Analyzing Defects Can Tell a Story About a Company

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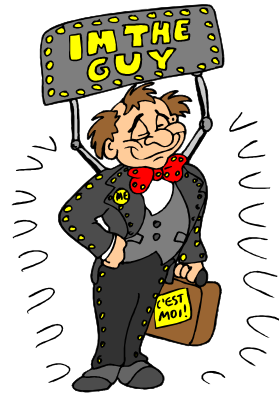Northrop Grumman Corporation

Agenda

- **4 Stages of Denial**

- **Looking for the Story**

- **Power of Control Charts**

- **Example Using Real Data**

4 Stages of Denial

1 **Arrogance**

We're perfect. We're a fine tuned machine. Analyzing our defects is a waste of time.
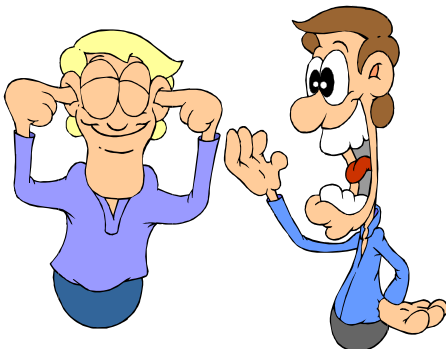
2 **Defensiveness**

We're not perfect, but I don't believe your analysis. Are you saying we're incompetent?
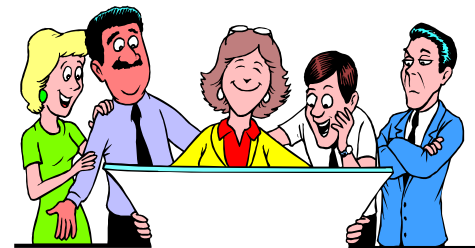
3 **Resistance**

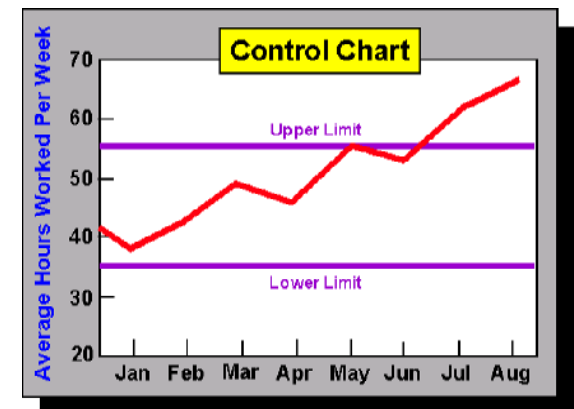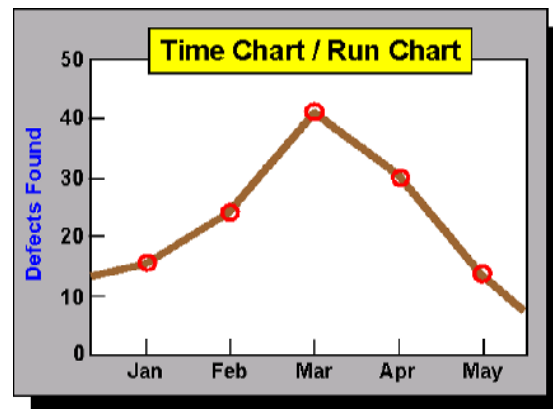I believe you, but we've survived for years. We don't need to change.

