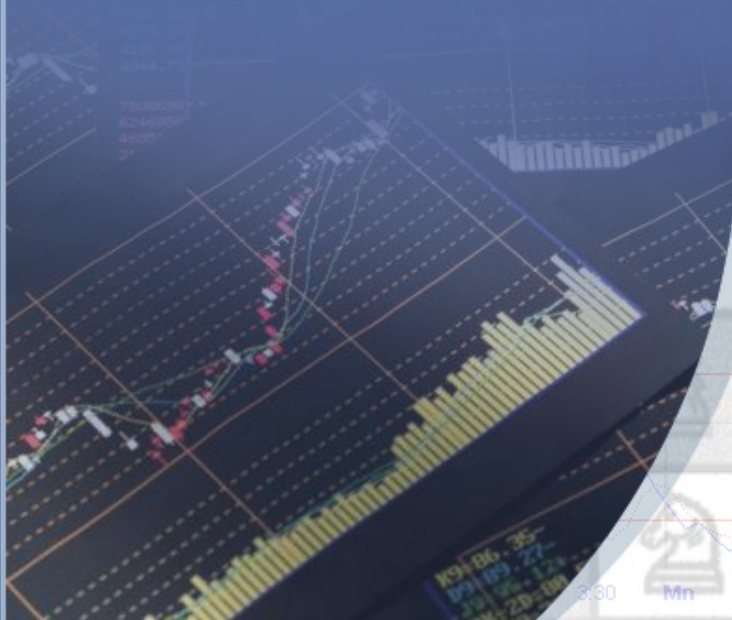




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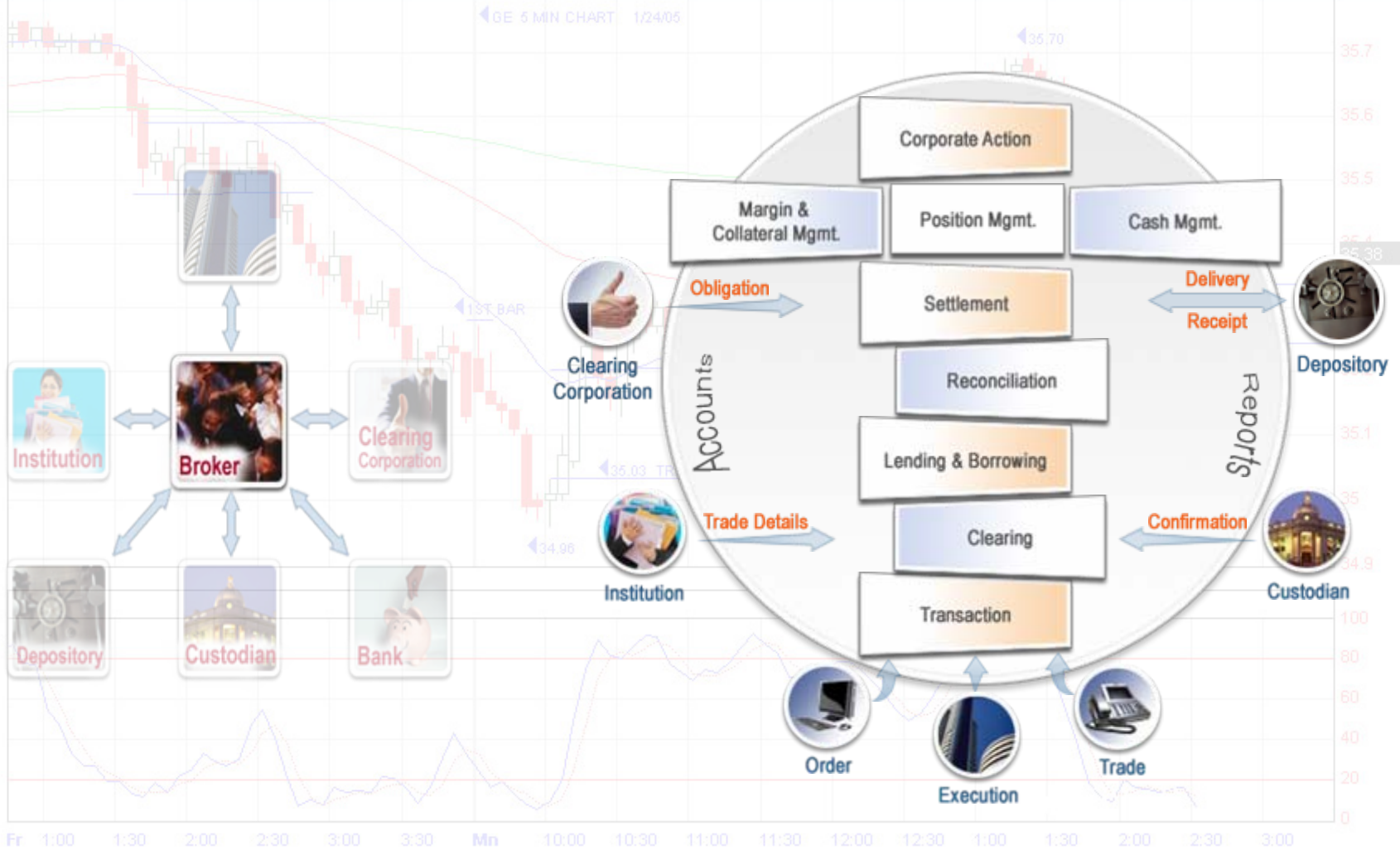
Capital Market Solutions



