CICS in an API World

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The History of APIs

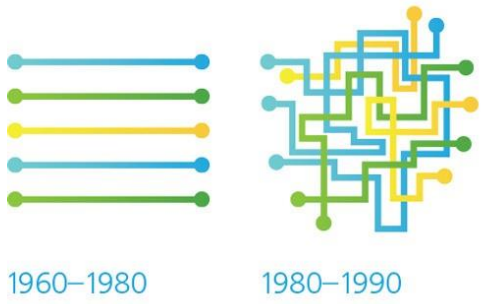
1960–1980

Point to Point

Application
specific interfaces

source: http://dupress.com/articles/tech-trends-2015-what-is-api-economy/

The History of APIs



Point to Point

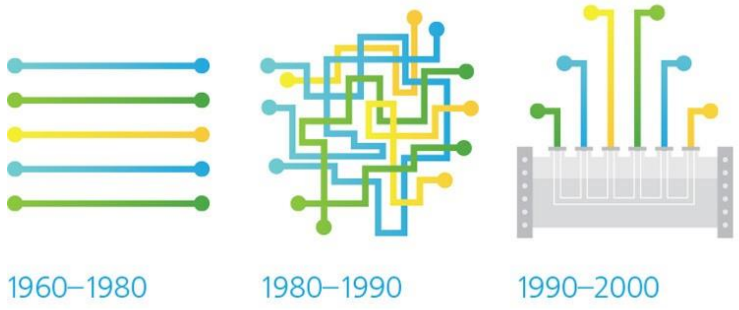
Application specific interfaces

Interface Reuse

Generic interfaces called by many applications

source: http://dupress.com/articles/tech-trends-2015-what-is-api-economy/

The History of APIs



Point to Point

Application specific interfaces

Interface Reuse

Generic interfaces called by many applications

SOA

Focus on making it easier to provide and manage interfaces

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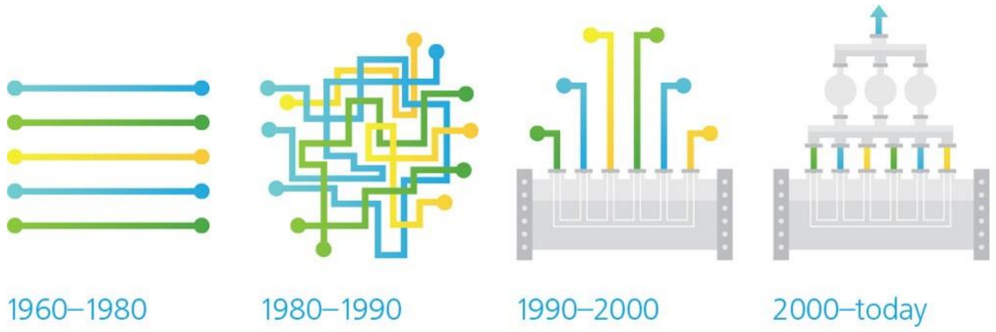
The History of APIs



Point to Point

Application specific interfaces

Interface Reuse

Generic interfaces called by many applications

SOA

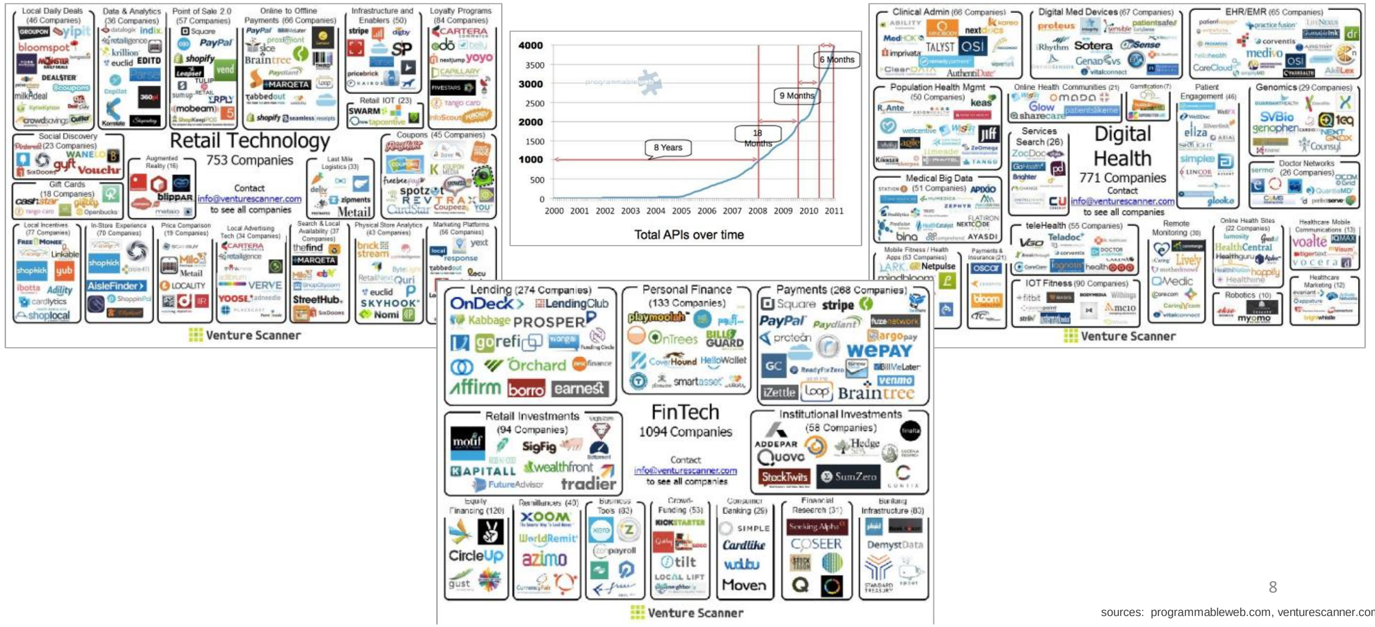
Focus on making it easier to provide and manage interfaces

API Economy

Focus on making it easier to discover, consume and combine interfaces

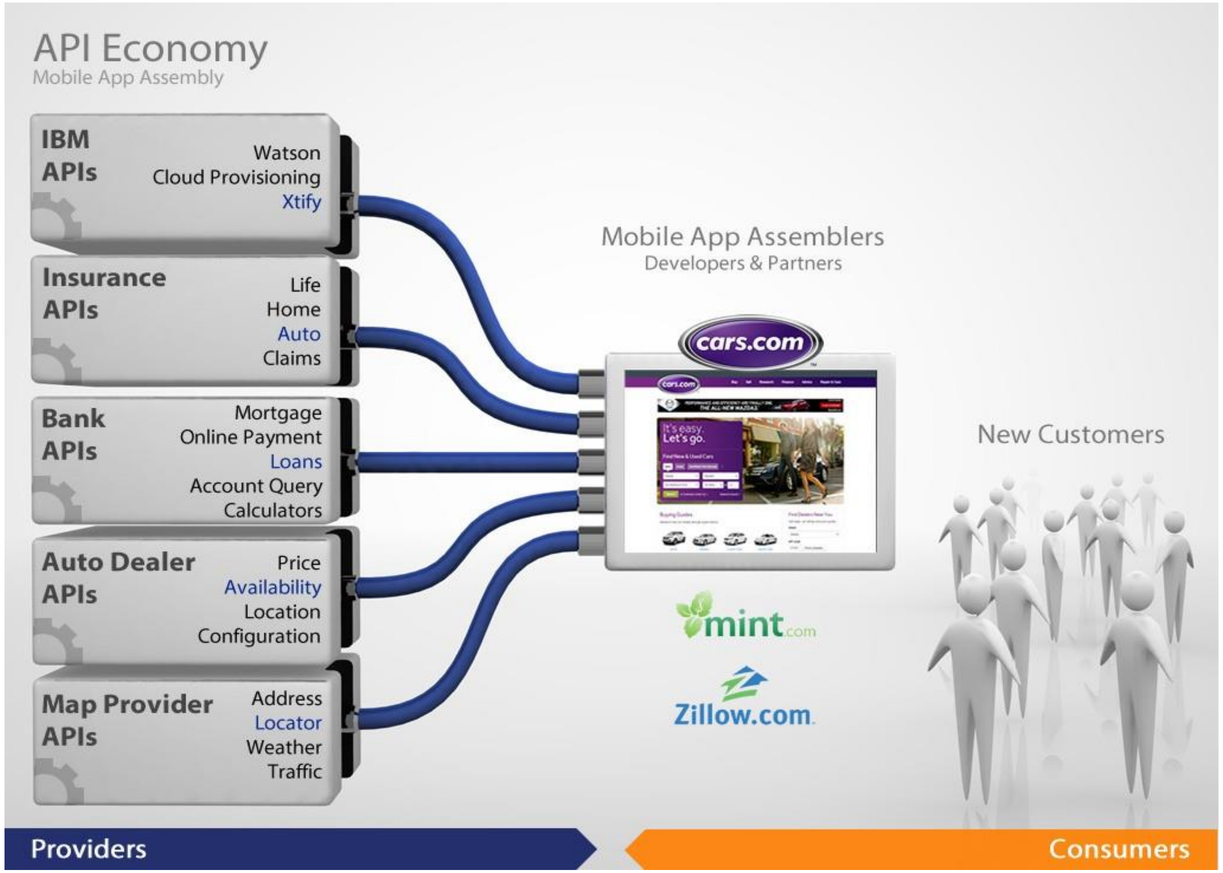
source: http://dupress.com/articles/tech-trends-2015-what-is-api-economy/

