
Telemedicine Market Assessment



Healthcare Telecommunications -- Telemedicine

The Impact of the Internet,
Integration Strategies,
Market Strategies,
Market Opportunities,
Market Forecasts, 2001-2006



Pictures by Susie Eustis

OPPORTUNITY TOO BIG FOR ANY ONE MARKET PARTICIPANT

Strategic Alliances In Balance

Strategic Alliances Create Market Opportunity

TELEMEDICINE

A LOT OF PLAYERS

A LOT OF EXISTING MARKETS

PARTNERING POSITIONS PARTICIPANTS IN HIGH GROWTH SEGMENTS

POSITIONS TO TAKE ADVANTAGE OF INTERNET OPPORTUNITIES

**WHEN THE SUN GOES DOWN THOSE STRATEGIC
PARTNERS IN THE SAME BOAT SUCCEED**

**WinterGreen Research, Inc.
Lexington, Massachusetts**

www.wintergreenresearch.com

The Study Gives Detailed Information About Many Market Participants

Table of Contents

Healthcare TELECOMMUNICATIONS
MARKETS, POSITIONING TO PARTICIPATE IN HIGH
GROWTH SEGMENTS POSITIONING TO PARTICIPATE
IN HIGH GROWTH SEGMENTS MARKET
STRATEGIES FORECASTS TO 2005

CHECK OUT THESE KEY TOPICS

HEALTHCARE TELECOMMUNICATION INDUSTRY RESTRUCTURING

Market Strategies
Application Integration Becomes Part of Market
Market Growth Opportunities

PBX Suppliers Position With Data Capability
-HEALTHCARE TELECOMMUNICATIONS EQUIPMENT
MARKET FORECASTS
WORLDWIDE MARKET SHARES

ROUTERS
PBX
PATIENT MONITORS
VIDEO CONFERENCING EQUIPMENT
APPLICATION INTEGRATION -- EAI

REPORT METHODOLOGY

THIS IS THE FORTY SECOND REPORT IN A SERIES OF MARKET RESEARCH REPORTS THAT PROVIDE FORECASTS IN COMMUNICATIONS, TELECOMMUNICATIONS, THE INTERNET, COMPUTER, SOFTWARE, AND TELEPHONE EQUIPMENT. THE PROJECT LEADERS TAKE DIRECT RESPONSIBILITY FOR WRITING AND PREPARING EACH REPORT. THEY HAVE SIGNIFICANT EXPERIENCE PREPARING INDUSTRY STUDIES. FORECASTS ARE BASED ON PRIMARY RESEARCH AND PROPRIETARY DATA BASES. FORECASTS REFLECT ANALYSIS OF THE MARKET TRENDS IN THE SEGMENT AND RELATED SEGMENTS. UNIT AND DOLLAR SHIPMENTS ARE ANALYZED THROUGH CONSIDERATION OF DOLLAR VOLUME OF EACH MARKET PARTICIPATION IN THE SEGMENT. MARKET SHARE ANALYSIS INCLUDES CONVERSATIONS WITH MARKETING DIRECTORS, DISTRIBUTORS, LEADING MARKET PARTICIPANTS, AND COMPANIES SEEKING TO DEVELOP MEASURABLE MARKET SHARE. OVER 200 IN DEPTH INTERVIEWS ARE CONDUCTED FOR EACH REPORT WITH A BROAD RANGE OF KEY PARTICIPANTS AND OPINION LEADERS IN THE MARKET SEGMENT.

HEALTHCARE IS A LEADING SEGMENT IN THE DEVELOPING
INDUSTRY BY INDUSTRY SEGMENTATION OF
WORLDWIDE TELECOMMUNICATIONS EQUIPMENT

YOU MUST HAVE THIS STUDY

HEALTHCARE TELECOMMUNICATIONS EXECUTIVE SUMMARY

Healthcare Telecommunications Executive Summary	ES-1
Equipment And Services Positioning	ES-1
The Results	ES-4

Health Care Vision	ES-4
Summary Forecasts	ES-5
Healthcare PBX markets	ES-6
Hospital Routing Systems	ES-7
Need For Integration	ES-8
Multimedia Messaging	ES-11
Health Care Sites	ES-11
Voice Messaging	ES-12
Vendor Positioning	ES-12
PBX	
Routers	
Hospital Information Systems	ES-15
EAI Integration	ES-18
Integration Engines	ES-18
Videoconferencing	ES-20
ATM And Gigabit Ethernet	ES-21
Patient Monitors	ES-21
Ambulatory Patient Monitoring	ES-22
Cardiac Paging Systems	ES-23
Monitoring in the Emergency Department	ES-24
Multiparameter Telemetry Technology	ES-25
Purchasing Environment	ES-25
Telemedicine Initiatives	ES-26
Air Medical Transport	ES-27
1. HEALTH CARE MARKET DESCRIPTION	1-1
Telecommunication Servers, Wireless Communications, Internet Data, And Videoconferencing	1-1
1.1.1 PBX As A Communication Server	1-1
1.1.2 Telemedicine	1-2
1.1.3 Wireless Communications	1-3
1.1.4 Videoconferencing	1-3
1.1.5 Change Occurring From Circuit-Switched	
1.1.6 To Packet-Switched Technology	1-4
1.1.6 Critical Care Patient Monitoring	1-5
1.2 Healthcare Change	1-5
1.2.1 Change In Routers And PBX Systems	1-6
1.2.2 Changes In Healthcare Monitoring	1-7
1.3 Industry Profile	1-8
1.3.1 Hospital Markets	1-8
1.2.1 Alternate Site Markets	1-11
1.4 Managed Care Issues	1-12
1.4.1 Federal Government Managed Care Policy	1-13
1.4.2 Need To Deploy Information Technology Solutions	1-13
1.5 Health Care Market Cost Control	1-14
1.5.1 Group Purchasing Trends	1-15
1.5.2 Vendor Response To Market Conditions	1-16
1.5.3 Hospital And Surgeon Concerns	1-16
1.5.4 Managing Costs	1-16
1.6 Competition In Healthcare Telecommunications Markets	1-17
1.6.1 New Model In Emergency Care	1-20
1.7 Major Factors Driving The New Market	1-21
1.8 Need For Health Care Web Site	1-23
1.8.1 Brokering Supplies And Drugs	1-24
1.8.2 IT Use of Exchanges	1-24
1.8.3 Infrastructure	1-25
1.8.4 Web Lifestyle	1-26
1.8.5 Time To Market Issue	1-27
1.8.6 Driving Traffic To The Site	1-28

