

## **This section for the Policy Committee (Only)**

These specifications were developed to identify the software needs of UC2B. The functionality needed includes inventorying all assets, tracking all electronics, tracking all circuits, and tracking all customer services and service offerings past and current. The software should also provide billing functions to UC2B for both provided vendor and customer services. While these represent the needs for UC2B, it should be noted that there are 3 ways to meet these needs. The UC2B Technical Committee would prefer that the Policy Committee decide the path that should be taken to meet these needs and the specifications can be used accordingly. The three paths are as follows:

Method 1: UC2B purchases software and purchases equipment and staff to run the software.

Method 2: UC2B contracts all the related functions to a vendor. (The specifications then become the requirements that the contractor must meet.)

Method 3: UC2B purchases the software and contracts with perhaps a local vendor to operate it.

The Policy Committee will need to decide how to proceed. There are funds in the grant to purchase the software, but if the software is not purchased, the funds can be used for other purposes. The software, if not purchased, will require a sizable investment later if not purchased with the grant funds. Currently, the grant budget shows \$353,115 in a category called Miscellaneous Consultants and Software.

# OSS/BSS Software Specifications

## Overview

The specifications were developed to identify the software needs of UC2B. The functions the software addresses is inventory (of all assets in use, in storage, and their capacities), tracking all electronics, tracking all circuits, and tracking all customer and service offerings current and past. The software should also provide billing for UC2B for providing both vendor and customer service offerings. UC2B will require a limited number of modules early to track the building of the fiber optic network, but use will grow as customers and services are added to the network. The customer base is expected to range between 1,000 to 2,500 customers initially. While the initial project only covers about 10% of the Champaign-Urbana community, the longer term goal is to expand the network to the entire community and beyond.

It is an expectation that vendors will need to collaborate with partners in order to submit as complete a proposal as possible. Software integration will be a key factor with one vendor being the “prime vendor”. Proposals need to show how the softwares integrate by demonstrating integration in achieving the desired end results. Vendors must know that there are a couple modules that are needed early in the process as UC2B builds the fiber optic network. While all modules will not be used immediately, UC2B will need to add modules creating a totally integrated system over time (expected to be between 6 months to 1 year). Vendors are also welcome to comment on any items the vendor(s) think the specifications lack but that may be major considerations to the success and integration of the software and process.

## General Requirements

1. Vendor must provide at least 3 references that should be of similar size or greater than the UC2B project.
2. Vendor must provide company history and insight to the future of the company.
3. Vendor must provide a summary of the firm’s financial status.
4. Vendor must provide the names and resumes of employees that will be assigned task for this project.
5. Vendor must provide assurances that they have the expertise and resources to complete this project successfully and on time.
6. If the Vendor is going to use 3<sup>rd</sup> party firms to augment its product to provide the entire suite of modules, then the Vendor must provide a statement verifying the fact that the Vendor understands that they are the prime Vendor and will be held responsible for the entire project as well as the workmanship, conduct, and integrity of its subcontractors.
7. If the Vendor is going to use 3<sup>rd</sup> party firms to augment its product, the Vendor must provide a statement on how the varied products integrate.
8. The backend database should be Microsoft’s SQL Server to allow for optimum integration with the GIS system and multi-agency standards.
9. Vendor should supply well documented ODBC database access for 3<sup>rd</sup> party reporting and provide a well documented API for standardized exchange of data.
10. Vendor should supply software that is pre-integrated to ArcGIS to show real-time status of the Fiber to the Premises network and services.

