ConicIT
Sense and Respond?
Why Not Predict and Prevent?
Questions

Remember to place your questions in the Question box

You can also email us at info@sdsusa.com
Agenda

- Introduction
  Brian Lampi – Software Diversified Services

- ConicIT – Predict and Prevent
  Jacob Ukelson – ConicIT

- Q/A
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42nd International Performance & Capacity Conference

SAVE the DATE
November 7-10, 2016
Hyatt Regency | La Jolla, CA
Sense and Respond? Why Not Predict and Prevent?

From Disparate Tools into an Operational System of Intelligence for Production Assurance

CMG Conference 2015

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The IT Operational Landscape for Enterprises is Shifting

New workloads and Application centricity

An **Operational System of Intelligence** for Production Assurance would preserve operational integrity while increasing development velocity in a shifting IT landscape.

New application centric IT methodologies

Retiring skills
What is Production Assurance?

Intelligent production application performance alerts through predictive analytics using sophisticated mathematics and world class domain knowledge

Always vigilant

Dynamic, learned, thresholds

Predictive analytics

Accurate, Actionable Alerts
So How Can It be Done?

• Purely statistical approach?
  • Uses lots of “low quality” models and attempts a best fit to the current state. Prediction based on selected model
  • Also called descriptive statistics
  • Good News: Generic and can be used with any system
  • Bad News: Doesn’t really work

• Mathematical modeling + domain expertise works
  • Hierarchy of domain expertise
    • Computers – e.g. CPU must be positive
    • Performance – e.g. Locked resources
    • Mainframe – e.g. Queues
    • Not generic, but can be architected to separate concerns
The Importance of Domain Context

• Which variables and combination of variables are of critical importance
  • There are hundreds, or even thousands of parameters that could be considered

• Definition of anomalies
  • e.g. time related parameters
    • Hour of the day, day of the month, month of the year, special dates
  • e.g. work related parameters
    • A certain amount of work needs to be done, elapsed time may vary
  • others

• The power of dynamic thresholds
  • Do nothing
  • Collect and Aggregate
  • Acquire more data (increase confidence)
  • Alert
Fits Time Related Data Profile
Behavior Analysis for Predictive Analytics

Prediction
- Detailed Behavioral profile
- Prediction based on model
- Machine learning algorithms
- Prediction as green highway

Alerts
- Accurate meaningful alerts
- Dynamic thresholds
- Alerts decision model

Domain awareness
- System specific parameters
- Synthetic parameters
- Generic + Customer specific
Why Behavioral Analysis?

Because of the complexity of managing a fast moving, large scale, virtualized transaction oriented environment.
Predictive Analytics and Alerts

Only Alert if the Deviation is Pronounced Enough
Alerts

Alerts must be Actionable
Production Assurance?

Systems of Engagement
- Call center
- Web
- Mobile

Systems of Record
- OLTP
- ERP, CRM

Systems of Intelligence
- Cloud
- Big Data
- Predictive Analytics
A Full Cycle Performance **System of Intelligence** Would:

► Close the loop from operations to development through runtime analyze, detect, classify and understand

► Decrease reliance on deep mainframe expertise through a system of intelligence for production assurance
Use Existing Analysis and Monitoring Tools to Create a Production Assurance System of Intelligence
Production Assurance System of Intelligence
Through Predictive Analytics and Deep Performance Data

Define areas of investigation

Predictive performance alerts and deep data triggers

Deep dive data collection and analysis

Lower mainframe costs, better insight, increased innovation
Other Applications of Predictive Analytics

- Cross Platform DevOps Hub – Use Mainframe system of intelligence as a lighthouse for critical cross platform transaction performance problems

- Cross Platform Security Hub
  - Anomaly based trigger to record records actual TCP/IP and APPC application activity the time of and anomaly
  - Correlate between anomalies and mainframe network activity.
  - Use Mainframe system of intelligence as a breach aware alert mechanism for critical cross platform transactions
Another Use Case – Monitor Migration

- Lower the risk associated with changing monitors
  - Ease of migration
  - Monitor the monitors

- Install before transition to create the behavioral profile

- Continue to monitor and alert after transition
  - Reduce risk of transition
Thank You!