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Achieving Business Success Through Customer Relationship Management (CRM)



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* - *The Loyalty Effect*, Harvard Business School Press

Introduction

Recently, a company eloquently described its commitment to “proactively managing customer relationships”, “knowing its customers and anticipating their service needs”, and providing “tailored services to individual, high value accounts”. This company is not unusual and reflects the desire of many companies to build and sustain committed relationships with customers through the consistent, automatic application of business processes by the effective use of people and technology.

The motivations for companies to do this are not altogether altruistic. Companies have come to realize that customers are in fact the only assets that count. This concept has been memorialized by Karl Albrecht, noted author of a number of books on customer intimacy, one of them entitled “The Only Thing That Matters”. When you get right down to it, a company’s worth is defined not by what the auditors say, but rather by what their customers think of it. The auditors only reflect the customers’ opinions, because it is the customers who are the ultimate arbiters of whether a product is worth buying, and they vote with their wallets.

So if this hitherto unrealized asset is in fact so valuable, isn’t it worth investing in managing that asset to make sure it continues to benefit the organization? Absolutely, and that is why the concept of actively managing customer assets and all customer interactions through a common set of processes is gaining momentum with both companies and analysts. The concept of actively building processes and technology to acquire and develop customers is known as Customer Relationship Management (CRM). The

Yankee Group, a well-known market research company, recently forecast that the ECM market will grow \$ 4.5 billion in 2000, as shown in Figure 1 below.

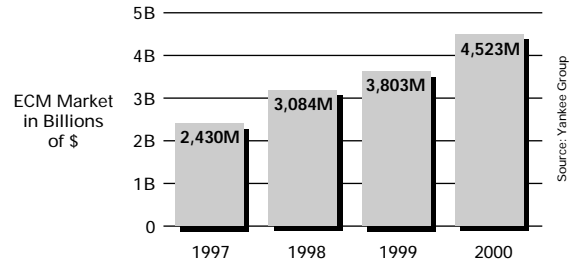


Figure 1—ECM Market

They went on to note that in transaction intensive industries such as financial services, a rules based, process centered solution is likely to be the best approach.

There are many signs of this phenomenon, from the invention of new marketing buzzwords, such as “market of one concepts” to the reflection of the embodiment of these concepts in new programs being offered by major companies, such as Chrysler’s Customer One program, and Hertz’s #1 Gold program. This paper will focus on the need to inculcate these programs intelligently throughout the enterprise, if they are to be successful. It will discuss the importance of taking today’s hodge-podge of systems and manual processes (which are a throwback to yesterday’s approach to customer service) and integrating them into a single, cohesive merging of process and technology to make sure we can profitably acquire, develop, and retain customers.

The Customer Management Dilemma



Figure 2

Today's customer is a much sharper individual than a decade ago, and is also much more demanding. At the same time, on the product side, there is often very little vendors can do to differentiate their products from the competition. If we look at the credit card industry today, we see this problem. While there is some differentiation in terms of interest rates, savvy customers today know enough to either negotiate the rates down or find those with the lower rates. But even here there is any number of credit card suppliers at competitive rates. All have the same financial structure and are therefore charging nearly identical late payments, annual fees, etc. So how can a credit card company lure customers away from its competition? The answer lies in servicing its customers better, in lavishing extra benefits on those customers such as negotiated discounts at certain hotels, increased credit lines, or affiliations with frequent flier programs. Similarly, better customers also get special designators, such as "gold" or "platinum", which affords them privileges beyond those of regular customers. Annual reports of spending are delivered to these customers, special service lines are made available, special magazines are automatically delivered, and so on.

But these programs cost money to the providing organization, and some customers are a better investment than others are. Just as in any other situation where an asset needs to be managed, there are prudent actions to take to protect and grow that asset, and there are foolish actions which will hurt the organization. Customer service is a nice mantra, but how much money is it worth to cultivate a bad customer. If a company sets up an elaborate call center and staffs it on a 24 by 7 basis with sufficient staff to ensure zero wait time for the customer, how many people are being paid to do nothing (Ready time) when call volumes are low, and is it worth it?

The Economics of Customer Acquisition, Retention and Development

The last question asked is really the heart of the issue. Companies are in business to increase shareholder value, and to the extent that that is achievable through Customer Relationship Management, they will do so. The good news is that it works, and the numbers are there to prove it.

Statistics1 show that service leaders (companies which provide superior service to their customers) enjoy the following advantages over their low-service competitors:

- They grow twice as fast
- They experience a 6% annual market share growth vs. a 1% share loss (they take customers away from their competition)
- They can charge 10% more for their products and still take customers away

- Because of this, they enjoy a 12% vs. 1% average return on sales.

The numbers definitely show that the practice of providing superior customer service increases shareholder value and creates a competitive advantage that is worth the investment. And common sense will only reinforce why it is that 20% of a company's customers generate 80% of the profits. If we think about the benefit of building a relationship with a client in human terms, people like to do business with people they like and trust. Not only will a good relationship bring more business from the client, but satisfied clients will be likely to tell others about the positive treatment they have experienced and will bring referral business to the organization. Clients will also tell others about bad experiences they have had and drive others away from businesses.

- Industry statistics show that 68% of customers who walk away from a relationship with a vendor do so because of poor customer service, and this happens at all levels.

We know of a small partnership that broke up and the two partners became competitors, meaning that all their former customers had to decide which partner to follow. One customer put it plainly: "I never heard from Joe except when it was time to buy – so I'm going with his partner". Simply put, it pays to proactively manage relationships.

When we look at the costs of sales, we see similar reasons for managing relationships effectively. Business is sold to new clients after an average of eight to ten calls; it is sold as repeat business after an average of two to three calls. When you factor in the amount of time spent on researching the best way to approach new clients, and preparing account plans, etc. the statistics show that it is anywhere from five to fifteen

times more expensive to acquire a new customer than it is to retain an existing one. In financial terms, this means that a 5% increase in customer retention can result in a 25% to 85% increase in profitability. That's a good investment in anybody's book.

As a final example of the economics of CRM, we offer an analysis done by Arthur M. Hughes, titled "Evaluating Strategy Using Lifetime Value". In this article, Mr. Hughes explores the lifetime value of a customer to a car rental and compares the lifetime values before and after the implementation of a loyalty program. The results are astonishing. Not only do retention rates double from 40% to 80% after the program's inception, but the amount spent by each customer per year also increases dramatically. Looking at a three-year time span, starting with year one of the relationship, this analysis shows a doubling in spending in year one, tripling in year two, and three and one half times differential in year three. These results are shown graphically in the table below:

| | Year 1 | Year 2 | Year 3 |
|-------------------------|---------|---------|----------|
| Without Loyalty Program | \$16.00 | \$32.00 | \$40.89 |
| After Loyalty Program | \$35.00 | \$96.00 | \$141.53 |

Table 1

The Holy Grail of Customer Management

With these kinds of results, it is little wonder that companies today are scrambling to manage their customer relationships more effectively. The utopia they seek can be expressed in terms of certain characteristics that will describe their company if they attain their goal of effective and efficient Customer

Relationship Management. These characteristics include:

Best Practices in Customer Service

A customer centric organization will have initiated a number of best practices, and will have reengineered itself to make sure they are in place. Karl Albrecht describes a methodology based on Jan Carlson's concept of "Moments of Truth". In this scenario, an organization identifies all of the points in all of the existing processes where there is an opportunity for a customer to become either satisfied or disillusioned with the organization. Areas might include small details such as: have we made available enough parking spaces, or significant benefits such as: are we adequately rewarding our best customers for their loyalty? By mapping these moments of truth, and identifying the possibilities to retain or lose customer loyalty at each of these, an organization can reach a level of best business practices.

