

Intelligent Routing in Inter-Carrier Operational Support System

The project was aimed for Intelligent Routing Module (IRM) to be developed and was of carrier grade, robust and scalable Voice Switching Management Module with built-in intelligent routing algorithms to help carriers keep ahead in their business. With elaborated feature-set the IRM has enabled operators to minimize revenue leaks due to routing errors. With the help of IRM, carriers have been able to focus on expanding business without worrying about the likelihood of sending traffic through costlier routes or to ones that don't work that well. The IRM acted as the decision support system for routing in real-time thus ensuring revenue and profit maximization, premium call quality and high availability on the system, which are essential ingredients of doing successful long distance communication business.

Key Objectives

- To understand in detail the problems of not having IRI-OSS solution that can handle multiple switching platforms for wholesale operator.
- To allow system to work with scalability in call volume, handling numerous carriers and customers interoperability with different switching brands.
- To design and develop switch independent framework such as IRI-OSS able to read inputs from the soft switches and create routing tables on the fly for at least three different soft switches.
- To research, design and develop connector interfaces required for at least three different soft switching platforms.
- Research algorithms that can make routing decisions on real time basis while evaluating different routing decision parameters.
- Research and develop a robust architecture that can possess millions of CDR data per day.

Following are the main steps which were successfully performed during the Project.

Interoperability

CDR connectors were designed in such a way that they are interoperable with different soft switch using CDR Templates.

Modularity

IRI-OSS is modular in designed

1. Mediation Engine
2. Business Intelligence System
3. Routing Engine
 - i. Cost Based Routing Engine
 - ii. Quality Based Routing Engine
4. IRM Management Console

Distributed Environment

Modules were installed over different machines using high speed LAN to enable communication between different modules

Scalability & Robustness

The system is designed to perform with traffic volumes of 1M minutes a day using 900 ports and manage hundreds of carrier interconnects in live environment with a wholesale carrier. Scalability was implemented and tested by increasing the number of switching platforms to connect with the IRM simultaneously for making the route optimizations on all. The scalability is partially ensured through modularity and with the help of Distributed systems.

Separating business logic from external interfaces

Using Modular design, the business logic is kept separate and unaffected from the code that allows communication with the external elements like switching platforms, users etc.

Near Real Time Processing and Ensuring Efficiency

Information from the switch is continually pulled out of the switches in real-time / near real-time to analyze the changes in traffic statistics after which the relevant instructions are passed on to the switching platforms to modify route plans. The instructions are passed in a way that only the relevant sections in a route plan that need to be changed are only affected without putting more than the required burden on the system resources hence making it efficient.

Significant Results

- Development of mediation engine that can mediate millions of CDR's per day and integration with any CDR format.
- CDR template creation makes it a generic Mediator.
- Intelligent engine routing that has the ability to perform both cost and QoS based routing over pools and generate email alerts over violation.
- Ability to perform customized routing based on business/financial rules applied by user.
- Integration (Accounts, rates, prefix and call sources) support with other office support systems via GUI.
- High paying and technical job creation.
- State of the art technology transfer to benefit local universities.