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Session 8571

Getting a New Generation Up to Speed on IMS

Deb Watson
Vice President, Bank of America

Ed Breaux
Product Line Manager, BMC Software

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BUSINESS RUNS ON I.T.

Bank of America

SHARE in Anaheim 2011

Agenda

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

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

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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

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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

Bank of America Program

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.)
Week 7 to Week 24	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
Week 25 – Week 52 Week 53 – Week 78 Week 79 – Week 104	Specialized mentor assigned Specialized mentor assigned Specialized mentor assigned

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

Bank of America Program

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

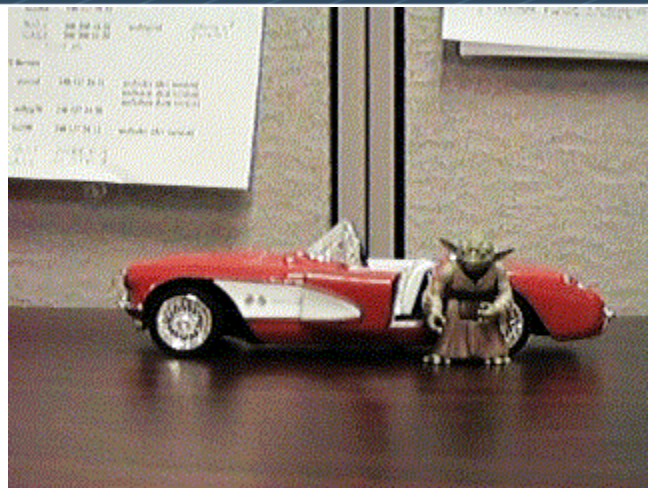
Three Parts:

- Practical Lab
- IMS DBA Theory
- Bank IMS Environmental Knowledge

Assessment 1:	Assessment 2:	Assessment 3:
FF Database Source	FP Database Source	HALDB Source
PSB Source	Recon Source	PSB Source
Dynamic Allocation	Updating PSBs	HALDB Partitioning
HDAM vs HIDAM	FF vs FP	Secondary Indices
Applications	Change Accum	Utilities
Sysplex	Tools	

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 …



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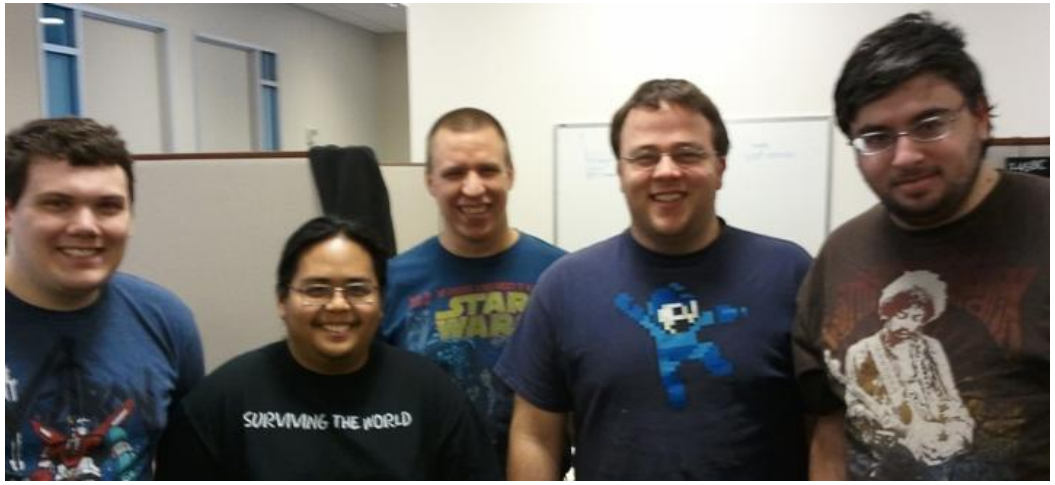
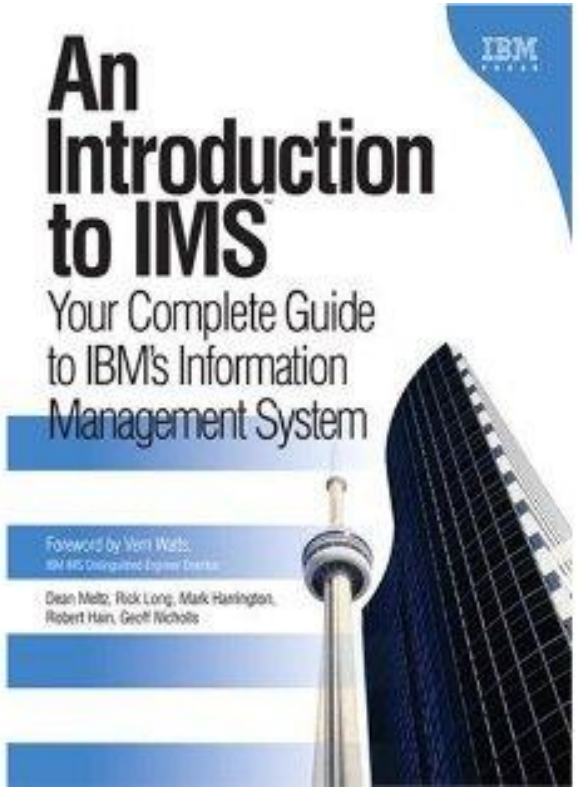
BMC Program

- 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





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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*

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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

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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

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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

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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

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BMC – IMS Fundamentals Class Outline

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*

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BMC – IMS Fundamentals Class Outline

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

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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

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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

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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

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Moving Forward

- Motivation
  - Assignments
  - Career path
  - Recognition
- Retention
  - Salary
  - Work life
  - Recognition
  - Equity

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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

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That's All Folks

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QUESTIONS ?

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