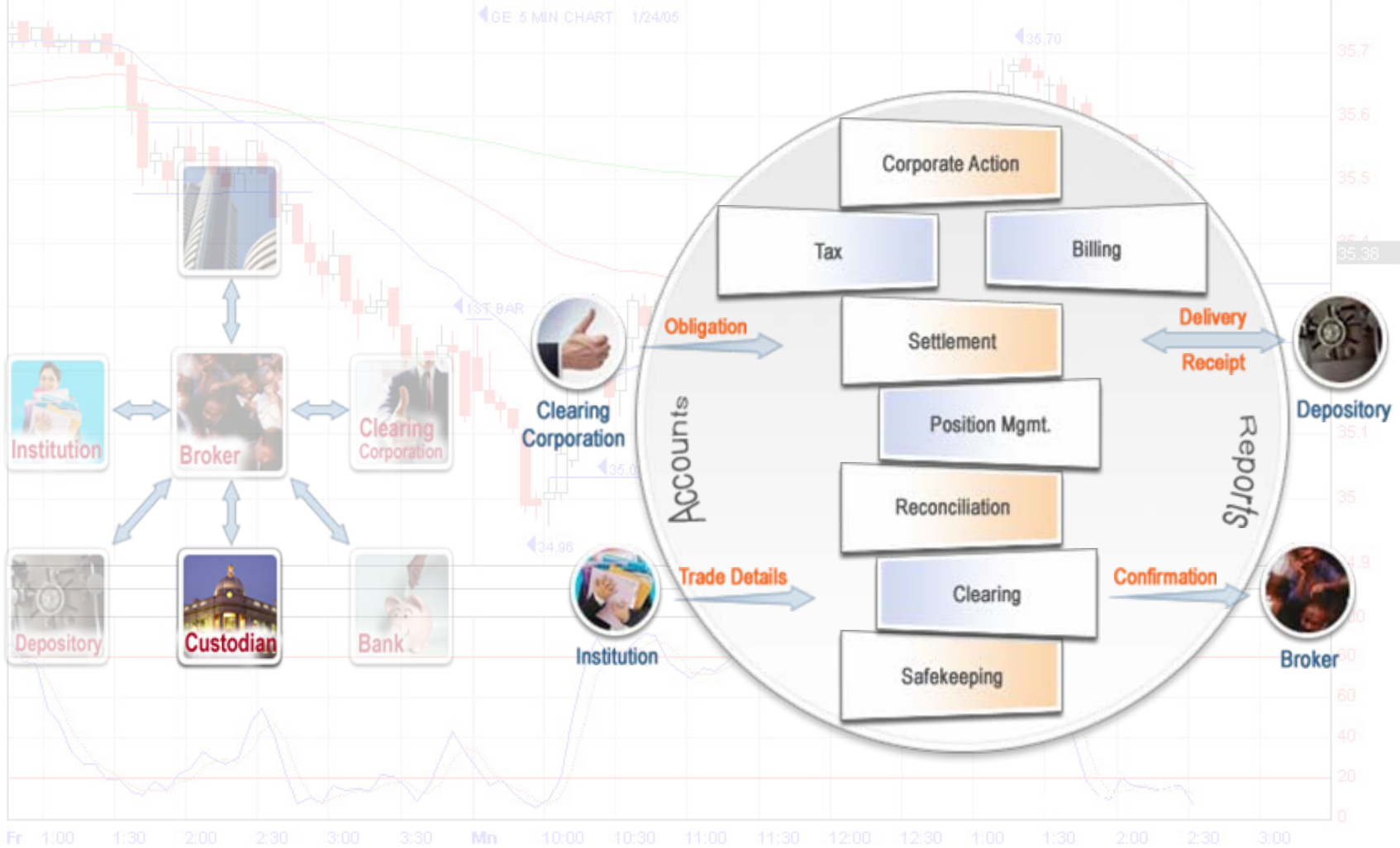


Functional Scope and Features

For Securities Brokers



For Custodians



High level Scope

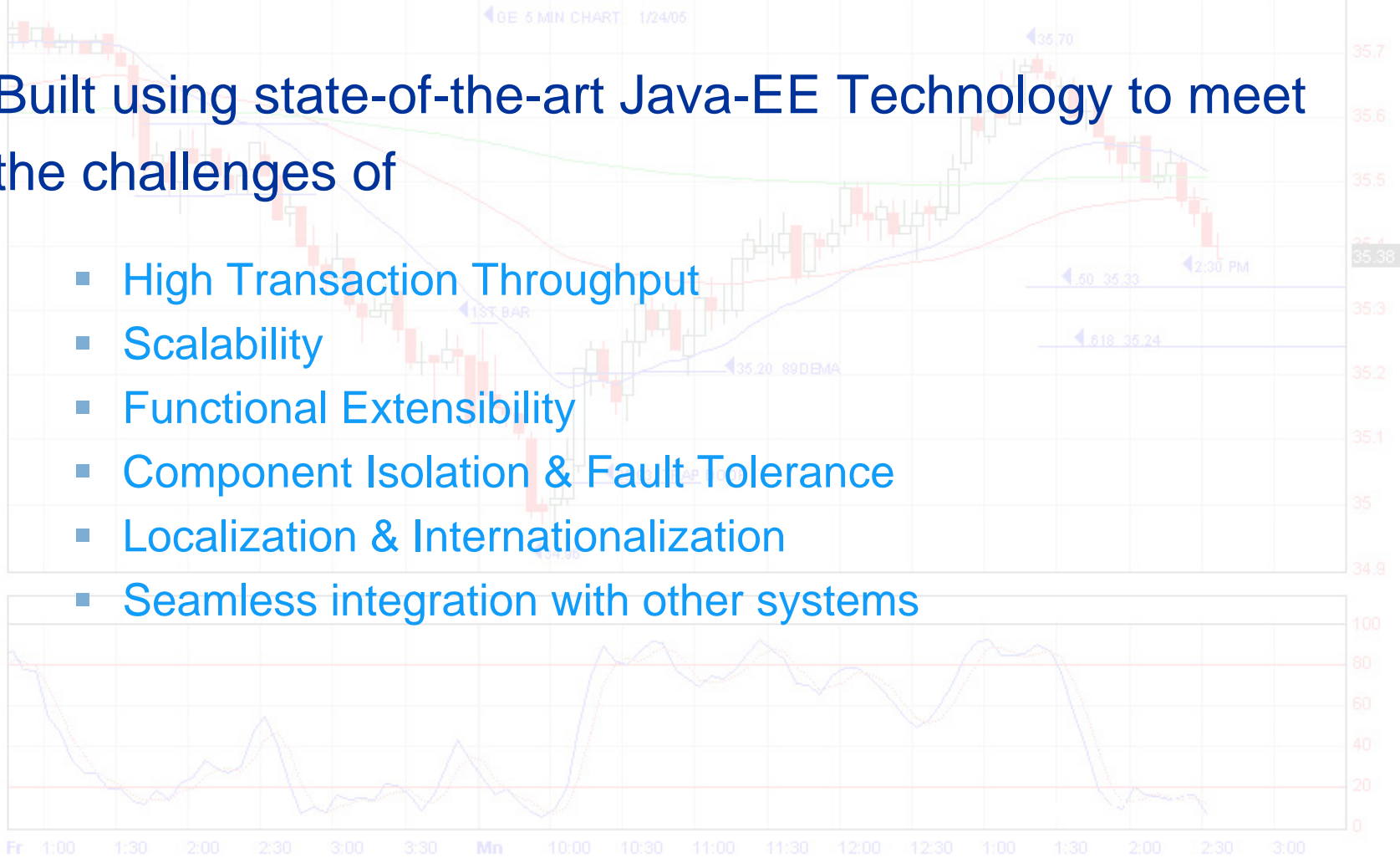
- ◆ A comprehensive back office solution for implementing STP in post-trade life cycle management
- ◆ Supports multiple asset-classes
 - Equity, Fixed Income, Stock Loan, Repo, Forex, Banking and more..
- ◆ Handles cross border trades in multi-currency environment
- ◆ Real time interface with external institutions
 - Depositories, Clearing Corporations, Custodians
- ◆ Simultaneously supports multiple enterprises with proper data segregation



Technology Features

Built using state-of-the-art Java-EE Technology to meet the challenges of

- High Transaction Throughput
- Scalability
- Functional Extensibility
- Component Isolation & Fault Tolerance
- Localization & Internationalization
- Seamless integration with other systems



Technology Features

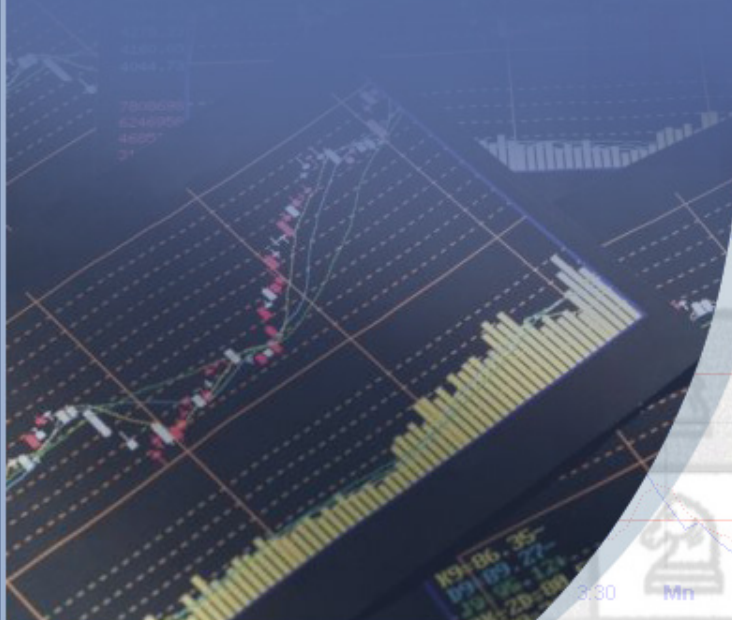
◆ Web enabled Application Platform

- Easy deployment
- Single point maintenance
- Accessible over the Internet
- Easier scalability

◆ Message based architecture

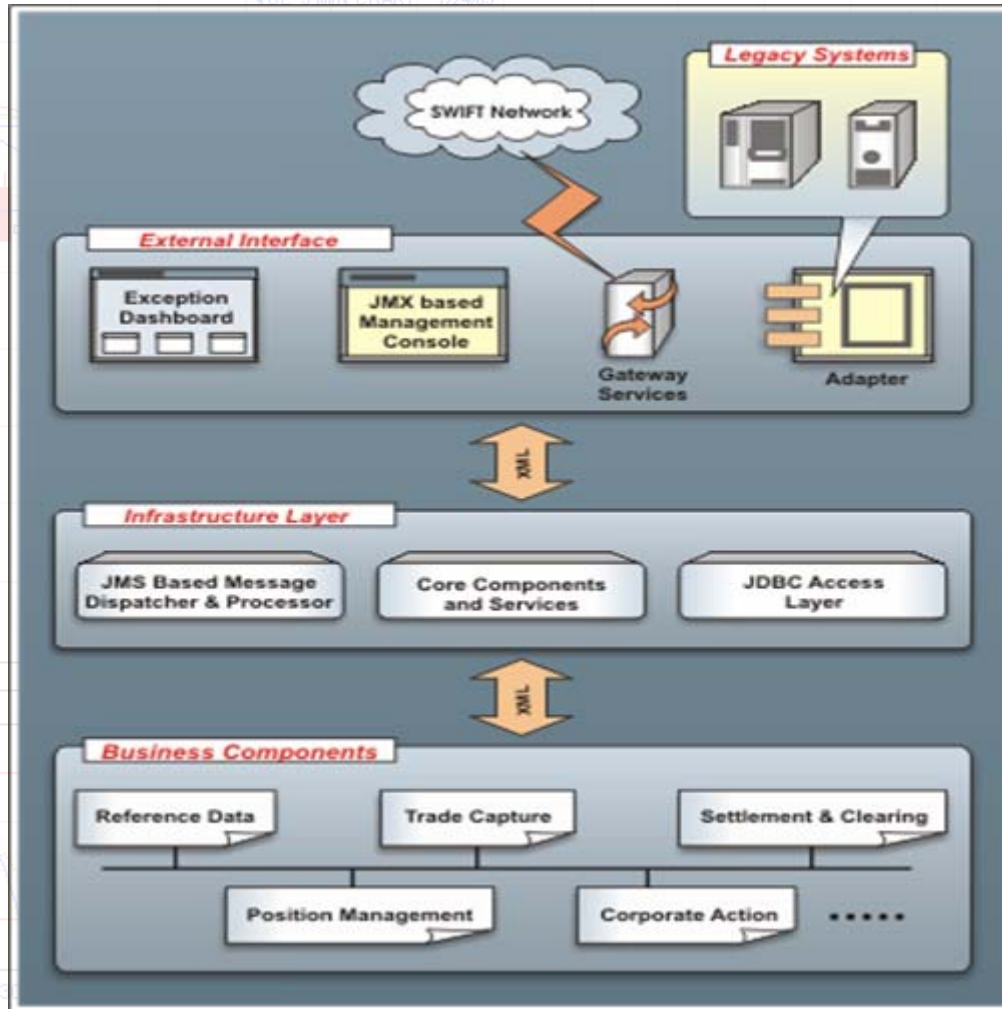
- Asynchronous processing
- Ensured delivery/flow of information
- Modular and extensible
- Better Exception Management





Solution Architecture

Application Architecture



Solution Components (1)

