



CICS Modernization – Real Life Scenario – How Customers Are Doing it!

CICS users are loyal to their apps – and for good reason! However, they also need to integrate these same applications with an ever widening array of web, cloud and mobile resources. If that weren't enough, every year they are under pressure to support new workload and reduce the cost of ownership. That's a tall order.

Fortunately, IBM continues to deliver new versions of CICS that focus on operational efficiency and service agility. CICS business partners build upon these capabilities to help customers save time, reduce cost or generate revenue. This presentation highlights tactics and strategies that customers are using to enhance the value of their existing CICS and System z investments – while lowering their total cost of ownership.



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SHARE is an independent volunteer-run information technology association that provides **education, professional networking and industry influence.**



Background - Our ETS World

- **Who We Are**

At nonprofit ETS, we advance quality and equity in education for people worldwide by creating assessments based on rigorous research.

ETS develops, administers and scores more than 50 million tests annually — including the TOEFL® and TOEIC® tests, the GRE® General and Subject Tests and The Praxis Series® assessments — in more than 180 countries, at more than 9,000 locations worldwide.

In addition to assessments, we conduct educational research, analysis and policy studies and develop a variety of customized services and products for teacher certification, English language learning and elementary, secondary and postsecondary education.

- **Service**

Accuracy and On-Time Delivery of Services is tantamount to our success

- **Technologies**

- IBM Mainframe CICS, IDMS and batch solutions
- Java and .NET Server-based solutions and numerous end user device technologies
- Oracle, SQL Server and DB2 storage technologies

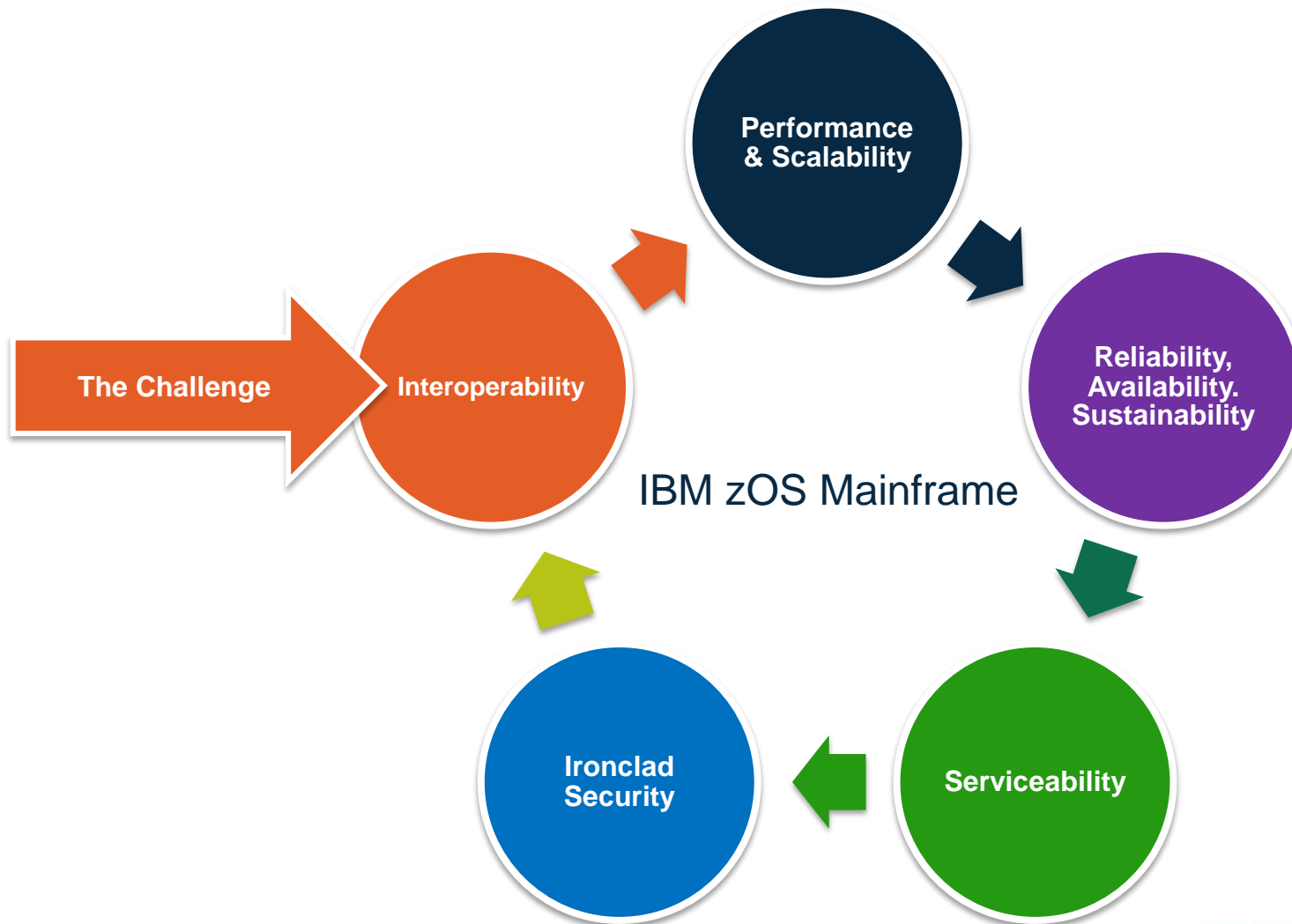
What Drove ETS To Mainframe Web Services

