

# STP in the Back Office: An implementer's view

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# Presentation Outline

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- Perspectives on STP
- STP Solution : Implementation considerations
  - Architectural & Technology Considerations
  - The debate: "BUILD" vs. "BUY"
  - Total Cost of Ownership
- Case Study



- **Intra-Firm** STP : reasonably similar across different capital markets
- **Inter-Firm** STP : different from market to market; governed by the law of the land and the evolving market practices

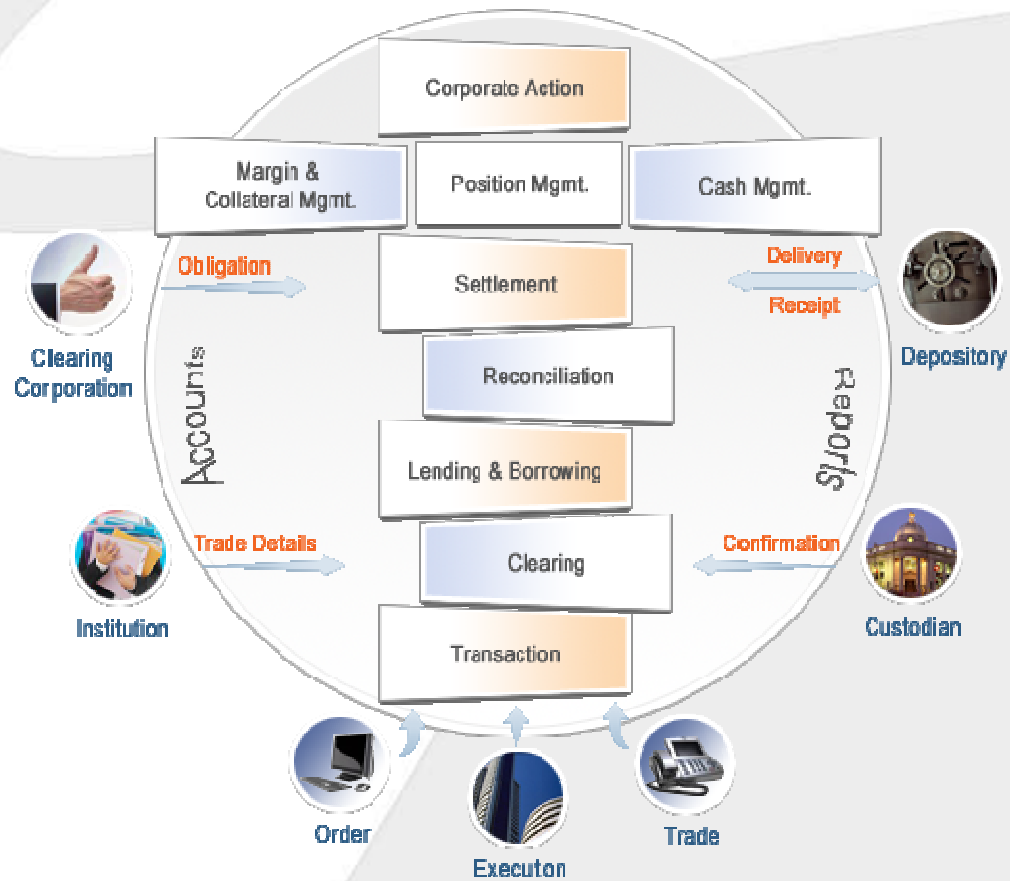
# Many views on STP implementation INNOVATION NEXT

- STP is . . .
  - Reducing settlement cycles
  - Elimination of manual intervention
  - Reduction of operational cost & risk
  - The backbone of efficient market mechanism
- STP . . . implementer's view
  - The real time system automating the entire post-trade life-cycle management, that provides the right balance between process efficiency, minimizing operational cost and limiting risk exposure



# Implementer's view of STP

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- **T+1 not top priority for securities industry**
  - New research challenges rationale behind reduction of Cost and Risk expected from T+1 implementation

*Tower Group report,  
"T+1: Cost, Risk, Benefit and Other Urban Legends"*

- **Reference Data management viewed as the major obstacle in achieving STP**
  - Four out of five financial institutions view badly managed reference data as a major cause of failure in achieving intra-firm STP

*Report published by  
Tower Group, Reuters and Capco*

- What role should regulators play in promoting STP?
  - STP realistically can not be imposed on the marketplace from the top down, it should be allowed to create an organic STP structure.

