

Access Planning - One Step Optimization or Cyclical What ifs

Sudheer Dharanikota

How are you planning your access network transformation, which is 90% of your yearly capital investment? Are you keeping your stakeholders happy? Keep in mind they are the one who are going to open the check book! The question is how are you going to convince (and meet the needs) of your stakeholders with the fancy access planning exercise. Lets look at couple of options that are out there.

Is Access Network Planning an Optimization Problem?

You, as a Telecom operator spend 90% of your yearly capital spend on the access networks. So yes – it is a big deal how effectively you plan for your access investment.

The good part is we have many analytical tools now to solve this problem. We do have many smart people who can work on it. The question is - How much of behind the scenes optimization makes sense here?

There are two camps evolving here. One thinks we need to turn this into an **one step optimization problem** - optimize the access investment to some constraints. The other thinks we need to make this a **cyclical what-if analysis** based on different business rules.

This blog gives our opinion on access planning topic as people who lived through multiple (at least 5 of them 😞) access transformation strategies.

Understand the why? - Who are the Stakeholders?

Before getting sucked into fancy discussion, lets understand why we are doing access planning and what are the competing needs. As a planning lead, you need to satisfy different leaders (after all they are giving you 90% of their capital budget!).

- **The strategists:** They come from different areas. The product owners, the marketeers, the real strategists, the architects who care about the service offering to the customer etc.
- **The executioners (operations):** Then there are the people who actually worry about executing to the plan. They have real issues you know – how to procure the labor, how much material do they need, how to keep the cost down etc.
- **The financial controllers:** Well all of this does not come for free. You have capital constraints. There is something called capital intensity ratio!

Your job is to keep all of the above leaders happy with your plan. Yes – you my dear access planner – have a tough job. But keep in mind, in addition to all of the above, your competition is not sitting idle – they are going to disrupt your well planned plan 😊

As a cable operator, should you optimize an access network planning or should you do a step-by-step analysis to converge to a suitable solution?

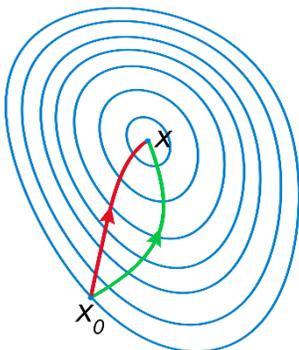
What is the problem?

As the analytics take center stage in the communications industry, there is a constant struggle to figure out what is the right path? One great example is the access network planning. I have been discussing this topic with elites of the cable industry for a while. Should we take the analytics to the extreme and call the access planning a one-step optimization problem or should we do a step-by-step cyclical controlled planning what-if planning?

Key Takeaways

- Understand your stakeholders (strategy, finance, ops) needs
- Remember competition does not plan by optimization
- Your leaders need convincing – you need to walk them through the numbers by intuition

Planning Optimization - Let the Math do the job



Let's peel the onion.

According to dictionary.com, optimization means – “A mathematical technique for finding a maximum or minimum value of a function of several variables subject to a set of constraints, as linear programming or system analysis”.

Let's assume planning as a theoretical problem to solve. We will then paraphrase the planning optimization as – minimize the access plan for the yearly spend (or hmm.... NPV over five years) that meets the strategists needs with the operational constraints.

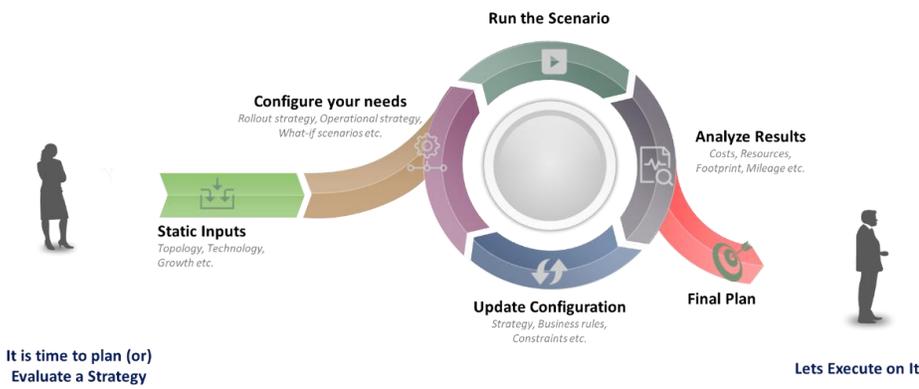
Say you hired a bunch of data scientists and ask them to create an optimization program on your Hadoop platform with SAS based analytics. What next? You go show it to your stakeholders. They start asking questions –



- Can you model prioritization of market A versus market B?
- Can you take my business customers to FTTH and my residential customers to fiber Deep?
- I have labor issues in north west region, can you optimize it for some of my operational constraints?
- Oh ... I am not sure how this Telco is going to react to my strategy? Can you optimize this for short term and long-term planning cycles? – May force sub-optimal solution.
- Question - How can you incorporate multi-variable constraints in an optimization exercise?
- Question - How do you compare solutions that are optimized for different parameters?

Your task is to steer your data scientists to get the results that you can explain to your leaders. Believe me they would like to know the details. You say that my mathematical model is saying this! **When you are talking to the leaders, they need get the intuition behind the numbers!** Your job is to bring it out from the data that your optimization model is creating. On top of this you need to provide different comparative metrics that satisfy your stake holders. For example – what are the investment efficiencies by taking different strategic decision? What is the resource efficiency across options? Etc.

Cyclical What if Planning - Step by Step Analysis



Another approach to solving the planning puzzle is to do a step by step analysis (of course optimization is involved here) with different business rules iteratively. Once we have the results look at the results if it makes sense operationally and strategically with a competitiveness lens.

This methodology helps you answer all the questions that your leaders have on their mind, as mentioned above. In

addition, it also assists you taking your leaders through the whole planning process logically. You are not walking out with the answer that you are leaving it to the math.

Our Recommendation

Living through multiple transformational strategy creations both with the products companies and with the cable operators as consultants – one thing we learned (many times in a difficult way) – you need to convince the bosses with the intuition before they open the check book. Walk them through your access transformation step by step with the intuition. Note that there are many stakeholders here – strategists, ops and finance. Giving a convincing planning strategy is not a onetime optimization problem but creating an intuition that your leaders approve will win their pocket.

About the Author



Sudheer Dharanikota has more than 25 years of experience in the telecommunications industry as a strategist, product line manager, architect, development lead, and standards contributor. Sudheer earned his MS in electrical engineering from Indian Institute of Science, PhD in computer science from Old Dominion University, and Executive MBA from Duke University.

CONTACT INFORMATION

Sudheer Dharanikota, Managing Director

Duke Tech Solutions Inc.

+1-919-961-6175

sudheer@duketechsolutions.com

www.duketechsolutions.com

