# Index

### **Numerics** Metro Ethernet, 223 storage systems, 215-216 3DES, 159 ADSL (asymmetric digital subscriber 10 Mbps Ethernet, 48 line), 58-60 56-Kbps WAN access, 59 **AES (Advanced Encryption** 100BASE-T, 50 Standard), 127 100-Mbps Ethernet, 49 alertys/emergency messages 802.11a, 147 (IPT systems), 180 802.11b, 144-145 anycast addresses, 237 802.11g, 148-149 applications 802.11i, 159-160 best suited for intranets or 802.1x with EAP, 156-157 extranets, 120 1000 Mbps Ethernet, 51-53 e-business, 5–7 financial management, 9 IPT systems, 170, 175–177 cost savings, 179–180 customer care, 179 AAA (authentication, authorization, productivity improvement, and accounting), 101 177-178 acceptable use policy (AUP), 104 safety and security, 180 adaptability, 2 manufacturing and distribution addressing, 35, 237 systems, 10 adopting security attacks, 97 CDNs, 234 SFA (salesforce automation), 10 IPT systems, 196-199 Web communications, 8 IPv6, 238

Web-based electronic	authentication
procurement, 8	802.1x with EAP, 156–157
wireless LANs, 136, 139	mutual, two-way, 154
campus mobility, 137	RADIUS, 135
networks in motion, 138	user-based, 153
public-access hotspot	WLANs, 156
mobility, 138	authentication, authorization, and
teleworker mobility, 137	accounting (AAA), 101
vertical market applications,	authorization, centralized
140–141	management, 154
workforce application, 9	automated attendant (PBXs), 175
asymmetric digital subscdriber line	availability (IPT systems), 196
(ADSL), 58-60	
ATM, WAN access, 65	
attacks (security), 90	_
application-level, 97	В
attacker advantage, 92	B2B (buisiness-to-business)
cost of breaches, 93–94	intranets, 117
defense-in-depth solution, 98	bandwidth, 30
DoS attacks, 97	DSL (digital subscriber line), 31
growing concern, 90	Ethernet, 46
impact of, 92	WANs, 54
IP spoofing, 96	broadband WAN access, 56-57
man-in-the-middle attacks, 97	broadcast domains, 74
risks (sources of), 94–95	bus topology, 30
security	network foundation relevance, 72
applications, 99	security, 107
connectivity solutions, 102	business-to-business (B2B)
policy requirements, 104	intranets, 117
social engineering, 98	businesses
sources of, 91	class networks, 71–72
Trojan horses, 97	evolution of networks, 40
viruses, 97	extranets, 118
AUP (acceptable use policy), 104	applications, 120
	selection criteria, 121

intranets, 118

impact of solution, 279

applications, 120	solution, 278
selection criteria, 121	healthcare networks
success formula, 2	challenges, 267
traditional business management, 4	impact of solution, 268
transition to e-businesses, 3	hotel networks
	challenges, 289
	impact of solution, 291
	solution, 290
C	insurance company networks
cable modems	challenges, 259
bandwidth, 31	impact of solution, 260
WAN access, 62	solution, 259
cables	law firm networks
coaxial, 24	challenges, 280
fiber-optic, 24	impact of solution, 282
twisted-pair, 23	solution, 281
call centers (IPT systems), 179	manufacturing company networks
call recording (IPT systems), 181	challenges, 270
call-processing software (IPT	impact of solution, 271
systems), 170	solution, 271
campus mobility, 137	police/public safety networks
case studies	challenges, 263
community bank networks	impact of solution, 266
challenges, 256	solution, 265
solution, 257	real-estate networks
county government networks	challenges, 283
challenges, 261	impact of solution, 284
solution, 262	solution, 284
general contractor networks	retail networks
challenges, 274	challenges, 286
impact of solution, 276	impact of solution, 287
solution, 275	solution, 286
graphic design firm networks	
challenges, 277	