4 **Skepticism**
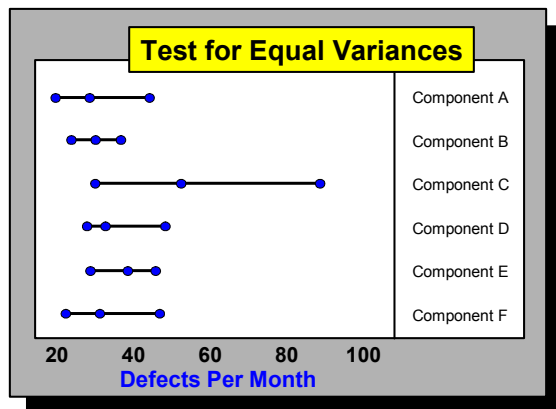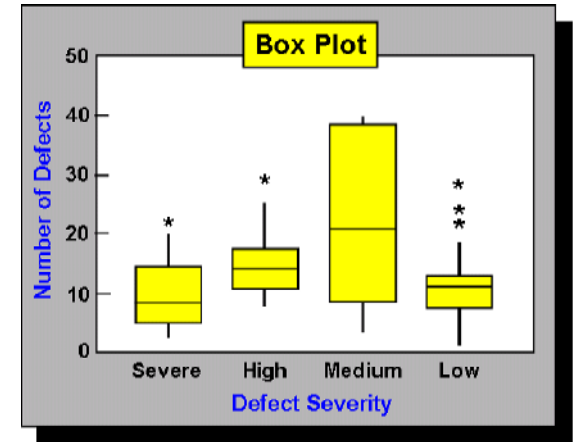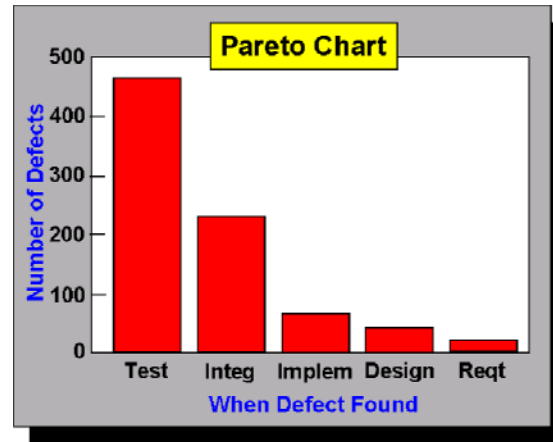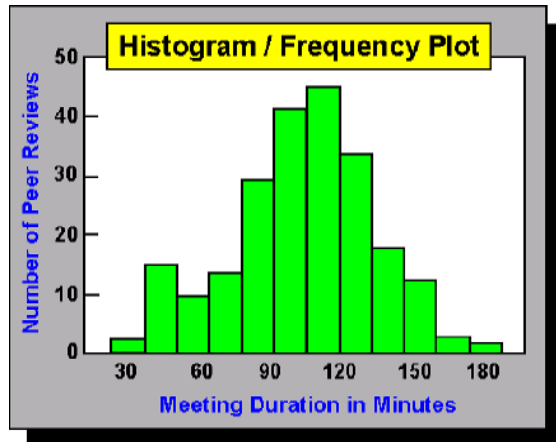
We really want to improve,… except for one person.
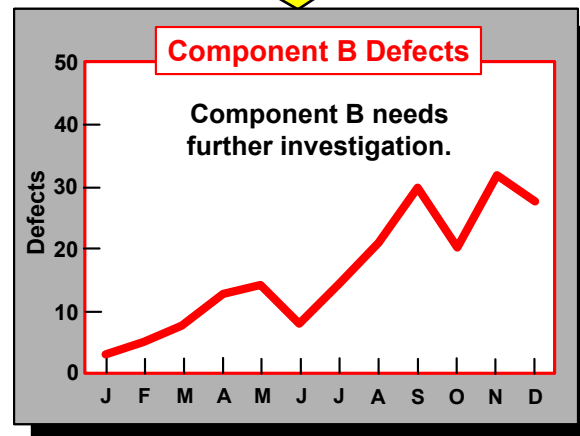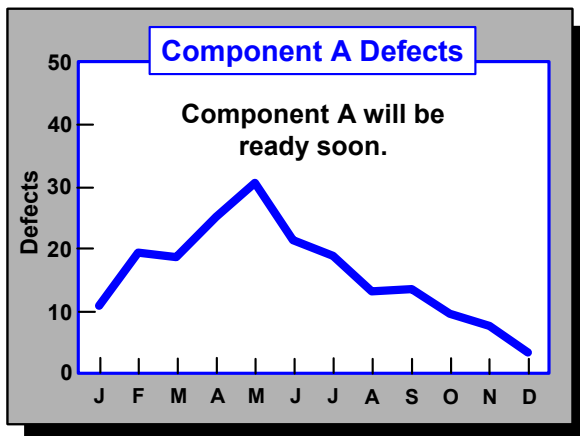
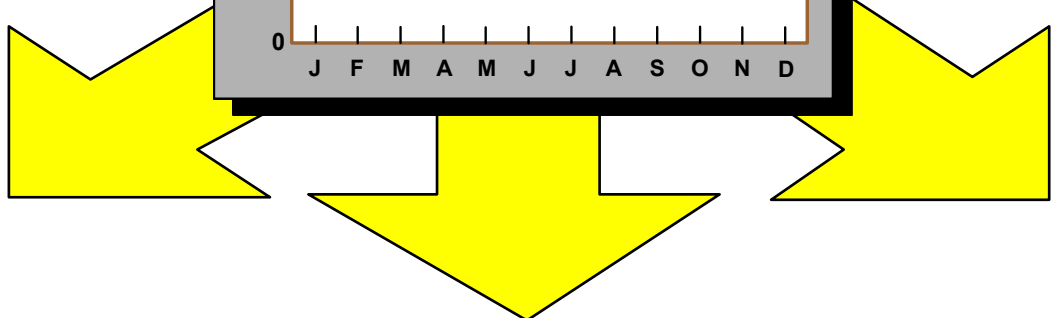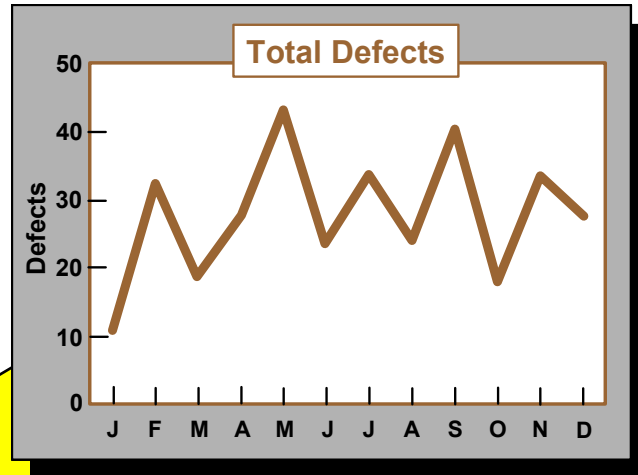# Metrics Takes Patience,... Don't Give Up

You might look at 20 graphs before you find one golden nugget.

Try Different Graphs to Find the Story

Disaggregate to Find the Story
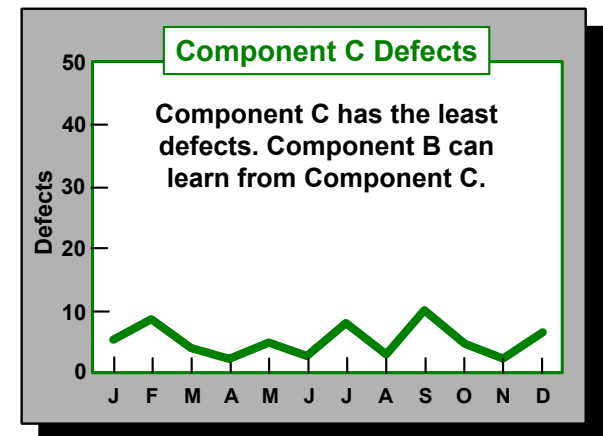
Introduction to Control Charts