1.9 Internet	1-30
1.9.1 Web Based Supply Chain Exchanges	1-31
1.9.2 Exchange Infrastructure Functionality	1-32
1.9.3 Internet Explosion	1-34
1.10 Impact Of Communications On Healthcare	1-36
1.11 Integrating The Hospital Communications Network	1-36
1.11.1 Telemedicine Use Of Videoconferencing	1-38
1.12 Internet Users	1-41
1.12.1 Growth Of Internet Users	1-41
1.12.2 United States Internet Users	1-42
1.12.3 Worldwide and U.S. Internet Users	1-43
1.12.4 Use Of Internet To Research Healthcare	
1.12.5 Internet Users by region	1-49
1.13 Impact Of Medical Error	1-52
1.14 Communications Bolster Effectiveness Of Emergency Treatment Centers	1-52
1.15 Digital X-Rays Support Telemedicine	1-53
1.16 Respiratory Therapy Network Integration	1-54
1.17 Critical Care Monitoring	1-55
1.17.1 Clinical Networks	1-58
1.18 Patient Monitoring Equipment Analysis	1-58
1.18.1 Patient Monitoring Market Segments	1-59
1.18.2 Full Disclosure, Arrhythmia And ST Segment Analysis	
2. HEALTHCARE TELECOMMUNICATIONS MARKET FORECASTS	2-1
2.1 Principal Competitive Factors	2-1
2.2 Changing Economics In Healthcare Delivery	2-3
2.3 Telecommunications Systems Used For Direct Connectivity	2-5
2.4 Hospital PBX systems	2-10
2.4.1 PBX Market Shares	2-11
2.4.2 Regional Hospital PBX Market Shares	2-13
2.4.3 Total Hospital PBX Market Shares	2-22
2.4.4 Hospital PBX Regional Market Shares	2-23
2.4.5 Total Hospital PBX Market Shares	2-31
2.5 Hospital Voice Messaging	2-34
2.6 Hospital Routing Systems	2-34
2.6.1 Healthcare Regional Shares	2-36
2.6.2 Healthcare Data Regional Market Shares by Company	
3. HEALTHCARE COMMUNICATION MARKET FORECASTS	3-1
3.1 Need For Integration	3-1
3.2 EAI Cross Platform And Integration Broker Market Shares	3-2
3.3 Summary EAI Market Forecasts	3-5
3.4 EAI Engines	3-7
3.4.1 The Role Of EAI Engines In Driving Integration	
3.5 EAI Integration Broker Summary Market Forecasts By Industry	3-13
3.5.1 Healthcare use of EAI	3-20
3.6 Telemedicine / Videoconferencing	3-22
3.6.1 Videoconferencing Market Shares	3-22
3.6.2 Room and Group videoconferencing Systems	3-23
3.6.3 Videoconferencing Market Forecasts.....	3-28
3.7 Web Hosting	3-40
3.7.1 Need For Web Hosting And Data Centers	3-41
3.7.2 Web Based Supply Chain Exchanges	3-43
3.7.3 Web Hosting Market Shares	3-43
3.8 Web Hosting Competitive Forces	3-48
3.9 Web Hosting Market Driving Forces	3-52
3.10 Hospital Information Systems	3-60

3.11 Blood Pressure Kiosks	3-68
3.12 Paging Systems	3-68
3.13 Air Medical Transport	3-69
4. COMMUNICATIONS EQUIPMENT STRATEGIC POSITIONING FOR HEALTHCARE MARKETS	4-1
4.1 Demand For Bandwidth	4-1
4.2 PBX Systems	4-3
4.3 Optical Network Systems	4-5
4.3.1 DWDM	4-6
4.3.2 DWDM Applications	4-8
4.3.3 Optical Amplifiers	4-10
4.3.4 Advanced Systems	4-11
4.4 Virtual Private Networks (VPNs)	4-11
4.4.1 Tunneling Remote Access	4-11
4.4.2 VPN Target Audience	4-13
4.4.3 VPN Technology	4-13
4.4.4 Firewalls	4-14
4.4.5 VPN Access Platform Implementations	4-14
4.5 Healthcare Remote Access	4-16
4.6 Videoconferencing	4-17
5 PBX, ROUTER, ATM, VIRTUAL PRIVATE NETWORK SYSTEMS FOR HEALTHCARE	5-1
5.1 PBX Systems	5-1
5.1.1 Nortel PBX	5-1
5.1.2 Nortel Voice, Data, Video Network	5-2
5.1.3 Grand Rounds On Site	5-4
5.1.4 Siemens PBX IP Telephony Interoperability	5-5
5.1.5 Siemens Upgrade Disaster Recovery Systems	5-5
5.1.6 Avaya PBX	5-6
5.1.7 NEC PBX	5-7
5.1.8 NEC Integrated Wireless Communications / Advanced Healthcare Communications	5-8
5.1.9 Alcatel OmniPCX 4400 Hospital PBX	5-9
5.1.10 Ericsson PBX	5-11
5.2 ATM	5-13
5.2.1 Cisco	5-13
5.2.2 Nortel ATM	5-14
5.2.3 Nortel ATM Backbone Positioning	5-15
5.2.4 Lucent Technologies ATM	5-15
5.2.5 Avaya LAN ATM	5-16
5.2.6 Ericsson ATM	5-17
5.2.7 Siemens ATM	5-17
5.3 Fast Ethernet And Gigabit Routers	5-18
5.3.1 Cisco Routers	5-19
5.3.2 The Cisco Healthcare Solution	5-19
5.3.3 Cisco Medical Clinic Positioning	5-20
5.3.4 Cisco Integration Systems	5-21
5.3.5 Cisco Radiology Network	5-21
5.3.6 Cisco Computerized Patient Records	5-22
5.3.7 Cisco Integration Of Systems	5-22
5.3.8 Nortel / Bay Networks Router Systems	5-24
5.3.9 Nortel Clinical Information System Integration	5-24
5.3.10 Nortel Ethernet	5-25
5.3.11 Nortel Routing	5-26
5.3.12 Avaya Routers	5-27
5.3.13 Siemens Hinet Stackable PBX Integrated Router	5-33
5.3.14 Alcatel Routers	5-34
5.3.15 Ericsson Routing	5-35

