



## Thunderstone Search Appliances for searching a government surplus-property auction website

*When the U.S. General Services Administration looked to upgrade the searching capabilities on its GSA Auctions® website, it could have written a host-based search engine to run on the mainframe system. Instead, GSA opted to use “off-the-shelf” Thunderstone Search Appliances – enabling the implementation of an affordable search solution that reduces system load while providing sophisticated search features expected by today’s savvy users.*

The GSA Auctions® website (<http://www.gsaauctions.gov>) empowers people in the general public to bid electronically on excess and/or surplus Federal assets. It supports fully web-enabled auctions that permit registered participants to bid on a single item or multiple items (lots) within specified timeframes.

Auctioned items can include run-of-the-mill office equipment and furniture, as well as more exotic Federal assets such as scientific equipment, heavy machinery, airplanes, vessels, vehicles, etc. The website enables GSA to auction-off and dispose of a widely geographically dispersed inventory of products. Participants can bid on and purchase available assets, without worrying about the actual physical location of any particular item or buyer.

Interested individuals may browse products offered on the auction site, or they can choose to search for items and place bids. With flexible and

robust search capabilities powered by the Thunderstone Search Appliance, GSA Auctions® takes advantage of Thunderstone’s proven technological expertise in the simultaneous searching of both structured and unstructured data.

Prior to implementing Thunderstone’s Appliance-based search solution, things shaped up very differently on the website -- in terms of its data access and retrieval functionality. Back-ended by a COBOL application utilizing a cgi interface to the mainframe's web server, the site originally supported a basic full-text search that required parsing the complete database to search each active item.

It seemed appropriate to consider deploying new technology, because the GSA Auctions® site deserved a more feature-rich and less resource-intensive search tool.

### **Driving TCO Lower by Integrating Mainframe Systems with “Off-The-Shelf” Products**

Thomas Schaefer serves as Systems Architect and consultant to the General Services Administration. He helps the GSA identify innovative ways to derive optimal value from its Unisys ClearPath Mainframe investment and to maximize the productive use of all related I.T. resources.

According to Schaefer, GSA could have written a host-based search engine to run on the system. But, they figured, “Why reinvent the wheel?” Instead, GSA rapidly deployed several off-the-shelf Thunderstone Search Appliances to affordably implement a state-of-the-art search solution with reduced load on the ClearPath system for each request.

“By using Thunderstone Search Appliances, GSA Auctions® has gained the rich search features users have come to expect from sites like Google. The broader point is that, while there is a move to consider total cost of ownership and migrate applications to the ClearPath environment, not every problem requires developing custom mainframe software. Some problems are better solved by integrating existing components, mainframe or otherwise, into composite systems,” Schaefer said.

Thunderstone’s DataLoad API, which allows data to be pushed into the Appliance, gets used a lot by the people who administer the GSA Auctions® site. And they appreciate the “plug-and-play” reliability of their Thunderstone Search Appliances – because every added server brings with it an additional production cost. Who wants to maintain yet another server? “With Thunderstone,” Schaefer said, “I haven’t logged-on in eight months, and everything keeps running just fine.”

GSA continues to work with Thunderstone to further enhance and refine its electronic auction offerings to the public, using the Thunderstone Search Appliance model as its standard.

Schaefer explained, “We like the fact that we still have the sophistication of Taxis, but in an appliance.”

The current search solution for the GSAAuctions.gov site includes two load-balanced Thunderstone Search Appliances (Enterprise Edition) located in a Minnesota production environment. Each Appliance runs active-active. Two additional Thunderstone Search Appliances (one Enterprise Edition and one Small Business Edition) are installed at a GSA facility in Utah, for the purpose of ongoing new application development and testing.

Kevin J. Payne, Director of System Applications at GSA, recalled, “We considered several internal and external search alternatives. Tom [Schaefer] came up with the idea of using a search appliance, which basically meant using either Google or Thunderstone.”

“Thunderstone demonstrated a real willingness to make changes that we wanted and to customize their standard appliances to meet our needs. The ability to customize was a big thing. Plus, we really like the way the search engine runs,” Payne added.

Customization for the GSAAuctions.gov search enhancement project enabled GSA’s Thunderstone Search Appliances to add as many as 50 additional data fields (well beyond the three definable fields that come with the standard Appliance) for auction-item searches based on bid amounts and different geographic locations.

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Payne said the procurement process was fast and easy. And he expects other key GSA projects to also have their search capabilities powered by Thunderstone Search Appliances in the months ahead.

