



# Building Superior HA without Software Overheads

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# NSE and Stratus = 20 years of continuous availability



- Order Book
- Matching Engines
- Post Trade
- Data Store

## Why Stratus?

- 20 plus years on Stratus
- Uptime + performance
- Ft trumps building HA into apps

Visit [stratus.com](http://stratus.com) to watch the full NSE case study and read more about how Stratus is helping companies like you achieve continuous availability



[Watch case study](#)



[Read solution brief  
for Capital Markets](#)

# Why exchanges need fault-tolerant solutions today

Writing availability into applications proving risky



Australian  
securities  
exchange

## Failure in trade database results in:

- One hour delay in opening
- Series of consequences affecting trading throughout the day
- Closing more than one hour earlier than expected



Singapore  
securities  
exchange

## Undetected hard disk failure results in:

- More than half a day of no trades due to early closing
- Fourth trading glitch in four years while running with availability written into application



American  
securities  
exchange

## Technical hardware glitch results in:

- Four hour closing and no trading available
- Unnerved investment market and a continued questioning about the fragility of technologies role in the financial markets

A microsecond of downtime can cause losses everywhere

# Risks of writing availability into the applications



## Application developers time and skill level

- 30-40% of critical application code is written to support high availability and failover



## Application latency

- It's comparatively easy to find latency in hardware and the network; however, the real overheads are in the application



## Regulatory pressures

- Regulations, including REG SCI, are growing and significantly raising the risk profile on exchanges and dark pools

Your business can't afford the overhead that writing availability code into the application requires while not confidently achieving the availability every microsecond deserves

# Stratus fault-tolerant hardware solutions

Today Stratus ftServer is the only trusted high performance, low jitter fault-tolerant platform that is flexible and simple to deploy. Stratus ftServer is a fully hardware resilient server that replicates everything in hardware, including CPU.

## Requirements under consideration for tomorrow's challenges

- Larger configurations (4 way)
- More cores and/or higher frequencies (3.2GH)
- Precision time (PTP)
- Converged / Hyper-converged
- Security layer in Solarflare adapters (SF 8500 series)





Our solutions enable the simple deployment and management of cost-effective continuously available infrastructures without changing your applications



## Continuously available

- 35 year track record of providing 99.999% continuous availability
- Trusted by the world's Global Fortune 500 companies and SMBs
- Competitive advantage for companies depending on business critical applications



## Operationally simple

- Applications run without specialized expertise or architectural changes
- Standards based platform running native Linux, VMware or Windows to fit any environment
- Options to deploy in the datacenter to the outer edge of the network



## Cost effective

- Simple operation lessens the support burden for IT, even as infrastructure expands
- Prevention of downtime secures reputation, lowers cost and guarantees data integrity and compliance
- Above industry average deployment cycles and support
- Reduce Cap-Ex and Op-Ex with fewer redundant servers

# Always-on exchange trading infrastructure projects



**IDX**

Indonesia Stock Exchange  
Bursa Efek Indonesia

- FIX gateways
- Data feed concentrators
- QUO

## Why Stratus?

- Uptime necessity in critical areas



- Database replication
- X-Stream Governor
- Clearing and Settlement

## Why Stratus?

- Ensures 100% Critical failover mechanism



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- HK-SH Stock Connect
- Order submission and trade confirmation

## Why Stratus?

- Bare-metal windows app
- Cannot be made cluster aware
- Simplicity of deployment
- Local support capability

# Companies around the world rely on Stratus today

## Exchanges



HKEX  
香港交易所



National Stock Exchange of India Limited



India's No.1 Commodity Exchange



The Stock Exchange of Thailand



Indonesia Stock Exchange  
Bursa Efek Indonesia



WorldPay™



citi

SIEMENS

MIZUHO



YAHOO!



TeleCash

cielo



CVS  
Corporation



First Data

Elavon  
Global Acquiring Solutions







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to learn more!