CASE STUDY :

FEATURE DEVELOPMENT AND TESTING OF MPLS AND SEGMENT ROUTING FEATURES FOR 5G MOBILE BACKHAUL SOLUTION

Client: A South Korean client

Description:

This project involves feature development and testing of **carrier-grade transport switch** which supports Segment routing and MPLS features for 5G wireless network solution required by various telecommunication operators. Feature development and testing involves Feasibility Study, Requirements gathering, Effort Estimation, Project Planning, Design, Coding and Unit Testing and Feature testing of MPLS and Segment routing features such as LDP, RSVP-TE, BGP-LS (ISIS, OSPF, ISIS-SR), ISIS-SR, OSPF-SR, LFA, R-LFA, Multi-hop BFD, SR-TE, MC-LAG for L2 domain, Seamless-BFD, HQoS, BGP-LU etc, including both control plane and data plane, using ZebOS network protocols suite. This solution includes capability of handling north-bound configurations requests via NETCONF, REST along with traditional interfaces such as CLI and SNMP using a centralized transactional database and using YANG data-model which provides transactional management including save and commit, rollback of configuration and upgrade and downgrade flexibility. **It is developed on Trident 3 Broadcom chipset platform** (based on StrataXGS family of products) which is a next-generation high-performance non-blocking switch, targeted for datacenters, campus and SDN networks. This is a 3200 Gb/s switch fabric 128 * 25GbE or 64 * 50GbE or 32 * 100GbE multi-layer switch, with capability of delivering complete L2, L3, MPLS switching and routing capabilities at high port density, maintaining minimum power, latency and board footprint and scalable throughput.

Requirements & Scope:

- Feature Development
    - Feasibility Study of new features based on current software architecture, module design, feature drafts/RFC study, gaps analysis from code implementation.
    - Requirements gathering for roadmap features or customer features for various SW releases, to understand the scope of the feature and to get buy-in from all relevant stakeholders.
    - Effort estimation of various features based on feasibility study, Requirements gathering.

- Planning and creation of Project Schedule for various features based on Effort estimation and priority of features, availability of skill-level of engineers.
- Design and alternative designs based on current supported architecture, module design and implementation analysis of gaps, portion which can be re-used.
- Implementation as per the finalized design and project plan.
- Preparation of Unit-testing Plan for various features.
- Unit-testing and Execution of various features as per the ERD requirements, covering all relevant scenarios both positive and negative.
- Debugging and Analysis of the issues raised from the testing team, Product Assurance team as well from customers.

- **Testing**
  - Functional, Regression and New feature Testing of Different SW releases
  - Defects Logging/Tracking, Debugging and analysis of the issues along with R&D team
  - Test strategy and Test design, Test cases development.
  - Test case execution and ensure the quality SW deployment in the Field.
  - Bug fix verification
  - Support to customers by analyzing the field issues.
  - Test Summary Report Generation with detailed logs / data