



**Analysis of the Market for “Recoverable” Security Products Conducted by Datamonitor, and its Implications for the Export Control Reforms Recommended by the Alliance for Network Security**  
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Gregory E. Shannon, Lucent Technologies, Inc.  
Roszel C. Thomsen II, Thomsen and Burke LLP

## **Background**

The Alliance for Network Security (“ANS”) engaged one of Europe’s leading consulting firms, Datamonitor, to analyze the market for “recoverable” products and the implications for export control reforms recommended by ANS. The results of Datamonitor’s analysis are included in Sections 3.5 and 4.4 of its study, entitled *E-Commerce Network Security – 1998-2003*. Pertinent parts of Datamonitor’s study are summarized in this paper, with additional commentary and recommendations supplied by ANS member companies.

ANS was formed in 1998 to engage in a dialogue with the law enforcement and intelligence communities concerning the impact of “recoverable” products on their missions and to make recommendations regarding export controls on “recoverable” products under the Export Administration Regulations (“EAR”). “Recoverable” products are cryptographic products that do not use key recovery technologies, but do allow a system administrator to expose selected plaintext in compliance with a warrant or court order. (ANS members would prefer to use the term “administrator-controlled”.) The ANS members are 3Com, Cisco Systems, Hewlett-Packard, Intel, Lucent, Microsoft, NetScreen, Network Associates, Nortel Networks, Novell, RedCreek, Secure Computing and Sun Microsystems.

## **Executive Summary**

Using several different methodologies, Datamonitor estimates that relaxation of export controls as advocated by ANS would result in a revenue increase of approximately \$1/3 billion, and an increase in market share of approximately 10% for American companies over the next five years. In addition, and perhaps just as important, American companies could expect commensurate increases in service and management contracts and new infrastructure business.

American leadership of the market for recoverable products is based on a number of assumptions, the most important of which is that American companies will successfully compete in the new era of converged (voice and data) packet networks. Historically, local companies dominated national markets for circuit switching networks. More recently, American companies have led the worldwide market for data networks. As voice and data networks converge, this new market will be contested by both local companies specialized in circuit switching networks and American companies specialized in data networks. There are two “nightmare” scenarios for ANS members.

In the “Jaws” scenario, a foreign competitor emerges and dominates the market for converged networks, crushing its American rivals by offering competitive networking equipment combined with a market-leading security product. A merger between a traditional network equipment supplier like Alcatel, Ericsson, Nokia or Siemens with Checkpoint, which is a leading Israeli vendor of firewalls and developer of virtual private network (“VPN”) software, could produce such a scenario. In the “Chickens” scenario, not one but many foreign competitors emerge and dominate their local markets for converged networks. American rivals would not be crushed, but the net effect of such a balkanized market would be that the American companies get pecked to death, as if by chickens.

ANS recommends the following reforms to U.S. export controls, supported by information from Datamonitor:

1. Authorize Exports under License Exception
2. Authorize Telco/ISP Deployments for Subscriber Use
3. Eliminate End-user Reporting
4. Authorize Secure Extranets
5. Authorize Exports to Additional Countries
6. Authorize Sales to Certain Governments
7. Change “Recoverable” to “Administrator-Controlled”

**Datamonitor Forecasts Approximately \$1/3 Billion in Additional Export Revenues for ANS Members**

Datamonitor presents three scenarios. In Scenario 1, the export control reforms recommended by ANS are adopted, increasing the market share of American companies. In Scenario 2, the export control reforms recommended by ANS are adopted, increasing the market size. In Scenario 3, the export control reforms recommended by ANS are adopted, increasing not only the market share of American companies but also the market size. ANS member companies would reap approximately \$1/3 billion in additional sales under these scenarios. To summarize:

Datamonitor Scenario	Increase Market Share	Increase Market Size	Additional U.S. Revenues
Scenario 1	Yes	No	\$238 million
Scenario 2	No	Yes	\$327 million
Scenario 3	Yes	Yes	\$394 million

Internal, company confidential market forecasts by individual ANS members suggest that Datamonitor’s forecasts are somewhat conservative. In addition, it is worth noting that the revenue impact of reforming export controls on recoverable products will have “knock on” (also referred to as “pull through” or “drag”) effects in the areas of increased infrastructure sales and services business. Datamonitor concludes at page 109 with the following forecast:

*Thus, Datamonitor concludes that revenues are being, and will continue to be, lost by US companies as a result of the export regulations. This covers both the product sectors and some knock-on effect for the services segment. Were the regulations to change, US companies would enjoy increased market share, and more substantial revenue growth. If Datamonitor were to include such knock-on effects as increased implementation services and management services, the revenue at risk from failure to change the regulations is forecast to be greater than revenues from lost sales of security products themselves.*

These three scenarios summarized above are set forth in greater detail on pages 91-92 of the report, which are reproduced below:

***Scenario 1 forecast - export regulations relaxed, increasing competitiveness of US companies***

**Table 18: US company revenues - relaxation of regulations increase competitiveness**

<i>\$m</i>	<i>1998</i>	<i>1999</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>
<i>VPN</i>	<i>11</i>	<i>19</i>	<i>21</i>	<i>44</i>	<i>63</i>	<i>76</i>
<i>Firewall</i>	<i>19</i>	<i>37</i>	<i>65</i>	<i>105</i>	<i>146</i>	<i>191</i>
<i>PKI</i>	<i>20</i>	<i>35</i>	<i>52</i>	<i>66</i>	<i>100</i>	<i>145</i>
<b><i>Total</i></b>	<b><i>50</i></b>	<b><i>91</i></b>	<b><i>138</i></b>	<b><i>216</i></b>	<b><i>309</i></b>	<b><i>412</i></b>

***Accumulated difference 1999-2003 - \$238m***

***Source: Datamonitor***

*Scenario 1 assumes that relaxation of export regulations will increase the competitiveness of US security vendors. Consequently, US vendors’ share of the firewall and VPN markets will grow in excess of the initial growth forecasts. Accordingly, US vendors’ share of the non-US firewall market in 2003 will reach 90%, as compared with 83% under existing regulations. This forecast finds that the growth in US security*

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vendors' exports attributed to the regulation relaxation will reach \$91m in 2003. The accumulated difference in export revenues over 1999-2003 will reach \$238m.

