



.conf2015

# Robotics Analytics @ TGT

## Utilizing Machine Data from Robots to Provide Data Driven Insights and Decisions

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Alex Sneed Miller

Target



splunk®

# Disclaimer

During the course of this presentation, we may make forward looking statements regarding future events or the expected performance of the company. We caution you that such statements reflect our current expectations and estimates based on factors currently known to us and that actual events or results could differ materially. For important factors that may cause actual results to differ from those contained in our forward-looking statements, please review our filings with the SEC. The forward-looking statements made in this presentation are being made as of the time and date of its live presentation. If reviewed after its live presentation, this presentation may not contain current or accurate information. We do not assume any obligation to update any forward looking statements we may make.

In addition, any information about our roadmap outlines our general product direction and is subject to change at any time without notice. It is for informational purposes only and shall not, be incorporated into any contract or other commitment. Splunk undertakes no obligation either to develop the features or functionality described or to include any such feature or functionality in a future release.

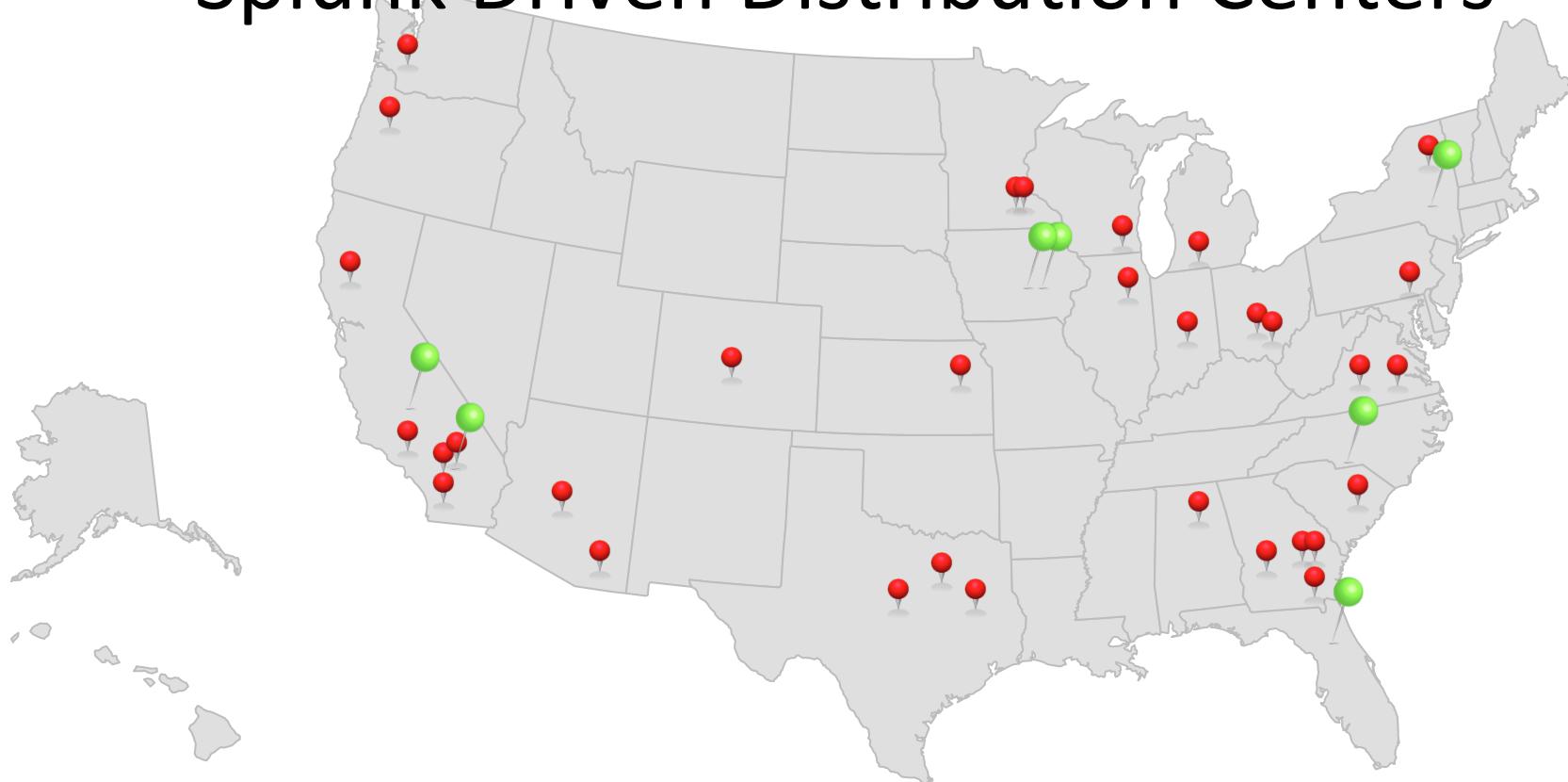
# Target Stores



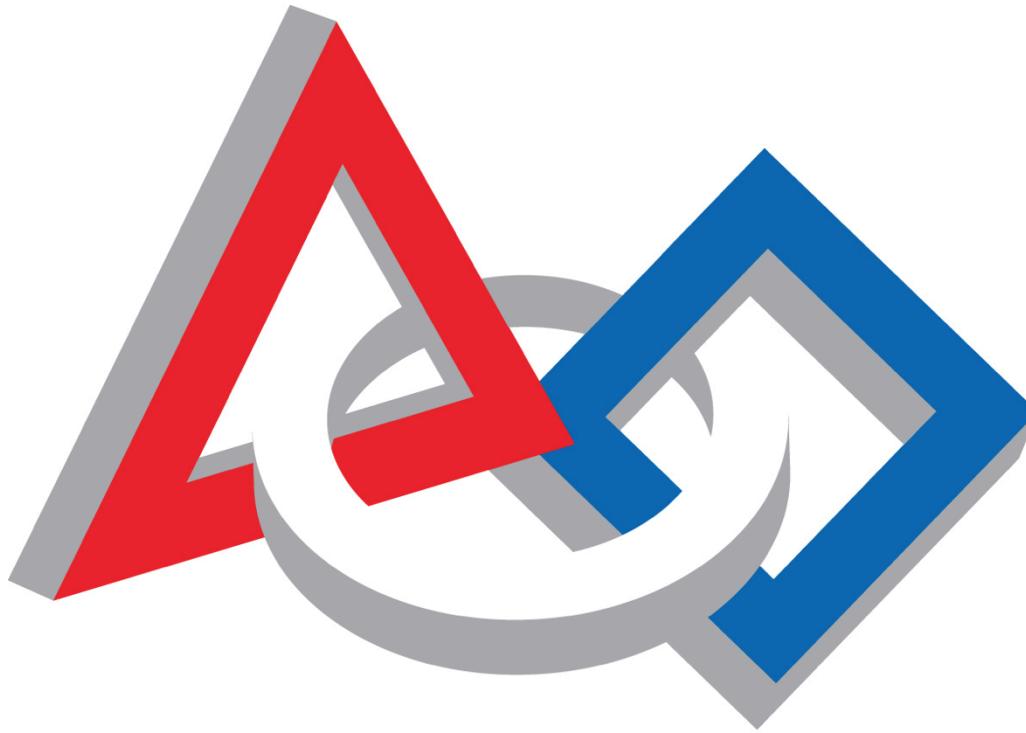
# Target Distribution



# Splunk Driven Distribution Centers







**FIRST**<sup>®</sup>

2015-08-31 10:52:32:392 ,27923247,97,18,4,36,264,11,2,Hi,Re,Fd,T5,09,0,<0

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2015-08-31 10:52:30:658 ,2,4,100,7,7,902,0,1,Hi,Re,Fd,T3,09,0,<0

