MQ for z/OS
Thoughts on Health checks, performance and the perils of SMF data
OR
Preaching to the choir

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Agenda

- Background
- What are health checks and why do we do them?
- MQ for z/OS – the performance sink
- MQ SMF – Processing the data
  - We have to use what is free

Background

- MQ does not report into the z/OS Health checker
  - So how do I know if my queue manager is healthy?
  - You have to use a combination of sources
    - The MQ JES log for storage use, the number of log switches, etc.
    - The MQ SMF data and general RMF data to see how the resources are really being used
  - From active MQ for z admins, 'I spend 50% of my time or more proving that MQ on z is NOT the problem.'
- Growing issues in QSG
  - Looking in all the wrong LPARS
- SMF data doesn't lie
  - I now know that is not true
  - It is often misinterpreted and under captured!
- MQPERF1 – MQ for z/OS Wildfire Workshop

What are Health Checks and why do we do them?

- An WSC IBM MQ health check is:
  - A point in time review of the health of one or more IBM MQ for z/OS queue managers
  - A review of MQ Coupling Facility usage
- A health check is not:
  - A long term review of queue manager usage
  - An in-depth application review
- Why do we do them?
  - In support of sales
  - To help customers in critical situations – including performance issues
  - When all else fails

IBM MQ for z/OS – the performance sink

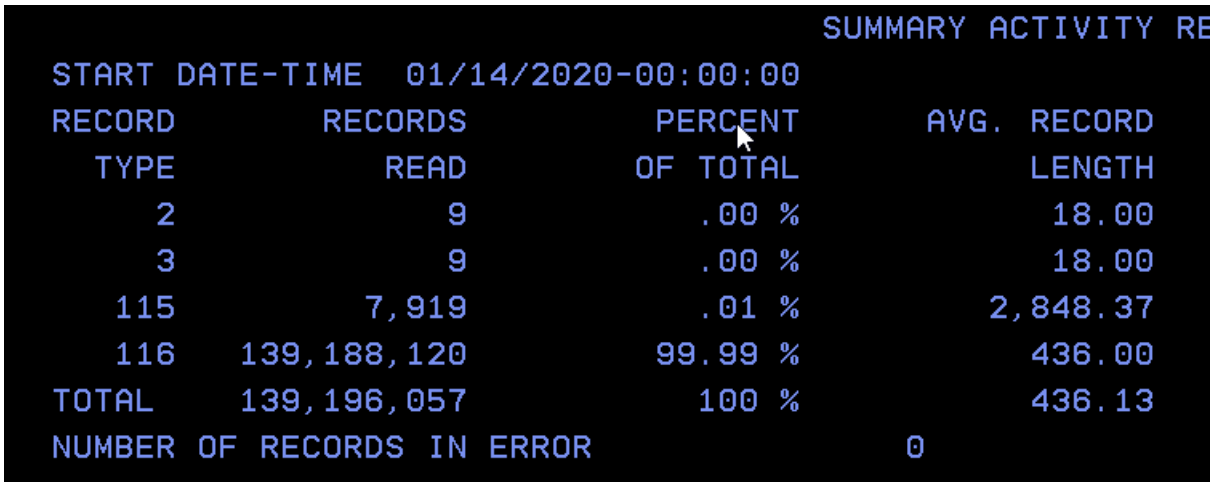
- MQ for z/OS is an extremely resilient product
  - Often continues to run well past when it should have
  - All too often I hear ‘we scarcely know it is there until there is a problem’
- MQ for z/OS is a message delivery tool
  - ‘Response messages suddenly got slow’
  - It has no ties to WLM for message processing
- Patterns of use, message sizes, requirements for availability
  - ‘Evolving’ as we speak
  - Adoption of client application model
  - Tagged data vs concise
  - Queue sharing groups
- Changing customer environments
  - Loss of institutional knowledge
  - Loss skilled administrators

IBM MQ for z/OS – the perils of SMF data

- MQ for z/OS SMF data
  - Evolved - sometimes seems as successfully as a three legged duck
    - Used Db2 as the source and model originally
    - Leads to misunderstanding at times
  - 'Meaningful' fields comingled with fields that are not so much – for those of us external to development and product support
    - Can the contents of these fields be used to make the queue manager or application perform better?
    - Is this useful for capacity planning or problem determination?
    - Is looking at this field like reading a Tarot card?

IBM MQ for z/OS – the perils of SMF data - continued

- MQ for z/OS SMF data
  - Collection and evaluation issues:
    - Default settings - ARRRGGGHHHH
    - Myths and misunderstandings on expense of gathering
      - Changed over time – newer hardware, newer techniques
    - Massive amounts of data



```
                                                SUMMARY ACTIVITY RE
START DATE-TIME  01/14/2020-00:00:00
RECORD        RECORDS          PERCENT       AVG. RECORD
  TYPE           READ        OF TOTAL            LENGTH
     2              9            .00 %             18.00
     3              9            .00 %             18.00
   115          7,919            .01 %          2,848.37
   116    139,188,120          99.99 %            436.00
TOTAL     139,196,057            100 %            436.13
NUMBER OF RECORDS IN ERROR                0
```

IBM MQ for z/OS – the perils of SMF data - continued

- MQ for z/OS SMF data
  - Of that Massive amount, what is useful?
    - Not much

```
Number of task records in SMF data: 0
Summary of MQ SMF records and subtypes found
============================================
SMF type 115 subtype   1, record count     195 System statistics(1)
SMF type 115 subtype   2, record count     195 System statistics(2)
SMF type 115 subtype   5, record count      97 Storage statistics
SMF type 115 subtype   6, record count      97 Storage detail statistics
SMF type 115 subtype   7, record count      97 Storage summary statistics
SMF type 115 subtype 215, record count     195 Buffer manager extension
SMF type 115 subtype 231, record count      97 Chinit statistics
SMF type 116 subtype   0, record count 18105047 Accounting class(1)
```

Perils of MQ SMF Data – Queue Sharing Groups

- SMF data reports at the QMGR level
- Some problems need evaluation across all QMGRs in a QSG
  - Workload skewing
    - Many causes, hard to pinpoint
    - Can change based on infrastructure and applications
    - What happens in one queue manager, doesn't stay in one queue manager
- New client based applications
  - Often connecting to QSG for availability
    - Once connected, stay connected

Perils of MQ SMF Data – New workloads

- New client based applications
  - Often exploiting current language and applications servers
    - That layer of abstraction become obstruction
    - Connect/disconnect addiction
    - Connect, start a UOW, and die
    - Using message properties
    - Polling instead of waiting
    - Temporary Dynamic queues

MQ for z/OS SMF evaluation - evolved

- CSQSMFD – Dump format of the data
  - Not useful for much except to determine when the SMF formatters are not working properly
- MP1B – SupportPac
  - The traditional formatter
  - Assumes a level of knowledge not often found at customers or in the field
- MQSMFCSV
  - Just formats, no interpretation of the data
  - Requires knowledge, of both MQ for z/OS and the customer environment
- Commercial tools – other vendors and IBM
  - Generally doing an OK job
    - We see lag times and a lack of commitment to new versions
  - Trying to interject intelligence into what can be an art