

Retaining Data Center Skills and Knowledge

By Greg Hamlyn

In the first two parts of this **four part series** we looked at the data center skills shortage hype and some of the methods that can be used to ensure that valuable technical and procedural knowledge are retained by the organization. If you missed these earlier installments, click the links below.

[Part 1 – The Data Center Skills Crisis.](#)

[Part 2 – How Can I Prevent Skills Loss In My Data Center?](#)

In this issue we will look at some of the barriers you may encounter when attempting to implement a coaching or mentoring program in your data center and provide you with ideas on how they can be counteracted.

Part Three – Barriers to Implementing a Coaching or Mentoring Program

If you think that your data center can benefit from implementing a coaching or mentoring program, where do you start? Certainly if you have been in the workforce long enough you will already know that you are likely to encounter issues that threaten the success of such a program. Some of these barriers to implementation will emanate from attempting to convince management of such a program's benefits, while there are others at the individual level that can threaten to derail the entire project.

So, let's look at some of these barriers, and how you can address them when, or if, they occur.

Funding

If your organization doesn't already have a coaching or mentoring program in place then it is going to be tough work to not only obtain funding to kick it off, but to also maintain ongoing dollars once it is in place.

Your best bet may be to talk the data center manager into running a pilot program and select an area that is likely to have a high success rate. This might be an experienced systems programmer who is due to retire in the next six months who has a wealth of knowledge of systems tuning and performance.

In the next installment of this article, you will see how to outline this in a proposal to your data center manager.

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Lack of Support

This can occur at many levels within your program. At the higher level, management need to openly support the program (not necessarily having anything to do with running it) and openly promote the benefits to staff, the data center and the organization overall. Many projects that I have been involved with tend to lose focus over time and have key personnel move out of areas associated with the project. Every project needs a driver and this could be your role to manage a whole range of issues to ensure positive messages and results are filtered through to everyone involved. More on this in our next installment.

On an individual level, all those involved in the coaching and mentoring process also need appropriate support. I'm sure you will hear comments such as: "I don't know how to coach, I'm a manager", "I just don't connect with my coach", or "I'm not sure I'm getting anything out of our coaching sessions". You will need to insure that appropriate support and training is provided and clearly identify this in your project proposal. You may find that support in the form of an external consultant is beneficial as this person will have the experience in implementing such programs and will not be caught up with internal politics or time constraints.

Time

We all know that there is never enough time in a working day and items that always tend to suffer are associated with learning as they are not directly associated with the more tangible facets of your job. As part of your program's objectives, importance needs to be assigned to coaching and mentoring sessions (from the management level) and the results from the project need to be tabled in management and team meetings.

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Too Difficult to Implement

If something looks too hard then the easy way out is to not try to do it at all! While implementing a coaching or mentoring program may not be for everyone, every data center should at least look at the benefits they could obtain from such a program and weigh it up against the cons. As I mentioned earlier, it is probably a good idea to hire an external consultant that can look at your current learning and knowledge transfer requirements and explain what you would be likely to gain from such a program. Chances are they will be able to provide you with return on investment criteria that can be used to promote your program. This person will also be able to assist you with pulling together your procedures, coaching training program and promotion of the program to everyone involved.

When looking at a more individual level, some of these types of barriers could occur:

Personality Issues

Let's face it, there are going to be people in your organization that you will never be on the same wavelength as. If a poor matching of coaches to their protégé's occurs, then personality issues can certainly prevent the overall program from being successful. For example, a senior operator who has been paired with two junior operators may always find a more important reason not to attend coaching sessions. This immediately sends the signal to the protégés that they are not that important, and resentment can occur.

People are comfortable when dealing with someone they trust and can communicate freely with so making the right

pairings is imperative and should be a process that all individuals are involved with.

Unfulfilled Expectations

Everyone involved in the program needs to have clear expectations on the outcomes from the coaching and mentoring program, and not look at it as a panacea that will solve all their learning related problems. It needs to be positioned as another tool that can be used to insure that the area has sufficient people with the skills and knowledge to run the data center now, and in the future.

