

Next-Gen Reconciliation Technology: A Benchmark Study of Gresham's Clareti Transaction Control

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INTRODUCTION

A number of internal and external pressures have thrown a spotlight on the sustainability and scalability of financial institutions' reconciliation processes and technology—those processes that enable the comparison of related but separate sets of data with a view to removing errors or highlighting discrepancies. Many firms currently rely on user-developed applications that were built as a short-term fix but have been embedded into the reconciliation process, such as Excel spreadsheets or Access databases. These perpetual quick fixes pose problems in terms of risk management, cost containment, future scalability, and growth.

Recent market developments have highlighted the need for reconciliations to become more automated and for firms to move away from these user-developed applications:

- A push to decrease operational risk and key-person risk and to reduce the opportunity for fraud is spurring an industry-wide focus on improving systems and controls.
- Widespread cost-containment measures being implemented across the industry are increasing the pressure to reduce headcount.
- The austere financial environment has meant margins are tight; hence, firms need to be quicker to respond to opportunities in the market and speed up the process of onboarding new clients and instruments to reconciliation platforms.
- Regulators such as the U.K.'s Financial Conduct Authority are directly scrutinizing financial institutions' use of user-developed applications for reconciliation processes.

One of the biggest issues facing these firms is the speed at which they can onboard new reconciliations onto their internal platforms—both internally built systems and incumbent vendor solutions have traditionally involved slow onboarding processes. Gresham's Clareti Transaction Control (CTC) solution is seeking to address this area by reducing the latency involved in the onboarding life cycle, especially as it relates to the data onboarding and normalization, design, configuration, and build processes for a new reconciliation.

This white paper explores some of the challenges related to the onboarding of new reconciliations that are driving these firms to examine or consider a next-generation reconciliation offering such as Gresham's CTC. Included in this examination is an overview of firms' processes related to their current reconciliation onboarding life cycle, highlighting current time frames and manpower requirements related to these processes. The report also provides Aite Group's independent assessment of a selection of firms' experiences with a Gresham CTC proof of concept (POC).

METHODOLOGY

Aite Group conducted one-to-one interviews with individuals engaged in the reconciliation process at five top-tier financial institutions that have either participated in a POC of the Gresham CTC solution in the last 12 months or have a working knowledge of the solution. The individuals were asked to compare their current reconciliation environment with that demonstrated during the Gresham POC and to examine some of the challenges they are facing in their middle- and back-office environments that have a material impact on the reconciliation process, or vice versa.

Firms involved in the research comprise three Tier-1 investment banks, one Tier-2 investment bank, and one Tier-1 asset management firm. Two of the firms are headquartered in Europe, one is in North America, one is in the Asia-Pacific region, and one is in Africa.

A WIDE RANGE OF APPLICABILITY

Reconciliation technology can be deployed to support a wide range of functions within myriad financial institutions active in the capital markets, including support for both externally facing and internally focused processes. For the broker-dealer community, this could involve the reconciliation of anything from trade confirmations with their broker counterparts to externally focused functions such as the reconciliation of their cash nostro accounts. Asset managers and their outsourcers may use this technology to reconcile the positions and transaction data held by each party or to internally reconcile their securities master data on an enterprise-wide basis.

Reconciliation technology is largely deployed to support various middle-office and back-office functions such as those shown in Table A.

Table A: A Selection of Internal and External Applications for Reconciliation Technology

Internally focused processes	Externally focused processes
Enterprise-wide securities master	Trade confirmations (broker-to-broker and buy-side-to-broker)
Inter-divisional cash and securities movements	Accounts and statements (MT940/50), regulatory reporting support
Collateral inventory	Securities positions and transactions with an outsourcer
Inter-desk/inter-company affirmations	Custody, repo, and securities lending arrangements
Net asset value	Statements from custodians and counterparties

Source: Aite Group

Early deployment of reconciliation technology in the 1990s and early 2000s initially focused on cash and securities reconciliation processes, but now there is much more appetite to deploy this technology to support areas such as derivatives, data quality improvement, and regulatory reporting. The scope of the application of this technology is therefore fast increasing, which, in turn, is putting pressure on technology platforms that may have been designed with a particular work flow in mind. This pressure is especially evident when considering the support of complex work flows such as intersystem reconciliation of OTC derivatives data.

