
Extranets in the Energy Industry: Needs and Solutions



White Paper

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Executive Summary

Deregulation in the energy industry and emerging extranet technologies are enabling agile new companies to run more efficiently and deliver improved service over dwindling monopolies. The companies most likely to prosper in this changing environment are those that can deliver low-cost service and form mutually beneficial partnerships. Leaders in the energy industry employ tools that facilitate such collaboration – tools that enable secure resource sharing and heightened productivity. Aventail ExtraNet Center, a client/server software solution successfully applied in the financial, healthcare, manufacturing, and insurance industries, is now being adopted by companies in the dynamic energy industry to manage and secure resource sharing with strategic partners.

IT professionals with line-of-business responsibility need to see the big picture. They need extranet technology that balances simplicity and security so that they can provide seamless service to their business-critical partners and assurance to their organization that all data is protected and access to network resources tightly controlled. Aventail ExtraNet Center meets this two-pronged need, providing the power to manage partnership.

Dynamics of the Energy Industry

The electric power industry is undergoing unprecedented change. Like the natural gas industry in 1985, the electric power industry began a fundamental restructuring process just a few years ago – a process that will likely continue to evolve through much of the next decade. State-by-state across the country, an increasing number of energy customers are being allowed to choose their energy provider. Fifteen states to date have enacted legislation to deregulate electricity, and several others are considering doing so. Many large investor-owned utilities are selling their generating assets to the highest bidder. Business systems are being put into place to allow enterprising industry players to take advantage of the federally mandated open access to all transmission systems in the United States.

To optimally position themselves for this and other changes in the energy marketplace, many energy companies are discontinuing some business services and expanding into others. At a dizzying pace, energy firms are merging and acquiring companies that can offer services complementary to their own. At the same time, a wide variety of new players are emerging in the industry, including energy service providers, independent system operators, and power exchanges. These players are offering energy customers a plethora of choices via the establishment of new markets, such as the day-ahead and hour-ahead power markets now operating in California. They are also filling niche needs, such as power brokering and load aggregation.

However, uncertainty abounds. How will proposed environmental legislation on a variety of issues, such as global climate change, affect the competitiveness of power generation? What further federal deregulation legislation is on the horizon? Will the power delivery system continue to operate reliably under increasing strain? How can global energy markets be tapped to expand business success? Amidst this uncertainty lies opportunity for visionaries within the energy industry. By building alliances and leveraging the expertise of partners, acquired firms, and others, leaders in the industry can find ways to reduce costs while improving quality, expanding their customer base, making the best use of assets, and diversifying into new business areas.

Extranets can help energy industry IT professionals take advantage of these opportunities. Since the term extranet has been variously defined in IT circles, agreeing on a clear definition aids further discussion. Aventail defines an extranet as the sharing of IT resources (data and applications) among independent entities over an IP-based network. Here, independent entities can mean subsidiaries, partners, customers, and other key individuals. While the network must be IP-based, it need not be HTTP-based. Leading-edge organizations are pushing the limitations of static, HTTP-based systems to include Java and object-oriented applications. Many others are continually

challenged by the need to bring valuable legacy applications directly to the Internet.

Extranets can use a variety of technologies, including virtual private networking. However, a VPN alone (typically an encrypted tunnel used to link branch offices) does not provide the fine-grained access control needed to govern user privileges on the extranet. Companies need to be able to identify users, not just machines, and set access policies based on a variety of parameters. While VPNs tend to assume that users at a given IP address can share the same set of permissions, extranets take into account a more diverse user base with unique authorization needs.

As many IT professionals are aware, extranets can provide a wide range of business benefits. They allow organizations in virtually all industries to collaborate with partners in real time, share applications with users in multiple locations, automate supply chains, and optimize business processes. In turn, these capabilities improve customer service and loyalty, improve productivity, and generate new business opportunities. These benefits go beyond network cost savings to provide tangible, strategic return on investment to the enterprise: reduced cash-to-cash cycle times, improved retention of high-value customers, and greater bottom-line results in all areas of business partnership. Predictions from industry experts reflect this level of opportunity. In 1998, Forrester Research reported that more than one-half of the Fortune 1000 companies are using extranets. They believe that from 1999 to 2001, "companies will find themselves participating in multiple extranets, each with dozens of applications and thousands of trading partners." (Forrester Research, "Maximizing Extranet Return," July 1998, p. 9.) Infonetics predicted that the number of extranet partners will grow to 1.4 million worldwide by 2001.

Against this backdrop of expanding extranet use among the Fortune 1000, IT professionals in the energy industry are

IT Management and Security Challenges

facing a wide range of challenges. For many IT decision makers, the areas of greatest concern are IT management and security. For example, if one firm acquires or merges with another, or enters into an alliance or partnership, how is application access managed for the new participants? If a corporate affiliate is operating in a newly competitive market, how are IT resources managed to comply with emerging "code of conduct" rules?

