



FIXGlobal
FACE₂FACE Forums 2010

In support of

FIXPROTOCOL
INDUSTRY-DRIVEN MESSAGING STANDARDSM

Connectivity within the Asia region

FIX Global -Face2Face
Kuala Lumpur

May 26th 2010



Working together with FIX community

- TNS & FIX
- TNS empathy and expertise in Financial Markets
- TNS is a prominent player within the FIX protocol organisation
 - Membership on various FIX committees
 - Leading player in advancing the FIX protocol
 - Associated with FPL (FIX Protocol Limited) since mid 90's
- One of the largest FIX connected communities worldwide
 - Tower Group Report
 - Largest Buy Side FIX network (primary) provider
 - Largest Sell Side network (overall) provider
- Unlimited number of FIX/Trade messages for a fixed monthly fee
- High throughput – low latency
- Peer to peer relationship
- More information on FIX at: www.fixprotocol.org



The Importance of Global Presence

Over 100 Points of Presence, 25 Countries, all key Financial Centres





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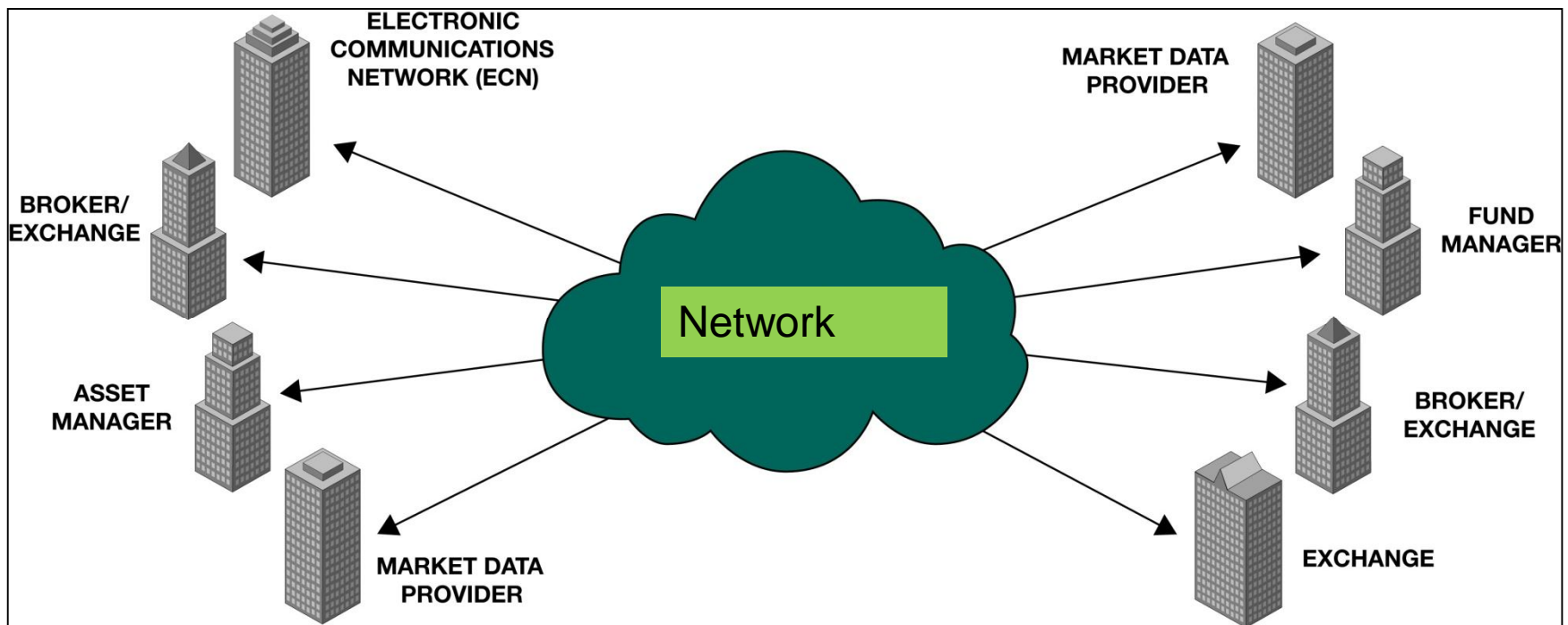
Asia Pac PoP's





