

# IMS Can't do that.... Or Can it????

Dusty Rivers

Director z-Systems GT Software

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- Working in IMS for 43+ Years
  - Worked Globally at many Global IMS Shops
  - Working on IMS Integration 25 years
  - Named Lifetime IBM Champion for Z
- 
- I have heard the Naysayers!!!!



Dusty Rivers

Director z-Systems GT Software

*drivers@gtssoftware.com*

TRY FAIL SUCCESS

# IMS Can't be part of a large Distributed system

It won't scale.....

# What occurs in a second?



Tweets  
7,812



Facebook posts  
15,650



Tinder swipes  
16,500



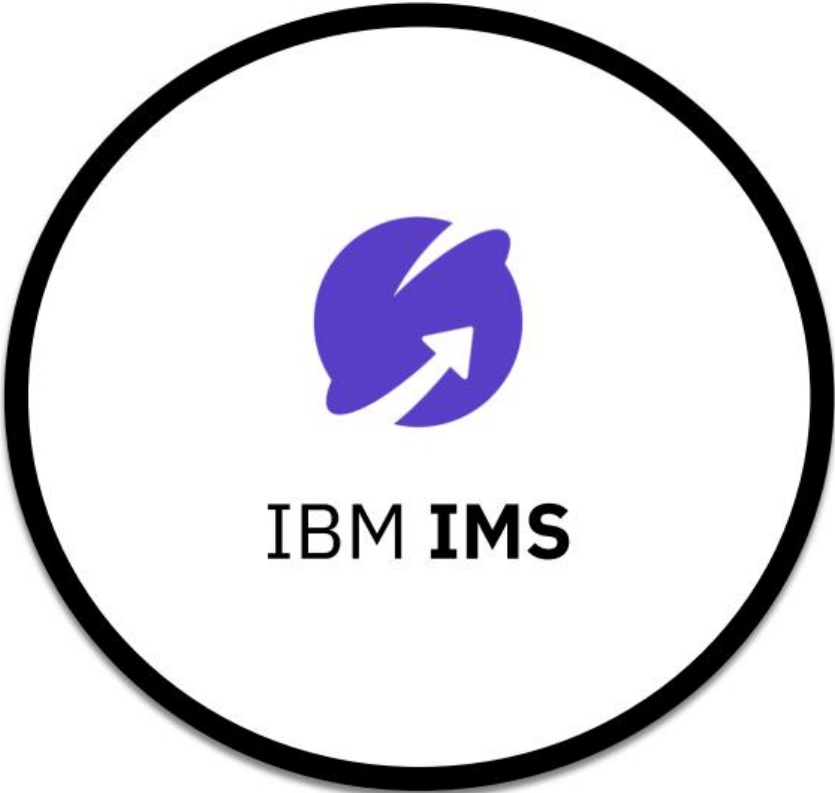
Snapchat snaps  
30,000



Google Searches  
63,386



YouTube views  
71,381



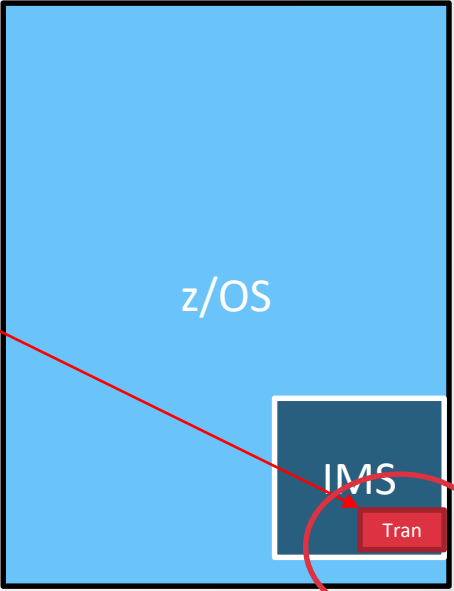
**IMS Transactions  
3 Million**

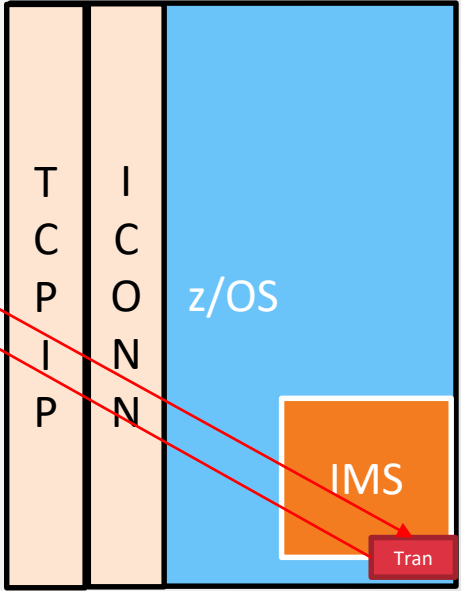
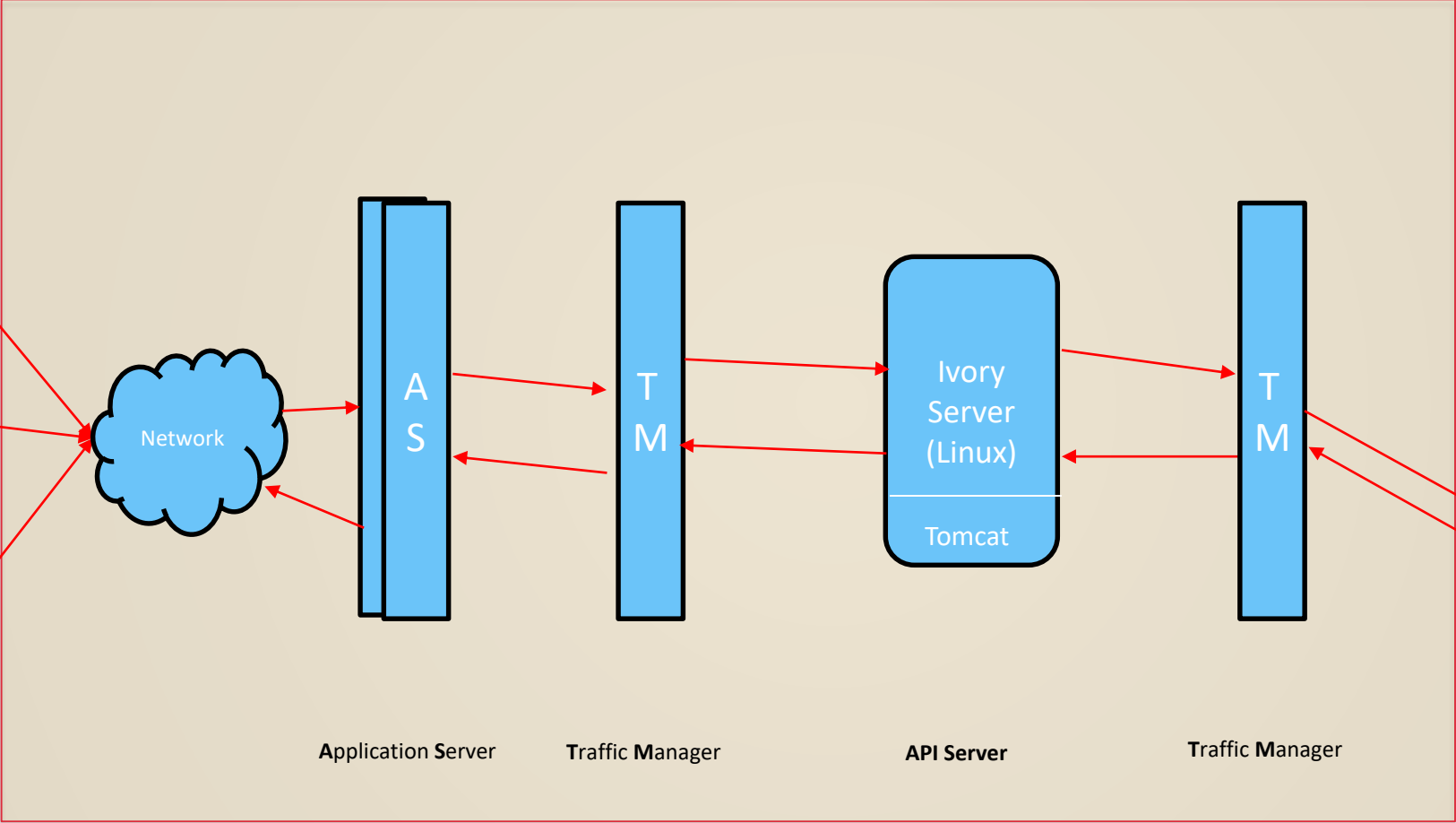