These are just some of the issues you may need to deal with, some of which may be easily resolved with proper planning.

If you have run or are currently running coaching or mentoring within your data center, then check out our [blogs](#) relating to this topic.

In the last installment of this article we will look at the steps used to implement a successful coaching or mentoring program in your data center, how to maintain its momentum and measure its success.



Greg Hamlyn, a senior technical course designer and developer with Interskill, has over 25 years of experience working in the mainframe and z/OS data center environments. He has presented at AFCOM and has written a number of articles relating to training methods and trends and everything that is z/OS. You can contact him at g.hamlyn@au.interskill.com

Interskill Learning Releases – July 2011

The latest Interskill 11.2 Release contained the following courses:

- The complete z/OS Series updated to V1.12
- The z/OS Console Simulators Series updated to V1.12
- The Assembler z/OS Advanced and Assembler Cross Memory Services courses complete the z/OS Assembler Language Series updated to V1.11
- The z/OS Operations Assessment Series updated to V1.12
- The IBM z/OS Systems Programmer Mastery Test Learning Plan 1.12 has updated all of its courses to the latest V1.12 releases
- Introduction to WebSphere MQ is a new introductory course that will form part of the WebSphere Curriculum
- The DB2 Stored Procedures course has been added to the DB2 – Database Management System Series at V10
- The Mainframe Presenter Series is a new product that integrates stand-alone PowerPoint presentation templates and Webinar frameworks with Interskill Learning course modules to enable you to more easily conduct in-house training and share your site-specific knowledge

Vendor Briefs

IBM has been quite busy in the last few months releasing a smaller version of the zEnterprise system and updating their tape and disk storage offerings. For those interested in pursuing a new job, there is something there for you also. CA and BMC have not been resting either, both producing suites of products to complement their long-term strategic solutions.

IBM

zEnterprise - IBM has continued to expand on their zEnterprise offerings. For mid-sized computing organizations, IBM has release their zEnterprise 114, which is the smaller relative to their flagship zEnterprise system released last year. The purchase price is sure to interest those companies that can foresee growth in areas where processing speed and system availability in their hybrid environment is a “must”.

Since the release of the zEnterprise, IBM has hinted at providing support for Windows and a recent statement of general direction confirms this: *“In the fourth quarter of 2011, IBM intends to offer select IBM System x blades running Microsoft Windows in the IBM zEnterprise BladeCenter Extension Model 002”*.

Storage - IBM has recently announced a number of new tape storage offerings and solutions. This includes an attachment to their TS3500 tape library that can transport tapes between a maximum of 15 tape libraries, a new TS1140 tape drive, which is capable of storing two million times more data than the first ever tape drive, as well as enhancements to Scale Out Network Attached Storage (SONAS) and improvements related to data archiving and de-duplication. On the disk storage front, IBM has announced the third generation of its XIV Storage System, which it promotes as being able to quadruple throughput.

Jobs– IBM have been working with JobTarget and released an online jobs board dedicated to data center professionals and employers: www.systemzjobs.com. The site is aimed at both the new graduate and experienced IT professional, and after registering you are able to view and apply for jobs (at the time of writing this article there were over 1600 jobs posted).

CA

CA Technologies Mainframe 2.0 strategy is all about providing innovation, cost saving, simplifying management and increasing business flexibility. CA Technologies latest products to be integrated into this strategy include; DB2 for z/OS management tools, CA IDMS, CA Endeavor Software Change Management, CA Mainframe Software Manager, CA SYSVIEW Performance Management and 84 new additions to the Mainframe 2.0-enabled Mainframe Software Stack.

BMC

BMC has recently announced the availability of a suite of application performance management products aimed at simplifying the management of applications within diverse enterprise environments. Core offerings with this solution include; BMC End User Experience Management and BMC ProactiveNet Performance Management, while there are a number of support offerings including BMC Middleware Management –Transaction Monitoring, and BMC Application Problem Resolution capabilities.