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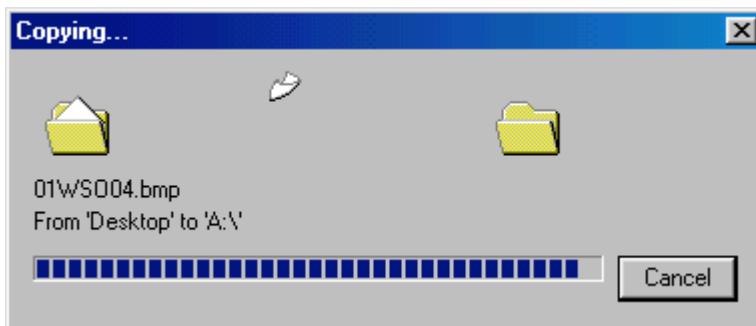
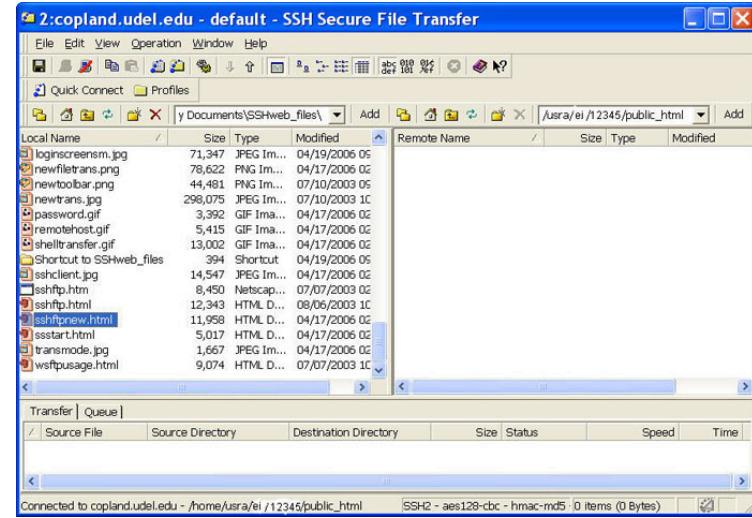
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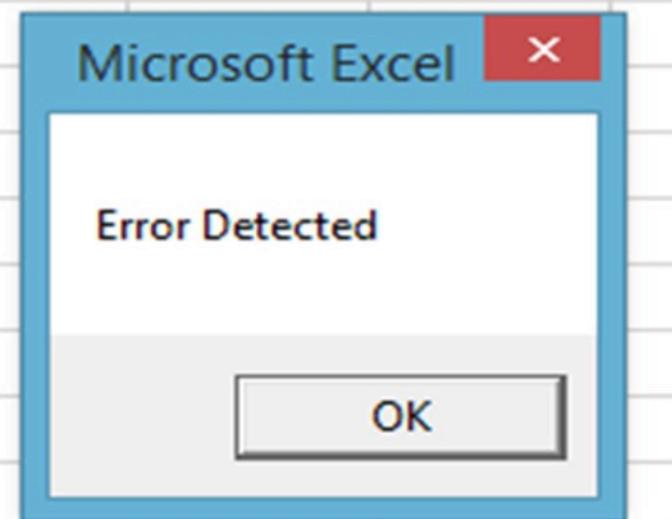
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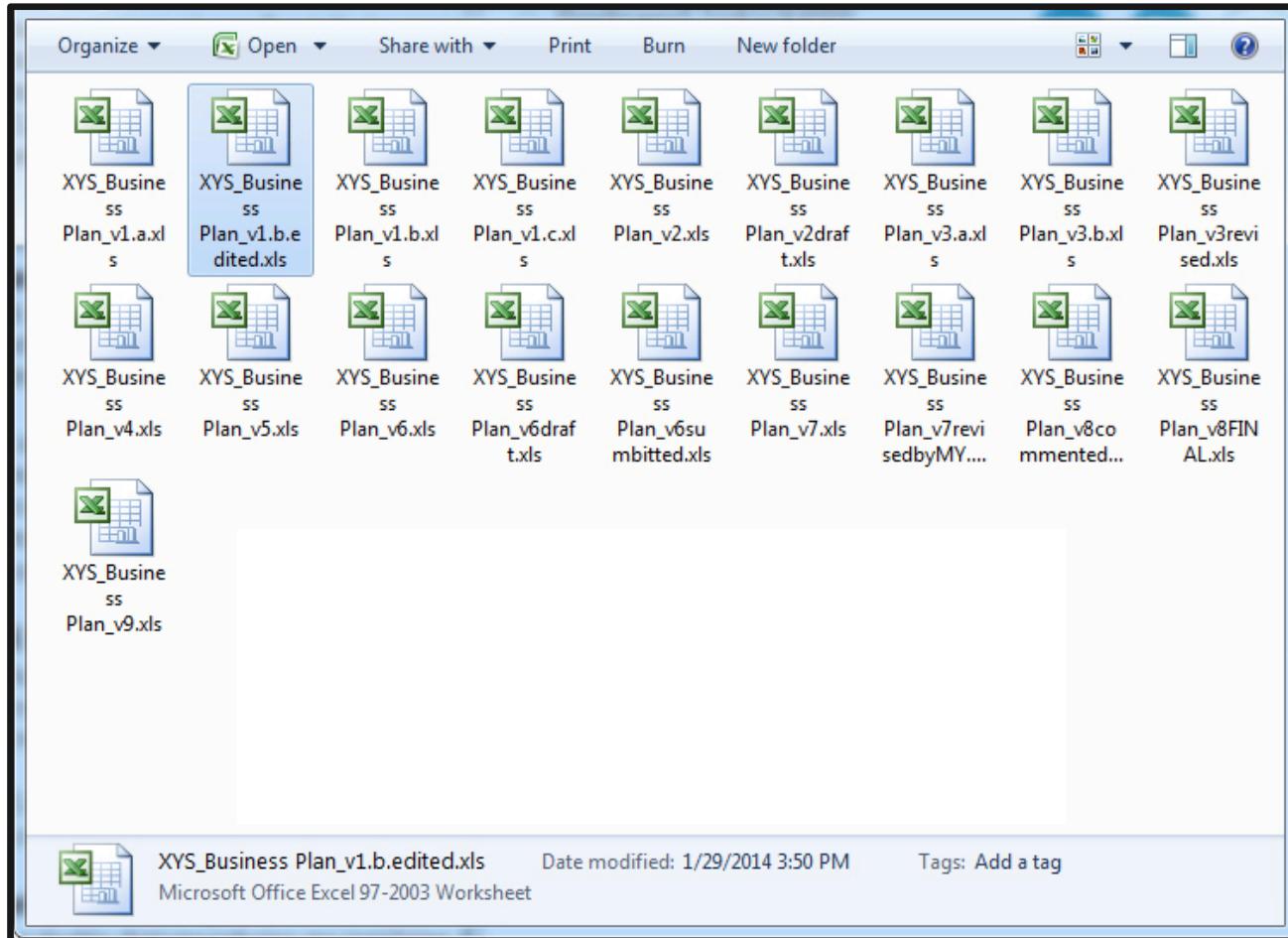
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2015-08-31 10:52:27:486 ,27923493,97,5,7,10,902,0,1,Hi,Re,Fd,T4,09,0,<0



