



INDEX

A

AAA

- call tracking [59](#)

- configuring [57](#)

- RADIUS [163](#)

- aaa accounting command [169](#)

- aaa accounting connection h323 command [169](#)

- aaa authentication login command [164, 167](#)

- aaa new-model command [164, 167](#)

- access-list command [181, 209, 214](#)

- ACF [16](#)

- additive registration [101](#)

- address resolution [152](#)

- admission confirmation

- See ACF

- admission reject

- See ARJ

- admission request

- See ARQ

- advertise command [81](#)

- alerting [25](#)

- alias static command [162](#)

- alternate endpoints [14, 217](#)

- additional routes [219](#)

- alternate gatekeeper [14](#)

- configuration (example) [123](#)

- configuration verification [67](#)

- ecosystem gatekeeper interoperability [36](#)
- load balancing [15](#)
- restrictions [65](#)
- alternate-gatekeeper [65](#)
- AltGKInfo
 - in GRJ messages [37](#)
 - in RRJ messages [37](#)
- Annex G
 - border element
 - gateways [79](#)
 - configuring [77](#)
 - gateways [77](#)
 - implementation, H.225 [82](#)
 - restrictions [83](#)
 - verification [86](#)
- answer supervision reporting [35](#)
- application-specific routing
 - See ASR
- ARJ [148](#)
- ARQ [16, 148](#)
- arq reject-resource-low command [149](#)
- ASR [201](#)
- authentication, authorization, and accounting
 - See AAA

B

- bandwidth check-destination command [149](#)
- bandwidth management [93](#)
- BE [82](#)
- billing
 - gateway-to-gatekeeper [36](#)
- billing b-channel command [109](#)
- BIND
 - RAS text record (example) [150](#)
- border element
 - Annex G [82](#)
 - gatekeeper [82, 215](#)
- border elements

See BE

C

- CAC [108](#)
- cache command [80](#)
- call admission control
 - See CAC
- call application command [64](#)
- call application voice command [9](#)
- call deflection
 - H.450.3
 - description [34](#)
- call forward [31](#)
- call forwarding
 - H.450.2
 - call forwarding [34](#)
- call preservation for H.323 VoIP calls [111](#)
- call preserve command [112](#)
- call-router h323-annexg command [80, 85](#)
- call signal address
 - See CSA
- Call Status Tracking [228](#)
- call termination [17](#)
 - call model [18](#)
- call tracking
 - AAA [59](#)
- call transfer [31, 34](#)
 - H.450.2 [34](#)
 - software restrictions [10](#)
- carrier-based routing
 - without GKTMP server [219](#)
- CAT [173](#)
- Cisco access token
 - See CAT
- clear h323 gatekeeper call command [195](#)
- clear h323 gatekeeper endpoint command [226](#)
- clear h323 gatekeeper statistics command [39, 40](#)
- clear h323 gateway command [27](#)

- codec
 - negotiation, description [32](#)
 - supported [32](#)
- codec command [71](#)
- codec preference command [74](#)
- codecs
 - configuring [74](#)
- co-edge proxy
 - ASR
 - configuration (example) [245](#)
 - configuration (example) [245, 250](#)
- concurrent calls
 - H.225
 - concurrent call [89](#)
- conference call
 - MCU [12](#)
- configuration
 - RAS
 - retries, timers [52](#)
 - usage indication [85](#)
- configuration examples
 - H.323 gateways [119](#)
- configuring
 - AAA and RADIUS [163](#)
 - alternate-gatekeeper [65](#)
 - Annex G [77](#)
 - border element [215](#)
 - Cisco access tokens [177](#)
 - codecs [74](#)
 - collection of alternate endpoints [223](#)
 - destination zones [148](#)
 - dialing prefix for each gateway [185](#)
 - disable IRQ requests [227](#)
 - domain zones, passwords [176](#)
 - DTMF relay [69](#)
 - dynamic zone prefix registration [102](#)
 - E.164 routing
 - inter-zone [182](#)
 - endpoint-based call-capacity management [225](#)

