

# TECHNOLOGY SERVICES FOR FINANCIAL MARKETS

**PICO** provides technology services to financial markets clients who demand cutting-edge solutions delivered quickly and accurately but also need flexibility and agility to respond to ever-changing market conditions.

Pico offers innovative, transparent, low-latency markets solutions from a portfolio of best-in-class products coupled with an agile and expert service delivery platform.

Instant access to financial markets is provided via **PicoNet™**, Pico's ultra low-latency, fault-tolerant and globally comprehensive fiber-optic network platform.

Infrastructure
Connectivity
Cloud

TRANSPARENCY
Data
Software
Analytics

The network seamlessly feeds multi-asset market data and machine time analytics into client's algorithms colocated directly alongside trading markets. PicoNet is instrumented natively with **Corvil Analytics** and telemetry, giving Pico the ability to deliver full transparency into clients' trading and IT operations.

### PICO PRODUCTS AND SERVICES

With Pico, you will be able to access markets in any location, stand up best-in-class technology on-demand, within budget, and then bring it live in days not months. You will have better control, better transparency and better intelligence due to the

visibility and insights from Corvil Analytics. You will be able to see your technology platform perform live for your business—giving you the **freedom to move fast, with confidence**.





Pico, the leading provider of technology services for the financial markets community, has won "Best Managed Service for Trading" and "Best Trading Infrastructure

Monitoring Platform" titles in A-Team Group's 2020 TradingTech Insight Awards.

# PicoNet™

We have access to over 200 global market venues via PicoNet<sup>™</sup>, our private ultra low-latency proprietary network mesh. PicoNet is extremely flat, minimizing hops and latency wherever possible. Ultra-resilient and fault-tolerant, it provides the fastest path connections between on-net co-location sites.



# More liquidity flows through connectivity managed by Pico than any other managed service provider

Aequitas Neo	Citigroup	Goldman Sachs	MIAX Options Exchange	Schwab
Aquis	Credit Suisse	Stock Exchange of Hong Kong (HKEX)	Minneapolis Grain Exchange (MGEX)	Soc Gen - Societe Generale
B3	CTA	, ,		
BGC	Curex	ICE EU	Morgan Stanley	SpeedRoute-Cirrus Technology
BIDS	Currenex	IEX	NEX	SpiderRock
BNP Paribas	Dash Financial	Instinet	Nasdaq	TMX Group
Bank of America Merrill Lynch Bank of New York	Dealerweb	Instinet Canada Cross (ICX)	Nasdaq Nordic	TPICAP
	Deutsche Bank	Integral	Nasdaq OMX	Tradeweb
	Deutsche Boerse	Intercontinental Exchange	Neptune Networks Ltd	Tradition
Barclays	Dubai Mercantile	· ·	New York Stock Exchange	
Bolsas y Mercados Españoles	Exchange (DME)	iSwap	OTC Markets	Triact Canada
	EEX	JPM	Omega ATS	Two Sigma
Borsa Italiana	Enskilda (SEB)	Jane Street	OneChicago	UBS
Boston Options Exchange	Equiduct	Japan Exchange Group (JPX)	OPRA	UTP
Bourse de Luxembourg	Euronext	Johannesburg Stock	Oslo Bors	Vela Trading Systems
Bursa Malaysia	FX Connect	Exchange (JSE)	Parhelion	Vienna Stock Exchange
CIBC	FXSpotStream	Korea Exchange (KRX)	Pragma	Virtu Financial
CME Group	•	LMAX Exchange	· ·	Weeden & Co.
CODA	Fenics	LSE Group	Prague Stock Exchange	Wells Fargo
Canadian Stock Exchange (CSE)	Fidelity	Level ATS	RBS Group	Warsaw Stock Exchange (WSE)
	Fidessa		Refinitiv	
Cboe	GFI	LiquidityEdge	SGX	
Cboe Europe	GPW	Liquidnet	Singapore Exchange	
Citadel Securities	GTS	London Metal Exchange (LME)	(SGX) SIX Swiss	
	GTX			



An expansive suite of Products and Services, backed by Pico's Global Service Operations team, providing 24/7 direct client support globally.

With presence in all three regions (AMRS, EMEA and APAC), our Global Service Operations team support our clients via a "Follow the Sun" model. We conduct automated checkouts in each region allowing for global stability and follow a welldefined rules of engagement run book.

## Global Infrastructure

# **Network** Connectivity

# Data & **Analytics**

# Cloud **Technology** Services

Infrastructure-as-a-Service

55+ relevant data centers in the financial services ecosystem

Data center build & management

InfoSec-as-a-Service

Global Procurement

Exchange, venue, dealer and client connectivity

Inter-data center regional network mesh

Dark fiber with dedicated bandwidth

Global WAN with trans-Atlantic/Pacific links

Real-time market data from 300+ destinations

Regulatory reporting (OATS, MiFID. CATS)

Network & infrastructure analytics and telemetry

Big data management and analytics

Private and hybrid clouds for clients in the financial ecosystem

Connectivity to public clouds (AWS, Azure, Google)

Leverage Pico's extensive support of client collaborative private cloud

## The Technology Platform of Choice for Financial Markets Globally.

Pico is a committed partner to over 400 leading banks, exchanges, asset managers, and trading firms.



























































#### **INFRASTRUCTURE**

## Colocation Hosting—Dedicated Model

Each cabinet can be customized to client needs including power density, Top of Rack design and security considerations. All network components – including Top of Rack and management switches – are resilient and completely dedicated to the client, though fully managed by Pico.

#### Colocation Hosting-Shared Model

Each high-density cabinet is outfitted with Pico's standard configuration (a fully redundant Arista-based Top of Rack setup). The Top of Rack access layer node operates as a multi-layer switch combining 10G port aggregation and routing functionality.