A	50000	40000	25.00%
B	75000	80000	-6.25%
C	40000	60000	-33.33%
D	90000	0	#DIV/0!
E	30000	20000	50.00%
F	49500	55000	-10.00%
G	47000	50000	-6.00%
H	44500	75000	-40.67%
I	42000	40000	5.00%
J	39500	90000	-56.11%
K	37000	30000	23.33%
L	34500	49500	-30.30%





# Equipment Data Challenged

- Data Access
- Cryptic
- Automated Equipment → Manual Reporting
- Revision Control
- Archiving

# Foundational 5 for Equipment Management

## Information Systems



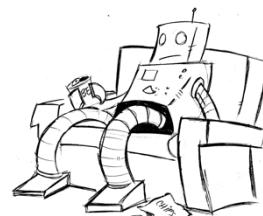
## Equipment Engineering



## Equipment Maintenance



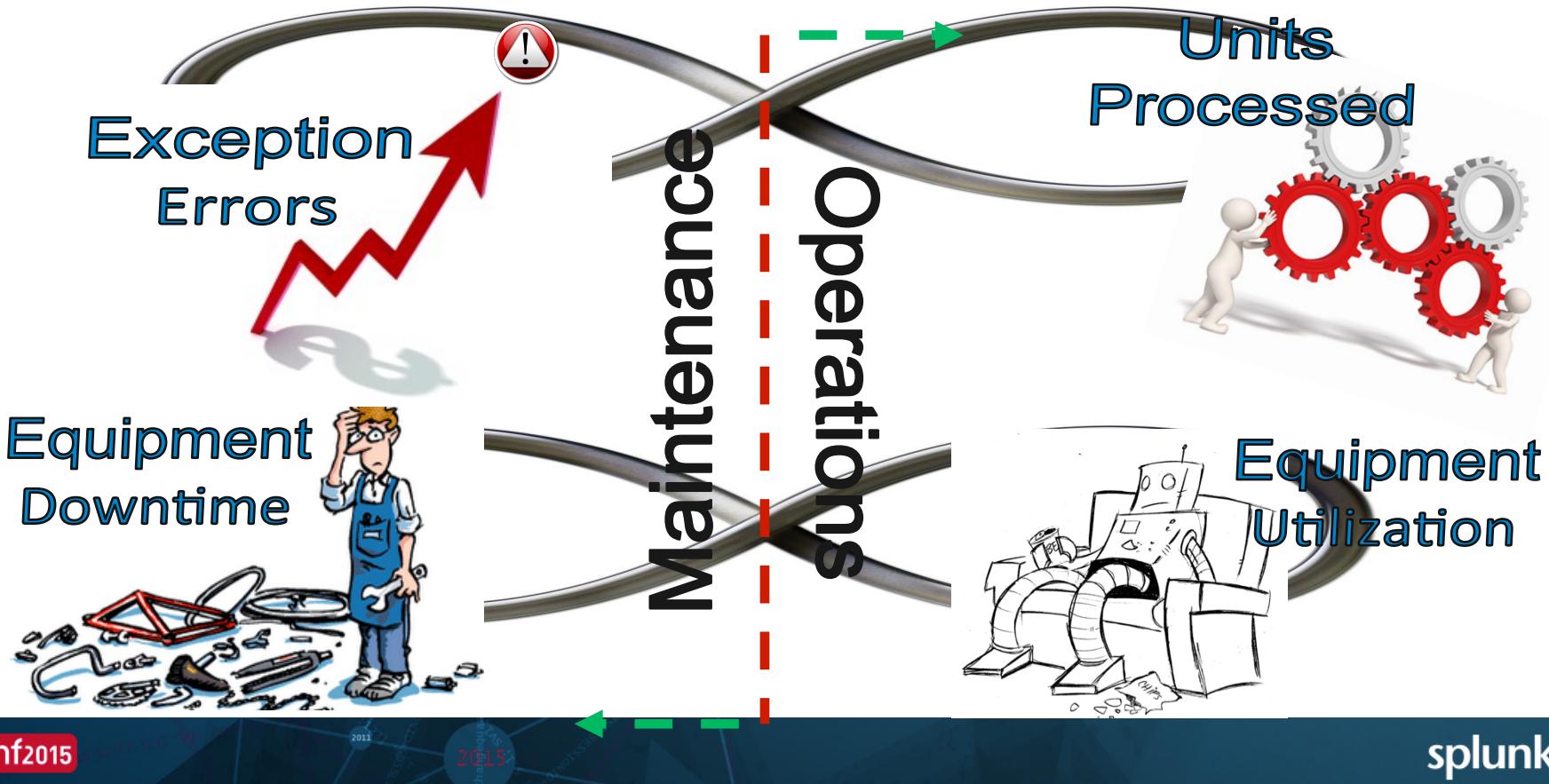
## Equipment Operations



## Statistical Analytics



# Fictitious KPI Categories



# You Need More Than a Trend

Historically

What is **normal** performance?  
How **consistent** is performance?

Yesterday

What is **current** performance?

What is the **current** trend?

Where is **current** performance?

