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WHAT'S YOUR POSITION?



Managing Trading Risk across Global Markets

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SUNGARD[®]

US Regulatory Landscape

- “As we move forward to try to raise standards, I think the level of pre-trade checking will be the focal point.” James Brigagliano, Co-acting Director, Trading & Markets, SEC
- “We see a growing lack of oversight....Firms claim they have no responsibility for these orders. That seems to me to be the wrong answer.” John Malitzis, EVP for Market Surveillance, NYSE

Focus on Pre-Trade Risk Management

- Post-crunch, strong emphasis on all aspects of risk management
- Timeliness is one key aspect: **pre-trade** is therefore in focus
- Particular challenges in high-volume DMA/Sponsored Access
- Need for integration across asset classes and trading platforms

SunGard's Global Trading Business

- SunGard's Global Trading business is the former GL Trade
- Our primary business is support for trading & post-trade operations on world-wide listed markets
- Focus over 20+ years on extending reach of electronic trading
- Some statistics:
 - Gateways for 130+ markets – equities, derivatives, fixed income
 - 86 of these available as ASP managed access services
 - GL Net network offers DMA links to 110+ markets via 230 brokers

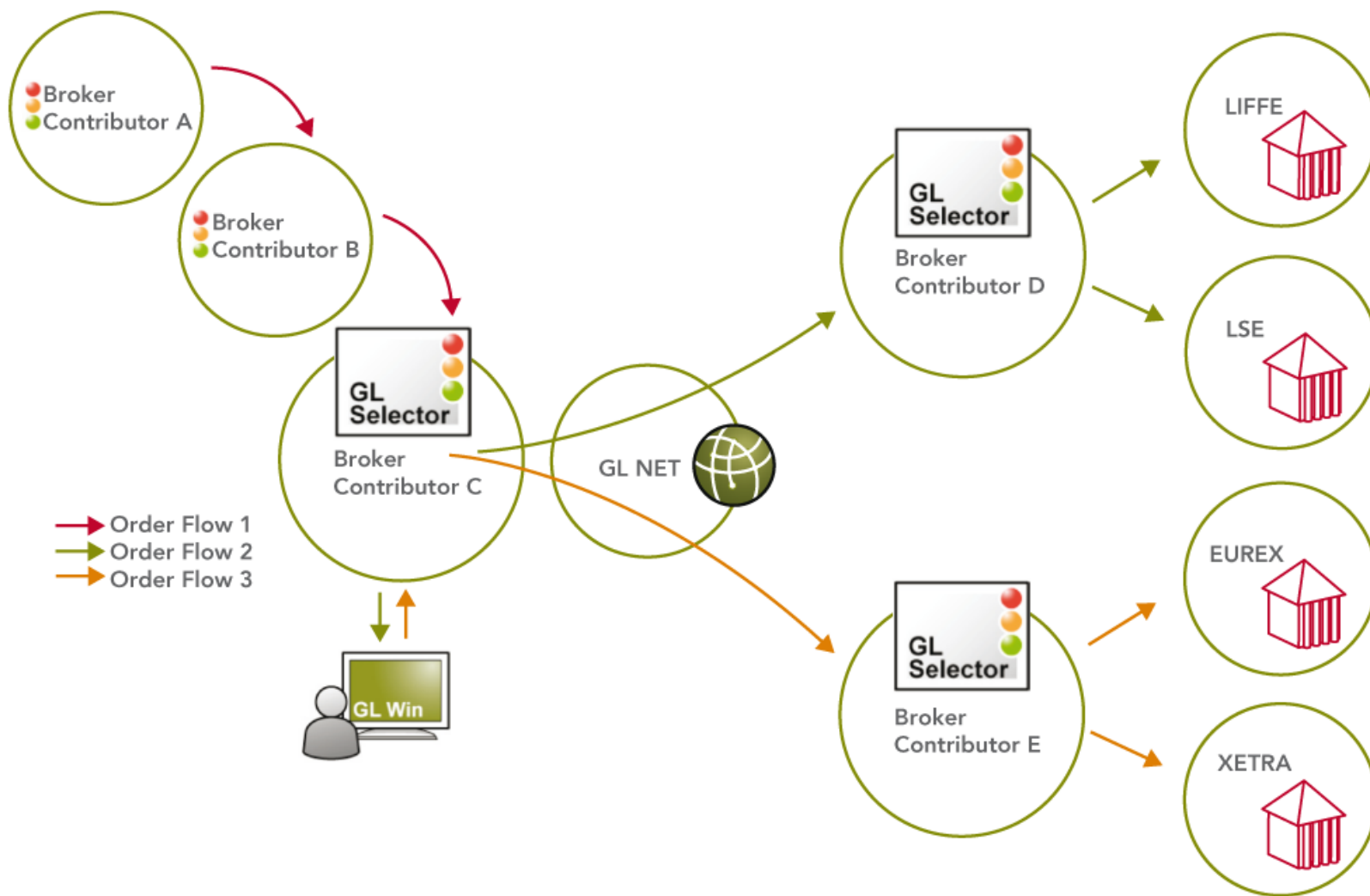


GL Selector

GL Selector: Core Capabilities

- Designed to manage pre-trade risk in high-volume DMA trading environments
- Equally applicable to sponsored access
- Covers 130+ global cash and derivatives markets
- Pre-trade filtering on wide range of criteria:
 - Order type, instrument, market, capital, P&L....
- Similar flexibility on management and viewing rights
- Can filter 3000 orders/sec without buffering
- Continuous management of open orders
- Global position keeping and alerts management
- Supports up to 600,000 accounts and 1,000 supervisors

Networked Configuration



Why is it so relevant now for the Broker Firm?

- Firms need to demonstrate that Exposure and Risk are actively monitored
 - GL Selector enables a Firm to monitor in real-time its exposure and risk created by internal (own trading desks) or external (Clients, DMA or Sponsored Access) sources
 - All calculations can be consolidated across regions, and across assets, into a single currency
- Firms need to react quickly when Risk becomes too high
 - Supervisor Users can manually suspend trading at any time, on a very granular level (Trader, Desk, Account, Client, ...)
