Hello every one, today we are going to deliver a data presentation.

The topic of this presentation is The MIP Landscape. Next I will introduce into the topic and we will talk about what the MIP exactly stand for later.

Ok, let me ask you a question: How many of you have ever made a time table or schedule about your life, study, or work? Well, that’s what I expected. All of you have done this before. But time table for a man/woman is simple, there are also some huge programs or systems such as airline schedule, medicine systems or something else. Those will need a very complicated schedule and plans. This is an example about supply chain scheduling. If you have ever perchased something at Amazon or Ebay, you will notice that the routine that UPS vehicle follows has been calculated accurately. This is a part of supply-chain scheduling. And other parts are about blablabla. Then we will extract a certain model to describe the system, and use certain algorithm to optimize the problem. That’s what ISE student will be doing and it is also what we are learning. So next we will present a simple model MIP and talk about its computational history.

This is a Test set about 1852 real-world MIPs,

Next we will put the data into the chart. The blue bar represent the Delta between problems solved from the former version to later version. The pink point represent the percentage solved at certain version. There is a small explosion at Cplex3.0 because in 1994, The method called Dual Simplex became mature. And there is a bigger explosion at version 6.5, but why? Puxin will talk about what happened in 1998.

Back to the chart, we know that in 1998, there is an explosion that made the percent increase from 35% to over 50%. That is a progress, which means with Cplex6.5, over half of the MIP problems can be solved in a relatively short time.

Then we come to the Cplex11.0.