- endpoints [217](#)
- forced disconnect on a gatekeeper [195](#)
- gatekeeper proxied access
 - inbound or outbound [193](#)
- gatekeeper-to-gatekeeper authentication [177](#)
- gatekeeper with external applications [186](#)
- gatekeeper zones [141, 143](#)
- GTD
 - dial-peer [97](#)
 - system-wide [96](#)
- H.323 proxy server [196](#)
- intergatekeeper communication [149](#)
- IP access list [180](#)
- IP-access-list security [182](#)
- IRR periodic intervals [228](#)
- IRR Timer [227](#)
- ISDN B-Channel ID [108](#)
- limit the number of concurrent calls [89](#)
- load balancing and alternate gatekeepers [155](#)
- QOS
 - multimedia backbone network [201](#)
 - proxy with ASR [205](#)
 - proxy without ASR [203](#)
- QoS [200](#)
- RADIUS, TACACS [163](#)
- RADIUS/AAA server [167](#)
- registration and call rejection [191](#)
- remote cluster [157](#)
- remote security server [168](#)
- retry timer for failed GKTMP server [190](#)
- rotary calling pattern [75](#)
- security and authentication [170](#)
- sending of nonavailability information [224](#)
- sequential LRQ enhancement [231](#)
- sequential LRQs [229](#)
- sequential LRQ timer [232](#)
- server flow control [187](#)
- SETUP response timeout value [88](#)
- signal ISDN B-Channel ID [109](#)

- static nodes [161](#)
- tokenless call authorization [180](#)
- tokens [177](#)
- trunk-based and carrier-based routing [108](#)
- VoIP transport method [93](#)
- zone bandwidth management [93](#)
- zone prefix [183](#)

configuring dial-peers

- associating voice class [87](#)

CSA [29](#)

D

debug cch323 command [28](#)

debug gatekeeper servers command [110](#)

debug h225 asn1 command [52](#)

debug ras command [52](#)

destination-pattern command [50, 51, 64, 71](#)

dial-peer command [184](#)

dial-peer voice command [51, 64, 70, 75, 88, 98](#)

digital-signal-level 0

- See DS0

digital-signal-processor

- See DSP

disable IRQ requests [229](#)

disengage confirmation

- See DCF

DNS [149](#)

domain-name command [84](#)

Domain Name System

- See DNS

DS0

- channels [55](#)

DSP

- channels [55](#)

DTMF (Dual Tone Multi-Frequency) relay

- fast connect, H.245 tunneling [69](#)

DTMF relay

- configuration (example) [124](#)

- configuring [67, 69](#)
- types [68](#)
- dtmf-relay command [17, 70, 72](#)
- dtmf-relay h245-alphanumeric command [69, 72](#)
- dtmf-relay h245-signal command [69, 72](#)
- DTMF tones
 - NTE [68](#)
- dual-tone multifrequency
 - See DTMF
- dynamic zone prefix registration [101](#)

E

- E.164 addresses [183](#)
 - registration [56](#)
- ecosystem gatekeeper interoperability
 - description [36](#)
 - software restrictions [10](#)
- element command [156, 158](#)
- empty capabilities set
 - H.245 [33](#)
- emulate cisco h323 bandwidth command [94](#)
- endpoint alt-ep collect command [223](#)
- endpoint alt-ep h323id command [217, 222](#)
- endpoint circuit-id h323id command [220](#)
- endpoint max-calls h323id command [225, 252](#)
- endpoint resource-threshold onset command [221, 225](#)

F

- fast connect
 - H.245 [17](#)
 - H.323 Version 2
 - description [17](#)
- firewall
 - proxy and NAT [199](#)
- firewalls, H.323 proxy [198](#)
- forcing endpoint unregistration

- configuring [225](#)
- Foreign Exchange Station
 - See FXS
- FXS
 - hookflash relay
 - configuring [72](#)

