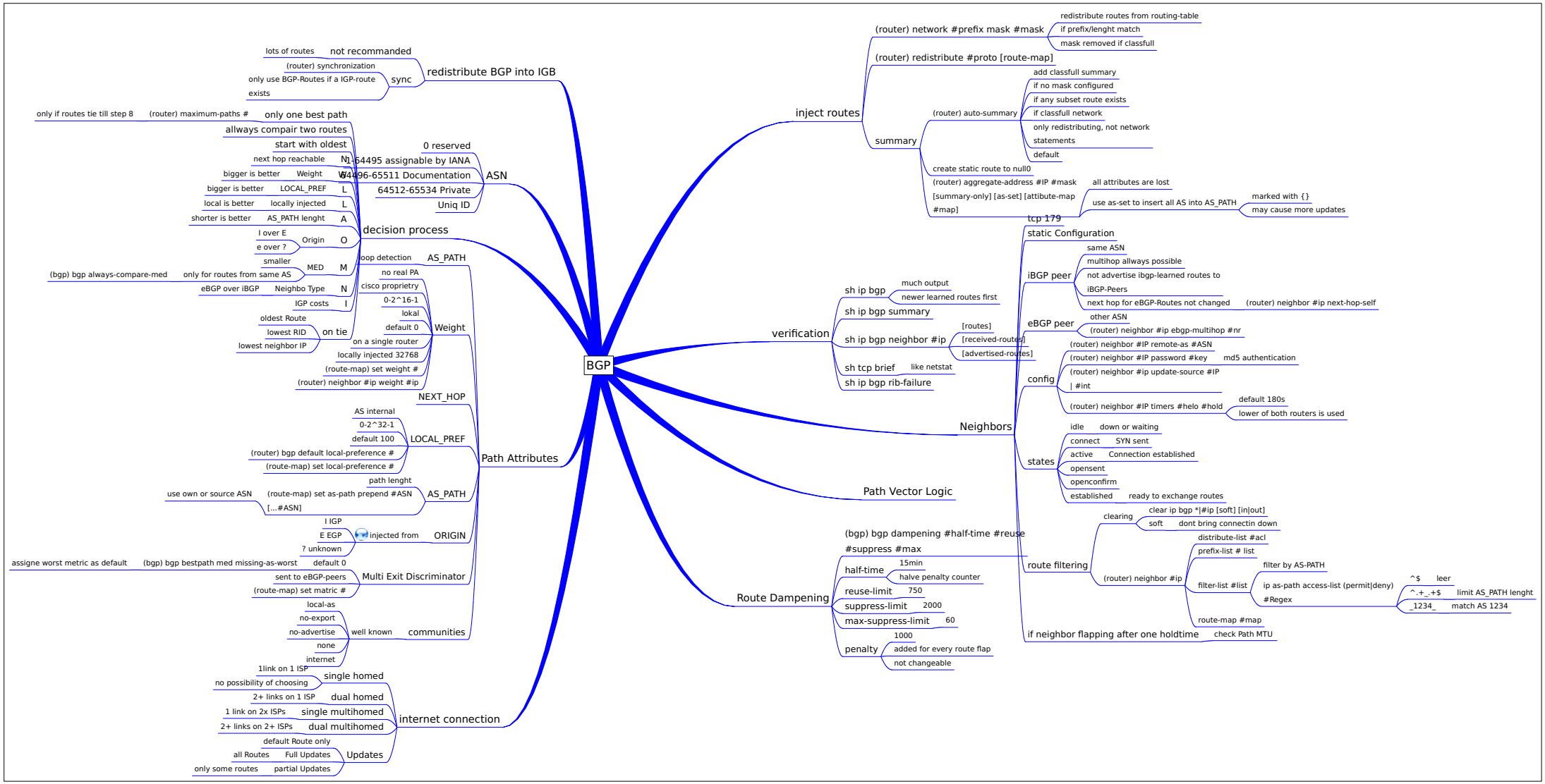
BGP
redistribute BGP into IGB
not recommanded
lots of routes
sync
(router) synchronization
only use BGP-Routes if a IGP-route exists
decision process
only one best path
only if routes tie till step 8
(router) maximum-paths #
allways compair two routes
start with oldest
N
next hop reachable
W
bigger is better
Weight
L
bigger is better
LOCAL_PREF
L
local is better
locally injected
L
shorter is better
AS_PATH lenght
A
Origin
O
I over E
e over ?
