The 2001 NAJIS conference will be held in Minneapolis, Minnesota, September 13-15, 2001, and will feature sessions on new technologies, justice integration efforts, recent developments in case management and more.

It's time to ramp up for the 2001 NAJIS conference! This year's conference will be held in Minneapolis, Minnesota, September 13-15, 2001. We will feature sessions on new technologies, justice integration efforts, new federal funding initiatives, and recent developments in case management, document management and more.

This year's agenda reflects your interests in a broad array of programs covering a variety of timely technology-related topics. NAJIS strives to bring together criminal justice professionals with a common interest in technology. This year is no exception, and we encourage you to consider attending whether you are a technology professional, an attorney with an interest in technology, or a manager or user of technology in the criminal justice arena.

For those of you who are familiar with NAJIS, you know we are a small but dedicated group, and presenting an affordable, quality conference is our primary annual activity. Being a volunteer organization presents its challenges. The efforts required to produce a quality product depend upon the energy, skill and commitment of a few individuals. In recent years, we have been relying more on our web site (www.najis.org) to provide members with up-to-date information and will continue to publish articles and announcements through this channel. Please check the web site for program details and hotel information.

A not-always-positive consequence of being a small group is giving the impression that only a select few can actively participate in NAJIS. This is absolutely not the case. Certainly we have many veterans in leadership positions, but we need new input and fresh ideas from outside the "old guard". If you wish to help out, please speak up! We'd love to find a way for you to get more involved.

Finally, please help us spread the word about NAJIS. We consistently get feedback that the conference is very worthwhile, but we struggle getting the word out to new people. If you know someone within your organization or a colleague who might be interested, please pass this newsletter on and encourage them to attend. You are our best advertisement. See you in Minneapolis!

Mark Perbix
NAJIS President

The conference will be held September 13, 14 and 15 at the Millenium Hotel Minneapolis. For hotel reservations call 1-866-866-8066 or 612-332-6000 Room rates are $95.00 for a single and $105 for a double. When making hotel reservations, please mention that you are registering for NAJIS. Reservations must be made by August 17, 2001. Call Terry Schaub, Conference Coordinator, at 334-749-7148 if you have questions about the conference.

In This Issue

What Is NAJIS?

The National Association for Justice Information Systems (NAJIS) is an organization of individuals who are responsible for the acquisition, operation and management of local, state and federal criminal justice information systems.

All managers in prosecutor's offices, the courts, law enforcement, and allied agencies who design, improve, implement or supervise automated information systems can benefit from NAJIS membership. Individuals who are investigating, evaluating and purchasing automated case tracking and management hardware or software for criminal justice functions particularly are encouraged to join and participate in NAJIS activities.

The Colorado Integration Project: Lessons Learned

Dos and Don'ts of System Integration using Middleware Architecture

by Mark Perbix

In recent years, there have been several notable examples of state-level justice systems integration. Most recent initiatives have incorporated specialized software called "middleware" to link disparate legacy systems in a way that allows these systems to communicate in so-called real time, as opposed to communicating through "batch" uploads of data at set intervals. The Colorado Integrated Criminal Justice Information System (CICJIS) is no exception. CICJIS was initially implemented in 1998 by utilizing the Sybase suite of middleware products.

The objective was to interconnect five statewide legacy, "mainframe" criminal justice computer systems belonging to the state courts, law enforcement, (through the statewide criminal history repository system), prosecutors, adult corrections and juvenile corrections.

The reason for integrating these various systems was to accomplish the following:

1. Eliminate redundant data entry as information is passed between the various systems during the criminal justice process.
2. Make data available across agency boundaries at the moment it is entered.
3. Increase the number of court dispositions posted to the criminal history record.

The bottom line objective was to make criminal justice information more timely, accurate and complete while streamlining the justice process. This is the Holy Grail of all system development—to make information-related services faster, better and cheaper.

Middleware performs both routing and translation functions. Agencies still maintain their own systems and information entered in those discrete systems can be used to populate databases in other agencies' systems and thus reduce or eliminate redundant data entry. Another way to put this is that middleware acts as a United Nations-style translator. The translation occurs immediately and the listener (receiving computer) hears in her own language what the speaker (sending computer) is saying as it is being said.

A major benefit of this type of systems integration is the elimination of redundant data entry. Redundant data entry is one of the chief causes of inaccurate information due to human error. When data is reentered from one system to the next, cumulative data errors result from omissions, additions and inaccurate transcription. These errors then make it harder to link local records to criminal history records when dispositions are finally reported at the close of the case. The net effect is that if disposition records cannot be linked to arrest records at the state repository, then final dispositions cannot be posted. When dispositions cannot be posted, they will not appear on RAP sheets.

CICJIS adopted a hub-and-spoke or star model where the central middleware server maintains connectivity with each of the five agency systems and serves as a central index to each of agency's databases.

Access to information through CICJIS is provided through the native interfaces of each legacy application. This approach gives each agency its own unique and customized view of the integrated system. CICJIS is a closed system and access to data from any agency system complies with each agency's individual security requirements.

The initial implementation of CICJIS provided most of the critical data transfers between the five systems including arrest data, charge filings, case docket information, and disposition and sentence information. The next objective was to provide interactive access to information stored on any one of the legacy systems. To accomplish this, a query feature was developed to deliver a snapshot of offender information or to allow an authorized user to "drill down" to specific, detailed information maintained on each agency's computer system.