 - GL Selector will automatically suspend trading when any threshold is reached
- Firms need transparency and accountability
 - GL Selector's complete Audit Trail allows the Firm to demonstrate "Who authorized Who to do What?"

Why is it so relevant now for the Contributor?

○ Maximize Buying Power

- To limit their exchange risk, Broker Firms tend to reduce their Contributors maximum “Buying Power”
- GL Selector effectively maximizes a Contributor’s Buying Power by offsetting positions in a market or asset class with positions from other markets or asset classes

○ Protect DMA Flow

- Contributors sending orders to Brokers equipped with GL Selector can still be provided straight DMA execution capability, while others might soon be barred from doing so
- GL Selector offers protection from High-Frequency tools or models that could create extreme risk in volatile market conditions



Delta Selector

Derivatives Risk: The Challenges

○ Business drivers

- Complexity of risk management in derivatives markets
- The need is increasingly real-time
 - Reasonable simplification of initial margin
 - Include working orders
- Must adapt to user activity and risk checking requirements

○ Technical requirements

- Must be scalable: 1,000 decisions per second
- Must be reliable: simple enough that it always works
- Minimise need for manipulation of static data files

Delta Selector Suite

- Pre-trade margining risk management solution
- Delta Selector
 - Based on standard GL Selector
 - Extended to improve risk management for options by treating them as 'quasi-futures'
- Fame Futures data set
 - Daily updates from exchanges of Deltas and initial margin per lot values, as required for Delta Selector's calculations

How It Works

○ Concept

- Integrates working & filled orders (margin engines usually take fills only)
- Converts options orders into 'quasi-futures' via their Deltas (Hedge Ratios)
- Uses exchange information: Deltas and initial margins per lot

○ Computation steps

- Converts option and same-maturity futures quantities into equivalent 'quasi-futures' quantities, using appropriate Delta values
- Multiplies the quasi-futures quantities by the exchange-provided futures margin per lot values to give quick and effective initial margin figures
- Uses minimum charge per lot values to provide fall-back initial margin where the quasi-futures quantity is low or zero

Delta Selector in Operation

Selector Manager (gl@SELMAS... - Detail...)