5.3.16	Ericsson IP Gateway	5-35
5.4	Hospital Wireless Systems	5-36
5.4.1	Avaya 5-37	
5.4.2	Avaya Wireless Features	5-38
5.4.3	Avaya PBX Wireless Interoperability	5-41
5.4.4	Nortel Wireless Solution	5-44
5.4.5	Siemens Wireless	5-45
5.4.6	Ericsson Wireless Systems Targeted To Hositals	5-46
5.4.7	NEC 5-47	
5.5	Interactive Voice Response (IVR)	5-49
5.5.1	Avaya Interactive Voice Response	5-50
5.6	Paging	5-51
5.6.1	Motorola Pagewriter[R] 2000x Personal Interactive 5-Communicator Targeted To Hospital Settings	5-51
5.6.2	Motorola Steps To Reduce Medical Errors	5-54
5.7	Security Systems	5-54
5.7.1	VPN For Remote Medical Services Delivery	5-55
5.7.2	VLAN Switches Isolate User Groups	5-56
5.7.3	Checkpoint Firewalls / Nokia Oc3	5-56
5.7.4	Virtual Private Network (VPN) Secure Paths	5-57
5.7.5	Cisco Extends Patient Care Through The Internet	5-57
5.7.6	Check Point Firewall	5-60
6. TELEMEDICINE IN THE CONTEXT OF PATIENT MONITORING AND HOSPITAL INFORMATION SYSTEMS -- PRODUCT OVERVIEW		1
6.1	Automated Patient Records And Health Management Systems	6-1
6.1.1	Cerner 6-1	
6.1.2	McKesson HBOC Health Care Information Technology	6-3
6.1.3	Shared Medical Systems Principal Products	6-11
6.2	Patient Monitor Systems	6-21
6.3	Philips Telemedicine Solutions	6-21
6.3.1	Philips Paperless Claims	6-24
6.3.1	Philips Patient-Monitoring Solutions	6-24
6.3.2	Philips Telemetry System	6-26
6.3.3	Philips Ambulatory ECG Analysis	6-26
6.3.4	Philips Component Central Monitor	6-27
6.3.5	Philips Arrhythmia Monitoring	6-28
6.3.6	Philips Defibrillators	6-30
6.3.7	Philips Infusion Pumps	6-33
6.3.8	Philips Open Systems	6-34
6.4	Spacelabs Telemedicine Initiatives	6-35
6.4.1	Spacelabs Web Source Telemedicine	6-36
6.4.2	Spacelabs Integrated Patient Monitoring	6-39
6.4.3	Spacelabs Ultraview Care Network Monitors	6-42
6.4.4	Ultraview Modular Digital Telemetry	6-43
6.4.5	SpaceLabs Fetal Monitors	6-43
6.4.6	Spacelabs Monitoring Modules	6-43
6.4.7	SpaceLabs 12-Lead ECG/ST Segment	6-45
6.4.8	Spacelabs Multiview	6-46
6.4.9	SpaceLabs Cardiac Output	6-46
6.4.10	SpaceLabs Non Invasive Blood Pressure (NIBP)	6-47
6.4.11	Spacelabs SvO2	6-47
6.4.12	Spacelabs Pulse Oximetry	6-48
6.4.13	Spacelabs Temperature	6-48
6.4.14	Spacelabs Capnography	6-48
6.4.15	Spacelabs EEG	6-49
6.4.16	Spacelabs Bispectral Index (BIS)	6-49
6.4.17	Spacelabs Module Configuration Manager	6-50
6.4.18	Spacelabs Flexport System Interfaces	6-53
6.4.19	Spacelabs Flexport Interfaces	6-53
6.4.20	Multi Information-System Enterprise	6-55