NO ONE-SIZE-FITS-ALL APPROACH

Given that reconciliation processes are needed to meet a wide range of functional requirements, the typical approach has been to develop standard models for these new and emerging types of reconciliation through in-house builds, user-developed applications, or reconciliation vendor solutions. Firms are therefore required to try and fit nonstandard and complex reconciliations into a standard model, but this can be problematic because of the sometimes bespoke nature of the required reconciliation. Those reconciliations that cannot be forced into an existing model require either a new standard model to be developed and added to the current reconciliation platform, thus increasing the cost and time involved in that process, or the reconciliation to be performed on a more manual basis, such as using an Access database (or Excel) and full-time employee (FTE) effort. In fact, a senior operations manager at one of the large investment banks interviewed believes that, despite having a number of vendor reconciliation platforms, the majority of the firm's reconciliations—around 70% or 80%—still take place in user-developed applications such as Excel spreadsheets.

CASE STUDIES

One interviewed Tier-1 investment bank indicates that this standard model approach is fast becoming a significant challenge for reconciliations that fall outside of the arena of dealing with cash and nostro accounts, which is a traditional area of strength and focus for incumbent vendors. Complex intersystem reconciliations are a particular problem for the firm's in-house and incumbent vendor solution, and the firm has identified the need for 12 new models this year alone for these types of complex reconciliations.

The Tier-2 investment bank is also witnessing pressure on its in-house system as a result of an increased requirement for the development of more standard models. The firm currently uses around six to 10 standard models but notes that the number is gradually increasing with the addition of more complex derivatives to its books. The tough economic climate has compelled the firm to move away from an equities-intensive strategy to diversify into other asset classes, and its support for these assets is hampered by the requirement for manual processing in the middle and back office.

Another Tier-1 investment bank has one standard model for cash and one for stock, but the reconciliations team is keen to develop a product catalog for models in order to support different asset classes and processes. The firm is hoping to productize the process so it is not dependent on bespoke in-house development.

These firms are also all unable to automate "throwaway reconciliations"—reconciliations that are only required to be conducted once or twice, such as those to change the format of a particular set of data items—hence, they rely on manual processes, comparing spreadsheets to reconcile data such as that related to one-off regulatory reporting format changes. The time and effort required to build such a one-off reconciliation is considered to require too much wasted effort if there is no opportunity for future reuse; as a result, the process is often pushed out to the business to conduct using an Access database.

PAIN POINTS

- It is hard to fit all reconciliations into a small range of standard models, especially given the widening range of areas in which reconciliation technology is being applied.
- The development of new models takes time and effort, and it requires resources that may not immediately be available—progress depends on in-house technology teams or external vendor support.
- Firms may be compelled to rely on manual processes for those reconciliations that cannot be forced into a currently available standard model, hence increasing effort, cost, and risk.
- Throwaway reconciliations entail a lot of manual effort and risk because they cannot be automated.

A RELIANCE ON PEOPLE: HIGHER COSTS, RISK

There continues to be a heavily manual aspect to the reconciliation process overall, and many lower-tier firms rely entirely on staffing resources to reconcile their data, trade work flow items, and cash accounts. In larger firms, the faster-moving and newer business lines tend to be dominated by manual effort because of the inability of their single or multiple reconciliation platforms to keep pace with support for new asset classes and new clients. Many top-tier firms are running multiple in-house and vendor systems in an effort to cover all different types of reconciliation required by their business lines.

This reliance on staff to deal with manual reconciliation and maintain multiple systems is also being put to the test as a result of widespread middle- and back-office job cuts across the financial services sector. Table B highlights some of the job cuts that were made or announced during 2012 by Tier-1 global investment banks, thus highlighting the pressure many of these firms are under to automate (due to a lack of available staff to carry out heavily manual processes). This dynamic has also thrown the spotlight on the issue of key-person risk—reconciliation processes and technologies that rely on the knowledge of an individual or small group of individuals are a source of significant operational risk.