### **Scenario 2 forecast - export regulations relaxed, driving growth for US companies**

**Table 19: US company revenues where export regulations drive growth**

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<b>\$ m</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>
VPN	11	19	22	48	67	83
Firewall	19	37	67	109	156	210
PKI	20	35	54	71	110	165
<b>Total</b>	<b>50</b>	<b>91</b>	<b>143</b>	<b>228</b>	<b>333</b>	<b>458</b>

**Accumulated difference 1999-2003 - \$327m**

**Source: Datamonitor**

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This scenario assumes that the relaxation of export regulations will drive market growth. Here, the non-US firewall, VPN and PKI markets will reach a CAGR of 47% between 1998 and 2003, compared to a forecast 42% CAGR without such relaxation.

This finds the growth of the US security vendors' exports attributed to export regulation relaxation reaching \$136m in 2003. The accumulative difference in export revenues over 1999-2003 reaches \$327m.

### **Scenario 3 forecast - export regulations relaxed, increasing total market growth and growth in US market share**

**Table 20: US company revenues where relaxation of regulations drives growth and increases market share**

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<b>\$ millions</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>
VPN	11	20	22	50	71	90
Firewall	19	38	70	118	170	232
PKI	20	36	54	71	112	168
<b>Total</b>	<b>50</b>	<b>93</b>	<b>146</b>	<b>239</b>	<b>353</b>	<b>490</b>

**Accumulated difference 1999-2003 - \$394m**

**Source: Datamonitor**

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The assumption here is that the relaxation of export regulations will lead to both increased total market growth and a growing share for US security vendors. This forecasts that the growth in US security vendors' exports attributed to regulation relaxation will reach \$188m in 2003. The cumulative difference in export revenues over 1999-2003 will reach \$394m.

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### Foreign Competition: “Jaws” and “Chickens”

Datamonitor’s forecasts are based on a number of assumptions. Datamonitor points out that the leading vendor of firewalls in 1997-98 was Checkpoint, an Israeli company, but assumes that the domination of non-U.S. vendors in the market has peaked. (Some ANS members agree.) It includes a number of European networking product vendors in its survey, but assumes that they do not occupy a significant enough position in the security market to compete effectively with U.S. vendors. It also includes a number of non-U.S. security vendors in its survey, but assumes that they do not occupy a significant enough position in the networking product market to compete effectively with U.S. vendors. ANS members are especially concerned about these latter two assumptions.

Historically, local companies dominated national markets for circuit switching networks. More recently, American companies have led the worldwide market for data networks. As voice and data networks converge, this new market will be contested by both local companies specialized in circuit switching networks and American companies specialized in data networks. Recent trends in mergers and acquisitions suggest that there is a significant trend toward consolidation, and that some of the traditional “national champions” may offer formidable competition to ANS members. There are two “nightmare” scenarios for ANS members.

In the “Jaws” scenario, a foreign competitor emerges and dominates the market for converged networks, crushing its American rivals by offering competitive networking equipment combined with a market-leading security product. A merger between a traditional network equipment supplier like Alcatel, Ericsson, Nokia or Siemens with Checkpoint, which is a leading Israeli vendor of firewalls and developer of VPN software, could produce such a scenario.

In the “Chickens” scenario, not one but many foreign competitors emerge and dominate their local markets for converged networks. American rivals would not be crushed, but the net effect of such a balkanized market would be that the American companies get pecked to death, as if by chickens. (They only need comparable data networking technology to be favored on local bids.) The following chart summarizes recent acquisitions in this area:

Alcatel (France)	Ericsson (Sweden)	GEC (U.K.)	Nokia (Finland)	Siemens (Germany)
Internet Devices	Advanced Computer Communication	RDC Communications	Diamond Lane Communications	Argon Networks
Xylan	TouchWave	Fore Systems	InTalk	Castle Networks
Assured Access Technologies	75% stake in Telebit Communications	RELTEC	Vienna Systems	
Packet Engines	Torrent Networking Technologies	40% stake in GPT Holdings	GSM terminals unit of Matra Nortel	
DSC Communications			Ipsilon Networks	

Some of the companies acquired by Alcatel, Ericsson, GEC, Nokia and Siemens are based in the United States. However, ANS members anticipate that their combined activities will remain headquartered outside the United States, since in all cases the acquired company is significantly smaller than the acquiring company.

### ANS Recommendations

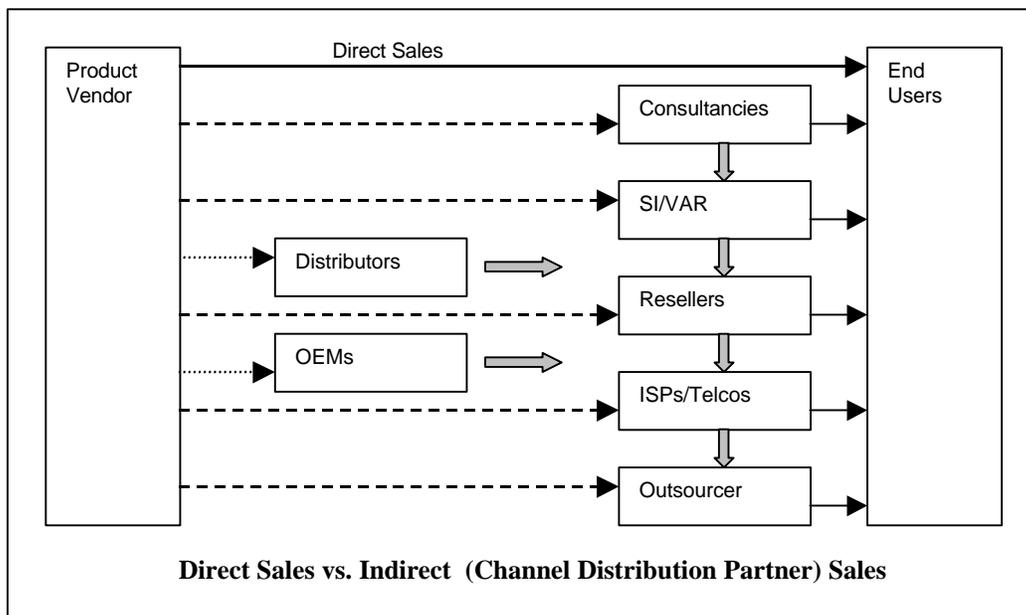
On June 23, 1999, ANS members presented the results of the Datamonitor market analysis to members of the Interagency Working Group on Encryption in Washington, D.C. ANS’ recommendations, accompanied by relevant portions of the Datamonitor report, are summarized below.