Tech-Head Knowledge Test

With every release of this newsletter a mini online test will be provided with a product that you are likely to be using in the workplace. You may want to challenge your work colleagues or just want to confirm your own knowledge!

The test for this newsletter focuses on the new zEnterprise system and consists of 15 questions. Click the link below to start.

[zEnterprise Concepts and Architecture](#)

Data Center Hot Topics



By Greg Hamlyn

I'm fresh from attending IBM's latest System z and System Storage Technical Symposium, where it was good to catch up with like-minded people, grab a free T-shirt and cap and listen to accomplished IBM experts talk about where the mainframe and various components are headed. If you are interested in a prolonged career within the mainframe arena then the items I have reported on below are a good place to hone up your skills and knowledge.

zEnterprise

With the zEnterprise housing both mainframe and distributed hardware, Glenn Anderson entertained us from a mainframe perspective with his stories on uncovering what blades were and how many systems professionals will need to broaden their skills and knowledge with a number of previously foreign platforms using this medium.

The more technical zEnterprise sessions gave me a terrific insight into IBM's vision and how they plan to encapsulate the majority of a data center's processing requirements in a much smaller footprint with their z196 and zBX offerings...something that everyone should check out, before it comes to a theater near you. Senior operators and systems programmers will be required to update their skills in managing this new system. Luckily, for those already using the Hardware Management Console (HMC), this is just an extension of this product, although old school personnel will need to update their skills to the GUI interface.

In closing sessions, a number of statements of direction in regards to support and equipment to be housed in the zEnterprise made it clear that there is no turning back and that data center staff will need to be better rounded in regards to their hardware and software skills and knowledge.

z/OSMF

If you are looking to stay in the systems programming field for a while longer, then z/OSMF is another product you will need to become friendly with. I attended an excellent hands-on lab with Marna Walle that showed you how easily you could display system performance metrics, view incidents that had occurred on a system and drill down for more comprehensive system information. Wizards are integrated into this product, and along with the GUI interface, makes life that little bit easier by automating tasks such as: capturing and forwarding diagnostic information and managing workload service definitions.

Watch out for z/OSMF's software deployment application being shipped with z/OS 1.13. This will greatly simplify the implementation and management of your system software.

Disaster Recovery

After a year where natural disasters are more commonplace than not, it was interesting to attend a session by George Kozarkos and listen about GDPS Active/Active, which is a continuous availability solution that supports tier 8 Business Continuity for data recovery.

While many data centers may be using a failover site for their disaster recovery, this model moves to one of near continuous availability, where multiple sites can be separated by unlimited distances, running the same applications and data whilst providing cross-site workload balancing. If disaster recovery is an area you are involved in, then take a look at this solution in more detail on IBM's website.

Let us know what topics you have found interesting from trade shows or symposiums you have attended by logging onto our [blog](#) site. It may provide you with some information to convince your boss that you should attend one of them!



Greg Hamlyn, a senior technical course designer and developer with Interskill, has over 25 years of experience working in the mainframe and z/OS data center environments, having performed in numerous operational roles ranging from computer operator to national mainframe technical training manager for a large Government agency. He has presented at AFCOM and has written a number of articles relating to training methods and trends and everything that is z/OS. You can contact him at g.hamlyn@au.interskill.com

