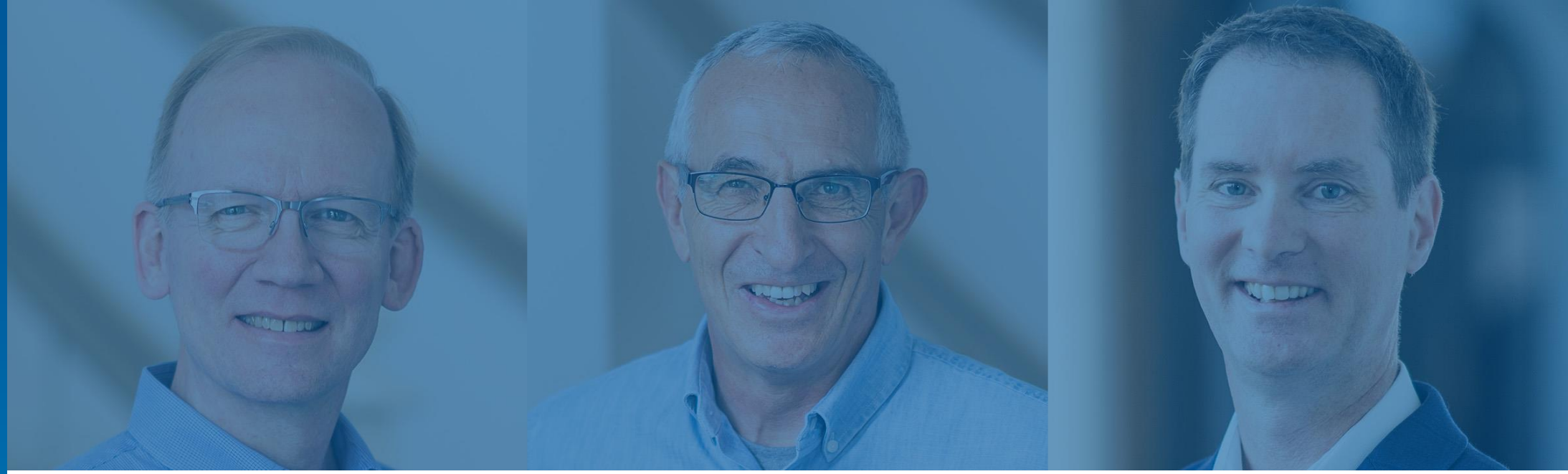


SPARTA Virtual Meeting – March 2021

Boost the Value You Derive from CICS, Db2, and MQ Data

Todd Havekost – Senior Performance Consultant

March 2, 2021

Availability Intelligence

Agenda

- Introduction
- Deriving Value from CICS Data (110.1, 110.2)
- Deriving Value from Db2 Data (100, 101)
- Deriving Value from MQ Data (115, 116)

Introduction

Challenges Deriving Value from SMF Data

- Primarily used in reactive manner
- Siloed tooling across disciplines
- Focused analysis despite massive data volumes
- Declining expertise with retirements of tenured staff

Ways to Boost Value Derived from SMF Data

- Primarily used in reactive manner
  - Proactive identification of potential risks
- Siloed tooling across disciplines
  - Intuitive integrated views of data promotes collaboration
- Focused analysis despite massive data volumes
  - Dynamic navigation to quickly focus on desired subset of data
- Declining expertise with retirements of tenured staff
  - Expedite bringing less-experienced staff up to speed

Deriving Value from CICS Data
(SMF 110.1, 110.2)

