



FiNETIK 福瑞值

Business Solutions for Asian Financial Markets

Impact of growing Market Data Volumes

by

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Agenda

Data Volume Growth

Data Volume Impact

What can be done ?

Inverse Multiplexing vs. Shared Networks

FAST

Data Volume Growth - Reasons

- ❑ Market Volumes and Volatilities are setting new records
- ❑ Higher performance and Lower Latency Demand
 - Electronic Trading (FIX/STEP)
 - Program Trading
- ❑ Simultaneous Multi-Asset Trading
- ❑ Sophisticated Investors (Hedge Fund)
- ❑ Exchanges Increase of Trade Capacity
- ❑ Regulators open market and demand more control

Data Volume Growth - Trend

- ❑ **SSE** data volume increase 2000% between Jun 05 – Jun 07

- ❑ **OPRA** peak data
 - Jul 07 at 537'000 MPS
 - Aug 08 at 901'000 MPS (Projected)

- ❑ **CQS** peak data
 - May 06 at 3'860 MPS
 - June 07 at 18'800 MPS

- ❑ **NSX** peak data
 - Jan 07 at 6'900 MPS
 - Jun 07 at 24'029 MPS

- ❑ **CME** data volume increased 150% between Jan '06 - Jan '07

SSE Shanghai Stock Exchange

OPRA Option Price Reporting Agency (AMEX, BSE, CBOE, ISE, PHILX, NYSE Acra)

CQS Consolidate Quote System (AMEX, NYSE listed stocks)

NSX (National Stock Exchange)

CME Chicago Mercantile Exchange

MPS Message per Second

Data Volume Impact - Asian Perspective

- ❑ Experienced bottle necks and outages
- ❑ Exchanges upgrading Trading and Market Data System
- ❑ FAST / FIX discussion starting in a few exchanges
- ❑ Increased pressure form alternative trading platforms
- ❑ Increased pressure to follow international standards
- ❑ Learning from the experienced from US and Europe

Data Volume Impact - What are the Impacts

- ❑ Increased Bandwidth costs
- ❑ Reduced Latency (delivery from sender to receiver)
- ❑ Increased Data Purchase and Delivery costs
- ❑ Increased Data Feed integration costs
- ❑ Increased Software and Application development costs
- ❑ Loss of Business Opportunities (temporary)

What can be done?

- ❑ **Inverse Multiplexing vs. Share Networks (VPN)**
- ❑ Conflating (aggregating multiple quotes)
- ❑ Proprietary Compression
- ❑ Data Feed “Stripping”
- ❑ “Top Stock” Data Feeds
- ❑ Direct Feeds supplementing Vendor Feed
- ❑ **FAST/FIX – STEP**
 - Compress Data
 - Common Exchange Data Interface
 - Data Storage

Inverse Multiplexing vs. Share Networks I

SSE Level 2 current size: 3Mbps soon to increase

Bandwidth Requirement : 4Mbps soon to increase to 6Mbps

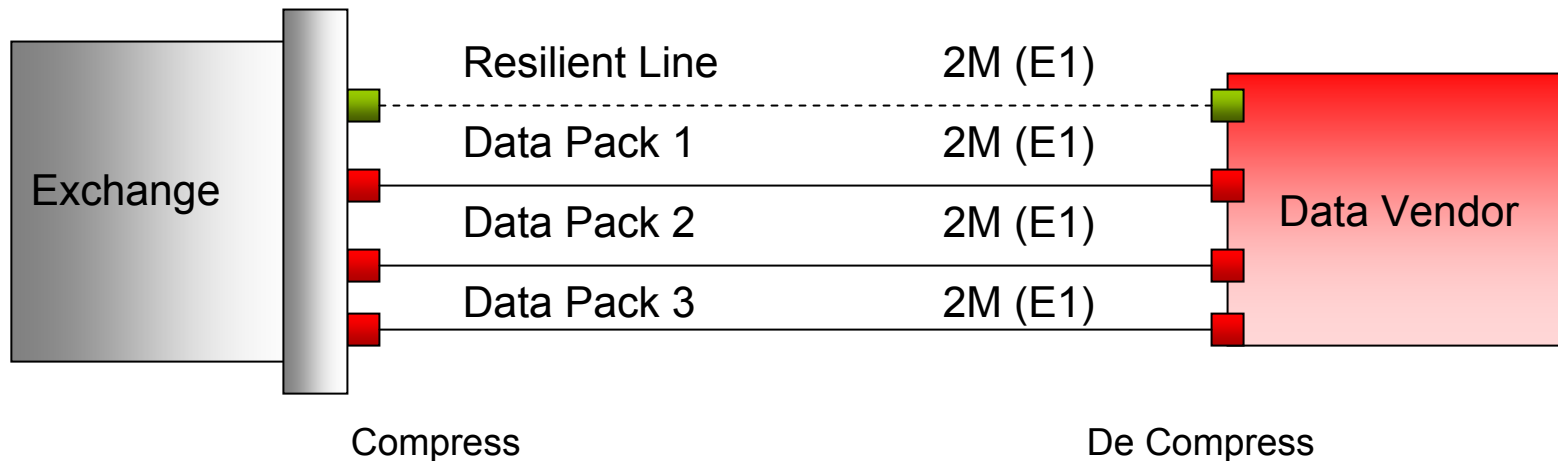
Hong Kong – Shanghai Bandwidth Availability: 2Mbps (E1) or 45Mbps (DS 3)

