justin Kerchal (507270) Help

Nose # Find A/C

Advanced Search

AIRCRAFT 200
EQUIPMENT B757
MAINT. PROGRAM US
REGISTRATION N200UU
ENGINE RB211-535
NAA LOGBOOK YES

Aircraft Routing

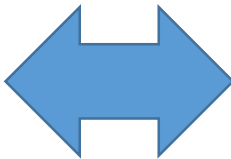
FLIGHT 0886 CUN -> CLT	FLIGHT 0835 CLT -> SJU	FLIGHT 0836 SJU -> CLT	FLIGHT 1798 CLT -> PHL	FLIGHT 1798 PHL -> CLT
DEP GATE: 1519, ARR GATE: 1823, DEP GATE: 1519, ARR GATE: 1823, GND: 15h 52m	DEP GATE: 1015, ARR GATE: 1456, DEP GATE: 1015, ARR GATE: 1456, GND: 0h 54m	DEP GATE: 1520, ARR GATE: 1842, DEP GATE: 1520, ARR GATE: 1842, GND: 1h 23m	DEP GATE: 1730, ARR GATE: 2138, DEP GATE: 1730, ARR GATE: 2138, GND: 1h 12m	DEP GATE: 0955, ARR GATE: 1431, DEP GATE: 0955, ARR GATE: 1431, GND: 1h 23m

ORIGIN GATE DEST GATE FLT STD ETD OUT OFF STA ETA ON IN GND
CLT D2 SJU D12 0835 09:55 10:15 - - 1431 14:56 - - 15h 52m

Discrepancies

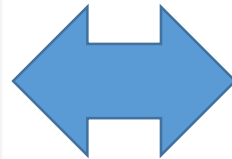
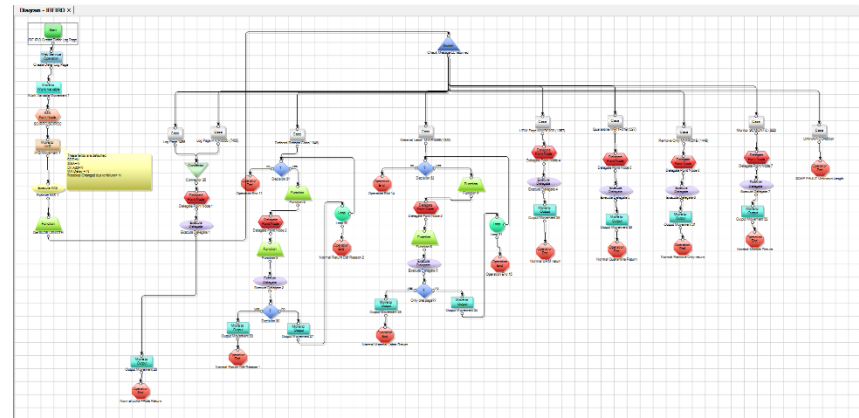
MIC # Find / Create MIC # Refresh Legend Create MIC # Print MIC Sheet

MIC #	ATA	TTG	DSP CODE	STA	LAST UPIST	DISCREPANCY TITLE
3159798	5310	MON	CLT	1810h15	FUSELAGE SKIN DENT FRAME STA 760 ON STRINGER 2L	
1040144	2201	MON	PHL	2100h15	#1 ENH (PHL) HAS CORRECTED ACROSS THE WINGS AT 0800 POSITION 4H-1 (REF: LPH880075) CREATE MONITOR FOR DUT FUSELAGE SKIN DOUBLER R	
6801187	5310	MON	B7M	20Aug15		ACCOMPLISHED TYPICAL REPAIR 37-40-05A. HOWEVER THIS TYPICAL REPA...
3088225	5190	MON	CLT	22Aug15		DENT FOUND AFT OF RADOME AND FORWARD OF NOSE GEAR DOOR
2794811	5180	SAD	B7M	21Aug15		REF SAD LPH728-803. FUSELAGE STATION 20737 BETWEEN 226 AND 228 LH...
6801175	5310	MON	B7M	21Aug15		REF SAD LPH800394-101. FUSELAGE SKIN REPAIR STA 563 380 36 3/4 226 7/8...
6807866	5483	MON	B7M	21Aug15		EXTERNAL FUSELAGE SKIN AFT OF B1 DOOR BETWEEN B51881 AND B5701 A...
6800943	5310	SAD	B7M	20Aug15		DENT EXTERNAL FUSELAGE SKIN B1 35160 AND 380, 527R AND 288 HAS A DENT...
6803097	5480	SAD	B7M	20Aug15		DENT EXTERNAL FUSELAGE SKIN B5 1520 BETWEEN STRINGERS 3R & 4R
6055114	5310	MON	PHL	20Aug15		CREATE A MONITOR TO REPEAT HFEC INSPECTION EVERY 620 FC PER EA N...
4844883	5310	SAD	B7M	20Aug15		DENT EXTERNAL FUSELAGE SKIN B1 35160 AND 380, 527R AND 288 HAS A DENT...
6800997	5710	SAD	B7M	18Aug15		40 L/R SLAT 47 3/4 FROM LE END AND 41 FROM TIE WEDGE EXTERNAL HAS D...
6803097	5480	SAD	B7M	18Aug15		40 L/R SLAT 47 3/4 FROM LE END AND 41 FROM TIE WEDGE EXTERNAL HAS D...



