



# Web Content Filtering

## Technology Overview

Version 1.0  
11 January, 2003



## How It Works

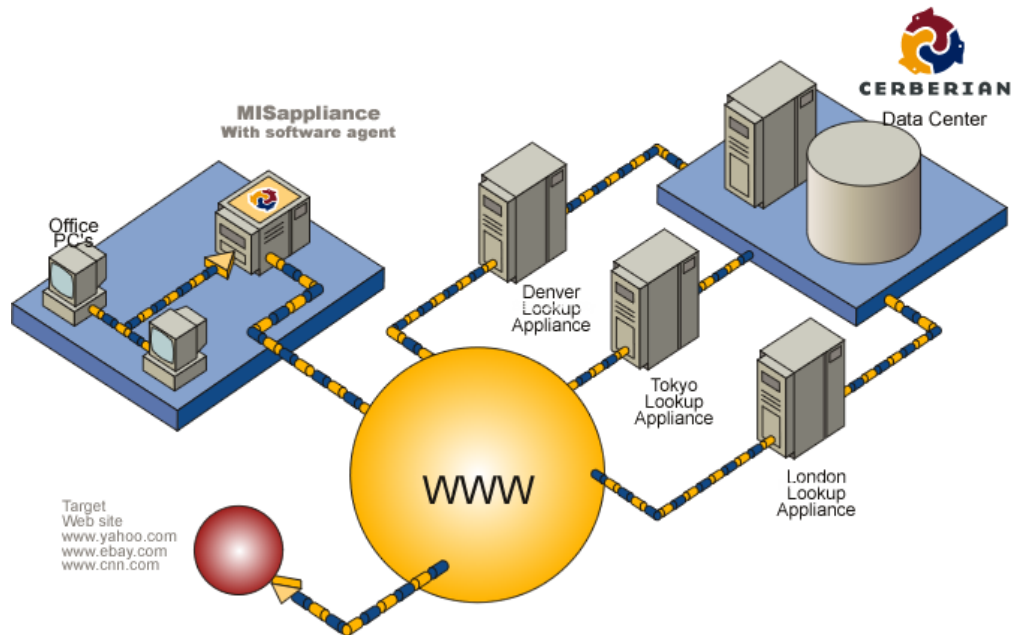
The MIS Tech Web Filter combines state-of-the-art technology with an outsourced business model to provide a unique solution to its customers. Through our partnership with Cerberian, MIS Tech hosts and manages policy management, URL categorization, and reporting application services in geographically distributed data centers. The MISAppliance intercepts user requests for web pages and uses the Cerberian rating service to determine whether or not to allow the user to view the page. Not only does the MIS Tech Web Filter maintain a database of more than 3.5 million categorized URLs, but it also uses Cerberian's unique Dynamic Real-Time Rating (DRTR) technology to categorize new web pages. DRTR not only looks at the meaning of words, but also looks at the words in context and the formatting applied to the words, to determine the category that applies to the page.

Because of its unique architecture, the MIS Tech Web Filter provides the most effective and efficient content filtering solution available. But it all starts when a user makes a request for a web page.

### The User Requests a Page

When using a web browser to request a URL, the browser sends that request out over the local network and starts the following process:

1. The MISAppliance (MISa) intercepts a web request from its local network.
2. The software agent on the MISa sends a request to a Cerberian Lookup Appliance to have the URL categorized.
3. At the same time as step 2, the agent sends a request to the target web server (the origin server) requesting the content of the page.
4. The Lookup Appliance looks up the rating of the requested URL. If necessary, the Lookup Appliance will request a rating from the Dynamic Real-Time Rating service.
5. The Lookup Appliance returns an "allow" or "deny" message to the agent.
6. The software agent either allows the incoming page through to the user, or it sends the user a block page describing the reason for denying access to the page.



### **The MISappliance**

The MISappliance is a multifunction Internet gateway appliance that provides a managed host platform for the Web Content Filtering functionality. This function can be standalone or combined with any of the other options available from MIS Tech such as firewall, VPN, email with anti-virus, etc.



