

Building Al into Mainframe Batch Automation; can you afford not to?

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Agenda

- What's Artificial about Automation?
- What Batch Processing Challenges?
- What Batch Processing Opportunities?
- Why now? Nobody's died yet...
- Yes, you can automate 'Capping', but...
- OK We've automated, but how do we know it's working?



What's Artificial about Automation?

Artificial Intelligence: In <u>computer science</u> AI research is defined as the study of "<u>intelligent agents</u>": any device that perceives its environment and takes actions that maximize its chance of successfully achieving its goals...

Source: Poole, Mackworth & Goebel 1998, via Wikipedia

z/OS Environment Perception:

- Performance (Velocity, Performance Index)
- Utilisation (CPU, Resources)
- Availability (CPC, LPAR, software, hardware)

Actions to meet Batch Workload Completion Goals:

- Business critical Jobs prioritised
- CPC & Initiator performance optimised
- Unnecessary delays eliminated
- Service escalation when necessary

Meet TiM





What Batch Processing Challenges?

- Lack of innovation & investment
- Data volume growth increased I/O & CPU demand
- Overnight window intrusion, internal & external
- Cost cutting targets capacity limit setting
- Processor & I/O speeds increased manual interventions still slow
- Knowledge of legacy systems & business relevance disappearing
- JES Exit maintenance skills becoming scarce
- JCL standards & change control still at user/owner level
- JES2 was a 'Blank Slate' and the blackboard still has large gaps...

JES2 Is Blank Slate

GUIDE SHARE EUROPE UK REGION

- JES2 does heavy lifting of spooling-kudos to IBM
- Otherwise, IBM gave us...
 - Initiators
 - Address space
 - JES2 code requests work to process and JES2 services as needed
 - Customer decides how many and where located
 - Job classes
 - Rudimentary means to classify and organize jobs
 - Customer decides how to exploit efficiently
 - Oh ... and Exits
 - Opportunity to be clever and daring
 - Customer decides how to make use of them



Results in Not So Blank Slate

- Initially, it worked well or was tolerable
- As volume and complexity increased, so did incidents
 - Job class structures and standards often became inadequate and unmanageable
 - Under/over-initiation of jobs
 - Race conditions
 - Competition for resources results in initiator idling
 - Resource hogging by industrious users
 - Defeatable JCL standards enforcement







- 'All the right Jobs, not necessarily in the right order...'
- Form an Orderly Queue
- 'More speed, less haste...'
- 'Look after the pennies, and the pounds will look after themselves...'
- Don't Delay!







2. Review the Queue





3. Control the Queue





Why now? Nobody's died yet...





Yes, you can automate 'Capping', but...



- What do you really want to 'Cap'?
- Why react aggressively?
- Why not pre-empt peacefully?
- Why not target constraint gradually?







Why not avoid Capping?







How do we know it's all working?

- A helicopter view would help...
- I have a dashboard for most of my vital Production services
- We'd love to re-sort our batch workload data to aid analysis
- Input queue service performance indication?
- Click-click technology to locate issues?
- An on-going history of R4HA and constraint levels?
- Some Job history metrics would be useful...



Overview Tab – General Services Queue

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General Services Tab

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Why modernise your Batch environment?







We want your feedback!

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- Paper feedback forms are also available from the Chair person
- This session is NK





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