Table B: Headcount Reduction by Selected Investment Banks Firms, 2012

Brokerage firm	2012 headcount reduction announcement
Bank of America Merrill Lynch	In September 2012, Bank of America announced that it would be shedding 16,000 jobs across its various divisions (including within the investment bank) by the end of 2012.
Citi	In December 2012, Citigroup announced that it would be cutting 11,000 jobs worldwide (around 4% of the group's staff) including 1,900 jobs in its institutional clients group and 2,600 jobs in the operations and technology group.
Credit Suisse	In July 2012, Credit Suisse announced that it would be making cost cuts equating to around 1,000 staff during 2012.
Morgan Stanley	Morgan Stanley reduced its overall headcount by 4,000 during 2012 (1,600 more are due to be cut in 2013).
UBS	In October 2012, UBS announced that it would be shrinking its investment banking operations and cutting 10,000 jobs over 3 years. It will wind down its fixed income business to be a smaller investment bank specializing in equities trading, foreign exchange, precious metals, advisory work, and research activities.

Source: Aite Group

Most Tier-1 firms have deployed multiple instances of reconciliation solutions across their business alongside a plethora of user-developed applications. The maintenance of these multiple systems and workarounds is therefore a significant area of cost for these financial institutions—all of the Tier-1 investment banks interviewed indicated that they have at least two or three vendor solutions in place across their business. The upgrade process for all of this technology can be a significant outlay for firms, especially if multiple upgrades are required at the same time. This means that the cost to keep the lights on can run into multiple millions for Tier-1 and Tier-2 firms at a time when margins are thin and cost cutting is the norm.

CASE STUDIES

One of the interviewed Tier-1 investment banks is facing a high degree of key-person risk because of the age and idiosyncratic nature of its in-house-built reconciliation platform. A limited number of staff know how to operate the 15-year-old system, and it is especially difficult for the firm if fixes need to be made and processes altered within the system. Moreover, to highlight the scale of the overall maintenance challenge, the firm currently supports its in-house build and two different vendor platforms, one of which has three instances running across different parts of its business. Average yearly maintenance for these systems runs to around US\$10 million. Despite this annual cost, a huge number of reconciliations are performed on desktop applications hand built by non-IT users in spreadsheets and desktop databases and not on either of the vendor platforms.

Another of the interviewed investment banks, on the other hand, runs one instance of a vendor solution as its enterprise reconciliation platform, and annual operational costs, including hardware, software, services, and support, total between US\$6 million and US\$7 million.

PAIN POINTS

- Manual processes tie up FTE resources, thus increasing bottom-line operating costs and operational risk.
- Industry-wide headcount reduction is putting pressure on firms—there are far fewer bodies to throw at the problem in the current market.
- Manual processes do not scale to meet business needs—Excel spreadsheets and Access databases can only go so far.
- Running multiple systems (even multiple instances of the same system) pushes up the costs of keeping the lights on.
- A reliance on user-developed applications introduces key-person risk and opens up financial institutions to the risk of fraud—the latter is a significant concern in light of rogue trader incidents such as those experienced by French investment bank Societe Generale in 2008.

ONBOARDING: A SLOW PROCESS

Interview respondents indicate that one of the biggest drawbacks of many older, in-house-developed reconciliation systems and those traditionally offered by incumbent vendors is the time it takes to onboard a new reconciliation onto the system. As noted by one of the Tier-1 investment banks, onboarding can take anywhere between one day and six months, dependent on a number of factors.

These factors include:

- The complexity of the data
- The volume of the data
- The number of systems that the data must be extracted from
- The number of end users involved and their related business requirements
- The number of available staff to carry out any technology changes, including whether these resources are located onshore or offshore

The onboarding process is often slow and cumbersome, requiring multiple steps to take place before any data can be loaded for reconciliation in the first place. This can include an often lengthy business requirements documentation phase and a heavy build process in the case of more complex intersystem reconciliations. In general, the more complex the data that is being reconciled, the longer the overall onboarding process takes. Many firms have developed data feeders and extract, transform, and load (ETL) layers in order to extract data from source systems and normalize it for consumption by a reconciliation platform.