G

- gatekeeper [218](#)
 - additional references [254](#)
 - border element [215](#)
 - discovery [15](#)
 - forced disconnect [195](#)
 - gateway selection process [142](#)
 - GKTMP server flow control [187](#)
 - IRQ request, disable [229](#)
 - registration [15](#)
 - security [18](#)
 - settlement [59](#)
 - zone
 - description [15](#)
 - zones [141](#)
- gatekeeper command [81, 144, 149, 161, 165, 169, 185, 193](#)
- gatekeeper confirmation
 - See GCF
- gatekeeper-management statistics, description [38](#)
- gatekeeper rejection
 - See GRJ
- gatekeepers
 - access tokens
 - configuration (examples) [239](#)
 - alias registration [151](#)
 - border element [15](#)
 - clustering [65](#)
 - co-edge proxy (examples) [245](#)
 - communication
 - interzone [153](#)
 - configuring

- HSRP [141](#)
 - zone and subnet [142](#)
- defining one zone
 - configuration (example) [235](#)
- E.164 interzone routing
 - configuration (examples) [240](#)
- endpoint
 - configuration (examples) [251](#)
- endpoint identification [163](#)
- HSRP
 - configuration (example) [234](#)
- interaction with external applications
 - configuration (examples) [242](#)
- IRR timer and IRQ request
 - configuration (examples) [253](#)
- load balancing [155](#)
- multiple zones
 - configuration (example) [235](#)
- proxy outbound calls
 - configuration (example) [244](#)
- proxy removing
 - configuration (example) [244](#)
- proxy use
 - configuration (examples) [243](#)
- RCF message [152](#)
- redundant zone prefix
 - configuration (example) [237](#)
- RRJ message [152](#)
- RRQ message [151](#)
- secure communication [60](#)
- security and authentication
 - configuration (examples) [237](#)
- sequential LRQ
 - configuration (example) [253](#)
- static node [161](#)
- terminal name registration [151](#)
- tokenless call authorization
 - configuration (examples) [240](#)
- Gatekeeper Transaction Message Protocol

See GKTMP

gateway

- call termination [17](#)
- H.325 security [62](#)
- local zone
 - ARJ message [148](#)
 - ARQ message [148](#)
 - LRJ message [148](#)
- source IP address [77](#)

gateway command [63, 94](#)

gateways

- additional references [135](#)
- Annex G [77](#)
- calling different area codes [186](#)
- codec negotiation [32](#)
- configuration
 - interface [44](#)
 - RAS [49](#)
- gateway security
 - configuration [58](#)
- GTD for GKTMP using SS7 Interconnect for Voice [94](#)
- H.225 signal overlap [90](#)
- hookflash relay [72](#)
- network-based billing number [35](#)
- prerequisite tasks [43](#)
- redirect number information tunnel [29](#)
- resource availability reporting
 - description [55](#)
- selection process [142](#)
- verification
 - alternate gatekeeper configuration [67](#)
 - gateway interface configuration [46](#)
 - gateway security configuration [64](#)
 - RAS configuration [51](#)

gateway security

- configuration [58](#)

gateway-to-gatekeeper billing redundancy [36](#)

gateway zone prefix registration

- configuration (example) [127](#)

GKTMP

- messages [15](#)

GKTMP (Gatekeeper Transaction Message Protocol), RAS messages

- configuration (example) [245](#)

GTD payload dial-peer

- configuration (example) [126](#)

GTD payload system-wide

- configuration (example) [126](#)

gw-type-prefix command [155, 183, 184, 185](#)

H

H.225

- Annex G [82](#)

- idle timer for concurrent calls [89](#)

- signal overlap [90](#)

- H.323 terminating gateway [90](#)

H.225 Annex-G

- configuration (example) [125](#)

H.225 setup messages [16](#)

H.235

- accounting and security enhancements

- for Cisco gateways [58](#)

- gateway security [62](#)

- configuration (example) [123](#)

- security

- configuration (example) [244](#)

H.245

- capabilities [26](#)

