Real Time Processes: Achieving Optimal Results

When banks think about the benefits of real time processing, they are likely thinking of the potential for reduced systems costs, consistent customer information, and eliminating redundant transaction posting. The paramount consideration is the potential business process benefit. While this paper will look at the transaction processing, legacy system constraints, and technology that can align with a real time processing strategy; the focus will be on business process benefits. Let’s start by taking a look back at how transaction processing has evolved.

Transaction Posting Models

For most of the 20th Century, the payment system in the United States was predicated on paper checks. The movement of the checks throughout the payment system required an expensive infrastructure. As transactions were conducted in branches, they were logged by the Bookkeeping departments – the precursor to memo-posting – but the checks would not be posted. Checks were collected throughout the day and then transported to regional or central processing sites to be encoded, proofed, and sorted (Figure 1).

Multiple application batch updates were required to run for several hours during the night using the check files as the primary input. Increased ACH and ATM volumes required the implementation of automated memo-posting. The business processes required to support this model are extensive as much of the activity requires multiple handoffs of the same transaction.

The landscape began to change with the advent of electronic imaging and transmission, allowing paper checks to be converted to images. At about the same time, delivery channels were expanding and the need for ‘real time’ information became a critical component for banks to remain competitive. These factors drove the complexity and volume of banks’ memo-postings in a batch processing mode. This model eliminated many of the paper hand-offs from the check stream requiring less staff to support transaction processing, but requiring additional staff to develop and support the growing memo-post landscape.

A real time processing method (long embraced by Savings Banks and Credit Unions) posts the transactions as they are accepted. The proof and capture of the items may occur at the point of transaction or may be completed later in a central environment. The business process benefits associated with this model are dependant on the level of image capture technology employed within the process.

Commercial banks have been hesitant to move to local item capture due to concerns that increased teller transaction time for processing each deposited/cashed item would cause branch customer service issues. New technologies are now available, however, that allow local item capture to be accomplished in approximately the
same time as central item capture. Image capture and recognition capability can identify the amount of each deposit and check. The teller can prove the deposit and release the item for real time deposit processing in approximately the same amount of time as required using the traditional process.\(^1\)

Unlike the original real time processing model, where transactions were posted and then captured, the new model uses front-end systems, image capture technology, and real time posting to capture and post most transactions at the point of transaction – be that at the customer's site or the branch. Branch capture combined with real time processing increases the number of “once and done” processes. With fewer items moving from the point of transaction, the business process benefits increase significantly (Figure 2).

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\(^1\) TowerGroup, February 2003, *Deposit Processing at US Banks: The Case for Real Time*

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**The Current Environment**

Even though there are benefits to moving to the new real time processing model, commercial banks have been reluctant to take on this daunting task due to the high cost, long timeline, and inherent risks in converting so many internal core processes. There are, however, compelling reasons why banks should be adding core system conversions to their future technology plans. Continuing to support costly legacy systems, the changing distribution in non-cash payments, expanding regulatory requirements, new product speed to market, and the need to access an increasing number of channels should all be on the radar for reasons to change.

**Payment Distribution**

The payment landscape continues to change with 67% of non-cash payments being debit card, credit card, ACH or EBT in 2006. Check processing decreased from 46% in 2003 to 33% in 2006. The number of on-us checks presented at their institution also declined. On-us check volumes decreased from 22.1% of paid checks in 2003 to 19.9% in 2006.\(^2\) On December 13, 2007, SVPCO, the paper and electronic check exchange business of The Clearing House Payments Company L.L.C., reported that monthly image volume more than tripled compared to November 2006.\(^3\)

As check volumes continue to decrease (Figure 3), the payments system and the banks that comprise it need to reengineer processes required to support check clearance. With the right technology, less human intervention will be needed as this distribution continues to change.

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\(^2\) Federal Reserve System, 2007 *Federal Reserve Payments Study*

\(^3\) www.svpco.com

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**Regulatory Requirements**

Increasing regulatory demands also create challenges for banks using legacy systems. Costly changes to incorporate the required customer
information fields, regulatory triggers, etc. must be made according to government timelines. Without them, banks must rely on manual processes to comply with regulations such as those listed below (Figure 4). Real time event monitoring improves regulatory compliance as well as fraud prevention. With the recent fallout in the nation’s credit quality, regulatory and stakeholder scrutiny likely will increase. Banks should anticipate screening for new risks and preparing their platforms for the introduction of new technologies to support them.