The Secure Trading Extranet

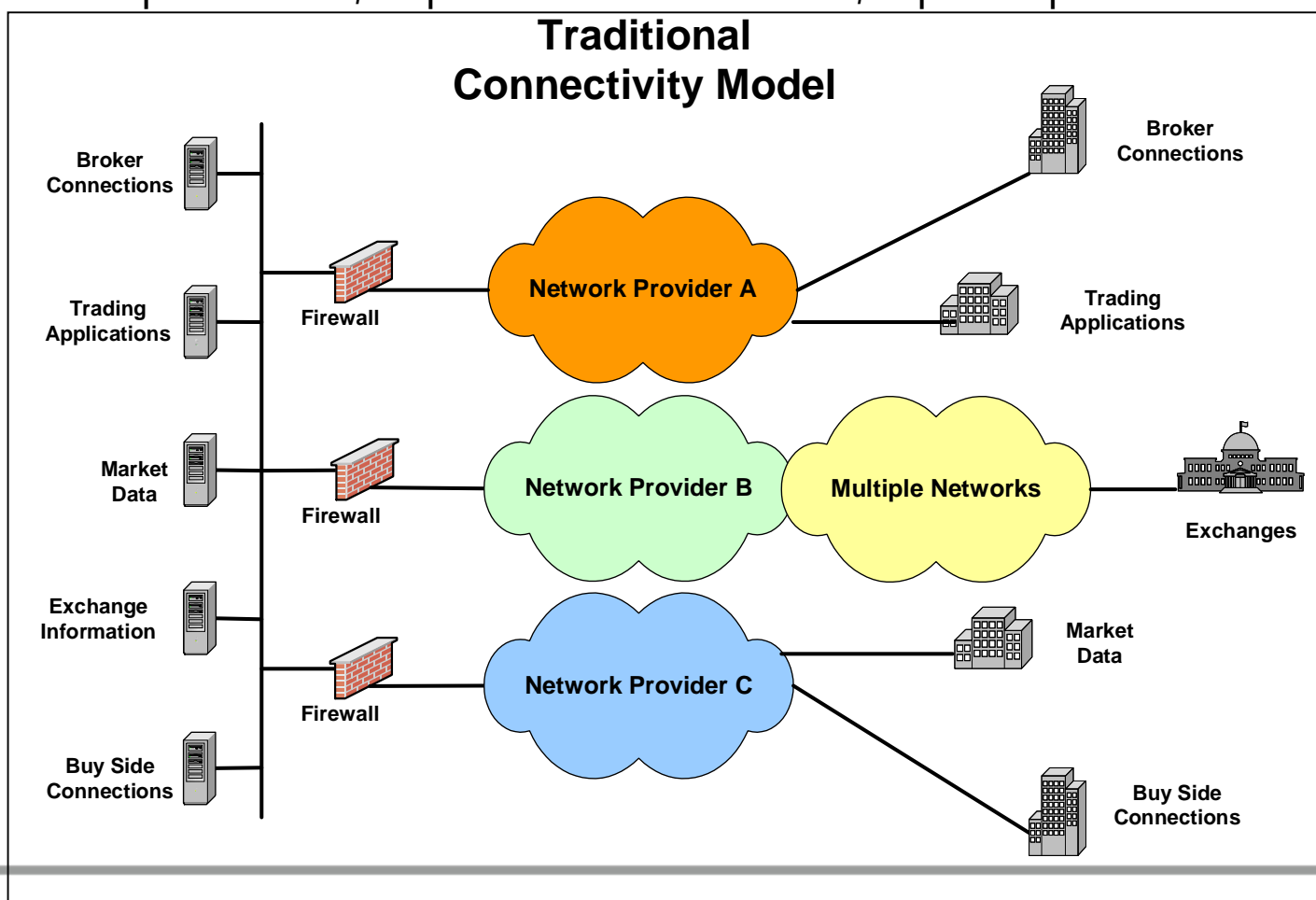
Secure, high performance, fault tolerant connectivity solutions for the exacting demands of today's trading applications providers, buy & sell side institutions, market data vendors, exchanges and order routing services.