6.4.21	Spacelabs Patient Care Management	6-56
6.4.22	Spacelabs Multidisciplinary Clinical Pathways	6-58
6.4.23	Spacelabs Order Entry	6-60
6.4.24	Spacelabs Charts For Intensive Care	6-61
6.4.25	Spacelabs Mermaid Wireless Technology	6-65
6.5	GTE / Marquette	6-65
6.5.1	Marquette Clinical Information System For Obstretrical Applications	6-65
6.5.2	Reporting System	6-68
6.5.3	Marquette Stress Test Telemedicine Application	6-72
6.5.4	Marquette Wireless Patient Monitor	6-74
6.5.5	Chest Pain Center Monitoring	6-75
6.5.6	Vital Signs Monitor	6-76
6.5.7	Marquette Telemetry	6-76
6.5.8	Marquette Wireless LAN	6-77
6.5.9	Marquette Network-Centric Monitoring	6-79
6.5.10	Marquette Telemedicine Networking Monitoring	6-80
6.5.11	Marquette Workstations	6-82
6.5.12	Marquette Paging Systems For Outpatient Assessment	6-84
6.5.13	Marquette Monitoring in the Emergency Department	6-84
6.5.14	IMPACT.wf Paging System	6-86
6.5.15	Clinical Review Station	6-87
6.5.16	Marquette Remote System for Viewing Patients	6-88
7.	INTEGRATION ENGINES, APPLICATIONS SYSTEMS	7-1
7.1	Enterprise Application Integration	7-1
7.1.1	IBM Partners For Healthcare Payer Decision Support Solutions	7-1
7.1.2	IBM Integration Engine Product Positioning	7-3
7.1.3	IBM MQ Integrator	7-3
7.1.4	IBM MQSeries Message-Queuing Software	7-5
7.1.5	Business Integration Issues	7-8
7.1.6	New Era Of Networks / Neon	7-9
7.1.7	Software Technologies Corporation (STC)	7-14
7.1.8	STC DataGate	7-17
7.1.9	GE Global Exchange	7-18
7.1.10	Healthdyne Information (HIE)	7-20
7.1.11	SEDI-Health	7-21
7.2	Distributed Transaction Systems	7-21
7.2.1	IBM Websphere	7-22
7.2.2	BEA Tuxedo And Web Logic Span Hardware Platforms	7-22
7.3	Application Integration Positioning	7-25
7.3.1	SpaceLabs Integration Systems	7-26
7.3.2	Philips 7-27	
7.3.3	Siemens SAP R/3 Patient Management System	7-28
7.3.4	Application Integration Services	7-28
7.3.5	Intelligent Infrastructures	7-29
7.4	Uses And Benefits Of EAI Applications	7-32
7.5	The Event Driven Hospital Complex	7-33
7.5.1	Health care Platforms	7-34
7.6	The Business Payoff	7-36
8.	APPLICATIONS FOR TELEMEDICINE	8-1
8.1	Videoconferencing	8-1
8.2	Digital Video	8-2
8.3	Telemedicine	8-3
8.4	Mobile Multimedia Communications	8-6
8.5	Call Centers	8-7
8.6	Hospital Value Added Systems	8-7
8.7	Managing A Switch Room For A Health Care Facility	8-10

8.7.1	Disaster recovery	8-10
8.7.2	Siemens	8-11
9. SERVICE PROVIDER PARTICIPATION IN HEALTH CARE TELECOM		9-1
9.1	Verizon	9-1
9.2	SBC Remote-Rural Health Care Delivery	9-5
9.3	Sprint ATM packages	9-6
9.4	Qwest / USWest Inprise	9-10
9.5	Hawaii Health Systems ATM	9-11
9.6	Connecticut Hospital Association Serves As An Internet Service Provider (ISP)	9-11
10. TELEMETRY AND SLEEP TECHNOLOGIES TARGETED TO HEALTHCARE COMMUNICATIONS		10-1
10.1	Electromagnetic Conflicts Managed By Motorola	10-1
10.2	Customer Interaction System And Advanced Speech Recognition	10-3
10.3	In-Vehicle Multimedia Solution	10-4
10.4	Service-Level Guarantees For Internet Services	10-4
10.5	Philips Cardiograph With Predictive Instruments	10-5
10.5.1	Philips Coderunner Web Product Suite	10-8
10.5.2	Philips Information-Management solution	10-8
10.6	Spacelabs Web-Based Network	10-10
10.6.1	Spacelabs Provides Access To Clinical Data Repository Via Wireless Devices	10-11
10.6.2	Spacelabs Flexport System Interfaces	10-12
10.6.3	Spacelabs Hospital-Wide Information Systems	10-13
10.6.4	Spacelabs Executive Information Systems	10-13
10.6.5	Spacelabs 12-Lead ECG/ST Segment	10-14
10.6.6	Spacelabs Ultraview Digital Telemetry	10-15
10.7	Respironics Focus Is On Home Care	10-16
10.7.1	Respironics Non-Invasive Window To The Autonomic Nervous System.	10-17
10.7.2	Respironics Portable Sleep Diagnostic Tool	10-18
10.7.3	Respironics Products For Sleep Management	10-19
10.7.4	Respironics Ambulatory Patient Monitor	10-20
10.7.5	Protocol Cordless Telemetry System	10-21
11. TOP TEN TELECOMMUNICATIONS COMPANY PROFILES		11-1
11.1	Alcatel 11-1	
11.1.1	Alcatel Acquisitions	11-1
11.1.2	Alcatel Organization / Internet Division	11-3
11.1.3	Alcatel Revenue	11-5
11.1.4	Internet And Optics	11-8
11.1.5	Enterprise And Consumer	11-9
11.1.6	Telecom Components	11-10
11.1.7	Alcatel / Newbridge Networks	11-10
11.2	Bosch 11-13	
11.3	Cisco Systems	11-16
11.3.1	Cisco Sales	11-17
11.3.2	Cisco Sales Overview	11-20
11.3.3	Acquisitions	11-21
11.4	Ericsson 11-23	
11.4.1	Ericsson Revenue	11-25
11.4.2	Flexible Access Products	11-28
11.4.3	Ericsson Makes Strategic Investment In Saraïde.Com	11-28

