

## Numerics

### 3-3-4 system, 5

- area code, 6
- exchange prefix, 6
- line number, 6
- unusable numbers, 6

### 911 services

- handling calls over VoIP systems, 40, 42
- registering, 84

## A

### adding

- contacts to Google Talk, 137
- Internet VoIP service as a second line, 95-96
- people to Skype contact list, 131

### affordability of broadband phone services, reasons for

- infrastructure costs, 25
- public telephone service taxes and fees, 26-27
- regulatory compliance, 26
- transport costs, 26

### aggregation, 34

### analog waveforms, converting to digital signals, 20

### area code, 6

### audio diagnostic messages on terminal adapters, playing, 109

### audio quality, improving, 131

### availability of virtual phone numbers, 31

## B

### backup generators, 56

### bandwidth, effect on voice quality, 35

### Bell System breakup, 9

- effect on phone system architecture, 11

### broadband phone services, 13-14

- cable VoIP phone services, 50-51
- connection speed, effect on voice quality, 110-112
- electric powering, 22-23
- network quality, effect on voice quality, 112-114

## C

### cable modems, terminal adapters, 67

### cable VoIP phone services, 50

- connecting, 77-78
- installing with existing house wiring, 93

- providers, 51

- selecting, 67

- test calls, performing, 83-84

### call forwarding, 32

### call logs, 32

### carrier signal, 20

### chat services, 52

- feature ratings, 145

#### Google Talk

- contacts, adding, 137*

- installing, 135-136*

- IM, 121-122

- limitations of, 126*

- translator programs, 125*

- Linksys CIT200 Cordless Internet Telephony kit, 53

- providers, 53

- real-time, 121

#### Skype

- available accessories, 132-133*

- installing, 129-130*

- placing calls, 133-134*

- receiving calls, 134-135*

### choppy voice quality, factors affecting

- broadband network quality, 112-114

- broadband speed, 111-112

### circuit switching, 15-17

### click to dial, 32

### client-server systems, 122

### CO (central office), 6

- softswitches, 19

### combining multiple VoIP services, 98-100

### comfort noise, 37

### comparing service plans, 62, 65

### connecting

- cable VoIP service, 77-79

- cordless phones to VoIP service, 87

- Internet VoIP service, 79

### connectivity issues, troubleshooting, 107-109

### contacts, adding to Google Talk, 137

### convergence

- impact on VoIP's future, 140-143

- intrasystem cooperation, 143

### converting analog waveforms to digital signals, 20

### cordless phones

- adding to VoIP services, 87

- interference with wireless network, troubleshooting, 115-117

- two-line, 88-90

**cost of VoIP phone services**

- as service selection criteria, 57-60
- effect of regulations on, 139-140

**D**

**delay, effect on voice quality, 37**

**demarc, 91**

**dial tones, DTMF, 8**

**dialing issues, troubleshooting, 115**

**digital switches, 6**

**DSL (Digital Subscriber Line), 13**

**DTMF (dual-tone multifrequency), 8**

**dual-mode phones, 132**

- intrasystem cooperation, 143

**E**

**E911 services, 39**

- calls, handling over VoIP systems, 40-42
- registering, 84

**earbud-and-mic setup, 132**

**electric powering of broadband phone services, 22-23**

**electrical outages**

- backup generators, 56
- UPSs, 56

**emergency number services, 37**

- 911 calls, handling over VoIP systems, 40-42
- establishing, 84

**exchange prefix, 6**

**extending VoIP service to multiple rooms, 106**

- with wireless bridges, 103-104
- with wireless phone jacks, 104-105

**F**

**fax machines, 101**

**FCC fact sheet website, 62**

**features of services as selection criteria, 61**

**five nines, 33**

**flat-rate service, 9**

**flexibility. *See* LNP, 27**

**Friis, Janus, 126**

**future of telephony, 139**

- government regulations, 139-140
- system convergence, 140-143
- VoIP

- intrasystem cooperation, 143*
- shrinking battery life and size, 144*

**G**

**gaming online using VoIP service, 56**

**Google Talk**

- contacts, adding, 137
- installing, 135-136