We are living through an API revolution



sources: programmableweb.com, venturescanner.com

The Emerging API Economy for Digital Enterprises

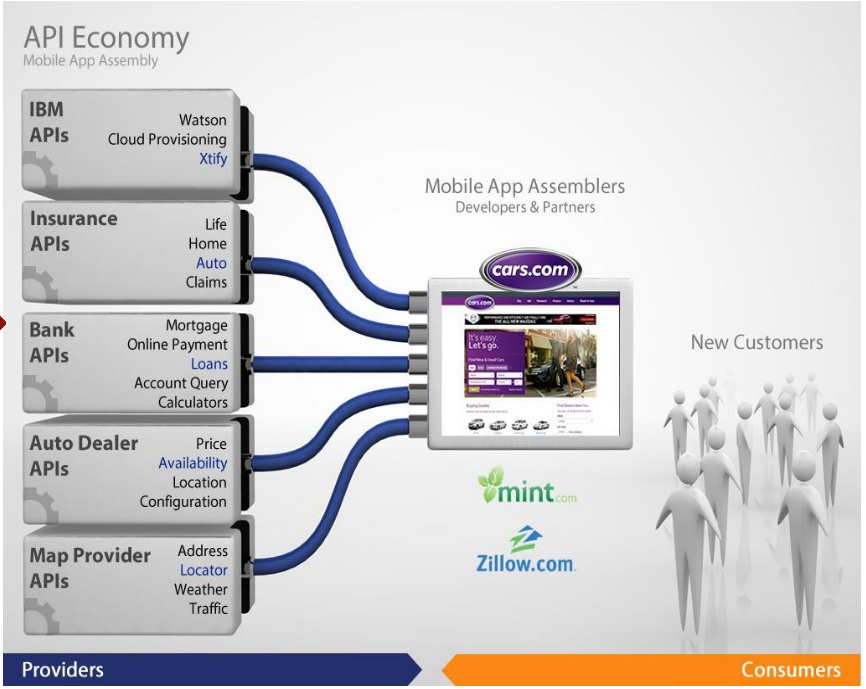


Source: IBM

How to Make Everything Work Together?

API's

REST/JSON,SOAP,JDBC,ODBC



How to Make Everything Work Together?

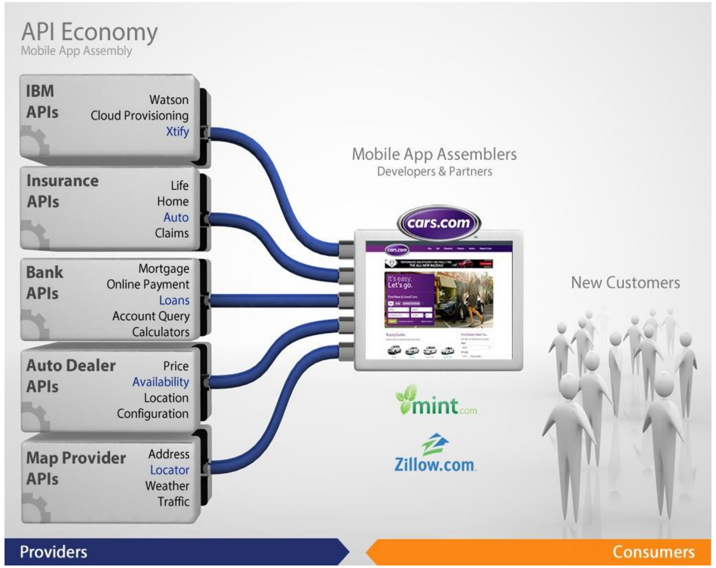
Mainframe Connectors ⟷ Business Services

API's

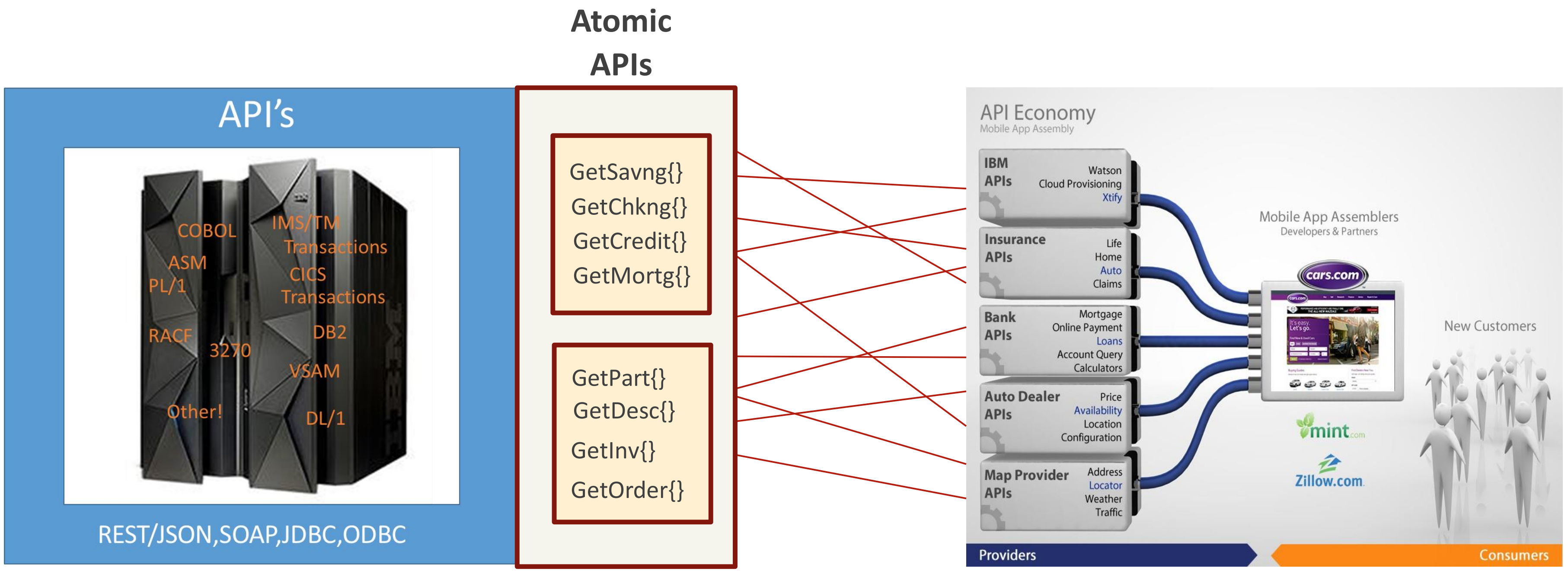
REST/JSON,SOAP,JDBC,ODBC

- z/OS Connect Enterprise Edition
- CICS Transaction Gateway (CTG)
- CICS Web Services (CWS)
- HOSTBRIDGE
- IMS CONNECT
- TN3270
- SQL to Data

?