# IMS Can't be part of a large Distributed system

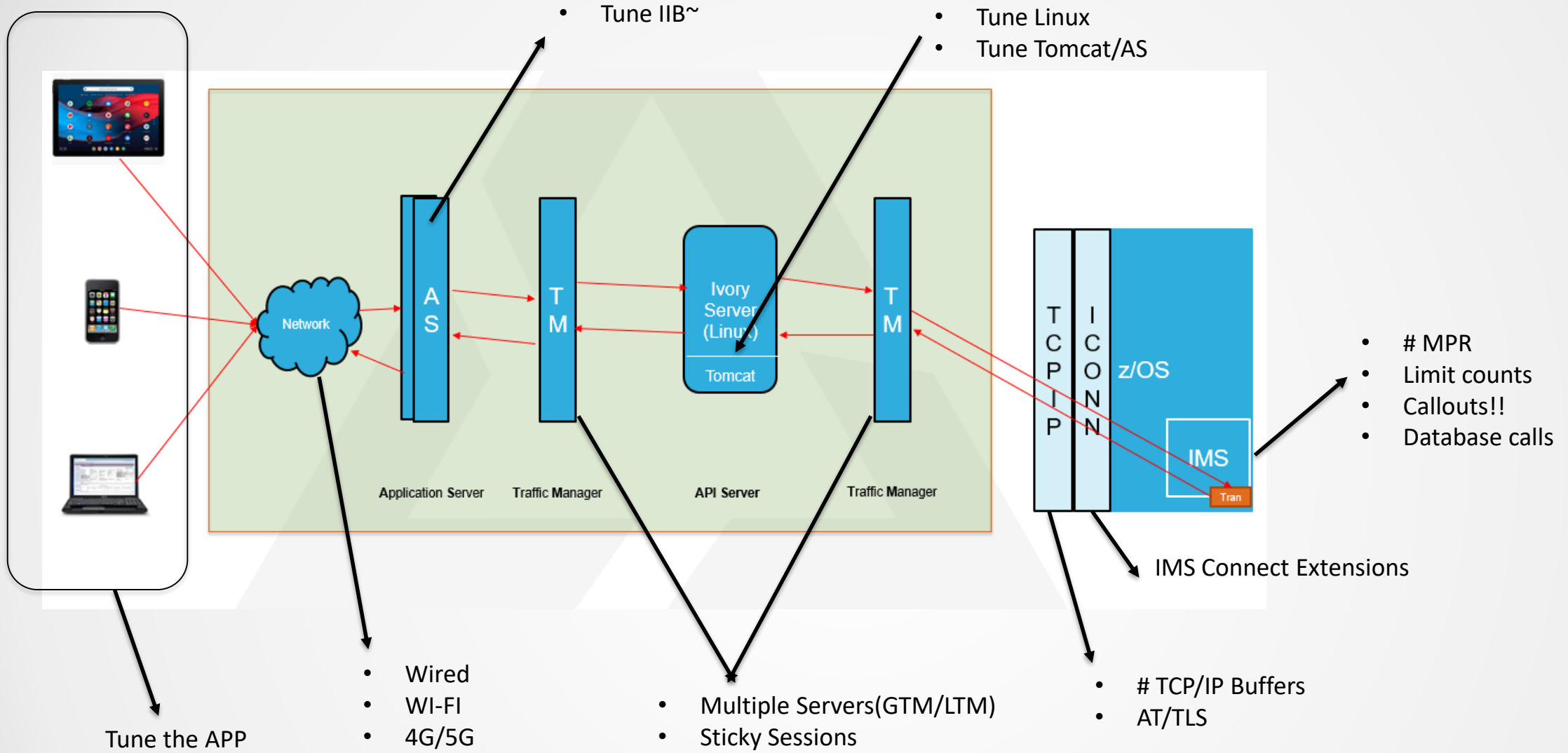
It won't scale.....











**LLZZ<trancode><data>**

MID

MOD

DIF

DOF

Copybooks



Most **IMS** online applications were designed to interact with 3270 terminals (end user dialog).

.

**Changing** IMS legacy code to work better as an API introduces more complexity and code to manage.

Fine grain APIs (microservices) may be easier to build, but put more work onto the consumer.

More intelligent the API, less effort for the API consumer processing logic.

IMS mainframe apps are like a box of chocolates, it is hard to see what is inside.



- **IMS** included in an API Economy
  - Regular Transactions
  - Conversational Transactions
  - 3270 MFS Transactions
  - Handle Complex transactions(multiple outputs)
  - Communicate with other Systems
- Participate in DevOps
- Run in a Container
- Case Studies