What's the average minutes from home to the LAX gate?
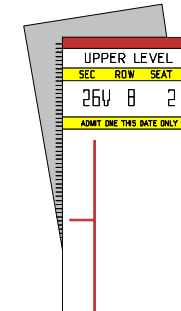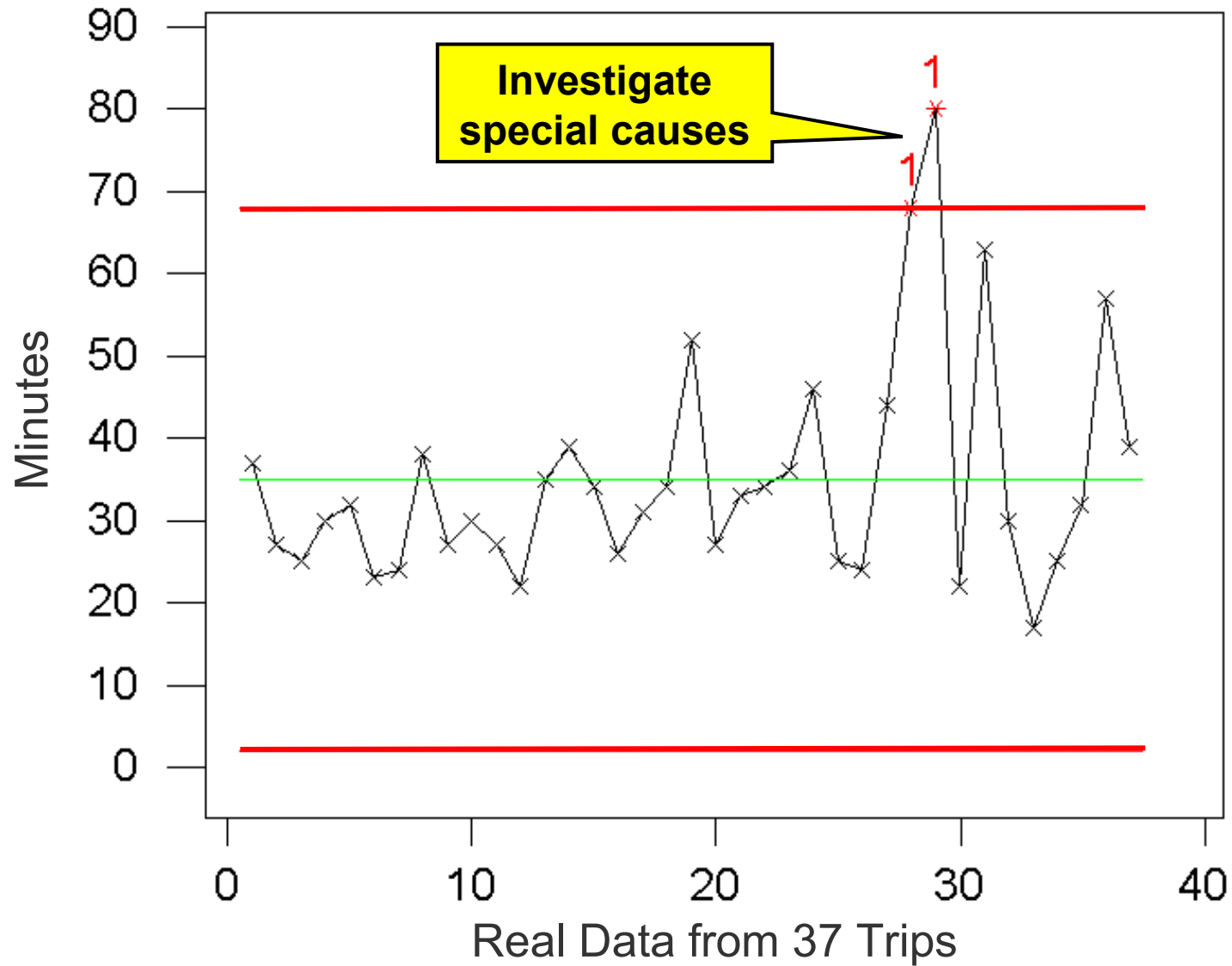