Session 9397

Getting a New Generation Up to Speed on IMS

Parrinder Terry
Vice President, Bank of America

Nick Griffin
IMS Product Manager, BMC Software
Agenda

• Business challenge
• Meet The Challenge - Bridge The Gap
• Bank of America Decision / Program
• BMC Decision / Program
• Partnering
• Moving Forward
Workers Challenge

- The U.S. Department of Labor estimates that today’s leaner will have **10-14 jobs** ….. by the age of 38.

- **1 out of 4 workers** today is working for a company they have been employed by for **less than one year** … **more than 1 out of 2** are working for a company they have been with for **fewer than 5 years**.

- According to former U.S. Secretary of Education Richard Riley… **the top 10 in-demand jobs in 2010 did not exist in 2004**.

- The amount of new technical information is doubling every 2 years. For students starting a four-year technical or college degree, this means that **half of what they learn in the first year of study will be outdated by their third year of study**.
Business Challenge

- Mainframe & IMS are not dying
  - Fortune 500
  - IMS plays more and more in the Client/Server, Web based world
  - IMS applications growing in both data volume and usage
  - IMS conversion cost very high
    - Services
    - Hardware

- IMS Resource pool a fraction of what it was
  - Graying workforce
    - No middle ground
  - Business model stressing long term growth
  - Lack of readily available new talent
    - Where do we turn to find this?

- Limited university mainframe curricula
  - Even fewer emphasizing assembler
  - No hierarchical DBMS
Meet The Challenge - Bridge The Gap

• Seek new talent
  • Experienced
    • Limited availability
    • Graying
  • Offshore
    • 3rd party
      • Limited availability
    • Within company
      • Experienced
      • Recent college graduate
  • Hire college graduates
Bank of America Program

Recruiting

• IBM Partnership Colleges
  – Some colleges offer mainframe education

• Engineering Schools
  Generation Y (born 1978-1995) is the most technologically-savvy generation to date.

• In-house Recruiting
  Operations / Monitoring
Selection

• HR or Operations Management Recommendation

• Global Workforce Demographics Team Process:
  - Round 1 Telephone Interviews
  - Round 2 Face to Face Interviews
  - Mainframe Boot Camp
  - Candidate Presentations on Mainframe Technology
  - Review with Technology Managers

• Selection by IMS Managers
## Bank of America Program

**First 6 weeks:**

**Mainframe Boot Camp**

Dedicated trainer with assistance from each technical area (storage, capacity, IMS Systems, IMS DBA, etc.)

<table>
<thead>
<tr>
<th>Time Frame</th>
<th>Description</th>
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<tbody>
<tr>
<td>Week 7 to Week 24</td>
<td>Dedicated IMS DBA SME assigned as mentor. Mentor will be available to college hire the entire two years, with a diminished role after week 24</td>
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<tr>
<td>Week 25 – Week 52</td>
<td>Specialized mentor assigned</td>
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<tr>
<td>Week 53 – Week 78</td>
<td>Specialized mentor assigned</td>
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<tr>
<td>Week 79 – Week 104</td>
<td>Specialized mentor assigned</td>
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Bank of America Program

Matching Training with Rotations

Weeks 25 - 52
- IMS Full Function
  - IMS Fundamentals
  - DB Physical Organization
- Infrastructure
  - Learning the environment
  - Mainframe skills
  - Standards, Policies, and Procedures

Weeks 53 - 78
- FastPath
  - DBRC
- IMS DB Development
  - JCL
  - Applications
  - Development life cycle

Weeks 79 - 104
- HALDB
- Production Support
  - Problem resolution
Bank of America Program

Training (Weeks 1-6)

• Mainframe Boot Camp
  – Sponsored and Administered by Global Workforce Demographics Team
  – Two Dedicated Instructors; Assisted by SMEs

• Mainframe Basics
  ISPF/TSO      z/OS      Scheduling
  JCL           VSAM     Change management
  Job monitoring      Job history      mass editing tools

• Lab Work
  Hands-On Labs After Each Topic

• Assessment

• Overall Mainframe Skills and Readiness to Move on to Specialization
IMS Overviews (Weeks 7 and 8)

- IMS DBAs Learn IMS Systems
  - Delivered by IMS Systems SMEs
  - Overview of Functionality
  - Hands-on Labs
  - ‘Sandbox’ Environment

