Increased Profitability through Capacity Planning

What is Network Capacity Planning?
Capacity planning is one of the most crucial responsibilities in the management of a system and when performed correctly can have a profound impact on the costs and profitability of the system and services delivered. Most incorrectly approach capacity planning as simple bandwidth demand modeling, comprehensive capacity planning is a business process that analyses the equipment, facility and personal costs required to provide service to your current and future customers for a future time period, usually 3 years. By analyzing the current and projected service penetration, new services, alternative methods to serve and other businesses constraints, a capacity plan identifies the most cost effective method for serving the customer base resulting in improved profitability for the operator.

Why undertake capacity planning now?
Whenever a significant new service is added to the network, it is good practice to undertake capacity planning. By increasing the demand for network resources, the addition of a new service can present the opportunity to reduce overall costs resulting from an increase in scale. Greater scale can also unlock opportunities to consolidate facilities, equipment and services resulting in further savings.

The addition of new services often coincides with the deployment of new technology. This creates a significant demand on the team limiting their focus to the new service deployment, resulting in overlooked opportunity to further leverage benefits from the new service deployment into other areas that could result in reduced overall costs. Finally, there is usually little time available to analyze the benefits of implementing other new technologies that could now be employed further reducing overall costs.

With the deployment of voice services underway in many operations, continuing growth of broadband internet subscribers with increasing capacity demands and new technologies offering the opportunity to increase video capacity and reduce transmission cost, having a detailed capacity plan is more important than ever. For example, the impact of successfully deploying voice can dramatically increase the capacity required. Although this seems counter institutive, the average utilization of HSD customers is less than 20K in most systems, however a PacketCable voice call can consume as much at 110K while the call is in progress. Additionally, voice services deployment may also change network redundancy requirements impacting overall topology. The only way to ensure minimum cost to serve while meeting the capacity demands resulting from successful service penetration combined with HSD subscriber and usage growth is to undertake comprehensive capacity planning.

While the advanced services departments are engaged in rolling out HSD and voice services, many video teams are investigating new technologies that allow them to increase the channel count of their existing systems and technologies that provide alternative means of transport for content. Many operators are investigating the use of IP for the transport of video content to reduce costs and increase capacity.
The combination of voice, video and data can profoundly change the capacity requirements to serve, and without a comprehensive capacity plan operators will not enjoy the lowest cost-to-serve, achieve their margin potential and limit opportunities to compete driven by cost management.

Developing a comprehensive capacity plan

i. The first step in developing a capacity plan is to establish a baseline from bottoms up information such as subscriber penetration, and model infrastructure and facility operating costs and existing service costs. These models can include personnel however in most cases, limited personnel cost modeling is required. Together these form an existing baseline of operating costs.

ii. The second step involves projecting existing service growth and new service penetration. A composite of information drawn from historical data, total addressable market and independent industry resources is used to devices a low, medium and high projection for three years.

iii. The first two steps are relatively procedural, the most interesting and revealing step is the third. Following establishing an agreed baseline and projected forecast, a list of alternative methods to serve are developed and analyzed. This “what-if” analysis investigates the combination of variables including network services, network topology, existing infrastructure, new infrastructure and other business or contractual constraints to derive a number of “cost optimized” solutions, projected for the next three years.

Finally, a written report is drafted detailing each step, the inputs and assumptions used to formulate each of the recommendations. A comprehensive capacity plan also highlights the tradeoffs between capital and non-operating expenditure and accommodates the time required to implement changes to achieve the “cost-optimized” infrastructure. To understand the value of capacity planning, every report should contrast the current “cost-to-serve” projected for three years with the “cost optimized” solution. Comprehensive capacity planning will, in almost every case, identify cost savings that exceed the cost associating with developing the plan.

Why Three Years.