Legacy systems connectivity

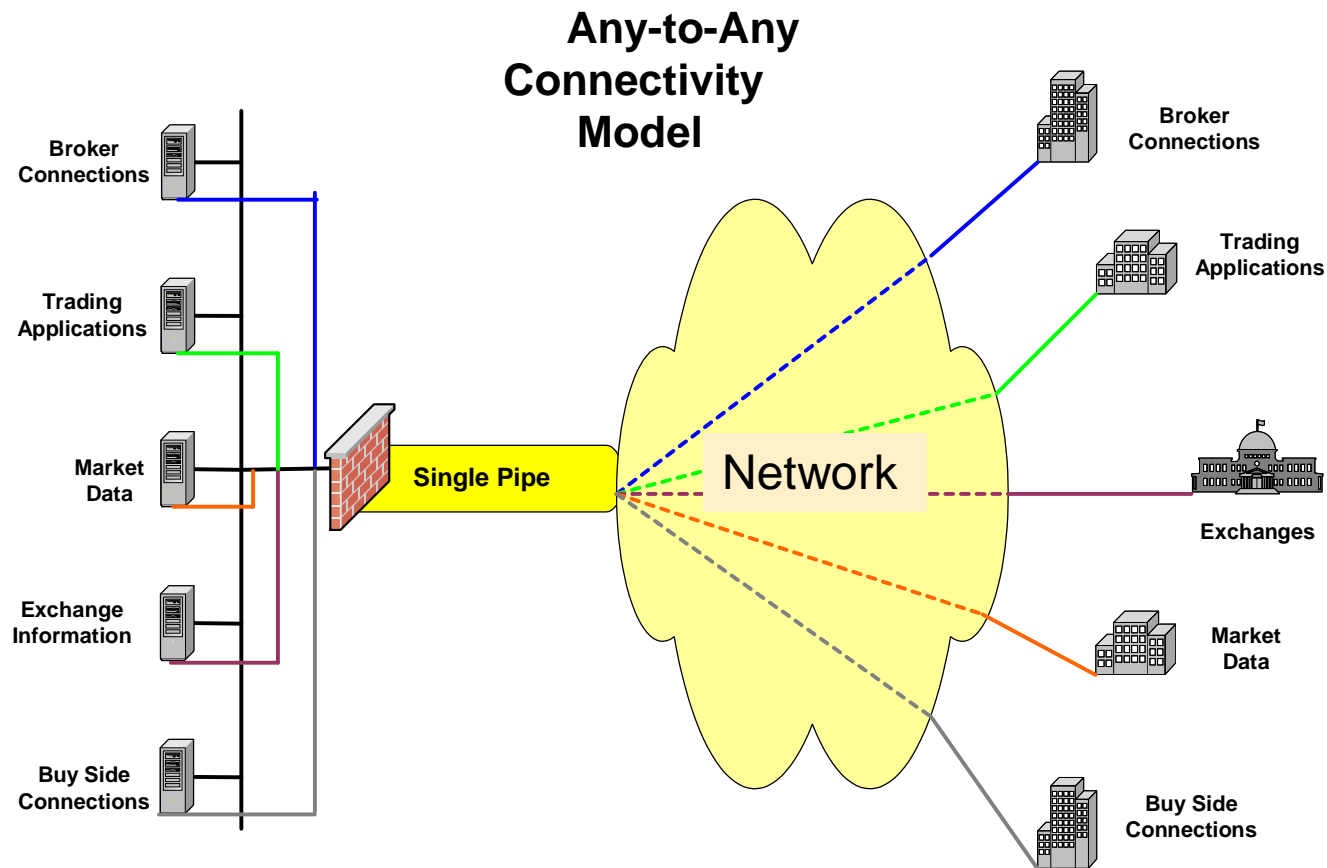
- Challenges
 - Multiple vendors, disparate communications, capital expenditure





