

**National Association of State Chief Information Officers (NASCIO)**

**Nomination for 2003 Recognition Awards  
for Outstanding Achievement in the Field of Information Technology**

**Title of Nomination:** An Architecture “Evolution”  
From PAIR to I-PRIDE to Enterprise Architecture

**Project/System Manager:** Chris Pichereau

**Job Title:** Systems Consultant

**Agency:** Information Technology Oversight Commission

**Address:** 100 North Senate Avenue, N551

**City:** Indianapolis

**State:** Indiana

**Zip:** 46204

**Phone:** 317.232.4600

**Fax:** 317.232.0748

**Email:** cpichereau@itoc.state.in.us

**Category for judging:** Enterprise Information Architecture

**Person Nominating:** Laura Larimer

**Job Title:** Chief Information Officer

**Address:** Indiana Government Center South, 402 W Washington Street W478

**City:** Indianapolis

**State:** Indiana

**Zip:** 46204

**Phone:** 317.232.6750

**Fax:** 317.232.0748

**Email:** llarimer@doit.state.in.us

# **AN ARCHITECTURE “EVOLUTION” FROM PAIR TO I-PRIDE TO ENTERPRISE ARCHITECTURE**

## **Executive Summary**

Change is good! You go first!

Like many organizations, Indiana state government has experienced incredible growth in information technology solutions designed to meet increased business needs. This growth has resulted in a diverse and distributed technology environment. The current trend towards implementing new applications in a browser-based environment, as well as Web-enabling legacy applications, has added complexity to the mix. While the Internet-based and Web-enabled technologies create new opportunities for delivering services, both require a new way of thinking about how the environment is architected. This new way of thinking essentially evolves the 2-tier, fat client, distributed support model to a new framework. This involves change not only at the technical level, but at the organization level as well. A new governance structure and approach for delivering service is required.

In the 4th quarter of 2001, after completing two annual enterprise planning assessments, Indiana recognized that despite declining revenues, many agencies were still planning to migrate applications to browser-based solutions. This led state leaders to examine various Web-hosting environments and determine that agencies planned to use competing, even contradictory, strategies regarding how applications were developed, maintained and delivered via the Internet, Intranet and Extranet environments.

This initial discovery identified a number of independent projects and initiatives. The state determined that a new governance structure and oversight was necessary and formed a group known as PAIR (Portal Architecture Improvement Research). The PAIR team was chartered to examine how to improve the overall architecture to support a Web-based environment.

The recommendations from PAIR led to the development and procurement of IBM’s WebSphere Portal Experience. In addition, PAIR developed an overall architecture direction that includes: Enterprise Portal; Enterprise Directory Services; Enterprise Message Brokering; and Enterprise Heavyweight Content Management.

The first enterprise solution, the portal, is in implementation. This project is called I-PRIDE (Indiana Portal Review Integration Deployment and Execution). The return on investment model is to develop and deploy the portal solution at an enterprise level as opposed to having each state agency, or specific departments, procure and deploy their own portal product. Work is underway to build the framework for enterprise directory services, message brokering and heavyweight content management services.

Lastly, the move towards delivering government services from a functional standpoint rather than from an agency focused viewpoint has provided the business justification for Indiana to launch an Enterprise Information Technology Architecture initiative. This initiative combines business architecture, technology architecture and is overlaid with a new governance structure designed to ensure that enterprise direction decisions are prioritized and addressed in the most cost-effective and efficient manner.

The PAIR, I-PRIDE and Enterprise Information Technology architecture initiatives all required an examination of business, technology and governance. While PAIR and I-PRIDE were specific architecture initiatives, the Enterprise Information Technology Architecture initiative is all encompassing in scope.

These three enterprise initiatives, PAIR, I-PRIDE and the Enterprise Information Technology Architecture have harnessed the skills and talents of business leaders and technologists and have focused Indiana in a common, positive direction.

## **Description of Project, Including Length of Time in Operation:**

This section describes the evolution of enterprise architecture utilized by the State of Indiana from 2001 to current. Three initiatives have been started; one is completed and two are in process. Each initiative is an important step on the roadmap toward realization of a complete, cohesive enterprise architecture solution. As such, this section is sub-divided by initiative to more fully explain the intertwined nature of each initiative and how each contributes to the State's aggregated response to enterprise architecture.

### **PAIR AND I-PRIDE INITIATIVES**

In 2001, the State of Indiana recognized that it operated Internet, Intranet and Extranet Web environments. In order to continue to deliver efficient and effective e-government solutions to its citizens, businesses and employees, the State recognized the importance of ensuring the operations that support service delivery for these environments are as efficient and effective as possible. To this end, the State decided to explore the feasibility of sharing a common technical and administrative infrastructure and architecture across each of these Web environments.