All Examples are Live Production Examples

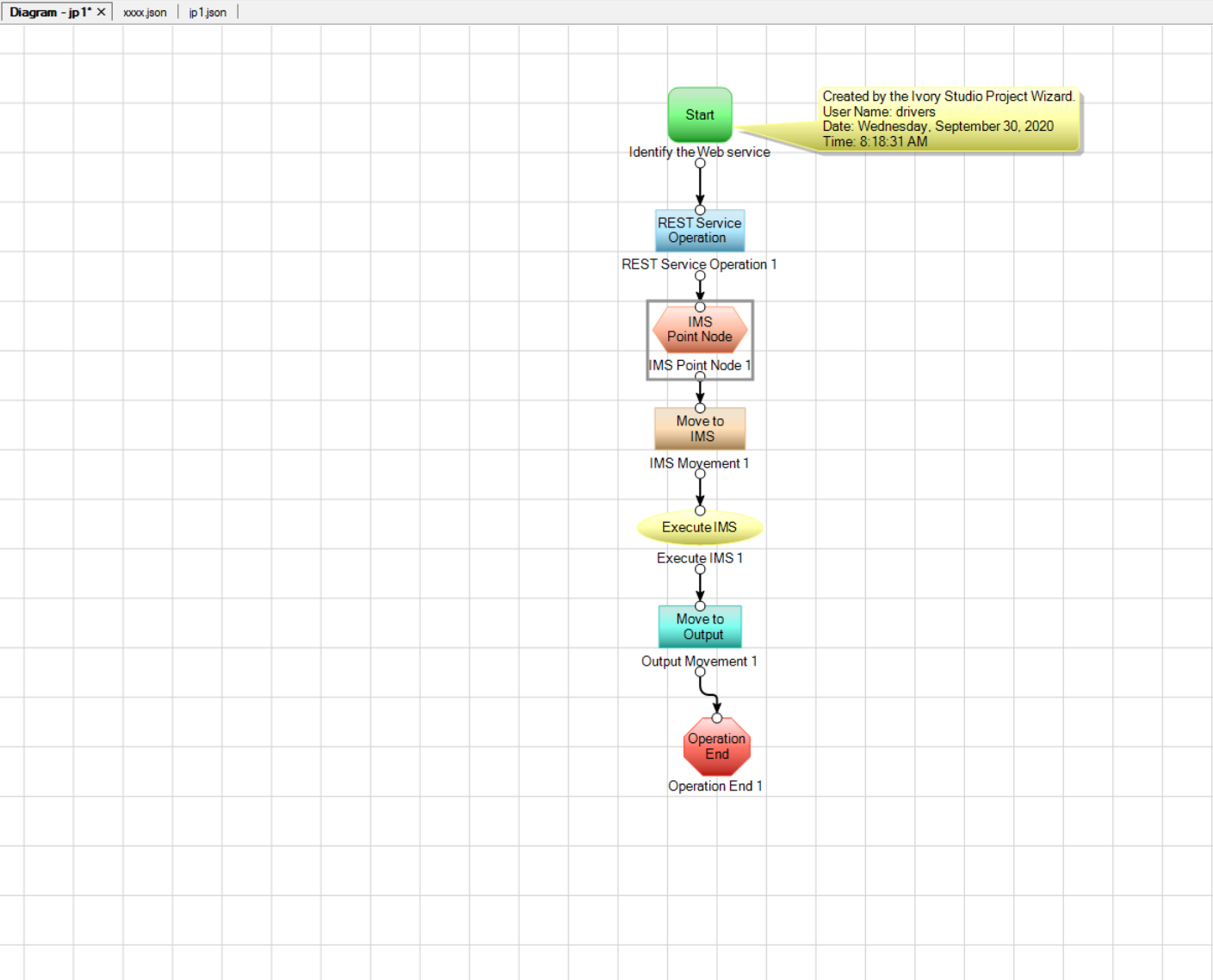


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Properties

<b>Base</b>	
Node ID	IMS Point Node 1
Transaction	IVTNO
Message Flow	Request Response
Input Type	Copybook
Input Copybook Name	imsprogramin.ivc (Collection)
Input Copybook Data	Copybook
Output Type	Copybook
Output Copybook Name	imsprogramout.ivc (Collection)
Output Copybook Data	Blanks
Initialize Storage Area	Blanks
Reinitialize Storage Area On Loop	False
<b>Advanced</b>	
Input Data Offset	0
Output Data Offset	0
IMS Message Segment Size	0
IMS Send Message Length	0
Input Data Compression Algorithm	None
Output Data Compression Algorithm	None
Conversation State	Non
LTERM	
Format Name Work Variable	
Propagate MFS Null Character	False
<b>OTMA</b>	
OTMA Control Region	GTOTMA
Authenticate	Passthru
Return Code Work Variable	
Reason Code 1 Work Variable	
Reason Code 2 Work Variable	
Reason Code 3 Work Variable	
Reason Code 4 Work Variable	
IMS Error Text Work Variable	
User Data Work Variable	
<b>IMS Connect</b>	
Host	10.1.2.113
Port	9624
Datastore	IMS
Use Secure Connection (Java Server Only)	False
Authenticate	None
User Exit	GIIIMSC2 (Default)
Commit Mode	CM1 (Send then Commit)
Synclevel	None
Timeout	IMS Connect Default
Return Code Work Variable	
Reason Code Work Variable	
Error Text Work Variable	
Include Each Segment LLZZ in Output Data	False
Total Length of Output Segments Work Variable	
Total Number of Output Segments Work Variable	

