**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

- 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

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**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
    - Task time invested per task
    - Project progress based on current work rate

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**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