#### 1. Authorize Exports under License Exception

Datamonitor’s research shows that the majority of recoverable products are sold via distribution channels, rather than directly to end-users, because sales through distributors require less staff, language and cultural understanding,

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and permit faster growth. Efficiencies of the distribution channels permit U.S. firms to bring products to market rapidly, in high volumes, and at competitive prices. Distribution channels include consultants, system integrators, value added resellers, resellers, service providers and outsourcers. Some distribution channels are even more complex, with third party financiers in the path between the product vendor and the end-user.



By authorizing exports under License Exception, rather than Encryption Licensing Arrangements (“ELAs”), BXA would accomplish three goals. First, it would permit distribution channel partners to use the same License Exception, thus facilitating the delivery of recoverable products to the market. Second, it would reduce duplicate ELA requests from the entire distribution channel for some products that have already been reviewed. Third, it would shift responsibility for compliance with the EAR from the manufacturer to the distribution partner, who is better positioned to evaluate the bona fides of a particular end-user.

### 2. Authorize Telco/ISP Deployments for Subscriber Use

Datamonitor’s research also shows that approximately half of VPN sales today are to service providers, such as Telco/ISPs, that deploy them for subscriber use, because the complex nature of VPN products requires expertise that the Telco/ISPs are well positioned to provide. The outsourcing of communications and security services to Telco/ISPs is a common business practice on the part of many corporations, in the United States and abroad.

For example, Bell Atlantic Corporation recently announced that it would be the first regional Bell operating company (“RBOC”) to deliver a managed VPN offering. In doing so, Bell Atlantic joins VPN providers like MCIWorldcom Inc.’s Uunet subsidiary and Concentric Networks Corporation, among others, who already offer VPN services. Other RBOCs are expected to offer VPN services in the near future. Computerworld in its June 28, 1999 edition quoted Larry Howard, an analyst at Infonetics Research Corp. in San Jose as saying, “They need to do this just to keep up with the Joneses.”

Bell Atlantic’s VPN service is based on Triple Data Encryption Standard hardware and software supplied by TimeStep, a Canadian company. Bell Atlantic’s decision to base its VPN service on products supplied by a company that is headquartered outside the United States demonstrates that ANS members face real competition from foreign suppliers, not only in foreign markets but also in the domestic U.S. market.

Datamonitor’s research suggests that the share of VPN sales to Telco/ISPs may decrease from approximately half of the market in 1997 to perhaps one third in 2003. However, internal ANS member companies’ estimates suggest that sales to Telco/ISPs may not diminish as rapidly as Datamonitor expects, and may actually *increase* in the coming years. Whether Datamonitor’s forecast is more accurate than internal ANS member companies’ forecasts, it is clear

that Telco/ISPs will remain important customers for VPN products. The Datamonitor report at Page 90 includes the following Table:

**Table 17: Distribution channels - shares of US vendors through telcos and ISPs**

<b>Europe</b>		
<b>Share (%)</b>	<b>1997</b>	<b>2003</b>
VPN	40%	20%
Firewall	15%	25%
PKI	80%	30%
<b>Rest of World</b>		
<b>Share (%)</b>	<b>1997</b>	<b>2003</b>
VPN	60%	40%
Firewall	25%	35%
PKI	95%	45%

**Source: Datamonitor**

### **3. Eliminate End-user Reporting**

End-user reporting is burdensome, because so few sales are made directly to end-users. The reporting requirement is particularly onerous on exporters of “mass market” products, including but not limited to mass market software, where the breadth and depth of the sales channels preclude collection of the information necessary to comply with the reporting requirements.

Attachment A to this letter consists of several pages from a recent catalog distributed by DataComm Warehouse. By calling the company’s toll free number (800-378-9160) or browsing to the company’s web site (<http://www.warehouse.com>) anyone can order recoverable products manufactured by ANS member companies and other companies that include (or can be upgraded to) the strongest commercially available encryption. These products are mass market in nature and may be ordered 24 hours a day, seven days a week. They cost only a few hundred dollars in some cases, and you can pay for them with a credit card. Arguably, such products are not susceptible of control at all.

Many recoverable products (especially mass market products) are freely available on retail store shelves and through other means around the world. While those products sold in foreign markets generally have lower encryption strength, upgrade patches often are available over the internet through anonymous downloads (and, these patches inevitably make their way to hundreds of unauthorized foreign web sites). See, e.g., <http://www.replay.com>.

Even for products that may not be distributed through “mass market” channels, distribution partners are reluctant to disclose their customers to manufacturers, for competitive reasons. As a possible compromise, some ANS members might support authorizing exporters to report sales of non-mass market recoverable products to distribution partners, and require distribution partners to report separately their re-exports of non-mass market recoverable products. However, ANS members continue to study the complex subject of reporting.

### **4. Authorize Secure Extranets**

Datamonitor reports that, whereas electronic commerce in the United States may be characterized in the popular press as being primarily business to consumer (B2C) using client-server products implementing SSL, electronic commerce in Europe is mostly business to business (B2B) using peer-to-peer products, implementing IPsec. Datamonitor reports at pages 27-28:

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*The enormous growth and acceptance of e-commerce brings implications for both corporate users and the general public. The Internet is increasingly used as a medium for communication and transacting business, both between businesses (B2B) and between a business and a consumer (B2C). For each of these relationships, some level of security is necessary. Whereas B2C may be the market driver in North America, B2B is the market driver in Europe and the rest of the world. As a result, peer to peer VPN products implementing IPSec, rather than client web server products implementing SSL, are the products of choice for e-commerce in Europe and the rest of the world.*

The limited opportunity presented by B2C electronic commerce as opposed to B2B electronic commerce is graphically demonstrated in Attachment B, attached hereto.

The condition that recoverable products are “limited to internal use” inhibits use of recoverable products in B2B electronic commerce. This limitation will preclude business partners from communicating with each other and is a “showstopper” for many potential exports of recoverable products.

An instructive example is the automotive industry. Whereas automotive parts suppliers, like Bosch, manufacturers like DaimlerChrysler, and dealers each may qualify to receive recoverable products independently, the internal use limitation effectively restricts these companies from using recoverable products in inter-connected, secure networks.