university networks	company portals, 116
challenges, 253	competitive local exchange carriers
impact of solution, 254	(CLECs), 217, 242
solution, 253	components
wholesale business networks	CDNs, 233
challenges, 292	IPT systems, 169
impact of solution, 294	networks, 22
solution, 293	wireless LANs, 133-135
CDNs (content delivery networks),	conference bridges (PBXs), 175
229	connections
adoption considerations, 234	bandwidth, 31
components, 233	wireless, 26
market drivers, 230-231	contention, 46
private CDNs, 232	converged IP network
public CDNs, 232	infrastructure, 169
technology overview, 231	cost
centralized management, 154	applications, 179–180
Centrex (Central Office Exchange	Fibre Channel, 213
Service), 172-173	IPT systems, 186–187
CIR (committed information rate), 64	security breaches, 93-94
circuit-switched WAN services, 55	CPE (customer premises equipment), 61
CLECs (competitive local exchange	CRM (customer relationship
carriers), 242	management), 53
click-to-talk applications (IPT	customer care, 7
systems), 179	call center applications, 179
client adapters, 135	IPT systems, 185
coaxial cable, 24	
colaborative workspace, 116	
committed information rate (CIR), 64	•
community bank networks	D
challenges, 256	DAS architecture, storage, 210
impact of the solution, 257	data
solution, 257	mining (IPT systems), 179
	mirroring, 212

data and voice network	emerging technologies, 202
segmentation, 194	Fibre Channel, 213
datagrams, 34	Fibre Channel over IP (FCIP), 214
dedicated leased lines, 56	storage systems, 203
defense-in-depth security solution,	business and technology
98, 109	drivers, 204–207
deploying	technology overview, 208–211
IPT systems, 171	employee productivity gains, 184
VPNs, 127–129	EMS (Etherent Mutlipoint Service),
digital receptionist (PBXs), 175	222
directories (IPT systems), 178	encryption, 126
DoS (Denial of Service) attacks, 97	dynamic session-based encryption
DSL (digital subscriber line)	keys, 153
bandwidth, 31	TKIP with message integrity
WAN access, 60-61	checks, 158
DSSS (Direct Sequence Spread	endpoint devices, 169
Spectrum), 145	end-to-end systems, 53
dynamic session-based encryption	ERP (enterprise resource
keys, 153	planning), 53
	ERS (Ethernet Relay Service), 222
	ESS (Extended Service Set), 145
_	Ethernet, 46
E	10 Mbps, 48
E911 (IPT systems), 181	100 Mbps, 49
e-businesses (electronic businesses), 3	1000 Mbps, 51, 53
applications, 5–7	infrastructure, 45
Internet technologies, 11–12	Metro Ethernet, 217
traditional business management, 4	adoption considerations, 223
transition to, 3	disadvantages, 220
e-commerce applications, 7	market drivers, 218
educational IPT systems, 182	services, 222
electronic transactions (IPT systems),	technology overview, 221
180	

Ethernet Wire Service (EWS), 222	Frame Relay, 58
event reporting and tracking (IPT	WAN access, 63–64
systems), 180	Frequrency Hopping Spread
EWS (Ethernet Wire Service), 222	Spectrum (FHSS), 145
Extended Service Set (ESS), 145	FTTC (fiber-to-the-curb), 220
extranets, 28, 117–118	
applications, 120	
business values, 118	
selection criteria, 121	<b>G</b>
	g.SHDSL, 60
	GbE (Gigabit Ethernet), 51-53
_	general contractor networks
-	challenges, 274
Fast Ethernet, 49	impact of solution, 276
FCC (Federal Communications	solution, 275
Commission), 145	Giga Group, 119
FCIP (Fibre Channel over IP), 214	GigE (Gigabit Ethernet), 51-53
FDDI (Fiber Distributed Data	government networks
Interface), 30	county
FHSS (Frequency Hopping Spread	challenges, 261
Spectrum), 145	impact of solutions, 262
fiber-optic cable, 24	solution, 262
fiber-to-the-curb (FTTC), 220	police/public safety
Fibre Channel, 213	challenges, 263
finance and banking industry (IPT	impact of solution, 266
systems), 183	solution, 265
financial management applications, 9	graphic design firm networks
firewalls, 95	challenges, 277
flexibility (VPNs), 123	impact of solution, 279
foreign agent (Mobile IP), 228	solution, 278
foundation technologies (networks),	
71	

