“Houston, All Systems Go” – Mainframe Systems as Clients in the Brave New World

(*plus* what does mainframe modernization actually mean)

Presented by Andy Hartman
Senior Consultant
Andy.Hartman@mainline.com

The Technology Partner for Business Results

Dusty Rivers
Senior Director, **US** zSystems
dusty.rivers@mainline.com

Lifetime IBM Champion

Mainline INFORMATION SYSTEMS

Mainframe Modernization???????

- Modernize the look and feel
- Make the data more accessible
- Make the business logic accessible to new applications
- Use more modern programming languages
- Need complex business processes quickly exposed to new applications
- Need to Integrate with new technology
- Need to have the mainframe callout to off-platform applications
- Need to migrate applications/data off mainframe(cloud)

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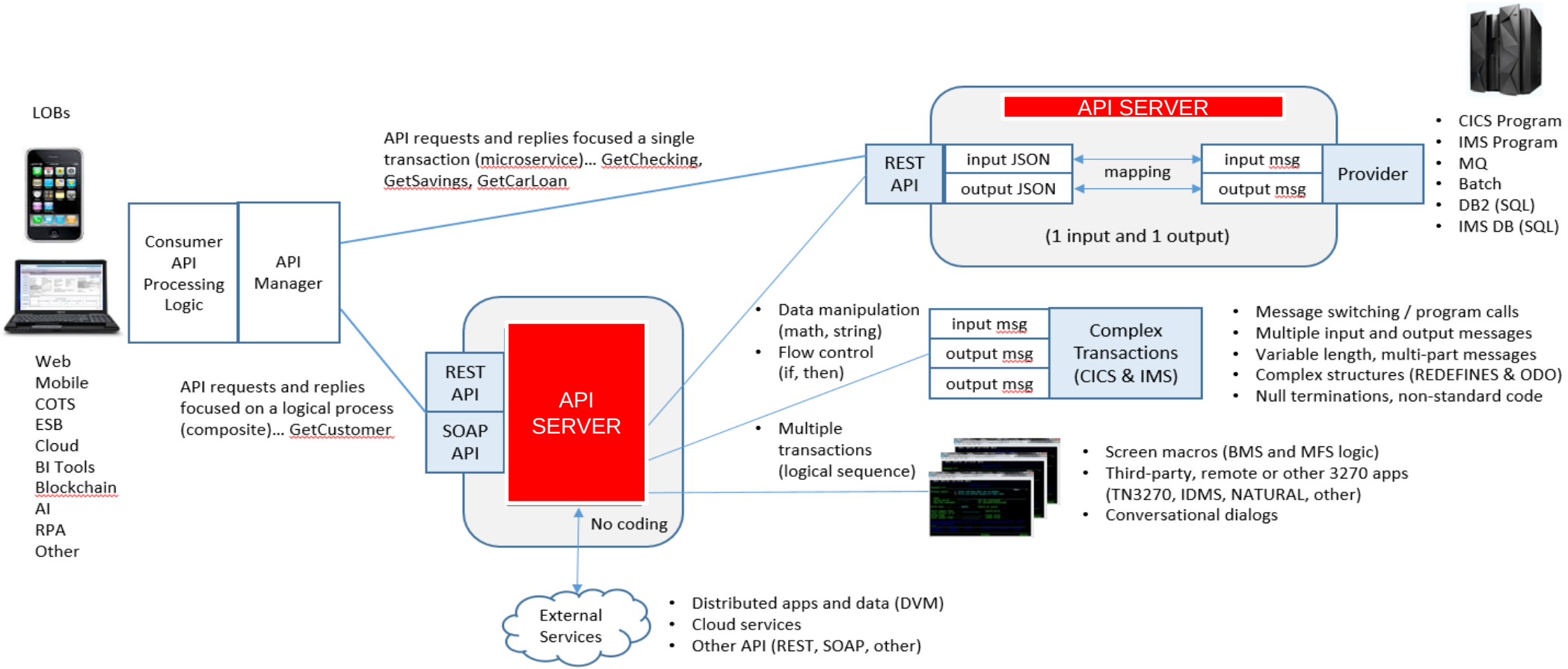
Mainframe APIs – Understanding Legacy Environments & Integration Requirements



Callable(outbound Services)

What are Callable Services?

- Access to External Services via COBOL or PL/I Call
- Call – Procedural Application Programming Interface (API)
- Shield the COBOL PL/1 Programmer from knowing XML/REST etc.
- Used before API became a popular Web / Restful Service Term

What is needed?

- Generation of Callable Service Interface (Call) for COBOL / PL/I
- Processing of all TCPIP Services for Target Service
- Dynamic Marshaling / Parsing of all XML and/or JSON (*ASCII-EBCDIC*)

Callable(outbound Services)

?

Callable(outbound Services)

- COBOL – PL/1
- IMS MP/BMP
- CICS Program
- Batch Program
- IDMS????

- OpenAPI v?
- Swagger
- YAML
- JSON
- WSDL
- ?

Callable(outbound Services)

- COBOL – PL/1
- IMS MP/BMP
- CICS Program
- Batch Program
- IDMS????

- Locate Service to call
- Import message format
- Generate COBOL- PL/1 Stub code
- Provide intermediary server
- Incorporate Logic with Stub code
- Deploy/Test

- OpenAPI v*x.y*
- Swagger
- YAML
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- ?

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Callable(outbound Services)

- Locate Service to call
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- Deploy

https://maps.googleapis.com/maps/api/geocode/json?place_id=ChIJd8BlQ2BZwokRAFUEcm_qrcA&key=YOUR_API_KEY