- **Enterprise PCI Compliance Effort**

- From a mainframe standpoint our online applications were storing credit card information in transaction data stores and were being batch processed each evening. The data store set-ups did not meet the PCI Compliance requirements.
- Our options were to ...
 1. Transform/upgrade our data storage models to meet all compliance requirements
 2. Convert our mainframe online CICS and IDMS applications to use a real-time web service call directly to the ETS credit card service provider and eliminate the need to store and process via batch

We decided to pursue Option 2, implement web services, since it cost far less than Option 1 –AND- because it positioned all of our mainframe applications to support greater connectivity and functionality.

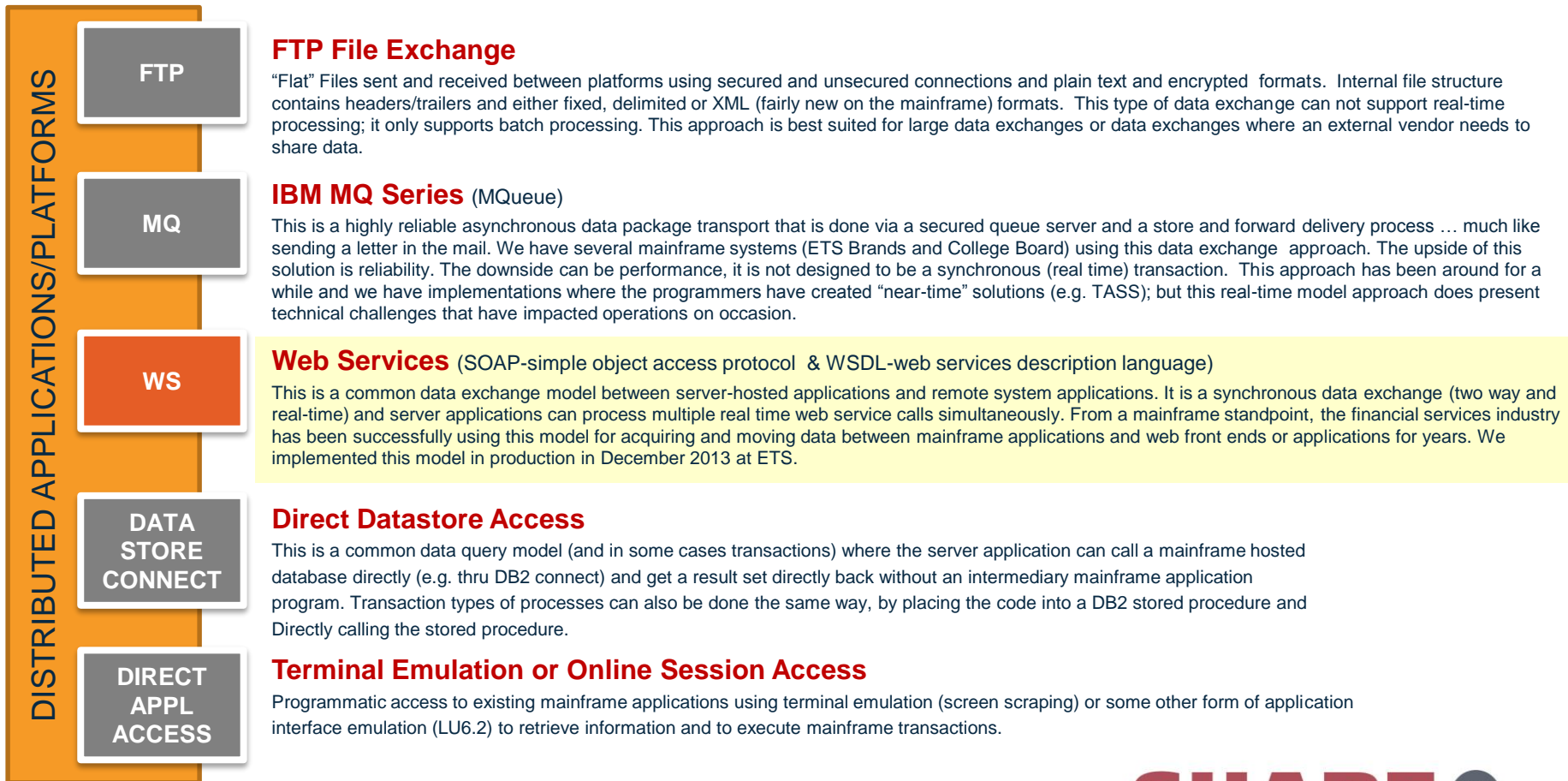
Interoperability – The Challenge



Interoperability Approaches