### **The Lookup Appliance**

Any one of the many geographically distributed Lookup Appliances can process messages from an MISappliance. The Lookup Appliance looks up URLs in the ratings database. If the page doesn't have a rating, it will forward a request to the Cerberian data center to have the URL rated by the Dynamic Real-Time Rating service. The Lookup Appliance then compares the rating with either the list of categories supplied by the software agent or with the categories described in the policy in effect for the user who made the request. The Lookup Appliance then returns an allow or deny message to the MISappliance.

The Lookup Appliance also has processes that manage its local databases. On a periodic basis, typically every five minutes, the Lookup Appliance requests updates to its policy, ratings, and administrative databases from the Cerberian data center. It also stores logging information and periodically forwards that data to the data center.

### **The Dynamic Real-Time Rating Service**

Because the Internet changes constantly, no URL rating service can ever hope to categorize every Web page. When users request a new URL that has not been rated in the Cerberian ratings database, the Cerberian service uses its unique Dynamic Real-Time Rating (DRTR) technology to retrieve the page from its host server for analyzation of it's content. The DRTR service looks at the words used, the context for each word and the formatting used on the page and responds immediately to pages with adult/mature content by categorizing the page for instant action of either block or allow. DRTR then moves the remaining new pages into Cerberian's holding file for human review, which upon completion get assigned to one of Cerberian's 52 content categories within days of it's finding. This process makes Cerberian's database not only one of the largest URL databases available but also makes it the most relevant database in the filtering industry, based on user traffic rather than key words or outdated URL lists.

**Management and Administration**

To manage the MISappliance Web Content Filtering, end user administrators use a web browser to log into their administration account. Through the web interface, administrators create groups, users, and policies. Through the policies, the administrators assign which of the 55 available categories of web sites the users may or may not view. Policies can apply to one or more groups, and administrators can choose to have different policies in effect during different times of the day. For example, an administrator might choose to restrict web surfing during regular business hours to only work-related categories but might allow access to additional categories after hours.

*Example of the MIS Tech Web Filter policy management interface.*

**Policy** [How Do I...](#)

**Overview**  
When naming a policy, you should use a descriptive name that describes either the group to which the policy will apply ("Human Resources") or the categories that the policy enforces ("No Adult Material").

**Policy Name:**   Enable Dynamic Real-time Rating

**Description:**

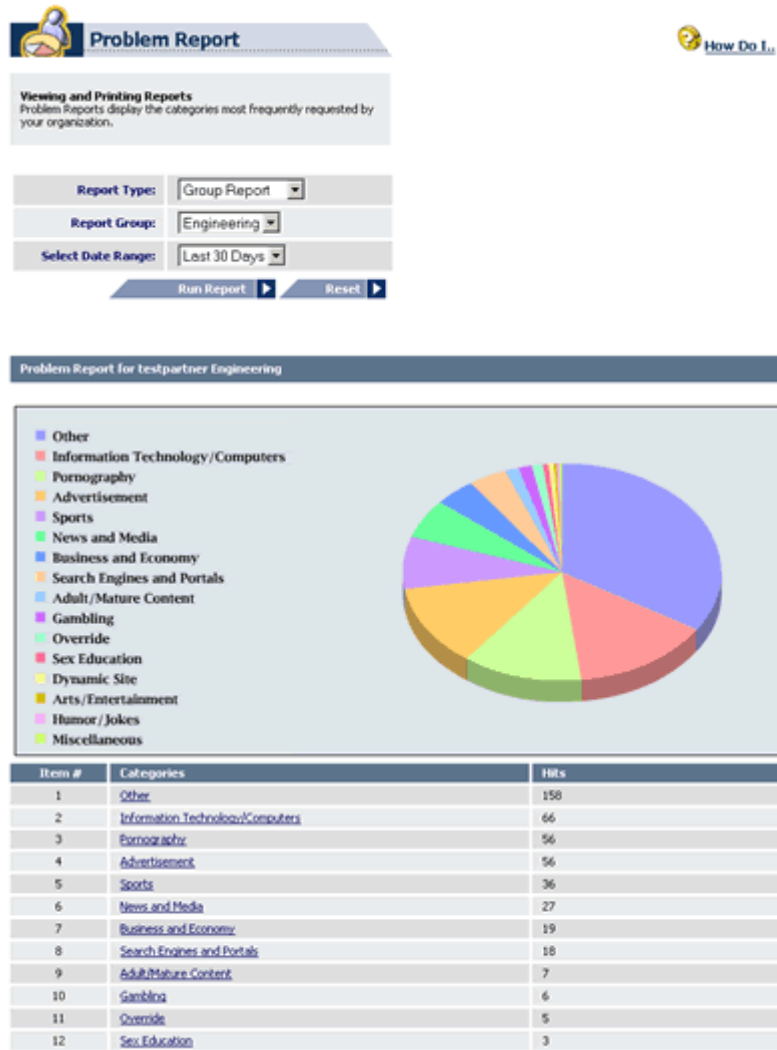
**Potential Liable and Objectionable Content Categories**

