Tuning IMS Batch

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Market Challenges

- **IMS: Mission Critical but Expensive**
  - Reduced IT Costs

- **24x7 Access via Mobile and Internet**
  - Improved Availability

- **Ongoing Requirement to Do More with Less**
  - Enhanced Performance

- **Skills Shortage Growing More Critical**
  - Increased Productivity
Desired features for any solution

Reduce Cost: Lower MIPS usage
- Reduced IT Costs

Minimal Impact: Dynamic Deployment
- Improved Availability

Evolving: Adopt & Exploit environment changes
- Enhanced Performance

Policy Based: Leave the user in control
- Increased Productivity
What it means for you

Mundane tasks are automated – your workload decreases

CPU and Elapsed time usage is reduced – your cost decreases

Faster response to changes – your availability increases
DIY Project

- Tune DFSVSAMP Buffers
- Activate OSAM Sequential Buffering
- Analyze Application Check Point Logic

Costly Solution
Static Solution
Checkpoint pacing - BMC Application Restart Control

- IMS Application Checkpoint Pacing
  - IMS and DB2 checkpoint/commit processing
    - Required but a necessary evil
    - Extremely expensive – 100% overhead

- BMC Application Restart control
  - Policy Driven – No JCL changes
  - Reduce checkpoint frequency to match hardware speed
  - Checkpoints at database record boundaries
  - Reduce CPU and Elapsed time consumption
BMC Application Accelerator for IMS
What the product does

- Reduces the CPU used by IMS batch workloads
  - Opportunity to reduce IBM MLC fees with monthly peak reduction
- Reduces the elapsed times of IMS batch workloads

Observed Savings

Note: improvement numbers can vary based on the number and type of DL/I calls performed by the application
Using AAI to lower MLC fees

Reduce BMP CPU usage by 50% creates a new monthly peak for IBM billing purposes

<table>
<thead>
<tr>
<th></th>
<th>Cost/MSU</th>
<th>Old Peak</th>
<th>Monthly Cost</th>
<th>New Peak</th>
<th>Monthly Cost</th>
<th>Monthly Savings</th>
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<tr>
<td>z/OS</td>
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<td>$259,738</td>
<td>2,004</td>
<td>$244,488</td>
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<td>$259,738</td>
<td>2,004</td>
<td>$244,488</td>
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</tr>
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</table>

|      |          |          | $738,763     |          | $695,388     | $43,375         |

NOTE: This data is for illustration purposes only
Using AAI to lower MLC fees

**Without AAI**

8:00 AM

IMS online applications

IMS BMP job

2 hours

IMS BMP job

1.5 hours

5:00 PM

**With AAI**

8:00 AM

IMS online applications

IMS BMP job

1 hour

Saved CPU

1 hour

5:00 PM

IMS BMP job

1 hour

Saved CPU

30 min

NOTE: This data is for illustration purposes only
AAI Customer Results

IT Services company

<table>
<thead>
<tr>
<th>BMP 1</th>
<th>BMP 2</th>
<th>BMP 3</th>
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<tbody>
<tr>
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<td>14</td>
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<tr>
<td>Saved CPU %</td>
<td>Saved Elapsed %</td>
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</table>

Financial services company

<table>
<thead>
<tr>
<th>BMP 1</th>
<th>BMP 2</th>
<th>BMP 3</th>
<th>BMP 4</th>
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<td>82</td>
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<tr>
<td>Saved CPU %</td>
<td>Saved Elapsed %</td>
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</table>
AAI Features

- **How does it do it**
  - Monitors / analyzes IMS batch applications
  - Dynamically implements optimal resource settings

- **Key features**
  - Policy Driven - No JCL or Application Changes
  - Simple GUI - Integrates with existing BMC IMS GUI
  - Resource savings - Shows CPU and elapsed time savings
  - Trial Utility - Add AAI to specific jobs to quickly validate ROI
BMC Application Accelerator for IMS (AAI)

- Supports IMS applications accessing Full Function databases
  - Including HALDBs

- Supports the following types of applications
  - DL/I
  - DBB
  - BMP (Released GA September 27th 2013)

- Performs the following optimization
  - BMC Enhanced I/O substitution
  - OSAM sequential buffering
  - DFSVSAMP tuning
Substitute BMC’s I/O engine for certain DL/I calls