Exchanging Information Between Applications Running on Different Computer Systems

Current commonly available and used interoperability solutions that connect applications running on different computer platforms with mainframe applications



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Our Initial Challenges

1. Prior Negative Experience

ETS had attempted to implement a mainframe web service technology solution 2 years prior and the endeavor failed ... leaving the impression in the minds of our architects and technology leaders that the only way for the mainframe to communicate with other system applications at ETS was via FTP batch files or MQueue. New solutions all had to be structured around this known, working framework.



2. Varied Mainframe Technologies

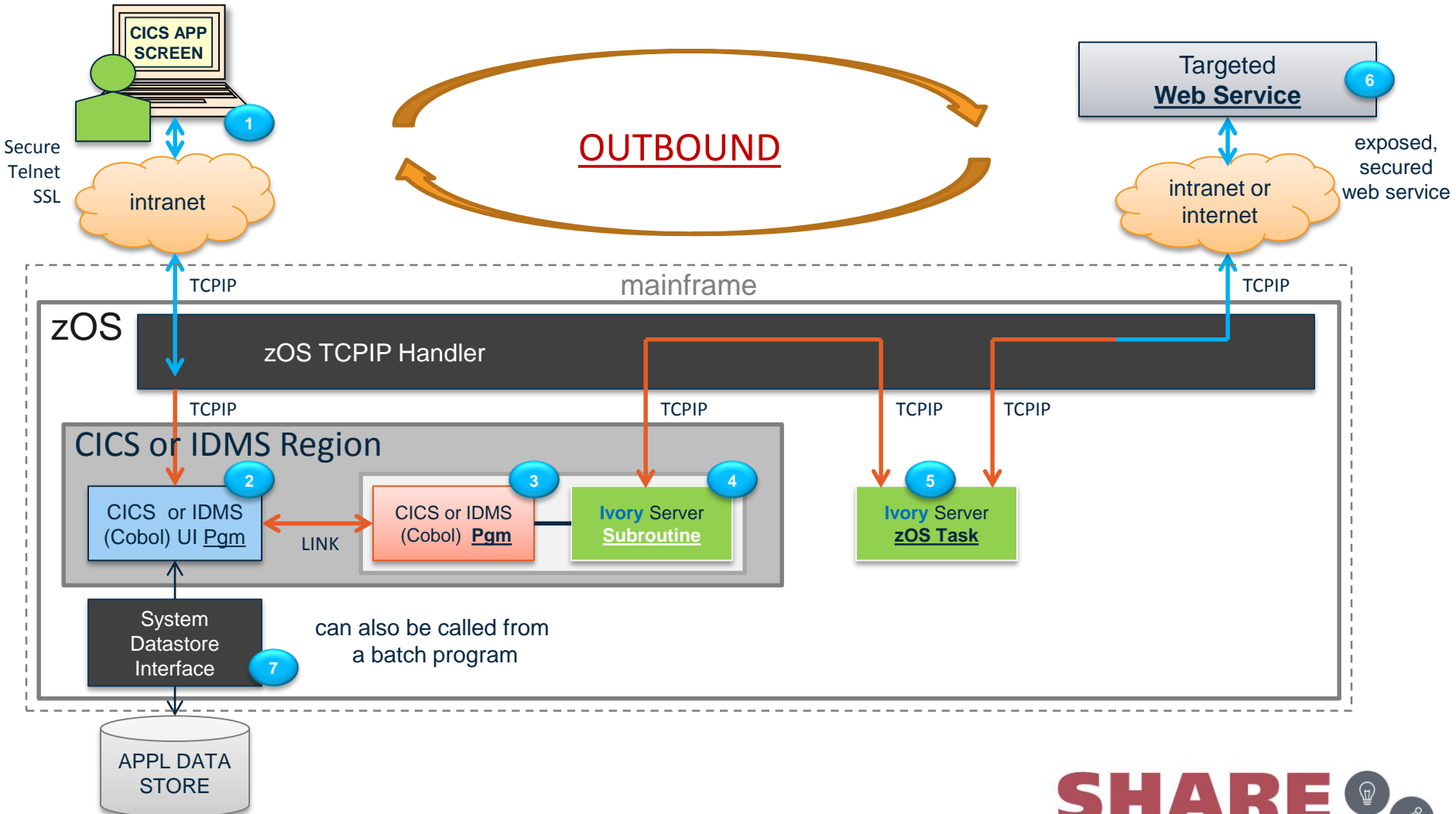
The mainframe systems were a 50-50 mix of CICS and IDMS technology platforms. A web service solution had to address both platforms.