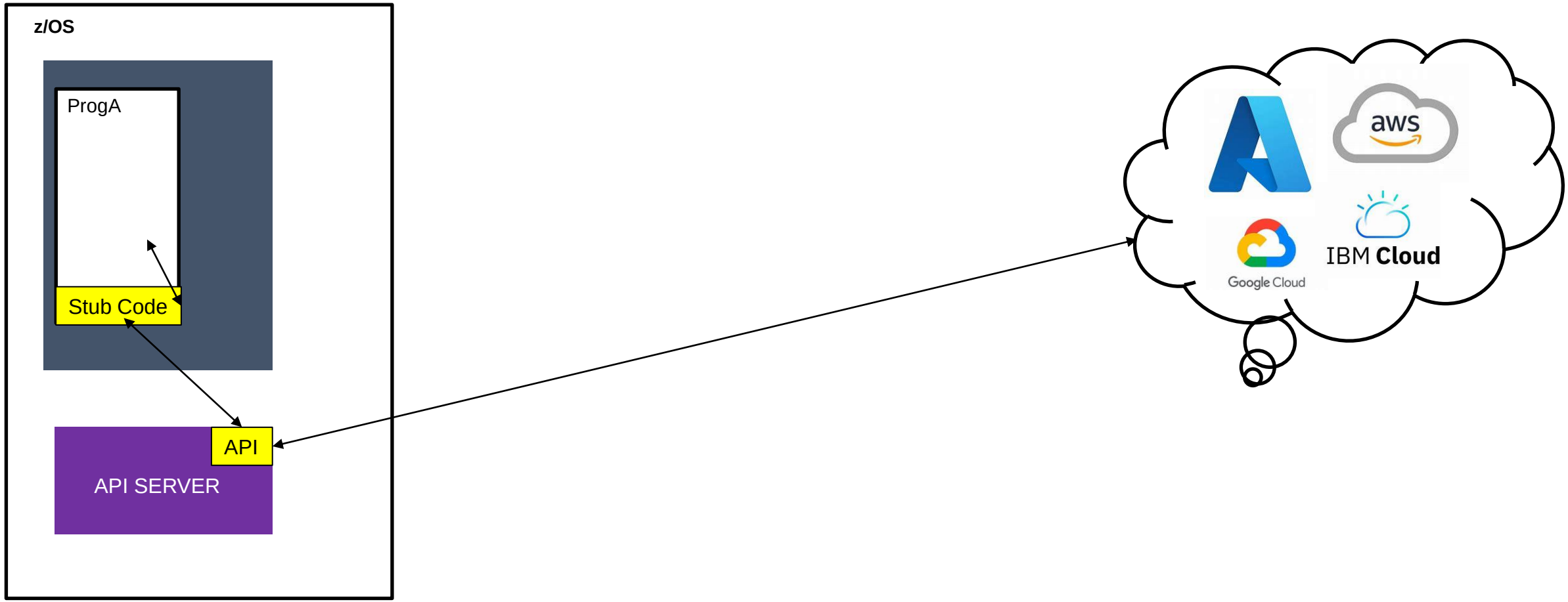

```
"results" : [
{
"address_components" : [
{
"long_name" : "277",
"short_name" : "277",
"types" : [ "street_number" ]
},
{
"long_name" : "Bedford Avenue",
"short_name" : "Bedford Ave",
"types" : [ "route" ]
},
{
"long_name" : "Williamsburg",
"short_name" : "Williamsburg",
"types" : [ "neighborhood", "political" ]
},
{
"long_name" : "Brooklyn",
"short_name" : "Brooklyn",
"types" : [ "political", "sublocality",
"sublocality_level_1" ]
},
}
],
"formatted_address" : "277 Bedford Ave, Brooklyn, NY 11211,
USA",
"geometry" : {
"location" : {
"lat" : 40.7142205,
"lng" : -73.9612903
},
"location_type" : "ROOFTOP",
"viewport" : {
"northeast" : {
"lat" : 40.71556948029149,
"lng" : -73.95994131970849
},
"southwest" : {
"lat" : 40.7128715197085,
"lng" : -73.9626392802915
}
}
},
"place_id" : "ChIJd8BlQ2BZwokRAFUEcm_qrcA",
"types" : [ "street_address" ]
```


```
05 Google-ADDRESS PIC X(30).

05 RESULTS  OCCURS 10 TIMES .
        10 FORMATTED-ADDRESS PIC X
        10 LAT PIC X(30).
        10 LON PIC X(30).
        10 LOCATION-TYPE PIC X(30).
        10 PARTIAL-MATCH PIC X(30).
    05 ERROR-MESSAGE PIC X(30).
```


Mainline INFORMATION SYSTEMS

Callable(outbound Services)



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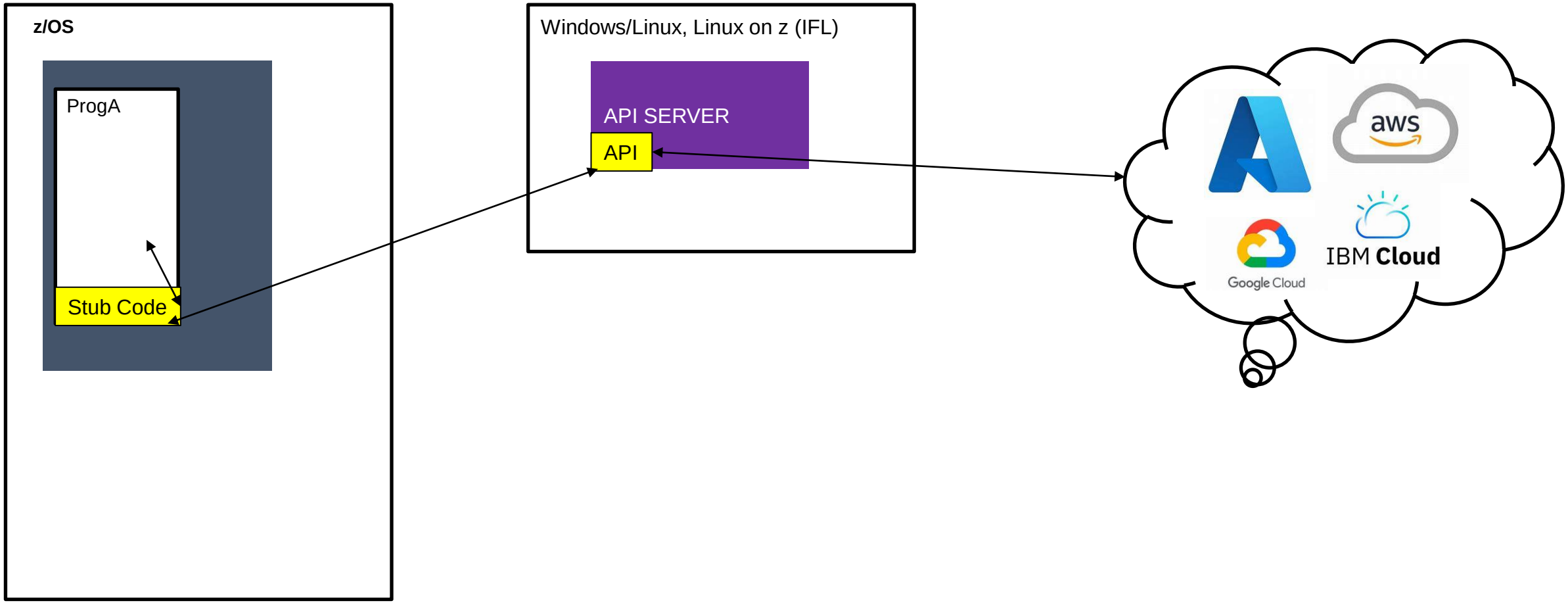

