An Improved Data Visualization Approach for Monitoring and Analyzing Business Performance Using SAS/QC® Control Charts and SAS/GRAPH® Annotate Techniques

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Abstract

Monitoring and analyzing business performance has been proved difficult, especially in today's intricate business environment. Customized Control Charts using SAS annotate techniques, however, can be very useful in presenting complicated business information with manageable data visualization results. This poster introduces an improved technique for statistical process control visualization. Used with SAS/GRAPH annotate techniques, the improved control charts can be customized to highlight significant signals and potential root causes. Furthermore, customized annotate techniques can be applied to leverage business impact with the potential root causes.

Introduction

Businesses today are overloaded with tremendous amount of data. However, it is very challenging to pinpoint valid and actionable information. Traditional line charts are useful in simple business scenarios; but they become ineffective with more complicated business cases. Fortunately, control charts can produce better results in those cases.

Traditional line charts

Traditional line charts are effective in monitoring simple business performance. With complicated or multiple data, line charts are unable to identify the significant signals, as indicated in Fig. 1.
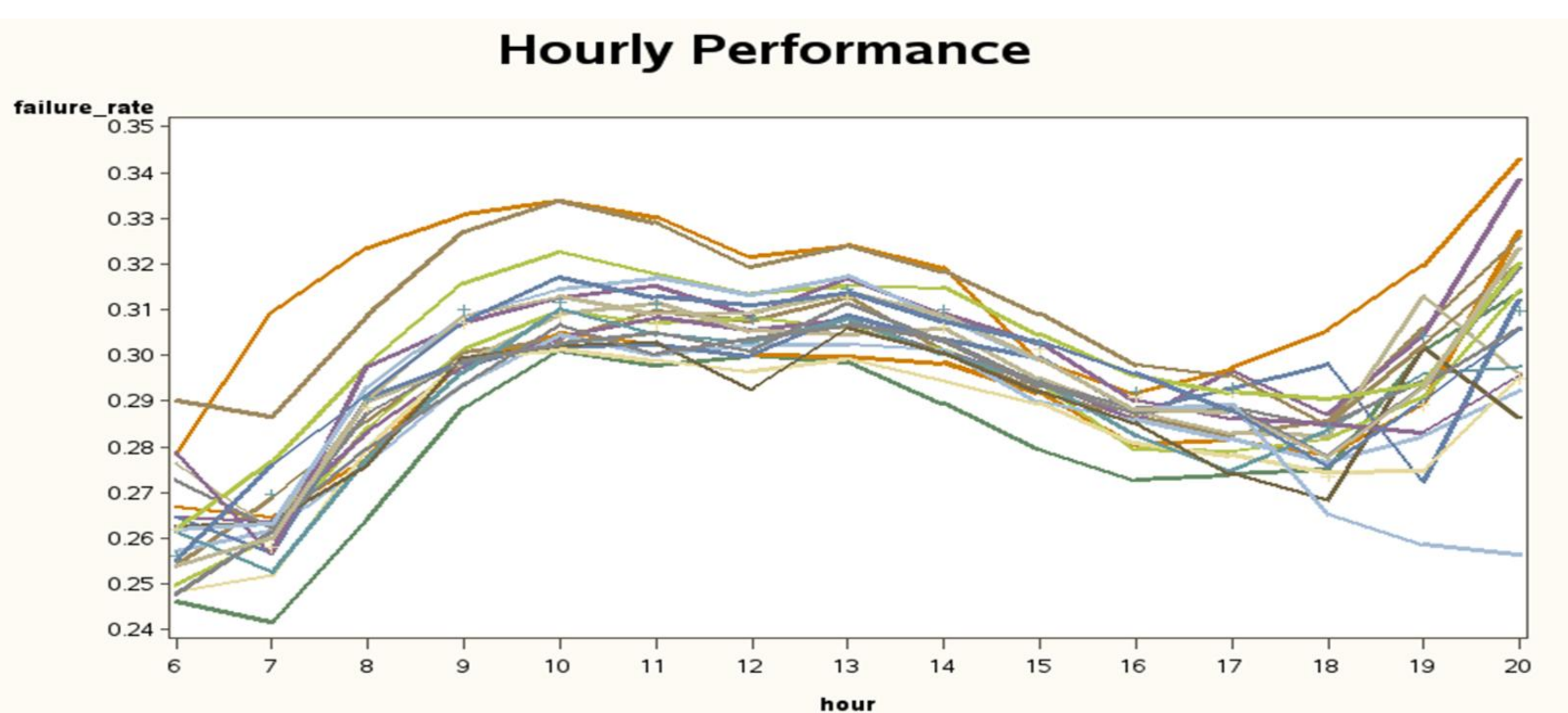

