

ENERGY AND COMMODITIES

ETRM SYSTEMS: BUILD, BUY OR SUBSCRIBE TO SAAS

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Moving beyond the firewall – examining advancing ETRM technologies

Energy Trading and Risk Management (ETRM) systems are the essential technologies that allow energy producers, energy services companies, traders, marketers and retailers to capture, manage, value, account for and monitor risks in their commercial operations. While many of the basic business requirements have remained essentially unchanged for the last 25 years, the technologies that underpin these systems and enable user access have advanced rapidly.

In this whitepaper, we will examine the evolution of ETRM solutions in terms of both technical deployment and the increasing commercial options available to users.

“The choice of ETRM deployment method is not necessarily a clear-cut decision. Each business is unique – with different markets, priorities, budgets, strategies and corporate philosophies – and those differences will dictate its choice to adopt any particular option.”

Custom-built ETRM – a dying breed

After the implementation of FERC Order 636 in 1992 (which effectively deregulated the US natural gas industry and opened the markets to trading and open access transportation), natural gas producers and traders required new software capabilities to manage their businesses within the new market framework. For these companies, the choice was to either build a custom solution (using in-house resources or third-party consultants) or license a system from one of the two or three software vendors that provided this specialized software at that time.

Despite the burdens of high costs and long leads associated with custom-built software, many larger firms chose to pursue such a path, particularly those that felt that their business practices and processes and/or portfolio of physical assets were too complex to be adequately modeled and managed in the relatively immature systems that were commercially available at the time.

While a certain number of these custom development projects achieved some level of success, most of those that attempted custom development efforts ultimately failed (either in part or whole) for a number reasons, though a majority of those failures shared common difficulties:

- Higher than budgeted/anticipated cost or time requirements
- Lack of appropriately skilled resources to interpret requirements and design complex functionality, leading to poor design and difficulty to maintain code
- Costs of ongoing internal or third-party support for code fixes or upgrades of underlying technologies
- Lack of formalized training and knowledge transfer as organizations grew
- Difficulties in scaling the system in terms of user counts, functional breadth or transaction through-put

Given these difficulties, most custom systems that were put into production from 1992 to 2010 have been retired and replaced with commercially supported software. While some custom builds do remain in use, the numbers are very small when compared to the overall market for ETRM systems and the number of vendor-supplied systems being deployed in the market.

Perpetual licenses and in-house deployment – a continuing legacy

Throughout the past two and a half decades, vendor-supplied systems – while updated for technology and new capabilities to reflect market changes – have essentially been sold and deployed as much as they were in the early 1990s. This traditional model, in which the software is installed on customer-owned servers, involves a relatively large upfront fee for a perpetual license, based on how many users are allowed to access the system. In addition to the license, the vendor also charges an annual support and maintenance fee that provides the customer access to live support personnel and any software patches/upgrades offered by the vendor. Services, such as implementation, training and technical support, are charged separately, and over the life of that system with the customer, can amount to multiples of the initial license fees. Internal support of the system, including maintenance of databases, installation of patches or upgrades, testing and desktop deployment, is generally the responsibility of the customer’s IT staff.

Even now – some 25 years after the first ETRM systems were deployed – a significant number of new systems are still being licensed, deployed and supported in this manner. That being said, the ubiquitous nature of the internet and the advent of cloud-based software is quickly ushering in a new era of technical delivery and commercial options for ETRM system buyers.

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Web-enabled alternative approaches

Looking at the technical delivery of ETRM software, the web has enabled a number of options, including “hosted via web” (as opposed to communication via private networks) – software running on private servers, or in private and public clouds, or multi-tenanted solutions running on vendor servers or in the same cloud environments (See Table 1).

Commercially, web delivery has enabled the development of Software as a Service (SaaS) agreements in which users access these critical systems essentially on a pay-as-you-go agreement. This means that they no longer are faced with the large upfront license charges associated with traditional ETRM software. In addition, most SaaS offerings provide for vendor support of the technical infrastructure, reducing internal costs and workloads on the customer’s IT staff.