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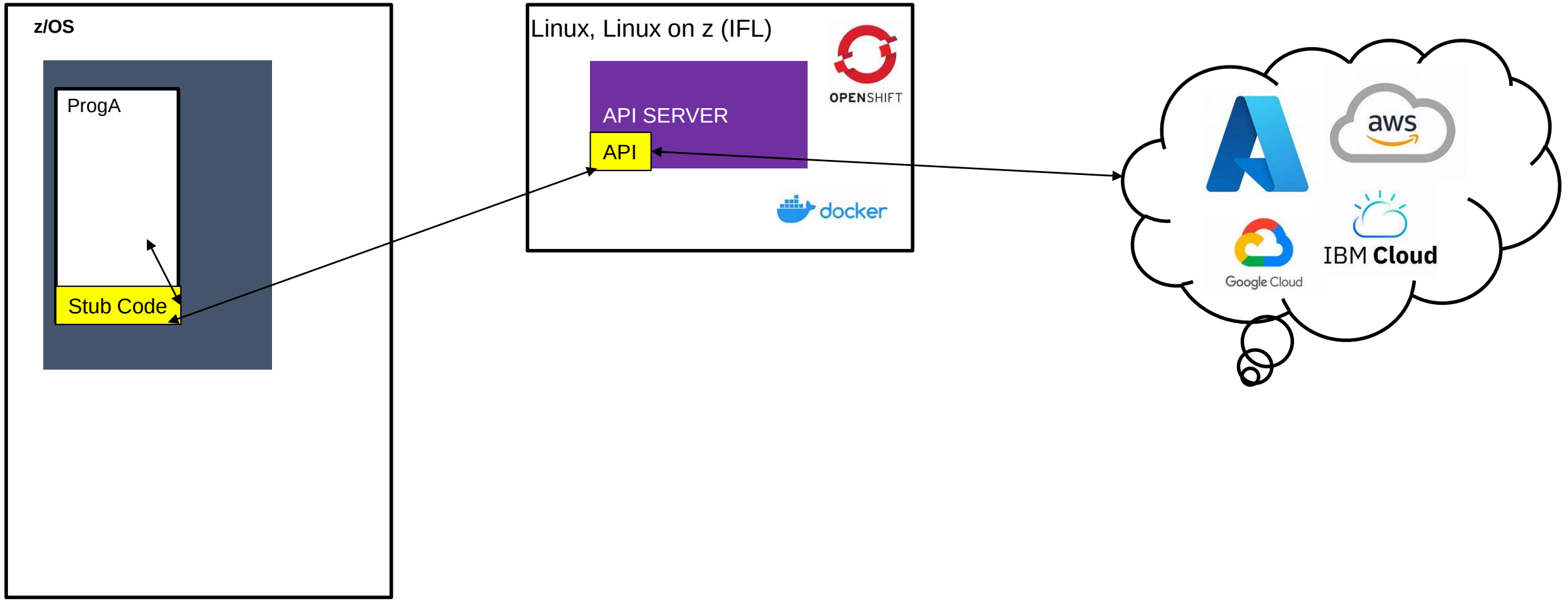

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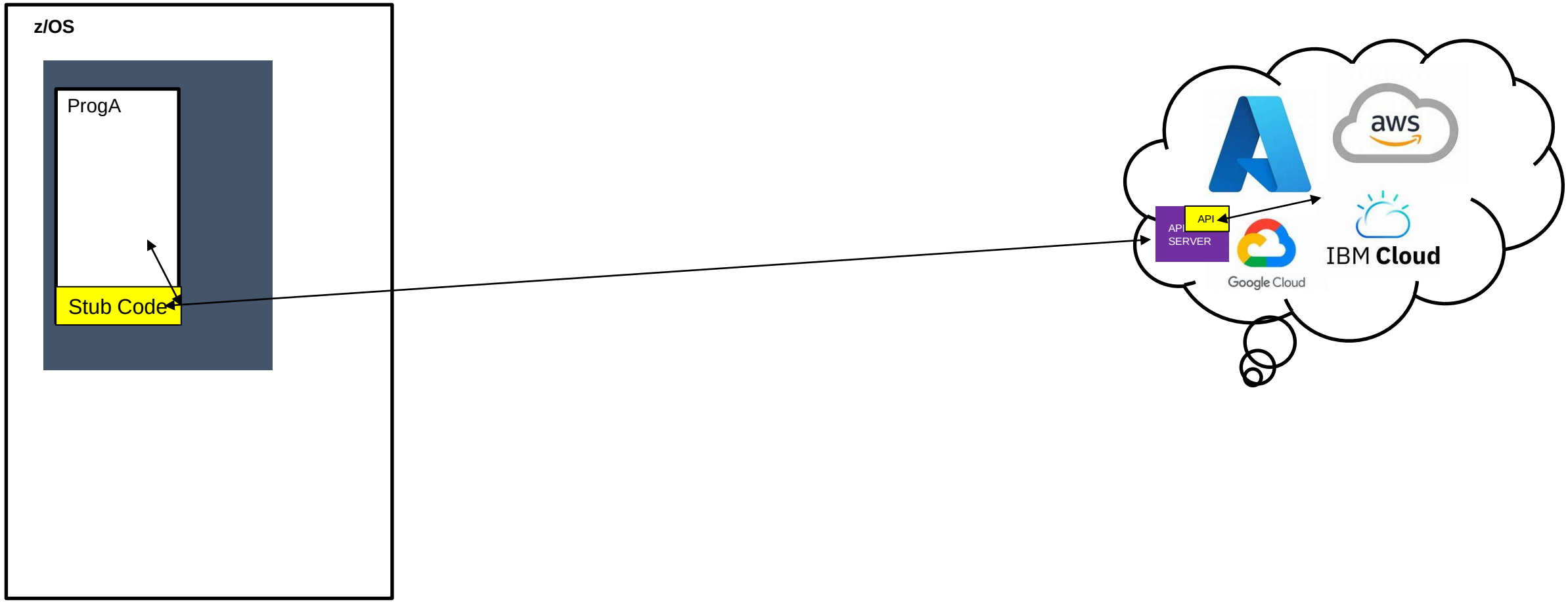