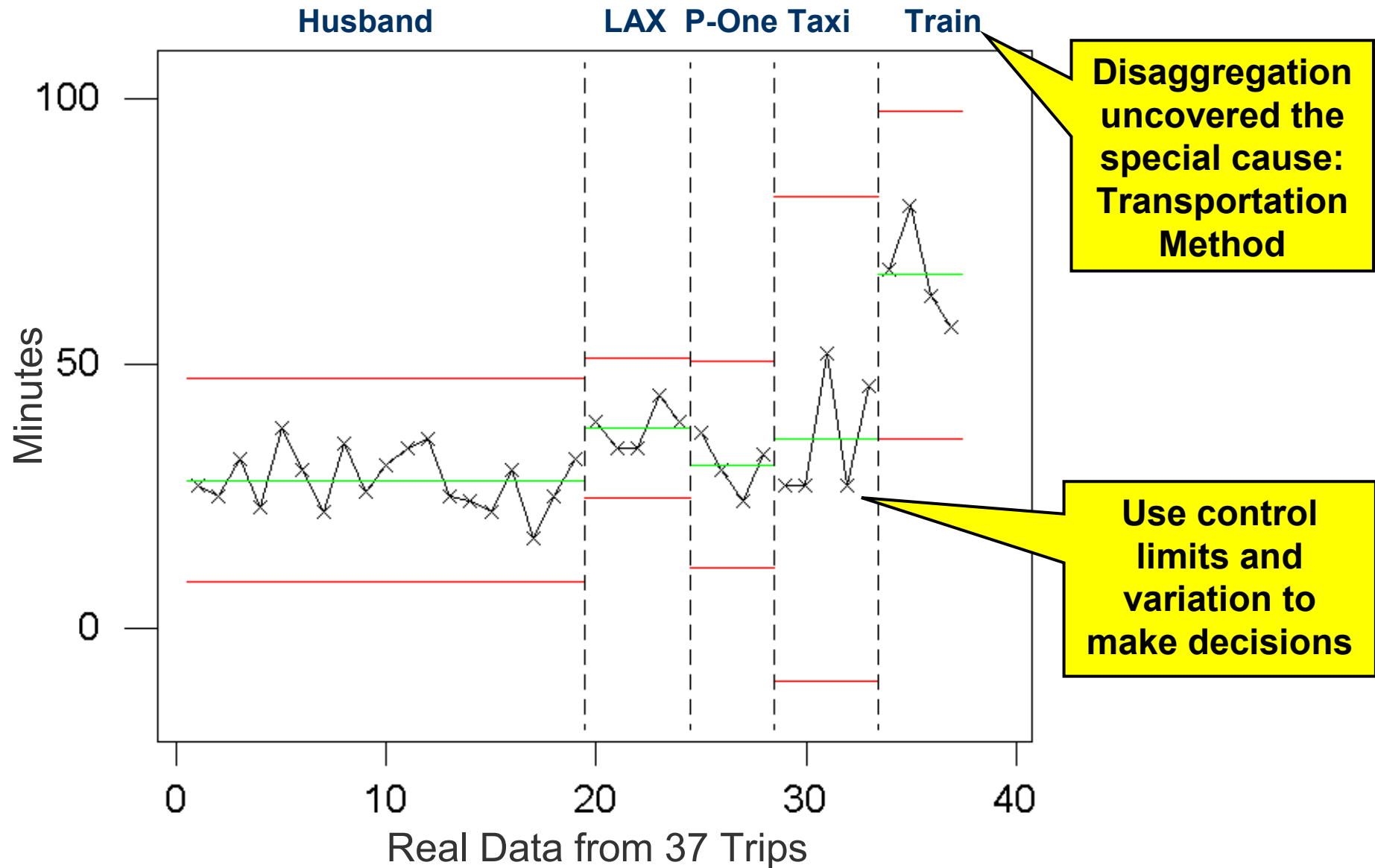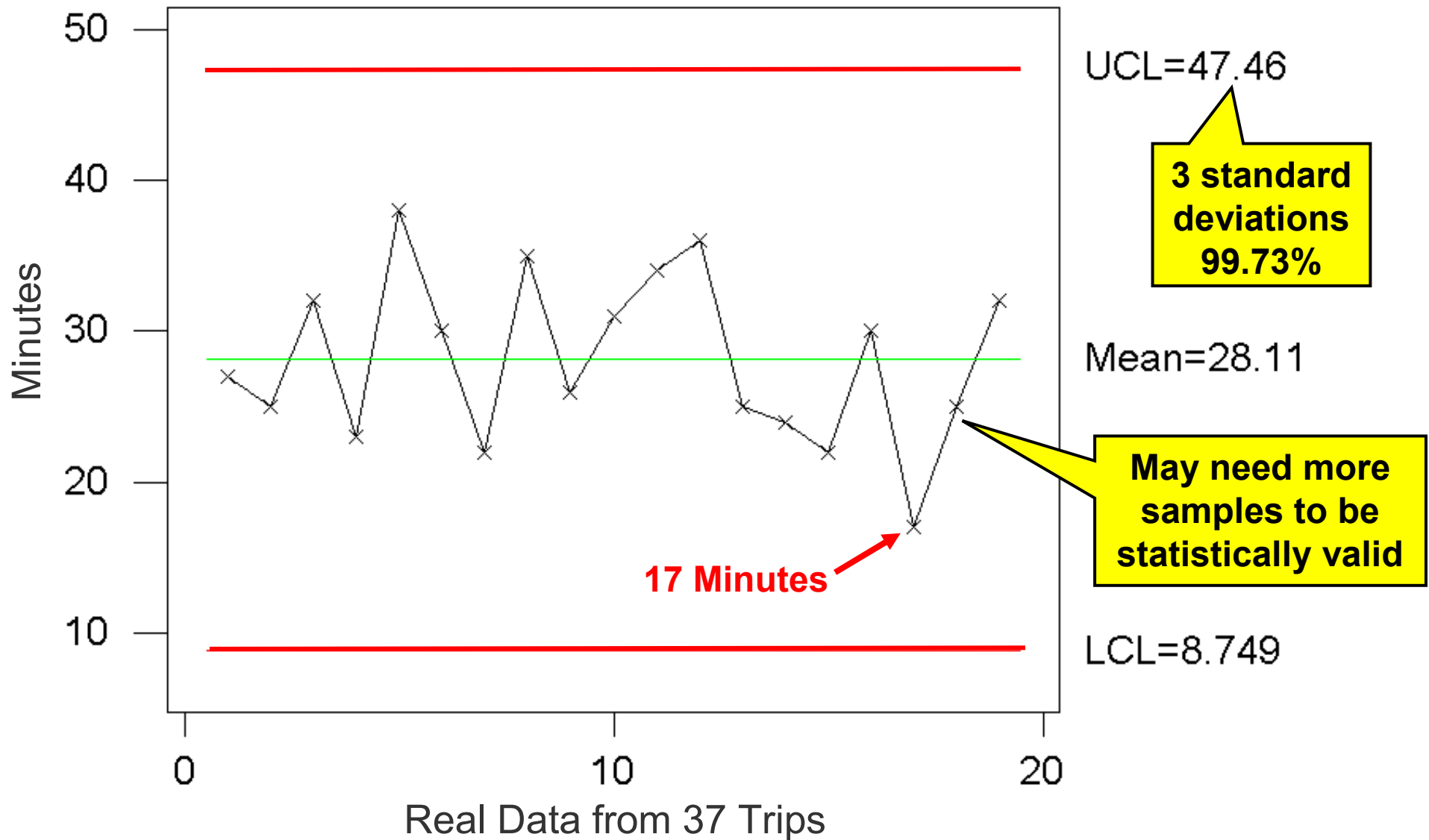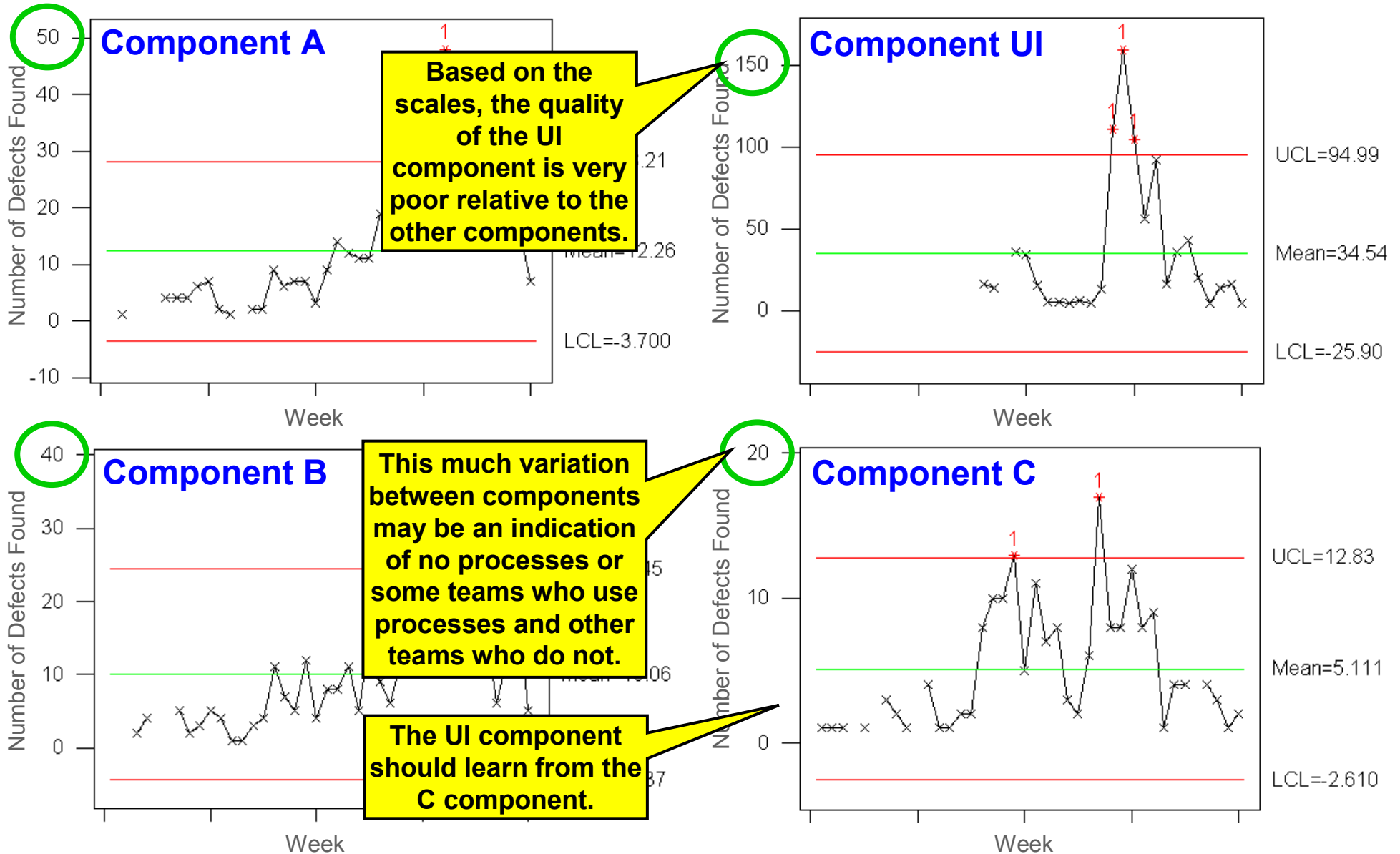
Understand Special Causes

