

## NASCIO Recognition Awards 2003

### Using Simple Object Access Protocol (SOAP) to access statewide circuit court data via the Internet

Title of Nomination: Using Simple Object Access Protocol to access statewide circuit court data via the Internet

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CATEGORY: Enterprise\_Information\_Architecture

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## NASCIO Recognition Awards 2003

### Using Simple Object Access Protocol (SOAP) to access statewide circuit court data via the Internet

#### Executive Summary

Easy, efficient, and open access to Wisconsin's public circuit court information has been provided by the Wisconsin Circuit Court Access (WCCA) website since 1999 <http://wcca.wicourts.gov>. Originally created to reduce the need for the dedicated public access workstations in Wisconsin's courthouses, it has grown into a business critical tool for numerous businesses, governmental agencies, and citizens from across the nation.

Today, over 500,000 requests are being processed daily. A large percentage of these requests are being issued by software applications. WCCA was not originally designed to support automated processes, and as a result the process was inefficient for both the user and for the courts.

In 2003, the WCCA website was redesigned, both from a user-interface perspective, and from a technical infrastructure perspective. Included in the new website was a method of access to the system that supported automated processes in a standard, efficient, manner. This new access method is referred to as the WCCA SOAP Interface.

The SOAP Interface was made available to the public in early April 2003, and several organizations and individuals have registered for the service. These organizations can retrieve this information without the delay of approval within the court system and request processing time. The cost of adding the SOAP Interface to WCCA was relatively low, at approximately \$15,000. The following benefits are already being realized:

- Private businesses now have a means to automatically obtain large quantities of up-to-date court data.
- Wisconsin's justice agencies benefit from the improved accuracy of, and the timely access to Wisconsin's circuit court information.
- Citizens have open and flexible access to statewide circuit court information.
- The media, university researchers, state commissions, independent research organizations, and others, have the tools necessary to do in-depth research on trends or other statistics within the circuit courts.
- The efficiency of the operations of the Wisconsin court system will improve as the need for court staff to work on public information requests continue to decrease.

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#### **Project overview and history**

Since 1999, Wisconsin's justice agency partners and the public in general have enjoyed free, comprehensive and easy to access public records from circuit courts across the state of Wisconsin. This access is provided by Wisconsin's Consolidated Court Automation Programs (CCAP), through a website known as Wisconsin Circuit Court Access (WCCA) <http://wcca.wicourts.gov>.

WCCA was originally developed for the purpose of making court data readily accessible to justice agency business partners. During development, CCAP determined that with a reasonable amount of additional effort the site could be developed to accommodate private organizations and the public as well.

With WCCA, circuit court records are available without a trip to the county courthouse. The website also reduced the need for the numerous dedicated public access workstations that were being installed at a rapid pace in courthouses around the state. Over the past four years WCCA has evolved into a business critical tool for many justice agencies, businesses, employment screeners and citizens across the nation. The number of searches per day climbed from several thousand in 1999, to over 700,000. Internal research has shown that approximately 60% of the activity is from people using traditional web browsers. The remaining 40% are being performed via automated processes that continually scan the site in search of new and updated information. WCCA was not originally designed with these automated processes in mind, and therefore the organizations that were running these processes needed to resort to a process known as "HTML scraping". Essentially, they had to go through the difficult process of automatically identifying important data elements from within a data format that was not well suited for that purpose.

In 2002, the WCCA website user-interface and technical infrastructure was completely redesigned and upgraded. The result was CCAP's second-generation WCCA. The CCAP development team took advantage of the opportunity to incorporate many new and exciting technical enhancements to the system. Among them was the addition of a second method to access the system. This new access method was intended to accommodate the many organizations that were using automated processes to access WCCA in a standard and efficient manner. The entities that had been accessing court data in an automated manner were exclusively private sector organizations. The new method was also intended to enhance the ability of Wisconsin's many justice agencies to incorporate real-time court information into their respective software applications. This new access method is referred to as the Simple Object Access Protocol (SOAP) Interface.

#### **Time in operation**

The SOAP Interface was made available to the public in early April 2003. Within one week, approximately ten organizations, mostly private companies, and some government agencies, had registered for the service. While it may be too soon to measure the total impact this service will have on the efficiency of obtaining information from Wisconsin's circuit courts, benefits are already occurring.

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#### **Significance of the project improvements**

##### Efficiency of CCAP Operations

Prior to WCCA SOAP, the only way to gather large quantities of information from CCAP was to make a formal request for information. The labor required to receive, understand, agree on the format, create the necessary queries, format the output, and return the results was significant, and in some cases, constraints on available staff resources created long delays in satisfying the request.

WCCA SOAP puts all of the tools necessary to gather information in the hands of anybody who has the technical ability to utilize them. The availability of WCCA SOAP will decrease the number of information requests received by CCAP, therefore making the operation more efficient, and increasing the speed with which information requests can be accommodated.

#### **Benefits of the new automated service**

##### Real-time access for criminal justice partners

It has long been a goal of the Wisconsin justice community to improve the slow and error-prone process of sharing information across jurisdictional boundaries. The WCCA SOAP service eliminates all technical barriers to real-time access to Wisconsin circuit court information. This service is a significant step towards the long-standing justice community goal of providing, "the right information, to the right people, at the right time".