THE ETL NIGHTMARE

Before data can be loaded onto a reconciliation platform, most in-house builds and solutions offered by incumbent vendors require an ETL process to normalize the data (the data needs to be formatted in a certain manner in order for it to be consumed and parsed by the reconciliation system). This is less of a problem for more standardized data sets such as those related to cash and nostro account reconciliations, but more complex and nonstandard data sets require much more effort.

Trade data reconciliation processes between investment banks and smaller brokers and small and mid-tier asset managers are a case in point. Much of the trade data provided by these smaller firms to their larger counterparts is sent in a nonstandard format such as spreadsheets sent via email or file transfer protocol (and sometimes even fax). The use of ETL technology is therefore a prerequisite for this data to be loaded onto a reconciliation platform that uses a standard model. These ETL layers are most often not part of the reconciliation solutions and must be separately licensed, implemented, and maintained by IT support staff.

CASE STUDIES

The Tier-1 asset management firm's pre-reconciliation onboarding ETL process requires IT resources to be available to support the process. This could mean waiting for up to a month for these resources to be free, depending on the number of other projects going on across the firm that require IT support. One of the Tier-1 investment banks has also experienced similar time lags waiting for IT resources to be freed up, noting that there is a general lack of responsiveness on the part of its centralized IT team and that the reconciliation function is therefore required to actively fight with other functions for these internal resources.

The Tier-1 asset manager indicates a recent effort to add a new reconciliation onto its vendor-provided platform that is aimed at taking an FTE away from manual processing but has not yet been completed due to ETL considerations. The process has been ongoing for around six months due to the requirement to normalize all of the data inputs ahead of onboarding the new reconciliation.

MANY STEPS ON THE ROAD

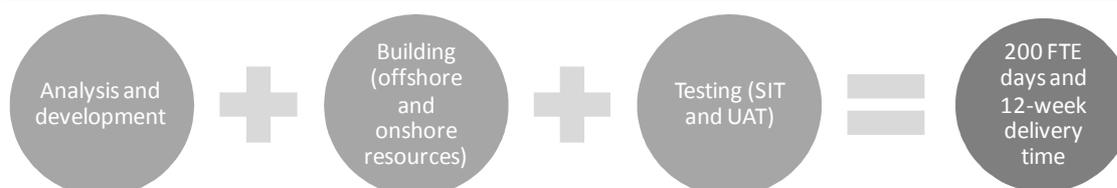
The ETL process is the first of many required in the life cycle of onboarding a new reconciliation onto most traditional solutions and platforms. The steps involved usually include:

- The definition of business requirements
- The writing of a technical requirements document based on business requirements
- The design and configuration of the new reconciliation
- The development and building of the reconciliation—sometimes involving both onshore and offshore staff
- The testing process, which involves system integration testing (SIT) and user acceptance testing (UAT) with business users

CASE STUDIES

Figure 1 highlights the effort required by one of the Tier-1 investment banks to onboard 20 to 30 new reconciliations and enhancements (with the majority representing enhancements) onto its vendor-provided reconciliation platforms. The firm allocates 200 FTE days to this 12-week cycle, which includes 10 days for ETL mapping and configuration as standard.

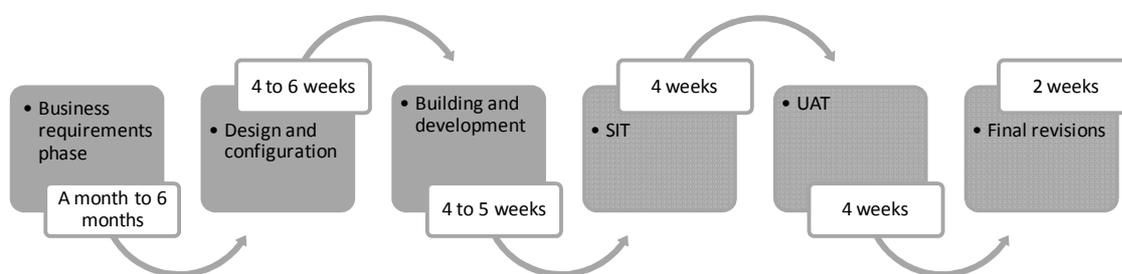
Figure 1: Components of a Tier-1 Investment Bank's New Reconciliation Onboarding Cycle



