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# MDA and Financial Services: A Governance, Risk, and Compliance case study

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# AGENDA



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- Introduction
- On Trading Systems Technology, Compliance and Risk management
- Case Study 1: XEC Pre-trade compliance engine
  - Trading systems and Real-time Compliance
  - The scalability of a rule-based approach
- Case Study 2: Risk Management and Continuous Compliance
  - Leveraging global firm-wide knowledge as a competitive advantage
- Demos



# Real Problems



- 
- CIO's cannot account for IT production management
    - There is a disconnect between the objectives of business and the delivery of production management of supporting IT
    - CIO's want to manage their current production systems based on the delivery of Service Level Agreements
  - CIO's are under pressure to cut costs and deliver value
    - CIO's want to virtualize to increase utility and automate to reduce operational costs.
    - CIO's want to reduce errors in operations through automation and so increase the guarantee of value to the business.



## ... and Requirements

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- Managing complexity
  - Requires that we understand the relationships between components
  - Requires that we can interact with components and create relationships that make sense (the business relationships)
- Managing scale
  - Requires that we can manage 10,000 of moving parts
  - Requires that we manage holistically through some notion of business driven SLA's.



# Drivers

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- Growing Complex Regulations:
  - There are many regulations to comply with
  - Most regulators do not interact
  - Company is responsible for detecting and dealing with conflicts and contradictions between regulations
  - Within a single vertical, particularly financial services, there are many regulations to comply with
  - Privacy and security can create serious conflicts: a challenge for large multinational companies
- These regulations and industry standards will continue to grow and change: Automation is a must have in order to deal with them globally
- Cost of regulations will increase and risk will be higher if dealing with regulations individually



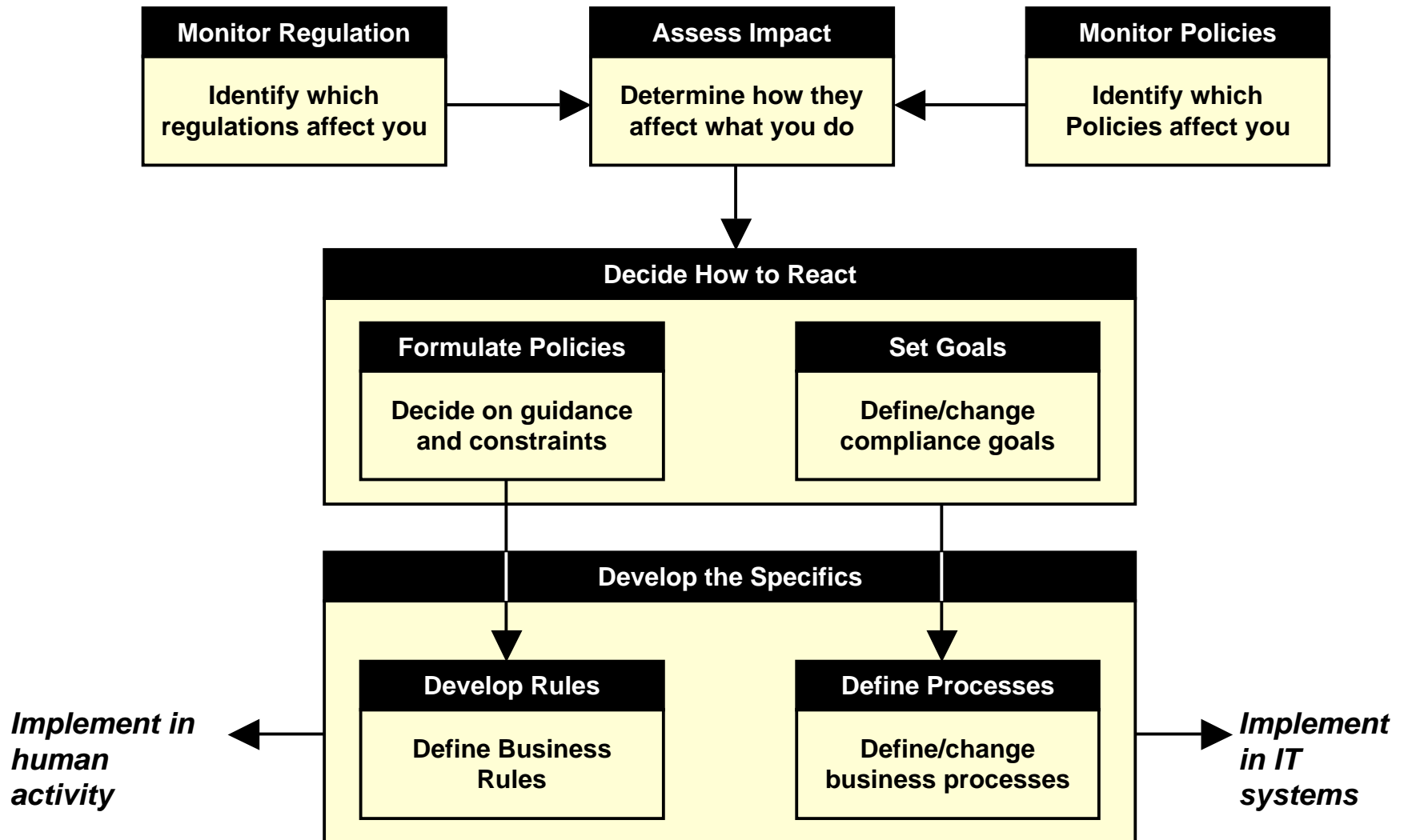
# ... and Trends



- 
- There will be more regulations and more complex requirements, especially in financial environments and infrastructures
  - Regulators and Auditors ask for the proof of compliance not the list of failure to comply. Producing such an evidence cannot be achieved without a formal rigorous process and systems architecture
  - Industry looking into continuous risk and compliance monitoring. Companies need to be aware of changes that affect them as their business processes get more sophisticated to meet productivity requirements
  - New trend towards common view allowing companies to map their guidelines, corporate goals and directives to standards and regulatory compliance: this will provide major benefits in maintenance, cost-cutting, and access to key information elements
  - Towards Certification: need for a common platform, best practices.