Based upon my prior experience in the financial services industry, where we successfully used mainframe web services, we pressed on and got approval to engage vendors and do a proof of concept. We successfully completed the POC in early 2013 and recommended and subsequently licensed GT Software's Ivory Server as the solution since it met our need of natively supporting CICS and IDMS applications.

Our PCI Solution

OUTBOUND WEB SERVICE CALL

ETS Mainframe Program Calling a Web Service running on an ETS or Authorized Vendor (external) Server

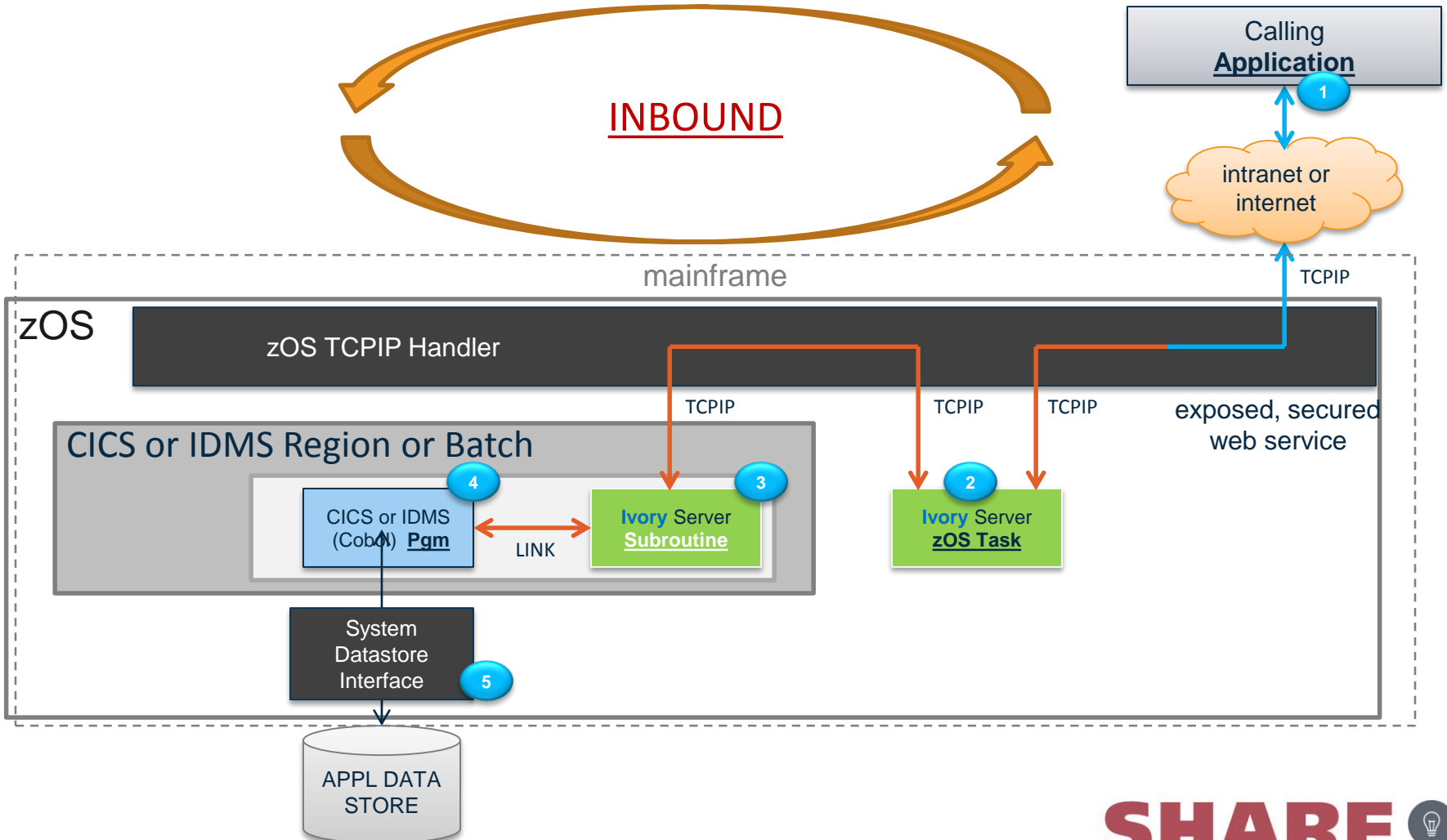


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Expanded Services

INBOUND WEB SERVICE CALL

ETS or Authorized Vendor (external) Server Program Calling a Web Service running on the ETS Mainframe

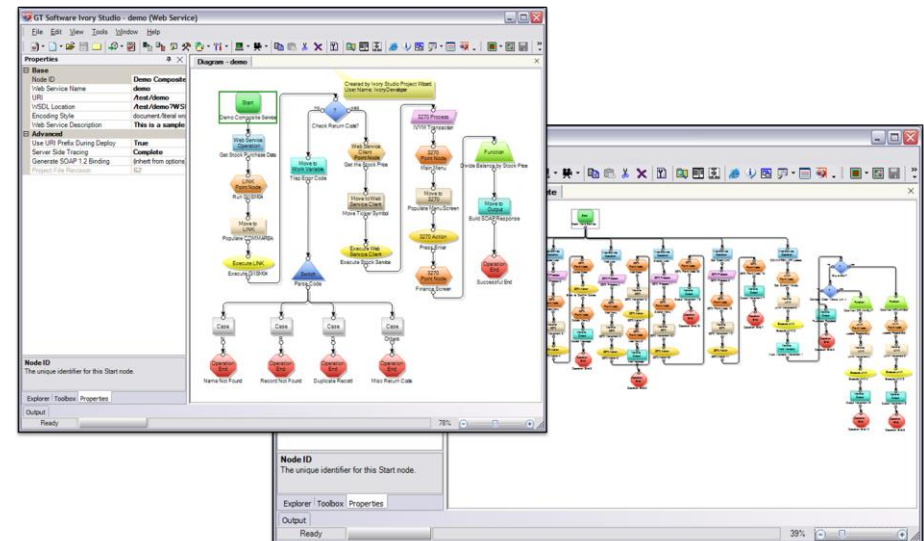


Our Other Challenges

- **Mainframe Staff**
 - New terminology and concepts (web services, WSDLs, XML, TCPIP, etc.)
 - Significant paradigm change
- **Engineering/System Programming Staff**
 - AT-TLS configurations (ports and settings are critical) to support TLS
 - CICS & IDMS talk to Ivory Server differently (EXCI – cross memory and TCPIP respectively)
 - User IDs and Logins are different (security nuances)
 - Firewall rules become critical

What Made A Difference

- Initial Success