Banking Regulations:

<table>
<thead>
<tr>
<th>Regulation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regulation D</td>
<td>Reserve requirements</td>
</tr>
<tr>
<td>Regulation Q</td>
<td>Interest payments, terms for deposits, renewals, penalties</td>
</tr>
<tr>
<td>Regulation CC</td>
<td>Uniform check hold standards and procedures</td>
</tr>
<tr>
<td>Regulation DD</td>
<td>Disclosure of rates paid/fees charged on savings products</td>
</tr>
<tr>
<td>Regulation E</td>
<td>Rules, liabilities and procedures for EFT</td>
</tr>
<tr>
<td>Regulation J</td>
<td>Legal framework for collection of checks, cash items, returned items</td>
</tr>
<tr>
<td>Regulation O</td>
<td>Bank officers</td>
</tr>
<tr>
<td>U.S. Patriot and related acts</td>
<td>Anti-terrorism, OFAC, Know Your Customer</td>
</tr>
<tr>
<td>Sarbanes-Oxley (SOX)</td>
<td>Financial reporting</td>
</tr>
<tr>
<td>Gramm-Leach-Bliley Act</td>
<td>Financial privacy and safeguards</td>
</tr>
<tr>
<td>Basel II</td>
<td>Consistent capital regulations and risk management internationally</td>
</tr>
<tr>
<td>FFIEC</td>
<td>Uniform principles, standards, and report forms for federal exams</td>
</tr>
</tbody>
</table>

Figure 4

Market Responsiveness

Adding new products and channels to legacy systems is a complex process, making it difficult for banks to react quickly to market changes. New products often take months to add compared to weeks or days for real time systems. This may mean that banks introduce new product types but use work-around processes to get the product accounts opened - often requiring next day maintenance to ‘fix’ the account and, potentially, some ongoing manual processes to support it. A flexible real time platform allows timely response to market and regulatory changes.

Costly Legacy Systems

In general, it’s the ‘sooner-or-later’ syndrome when it comes to replacing core legacy systems. Several recent findings suggest that for most institutions it’s likely a matter of when, not if. It will need to be done eventually.

» Financial Insights estimates that core banking systems consume more than 12% of a bank’s total IT budget, with U.S. Banks spending more than $6.5 billion in 2007.4

» BAI, Payment Strategies, suggests that banks would realize an immediate savings by moving from the old legacy system software and coding to new software that will be less costly to maintain. Robert Hunt indicates that the older COBOL systems sometimes consume 80% of a bank’s overall software costs.5

» American Banker points out that many large banks have acquired and are running multiple core systems due to acquisitions. Running multiple cores systems is inefficient and expensive and makes it more difficult to connect to the current generation of banking applications.6

» BAI indicates that banks would generate significant cost savings by eliminating the current memo-post systems, re-engineering the handling of transactions, and by installing newer hardware and software - presumably with lower maintenance costs.7

» BAI further states that while the cost of converting core systems can reach up to

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4 Financial Insights, December 2007, U.S. Core Bank Transformations: Leading or Lagging?
5 BAI, Payments Strategies, January/February 2007, Getting Real (as in Real-Time Transactions)
6 American Banker, February 2007, Are U.S. Banks Finally Ready to Convert Core?
7 BAI, February 2007, Getting to Real-Time Processing (Eventually)
hundreds of millions of dollars, executives at these banks typically say the expense is quickly offset by reduced transaction and back-office costs and a huge potential IT savings.\(^8\)

Inherent in these costs are the onerous business processes required to support the batch posting environment.

The New Real Time Model

Reengineering business processes at every step of the transaction flow ensures maximum benefits are achieved. Installing technology without this important step may mean that outdated, redundant, or non-value processes will continue despite enhancements the new technology provides, which in turn results in higher transaction costs. Banks can anticipate the kind of straight through processing benefits outlined below across the enterprise, from the front-office to back office, from data operations to risk management.

Developing clearly defined workflows, establishing before and after metrics, and utilizing staffing tools will ensure the implementation of best practice processes associated with real time posting. The new real time model incorporates best practice technology components with best practice business process to ensure low cost transaction processing while meeting or exceeding customer expectations and ensuring regulatory compliance.

Intuitive front-end systems, image capture capabilities, and posting real time provide the technical framework of this model. Business process benefits related to the new local capture, real time posting model is outlined in Figure 5.

