

## **Providing a Superior User Experience with Web Self-Service**

*Customers, partners, and employees who use your website deserve a fast, easy, intelligent way to answer their questions and resolve their problems on their own. And it's up to you to make sure your site provides it. But choosing among vendors who all tout their web-based self-service technology as "best" can be bewildering.*

*This document presents the attributes of a superior web delivery tool and the kind of technology that can support it. We believe that Primus® Answer Engine and Primus® eSupport software offer the exceptional customer self-service experience that businesses need today.*

*With Primus® software, you can deliver sophisticated but easy-to-use web-based tools that let people find the answers and solutions they need—for themselves, by themselves, on the web.*

## Primus White Paper

### High-value self-service supports a continuum of answers and solutions

Every business analyst today agrees that web-based self-service is mandatory for companies to stay competitive and to deliver quality customer care and support.

Customers, partners, and employees who serve themselves want relevant answers on the spot—without waiting for email responses or for a live agent. Sometimes they have complicated needs, and sometimes they have simple ones. By giving them the ability to answer questions and resolve issues accurately from a website, you reduce the need for more expensive channels such as contact centers, email, or online chat.

*Ninety-two percent of searches fail to find relevant information or to arrange the results in a meaningful order.*

*Fifty to 80 percent of visitors leave a website after a single failed search.*

*More than 60 percent of visitors leave without making a purchase because they cannot find what they are looking for.*

**—Forrester Report, “Must Search Stink?”, June 2000**

This kind of self-service benefits a business by delivering tremendous return on investment (ROI). Customer satisfaction and loyalty increase while customer service costs decrease. Your support agents can now be deployed to handle more complex support issues.

Many web self-service vendors are working to help you answer the question of how to deliver answers and solutions to your customers online. Primus provides sophisticated tools that offer a superior customer experience. The success of our software revolves around the intuitive way people find answers, and the relevance of the responses that our software delivers. That translates to a better customer experience on the web.

## What does a superior web self-service experience look and feel like?

As you seek to provide a better web self-service experience for your users, a good place to start is to define what that experience actually looks like. After that, evaluation of tools becomes simple.

When it comes down to it, most people would really prefer to get answers and solutions on the web in the same way they would if they were consulting a human expert. That is:

***They ask a question, they get The Answer.***

***They ask for help, they're guided in narrowing the specifics, and they get The Solution.***

Computer and linguistics technologies have advanced enough in the past few years to make following natural paths to answers and solutions more viable than ever before. And given the advent of natural language processing (explained in the next section), people who turn to the web can now expect a self-service experience that is more and more like talking to a real person—only without the hit on your company's resources.

### The two faces of self-service

*Fundamentally, people seek information at your site for two reasons:*

- **To find a quick answer to a question** (“What products do you sell?” “What hours are you open?” “Does that shirt come in green?”) They want factual, usually non-procedural answers that are simple or detailed.
- **To get a rapid resolution to a problem** (“My software keeps crashing.” “My dryer stopped drying.” “How do I change the filter in my furnace?” “I don't understand my utility bill.”)

*They generally want technical, complex, or procedural responses that match to their particular product environment. Although these are differing needs that require differing support technologies, both are on a continuum of needs that can benefit from similar web self-service characteristics.*

### Characteristics of superior web self-service for users

From a user's standpoint, the ultimate goal for any kind of query strategy is to receive answers that are relevant to the question.

Suppose we equate a web self-service experience to that of contacting one person in your company who really knows everything about your business, your products, and your troubleshooting issues. Here's what superior web self-service would look and feel like to a user:

- **Is easy to communicate with.** People could ask their own questions in full sentences, using their own words. They wouldn't have to use your company's specific terminology to get help, or find a way to combine the right string of keywords to land on the information they seek. They wouldn't be limited to a list of predefined FAQs (or to a technology that is based on FAQs), either.

Instead, they could ask unique questions and get personally relevant answers.