### 5. Authorize Exports to Additional Countries

Datamonitor reports that the market outside the United States will grow faster than the market inside the United States, and that “rest of world” will grow faster than Europe. Datamonitor presents the following Table on page 82:

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**Table 11: Changing revenues by geographic region - 1998-2003**

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<i>\$m</i>	<i>1998</i>	<i>1999</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>CAGR</i>
<i>US</i>	<i>1,433</i>	<i>1,920</i>	<i>2,515</i>	<i>3,202</i>	<i>3,953</i>	<i>4,683</i>	<i>27%</i>
<i>Europe</i>	<i>686</i>	<i>934</i>	<i>1,237</i>	<i>1,607</i>	<i>2,021</i>	<i>2,460</i>	<i>29%</i>
<i>RoW</i>	<i>216</i>	<i>301</i>	<i>417</i>	<i>556</i>	<i>711</i>	<i>879</i>	<i>32%</i>
<b><i>Total</i></b>	<b><i>2,336</i></b>	<b><i>3,156</i></b>	<b><i>4,170</i></b>	<b><i>5,364</i></b>	<b><i>6,684</i></b>	<b><i>8,022</i></b>	<b><i>28%</i></b>

*Source: Datamonitor*

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Therefore, the fastest growing markets are not authorized under current ELAs. ANS recommends that sales be authorized to all countries (except embargoed/terrorist countries).

### 6. Authorize Sales to Certain Governments

Datamonitor did not break out sales to governments vs. other end-users. The informal view of Datamonitor representatives is that government VPN sales are growing. Civilian government agencies for foreign countries, like civilian government agencies in the U.S., are likely to deploy commercial off-the-shelf recoverable products rather than design their own products. As a possible compromise, ANS recommends approval of sales to civilian government agencies. ANS notes that even with such a compromise, U.S. vendors will remain at a disadvantage vis-à-vis local competitors that generally are the preferred suppliers to local governments.

### 7. Change “Recoverable” to “Administrator-Controlled”

The public is confused by the similarity between “recovery” products and “recoverable” products. Therefore, ANS recommends that the term “recoverable” be changed to “administrator-controlled”.

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## Law Enforcement Impact

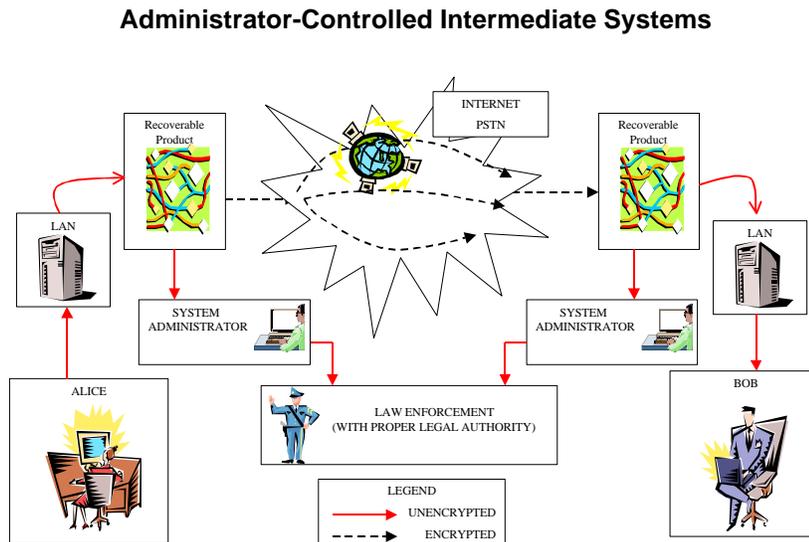
Administrator-controlled products maintain a balance between the interests of persons and companies in the privacy of their data, and the interests of law enforcement in obtaining access to plaintext under proper legal authority. The Fourth Amendment balance is not upset, and our proposal is consistent with existing legislation. Law enforcement will need additional resources to deal with encrypted network traffic, and some cooperation from companies that deploy administrator-controlled products. However, these challenges are essentially similar to those that law enforcement faces in advanced, packet switched voice networks.

## Intelligence Community Impact

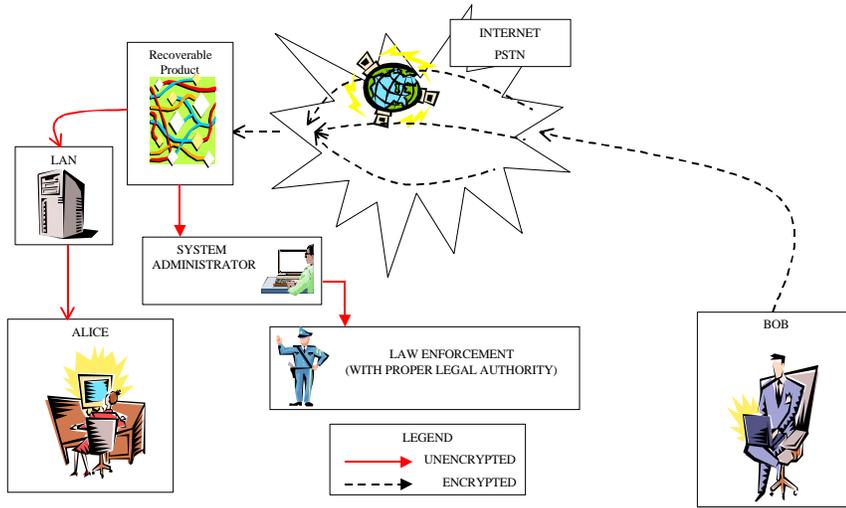
The intelligence community would prefer an encryption-free world, but that is no longer an option. Administrator-controlled products are no more (or less) useful to the intelligence community than key escrow products. Not permitting U.S. companies to compete in these markets with their administrator-controlled products simply gives away foreign market share to foreign competitors, thus also impacting the intelligence community. If American companies are allowed to export administrator-controlled products, then intelligence community also obtains a “home field” advantage by understanding the products, which they have said is important.

## Conclusion

Customers like administrator-controlled products because they can obtain strong cryptography without the vulnerability of key escrow. Law enforcement likes administrator-controlled products because it can obtain access to plaintext using existing practices. The intelligence community will be impacted, but it will retain some advantages if American products, rather than foreign products, predominate in the marketplace. For these reasons, among others, the recommendations suggested by the ANS should be published in the form of a new interim rule with request for comments at the earliest opportunity.