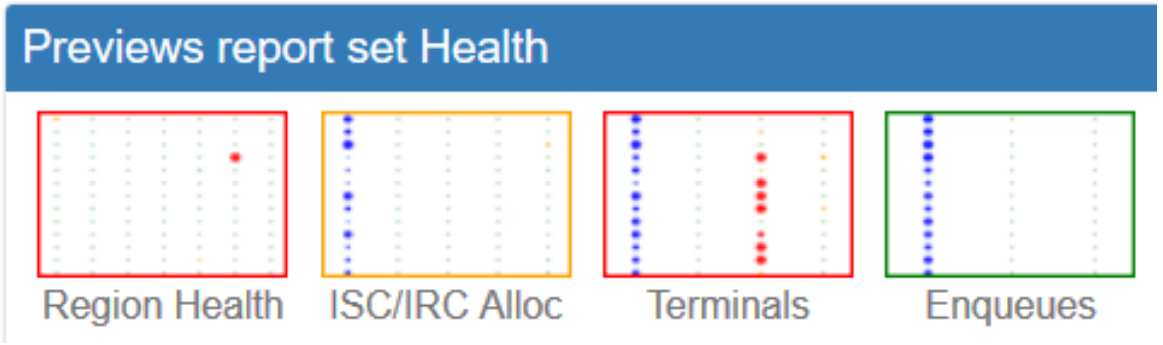
CICS Transaction Reporting

- Transaction level data produced by CICS Monitoring Facility (SMF 110.1)
- 370+ fields, including approx. 100 timing “buckets”
- Summarize data into configurable “RMF like” intervals
- Flexible GUI with functionality (drill-downs, filters, customization) to quickly and effectively analyze massive volume of data

CICS Statistics Health Assessments

Views direct your attention to potential issues

- Metrics rated for health, based on best practices
- Summarized by "CICS Group", drilldowns by region



Examples include:

- MAXTASKS
- Short on Storage
- Max QR TCB % Busy
- Waits for VSAM File or LSR Pool Strings
- Terminal Transmission Errors
- Enqueue Wait Time

Deriving Value from CICS Data

Live Demo

Deriving Value from Db2 Data
(SMF 100, 101)

Db2 Statistics Reporting

- Db2 Statistics records (SMF 100) provide data at the Db2 member (and buffer pool if applicable) level
- Summarize data into configurable “RMF like” intervals
- Flexible GUI with functionality (drill-downs, filters, customization) to quickly and effectively analyze large volume of data

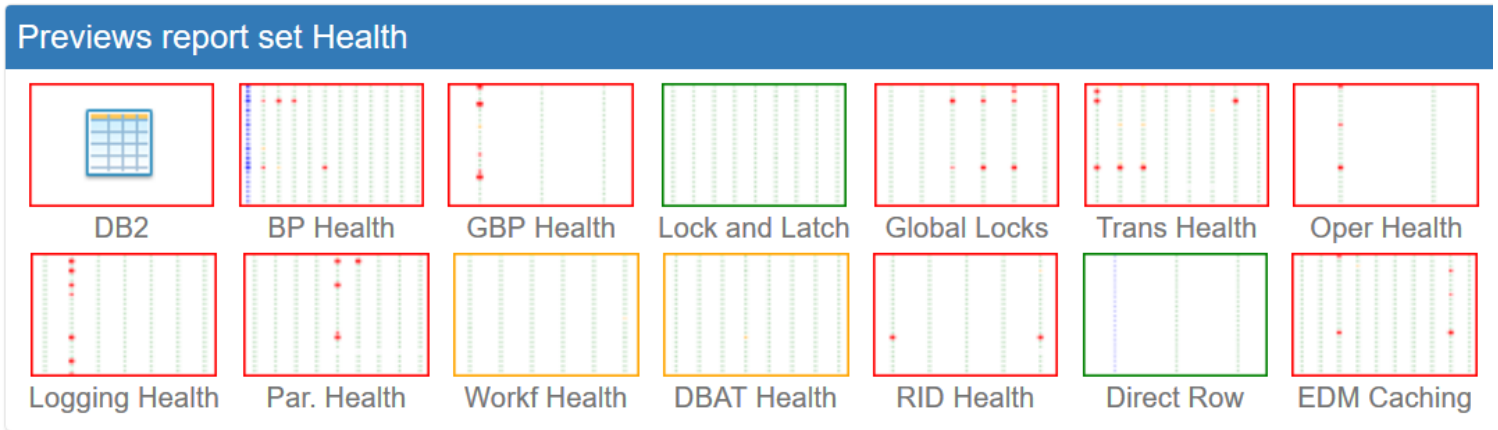
Db2 Statistics Health Assessments

Views direct your attention to potential issues

- 80+ metrics rated for health, based on best practices
- Summarized by DSG, drilldowns by member, buffer pool size and number

