> The traditional on-cloud versus on-premises dichotomy is evolving into a complex infrastructure landscape with multiparty hybrid infrastructure configurations that require streamlined management tools.

Trading Groups Increasingly Embrace Desktop as a Service and Virtual Desktops to Optimize Performance

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Questions posed by: Nutanix
Answers by: Thomas Shuster, Research Director, Capital Markets

Q. **How would you describe the current state of trader desktops in terms of technology infrastructure and user experience?**

A. Trader desktops today rely on high-performance end-user computing, robust networking, and low-latency connectivity to ensure speedy access to market data, analytics, and execution capabilities. The COVID-19 pandemic accelerated the dispersion of the capital markets workforce from the office to the home. This trend has underscored the need to support remote and hybrid work while prioritizing secure connectivity with high uptime. The buy side of the capital markets has broadly embraced remote work; the sell side, a relative laggard, is discovering that continued access to premium talent requires flexible working arrangements. Wherever trading groups stand with their deployment choice — on premises, hosted, or cloud based — there's a movement toward the consolidation of systems. Traders typically access 10–15 systems cobbled together by engineering support. This state of systems configuration, which can present a frustrating user experience, is in a transitory phase. Consolidated (single) platforms offering intuitive interfaces, efficient intermodule workflows, and extensive customization features are in development and expected to be broadly adopted. The growing embrace of desktop as a service (DaaS) and virtual desktops provides trading groups with operational flexibility, the capacity to scale quickly, centralized application management, robust disaster recovery, and simplified new user setup.

Q. **Could you explain the role private, public, and hybrid clouds play in updating trader desktops?**

A. As in other industries, public cloud is typically seen as providing scalability, cost efficiency, and accessibility for collaboration; private cloud is perceived as offering control and security, customization, and dedicated performance; and hybrid cloud presents the best of both worlds with operational flexibility including bursting capabilities for periods of abnormally high transactional volume. If a financial institution leverages cloud infrastructure for traders' desktops in

any capacity, the chances are good that the institution is working in a hybrid environment. The elevated cloud infrastructure management needs in a hybrid environment are best addressed from a singular control plane that can empower IT professionals to act strategically. By combining private and public clouds, trading groups can benefit from the control and security of private cloud for sensitive workflows while employing public cloud where appropriate to realize scale at optimal cost.

Q. Given growing data volumes and increasing user requirements, what steps are being taken to enhance traders' desktops' scalability, performance, and resilience?

A. An obvious starting point is cloud infrastructure. Traders leverage cloud computing where appropriate to address scalability, performance, and resiliency challenges. Distributed computing can facilitate the rapid execution of computationally demanding tasks using large data sets. For arbitrage traders, this type of speed and insight can mean the difference between profitable and unprofitable trades. Indeed, many trading groups have pursued colocation with exchange infrastructure to achieve the best possible speeds through proximity to the matching engines. Some trading groups have gone as far as to imprint logic into hardware (e.g., field programmable gate arrays) to achieve speed performance superior to what's available with software. In-memory computing has been leveraged to realize performance improvements over disk memory. Less shiny but equally compelling is the adoption of data streaming and event processing on traders' desktops. These platform features allow traders' desktops to consume, process, and analyze real-time data upon receipt, accelerating decision-making abilities. Whichever tactic is employed to make high-speed use of growing data volumes, it's increasingly clear that consolidating traders' various applications in a single as-a-service or virtual desktop environment yields performance gains from workflow simplification.

Q. What are the key technical considerations involved in updating trader desktop systems?

A. Performance optimization is a leading motivation behind the push to update trader desktop systems. Identifying and remedying bottlenecks, including latency issues and database access issues, should be a priority when considering the technical underpinnings of a desktop system update. A best case future state digital desktop solution would provide improved agility, reduced costs, security, efficiency, and simplification. Automation of intersystem communication is an excellent example of where simplified workflows would generate immediate operational efficiencies. There's a growing competition to cultivate a technical edge while maintaining compliance and appropriate risk controls.

Modern trading and end-user computing platforms are designed to be more agile and adaptable. These attributes stem from superior hardware and software compatibility, API-driven integrations, cloud-driven scalability, disaster recovery, and business continuity features. Systems migrations present an excellent opportunity for trading groups to reduce costs by eliminating legacy hardware, software, and infrastructure, where appropriate. Fortunately, most cloud infrastructure providers support the strict data privacy storage and access requirements set by regulators. Modern platforms allow for a single control plane from which operational risk can be comprehensively managed. All the key technical considerations discussed previously lead to a simplified operating environment, permitting traders to focus on value-added activities.

Q. How do you integrate new technologies like artificial intelligence into traders' desktop environments?

A. Artificial intelligence and other newly emerging technologies can be integrated into traders' desktop environments in algorithmic trading, predictive analytics, sentiment analysis, risk modeling, portfolio optimization, real-time alerts, signal analysis, and trade execution optimization. Technology vendors are exploring, and some have already developed, generative artificial intelligence applications that interface with institutional-quality databases to provide traders with intuitive, conversation-based analytics tools. These chatbots can quickly synthesize data into insightful formats without the trader needing to write a query using code. Query results are presented in a visually intuitive manner and can conform to traders' presentational preferences based on past interactions. Natural language processing also has been at work for some time, helping surface and contextualize a variety of unstructured data feeds. Perhaps most profitably, artificial intelligence is used to help identify patterns invisible to the human eye and develop algorithmic trading strategies. Artificial intelligence can then be used to evolve these strategies to preserve alpha as market conditions and associated signals change.

About the Analyst

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As an IDC Financial Insights team member, Mr. Shuster is responsible for covering the capital markets. He comes to IDC from the industry where he held sales, product development, and advisory roles. His experience spans financial technology, hedge funds, investment banking, advisory, and sovereign debt.

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