Table 1: A comparison of various ETRM system deployment methods

Software Install Location	Commercial Agreements - Traditional Software		Managed Services (vendor-provided tech support)		Cloud Agreement
	Upfront Perpetual License	“Rental” (per user/year)	Traditional License	Rental	
Customer-owned Servers	<ul style="list-style-type: none"> Equipment costs Large upfront fees Annual support and maintenance 	<ul style="list-style-type: none"> Equipment costs Lower initiation fees Support and maintenance fee may be included 	N/A	N/A	N/A
HOSTED – Vendor 3rd Party Data Center (delivered by private network or web)	<ul style="list-style-type: none"> 3rd party equipment fees (explicit or implicit) Large upfront fees Annual support and maintenance 	<ul style="list-style-type: none"> 3rd party equipment fees (explicit or implicit) Lower initiation fees Support and maintenance fee usually included 	<ul style="list-style-type: none"> 3rd party equipment fees (explicit or implicit) Large upfront fees Managed services fee 	<ul style="list-style-type: none"> 3rd party equipment fees (explicit or implicit) Lower initiation fees Support and maintenance fee usually included 	N/A
CLOUD – Public, Vendor-owned or Other Private Cloud (delivered by web)	N/A	N/A	N/A	N/A	<ul style="list-style-type: none"> No equipment costs Per user fee annual/monthly No support and maintenance fee

For companies seeking alternatives (and lower upfront costs) to “traditional” on-premises ETRM solutions – traditional software installed on customer-owned servers and network equipment – there are a range of “hosting” options. These can include third-party hosting, in which the customer rents server space in a datacenter but continues to be responsible for the routine maintenance of the software. While reducing upfront equipment costs and potentially providing some increased levels of disaster recovery (if provided by the hosting company), the financial and operational advantages in such an arrangement are limited.

Another hosting option is for the software vendor to install and maintain software on their servers within their datacenters, with users accessing the system via the web. This option can provide greater flexibility and lower costs if the vendor provides full managed services. With these service agreements, vendors assume responsibility for the technical support of the ETRM system and its supporting technologies – such as database maintenance, application of code patches and upgrades, and back-up and recovery – while ensuring the systems are protected from cyber threats. Unfortunately, few ETRM systems providers have the experience and dedicated staff that can, through years of experience and economies of scale, ensure lower costs while maintaining the high levels of service that these systems require.

Beyond the dedicated hosting options, cloud technologies have been increasingly adopted in the ETRM space over the last several years. Though “cloud” can imply a number of different things to different people, in the context of ETRM in the cloud, at its core it essentially means:

- The software is not installed on customer-owned or other fixed servers; rather it is running either in the software vendor’s private cloud or within a public cloud, such as Google Cloud Platform, Amazon Web Services or Microsoft’s Azure.
- The software provider is responsible for managing the technical support of the software, including all routine system maintenance tasks.
- There is no large upfront fee such as that associated with perpetual licenses.
- The user experience is generally no different irrespective of whether the software is installed on-premises or running in the cloud.

The advantages of the cloud can be numerous, however, the most cited include:

- Lower acquisition costs – no large upfront perpetual license fee
- Lower support costs – the vendor can leverage economies of scale to reduce costs
- No capital equipment costs – the software does not require additional customer-owned equipment
- Scalability on demand – the customer essentially only pays for the processing power required (though this can vary based upon the nature of the agreement)
- Little or no internal technology support required, beyond existing user desktop support

According to the leading ETRM/CTRM market analyst firm, Commodity Technology Advisory, cloud delivery of ETRM and related software has now surpassed on-premises installations for newly licensed systems. Though they note that most of the new cloud systems being delivered are for companies in the lower and middle tiers of the market, they also state that larger firms, including many global scale companies, are adopting ETRM cloud (both hosted in the cloud and multi-tenanted) solutions in ever-increasing numbers.

