

America First Credit Union and Systems and Technology Group Collaborate to Bring Improved Internet Services to America First Members

Case Study

The Business Need. Significantly improve member service by providing Internet access to the on-line status of current individual checking account statements and associated account check images. Provide high availability access while,

- Assuring a minimum impact to our existing internal imaging system.
- Reducing existing Customer Service overhead associated with the handling check service requests and inquiries.
- Protect against unauthorized access of check images.
- Ensure that subscribers can access the check images for valid accounts using standard commercially available browsers without requiring special viewer plug-ins.
- Provide flexibility to expand this service into other related Member account information and services in the future.

The Technical Challenge. Provide a bridge between America First Credit Union's FileNET intranet system and the growing subscribers of America First's Internet Personal Banking Service. The system must support 24 hour a day, 7-day per week operation. The bridge must be high performance and transparent to existing subscribers. The system must migrate over 20,000 America First members currently using an existing modem-based home banking environment to the new Web Internet home-banking

environment. The system must provide high speed access to over 2 million recent check images and the growth capacity for both expanded Member document services and future membership users at a rate of 20% per year.

The Approach. Integrate STG's *ImGate* subsystem with the current existing America First's Web-based Personal Banking Internet product. The system had to be implemented in a seamless manner allowing the existing personal banking subscribers to migrate quickly and easily while minimizing the observed performance impact to over 100 existing internal image system users within the Client's Home Office.

The Solution. The STG *ImGate* subsystem was integrated with the America First Web-based personal banking Internet applications using the *ImGate* Applications Program Interface (API). The *ImGate* subsystem was hosted on an IBM RS/6000 Server running AIX which interfaces with the Web personal banking applications and FileNET subsystems over a standard 100BaseT Ethernet network. Although the *ImGate* software can share the FileNET server, in high performance high volume environments, a separate server was used to host the *ImGate* subsystem and minimize the impact on the existing FileNET system and on-going America First in-house imaging applications. Reference Figure 1.