Display Configuration Calculations Imports Exports
Structure ?

Global

Market Exposure

Realised [] Worst [] Daily Ca []
Unrealised [] Long Ca []
P&L [] Short Ca []
Credit []

Configuration

Bench. Cur. EUR Instrument Curren

All Amsterdam Derivatives Brussels De

Name	Stock	LB
LIFFE		
XW		
XW-20081101		
XFW 081200000F XW,Z08		
XDW 081250000C XW,Z08C500		
XDW 081250000P XW,Z08P500		
XW-20090201		
XFW 090300000F XW,H09		
XDW 090327000C XW,H09C270		
XDW 090327000P XW,H09P270		
XW-20090701		
XFW 090800000F XW,Q09		

Alert Level 0 0

Market Watch +

Display Instrument list Tabs Tools Orders Sort by
Instrument Info. WEB Services Strategy Filter ?

+/-	Flag	Code	Symb	Name	Expiry
			XFW 081200000F	XW,Z08	14/11/08
			XFW 090300000F	XW,H09	13/02/09
			XFW 090500000F	XW,K09	15/04/09
			XFW 090800000F	XW,Q09	16/07/09
			XDW 090327000P	XW,H09P270	02/02/09
			XDW 090327000C	XW,H09C270	02/02/09
			XDW 081250000P	XW,Z08P500	03/11/08
			XDW 081250000C	XW,Z08C500	03/11/08
			XFW 091200000F	XW,Z09	13/11/09
			XFW 100300000F	XW,H10	12/02/10
			XFW 100500000F	XW,K10	15/04/10
14					

Aggregation for Month 1
 → Futures contract
 → Options on the future

Aggregation for Month 2
 → Futures contract
 → Options on the future

Fame Futures Data

○ Drivers

- Delta Selector uses daily information provided by exchanges
- The client needs to integrate this information

○ The Fame Futures service provides daily back-office reference data, covering 82 derivatives exchanges

○ This data also covers Delta Selector's requirements

○ Fame Futures data is distributed via FTP or IP secure connection for use by applications such as Ubig, Clearvision, OptionWatch and the GL Instant Suite

Delta Selector: Key Capabilities

- Risk managers can go beyond simple pre-trade position checking
- Allows analysis of the overall margin used for trading
- If tight control of limits is required, Delta Selector can be configured to be more conservative than post-trade models (SPAN, RBM, TIMs etc.)
- Integrates working orders together with filled orders
- Next step planned: equities and options