11.4.4	Acquisitions And Investments	11-29
11.5	Fujitsu 11-30	
11.5.1	Fujitsu Network Communications	11-31
11.6	Lucent 11-32	
11.6.1	Company Organization	11-32
11.6.2	Lucent Restructuring	11-35
11.6.3	Enterprise Products	11-36
11.6.4	Outsourcing Portfolio	11-37
11.6.5	Lucent Second Quarter 2000 Revenue	11-37
11.6.6	Lucent 1999 Revenue	11-39
11.6.7	Lucent Customer Base	11-41
11.6.8	Lucent Acquisitions	11-42
11.6.9	Acquisition Of Excel Switching	11-46
11.6.10	Outsourcing Portfolio Expanded With Ins	11-48
11.6.11	Ascend Business Segments	11-48
11.6.12	Nexabit Networks	11-50
11.6.13	Spring Tide	11-51
11.6.14	Divestiture Of Enterprise And Microelectronics	11-51
11.7	Motorola	11-52
11.7.1	Corporate Structure	11-54
11.7.2	Handset Products	11-55
11.7.3	Network Systems Segment	11-56
11.7.4	Commercial, Government And Industrial Systems Segment	11-56
11.7.5	Motorola Wireless Strategic Alliances	11-57
11.7.6	Motorola Customer Base	11-58
11.7.7	Semiconductor Products Segment	11-60
11.7.8	MIT Media Lab	11-60
11.7.9	Internet And Networking Group	11-61
11.7.10	Motorola Revenue	11-61
11.7.11	Acquisitions And Liscensing	11-67
11.7.12	Strategic Alliances	11-68
11.7.13	Motorola Coprorate Organization	11-69
11.7.14	Creation Of The Communications Enterprise	11-73
11.7.15	Motorola / General Instrument Acquisition	11-73
11.8	NEC 11-74	
11.8.1	Switching And Mobile Communications Systems	11-78
11.8.2	Communications Systems And Equipment	11-78
11.9	Nokia 11-80	
11.10	Nortel 11-83	
11.10.1	Strategies 11-84	
11.10.2	Lines Of Business	11-84
11.10.3	Enterprise Solutions	11-85
11.10.4	Service Provider And Carrier Group	11-86
11.10.5	Nortel Revenue	11-87
11.10.6	1999 Results	11-88
11.10.7	Manufacturing Plants	11-89
11.11	Siemens 11-89	
11.11.1	Siemens Revenue	11-90
11.11.2	Siemens Information And Communications Business Group	11-93
11.11.3	Optical Networks	11-94
11.11.4	Integration, Services And Applications (ISA)	11-94
11.11.5	Unisphere Solutions	11-95
11.11.6	Fujitsu And Siemens Computer Initiatives	11-95
11.11.7	Siemens And NEC Team For 3G Development	11-97
11.11.8	Siemens Investments	11-98
12.	HEALTHCARE TELECOMMUNICATIONS COMPANY PROFILES	12-1
12.1	3M Health Information Systems	12-1
12.2	Agilent	12-2

12.3	Air Methods	12-3
12.3.1	Hospital Based Vendor Contracts: Mature Industry	12-4
12.3.2	Community Based Model	12-5
12.3.3	Financial Performance	12-7
12.3.4	Product Division	12-7
12.4	Allina Health Systems	12-8
12.5	Cerner	12-8
12.6	Datascope	12-11
12.6.1	Datascope Revenue	12-12
12.7	Hewlett-Packard	12-19
12.8	Infineon Technologies	12-20
12.9	Intermec Technologies	12-21
12.10	LXE	12-21
12.11	McKesson HBOC	12-22
12.11.1	McKesson 12-23	
12.12	NEC	12-27
12.13	PictureTel	12-28
12.14	Philips Electronics Medical Products	12-31
12.15	Polycom	12-32
12.16	Protocol Systems	12-34
12.16.1	Portable Patient Monitors	12-35
12.17	Respironics	12-36
12.18	Shared Medical Systems	12-40
12.19	Spacelabs	12-41
12.19.1	Spacelabs Medical Revenue	12-43
12.19.2	lifeclinic.com	12-45
12.20	VTel	12-46

13. EAI COMPANY PROFILES 13-1

13.1	BEA	13-1
13.2	BMC	13-2
13.3	Candle	13-4
13.3.1	Messaging Middleware Management	13-11
13.3.2	Platforms Supported	13-11
13.3.3	Candle E-Business	13-13
13.3.4	Candle Products	13-14
13.3.5	Candle Service Positioning	13-14
13.4	Catalyst International	13-15
13.5	Commerce Quest	13-15
13.6	Concentric Network	13-17
13.7	Connect	13-18
13.8	Crossworlds	13-18
13.9	Datachannel	13-21
13.10	Evolving Systems	13-21
13.11	Enterprisesoft	13-22
13.12	Extricity	13-23
13.13	Filenet	13-25
13.14	Financial Technologies International	13-26
13.15	GE Medical and Global eXchange	13-27
13.15.1	GE Capital	13-27
13.15.2	GE Global Exchange Services	13-29
13.16	Healthdyne Information Systems	13-29
13.17	IBM	13-34
13.18	Inprise!	13-36
13.19	Integrasolv	13-37
13.20	Intel	13-38

13.21	Kabira Technologies	13-40
13.22	Level8	13-41
13.23	Logisys	13-45
13.24	Mercator	13-46
13.25	Microsoft	13-51
13.26	MQSoftware	13-54
13.27	New Era Of Networks (Neon)	13-55
13.27.1	Customers	13-56
13.27.2	Acquisitions	13-56
13.27.3	Neon Revenues	13-59
13.27.4	Strategic Relationships	13-60
13.27.5	Neon Formatter	13-67
13.27.6	Rules Engines	13-67
13.27.7	IBM Agreement	13-67
13.27.8	Direct Sales	13-68
13.28	Netscape	13-69
13.29	Optum	13-69
13.30	Oshap Technologies	13-70
13.31	Oracle	13-70
13.32	Pivotpoint	13-72
13.33	Powercrew	13-73
13.34	Price Waterhouse	13-73
13.35	Saga Systems	13-74
13.36	SAP	13-77
13.37	Saratoga Systems	13-79
13.38	Software AG	13-80
13.39	s2 systems	13-81
13.40	STC	13-81
13.40.1	STC Customers And Partners	13-82
13.40.2	Products	13-85
13.41	Sun Microsystems	13-86
13.41.1	Forte Fusion Integration Suite	13-88
13.42	Symantec	13-89
13.43	S.W.I.F.T	13-89
13.44	Talarian	13-90
13.45	Tibco	13-90
13.45.1	Tibco Second Fiscal Quarter 2000 Revenue	13-92
13.45.2	Customers	13-92
13.45.3	Strategic Partners	13-93
13.45.4	Products	13-94
13.45.5	Revenues	13-94
13.46	Vignette	13-95
13.46.1	Oberon Software	13-96
13.46.2	Oberon Resellers	13-97
13.47	Vitria	13-99
13.48	Webmethods	13-100
13.48.1	Webmethods / Active	13-101
13.48.2	Active Software	13-102