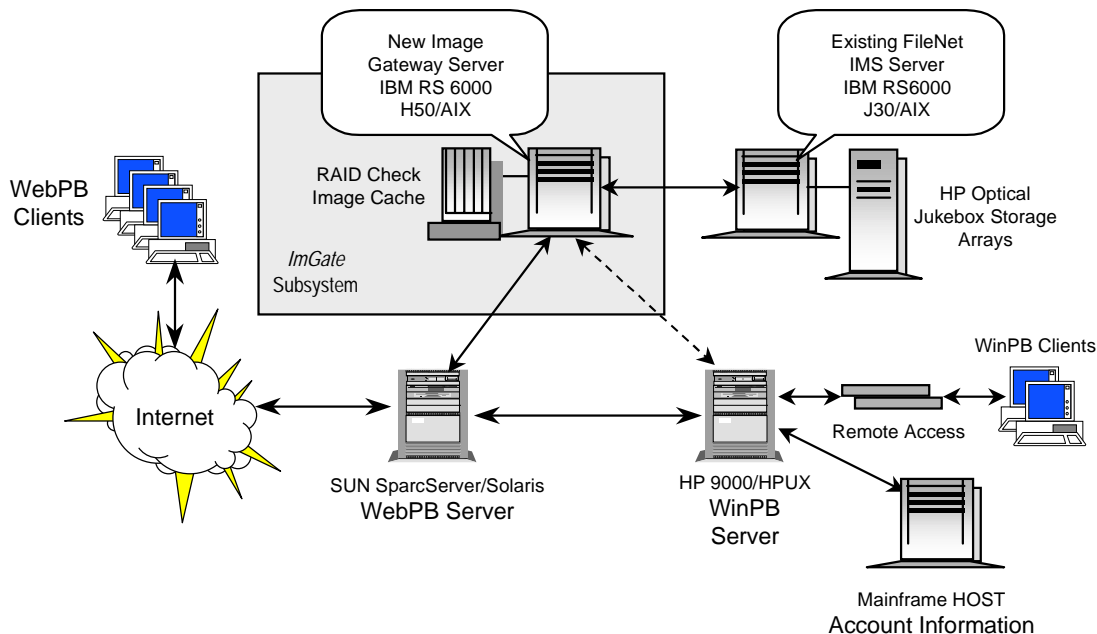


Figure 1. Check Imaging System Architecture Overview

ImGate consists of an On-Line and a Batch Process (Figure 2). The On-Line process supports near real-time subscriber access to checks directly from their check history using the Web personal banking storefront. A separate *ImGate* batch process is integrated with the client's existing legacy check image capture subsystem to maintain the *ImGate* cache. The Federal Reserve serves as the outsourcing agent for check image capture and provides indexed check images (standard Tiff IV format) on nightly tapes with a custom format tailored to each client. The *ImGate* subsystem provides a tailored interface for the receipt and processing of the Institution's nightly scanned check images. For this client environment the interface was implemented using high capacity 8mm tape(s).

The Federal Reserve captures in excess of 100,000 client checks each night representing all member checks posted

that day. The checks include multiple sizes and types, from standard personal sized checks to oversized commercial checks. The system also handles Preauthorized Drafts and ad-hoc checks which do not contain check numbers. The Fed captures the checks using high speed scanners and loads the checks for each client onto one or more tapes in a standard Tiff Group IV image format. For a run of 100,000 checks (200,00 images), a single file is generated for each tape. Multiple tapes are delivered to the client each night. To maintain 24X7 operations, the *ImGate* design ensures that the nightly batch operations are transparent to on-line operations and image retrieval.

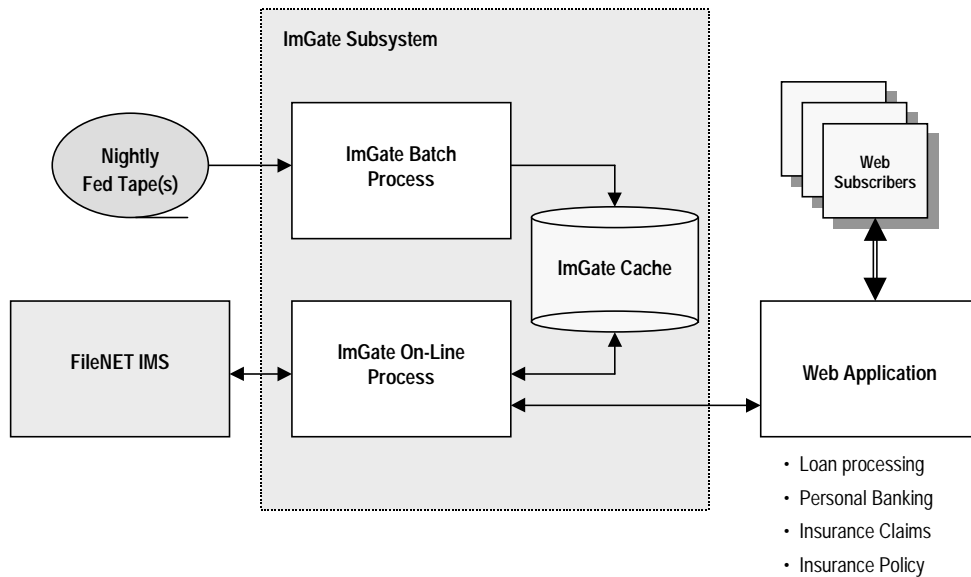


Figure 2. Top-Level Overview of *ImGate* Subsystems

The *ImGate* nightly batch process performs a high speed import of the check image tape(s) each night. The tapes contain all checks which have been posted and scanned that day. The *ImGate* batch process sorts through the daily volume of scanned check images to identify that subset which applies to predefined subscribers which are authorized to use the America First personal banking Internet product services. A file of valid Web personal banking subscriber Account #'s changes daily and is routinely updated each night as part of the batch processing. The Valid Accounts file is transferred to the *ImGate* subsystem at the close of the business day and prior to the Batch Processing.

