CNS /Update Newsletter Feature

Using the University's Data

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By Dr. Michael Conlon, UF Director of Data Infrastructure and PeopleSoft Implementation Officer

The university is a remarkably diverse and busy place. With hundreds of academic programs, fifty thousand students and thousands of independent research projects, the needs for standardized, high quality, authoritative data are varied and complex. Meeting the needs of the units for data from the university's systems of record is a growing challenge.

In the past, units would request data from a central source and one of two things would happen: either the request would be denied or the request would result in the construction and maintenance of a specialized capability of the central system to provide the data in question. The central system capability would often take the form of a "job," a specialized process that would run periodically to produce the required data. The data would then be transferred to receiving unit.

This method worked for over thirty years but had some serious downsides. Each successful request resulted in something for the central system maintainers to create and maintain. As the number of successful requests went up, the number of things to maintain went up. Maintaining all these specialized jobs grew to be quite a chore. Sometimes the successful request would result in the unit being granted access to the central databases. This also produced significant problems. Security settings had to maintained and the unit was always in a position to create load on the production databases that could threaten other processes. When production systems changed, all the users of the databases would need to make corresponding systems. After a time, the maintenance of these arrangements would grow to an unwieldy level.

These problems were not unique to the University of Florida. All sufficiently complex systems being maintained centrally and accessed locally had the same problems: scaling the unit level access to institutional resources could not be achieved. Requests would be denied to the detriment of the units. Access to the central databases would be granted to the detriment of production operations and all users. Specialized jobs would grow to an unmanageable level. Two solutions have recently been developed which change the relationship of the authoritative data source to the units that must access the data via electronic means.

The first solution is to provide a copy of the production data in another database that is specially designed and maintained for unit-level access. This method permits the access of data without threatening production operations. But in other respects it continues to scale poorly. The data structures must occasionally be changed and when they are changed, the users of the data must make corresponding changes.

The second solution is called service oriented architecture (SOA). SOA provides access to data via messages, rather than tables. Messages are typically small and can be thought of as a question and answer between a data provider and a data consumer. Any "look-up" function can typically be cast as a pair of messages. For example, a unit application may need to know a person's address (assuming the unit application is authorized to ask and receive an answer to such a question). The unit application can send a message containing a person's identifier. The returning message from the provider can contain the address.

A catalog of standard messages can be developed that shield the requesting applications from the changes in the enterprise systems. As long as the requesting messages continue to be answered, enterprise systems can change without corresponding changes to the unit.
applications.

Messages can be sent in real time. Unlike table access or jobs or file transfer, messages can be used to power web-based applications developed at the local level. This allows for the spread of a wide range of diverse applications developed to meet the diverse needs of the university.

Bridges is developing messaging capability to support the next generation of applications that will use the university's data.

Your Comments are Welcome

We welcome your comments and suggestions on this and all CNS documentation. Please send your comments to:

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