In addition, the Web development, support and infrastructure market was maturing at a rapid pace. For the State to remain competitive it was critical to understand this market and its various associated products. The State also believed it to be critically important to understand the various portal and Web content-management products available and to set a direction for the State that supported a distributed and federated computing environment in order to contain costs. This included not only analyzing portal products, but to gain an understanding of Web services and to guide the state toward an environment that makes the best use of Web service strategies.

The PAIR and I-PRIDE initiatives are designed to accomplish the goals mentioned above.

### **Project Scope**

Phase I: January 1, 2002 – June 30, 2002

1. Identification and review of operational efficiencies and opportunities to share portal management solutions between accessIndiana/Indiana Interactive, Inc., and the Department of Information Technology. This included:
  - a. Analyzing and planning a co-located data center
  - b. Developing and implementing a common portal front-end
  - c. Joint venturing the analysis, development and implementation of directory services
  - d. Improving the search capabilities of the Internet through implementing Google
2. Review and recommendation of portal products and solutions, including purchase price and cost-recovery recommendations
3. Review and recommendation of Web Content Management (WCM) products and solutions, including purchase price and cost recovery recommendations
4. Development of an overall framework to support the enterprise Web environment, including directory services, enterprise portal, message brokering and WCM services

Phase II: July 1, 2002 – February 28, 2003

1. Development of an RFP to procure an Enterprise Portal
2. Establishment of a team of individuals from ITOC, accessIndiana, DoIT and key agencies to evaluate and implement the portal solution
3. Establish enterprise portal roll-out phases
4. Co-locate accessIndiana's data center with DoIT

5. Further research on an appropriate heavyweight WCM tool
6. Determine and recommend roles and responsibilities to support the architecture

Phase III: March 10, 2003 – July 31, 2003 – Launch I-PRIDE - Proof of Concept

Timeframe: 3/10/03 – 7/31/03

1. Ensure the integrity of the common enterprise portal within an over-arching enterprise computing architecture
2. Promote ease-of-use by providing a common portal for state-sourced content with a common look and feel and integrated navigation
3. Provide single sign-on capability to enterprise applications
4. Provide personalization services to reflect individual business requirements
5. Provide a means to perform integrated search
6. Facilitate collaboration via e-meetings, instant messaging and unified messaging
7. Develop an enterprise roll-out plan

### **Approach**

For phases I and II, a team from DoIT, accessIndiana/Indiana Interactive, Inc., Information Technology Oversight Commission and representatives from large agencies reviewed current operational procedures, researched and analyzed products and developed a business case and recommendations for moving forward. Where improvements were achievable without additional costs and contained within the current organizational structure, accessIndiana/Indiana Interactive, Inc. and DoIT were responsible for implementing those changes.

The team spent an average of 1.5 hours per week on this project for one year. It reported to an executive team comprised of members of the primary agencies, the Governor's Office and the State Budget Agency.

For Phase III, which is actually a combined "Proof of Concept" enterprise roll-out planning phase, the State of Indiana partnered with Haverstick Consulting to provide project management and implementation services for initial rollout of an enterprise portal solution. The scope of the initial rollout is to provide a fully functional, tightly integrated portal solution for several agencies. Lessons learned during the initial rollout will be applied to a planned enterprise rollout of the portal. Upon successful completion of the enterprise rollout the State will effectively have a single, consolidated Web environment – serving Internet, Intranet and Extranet functions.

## **ENTERPRISE INFORMATION TECHNOLOGY ARCHITECTURE INITIATIVE**

The success of making effective decisions and rapidly moving forward the statewide architecture and framework to support Web-based applications has led to the desire to leverage a new governance model for the enterprise. Indiana sought guidance from NASCIO, the federal government, states, local governments and reputable advisory services to determine the most effective approach in implementing an Enterprise Information Technology Architecture.

On behalf of the Governor, the State of Indiana officially launched the Enterprise Information Technology Architecture program in February 2003. State agency business and technology leaders have joined forces with the Chief Information Officer, Laura Larimer, to form the first CIO Information Technology Architecture Council.

The goal of the group is to identify opportunities that enhance the delivery of business solutions to Indiana citizens, businesses and state employees while containing associated costs. In order to accomplish this goal the council has formed a governance structure to oversee the program. The council also identified the need for an inventory of business functions and technology solutions that cross agency boundaries.

Indiana views Enterprise Information Technology Architecture as a framework for considering products, vendors and methodologies. Furthermore, it is viewed as a means to analyze how processes, tools, technology and people should interact to produce information technology solutions that achieve both individual and combined goals.

There are essentially three main components to the Enterprise Information Technology Architecture framework.