ImGate maintains its cache based on a date span window (e.g., last 90-days) which is established using the *ImGate*

Systems Administration function. The Batch Process deletes outdated checks from the *ImGate* cache and inserts the current days check images. In addition, the batch process removes inactive accounts from the system. The check image cache is maintained according to a high-performance directory structure which is based on the Account number, check number, posted amount and posted date.

The Batch Process parses the tape, extracting only those check images which belong to valid Web personal banking subscribers. A separate image converter process then converts the images from Tiff format into either GIF or PNG format and scales the images to fit into the specified screen size of the subscribers. By pre-formatting the image into GIF or PNG formats the check

platters which are not mounted in the on-line Jukebox. In these instances, a message will be sent to the Web personal banking subscriber notifying the subscriber that their image request will be delayed until the next business day. *ImGate* then pends an OSAR request which is processed by the *ImGate* nightly batch process. The *ImGate* batch process then posts the request to FileNET for normal processing during off hours. FileNET identifies the specific optical platter which must be mounted to service the request and will issue a platter mount request to the System Manager to mount the platter in the Jukebox.

All physical platter mount requests are currently handled during the nightly operations. Those images will be retrieved and available the next day. Images which have been pulled from FileNET as an ad-hoc request will be maintained in cache for a period of seven (7) days before being deleted.

The system architecture provides for tuning and substantial growth. By resizing the physical jukebox configurations, the FileNET cache and the *ImGate* cache, the age of check images which reside within the *ImGate* cache or on mounted platters can be extended.

An array of status and error messages exist within the system. The *ImGate* subsystem provides the Web personal banking server status of the check image request. The Web software in-turn issues the appropriate messages to the subscriber alerting the subscriber to the status and disposition of their image request.

The ImGate subsystem also has a System Administrator Function which provides the ability to control the operation of the system and tune the system as it grows (reference Figure 4). Among the control parameters, the Administrator can disable the retrieval of images which require manual mounting of Optical platters. This protects the system from being over loaded by operator requests. When this option is selected the subscriber is alerted that the requested image is unavailable and a message is sent to contact a Customer Service representative.

| Set <i>ImGate</i> Control & Execution Parameters |
|---|
| <ul style="list-style-type: none">× Cache aging parameter (90-days)× FileNET image retention (7-days)× FileNET retrieval wait timeout (20-seconds_× Acct last accessed time (210-days)× Auditing-ON/OFF select× Unmounted platter retrieval-ON/OFF select× Web image display max setting (10 cks) |

Figure 4. System Administrator Control Parameters

The *ImGate* Subsystem Administrator also provides the flexibility to alter most of the *ImGate* operational parameters for tuning of the system. These parameters include the length of time an image is retained within the *ImGate* cache, the number of simultaneous *ImGate* sessions active at any time, or the number of checks which can be displayed simultaneously. In addition, the Administrator function can control the degree of batch processing as well; including the number of simultaneous batch image import processes which are operating on the multiprocessor server environment

Current Status of the America First System. Today, America First members are using the system with increasing regularity. Members can retrieve and view their cleared checks in seconds directly from their own personal computers without having to call into the America First Service Center and request check images to be mailed or faxed. Members can find lost checks and print these checks from their home. America First customer service load has been reduced significantly allowing the staff to improve service in other areas.

Twelve (12) months after initial production rollout, the system is handling over 85,000 clients and 6 million check images – more than twice the initial projections. The system is operating 24 hours a day, 7 days a week.

The system is Fully Y2K compliant and met the millenium transition without a single problem. Fully confident, America First was open and conducting business for their members on January 1, 2000. America First is now working with STG to expand the features of *ImGate* into new services for their members to include the addition of electronic bank statements.

Additional information on the *ImGate* Subsystem can be obtained by contacting

Systems and Technology Group, Inc.
220 West Woodmen Rd.
Colorado Springs, CO. 80919.
Attention: Michael Mariani
Telephone: 719.471-6900
E-Mail mike.mariani@systechgroup.com.