*Daniel Doscas,  
HSBC Securities*

- Has the STP direction changed over the past 5+ yrs?
  - In 2000-2001, the securities industry faced about \$1.8 trillion worth of trades remaining unsettled globally in single business day.

# Industry outlook on STP

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## Current mindset ..

STP initiatives – How to be more Cost & Time-effective

Complete back office system overhaul is difficult/risky

Third party outsourcing not viable option for everyone

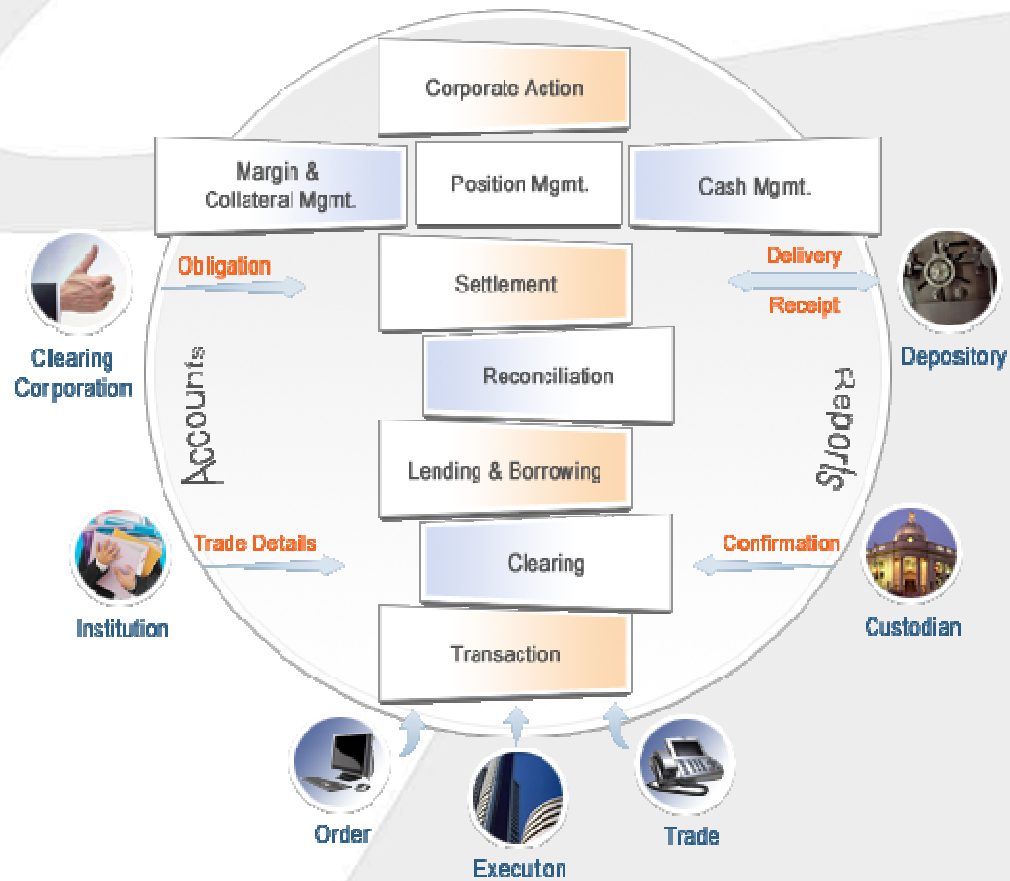
Off-shoring only makes sense for the 'big-boys'

## **What is the way to go ?**





# Modular STP Solution Framework INNOVATION NEXT



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# Architectural Considerations

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- Architecture backbone
- Scalability
- Distribution
- Virtualization
- Customizability
- Preparing for tomorrow



# Architecture : Backbone

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- Tier based?
- Grid based?
  - Messaging grid (distributed messaging)
  - Processing grid (parallel processing)
  - Data grid (distributed caching)
- Service Oriented?

Everything towards the common goal ...



# Architecture : Goal

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Offer a powerful computing framework, capable of handling capacity transaction throughput, enabling clustering, high availability, location transparency and consistency of secured services across all the layers of the architectural stack.