The scope of the challenges IT professionals face in the energy industry is vast. In the United States, only the government and banking industries rely more heavily on IT than the electric power industry (ref 1). What tools are available to help address these and other concerns? Aventail ExtraNet Center stands apart in today's market as the only solution designed specifically for the unique management and security challenges of extranets, including those within the energy industry.

One illustration of how Aventail ExtraNet Center helps solve complex IT problems in the energy industry involves the product's flexibility.

In the last two years, the Federal Energy Regulatory Commission (FERC) has reviewed applications for more than 20 significant mergers in the electric power industry. There seems to be no end in sight to this drive to merge and acquire. Deals are currently being proposed that cross international borders (e.g., the proposed Scottish Power PLC takeover of PacifiCorp that may set a precedent for FERC evaluation of such moves). In addition, the gas industry is involved in this whirlwind, as gas companies are finding several benefits to diversifying their business. For example, Long Island Lighting Company merged with Brooklyn Union Gas Company in May 1998 to form KeySpan Energy Corp.

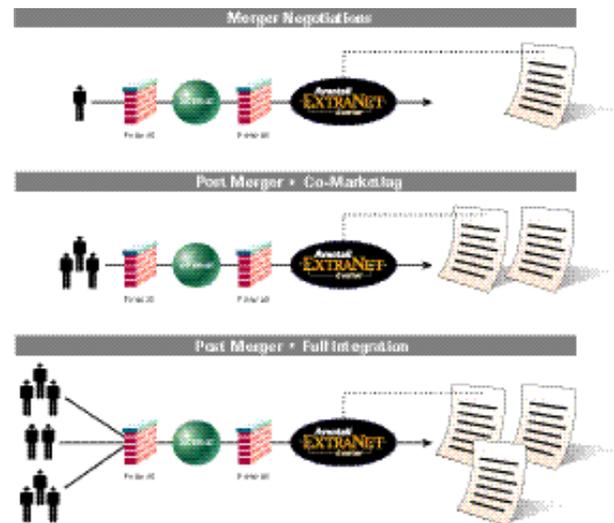
While energy companies have varied reasons for undertaking mergers and acquisitions, one thing is clear: it is a risky proposition. Merger expert Myron J. Beard of RHR International states that "conservatively, more than

57 percent of all mergers fail to reach the goals management had hoped to achieve” (ref 2).

With regard to meeting IT needs during and after mergers or acquisitions, Hahn Tram of Convergent Group points out that “the pre-merger utility most likely has different business drivers than the post-merger utility” (ref 3). The two companies that form one are also likely to use different business processes. Integrating the IT systems of the two companies, along with the partners, suppliers, and customers of both firms, presents challenges that may be greater than the sum of those faced individually by the two firms.

Making such complex collaborations work to the benefit of all parties is a task ideally suited to Aventail ExtraNet Center. The key is dynamic, flexible, authorized access that does not require either organization to make sacrifices in their security policy. Success also means avoiding application design changes that may be inappropriate in the initial stages of a merger. Effectively merging two firms' IT systems requires tools and systems that can be easily and effectively modified from pre-merger configurations to post-merger ones. For example, during merger negotiations, the two firms will be largely concerned with privacy of information – no information must be made public during this period. Then, immediately after the merger, limited information sharing between public relations officials in the merging organizations would be beneficial to enable early co-marketing of a unified message. Soon thereafter, another group of individuals (e.g., production personnel who need to begin co-developing) would likely share a different subset of information between the two entities.

Aventail ExtraNet Center enables this kind of phased approach. It allows the two firms to quickly define and enforce levels of trust in a single central policy for managing and securing information resources. Out of the box, it supports a broad range of authentication and encryption methods and an intuitive logic and interface to



Energy company mergers and acquisitions pose significant challenges in the area of information security and management. While various "after" configurations are possible, the key is to facilitate collaboration among both parties, while protecting data ownership. Aventail ExtraNet Center facilitates the transition and enhances collaboration opportunities for the post-merger entities.

allow administrators to easily define and enforce their security policies.

IT Challenge of Corporate Affiliates

The power of Aventail ExtraNet Center can also be illustrated with the controversial issue of corporate affiliates.

In the course of industry restructuring, many incumbent energy companies (i.e., those who operated a regulated monopoly prior to restructuring) are spinning off corporate affiliates. These affiliates are typically power marketers and energy service providers. For example, PG&E Energy Services offers customized energy solutions for businesses, including billing and information management, energy management, power quality, customer strategies, and energy information services. On the residential side, the affiliate offers a “Clean Choice” green power option.