Major Functional Modules

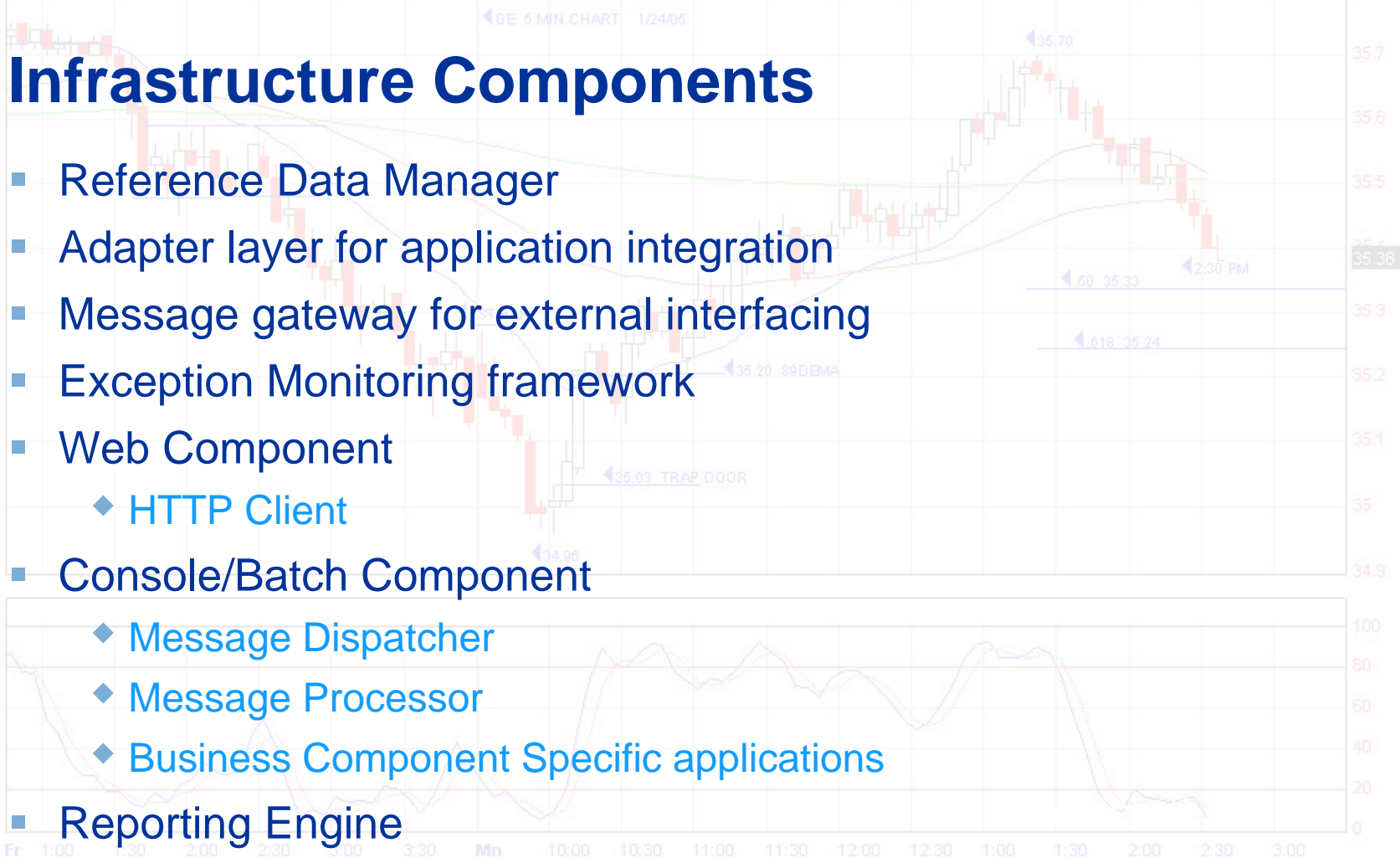
- Trade Capture & Management
- Settlement Management
- Position Management
 - ◆ Inventory Position
 - ◆ Customer Position
 - ◆ Nostro & Depository
 - ◆ Stock Record System
- Corporate Actions
- General Ledger
- Regulatory and MIS reporting



Solution Components (2)

Infrastructure Components

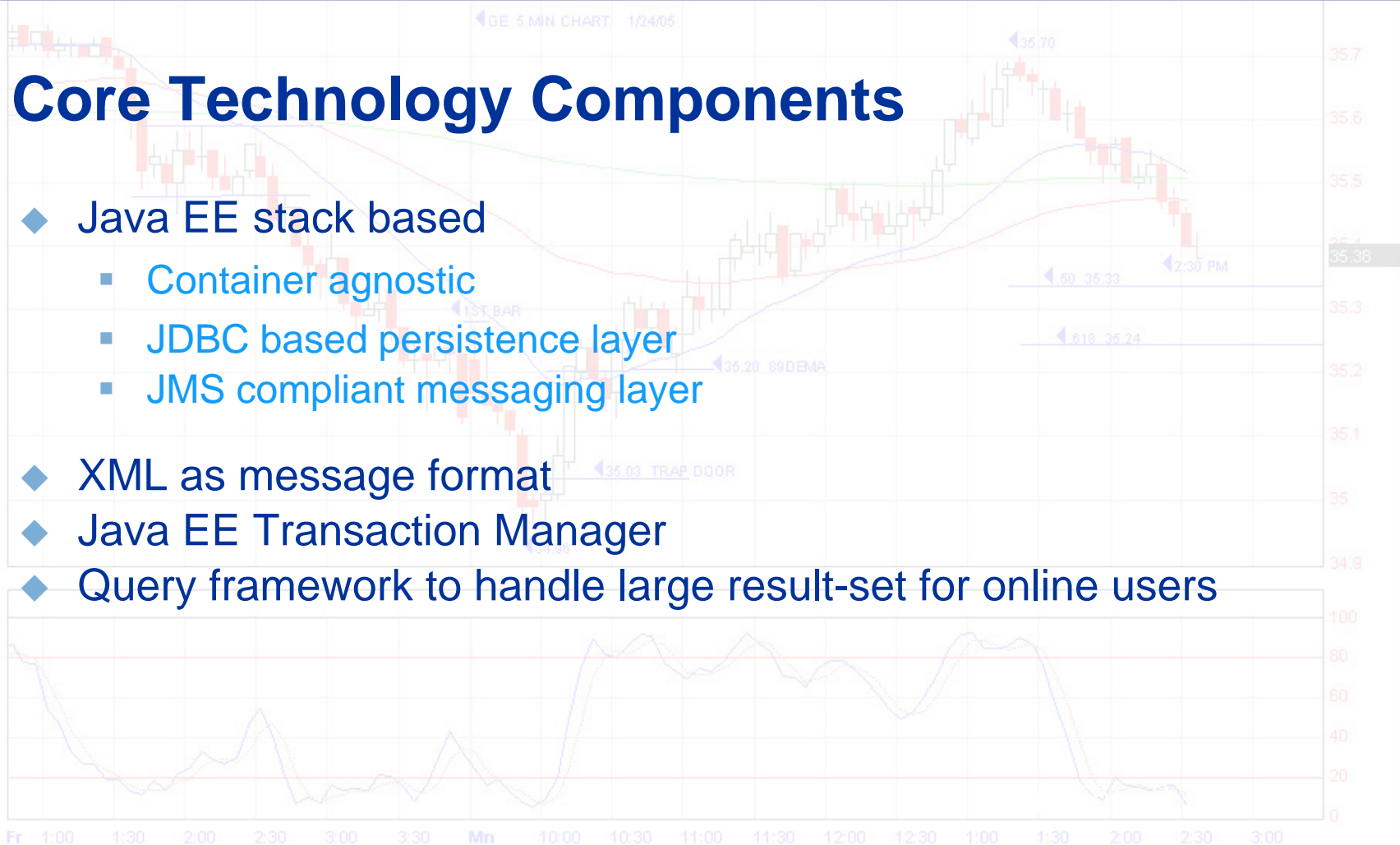
- Reference Data Manager
- Adapter layer for application integration
- Message gateway for external interfacing
- Exception Monitoring framework
- Web Component
 - ◆ HTTP Client
- Console/Batch Component
 - ◆ Message Dispatcher
 - ◆ Message Processor
 - ◆ Business Component Specific applications
- Reporting Engine