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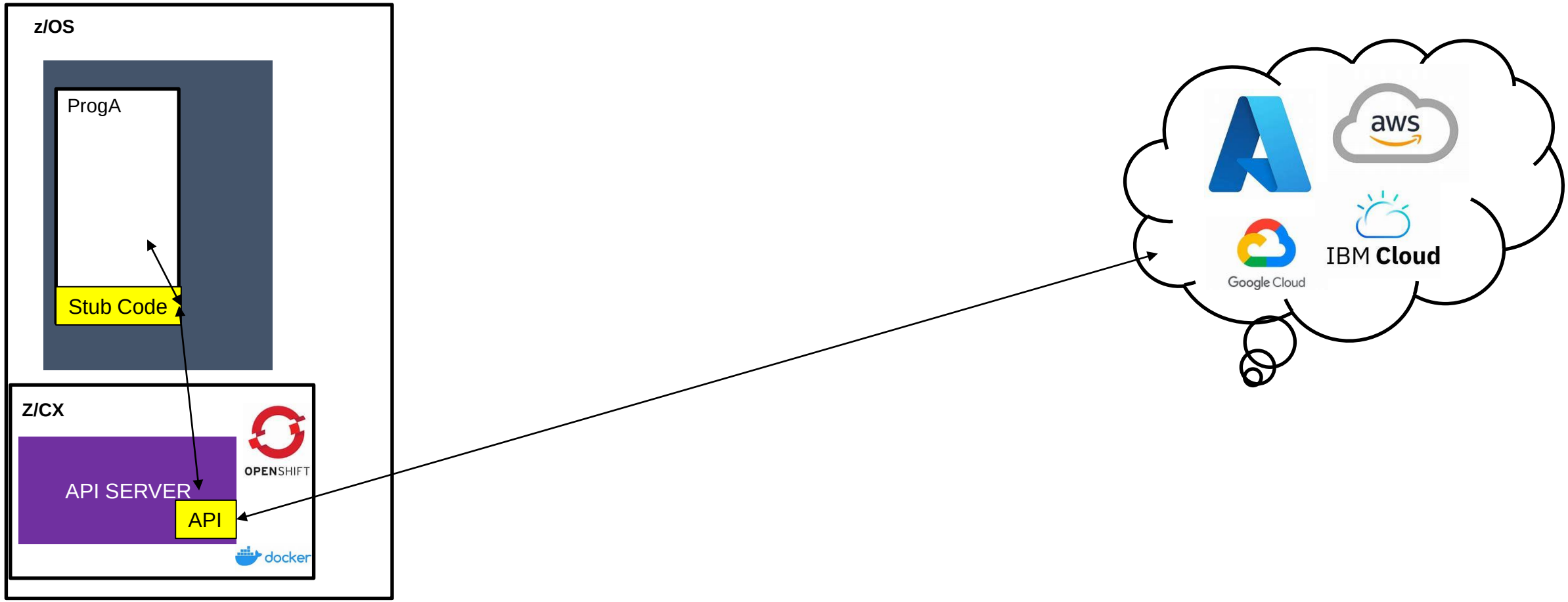

Case Study: Large Bank #1

Challenge

A large 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 an IMS PL/1 program in their mainframe-based core banking system.

Case Study: Large Swiss Bank #1

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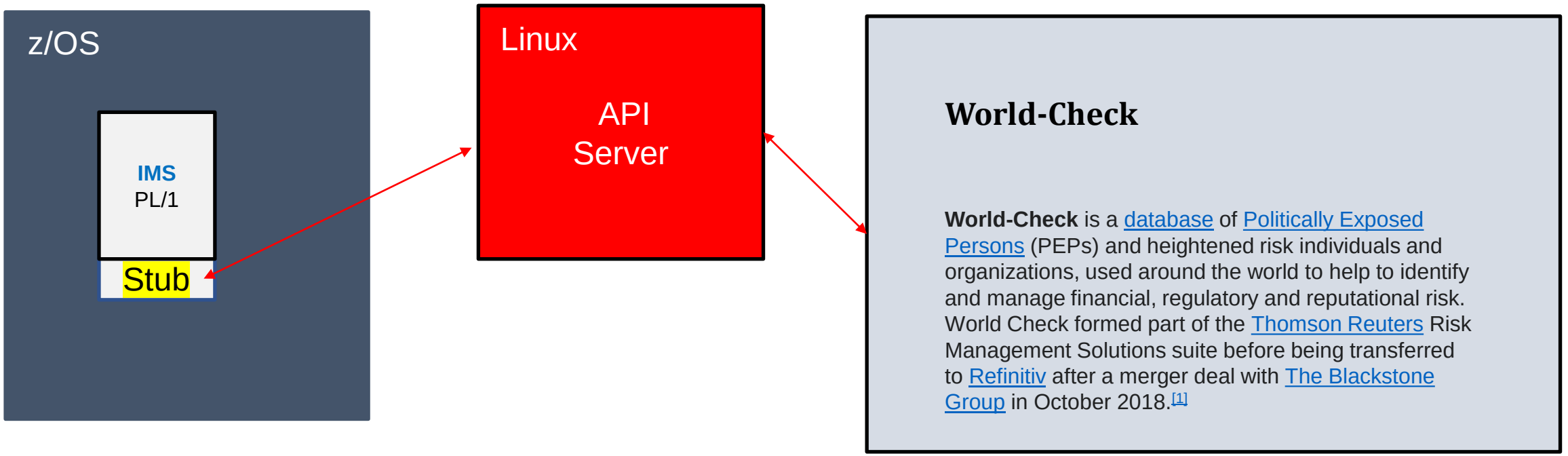

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Solution

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 (web,3270,Program).

Results

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

Case Study: National Testing Service #2

Challenge

A National testing/certification service almost failed a PCI audit, they realized they needed to change the way they authorized credit transactions and needed to real-time call and authorize the charges. They also needed to get GEOCODE data to their IDMS/DC and CICS Applications to provide information on testing center location.