REAL-TIME MOBILE TO IMS AIRCRAFT MAINTENANCE EXAMPLE

GT Ivory Orchestration



Online IMS Application



American Airlines Aircraft Detail Discrepancies Manuals Apps History Admin Dec 15, 2015 22:47 GMT Test Adams (751817) Help

Nose # Find A/C

Advanced Search

AIRCRAFT 902
EQUIPMENT B757
MAINT. PROGRAM US
REGISTRATION N902AW
ENGINE RB211-535
NAA LOGBOOK YES

Mechanical Discrepancy

ARM or FRM Code¹ Position

Flight Number² Date³ Employee Number⁴ PD/IS (Pilot Reported)⁵

Discrepancy⁶

Maintenance Issue Control Number⁷ 9988776

Action Required Material / Labor Required Rotables Removed / Installed

Action Taken

Station⁸ ATA Code⁹ Deferral Code¹⁰ Reason Code¹¹ MIC Number¹²

Are you kidding me???? IMS!

- 96 of the world's top 100 banks, 23 of the 25 top US retailers, and 9 out of 10 of the world's largest insurance companies run System z
- Seventy-one percent of global Fortune 500 companies are System z clients
- Nine out of the top 10 global life and health insurance providers process their high-volume transactions on a System z mainframe
- Mainframes process roughly 30 billion business transactions per day, including most major credit card transactions and stock trades, money transfers, manufacturing processes, and ERP systems
- 70-80% of the world's business data resides on a System z



User Success Stories

Leading Luxury Sports Car Manufacturer

- One of the world's best known brands in luxury, performance sports cars
- Strive for 'maximum output with minimum input'

Needs

- Replace and web enable 3270-based vehicle specification and configuration system
- A tool that could interact with the manufacturing and inventory systems
- Give prospects the ability to custom design and interact online with newest models

Challenge

- Wanted web-access to its mainframe-based specification and configuration system
- Current interface was based on IBM OS/2 operating system with 3270 'green-screens'

Results



No Additional
MIPS Required For
Processing



Less than 1 Day to
Develop, Publish and
Use Web Services



No Programming or
Additional Personal
Required



Secure Transfer of
Information Readily
Available

South African Financial Institute

- Headquartered in Johannesburg, South Africa
- Strives to be the “go-to” bank, and first choice for clients
- 40,000+ employees and 9.4 million customers

Needs

- Maintain the brand distinction
- Further improve customer experience

Challenge

- Unable to deliver single solution across banking channels
- Needed to expose, consumer, and reuse IMS applications
- Share processes and data across 30 business channels
- Improve developer productivity

Results



High Level of Service
Reuse



Achieved ROI in 12
Months



12+ Million Service
Invocations per Day

Leading US Airline

- Over 300 Mainline Jets and 250+ regional Jets
- Nearly 7,000 departures daily
- Provides travel to over 300 destinations

Needs

- To improve turnaround time of maintenance procedures
- To expand, anywhere access to multiple maintenance support systems
- To update access from fixed terminals to mobile devices
- Simplify user interface with unified view of multiple backend systems

Challenge

- Highly visible and business-critical project
- Solution required changes to legacy back end and mission-dependent systems
- Developers of new applications have no knowledge of legacy code bases
- Heavily regulated and tight project implementation deadline

Results



Strong ROI



1 Year Reduced to 4 Months



Reduced Labor Time



Faster Aircraft Turnaround

Leading Advanced Technology Company

- 1,000 facilities in 500 cities in 46 U.S. states with Locations in 75 nations and international territories
- Aeronautics, Electronic Systems, Information Systems & Global Services, and Space Systems
- 41.9 billion revenue; 71.6 billion revenue backlog

Needs

- Incorporate mainframe applications containing critical business logic into corporate SOA strategy
- Showcase value of mainframe install base to corporate IT (SOA and BPM teams)
- Enable mainframe migration of “select” applications to SAP
- Employ a standards-based approach

Challenge

- Mainframe was being slowly phased out in favor of SAP
- Key executives saw the value of the mainframe platform being diminished
- How to incorporate a very diverse mainframe architecture into corporate SOA and SAP strategies?