### Administrator-Controlled Remote Access Systems



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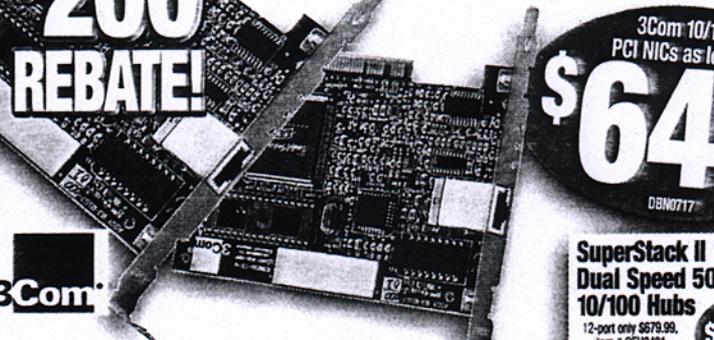
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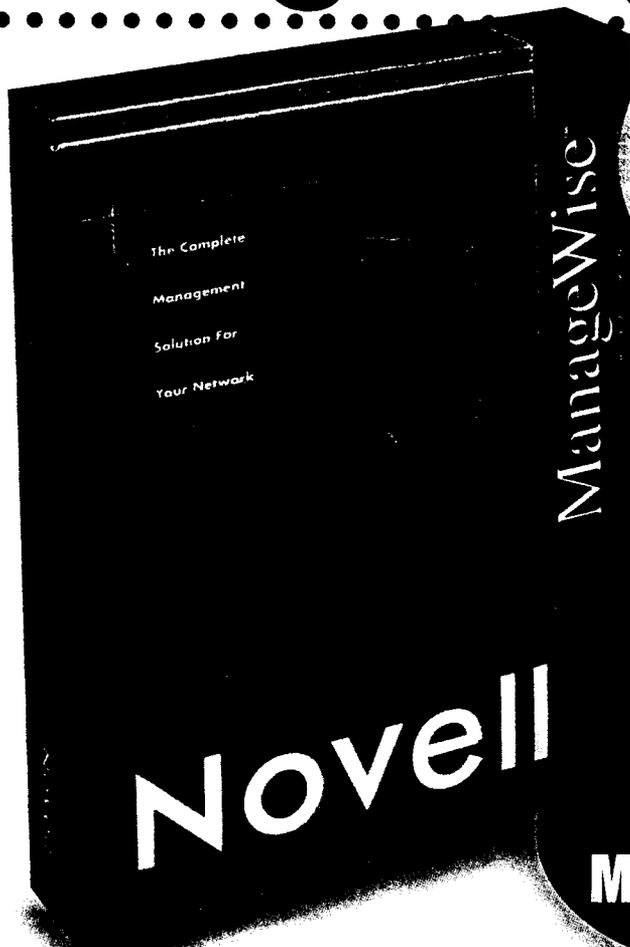
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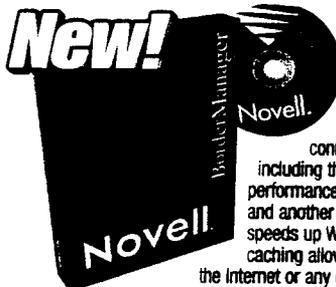
ManageWise 2.6 prevents downtime through proactive management and quick problem resolution. These capabilities, together with network protection and proactive planning and optimization of network growth, make ManageWise 2.6 key to reducing your network's Total Cost of Ownership (TCO).

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ManageWise 2.6 (5 User)	DCS5623	\$629.99
ManageWise 2.6 (10 User)	DCS5624	939.99
ManageWise 2.6 (25 User)	DCS5625	1569.99
ManageWise 2.6 (50 User)	DCS5626	2529.99

### ManageWise 2.6 Upgrade

Description	Item No.	Price
ManageWise Upgrade v2.1 (5 User) to v2.6 (5 User)	DCS5629	\$249.99
ManageWise Upgrade v2.1 (10 User) to v2.6 (10 User)	DCS5630	399.99
ManageWise Upgrade v2.1 (25 User) to v2.6 (25 User)	DCS5631	649.99
ManageWise Upgrade v2.1 (50 User) to v2.6 (50 User)	DCS5632	1039.99



## BorderManager

BorderManager™ is an integrated family of network services that securely connects your network to any other network, including the Internet, and improves network performance at any border between your network and another network. BorderManager's proxy caching speeds up Web access for your users, and its reverse caching allows faster access to your Web server from the Internet or any connected network (VPN): a secure, encrypted tunnel through the Internet or any public network that you can use as a low-cost backbone for your enterprise network.

DCS5293: Server with 5 users	\$869 <sup>99</sup>
DCS5292: 5-user add-in license	\$159 <sup>99</sup>
DCS5294: 25-user add-in license	\$769 <sup>99</sup>



## NDS for NT

### Novell Directory Services

NDS™ for NT enables easy administration of mixed Windows NT and IntraNetWare™ networks. By allowing you to move Windows NT domain information into your NDS database, it eliminates the need for you to establish and maintain complicated trust relationships. Users log in only once to access all authorized resources, on both IntraNetWare and Windows NT servers. Completely compatible with existing Windows NT applications; NDS for NT enables you to manage your entire mixed network.

DCS5630: NDS for NT (5-user)	\$109 <sup>99</sup>
DCS5757: NDS for NT (25-user)	\$529 <sup>99</sup>
DCS5758: NDS for NT (100-user)	\$2099 <sup>99</sup>

# ROUTERS

## Future-Proof your Remote Connections with Ascend!

All Pipeline Routers Now Feature:

- Built-in VPN (Virtual Private Networking) support
- Built-in 40-bit IPsec Encryption
- Secure Access Firewall with: "Stateful Inspection" — based Dynamic Firewall RADIUS compliance Extensive surveillance monitoring and logging Control and management of incoming/outgoing traffic
- SNMP, Multicast IP, Telnet, and Syslog Support
- DHCP Address-serving and NAT

### Pipeline 50, 75 & 85

- Integrated 4-Port Hub (Pipeline 85)
- Cost-saving, dynamic IP Addressing Support
- SmoothConnect - AutoSpid, AutoSwitch, GUI Configurator for simple setup
- Built-in DHCP Address Serving
- Security: PAP, CHAP, Token, Optional Secure Access Firewall
- Bridging, IP/IPX Routing
- Data Compression for up to 512Kbps throughput
- Supports SNMP, Multicast IP, Telnet, Syslog

The Pipeline 50, 75 and 85 are a family of simple, full-featured ISDN remote access routers for connecting small/branch office Ethernet LANs to the corporate LAN or Internet. The Pipeline 75 is ideal

for Telecommuters with the addition of two analog phone ports. Users can plug their phones or fax machines into these ports and use the same high-speed ISDN line, still getting lightning-fast access to the corporate LAN and the Internet.