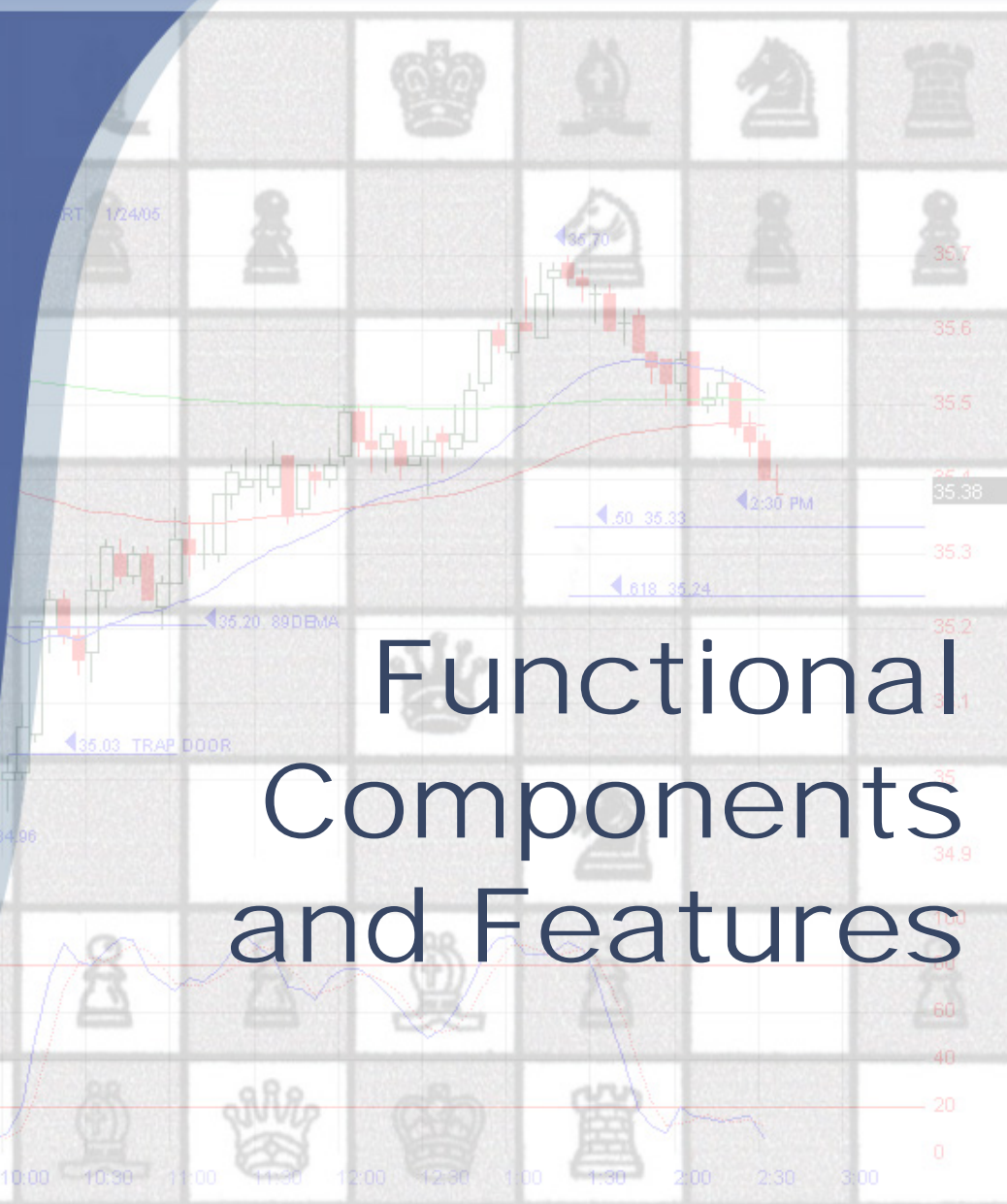
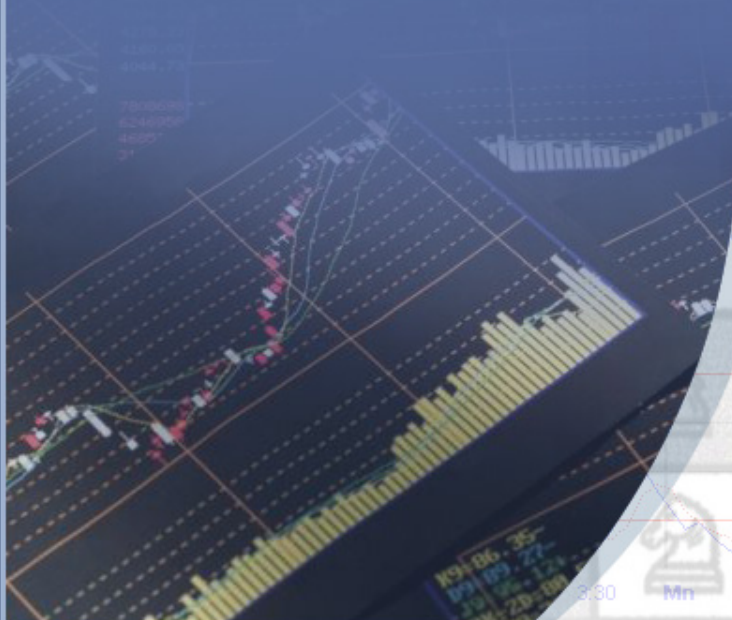


Solution Components (3)

Core Technology Components

- ◆ Java EE stack based
 - Container agnostic
 - JDBC based persistence layer
 - JMS compliant messaging layer
- ◆ XML as message format
- ◆ Java EE Transaction Manager
- ◆ Query framework to handle large result-set for online users

