VPLS Best Site ID

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VPLS Site ID Requirements

• Site IDs configured on each VPLS PE must be unique per VPLS domain.
  – Exception is multi-homing.

• Site-IDs can be either provisioned or dynamically generated.
  – Exception is multi-homing as site-IDs need to be explicitly configured.
VPLS Site ID Problem

- VPLS path selection mechanism picks the minimum site-id to determine the 'preferable' local site.
- Whenever the elected site-id is declared down, the traffic to/from all other sites within the same VE is impacted as well.
- Convergence period is impacted during transient intervals.
- CPU cycles are spent in destroying/re-building affected PWs.
VPLS Best Site ID Approach

• When ‘best-site’ is enabled on PE,
  – It is elected as most preferable site by remote PEs
  – It remains permanently up regardless of access failure events.

• Provides more provisioning flexibility.

• Minimal traffic disruption for non-preferable sites in multi-site VPLS PEs during access-side failures.

• No CPU cycles spent destroying and creating new PWs during failover events.

• Backward compatible
  - Relies on their legacy/default site-election.
Control Flag in Layer 2 Extended Community

With reference to the Control Flags Bit Vector, the following bits in the Control Flags are defined:

```
+-----------------+-----------------+-----------------+-----------------+-----------------+-----------------+-----------------+-----------------+
|D|A|F|B|T|R|C|S| (Z = MUST Be Zero) |
+-----------------+-----------------+-----------------+-----------------+-----------------+-----------------+-----------------+-----------------+
```

D  Defined in l2vpn-vpls-multihoming draft
A  Defined in l2vpn-auto-site-id draft
F  Defined in l2vpn-vpls-multihoming draft
B  When the bit value is 1, the PE receiving the label-block will deem the corresponding site as the most preferable site from the remote neighbor.

When the bit value is 0, the PE receiving the label-block will rely on its legacy/default site-election algorithm.

T/R  Defined in l2vpn-fat-pw-bgp draft
C  Defined in [RFC4761]
S  Defined in [RFC4761]
Best Site ID Approach

a) Receive NLRIs
b) Send a label-block adv with B-bit set.
c) Received label-block adv has:
   • [B-bit=1] Establish PW rooted at best-site
   • [B-bit=0] use legacy site-election

BGP VPLS NLRI
VPLS Best Site ID Add-Ons

• With ‘best-site’, no core-facing PW are ever torn down; previously learned MAC entries continue pointing to an invalid PW
  – Requires ‘Explicit-mac-flush’ mechanism to ensure that MAC-to-PW bindings are cleared during DF transition.
  – PE can request a remote PE to flush mac-entries by setting/unsetting F-bit in Layer2 control flags.
VPLS Best Site ID

• More details:
  draft-anshuverma-bess-vpls-best-site-id

Questions?