**Node ID**  
The unique identifier for this LINK Point node.



Created by the Ivory Studio Project Wizard.  
User Name: drivers  
Date: Wednesday, September 30, 2020  
Time: 8:18:31 AM

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GT Software Ivory Studio - imsConv (Web Service)

File Edit View Tools Window Help

Properties

Diagram - imsConv x

Base

Node ID Tran1

Transaction GTCONVS

Message Flow Request Response

Input Type Copybook

Input Copybook Name convinout.ivc (Collection)

Input Copybook Data Copybook

Output Type Copybook

Output Copybook Name convinout.ivc (Collection)

Output Copybook Data Copybook

Initialize Storage Area Blanks

Reinitialize Storage Area On Loop False

Advanced

Input Data Offset 0

Output Data Offset 0

IMS Message Segment Size 0

IMS Send Message Length 0

Input Data Compression Algorithm None

Output Data Compression Algorithm None

Conversation State Start

LTERM

Format Name Work Variable

Propagate MFS Null Character true

OTMA

OTMA Control Region GTOTMA

Authenticate None

Return Code Work Variable

Reason Code 1 Work Variable

Reason Code 2 Work Variable

Reason Code 3 Work Variable

Reason Code 4 Work Variable

IMS Error Text Work Variable

User Data Work Variable

IMS Connect

Host 10.1.2.145

Port 9624

Datastore IMSX

Use Secure Connection (Java Server Only) False

Authenticate Use Work Variables

User ID Work Variable user

Password Work Variable pswd

User Exit GIIMSCX

Commit Mode CM1 (Send then Commit)

Synclevel None

Timeout IMS Connect Default

Return Code Work Variable

Reason Code Work Variable

Error Text Work Variable

Include Each Segment LLZZ in Output Data False

Total Length of Output Segments Work Variable

Total Number of Output Segments Work Variable

Node ID

The unique identifier for this LINK Point node.

Explorer | Toolbox | Properties

Output

Ready

Start

Continue

Stop

113%

GTSoftware 18

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GT Software Ivory Studio - jp1 (REST Service)

File Edit View Tools Window Help

Diagram - jp1\* x xxxx.json | jp1.json |

**Properties**

**Base**

Node ID **IMS Point Node 1**

Transaction **IVTNO**

Message Flow Request Response

Input Type Copybook

Input Copybook Name **imsprogramin.ivc (Collection)**

Input Copybook Data Copybook

Output Type **imsprogramout.ivc (Collection)**

Output Copybook Data Copybook

Output Copybook Data

Initialize Storage Area Blanks

Reinitialize Storage Area On Loop False

**Advanced**

Input Data Offset 0

Output Data Offset 0

IMS Message Segment Size 0

IMS Send Message Length 0

Input Data Compression Algorithm None

Output Data Compression Algorithm None

Conversation State Non

LTERM

Format Name Work Variable

Propagate MFS Null Character **False**

**OTMA**

OTMA Control Region **GTOTMA**

Authenticate **Passthru**

Return Code Work Variable

Reason Code 1 Work Variable

Reason Code 2 Work Variable

Reason Code 3 Work Variable

Reason Code 4 Work Variable

IMS Error Text Work Variable

User Data Work Variable

**IMS Connect**

Host **10.1.2.113**

Port 9624

Datastore IMS

Use Secure Connection (Java Server Only) False

Authenticate None

User Exit GIIIMSC2 (Default)

Commit Mode CM1 (Send then Commit)

Synclevel None

Timeout IMS Connect Default

Return Code Work Variable

Reason Code Work Variable

Error Text Work Variable

Include Each Segment LLZZ in Output Data False

Total Length of Output Segments Work Variable

Total Number of Output Segments Work Variable

**Node ID**

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Explorer | Toolbox | **Properties**

Output

Ready

Start

Identify the Web service

REST Service Operation

REST Service Operation 1

IMS Point Node

IMS Point Node 1

Move to IMS

IMS Movement 1

Execute IMS

Execute IMS 1

Move to Output

Output Movement 1

Operation End

Operation End 1

Created by the Ivory Studio Project Wizard.  
User Name: drivers  
Date: Wednesday, September 30, 2020  
Time: 8:18:31 AM

The Mid/Mods converted to COPYBooks(internally)

