

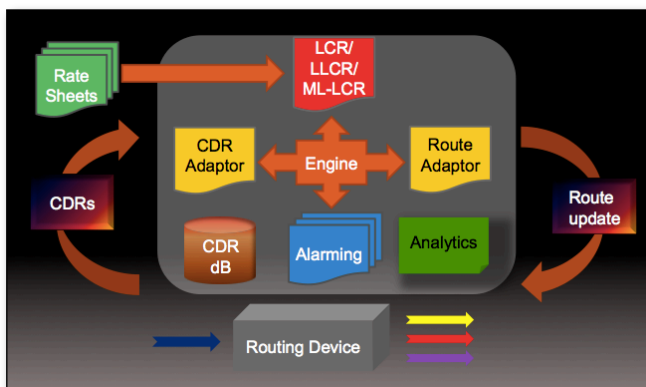
Least Cost Routing Module

This is an Adaptiv sub-topic discussing the LCR module. This should be read in conjunction with the General Product Brochure.

In today's competitive carrier environment of fast changing rates, each carrier needs an edge to ensure they extract the maximum amount of information from their routing systems. Simple reporting and Least Cost Routing is simply not enough any more.

One of the biggest challenges is "visibility" of the calls through the network in near real-time. Substantial revenue opportunities are missed in the complex interaction of suppliers and buyers routing calls based on ever changing rate sheets. It is difficult, if not impossible to predict the call flows based on the rate sheets used and this often result in a significant revenue loss when undetected.

To further complicate the situation, different management systems need to be used across different vendor equipment. Vendor implementations are usually focused on configuration of the particular vendor device and not a holistic performance view.



The IVSTel Adaptiv product suite offers an elegant multi-vendor solution by creating a near real-time vendor agnostic feedback environment based on call or event records.

Least Cost Routing (LCR) is a simple and effective mechanism to ensure calls complete

to the least expensive carrier. Adaptiv uses loaded rate sheets from multiple carriers and automatically calculates the routing algorithms for the device in terms of LCR. Depending on the device, this may be done using priority values of particular routing configurations or prefixes. Adaptiv takes care of the underlying mechanisms using route adaptors for the particular device.

Precedence is a way to alter the underlying LCR algorithm. It in effect overrides the LCR and establishes new routing based on the user's external knowledge of the carriers. Carriers, regions or dial codes can be promoted or demoted or blocked using precedence.

Dial Code	LCR 1	LCR 2	LCR 3	LCR 4	LCR 5	LCR 6	LCR 7
1	Prime 1(0.005)	Premium 1(0.0078)	carrier 1(0.00809)	VOIP 1(0.0082)	carrier 1(0.0098)	carrier 1(0.042)	
10011	Prime 1(0.005)	carrier 1(0.0082)	carrier 1(0.0098)	carrier 1(0.042)	carrier 1(0.00809)	Premium 1(0.011)	
10012	Prime 1(0.005)	VOIP 1(0.0082)	carrier 1(0.0098)	carrier 1(0.042)	carrier 1(0.00809)	Prime Premium 1(0.0021)	
1005	Prime 1(0.005)	carrier 1(0.00809)	carrier 1(0.0082)	carrier 1(0.0098)	carrier 1(0.042)	Premium 1(0.011)	
108	Prime 1(0.005)	carrier 1(0.0082)	Premium 1(0.0078)	carrier 1(0.00809)	VOIP 1(0.0082)	carrier 1(0.0098)	carrier 1(0.042)
109	Prime 1(0.005)	carrier 1(0.0082)	Premium 1(0.0078)	carrier 1(0.00809)	carrier 1(0.0082)	carrier 1(0.0098)	carrier 1(0.042)

These rules are maintained across loading new rate sheets and are applied after LCR is calculated.

Name	Device	Precedence	Status
Afghanistan	NEX03_04	Block	Active
Afghanistan	NEX03_04	Second	Active
Afghanistan	NEX03_04	Block	Active
CA ALASKA	NEX03_04	Block	Active

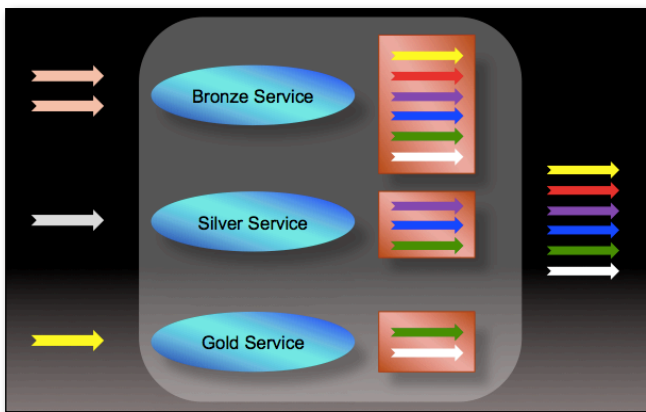
Lossless-LCR protects routing margins by analyzing every incoming route against even outgoing route for all carriers. LLCR will

visually show where you will lose revenue if the call were to complete.

Non-profitable Routes			
Buyer	Dial Code	LCR 1	LCR 2
Some Buyer	96550	Carrier 0.10488	
Some Buyer	96551	Carrier 0.10488	
Some Buyer	96558	Carrier 0.10488	
Some Buyer	96559	Carrier 0.10488	
Some Buyer	9656	Carrier 0.0913	Carrier 0.10488
Some Buyer	9657	Carrier 0.0913	iBasis 0.10488
Some Buyer	9658	Carrier 0.10488	
Some Buyer	9659	Carrier 0.0913	Carrier 0.10488

If the device supports blocking of calls based on different ingress to egress priority, LLCR can be used to automatically block unprofitable calls.

Multi-layered-LCR is an advanced LCR algorithm that calculates multiple LCR scenarios using subsets of carriers, as opposed to using all suppliers in LCR. This allows for finer grained LCR calculations, where the first in route is not necessarily the least cost.



ML-LCR is used to create different levels of LCR service. With ML-LCR you can create levels of service such as bronze, silver or gold for example. The gold LCR level will start with a more expensive, but higher quality carrier as first in route and will thus be charged at a higher rate.

By allowing each originating carrier or endpoint to establish a specific LCR, different levels of LCR service can be provided to these originating carriers. The default LCR algorithm uses all available carriers and calculates LCR based on the cheapest rate only. It does not take into account other factors such as quality and reliability of the carrier.

Fixing an originating carrier to a single terminating carrier is a simple solution, but does not offer a cost effective solution. LCR serves the purpose of routing calls as cheaply as possible and only using more expensive carriers when the less expensive carriers do not have capacity left or cannot complete the call. This approach provides the best possible margin to call completion ratio.

Conclusion

Adaptiv offers a real solution to network visibility across multiple routing devices. It allows for a uniform way to import rate sheet data and analyse CDRs. Adaptiv's graphing provides the user with a simple and intuitive interface to understand the routing of calls through their systems.

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