While the system has been very successful, no system is perfect and we would have done some things differently had we known then what we know now. The following nine items are the changes we would make today if we were starting from scratch:

1. Use a unique transaction identifier to manage data throughout the system rather than use unique identifiers assigned by individual agencies. Using a system-assigned identifier instead of agency identifiers simplifies the tracking of data through the system. Since the middleware model essentially passes data from one system to another, having a unique identification number assigned to the entire transaction makes troubleshooting easier and more reliable.

2. Provide completion messages as well as failure messages to the data sender. If only failure messages are returned, the sender cannot know if the message was received successfully or if it even arrived at its destination. A better approach is to provide an acknowledgment message for both successes and failures. In a multitiered middleware system, failure can occur at many different points for many different reasons. Developing error-handling code to correctly respond to all possible failures is much more complex than establishing a receipt handling mechanism for each data supplier.

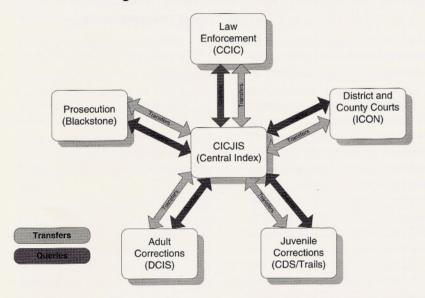**3. Dedicate a separate database system to the transfer application.** The middleware model of moving data from one system to another needs a dedicated database that stores information about the data—where it is stored, when it was sent, whether it was received, and so on. This data transfer database application should be optimized to ensure that the data is

received, processed (if necessary), and forwarded to its destination. This differs from the typical On-line Transaction Processing (OLTP) model.

4. Standardize critical identifiers (person, case, etc.). Carefully weigh the long-term costs of maintaining each agency's unique legacy system identifiers. The original model for CICJIS was to develop an integrated system that minimized the impact on the existing legacy systems. As a result, CICJIS was expected to track and manage individual system identifiers needed to send, receive and query data from each of the legacy

systems to meet a standard interface model. When the CICJIS system was developed, middleware and data exchanges standards such as XML were relatively new and immature. At that time, the goal was to be able to connect the five heterogeneous systems involved and share data. As a result, several different data interface mechanisms were required to accomplish this. Today, this technology has matured to the point that a single architecture and interface model can be adopted. Standardize on a single model if at all possible to reduce the complexity and long-term cost of maintaining the system.

problem at the source than apply secondary fixes in an effort to make it fit within an accurate data model.

8. Do not rely on the trusted host. The trusted host model assumes that each legacy application can be relied upon to apply all appropriate edits and perform all necessary data validation tasks, but if edits are not applied correctly, corrupt data from one system can quickly pass to another system like a virus. Can you afford to let this happen? Should the "middle" apply a second set of edits to insure data integrity? One must weigh the risk of proliferating corrupt data across multiple agency systems against the cost of prevention.

Colorado Integrated Criminal Justice Information System

9. Beware of the failure of analysis. Few people exist with an understanding of the whole criminal justice system. This perspective is necessary if a person is developing the process for gluing various justice information systems together using middleware. Even if you are lucky enough to find the right consultant for this task, you should cultivate this expertise internally as your project proceeds to ensure that you continue to have this expertise available.

Integration of criminal justice information systems is like any other industry-specific vertical integration project—it is a significant undertaking and there are huge hurdles to overcome from beginning to end. The middleware model has many advantages, but like any approach to integration, it has its trade-offs. Designing systems in hindsight always offers the opportunity to do things better. The suggestions presented here would make any system more reliable and efficient and should be considered when designing an integrated justice system using the middleware model.

systems. This creates a long-term maintenance burden by placing the complexity of managing and synchronizing multiple system identifiers in the middle. Serious consideration should be given to standardizing these identifiers on each legacy system. Maintaining separate agency identifiers has resulted in unexpected data corruption and inconsistencies between the systems because no one development team can maintain or manage all of the systems involved.

5. Adopt a consistent interface architecture. Modify agency legacy

6. Do not design a system to work, design it so it cannot fail. Provide sufficient error-handling and logging services to quickly identify and resolve problems. It is easy to design systems that work, but ensuring that the system cannot be broken is a more important—albeit difficult—objective.

7. Do not allow inaccurate data models. If a legacy system does not accurately model business practices, change the legacy system rather than attempt to reconcile the error through the middle. It's better to fix the

Mark Perbix is the NAJIS President and the CIO of the Colorado CICJIS Project.

NAJIS 2001 Meeting Registration: Minneapolis, September 13-15

Name:_____

Title:_____

Dept./Organization:_____

Address:_____

City/State/Zip:_____

Phone: (   )_____

Fax: (   )_____

E-Mail:_____

☐ Registration fee $370 (postmarked before August 5, 2001) or $395 (postmarked after August 5, 2001). Registration includes NAJIS membership, conference, program, luncheon, and activity. Additional charge for spouses and children to attend luncheons and special events will be announced.

Federal ID # 38-3448014

Hotel reservations for the conference can be made by calling the Millennium Hotel, Minneapolis at 866-866-8066 or 612-332-6000. **Reservations must be made by August 17, 2001.** The official conference coordinator is Terri Schaub, 334.749-7148.

Please make check payable to NAJIS and mail registration to:

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Lansing, MI 48933

NAJIS

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