Figure 1. Multiple Line Charts with Hourly Performance (Note: Dummy date for presentation only; same below)

Control Charts

SAS/QC control charts are useful techniques to represent complicated business information with valid and actionable visualization results. With control chart results, significant signals can be picked up and then used for deep dive analysis and action plan for further improvement, as shown in Fig. 2.
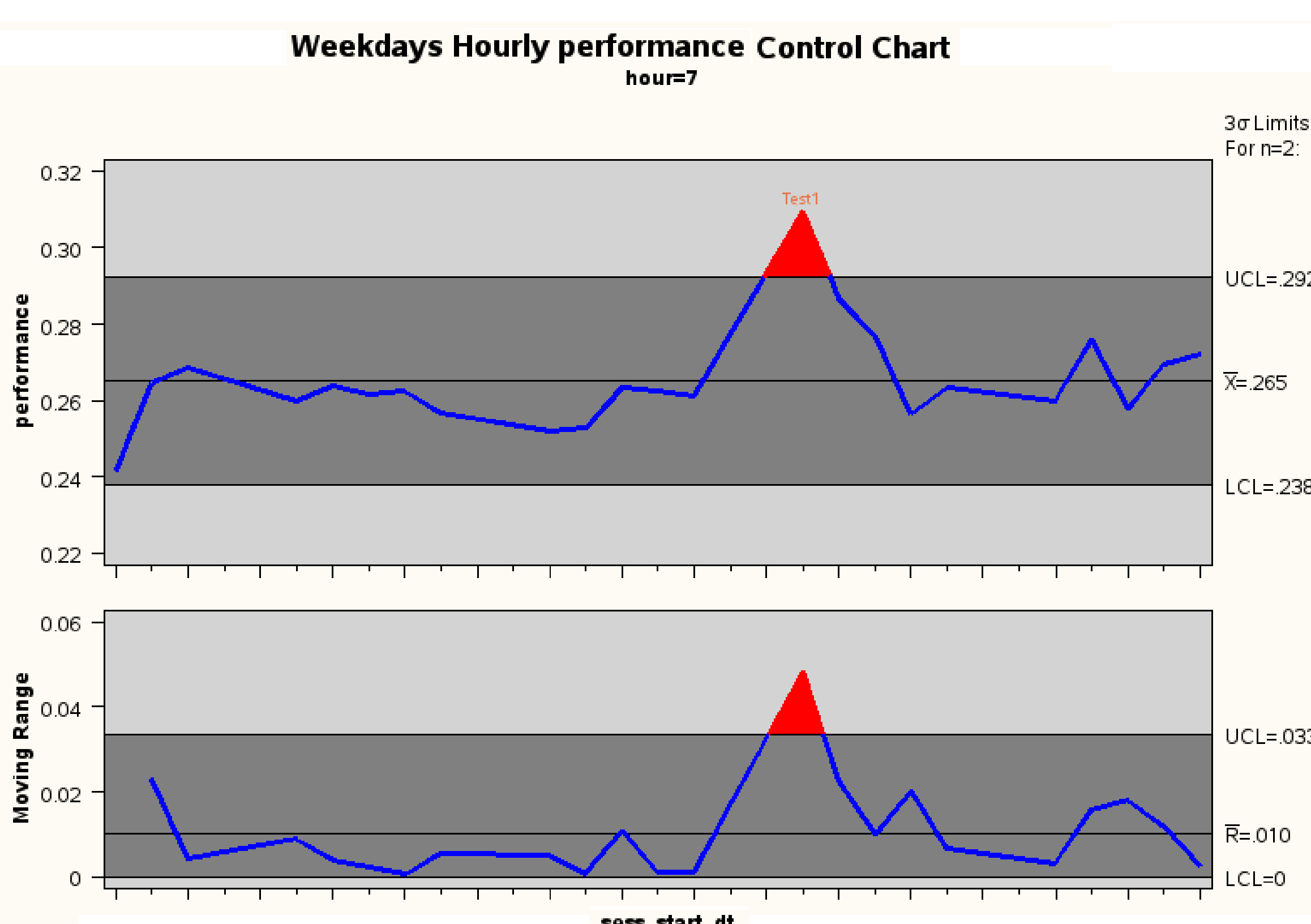