11. Vendor should supply a pre-integrated provisioning interface into UC2B's Fiber to the Premises technology.
12. Vendor must provide product warrantee information.
13. If 3<sup>rd</sup> party software is involved, the "Prime Vendor" must define all warranty periods and how the warranties become coterminous contracts.
14. Vendor must provide a list of the methods used by the Vendor to support the product. Also, indicate what the base service level is and what options exist for extended services.
15. Vendor must provide information on the scalability of the product(s).
16. Vendor must describe the ownership lifecycle of the software.
17. Vendor must address backup, recovery, and redundancy needs of the software.
18. Software must provide all functionality hosted on-site (does not matter if it's the Vendor's software or that of a 3<sup>rd</sup> party).
19. Vendor must describe how the software supports multiple access roles with appropriate security for each.
20. Vendor should indicate how many staff is needed to run this application (in total) and describe what those functions are with respect to the access roles, the expertise needed for each, and example work flows for common tasks.
21. Vendor must indicate whether or not the application can create GIS or outside plant (OSB) documentation while boring.
22. Vendor must indicate what training is recommended, offered, and associated costs.

## **Design and Planning**

1. Software should allow for prototyping network alterations and additions (physical and logical).
2. Software should provide cost and revenue forecasting for new design work.
3. Software should support collection and analysis of market demand data.

## **Physical Infrastructure (Layer 1)**

1. Software should provide capability to inventory all ONT's.
2. Software should provide capability to configure all ONT's.
3. Software should be able to inventory all in-field infrastructure components (outside plant).
4. Software should be able to inventory all warehouse components.
5. Software should provide physical maps and logical diagrams appropriate for engineering and field use.
6. Software should track all physical layer elements of a fiber path.
7. Software should track hand holes, manholes.
8. Software should track all conduits (and conduit segments).
9. Software should track all cables within conduits.
10. Software should track splice points, cases, trays, panels and terminations.
11. Software should track fiber strands in cables.
12. Software should track all patches and splices.
13. Software should track allocated and available Lambdas on a fiber path.
14. Software should be able to track assets (as built asset management) including asset costs (bill of materials and labor).

## **Network Electronics**

1. Software should track current and past inventory, repair history, and lifecycle cost of all network components.
2. Software should track current and past configurations (including multi-layer QOS requirements), locations, capacity in service, available, and potential capacity.
3. Software should provision network components using SNMP, SSH, web and telnet interfaces where possible/appropriate.

### **Circuit Management**

1. Software should provide for circuit management from the source to the point of termination (in the home or premises).
2. Software should track the fiber budget including OTDR reports for all circuits.
3. Software should help identify layer and component causing a service problem (including OTDR).
4. Software should be able to detect technical/connectivity problems and be able to send communications to support staff

### **Provisioning**

1. Software should support centralized activation and control for all Service Providers utilizing the fiber network including UC2B and Retail Service Providers (RSPs).
2. Software should provide for auto provisioning of multiple vendors' equipment.
3. Software should provide a service activation portal for all RSPs.
4. Software should provide capability to report on all services active on the network.

### **Customer Relations Management and Billing**

1. Software should provide an integrated work order/trouble ticket system with workforce management features.
2. Software should track incidents to location and customer.
3. Software should provide a history of activity for a customer or location.
4. Software should provide capability to track all subscribers on the network.
5. Software should provide capability to monitor the Fiber to the Premises network.
6. Software should be able to track active and inactive customers.
7. Software should provide multi-layered billing capability to create bills for each Retail Service Provider based on:
  - a. Number of subscribers
  - b. Number of services
  - c. Bandwidth offered
8. Software should be able to create bills for subscribers who are directly receiving high-speed data ISP services from UC2B.

### **Remote Access Capabilities (Data Collection)**

1. Software should provide functionality that allows Field Technicians to remotely assign, swap and activate ONT's.
2. Software should provide web and/or remote tech access.

### **Open Network Vendor Management and Controls**

1. Software should provide RSPs with secure real time access to customer data.
2. Software should provide RSPs with a portal to activate and deactivate services.
3. Software should be able to create a services matrix through the activation portal that translates service packages provided by the RSPs into a common service package offered by UC2B to all RSPs.
4. Software should provide a secure open API to which RSPs can connect that provides snapshots of current services in use, and real time event-based notification of service activation and deactivation.

### **System Reporting Requirements**

1. Vendor should provide a list and sample of each standard or stock report provided by the system.
2. Software should provide the organization an ad-hoc reporting tool.