Examples include:

- Buffer Pools and GBPs
- Locks and Latches
- Logging
- Parallelism



Db2 Accounting Reporting

- Db2 Accounting records (SMF 101) provide thread (or “transaction”) level data
- Summarize data by key criteria into “RMF like” intervals
- Flexible GUI with functionality (drill-downs, filters, customization) to quickly and effectively analyze massive quantity of data

Db2 Accounting Data – Summarization

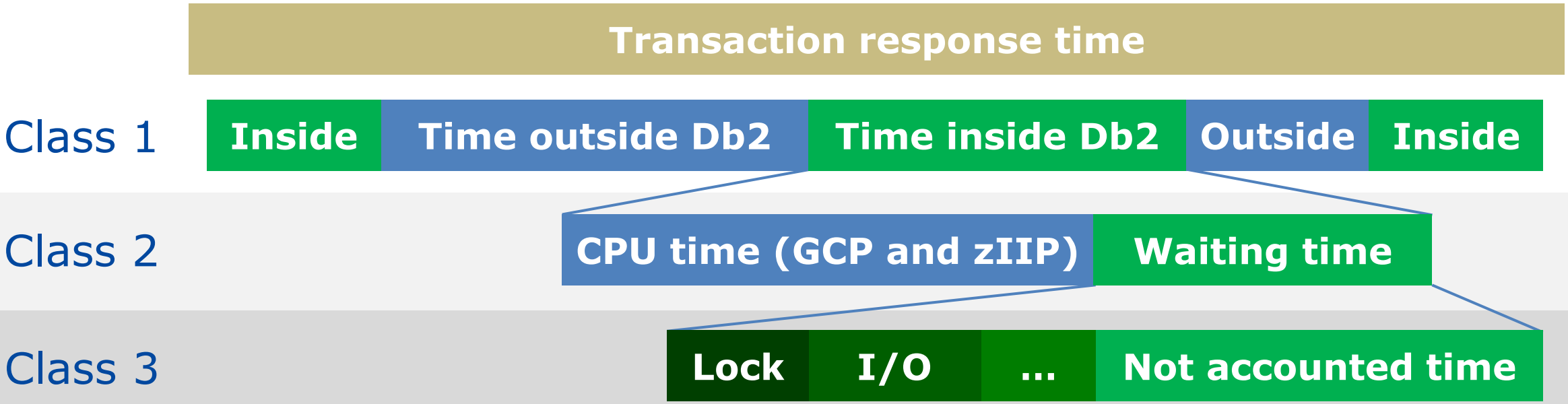
Plan data summarized by:

- Sysid
- Data sharing group name
- Db2 member name
- Plan name
- Connection type
- Correlation name
- Authorization ID

Package data summarized by:

- Sysid / DSG / Member
- Plan name
- Connection type
- Correlation name
- Authorization ID
- Package collection ID
- Program name
- Consistency token (version)

Class 1, 2 and 3 Plan Accounting Data



- Class 1 is application perspective from Db2 thread creation to termination
- Class 2 provides Db2 elapsed and CPU time (Class 7 for package)
- Class 3 provides wait reasons within Db2 (Class 8 for package)

Deriving Value from Db2 Data

Live Demo

Deriving Value from MQ Data
(SMF 115, 116)

MQ SMF Data

- MQ Statistics (SMF 115)
  - Data at the queue manager and buffer pool levels
  - Examples: message request rates, logging data, buffer management
- MQ Accounting (SMF 116)
  - Detailed task level data including queue name, connection type, address space name
  - Examples: CPU time, elapsed times by wait factors, message lengths