Figure 2. Hourly Performance Control Charts to Identify the Significant Signals

Annotate Techniques with Control Charts

By combining the annotate techniques and control charts, we can link other data to identify the potential root causes and add valuable information onto the control charts, as illustrated in Fig. 3. This helps management better understand the underlying issues and make better and quicker decisions,
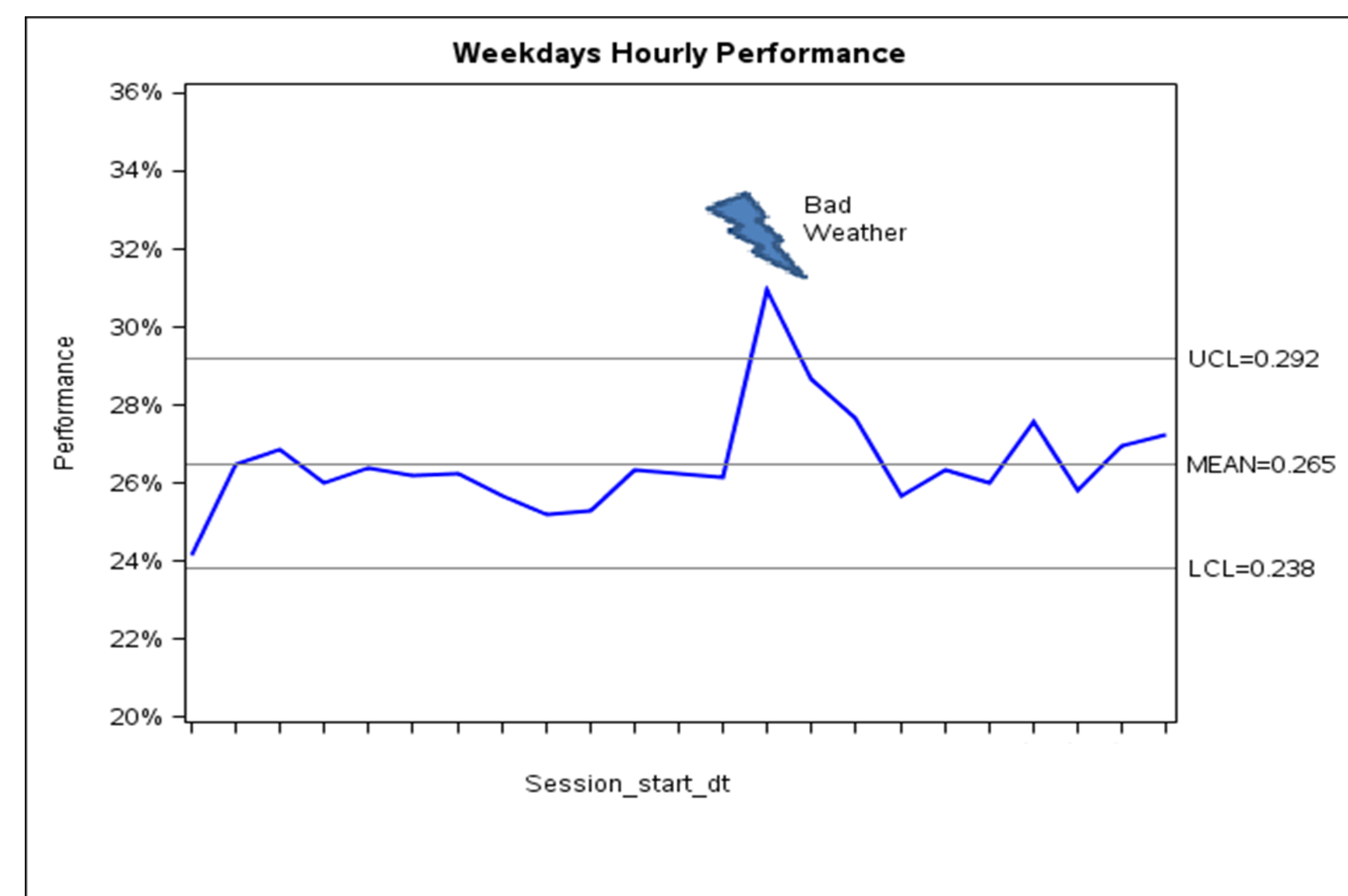

Figure 3. Link the Potential Root Causes to Significant signals in Control Charts

Discussion

With control charts and annotate techniques, we can not only identify the significant signals for the business impact but also link them to potential root causes.

More advance or customizable annotate techniques can be applied with the control chart method.

References

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Acknowledgement

We thank Xihui "Paul" Zhang for useful comments and suggestions.

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