Abstract: This project studied and modeled a portion of the school busing system for the East Ipswitch Public School System. Specifically, school buses are chronically late in both picking up and delivering students to the East Ipswitch Middle School (home of the East Ipswitch Islanders). The author examined the operation of middle school buses (which also happen to deliver the high-school students immediately preceding the middle school routes) during the course of two weeks during the middle of November 2009. A simulation was built and various parameters were accordingly modified to indicate the effects of certain significant changes on the operation of the system. The study concluded that the chronic problems with middle-school delivery time would be entirely mitigated by moving the contract-mandated 20-minute donut break from 7:30 a.m. to 9:30 a.m. each morning.

1 Introduction

The physical system being modeled is that of busing for students at the East Ipswitch Middle School. Data was collected. Methods were followed. The problem was attacked and solved.

2 Methodology

Here is an in-depth description of the methodology. The introduction section (Section 1) just presented a brief overview. This gives a more in-depth discussion, including perhaps some of the problems you encountered and how you solved those. Figure 1 illustrates something that probably isn’t relevant to simulation.

2.1 Data Collection Process

This is an example. Perhaps you had to go through some special twists and turns to do this.

![A component](image1)

![A rectangle with rounded corners](image2)

![Another type of component](image3)

Figure 1: This isn’t really a design.
3 Implementation

This presents the discussion of technical issues related to the Arena implementation. You do not need to provide screen captures here. I’m really just talking about an overview of the approaches taken in Arena to model your system. I can certainly look at the Arena models that you provide.

Here’s an example of citations of someone else’s work [1, 2, 3, 4, 5]. Other than not having much to do with simulation (except that all the studies used simulation), these have shown that under optimal conditions, the per-node throughput in a channel of $C$ bits per second is on the order of $\frac{C}{\sqrt{n}}$, for $n$ nodes. They also reveal that traffic patterns determine whether an ad hoc network’s per-node capacity is scalable to large networks.

4 Simulation Results

Present numbers here. Perhaps some interpretation of the numbers, as in “table X indicates that the bus drivers are eating too many donuts.”

5 Recommendations

Approach number 1 is obviously the best. The simulation results indicate that moving the donut break to 9:30 every morning has a dual benefit: students get to school on time, and the bus drivers, having lost their early-morning appetite, will ultimately live longer through better diet.

References