Approach

- Proprietary Compressing
- imux 3 x 2Mbps (E1) + 2Mbps

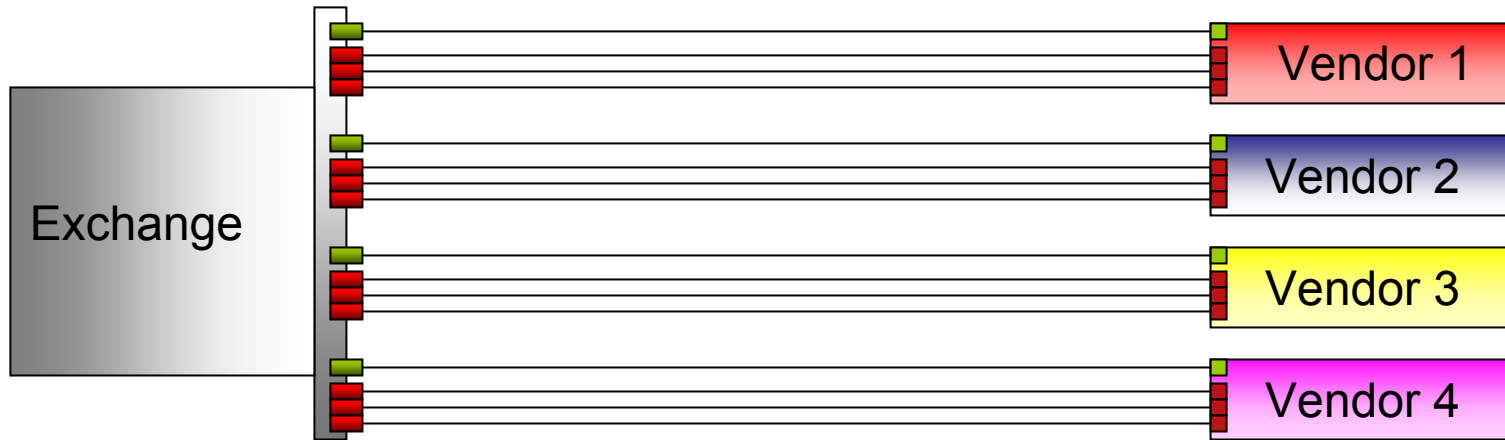
Challenges

- Increased risk of Data Pack loss
- Increased cost of Bandwidth
- Increased risk HW/SW/Line failure
- Increase cost of monitor and support

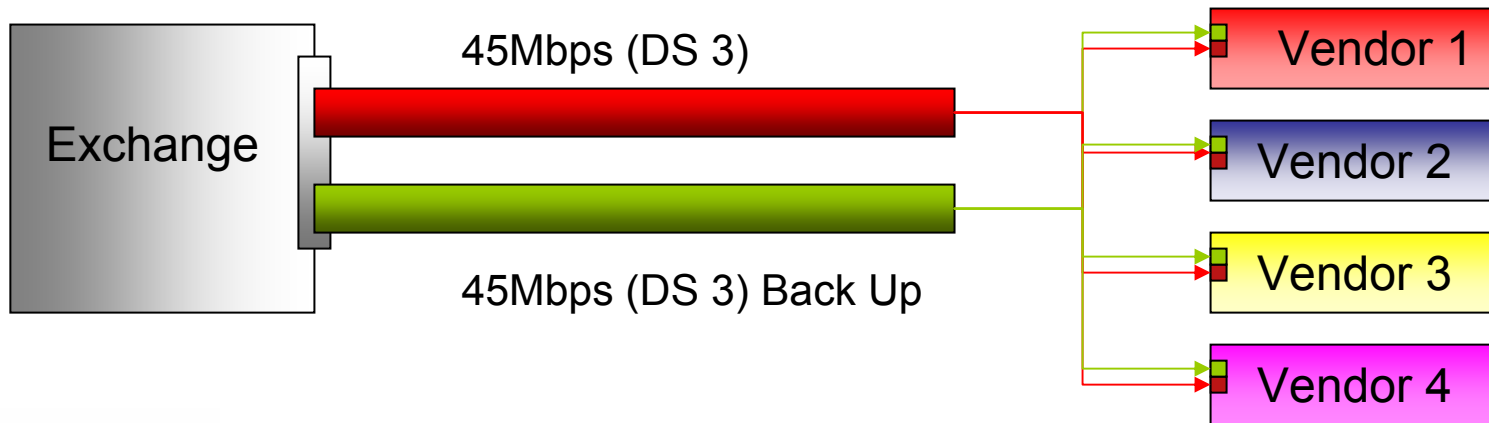


Inverse Multiplexing vs. Share Networks II

❑ Inverse Multiplexing



❑ Shared Network



FAST (FIX Adapted Streaming)

