draft-francois-ordered-fib-02

Pierre Francois
Olivier Bonaventure
Mike Shand
Stewart Bryant
Stefano Previdi

{francois,bonaventure}@info.ucl.ac.be
{mshand,stbryant,sprevidi}@cisco.com
Agenda

• Updates since 01

• Further improvements to oFIB
  • Shortcuts
  • “Shortcut” completion messages
Updates

- Shorter, simpler, easier to understand
- Added section on fall back to regular convergence
  - Similar to PLSN fall back to regular convergence
- Added information on content of Completion Messages
  - Protocol dependent
  - What information to be encoded, not how information is to be encoded
  - Protocol specs will be produced for IS-IS and OSPF
Potential next steps

- Current version only describes basic behavior of oFIB
- It's not always required to wait for
  - the ranked update Timer to expire, or
  - all the completion messages to be received
Shortcuts

- If your new primary neighbor is not affected by the event
- $W$ is not affected for the destinations reached via $X \rightarrow Y$
- $T$ can shortcut its rank for the destinations that it will reach via $W$
- Gain is noticeable if Cloud A contains deep branches and/or Cloud B contains many nodes
- Shortcuts are discovered during the computation of rSPT(Y)
Shortcuts(2)

- Having a “PLSN Type A” neighbor is not a sufficient condition to shortcut oFIB without risking μloops.
- We want to keep 100% coverage.
Shortcuts : is it useful?

- The network applies oFIB only where necessary,
- while enabling fast loopfree convergence in meshed parts of the network,
Shortcuts : is it useful?

Convergence times for graceful link shutdown in a Tier-1

Shortcuts performed by a router only when possible for all the updates

Shortcut could also be done on a per neighbor basis
Shortcuts : one step further?

- Use “shortcut completion messages” to tell your neighbor that you are now using post-convergence paths via unaffected parts of the network.

T's FIB is updated for the destinations rerouted along T→W.
Shortcuts : one step further ?

- S can update its FIB for all the prefixes in Cloud B !

- Use of shortcut completion messages should be negotiated among neighbors. Handling of shortcut completion messages is not mandatory.
Questions ?