Selecting the right option to meet your business requirements

With the advances in web delivery and supporting technologies (such as HTML5), companies seeking new or upgraded ETRM solutions have a range of options that help lower system costs, and still provide their users with rapid access to their critical business data and information. However, the choice of deployment method is not necessarily a clear-cut decision as each business is unique – with different markets, priorities, budgets, strategies and corporate philosophies – and those differences will dictate its willingness and ability to adopt any particular option.

The US energy markets have certainly been challenging over the last several years, with the oil price collapse, lingering low natural gas prices, the deepening correlation between natural gas and power prices, the influx of occasionally unreliable renewable energy resources, and tightening deal margins. In this environment, most companies have slashed technology spending despite increasing commercial challenges and the burdens they place on critical trading and management systems.

These market conditions can be particularly difficult for companies that have continued to rely on bespoke or highly customized solutions. As the US oil and gas markets have been evolving rapidly over the last decade, with the shale revolution opening new fields in areas lacking critical infrastructure, relaxing of export restrictions on crude oil, and the advent of LNG exports as just a few examples, companies that have relied on their own in-house developed software have been challenged to make the continuous investments necessary to keep up, particularly in a period of lower budgets and reduced spending across most business units.



Three industry case studies:

We review three client case studies on how our clients chose their ETRM systems – from on-premises installations, to managed services cloud environment and SaaS.

Case study #1:

Moving from bespoke to FIS' on-premises solutions

A leading midstream company involved in gas gathering, gas transmission, gas processing, and NGL and natural gas trading and marketing, had been relying on a heavily customized solution for managing all their service agreements, transportation scheduling for customers, regulatory reporting and compliance, and accounting for the entirety of their business. As the business evolved and grew into new regions, their people and their systems were constantly challenged in modeling new assets, new agreement types, and new business processes – all while addressing increasingly complex regulatory requirements.

After a rigorous review, the company selected FIS' Aligne Pipeline Operations (PipeOps), an integrated pipeline management solution, deployed on-premises. Aligne PipeOps supports the unique functional requirements of moving physical commodities and their associated contract terms, specifically in the midstream market. One of the key differentiators noted by the client in selecting the FIS solution was Aligne's ability to improve flexibility, scale and performance for the business while meeting the stringent standards of its IT organization and its requirements for internally deployed and self-managed software.

The solution now supports the company's physically cross-connected gathering and transportation systems, enabling shippers to utilize and optimize capacities across their assets. This gives shippers more flexibility and value in accessing premium markets. Using the system, the company was able to successfully renegotiate and capture what were previously less favorable contracts, allowing them to effectively administer and manage with less effort via the new system's streamlined processes. Using this "traditional" on-premises delivery method, the company could meet all its stated goals, including reduced IT complexity and IT spending – while simultaneously positioning itself to achieve aggressive business growth targets.

Case study #2: Consolidating systems into FIS' Aligne in a managed services private cloud environment

The North American gas and power trading business of a global food, agriculture, financial and energy product provider deals in a wide range of energy commodities across multiple regions using a variety of trading and other applications. This high-volume trading operation wanted to optimize its trading strategies, and manage and offset price and cost exposures by buying commodities to hedge exposure and generating revenue through proprietary trading. The company also wanted to create a trading operation for commodities it consumes for its facilities.

The company's strategic imperative was to transform the operations of its North American natural gas and power business by consolidating multiple systems and accelerate time to market while reducing total cost of ownership (TCO) of its IT assets. With numerous trading desks acquired over the years leading to a disparate array of trading and related systems, the business faced inefficiencies in sharing large amounts of data across applications and multiple trading desks, creating latencies and barriers to growth.