Timely, Informed Customer Interactions;

Customers are interested in two aspects of any interaction with a supplier. The first aspect is that the supplier "get it right", whether "it" is a service, a product or a combination of the two. The second is that the supplier responds to the customer's needs in a reasonable time frame, where "reasonable" is dependent on the customer's expectations. This can be said differently: suppliers need to be effective (do the right thing) and efficient (do it quickly) in order to retain loyal customers. This, in turn requires a tremendous amount of information to be managed effectively and presented to the appropriate service representative at the right time. In a call center environment, for example, the objective is never to have to say "I'll get

back to you with that information". The information should be delivered to the agent in a timely manner so that the agent is able to resolve the customer issue on the first call. Not only does this result in satisfied customers, but it also saves the company money. It costs money for service agents to hunt for information, make secondary phone calls, dig through filing cabinets, or manually pore through catalogs. Inefficiency in customer interactions leads to a greater number of staff required to handle the same number of interactions, or slower response times, both of which are to be avoided in today's competitive business environment.

Accurate, Automated Fulfillment Processes

Part of "getting it right" is making sure that customers are treated well throughout the entire life cycle of the transaction, so the job does not end when the customer call ends. Organizations are recognizing the need to tie together all of the customers facing processes to ensure that customer requests and the associated fulfillment activities get managed in an integrated fashion. This leads to a more consistent and reliable service experience for the customer leading to increased satisfaction and loyalty.

Enhanced Profit

As the example of the automobile rental company shows, an effective and efficient Customer Relationship Management program will lead to enhanced revenues along with lower costs resulting in increased profitability for the company. With CRM, companies quickly realize the financial benefits associated with insulating high valued customers rather than having to perpetually pour money into acquiring replacements for dissatisfied customers.

Customer Intimacy

A woman once purchased a car, and several days before the scheduled delivery date, she got a call from the sales manager at the dealership. Fearing the expected bad news about a potential delay in the delivery date, she answered the call with trepidation. To her surprise, the manager asked her a few questions about where she usually drove, what kinds of music she listened to, and so forth. She answered them, not really knowing what this was about until the day she picked up her car. To her delight, the dealership had supplied her with maps of the regions she had referred to in her conversation, and her radio was preset to stations, which corresponded with the music she had indicated as her preference. Needless to say, this woman was this manager's customer for life.

Today we have the ability to glean tremendous quantities of information about our customer base. By using this information prudently, we can design products and services that speak to customer intimacy and in turn evoke customer loyalty. Customer loyalty means more business from that customer plus referral business from other customers, and this is a virtuous cycle worth developing.

More Effective and Productive Workforce Management

Jan Carlson once said, "If you aren't serving the customer directly you should be supporting someone who is". When there is a focus to the activities, and when best business practices are established in an organization, the workforce becomes more effective. At the same time they become more productive, and the results are usually quantifiable, because in the vast majority of cases, the inclusion of best practices also involves the infusion of metrics into the organization, and people begin to measure their output and look for ways to improve their performance.

The Situation Today

Most organizations today find themselves trying to reach the Holy Grail with isolated, outdated and incompatible technology, and are attempting to overcome these obstacles by means of manual, paper intensive processes. To illustrate this, let's look at the key stages of the customer life cycle: those moments of truth, which are key to delivering the kind of value to the customer that will cause the customer to return.

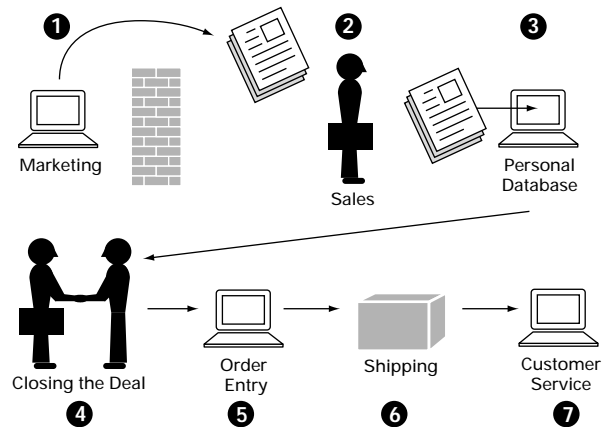


Figure 3

If we start at headquarters, the marketing department initiates the sales cycle by devising a campaign that targets specific customers (1). To do this, they typically gather information about the likes and dislikes of particular segments of the population and develop a marketing campaign to offer a particular product or service to these targeted populations. The end result is a series of documents that describe (a) the offering, (b) the reasons why customers should be enticed to accept the offering, (c) a description of the profiles of the target customers, and (d) a listing of potential

customers, known as leads. These documents are generated using a combination of technologies, including: data warehousing to store the information, on-line analytical processing (OLAP) and data mining to segment the population and understand the affinities campaign management tools to help organize the marketing material, and a variety of office automation tools.

This information is “thrown over the wall” to the sales force (2), which uses contact management products to coordinate their leads and sales calls. Often, in order to use the contact management tools effectively, sales representatives have to re-key the contact information provided by the home office into their own personal databases (3). This is not a good use of a sales rep’s time given that a new customer will require eight to ten calls to close a deal.

Eventually, leads turn into prospects, then into qualified prospects, and finally, a sales rep closes a deal and a customer is created (4), who places an order. It is here that perhaps the largest disconnect exists between the so-called front office (sales and marketing) and the back office (fulfillment) which is responsible for actually delivering what the customer ordered.

Order entry takes the customer’s order (5) and enters it into an on line transaction system. The order entry system then produces a pick list for the warehouse, which is responsible for shipping the order to the customer (6).

To respond to customer inquiries or resolve customer problems, contact centers are established to provide customer service and manage the customer relationship on an ongoing basis (7).

Several observations are worth making relative to this situation.

- First and foremost is the fact that these systems are all point solutions, aimed at automating only a specific piece of the overall process, disconnected

from actions that precede or follow their one specific focus.