How to Make Everything Work Together?



How to Make Everything Work Together?

API's

REST/JSON,SOAP,JDBC,ODBC

Atomic APIs

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

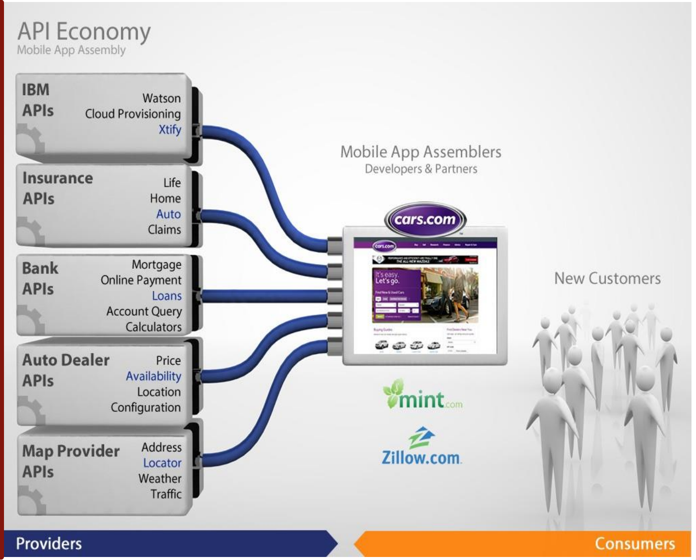
GetPart{}
GetDesc{}
GetInv{}
GetOrder{}

Composite APIs

GetCust{}

GetStatus{}

ListCust{}



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Mainframe Connectors ⟷ Business Services

API's

REST/JSON,SOAP,JDBC,ODBC

- z/OS Connect Enterprise Edition
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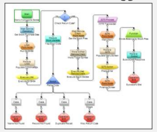
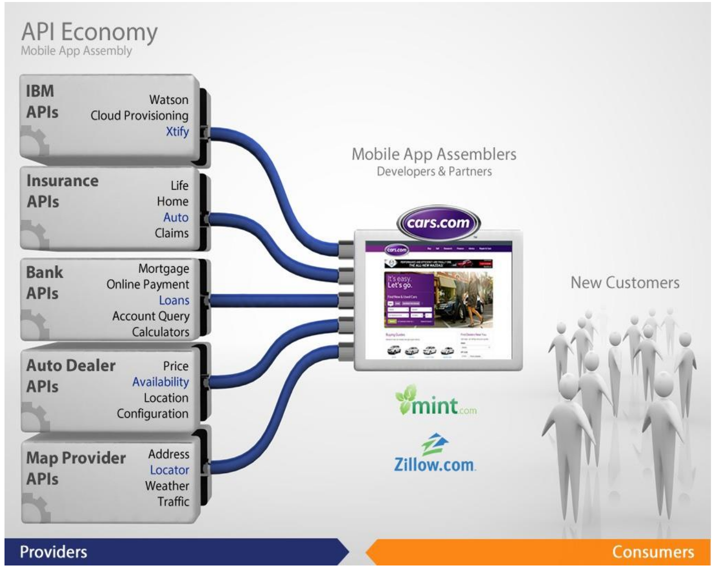
- SQL to Data

Business API

GetCust{}



Orchestrated Workflow



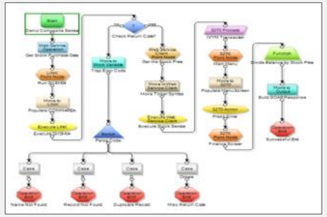
How to Make Everything Work Together?

API's

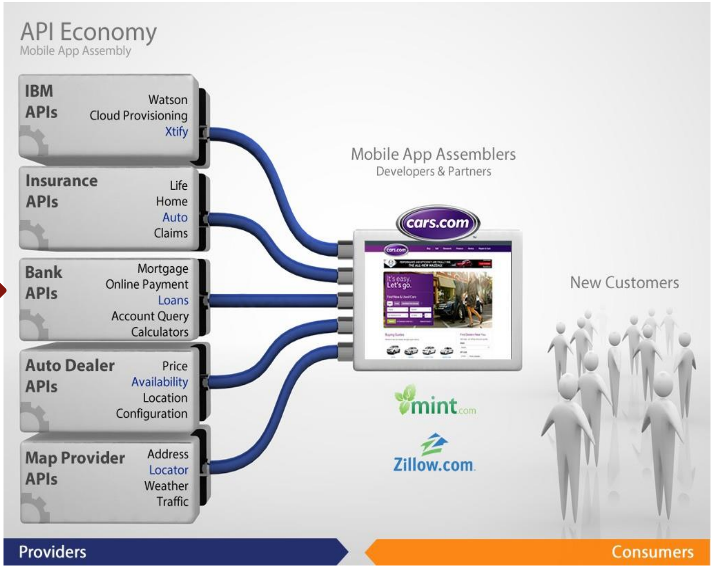
REST/JSON,SOAP,JDBC,ODBC

Ivory®

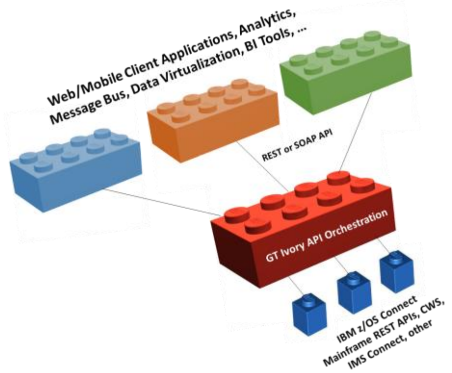
Business API

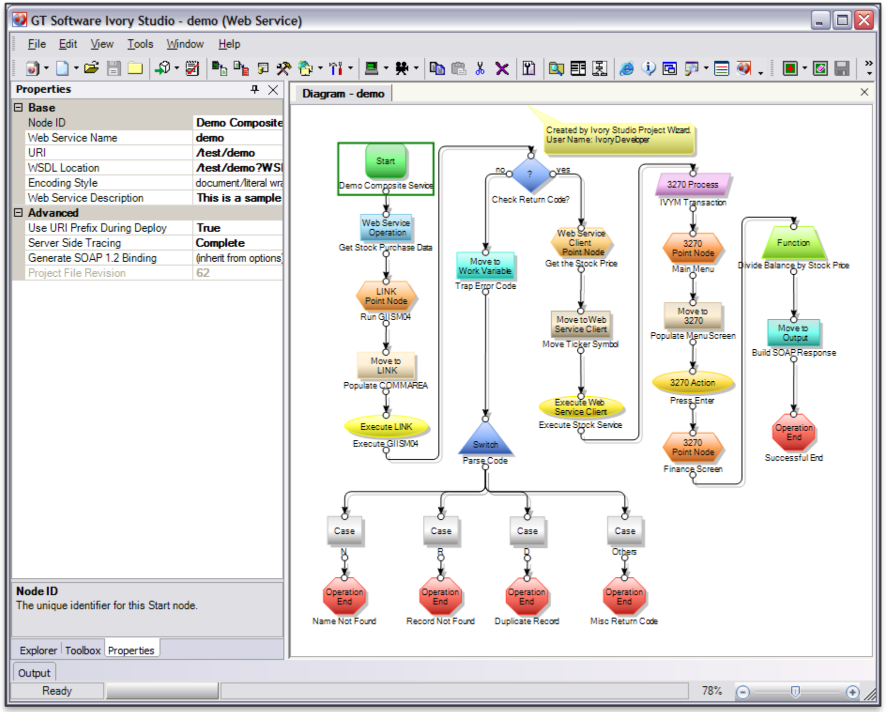


Intelligent Orchestrated Workflow



GT Ivory Orchestration Workflow


Web/Mobile Client Applications, Analytics, Message Bus, Data Virtualization, BI Tools, …
REST or SOAP API
GT Ivory API Orchestration
IBM z/OS Connect
Mainframe REST APIs, CWS, IMS Connect, other