- Scalability is a measure of how cost-effectively you can grow your operating capacity
- Plan ahead for a scalable system based on off-peak and peak trade volume (and future growth plan)
- Linear scalability – scaling OUT through additional resources (hardware, application instances)

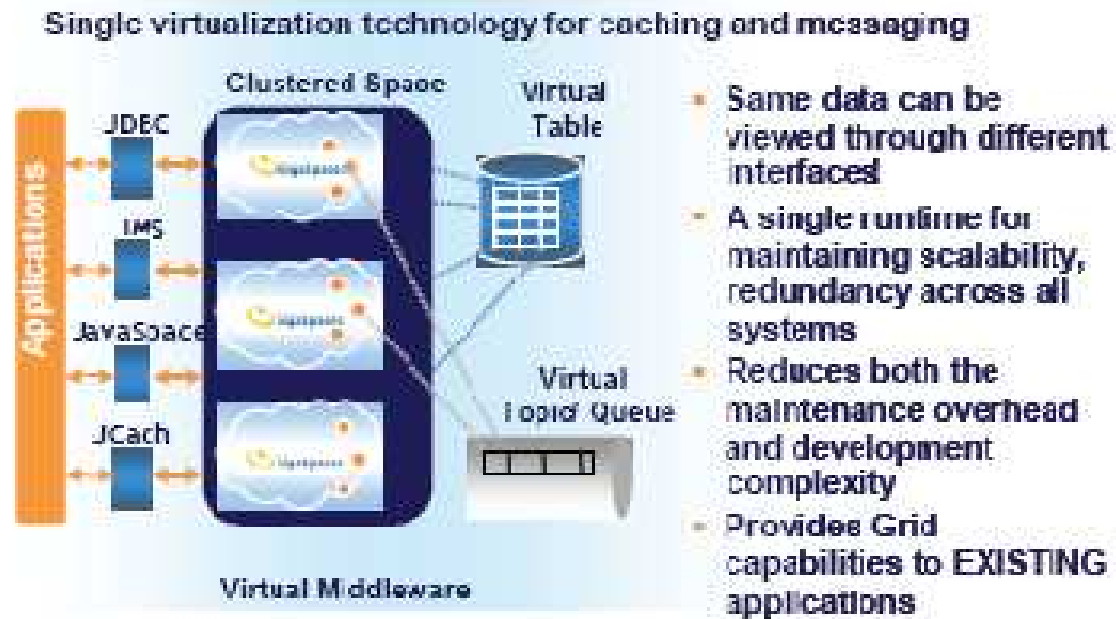
- Data distribution
  - Data grids (distributed cache, network attached memory)
- Processing distribution
  - Cooperative parallel processing (map/reduce paradigm)
- Messaging distribution
  - Message bus

**Goal :** Loosely coupled distributed services for implementing high performance and low latency STP system

# Architecture : Virtualization

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'Write-Once' business logic and scale anywhere



Virtualizing the Middleware using Space based technology  
(figure copyright : Gigaspaces)





- Rule based processing
  - Market characteristics vary
  - Localization for different regions
  - Using rule engines for dynamic inference and externalizing the customization activities

# Architecture for tomorrow – Multi-core

- Multi-core is here – STP applications need to take advantage multi-core platforms
- Functional languages will lead the way
  - More and more being used in the Wall Street
  - Erlang OTP platforms have proved to be multi-core ready
- Stateless scalability



# The Debate : Build vs. Buy

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- **Buy or build:** Requires active support / involvement of the management and the business/user community
- **Build:** Whether built in-house or by external vendor, active collaboration required from internal operations
- **Buy:** Even if functions/features match, operational and technical integration may not be obvious or trivial
- Off-the-shelf package solutions may require significant customization, raising the total cost of ownership