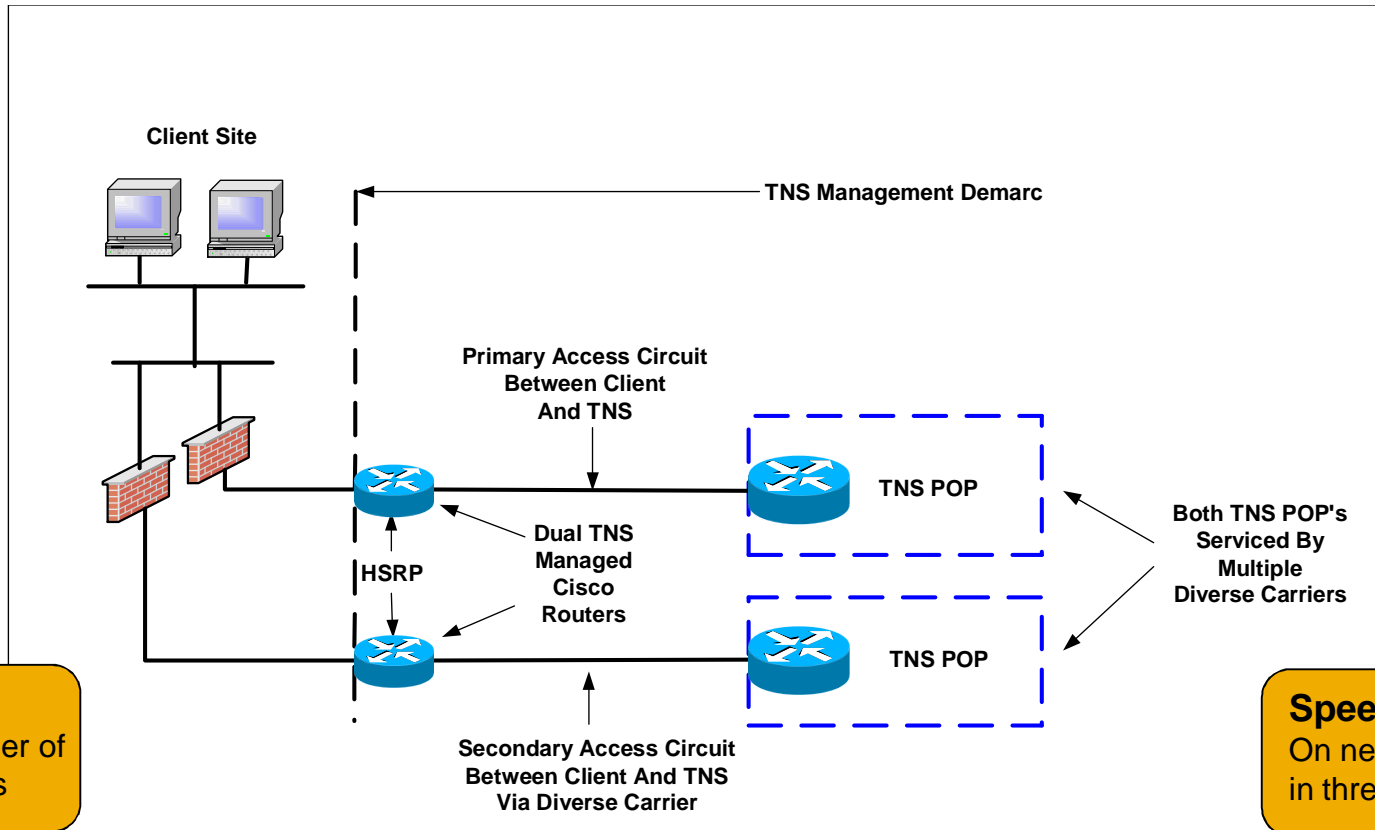
Single connection – multiple applications

Single managed infrastructure – multiple applications





Typical connection - Secure Trading Extranet



Fixed fees
Unlimited number of trade messages

Speedy service
On net connections in three days

Security
Community of interest
Encryption
Network Address Translation

Fault tolerant
All TNS POP's are dual resilient
Back up access options
HSRP or manual fail over
DR solutions

Performance
Backbone capacity optimised
Scalable access bandwidth
Appropriate Use Policy



Typical FSD SLA

Core Network Availability:	100%
Customer Site Availability:	
Single Router w/backup:	99.9%
Dual Router design:	99.99%
Dual Router with DR:	99.999%
Packet Delivery (Greater):	99.7%



Typical Network Latency SLA Averages

Average Latency per Region	Less-Than
North America	70ms
United States	70ms
Europe	70ms
Asia-Pacific	90ms
Trans-Atlantic	125ms ¹
Trans- Pacific	190ms ²
Europe - Pacific	200ms ³ 180ms ⁴

Notes:

- I) Latency statistics are based on network core to network core calculations.
- II) Latency statistics are based on Round Trip 128 byte ping packets.
- III) Footnotes: ¹Applies to NY to London.
- IV) Footnotes: ²Applies to SFO to Hong Kong.
- V) Footnotes: ³Applies to London to Hong Kong.via Suez
⁴Applies to London to Hong Kong.via Russia



Typical Network Asia Latency Averages (Indicative)