Properties

Base	
Node ID	Demo Composite
Web Service Name	demo
URI	/test/demo
WSDL Location	/test/demo?WSI
Encoding Style	document/literal wra
Web Service Description	This is a sample
Advanced	
Use URI Prefix During Deploy	True
Server Side Tracing	Complete
Generate SOAP 1.2 Binding	(inherit from options)
Project File Revision	62

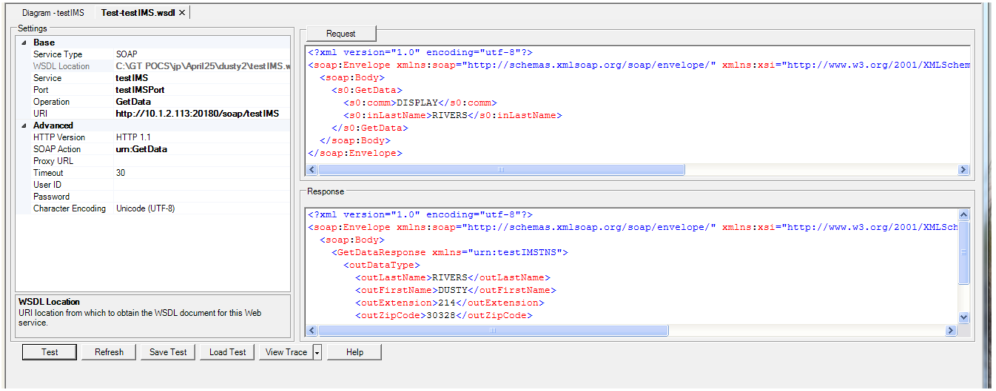
Node ID
The unique identifier for this Start node.

Intelligent Composite API:

- Multiple transactions
- Multiple data sources
- External web services and APIs
- Conditional Logic
- Error handling
- Governance and security
- Drag-and-drop (no coding) SDK
- Shared 'business' APIs across consumers
- No 'low level' coding and management of mainframe connectors
- Easy, fast, and agile development

GT Ivory Generated SOAP and REST APIs

SOAP Service Example



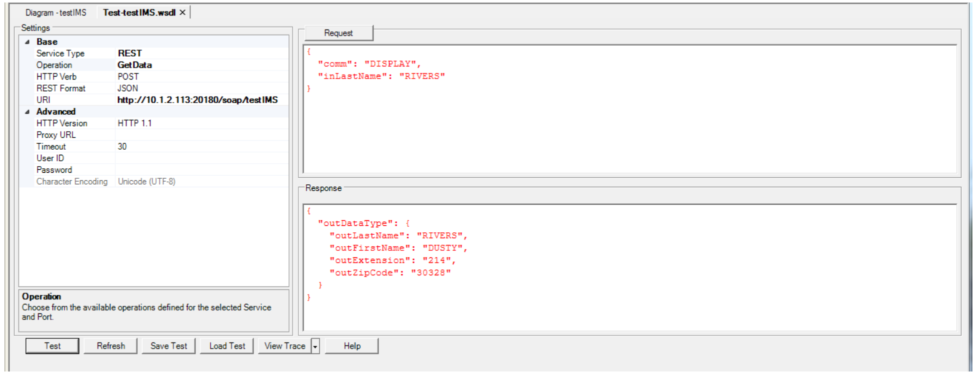
Base	
Service Type	SOAP
WSDL Location	C:\GT POCS\jp\April25\dusty2\testIMS.w
Service	**testIMS**
Port	**testIMSPort**
Operation	**GetData**
URI	**http://10.1.2.113:20180/soap/testIMS**
Advanced	
HTTP Version	HTTP 1.1
SOAP Action	**urn:GetData**
Proxy URL	
Timeout	30
User ID	
Password	
Character Encoding	Unicode (UTF-8)

WSDL Location
URI location from which to obtain the WSDL document for this Web service.

```
<?xml version="1.0" encoding="utf-8"?>
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/" xmlns:xsi="http://www.w3.org/2001/XMLSchem
  <soap:Body>
    <s0:GetData>
      <s0:comm>DISPLAY</s0:comm>
      <s0:inLastName>RIVERS</s0:inLastName>
    </s0:GetData>
  </soap:Body>
</soap:Envelope>
```

```
<?xml version="1.0" encoding="utf-8"?>
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/" xmlns:xsi="http://www.w3.org/2001/XMLSch
  <soap:Body>
    <GetDataResponse xmlns="urn:testIMSTNS">
      <outDataType>
        <outLastName>RIVERS</outLastName>
        <outFirstName>DUSTY</outFirstName>
        <outExtension>214</outExtension>
        <outZipCode>30328</outZipCode>
```

REST Service Example



Base	
Service Type	**REST**
Operation	**GetData**
HTTP Verb	POST
REST Format	JSON
URI	**http://10.1.2.113:20180/soap/testIMS**
Advanced	
HTTP Version	HTTP 1.1
Proxy URL	
Timeout	30
User ID	
Password	
Character Encoding	Unicode (UTF-8)

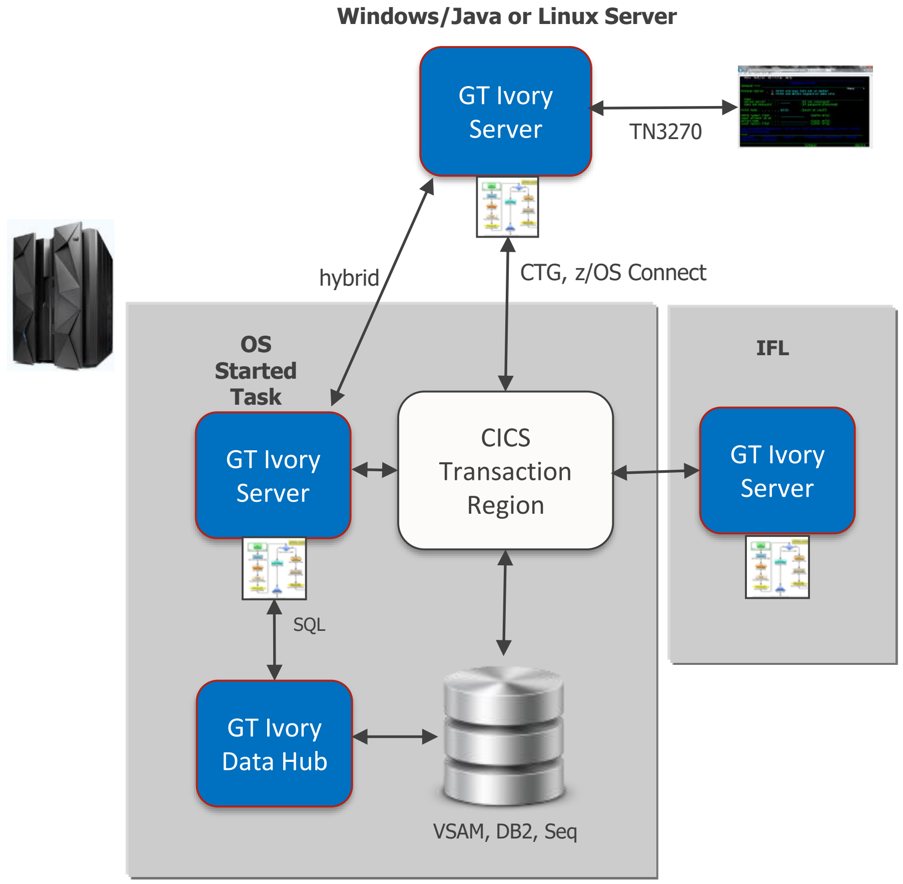
Operation
Choose from the available operations defined for the selected Service and Port.

```
{
  "comm": "DISPLAY",
  "inLastName": "RIVERS"
}
```