Manufacturer: Ascend

DEB2311: Pipeline 50 (u) .....	\$499 <sup>99</sup>
DEB2313: Pipeline 75 (u), 2 analog .....	\$559 <sup>99</sup>
DEB2312: Pipeline 85 (u), 2 analog, 4-port 10BT hub .....	\$619 <sup>99</sup>

### Pipeline 130

- Unlimited number of users
- Supports ISDN BRI, switched 56, frame relay and leased lines
- Integrated CSU/DSU
- Multiprotocol bridging
- Simultaneous IP and IPX routing

- Management: SNMP, Telnet and Syslog
- Security: PAP, CHAP, Telnet password

The Pipeline 130 is a family of dual WAN-port, multiprotocol remote site routers that integrate ISDN and frame relay support. Use one port for lower speed dial access or backup; use the second port for higher speed leased/frame relay connectivity.

DEB2308: Pipeline 130 (T1/FT1 with CSU/DSU, ISDN BRI with NT1) .....	\$1259 <sup>99</sup>
DEB2308: Pipeline 130 (DDS56 with CSU/DSU, ISDN BRI with NT1) .....	\$1219 <sup>99</sup>
DEB2307: Pipeline 130 (DDS56 CSU/DSU, SW56 CSU/DSU) .....	\$1259 <sup>99</sup>
DEB2310: Pipeline 130 (V.35 & BRI U) .....	\$1249 <sup>99</sup>

Pipeline 50 with built-in VPN & Firewall! only

**\$499<sup>99</sup>**

NetworkMagazine  
**PRODUCT OF THE YEAR 1998**



### Pipeline 220

- Integrated T1/FT1 CSU/DSU
- 2 10Base-T Ethernet segments/ports
- Multiprotocol Routing
- Network Address Translation
- Built-in DHCP Address Serving

With the Pipeline 220, you can have LAN to WAN access with comprehensive security. This allows users on your LAN and outside clients, etc. to access Web servers, FTP sites and other "public" resources, but blocks access to your internal network. With Network Address Translation, DHCP support and an integrated T1 CSU/DSU, the Pipeline 220 offers a comprehensive easy-to-implement access solution. Optional firewall software offers IPsec encryption and Virtual Private Network tunneling.

DEB2309: Pipeline 220 Router w/ T1 CSU, 2 10BT w/ integrated Firewall, IPSEC & encryption .....	\$1949 <sup>99</sup>
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**\$50 Gift Certificate**  
from 3Com and CDnow—the Online Music Store!



### OfficeConnect ISDN & 56K LAN Modem

- Built-in 4 port 10BT Ethernet Hub
- Two voice ports for fax machines or other analog devices
- IP Router w/DHCP, DNS, web server

Bring Internet and Ethernet connectivity to as many as 10 (using an external 8 port hub) computers on a LAN. Get connected to the Internet - or share printers, fax machines, and files - quickly, easily, and inexpensively. Eliminate the need for multiple modems, phone lines, and Internet service accounts. The ISDN or 56K LAN Modem automatically assigns bandwidth around voice or fax calls, so you can talk on the phone while sending or receiving data on the ISDN or 56K link. You also get a secure, inexpensive way to access the corporate LAN over the Internet, plus advanced voice features, such as call conferencing, caller ID, and voicemail. To make life even easier, you get the industry's only 15 minute

installation guarantee and free ISDN line ordering service.

DMD3068: OfficeConnect ISDN LAN Modem, 4 10BT, 2 Analog Voice/Fax .....	\$389 <sup>99</sup>
DMD3643: OfficeConnect 56K LAN Modem, 4 10BT, 1 Analog Voice/Fax .....	\$279 <sup>99</sup>

Buy an OfficeConnect LAN Modem now thru 1/31/99 and 3Com will e-mail you a special password worth \$50 towards music purchases at CD-NOW.com. E-mail information required to fill order. Ask for item # AA1294.



### OfficeConnect Remotes

Small business and home offices can inexpensively establish high-speed ISDN connections to other networks, the Internet, and commercial information services. Easy to configure and install.

- 10BT LAN, ISDN, Serial ports
- RISC processing with up to 8:1 data compression
- 128Kbps with ISDN channel aggregation
- TCP/IP and IPX routing
- PPP for wide area network interoperability
- Ethernet standard MAC (Media Access Control) bridging

DEB1998: Remote 511U .....	\$419 <sup>99</sup>
DEB1999: Remote 521U w/ voice .....	\$549 <sup>99</sup>
DEB1998: Remote 531U w/ voice & Serial WAN .....	\$679 <sup>99</sup>

## NETGEAR

NETEL NETWORKS



### NETGEAR Remote Access Routers

- Standards and ISP compatibility
- GUI/DHCP to simplify installation
- dNAT+ to save ISP and toll charges
- Firewall security and control

The NETGEAR RT328 ISDN Router provides Internet access, LAN-to-LAN intranet connection, and remote access for a single user, small business, or branch office over ISDN.

The RT328 utilizes industry-standard Multilink PPP and BACP to speed up large transfers by automatically adding more bandwidth for a combined total of 128 Kbps.

This model also provides callback with password protection, PAP/CHAP, and caller ID for security. Two analog phone ports, both a 10BASE-T and AUI connection, flash memory, and eleven front panel LEDs.

Routers as low as **\$279<sup>99</sup>**  
DEB1950



MAGAZINE EDITORS' CHOICE  
May 26, 1998  
NetGear Networking Products

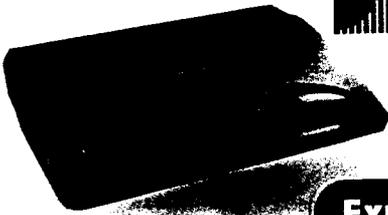
The new RH348 Workgroup Router contains all of the features of the RT328, but adds 4 unmanaged 10Base-T ports for immediate workgroup sharing of one internet account.

The NETGEAR RM356 56K Modem Router enables home offices to connect multiple PCs to the Internet to access e-mail and download information, programs, or games without special phone lines. Up to 4 PCs (with network cards) can directly connect it to share access to the Internet using one ordinary phone line and one Internet Service Provider account.

All three models can be connected to Netgear ethernet hubs for unlimited connectivity.

DEB1950: RT328 ISDN Router .....	\$279 <sup>99</sup>
DEB2219: RH348 ISDN Router/ 4 port hub .....	\$319 <sup>99</sup>
DEB3981: RM356 56K v.90 Router/ 4 port hub .....	\$299 <sup>99</sup>

## CISCO SYSTEMS



**Expandable!**

### Cisco 1600 Routers

- All models feature a WAN interface card slot for future expansion
- Multi-protocol or single-protocol routing available
- Built-in CSU/DSU and ISDN support available

The Cisco 1600 series features modular Internet/intranet access routers that provide flexibility and functionality to small offices. You can start small and work up to optional T1 support without changing the basic platform.