	Approval	Managed	Blocked		Approval	Managed	Blocked
Adult/Mature Content	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Illegal Drugs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Alcohol/Tobacco	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Intimate Apparel/Swimsuit	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Criminal Skills/Illegal Skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Nudism	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Drugs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Pornography	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Gambling	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Sex Education	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hacking/Proxy Avoidance Systems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Violence	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hate/Racism	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Weapons	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

### MIS Tech Report Services

Administrators also view violation reports through the same web interface. The administrator can view real-time reports presented in both graphic and tabular formats about the sites visited, attempts to view prohibited categories, top users, individual users, and so forth. The reports provide a unique drill-down feature that enables administrators to view information in multiple ways. For example, when viewing a category report, an administrator can click on individual categories to get a report of the URLs requested in that category. The administrator can further click to receive a report on the users that have requested that URL and a report for any single individual.

### *Example report from the MIS Tech Web Content Filtering Report Service.*



## Technology Benefits

### Database Accuracy

Cerberian maintains a databases of more than 3.5 million categorized URLs. Since no list, however large, could ever keep up with the growth of the Internet, Cerberian has implemented its Dynamic Real-Time Rating (DRTR) service. When a user requests a URL not contained in the database, the DRTR technology is used to assign a rating to that page. The database then stores that rating, which becomes available to all MIS Tech customers.

### Reliability

Cerberian strives to maintain a 99.5% server uptime, so your devices should rarely have any trouble contacting the default servers. Cerberian also maintains geographically distributed services, so if the service in one location becomes unavailable, the MISAppliance will automatically redirect the user requests to the next closest Lookup Appliance.

### Scalability

Any size organization can benefit from using the MIS Tech Web Filter. Organizations with multiple locations would install an MISAppliance at each location and could then centrally manage and monitor the Internet usage at each location. In addition, Cerberian has designed its services so that it can easily add additional service capabilities, such as adding additional Lookup Appliances as demand increases.

### Latency

In most cases, the end user will not notice the difference between a request directly to an Internet site and a request processed through the MIS Tech Web Filter. In addition, the MISAppliance issues parallel requests to the Lookup Appliance and the target web server. Typically, the Lookup Appliance will respond with a rating before the MISAppliance has even started to receive the target page from its host server. By having the software agent issue parallel requests, the user receives the page with little increased latency. If the Lookup Appliance returns a block message, the agent then throws away the incoming page without forwarding it to the user.

### Security

The MIS Tech Web Filter only stores your organization's URL ratings requests if you subscribe to the reporting feature. Neither MIS Tech or Cerberian ever sells this information or publishes usage statistics related to your organization's traffic patterns. The administration system requires username and password authentication before granting access to your information, so only your authorized users can view your reporting information.

## Summary

When compared to other alternatives, the MIS Tech solution provides the best value based on quality and total cost of ownership.

For additional questions regarding MIS Tech Web Filter, please call 1.866-4mistech or email [sales@mis-technologies.com](mailto:sales@mis-technologies.com).