

**Trip Report – SBC DataGate training
August 31-September 1, 1999**

Location: **Redacted**
 St Louis, MO 63101

Instructor: **PB resource**

Attendees: GEIS (2)
 CLEC 1 – Dallas (3)

Logistics

We arrived on time for the 8am class. The security guard did not have our names on the daily list (nor on the following day). The instructor and one other person were still setting up the PCs in the classroom. 3 of 10 PCs eventually were declared unusable.

Coffee was provided. The building cafeteria was available to us for breakfast and lunch.

The CLEC 1 attendees arrived at about 8:45. The class ran until about 2:30 that afternoon (including 1 hour for lunch). The CLEC 1 students left but TG resources decided to stay and attempt to exercise some more substantial functionality. The instructor agreed to stay and assist and to return the next day (or provide someone else to cover as he had a tentative personal commitment).

Each student's place had a sealed plastic package containing a pad of paper, namecard, black and red pencils, ball-point pen, yellow highlighter and black dry-erase marker.

[I recommend this as a best practice.]

Class content - DataGate

The intent of the class is to introduce DataGate, the technological framework for accessing SBC applications. Specific applications which may be accessed through DataGate are out of scope.

The first part consisted of PowerPoint slides ranging from the history of DataGate's development to the structure of the API.

The second part consisted of 7 "labs" designed to build familiarity with the API. The first few involved compiling a simple client to interact with a simple server. The next series required some simple cut-and-paste from the early examples to insert some data items or function calls which had been deleted (and flagged) for the purpose of the exercise.

The only functional application tested was "Flexible Due Date". (This is one of the PreOrder transactions we need to use.) Only 1 valid combination of locality code and service type ("R" (Residential)) produced a response, which was always the same date (06241998 !!!!!!!!!!!).

A floppy disk was distributed containing the class materials: PowerPoint presentation, lab exercise source code etc, reference manual for PB/NB CLEC Access.

Delivery

PB resource stated he was one of the early DataGate developers but knew very little about the OSS applications. PB resource who introduced PB resource (instructor) stated he was one of their best trainers and also worked at the local university.

The students were all technically competent and had very questions on the slide materials – the instructor stated he had never had so few questions.

The instructor stated in his introduction that he would cover all the slides first, then we would do the labs. He said he had never figured a good way to integrate the labs throughout the class.

[I believe it would have been better to use the early simple labs to reinforce the slide content.]

3 of the 5 students finished all the labs by mid-afternoon on the first day. The CLEC 1 team decided to leave. The GEIS students arranged to stay through the next day to experiment with some of the OSS applications.

There was very little interaction in the class, as the content and labs were very straightforward.

PB resource was extremely helpful. He made many phone calls to attempt to resolve a major obstacle and apologized for the lack of response from his colleagues. He committed to finding a solution and contacting us on it ASAP.

Lessons learned

In addition to the class material content, the following were noted:

- Each CLEC has its own copy of the server applications, to control load and minimize the impact of a client-side problem affecting the server.
- The Test system is supposed to be a copy of the Production system, with a very small database.
- Each server application copy must be manually started by SBC – the class servers were terminated several times by problematic clients. This may not be a significant problem in Production if the servers are designed to cope with client-side problems, but we should expect to need real-time support during Testing of new client versions.
- The instructor claimed that the Test system database was supposed to contain all the sample data from the CLEC Access reference manual, although we found this was not the case in the 2 data sets we tried to use.
- Several typos were noted in the reference manual.
- The data item names in the actual code often differ slightly from the documentation, mostly in the use of upper and lower case. It is necessary to check the header files as well as the manual.
- DataGate makes extensive use of XDR (External Data representation) to support cross-platform data transfer. The code is written in C, but XDR makes complex data structures (strings, arrays, etc) easy to implement.
[I recommend we consider using the same approach in our code.]
- XDR is based on Sun's RPC. Some compatibility problems had been found on HP but the instructor believed they were all fixed.
- XDR supports "unbounded" (no fixed upper limit on dimension) arrays. The "LSP West" (i.e. PB/NB) applications make extensive use of them but the (older) MidWest applications did not. The instructor thought this could be the cause of our problems with CSR (see below) and surmised that unbounded arrays had not been tested in a cross-platform environment.
The DataGate API is available for C, COBOL, Visual Basic and PowerBuilder, but only C supports unbounded arrays (which are used extensively by the LSP West (PB/NB) version).
The CSR Response (see below) make extensive use of unbounded arrays nested to MANY (10+) levels. The DataGate API provided obviates the need to "parse" the CSR Response, but the data structure returned is quite complex.
- Response time for the CSR was 2-5 seconds. This seems slow for an "in-house" connection, but we do not know to what extent the training class reflects the Production environment.
- The instructor indicated there were only a few of the original DataGate developers left at SBC. It appeared it was not his regular job.

Summary

The class met the objectives of introducing DataGate. The lab exercises were very simple and did not teach much about the API.

However, as a CLEC attempting to use OSS applications through DataGate, this class is only the first step. Competent developers should be able to complete it in one day. It would be helpful to allocate the second day to exercising some relevant OSS applications, especially the PreOrder transactions, and learning more about both the API and the OSS transactions.

Extension activities

On completion of the labs, TG resource began testing the CSR Request/Response transaction, using the Due Date lab as a model. Early on the second day we were able to submit a Request (based on a TN from the test data in the manual) and detect a Response event, but receiving the Response message generated an error in the API code attempting to “un-marshall” data. This problem was not able to be resolved – the instructor was able to confirm that other SBC personnel could execute the code on the same platform type as the server, but the Training platform is of a different type. He believes the problem is in the low-level XDR code.

We were able to examine 2 trivial pieces of the CSR Response and the API Header, but the “interesting” pieces of the CSR could not be interpreted.

TG resource continued to write and successfully compile code to display pieces of the complex CSR Response structure, although it could not be tested due to the above problem. The many levels of nesting, the use of C and the XDR interface require a significant amount of laborious coding, more than we would expect in a C++ object-oriented environment.