To prevent affiliates like this one from having an unfair advantage over new competing companies by using the name and resources of its parent company, public utility commissions around the country are beginning to establish codes of conduct. One of the strictest codes was implemented in a 1997 order in California (ref 4). Illustrating the contentious nature of this issue, PG&E Energy Services is threatening to appeal a 1998 fine of \$1.68 million levied on it for violating the rules.

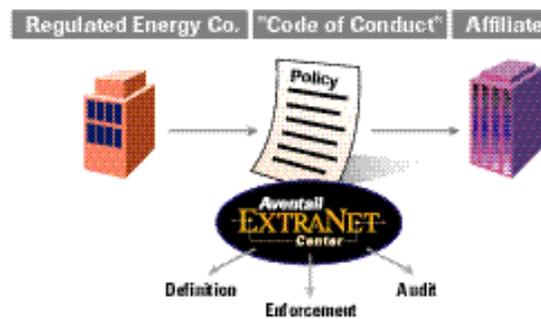
Assuring compliance with the complex order in California and other affiliate rules that are being promulgated in other states clearly involves IT resources. Fine-grained access control is needed to manage what information affiliate personnel and parent company employees can access. In extreme cases, such as in California, the Public Utilities Commission is creating a solid wall between the parent company and its affiliate. Hence, affiliates must implement their own system of managing and securing data that is shared with partners and customers. Since affiliates have limited resources, they need flexible, ready-to-implement, solutions (ref 5).

Aventail ExtraNet Center incorporates the access control, flexibility, and management features needed to help energy companies address these evolving issues. For example, the solution can enable IT managers to specify what information can be shared between the parent company and the affiliate, and what information cannot be shared. The plain-language management interface, called the Policy Console, centralizes control for this information. The parent company can provide the information in this console to its Board of Directors as well as to regulators to demonstrate steps being taken to comply with the code of conduct in their state.

Other trends and important issues in the energy industry impact the secure management of extranets. Many energy enterprises are increasingly "virtual," relying heavily on third-party consultants and contractors to design, implement, and even maintain mission-critical systems.

Consider, for example, the year 2000 problem. As many firms in the industry fail to meet self-imposed deadlines for Y2K mitigation and testing, many will turn to outside contractors to pick up the slack. How can contractor access to sensitive systems best be managed and secured during this process? As time grows short, how can such access be modified quickly? Aventail ExtraNet Center enables administrators to set policy dynamically to suit these situations. They can specify which contractors have access to what information; set varying levels of encryption and authentication for different users and/or applications; and examine logging and auditing files to verify that contractors are only accessing authorized information.

As if these IT management and security concerns were insufficient, a variety of other concerns are likely on the minds of IT professionals. Beyond issues of malicious intrusion – made potentially more threatening by the transition to open markets – the industry's growing adoption of Web-based billing and development of business systems to support power transactions poses management and security worries as well.



For purposes of information sharing and management, a corporate affiliate in the energy industry is a special type of partner, with access to information governed by rules that are now being formed in various states. The fine-grained access control built into Aventail ExtraNet Center enables flexible establishment of information management and security for affiliates.

Aventail ExtraNet Center at a Glance

Aventail ExtraNet Center is a management and security software architecture for extranets. It extends beyond simple HTTP to support Java-based Web-to-host gateways and direct access to ERP, legacy, and other robust applications. It is also designed to work with emerging object-oriented Web technologies, which may someday be the standard.

IT professionals in the energy industry have been very clear in their requests for an extranet solution that satisfies two basic criteria:

- It must enable them to improve customer service to partners and other extranet users via ease of deployment, use, and management; diverse platform, directory, and application support; and scalability.
- It must enable them to assure the owners of data in their organization that, without exception, user access can be tightly managed.

Aventail ExtraNet Center adroitly fulfills these criteria, differentiating it from VPNs, firewalls, and other internetworking solutions on the market.

Partner Customer Service. Organizations do not form partnerships – people do. Well-managed collaborations between people lead to business success. As a vehicle to achieve this, extranets bring together people from different locations and associations (e.g., employees, partners, customers, and suppliers). Aventail believes that, to make these collaborations most effective, the extranet must operate transparently in the background. Beyond authentication and a small icon in their system tray, users should not have to be aware that the product is on their desktop. Integration into existing IT systems at all participant sites must be seamless. The product must not force any member of the extranet community to make modifications to their firewall or other changes to their IT infrastructure.

One of the guiding design principles behind Aventail ExtraNet Center is the ability to effectively and transpar-

ently manage and secure connections across the Internet or any untrusted IP network to individuals at their desktops. To enable the highest degree of flexibility and ease of management, Aventail chose to build Aventail ExtraNet Center using Enterprise SSL, a standard for secure communications over the Internet, combined with SOCKS v5, the IETF standard for authenticated firewall traversal. These standards have been tested rigorously in the marketplace and have proven to be stable, flexible, and highly secure. Aventail ExtraNet Center, because it uses SOCKS technology, enables companies to pass data through disparate firewalls without requiring modifications, which is critical in extranet deployments. For example, if a business partner uses an Axent firewall and the host company uses a Check Point firewall, application traffic protected by Aventail ExtraNet Center is capable of traversing both. This feature creates a significant time-to-market advantage: no long delays while administrators modify firewalls.