LIST OF TABLES AND FIGURES

Market Forecasts 2001-2006

Market Shares 2000

**Based on analysis of year 2000
revenue in multiple market
segments**

List Of Tables And Figures

Table ES-1	Table 1-11	ES-2
Features Available On Hospital PBX System	Web Based Supply Chain Bidding Constraints	
Table ES-2	Table 1-12	ES-6
Enterprise and PBX Healthcare Market	Technology Integrates Text, Original Document	
Forecasts, U.S., 1999-2006	Images,	
Table ES-3	Voice, Video, Diagnostic Images	ES-8
Healthcare Data Equipment Market Forecasts,	Table 1-13	
Total, 1999-2006	Videoconferencing Patient And Colleague	
Table ES-4	Trends	ES-9
Healthcare Application Integration Market	Table 1-14	
Forecasts, 1999-2006	Videoconferencing Non-invasive Clinical	
Table ES-5	Examinations	ES-10
Web Hosting Data Center Market Forecasts,	Table 1-15	
Healthcare Markets, Dollars, 1999-2006	Videoconferencing Advanced Clinical	
Table ES-6	Examinations	ES-14
Backbone Network Functions	Figure 1-16	
Table ES-7	Growth of Internet Users, 1995-1999	ES-16
Information Systems Target Markets	Figure 1-17	
Table ES-8	U.S. Internet Users, 2000-2006	ES-18
Role of EAI Integration Engines	Table 1-18	
Table 1-1	Growth of Internet Users Worldwide, 1995-1999	
Selected Measures in Community Hospitals in	Figure 1-19	
the	U.S. Internet Users, 2000-2006	
United States, 1994, 1996, 1998, 1999, 2000	Figure 1-20	
Table 1-2	Worldwide Internet Users, Number, 1999-2006	ES-10
Factors Driving Healthcare Markets	Table 1-21	
Table 1-3	Worldwide Internet Users, 1999-2006	1-12
Types Of Alternate Site Facilities	Figure 1-22	
Table 1-4	Worldwide Healthcare Internet Users, 1999-2006	
Primary Market Drivers For Improved	Table 1-23	
Communications Infrastructure	Worldwide Internet Users, Number, 1999-2006	
Table 1-5	Figure 1-24	1-21
Major Factors Driving New Healthcare Market	Worldwide Internet Users, by Region, 1999	
Table 1-6	Figure 1-25	1-22
Major Factors Driving Health care Web Site	Worldwide Internet Users, by Region, 2000	
Services Markets	Table 1-26	
Table 1-7	Worldwide Internet Users, by Region, 1999 and	ES-25
Health Care Internet Strategies Offer	2000	
Infrastructure Key Benefits to Providers	Table 1-27	
Table 1-8	Critical Care Monitoring Settings	1-29
E-Services Partnering Strategy		
Table 1-9		1-30
Internet Market Driving Forces		
Table 1-10		1-33
Web Based Supply Chain Exchanges		
Characteristics		

Table 2-1	Healthcare Telecom Market Driving Forces	Table 2-20	Enterprise and PBX Market Forecasts, Europe, 1999-2006	2-2
Table 2-2	Changing Economics In Healthcare Delivery	Figure 2-21	Enterprise and PBX Healthcare Market Forecasts, Europe, 1999-2006	2-4
Table 2-3	Telecommunications Systems Improvements Brought By Direct Connectivity	Table 2-22	Enterprise and PBX Total and Healthcare Market Forecasts, Europe, 1999-2006	2-6
Table 2-4	Telecommunications Systems Bring Revolution In Health Care Delivery	Table 2-23	Enterprise and PBX Market Forecasts, Asia Pacific and Japan, 1999-2006	2-11
Figure 2-5	Worldwide PBX Market Shares, 2000	Figure 2-24	Enterprise and PBX Healthcare Market Forecasts, Asia Pacific and Japan., 1999-2006	2-12
Table 2-6	Worldwide PBX Market Shares, 2000	Figure 2-25	Enterprise and PBX Total and Healthcare Market Forecasts, Asia Pacific and Japan., 1999-2006	2-14
Figure 2-7	Enterprise and PBX Healthcare Market Shares, U.S., 2000	Table 2-26	Worldwide Enterprise and PBX Market Forecasts, U.S., 1999-2006	2-16
Table 2-8	Enterprise and PBX Healthcare Market Shares, U.S., 2000	Table 2-27	Worldwide Enterprise and PBX Healthcare Market Forecasts, U.S., 1999-2006	2-17
Figure 2-9	Enterprise and PBX Healthcare Market Shares, Canada, 2000	Figure 2-28	Worldwide Enterprise and PBX Healthcare Market Forecasts, U.S., 1999-2006	2-18
Table 2-10	Enterprise and PBX Healthcare Market Shares, Canada, 2000	Figure 2-29	Worldwide Enterprise and PBX Healthcare Data Equipment Market Forecasts, U.S., 1999-2006	2-19
Figure 2-11	Enterprise and PBX Healthcare Market Shares, Europe, 2000	Table 2-30	Worldwide Enterprise and PBX Healthcare Data Equipment Market Forecasts, U.S., 1999-2006	2-20
Table 2-12	Enterprise and PBX Healthcare Market Shares, Europe, 2000	Figure 2-31	Healthcare Telecommunications Regional Market Shares, 2000	2-21
Figure 2-13	Enterprise and PBX Healthcare Market Shares, Asia Pacific, Japan, Oceania, 2000	Figure 2-32	Healthcare Telecommunications Regional Market Shares, 2006	2-22
Table 2-14	Enterprise and PBX Healthcare Market Shares, Asia Pacific, Japan, Oceania, 2000	Figure 2-33	Enterprise and PBX Healthcare Market Forecasts, U.S., 1999-2006	2-23
Figure 2-15	Total Enterprise and PBX Healthcare Market Shares, 2000	Figure 2-34	Healthcare Data Market Forecast, U.S., 1999-2006	2-24
Table 2-16	Worldwide Healthcare PBX Healthcare Market Shares, 2000	Table 2-35	Healthcare Data Market Forecast, U.S., 1999-2006	2-25
Figure 2-17	Enterprise and PBX Market Forecasts, U.S., 1999-2006	Figure 2-36	Healthcare Data Market Shares, U.S., 2000	2-25
Table 2-18	Enterprise and PBX Healthcare Market Forecasts, U.S., 1999-2006			
Table 2-19	Enterprise and PBX Healthcare Market Forecasts, U.S., 1999-2006			

