



Production Capacity Plan

This deliverable provides the capacity estimates for communication and operations services for the Technology Infrastructure. The estimates reflect the current capacities plus the additions resulting from the new Technology Infrastructure. The estimates provide the assumptions on which the performance goals for capacities, throughput, etc. are based.

IPT Name:		
Deliverable Name: Production Capacity Plan		Date Completed:
Contact Information		
	Name	Channel Unit
IPT Sponsor		
Channel Task Manager		
CIO Task Manager		
Contractor Task Manager		
Task Order Number:		

Preliminary Capacity Planning Analysis

The following information represents a high-level estimate of the traffic that will be traversing the XXX wide area network infrastructure. The purpose of this capacity plan is to identify the estimated traffic patterns and volumes that will exist in the new network. This analysis is not a detailed capacity planning analysis. The goal of the document is to proactively uncover issues that may affect the conceptual design effort. During detailed design, the capacity plan must be revisited and finalized. Specifically, the following topics are not covered:

- Peak traffic periods within a business day
- Exact traffic volumes from each of the business applications
- Response time requirements for each of the business applications

For existing applications that will remain a part of the YYY architecture, information was obtained from the current processing environment. New application traffic such as QQQ and PPP, were based on estimated transactions and transaction sizes obtained from members of the YYY project team. Contingency has been added to assist with factoring in network traffic bursts. This analysis should be reviewed as part of the network infrastructure detailed design, to determine an exact traffic analysis and burst times.



Traffic by Application per Day

The following table represents a summary of the estimated amount of data to be transmitted by each application or business function on a given workday. A detailed analysis can be found in section 6.2.1 *Kilobytes per Application per Day*.

Application/Business Function	Kilobytes Transmitted per Day
TTT	50 Kb
PPP Optimizer	3240 Kb
QQQ Scanning	10,229 Kb
QQQ Synchronization	1540 Kb
Daily Printing	120,000 Kb
Nightly Printing	120,000 Kb
Order Entry/On-Line Access	40, 000 Kb

Traffic by Site per Day

Locations within the XXX network can be divided into five categories or types of sites: Manufacturing plants, corporate headquarters, UUU, consumer service, and the national account center. Each of these types of locations will use their own unique mix of the above mentioned applications and business functions. The table illustrated below represents the total amount of data, that each type of location will transmit and receive across the wide area network on a given workday. A more detailed analysis of this information can be found in section 6.2.2 *Kilobytes per Site per Day*.

Location	Inbound Kilobytes per Day	Outbound Kilobytes per Day
Manufacturing Plants	208,483 Kb	50,558 Kb
Corporate Headquarters	880,367 Kb	4,032,245 Kb
Consumer Service	20,000 Kb	20,000 Kb
SITE	20,000 Kb	20,000 Kb
National Account Center	10,000 Kb	10,000 Kb



Bandwidth Requirements per Site

Based upon the amount of data being transferred to and from each location across the XXX wide area network, it is possible to estimate the required bandwidth needed. Wide area network transmission speeds can then be determined based upon these bandwidth requirements. The table below illustrates the inbound and outbound aggregate capacity requirement for each location. This can be thought of as the minimum estimated data transfer rate needed in order to support the YYY architecture. Also noted is a recommended circuit size for each location. The “Recommended Circuit Size” and “Number of Circuits” represent the wide area network service offering and quantity that will effectively support the transfer of XXX data. The conceptual design will determine whether there should be more circuits obtained for each location, in order to support redundancy and availability requirements.

Location	Inbound Aggregate Capacity Requirement	Outbound Aggregate Capacity Requirement	Recommended Circuit Size	Number of Circuits
Manufacturing Plants	400,315 bps	7,866 bps	560 Kbps	10
Corporate Headquarters	125,074 bps	611,798 bps	T1 (1.544 Kbps)	10
Consumer Service	20,831 bps	20,831 bps	560 Kbps	10
SITE	20,831 bps	20,831 bps	560 Kbps	10
National Account Center	10,415 bps	10,415 bps	560 Kbps	10

As the table illustrates, there is a difference between the inbound and outbound volumes of traffic for each location. The recommended network architecture should be capable of supporting a wide range of traffic volumes, such as those illustrated above. For instance, although the outbound capacity requirement for a manufacturing plant is 7.8 Kbps, the inbound capacity requirement is much higher (40.3 Kbps). For this reason, a 56 Kbps circuit would be required to support both types of traffic flows. In addition, due to the bursty nature of network traffic, larger circuits are specified to provide additional capacity when the wide area network is highly utilized. This additional capacity will even out large flows of traffic that may be sent simultaneously, allowing the network to have better performance.