- **Understands the context and meaning of questions.** Just like a human expert, an exceptional web self-service technology would discern the context of the query and the answer, including synonyms, semantics, and language structure. Without this awareness of context, results cannot often reflect the intent of the particular customer's question.
- **Provides relevant answers and solutions that are filtered from everything that's available.** Rather than returning dozens or hundreds of results, exceptional technology would intelligently filter a huge number of links and deliver only the relevant ones. Moreover, users could have search access to the contents of all the web pages, PDF files, word-processed documents, knowledgebases, and more that you provide over the web.
- **Marks the actual answer on the linked page.** The technology would flag the exact text on the page or document where it found the answer, so users would not waste time scrolling and hunting. (Not pointing users to the exact content encourages them to stop short of the answer or solution and to pick up the phone for assistance.)
- **Makes it easy to solve more difficult issues through guided problem resolution.** The technology would know what questions to ask about the user's situation, product, model, etc., to begin isolating solutions to deliver. It would also provide a way to escalate a problem for one-on-one help without losing the searching efforts already made.

### Characteristics of superior web self-service for your business

From a business standpoint, web self-service tools must balance improvement of the web-based service with maximization of existing resources and funds. Here's what superior web self-service would look and feel like to a business:

- **Is quick to implement—a business can start with the content it has.** A superior web-service technology would cooperate with legacy systems and accept relevant data in any text format in a timely and dynamic way. Implementation would take as little as 30 days, depending on the amount of organizational content. The tool would be available as a licensed version or as a hosted service offering.
- **Uploads new content almost as soon as it's added.** As new content is created, an exceptional system would recognize and upload the new material at the frequency you chose, and could make it immediately available for your customers to view. You wouldn't have to rely on a manual method to generate content to make your knowledge accessible.
- **Supports continual improvement of content.** A superior self-service technology would enable your business to add documents and solutions to the collection when it finds that answers aren't available. It could capture new issues, knowledge, and questions on the fly. It would also have system reporting functions that could immediately recognize content gaps and unanswered questions, so you could easily identify areas where new content may need to be created.
- **Lets you control, as necessary, specific responses to specific questions.** Knowing what questions customers are asking, in their own words, is crucial to understanding your website and how your corporate knowledge is used. When a specific question is asked, an exceptional web-service tool would allow you to deliver the exact answer you prefer as the first answer returned. You could also analyze questions, tailor system behavior, and receive valuable insights into your customer base.

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### Answers vs. solutions: different degrees of structure

*People who ask questions generally seek factual, usually non-procedural answers that can be simple or detailed. Answers are generally found in existing documents—word-processed files, web pages, PDF files, slide shows, images, and so on.*

*Most of this information is not cross-referenced or integrated, as the documents are independent and diverse in format. Information is added as needed and in whatever format is appropriate. These collections of disparate documents are considered unstructured information.*

*Those who seek solutions are generally looking for technical, complex, or procedural information. Self-service solutions rely on interconnected variables, such as specific versions of software, makes and models of equipment, and changing settings. Solutions are best kept and retrieved as part of a growing knowledgebase of technological information that can be gathered and evaluated on the fly. Knowledgebases are considered to have a structured information format, because they must retain multiple interconnections and cross-references between solutions.*

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## Web self-service technologies: What's available?

Finding the web self-service tools that are right for you begins with knowing your business issues. It ends with a superior tool that serves both your customers and your business. The key is to know what you're getting with the technology behind the tool.

Below is a simple overview of the technologies you're likely to encounter as you research web-based self-service tools. Some vendors use only one technology. Others blend two or more. Evaluating all offerings in light of how well they can deliver the superior user and business experiences described above will help you choose an appropriate technology—and vendor—for your needs. See Table 1.

### From simple to robust

Web self-service technologies become more sophisticated as the user's need for information becomes more sophisticated. Starting from the user's goal, such as researching, finding a specific answer, or obtaining a full solution to a complex problem, web self-service technologies range from simple to robust.

### Keyword or pattern matching

Keyword and pattern-matching search mechanisms require users to type in words or strings of words in a search box. They are great for high-level research and looking into lots of options, because they return a huge number of links, even though not all of them may be relevant. They can't discern the user's intent, context, or synonyms, and they can only search words that are actually in, or embedded into, a web page.