Unique Challenges Deriving Value from MQ Data

- Overall visibility into MQ data
  - Has not typically been focus of in-house developed reporting
  - Vendor tooling not as mature
- "Heavy" MQ 116 Accounting data
  - Commonly not continuously generated due to concerns about data volume and CPU overhead
    - Concerns may be overstated
    - May also be influenced by lack of reporting visibility
  - Perhaps start by generating periodically to establish baseline

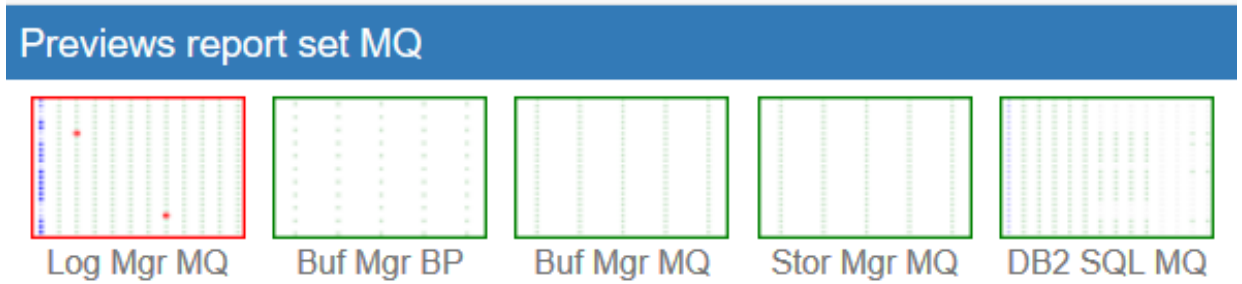
MQ Statistics Reporting

- MQ Statistics records (SMF 115) provide data at the queue manager (and buffer pool) level
- MQ generates statistics data at intervals specified by STATINT attribute (default is 30 minutes)
  - Records are produced at SMF global accounting interval if STATINT=0 is specified

MQ Statistics Health Assessments

Views direct your attention to potential issues

- 30+ metrics rated for health, based on best practices
- Assessed by queue manager and buffer pool



Examples include:

- Buffer Manager
  - Buffer pool utilizations
  - Write thresholds reached
- Log Manager
  - Waits for buffers
  - Checkpoint frequencies
- Storage Manager
  - Contractions
  - Short on storage

MQ Accounting Reporting

- MQ Accounting records (SMF 116) provide detailed data for each task, at the thread and queue level
- Summarize data by key criteria into “RMF like” intervals
- Flexible GUI with functionality (drill-downs, filters, customization) to quickly and effectively analyze massive quantity of data

MQ Accounting Data – Summarization

- Sysplex ID
- System ID
- Queue manager
- Queue name
- Buffer pool number
- Page set
- Connection type
- Connection name (address space)
- CICS transaction ID
- IMS PSB
- Authorization ID
- User ID

Deriving Value from MQ Data

Live Demo

Limitations of Static Reporting Solutions

Example – Assessing Metrics to Identify Issues

- Static reports
  - 120 CICS regions x 15 metrics = 1800 charts
  - Requires manual analysis of all charts to proactively identify issues
- Contrast with programmatic assessment using built-in z/OS-specific subject matter expertise
  - Identify in single view opportunities that may warrant analysis

Example – CICS Response Time Analysis

- Static reports
  - "Top 10" transactions (probably want more) x 4 systems x 7 CICS regions x 5 response categories = 1400 reports
- Analysis leveraging context-sensitive drilldowns
  - 4 clicks
- Context-sensitive drilldown capabilities are especially helpful in deriving value from massive quantities of data

Cheryl Watson's Tuning Letter

- "Learning from SMF" series began with issue 2020 No. 1 (published April 2020)
- First article covered MQ Statistics (SMF 115)
- Second article covered MQ Accounting (SMF 116)
- Current series of articles on Enterprise Consumption reporting and tuning