Description	Item No.	Price
1601 Router 1 Ethernet/1 Serial/1 WAN	DEB1603	\$1139.00
1602 Router 1 Ethernet/1 56K CSU-DSU/1 WAN	DEB1604	1279.00
1605 Router 2 Ethernet/1 WAN	DEB2018	1259.00

### Cisco 2600 Routers

- Multi-protocol or single-protocol routing
- 1 or 2 Ethernet Ports built in; available network expansion slot
- Built-in 115Kbps Dial-on-Demand port for WAN back-up
- Two WAN interface card slots

The Cisco 2600 series modular access routers provide flexibility and investment protection for your LAN. As your office grows, the 2600 routers can accommodate voice/fax over IP, extranet and VPN access, and advanced security features.

Description	Item No.	Price
2610 Router 1 Ethernet/2 WAN Interface	DEB2140	\$1699.00
2611 Router 2 Ethernet/2 WAN Interface	DEB2141	2129.00



Cisco  
2600 Routers  
as low as  
**\$1699**  
DEB2140

### Cisco 2500 Routers

- Provides a variety of LAN, WAN, and ISDN port combinations
- RAS, encryption, and security packages available

The Cisco 2500 series routers provide a variety of pre-configured models designed for small to medium-size businesses and branch/remote offices.

Cisco's wide variety of software options allows these routers to support many specific protocol environments and management options, including RMON.

Within the 2500 family, several series exist. The 2501-2504 support

a single LAN connection, either Ethernet or Token Ring, and 2 serial interfaces; the 2503 and 2504 also include an ISDN BRI interface.

The 2505-2508 include an integrated Ethernet hub along with various connectivity options.

The 2509-2512 are Access Servers, with Ethernet or Token Ring support, 2 serial interfaces and 8 or 16 serial interfaces. These routers are perfect for remote-access dial-up support as well as WAN routing.

Finally, the 2513-2515 are dual-LAN routers, enabling 2 LANs (2 Ethernet, 2 Token Ring or 1 of each) to share one router.

Description	Item No.	Price
2501 Router 1 Ethernet/2 Sync Serial	DEB1602	\$1659.00
2502 Router 1 Token Ring/2 Sync Serial	DEB1639	2499.00
2503 Router 1 Ethernet/2 Sync Serial/1 ISDN	DEB1605	2195.00
2505 Router 8 Port Hub/2 Sync Serial	DEB1635	2599.00
2509 Router 1 Ethernet/2 Sync Serial/8 Async Modem	DEB1611	2049.00
2513 Router 1 Ethernet/1 Token/2 Sync Serial	DEB1637	3149.00
2514 Router 2 Ethernet/2 Sync Serial	DEB1609	1949.00



Buy an  
**Internet Station,**  
Get a **FREE 5 Port 10BT Hub**

### Intel InBusiness™ Internet Station

- Multiple user Internet access over a single line
- Supports analog and ISDN lines
- InstantIP™ saves time and money on Internet addresses

The Intel InBusiness Internet Station stand-alone communications device provides Internet access to small workgroups. You can use the Internet Station for shared Internet access, outbound communications, or both! It includes two PC Card slots and one serial connection. Multiple users can surf the Internet over a high-speed ISDN line or analog modem, connect to a bulletin board, and send a fax — all at the same time!

DBN0740: Buy an Internet Station, get a **FREE** 5 Port 10BT Hub **\$369<sup>99</sup>**

\*Promotion valid until 12/31/98.

### Intel Express 8100 Routers

- 10/100Mbps autosensing — Plug and play LAN support for Ethernet and Fast Ethernet networks
- Strong Security — A powerful combination of encryption (optional), authentication, Network Address Translation (NAT) and filtering
- Multiple Protocol Support — Worldwide ISDN (U and ST interface), Frame Relay, PPP and X.25

The Intel Express 8100 Router provides a flexible and secure branch office solution supporting VPNs, traditional WAN routing and easy Internet access. With tunneling and optional 144-bit encryption, you can use the Internet for WAN routing to significantly reduce WAN connection costs. Easy installation and management enables seamless integration into your network.

DEB2128: 8100 Router ISDN BRI (ST)	\$599 <sup>99</sup>
DEB2131: 8100 Router ISDN BRI (A)	\$599 <sup>99</sup>
DEB2130: 8100 Router Frame Relay/PPP leased line	\$599 <sup>99</sup>
DEB2129: 8100 Router Leased PPP	\$599 <sup>99</sup>



intel®

ISDN  
Routers only  
**\$599<sup>99</sup>**

### Intel Express 9000 Series Routers

- Secure LAN to WAN connectivity over the Internet
- Network Address Translation (NAT)
- PAP and CHAP — Authentication
- Multi-Protocol support

The Intel Express 9000-series routers provide the flexibility and scalability to support a wide range of WAN routing needs. They provide higher bandwidth and support more WAN links. They also feature two WAN ports that can simultaneously handle different WAN services.

DEB2151: Express Router 9100 (2 WAN Ports)	\$829 <sup>99</sup>
DEB2142: Express Router 9200 (1 WAN, 1 PC Card Slot)	\$829 <sup>99</sup>

### TECHNICAL HELP HOTLINE

Get the help you need from the certified technical specialists at Data Comm WAREHOUSE! All are factory trained and tested by the biggest names in networking, including IBM, 3Com, Novell, Cisco Systems, Microsoft, AT&T, and APC. Call for free customer support M-F, 8am-9pm EST.

**1-800-328-2261**

Technical Reference Guide at  
**warehouse.com**

# REMOTE ACCESS/VPN



## SonicWALL Firewall

- **Performance:** Supports multiple T1s!
- **Stateful Packet Inspection Firewall**
- **Optional DMZ:** Protects public servers (Email, Web, FTP, etc.) from denial of service attacks
- **Built-in DHCP Client and Server**

Protect your Local Area Network from intruders on the Internet and filter content from objectionable web sites.

DEB2267: SonicWALL w/ 10 user license .....	<b>\$499**</b>
DEB2261: 1 year content filter subscription for SonicWALL 10 .....	<b>\$169**</b>
DEB2268: SonicWALL w/ 50 user license .....	<b>\$999**</b>
DEB2262: 1 year content filter subscription for SonicWALL 50 .....	<b>\$489**</b>
DEB2298: SonicWALL Plus w/ unlimited license .....	<b>\$1499**</b>
DEB2270: SonicWALL Plus DMZ w/ unlimited license .....	<b>\$1799**</b>
DEB2263: 1 year content filter subscription for SonicWALL Plus & Plus DMZ .....	<b>\$689**</b>

## Bandit Router

Bandit is an Internet access device which allows for high speed Internet access at a low cost. Bandit aggregates the speed of up to three modems to create one very high speed virtual connection to the Internet which can be shared by an entire network.