Today

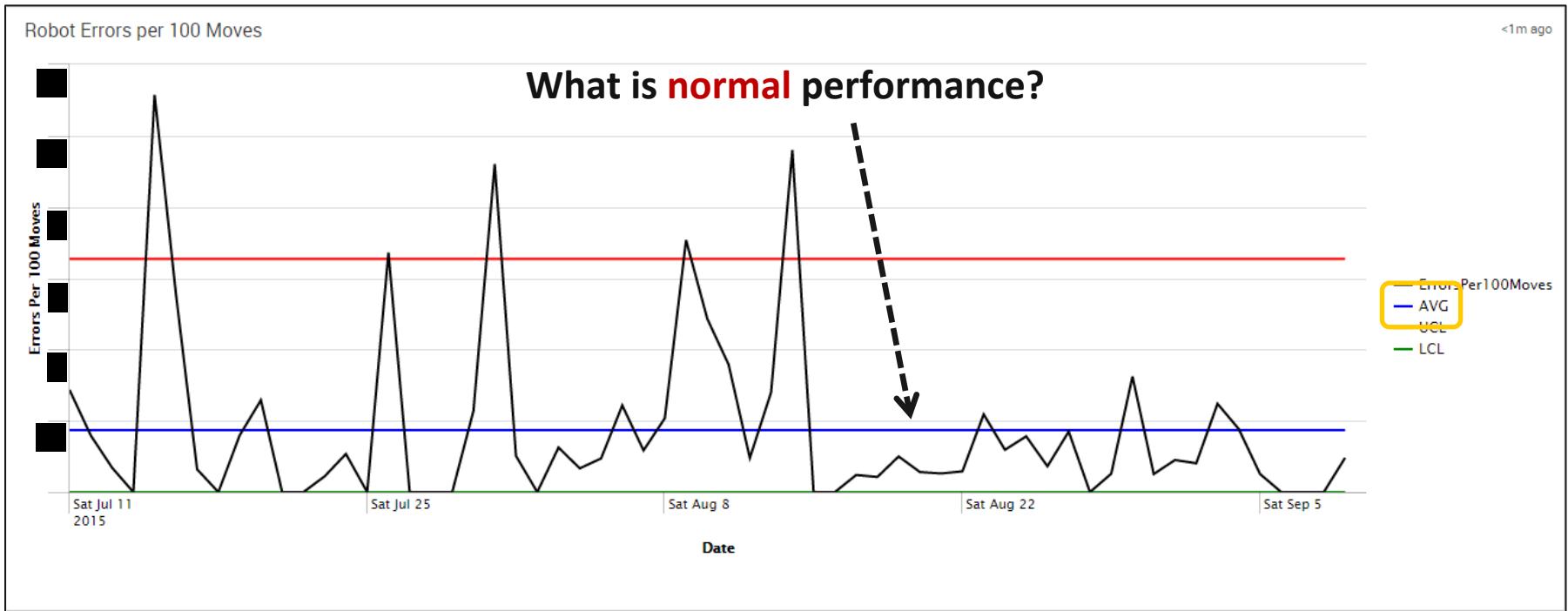


Tomorrow

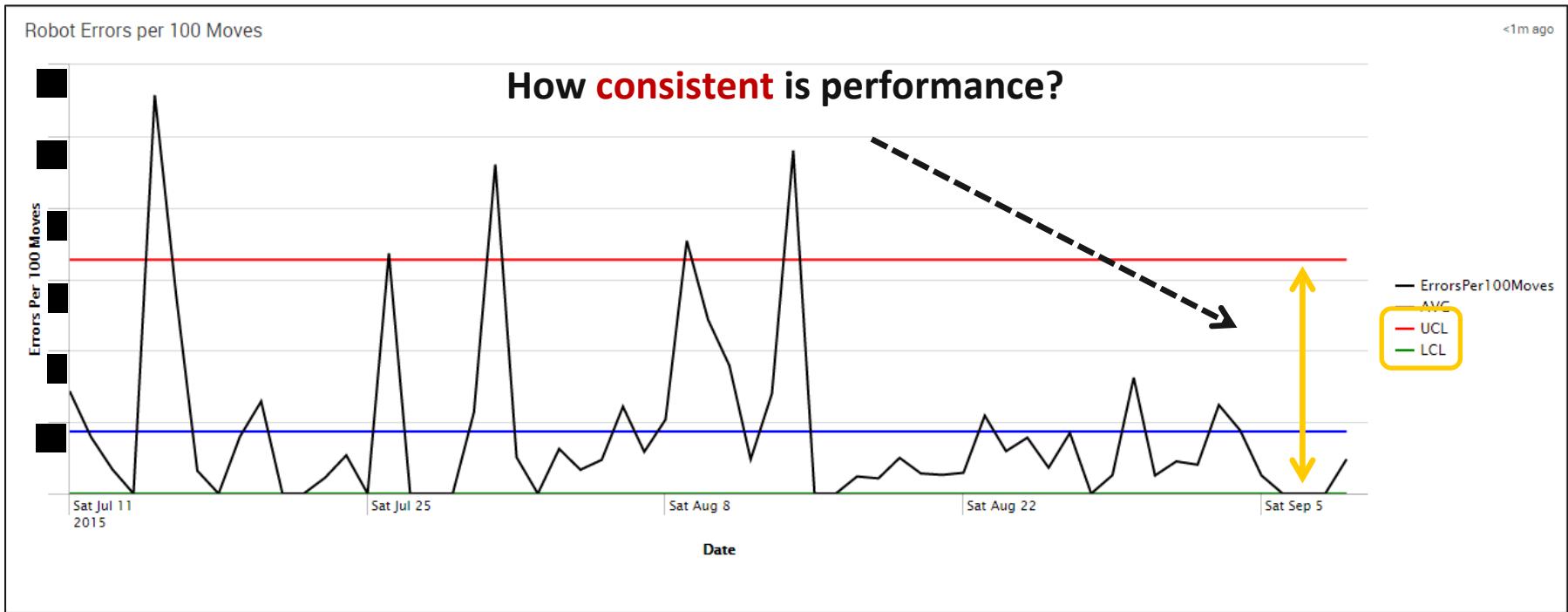
The **future** will...?