**H**

**handling 911 calls over VoIP systems, 40-42**

**headsets, 132**

**hierarchical telephone network design, 9**

- regional centers, 9
- toll centers, 9

**home alarm systems, compability with Internet telephony, 117**

**Home Networking Simplified, 104**

**home security/alarm systems, 101**

**home telephone wiring, 90**

- grounding, 91
- junction boxes, 91

**I**

**IM (instant messaging), 121-122**

- service limitations, 126
- translator programs, 125

**improving audio quality, 131**

**indicator lights on terminal adapters, 107-108**

**installing**

- cable VoIP with existing house wiring, 93-95
- Google Talk, 135-136
- integrated router/terminal adapters, 81-83
- Internet VoIP service as a second line, 95-96
- Skype, 129-130
- stand-alone terminal adapters, 80-81
- two-line external splitters, 92-93

**integrated router/terminal adapter, 70**

- installing, 81-83

**interference from cordless devices, avoiding, 117**

**intermittent broadband problems, troubleshooting, 114**

**Internet VoIP service**

- adding as a second line, 95-96
- connecting, 79
- optimizing, 117
- selecting, 73
- terminal adapter, selecting, 68-72
- test calls, performing, 83-84
- two-line, 99-100

**intrasystem cooperation, 143**

**J–K**

**jitter**, 113  
**junction boxes**, 91  
**Kazaa**, 126

**L**

**last mile**, 34  
**latency**, 113  
**limitations**  
  of broadband phone services  
    *cost*, 45  
    *emergency number services*, 37-39, 45  
    *portability issues*, 39  
    *reliability issues*, 33-34, 45  
    *voice quality*, 35-37, 45  
  of virtual phone numbers, 31  
**line numbers**, 6  
**Linksys CIT200 cordless phones**, 133  
**Linksys PAP2 terminal adapter LEDs**, 107  
**LNP (Local Number Portability)**, 6, 27-29  
**local phone services, mobile telephone systems**, 11  
**long-distance telephone companies, slamming**, 10  
**maintaining**  
  minimal PSTN line, 57  
  multiple VoIP services, 99-100  
  separate PSTN and VoIP lines, 88  
**manual terminal adapter configuration**, 85-86  
**measuring packet loss**, 113  
**mobile phone system**, 11  
  SSPs, 12  
**modems (cable), terminal adapters**, 67  
**MSCs (mobile switching centers)**, 12  
**multiple handsets on VoIP systems**  
  effect on audio quality, 97  
  Ringer Equivalence Number, troubleshooting,  
  96-97

**N**

**network quality, effect on voice quality**, 112-114  
**number portability and emergency services**, 39-40

**O**

**offline forwarding**, 32  
**online call management**  
  call forwarding, 32  
  call logs, 32  
  click to dial, 32  
  voice mail, 31

**online games, utilizing VoIP service**, 56  
**operator-based telephone system**, 3-5  
**optimizing Internet telephone service**, 117  
**out-of-service forwarding**, 32  
**overloaded REN limits, troubleshooting**, 96-97

**P**

**packet loss**  
  effect on voice quality, 37  
  measuring, 113  
**packet switching**, 15-17  
**PC-to-PC calling**, 52  
  Linksys CIT200 Cordless Internet Telephony kit,  
  53  
  providers, 53  
  VoIP chat system feature ratings, 145  
**peer-to-peer systems**, 122  
**phone number, selecting**, 80  
**placing calls with Skype**, 133-134  
**Plantronics headsets**, 132  
**power outages, UPSs**, 56  
**public telephone system**, 3  
  3-3-4 system, 5-6  
  Bell System breakup, 9  
    *effect on phone system architecture*, 11  
  digital switches, 6  
  DTMF, 8  
  hierarchical network design, 9  
  home telephone wiring, 90-91  
  Internet access, 13  
  local phone services, mobile phone systems, 11  
  long distance companies, slamming, 10  
  operator-based, 3-5  
  reliability of, 14, 35  
  SSPs, 12  
  wireless services, 11

**R**

**RBOCs (regional Bell operating centers)**, 9  
**“real-time”**, 121  
**receiving calls with Skype**, 134-135  
**regional centers**, 9  
**registering**  
  for 911/E911 services, 84  
  phone services, 78  
  terminal adapters, 80  
  with “do not call” list, 78  
**regulations, effect on VoIP phone service costs**,  
**139-140**