- Secondly, each step in the process requires information to be effective, and these systems, built as silos, do not have the ability to leverage shared information. The result is duplicated, conflicted and out-of-date information and, in general, an inability to get all the information needed to all relevant parties when they need it. There simply is not full corporate knowledge of the customer interactions at any step of the customer management process.

The evolutionary reasons for this technological Tower of Babel are worth a short discussion.

Personal Computers Lead to Islands of Automation

With the advent of the Personal Computer in the early to mid 1980s, we became enamored with the idea of providing computing power to the individual desktop. Personal productivity became the mantra of the ‘80s, and most of the development effort was aimed at making individual contributors more productive. With this view of the world, different aspects of any given process, customer service included, was reduced to identifying and segregating the particular tasks performed by individuals and applying automation to those tasks with the sole purpose of making that single task simpler, faster, better, and so forth. As a result, we were given contact managers, call center managers, campaign managers, order entry systems, fulfillment systems, prospecting systems, each specifically aimed at a particular descriptive segment of the cycle. Each one of these systems was also responsible for managing information about some aspect of the overall relationship.

Businesses Need to Manage Processes

However, this view of the business ignores the fundamental precept that the individual tasks are part of an overall process that has a purpose, and that the tasks need to be linked together into a cohesive process in order to satisfy the business mission. This revelation dawned on our collective consciousness in the early 1990's when we began to accept the notion that technology could also be used to help us interact with each other as well as helping our personal productivity. This led to the acceptance of groupware and workflow technologies, as well as to the concomitant notions of adapting technology to the processes and allowing the sharing of common repositories of information to break down departmental walls.

Back Office Islands of Automation

Similarly, on the back end, we were busy building financial applications to manage our financial assets, with the prevalent thought being that if we could manage our financial assets, we could manage the business. This evolution of software applications started in the financial space in the 1970s (D&B, Oracle), then migrated to applications that manage physical assets, then to applications that manage human assets. The thinking today is that what companies need to manage is, as Karl Albrecht put it, “the only thing that matters” – the customer assets. Companies must leverage systems and corporate knowledge to their advantage. The current view of the world is that our businesses are process-centric, and that each step of the process can, and must be data-enabled if we are to succeed. Get the information needed to whomever needs it at whatever place or time in the overall process that it is required; customer interaction, order entry, fulfillment, customer service, wherever and whenever it is necessary.

A More Holistic View

This technological evolution leads us to a newer, more holistic view of customer service or customer relationship management. Rather than having point solutions, each responsible for a piece of the information needed for the successful management of our customer relationships, we now look at our customers as assets, and proactively manage those assets. Thus, the technology aligns well with newer management philosophies, which also focus on managing processes rather than managing departments.

The Need for Integration and Automation

At this point we have seen that today's point solutions, while good at managing a piece of the problem, are disconnected from each other. The whole is greater than the sum of its parts, and we have learned in the '90s that the synergy of integration pays big dividends. This then points to a need for integrating the various point solutions into a single coordinated solution. We are moving away from data centric point solutions to process centric enterprise solutions.

For example, in the case of customer service, most customer interactions, whether inbound or outbound, initiate an associated fulfillment process. That is because these interactions are themselves part of an overall process. Using the old disparate systems, these interactions are handled as separate from related processes. In the new CRM paradigm, customer interactions are managed as part of well defined enterprise processes. The automation of the activities that follow the initial customer contact integrate not only the process steps, but also the sharing of any pertinent information required by those downstream steps. This means no unnecessary paperwork, no extra handoffs, and no repeated steps. It is important to note that historically, the one place where manual processes

break down most often is at the boundary between two departments. By automating the process handoffs, as well as the information required, the chances of failed processes, and therefore unhappy customers, are greatly diminished.

The potential hard dollar savings from integrating and automating the interaction and fulfillment processes is material. As an example, consider one financial services customer service center that handles over 111,000 maintenance and research requests per month. The maintenance and research items fall into categories such as Billing Cycle Changes, Account Closure Requests, Name and Address Changes, and so on. Each category represents a process, which in many cases can be partially automated and streamlined.

| Support Process | # of Processes | April Volumes | % of Total |
|-------------------------|----------------|---------------|------------|
| Portfolio 1 Research | 26 | 5,387 | 5% |
| Portfolio 1 Maintenance | 42 | 23,239 | 21% |
| Portfolio 2 Maintenance | 36 | 18,498 | 17% |
| Portfolio 3 Maintenance | 20 | 4,737 | 4% |
| Portfolio 4 Maintenance | 30 | 59,690 | 54% |
| Totals | 154 | 111,551 | 100% |

Table 2 — Monthly Support Volumes

As shown in Table 2, there are over 150 different processes in this center. The table shows that of all the work required for Portfolio 1 (Research), 60% of that work is referred from call center representatives (that is from a phone call which came into the center) and 40% is from correspondence with customers (that is, from the mail room). The process for dealing with Portfolio 1 items involves forwarding maintenance and research requests, which in turn involves taking and servicing a customer call and completing a manual form. The form is then physically moved from the call center to the Support area where it is processed. Processing typically includes manual entry into the Portfolio 1 host by Support staff. The processing and

movement of manual forms represents unnecessary, inefficient and repetitive steps that can be easily automated by using workflow and document management tools to automatically forward the request to the appropriate support specialist

| Portfolio 1 Maintenance Process | Monthly Volume | Hourly Rate | Potential Savings | |
|---------------------------------|----------------|-------------|-------------------|-----------|
| | | | FTE | \$ / Year |
| Check Order | 7,075 | 30 | 2.26 FTE | \$45,295 |
| Name & Address Change | 3,652 | 25 | 1.28 FTE | \$25,506 |
| Memo Lines | 2,297 | 25 | 1.12 FTE | \$22,460 |
| Account Closure | 790 | 17 | 0.46 FTE | \$9,102 |
| Totals | 13,814 | | 5.1 FTE | \$102,363 |

Table 3 — Selected Savings Opportunities

Table 3 shows the estimated savings opportunities that arise from automating the fulfillment processes for just four of the 154 customer-service-center support processes. The volume represents just 12% of total Customer Service Support volume. Accordingly, savings across the entire center should be many times that shown in Table 3.

This customer service center is also considering the delivery of customer information to the customer service agents' desktops in the form of "screen pops". The 15 to 20 second time-savings benefit from screen pops can be large, perhaps as large as \$330,000 annually for this particular call center, assuming a 50% hit rate and 1 million calls per month. However, it falls short of the total potential benefit that could be delivered by a more systematic automation, such as that shown in Table 2. As we can see, just automating 4 of the 154 tasks resulted in savings of \$102,000, approximately 30% of the total savings in implementing screen pops. Assuming a linear extension, if four processes out of 154 produces \$102,000, it could be argued that automating a larger percentage, say 40,

could produce a savings of over \$1million dollars, while still only impacting less than one third of the activities in this one process.

