

What CIOs need to know about mid-office risk management

When Enron Corp. declared bankruptcy, its largest trading partners and financial backers learned the hard way that their dealings with the company exposed them to the tune of hundreds of millions of dollars

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In the aftermath of the Enron scandal, more energy companies are looking more closely at how they handle credit risk. As part of the process, top managers are re-evaluating how well their risk management systems execute their risk management strategy. What was once the domain of the vice president of risk management now involves the CIO, because risk management systems use more than just a few applications.

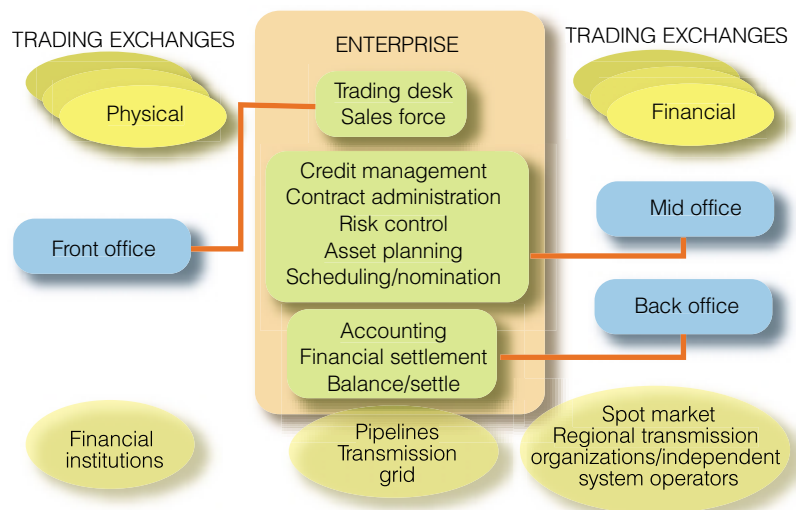
Already, the Enron debacle has engendered calls for tighter regulation of accounting of energy trading transactions. For example, changes are expected in the rules for accounting for non-cash gains, because currently earnings statements can include profits anticipated from futures contracts and the use of derivatives instruments. As a result, although many energy and utility companies will continue to use spreadsheets for assessing their positions, more will migrate to special-purpose third-party applications that can calculate daily market-to-market valuations more accurately and on more objective bases.

Risk avoidance is not the only driver of these new trends in mid-office risk management. Another is the increasing share of investor-owned utilities' revenues derived from bulk power trading. This growth is part of

a bigger trend. In the North American utility industry as a whole, non-traditional businesses now generate more money than traditional generation and distribution; they accounted for 53.8% of consolidated revenues in 2000, up from 41.2% in 1999. According to the Edison Electric Institute's *2000 Financial Review*, "An increasing share of the earnings mix is expected to come from enhanced commodity trading, geographic expansion, and wholesale market opportunities . . . In this era of volatile ener-

gy markets, wholesale trading operations are expected to continue to strengthen unregulated earnings."

Further evidence of the staying power of trading is the current state of on-line trading. Even as EnronOnline closed its virtual doors, consortium trading exchanges, such as Atlanta-based IntercontinentalExchange and Houston-based Trade Spark have picked up the slack. AMR Research expects the volume of on-line energy trading worldwide to reach \$2.3 trillion by 2005.



1. Issues involving trading and risk management IT systems go far beyond the mid and front offices. The integration landscape extends to the back office, as well as outside the company to trading exchanges, financial institutions, energy delivery grids, and spot markets

ENERGY TRADING SYSTEMS

More than just apps

As CEOs scrutinize their companies' overall risk position and risk management capabilities, it behooves CIOs to take a closer look at their own "big picture" as well. What this entails is looking beyond the mere selection of risk management applications to what kind of foundation a fully functional trading and risk management system needs. Three elements of IT infrastructure ripe for investigation are:

- The number of risk management applications in place in the mid office, and the extent to which they are integrated.

- Whether an energy portal might do a better job of communicating risk positions to corporate managers.

- Which integration framework would best lend itself to linking the company's front, mid, and back offices to on-line energy exchanges (Fig. 1). For a generation company, for example, the ideal architecture would be one that supports both asset- and non-asset-based trading activities.