Results



Architects Accept
Mainframe as Key
Participant in SOA Strategy



Strong ROI



Mainframe Access
through Web
Services

Multi-lines Mutual Insurance Company

- Operations in 49 States
- 2,200+ Employees
- \$1.6 Billion in Premium

Needs

- Refocus on the business problem
- Expose and consume Web Services
- Reuse legacy when possible ...or build new
- *Active* approach to mainframe SOA

Challenge

- Make legacy services available to new composite applications
- Developers spending 50%+ time on “plumbing”
- Slowing development efforts
- Reuse opportunities lost

Results



Strong ROI
Within 1 Year



Only 2 Hours of
Training Per User



Serving 10
Applications Across 7
Business Areas



Processes over 400K
Ivory-based Web
Service Requests / day

Leading Aptitude Testing Company

- U.S headquartered, non-profit assessment vendor
- Develop and administer 50 million aptitude tests annually
- 180 countries —9,000 locations

Needs

- Immediate credit approval
- Ability to process funds for payment
- Ability to track candidate's scheduling, testing, and scoring

Challenge

- Two large back-end online systems
- Both required “real-time” communication with third-party credit card processor
- Both were green screen systems and would use same interface
- Neither coded to support encryption, SSL security and WS security tokens — a requirement for credit card processing

Results



Created
“common”
interface



Met
aggressive
timeline



Added encryption, WS
security (per PCI
Compliance)



Strong ROI
80% Reuse

Special Benefits Administrator



- Offers union members welfare, health and Taft-Hartley Retirement Benefits
- Delivers full overview of employee and employer contributions

Challenge

- Handling inquiries was a timely process that had to happen during business hours
- Increased volume and length of call center interactions
- 20 different screens needed to be consulted to answer a customers' questions

Needs

- Reduce strain on call center resources
- Enable customers to have 24/7, self-serve access to information
- Improve customer satisfaction and boost productivity

Results



10% Reduction in
Calls to the Call
Center



24/7 access to
information via
mobile



Improvements came
at no cost to union
members



Boost in productivity
with modern user
interface

West Coast County Government



- Mainframe-based Criminal Justice Information System (CJIS) developed in early 1980's
- Support for Sheriff, Police, Prosecutor, District Attorney, Courts, and other law enforcement
- Over 100,000 transactions per day

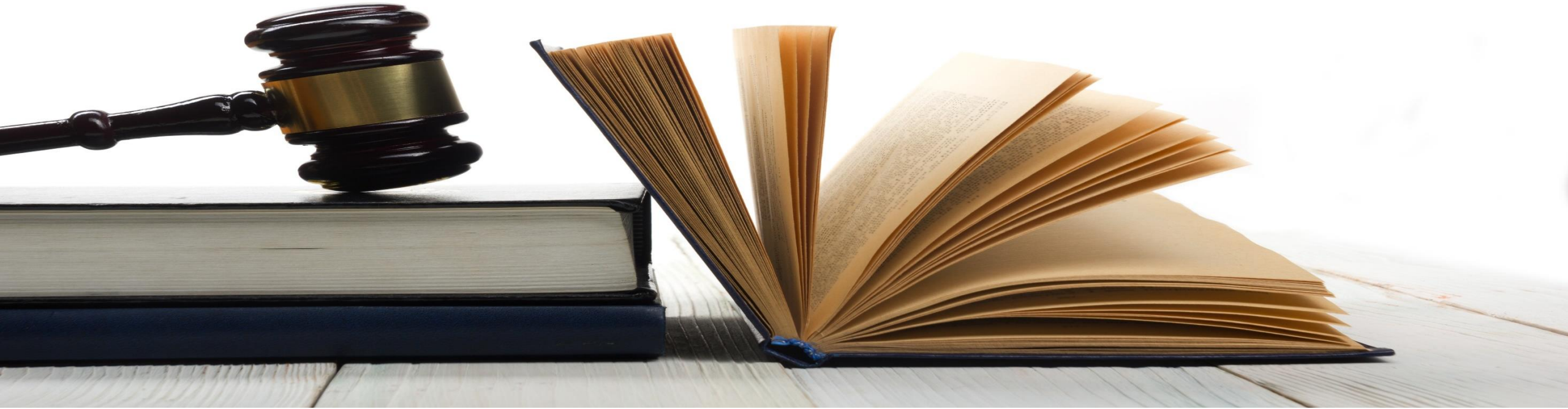
Challenge

- Multiple law enforcement systems across County
- CJIS and Jail Management System, other systems off-mainframe
- Migration of CJIS to new COTS system

Needs

- Consistent exchange of information regarding bookings and other data across systems
- Pull data generated on 3270 screens from the legacy system

Results



Seamless
integration of
systems



Access to data from CJIS
transaction screens and
directly from databases



Greater efficiency
across law enforcement
entities



IMS in an API and Cognitive World

It's Possible!!!

Dusty Rivers
Director, z Systems Software
GT Software
drivers@gtsoftware.com

www.gtsoftware.com