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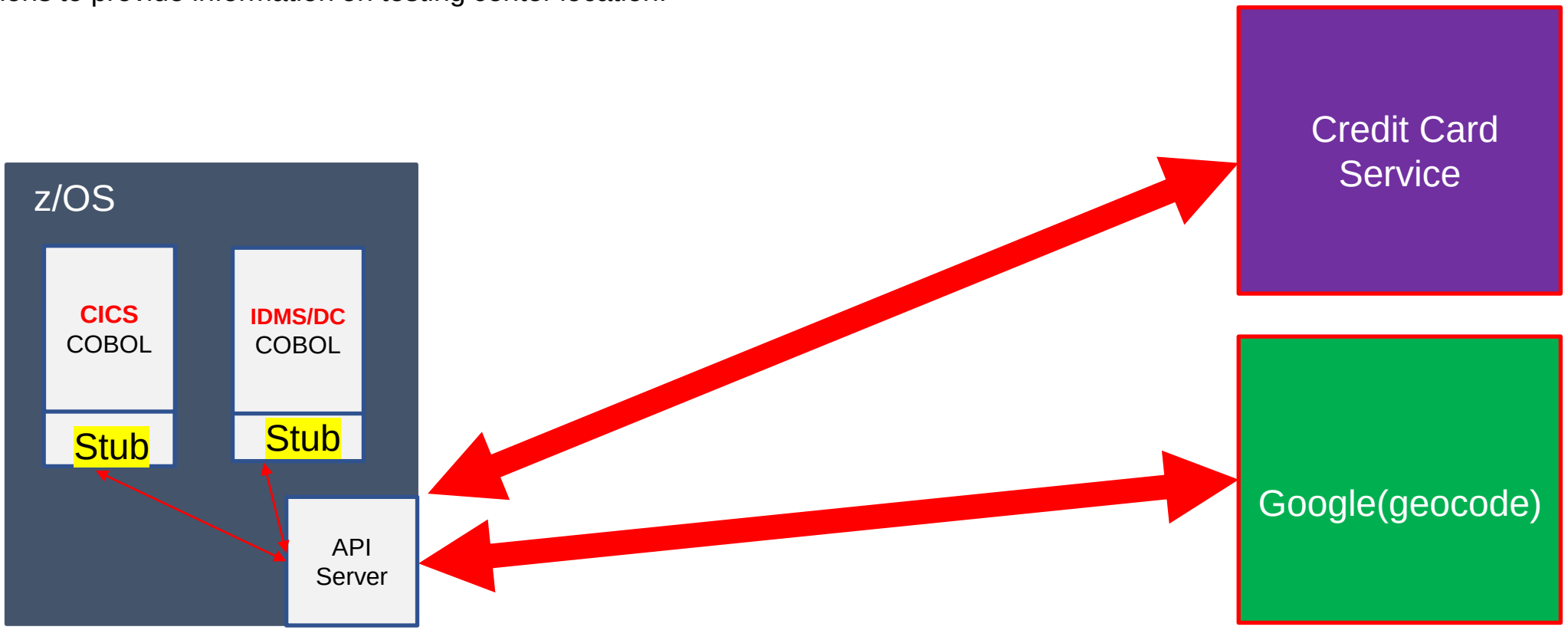

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Solution

The service was able to implement both solutions(use cases) 1) Satisfy the PCI Audit for the credit card, and 2) provide information for site location by creating a solution that could be used with minimal changes to the existing applications an provide new functionality in both applications.

Results

The service was able to implement both solutions(use cases) with minimal changes and 1) Satisfy the PCI Audit for the credit card, and 2) provide information for site location.

Case Study: Bank #3

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** (Know Your Customer) guidelines – all in ***real time***. (Real Time Payments). IMS PL/1 and COBOL

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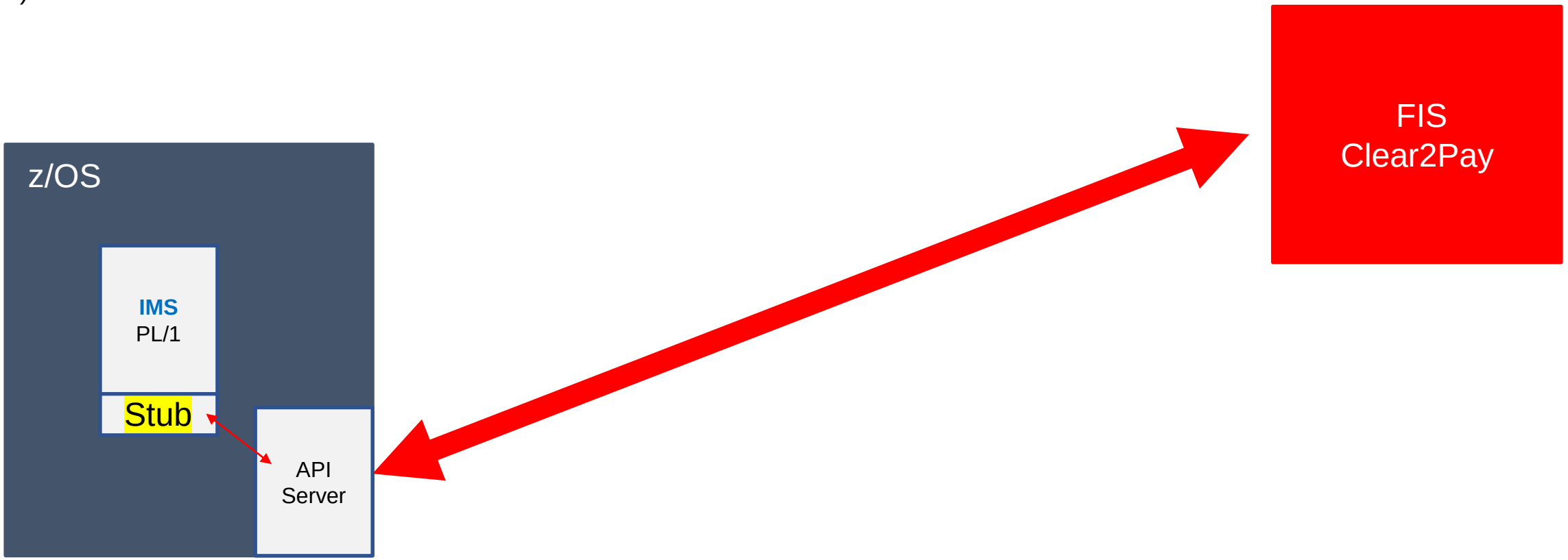

