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PAETEC Communications

- Local telecommunications provider servicing wholesale and retail markets
- Services medium and large businesses, colleges and universities, hospitals, and government entities

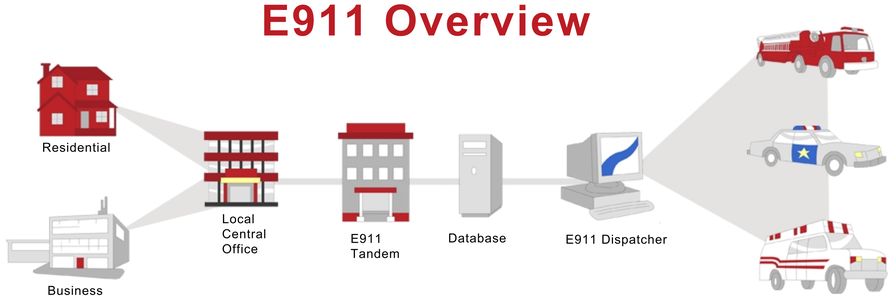
Motivation

- Required to provide E911 data for customers
- Existing system inefficient and difficult to maintain
- System inaccurately represents real world

Goals

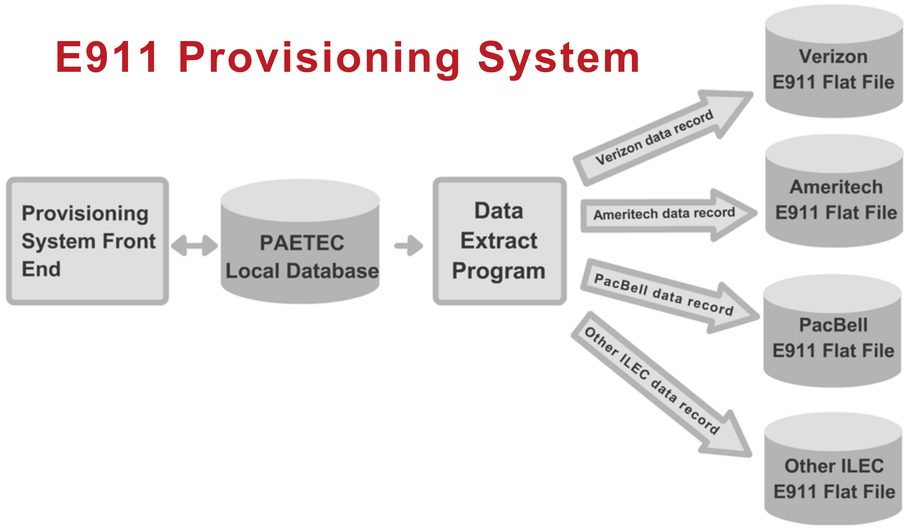
- Rewrite existing E911 system using current technology
- Fix problems stemming from the initial design
- Enhance database model and improve usability
- Convert C++ code to Java for generating output records sent to Incumbent Local Exchange Carriers

E911 Overview



- 911 calls from residential or business locations are routed to local central office
- Central office routes call to E911 tandem office
- Tandem office automatically routes call to correct public dispatcher based on location of caller
- Caller's information is displayed on dispatcher's screen
- Dispatcher calls appropriate police/fire/ambulance agency to respond to emergency

E911 Provisioning System



- PAETEC employees maintain customer E911 information through Provisioning Front End
- E911 Information stored in local database
- Data Extract creates individual record files from local database in each Incumbent Local Exchange Carriers (ILEC) required format
- Each ILEC is required to maintain all E911 data in their area

Technologies & Rationale

- Resin Enterprise Application Server
  - Currently used by PAETEC
- J2EE
  - More extensible, portable, and flexible than C++
- Enterprise Java Beans
  - Increases scalability and maintainability
- Java Server Pages
  - Replaces obsolete Oracle Web Design

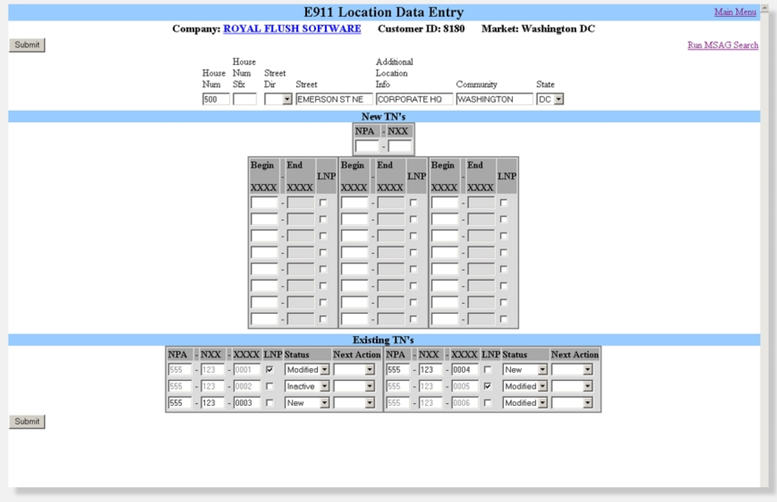
Process

- Software development process incorporating project management techniques
- Documentation
  - Project Plan
  - Software Requirements Specification
  - Software Architecture Document
  - Test Plan
  - Test Report
- Planning
  - Track time invested per task
  - Project progess based on current work rate

Final Product

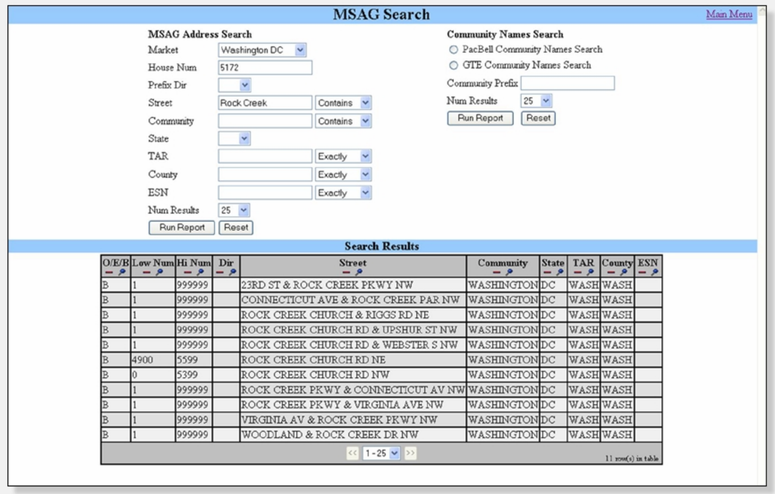
Screen 1 - Location Data Entry

- Modify customer's location information
- Add/Edit telephone numbers for a location



Screen 2 - Address Search

- Search addresses in the Master Street Address Guide
- Search community names



Future Work

- PAETEC will deploy and further test the system
- Make any desired modifications
- Roll system out for active use