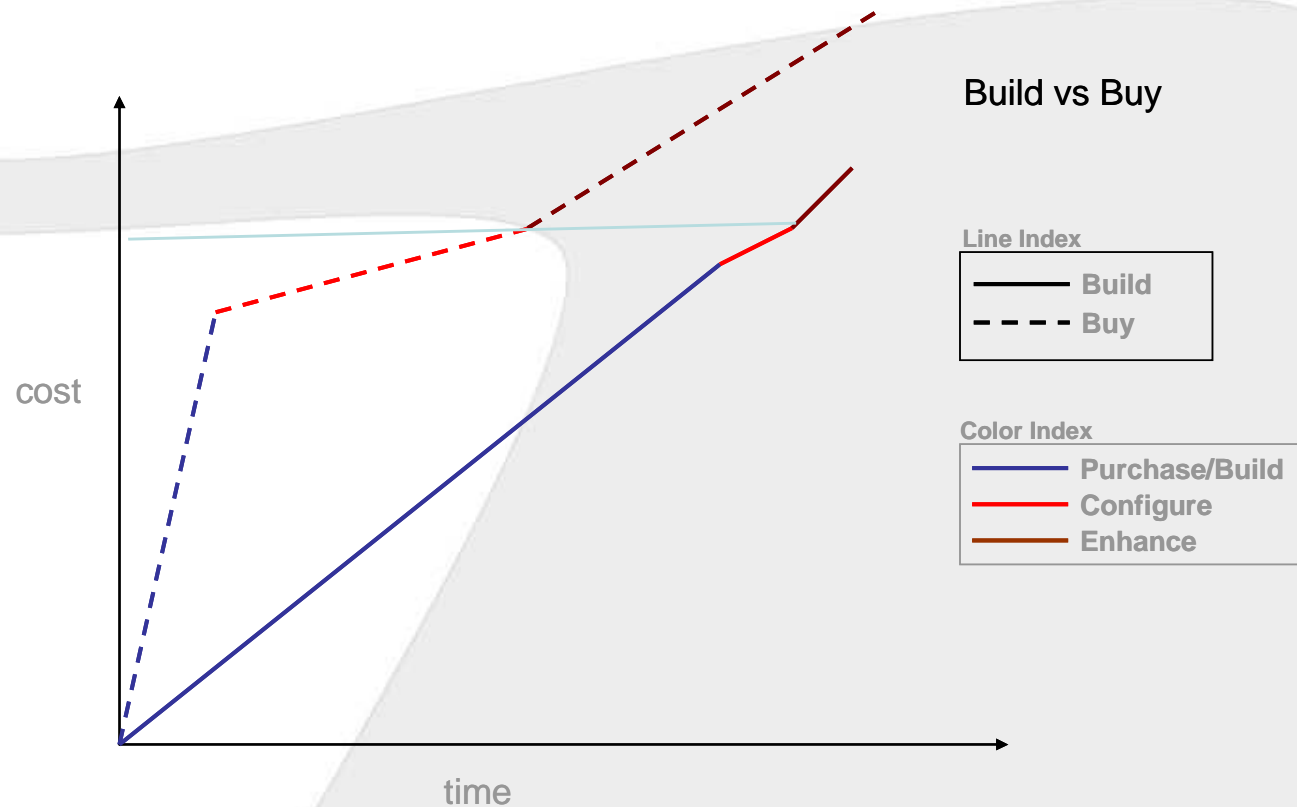
# Factors Influencing Build or Buy

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- Time to deploy (including integration/migration)
- Budget allocation (incremental vs. upfront)
- Firms internal resource profile and IT capabilities
- Handling future changes and enhancements
- Feature differences between a custom built solution and packaged solution and their criticality to the firm
- Total Cost of Ownership (not just the licensing cost)



# Build vs Buy – cost & time estimation



# Build vs. Buy : Our Views

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- Having the right balance between what you BUY and what needs to be BUILT on it
- No single solution truly fits all – so critically evaluate the application capabilities against your requirements
- BUY Customizable Solution Framework – as it may be difficult to address all custom requirements in a fully packaged solution



## Pay careful attention to the real cost

- TCO is combination of procurement cost plus ongoing cost of support, operations and maintenance
- Ongoing cost factors depend on the flexibility/effort for:
  - Customization, Integration, Migration
  - System Testing & UAT, User Training
  - Supporting future business requirements & enhancements
  - Ongoing system maintenance – hardware and software
  - Managing operational scalability

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## Broker-cum-Custodian Back Office STP system for Global Financial Services Company



# The Background

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- Customer

Securities broker-cum-custodian with operations in multiple capital markets (countries)

- Goal

Implement and migrate to a new system that would eliminate their operational inefficiencies and enable them to meet future business demands -

*Handle higher volume, Ready for 1-day settlement and have common solution backbone across global operations*



# Their Operational Issues

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- Too many scattered legacy systems
- Scattered reference data for each legacy system
- User operation and training – multiple system knowledge required
- Lack of standards in information exchange protocol
- Old systems unable to handle increasing volumes
- Manual process for data verification/reconciliation



# High-level Objectives

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- Phase out scattered legacy systems with a single new system built on latest technology platform
- Unified system for handling multiple asset classes
- Same solution platform across multiple offices
- Seamless integration with the required legacy systems
- Centralize Reference Data repository
- Enable intra-firm STP and be ready for inter-firm (T+1)
- Be scalable for handling increasing trade volume
- Designed flexibly, for easier incorporation of changes in market regulations and firm's business practices in future



# The Solution

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Implementation of a clearing & settlement engine with real time interface between market intermediaries and straight-through transaction processing capabilities

- Comprehensive post-execution trade life-cycle management
- Works in real time and batch mode
- Supports multiple asset classes
- Supports cross border trades
- Integrated reporting solution
- Real time posting and general ledger journalization
- Integrated with FO and MO in real time
- Integrated with market intermediaries (where supported)



# High Level Approach

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- Custom solution was first implemented in their Asian operations in the following order: Japan, Hong Kong and Singapore.
- Followed by implementation for their US operation (NY) : the system has successfully completed UAT.



