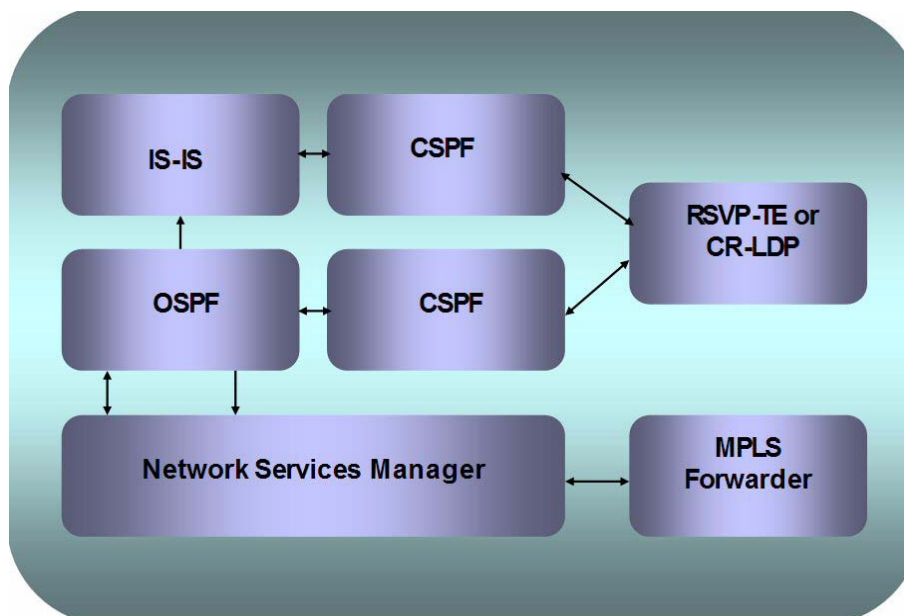


ZebOS®
Network Platform

CSPF Protocol Modules

Overview

IP Infusion's ZebOS® Network Platform Constraint-based Shortest Path First (CSPF) Protocol Module relies on the OSPF or IS-IS database to calculate the shortest path through the network. The CSPF is built on the ZebOS Network Services Module (NSM). The CSPF software calculates an optimum explicit route (ER), based on specific constraints. CSPF relies on a Traffic Engineering Database (TED) to do these calculations; the resulting explicit route is then used by RSVP-TE or LDP to set up Label Switched Paths (LSP). Refer to RSVP-TE or LDP modules for more detailed specification.



CSPF Topology

IP Infusion's CSPF solution can be used in embedded equipment. It is a control plane software module that can also be integrated into a range of network processor environments and is pre-configured to support many popular operating systems.

Background: Constraint-Based Shortest Path First

Conventional IP Routing inter-domain Routing Protocols use different techniques to optimize routes from source to destination address. For example, RIP uses the Bellman-Ford algorithm to compute a path with the minimum number of hops, while OSPF and IS-IS use the Dijkstra shortest path first (SPF) algorithm to compute a path that has minimum cost (costs are set by network administrators). When routing protocols calculate a path from a source to a destination that is optimal and at the same time does not violate a set of constraints, then it is called Constraint-Based Routing.

In Constraint-Based Routing, the route setup between two routers (source and destination) happens at the source router, whereas in conventional IP routing, a route/path is computed in a distributed fashion by every router in a network. So, when routing uses the SPF algorithm for optimum route/path and does not violate certain constraints, it is called CSPF. Constraint-based routing combines the path with two types of constraints: Performance and Administrative. The resultant path is not limited to just the shortest or lowest cost, but is the shortest and the lowest-cost path that conforms to the constraints.

Benefits

- Stable, robust implementation of CSPF
- Delivers significant time-to-market advantages for customers
- Can be used in both embedded equipment and on standard server platforms
- Platform-independent implementation
- Allows effective link utilization through traffic engineering
- Diff-Serv-TE enabled

Requirements

- ZebOS Network Services Module
- ZebOS OSPFv2 Module
- ZebOS IS-IS Module
- ZebOS LDP Module (optional)
- ZebOS RSVP-TE Module (optional)

Standard Deliverables

- Source Code (written in ANSI-compliant C)
- Installation and Configuration Guides
- Command Reference
- Developer Guide