- capabilities messages [68](#)

- capability exchange [32](#)

- empty capabilities set [33](#)

- software restrictions [9](#)

- tunneling [69](#)

- DTMF relay with fast connect [69](#)

H.323

- Annex G [78](#)

- authenticate via RADIUS [163](#)

- call redirection

- call forward [31](#)
- call transfer [31](#)
- route call to gatekeeper [30](#)
- call setup [16](#)
 - H.225 setup [16](#)
- dynamic access control [198](#)
- gatekeeper [13](#)
- gateways
 - protocol conversion [13](#)
- H.323 VoIP call preservation enhancements for WAN link failures [111](#)
- network components [11](#)
- proxy [13](#)
 - co-edge mode [197](#)
 - inside the firewall [197](#)
- proxy server, configuring [196](#)
- signaling enhancement
 - software restrictions [9](#)
- terminal [12](#)
- trunk ID group
 - RAS [217](#)
- tunneling
 - OCN IE [30](#)
 - RDN IE [30](#)
- Version 1 [11](#)
- Version 2 [11](#)
 - codec description [32](#)
 - fast connect, description [17](#)
 - fast connect, restrictions [9](#)
 - hookflash relay [72](#)
 - lightweight registration [34](#)
 - OCN IE [30](#)
 - RDN IE [30](#)
 - software restrictions [8](#)
- Version 3 [11](#)
 - zone bandwidth management [93](#)
- Version 4 [11](#)
 - additive registration [101](#)
 - dynamic zone prefix registration [101](#)
 - OCN IE [30](#)

- RDN IE [30](#)
 - zone prefix registration [100](#)
- Version4
 - H.225 SETUP message [30](#)
- voice class [87](#)
- H.323 call statistics
 - debug [26](#)
- H.323 gateway RAS
 - configuration (examples) [120](#)
- H.323 gateways
 - examples [119](#)
- H.323 gateway security
 - configuration (example) [121](#)
- H.323 network
 - configuring
 - prerequisites [7](#)
 - restrictions [8](#)
- H.323 signaling
 - alerting [25](#)
 - cut-through [26](#)
 - description [25](#)
 - overlap dialing [26](#)
 - speech clipping [26](#)
- H.323 standards
 - VoIP features [10](#)
- H.323 support
 - virtual interfaces
 - configuration (examples) [125](#)
- H.323 Version 2
 - dialing prefix for each gateway [185](#)
 - gatekeeper proxied access [193](#)
 - gatekeeper with external applications [186](#)
 - security [18](#)
- H.450.2
 - call transfer [34](#)
- H.450.3
 - call deflection
 - description [34](#)
- h225 signal overlap command [91](#)

h225 timeout setup command [88](#)
h225 timeout t302 command [91](#)
h225 timeout tcp call-idle command [90](#)
h323-annexg command [82, 216](#)
h323 asr command [202, 207, 213](#)
h323 command [90, 91](#)
h323 gatekeeper command [204, 207, 212](#)
h323-gateway voip bind command [76](#)
h323-gateway voip bind srcaddr command [125](#)
h323-gateway voip h323-id command [67](#)
h323-gateway voip id command [66](#)
h323-gateway voip interface command [66](#)
h323 h323-id command [204, 207, 212](#)
h323 interface command [202, 204, 207, 212](#)
h323 qos command [204, 207, 213](#)
hookflash
 relay, description [72](#)
hookflash relay
 FXS
 configuring [72](#)
hopcount command [81](#)
Hot Standby Router Protocol
 See HSRP
HSRP [141](#)

id command [80](#)
IE [29](#)
in-band tones [56](#)
inbound ttl command [84](#)
incoming-called-number command [32](#)
Information Element
 See IE
information request
 See IRR
iNow profile
 IP Telephony [82](#)
inside-edge proxy

configuration (example) [248](#)
Inter-domain gatekeeper security
 call flow [172](#)
interface command [76, 204, 206, 207, 208, 212, 213, 214](#)
interzone ClearToken
 See IZCT
ip access-group command [210, 215](#)
ip address command [207, 208, 212, 213](#)
ip domain-name command [150](#)
ip name-server command [150](#)
IP precedence [200](#)
ip route-cache command [205](#)
irq global-request command [229](#)
IRR [35](#)
ISDN B-Channel [108](#)
ISDN B-channel
 configuration example [131](#)
isdn gateway-max-internetworking command [57](#)
IVR
 scripts [61](#)
IZCT [170](#)

