

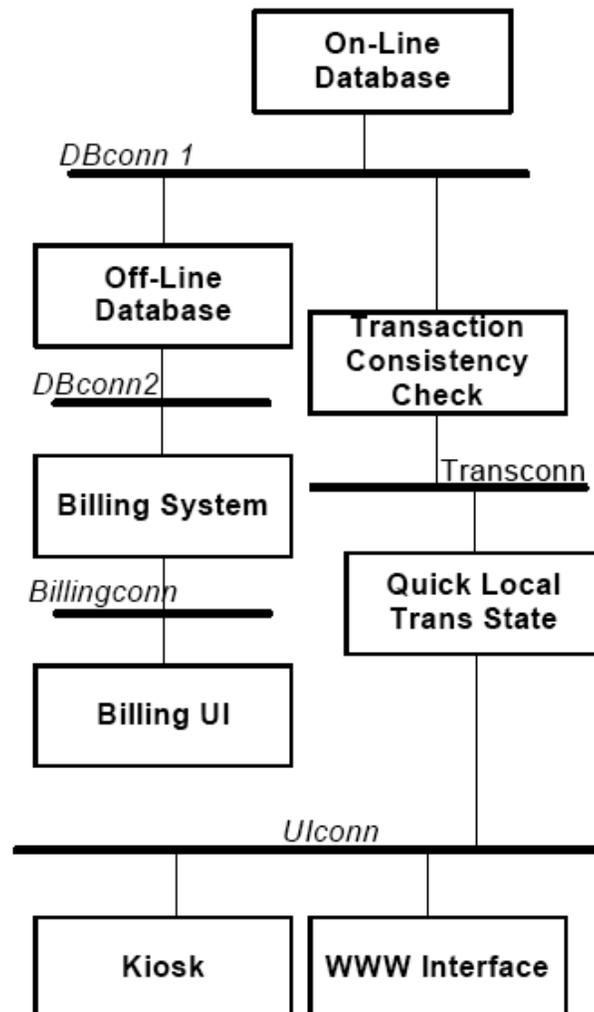
CS 578 – Software Architectures Spring 2012

Homework Assignment #2

Due: *Wednesday, March 21, 2012*

– see course website for submission details –

In this assignment, you are required to provide an architectural description of a subset of the C4 system. You are to use the C2SADEL architecture description language (ADL), which is described in this assignment's addendum, and which was overviewed in class.¹ Your architectural description should reflect the architectural breakdown given in the figure below. The architecture adheres to the C2 style. You should include full specifications of all component and connector types, as well as their instantiations and interconnections in the depicted configuration. You will use the DRADEL tool to model and analyze your architecture for correctness.



¹ You can find detailed information on C2SADEL at <http://sunset.usc.edu/~nenodissertation/dissertation2.pdf>.

The architecture must meet at least the following C4 system requirements:

1. Checking for conflicting tasks. The possible conflicts will be based on the information included in the Databases (see below).
2. Automatic daily updating of the Off-Line Database.
3. Support for long-lasting, interrupted sessions. You may make use of specialized operations and/or fields in the database. Additionally, incorporate a mechanism for generating reminders to assist the customer representatives (e.g., a popup at a time requested by the customer). Involved components will probably be Kiosk and WWW Interface, Local Transaction State, and the On- Line Database.
4. Billing inquiries and billing calculations and printing.
5. Customer access through WWW or Kiosks.

You may assume that the On-Line Database will include the following information:

1. Name
2. Date of birth
3. SSN
4. Address
5. Phone number(s)
6. Voice mail
7. Caller ID
8. Three-way calling
9. Numbers called or services accessed (e.g. Directory service)
10. Long distance provider
11. Numbers called and duration during the past three months

The Off-Line Database will include the following information:

1. Phone number
2. Numbers called and duration during the past three months
3. Rates
4. Amounts charged per phone call

Downloading the DRADEL Tool Suite

The DRADEL tool suite is available for download at

<http://softarch.usc.edu/~farshad/DRADEL.zip>

A demo explaining how to use the tool will be given in class.

Submission Requirements

The submitted models should meet the following requirements:

1. Each component needs to be modeled in a separate file.
2. Models need to be delivered in a directory. The directory name should be set as your last name.
3. To address an external component model in an architectural model the following format should be used:

```
component <<component_name>> is extern {
    <<your_last_name>>/<<component_name>>.c2;
}
```
4. The architectural model needs to pass all three DRADEL tests: Parser, Constraint checker, and Type checker.