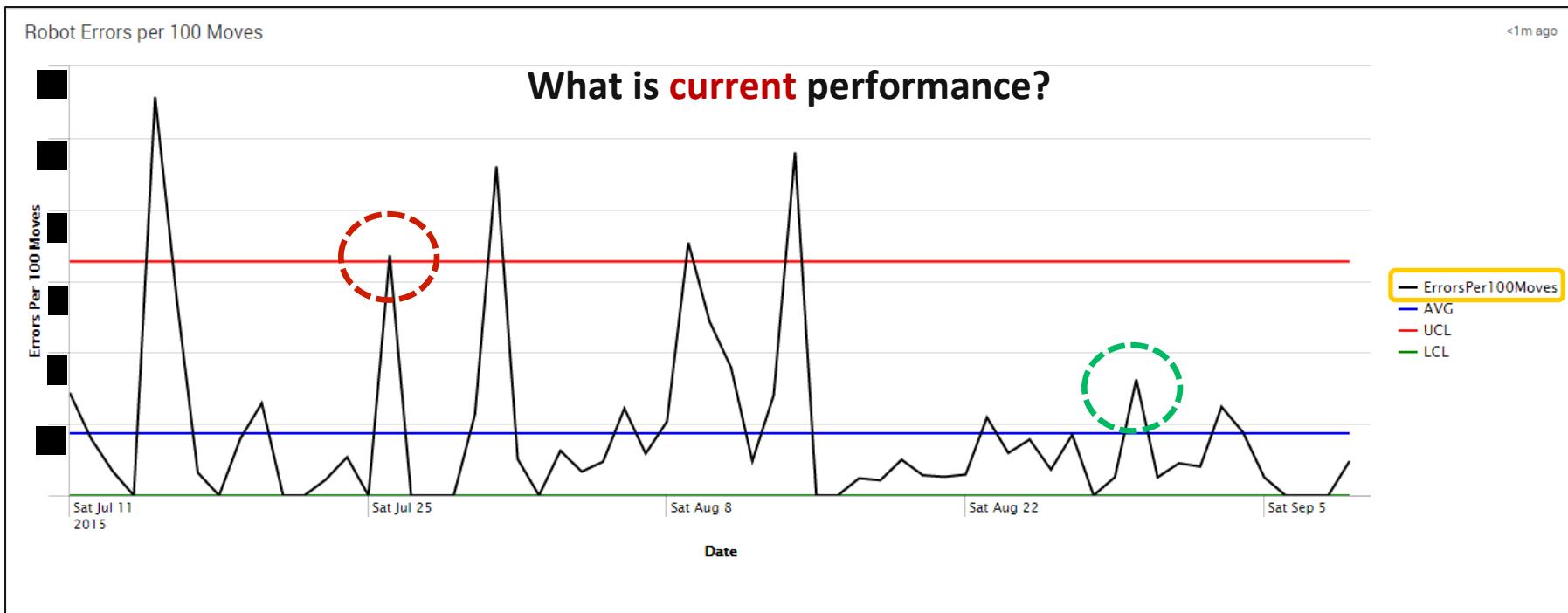
# Equipment Management Best Practice



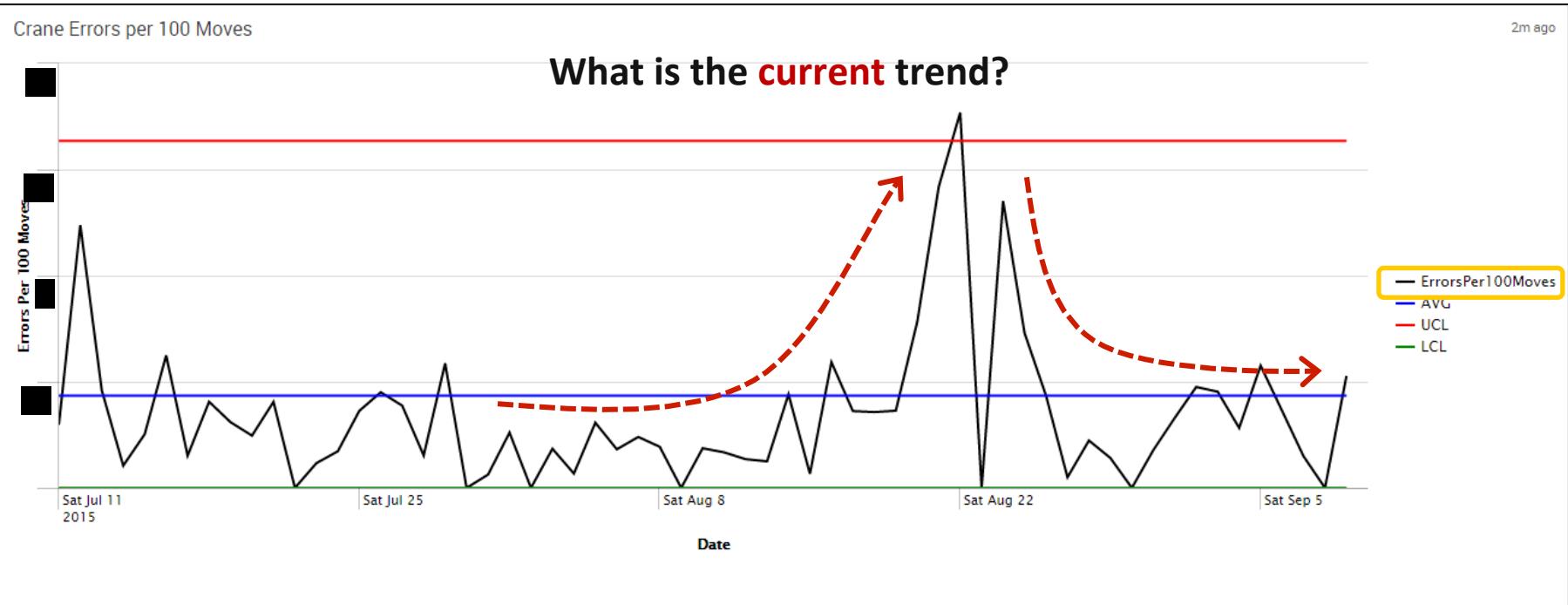
# Equipment Management Best Practice



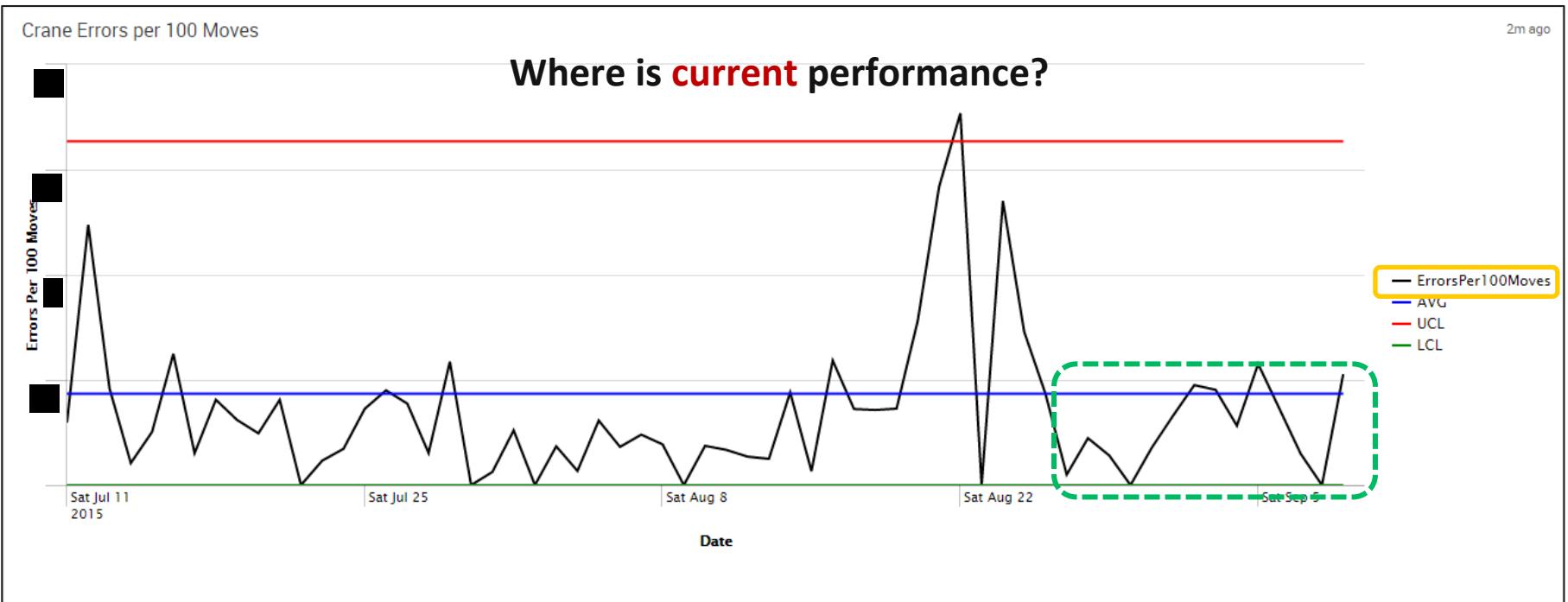
# Equipment Management Best Practices



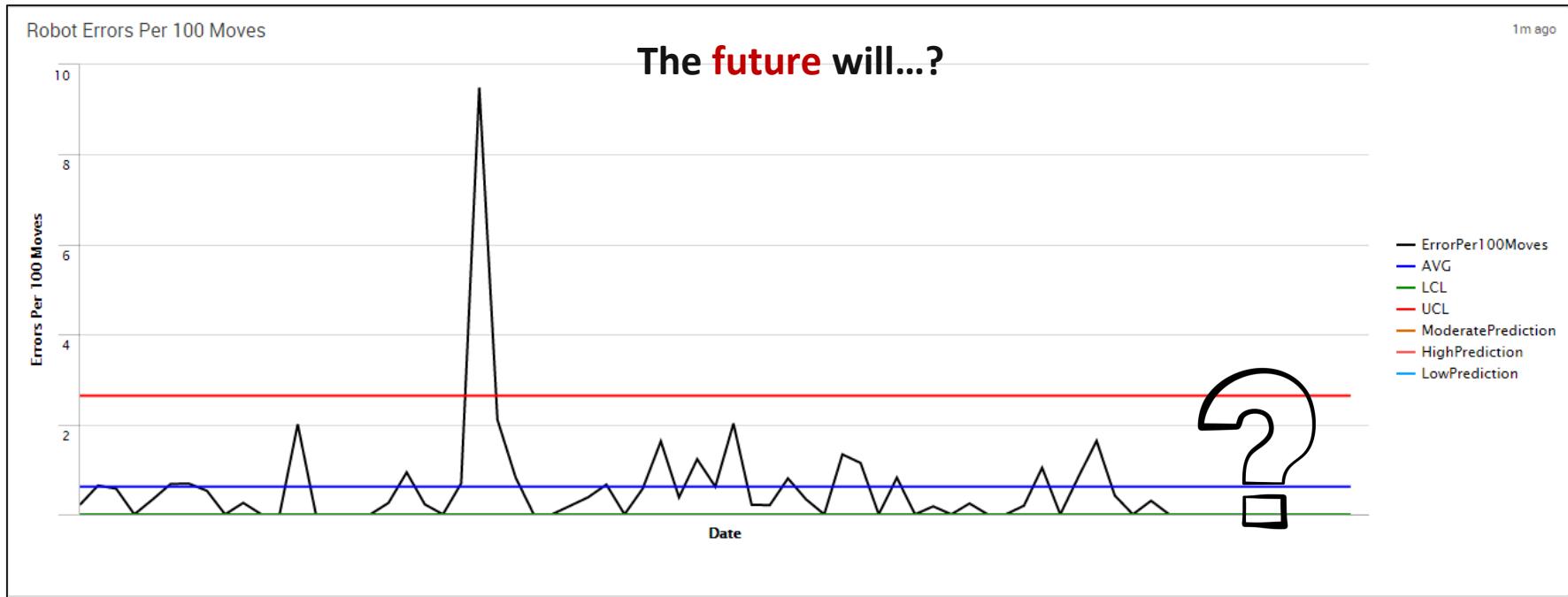
# Equipment Management Best Practice



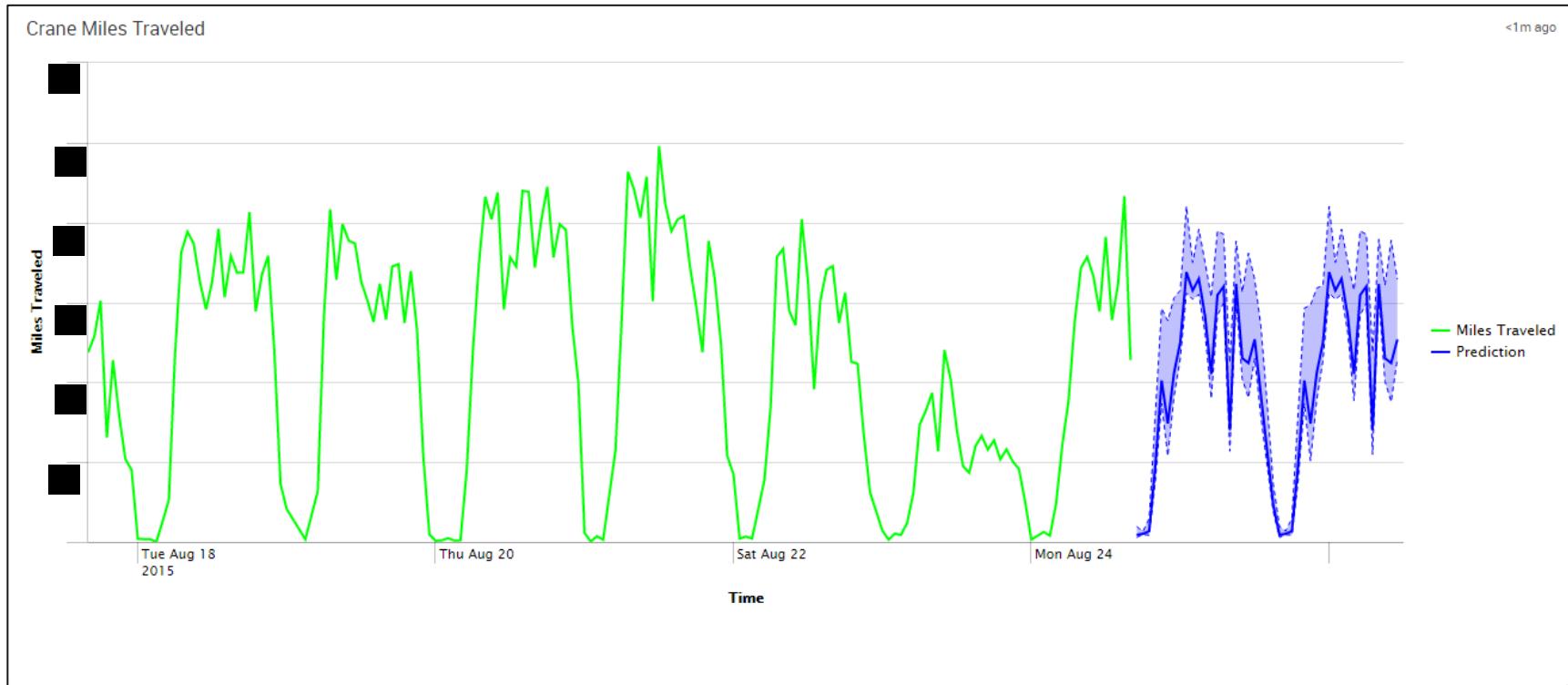
# Equipment Management Best Practice



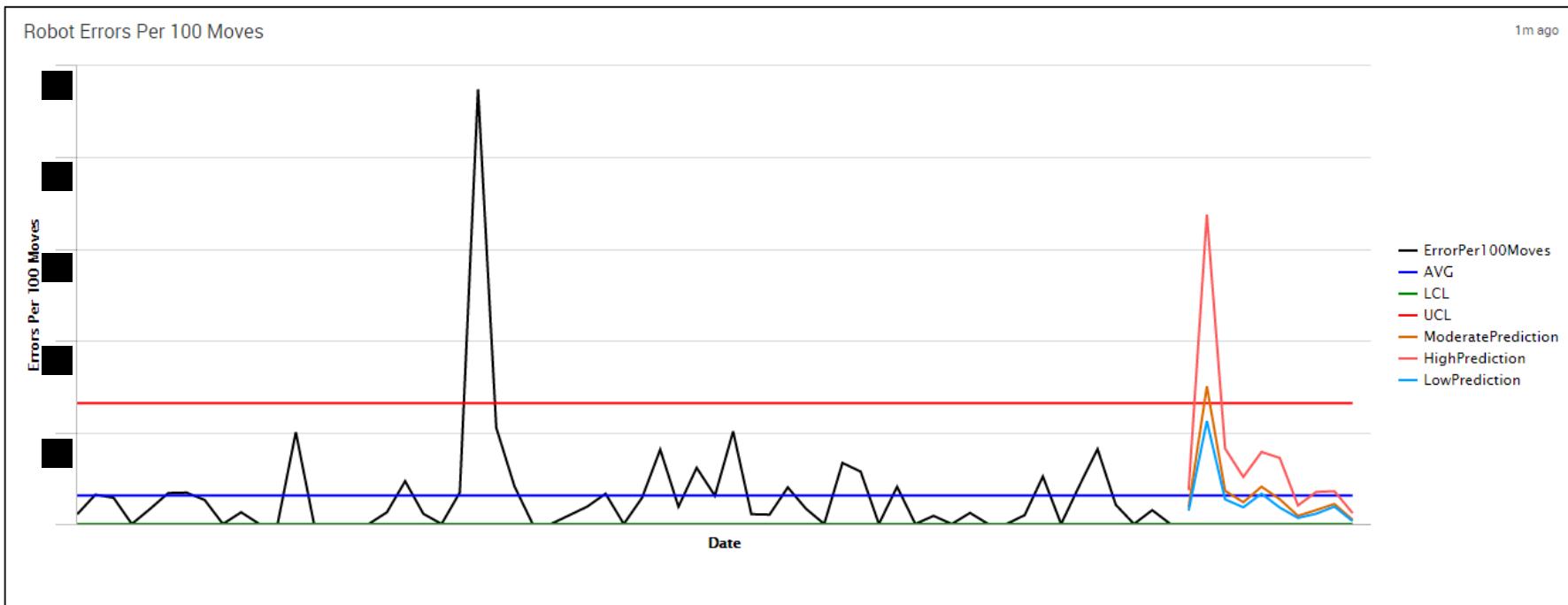
# Equipment Management Best Practice



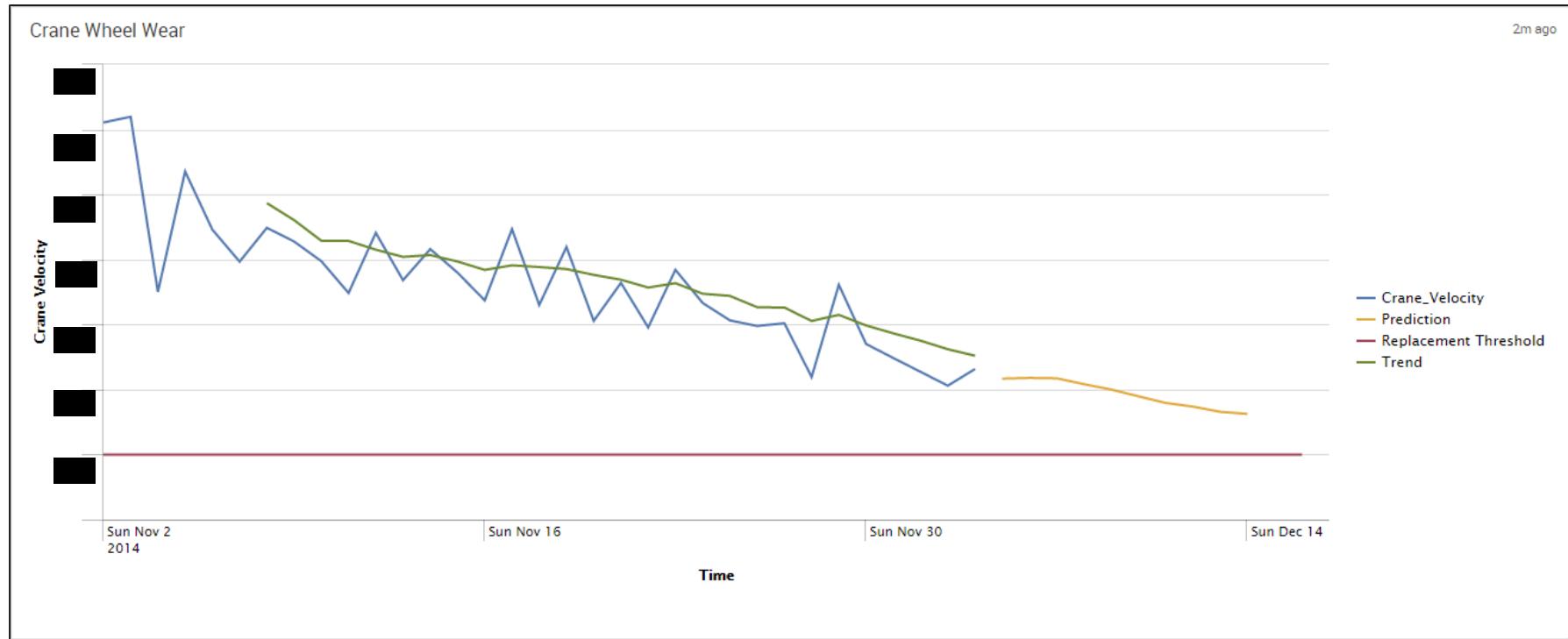
# Prediction In Practice



# Predictive Equipment Management



# Predictive Equipment Management



# Alerts



**From:** splunk  
**Sent:** Tuesday, September 08, 2015 11:50 AM  
**To:** Adam.McNeil [REDACTED]  
**Subject:** Splunk Performance Alert - Crane #1

[REDACTED] Crane #1 experienced [REDACTED] errors on 2015-09-08 which is above UCL [REDACTED]

[View dashboard](#)

If you believe you've received this email in error, please see your Splunk administrator.

splunk > the engine for machine data



HipChat

Lobby

Tgtbullseye 2015-09-07 which is above UCL [View Results](#)

Splunk September 7, 2015

Distribution & Tran Splunk [REDACTED] has had [REDACTED] errors per 100 moves [View Results](#)

Alex Sneed Miller Splunk [REDACTED] has had [REDACTED] errors per 100 moves [View Results](#)

Distribution Splunk [REDACTED] experienced [REDACTED] errors on 2015-09-07 which is above UCL [View Results](#)

Splunk [REDACTED] may experience [REDACTED] errors on 2015-09-08 which is above UCL [View Results](#)