- IMS Systems Learn DBA
  - Delivered by DBA SMEs
  - Building DBDs/PSBs
  - Gens
  - ACB Swap

- Organizational Overview
  - Meet the Managers
Bank of America Program

Soft Skills (for the duration)

- **Communications**
  - Professional Courtesy
  - Email
  - ‘Tone’ When Talking Up the Mgmt Chain or to a Senior Technician

- **Time Management**
  - Managing Multiple Assignments and Due Dates
  - 8/hr day, 5 day/week, 40 hours

- **Prioritization**
  - Understanding the Impacts
## Bank of America Program

### Assessments

**Three Parts:**
- Practical Lab
- IMS DBA Theory
- Bank IMS Environmental Knowledge

<table>
<thead>
<tr>
<th>Assessment 1:</th>
<th>Assessment 2:</th>
<th>Assessment 3:</th>
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</thead>
<tbody>
<tr>
<td>FF Database Source</td>
<td>FP Database Source</td>
<td>HALDB Source</td>
</tr>
<tr>
<td>PSB Source</td>
<td>Recon Source</td>
<td>PSB Source</td>
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<tr>
<td>Dynamic Allocation</td>
<td>Updating PSBs</td>
<td>HALDB Partitioning</td>
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<tr>
<td>HDAM vs HIDAM</td>
<td>FF vs FP</td>
<td>Secondary Indices</td>
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<td>Applications</td>
<td>Change Accum</td>
<td>Utilities</td>
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<td>Sysplex</td>
<td>Tools</td>
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BMC Decision

- Hire new/recent college graduates
  - BS Computer Science
- Identify 1 or 2 universities
  - Mainframe
  - Assembler
- Train in-house
  - Develop plan
  - Locate/source CBTs on IBM environment
  - Develop curricula/courses
- Social aspects
  - Group activities
    - Sports events, gaming plazas …
BMC Program

- 24 month curricula with monthly review points
- Goal - self sufficient assembler product developer
- Program basics:
  - Sent reading material upon job acceptance
  - Assigned a mentor day 1
  - Build monthly progress presentation
  - Small, incremental milestones
BMC Program

• Combination of:
  • Reading
  • CBT
  • In-house developed courses/presentations
  • Technical conferences
  • OJT
    • QA
      • Introduction to products
      • Introduction to BMC environment
      • Introduction to testing methodology
    • Problem support
      • Maintenance developer as mentor
        • Sit in on customer calls
        • Problem recreation
        • Fix testing
        • Small program fixes
BMC Program

- Months 1 – 2: CBTs on IBM environment
- Months 3 – 6: Introduction to IMS, QA
  - QA
    - Learn JCL
    - Function of each product
    - Interact with team
- Months 7 – 10: Assembler in depth, QA
- Months 11 – 24: Maintenance tasks
  - Source management
  - Fix process
- After month 6: In-depth IMS
  - In-house developed
  - Taught by architect – 25+ years IMS
  - Formal setting
  - Group project
- Post 24 months
  - Weekly 1-1 w/technical lead
  - Monthly 1-1 w/manager
    - Work and home life
BMC Program

- In-depth IMS - GOALS
  - Identify the elements and organization of an IMS database system
  - Describe how a database record is processed in hierarchic sequence
  - Understand the differences between Database Description (DBD) and Program Specification Block (PSB) control blocks
  - Compare the requirements and effects of sequential versus direct access of database segments
  - Explain the rationale for using secondary indexes and logical relationships
  - Contrast full-function and Fast Path database organizations
BMC Program

• In-depth IMS - GOALS
  • Describe the Data Language / IMS (DL/I) interface for IMS database access
  • Describe the basic IMS Data Communications functions of the IMS/TM environment
  • Identify the roles of messages, queues, and logical terminal names
  • Explain the different scheduling characteristics of the IMS/TM regions types: Message Processing, Batch Message Processing, and Interactive Fast Path
  • Describe the role of commit points in recovery and restart
  • Identify the functions of dynamic and batch backout, the system log and the benefits of periodically backing up a database
  • Describe the function of Database Recovery Control (DBRC), Integrated Resource Lock Manager (IRLM) for data sharing
  • Three training sessions on topics of choice by the class
BMC – IMS Fundamentals Class Outline