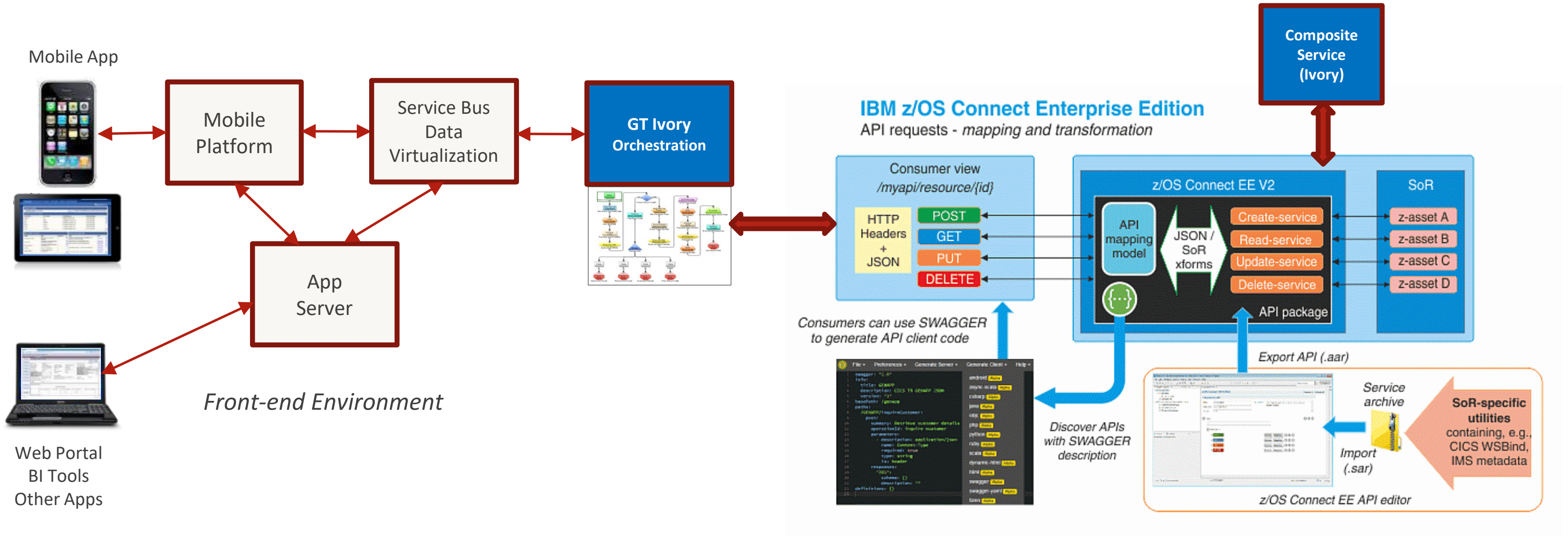
```
{
  "outDataType": {
    "outLastName": "RIVERS",
    "outFirstName": "DUSTY",
    "outExtension": "214",
    "outZipCode": "30328"
  }
}
```

- 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

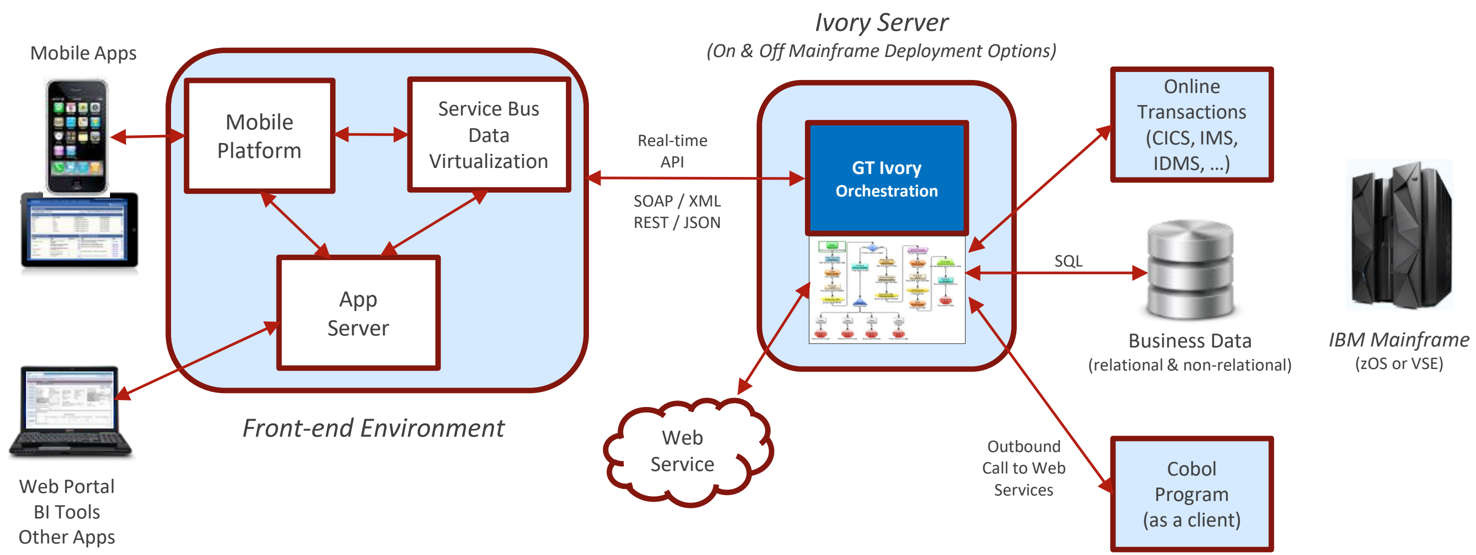
GT Ivory On and Off Mainframe Deployment Options