**reliability**

- as service selection criteria, 61
- five nines, 33
- of public telephone system, 14

**resetting broadband connection, 109****Ringer Equivalence Number, troubleshooting overloads, 96-97****S****sampling, 20-22****satellite receiver dishes, 101****SCPs (Service Control Points), 12****selecting**

- headsets, 132
- VoIP service, 80
  - cable, 67*
  - cost, 57-60*
  - features, 61*
  - Internet, 68-73*
  - reliability, 61*
  - specialized device support, 61-62*
  - typical phone service applications, international calling, 55*
- phone number, 80

**service connection problems, troubleshooting, 107-109****service plans**

- comparing, 62, 65
- selecting, 80

**signaling, 17-19**

- converting analog waveforms to digital signals, 20
- sampling, 22

**single-line cordless phone systems, 88****Skype, 126, 132**

- available accessories, 132-133
- calls
  - placing, 133-134*
  - receiving, 134-135*
- installing, 129-130

**SkypeIn phone numbers, 134****slamming, 10****softswitches, 19, 50****specialized phone devices**

- fax machines, 101
- home security/alarm systems, 101
- satellite receiver dishes, 101
- support of as service selection criteria, 61-62
- TiVo, 101

**speed of broadband connection**

- effect on voice quality, 110-112
- testing, 111

**splitters, effect on broadband connection, 114****SS7 (Signaling System 7), 12****SSPs (service switching points), 12****stand-alone terminal adapters, 69**

- installing, 80-81

**static IP addresses, manual terminal adapter configuration, 85-86****system convergence**

- impact on future of VoIP, 140-143
- intrasystem cooperation, 143

**T****technical support websites, 115****telecom industry consolidation, 13****Telecommunications Act of 1996, 13****telemarketing, registering with “do not call” list, 78****telephone numbers, 3-3-4 system, 5-6****“ten-minute miracle”, 110****terminal adapters, 67**

- audio diagnostic messages, playing, 109
- for Internet VoIP service, selecting, 68-72
- indicator lights, 107-108
- integrated router/terminal adapters, installing, 81-83
- manual configuration, 85-86
- registering, 80
- stand-alone, installing, 80-81

**test calls, performing, 83-84****testing broadband connection speed, 111****TiVo, 101****toll centers, 9****toll switches, 9****Trillian, 125****troubleshooting**

- audio quality, multiple handsets, 97
- dialing-related issues, 115
- multiple handsets, Ringer Equivalence Number, 96-97
- service connection problems, 107-109
- voice quality issues, 110-114
  - cordless phone interference, 115*

**true peer-to-peer networks, 122****trunks, 9****two-line cordless phone systems, 88-90****two-line external splitters, installing, 92-93****two-line Internet VoIP services, 99-100****U****unusable 3-3-4 numbers, 6****uplink speed, testing, 111****UPSs (uninterruptible power supplies), 56**

## V

**virtual phone numbers, 29**

**voice mail, 31**

**voice quality issues, troubleshooting, 110-114**

**VoIP phone services, 2. See also VoIP chat services**

- adding cordless phones, 87
- combining, 98-100
- electric powering of broadband phone services, 22-23
- extending to multiple rooms
  - with wireless bridges, 103-104*
  - with wireless phone jacks, 104-105*
- multiple handsets, effect on audio quality, 97
- signaling, 17-19
  - converting analog waveforms to digital signals, 20*
  - sampling, 22*

**VoIP chat services, 52**

- feature ratings, 145
- Google Talk
  - contacts, adding, 137*
  - installing, 135-136*
- IM, 121-122
  - limitations of, 126*
  - translator programs, 125*
- Linksys CIT200 Cordless Internet Telephony kit, 53
- providers, 53
- real-time, 121
- Skype, 129-130
  - available accessories, 132-133*
  - calls, placing, 133-134*
  - calls, receiving, 134-135*

**VoIPReview website, 64**

## W-X-Y-Z

**websites for technical support, 115**

**wireless devices, extending VoIP service to multiple rooms**

- bridges, 103-104
- handsets, Linksys CIT200 Cordless Internet Telephony kit, 53
- phone jacks, 104-105

**wireless networks, troubleshooting cordless phone interference, 115**

**wireless services, 11-12**

**Zennström, Niklas, 126**