## Natural language interface

A natural language interface (NLI) differs from natural language processing (NLP). A natural language interface merely allows people to input their questions in natural terms. The underpinning technology is a list of frequently asked questions (such as the twenty percent of questions that are asked by eighty percent of users), and the searching is still done by keyword or pattern matching of the query's most important words. NLI technology has no awareness of context, relies on predefined questions, and returns a list of links that is as unstructured as the average keyword search results. NLI systems are also hard to update with new content because human editors must often create question templates from new information as it is added.

## Natural language processing and semantics (e.g., Primus® Answer Engine)

Natural language processing (NLP) relies on linguistic (dictionary-based) search engines. These search engines analyze questions, determine the important words and sentence structure, and match them to the contents of stored documents. Additionally, the source documents themselves are analyzed and carefully indexed for instant retrieval of relevant information. This technology utilizes synonyms, idea groupings, weighted rules, and other linguistic techniques to discern subtle relationships among concepts and interpret a query's (or source document's) context. This means that users' vocabularies can vary and still achieve good query results. Seen as the holy grail of computer-human interaction, totally free-form NLP is extremely difficult to develop, but has incredible payoff in improved user experiences on the web.

### Tip—Is it really NLP?

*Some companies state that they offer natural language processing (NLP), but they rely on keyword matching, pattern matching, or natural language interfaces to retrieve results. Quiz them thoroughly to find out how their product really works.*

## Text retrieval systems

Text retrieval systems offer a simple database of technical reference documents that is relatively inexpensive to install and maintain. A customer calls for support, the analyst searches the database for information that's relevant to the problem, and the system delivers the solution as it's written in the document. Text retrieval systems work well for small libraries of technical notes, but finding the right file becomes extremely difficult as the document base grows. These systems usually rely on keyword searching, which requires the analyst to use exactly the same terminology and phrasing as a document's author. When many documents are returned, an analyst must open and scan each one for pertinent information. Creating the technical notes is also costly. Each can require several weeks to write, review, correct, and publish; meanwhile, individual analysts may independently solve the same problem tens or hundreds of times. Finally, text retrieval systems do not support a real-time process of problem analysis and problem solving.

### Expert or case-based reasoning systems

Case-based reasoning (CBR) is twenty-year-old technology that attempts to emulate the problem-solving ability of a technical support analyst through artificial intelligence. Designed for analysts instead of customers, CBR or “expert” systems are highly engineered systems that utilize a fixed diagnostic tree (decision tree) or a suite of questions and answers (traditional case-based reasoning). As the analyst navigates through the decision tree or answers the system’s questions, he or she is typically led to a predefined solution. Case-based reasoning systems are expensive to maintain, update, and purge. Because they only provide access to predefined solutions to previously recognized problems, they are of little or no value in solving new problems or capturing new, rapidly changing support knowledge. Their highly structured environment means that revisions or additions to content typically require a knowledge engineer. And while a structured approach to resolving issues can be helpful for novice analysts, more expert users find it constraining and choose neither to use the system nor contribute toward the solution of new problems for it.

### Associative problem-solving tools (e.g., Primus® eSupport)

Associative problem solving is an approach to problem resolution that allows almost anyone—analysts and customers—to solve problems in a way that supports their individual approach to a particular problem. The associative problem-solving approach is based on the way people naturally solve problems, by exploring the complex web of associations among:

- What they know about the problem
- What they know about the general environment in which they are working
- What they know from having solved similar problems in the past

Associative problem solving overcomes the disadvantages of text retrieval and case-based reasoning systems. It delivers answers that are filtered by the actual circumstances of the problem and can guide the questioner in his or her own terms toward an answer. Associative problem solving provides the optimal balance of precise answers to complex problems with an effective, low-cost approach to problem resolution.

**Table 1. Comparison of Web Self-Service Technologies**

User’s Objective	Technologies	Results
Information or research	Keyword	Hundreds of documents, low relevance
Answers to questions	FAQ; keyword; natural language interfaces	Answers only predefined questions; low to moderate relevance
	Natural language processing	Answers in context; high relevance
Solve problems	Text-based retrieval	One or more technical notes that must be read in their entirety
	Expert or case-based reasoning	Predefined answers at the end of specific decision trees
	Associative problem solving	Precise solutions based on the problem’s symptoms and circumstances

## **How Primus technology delivers a superior user experience**

Primus tools are designed to support the way people naturally seek to solve problems along the continuum of web self-service.