 - Believing and pushing thru all technical obstacles that were encountered to achieve the first success built confidence
- GT Software and their Ivory Server product
 - Excellent training, documentation and support
 - Easy to use GUI development interface and initial code generation gets the developers off to a good start
 - A highly reliable and effective product solution for CICS and IDMS applications on the mainframe



Where We Are Now

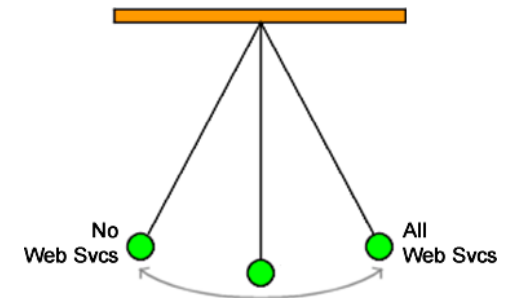
18 months Later

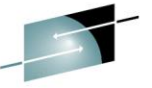
- PCI web service solution (outbound) successfully implemented across multiple mainframe CICS and IDMS systems

This became the springboard for change. Now all solutions involving mainframe systems consider web services as a solution option.

- We have implemented numerous inbound and outbound web service solutions across all of our mainframe systems since our PCI solution roll-out
- We have many mainframe projects slated for the next 2 years that are using inbound and outbound web service solutions

We are now at the point that engineers are automatically jumping to web service solutions and we actually have to point out now that an FTP batch file transfer or MQueue solution might make better sense for the specific application.





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