Fractional T1, 58

ł	
Н.323, 189	identity services, 101
hackers, 92	identity verification services (IPT
defense-in-depth solution, 98	systems), 180
DoS (denial of service) attacks, 97	IDS (intrusion detection systems),
IP (Internet Protocol) spoofing, 96	99-101
man-in-the-middle (MITM)	ILECs (incumbent local exchange
attacks, 97	carriers), 217, 242
social engineering, 98	ILECs (incubent local exchange
Trojan horses, 97	carriers)
viruses, 97	information technology. See IT
hard QoS (quality of service), 193	initialization vector (IV), 155
headers, 34	instant messaging (IPT systems), 178
healthcare networks	insurance company networks
challenges, 267	challenges, 259
impact of solution, 268	impact of solution, 260
high-speed WAN access services, 58	solution, 259
56-Kbps access, 59	intelligent LAN switching, 80-81
ATM access, 65	interexchange carriers (IXCs),
cable modem access, 62	217, 242
DSL (digital subscriber line)	interference (DSSS), 145
access, 60-61	Internet, 32, 114
Frame Relay access, 63-64	emerging technologies, 202
ISDN access, 59	information transfer, 33
private, dedicated leased-line	security, 89
access, 65-66	cost of breaches, 93–94
home agent (Mobile IP), 227	hackers, 92
hotel and hospitality networks	sources of risks, 94–95
challenges, 289	Internet Protocol Security (IPSec),
impact of solution, 291	126
IPT (IP telephony) systems, 182	Internet technologies, 11
solution, 290	benefits, 11
hubs, 26, 75–76	committment to, 2
hybrid IPT system adoption, 171	goals of, 12

justifying investment in, 15	employee productivity gain,
asking questions, 16	184
competitive advantage, 17	operational efficiency
credibility, 18	improvements, 186–187
leasing consideration, 18	workgroup productivity gain,
monitoring payback, 19	184
intranets, 28, 116	components, 169
applications, 120	deployment options, 171
business-to-business, 117	legacy systems, 172–173
business values, 118	QoS (quality of service), 192–193
extending into extranets, 118	technology overview, 187
selection criteria, 121	protocols and standards,
intrusion detection systems (IDS),	189–190
99-101	reliability/availability, 196
IP addresses, 35	security, 194–195
IP-based storage area networks	voice quality,
(SANs), 214	181-183, 191–192
IP spoofing, 96	IPv6, 235
IPSec (Internet Protocol Security),	addresses, 237
126	adoption considerations, 238
IPT (IP telephony), 166, 182	functions, 237
adoption	market drivers, 236
approaches, 171	iSCSI, 214
considerations, 196–199	IT (information technology), 2
applications, 175-177	advantages of wireless LANs, 142
cost savings, 179–180	justifying investment in, 15
customer care, 179	asking questions, 16
productivity improvement,	competitive advantage, 17
177–178	credibility, 18
safety and security, 180	leasing considerations, 18
business benefits, 184	monitoring payback, 19
cost savings, 186–187	IV (initialization vector), 155
customer care and	IXCs (interexchange carriers), 217, 242
responsiveness	
improvements, 185	

J	VLANs, 76–78
JBOD (Just a Bunch of Disks), 210 jitter, 192 justifying investment in Internet technologies, 15	Wired (Ethernet), 45–53
	wireless, 132
	adoption considerations,
	161–162
asking questions, 16	advantages, 141–142
competitive advantage, 17	applications, 136–141
credibility, 18	components, 133–135
leasing considerations, 18	security, 104–105, 150–159
monitoring payback, 19	technology overview, 143–149
momoring payback, 19	VoWLAN, 149
	last-mile WAN access services, 55–56
	latency, 192
K–L	law firm networks
Key Telephone Systems (KTSs), 172 KTSs (Key Telephone Systems),	challenges, 280
	impact of solution, 282
172-173	solution, 281
172-173	Layer 2 switching, 74
I ANs (local area networks) 26	Layer 3 switching, 78, 80
LANs (local area networks), 26 end-to-end systems, 53 infrastructure, 45 Mobile IP, 223	Layers Transmission Control Protocol/
	Internet Protocol (TCP/IP), 37
	LDAP (Lightweight Directory Access
adoption considerations, 229	Protocol), 135
	legacy systems (IPT), 173
advantages, 225 components, 227–228 disadvantages, 225 market drivers, 224	legal IPT (IP telephony) systems, 181
	Leverage Gigabit Ethernet LANs,
	206
security, 228	Lightweight Directory Access
technology overview, 226	Protocol (LDAP), 135
size, 27	local area networks. See LANs
switching, 26, 73–74	
intelligent switches, 80–81	
inienigem switches, 00-01	I .