- **Governance Architecture Framework** includes the governance roles, elements and processes required to maintain the architecture. The CIO Enterprise Information Technology Architecture Council will oversee this activity.
- **Business Architecture Framework** describes business drivers, business processes and functions that cross organizational boundaries.
- **Technology Architecture Framework** describes technology drivers, and technology needs that cross organizational boundaries.

Over the course of the past few months, Indiana has convened key representatives from each of the various business clusters that represent all of State government. A primary task is to inventory business functions throughout the agencies and identify the common functions. This will eventually lead to a mapping of the business functions with strategic objectives, external influences and technology requirements.

In addition, Indiana has convened key representatives from each of the various technology areas that exist in state government. The primary task of this group is to inventory current products and standards as well as identify technology trends that are being considered. Products and standards are being assigned to four distinct categories:

**Emerging** – products that have potential to become current components -- they should only be used in pilot or proof of concept environments and under highly controlled regulations.

**Current** – components that have met requirements of the enterprise architecture - those components that should be used in deployment of technology solutions.

**Twilight** – components in use, but do not conform to the stated business/technical drivers. No date of discontinuance identified. Not to be used for new development or new procurements. Extensive modifications should be carefully analyzed.

**Sunset** – components that do not conform to the enterprise architecture and also have a specific date set for discontinuance – indicating the date that the component will no longer be acceptable for use.

In total, 18 teams -- eight business, eight technical, and two governance -- have been established to accomplish the objectives.

## **Significance to the Improvement of the Operation of Government**

The goal of Indiana's enterprise architecture initiative is to identify opportunities that enhance the delivery of business solutions to Indiana citizens, businesses and state employees while containing associated costs. It will provide an Enterprise Information Technology Architecture framework for considering products, vendors and methodologies. Furthermore, it will be a means to analyze how processes, tools, technology and people should interact to produce information technology solutions that achieve both individual and combined goals.

This project significantly improves the operation of government by:

1. Ensuring the integrity of the common enterprise portal within an over-arching enterprise computing architecture.
2. Leveraging capital investment across the enterprise by eliminating duplication in architecture hardware and software.

3. Promoting ease of use by providing:
  - a. A common portal for state sourced Web-available information
  - b. “No wrong door” access capability
  - c. Common look and feel for all Web content
  - d. An integrated navigation
  - e. Common security mechanism that acknowledges multiple user identities and distributed role-based access to information
  - f. Single sign-on capability that mediates security across multiple, diverse authentication zones
  - g. A means to perform an integrated search of state sourced Web-available information
  - h. The ability to provide personalization services to portal users
4. Leveraging and integrating existing enterprise ERP applications
5. Integration of a multitude of State content including documents, general information and transaction-based applications
6. Incorporation of ability to consume core services, such as:
  - a. Web services
  - b. Directory services
  - c. Messaging services
7. Manages document publishing through the deployment of lightweight Web content management
8. Facilitates collaboration hosting such as:
  - a. E-meetings
  - b. Chat rooms
  - c. Instant messaging
  - d. Streaming video
  - e. Unified messaging
9. Provides a framework to integrate with
  - a. Directory Services
  - b. Message Brokering
  - c. Heavyweight Content Management

### **Benefits Realized by Service Recipients, Taxpayers, Agency, or State:**

The benefits realized by service recipients, taxpayers, agencies and the State are numerous. Enterprise architecture will provide a consolidated view of State agency processes and functions. Time/dollars expended and constituent confidence will be positively affected.

For example, one of the key guiding principles to which the State of Indiana subscribes is that the content and applications delivered to citizens, businesses and state employees will be accurate, up-to-date and secure. Through implementing an enterprise portal with the tools provided by the IBM Websphere portal, Indiana has the capability to provide fresh, accurate content in a consistent manner. Implementation of an enterprise portal would not be possible if support for an enterprise architecture solution did not exist.

### **Return on Investment, Short-Term / Long-Term Payback (Including Summary Calculations):**

Indiana realizes that extensive cost savings / cost avoidance will be realized via implementation of a comprehensive enterprise architecture solution. Calculations of savings are not available at this time. However, it is estimated the State will save approximately \$20,000,000 by implementing a consolidated enterprise portal. Savings is calculated by avoiding the costs associated from (15) large agencies implementing individual portal solutions.

Perhaps beyond Indiana's ability to accurately quantify its short and long term return on investments, the State is confident that the citizens, businesses, and employees of the State of Indiana will receive an immediate return by being able to do business with the State at their convenience in a safe, secure, and up-to-date environment. The ability to create "virtual" agencies and thus streamline the process to complete multi-agency registration, licensing, and permitting functions might be the greatest return possible.

In addition to making state government more efficient, the State of Indiana will look to offer the portal product functionality to all local jurisdictions with the state, truly making one door for all needing/wanting to do business with government possible.