A similar study was conducted in an independently managed but co-located credit and collections call center that indicated potential estimated savings of more than \$1.5 million per year. See Table 4. As one can see, there is almost an even split in savings between the improvements from integrating and automating fulfillment processes and the improvements from intelligent routing, screen pops, and other call management applications. Therefore, the automation and integration of fulfillment with interaction makes up over half the benefit.

| Savings Category | Tangible Savings | |
|-------------------------------------|------------------|------------|
| | Annual | % of Total |
| Tangible Process Automation Savings | \$754.7K | 48.8% |
| Tangible Call Management Savings | \$790.7K | 51.2% |
| Totals | \$1,545.4K | 100.0% |

Table 4 — Estimated Savings in Collections Call Center

The distribution of estimated call management savings for the Collections Call Center is shown in Figure 5. In this case, staff savings represent roughly 51% of the total. Surprisingly, toll savings make up the remainder. This is primarily due to the treatment of callers and the excessive time they spend in queue, on hold and being transferred. The savings are a graphic illustration of the tangible benefits associated with automating customer-centric processes and intelligently managing work across the enterprise, which will also result in dramatically better treatment for all customers.

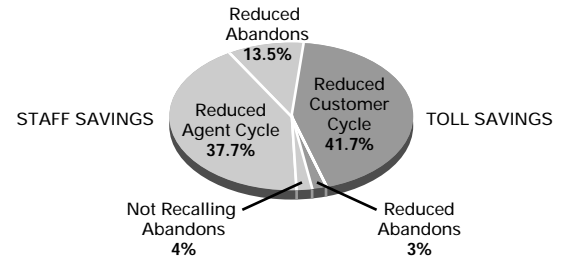


Figure 4 — Example Call Management Savings

Customer Relationship Management

The Concept Defined

Simply stated, Customer Relationship Management is a new strategy for delivering superior customer service in order to effectively acquire, develop, and retain your company’s most important assets—its customers. In particular, it demands acquiring an understanding of the kinds of things that are important to each and every individual customer and developing programs which consistently satisfy those needs during every customer interaction. . It is important to note that “customers” are no longer just traditional end users or consumers, but potentially they can be partners or resellers or any group that requires information or services from an organization.

There are a number of characteristics associated with CRM:

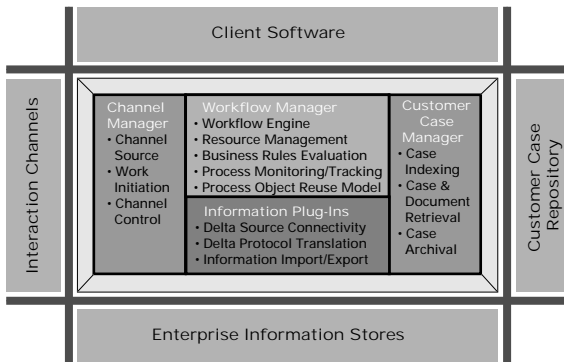


Figure 5

End-to-end management from initial interaction through fulfillment

The first characteristic is the ability to manage the entire spectrum of customer processes from the initial interaction through the fulfillment of any obligations that that interaction creates in an integrated and coordinated fashion. All information about the customer and his or her transaction history should be available to anyone in the enterprise who needs to have access to it so that every interaction with a customer can be efficiently and effectively managed from end to end.

Leveraged by being able to manage multiple channels of interaction –

Today's primary contact with customers is through phone calls, although there is an expanding Internet presence as both companies and consumers discover its power and benefits. CRM expands business process automation to the front-end customer processes – where “the rubber meets the road” by allowing the capture, process and management of the customer interaction regardless of the input medium. Customer

requests coming in as calls, faxes, web hits, email or standard documents can all be handled under the same framework and with consistent business rules so the service experience is reliable. Customers are increasingly demanding multiple options for interacting with a company and the ability to integrate the various channels of communication into seamlessly automated processes creates a very valuable point of differentiation for a company.

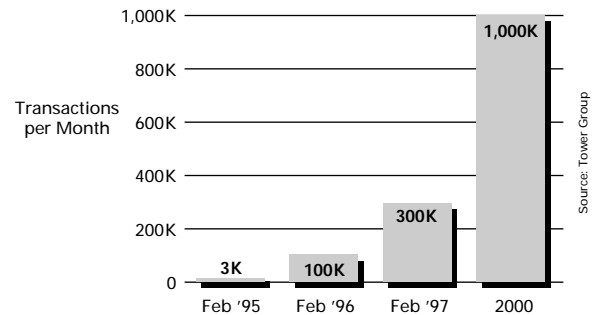


Figure 6 — Internet Banking Case Study: Growth in Retail Banking over the Internet

A Tower Group case study of a large Canadian commercial bank confirms this growing demand by customers for alternate channels of interaction. They found that retail customers were embracing the World Wide Web at an unexpectedly high rate as a means to conduct routine transactions, such as account inquiries and transfers. See Figure 6. We can conclude that in this case the bank's customers preferred the convenience, reliability and timeliness of banking over the Internet to traditional channels such as talking to an agent or using an interactive voice response unit (IVR).

Fax volumes received and sent by service centers can also be substantial. In one cellular customer service center, fax volume exceeded 20,000 per month. In this center, the savings from automating the steps associated

with fax and preserving and manipulating the fax as image data eliminates as much as 3 minutes per fax transaction. This translates into 60,000 minutes/month or approximately 6 FTE's.

Service to value

Many companies desire to differentiate the service they provide with every customer contact, particularly in the case of loyalty systems, where the “platinum” or “gold” customer expects superior service. Recognizing that the top 20% of customers represent 80% of a company's profits, companies want to treat their best customers as special, giving intimate and personalized service to ensure that they retain these high-value assets. Other customers will receive good, but perhaps undifferentiated service as resources permit.

For example, NationsBank recently announced that it would provide a special ID for the upper one third of its customers, who by entering the ID would receive preferential treatment. NationsBank spokesman John Cleghorn acknowledged the sensitive nature of the bank's plans, adding that all of the bank's customers will continue to get “good” service. “But we want our best customers to get our best service,” he said. NationsBank receives 132 million calls per year in its call centers.

Today's newer systems enable organizations to personalize service to meet the unique needs of a customer consistent with the value of their relationship (“service to value”). Not only is the service personalized, driven by the customer's attributes, but automating this concept improves the effectiveness, quality and efficiency of customer interactions and the associated fulfillment by matching the needs and value of the customer with the resources best prepared to handle the contact.

For one bank, roughly 5% of customer service calls are from best customers. Ironically, these customers receive somewhat better service than the average caller (36 second Average Speed of Answer (ASA) versus 51 second average) but abandon much more often (>20% versus 10% average) while the agents serving them are less busy (82% occupancy versus 88% average). The bank's current practice does not meet its objectives.

This is where “service to value” and the related features of intelligent work management and informed data presentation can allow the bank to co-mingle its best customer representatives with its other agents to improve both service to its best customers and its overall efficiency.