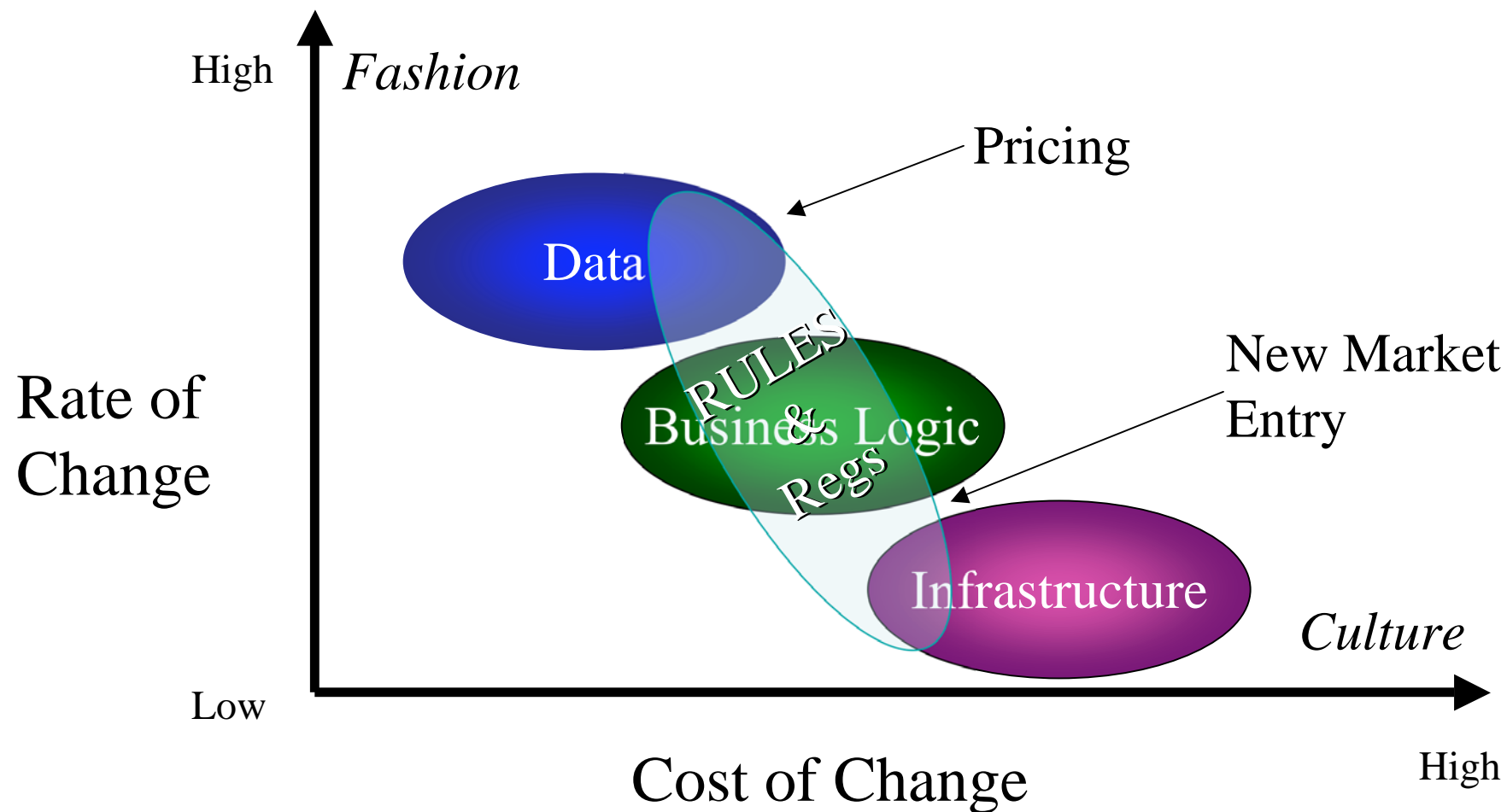


# Simplified Process





# Change Happens – Be prepared



Adapted from *The Clock of the Long Now*, Stewart Brand 1999

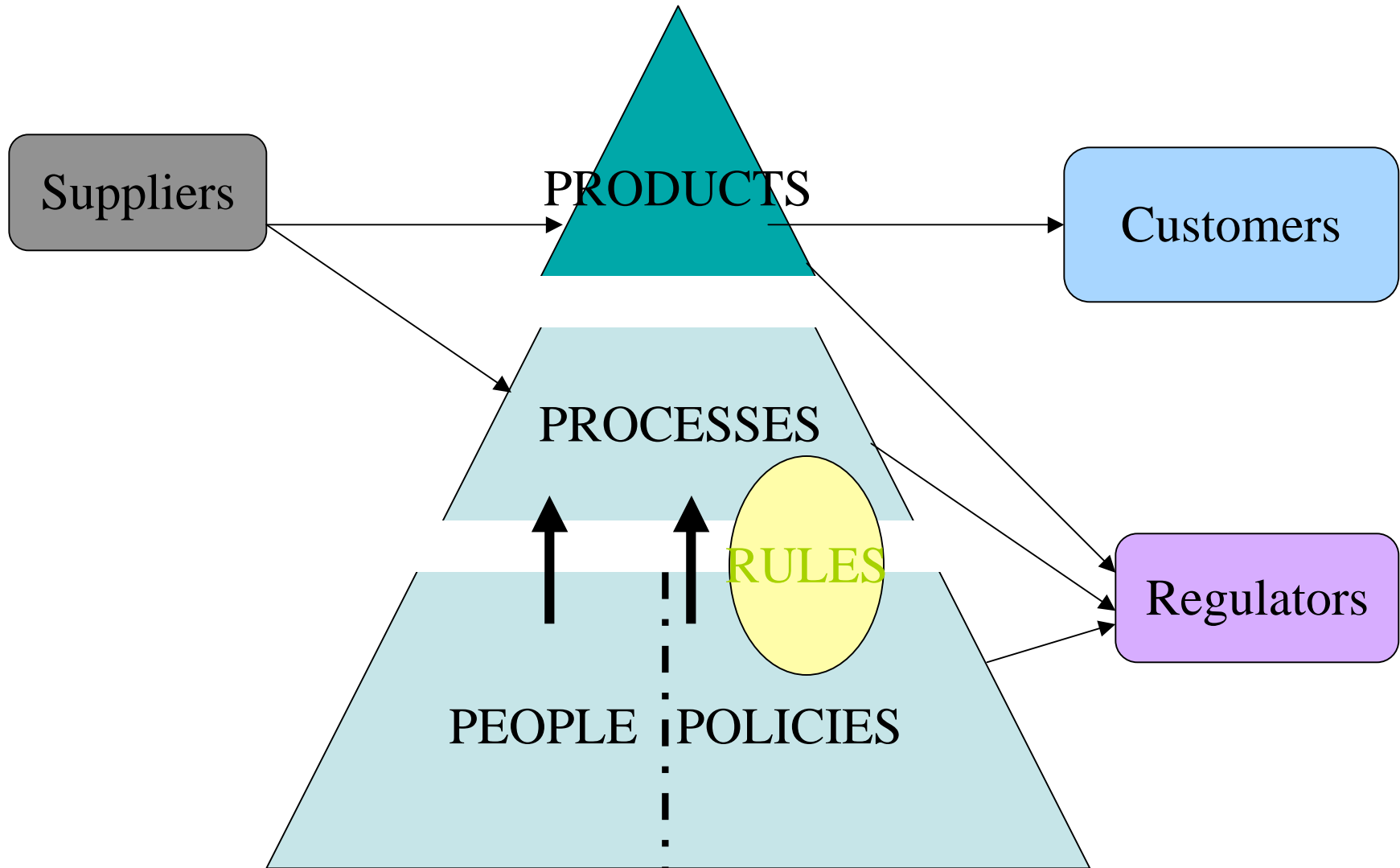




# Business Runs on Rules



*Governance Depends on Them*





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## CASE STUDY:

# Rule-base Enterprise Compliance for pre-trade



# On Transactions and Regulations

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- ✓ Approx. 5,030 funds and 7,790 advisors currently registered controlling over \$21 trillion of assets...
- ✓ ....and engaging in tens of millions of transactions each years...
- ✓ ...subject to hundreds of thousands of regulatory rules and guidelines



# Areas of Focus

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- Areas of focus related to compliance issues:
  - Internal controls
  - Portfolio Management
  - Personal Trading
  - Best Execution, Trade Allocation
  - Privacy and Access Control
  - Communications
    - Email, Instant Messaging, Phone Calls,...
  - ....



# Why is this so immediate?

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SEC Examination Letter:

Produce ~80 custom reports and documents demonstrating implementation and validation of internal controls.