MED
M
smaller
only for routes from same AS
(bgp) bgp always-compare-med
N
eBGP over iBGP
Neighbo Type
I
IGP costs
on tie
oldest Route
lowest RID
lowest neighbor IP
ASN
0 reserved
1-64495 assignable by IANA
64496-65511 Documentation
64512-65534 Private
Uniq ID
Path Attributes
AS_PATH
loop detection
Weight
no real PA
cisco proprietry
0-2^16-1
lokal
default 0
on a single router
locally injected 32768
(route-map) set weight #
(router) neighbor #ip weight #ip
NEXT_HOP
LOCAL_PREF
AS internal
0-2^32-1
default 100
(router) bgp default local-preference #
(route-map) set local-preference #
AS_PATH
path lenght
(route-map) set as-path prepend #ASN
use own or source ASN
[...#ASN]
ORIGIN
I IGP
E EGP
injected from
? unknown
Multi Exit Discriminator
(bgp) bgp bestpath med missing-as-worst
default 0
assigne worst metric as default
sent to eBGP-peers
(route-map) set matric #
communities
local-as
well known
no-export
no-advertise
none
internet
internet connection
single homed
1link on 1 ISP
no possibility of choosing
dual homed
2+ links on 1 ISP
single multihomed
1 link on 2x ISPs
dual multihomed
2+ links on 2+ ISPs
Updates
default Route only
all Routes
Full Updates
only some routes
partial Updates
inject routes
(router) network #prefix mask #mask
redistribute routes from routing-table
if prefix/lenght match
mask removed if classfull
(router) redistribute #proto [route-map]
summary
(router) auto-summary
add classfull summary
if no mask configured
if any subset route exists
if classfull network
only redistributing, not network statements
default
create static route to null0
(router) aggregate-address #IP #mask [summary-only] [as-set] [attibute-map #map]
all attributes are lost
use as-set to insert all AS into AS_PATH
marked with {}
may cause more updates
verification
sh ip bgp
much output
newer learned routes first
sh ip bgp summary
sh ip bgp neighbor #ip
[routes]
[received-routes]
[advertised-routes]
sh tcp brief
like netstat
sh ip bgp rib-failure
Neighbors
tcp 179
static Configuration
iBGP peer
same ASN
multihop allways possible
not advertise ibgp-learned routes to
iBGP-Peers
next hop for eBGP-Routes not changed
(router) neighbor #ip next-hop-self
eBGP peer
other ASN
(router) neighbor #ip ebgp-multihop #nr
config
(router) neighbor #IP remote-as #ASN
(router) neighbor #IP password #key
md5 authentication
(router) neighbor #ip update-source #IP | #int
(router) neighbor #IP timers #helo #hold
default 180s
lower of both routers is used
states
idle
down or waiting
connect
SYN sent
active
Connection established
opensent
openconfirm
established
ready to exchange routes
route filtering
clearing
clear ip bgp *|#ip [soft] [in|out]
soft
dont bring connectin down
(router) neighbor #ip
distribute-list #acl
prefix-list # list
filter-list #list
filter by AS-PATH
ip as-path access-list (permit|deny) #Regex
^$
leer
^.+_.+$
limit AS_PATH lenght
_1234_
match AS 1234
route-map #map
if neighbor flapping after one holdtime
check Path MTU
Path Vector Logic
Route Dampening
(bgp) bgp dampening #half-time #reuse #suppress #max
half-time
15min
halve penalty counter
reuse-limit
750
suppress-limit
2000
max-suppress-limit
60
1000
penalty
added for every route flap
not changeable