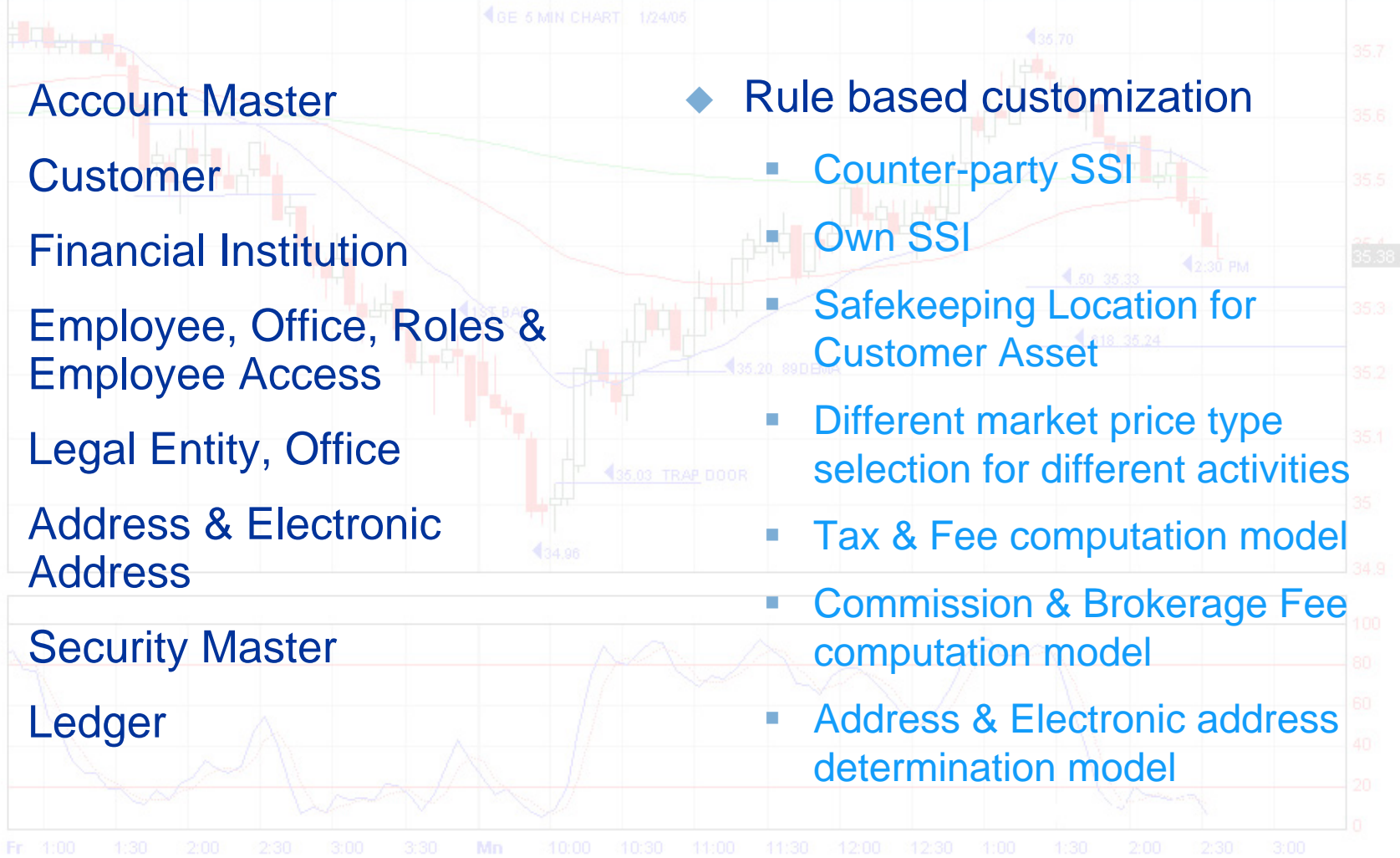




Functional Components and Features

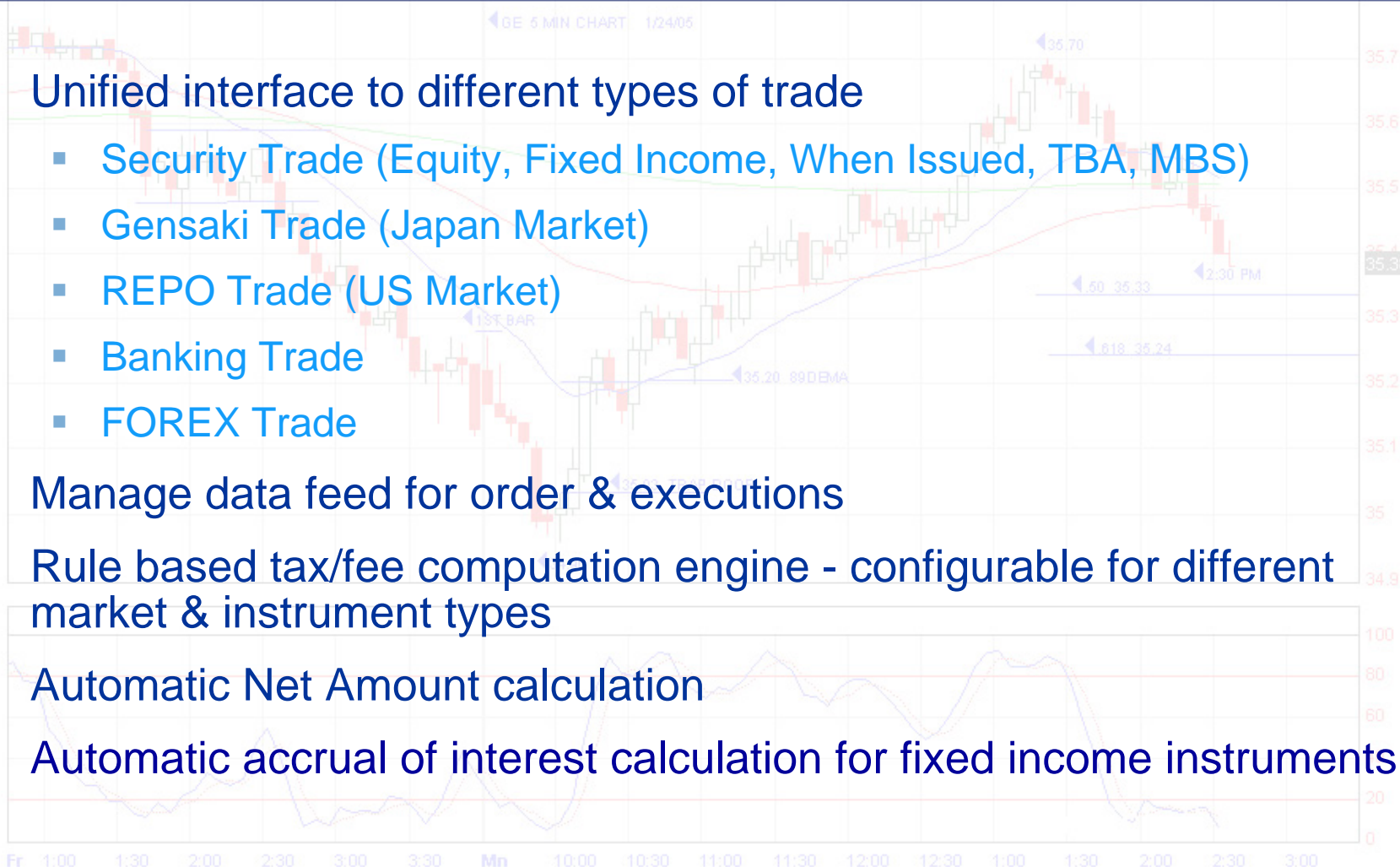
Reference Data

- ◆ Account Master
 - ◆ Customer
 - ◆ Financial Institution
 - ◆ Employee, Office, Roles & Employee Access
 - ◆ Legal Entity, Office
 - ◆ Address & Electronic Address
 - ◆ Security Master
 - ◆ Ledger
- ◆ Rule based customization
 - Counter-party SSI
 - Own SSI
 - Safekeeping Location for Customer Asset
 - Different market price type selection for different activities
 - Tax & Fee computation model
 - Commission & Brokerage Fee computation model
 - Address & Electronic address determination model



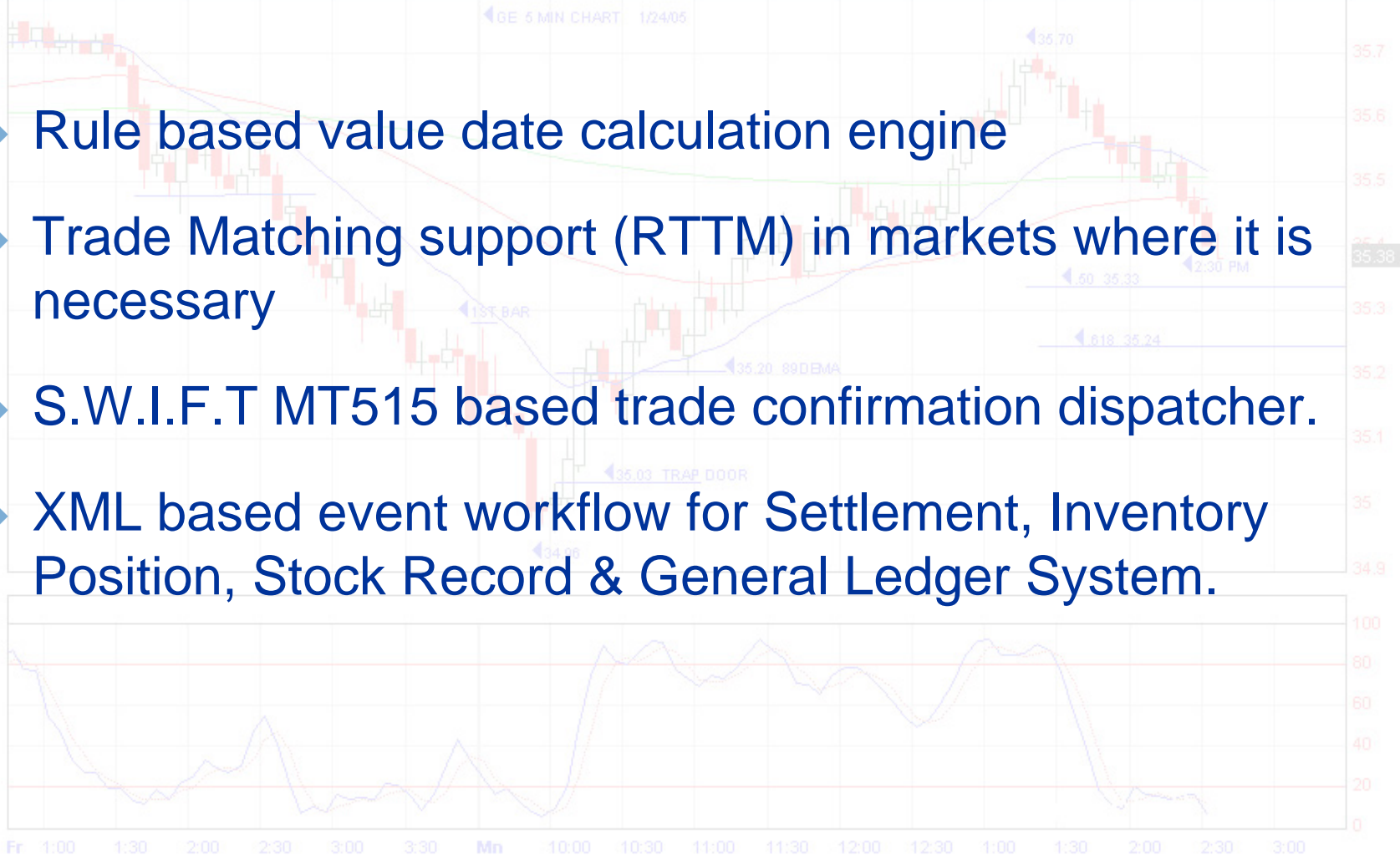
Trade Management

- ◆ Unified interface to different types of trade
 - Security Trade (Equity, Fixed Income, When Issued, TBA, MBS)
 - Gensaki Trade (Japan Market)
 - REPO Trade (US Market)
 - Banking Trade
 - FOREX Trade
- ◆ Manage data feed for order & executions
- ◆ Rule based tax/fee computation engine - configurable for different market & instrument types
- ◆ Automatic Net Amount calculation
- ◆ Automatic accrual of interest calculation for fixed income instruments



Trade Management

- ◆ Rule based value date calculation engine
- ◆ Trade Matching support (RTTM) in markets where it is necessary
- ◆ S.W.I.F.T MT515 based trade confirmation dispatcher.
- ◆ XML based event workflow for Settlement, Inventory Position, Stock Record & General Ledger System.