- ❑ Compression > 70% - 80%
 - On FIX or Proprietary Feeds
 - Intelligent compressions on similarities of content & structure
- ❑ Reduces Latency
- ❑ Common Exchange Market Data Interface
- ❑ Book Management Efficiencies
- ❑ Intraday Tick Data Storage Format
- ❑ Common Interface between Market Data and Order Routing

❑ OPRA

FAST compressed saved 70% bandwidth. ASCII feed terminated in Jan 2008 .

MPS	(ASCII)	(FAST)	
537'000	326.9 Mbps	98 Mbps	(July 07)
907'000	517Mbps	155 Mbps	(Projected July 08)

❑ ISE (International Securities Exchange)

Depth of Book reduced from 50 Mbps to 9 Mbps with FAST (Oct 07)

❑ CME (Chicago Mercantile Exchange Group)

Reduced bandwidth by 70% with FAST, first client live Oct 07, migrate entirely to FAST by next year

❑ ASX 1st Asian Pacific exchange to implement FAST

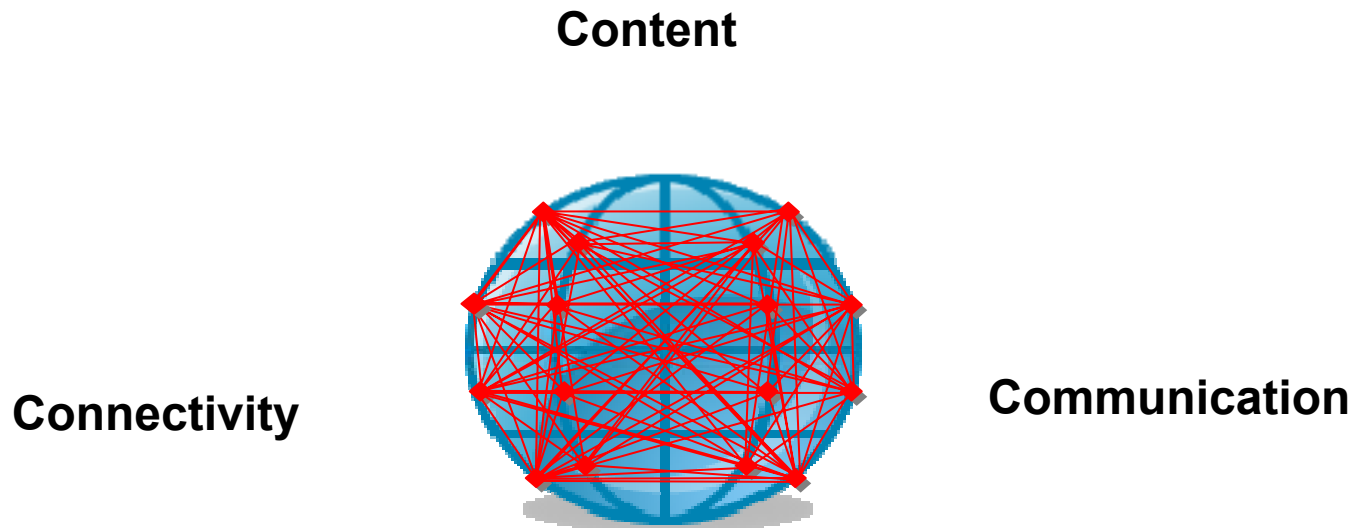
- ❑ Common Exchange & Data interface will exceed bandwidth cost saving
- ❑ FAST can be placed at the fringe of an infrastructure
- ❑ FAST allows structures and rules to be changed on demand
- ❑ Information Product Time-to-market is slashed

Exchange Client Benefits

- Lower cost for customers to connect
- Lower long-term development cost
- Lower hardware and software costs
- Connect to Multiple Exchanges
- Interpret Different Data Without Additional Coding

Recommendations

- ❑ Continuous communication between Exchanges, Vendors and Users on formal and informal basis. To find the best solutions.
- ❑ Adopt FAST protocol for Exchange and Vendors and Users



FiNETIK Financial Industry Networked Thinking

❑ Additional Information's

<http://www.fixglobal.com/>

FIX GLOBAL MANAGZINE (free subscription)

<http://www.fixprotocol.org/fast>

FAST / FIX official website

<http://www.fixprotocol.org/discuss/46>

FAST Discussion Forum

<http://www.fisd.net/>

FISD official website

❑ Contact us

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