Consider the following scenario in which the bank receives 50,000 calls from best customers per month, divided evenly across 3 teams, and 950,000 average calls per month handled by one large team. The best call teams require 4 representatives each, at 53% occupancy, and deliver an ASA of 24 seconds each. The average call team provides an ASA of 52 seconds, 46% of calls are served in 20 seconds and 71% of calls are delayed.

If we combine the best customer representatives with the other agents, direct best customer calls to the front of the queue, and prepare all representatives for all calls with complete, context sensitive account information, then certain dramatic changes unfold. Best customers are now served in as few as 2 seconds or better. Overall ASA improves to 10 seconds and 82% of calls are served within 20 seconds. The number of delayed calls declines to 38%. Overall productivity (i.e. calls handled per agent hour) remains the same, but the best customer representatives occupancy increases to 93%. This analysis does not include abandons, but one may assume dramatic improvements in that area as well.

Service Level Management

In the new CRM paradigm a company not only manages all customer contacts regardless of the channel of interaction, but it extends the concept such that call traffic and agent demand are predicted and agent resources are automatically allocated to meet the demand and take advantage of lulls in call traffic. This capability, called Service Level Management (SLM), applies blending and forecasting technologies to all types of work. Calls become just one of many contact types and contacts become a form of work.

SLM allows service center managers to specify desired service levels by request type and customer type (i.e. “Gold”) as business rules, such as handling 80% of calls in 20 seconds or handling 80% of emails in 24 hours. SLM will then automatically resolve resource conflicts and allocate resources across the entire range of work, yielding maximum efficiency while preserving the desired service levels and effectiveness. Agent ready time is captured because the agent is presented with non-call work such as emails or web hits when call volumes are low resulting in tremendous cost savings and superior service delivery across all channels of interactions.

As a general rule of thumb, 50% to 70% of “idle” time can be recovered by utilizing SLM. For example, a recent study showed that a bank customer service center experienced roughly 88% occupancy, or 12% idle time. (Note that “occupancy” is highly dependent on call center and representative practices and may include time more accurately classified as idle.) There were an estimated 37,000 ACD manned hours for the same month. 12% of the 37,000 hours is 4,440 hours, or about 26 FTE. Since we can conservatively reclaim 50% of this time by using SLM, this is roughly equivalent to 13 FTE. Extrapolating the analysis across other related centers, the savings became 20 FTE, or roughly \$400,000 annually.

Personalized Customer Service

Today’s approaches to customer management demand personalized customer service. As a Hertz Gold #1 customer, for example, you demand that your car be ready for you within minutes of your plane’s arrival; that you receive your preferred size and style of car; that the appropriate corporate discounts are already applied according to the contract; that the frequent flyer miles are posted to your designated airline; that your selections for supplementary insurance are correctly calculated; and so on. If we think about all of the different sources of information required to get that car ready for a loyal customer, we can begin to see the value of enterprise wide information availability. If we recognize that the call center where we initiated the car rental could be in Oklahoma, with the travel itinerary starting on the east coast and ending on the west coast, we can begin to appreciate the value of intelligent work management from the point of customer contact to the point at which the customer retrieves the car and on to the point at which the car is returned.

One mechanism for delivering this capability is the concept of a dynamic desktop: a common environment throughout the enterprise where appropriate work tools are delivered along with the piece of work (regardless of how that unit came in - call, email, web, etc) and all of the relevant information required to perform a given task. This enables individuals across the enterprise to tailor the service they provide based on the individual preferences and unique characteristics of a given customer. By providing a more personalized service experience, the customer relationship is strengthened leading to increased customer loyalty.

What to Look For

It is important for a manager to understand the best way to align the intelligent use of technology to meet the business goals. Therefore, it is important to know what characteristics of this new approach are worth looking for if an organization is interested in utilizing these new customer service philosophies as a way to gain market share and improve their business. This section highlights the areas that have the greatest impact on the success or failure of such an initiative in an enterprise.

Ability to integrate interaction and fulfillment processes

Bringing together the front ends and back ends of the existing customer-centric processes is key to achieving successful Customer Relationship Management. Therefore look for a system that integrates the customer interaction and fulfillment processes under one framework, interoperates with other systems and easily shares customer information with legacy or third party systems to enable end-to-end customer service.

Anywhere, anytime, anyhow customer service

This refers to the ability to manage all interaction channels with the customer. Does a system provide the flexibility to manage calls, Web hits, faxes, correspondence, email and any other media type that a customer will want to use to interact with your company? Optimally, a solution will provide an easy mechanism for adding additional channels of communication as they become mainstream and integrate them into the defined business process. This ensures that your organization remains flexible and responsive to changing customer requirements.

A good example is the expanding importance of the web as a critical communication channel with customers. Increasingly, customers are looking to launch service requests and perform self-service activities over the Internet. As e-commerce evolves, many companies that have traditionally only serviced customers by phone, via fax or in person will realize they are being left behind relative to their competition because they lack a well thought out Internet strategy. Without a platform that will integrate this channel without disrupting current business processes, companies can find that they have to revamp their infrastructure just to accommodate the growing volume of service requests generated from the web.

Intelligent work management

There are two approaches to enterprise customer management: data centric and process centric. The data centric approach applies application specific logic against a single customer information repository, which may or may not be replicated from legacy data. Data centric solutions work well in single purpose, ad hoc, single-departmental applications. Examples where data centric solutions have had success include help desk and sales force automation.

However, as the Yankee Group points out, “it is necessary to look beyond the initial appeal of such tools, as there can be hidden but considerable disadvantages to [data-centric] solutions. Most [data-centric] products only focus on a small portion of the customer management puzzle. Any Customer Management tool deserving of the label ‘Enterprise’ should be able to lower costs [of customer management], and most have failed to do so.”

In contrast, CRM solutions are data enabled, but process centric. By leveraging the appropriate customer or system information at each step in a given process, CRM systems facilitate the intelligent management of work across channels and allow individuals at all levels of the organization to serve the customer better. As a result, a company is able to develop loyal customers, optimize resources and consistently meet service level objectives.

The Yankee Group concludes “global organizations, where a single customer interaction can trigger processes across multiple departments, must respond in a timely, accurate, and consistent fashion. For such companies, a process centric implementation of CRM is often most appropriate.”

Easy Access to Information

Because information is generally distributed across the enterprise in mainframe systems, enterprise resource planning (ERP) applications or stand alone databases, accessing the data to intelligently route work can be a challenge. That is why another critical element of a CRM solution is defined interfaces to these disparate information repositories that ease the process of accessing and updating information across multiple systems. The goal is not to just map data from one application to another application, but rather to use it in the context of a business process to more effectively and efficiently manage how that work gets processed by a knowledge worker or automated agent.