- Dramatically improve buffer management for random access

- Significant reduction in CPU and Elapsed time

- Dynamic disengagement and hand over to IMS DL/I if required
  - All database positioning remains intact

- Supports IMS DL/I batch & DBB applications performing reads

- Supports IMS BMP applications performing reads without integrity
AAI – OSAM sequential buffering

- DL/I call Statistics are accumulated for each run
  - Potential OSAM DBPCBs identified
  - IMS DLI Call patterns captured

- OSAM sequential buffering is activated when appropriate

- Recommendations change based on call pattern and call volumes

- Supports IMS DL/I batch, DBB applications
AAI – DFSVSAMP tuning

- Statistics are accumulated for each run
  - VSAM and OSAM buffer pool utilization statistics
  - IMS DLI Call statistics by DBPCB
  - IMS Database dataset statistics
- Optimal buffers are dynamically allocated for the job step
  - Eliminates excess buffer allocations for unused buffer pools
- Recommendations change based on call pattern and volumes
- Supports IMS DL/I batch, DBB applications
AAI - Graphical Interface

Single Console for BMC IMS products
AAI – Controlling Defaults

Setup wizard to help new users

Configure JCL Parameters

Configure Defaults for IMS Application Accelerator

Default Settings

- Primary filter
- Process DL/I
- Process DBB
- Process BMP
- Turn off Application Accelerator
- Turn off dynamic screening
- Use Custom I/O for Update Procopts
- Number of monitor runs
- Min DL/I Calls for capturing statistics
- Unit for Temporary Dataset Allocations
- Management class (MGMTCLAS)
- Storage class (STORCLAS)
- Data Class (DATACLAS)

Manage Defaults window

Use the Manage Defaults window to specify default values for the parameters that control how BMC Application Accelerator for IMS operates in your environment and interacts with your applications. The parameters in this window are identical to the parameters on the Configure Defaults page of the Application Accelerator Setup Wizard.

The window displays the following parameters:

- Primary filter
- Process DL/I
- Process DBB
- Turn off Application Accelerator
- Use custom I/O for Update Procopts
- Turn off dynamic screening
- Number of monitor runs
- Minimum DL/I calls for capturing statistics
- Unit for Temporary Data Set Allocations
- Management Class (MGMTCLAS)
AII – Manage Policies

- Jobs are selected based on policies
- The first policy that matches wins

Users control scope with simple policies

<table>
<thead>
<tr>
<th>MVSI</th>
<th>IMSI</th>
<th>PSB Name</th>
<th>PGM Name</th>
<th>JOB Name</th>
<th>Action</th>
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</thead>
<tbody>
<tr>
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<tr>
<td>SYSP</td>
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<td>IBOIBI</td>
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<td>Optimize</td>
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AAI - Recommendations

Jobs are recommended for optimization

Optimize policies can be created from the list
### Summary of Savings

- **Total Optimized Job Steps:** 1,860
- **Total CPU Service Units:** 2,825,977 K
- **Total Elapsed Time in Seconds:** 474,308

### Export Job Step History

![Export job step history](image)

![Summary of savings](image)
AAI- Implementation

- “Set it and forget it”
  - Define the policies and let it run
  - Comes with DBA Toolkit – not required for product operation

- Deployment modes
  - Monitor – will analyze jobs and provide list of jobs for optimization
  - Optimize – will analyze for first 3 (default) runs then optimize
AAI – savings variables

▶ Number of DL/I calls - AAI ignores jobs with low count of calls
  - Less than 1000 calls – No data capture; no optimization
  - Less than 25000 calls – No OSAM sequential buffering recommendation
  - Less than 100,000 calls – No Enhanced I/O recommendation

▶ Type of DL/I calls – Processing options (PROCOPTs)

▶ Database disorganization

▶ Time of day (profile of workload) in environment

▶ LPAR status in environment
AAI – What’s Next

- **September, 2013**
  - Update to V1.0.00 adding support for BMP jobs

- **December, 2013**
  - V1.1.00
  - IMS V13.1 support
  - Enhanced reporting
    - Job history
    - Optimization exceptions

- **2014**
  - Increase scope of AAI BMP support