Trade Management

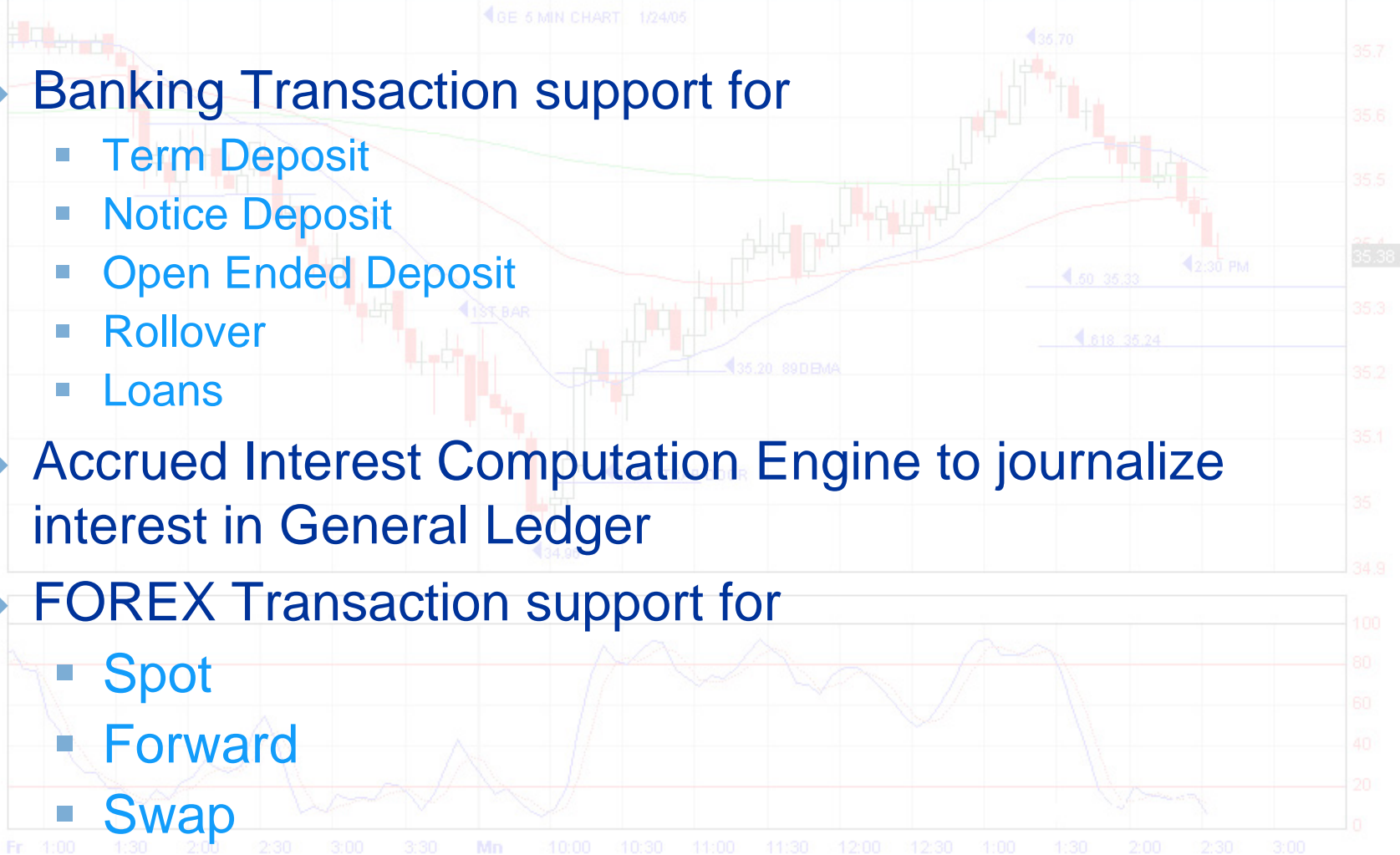
◆ Banking Transaction support for

- Term Deposit
- Notice Deposit
- Open Ended Deposit
- Rollover
- Loans

◆ Accrued Interest Computation Engine to journalize interest in General Ledger

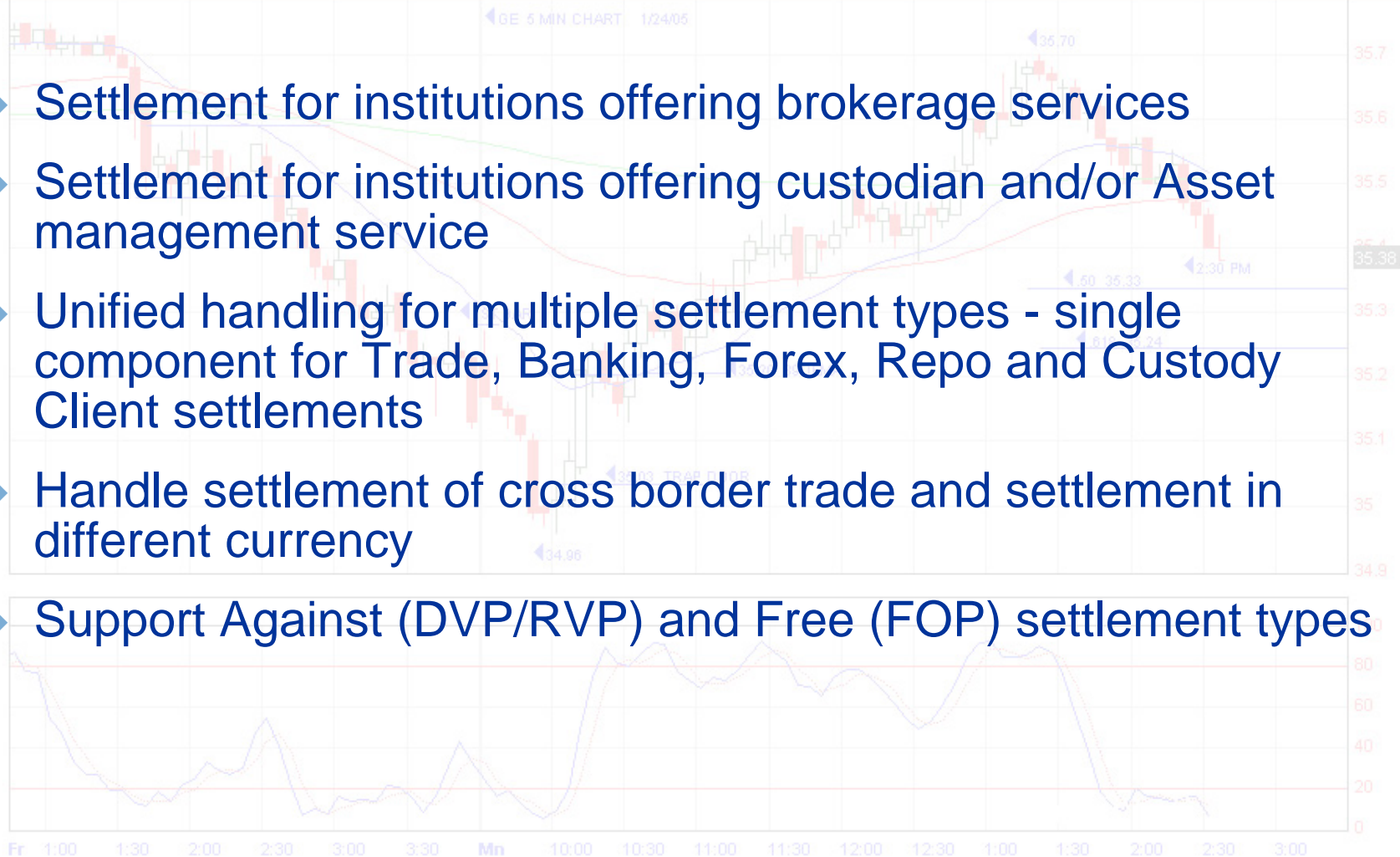
◆ FOREX Transaction support for

- Spot
- Forward
- Swap

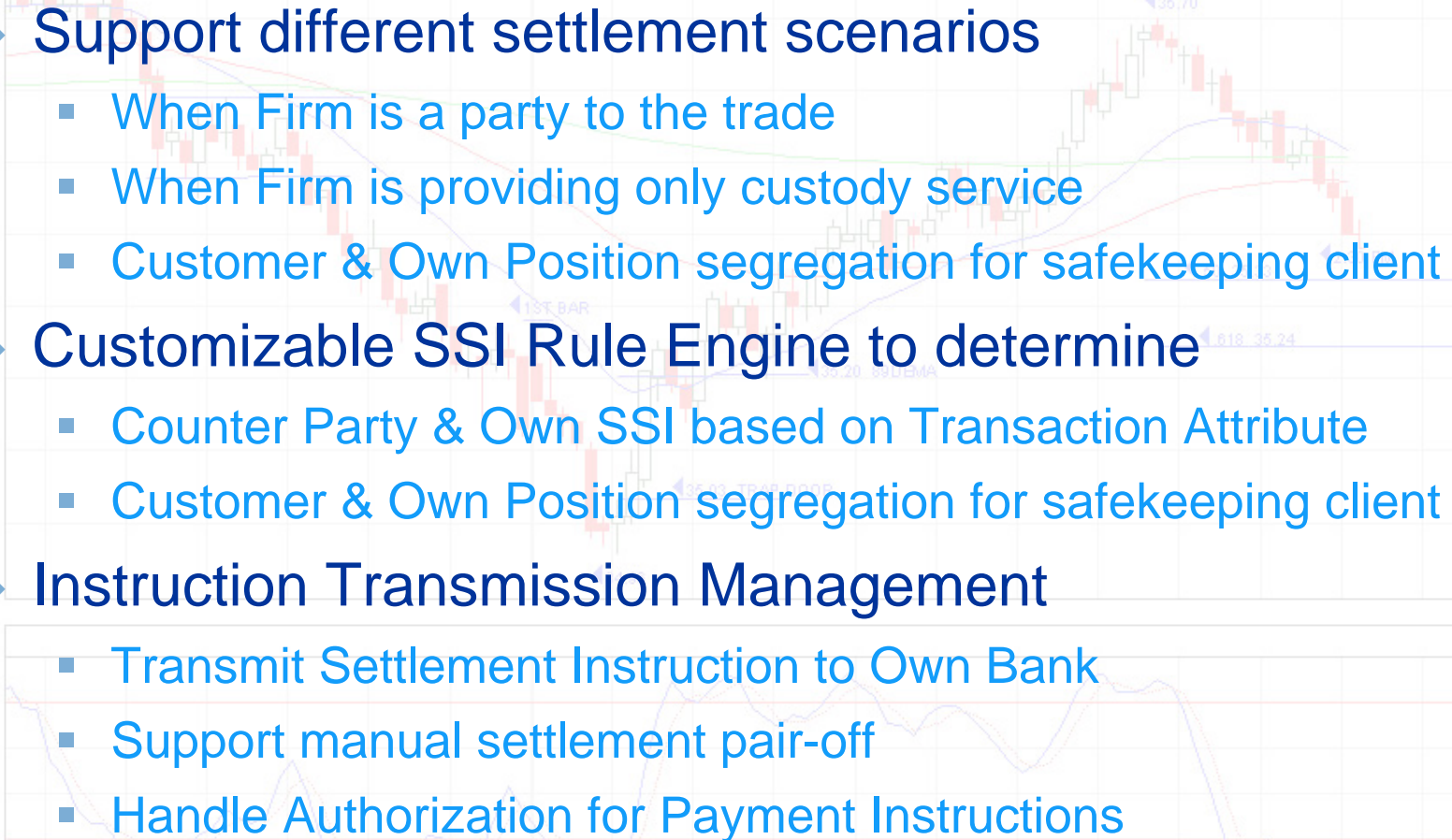


Settlement Management

- ◆ Settlement for institutions offering brokerage services
- ◆ Settlement for institutions offering custodian and/or Asset management service
- ◆ Unified handling for multiple settlement types - single component for Trade, Banking, Forex, Repo and Custody Client settlements
- ◆ Handle settlement of cross border trade and settlement in different currency
- ◆ Support Against (DVP/RVP) and Free (FOP) settlement types