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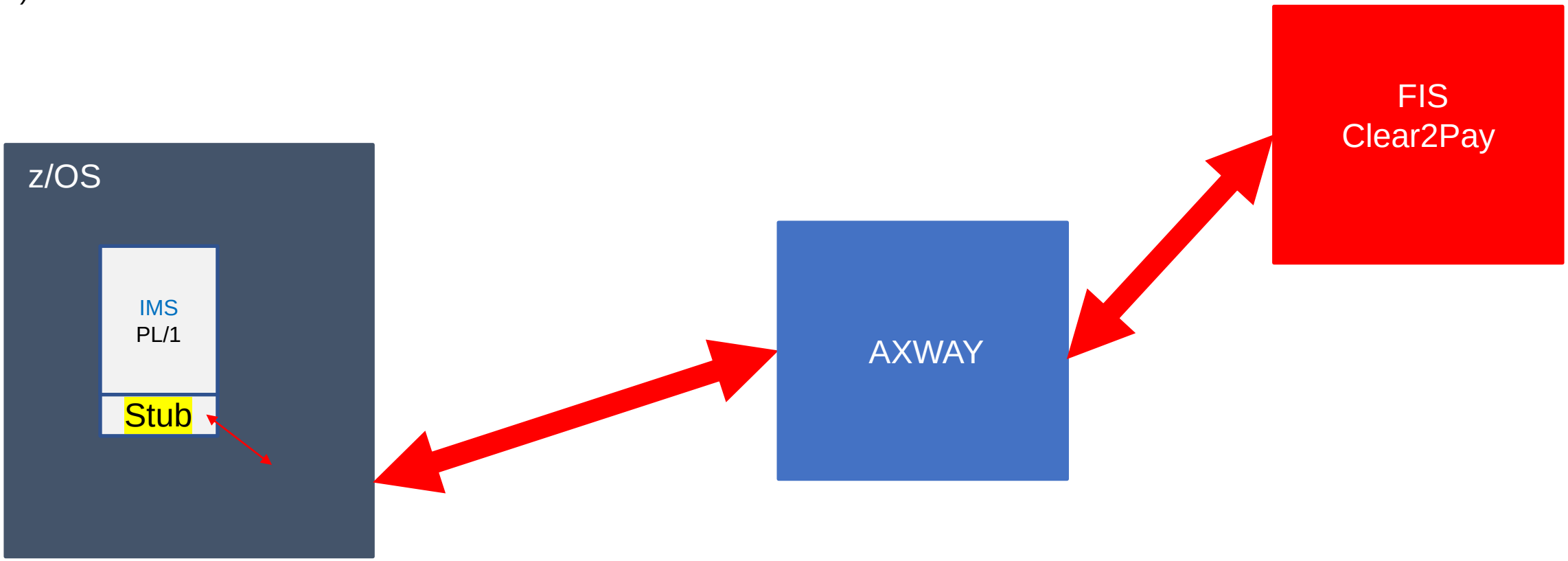

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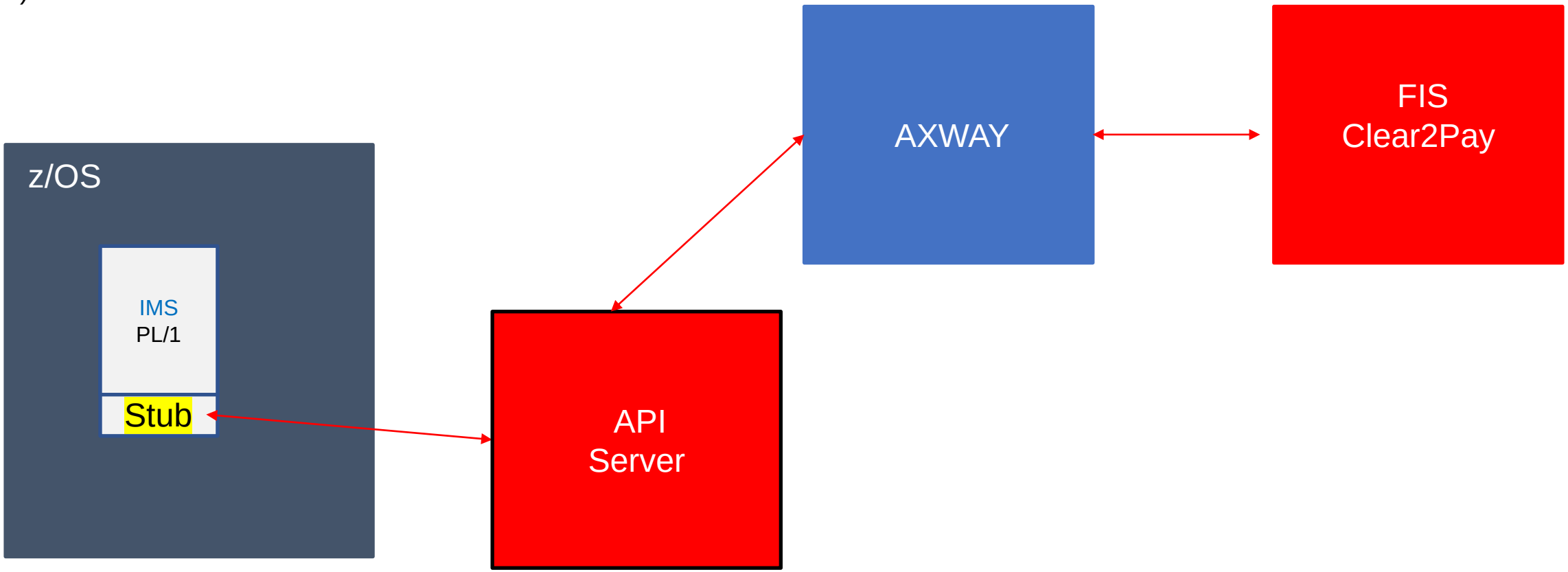

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Solution

The Bank 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: Airline #4

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. They also discovered that their Printer management system was a windows-based system that the mainframe **IMS COBOL** applications needed to communicate with.