replacing hubs, 75–76

M	MICs (message integrity checks), 158		
MACs (moves, adds, and changes),	mirroring, 212		
174, 186	mobile access (IPT systems), 178		
managed network services, 242	mobile IP (Internet Protocol), 223 adoption considerations, 229		
MSPs (manage service providers)			
adoption considerations, 247	advantages, 225		
advantages/disadvantages,	components, 227–228		
244–245	disadvantages, 225		
SLAs (service level agreements),	market drivers, 224		
246–249	security, 228		
managed service providers. See MSPs	technology overview, 226		
MANs (metropolitan area networks),	mobile node (Mobile IP), 227		
26–28	moves, adds, and changes (MACs),		
manufacturing and distribution	174		
systems, 10	MSPs (managed service providers),		
manufacturing company network	199, 242 adoption considerations, 247		
challenges, 270			
impact of solution, 271	advantages/disadvantages,		
market drivers (Metro Ethernet), 218 media (network), 23 coaxial cable, 24	244– 245 multicast addresses, 237 multimedia, 166		
		fiber-optic cable, 24	multimedia conferenceing (IPT
		twisted-pair cable, 23 wireless connections, 26	systems), 178 multi-site with centralized call
memberships (VLANs), 77	processing IPT system		
Metro Ethernet, 217 adoption considerations, 223	deployment, 171		
	multi-site with distributed call		
disadvantages, 220	processing IPT system		
market drivers, 218	deployment, 171		
services, Ethernet Relay Service	mutual two-way authentication, 154		
(ERS), 222			
	I .		

technology overveiw, 221 metropolitan area networks (MANs),

26-28

N	graphic design firms
network interface cards (NICs),	challenges, 277
23, 135	impact of solution, 279
networks, 5	solution, 278
addressing, 35	healthcare
advanced networking	challenges, 267
technologies, 80	impact of solution, 268
business-class, 71–72	hotel
CDNs (content delivery networks),	challenges, 289
229	impact of solution, 291
adoption considerations, 234	solution, 290
components, 233	hubs, 26
market drivers. 230–231	insurance companies
private CDNs, 232	challenges, 259
public CDNs, 232	impact of solution, 260
technology overview, 231	solution, 259
community banks	intranets, 28, 116
challenges, 256	applications, 120
impact of the solution, 257	business values, 118
solution, 257	selection criteria, 121
components, 22	IPT. See IPT (IP telephony)
county government	IPv6, 235
challenges, 261	adoption considerations, 238
impact of solutions, 262	functions, 237
solution, 262	market drivers, 236
emerging technologies, 202–211	technology overview, 237
evolution of in businesses, 40	LANs (local area networks)
extranets, 28, 117–118	Ethernet, 45–53
applications, 120	infrastructure, 45
business values, 118	law firms
selection criteria, 121	challenges, 280
foundation technologies, 71	impact of solution, 282
general contractors	solution, 281
challenges, 274	managed services, 242
impact of solution, 276	MSPs, 244–247
solutions, 275	SLAs, 246–249

manufacturing companies	DoS attacks, 97
challenges, 270	identity services, 101
impact of solution, 271	impact of attacks, 92
solution, 271	IP spoofing, 96
measuring the success of a network	IP telephony systems, 106
foundation, 85	man-in-the-middle (MITM)
media, 23	attacks, 97
coaxialcable, 24	perimeter security, 101
fiber-optic cable, 24	policy requirements, 104
twisted-pair cable, 23	secure connectivity, 102
wireless connections, 26	security management
NICs (network interface cards), 23	systems, 102
packet switching, 34	social engineering, 98
performance, bandwidth, 30–31	souces of attacks, 91
police/public safety	Trojan horses, 97
challenges, 263	viruses, 97
impact of solution, 266	where to apply solutions, 99
solution, 265	WLANs, 104–105, 150–159
protocols, 36	size, 27
real-estate business	storage systems, 207, 215-216
challenges, 283	switches, 26, 70
impact of solution, 284	LANs (local area networks),
solution, 284	73–76
retail	Layer 3 switching, 78-80
challenges, 286	topologies, 29
impact of solution, 287	bus topology, 30
solution, 286	ring topology, 30
routers, 26, 70, 82–83	star topology, 29
security, 89–90	universities
application-level attacks, 97	challenges, 253
best practice fundamentals,	impact of solution, 254
103	solution, 253
business-class network	vertical industry sectors, 252
security, 107	VLANs (virtual LANs), 76-78
decision criteria, 108–110	
defense-in-depth solution, 98	