***You have one week to provide this!***



## New Challenges to Automated Portfolio Compliance

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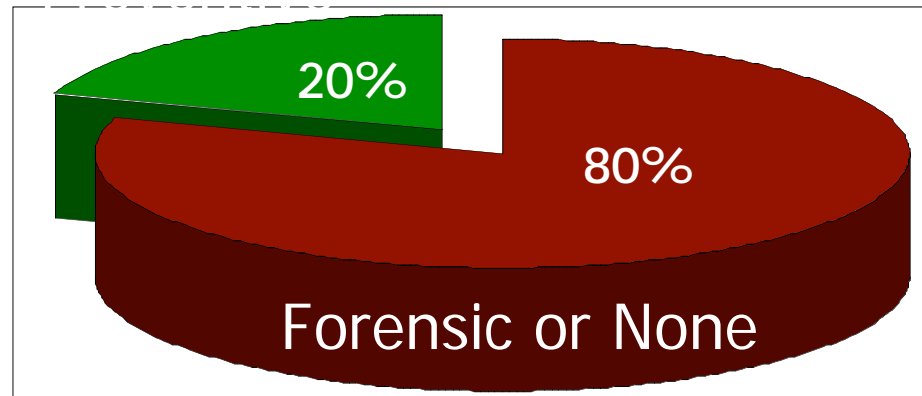
- Automated portfolio compliance tool for investment managers is no longer a luxury
- Regulatory audit frequency and intensity steadily increasing in both US and abroad
- Strong regulatory compliance testing capabilities – both pre and post trade – are viewed as critical
- Regulators looking for a “culture” of compliance within the organization
- A case of non-compliance can lead to fines, limits on business activities, loss of reputation, destroy a brand image, exodus of assets



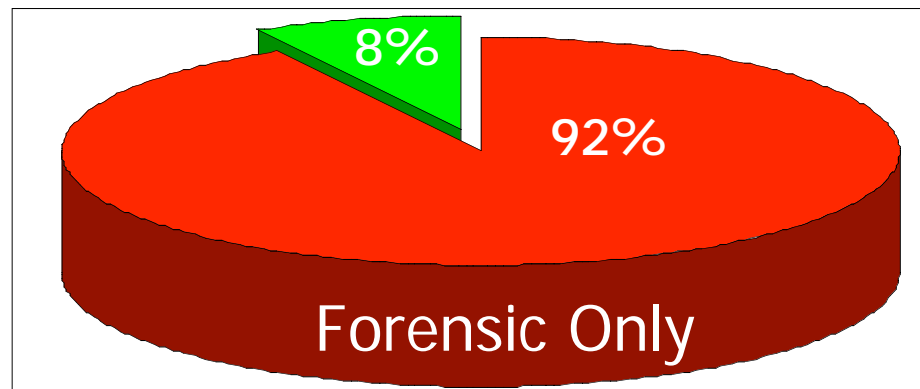
# Compliance Automation in 2003



Does your firm do any pre-trade compliance testing?



How many "calculated" rules are supported by pre-trade Testing?



Sources: NSCP Survey, Macgregor Research



## Compliance Automation in 2003 (Cont)

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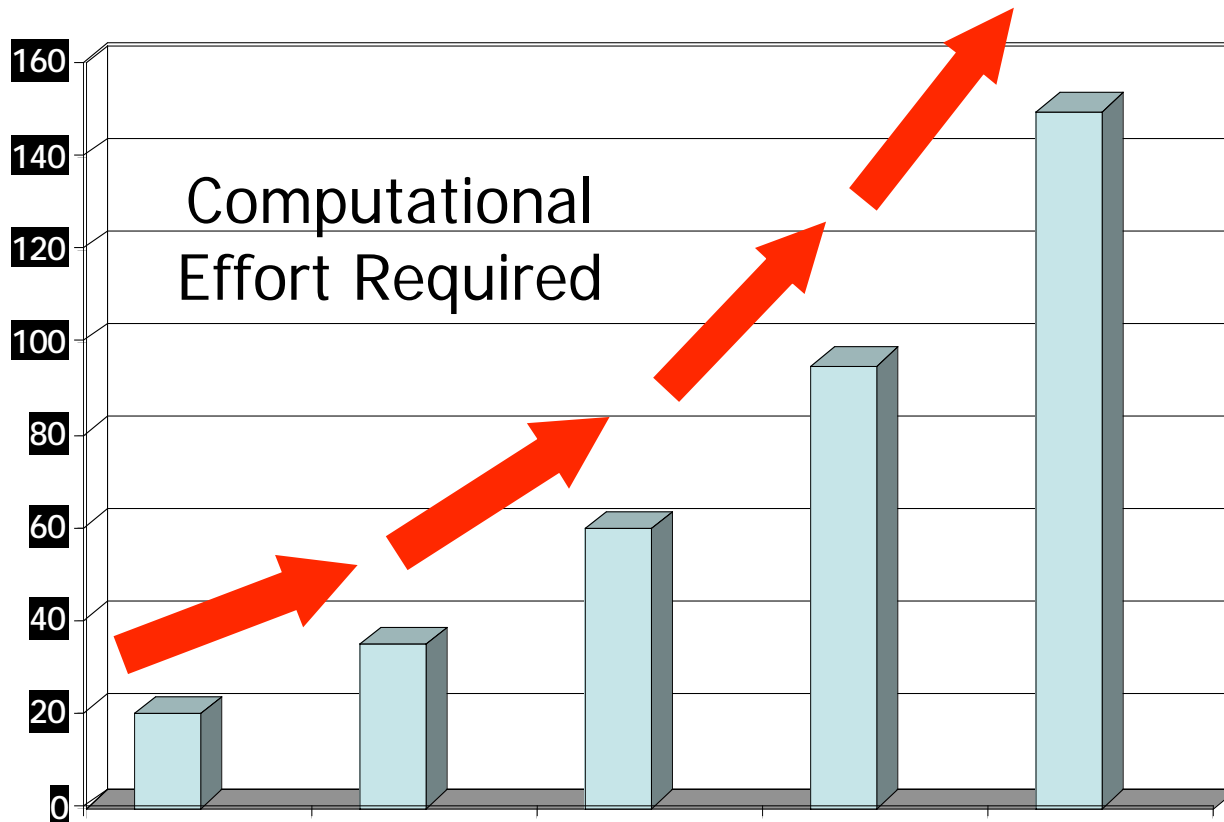
*Excerpt from a speech by Paul F. Roye, Director, Division of Investment Management, SEC, June 19, 2003 to the American Law Institute/American Bar Association.*

**"Surprising as it may sound, some mutual funds have virtually no compliance controls in place. In fact, many of our enforcement cases in the investment management area are the result of weak or nonexistent compliance controls.** We want to raise the compliance standards of all funds to the standards already adopted by the more responsible and proactive fund complexes."