L

lightweight registration [34](#)
 registration request message [34](#)
 time-to-live value [34](#)
load-balance command [156](#)
local ip command [80](#)
location request reject
 See LRJ
logging console command [181](#)
LRJ [148](#)
LRQ authentication
 call flow
 successful [174](#)
 unsuccessful [175](#)
lrq lrj immediate-advance command [230, 231](#)
lrq reject-resource-low command [220, 224, 252](#)

M

MCU [12](#)

- conference call [12](#)

multimedia conference call

- configuring (example) [201](#)

multiple codecs

- configuration (example) [124](#)

- configuring [74](#)

multiple control unit

- See MCU

multizone, description [32](#)

N

Named Telephone Events

- See NTE

NAT [198](#)

NAT, H.323 proxy [199](#)

neighbor command [80, 84, 85](#)

Network Address Translation

- See NAT

network-based billing number

- gateway support [35](#)

network command [208, 214](#)

no shutdown command [81](#)

NTE [68](#)

- DTMF relay [68](#)

O

OCN [29](#)

Original Called Number

- See OCN

outbound retry-interval command [84](#)

overlap dialing [26](#)

P

payload types [69](#)

PI

- alerting messages [56](#)

port command [51, 64, 80](#)

prefix command [82, 216](#)

preservation, call preservation for H.323 VoIP [111](#)

progress_ind command [56](#)

progress indicator

- See PI

proxy

- access control [197](#)

- application-specific routing

 - description [201](#)

- ASR [201](#)

 - configuration (examples) [243](#)

 - enabling one type of routing protocol [205](#)

 - enabling two different autonomous system [211](#)

- co-edge mode [197](#)

- co-edge with subnetting

 - configuration (example) [246](#)

- configuration (example) [249](#)

- forwarding H.323 packets [202](#)

- H.323 multimedia backbone, configuring [201](#)

- inside-edge

 - ASR configuration (example) [248](#)

- network address translation [199](#)

- prohibiting for inbound calls

 - configuration (example) [245](#)

- QoS, configuring [249](#)

- security [196](#)

- with ASR [205](#)

- without ASR [203](#)

proxy h323 command [203, 206, 212](#)

Q

Q.931 IE [30](#)

QoS [200](#)
 ASR [201](#)
 H.323 proxy
 configuration (example) [249](#)
Quality of Service
 See QoS
query-interval command [80](#)

R

RADIUS
 user accounting
 configuring [168](#)
RADIUS, TACACS+
 H.323 login authentication [163](#)
 multimedia conference calls [163](#)
RADIUS/AAA server
 configuring [167](#)
RADIUS server
 billing [15](#)
radius-server deadtime command [167](#)
radius-server host command [165, 167](#)
radius-server key command [165, 168](#)
RAI [55](#)
RAS [35, 49, 217](#)
 dial-peer configuration
 troubleshooting [52](#)
 retires, timers [52](#)
 verification [51](#)
RAS (registration, admission, and status protocol)
 BIND text record (example) [150](#)
ras command [150](#)
RAS messages
 multizone [32](#)
ras retry command [52](#)
ras rrq ttl command [52](#)
ras timeout command [52](#)
RCF [60, 152](#)
RDN [29](#)

RDN or OCN IE

H.225 setup message [30](#)

Redirecting Number

See RDN

redirect number information tunnel, description [29](#)

redundant H.323 zones [142](#)

references [19](#)

register e164 command [56](#)

