

**California Service-Oriented Architecture
("Cal-SOA")**

**J. Clark Kelso
Chief Information Officer
State of California
December 28, 2007**

General Outline of Overall Program

Current Context

Each department in the Executive Branch has its own unique focus and distinct set of programs and program objectives. Currently, the information technologies that support these unique or distinct business functions are often deployed within each department separately. Yet departments also share in common a large number of specific functions and data needs. As for these commonalities, the question naturally arises whether there is a more cost-effective and flexible methodology for deploying information technologies than building duplicative systems in each department.

Sometimes, common functions and data needs are best met by developing enterprise applications for most or all departments to use. For example, we have concluded that the Fi\$Cal project – a branchwide “enterprise resource planning” application – is the best approach for meeting many of the most common business management and data needs of Executive Branch agencies, including such functions as budgeting, accounting, procurement, cash management, financial management, asset management and human resources management.

In many other instances, however, common functions and data needs are embedded within much larger applications that serve primarily department-specific needs. For example, many departments across the Executive Branch are required to verify a person’s social security number or identity as one important common step in what is otherwise a department-specific program or application. Similarly, many departments are required to verify a person’s or business’s licensure status. Changing a person’s or business’s address and other contact information is a function performed by virtually all departments. Determining whether a person has or does not have a criminal record is a common function performed by both state and local government entities, and even by many private entities. One of the fundamental premises of the Governor’s Health IT initiative is that appropriate data sharing of medical records can improve health care results and reduce overall treatment costs. In the criminal justice context, information sharing across the Executive Branch and between state and local law enforcement agencies and the courts promises better law enforcement and more cost-effective administration of justice. The capacity to share data among the revenue departments, and for the revenue departments to cross-check data held by other departments, contributes to appropriate enforcement and collections.

The information technology systems that currently support most of these department-specific applications were not designed according to any agreed upon standards or plan so that the common functions and desired data sharing could be achieved cost-effectively by building the

common function once and then reusing that function across the Executive Branch, or by designing the database and data sharing protocols to facilitate data needs across the branch. Moreover, many of these systems are hosted in the departments themselves, making coordinated development and maintenance more difficult and expensive. Absent standards and a coordinated architecture and plan, we have built – and will continue to build – isolated siloes of information and duplicative functions. This is not a cost-effective or flexible approach to meeting the common functions and data needs of our departments.

Vision

Our vision for the future is to develop an enterprise architecture consisting of standards and processes that facilitate cost-effective, flexible application development and deployment in centrally hosted environments that serve common functions and data management needs across the Executive Branch. The underlying foundation for this vision is a simple principle – “build once, use often” – a principle that applies both to building applications and data repositories.

From a technical perspective, our vision is to establish a California Service-Oriented Architecture or “Cal-SOA.” The Cal-SOA will contain the business and technical standards and processes to ensure that, as new applications and data repositories are built, they are designed for reuse and sharing.

Governance

California’s Executive Branch is highly fragmented. Significant responsibilities are vested in constitutionally independent officers and agencies. Even within the departments directly accountable to the Governor’s office, there is a significant history of independent planning and budgeting. It has been the history of fragmented, uncoordinated planning and application development and deployment that has created our existing, highly-siloed technology environment.

Cal-SOA requires a much higher degree of collaborative planning, budgeting and implementation. Departments and agencies that have historically acted independently of all other departments and agencies must join together to plan, budget and build. In essence, we must establish a loose partnership arrangement, where each department has responsibilities to advance not only its own interests, but also the interests of the entire partnership (i.e., the entire Executive Branch). We need to develop a better sense of trust and confidence among all departments within the Executive Branch.

The Enterprise Leadership Council (“ELC”) was established to provide precisely this type of over-arching, enterprise-wide governance. The ELC’s mission is “to provide a forum for state agency stakeholders of statewide enterprise projects and initiatives to address issues of mutual interest and concern as well as to provide statewide support and guidance for all state enterprise-wide system projects.” The ELC’s membership has been deliberately structured to extend beyond the departments subject to the Governor’s control to include representatives from several of the independent constitutional officers (i.e., the State Controller, State Treasurer, and Board of Equalization).

In addition to the ELC, we have established an Enterprise Process Advisory Committee that advises the ELC on matters pertaining to enterprise initiatives and projects, and an SOA Working Group consisting of the leading departments that are building SOA-based projects. We will undoubtedly need to establish one or more additional governance structures, and to invite broader participation in our existing governance structures, as we begin to adopt standards and processes and as we begin assigning responsibility for the development of enterprise services.

Implementation

To bring the Cal-SOA vision to life, we must accomplish the following:

- Ensure broad concurrence with the Cal-SOA vision through adoption of the vision by the Enterprise Leadership Council;
- Select a best practices methodology for SOA development;
- Begin developing standards, policies and processes to support service identification, development, implementation and maintenance;
- Build a foundational technology infrastructure in one or more data centers to support Cal-SOA; and,
- Require adherence to Cal-SOA principles in project design (i.e., FSRs) and application development and acquisition (i.e., RFPs).

It should be understood that Cal-SOA is not a one-time project accomplished by a stand-alone team. Instead, Cal-SOA is a coherent, structured, disciplined approach and attitude to technology development and deployment that all departments must employ if the Cal-SOA vision is to be most effectively realized.

Conclusion

We are just now embarking upon a major IT and network modernization initiative across the Executive Branch, including some \$2.3 billion in reportable projects. During this initiative, we will be replacing and modernizing the majority of our mission critical IT and network systems, including many of our most important legacy systems. We have another \$4 billion in reportable projects that are underway.

If we courageously seize the opportunity presented by this massive refresh in our technology infrastructure and business and program applications, we can build a much more responsive, flexible and cost-effective set of systems. If we shrink back from this opportunity, fearful of the changes that will be necessary to develop a meaningful Cal-SOA, we will once again build a series of siloed applications and databases that frustrate efforts to share information and leverage services across the Executive Branch and increase development maintenance costs for individual projects.

It is time for us to embrace in our business and information technology programs the spirit of collaboration and innovation characteristic of California and Silicon Valley. It is time for a Cal-SOA.