The basics

For CIOs, focusing on the big picture is simpler because they and their staff need not know how applications calculate numbers like value at risk (VAR) or generate forward price curves to manage them. Most leave decisions about features and functionality to risk management specialists. However, features and functionality should not be the main selection criteria for risk management applications; flexibility and ease of integration should take precedence.

What CIOs should know, however, is that few of today's risk management systems perform both transactional and analytical functions well. According to Ashley Abbott (formerly a managing director of Duke Energy Corp. and now vice president of financial engineering for ForwardVue Technologies, Inc., Austin, Tex., a vendor of supply chain risk management software), "The ideal system would be one with strong transactional and analytical capabilities. In today's applications space, even the strongest calculation engines are lim-

ited in their ability to also serve as trading systems."

As a result, risk management applications typically need to be integrated with separate transaction-handling applications to make them suitable for capturing energy deals. But that can lead to trouble, because inconsistent data handling can produce irreconcilable results. As an example, one energy company was using one vendor's risk management product for deal capture, and another vendor's for analytics. When both did a standard VAR calculation, they produced different results. Because reconciling the two would require more than a simple data mapping exercise, the energy company asked the vendor of the analytic vendor to rewrite its deal capture code to emulate the other vendor's code. This has proved a difficult process, and the rewrite is not complete.

Another problem with risk management applications is that they are computation-intensive. Analytical programs consume lots of resources running simulations, which are required to produce important intra-day information about risk positions. Worse, multiple simulations and stress testing may require distributed computing or the use of multiple servers. Most analytical applications produce results only after running for hours or overnight. Where asked to generate intra-day data, some risk management applications have been known to slow to a crawl.

CIOs should also be aware that mid-office risk managers want the ability to tweak applications' algorithms. Many emphasize the importance of being able to make adjustments frequently or use external models to populate analytical inputs without having to ask the vendor to make modifications. One energy company saw this as so important that it also purchased its risk management application's source code.

Stakes higher for global traders

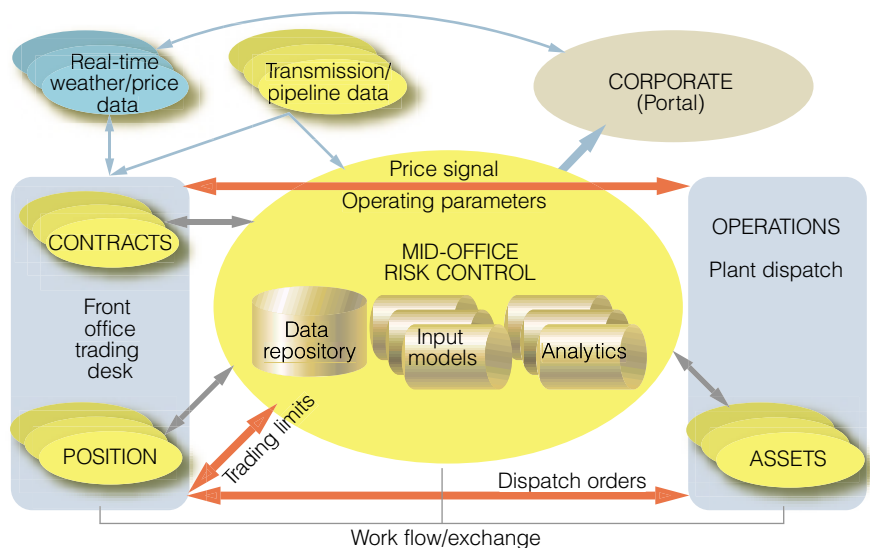
Firms that trade in many markets are willing to spend heavily to customize their risk management systems so they

can reap the benefits of playing one energy commodity against another, or one region against another. A system that cannot keep pace with competitors' systems could cost its owner millions. For example, during the debut week of Britain's New Electricity Trading Arrangement, one generation firm lost a large sum. Afterwards, one of its competitors—BNFL, a subsidiary of Magnox Electric, Gloucestershire, England—said, "We managed to avoid those substantial penalties because our software allows us to base the scheduling of our transactions on complex historical contract commitments down to half-hour intervals."