Primus products put answers and solutions into the customer's context and language. They let people solve issues and get answers on their own, yet the tools can also support them when a problem needs to be escalated. And all along, the information is captured and put back into the system so you can continue to deliver the right answers and solutions to other customers, partners, and employees who follow.

Primus provides two types of tools for web self-service needs: Primus Answer Engine and Primus eSupport.

### **Primus Answer Engine**

The Primus Answer Engine offers a new, more effective way for people to find information on a website. This customer interaction software processes plain English questions and responds in real time, with direct answers that are highlighted for the user.

#### ***How Answer Engine provides a superior user experience***

The Primus Answer Engine is question-answering search technology with a world-class, English-language lexicon (dictionary). The Answer Engine uses true natural language processing to analyze the meaning and context of a user's question against the meaning and context of the content of the source documents. Such semantic analysis enables the Primus Answer Engine to return accurate answers to specific questions automatically, even if the words in the question don't match the words in the answer.

The Answer Engine does not rely on keyword or pattern matching. Unlike NLI, it can answer questions that have not been anticipated because it understands the context of both the question and the content. Moreover, it returns actual answers in sentence format with a link to the source document, not ranked document hits or lists of web sites that may or may not be relevant. It connects the user directly to the place in the source document in which the answer is highlighted in context. Answer Engine has features to support FAQs, so companies can easily return very specific answers to certain questions, such as on matters of corporate policy.

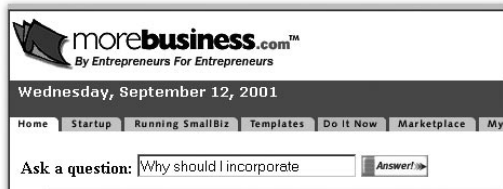
#### ***How Answer Engine provides a superior business experience***

The Primus Answer Engine is a unique product for more reasons than its technology. It is designed not only to improve your customers' experience by making self-service information more accessible, but also to reduce your business costs at the same time.

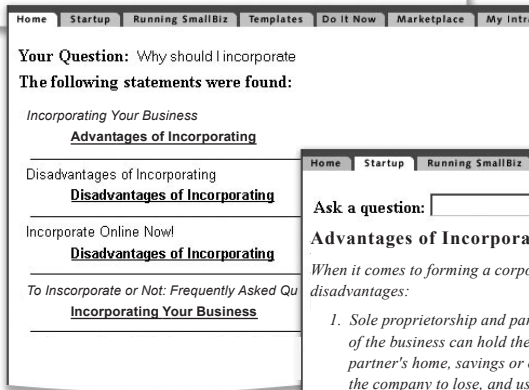
The Answer Engine can be quickly implemented either as a hosted or licensed product because no additional content creation process is involved. You merely point Answer Engine to your existing documents, and Answer Engine goes to work analyzing, cataloging, and cross-referencing all the information in its context. This allows for rapid deployment and a very rapid return on your capital expenditure dollars.

### Primus Answer Engine—How it works

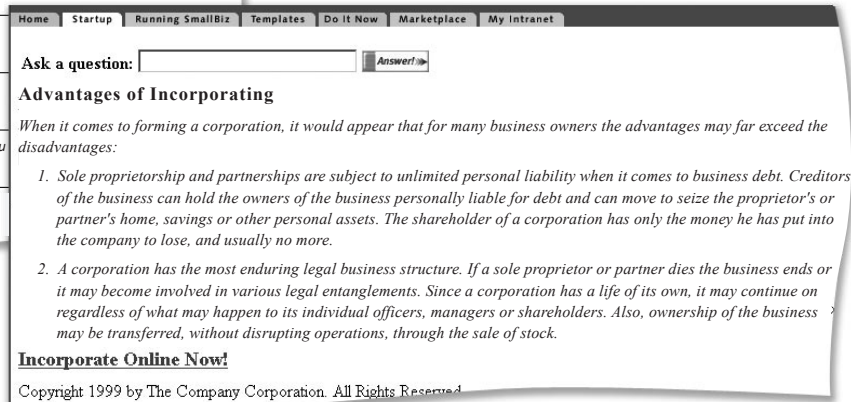
*Primus Answer Engine makes the web a preemptive first line of support by allowing customers, partners, and employees to ask questions in plain English and receive immediate answers online in real time.*