RADDD (rapid application design, development, and deployment)

Change is one element that any enterprise in today’s competitive environment can count on. For this reason, the ability to design, develop and deploy a production system in an accelerated time frame

becomes a mandatory requirement in selecting CRM applications. This enables an organization to nimbly respond to changing market conditions and also realize a faster return on their investment by getting their system into production sooner.

Customizable tool kit including process definition tools

Whenever we talk about process automation we have to understand that no two companies are identical and there is no such thing as “one size fits all”, “shrink wrapped”, or “out of the box” solutions. Every company has its characteristic set of rules, differences in job descriptions, and differences in policies and procedures that must be reflected in the enabling technology. Therefore, any technology that is selected must be customizable, open and otherwise capable of being integrated with the organization’s existing computing infrastructure. This must include the ability to define all processes in detail.

Flexibility and Agility

Workflow and process automation tools have been described as tools which help to automate; Rules (business rules about how the company treats transactions), Routes (how is the work passed around the organization), and Roles (what are the specific job functions along the routes). Tools to implement these systems therefore must contain enough flexibility to allow an organization to deploy systems that meet the needs of that organization.

Scalability

Businesses grow, particularly if they implement these systems successfully. As they do so, it is important to know ahead of time that the installed system will be

able to grow with the increased demands of the enterprise. Scalability of databases, of numbers of workstations, of scope of business rules, and so on, are critical for the long-term success of CRM projects. By choosing a CRM solution that is scalable, you can eliminate the risk of having a system that cannot evolve with your organization but instead allow you to leverage your current investment in hardware, software and technical expertise.

Manageability

Managing CRM at the enterprise level is a difficult task that can be facilitated by technology. Good process centric CRM Systems will help by automatically balancing loads among resources, by intelligently routing the work, and by providing specific quantitative feedback to management on the specific metrics required to run the business across the entire process. By modeling and automating a given customer-centric process from beginning to end, all data for each stage of that process becomes available through reports that allow managers to effectively improve a given process to achieve best practices.

Conclusion

CRM is about strengthening the relationship with customers through reliable, quality human interactions and the effective fulfillment of obligations by the most appropriate resources. Technology is the catalyst that makes this possible by enabling individuals across the enterprise to be more efficient and effective in the delivery of superior customer service.

The sales manager who tunes his clients' radios, the credit card manager who wants to know what the purchasing profiles are of each of his or her customers, the telephone company designing programs tailored to dispersed families who want to stay in touch, all are joined together by the knowledge that proactively managing their relationships with their clients is an investment in their future and a key to their success.

In order to succeed at the implementation of CRM, we must first understand the customer interaction cycle, the moments of truth where opportunities exist to make a positive impression on a customer. We must also realize that the effective management of the customer involves the integration of the appropriate activities and information at all stages of the cycle. This means an understanding of and an appreciation for the enabling role of technology as that integrating factor. We must supply our people with a solution that allows them to communicate with one another, share information, and work cooperatively to provide a consistent and reliable service experience throughout the customer life cycle.

Case Study: Halifax Direct

It would be so easy to say that the future of the retail bank is a dubious one, especially in the face of changing market conditions where even supermarket chains are now offering personal financial services and products. And, why not? After all, why should anyone be inconvenienced when it comes to their own money and why should they have to move from the comfort of their living room or office just to bank or make new financial arrangements? There's nothing new here, since direct banking via the telephone has been with us for many years. However, as the distinction between banks and financial services become more and more blurred, ease of access and service excellence have become key to winning new clients and retaining valued customers. Similarly, multi-channels, whether for selling or service, are of paramount importance. This is why forward looking banks and financial service organizations are racing ahead with "direct" banking operations. A one stop shop to pave the way for providing consumers with service heaven and direct access whether it's from a branch, telephone or even across the Internet.

This new style of financial organization relies upon a recipe that mixes a central point of contact or call center, with the latest technology and an absolute belief that customer service is essential to growth. One very smart operation is The Halifax in the UK which was a mutually owned building society (mortgage broker), until a public share offering in 1997 when it transformed into a publicly owned company. It is now the world's largest building society in the financial year ending the 31st of December 1997. Now, it is best described as a bank and today, offers a growing range of financial products and services. Products are diverse and include Maxim the Halifax's current account service, credit cards, personal loans, insurance, and of

course, mortgages; all of which are available through both its branch operations and a state-of-the-art 24-hour direct banking and service center. It has a simple yet lofty mission, "to be the biggest and best personal finance business in the UK." So, as part of its mission and business goals, the ability to provide a guaranteed 24-hour service for banking and customer care is deemed an essential competitive advantage. Also, The Halifax was not slow in recognizing that service quality is fundamental to its mission and that service is a critical factor in retaining its existing 20 million customers. Research carried out in the area of business retention, by US analysts, indicates that it costs ten times more to acquire new customers than it does to retain a valued and profitable account.

Providing a single point of contact means that customers can call the Halifax concerning their account or any transaction, at any time convenient to them. Furthermore, it is possible for a customer to make a series of unrelated requests or inquiries with one phone call, without being transferred from Halifax employee to employee for specific information.

We've all been there, being shoved from department to department in a desperate hunt for information, not able to speak to the person we spoke to yesterday, not able to get the right information when we need to, not able to be simply assured that our request has gone through without subsequent chasing and endless telephone calls. This is a thing of the past at Halifax Direct because it has done the impossible and automated every conceivable process to ensure customer satisfaction. Essential to this is innovative technology which services the Halifax Direct operation by allowing its 800 agents to concentrate on the caller rather than the process, technology, or subsequent actions. Each time a call is taken, the agent is able to instantly access the account details via the Mosaix customer relationship management system, ViewStar, which delivers the file to the

desktop and allows the agent to intelligently interact with the caller, no matter the nature of the query or request. This is possible because the ViewStar technology employed integrates the front-office with the back-office. This level of integration provides Halifax Direct with a paperless environment, inbound correspondence is electronically scanned into the system and the claim is that paper only gets some ten feet into the building. Also, the system takes into account the fact that a single customer call may trigger the need for Halifax to implement a series of related tasks or actions. It is the job of the ViewStar application to automatically handle these related processes prompting action in a timely and ordered fashion. Taking this a stage further, if a caller makes a status inquiry, the agent taking the call is able to convey exactly the status of the account and any actions taken or decisions made. "The technology is in place to make sure that nothing can, or should, slip through the system. Efficiency, when you are dealing with something in the order of 400,000 calls a month, cannot be under estimated," said Alec Maycock, operations manager at Halifax Direct. "Essentially, we have deployed the latest technology so that our customers have absolute confidence in us, 24 hours a day, 365 days a year," he continued.