From a justice agency perspective, the WCCA SOAP service looks like a giant database of up-to-date circuit court information, accessible from their computer systems just like a database attached to their local network. This information can be searched on in any number of ways, and results can be consolidated with information from other sources to create any number of "views" of the consolidated information. Wisconsin's justice community now has the ability to incorporate statewide, real-time, circuit court information directly into the software applications in place in many agencies.

##### Open and efficient access for the public

Just as government agencies will benefit from standard, open, and easy access to circuit court information, so will privately owned companies. Of the organizations that have registered for access to the WCCA SOAP service so far, the majority are data collection companies. These companies are in the business of collecting information from a large variety of sources, like WCCA, across the nation consolidating it, and selling it to interested parties. The large number of companies providing this service is an indication of significant demand for such services.

WCCA SOAP ensures that the process of obtaining Wisconsin circuit court information is as efficient and economical as possible. This efficiency will lower the cost of doing

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business, and as a result, should lower the cost to the customers of the service providers.

#### Support of research organizations and the media

University researchers, state commissions, independent research organizations, and the media directly benefit from the availability of the WCCA SOAP service. There are many organizations involved in research projects that rely on CCAP's large database of circuit court information. In the past, some of these organizations gathered data manually from the WCCA website. Others would request and pay for a specific data set that CCAP programming staff would provide them. Although the WCCA website is a valuable tool, that averages over 500,000 hits per day, it was not well suited to a research effort that required a large amount of information using a variety of search criteria.

WCCA SOAP is an ideal tool for this type of work. The researcher can write automated programs to search the WCCA database using whatever criteria they deem appropriate. These programs can store the results in their own database using whatever format they find useful. They are free to use their own database of information in whatever manner they find useful. WCCA SOAP enables more efficient and accurate tools for research purposes.

#### Return on investment

The benefits come at a relatively low cost to the citizens of Wisconsin. Labor costs for the development of the supporting WCCA SOAP infrastructure, including documentation and sample programs to assist subscribers, was about \$15,000. The total time to develop, test, and implement the new SOAP feature was approximately 2 months.

There were no additional hardware costs beyond those already required for the implementation of WCCA. The cost benefit to CCAP maybe measurable, but the total benefits are difficult to measure since there are too many organizations and individuals that will realize them to quantify.

#### WCCA infrastructure

The WCCA computer infrastructure is made up of four distinct "types" of systems. There are no additional hardware or software costs to support the SOAP interface. The only additional piece of software necessary to support SOAP is Apache Axis, which is a freely available open source product.

The infrastructure that is used for the public WCCA site is as follows:

##### 1) The Proxy Server

This is the entry point for all incoming WCCA HTTP requests, including SOAP requests. The IP address of this computer corresponds to <http://wcca.wicourts.gov>, and is located outside of the firewall. This machine is responsible for receiving requests, forwarding the requests to a WCCA load balancers, and sending responses back to the original requestor.

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#### Software:

Operating system: Linux  
Web server: Apache HTTP Server  
App server: Apache TomCat  
SOAP server: Apache Axis

#### Hardware:

IBM X-Series 335 Rack Mounted 1U Server  
Intel Xeon 2GHZ processor  
1.5GB memory  
60GB hard drive

#### 2) The Load Balancing Server

The WCCA load balancer is located inside of the firewall. It is responsible for receiving requests from the proxy server, forwarding the requests to one of the available WCCA renderers, and sending the response back to the proxy server. The main function of the load balancer is to spread the incoming requests equally across multiple WCCA rendering machines.

#### Software:

Operating system: Linux  
Web server: Apache HTTP Server  
App server: Apache TomCat  
SOAP server: Apache Axis

#### Hardware:

IBM X-Series 335 Rack Mounted 1U Server  
Intel Xeon 2GHZ processor  
1.5GB memory  
60GB hard drive

#### 3) The Rendering Servers

The WCCA renderers are responsible for accepting the incoming requests, retrieving the needed information from the database server, forming the response message, and sending it back to the load balancing server. There are currently three rendering servers in production, but the number can be expanded quickly if necessary.

#### Software:

Operating system: Linux  
Web server: Apache HTTP Server  
App server: Apache TomCat  
SOAP server: Apache Axis

#### Hardware:

IBM X-Series 335 Rack Mounted 1U Server

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Intel Xeon 2GHZ processor  
1.5GB memory  
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#### 4) The Database Servers

The database servers hold the statewide circuit court data, which is kept in sync with the production databases in Wisconsin's circuit courts. The database server is responsible for accepting SQL queries from the WCCA renderers, querying the database, and returning results. There are currently two database servers in production.

#### Software:

Operating system: Sun Solaris  
Database server: Sybase 12.5

#### Hardware:

Sun Enterprise 450 Server  
4 480MHZ Ultra Sparc-II processors  
4GB memory  
720GB total hard drive

### **Summary**

The benefits of WCCA SOAP to the criminal justice community, businesses, research organizations, the media, the court system, and the general public will continue to grow as the service becomes more fully utilized. An open "web of access" to government information, if created correctly and efficiently, will be beneficial to all criminal justice partners and to the citizens of the state of Wisconsin.

The efficient comprehensive services that are provided by WCCA are applicable to several categories in the NASCIO award program. With the recently released SOAP service, the Government to Business category seems most applicable since the service will primarily be utilized by non-government organizations.