# What's Changing?



## Growing Demands

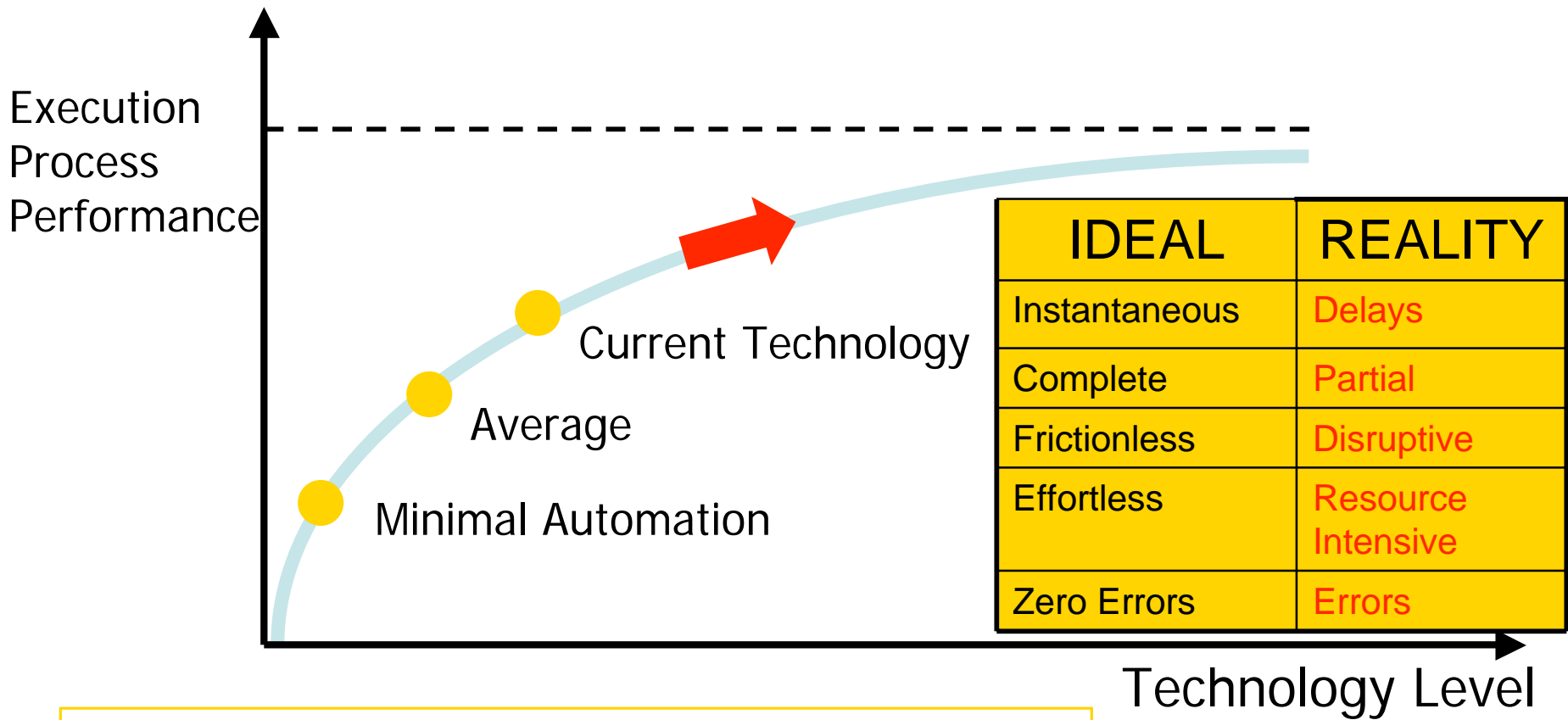
- More Accounts
- More Trades
- More Regulations
- More Complexity
- More Demanding Customer Service
- October 5, 2004

## Paradigm Shift

- “Prove Compliance occurred in fact”



# Where is compliance technology today?



Recapture investment performance and margins



# Immediate Technical Challenges

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- Tracking Communication
- Performance & Scalability
- Clarity & Transparency
- Suppression of false exceptions
- Effective Archiving
- Proof of Compliance



## What will the “Next Generation” provide?

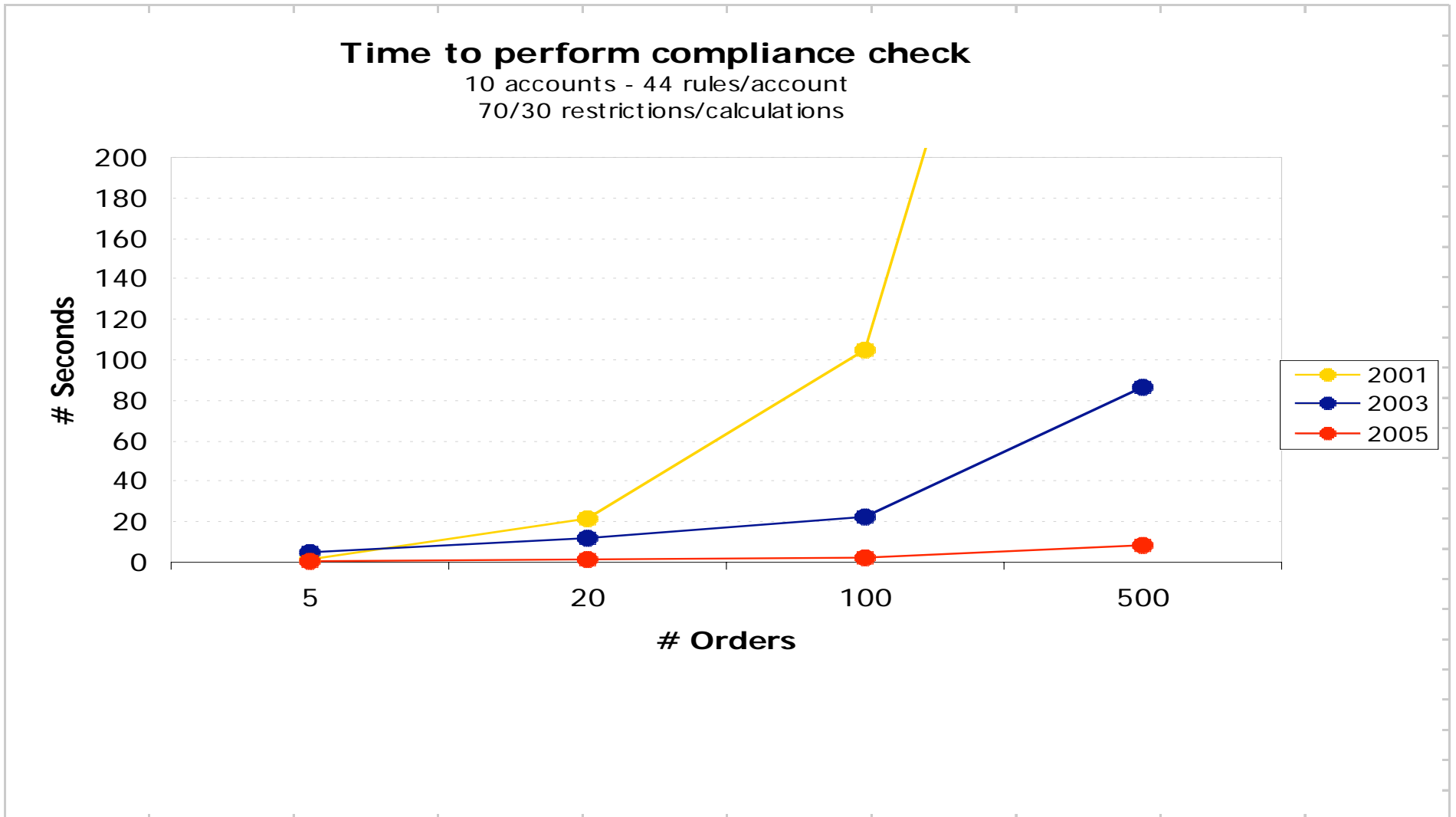
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- Consolidation of “Enterprise” Assets
  - Data, Rules, and Reporting
- Integration of Functions supported by a “Service Grid”
  - Credit Analysis & Risk Management
  - Portfolio Modeling & Analysis
  - Compliance
  - Trading & Commission Management
  - Post Trade



# How much performance is needed?





## Current Solutions Not Up to the Task

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- Rules are too numerous, too complex, and they change too often
- Compliance systems are too slow to implement all rules on a pre-trade basis
- Compliance systems are not sufficiently “transparent”. Problems detected are not easily understood by users
- Data problems cause too many “false” exceptions, and data validation and research capabilities are weak in current compliance systems