The company selected and migrated its disparate trading systems onto FIS' Aligne in a managed services hosted environment. In this environment, the company virtually eliminated the need for internal IT to support the application and infrastructure, significantly reducing its overall IT cost by 50 percent per year. More importantly, FIS' Aligne helped the company achieve a consolidated view of risk across multiple products and trading desks, improved information flow, accelerated trading decisions and better financial performance.

Case study #3: Leveraging the SaaS ETRM to monitor value and measure risks

One of the largest US utilities trades a diverse set of over-the-counter (OTC) and cleared derivatives on power, gas and variable refined products. With multiple desks trading more than half a million trades per day across several offices, this publicly traded, clean energy company has stringent risk and internal compliance control requirements in place. This set of internal risk management policies and procedures (RMPPs) place strict limits on the size or tenor of positions on every instrument the company trades. Monitoring the company's trading activity across all commodities (including both physical and financial) and ensuring compliance with both the internal RMPPs and various levels of regulations was taxing its internal systems and processes, and hindering its competitive position in the market.

Though the company had a number of goals when it set out to improve its risk management and valuation capabilities, the following aspects were critical:

- Reduce compliance and market risk, enhance internal compliance controls and strengthen competitive advantage
- Monitor more than 500,000 OTC and cleared derivative positions against over 900 internal RMPPs intraday
- Maintain mandated external compliance with exchanges, including position limits in certain locations intraday, on the same platform

After a review of all market alternatives, the company chose FIS' Kiodex solution, a risk management and valuation system that has been designed from the ground up as a SaaS solution. By leveraging the scalability of the cloud, the company was able to manage market risks at a highly granular level, with each trade broken down to their core risk components, and then rapidly aggregated and monitored as single positions by location, region, period, trader or activity. Kiodex allowed the company to use its position strategies to create a competitive position in the marketplace by turning risk and compliance requirements into an opportunity to react faster to market events. With Kiodex, the company has improved its trading performance by acting more rapidly on trading opportunities. Additionally, Kiodex's native cloud capabilities enabled the company's IT team to achieve a rapid implementation with significantly lower ongoing internal support requirements.

Summary

Every energy producing, trading or marketing company is different; these companies operate in various complex energy markets, hold an array of diverse assets and maintain unique strategic visions as to how their businesses should operate in order to achieve the greatest return for their shareholders. The combination of these characteristics mandates that each maintains its own unique software and technology requirements as well – including budget constraints, functional needs and support and deployment for its critical systems.

Our products are designed to address complex energy value chains from production to consumption, along with addressing market risks and ensuring compliance. And, just as importantly, our deep experience and broad capabilities ensure we can provide our customers market leading solutions within the technology delivery frameworks and commercial terms that best fit their needs - all supported by the market leading capabilities in providing full managed services support to our customers.



FIS' Solutions for Energy and Commodities

FIS' solutions for energy and commodities help utilities and retailers, pipeline and storage operators, marketers and traders as well as integrated energy companies compete efficiently in global markets by streamlining and integrating the trading, risk management and operations of physical commodities and their associated financial instruments. Through real-time data, connectivity and analysis, FIS solutions help you achieve transparency and regulatory compliance, optimize end-to-end transaction and operational life cycles and meet time-to-market needs with flexible deployment options. As your technology partner, we can help you take advantage of the latest innovation and explore new opportunities. For more information, email us at getinfo@fisglobal.com

About FIS

FIS is a global leader in financial services technology, with a focus on retail and institutional banking, payments, asset and wealth management, risk and compliance, consulting and outsourcing solutions. Through the depth and breadth of our solutions portfolio, global capabilities and domain expertise, FIS serves more than 20,000 clients in over 130 countries. Headquartered in Jacksonville, Florida, FIS employs more than 55,000 people worldwide and holds leadership positions in payment processing, financial software and banking solutions. Providing software, services and outsourcing of the technology that empowers the financial world, FIS is a Fortune 500 company and is a member of Standard & Poor's 500® Index. For more information about FIS, visit www.fisglobal.com



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