

Content-Centric B2B e-Business for the Telecommunications Market

A White Paper

Executive Summary

As the global demand for telecommunications services grows at a double digit pace, existing resources are strained, and operations and support staff are forced to perform at a much higher level than ever before. At the same time, the rapid increase in merger and acquisition activity both on the equipment manufacturer and the service provider has had a detrimental effect on those staff. Business consolidation has led to the formation of islands of information, and a fragmented departmental and support infrastructure.

At the same time, through the growth and acceptance of the internet in business, a new channel has become available for the delivery of rich content, and in fact a new capability to collaborate between the OEM and the service provider. The reliability of complex telecommunications systems is critical, and as complexity increases, that reliability can only be achieved through more efficient communication between supplier and service provider.

E-business systems that can deliver the necessary product support content and aid the operator in attaining and exceeding the goal of Five Nines reliability are vital to the effective operation of today's telecommunications networks.

Reliability is Critical

Telcommunications companies operate in a world where the reliability of their network infrastructures is critical to their bottom line, and to their ability to grow. Faced with increasing competition from Competitive Local Exchange Carriers (CLECs), as well as alternate service delivery technologies such as broadband cable technology, service providers must continue to improve reliability in order to maintain their customer base, who have a wide array of alternative choices. At the same time they must be able to offer a range of new services such as Digital Subscriber Line (DSL) access for the same reason.

Should these companies fail to meet the reliability guidelines required by their operations agreements, they face penalties provided by the governmental and regulatory bodies that oversee them, as well as potential legal action from disgruntled customers.

To reach the desired reliability, service providers build in substantial network redundancy. This may entail situations ranging anywhere from duplicate redundant switches in a central office, to duplicate redundant fiber pairs. However, there are still situations where human intervention is required, especially in situations where failover has occurred and the primary equipment must be brought back online. Efficient troubleshooting of complex systems requires access to all of the required and relevant information, so that the correct decisions can be made.

Service providers aim to provide “five nines” reliability across their network infrastructure, or 99.999% network availability. This translates to less than five minutes downtime *per year*. There can be no delay in getting failed systems back online and operational. Content is the key to improving reliability.

Delivering Complex Information

Current Operations Support Systems (OSS) are designed to allow the service provider to manage the operations, troubleshooting and maintenance processes. However, they do not aid in the troubleshooting process, which has become extremely involved due to the increased complexity of the network infrastructure. When the field service engineer is assigned a work order, they typically troubleshoot the problem using the documentation available at the problem location. This information is most likely paper-based, and probably several releases out of date. The engineer is then faced with the difficulty of trying to resolve a problem with out the current documentation, making the troubleshooting process much more complicated.

Effective problem resolution requires access to the most complete and up-to-date information, especially where complex infrastructures and rapid system changes are involved. Finding the information required to troubleshoot and solve a problem is also much easier using product support content in electronic form rather than paper. However, the information must be structured effectively, or it may be no more useful than the old paper-based documentation.

A recent Telcordia study of search times for information showed that given content presented in an HTML web-based format, users could find information in about 60% of the time it took to find the same information in a paper-based catalog. However, given content presented in Adobe PDF format, users took the same or longer times as finding information in the paper-based catalog. Content delivered in a structured format in HTML (and XML) is almost twice as effective as either PDF or paper-based information. Since maintenance staff typically spend up to 10-20% of their time searching information, effective structured information can save them almost half of that time. An estimated \$75 billion is spent annually to maintain service provider networks. By improving access to information, maintenance productivity can be increased substantially.

Information delivery can also aid in speeding the provisioning of new services. The rollout of services such as Digital Subscriber Line (DSL) have been detrimentally affected by the lack of information available at the installation points. Effective access to information required for the varied installation procedures and infrastructure networking equipment substantially increases the speed of service turnup, and correspondingly increases the customer satisfaction of the subscriber base.

Training

With constant growth in both services offered and subscriber base, as well growth through mergers and acquisition, training delivery to the customer support and field service departments has become a major problem. Corporate training departments typically re-purpose the equipment manufacturer's manuals and documentation, as well as add their own content, to train their staff. This is a time intensive procedure requiring re-keying of information found in paper or possibly Adobe PDF documents.

This process may yield excellent training information, but the support staff will be faced with the original documentation in the field. Training would be much more effective if the original documentation was usable as training material, so that staff would be able to directly re-use what they had learned in training. By directly incorporating the OEM documentation along with their own best practices into one information delivery system and then structuring their training procedures to match the actual on the job use, one Regional Bell Operating Company (RBOC) was able to substantially increase the effectiveness of their staff training. At a hiring rate of approximately 700 support employees per year, they were able to reduce their training time by approximately 45%. In fact, when they surveyed their staff they found that 89% of the employees regularly used the skills they had learned in training. They also discovered that 79% of their employees felt that they were able to work more independently, and 25% felt more confident in their jobs.

Finding and keeping skilled network maintenance staff is becoming increasingly difficult. In fact a 1999 study of network operations among service providers showed that 58% of respondents felt that recruiting and retaining talented staff was their greatest challenge. When staff are changing rapidly, training becomes extremely important in ensuring that employees are effectively prepared to perform the tasks assigned to them.