## Prepackaging regulatory rules: the process

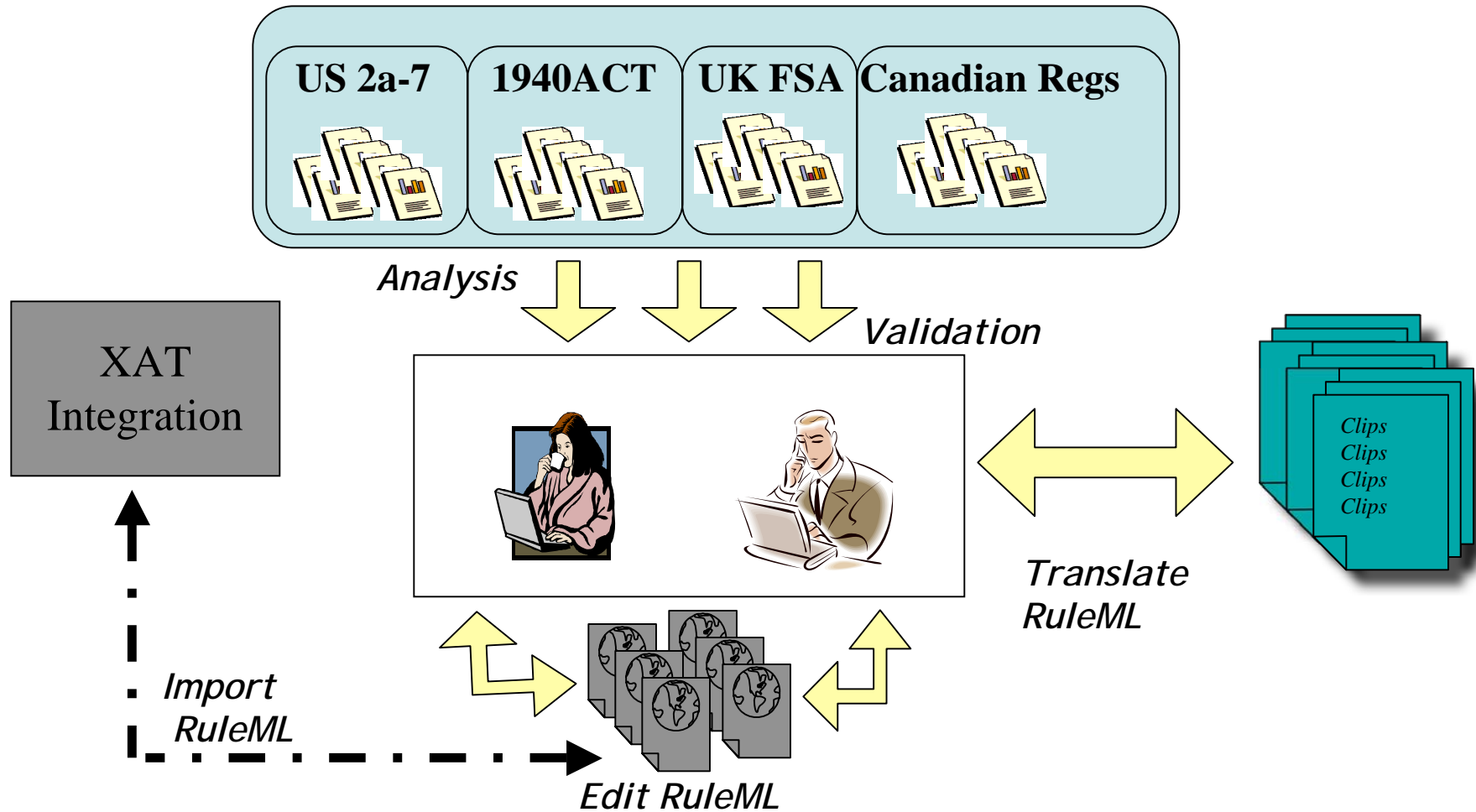
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- U.S. securities laws are enacted by Congress and enforced by the SEC. In its enforcement role the SEC promulgates rules and regulations. Law firms interpret the laws and their related rules and regulations, and advise their clients, investment management firms, in complying with the laws.
- Work with the legal experts in translating these rules into RuleML and testing them. It is critical that the RuleML instructions accurately reflect the intent of the regulation and operate accordingly.
- In XIP Enterprise Compliance, individual regulatory rules are tested on an automated basis. The system contains the text of the regulation, and a “system” rule that performs the test. Both the text and the system rules are viewable by the user. “System” rules are viewed in the rule library and can be assigned to funds by the user. Transactions are tested against the rules at the fund level
- XIP delivers prepackaged rulebases for testing securities regulations, and Macgregor plans to automate and distribute rule updates in coordination with a leading law firm. We plan to expand the library of prepackaged rules to include non-U.S. as well as U.S. jurisdictions and to update the library as required by new legislation or interpretations



# Pre-packaged Rules Architecture







# Functional Requirements

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- **Analysis and Implementation of Regulatory Rules**
  - Verify that the regulatory concepts are supported by the XEC Domain Model
  - Define required functions and operation to be supported by the execution environment
  - Implement the corresponding rules and validate them
- **A Regulatory Rules Translator**
  - Translates RuleML encoded rules to the CLIPS intermediary format for the Compliance Engine
- **A Rules Importing Interface**



# Regulatory Rules Packages

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- XEC supports the following:
  - US 2a-7 Money Market regulations
  - US 1940 ACT Mutual Fund regulations
  - UK FSA regulations
  - Canadian Mutual Fund regulations
- Regulatory Rules Analysis
  - Requires review process of the regulations
  - Extract the Data Model Concepts and resolve inconsistencies
  - Define the 'system level' rules that will implement each regulation



