IS-IS

- Route manipulations
  - leaking
    - propagage L2 routes to L1 areas
    - (xe)(router) redistribute isis ip level-2 into level-1 route-map #name
    - (xr)(router-af) propagate level 2 into level 1 route-policy #pol
  - summary
    - only between Levels
    - (XE) (router) summary-address #net #mask [level-1|2|1-2] metric #v
    - (XR)(router-af) summary-prefix #net/# [level 1|2]
  - default route
    - automatic in L1
    - (router) default-information originate L2
  - suppression
    - suppress transit networks
    - suppress interface network
      - IOS XE
        - (router) advertise-passive only
        - (int) no isis advertise-prefix
      - IOS XR
        - (router-if) suppressed
  - filter local
    - routes are not installed in RIB
    - distrinbute-list #acl in
- Authentication
  - IHH
    - IOS XE
      - (int)isis authentication key-chain #name [level1 | level2]
    - IOS-XR
      - hello-password hmac-md5 #key | keychain #name
  - LSP
    - IOS XE
      - (router) authentication key-chain #name [level1 | level2]
    - IOS XR
      - lsp-password hmac-md5 #key | keychain #name [level 1|2]
  - keychain
    - ()key chain #name
    - (chain) key #nr
    - (key) key-string #password
    - (key) cryptographic-algorithm MD5
- verify
  - sh clns interface
- config
  - (config)router isis #id
  - (router) net #NET
  - (router) log-adjacency-changes
  - (int) ip router isis #id
  - (router) is-type level-1 | level-1-2 | level-2-only
  - (int) isis circuit-type level-1 | level-1-2 | level-2-only
  - (router)set-overload-bit [on-startup] [#s | wait-for-bgp]
    - mark routes as unusable
- operation
  - ISO standard routing protocol
  - Two level hierarchy
    - L1
      - only local L1 routes
      - L1-L2 routers set attached bit to announce Gateway
    - L2
      - all routes
    - routers can be in both levels
      - default
  - NET address
    - afi.area.stationID.SEL
    - AFI
      - private AFi 49
    - area Address
      - 1-13 bytes
    - system ID
      - 2-8 bytes
        - common 6bytes
      - same lenght and unique in area
        - incremental number
        - MAC
        - IPv4
      - is translated to hostname in output
        - (router)no hostname dynamic
    - SEL
      - 0x00
    - each router can have multible NET-addresses
      - participate in multible areas
  - LSPDB
    - Link-state packet DB
    - LSP
      - not changed during flooding
      - LSP ID
        - SysID.PseudonodeID-FragmentID
    - builds Topologie from Neighbor TLVs
      - independent of IP Networks
      - Subnet changes not require recalculation
    - path selection
      - interface metric
        - narrow 6bit
          - 1-63
          - default 10
        - wide 24bit
        - (router) metric-style (narrow | wide | transition) [level-1|2|1-2]
        - (int) isis metric (#val | maximum) [level-1|2]
        - metric style must match
      - external routes
        - internal metric
          - directly compaired to internal routes
        - external metric
          - less prefered
  - own Layer 3 protocol
    - uses broadcast for all messages
  - IIH
    - IS-IS Hello
    - different L1/L2 hellos
    - combinded L1/2-Hello for P2P
    - Padding to verify MTU
      - uses padding to reach MTU
      - (XR)hello-padding [disable | simetimes] [level 1|2]
      - (XE)(int) no isis hello padding
      - (XE)no hello padding [multipoiint | point-to-point]
    - timers
      - default hello 10s
      - (int) isis hello-interval # | minimal
      - (int) isis hello-multiplier #
  - pseudonode
    - created for multiaccess networks
    - connects routers
    - DIS creates pseudonode
      - priority >0
        - (int) ip isis priority #p
        - default 64
      - highest MAC
    - DIS handles update status
    - disable on Ethernet P2P links
      - (int) isis network point-to-point