VPNs (virtual private networks),	organizational change, 2
122	OSI (Open Systems Interconnection)
benefits of, 123	model, 39
deployment options, 127–129	
encryption, 126	
how they work, 124	
tunneling, 124	<b>P</b>
WANs (wide area networks)	packet loss, 192
broadband access, 56–57	packet switching, 34
high-speed access services,	packet-switched WAN services, 56
58–66	PANs (personal area networks), 26
wholesale businesses	PBXs (Public Branch Exchanges),
challenges, 292	172–175
impact of solution, 294	automated attendant, 175
solution, 293	voicemail, 174
wireless, 26	PDIO (planning, design,
wireless LANs, 132	implementation, operations, and
adoption considerations,	optimization) methodology, 199
161–162	performance, bandwidth, 30-31
applications, 136–141	perimeter security, 101
components of, 133–135	permanent virtual circuits (PVCs), 64
technology overview,	planning strategic network
143–149	systems, 12
value and benefits, 141–142	business value creation, 13–14
VoWLAN, 149	creating plans, 13
networks in motion, 138	planning, design, implementation,
NICs (network interface cards),	operations, and optimization
23, 135	(PDIO) methodology, 199
	presence-based services (IPT
	systems), 177
	private CDNs (content delivery
)	networks), 232
OFDM (Orthogonal Frequency	private, dedicated leased-line WAN
Division Multiplexing), 147	access, 65–66
operational efficiency (IPT systems),	process change, 2
186_187	

## productivity gains from using IPT systems, 184 protocols, 36 Ethernet, 46 Transmission Control Protocol/ Internet Protocol (TCP/IP), 36 Public Branch Exchanges. See PBXs public CDNs (content delivery networks), 232 public-access hotspot mobility, 138 purchase tracking applications (IPT systems), 180 pure IPT system adoption, 171 PVCs (permanent virtual circuits), 64 O–R OoS (quality of service), 70-72

### RADIUS (Remote Authentication Dial-In User Service), 135 real-estate networks

IPT systems, 192-193

VPNs, 127

challenges, 283 impact of solution, 284 IPT systems, 181

solution, 284 real-time IDS, 101

reliability

IPT systems, 196 VPNs, 123

# remote access (IPT systems), 178 retail networks challenges, 286 impact of solution, 287 solution, 286 ring topology, 30 risks (security), sources of, 94 ROI (return on investment), 11 routers, 26, 34, 70, 82 configurations, 83 secuirty risks, 95

safety and security applications (IPT systems), 180 salesforce automation (SFA), 10 SANs (strage area networks), 212-214 scalabiltiv benefits of IPT systems, 186 disk storage, 206 scheduling applications (IPT systems), 178 SCM (supply chain management), 53 SCSI (Small Computer System Interface), 210 SDSL (symmetric digital subscriber line), 58-60 secure connectivity solutions, 102 Secure Sockets Layer (SSL), 126 security, 89 attacks application-level, 97

application-level, 97 defense-in-depth solution, 98

DoS, 9/	self-service applications (IPT
growing concern, 90	systems), 178
impact of, 92	service set identifier (SSID), 154
IP spoofing, 96	SFA (salesforce automation), 10
man-in-the-middle (MITM), 97	signal jamming (DSSS), 145
social engineering, 98	silent alarms (IPT systems), 180
sorces of, 91	single site IPT system deployment,
Trojan horses, 97	171
viruses, 97	SLAs (service level agreements), 128
best practice fundamentals, 103	246–249
business-class networks, 107	Small Computer System Interface
decision criteria, 108-110	(SCSI), 210
identity services, 101	social engineering, 98
IP telephony systems,	soft QoS (quality of service), 193
106, 194–195	sources of security risks, 94-95
management systems, 102	SSIDs (service set identifier), 154
mobile IP, 228	SSL (Secure Sockets Layer), 126
perimeter security, 101	standards, 143, 159–160
policy requirements, 104	3DES, 159
secure connectivity solutions, 102	802.11a, 147
VLANs (virtual LANs), 78	802.11b, 145
where to apply solutions, 99	802.11g, 148–149
WLANs (wireless LANs),	802.1x with EAP, 156
104–105, 150–153	IPT systems
802.1x with EAP, 156–157	Н.323, 189
authentication, 156	SIP, 190
SSIDs, 154	wireless LANs (WLANs), 143
static WEP, 155	star topology, 29
TKIP with message integrity	static WEP, 155
checks, 158	storage systems, 203
VPNs, 159	business and technology drivers,
segments, 34	204–207
selecting intranets/extranets, 121	scalability, 206
	technology overview, 208-211