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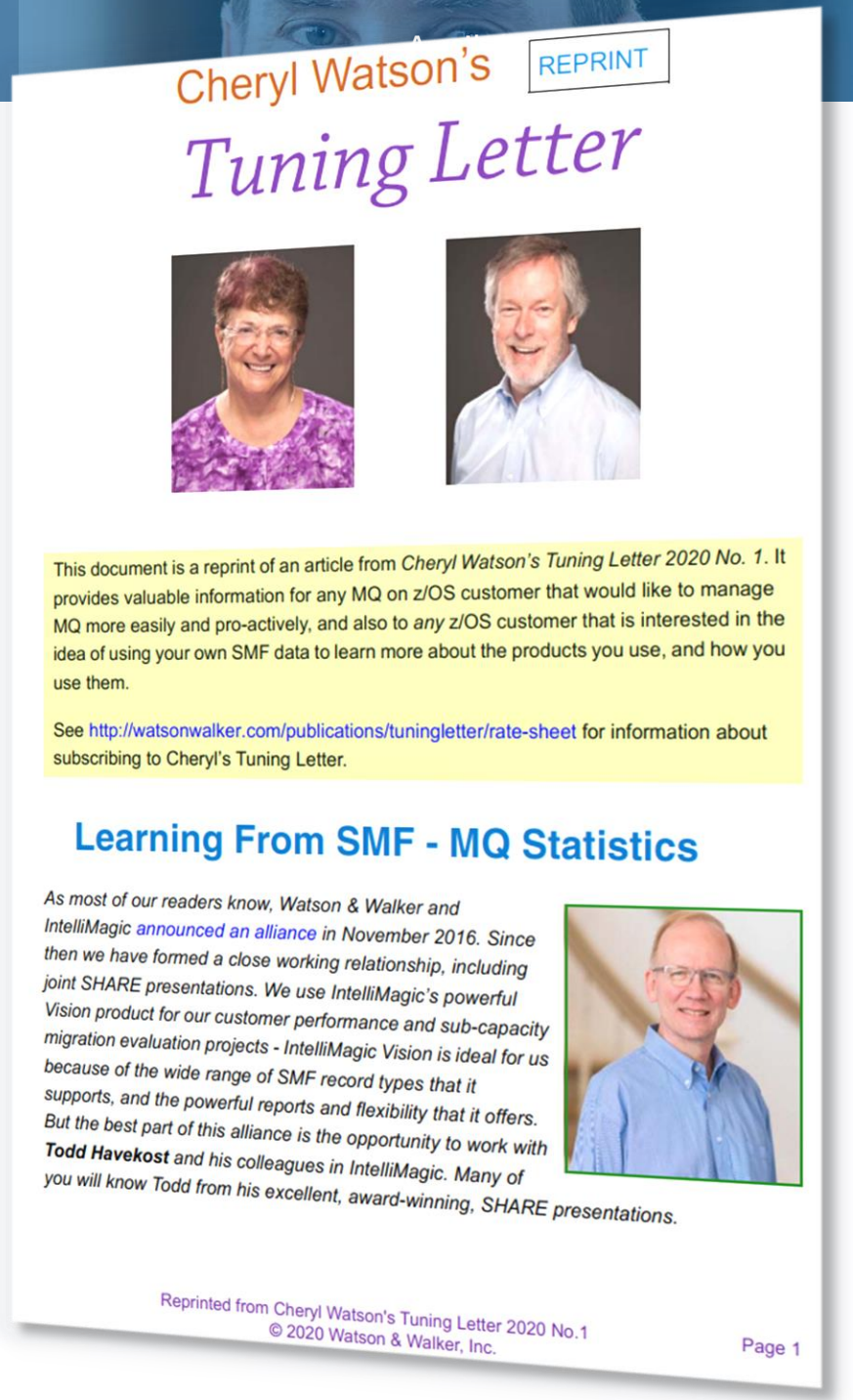
Cheryl Watson's REPRINT

Tuning Letter

This document is a reprint of an article from *Cheryl Watson's Tuning Letter 2020 No. 1*. It provides valuable information for any MQ on z/OS customer that would like to manage MQ more easily and pro-actively, and also to *any* z/OS customer that is interested in the idea of using your own SMF data to learn more about the products you use, and how you use them.

