Route Redistribution Credibility ID for Avoiding Routing Loop

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Qiang Wang

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Background

Due to network scope, logical architecture or network management requirement, many existing networks have multiple different IGP protocol domains or instance/process.

The existing network have more complex multiple IGP domains architecture. Therefore, bidirectional route redistribution deployment is more complicated.

ANY network change activities maybe impact and need to adjust these route redistribution configuration. The routing policy adjustment have more complicated and high risky. In recent years, these route redistributions have had many routing loops cases that cause network incident.

The manually configured routing policy cannot meet the requirements of the current network. There is no ANY positively routing loop prevention mechanism in multiple routing protocol domain or instance/process scenario.
Solution: Redistribution Credibility ID

Redistribution Credibility ID:
Simplified method to positively avoid routing loop, and introduces new sub-TLVs to support advertisement IPv4 and IPv6 prefix extended attribute.

The Route Redistribution Credibility ID indicates the **Route Credit Rating** when this routing prefix has been propagated across multiple routing protocol domain or instance/process.

The Route Redistribution Credibility ID is automatically attenuated when the routing prefix cross redistribution node. If a route is redistributed more times, this route’s risk probability of routing loop is higher and its Credibility is lower.
Extensions for ISIS Redistribution Credibility ID Sub-TLV

TTR:
Times-to-Redistribution (called TTR, 1 octet), the **number of redistribution times**, the value from 0 to 255 is used as quantity of routing domain (means different routing protocol domain or instance/process) to be traveled across from the routing prefix original node to this route redistribution node.

Cred route-type:
Credibility route-type (called Cred route-type, 1 octet), the route is **internal or external Cred route type according to network administration scope**. For the routing prefix with same Times-to-Redistribution(called TTR) value scenario.
Next Steps

• The OSPF Prefix Extension Sub-TLV
• The BGP Extension attribution
• Any questions or comments are Welcomed
Thanks