DEB2150: Bandit 3-port analog router. **\$399\*\***

## QuickStream PRO

Dial into the QuickStream PRO and become a remote node on your network with complete access to: file servers, databases, printers, email, the Internet, and your own computer. Up to 3 remote users at any time!

DMA1363: QuickStream Pro **\$849\*\***

# Sonic

## All-in-one Remote Access!



All Perle products offer:



## Perle 833 Remote Access Server

- No kits to buy — just set up, and attach modems
- Windows 95, NT Workstation, 3.x, DOS, OS/2 and Apple ARA clients are supported
- Shared dial-in and dial-out to send faxes or access the Internet

The 833s ship with everything you need for remote dial-in and shared dial-out, including multi-level network security, in-band and out-of-band management functionality.

DMD2079: 833 2 Lines with Ethernet. ....	<b>\$1449</b>
DMD2077: 833 4 Lines with Ethernet. ....	<b>\$1579</b>
DMD2078: 833 8 Lines with Ethernet. ....	<b>\$1949</b>

Token Ring models also available; call for details.

## 833AS Access Switch

- Dial-in access for remote users
- Dial-out modem pooling for LAN-based users
- T1 and/or DSP modem support for maximum port density
- Auto-sensing 10/100 Ethernet connection

The 833AS Access Switch is a modular remote access solution for up to 48 simultaneous users.

DMD3710: 833AS Access Switch Chassis —10/100 Ethernet .....	<b>\$6599**</b>
DMD3711: T1/PRI Card for 833AS Access Switch .....	<b>\$1749**</b>
DMD3713: 18-Modem Card for 833AS Access Switch .....	<b>\$6849**</b>

# PERLE

SOLD ON SUPPORT™



Millions of users worldwide rely on Shiva's award-winning LanRover technology!

## Shiva LanRover 5.0 Access Servers

- **Fixed port or Modular Solutions**
- **Comprehensive management capability to the level you need**
- **Dial-in for multi-platforms standard**
- **Advanced Power Kit Options give additional functionality**

The new LanRover 5.0 Power Base series allows you to obtain the functionality you need now, with the ability to upgrade at any time! Dial-in support for Microsoft™ Windows 3.x, 95 and NT, DOS, PC9800, MAC OS, and OS/2™ comes standard. Built-in management and security includes PAP, CHAP, SPAP, Shiva User List Server, NetWare Bindery, IP and network filtering and roaming dialback.

Connectivity and Security software kits  
With every LAN Rover purchase!  
Contact your sales person for details.

The fixed-port LanRover/E models offer a simple solution for you to connect to analog or digital modems. With 4 or 8 asynchronous ports supporting up to 115Kbps per port.

The modular LanRover/E PLUS models give you a variety of built-in modem capabilities. With 4 or 8 slots, you can insert a combination of ISDN BRI cards, V.34 33.6Kbps cards, or async serial modules.

DMD2575: LanRover/E 4-Port Serial .....	<b>\$1279</b>
DMD2576: LanRover/E 8-Port Serial .....	<b>\$1759</b>

DMD2898: LanRover/E PLUS 8-Slot Chassis .....	<b>\$2019</b>
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DCS4061: LanRover/E PLUS w/ 4 v.34 33.6 modems .....	<b>\$3099</b>
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DCS4060: LanRover/E PLUS w/ 8 v.34 33.6 modems .....	<b>\$4249</b>
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DMD3224: LanRover XP16 w/ 16 v.34 33.6 modems .....	<b>\$5499</b>
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## Advanced Power Kits

DCS4071: LanRover Connectivity Kit (Dial-out, NetBEUI) .....	<b>\$419**</b>
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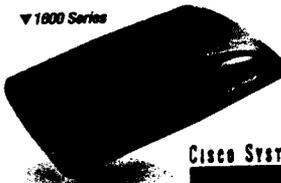
DCS4070: LanRover Security Kit .....	<b>\$419**</b>
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DCS4068: LanRover Performance Kit (Acceleration & file caching) .....	<b>\$1639</b>
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DCS4066: LanRover Power Suite (All above plus Radius Server) .....	<b>\$2049</b>
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# Shiva

## VPN Solutions from Cisco!



## Cisco 1600 Series Routers

- Just add VPN software for full LAN-to-LAN VPN solutions
- All models feature WAN Interface Card slots for future expansion
- Multi-protocol or single-protocol routing available
- One or two Ethernet ports available
- Built-in CSU/DSU and ISDN support available

The Cisco 1600 Series features modular Internet/intranet access routers, offering outstanding flexibility and functionality for small offices. You can start small and work up to optional T1 support without changing the basic platform!

Manufacturer: Cisco Systems	
DEB1603: 1601 Router 1 Ethernet / 1 Serial .....	<b>\$1139</b>
DEB1604: 1602 Router 1 Ethernet / 1 DSU/CSU .....	<b>\$1279</b>
DEB2018: 1605 Router 2 Ethernet (Requires T1) .....	<b>\$1259</b>
DCS5824: VPN/Firewall software pack for 1600 routers .....	<b>\$599**</b>

## Cisco 2500 Series Routers

- Ethernet and Token Ring networks supported
- Integrated hubs available in a variety of sizes

The Cisco 2500 Series of branch office routers offer a variety of pre-configured models.

DEB1602: 2501 Router 1 Ethernet / 2 Serial .....	<b>\$1659</b>
DEB1637: 2513 Router 1 Ethernet / 1 Token / 2 Serial .....	<b>\$3149</b>
DEB1609: 2514 Router 2 Ethernet / 2 Serial .....	<b>\$1949</b>
DEB1605: 2503 Router 1 Ethernet / 2 Serial / 1 ISDN .....	<b>\$2195</b>

## Cisco 2600 Series Routers

- Multi-protocol or single-protocol routing available
- Two WAN interface card slots
- One or two Ethernet ports built-in; available network expansion slot
- Built-in 115Kbps Dial-on-Demand port for WAN back-up

The Cisco 2600 Series modular access router offers flexibility and investment protection for the office LAN.

DEB2140: 2610 Router 1 Ethernet / 2 WAN Interface .....	<b>\$1699</b>
DEB2141: 2611 Router 2 Ethernet / 2 WAN Interface .....	<b>\$2129</b>

Attachment B