Ease of use extends to the client component of Aventail ExtraNet Center – Aventail Connect™. It resides unobtrusively on the user's desktop and is extremely easy to deploy, modify, and update. Rather than inserting a low-level shim (a procedure typical of tunneling technologies like IPSec), Aventail Connect neither replaces nor modifies networking transport components. Using Microsoft's Layered Service Provider (LSP) architecture, it intercepts traffic bound for the extranet, leaving other traffic alone. On the management side, a step-by-step wizard called Customizer™ helps administrators easily create custom configurations for any number of Aventail Connect users. Administrators can distribute the self-extracting, self-installing clients via FTP, HTTP, or e-mail.

Data Protection and Management. Efficiently connecting the right people to the right resources also sets Aventail ExtraNet Center apart from the competition. Strategic IT managers who want to provide the best environment for business success will take their responsibility to manage and secure information resources seriously. Aventail

ExtraNet Center helps them meet that objective through simplified user and policy management.

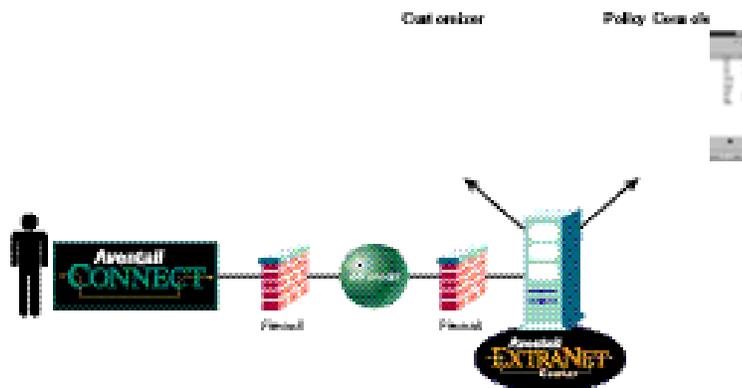
Aventail ExtraNet Server™, the companion to Aventail Connect in the Aventail ExtraNet Center solution, provides the administrative tools to manage and secure all incoming and outgoing TCP/IP traffic. It houses the business rules that determine how to process connection requests based on who is requesting what information, their group affiliation in the organization, how they are trying to access information, and what they want to do with the information. Basically, Aventail ExtraNet Server enables development and implementation of a policy for determining individual access to specific resources. The standards-based architecture and intuitive interface make policy enforcement flexible and easy.

A key component of Aventail ExtraNet Server is the Policy Console. This graphical management tool enables network managers to easily create, view, and edit extranet policies. As an added convenience, managers can run the platform-independent console locally or remotely through

a secure LAN, WAN, or Internet connection. For remote management, Aventail Management Server communicates with the Policy Console via a highly secure, SSL-encrypted connection.

Conclusion

Aventail ExtraNet Center provides the power to create business opportunity. It does so by allowing organizations to share key resources with the right people over public networks seamlessly, securely, and effectively. Aventail ExtraNet Center is designed to work in almost any IP environment. It can be customized to fit very specific needs; it can traverse any firewall; it functions with multiple protocols and platforms; it secures all TCP/IP traffic (not just HTTP); and it is transparent to end-users. Aventail ExtraNet Center leverages legacy systems and is designed to support emerging technologies, such as CORBA/IOP traffic. It also offers an extensible API for adding custom protocol-specific filtering modules for unique networking environments.



Aventail ExtraNet Center consists of a server component, Aventail ExtraNet Server, and a client component, Aventail Connect. The Customizer helps administrators deploy Aventail Connect to end-users, while the Policy Console helps administrators set up and modify policy rules.

Aventail has approached extranet management and security as a business problem, building on the notion that companies rely on partnerships and easy access to information to succeed. Aventail Extranet Center is the only product on the market designed explicitly to address the needs of business-to-business commerce and collaboration. Aventail ExtraNet Center has been developed with authorization, encryption, and firewall traversal in mind. An extranet managed and secured by Aventail ExtraNet Center is a compelling solution for proactively addressing the needs raised by energy industry restructuring. While this restructuring process may be complex, extranet solutions need not be. Just as Aventail has helped leading companies in other industries, it can help energy companies capitalize on new business opportunities.

To download a trial version of Aventail ExtraNet Center, visit www.aventail.com or contact Aventail directly at toll-free 1-877-AVENTAIL (1-877-283-6824), or via e-mail at info@aventail.com.

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