Source: Aite Group interviews with five financial institutions, Q2 2013

Another of the Tier-1 investment banks that uses a generic version of one of the incumbent vendor solutions is able to onboard around 10 to 20 new, large intersystem reconciliations during a cycle that can take anywhere between five-and-a-half months and 11 months. Figure 2 shows the individual steps involved in the onboarding process and the length of time associated with each of those steps. The initial process of setting the parameters for the business requirements and documenting those considerations is the lengthiest step because of the requirement to involve end users from outside of the reconciliation function; as a result, it can take anywhere between a month and six months. The reconciliation onboarding process in total can take anywhere between five months and a year.

Figure 2: Reconciliation Onboarding Process for a Tier-1 Investment Bank



Source: Aite Group interviews with five financial institutions, Q2 2013

From start to finish, the process for this particular Tier-1 bank involves around 15 to 20 staff members, including those from the business user community for the initial phase and the UAT phase. The cost of the onboarding process for an individual reconciliation varies depending on the business requirements, the complexity of the reconciliation, and whether work has taken place offshore or onshore. On average, the process can cost anywhere from US\$230,000 to US\$300,000 for a low-complexity reconciliation that is developed using offshore resources to US\$1 million to US\$1.2 million for a more complex, onshore development process.

As reconciliations become more complex, more of the reconciliation logic is moved into the ETL tool and for some very complex reconciliations, close to 100% of the reconciliation can actually be performed in the ETL tool. While this expedites the onboarding process, long-term maintenance and support costs significantly increase because multi-disciplined teams are required to support and maintain the solution.

The Tier-2 investment bank's heaviest reconciliation onboarding process is its annual, external-facing counterparty data-reconciliation process that supports the maintenance of its internal master database. The onboarding of this data involves four months of work for its reconciliation team every year.

PAIN POINTS

- ETL technology is required in order for data to be normalized before it can be loaded onto many of the incumbent reconciliation solutions—this requires extra IT support and resources that are in short supply.
- The more complex the data and the wider the range of systems from which it must be extracted, the lengthier the onboarding process and the more steps required within that process.
- The steps involving the business-user community take the longest due to the requirement to document all processes and requirements and then convert them into technical requirements.
- The process is in general very lengthy for intersystem reconciliations—it can take anywhere between a month and six months for an individual reconciliation to be onboarded.
- The reconciliation “business logic” is split across ETL tools and the reconciliation platform. As data gets to be more complex, more of the reconciliation logic is actually performed by an ETL tool

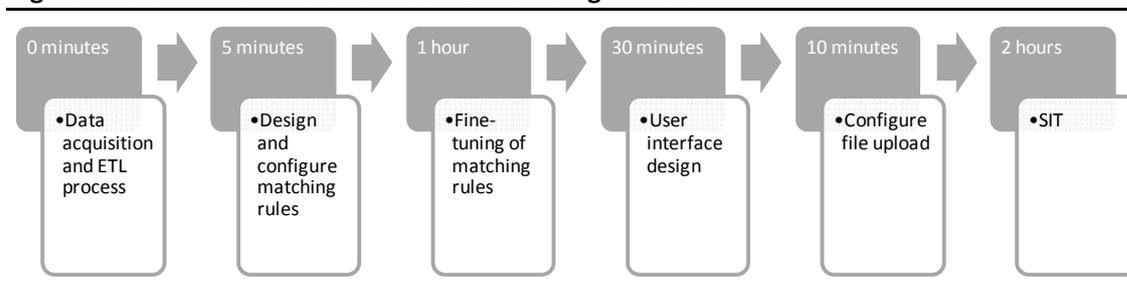
GRESHAM CTC IN THE SPOTLIGHT

The Gresham CTC platform is relatively new to the market and has been specifically designed to reduce the time it takes to onboard a new reconciliation as well as to simplify some of the steps involved in the onboarding process. To this end, the vendor highlights two main aspects that it believes differentiates CTC from the solutions offered by the incumbent vendor community:

- Its intelligent-data-feed mapping capability
- Its intelligent-data learning and configuration wizard

This technology approach means that the solution is able to onboard a new reconciliation in less than four hours, including all steps from data acquisition through to SIT (Figure 3). UAT is likely to be the same for most vendor solutions.