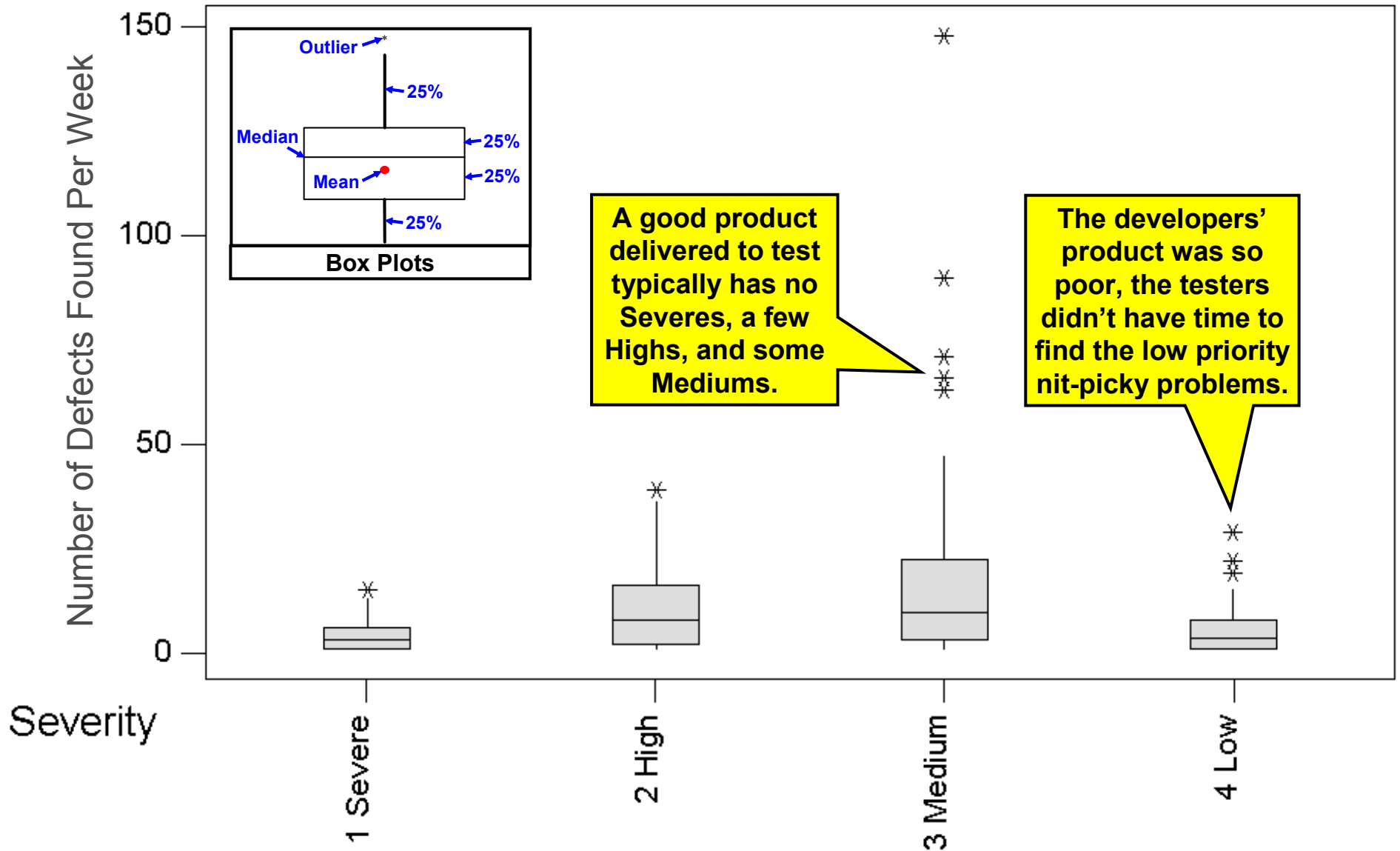# Use Control Charts to Make Decisions

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Use Control Charts to Predict the Future
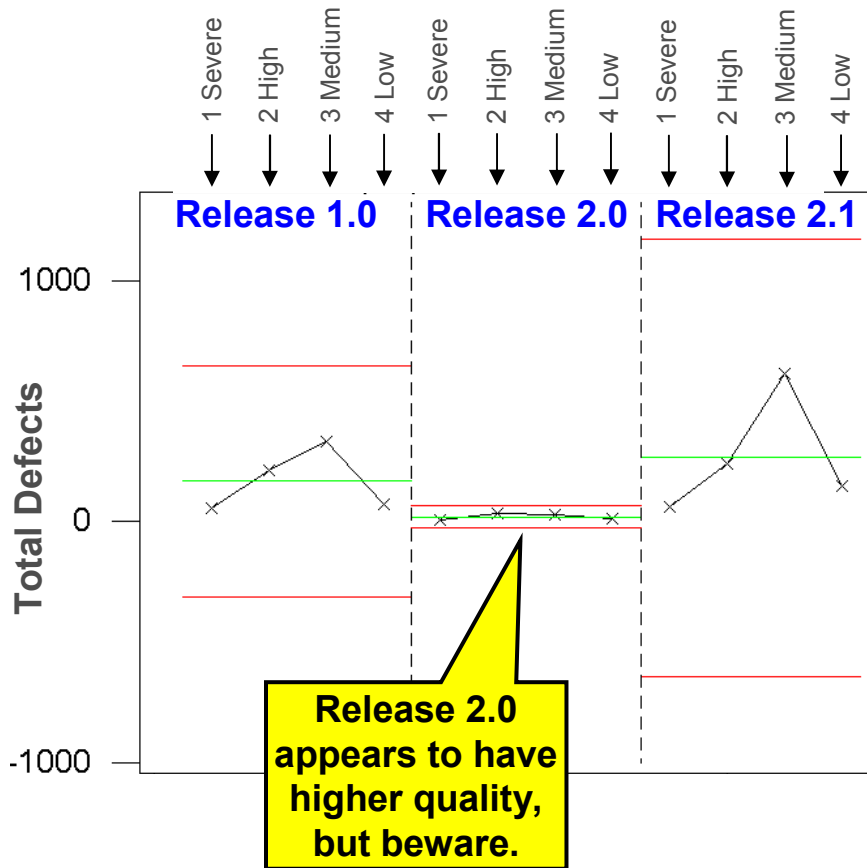
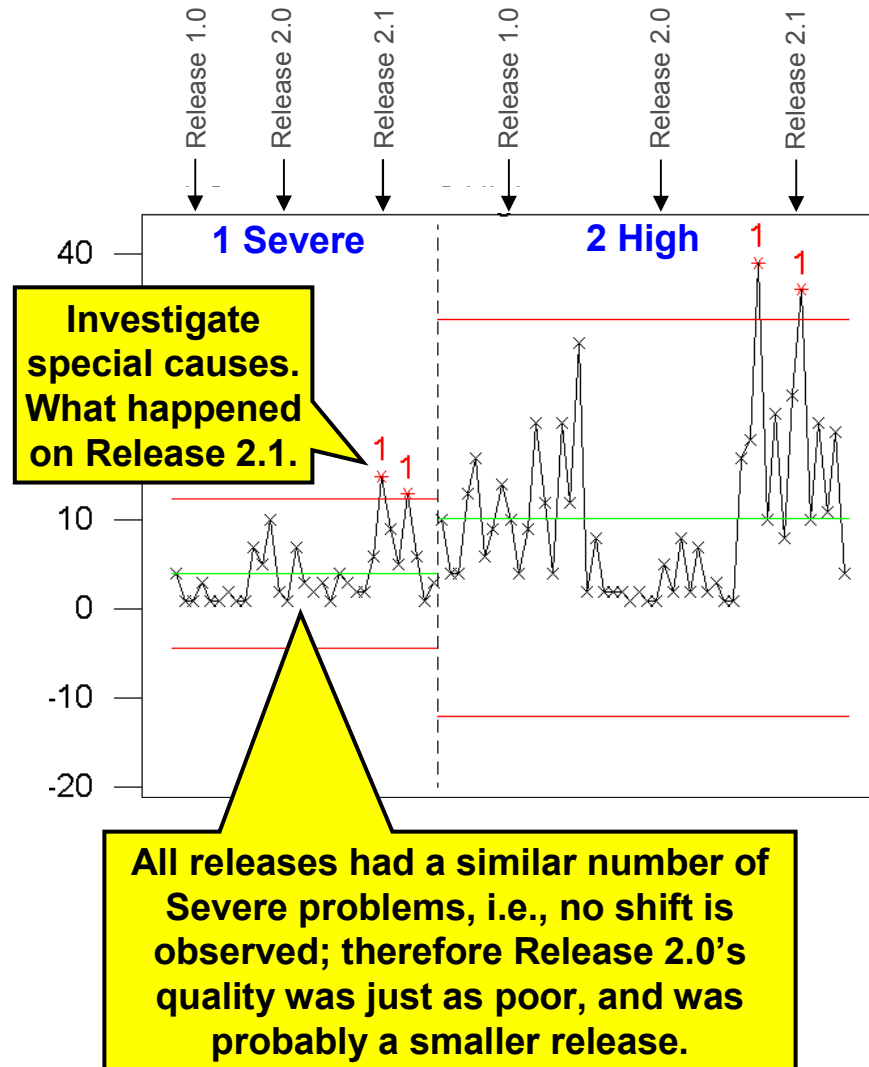9