Settlement Management

- 
- ◆ **Support different settlement scenarios**
 - When Firm is a party to the trade
 - When Firm is providing only custody service
 - Customer & Own Position segregation for safekeeping client
 - ◆ **Customizable SSI Rule Engine to determine**
 - Counter Party & Own SSI based on Transaction Attribute
 - Customer & Own Position segregation for safekeeping client
 - ◆ **Instruction Transmission Management**
 - Transmit Settlement Instruction to Own Bank
 - Support manual settlement pair-off
 - Handle Authorization for Payment Instructions

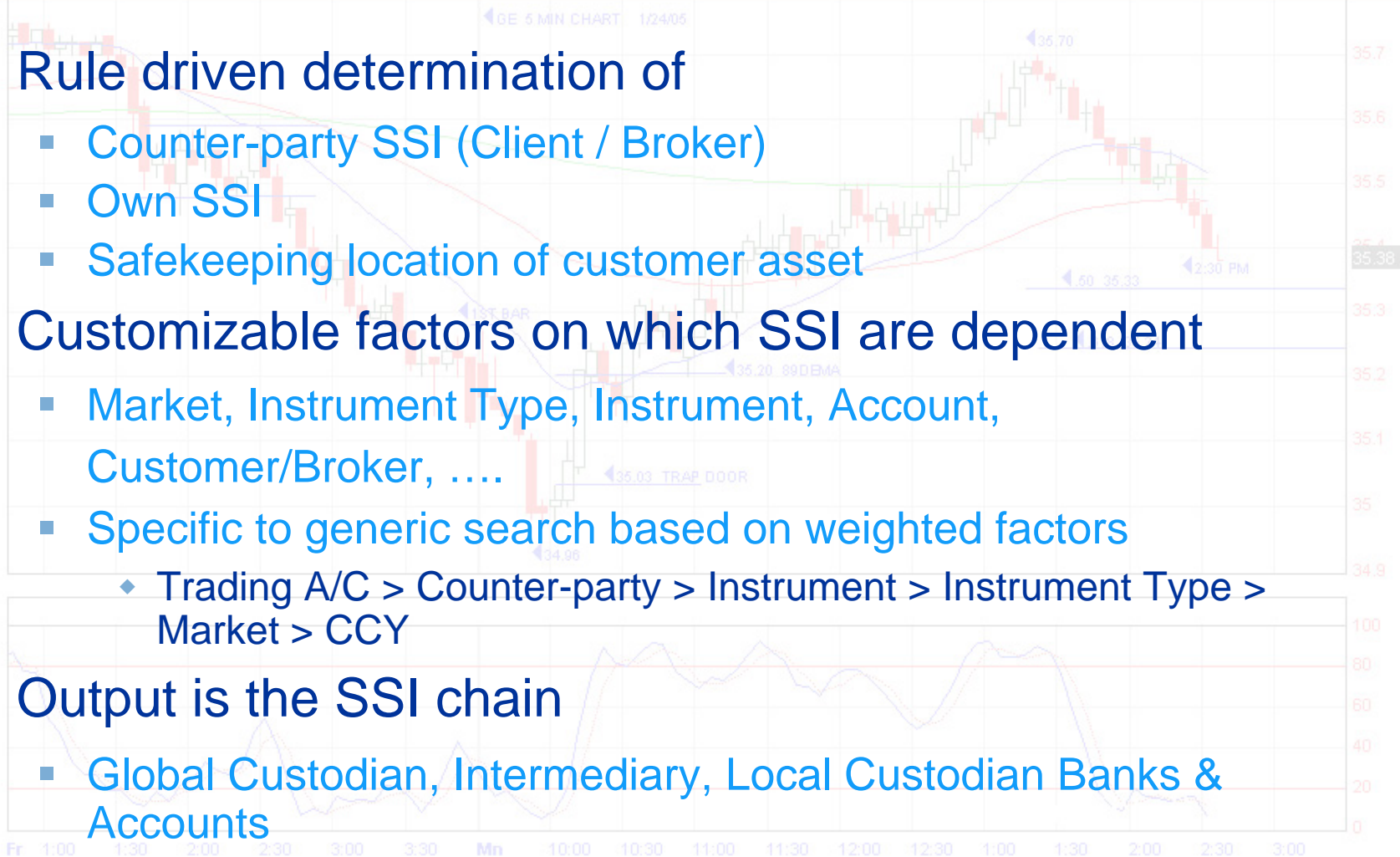
Settlement Management

- ◆ Interface to support netting with Clearing Corporations (GSCC/NSCC in US market)
- ◆ Pre-settlement matching and completion management
 - Receive Notifications from Custodian/CSD
 - Manage Settlement Status and Match Status
 - Support partial settlement as well as settlement with small cash amount difference
- ◆ Allegement Support
- ◆ Cash Wire Instruction Support



SSI Management

- ◆ Rule driven determination of
 - Counter-party SSI (Client / Broker)
 - Own SSI
 - Safekeeping location of customer asset
- ◆ Customizable factors on which SSI are dependent
 - Market, Instrument Type, Instrument, Account, Customer/Broker,
 - Specific to generic search based on weighted factors
 - ◆ Trading A/C > Counter-party > Instrument > Instrument Type > Market > CCY
- ◆ Output is the SSI chain
 - Global Custodian, Intermediary, Local Custodian Banks & Accounts



Position Management

◆ Inventory & Customer Position

- Automatic balance update from Trade & Settlement component through message
- Rule based ledger posting engine
- Market Value of Portfolio & Realized P/L management for own position
- Mark to Market
- Accrued Interest for own bond position
- Accrued Interest & Interest posting for customer cash position
- Stock record update



Position Management

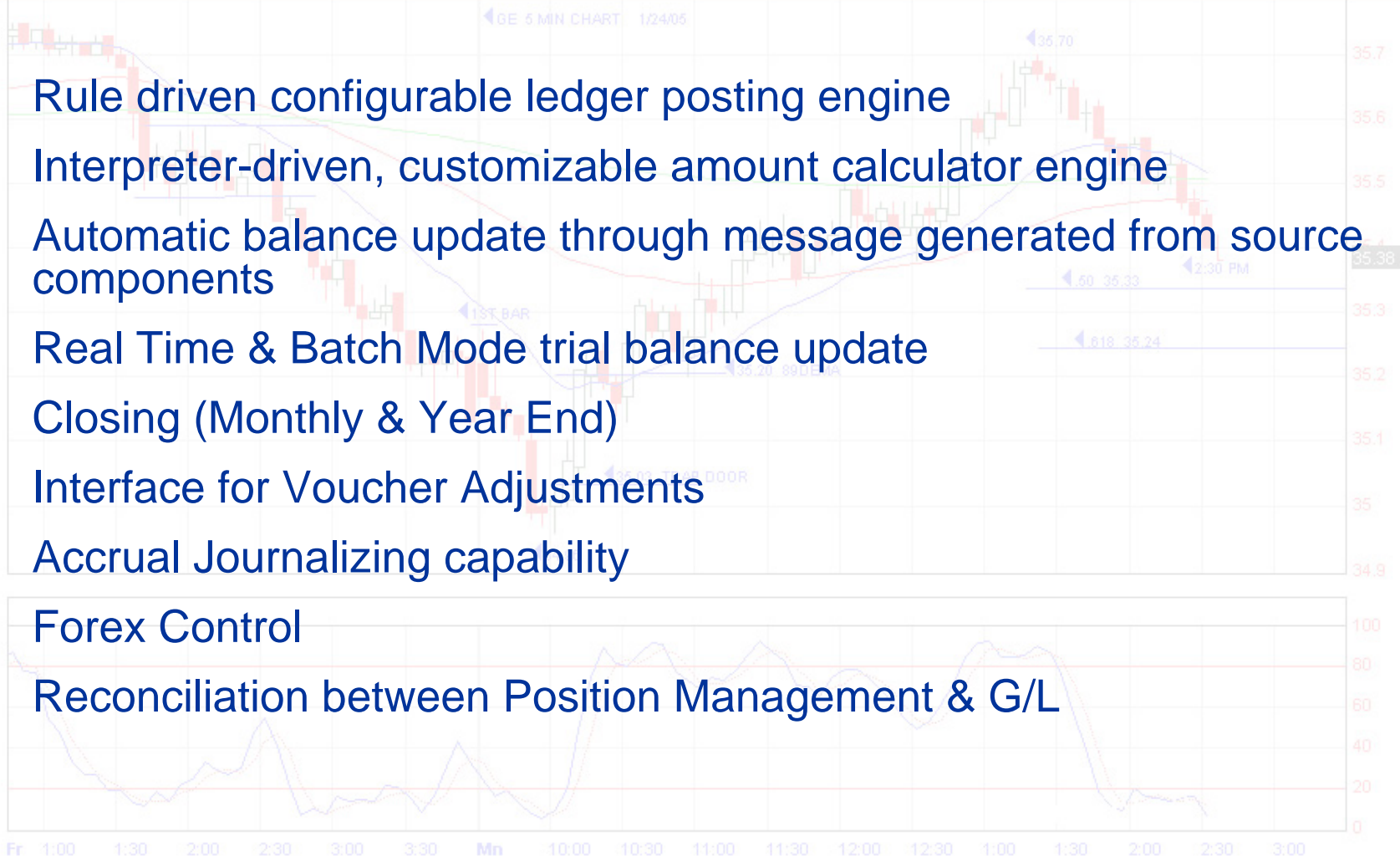
◆ Nostro & Depository Position

- Automatic position update from Settlement component through message
- Rule based ledger posting engine
- Reconciliation based on custodian notified S.W.I.F.T
- Capability to add NOSTRO & Depository Adjustments