See http://watsonwalker.com/publications/tuningletter/rate-sheet for information about subscribing to Cheryl's Tuning Letter.

Learning From SMF - MQ Statistics

As most of our readers know, Watson & Walker and IntelliMagic announced an alliance in November 2016. Since then we have formed a close working relationship, including joint SHARE presentations. We use IntelliMagic's powerful Vision product for our customer performance and sub-capacity migration evaluation projects - IntelliMagic Vision is ideal for us because of the wide range of SMF record types that it supports, and the powerful reports and flexibility that it offers. But the best part of this alliance is the opportunity to work with ***Todd Havekost*** *and his colleagues in IntelliMagic. Many of you will know Todd from his excellent, award-winning, SHARE presentations.*

Reprinted from Cheryl Watson's Tuning Letter 2020 No.1
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Questions?

Thank you for attending!

How IntelliMagic Vision Enhances Analysis

2. Predictive and Prescriptive Views

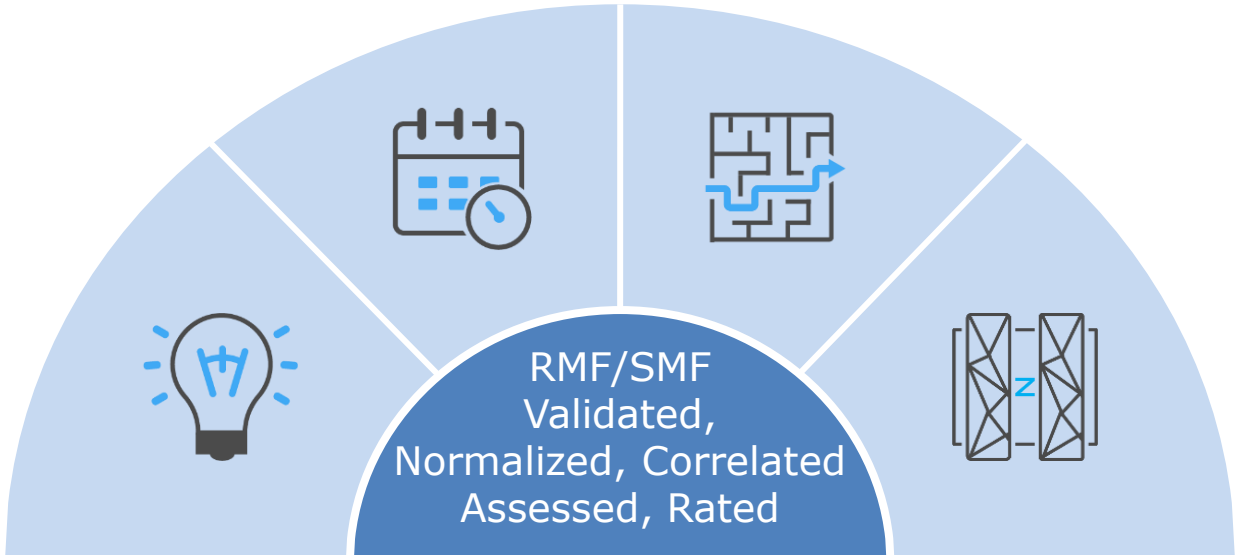
- See performance bottlenecks developing
- Sooner than real-time views of problems
- See cost inefficiency drivers
- Built in reasons and recommendations
- Faster resolution of problems

3. Interactive Navigation through the Data

- Intelligent navigation and drill-downs
- High level to detailed views in a few clicks
- Click to customize – no report writing
- Web GUI – easy collaboration/sharing
- Physical and logical metric correlation

1. Intelligent Analysis

- **Contextual analysis** - metrics auto-assessed with expert knowledge of infrastructure capabilities and best practices
- **Statistical analysis** – identify important changes, trends
- **Application grouping -** for easy analysis by application of shared infrastructure resources



4. Flexible Access and Integration

- Delivery via Software as a Service or on-premise
- Integrate derived intelligence with Splunk or other platforms
- Fractional access to human perf/cap experts to fill gaps