Global Execution Server

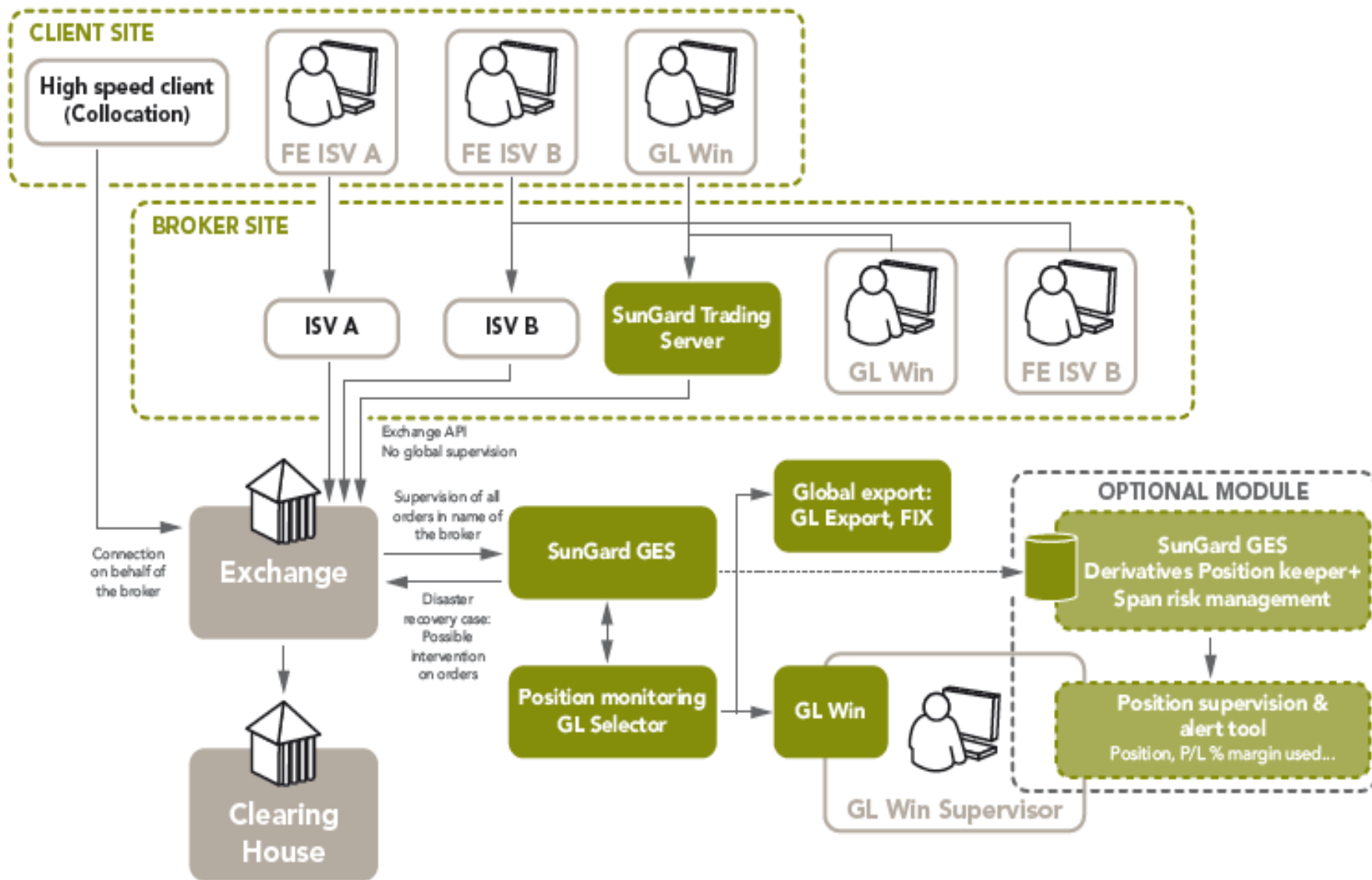
Multi-platform Risk Management: the Challenges

- A broker's traders and clients may access a particular exchange via multiple applications: ISV workstations or directly via APIs
- Increased scrutiny by Regulatory Bodies on “Unsupervised” Sponsored Access
- This architecture involves serious risk management difficulties:
 - No global visibility of open & executed orders
 - Each trading application’s pre-trade risk management is constrained essentially to simple avoidance of mistakes
 - Dedicated disaster recovery solution is required for each application
 - Dedicated export path to back office required per application

Global Execution Server

- GES enables the supervision of all orders and executions at one point, independent of the systems used to send the orders
- Requires drop copy of everything done at the exchange
- The exchange's supervision API provides a complete, consolidated copy
- An increasing number of exchanges can provide this
- Many also allow cancellation of orders via the same interface

Architecture



Components

○ Global Execution Server

- A dedicated order book handling all order-related messages from the exchange

○ Supervision via GL Win workstation

- Supervisor can monitor/cancel/amend orders entered by traders

○ Global risk management

- Supervisor can receive alerts when clients reach limits

○ Global export

- Can feed external systems with all order execution details

○ Derivatives position keeper and Span engine

- Optional, with indicators such as underlying position, P&L etc.
- Computes margin consumption for the executed parts of orders