There are many reasons why three years is the chosen period for developing capacity plans. Generally, sales projections can be accurately estimated in the current year, but in subsequent years, the margin of error increases making projections beyond the third year of little value. Three years equates to approximately the half life of equipment used to provide service, and equipment used by operators and by their providers presents a key constraint in the cost to serve. Finally, although revolutionary technology is constantly under development, the possibility of its wide scale deployment and therefore significant impact on the capacity plan within the three year window is limited.
Business Benefits derived from Capacity Planning

It makes sense that a network architecture cannot be developed without some level of capacity planning, but there are other more significant business benefits of comprehensive capacity planning.

- **Budgeting.** Information from capacity planning can help increase the accuracy of yearly capital and operating budgets, ensuring that capital is correctly deployed to support customer’s service demands.

- **Purchasing facilities.** Armed with the information from capacity planning, purchasing managers can ensure that contract durations aligned with the service delivery needs, overall volume discounts can be negotiated, and future commitments that impact costs can be accurately assessed.

- **Determining equipment requirements.** Capacity planning allows network engineering to determine the future demands that will be placed upon network equipment ensuring expansion and scalability requirements are correctly met.

- **Focuses high impact projects.** By associating costs and revenues with specific projects, the team is focused on delivering projects that provide the maximum contribution to the bottom line.

- **Develop product pricing and packaging.** By understanding the costs of service delivery, packaging and pricing can be devised that enables competition while ensuring profitability is achieved. This enables operators to react quickly during periods of intense competition and leverage packaging as a competitive tool.

- **Cross reference forecasts.** The capacity plan and the process of capacity planning can be used to derive a revenue forecast, providing check and balance for other revenue forecasting methods.

Outsourcing Capacity Planning.

If capacity planning is such an important management responsibility, why outsource it? The reason is that when capacity planning is undertaken by internal staff it often yields less than successful results. Personnel with the skills necessary to develop a capacity plan in the complex cable operator environment are in short supply and are usually too busy with other day-to-day activities to dedicate the time required to develop a comprehensive plan. Their day-to-day activities are often focused on specific functional areas and broadening that focus can be difficult and often disrupting to other key tactical projects. Comprehensive capacity planning often also covers multiple areas of responsibility and often results in recommendations affecting budgets and can cause tension between departmental supervisors.

Many don’t undertake comprehensive capacity planning because they believe that strategic direction of operators change so rapidly that capacity planning becomes futile. While it is true that mergers, acquisition and redirections may dramatically alter a
capacity plan, the process of developing the plan has benefits regardless of the changes, and provides key foundation information assisting in strategic corporate activities.

Outsourcing the development of a capacity planning and the processes used to develop that plan can help establish the discipline and procedures to ensure capacity planning is routinely integrated into the overall management process. An outside professional can avoid departmental issues, ensure that immediate tactical issues are not impacted and dedicate the time necessary to developing a comprehensive plan. The resulting plan and procedures used to develop this initial plan can be used to form the framework, baseline and benchmark information necessary to integrate capacity planning into the business planning processes.

**Summary**

It is important to remember that capacity planning is different from capacity management. Capacity management involves optimization the utilization or performance of infrastructure resources and as such is tactical activity that focuses on the present. Capacity planning is a strategic activity that focuses on the future. With a comprehensive capacity plan and the ongoing disciple of including capacity planning in business strategy, operators can achieve a cost-optimized infrastructure resulting in maximum system profitability. **Without a comprehensive capacity plan,** there is no doubt that you are leaving, possibly significant amounts, of money “on the table”.

To learn more about capacity planning or to schedule a meeting to discuss how capacity planning could be carried out in your organization please contact Robert Wilson at (817) 529-9898 or email robertwilson@megahz.com.

By working closely with your team to develop fully documented operating frameworks and methodology, we can provide the additional highly skilled resources to ensure that projects are completed on time and following completion, can be managed by your existing staff and operating personal. We do not undertake assignments where the task we are undertaking is suited to one of your full-time employees; we measure our success by completing the project on-time and to your satisfaction avoiding additional costs and overruns. When we undertake a fixed price project, we complete the project without additional overruns. We consider greatest measure of our success is the opportunity to help our customers in future projects. Our role is to help you achieve your network or service objectives with the lowest capital and operating costs.