Local Latency	Average
Kuala Lumpur to Singapore	13ms
Singapore to Jakarta	16ms
Singapore to Sydney	120ms
Singapore to Bangkok	34ms
Singapore to Mumbai	79ms
Kuala Lumpur to Hong Kong	36ms
Hong Kong to Taipei	25ms
Hong Kong to Seoul	50ms
Hong Kong to Tokyo	52ms

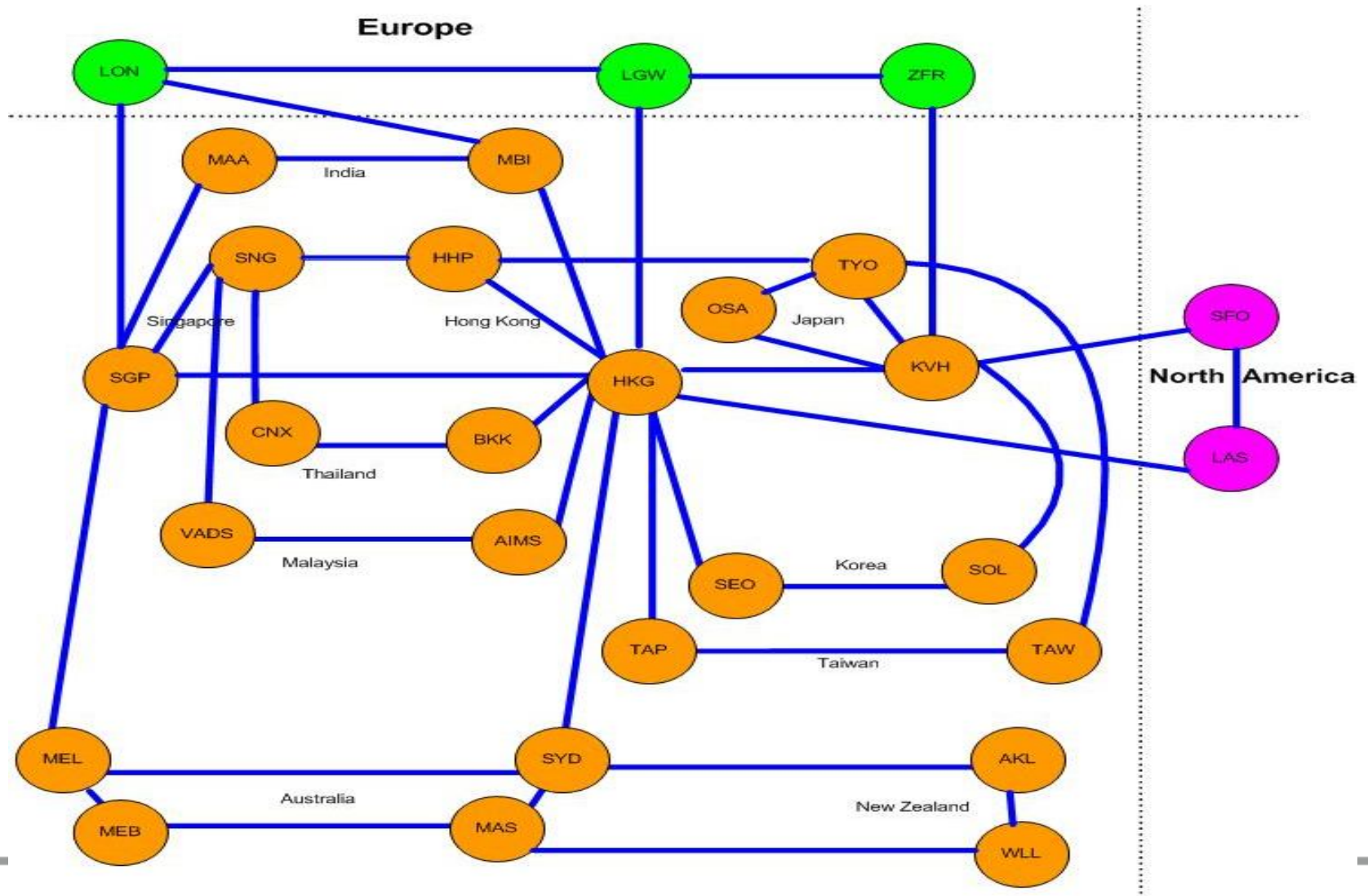


Network Overview – Facts and Figures

North America	Europe	Asia Pac
POPs – 35	POPs – 38	POPs – 25
Countries	Countries	Countries
US – 30	UK/Ireland – 13*	Singapore – 2
Canada – 3	France – 3	Hong Kong – 2
Mexico – 2	Germany – 2	Korea – 2
	Poland – 2	Japan – 3
	Austria – 2	Taiwan – 2
	Spain – 2	Malaysia – 2
	Italy – 4	Thailand – 2
	Greece – 2	Australia – 6
	Romania – 2	New Zealand – 2
	Sweden – 2	India – 2
	Netherlands – 2	
	Scandinavia – 3	