The Halifax Direct call center was built from scratch. Starting with the purchase of a dilapidated Leeds based building, in February 1995, followed by its full renovation. While simultaneously recruiting and training agents, the management team had to specify and deploy technology to meet their ambitions. Within a few short months, actually by September 1995, the Halifax Direct was able to commence a 24-hour service. By any standard, the time-scale can only be seen as phenomenal, since within seven months the Halifax had deployed a completely new business arm, designed to support customers as well as introduce new products to existing and new markets. Within this time frame,

Halifax had developed a thorough understanding of all of the processes a direct banking arm had to have in place and how to automate them. In addition it knew that it had to safeguard its future direction, while always maintaining a competitive advantage. All in all, the right combination of technology had to be deployed to carry the Halifax dream forward. However, while all the technocrats may be slapping themselves on the back for a job well done within an unbelievable time frame, Alec Maycock comments "It would have been so easy to be swayed by all of the very impressive technology, losing sight of our people orientation. However, when we were designing the work place and support infrastructures we kept our focus on the people rather than the technology, consequently everything serves the individual right down to the fact that the desktop is merely a gateway for our agents to gain a complete insight into each customer call."

The level of integration achieved at Halifax Direct is extensive. It takes into account every form of "in" and "out" bound communication, voice, data, electronic, and paper based. Fundamental to its success is the combination of CTI (Computer Integrated Telephony) call center technology and business process automation workflow software to provide a totally seamless window for the agent to use.

As a call center, Halifax Direct can lay claim to the fact that it can handle 80,000 calls per hour, which incidentally is equivalent to talking to most of the UK's population in a single month. However, on average, it handles one million in-bound customer calls a month. And, as a call center, Halifax Direct within eighteen months of becoming operational, was awarded the coveted title of European Call Center of the Year in 1997.

"In our opinion, Halifax Direct proves the concept of enterprise customer management by integrating the desktop with the back office using state-of-the-art

technology which includes CTI and workflow,” said Maycock. Furthermore, because the system is integrated, customers can use a local branch or the telephone and are even offered the choice of whether or not to deal with a human at the end of the line. This leads to a nice benefit as Halifax reckons that half of its customers choose to deal with a totally automated system.

The IT supporting the people relies upon the largest Microsoft NT server farm in Europe and includes technology that intelligently routes callers to specific departments within Halifax Direct so that an individual caller talks to an agent with the appropriate skills. Technically, the Halifax Direct operation provides a single point of contact for its customers to deal with transactions on their accounts. Technologically it is more advanced than any other call center in the UK; every aspect of it, the people, the workplace and the IT infrastructure are designed to integrate seamlessly. It should be emphasized that while the IT involved is as complex and sophisticated as it gets, for the user or agent, it is designed to be an easy window into the world of their customers. And, that is exactly what it is.

Glossary of Terms

ActiveX—Microsoft’s Windows-specific non-Java technique for writing applets. ActiveX applets take considerably longer to download than the equivalent Java applets, however, they more fully exploit the features of Windows 95. ActiveX is sometimes said to be a “superset of Java.”

American Standard Code for Information Interchange (ASCII)—This is the code that most computers use to represent displayable characters. An ASCII file is a straightforward text file without special control characters.

Application Program Interface (API)—The interface that allows an application program to gain access to the operating system and other services, defined at the source-code level.

Asynchronous Transfer Mode (ATM)—(1) The CCITT standard for cell relay wherein information for multiple types of services (voice, video, data) is conveyed in small, fixed-size cells. ATM is a connection oriented technology used in both LAN and WAN environments. (2) A fast-packet switching technology allowing free allocation of capacity to each channel. The-SONET synchronous payload envelope is a variation of ATM. (3) ATM is an international ISDN high speed, high-volume, packet switching transmission protocol standard. ATM currently accommodates transmission speeds from 64 Kbps to 622 Mbps.

Audit Trail—Audit trails provide a date and time stamped record of the usage of a system. They record what a computer was used for, allowing a security manager to monitor the actions of every user, and can help in establishing an alleged fraud or security violation.

Automated Number Identification (ANI)—A feature that passes a caller's telephone number over the network to the receiving location so the caller can be identified. In ISDN, this signal travels through the D channel.

Automatic Call Distributor (ACD)—A system, usually serving a large telemarketing center, that automatically directs incoming calls to available sales or service representatives. With ISDN, ACDs can be programmed to read the incoming ANI, and direct the call to a specific agent - while the host computer retrieves and displays the appropriate customer record for the same agent.

Automatic Number Identification (ANI)—A charge number parameter that is normally included in the Initial Address Message to the succeeding carrier for billing purposes.

Automatic Number Indication (ANI)—Display of calling number on called phone.

Browser—(1) Term used to describe the client program for the World-Wide Web. Popular browsers include Mosaic and Netscape. Sometime called “navigator.” (2) Software program that retrieves, displays, and prints information and HTML documents from the World Wide Web.

Call—A customer attempt for which the complete address code (e.g., 0-, 911, or 10 digits) is provided to the serving dial tone office.

CTR (Call Transaction Record)—CTR is a record of the entire history of each phone call as it progresses through the call center. It contains standard and application-specific information. The standard information includes time stamps, ANI, DNIS, and Agent Directory numbers. The application specific information is transparent to the Callflow Management System. This can be used to send customer records

that are associated with a phone call to another CSR to perform another Procedure in the servicing process.

Calling Line ID (Incoming call ID)—A security method which checks a remote worker's authorized phone number against the number provided by the phone company's switching equipment.

Calling Number Identification Service (CNIS)—Provide, screen, or deliver CPN or caller ID (ISDN).

Churn—The term used to describe turnover in subscribers of various media such as magazines, newspapers, cable, and videotex services. Churn is an important measure of a medium's success in holding on to customers after they have been signed up as subscribers.

Client—(1) The part of Staffware which Users interact with. (2) A software program used to contact and obtain data from a “server” software program on another computer—often across a great distance. Each “client” program is designed to work specifically with one or more kinds of server programs, and each server requires a specific kind of client program.

Client/Server—A distributed system model of computing that brings computing power to the desktop, where users (“clients”) access resources from servers.

Clustering—The process of dividing a dataset into mutually exclusive groups such that the members of each group are as “close” as possible from one another, where distance is measured with respect to all available variables.

Common Object Request Broker Architecture (CORBA)—CORBA is the Object Management Group's (OMG) answer to the need for interoperability among the rapidly proliferating number of hardware and software products available today. Simply stated,

CORBA allows applications to communicate with one another no matter where they are located or who has designed them. CORBA was introduced in 1991 by OMG which defined the Interface Definition Language (IDL) and the Application Programming Interfaces (API) that enable client/server object interaction within a specific implementation of an Object Request Broker (ORB).

Computer Telephony Integration (CTI)—The name given to the merger of traditional telecommunications (PBX) equipment with computers and computer applications. The use of Caller ID to automatically retrieve customer information from a database is an example of a CTI application.

Customer Premises Equipment (CPE)—(1) Telephone terminal devices, such as handsets and private branch exchanges (PBXs), located on the customer's premises. (2) Terminating equipment, such as terminals, phones, routers and modems, supplied by the phone company, installed at customer sites, and connected to the phone company network.