Figure 3: Gresham CTC Reconciliation Onboarding Process



Source: Gresham

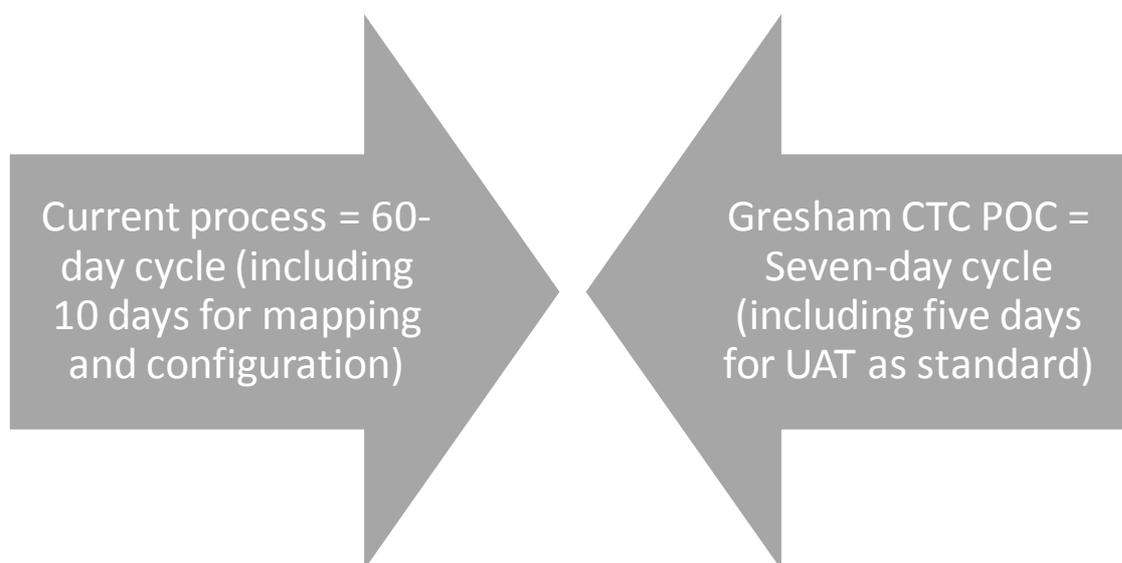
As noted by one of the Tier-1 investment banks, the CTC solution is able to onboard new reconciliations in a seven-day cycle compared to the current 60-day cycle.

CASE STUDIES

Gresham CTC's performance in terms of new reconciliation onboarding speed is best illustrated by the POC it conducted with one of the Tier-1 investment banks in Q1 2013. The bank provided raw data from three live reconciliations—one high volume and low complexity reconciliation, one medium complexity and medium volume reconciliation, and one low volume and high complexity reconciliation—and compared the CTC platform to its current platforms in terms of on-boarding speed.

All reconciliation types were onboarded onto CTC at about the same time.

The mapping, configuration, design, and build phases that take around 10 days on the bank's current platform could be reduced to two days, as indicated by the POC, including the design of matching rules and user dashboards (reduced to four hours), and the standard testing process that is applied by the bank's IT team. The time to market for the new reconciliation could therefore be as short as seven days on the CTC platform compared with the 60-day cycle for its current platform (Figure 4). This takes into account that the same UAT processes need to take place for CTC as the firm's current platform.

Figure 4: Tier-1 Investment Bank Comparison Between Current Process and Gresham POC

Source: Aite Group interviews with five financial institutions, Q2 2013

The firm expects that the technology footprint of the CTC solution will be lower and that, accordingly, infrastructure costs will be lower on an annual basis because the solution is based on newer technology than its current platform. It estimates that running costs could decrease by around 36% on an annual basis as a result.

It also anticipates that the solution will be more scalable to meet future volume increases without suffering from performance lag due to its foundations on newer technology. The ability of CTC to support a T+0 environment (near real time) in order to feed data into dashboards for risk and business analytics is also a key differentiator for the bank—the firm's current solution runs a batch process only every few minutes.