Table 2-37	Healthcare Data Market Shares, U.S., 2000	Table 3-17	Desktop Videoconferencing Systems Market Shares, 2000	2-41
Figure 2-38	Healthcare Data Market Shares, Canada., 2000			2-42
Table 2-39	Healthcare Data Market Shares, Canada., 2000	Table 3-17A	Polycom Focus On Large-,Small-, And Work-Group Visual Communication Systems	2-43
Figure 2-40	Worldwide Healthcare Data Market Shares, 2000	Figure 3-18	Room and Group Videoconferencing System	2-44
Table 2-41	Worldwide Healthcare Data Market Shares, 2000	Figure 3-19	Desktop Videoconferencing Systems Market Forecasts, 1999-2006	3-3
Figure 3-1	Worldwide IntegrationSoftware Market Shares, 1999	Figure 3-20	Total Videoconferencing Systems Market Forecasts, 1999-2006	3-4
Table 3-2	Worldwide IntegrationSoftware Market Shares, 1999	Table 3-21	Total Room and Group Videoconferencing Systems Market Forecasts by Segment, 1999-2006	3-6
Table 3-3	Types of EAI Integration Engines	Figure 3-22	Worldwide Videoconferencing Market Segments, 2000	3-10
Table 3-4	Role of EAI Integration Engines	Figure 3-22A	Worldwide Healthcare Room Videoconferencing System Market Forecasts, 1999-2006	3-14
Table 3-5	Application Integration Engine Functions	Figure 3-22B	Worldwide Healthcare Desktop Videoconferencing System Market Forecasts, 1999-2006	3-15
Figure 3-6	Application Integration Market Segments, 2000	Figure 3-22C	Worldwide Total Healthcare Videoconferencing System Market Forecasts, 1999-2006	3-17
Figure 3-7	Application Integration Market Segments, 2006	Table 3-22D	Worldwide Total Healthcare Desktop Videoconferencing System Market Forecasts, 1999-2006	3-18
Table 3-8	Industry and Function Specific Message Broker Market Forecasts, Dollars, 1999-2006	Figure 3-23	Worldwide Videoconferencing Market Segments, 2006	3-20
Table 3-9	Industry and Function Specific Message Broker Market Forecasts, Percent, 1999-2006	Table 3-24	Key Strategies of the Internet Web Hosting Providers	3-21
Figure 3-10	Total Application Integration Market Forecasts, 1999-2006	Figure 3-25	Selected Web Hosting Market Participants, 2000	3-23
Table 3-11	Industry and Function Specific Message Broker Markets, Dollars, 2001-2006	Figure 3-26	Selected Data Hosting Center Providers	3-24
Table 3-12	Industry and Function Specific Message Broker Markets, Dollars, 1999-2001	Figure 3-27	Worldwide Web Hosting Market Shares, 2000	3-25
Figure 3-13	Healthcare Application Integration Market Forecasts, 1999-2006	Table 3-28	Principal Competitive Factors In Web Hosting Market	3-25
Figure 3-14	Room and Group Videoconferencing Systems Market Shares, 2000	Table 3-29		
Table 3-15	Room and Group Videoconferencing Systems Market Shares, 2000			
Figure 3-16	Desktop Videoconferencing Systems Market Shares, 2000			

McKesson HBO Health Care Information Technology Segment Markets Table 6-4	Table 6-24	
McKesson HBO Segment Product Portfolio Components Table 6-5	Marquette Base Application Modules Table 6-25	6-7
Shared Medical Systems Principal Clinical Products Table 6-6	Marquette QS Workstation Features Table 6-26	
Shared Medical Systems Principal Clinical Products For Ambulatory Care Table 6-7	Marquette Product Areas	6-12
Shared Medical Systems Principal Clinical Products For Consumer Resources And Education Table 6-8	Table 7-1	
Shared Medical Systems Clinical Products Table 6-9	MQ Integrator Modules	6-13
Shared Medical Systems Principal Financial And Administrative Products Table 6-10	Table 7-2	
Philips Defibrillation Technology Use of Communications Table 6-11	MQSeries Features Table 7-3	6-14
Philips Defibrillation Unit Target Markets Table 6-12	IBM MQSeries Functions Table 7-4	
SpaceLabs Patient Information Positioning Table 6-13	Business Integration Issues Table 7-5	6-14
SpaceLabs Integration Of Entering Information In A Computer Table 6-14	New Era of Networks Strategic Partnerships Table 7-6	6-17
SpaceLabs Medical Product Functions And Features Table 6-15	STC Strategic Platform Ebusiness Initiatives Table 7-7	
SpaceLabs Medical Patient Monitor Module Functions Table 6-16	STC Healthcare Solution Positioning Table 7-8	6-32
SpaceLabs Medical Patient Monitor Modules Table 6-17	Products Included With GE Integration Solutions	6-33
SpaceLabs Medical's Flexport System Interfaces Table 6-18	Table 8-1	
Assessments Automated By SpaceLabs Table 6-19	Lucent Positioning To Leverage Its Technology To Generate Value In Networking And Hosting	6-37
SpaceLabs Multidisciplinary Clinical Pathways Table 6-20	Table 9-1	6-38
SpaceLabs Intensive Care Chart Features Table 6-21	Verizon Initial Telemedicine Solutions Table 9-2	6-40
SpaceLabs Automated Chart Viewing Options Table 6-22	Sprint Managed Network Services for ATM Table 9-3	
SpaceLabs Documentation Of Patient Data Table 6-23	Sprint Managed ATM Service Functions	6-44
Marquette Advantages Of More Complete Charting	Table 10-1	
	Types of Hospital Equipment Tested By Motorola To Detect Communications Signal Interference	6-51
	Table 10-2	
	Philips Healthcare Solutions	6-57
	Table 10-3	
	Philips Software Application Modules	
	Table 11-1	6-59
	Bosch Divisions	
	Table 11-2	6-62
	Ericsson Portfolio	
	Table 11-3	6-63
	Lucent Acquisitions 1999	
	Table 11-4	6-64
	Lucent Acquisitions 1998	
	Table 11-5	6-67
	Motorola Strategy for Convergence	
	Table 11-6	