Data Mapping—The process of assigning a source data element to a target data element.

Data Mining—(1) The process of utilizing the results of data exploration to adjust or enhance business strategies. It builds on the patterns, trends, and exceptions found through data exploration to support the business. It is also known as data harvesting. (2) A technique using software tools geared for the user who typically does not know exactly what he's searching for, but is looking for particular patterns or trends. Data mining is the process of sifting through large amounts of data to produce data content relationships. This is also known as data surfing.

Dialed Number Identification Service (DNIS)—Where carrier delivers number of called extension after PBX acknowledges call.

Digital PBX—A private branch exchange (PBX) that operates internally on digital signals. Thus, voice signals must be digitized for use in the PBX.

Distributed Component Object Model (DCOM)—A protocol that enables software components to communicate directly over a network. Developed by Microsoft and previously called "Network OLE," DCOM is designed for use across multiple network transports, including Internet protocols such as HTTP.

Domain—In the Internet, a part of a naming hierarchy. Syntactically, an Internet domain name consists of a sequence of names (labels) separated by periods (dots), e.g., "tundra.mpk.ca.us." In OSI, "domain" is generally used as an administrative partition of a complex distributed system, as in MHS Private Management Domain (PRMD), and Directory Management Domain (DMD).

Dynamic Data Exchange (DDE)—This is a method of transferring data between two Windows applications while they are running.

Electronic Commerce (EC)—The automated transaction of business—including the transfer of both information and funds—via computers.

Electronic Data Interchange (EDI)—(1) Method for passing orders, invoices and other transactions electronically between locations or organizations. (2) The exchange of structured transactional information between autonomous computers.

Electronic Mail (E-mail)—(1) Private messages sent by one user electronically to another via computer. Electronic mail users typically have a "mailbox" on a

network or a videotex systems where other users can send messages that can be retrieved at a later time by the recipient. Also known as E-mail. (2) Messages, usually text, sent from one person to another via computer. E-mail can also be sent to large numbers of addresses automatically.

Enterprise—A complete business consisting of functions, divisions, or other components used to accomplish specific objectives and defined goals.

Firewall—(1) Isolation of LAN segments from each other to protect data resources and help manage traffic. (2) Hardware or software that restricts traffic to a private network from an unsecured network.

Groupware—A network-based application that lets users collaborate.

Hyper Text Markup Language (HTML)—(1) The language used in the World-Wide Web to create web pages with links to other documents, rich text enhancements (bold, italic, etc.) and so on. The “source” file for what you see on a web page is written in HTML. (2) The language with which World Wide Web documents are formatted. It defines fonts, graphics, hypertext links, and other details. HTML is an implementation of SGML.

Hyper Text Transfer Protocol (HTTP)—(1) The protocol most commonly used in the World-Wide Web to transfer information from Web servers to Web browsers. (2) The protocol that negotiates document delivery to a Web browser from a Web server.

Interactive Voice Response (IVR)—Term used to describe systems that provide information in the form of recorded messages over telephone lines in response to user input in the form of spoken words or more commonly DTMF signalling. Examples include banks that allow you to check your balance from any telephone and automated stock quote systems.

Internet Protocol (IP)—A Layer 3 (network layer) protocol that contains addressing information and some control information that allows packets to be routed. Documented in RFC 791.

Internet Server API (ISAPI)—A Web-server programming interface for back-end applications developed by Microsoft and Process Software Corp.

Internet Service Provider (ISP)—(1) Any of a number of companies that sell Internet access to individuals or organizations at speeds ranging from 300bps to OC-3. (2) A business that enables individuals and companies to connect to the Internet by providing the interface to the Internet backbone.

Intranet—A private network inside a company or organization that uses the same kinds of software that you would find on the public Internet, but that is only for internal use. As the Internet has become more popular, many of the tools used on the Internet are being used in private networks; for example, many companies have Web servers that are available only to employees.

IP Address—The 32-bit address defined by the Internet Protocol in RFC 791. It is usually represented in dotted decimal notation.

Legacy Systems—Systems which have been in place in an organization for some time. Usually the term refers to transactional systems which accumulate data for subsequent storage in a Data Warehouse.

Lightweight Directory Access Protocol (LDAP)—This protocol provides access for management and browser applications that provide read/write interactive access to the X.500 Directory.

Load Balancing—In routing, the ability of the router to distribute traffic over all its network ports that are the same distance from the destination address. It increases the use of network segments, which increase the effective network bandwidth.

Local Area Network (LAN)—(1) A network covering a relatively small geographic area (usually not larger than a floor or small building). Compared to WANs, LANs are usually characterized by relatively high data rates. (2) Network permitting transmission and communication between hardware devices, usually in one building or complex.

Private Branch Exchange (PBX)—A small telephone network for customer premises. Provides local connectivity and switching and connections to the wide area voice network.

Queue—See Work Queue, Shared Queue, or Test Queue.

Return On Investment (ROI)—A financial term which measures the worth of a project by measuring what benefits (return) accrue from a particular investment in resources.

Server—(1) A software application that responds with requested information or executes tasks on the behalf of a client application. Also, a network host, such as a web server, running a set of protocol server applications. (2) Any computer that allows other computers to connect to it. Most commonly, servers are dedicated machines. Most machines using UNIX are servers.

Uniform Resource Locator (URL)—(1) An identifier which describes the location of a particular piece of information (“document”) including the protocol used to retrieve that information. For example, <http://www.interop.com/publications/connexions.html> says: Use the HTTP protocol to retrieve the file “connexions.html” from host “www.interop.com” in directory “publications.” (2) A standardized character string that identifies the location of an Internet document.

Voice Response Unit (VRU)—Automated way to deliver information and accept DTMF inputs.

Web Browser—Client software that requests and displays HTML documents and other Internet or intranet resources.

Web Server—(1) A networked host computer that contains HTML pages and possible other forms of content served to clients via HTTP. (2) A server that stores and retrieves HTML documents and other Internet or intranet resources using HTTP. Also called an HTTP server.

Wide Area Information Servers (WAIS)—(1) WAIS allows users to search and access different types of information from a single interface. The WAIS protocol is an extension of the ANSI Z39.50 information retrieval protocol. (2) A search capability that locates requested information on the Internet using a keyword or combination of keywords.

Wide Area Network (WAN)—(1) A network which encompasses interconnectivity between devices over a wide geographic area. Such networks would require public rights-of-way and operate over long distances. (2) A network that covers an area larger than a single building or campus.

Work Queue—A screen listing the Forms requiring your attention.

Workflow—A set of formal rules for a specific process (such as billing) that are defined to improve efficiency.

World-Wide Web (WWW)—(1) An easy but powerful global information system, based on a combination of information retrieval and hypertext techniques. (2) The Internet’s worldwide, HTML-based, hypertext-linked information system.

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by the same level of thinking that created them."

Albert Einstein

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