Disaggregate by Components

Disaggregate by Severity

Disaggregate by Severity and Release

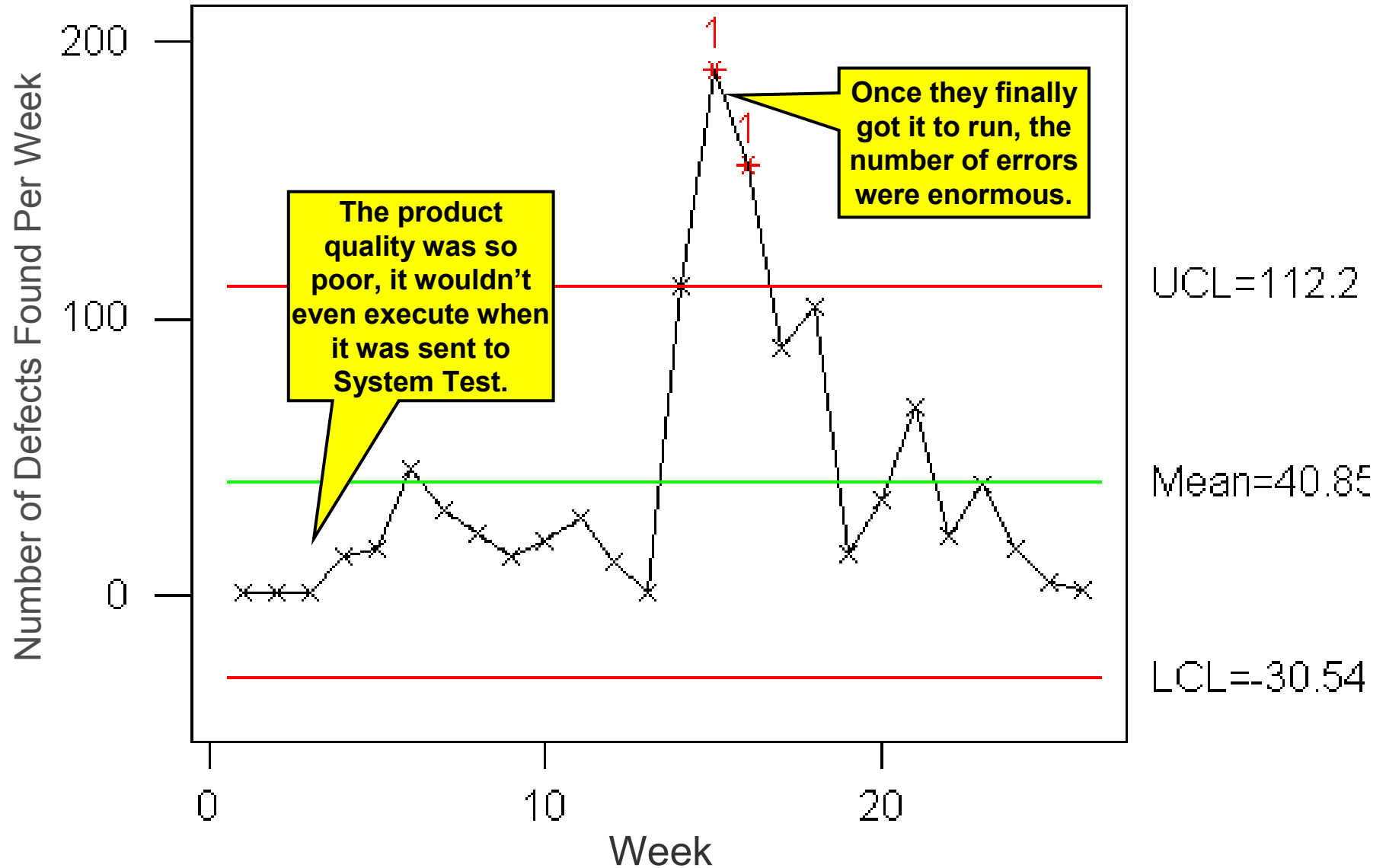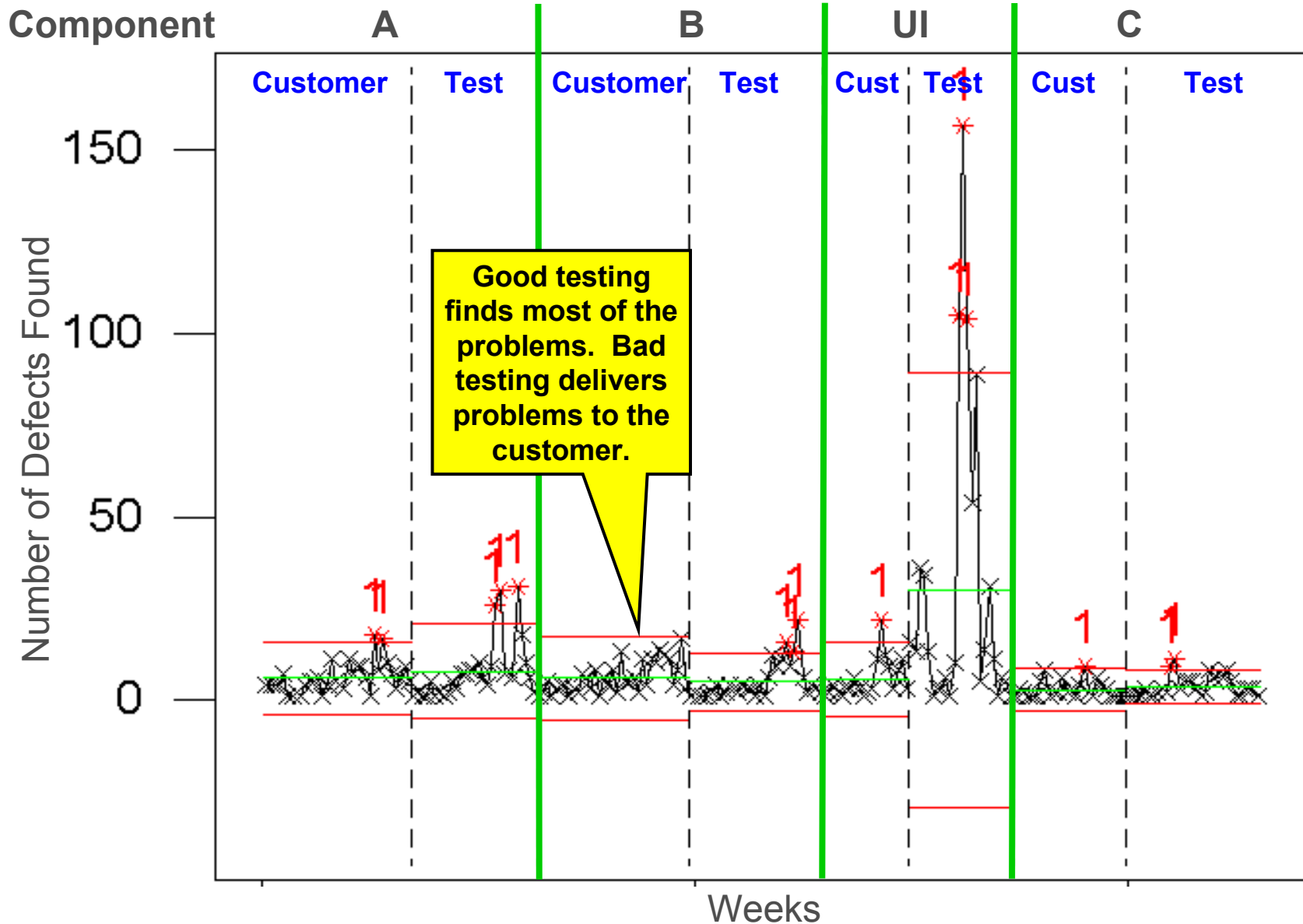# Dig Deeper for Release 2.1

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Disaggregate by Customer vs Test