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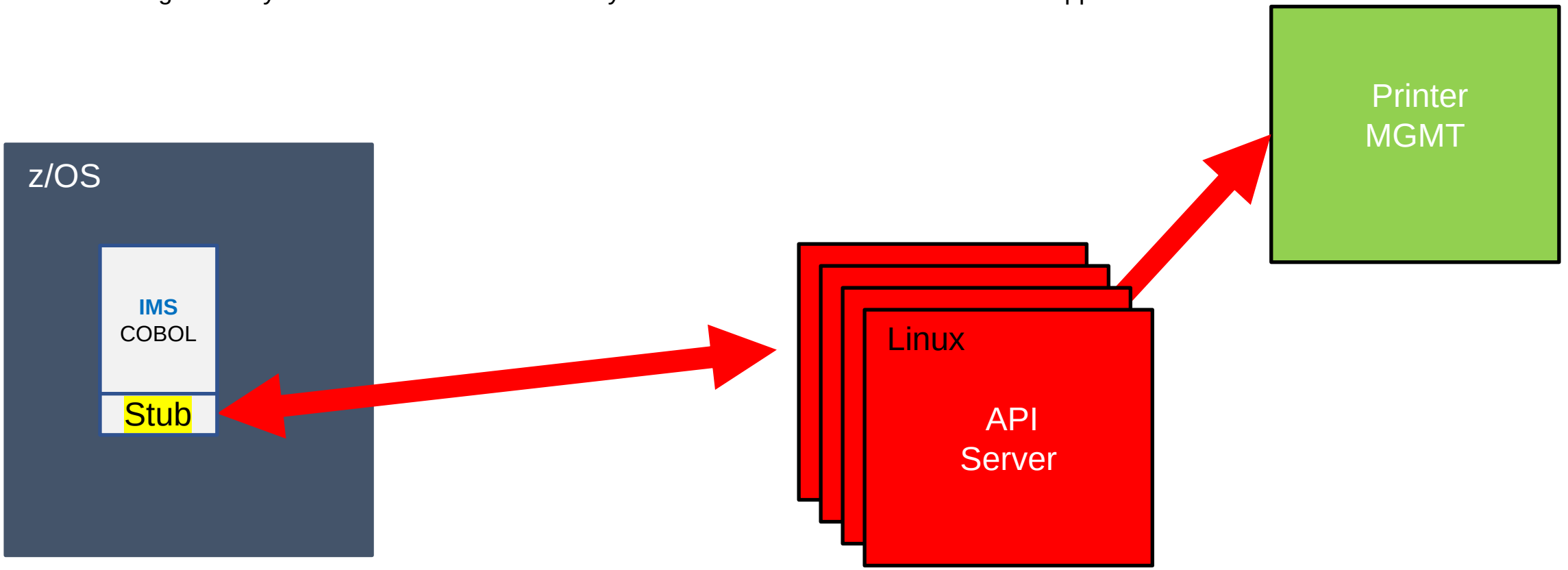

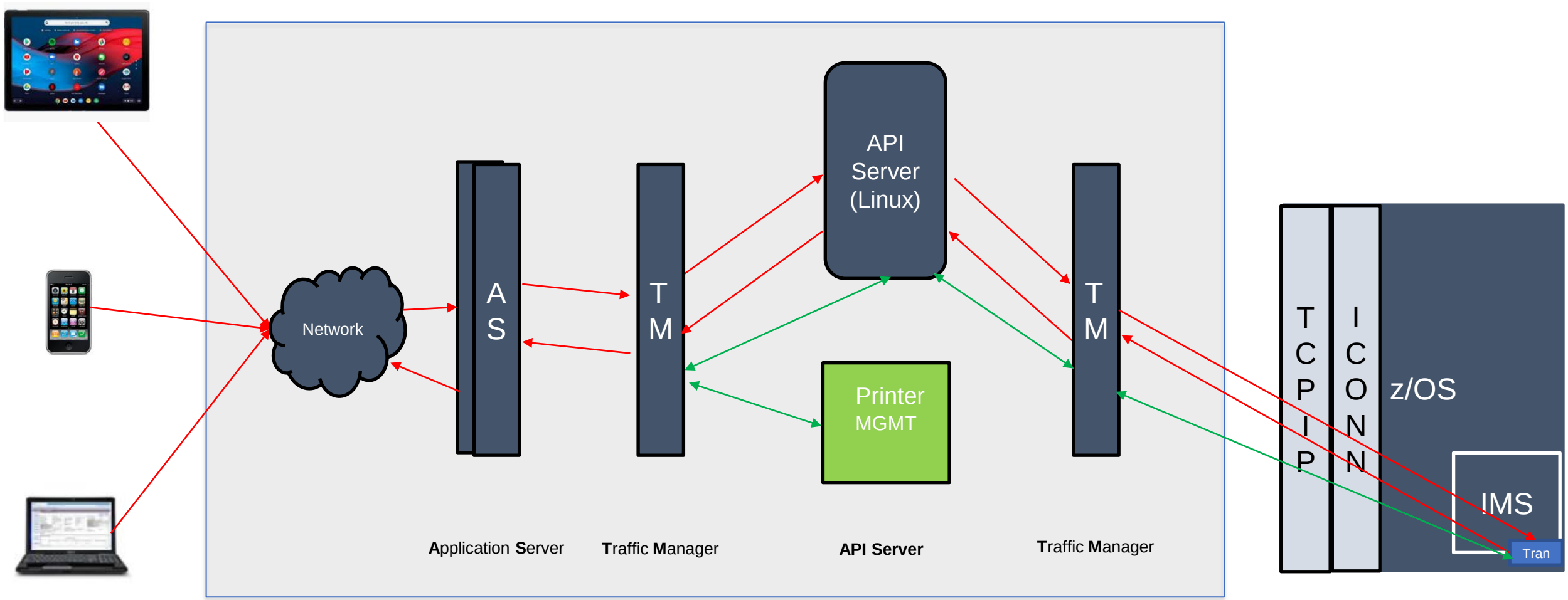

Complete DevOps CI/CD Pipeline

Case Study: Major US based Food Supplier #5

Challenge

As a result of acquisitions, they needed the ability to provide visibility into their mainframe business systems across lines of business. One direction was to provide a uniform order tracking system and the ability to reflect order information, inventory and logistics into **SAP**.