- Zero Fill
- Blank fill
- Numeric Checks
- Hidden Data

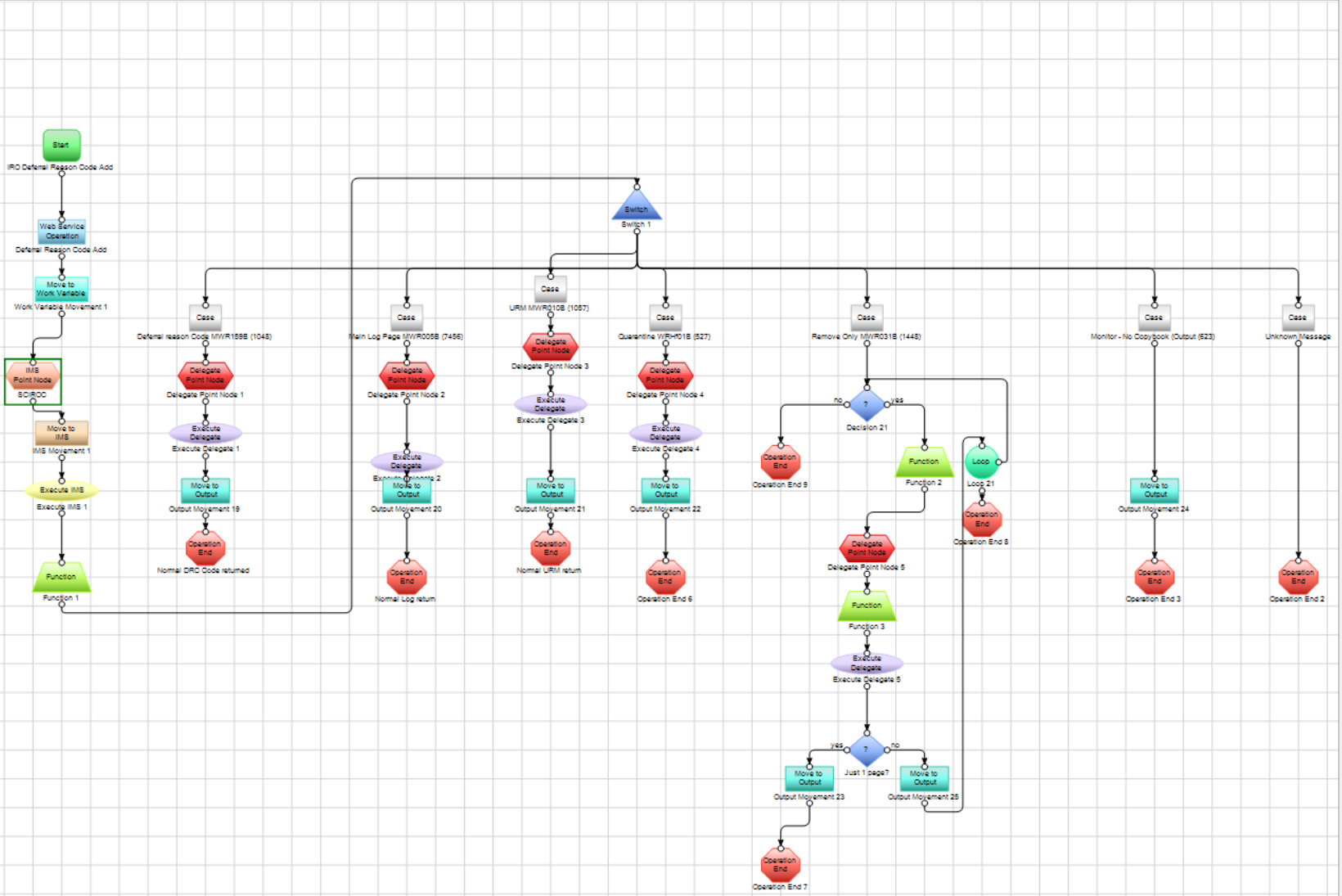


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Properties

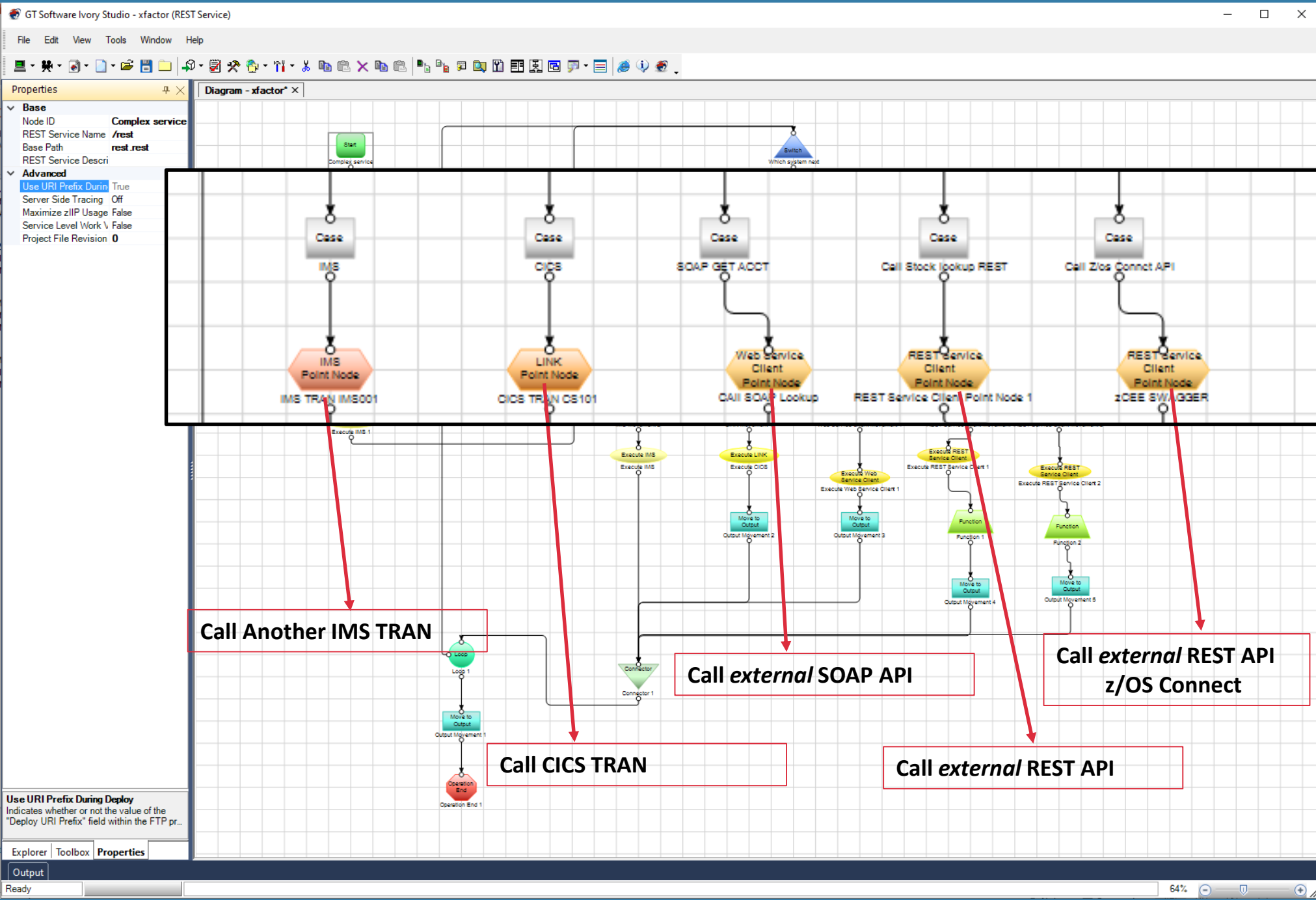
<b>Base</b>	
Node ID	SCIROC
Transaction	SCIROC
Message Flow	Request
Input Type	Copybook
Input Copybook Name	mwr159
Input Copybook Data	(Collect
Output Type	BLOB
Output BLOB Name	IRFIRO
Initialize Storage Area	Blanks
Reinitialize Storage Area On Loop	False
<b>Advanced</b>	
Input Data Offset	11
Output Data Offset	0
IMS Message Segment Size	0
IMS Send Message Length	0
Input Data Compression Algorithm	None
Output Data Compression Algorithm	None
Conversation State	Non
LTERM	@@WK
Format Name Work Variable	
Propagate MFS Null Character	True
<b>OTMA</b>	
OTMA Control Region	
Authenticate	None
Return Code Work Variable	
Reason Code 1 Work Variable	
Reason Code 2 Work Variable	
Reason Code 3 Work Variable	
Reason Code 4 Work Variable	
IMS Error Text Work Variable	
User Data Work Variable	
<b>IMS Connect</b>	
Host	ibma1e.
Port	@@WK
Datastore	@@WK
Use Secure Connection (Java Server Only)	False
Authenticate	Use W
User ID Work Variable	WKUSE
Password Work Variable	WKPAS
User Exit	GIIMSC2
Commit Mode	CM1 (Ser
Synclevel	None
Timeout	IMS Con
Return Code Work Variable	
Reason Code Work Variable	
Error Text Work Variable	
Include Each Segment LLLZ in Output Data	True
Total Length of Output Segments Work Variable	
Total Number of Output Segments Work Variable	num_se

Diagram - IRODefRsnCodeAddC



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**Use URI Prefix During Deploy**  
 Indicates whether or not the value of the "Deploy URI Prefix" field within the FTP pr...