GT Ivory Orchestration with IBM z/OS Connect



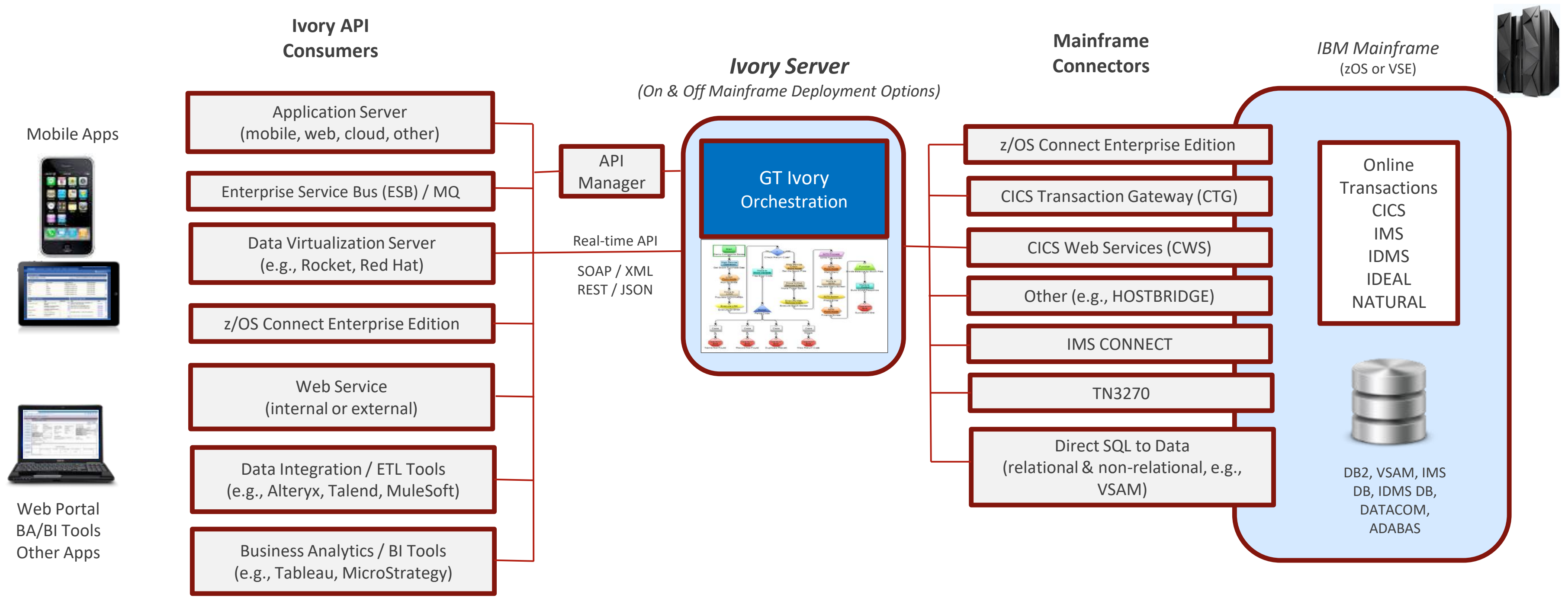
GT Ivory Orchestration for z/OS and VSE



Connectors

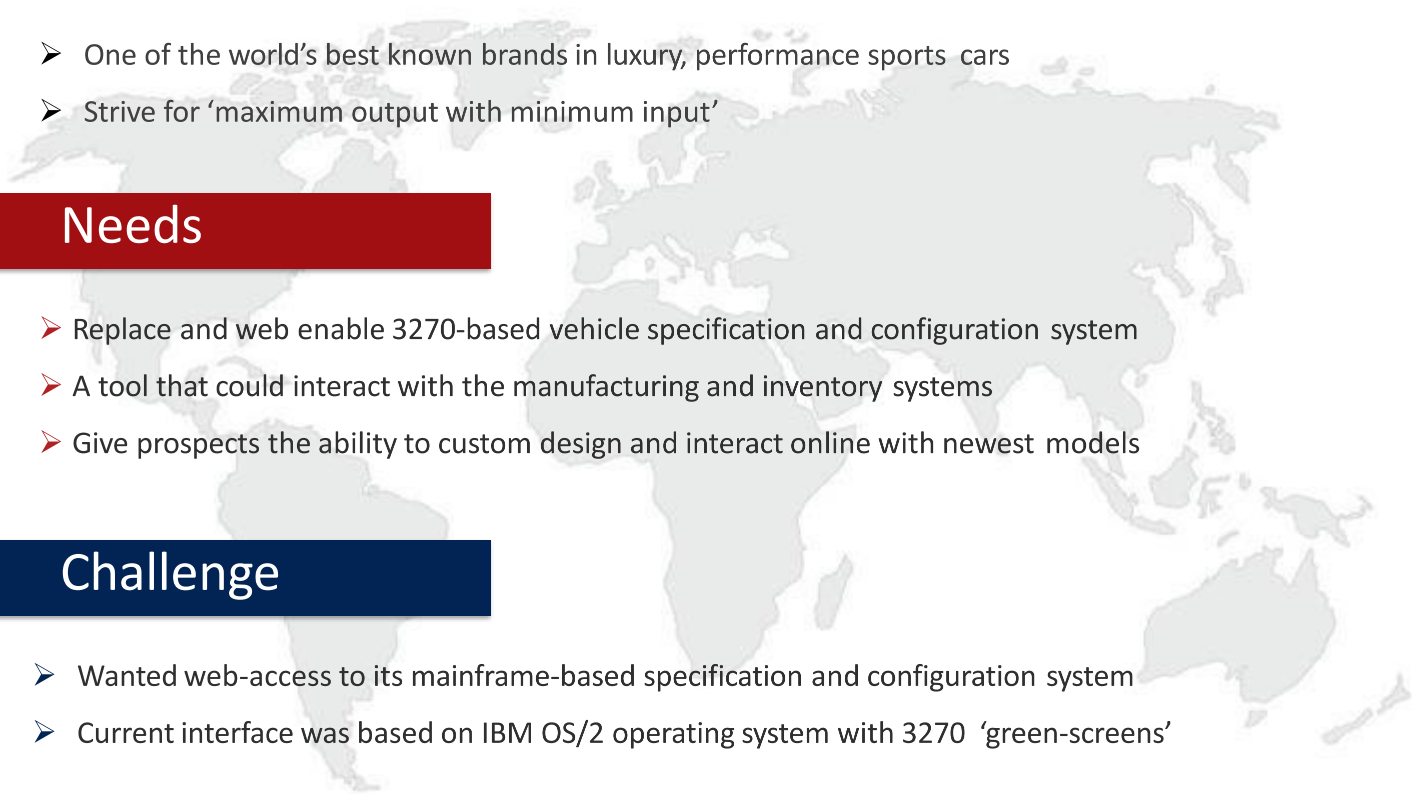
- *CICS TRANSACTION GATEWAY*
- *CICS WEB SERVICES (CWS)*
- *IMS CONNECT*
- *IMS SOAP GATEWAY*
- *Z/OS CONNECT*
- *HOSTBRIDGE®*
- *TN3270*

GT Ivory Orchestration Uses



Ivory API Consumers
Mobile Apps
Web Portal
BA/BI Tools
Other Apps
Application Server (mobile, web, cloud, other)
Enterprise Service Bus (ESB) / MQ
Data Virtualization Server (e.g., Rocket, Red Hat)
z/OS Connect Enterprise Edition
Web Service (internal or external)
Data Integration / ETL Tools (e.g., Alteryx, Talend, MuleSoft)
Business Analytics / BI Tools (e.g., Tableau, MicroStrategy)
API Manager
Real-time API
SOAP / XML
REST / JSON
Ivory Server
(On & Off Mainframe Deployment Options)
GT Ivory Orchestration
Mainframe Connectors
z/OS Connect Enterprise Edition
CICS Transaction Gateway (CTG)
CICS Web Services (CWS)
Other (e.g., HOSTBRIDGE)
IMS CONNECT
TN3270
Direct SQL to Data (relational & non-relational, e.g., VSAM)
IBM Mainframe
(zOS or VSE)
Online Transactions
CICS
IMS
IDMS
IDEAL
NATURAL
DB2, VSAM, IMS DB, IDMS DB, DATACOM, ADABAS