GRESHAM CTC'S FOCUS

The solution aims to:

- Materially shorten the reconciliation process by taking some unnecessary steps out of the process and significantly reducing the time it takes to carry out other steps, such as the automated configuration of matching rules
- Eradicate the reconciliation backlogs present in many firms
- Allow firms to deliver innovative financial products to market quicker with full control
- Bring FTE savings by taking manual effort out of the process—including throwaway reconciliation support

- Take requirements for a separate ETL layer or layers out of the process. CTC incorporates an enrichment layer that is configured in the same way as the rest of the solution and is able to handle reconciliation ETL needs
- Decrease risk by eliminating manual processes
- Allow for greater user interface configurability to enable business users to interact directly with the system
- Enable firms to cope with a more near-real-time environment and scale to meet future volume requirements

UPCOMING PRESSURES AND TIPPING POINTS

The capital markets community is certainly not short of operational pressures in the current financial and regulatory climate, all of which will continue to place these firms' reconciliation systems under the spotlight. The post-Lehman focus on reducing nonfinancial risks such as operational risk has meant many firms have been compelled to revisit legacy systems and infrastructures.

Some key dynamics that are pressuring firms to invest in reconciliation technology in the future include:

- **Regulatory pressure to demonstrate systems and controls:** Regulators are keenly focused on compelling financial institutions to prove their systems and controls architecture and asking them to provide an audit trail for any amendments to key data items—supporting these transparency requirements and providing greater automation overall is very important.
- **A move to real-time and intraday processes:** Concerns about latency have moved beyond the remit purely of the front office; middle- and back-office processes must now adapt to an intraday environment, and user-developed applications cannot hope to support these requirements.
- **Continuing cost reduction:** Firms will continue to focus on rationalizing their operating costs in such an austere financial environment—the need to replace staff with technology is a tipping point for reconciliation technology adoption.
- **A push to centralize:** Many firms are moving to a more centralized model, even those in the lower tiers, and many firms that currently rely on manual processes for reconciliation will be compelled to examine automated solutions.
- **Increased competition in the market:** End clients are actually beginning to directly scrutinize financial institutions' internal processes during the request for proposal process. The interviewed Tier-2 investment bank indicates that its recent buy-side clients have even asked directly about their reconciliation technology support, including front-end usability and speed of onboarding.
- **Business pressure to diversify into other asset classes:** Firms need to be able to quickly onboard new asset classes and support new client requests—rapid onboarding of reconciliations is part of this process.
- **Pressure to tackle fraud:** The troubles experienced by many firms over the last few years as a result of fraud and rogue-trading activities have caused firms to heighten their focus on reducing opportunities for fraud and key-person risk.

ABOUT AITE GROUP

Aite Group is an independent research and advisory firm focused on business, technology, and regulatory issues and their impact on the financial services industry. With expertise in banking, payments, securities & investments, and insurance, Aite Group's analysts deliver comprehensive, actionable advice to key market participants in financial services. Headquartered in Boston with a presence in Chicago, New York, San Francisco, London, and Milan, Aite Group works with its clients as a partner, advisor, and catalyst, challenging their basic assumptions and ensuring they remain at the forefront of industry trends.

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ABOUT GRESHAM

Gresham Computing plc is a leading provider of software solutions to international financial institutions and is listed on the main market of the London Stock Exchange (GHT.L). We service over 100 major blue-chip customers, many of whom have been customers for over 30 years. Our customers include several of the world's largest financial institutions, served locally from offices located in Europe, North America and Asia. Gresham is a corporate member of SWIFT.

We are recognized around the world for our ability to deliver technology to financial institutions of every size. We have a demonstrable track record of delivering complex projects within the banking, asset management, brokerage and corporate markets. Customers value our ability to help them solve business issues and to build their own businesses. With over 30 years of experience, we understand the needs of financial institutions and are committed to helping our customers succeed.

Our vision is to be the market leader in transaction control solutions—giving financial institutions and their customers Real-time Financial Certainty in their transaction processing.

Further information can be found at www.gresham-computing.com or follow us on Twitter at [@Greshamplc](https://twitter.com/Greshamplc).

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