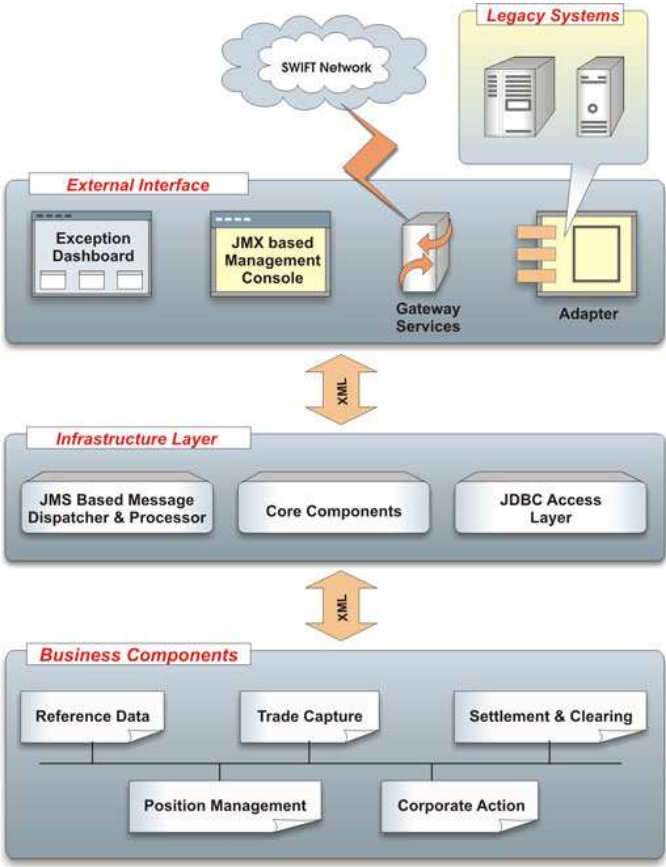
# The Solution – Functional Components NEXT

- Trade capture and management
- Settlement processing
- Corporate action
- Position management (customer, inventory, nostro and stock record)
- General ledger
- Reporting (regulatory, transaction, risk assessment, audit and client reports)
- Exception monitor



# Solution Architecture

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- **Architected based on async. messaging and MOM**
  - Reliable delivery
  - Standards compliant (JMS)
- **Web based**
  - Centralized deployment and maintenance
  - Standards compliant (Java EE)
  - Container based (Java EE) management
- **Centralized exception handling and reporting**

- **Scalable**
  - Stateless service layer
  - Clustered
- **Fault Tolerant**
  - Oracle RAC
  - Fail-safety of MoM

# The Benefits

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- Less number of disparate systems to use/manage/monitor
- Faster processing to handle increasing trade volume
- Real time information availability and decision making
- Less manual intervention
- Daily generation of all regulatory and client reports
- Faster exception handling, lowering operational cost & risk
- Quick detection of operational system errors due to an integrated application
- Automatic reconciliation and discrepancy identification



# Challenges

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- Varying levels of complexity for similar processes in different markets [complexity increases with market age]
- Unifying different market practices in a single platform
- Eliminating the local legacy systems in each operations
- User acceptability and inherent resistance to migrate to new system
- Balancing between cost, time and resources (with hard to scale knowledge constraints)



# Lessons Learnt

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- Have a proper reference data strategy. If not defined, insist on getting it defined before starting implementation.
- Everything cannot be made configurable – performance and configurability needs to be balanced.
  - Drastic differences in market practices may require some rebuild.
- Plan for performance early – evaluate/estimate current and expected /future performance metrics
- Set scalability expectations early – how much can be scaled and at what cost
- Involve users from initial stages to get to know usability requirements (and get buy-in for new system)
- Have a well-defined migration & implementation path
  - Estimate efforts for parallel run



**Thank You**  
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