General Ledger

- ◆ Rule driven configurable ledger posting engine
- ◆ Interpreter-driven, customizable amount calculator engine
- ◆ Automatic balance update through message generated from source components
- ◆ Real Time & Batch Mode trial balance update
- ◆ Closing (Monthly & Year End)
- ◆ Interface for Voucher Adjustments
- ◆ Accrual Journalizing capability
- ◆ Forex Control
- ◆ Reconciliation between Position Management & G/L



Corporate Action

- ◆ Support for variety of corporate action events
 - Cash & Stock Dividend
 - Warrant Expiry
 - Coupon Payment
 - MBS Paydown
 - Stock Merger & Split
- ◆ Automatic allocation of corporate action benefits to customer accounts based on position
- ◆ Repo and Fail tracking

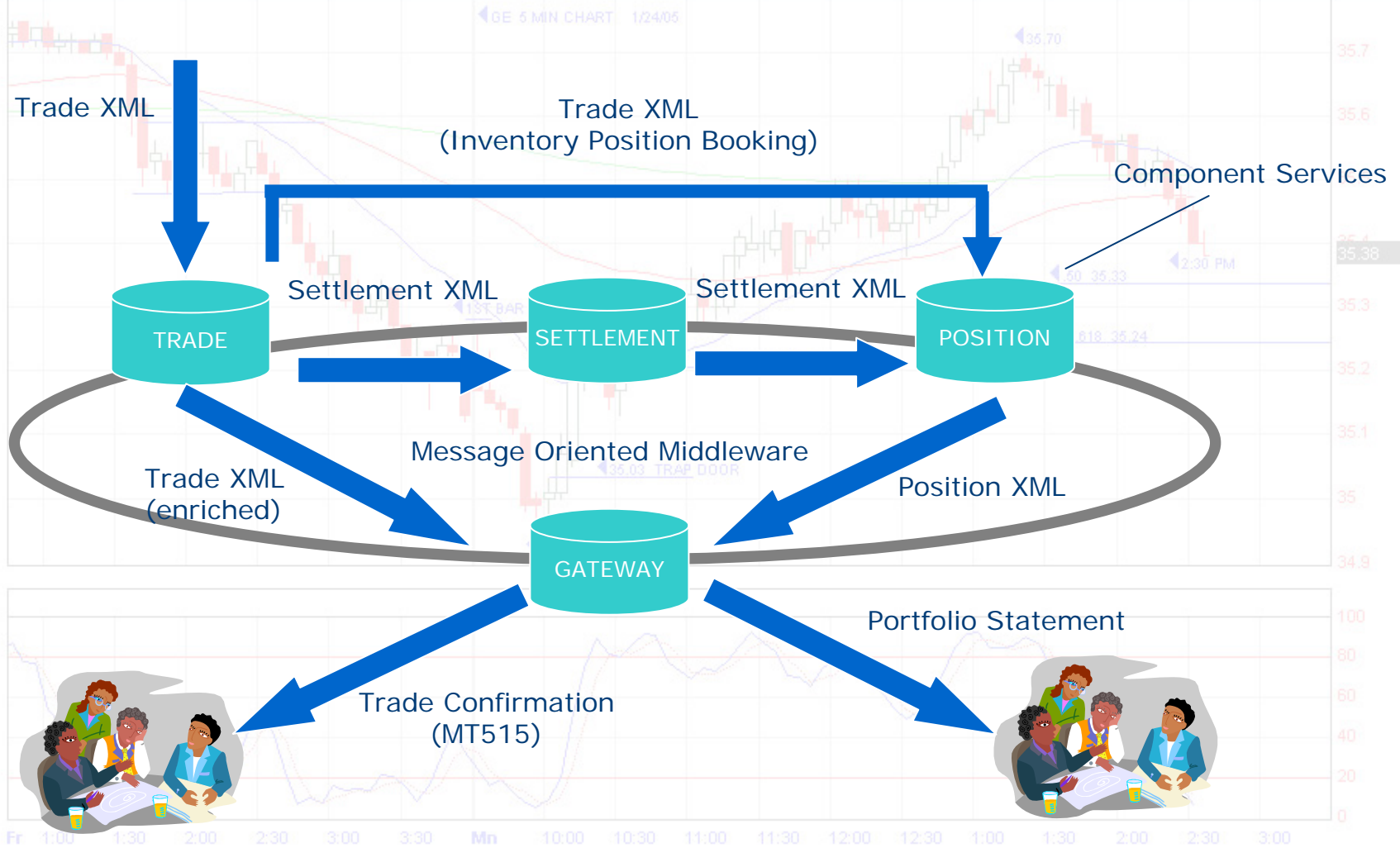


STP Enabled Framework

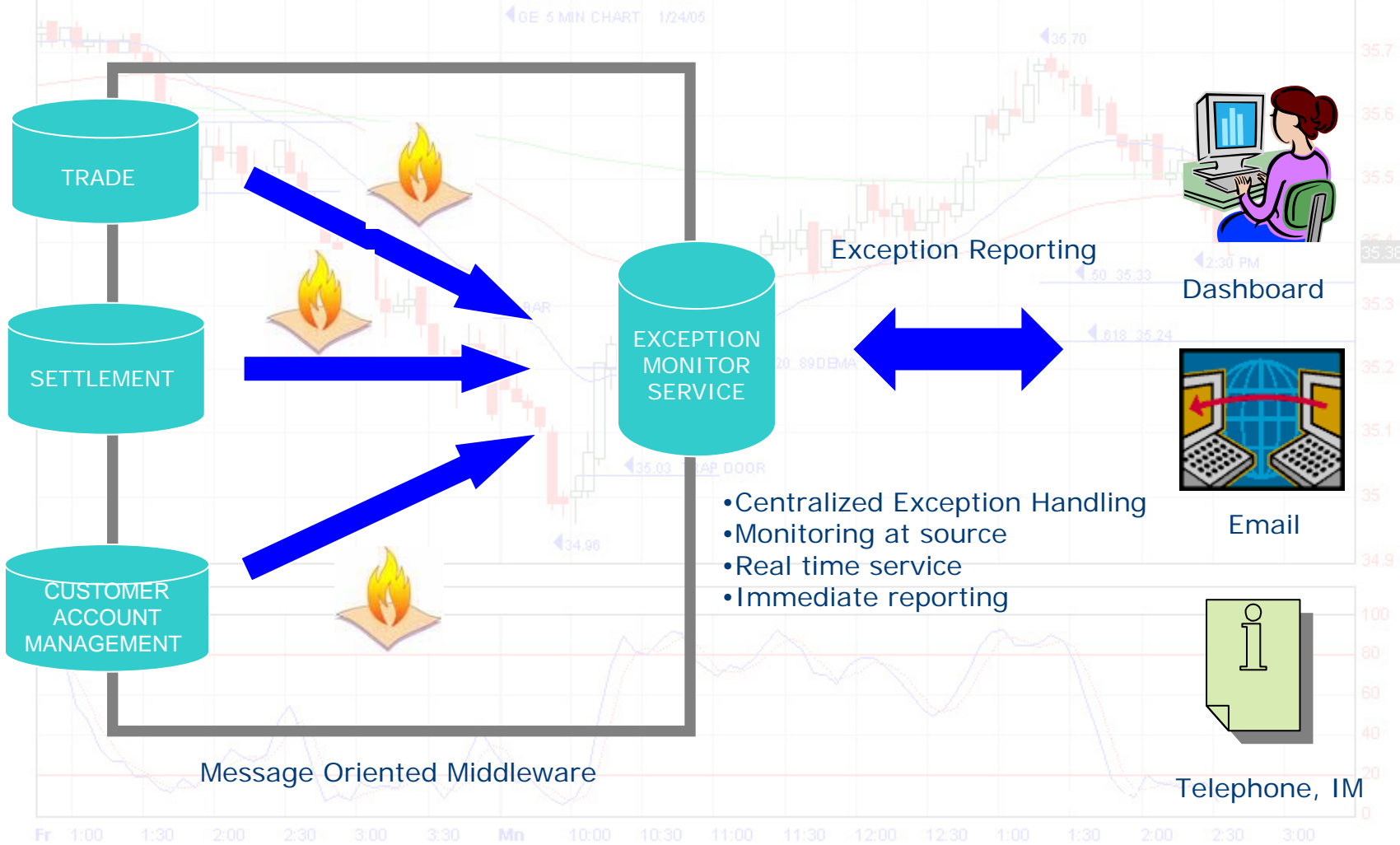
- ◆ Provides end-to-end **Straight Through Processing** platform based on asynchronous messaging architecture
 - No manual intervention
 - Guaranteed delivery of messages through industry standard message oriented middleware
 - XML base message format provides easy integration with external systems
 - Loosely coupled components interacting through messages provide scalability and robustness



STP Architecture



Exception Monitor



- Centralized Exception Handling
- Monitoring at source
- Real time service
- Immediate reporting