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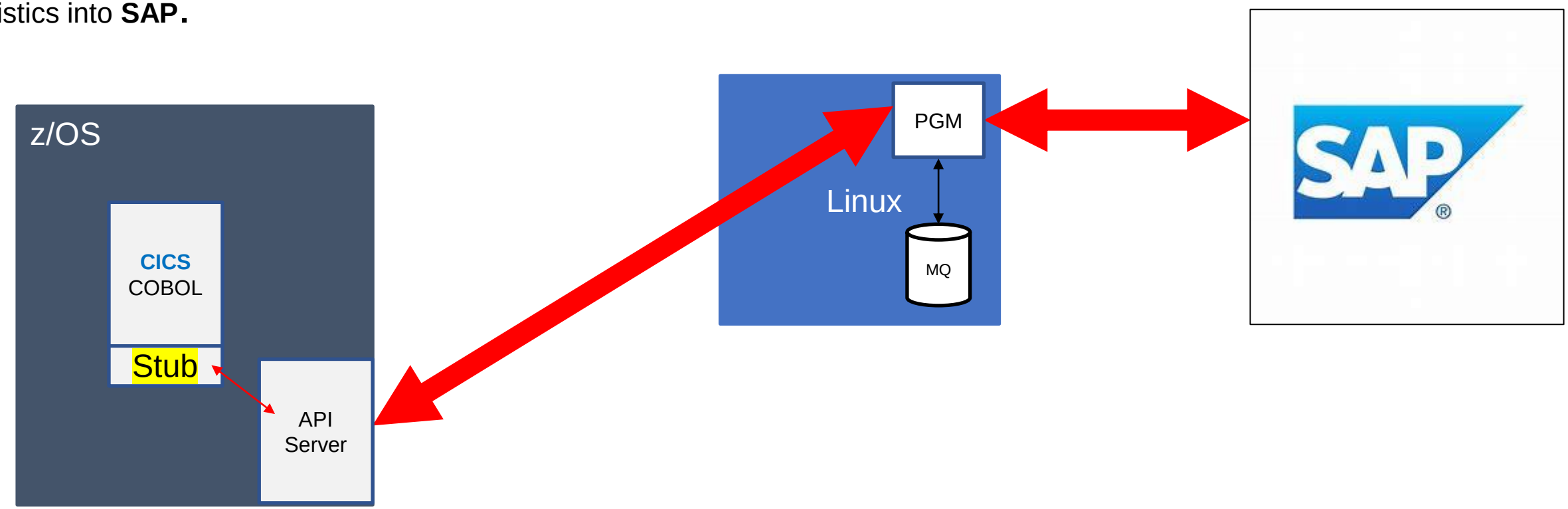

Case Study: Major US based Food Supplier

Challenge

As a result of acquisitions, they needed the ability to provide visibility into their mainframe business systems across lines of business. One direction was to provide a uniform order tracking system and the ability to reflect order information, inventory and logistics into SAP.

Solution

They were able to rapidly generate a unified set of APIs connecting to multiple mainframe systems in order to open up the systems They also built the necessary components for their legacy CICS COBOL applications to callout to SAP to post real time updates on orders and inventory

Results

They were able to meet their goals and provide real time visibility across all lines of business and integrate with SAP

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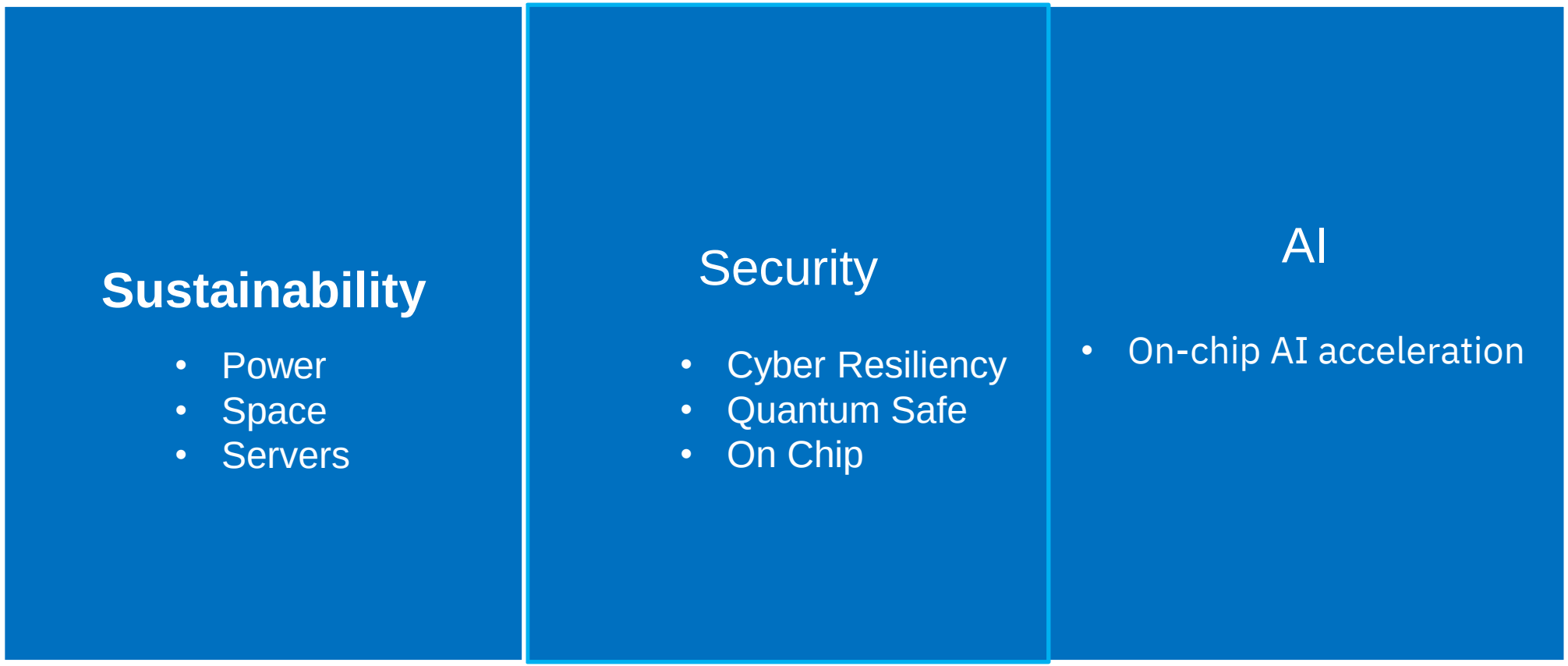
- Need to migrate applications/data off mainframe(cloud)
- THREE NEW ONES !!!!!!!!!!!

Mainframe Modernization???????



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Additional Information

- Accelerate Mainframe Application Modernization with Hybrid Cloud
  - Accelerate Mainframe Application Modernization with Hybrid Cloud (ibm.com)

- An Economic Model for Optimizing Technology Investments
  - Technical Report | The Economics of Technology Investments (broadcom.com) – requires registration

- Other Mainline Events for 2023
  - Mainline Information Systems - Events