# Regulatory Rules Packages (Cont'd)

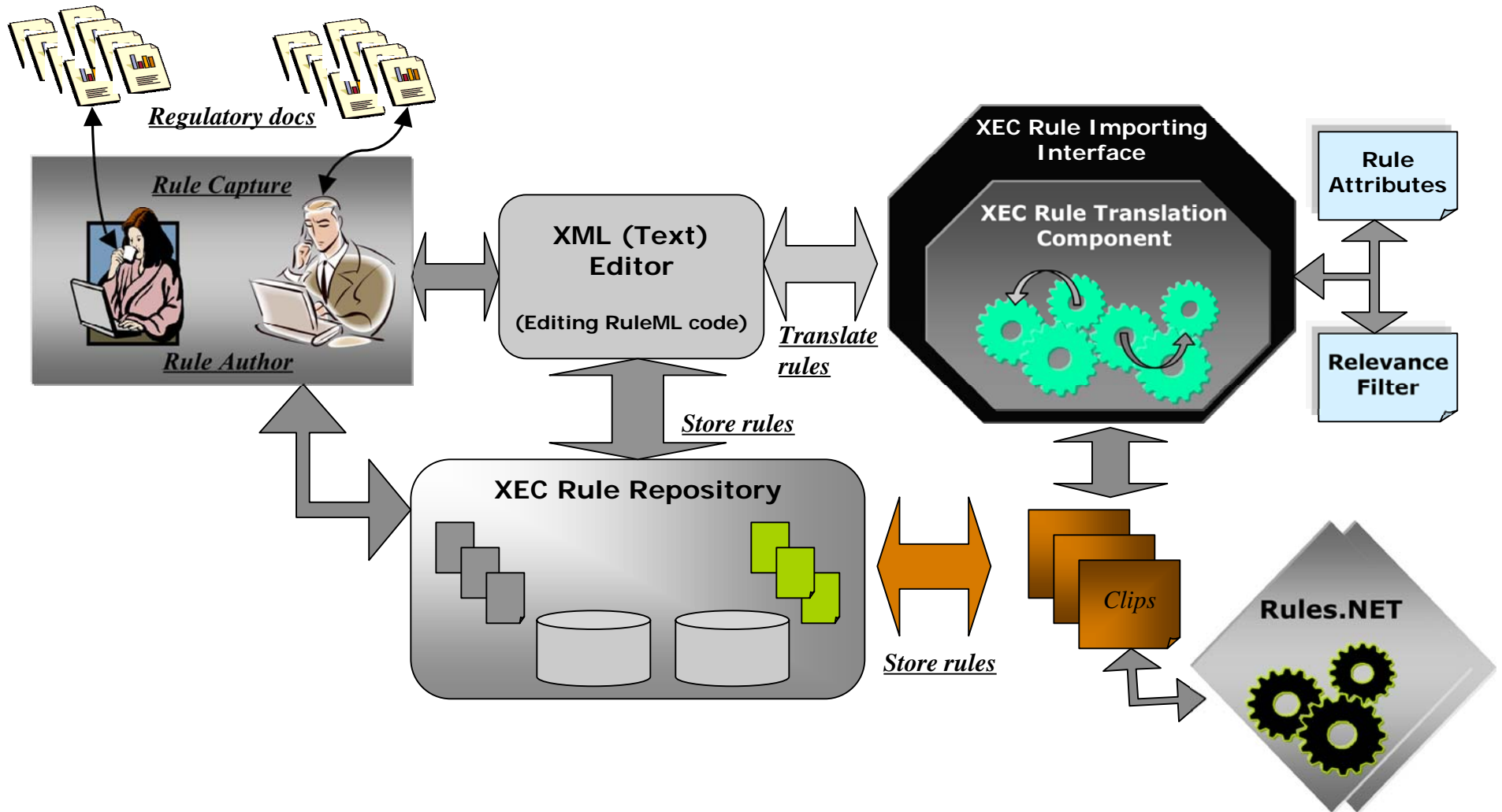
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- **XEC Rules Importing Interface**
  - Provide a flexible interface to allow XAT Integration to access available rule packages and deploy them to the XEC runtime
- **Viewing Regulations in the Rule Library**
  - Browse Regulatory Packages as Rule Groups
  - View Each Rule's Description and parameters (version, test frequency, severity, status, etc)
- **Account-Rule Associations**
  - Account-Rules associations also apply to regulations



# High Level Architecture





# Summary

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- Compliance requirements and technology are changing quickly
- Compliance technology enables the SEC to “raise the bar”
- Enterprise Compliance systems are transforming from a defensive control system to an offensive weapon central to the execution process



## XIP Enterprise Compliance Team

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- The System is a result of 50 person-years of a multi-disciplinary team of experts including:
  - A senior compliance officer
  - Usability experts
  - Portfolio managers
  - Fixed income specialists
  - Rule technology experts

Accounts

Name
Group Name : ZALL
BASIC VALUE
GLOBAL HEALTH CARE
MID CAP CORE EQUITY
SMALL CAP OPPORTUNIT
SMALL CAP OPPORTUNIT GS
SMALL CAP OPPORTUNIT MS
Group Name : YELLEN
GLOBAL HEALTH CARE
Group Name : YEAREND-
BASIC VALUE
MID CAP CORE EQUITY
Group Name : YEAREND-
BASIC VALUE
GLOBAL HEALTH CARE
MID CAP CORE EQUITY
SMALL CAP OPPORTUNIT
Group Name : XOPSSHORTS
SMALL CAP OPPORTUNIT GS
SMALL CAP OPPORTUNIT MS
Group Name :
SMALL CAP OPPORTUNIT
SMALL CAP OPPORTUNIT GS
SMALL CAP OPPORTUNIT MS
Group Name :
MID CAP CORE EQUITY
Group Name : XHEALTHCARE
GLOBAL HEALTH CARE
Group Name : XBASICVALUE
BASIC VALUE
Group Name : WRAP

Account Info

Account Attribute: ABV Relationship Manager:

PM Contact Info: Benchmark:

Governing Document: [Investment Restrictions](#) [EDIT](#) [Audit Trail](#)

Account Rule Info

**BASIC VALUE**

1 Each fund, except the Mergers and Acquisitions Fund, will not:  
 (1) purchase securities of any one issuer if, as a result, more than 5% of the fund's total assets would be invested in securities of that issuer or the fund would own more than 10% of the outstanding voting securities of that issuer, except that up to 25% of the fund's total assets may be invested without regard to this limitation, and except that this limitation does not apply to securities issued or guaranteed by the U.S. government, its agencies and instrumentalities or to securities issued by other investment companies.

Code	Description	Status	Descendant
AIM10%VotingShares	AIM 10% Voting shares	Current	No

2 Each fund will not:  
 (2) purchase any security if, as a result of that purchase, 25% or more of the fund's total assets would be invested in securities of issuers having their principal business activities in the same industry, except that this limitation does not apply to securities issued or guaranteed by the U.S. government, its agencies or instrumentalities or to municipal securities and except that the Global Financial Services Fund will invest 25% or more of its total assets in the related group of industries consisting of the financial services industry (e.g., companies that provide financial services to consumers and businesses, including commercial banks, thrift institutions and their holding companies, consumer and industrial finance companies and diversified financial services companies).

Rules not associated with guidelines

Rule Library Rule Library Search Result

Code	Long Name	Rule Source	Transition Status	Author
AIM%NetAssets_Debt	AIM % of net assets invested in debt	R	Current	danb
AIM10%TSO	AIM 10% TSO	R	Current	danb
AIM10%VotingShares	AIM 10% Voting shares	R	Current	danb
AIM20%NO_ASIA	AIM 20% Invested Outside Asia Pacific	R	Current	danb
AIM20%DEBT_SMCAP	AIM 20% Net Assets invested in Debt and Small Cap	R	Current	danb
AIM70%Equity	AIM 70% in equity securities	R	Current	davec
AIM10%NetAssets_Equity	AIM Max 10 % net assets, equity	R	Current	danb

### Account Rule Association

#### Accounts

Name
<b>Group Name : ZALL</b>
BASIC VALUE
GLOBAL HEALTH CARE
MID CAP CORE EQUITY
SMALL CAP OPPORTUNIT
SMALL CAP OPPORTUNIT GS
SMALL CAP OPPORTUNIT MS
<b>Group Name : YELLEN</b>
GLOBAL HEALTH CARE
<b>Group Name : YEAREND-</b>
BASIC VALUE
MID CAP CORE EQUITY
<b>Group Name : YEAREND-</b>
BASIC VALUE
GLOBAL HEALTH CARE
MID CAP CORE EQUITY
SMALL CAP OPPORTUNIT
<b>Group Name : XOPSSHORTS</b>
SMALL CAP OPPORTUNIT GS
SMALL CAP OPPORTUNIT MS
<b>Group Name :</b>
SMALL CAP OPPORTUNIT
SMALL CAP OPPORTUNIT GS
SMALL CAP OPPORTUNIT MS
<b>Group Name :</b>
MID CAP CORE EQUITY
<b>Group Name : XHEALTHCARE</b>
GLOBAL HEALTH CARE
<b>Group Name : XBASICVALUE</b>
BASIC VALUE
<b>Group Name : WRAP</b>

#### Account Groups

AIMRETAIL	BSCVAL	GABE
ALL	COMP GROUP 2	GEOFF2

#### Account Info

Account Attribute: ABV Relationship Manager:

PM Contact Info: Benchmark:

Governing Document: [Investment Restrictions](#) EDIT Audit Trail

#### Account Rule Info

2 Each fund will not:  
 (2) purchase any security if, as a result of that purchase, 25% or more of the fund's total assets would be invested in securities of issuers having their principal business activities in the same industry, except that this limitation does not apply to securities issued or guaranteed by the U.S. government, its agencies or instrumentalities or to municipal securities and except that the Global Financial Services Fund will invest 25% or more of its total assets in the related group of industries consisting of the financial services industry (e.g., companies that provide financial services to consumers and businesses, including commercial banks, thrift institutions and their holding companies, consumer and industrial finance companies and diversified financial services companies).