Benefits for the Broker Firm

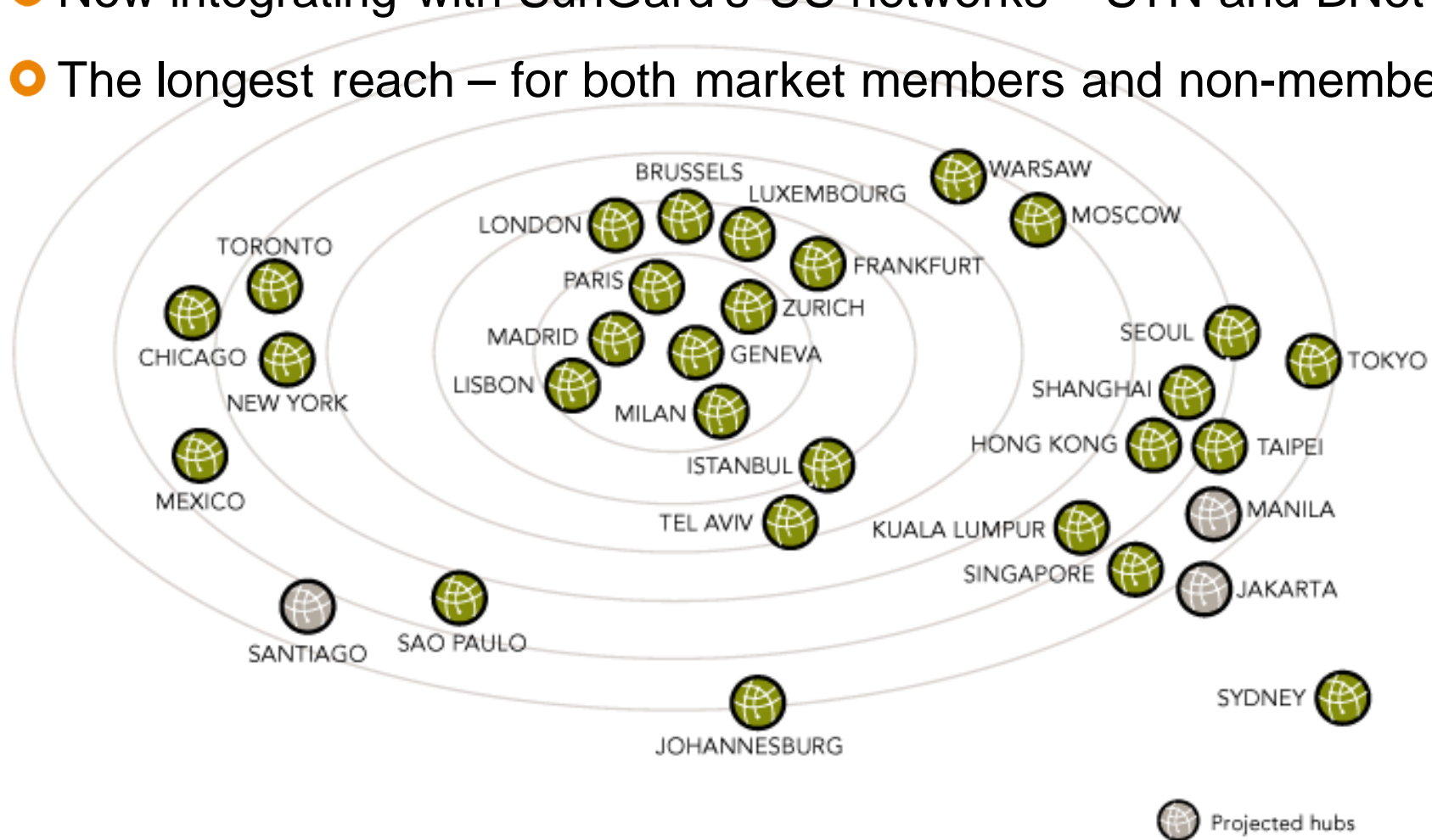
- Visibility of all daily orders (open and executed), independent of the systems used to send the orders
- The ability to cancel orders when required, including cases of trading application failure and disaster recovery
- Global daily position monitoring for all orders (open and executed)
- Global export and confirmation via a single connection



Global Network

GL Net Coverage

- Network links markets as they emerge
- Now integrating with SunGard's US networks – STN and BNet
- The longest reach – for both market members and non-members



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