Who Finds Defects? Customer or Test?

Test for Equal Variance to check if variation differs between groups

Who Finds Defects? Customer or Test?

Test for Equal Variance to check if variation differs between groups
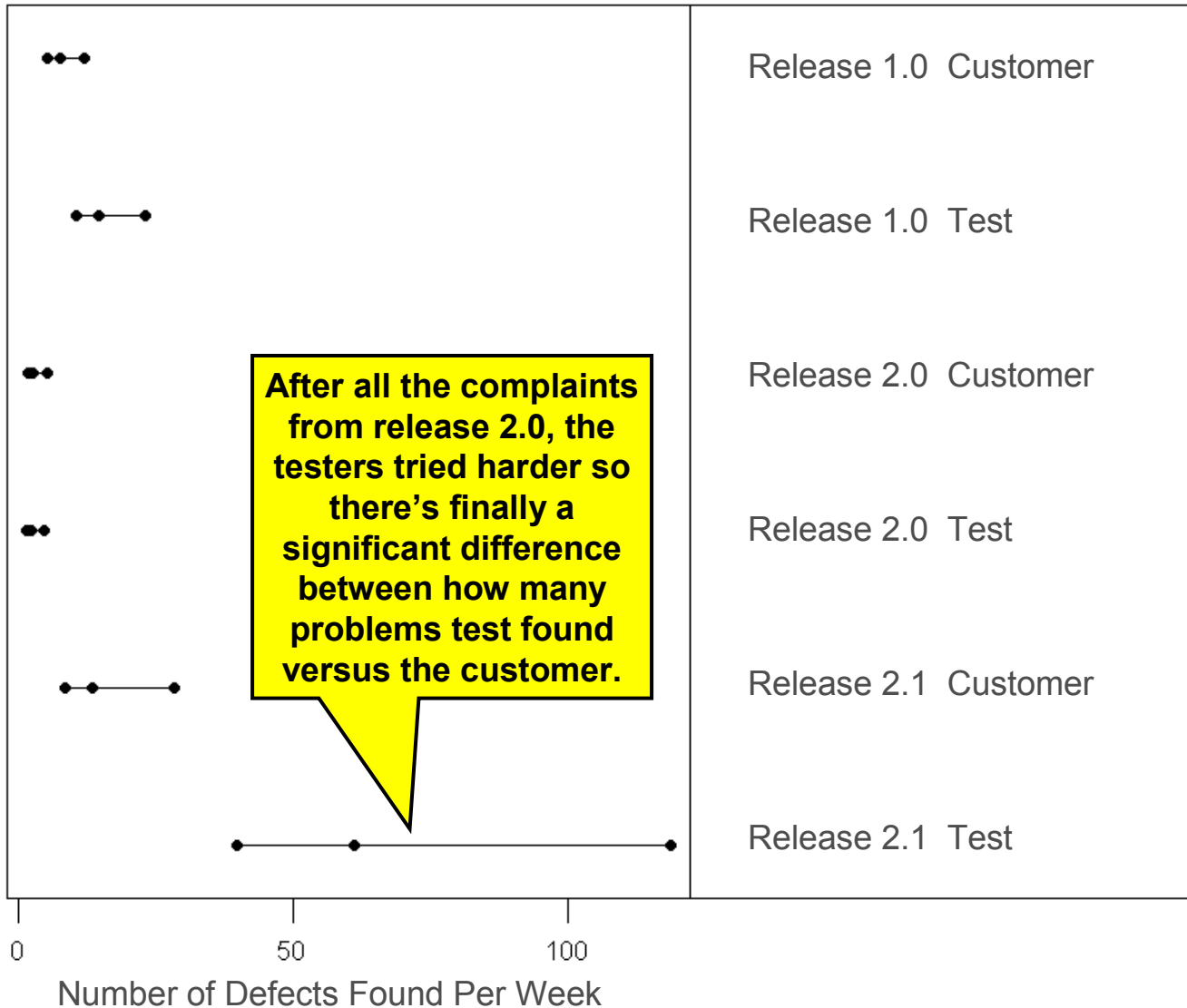
Release 1.0 Customer