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\(^8\) BAI, Payment Strategies, January/February 2007, Getting Real (as in Real-Time Transactions)
- Reduced risk for customer maintenance and rate maintenance due to single point of update.
- Faster entry into market for new products.
- Elimination of development inefficiencies caused by outmoded core applications.
- Consistent assessment of fees from a customer-centric, enterprise viewpoint.
- Easier identification of fee opportunities and tracking of fees collected.
- Reduced resources supporting a single platform encompassing multiple applications for:
  - GL Reconciliation
  - Account Maintenance
  - Customer Service
  - Research & Adjustments
  - Risk Management
  - Training
  - Regulatory Compliance
  - Customer Information files/updates
  - Deposit Account Opening
  - Exception Processing
  - Treasury Management

Banks that have moved to real time processing report results that are being attributed to business process benefits. What is not known is the extent that the original business processes were reengineered. If specific processes were not engineered, then it’s likely that reengineering would further increase overall benefits. Our experience shows that savings can be attributed directly to business process design and execution (Figure 6). While banks have accrued benefits from technology conversions without process reengineering, most of these benefits were due to technology upgrades.

**Reported results:**

- Washington Trust bank, with $2.4 Billion in assets and 16 branches, had expected to save three to four positions through the efficiencies of their conversion to a real time platform, but ultimately they were able to reduce head count by about a dozen. They no longer need employees to re-enter loan and deposit data or perform some nighttime processing duties.9

- Banco Santander is reporting $320 Million annual savings, and Robert Hunt of Tower Group is attributing a fair amount of the savings to a reduction in back-office staffing – only 12% of the bank’s employees work in the back office compared to more than 25% of the staff at other European banks.10

- Executives at Deutsche Bank AG of Frankfurt, Germany have chalked up an annual savings of about $144 Million as a result of their transition.11

**Other Benefits of Real Time Processing**

While banks will get compelling business process benefits within the new environment, there are other financial considerations.

**Computer Operations**

In a study completed by BenchMark Consulting International, computer operations cost drivers

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9 American Banker, February 2007, Are U.S. Banks Finally Ready to Convert Core?
10 BAI, January/February 2007, Real Time Experiments – Over There
11 Ibid.
were looked at to determine the potential opportunities between batch and real time processing modes. BenchMark identified two primary attributes that could drive the cost benefits of real time processing. They are the critical path processing window and the disaster recovery time objective (Figure 7). These results could vary by financial institution.

- Computer Operations Cost Drivers
  - Identified 5 attributes that drive data operations costs regardless of mode
  - These attributes can be evaluated by financial institution which could cause results to vary
    - **Cost Attributes**
      - L = Has low impact on overall processing cost
      - M = Has medium impact on overall processing cost
      - H – Has high impact on overall processing
  - Identified 2 primary attributes that drive the cost benefits of real time processing
    - **Critical Path Processing Window**
      - Less time, less cost
    - **Disaster Recovery Time Objective**
      - Faster recovery at less cost

Host Processing Impact Comparison

Fidelity conducted two studies comparing batch and real time: a) application processing for 3M and 10M accounts (Figures 8A and 8B, respectively) and b) operating environment (Figure 9). The studies reported significant savings with real time.

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Volume</th>
<th>Real Time</th>
<th>Batch</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Accounts</td>
<td>250,000</td>
<td>L</td>
<td>L</td>
</tr>
<tr>
<td></td>
<td>500,000</td>
<td>L</td>
<td>L</td>
</tr>
<tr>
<td></td>
<td>1 Million</td>
<td>L</td>
<td>L</td>
</tr>
<tr>
<td></td>
<td>3 Million</td>
<td>L</td>
<td>L</td>
</tr>
<tr>
<td></td>
<td>10 Million</td>
<td>H</td>
<td>H</td>
</tr>
<tr>
<td>Online Transaction Volume</td>
<td>250,000</td>
<td>L</td>
<td>L</td>
</tr>
<tr>
<td></td>
<td>500,000</td>
<td>L</td>
<td>L</td>
</tr>
<tr>
<td></td>
<td>750,000+</td>
<td>M</td>
<td>L</td>
</tr>
<tr>
<td>Online Availability</td>
<td>99.50%</td>
<td>M</td>
<td>L</td>
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<tr>
<td>Critical Path Processing Window</td>
<td>1-4 hours</td>
<td>M</td>
<td>H</td>
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<tr>
<td></td>
<td>4-8 hours</td>
<td>L</td>
<td>M</td>
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<tr>
<td>Recovery Time Objective</td>
<td>1-24 hours</td>
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<td>H</td>
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<tr>
<td></td>
<td>24-72 hours</td>
<td>N/A</td>
<td>L</td>
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Application Processing Cost Model