Network Overview – Asia Backbone Schematic





Monitoring Tool - WEB PORTAL

The screenshot displays a web portal for monitoring a router named 'aaa01'. The interface includes a navigation menu at the top with options like Home, Network, Tools, Support, Admin, and Logout. The main content area is divided into several sections:

- Router Overview:** Shows 'Severity: Good' and 'Status: Good'.
- Interface Status:** Displays three interfaces: FastEthernet0/0 (Unmanaged), Loopback0 (Normal), and Serial0/0 (Normal).
- Router Information:** A section for detailed router data.
- Reports:** Shows '[1 utilization] [0 sla]'.
- Status Message Archive:** Shows '[5 messages]'.

A 'Report Generator' window is open, showing a date of '09/25/2007' and a range of 'Day'. The 'Choose Report' dropdown is set to 'Hourly Summary'. Below the generator is a table of data for 'Sep 25, 2007':

Hour	Total	# Good	% Good	Total Duration	AVG Duration
0	18,617	18,382	98.74%	214,302.30	11.51
1	10,057	9,937	98.81%	122,763.80	12.21
2	6,451	6,298	97.63%	75,531.30	11.71
3	5,545	5,430	97.93%	74,002.70	13.35
4	7,504	7,382	98.37%	92,512.00	12.33

At the bottom, a 'Realtime Monitor - 1min.' window displays a table with the following columns: DNIS, CID, Total, Good, Network, Term, Polling, NAK, Host, and Duration. The table lists various DNIS values and their corresponding performance metrics. A 'Totals' row at the bottom summarizes the overall data.

DNIS	CID	Total	Good	Network	Term	Polling	NAK	Host	Duration
7770612	AAA	1	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	14.20
7772281	BBB	121	96.69%	0.00%	1.65%	1.65%	0.00%	0.00%	11.68
7771351	CCC	3	66.67%	0.00%	33.33%	0.00%	0.00%	0.00%	5.47
7772824	DDD	29	96.55%	0.00%	3.45%	0.00%	0.00%	0.00%	16.26
8880182	EEE	1	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	14.10
8884931	FFF	13	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	42.25
8885980	GGG	3	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	9.50
8887828	MMM	48	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	22.94
9999164	NNN	1	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	19.20
9995579	PPP	1	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	22.50
9995476	XXX	2	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	7.90
9996351	YYY	1	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	7.60
Totals:		15,219	97.59%	0.01%	0.69%	1.56%	0.00%	0.14%	11.63



Major Market Data Connectivity

North America		
Alpha Trading	Direct Edge	OPRA
Alternext (formerly AMEX)	ELX	Pink Sheets
ARCA	Hotspot FX	Pure Trading
BATS	International Stock Exchange	Toronto Stock Exchange
CBOE	Nasdaq OMX	Track
Chicago Stock Exchange	National Stock Exchange (N. America)	
Chi-X N.America	New York Stock Exchange	
CTA	NYSE LIFFE (formerly CBOT)	
Currenex	Omega	



Major Market Data Connectivity

Europe	Asia Pac	India
Athens Stock Exchange	Australian Stock Exchange	Bombay Stock Exchange
BATS Europe	Bursa (Imminent)	National Stock Exchange
Bucharest Stock Exchange	CHI-EAST	
Budapest Stock Exchange	Hong Kong Exchange	
Burgundy (Pending)	HK Mercantile Exchange	
CHI-X Europe	Indonesia Stock Exchange	
Euronext	Korea Stock Exchange (Koscom)	
NASDAQ Europe	Shanghai Shenzhen Stock Exchanges (Via CIIS)	
Prague Stock Exchange	Singapore Stock Exchange	
Quote MTF	Stock Exchange of Thailand	
Trade Turquoise	Sydney Futures Exchange	
Warsaw Stock Exchange	Taiwan & Gretai Stock Exchange	