Registration, Admission, and Status

See RAS

registration confirmation

See RCF

registration rejection

See RRJ

registration request

See RRQ

relay

DTMF tones [68](#)

remote zone

least-cost routing [15](#)

req-qos command [17](#)

request processing [153](#)

resource availability [55](#)

Resource Availability Indication

See RAI

Resource Reservation Protocol

See RSVP

resource threshold command [56](#)

restrictions

alternate-gatekeeper [65](#)

Annex G [83](#)

call transfer [10](#)

gatekeeper-to-gatekeeper redundancy, load-sharing mechanism [154](#)

H.323 signaling enhancement [9](#)

H.323 Version 2 [8](#)

redundant H.323 zone support [142](#)

source call signal address [9](#)

retry interval command [86](#)

retry timer for failed GKTMP server [190](#)

- retry window command [86](#)
- RIP (Routing Information Protocol)
 - configuring H.323 proxy [208](#)
- rotary calling pattern
 - configuration (example) [125](#)
 - configuring [75](#)
- router igrp command [208, 214](#)
- router rip command [208](#)
- RRJ [60, 152](#)
- RRQ [151, 152](#)
- RSVP [9, 17, 200](#)

S

- security
 - endpoints and gatekeeper [18](#)
 - H.235
 - configuration (example) [244](#)
- security acl answerarq command [182](#)
- security and authentication [170](#)
 - restrictions [170](#)
- security command [166](#)
- security izct password command [173, 176](#)
- security password command [19, 63](#)
- security password-group command [178, 179](#)
- security token required-for command [19](#)
- security zone command [179](#)
- sequential LRQs [229](#)
 - call flow [230](#)
- server absent reject command [192](#)
- server flow-control command [188](#)
- service-relationship command [84](#)
- session target command [70, 71](#)
- session target ras command [51](#)
- session transport command [93](#)
- session transport tcp command [89](#)
- settlement
 - gatekeeper [59](#)
- show call-router status command [86](#)

- show gatekeeper calls command [196](#)
- show gatekeeper cluster command [160](#)
- show gatekeeper endpoints alternates command [222](#)
- show gatekeeper endpoints command [221](#)
- show gatekeeper performance statistics command [157](#)
- show gatekeeper performance stats command [39](#)
- show gatekeeper servers command [189, 191](#)
- show gatekeeper status cluster command [159](#)
- show gatekeeper status command [156, 189](#)
- show gatekeeper zone cluster command [159](#)
- show gatekeeper zone status command [159, 194](#)
- show h323 calls preserved command [112](#)
- show h323 gatekeeper statistics aggregate command [39](#)
- show h323 gateway command [28](#)
- show proxy h323 status command [160](#)
- shutdown command [147](#)
- signaling [25](#)
- signaling forward command [97, 98](#)
- signal ISDN B-channel ID
 - configuring [109](#)
 - troubleshoot [110](#)
- signal ISDN B-Channel ID, description [108](#)
- source call signal address [28](#)
 - sequence [29](#)
- source IP address
 - gateway
 - verification [77](#)

T

- technology prefix
 - call scenario [184](#)
 - hop-off gateway [183](#)
- tech-prefix command [49, 51](#)
- terminating endpoint
 - nonavailability information [220](#)
- timeout value [88](#)
- timer
 - concurrent calls [89](#)

- timer accessrequest sequential delay command [81](#)
- timer irr period command [229](#)
- timer lrq seq delay command [232](#)
- timer server retry command [190](#)
- timing command [73](#)
- timing hookflash-input command [73](#)
- timing hookflash-out command [72](#)
- tokenless call authorization [176](#)
- troubleshoot
 - gateway zone prefix registration [106](#)
 - signal ISDN B-channel ID [110](#)
- troubleshooting
 - RAS
 - dial-peer configuration [52](#)
- ttl command [81](#)

U

- unregistration forcing [225](#)
- usage indication
 - configuration [85](#)
- usage-indication command [85](#)
- use-proxy command [146, 193, 194, 244](#)