Release 1.0 Test

Release 2.0 Customer

Release 2.0 Test

Release 2.1 Customer

Release 2.1 Test

Number of Defects Found Per Week

After all the complaints from release 2.0, the testers tried harder so there's finally a significant difference between how many problems test found versus the customer.

Bartlett's Test

Test Statistic: 179.585

P-Value   : 0.000

Levene's Test

Test Statistic: 14.643

P-Value   : 0.000

Customer vs Test Release 2.1

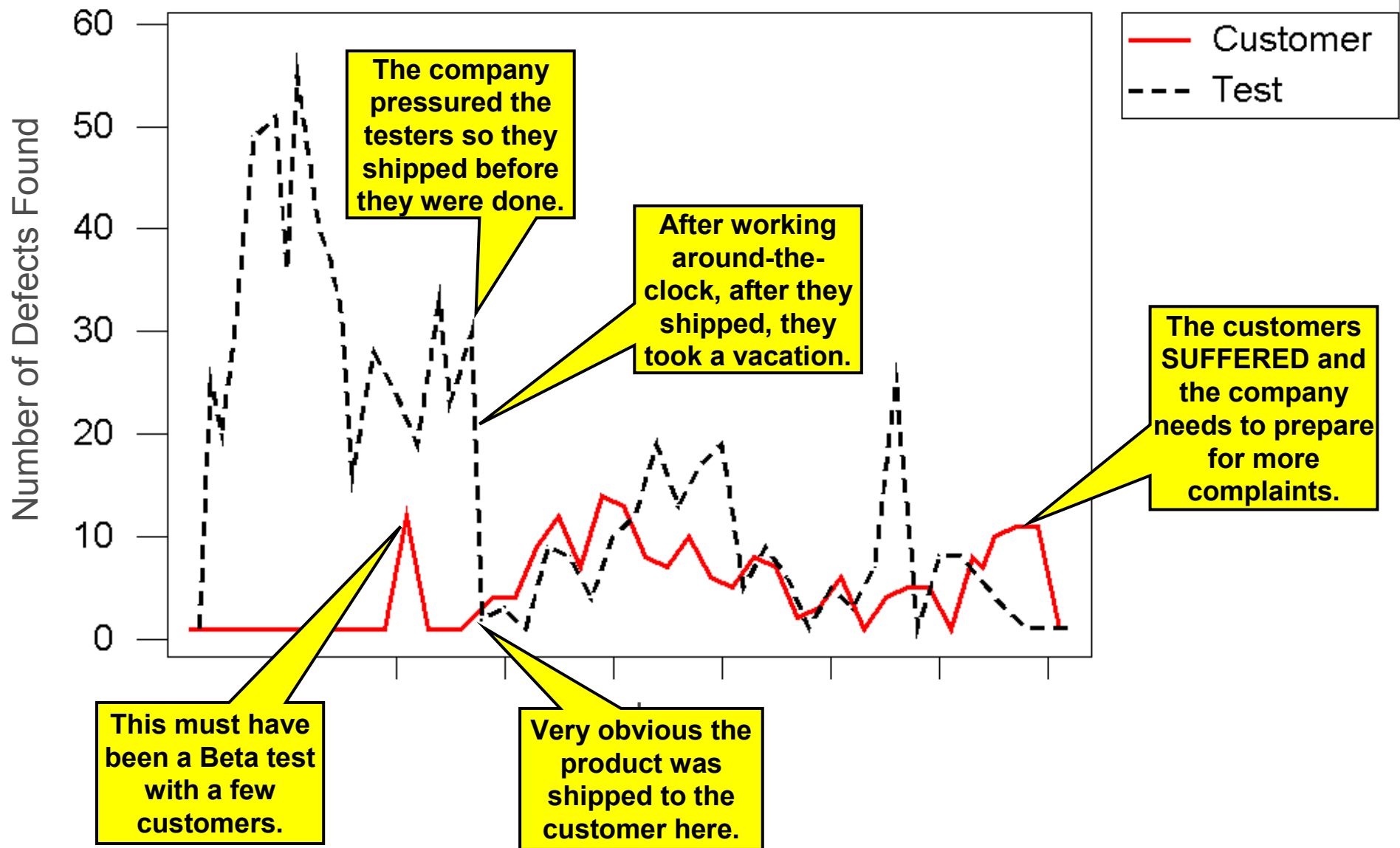**NORTHROP GRUMMAN**

1 The company is a CMMI Level -5 company.

CMMI Level

2 I would never buy their poor quality product

3 There are no processes, poor processes, or engineers ignore processes

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4 Engineers are pressured to deliver before the product is ready

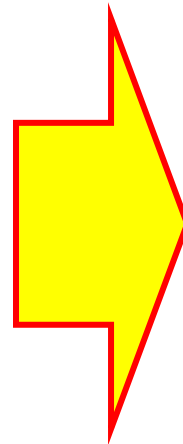**5** Test may not be at fault; developers deliver poor products to test

6 Customer complaints will continue until they see CHANGE and quality products

Summary

No matter what your opinions are, always analyze defects.

You'll be surprised how much you can find.