As an example he cited the GovSales.gov (<http://www.govsales.gov>) website. Part of the Federal Asset Sales Presidential e-Government (E-GOV) initiative, it will very likely implement its own Thunderstone Search Appliance by Fall 2008.

“These are systems that bring in billions of dollars a year to the U.S. government,” noted Payne.

### **Providing Multiple Ways of Searching Structured/Unstructured Data to Find Precise Results**

The GSA Auctions® site offers a variety of distinct ways to search for desired items:

- **Global Search**

The upper right corner of every page on the GSA Auctions® website contains a global search box that can search the entire site for all assets available to bid on and purchase. Users may refine displayed global search results by entering another search term in the search box above their search results and then clicking the “Search Within Results” button.

- **Category Search**

The home page has a category search box for searching only user-selected categories of items. Directly above the category list, the category search box begins with "All

Categories" as the default selection from the “category dropdown” list. This list changes to reflect items available for selection as users browse the different product categories.

- **State Search**

Choosing a state from the Browse States

dropdown box on the site’s main menu header will produce a list of items located in the chosen state and will allow a user to enter keywords for searching the full-text information associated with all the displayed items.

- **Advanced Search**

Accessible via a hyperlink under the global search box, advanced search allows users to:

1. Delimit keyword search types (all words, any words, exact match.)
2. Specify a current winning bid range.
3. Search within a state for an item.

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The professionals who work at GSA sometimes tend to write in government-spec language that typical users do not use themselves. For instance, what GSA refers to as "vehicles" on their auction site does not correspond to terms that most people use when searching for vehicles. Rather, people look for “cars,” “sedans,” “autos,” “automobiles,” “SUVs”, etc.

With built-in Metamorph concept-based searching capabilities, the **Thunderstone Search Appliances saved GSA hundreds of thousands of dollars in development costs**, According to Payne.



The Thunderstone Search Appliance is a plug-and-play device combining the simplicity of a hosted service with the security and performance of a local solution. Built on Thunderstone's advanced TESIS software, the Appliance can handle more than 1,000 typical queries a minute -- providing excellent value without adding administrative overhead.

| Feature                                      | Benefit   |
|--|---|
| Unlimited Collections                        | Provide separate searches for different communities, websites or topics.  |
| Fast Response                                | Can handle over 20 queries a second, enough to handle those peak times.   |
| Large capacity                               | Models to handle from 100 thousand to 3 million documents in a single device. More with custom configurations.    |
| Crawl any number of web servers              | Combine all the content you want into one or more collections.  |
| Preconfigured                                | Your search appliance will come preconfigured to your needs, so it will be ready to go as soon as you plug it in. |
| Index JavaScript and Flash content and links | Make sure all the content on your website is indexed.   |
| Index PDF content                            | Index your PDF documents, and highlight results in Adobe Acrobat Reader.  |
| Index Shockwave/Flash content                | Index your Shockwave/Flash documents.   |
| Automatic cookie management                  | Maintaining session state while the crawl is going on crawls the data the user would see.                         |
| Duplicate Detection                          | Lets you choose to only index one copy of identical documents.  |

| Feature                    | Benefit  |
|----------------------------|--|
| Remove Common option       | Automatically removes header and footer information.   |
| Include/Exclude tags       | Allow you to choose which portions of your web pages are indexed, letting you ignore template text.                  |
| Insert a single page       | Add a single page at any time to the index, to keep it as current as possible.                                       |
| Crawl various server types | Index your data served by HTTP, HTTPS, FTP, Gopher, or your file server.   |
| DataLoad API               | Allows data to be pushed into the appliance. A variety of Connectors already exist for common document repositories. |
| Categories                 | Define categories of content to allow for finer control over searches.   |
| Relevance rank options     | Five separate knobs to control how search results are ranked to suit your needs.                                     |
| Simple HTML Templates      | Predefined simple HTML templates let you create the search interface simply.   |
| XML stylesheet support     | Create your own custom user interfaces using standard XSL transformations.   |
| Spell Check                | Correct query mis-spellings using your vocabulary.   |

Whether configured as the Small Business Edition (SBE) or the Enterprise Edition, a Thunderstone Search Appliance offers an attractive choice of perpetual licensing options and underlying functionality simply unmatched by any competitor in the marketplace.

Call Thunderstone Software LLC at +1 216 820 2200 or visit <http://www.thunderstone.com>.