strategic network systems,	toll bypass applications (IPT
planning, 12	systems), 179
business value creation, 13-14	topologies, 29–30
creating plans, 13	total cost of ownership (TCO),
success formula, 2	71, 167
supply chain management (SCM), 53	Transmission Control Protocol
switches, 26, 70	(TCP), 34
intelligent LAN switching, 80-81	Trojan horses, 97
LANs, 73–76	troubleshooting
Layer 2 switching, 74	applications, 99
Layer 3 switching, 78-80	interference and signal
symmetric digital subscriber line. See	jamming, 145
SDSL	security concerns
	decision criteria, 108–110
	defense-in-depth solution, 98
_	security solutions
Γ	best practice fundamentals,
T1/E1, 58	103
TCO (total cost of ownership),	policy requirements, 104
71, 167	secure connectivity, 102
TCP (Transmission Control	security management
Protocol), 34	systems, 102
Transmission Control Protocol/	tunneling, 124
Internet Protocol (TCP/IP), 36-37	twisted-pair cable, 23
technologies (IPT systems), 187	
protocols, 189-190	
reliability/availability, 196	
security, 194–195	U
standards, 189–190	UDP (User Datagram Protocol), 34
voice quality, 191–192	Unicast addresses, 237
teleworker mobility, 137	unified messaging (IPT applications),
time card tracking (IPT systems), 180	177–178
TKIP with message integrity	

checks, 158

university networks	W
challenges, 253	WANs (wide area networks), 26
impact of solution, 254	bandwidth, 54
solutions, 253	broadband access, 56-57
user-based authentication, 153, 182	dedicated leased lines, 56
UTP (unshielded twisted-pair)	end-to-end systems, 53
cable, 24	high-speed access services, 58
	56-Kbps access, 59
	ATM access, 65
_	cable modem access, 62
/	DSL access, 60–61
value-added reseller (VAR), 127	Frame Relay access, 63–64
VARs (value-added resellers), 127,	ISDN access, 59
242	private, dedicated leased-line
vertical market applications, 140–141	access, 65–66
videoconferencing (IPT systems), 178	last-mile access services, 55–56
viruses, 97	Metro Ethernet, 217
VLANs (virtual LANs), 76–77	adoption considerations, 223
benefits, 78	disadvantages, 220
workgroups, 77	market drivers, 218
voice mail (PBXs), 174	services, 222
Voice over Misconfigured Internet	technology overview, 221
Telephones (VOMIT), 194	well suited applications, 218
voice quality (IPT systems), 191–192	mobile IP, 223
<b>VOMIT</b> (Voice over Misconfigured	adoption considerations, 229
Internet Telephones), 194	advantages, 225
VoWLAN, 149	components, 227–228
VPNs (virtual private networks), 114,	disadvantages, 225
122–124, 159	market drivers, 224
benefits of, 123	security, 228
deployment options, 127-129	technology overview, 226
encryption, 126	technology, 53
QoS (quality of service), 127	Web communication applications, 8
tunneling, 124	Web marketing, 7

vulnerability (security risks), 95

Web-based electronic procurement applications, 8 **WECA (Wireless Ethernet** Compatibility Alliance), 145-146 WEP (wired equivalent privacy), 151 wholesale business network challenges, 292 impact of solution, 294 solution, 293 wide area networks. See WANs wireless technology, 26 WLANs (wireless LANs), 132, 143 adoption considerations, 161–162 applications, 136, 139 campus mobility, 137 networks in motion, 138 public-access hotspot mobility, 138 teleworker mobility, 137 vertical market applications, 140-141 components, 133-135 security, 104–105, 150–153 802.1x with EAP. 156–157 authentication, 156 SSIDs, 154 static WEP, 155 TKIP with message integrity checks, 158 VPNs. 159 technology overview, 143 802.11a, 147

802.11b, 145

802.11g, 148–149 VoWLAN, 149 value and benefits, 141–142 workforce optimization applications, 9 workgroups (VLANs), 77

X-Z

zoned paging (IPT systems), 181