Single Sourcing

Single Sourcing refers to the concept of authoring product support content once and then merely re-purposing that content for other uses such as training and customer support. Most telecommunications manufacturers have a plan in place to implement single sourcing to reduce the costs of authoring their training and customer support content. An effective content delivery solution should allow the use of this concept by allowing the delivery of a single source of content to different types of users depending on their needs. This minimizes the costs of content production.

Customer Self-Support

Manufacturers provide extensive support offerings for their customers. However, customers such as service provider must provide their own support initially. Access to the most current information can aid customers in problem resolution as well as remove some of the support burden from the manufacturers.

Manufacturers are increasingly turning to using the world wide web as a channel to provide the most current product support content to their customers. This allows them to deliver documentation updates and product support updates to their customers immediately as soon as they are available. A major telecommunications equipment manufacturer estimates that delivering support information via the web to enable customer self-support can cut down on their support calls by as much as 50%.

This can also act as a channel for cross-selling and up-selling of network infrastructure equipment to existing customers. Manufacturers can offer all of the content required to make purchasing decisions. Such a collection of information is referred to as *transactive content*. Customers who need equipment can use the support content as well as product and pricing information to make a purchasing decision.

Customer self-support is also more effective when there is the potential for collaboration between the service provider and the equipment manufacturer. The use of the web as a channel allows for different forms of collaboration, from simple Post-It style notations, to far more complex customer originated changes. The service provider can use this feature to communicate their issues back to the manufacturer, and the manufacturer can use the customer feedback to help to improve their products. The customer can also incorporate their own best practices into their documentation.

Keys to Customer Satisfaction

The keys to satisfying the customer in terms of reliability, information delivery, training and customer support are effective content management and delivery, simplified purchasing decisions and procurement, and collaboration between the manufacturer and the customer. Or to put it more simply, the most important elements are *Content*, *Commerce* and *Collaboration*.

Content

An effective solution for service providers must be able to deliver a large volume of content, in the tens of gigabytes of information. It must also make that volume of information navigable and searchable. When information is delivered in this fashion, especially in a structured form using HTML or XML, versus either paper or Adobe PDF, the time required to find information is substantially decreased and employees are correspondingly more productive.

Commerce

Commerce, and more recently e-commerce, is not limited to merely the sale of products. E-commerce can refer more broadly to providing all of the information required to drive a purchasing decision even though the actual procurement does not happen electronically. Though equipment manufacturers may or may not choose to sell their products via the web, they will need to provide the information that their customers need to make procurement decisions.

Collaboration

Effective problem resolution is a product of ongoing collaboration between the customer and the product manufacturer, as well as collaboration among the provider's support staff. The incorporation of best practices within the product support content can also improve the ability of the customer to maintain and grow their infrastructure with greater reliability.

Integration with the Back Office

Service providers have a number of back office systems to deal with. The systems generally center on the billing and customer care and relationship management processes. Solutions for the maintenance of network infrastructure should be able to integrate with those systems, as well as with automated diagnostic systems in order to enable employees to more effectively diagnose and resolve problems,

In addition to this, where manufacturers offer the potential for e-commerce, the solutions should be able to integrate with the customer's procurement and order management and inventory systems. This type of integration can allow the service provider to manage their inventory with greater predictability, and therefore reduce their excess inventory, while still maintaining a level of comfort regarding the ability to have equipment available where necessary.

Conclusions

Consider some of the following decision points and questions about your customers, your organization, its business goals, and its technical infrastructure and approach.

Identify the Requirements of Your Customers

- ◆ Are your customers concerned with the reliability of their network infrastructure?
- ◆ Would your customers like to be more productive?

Identify Where Your Organization is Regarding e-Content

- ◆ Do you author your content in a structured format?
- ◆ Do you deliver thousands of pages of technical and catalog content to the operators of your equipment?
- ◆ Do you have a solution in place to deliver your product support content?
- ◆ Is it easy to find information when required?

Identify Where Your Organization is Regarding e-Commerce

- ◆ Are you evaluating or rolling-out content management or catalog management software? Or do you have such technology in place already?
- ◆ Do you require your content to be integrated with technical data, e-commerce information, or other back office information?
- ◆ Would you like to deliver integrated content and technical information to customers and channel partners?
- ◆ Do your content systems on both the sell-side and buy-side need to be integrated with transaction systems?

Identify Where Your Organization is Regarding e-Collaboration

- ◆ Do you allow your customers to collaborate with you? Have you customers ever asked to be able to do this? Are you sitting there waiting for them to ask?
- ◆ Could you benefit from knowing more about how your customers use your products?

Assemble the Right Technologies and Solutions

- ◆ Concentrate on assembling best-of-breed technologies for content management, e-commerce, applications serving, and applications integration.

Decide on the Business Objectives of the Implementation

- ◆ Clearly, you will be looking for improved reliability and maintenance productivity. You will want to evaluate certain customer support metrics to look for an increase in self-service customer support among operators, as well as increased customer satisfaction.

Implement, Measure for Success, and then Build on that Initial Success

This early success will convince management, employees, and partners of the viability of the new content-commerce-collaboration business models. Other parts of the organization, and other partners, will be ready to participate as you expand these solutions across your enterprise.