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

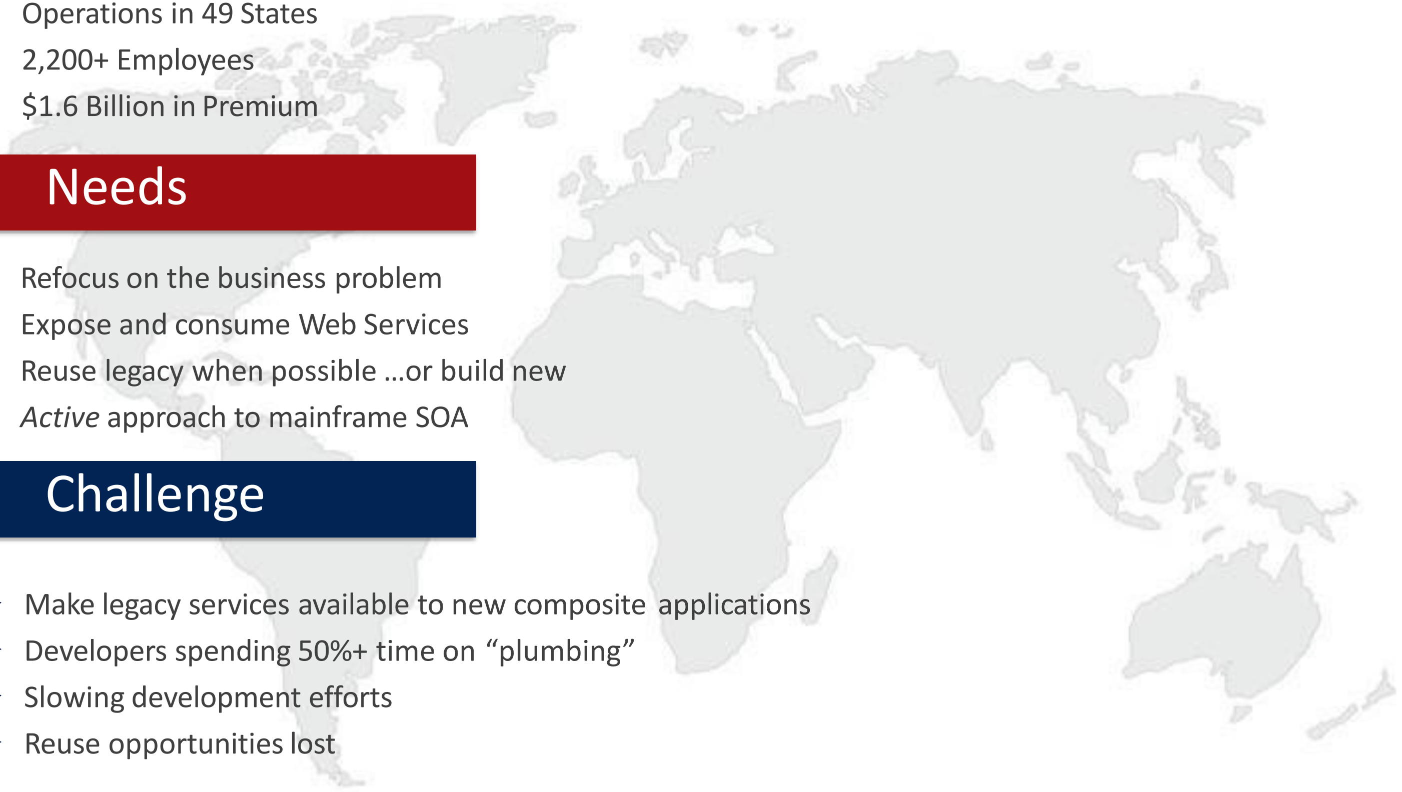
No Additional MIPS Required For Processing