#### Rules not associated with guidelines

Code	Description	Status	Descendant
AIM25%Issuer	AIM Max 25% any issuer	Current	No
AIM70%Equity	AIM 70% in equity securities	Current	No
R1940ACT8b1DMax25TA V	MAX 25% same industry	Current	No
R1940ACT12d31bMax50 VS	MAX 5% any class outstanding equity securities related issuers	Current	No
R1940ACT12d31bMax10 OPA	MAX 10% outstanding debt principal amount securities related issuers	Current	No
R1940ACT12d1ADMax5T AV	MAX 5% Total Assets restrictions for other funds	Current	No
R1940ACT12d1ADMax10 TAV	MAX 10% TAV invested in other funds	Current	No

Code	Long Name	Rule Source	Transition Status	Author
AIM%NetAssets_Debt	AIM % of net assets invested in debt	R	Current	danb
AIM10%TSO	AIM 10% TSO	R	Current	danb
AIM10%VotingShares	AIM 10% Voting shares	R	Current	danb
AIM20%NO_ASIA	AIM 20% Invested Outside Asia Pacific	R	Current	danb
AIM20%DEBT_SMCAP	AIM 20% Net Assets invested in Debt and Small Cap	R	Current	danb



Rule Library

Code	Long Name	Rule Source	Transition Status	Author	Creation Date
R2A7QTX2TS5	Taxable Max 5% Second Tier Securities	R	Pending Dep	Admin	8/8/2005 5:42:11 PM
R2A7MDWAM90	Max 90 Days Dollar Weighted Average Maturity	R	Pending Dep	Admin	8/9/2005 9:33:02 AM
R2A7MRMAT397	Max 397 Days Remaining Maturity	R	Pending Dep	Admin	8/9/2005 9:36:03 AM
R2A7QTE2TCS5	Tax Exempt Max 5% Second Tier Conduit Securities	R	Pending Dep	Admin	8/9/2005 10:13:48 AM
R2A7QUSDONLY	USD Securities Only	R	Pending Dep	Admin	8/9/2005 10:16:56 AM
R2A7RMRMAT762	Penny rounding Max 762 Days Remaining Maturity	R	Pending Dep	Admin	8/9/2005 10:18:46 AM
R2A7DTE2TCS11M_A	Tax Exempt Max 1% Second Tier Conduit Any Issuer	R	Current	Admin	8/9/2005 10:41:32 AM
R2A7DTE2TCS11M_B	Tax Exempt Max USD 1 Million Second Tier Conduit Any Issuer	R	Current	Admin	8/9/2005 10:43:09 AM
R2A7DTE2TCS11M	Tax Exempt Max 1% or USD 1 Million Second Tier Conduit Any Issuer	R	Pending Dep	Admin	8/9/2005 11:04:28 AM
R2A7AELIGONLY	Eligible Securities Only	R	Pending Dep	Admin	8/9/2005 11:17:23 AM
R2A7DTX2T11M_A	Taxable Max 1% Second Tier Any Issuer	R	Current	Admin	8/9/2005 11:21:03 AM
R2A7DTX2T11M_B	Taxable Max USD 1 Million Second Tier Any Issuer	R	Current	Admin	8/9/2005 11:23:00 AM
R2A7DTX2T11M	Taxable Max 1% or USD 1 Million Second Tier Any Issuer	R	Pending Dep	Admin	8/9/2005 11:24:02 AM
R1940ACT12d1ADMax5TAV	MAX 5% Total Assets restrictions for other funds	R	Pending Dep	Admin	8/9/2005 11:38:59 AM
R1940ACT12d1ADMax10TAV	MAX 10% TAV invested in other funds	R	Pending Dep	Admin	8/9/2005 11:49:00 AM
R1940ACT22EMAX15ILL	MAX 15% in illiquid securities for Mutual Fund	R	Pending Dep	Admin	8/9/2005 11:51:25 AM
R1940ACT22EMAX10ILL	MAX 10% in illiquid securities for Money Market Funds	R	Pending Dep	Admin	8/9/2005 11:52:16 AM
R1940ACT8b1DMax25TAV	MAX 25% same industry	R	Pending Dep	Admin	8/9/2005 12:09:28 PM
RIRC817hDMax_A	Life Insurance Policies and Annuity Contracts Diversification Rule (Any 1)	R	Current	Admin	8/9/2005 1:28:27 PM
RIRC817hDMax_B	Life Insurance Policies and Annuity Contracts Diversification Rule (Any 2)	R	Current	Admin	8/9/2005 1:30:37 PM
RIRC817hDMax_C	Life Insurance Policies and Annuity Contracts Diversification Rule (Any 3)	R	Current	Admin	8/9/2005 1:32:04 PM

Rule Details

Restriction > Calculated > Composite > Imported >

<b>Code:</b>	R2A7QTX2TS5	<b>Rule Description:</b>	A money market fund that is not a Tax Exempt Fund shall not have invested more than five percent of its Total Assets in securities that are Second Tier securities. [Rule 2a-7 Section (c)(3)(ii)(A)]
<b>Long Name:</b>	Taxable Max 5% Second Tier Securities	<b>Rule Notes:</b>	
<b>Version:</b>	Pending Deploy <span style="color: green;">P</span>	<b>Created Date:</b>	08/08/2005
<b>Test Frequency:</b>	Continuous	<b>Created By:</b>	Admin
<b>Severity:</b>	Exception		
<b>Required At:</b>	Daily		
<b>Status:</b>	Active		
<b>Active From:</b>	8/ 8/2005		
<b>Active To:</b>	12/31/9998		
<b>Category:</b>	Standard		

# Editing Rules



macgregor XIP WS

File | Edit | View | Deploy | Execute | Tools | Help
Saved Views | BACK | NEXT | Advanced Search | Actions

## Edit Rule Details

↓ Rule Details

Calculation > Restriction > Benchmark > Complex

**Code:** EMGMKT

**Long Name:** Maximum 10% exposure to emerging market countries.

**Version:** Current

Test frequency: Continuous    Severity: Exception

Required at: Always    Status: Active

Active From:     Active to:

Category: Standard TEST

Accounts applied to: 10

- Barnard Personal
- Katz Value Fund
- Meltz Growth Fund
- Rivers Capital
- Shea Stock Fund

**Rule Description:**

The fund is limited to a 10% exposure in emerging market countries as defined by the emerging market list.