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Real Time</th>
<th>Batch</th>
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</thead>
<tbody>
<tr>
<td>Number of Accounts</td>
<td>3 M</td>
<td>3 M</td>
</tr>
<tr>
<td>Application Support</td>
<td>$29,572</td>
<td>$41,465</td>
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<tr>
<td>Software Maintenance</td>
<td>$50,000</td>
<td>$52,520</td>
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<tr>
<td>Managed Operations</td>
<td>$76,632</td>
<td>$128,579</td>
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<tr>
<td>HW/SW and Maint</td>
<td>$8,910</td>
<td></td>
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<tr>
<td>Solution Management</td>
<td>$57,000</td>
<td></td>
</tr>
<tr>
<td>Support Env and Misc</td>
<td>$29,902</td>
<td></td>
</tr>
<tr>
<td>Monthly Total</td>
<td>$165,114</td>
<td>$309,465</td>
</tr>
<tr>
<td>Monthly Cost Per Account</td>
<td>0.055</td>
<td>0.103</td>
</tr>
</tbody>
</table>

Figure 8A

Operating Environment Cost Model

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Mainframe</th>
<th>AIX Server</th>
<th>Linux Server</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hardware Infrastructure</td>
<td>$2,100,000</td>
<td>$239,472</td>
<td>$109,746</td>
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<tr>
<td>Third Party Software License</td>
<td>$616,000</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Annual Third Party Maintenance</td>
<td>$123,000</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Annual IBM Rentals</td>
<td>$1,114,000</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Total</td>
<td>$3,953,000</td>
<td>$424,800</td>
<td>$294,804</td>
</tr>
</tbody>
</table>

Figure 9

Note the significant operating savings below. AIX Server is more than 8 times less than Mainframe; Linux Server is more than 12 times less.
batch disaster recovery generally is measured in days.

**Fraud**

Most experts agree that the move to real time processing, which will speed up transaction processing, will have an impact on fraud detection. Not everyone is in agreement however, on whether it will reduce or increase fraud. Those that believe that the incidence of fraud will increase suggest that if abusers are able to clear the bank’s authentication process, they will be able to pass transactions quickly, before the bank has a chance to recognize the fraud. Those that believe that the incidence of fraud will decrease suggest that moving fraud detection to a much earlier point in the processing chain, as opposed to the current paper-processing model, will allow banks to react quicker.

According to the 2007 ABA Deposit Account Fraud Survey Report, “The most effective check fraud prevention measures, as rated by survey participants, include using check imaging software, positive pay service (for corporate customers), a kite detection system at the teller station, and ‘out of pocket’ external database of non-financial information for customer authentication (at call centers and/or for address change.”

In the end, the opportunity to detect fraud earlier in the processing stream is available, but it will be largely dependant on the banks’ abilities to authenticate presenters. Fewer returns and adjustments mean reduced handling costs, errors and reduced collection and fraud risk. The value-add is designing end-to-end fraud detection processes in order to optimize the early detection benefits that real time posting can provide.

**Agility**

Real time processing provides an agility that cannot be achieved with a batch processing model. In today’s competitive environment, financial institutions need to respond quickly to unanticipated business opportunities; to do so they must have optimal business processes and technical capabilities in place.

- Enterprise wide access to customer information – and a “once and done” processing framework improves regulatory compliance.
- New products can be established within days rather than weeks or months. A trained business analyst can set-up a new product or make product changes. New product delivery requires fewer steps and fewer people to be involved in the process.
- Speeding up processes creates additional value for customers. Faster electronic payment options, which typically secure funds and post almost immediately, have led consumers to feel entitled to speedier access. This perception will gain momentum as consumers conduct more of their transactions over the internet and make greater use of alternative payment schemes. It is predicted that by the end of 2009, these alternative payment systems will account for more than one-quarter (26%) of the dollar volume of online retail payments.

**Conclusion**

There are compelling reasons for banks to convert to a real time environment. There are dramatic technology-support related cost savings, as well as dramatic process improvement opportunities. Designing and implementing best practice business processes prior to installing the new real time model will ensure maximum value for the technology investment.

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13 BAI, Payment Strategies, January/February 2007, *Getting Real (as in Real-Time Transactions)*
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BenchMark Consulting International has specialized in improving the financial services industry since 1988. The company is a management consulting firm that improves the profitability of its financial services customers through the delivery of management decision-making information and change management services to realize the benefits of business process changes. BenchMark Consulting International’s expertise is in the measuring, designing, and managing of operational processes.

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