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

No Programming or Additional Personal Required

Secure Transfer of Information Readily Available

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

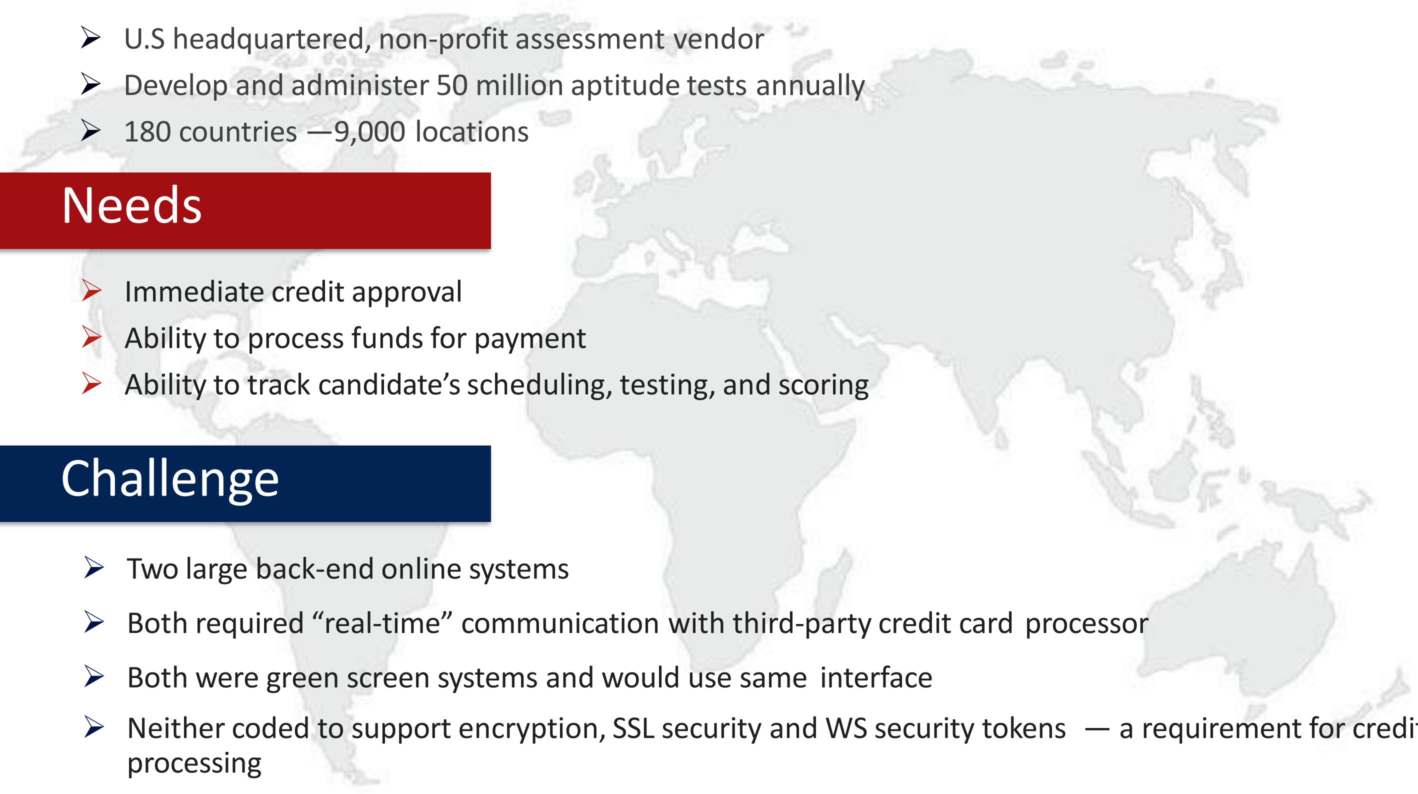
Strong ROI Within 1 Year

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

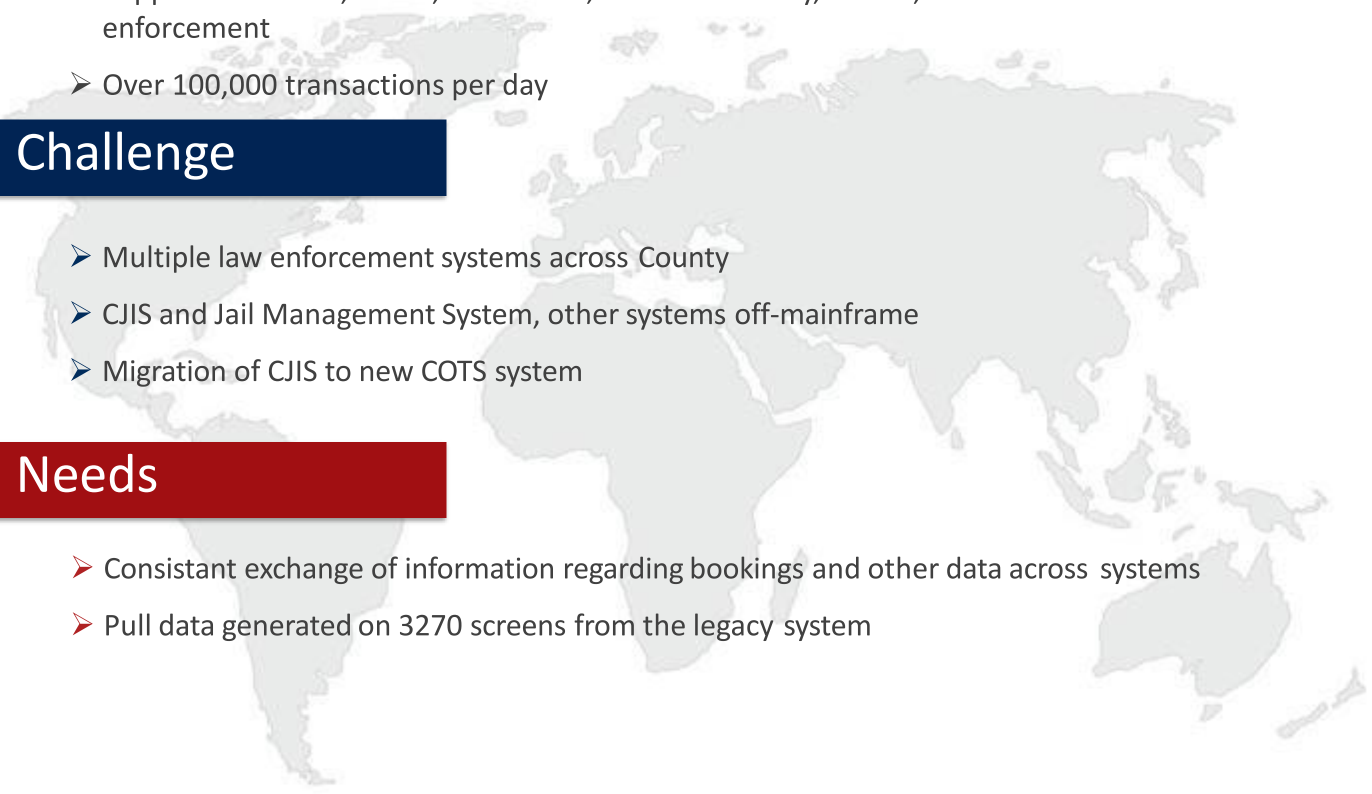
Met aggressive timeline

Added encryption, WS security (per PCI Compliance)

Strong ROI

80% Reuse

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

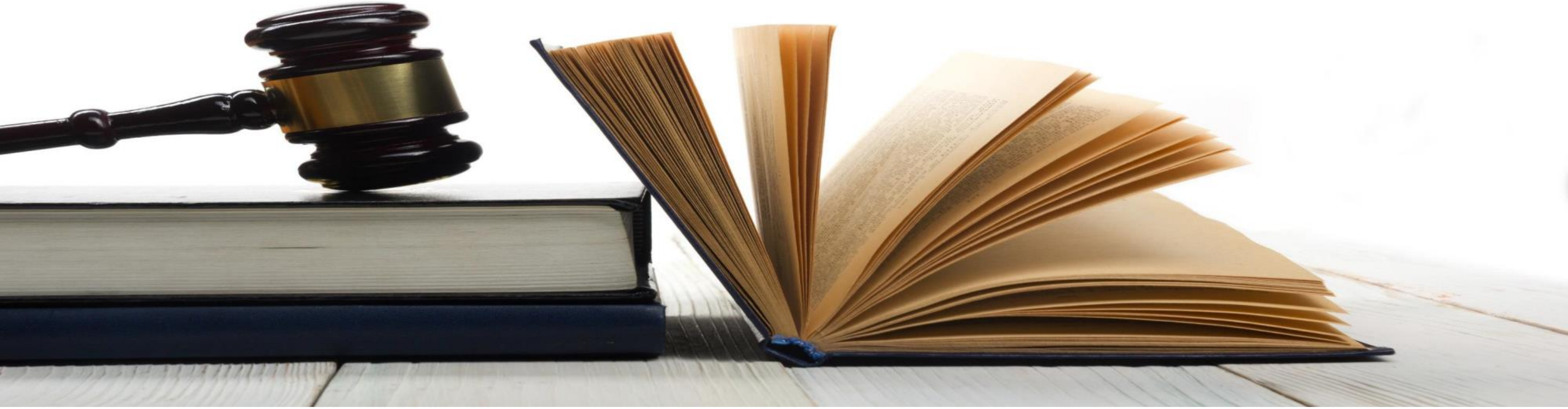
Challenge

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

Needs

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

Results



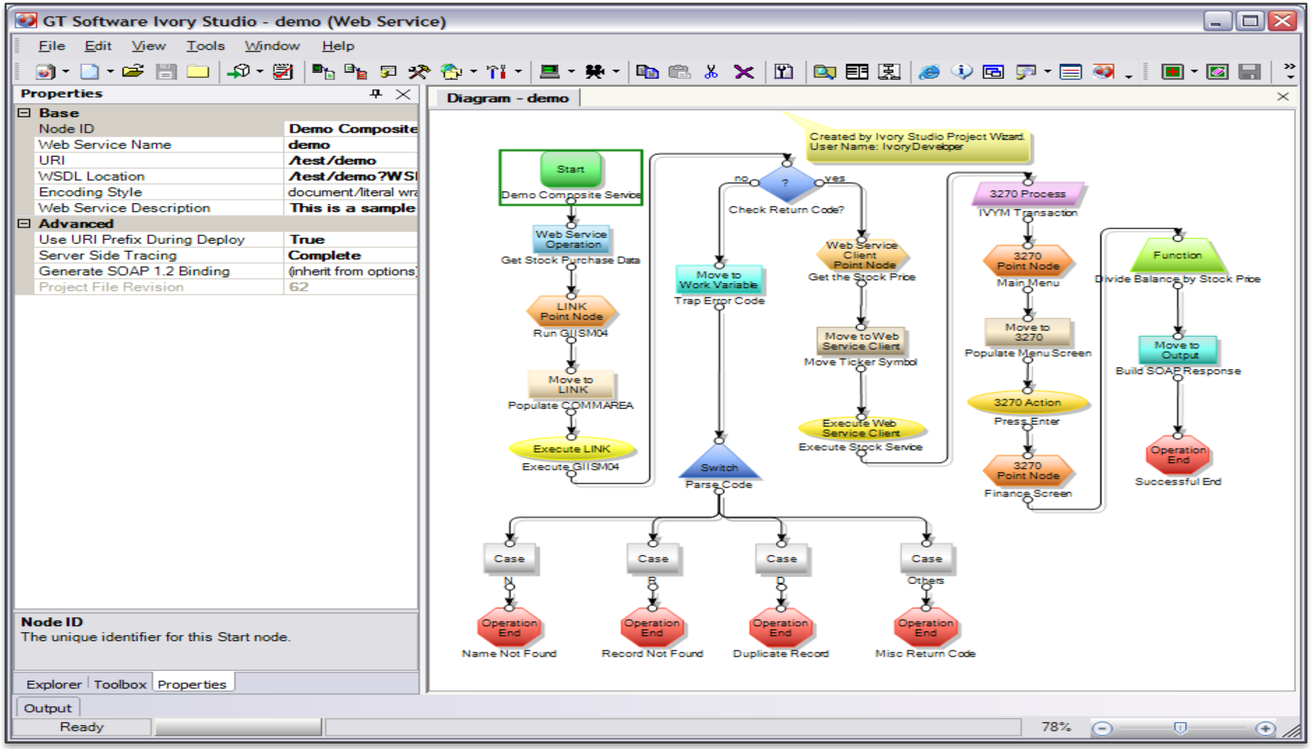
Seamless integration of systems

Access to data from CJIS transaction screens and directly from databases

Greater efficiency across law enforcement entities

How to Make Everything Work Together?

No Coding



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Encoding Style	document/literal wra
Web Service Description	This is a sample
Advanced	
Use URI Prefix During Deploy	True
Server Side Tracing	Complete
Generate SOAP 1.2 Binding	(inherit from options)
Project File Revision	62

Node ID
The unique identifier for this Start node.

GT Software – Who We Are

- Founded in 1982 (HQ in Atlanta, GA)
- More than 30 years of market leadership
- Focused on real-time mainframe integration for strategic business initiatives
- Broad experience across all mainframe and distributed environments
- Worldwide cross-industry customers and strategic partnerships
- Website: www.gtsoftware.com

Thank You