**Rule Notes:**

Created Date: 07/13/2002, Created by: C. Wright

Max / Min / Range > Count

▶ The weight based on net assets of investments where country is a member of list: Emerging Market Countries → and | or

▶ must be less than or equal to 10 %    equal to    warn

SAVE
SAVE AS
SAVE DRAFT
CANCEL

Numerator:	Attribute:	List:	List Values:
<ul style="list-style-type: none"> <li>Duration</li> <li>Maturity</li> <li><span style="border: 1px solid #ff9933; padding: 2px;">Weight</span></li> <li>Yield</li> </ul>	<ul style="list-style-type: none"> <li><span style="border: 1px solid #ff9933; padding: 2px;">Country</span></li> <li>Currency</li> <li>Industry</li> <li>Issuer</li> <li>Rating</li> <li>Sector</li> <li>Sectype</li> <li>State</li> </ul>	<ul style="list-style-type: none"> <li><span style="border: 1px solid #ff9933; padding: 2px;">Emerging Market Countries</span></li> <li>Far East Countries</li> <li>Restricted Countries</li> <li>South American Countries</li> <li>Unstable Countries</li> </ul>	<ul style="list-style-type: none"> <li>Brazil</li> <li>Chile</li> <li>Indonesia</li> <li>Malaysia</li> <li>Mexico</li> <li>Philippines</li> <li>South Africa</li> <li>South Korea</li> </ul>

new One Title...

ViperRebalanceForRulesNET

- Attributes
  - desc: Simplified Viper Rebalance RuleBase for Rules.NET
  - 1.0
  - module:false
  - ViperRebalanceUseCaseScenario
  - direction:forward
- Viper\_Rebalance
  - SetupUserRequestSessionFact <high>
    - If
      - dum my
      - dum my
      - dum my
      - dum my
    - Then
      - dum my
      - dum my
  - PositionMarketValue <med>
    - If
      - dum my
      - dum my
    - Then
      -
  - AccountTotalMarketValue <low>
  - AggregateMarketValue <low>
  - AggregateMarketValueBySector <low>
  - AggregateExposureBySectorLevel <low>
  - RecommendedOrderQuantityPerPosition <low>
  - TradeOrderRecommendationToBuy <low>
  - TradeOrderRecommendationToSell <low>
  - ApproveRequest <low>
  - AggregateMarketValueCleanup1 <low>
  - AggregateMarketValueCleanup2 <low>

business objects

Edit View Title...

Rule Name: **Setup User Request Session Fact**  
 Severity: <high>

Description:  
 Define rule Account Total Market Value. This rule calculates the total market.

Author: Stavros Kokoris  
 Creation Date: 01/14/03

**IF**

Define rule Account Total Market Value.  
 This rule calculates the total market value for each portfolio.  
 Rule Label="Account Total Market Value" rule id="RST001R003"  
 This rule calculates the market value for each portfolio.  
[Add](#) | [Remove](#)

**THEN**

This rule calculates the market value for each portfolio.  
 Define rule Account Total Market Value.  
[Add](#) | [Remove](#)

**Regulation/Policy/Customer Constraints**

A UCITS may invest no more than 10% of its net assets in securities issued by the same entity (UCITS Directive says 5%, allows EU states to increase to 10%). Investments greater than 5% of net assets (but below 10% of net assets) may not exceed 40% of net assets. A newly formed UCITS need not observe these restrictions for the first 6 months after registration, but must observe principles of risk spreading

- Add rule
  - Remove rule
  - Add action
  - Remove action
  - Add condition
  - Remove condition
  - Add ruleset**
  - Remove ruleset
  - Add rulebase
  - Remove rulebase
  - Add business object
  - Remove business object
  - Search
  - Import business object
  - Run rulebase
  - Connection to repository
  - Login
  - Log off
  - Open project
  - Close project
  - Create project
  - Open rulebase
  - Close rulebase
  - Import ruleset
  - Export ruleset
  - Import rule
  - Export rule
- Actions**

messages View Title...

- Define rule AccountTotalMarketValue: -->  
 - This rule calculates the total market value for each portfolio. -->  
 rule label="Account TotalMarketValue" ruleid="RST001R003" priority="80"

Compliance Monitor

Dashboard

Exceptions: 418 Opn: 417 Wrk: 1 Susp: 0 Rslvd: 0 Proposed Items: Ovr Req: 0 Rev Req: 0 Review Items: 0

Compliance Monitor Acct By PM Proposed

Account/Group	Rule Code	Rule Name	Rule Version	Assigned User	Exception Status	Age	Offending SubCategor	Summary Status	SOD Status	SOD Value
PM : danb										
!	ABV	R2A7AELIGONLY	Eligible Securities Only	3	Open	3D.00:58		Exception	Exception	
!	ABV	R2A7QUSDONLY	USD Securities Only	3	Open	3D.00:58		Pending Pass	Exception	
!	ABV	R2A7MRMAT397	Max 397 Days Remaining Maturity	3	Open	3D.00:58		Pending Pass	Exception	
!	ABV	NoUSCAN		3	Open	3D.00:58		Exception	Exception	
	ABV	AIM10%VotingShares	AIM 10% Voting shares	3			IssuerCode=	Pass	Pass	
	ABV	R2A7MDWAM90	Max 90 Days Dollar Weighted Average Maturity	3				Pass	Pass	4
!	ABV	R2A7MRMAT397NOGOVT	Penny Rounding Max 397 Days Remaining Maturity (No US Governme	4	Open	3D.00:58		Pending Pass	Exception	
!	ABV	R2A7RRMAT762	Penny rounding Max 762 Days Remaining Maturity	4	Open	3D.00:58		Pending Pass	Exception	
	ABV	REL%75_5_10	REL% 5/issuer 10/TSO	2				Pass	Pass	90
	ABV	%PercentDebtOut	Percent of an issue outsatnding, debt	2			AssetCode=C	Pass	Pass	
	ABV	AIM20%DEBT_SMCAP	AIM 20% Net Assets invested in Debt and Small Cap	3				Pass	Pass	2
	ABV	Vote1%Ticker	Vote1% based on ticker	3 danb	Working	3D.00:58	AssetCode=C	Exception	Exception	3
!	ABV	Vote1%Ticker	Vote1% based on ticker	3	Open	3D.00:58	AssetCode=F	Exception	Exception	2
!	ABV	Vote1%Ticker	Vote1% based on ticker	3	Open	3D.00:58	AssetCode=F	Exception	Exception	2
!	ABV	Vote1%Ticker	Vote1% based on ticker	3	Open	3D.00:58	AssetCode=I	Exception	Exception	1
!	ABV	Vote1%Ticker	Vote1% based on ticker	3	Open	3D.00:58	AssetCode=C	Exception	Exception	1
!	ABV	Vote1%Ticker	Vote1% based on ticker	3	Open	3D.00:58	AssetCode=F	Exception	Exception	2
!	ABV	Vote1%Ticker	Vote1% based on ticker	3	Open	3D.00:58	AssetCode=C	Exception	Exception	4
!	ABV	Vote1%Ticker	Vote1% based on ticker	3	Open	3D.00:58	AssetCode=I	Exception	Exception	2
!	ABV	Vote1%Ticker	Vote1% based on ticker	3	Open	3D.00:58	AssetCode=H	Exception	Exception	2
!	ABV	Vote1%Ticker	Vote1% based on ticker	3	Open	3D.00:58	AssetCode=I	Exception	Exception	2

Summary

Restriction: R2A7AELIGONLY Exception: Cause: Data Eligible Securities Only ID: 1

Status: Open Account: ABV Time/Date Stamp: 10/2/2005 9:52:16 AM Relevant (Trigger) Data:

Reason: PM: danb Review Status: OverrideStatus: Fail

Assigned: CO: danb Overridden By: Pass

Comment Data: Client Manager: Override Reason: Overrideable By: PM or CO



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Questions?



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Case Study 2:  
Risk Management and Continuous Compliance  
Leveraging global firm-wide knowledge as a  
competitive advantage

*Demonstrations*