V

- verification
 - access [194](#)
 - access tokens [179](#)
 - additive RRQ messages [105](#)
 - advertisement
 - dynamic zone prefix registration [105](#)
 - alternate gatekeeper [156](#)
 - Annex G [86](#)
 - disconnect [196](#)
 - flow control [188](#)
 - gateway interface configuration [46](#)
 - gateway status [48](#)

GTD [99](#)
H.235 security [64](#)
load balancing [156](#)
RAS [51](#)
registration and call rejection [192](#)
remote clusters [159](#)
sequential LRQ [232](#)
source IP address [77](#)
timer [191](#)
unregistration [226](#)
virtual interfaces
 H.323 support [76](#)
 configuration (example) [125](#)
voice class codec command [74](#)
voice-class codec command [75](#)
voice-class h323 command [88](#)
Voice over IP
 See VoIP
voice-port command [73](#)
voice service voip command [89](#)
VoIP
 codec negotiation [32](#)
 gateway
 resource availability reporting [55](#)
 hookflash relay [72](#)
 redirect number information tunnel [29](#)
 service
 shut down, enable [46](#)
 submodes
 shut down, enable [47](#)

Z

zone cluster local command [155](#)
zone cluster remote command [158](#)
zone local command [144, 155, 158, 161, 185](#)
zone prefix command [142, 145, 155, 157, 158, 183, 185](#)
zone prefix registration [100](#)
zone remote command [145, 151, 219](#)

zones

accessing [193](#)

gatekeeper [15](#)

local gatekeeper [193](#)

remote gatekeeper [193](#)

routing between gateways [218](#)

zone subnet command [142, 147](#)

CCDE, CCENT, CCSI, Cisco Eos, Cisco Explorer, Cisco HealthPresence, Cisco IronPort, the Cisco logo, Cisco Nurse Connect, Cisco Pulse, Cisco SensorBase, Cisco StackPower, Cisco StadiumVision, Cisco TelePresence, Cisco TrustSec, Cisco Unified Computing System, Cisco WebEx, DCE, Flip Channels, Flip for Good, Flip Mino, Flipshare (Design), Flip Ultra, Flip Video, Flip Video (Design), Instant Broadband, and Welcome to the Human Network are trademarks; Changing the Way We Work, Live, Play, and Learn, Cisco Capital, Cisco Capital (Design), Cisco:Financed (Stylized), Cisco Store, Flip Gift Card, and One Million Acts of Green are service marks; and Access Registrar, Aironet, AllTouch, AsyncOS, Bringing the Meeting To You, Catalyst, CCDA, CCDP, CCIE, CCIP, CCNA, CCNP, CCSP, CCVP, Cisco, the Cisco Certified Internetwork Expert logo, Cisco IOS, Cisco Lumin, Cisco Nexus, Cisco Press, Cisco Systems, Cisco Systems Capital, the Cisco Systems logo, Cisco Unity, Collaboration Without Limitation, Continuum, EtherFast, EtherSwitch, Event Center, Explorer, Follow Me Browsing, GainMaker, iLYNX, IOS, iPhone, IronPort, the IronPort logo, Laser Link, LightStream, Linksys, MeetingPlace, MeetingPlace Chime Sound, MGX, Networkers, Networking Academy, PCNow, PIX, PowerKEY, PowerPanels, PowerTV, PowerTV (Design), PowerVu, Prisma, ProConnect, ROSA, SenderBase, SMARTnet, Spectrum Expert, StackWise, WebEx, and the WebEx logo are registered trademarks of Cisco and/or its affiliates in the United States and certain other countries.

All other trademarks mentioned in this document or website are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company. (1002R)

Any Internet Protocol (IP) addresses used in this document are not intended to be actual addresses. Any examples, command display output, and figures included in the document are shown for illustrative purposes only. Any use of actual IP addresses in illustrative content is unintentional and coincidental.

© 2009 Cisco Systems, Inc. All rights reserved.