**Step 1:**  
Ask the question you want to answer. The Primus Answer Engine interprets the question...



**Step 2:**  
...and returns a list of answers found in the company's online documents. Click a link...



**Step 3:**  
...and Answer Engine jumps to the highlighted answer in context.

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### Primus eSupport

Primus eSupport is for resolving problems that are highly complex (involving hardware, system types, changing circumstances, etc.). It works from structured content, created in a Primus® eServer knowledgebase, to resolve a category of problems.

#### ***How Primus eSupport provides a superior user experience***

Primus eSupport software is an associative problem-solving tool. With Primus eSupport, customers, partners, and employees can quickly understand and solve their technical problems by using natural language to ask their questions. Primus eSupport returns answers that are relevant to the context of the question. (For instance, the question "How do I shut down my computer?" will not return thousands of solutions dealing with a computer that hangs.) Primus eSupport knows how to prompt users with diagnostics to get to the right solutions—they don't have to know the exact questions to ask.

Solutions can also be captured in the workflow and be made available for immediate access by other customers and users.

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### **How Primus eSupport provides a superior business experience**

Primus eSupport can integrate with existing systems. If a user needs additional assistance to find a solution, Primus eSupport provides a direct way to escalate the issue and have the customer's history of problems follow them to the supporting technician.

### **Primus eSupport—How it works**

*Primus eSupport guides customers, partners, and employees to solutions based on symptoms, known facts, and other circumstances surrounding the problem they're experiencing.*

**Step 1:**  
Ask the question you want answered using natural language...

**Step 2:**  
...and Primus eSupport returns likely solutions.

**Step 3:**  
At any point in the session, users can contact a representative who is able to see a complete history of the user's session.

## The ROI results for you

Primus tools deliver your ROI from multiple directions:

- Increased customer satisfaction that results from providing your customers, partners, and employees with self-service access to knowledge and easy escalation to assisted service.
- Increased employee efficiency that results from the fast, accurate search results delivered by the Primus technology.
- Decreased new-hire training requirements that result from Primus software's user-friendly search strategies, which support novice to expert users.
- Reduced costs and increased organizational efficiency that result from calls deflected to the web—customers, partners, and employees can serve themselves, which frees up service and support staff.

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With Primus software, the results go straight to your bottom line. A sampling of Primus customers in a variety of industries shows:

- 35% increase in analyst efficiency
- 35% of calls deflected to the web
- 60% decrease in escalations
- 59% decrease in new-hire training time

Your company may need one type of web self-service or both. Each has a different character and will be superior in solving certain kinds of business issues.

**Which Primus product is right for you?**

*Those who visit your website may need either self-service or assisted search strategies. Because answering questions and resolving issues are fundamentally different needs, they require fundamentally different tools and technologies to serve them. That's why Primus offers tools for both needs.*

**Use the Primus Answer Engine** if you want to give customers access to information in existing or new documents that you create in-house, such as PDF files, web pages, word-processed documents, slide shows, and so on. Businesses can start with the Primus Answer Engine to build on what they already have, then use its reporting and feedback loops to find customer problems that may need a different technology to solve, whether on the website, intranet, customer service site, etc.

**Use Primus eSupport** if you have, or intend to build, a separate database to provide solutions to more complex problems that can't be resolved from existing corporate documents. If users can't find the resolution, they can escalate readily from Primus eSupport to a real person, and their previous search efforts will travel with the trouble ticket.

Moreover, content from Primus Answer Engine searches can be grabbed by technicians to place into the Primus eSupport knowledgebase. Being able to select the technology that is sophisticated enough to enhance your customers' experience will support your goal of quality self-service on your website.

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*To learn how Primus can help you improve your customer service and support offering, visit our website at [www.primus.com](http://www.primus.com) or contact a Primus sales representative today. Call toll-free 1-888-323-7244.*

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