September 8, 2015

Adam McNeil [REDACTED] 8:33 AM

Available

People Files Links

Adam McNeil

Alex Sneed Miller 13m

Manoj Samgharshanan

Guest access is off

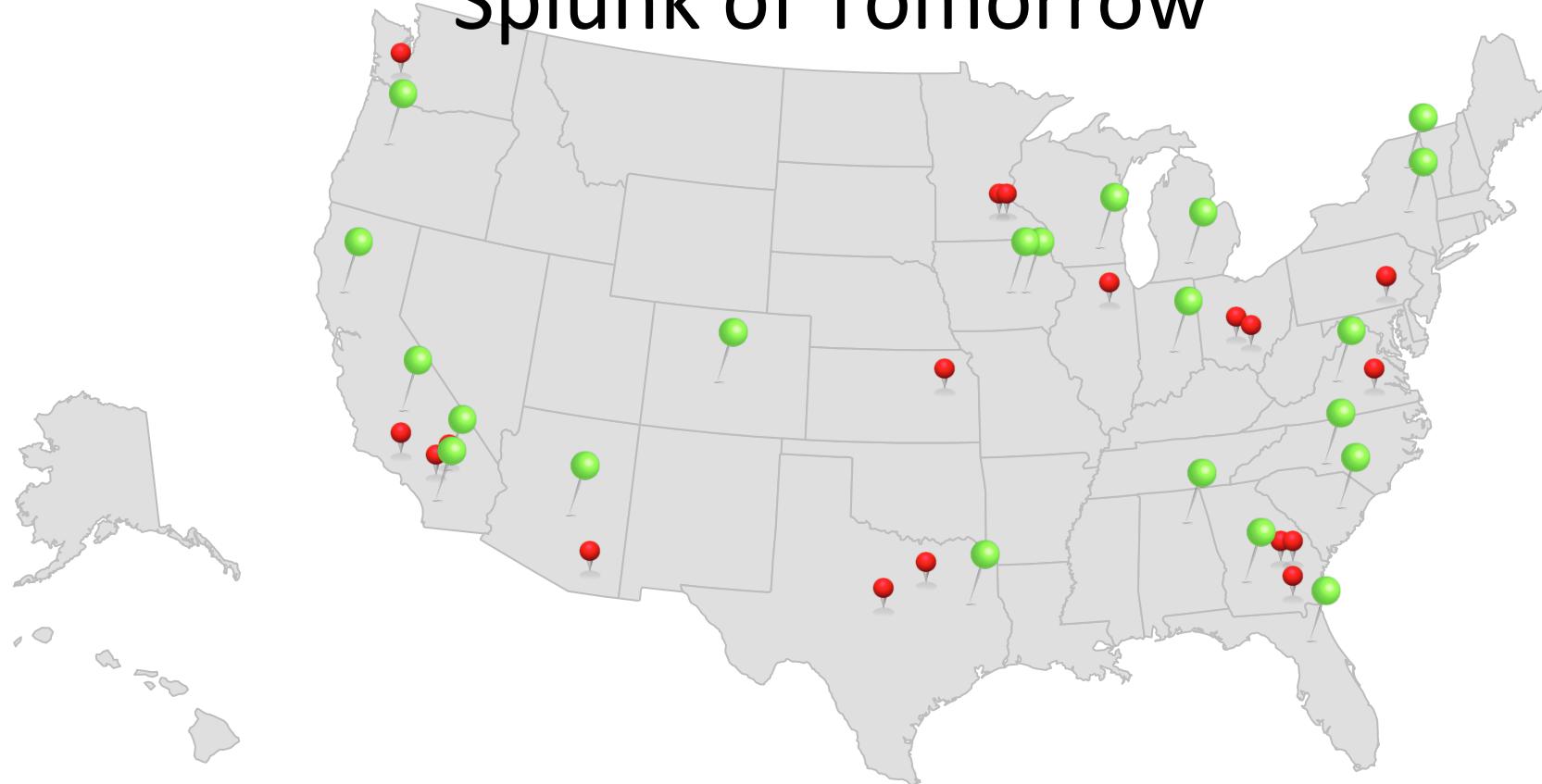


# Vision

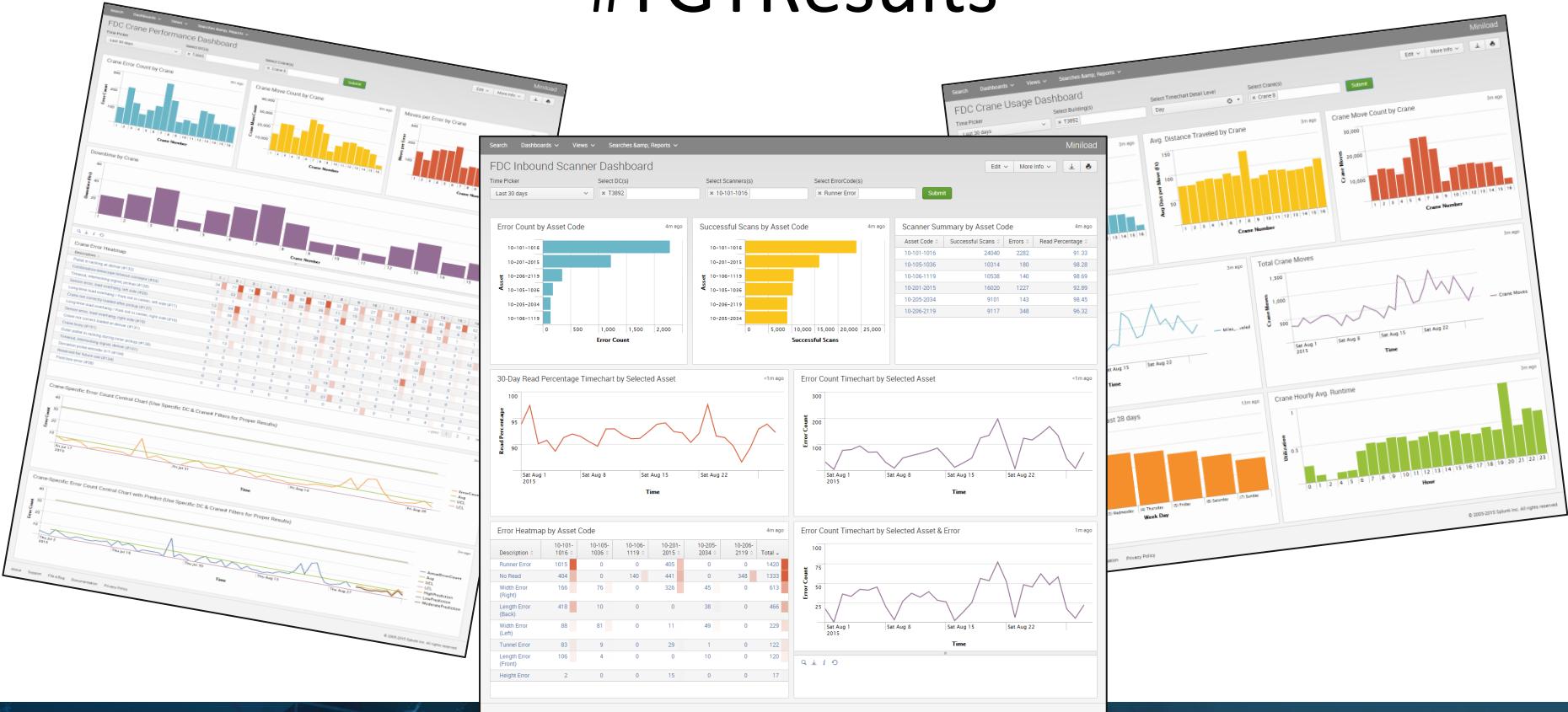
- 14 Additional Splunk driven distribution centers
- Splunk requirement for new equipment installs
- Connect Splunk with asset management system
- Financial data integration



# Splunk of Tomorrow



# #TGTResults



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# THANK YOU

**splunk®**