As another illustrative example, an energy company chose to use one risk management application and one transaction management system across its entire global operations. As it became clear that Enron was headed toward bankruptcy this fall, the company was able to quickly access its consolidated position with Enron across many markets without having to reconcile the data from multiple systems or rely on information from Enron.

With so much at stake, achieving a consistent corporate view of value requires an organizational commitment—and buckets of money. In one extreme case, an energy company estimated that it would take \$50 million and two years to develop and deploy the global trading and risk management system with the desired features and functionality. In the end, the company had to spend four times as much money and it took twice as long before it saw its first mark-to-market numbers.

One way to slow down runaway costs is to choose the right integration framework. Vendors of enterprise application integration (EAI) solutions—such as Tibco Software Inc., Palo Alto, Calif.—and vendors of integration frameworks—such as IBM Corp., Armonk, N.Y.—already have a strong presence in energy trading and risk management. Another possibility is the platform of Altra Energy Technologies, which is now a business unit of New York-based Caminus Corp.



2. A company with an energy portal to disseminate real-time information can better gear its operations to market conditions, giving it a competitive edge. Asset-based trading and trading-based operations are the next frontier for asset optimization

Altra's proprietary integration framework boasts application programming interfaces (APIs) to several popular enterprise resource planning (ERP) systems, as well as connectors to gas and power management applications and on-line exchanges. The framework is now in production with one energy company; full adoption by Caminus is expected in mid-2002.

The energy portal

The most active trading companies have already explored ways to give executives access to the information they need to identify arbitrage opportunities and execute hedging strategies on a daily basis. But for longer-term decision-making, executives need tools that will help them do things like assess the impact of price volatility on fuel procurement or devise asset investment strategies.

The more forward-thinking companies have already invested in energy portals to make risk-related data—such as VAR numbers—available to top executives on a daily basis. Reliant Energy, Houston, has built access to trading operations and business content via a portal using Tibco's ActiveEnterprise infrastructure. Integrated utilities are seeing the value in portals also. Another is Dominion Resources, Richmond, Va.; its portal gives man-

agers access to mark-to-market valuations, and to weather, energy news, position data, portfolio information, and generation status too—in real time. The next step for Dominion is to make the portal customizable and enable messaging to the trading desk for limit-setting and alerts.

The future

Reliant and Dominion aren't alone in realizing the growing importance of risk management IT. The holding companies Alliant Energy Corp., Cedar Rapids, Iowa, and Phoenix-based Pinnacle West Capital Corp. have also invested in software to optimize their mid-office risk management capabilities. Both realize that huge trading profits would result if they could align the dispatching and cycling of their peaking plants more closely to market conditions. For example, when gas prices are high, it may be more profitable to sell gas and purchase power to meet load requirements or contract commitments. A smarter mid office would also be able to take advantage of profit opportunities both at the plant level—through dual-fuel generation, for example—and across their generation portfolio.

Accordingly, CIOs must come to understand that asset-based trading and trading-based operations are the

wave of the future, rather than a planning exercise conducted in the mid office. Because they are done in a dynamic market environment, they require a supporting infrastructure capable of giving decision-makers real-time information. Risk management IT systems need to do things simultaneously: enable delivery of asset operating characteristics and parameters to the trading desk, and provide price signals to plant operations personnel (Fig. 2).

However, organizational barriers could make the migration to asset-based trading and trading-based operations a difficult and slow one. The vast majority of energy companies with power generation assets conduct business through siloed trading and operations business units with different bottom lines. While traders are concerned with weather, market price, swaps, and collars, operations managers are constrained by outage and maintenance schedules and limited by heat, ramp rates, and plant availability. A risk management system conversant in both groups' languages would greatly simplify and foster many a corporate optimization effort.

On this issue, vendors—such as Pavilion, Austin, Tex., from the plant operations side, Adaptive Trade, Inc., Gaithersburg, Md., and London-based KWI—have stories to tell about how exchange technology can invoke algorithms to perform asset optimization enterprise-wide. Still, exchange technology has yet to be tested in the crucible of asset-based trading and trading-based operations. In this emerging IT niche, private trading exchanges (PTXs) remain the solution with the greatest flexibility and potential. ■

Sources

Numaweb's glossary links:

www.numa.com/links/glossary.htm

Risk Waters EPRM glossary:

www.eprm.com/glossary

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