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# Environment

IMS





# Environment

IMS



Ivory Service Architect(API creation & orchestration)

Github (source version control)



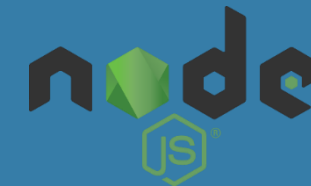
Jenkins (*automation*)



.NET , Java, Node.js , COBOL



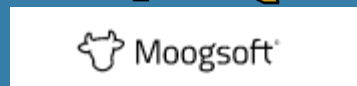
Linux (redhat) JBOSS



Tomcat



MoogSoft



dynatrace



urbancode



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# Kubernetes and OCI compliant z/OS containers

IBM intends to provide clients with capabilities that will help accelerate their transformation to greater portability and agility in a hybrid cloud

## Key Capabilities

IBM® makes the following statements of general direction:

- **IBM intends to deliver a container runtime for IBM z/OS® in support of Open Containers Initiative compliant images comprising z/OS software.**
- **IBM intends to deliver Kubernetes orchestration for containers on z/OS.**

[z/OS Container and Orchestration SOD](#)

## Benefits

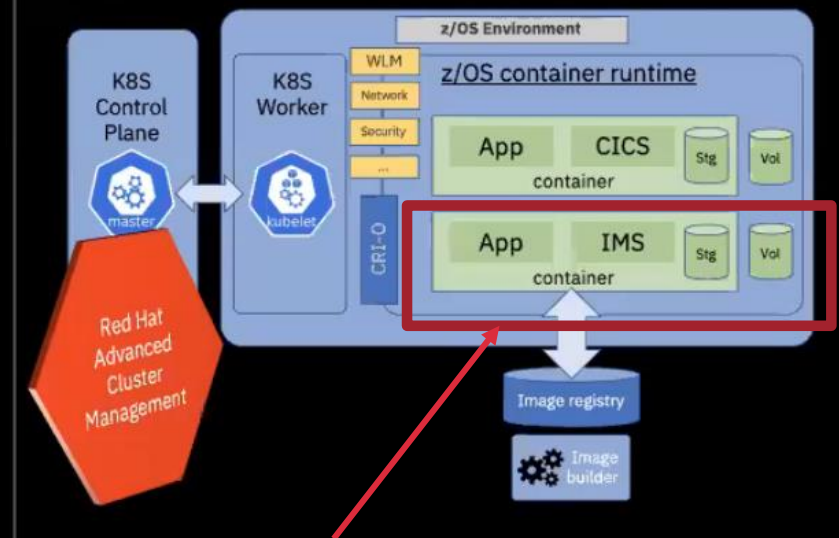
**Accelerate transformation** through greater portability and agility across the hybrid cloud

**Architecture-independent standards and technology** for container-based development and deployment on z/OS and z/O middleware.

**Increase speed** from development to deployment of z/OS-based applications

**Increase predictability and repeatability** across the application lifecycle for z/OS applications

**Enhance practices** across z/OS development, testing, and operations through a wide ecosystem of open-source application container-based tools



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# IMS Can..... Use Cases!!!



# Case Study: Large French Bank



## Challenge

A major multi-national bank was struggling with how their legacy mainframe systems could be used in tandem with modern third-party applications to process payments, detect fraud and comply with KYC guidelines – all in real time.



## Solution

Ivory quickly generated the code needed for their mainframe to securely and reliably call out to FIS's Clear-2-Pay from a core banking COBOL application.



## Results

They were able to create powerful bi-directional APIs to become the first bank to execute an instant payment in France. The drag-and-drop interface allowed them to do this without coding, and to move from **proof of concept to production in less than two months.**





# Case Study: Large Airline



## Challenge

As a result of a merger with another airline and the resulting regulatory requirements, the customer needed to rapidly unify multiple aircraft maintenance and parts inventory systems into a seamless solution for their maintenance and procurement teams.



## Solution

Ivory Service Architect was used to rapidly generate a unified set of APIs connecting to multiple mainframe systems in order to power web and mobile front-end systems for maintenance and parts inventory..



## Results

The airline was able to meet its regulatory obligations in a fraction of the time alternative integration methods would have taken and achieved significant cost savings as a result.





# Case Study: Large Swiss Bank



## Challenge

A large Swiss bank needed to rapidly implement the ability to verify the status of a new customer (i.e. terrorist or known criminal) against the World Check system with a uniform set of API calls that could be initiated from a PL/1 program in their mainframe-based core banking system.



## Solution

Using Ivory Service Architect, the bank was able to develop the APIs (both SOAP and REST-based), without writing any code, at both the integration layer and on the mainframe. They were also able to make the APIs accessible to all systems within the bank going forward.



## Results

The bank was able to meet all of the functional specifications required by the banking regulations ahead of the specified timeframe and at a fraction of the cost traditional methods would have taken.

IMS Can!!!!!!!!!!!!!!!!!!!!

Thanks!