Motorola Wireless Strategic Alliances Table 11-7	Table 13-7	
Motorola Strategic Alliances Table 11-8	Neon New Era Of Networks Strategic Relationships Table 13-8	11-69 11-70
Motorola Corporate Organization Table 12-1	Neon Strategic Relationship With IBM Table 13-9	
DataScope Major Product Lines Table 12-2	Neon Strategic Relationship With Microsoft Table 13-10	12-11
DataScope Patient Monitor Features Table 13-1	Neon Strategic Relationship W/ Commerce Data Table 13-11	13-5
Candle Strategic Alliances Table 13-2	Neon Strategic Relationship With Broadvision Table 13-12	13-7
Candle Industry Relationships Table 13-3	Neon Strategic Relationship With BEA Systems Table 13-13	13-8
HIE Healthcare Business Partners Table 13-4	Neon Strategic Relationship With NTT Data Table 13-14	13-30
IntegraSolv clients Table 13-5	STC Software Partners Table 13-15	13-38
Mercator Alliance Partners Table 13-6	Oberon Resellers Table 13-16	13-49
CAI products	Oberon Partners	13-58

HEALTHCARE TELECOMMUNICATIONS MARKET DYNAMICS

MANY OF THESE KEY TOPICS HAVE PHENOMENAL SUBCATEGORIES

ABOUT THE COMPANY

WinterGreen Research, founded in 1985, provides strategic market assessments in telecommunications, communications equipment, health care, and advanced computer technology. Industry reports focus on opportunities that will expand existing markets or develop major new markets. The reports assess new product and service positioning strategies, new and evolving technologies, and technological impact on products, services, and markets. Market shares are provided. Leading market participants are profiled, and their marketing strategies, acquisitions, and strategic alliances are discussed. The principals of WinterGreen Research have been involved in analysis and forecasting of international business opportunities in telecommunications and advanced computer technology markets for over 30 years.

ABOUT THE PRINCIPAL AUTHORS

Ellen T. Curtiss, Technical Director, co-founder of WinterGreen Research, conducts strategic and market assessments in technology-based industries. Previously she was a member of the staff of Arthur D. Little, Inc., for 23 years, most recently as Vice President of Arthur D. Little Decision Resources, specializing in strategic planning and market development services. She is a graduate of Boston University and the Program for Management Development at Harvard Graduate School of Business Administration. She is the author of recent studies on worldwide telecommunications markets and the Top Ten Telecommunications market analysis and forecasts.

Susan Eustis, President, co-founder of WinterGreen Research, has done research in communications and computer markets and applications. She holds several patents in microcomputing and parallel processing. She is the author of recent studies of the Regional Bell Operating Companies' marketing strategies, Internet equipment, a study of Internet Equipment, Worldwide Telecommunicaitons Equipment, Top Ten Telecommunications, Digital Loop Carrier, Web Hosting, and Application Integration markets. Ms. Eustis is a graduate of Barnard College.

ORDER FORM

Return To: WinterGreen Research, Inc.

6 Raymond Street
Lexington, MA 02421 USA

Phone: (781) 863-5078 --- Fax: (781) 863-1235

PLEASE ENTER MY ORDER FOR:

HEALTHCARE TELECOMMUNICATIONS
MARKETS, TELEMEDCINE, INTEGRATION
STRATEGIES
MARKET STRATEGIES FORECASTS TO 2005

-ALL REPORTS ARE AVAILABLE IN EITHER PRINT OR PDF -

ENCLOSED IS MY CHECK FOR \$2800 WEB SITE VERSION \$5,600
PLEASE BILL MY COMPANY USING P.O. NUMBER _____
PLEASE CHARGE MY MASTERCARD/VISA/AMERICAN EXPRESS--CARD NUMBER _____ EXP. DATE _____
ADDITIONAL COPIES, @ \$375 (EXTRA COPY PRICE IN EFFECT ONLY WITH INITIAL ORDER)

SIGNATURE **X** _____ DATE _____

NAME _____ TITLE _____

COMPANY _____ DIVISION _____

ADDRESS _____ CITY _____ STATE _____ ZIP _____

TELEPHONE _____ FAX _____

E-MAIL _____

PLEASE NOTE: RESIDENTS OF MASSACHUSETTS AND CONNECTICUT MUST INCLUDE APPROPRIATE SALES TAX
SUBSCRIBERS OUTSIDE THE UNITED STATES MUST PROVIDE PREPAYMENT IN U.S. FUNDS

REPORT # S80310019567	900 PAGES	230 TABLES AND FIGURES	2001	\$2,800
-----------------------	-----------	------------------------	------	---------