#### **Device Management**

Monitor the health and performance of your hardware. Pico provides a management service to help you build, configure, monitor, and manage servers, switches and network equipment – enabling effective and efficient setup and maintenance.

#### **On-Site Intellihands**

Local and experienced, certified, bilingual engineers with expertise

in data centers to support the largest bank or the smallest proprietary trading firm.

#### Infrastructure Analytics

We operate and maintain colocated infrastructure in the world's most important financial data centers. Customers hosting their trading infrastructure with Pico can also benefit from Pico's Infrastructure Analytics services.

#### **NETWORK**

#### Connectivity

Connect to both global and domestic exchanges and brokers via lowest-latency and highest-bandwidth hand-offs available for order routing, execution, risk-check gateways, normalized data and other services. Benefit from sub-microsecond deterministic market access to the exchange via Pico's ultra low-latency network design.

#### Venue Access

Pico provides low-latency connectivity for access to over 200 global markets venues. Execute proprietary business or client orders on all the major exchanges, dark pools, and MTFs over our ultra low-latency proprietary network.

## **Network Analytics**

Market-leading traffic analytics platform, optimized for electronic trading. Empowers operations teams with the real-time visibility and analytics they require to monitor, optimize and diagnose network health more effectively.

#### **Network Services**

Pico has developed extensive commercial and operational relationships with telecommunications providers and network re-sellers to ensure that PicoNet™ is the fastest and most reliable Service Provider network available

## **MARKET DATA**

#### Raw / Normalized / Historical / Market Data Analytics

Obtain low-latency feeds for the most accurate view of the markets. Consume a full suite of global Equities, Fixed Income, Futures, and Options data—Top of Book and Full Depth—on major Exchanges in the US, Europe, and Asia.

#### **CORVIL ANALYTICS**

#### Corvil Classic

The on-premises, self-managed and modular deployment of Corvil Analytics. Multiple teams within financial organizations leverage Corvil Classic every day including Network Operations, Trade Infrastructure Support, Client Support, Venue Connectivity, Voice Operations and the Head of Business.

#### Corvil as a Service

Full Transparency as a service for your trading and market data operations. Get full visibility and insight into your Pico-hosted trading and market-data operations with Corvil Analytics delivered as a service by Corvil experts and managed via the Pico NOC.

#### Intelligence Hub

Real-time business & performance analytics for electronic trading. Corvil Intelligence Hub is a real-time trade analytics solution that models & correlates client trading behavior, plant performance and venue counterparty execution to enable proactive business management & operations.

#### **BUILT CLOUD SERVICES**

#### Private Cloud Infrastructure

A Pico built and supported private cloud utilizes dedicated hardware to improve the security of the cloud offering.

#### **Public Cloud Infrastructure**

Pico provides seamless integration with all major public cloud providers.

#### **EXPERT SERVICES**

#### Procurement

Through Pico's extensive local VAR relationships, we can provide an end-to-end service (from quote to delivery) for all procurement needs.

#### **Delivery Management**

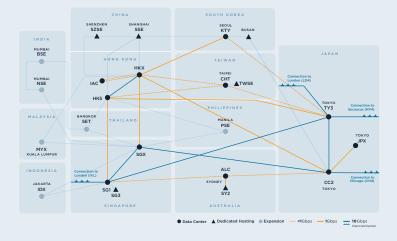
At Pico, we understand the critical nature of service delivery and operations support. Our Global Delivery Management and Service Operations organization is run by senior technical leaders across all regions, providing 24/7 coverage to better serve our clients. Our goal in Delivery Management is to support accurate, timely delivery of contracted services.

#### Security

We are industry experts in providing security without compromising latency and speed. We have a dedicated security staff with a combined experience of over 30+ years in the capital markets and financial services industry.

#### **Service Operations**

Pico's Global Service Operations team provides 24/7 direct client support globally. With presence in all 3 regions (AMRS, EMEA and APAC), our Global Service Operations team support our clients via a "Follow the Sun" model.



Pico has local establishments in Asia-Pacific offering robust, fault-tolerant site infrastructure to support the high availability of mission-critical trading systems.

Pico provides a highly secure environment with stateof-the-art physical access control, environmental monitoring subsystems and multiple tier services that cater to diverse hosting requirements of all financial institutions. We are broker agnostic, partnering with global and local brokers.

## Pico 24/7/365 Network Operations Centers in AMRS, EMEA and APAC



- Pico fuels the global capital markets community by providing customized managed infrastructure solutions, including exceptional market data services, optimized for individual client needs
- We continue to make significant investments in our Global Service Operations team as well as in Instrumentation and Monitoring Technology
- Partner with Global Implementation teams, automation is applied for standard change management along with SOC 2 compliance operating procedure in our secured development operation environment
- Pico adhere to ITIL best practices to ensure our clients receive global consistent support structure and detailed Permit-to-Operate (PTO) handover process for Build-to-Pup
- Our clients are supported via a "Follow the Sun" model that includes 24/7 native bilingual staff for direct client support and regional checkouts to monitor environment health

- We conduct automated checkouts in each region allowing for global stability and follow a well-defined rules of engagement run book
- Pico flexibility allows for adherence to client change management requirements for their dedicated infrastructure
- Weekly service review on incident and problem management to ensure effective service availability and reliability
- Monthly service improvement program to track mitigation of chronic incidents through identification of contributing factors and root cause analysis to deliver excellent service operation
- Our entire network is fully instrumented at the perimeter for continuous monitoring and analysis, leading to reduced incident "Mean Time to Resolve" ("MTTR") and "Mean Time to Identify" ("MTTI") rates