1. Introduction to IMS
   • History of IMS
   • Why use IMS
   • Who uses IMS
   • Introduction to IMS terminology

2. Sequential and Direct access methods
   • HSAM/SHSAM
   • HISAM/SHISAM
   • HDAM
   • HIDAM
   • Intro to logical relationships
   • Intro to secondary indexing

3. More Direct access methods
   • Logical Relationships deeper dive
   • Secondary Indexing deeper dive
   • FastPath DEDB (Data Entry Database)
   • HALDB (High Availability / Large Database)

4. Data Language for IMS (DL/I)
   • PSB deeper dive
   • Get calls
   • ISRT
   • REPL
   • DLET
     • Cascade deletes
   • Key Feedback area
   • Path calls
   • Field level sensitivity
5. IMS Transaction Manager (2 sessions)
   • Address spaces associated with IMS TM
     - CNTL
     - DLS
     - DBRC
     - IRLM
     - OM
     - RM
     - CSL
     - Others based on feature or options
   • Application processing
     - MPR
     - BMP
     - WFI / PSUEDO WFI
     - Etc
   • Resources in the TM
     - Message Queues
     - Logs
     - IMS Definition (Stage 1 gen)
       - Logical Terminals / Nodes
       - Databases / Transactions / Applications
       - Links
   • Units of work
     - Scheduling
     - Common Control Blocks
       - SCD
       - PST
       - DMB / DMAC
       - DDIR / PDIR
     - Start PST
     - Commit / Synch points
     - End PST
     - Dynamic backout
6. DBRC (2 sessions)
   - RECON Data Sets
   - Log Recording
   - Database Sharing
   - RECON Records
     - Control records
     - Log records
     - Change accumulation records
     - DBDS group records
     - Subsystem records
     - Database records
       - Database record (IMS, HALDB, or PARTition)
       - Area authorization record
       - DBDS record (non-Fast Path or Fast Path)
       - Allocation record
       - Image copy record
       - Reorganization record
       - Recovery record

7. IMS Utilities from BMC
   - ADMIN Tools
     - Delta Plex
     - Message Queue Advisor
   - Reorganization Tools
     - MAXM Online – DEFARG / CRF / HFR/ HIU /
     - MAXM Advisor
   - Backup and Recovery Tools
     - Image Copy
     - Change Accumulation
     - Recovery plus
     - Recovery Manager
   - Monitoring Tools
     - MainView for IMS
   - Log Analyzer for IMS
BMC – IMS Fundamentals Class Outline

8. Shared work assignment
9. Class Topic 1 – IPCS workshop (2 sessions)
10. Class Topic 2 – Using XDC to debug your code
11. Class Topic 3 - 64 bit assembly language exercise
BMC Program – Lessons Learned

• Learning experience for management
  • Let individual drive pace of training
  • How do we motivate and retain
  • How do we not overwhelm
    • Little bits
    • Spoon feeding

• How do we impart business perspective
  • No prior industry experience
Partnering

- Partner with Bank of America
  - Information exchange built and driven by new hires
    - BMC presents to bank product feature, function, use
      - Learning how to present
    - BofA presents to BMC how product is used
      - Learn the business perspective
  
- Future:
  - BMC
    - Continue to present products feature/use
  - Bank of America
    - Continue to present how used
    - Present banking applications/environment
  - Possible rotational assignments
Moving Forward

• Motivation
  • Assignments
  • Career path
  • Recognition
• Retention
  • Salary
  • Work life
  • Recognition
  • Equity
Generational Differences

• **Baby Boomers**
  • Value respect, empowerment, challenge and growth
  • Prefer work environments that allow them to focus on results-driven goals
  • Prefer job stability and security
  • Self-starters that like to be consulted on decisions and allowed free rein to get the job done

• **Gen Y**
  • High expectations of personal and financial success
  • Prefer challenging, meaningful work that impacts their world
  • Do not like being treated as the new kid
  • Need immediate feedback and payoff
  • Little loyalty to an employer; not intimidated by authority
From Baby Boomers to the Next Generation

Corporate Need-To Know

- Management Structure
- Organizational Hierarchy
- Promotion Paths (crucial to Gen Y)

Corporate Need-To Explain

- Corporate Re-Organizations
- Change in Managers
- Business-Driven Changes in Direction
Make Them Stars

Video can be found on: www.YouTube.com

DBUtube: How to Simplify IMS Database Management
That’s All Folks

QUESTIONS?

Bank of America

bmc software
BUSINESS RUNS ON I.T.