Improving Your Training Skills and Knowledge Retention

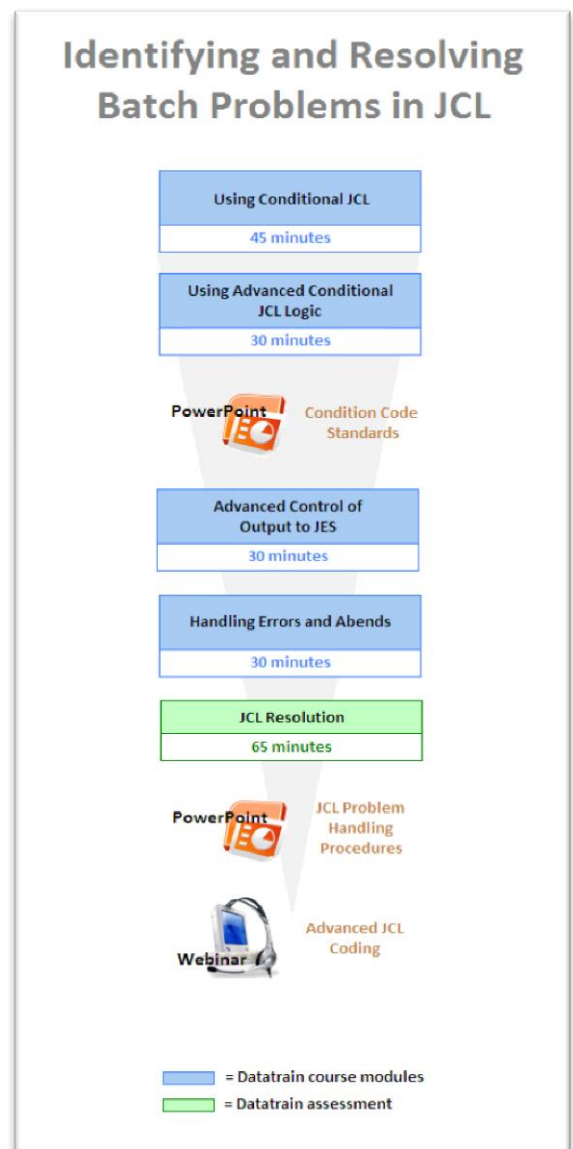
MAINFRAME PRESENTER SERIES

Every organization is looking for opportunities to improve the way they do things. When it comes to training, advancements in IT technology can help improve the retention of vital skills and knowledge by integrating customized content such as internal standards and procedures with instructions on generic product operation.

Interskill's new [Mainframe Presenter Series](#) is such a product, providing your organization with stand-alone PowerPoint presentation templates and Webinar frameworks that can integrate your organization's method of operation with up-to-date product e-learning. Wrapped around this is a learning path graphic that provides the learner with a quick glimpse of the training they have completed, and the learning initiatives that lay ahead of them.

In the example shown here, your organization would follow instructions for content to be provided in PowerPoint presentations. This could include information such as JCL coding standards, program and procedure location, job submission rules or non-technical data such as the process taken when JCL problems occur. The Webinar component provides your own product expert with details on how they can run a Webinar. It includes examples which can be used to create real organizational specific exercises and assess how students are progressing. All this wrapped around traditional e-learning and assessment!

Contact [Interskill Learning](#) for more details on this exciting training initiative.



Learning Spotlight – WebSphere MQ

In this edition of the Learning Spotlight we focus on WebSphere MQ. This product has evolved from MQM and later MQSeries, to be now known affectionately by most data center professionals today as just MQ, and delivers one of the most important services in today's distributed data center environment; messaging. WebSphere MQ provides your organization with a messaging backbone that assures delivery of data to and from disparate applications.

Understanding how WebSphere MQ works is important as it is utilized by application programmers, monitored by operators, and managed by system programmers. For those people new to the data center environment we are providing access to our [WebSphere MQ Fundamentals](#) module, which describes how WebSphere MQ is used, its use of queues and data integrity. We hope you enjoy it.



COMPETITION:

Do you have a great idea for a useful smart phone app for the Mainframe environment?

If you do, why not convert it to a new iPad?!

Interskill Learning is running a competition for just that!

Simply [click here](#) to submit your online entry form, or send your full name, contact details, company name and e-mail address, along with your App idea, to competition@interskill.com

Entries must be submitted by 5pm on October 30, 2011 (AEST time), and the winner, as judged by our Interskill Learning staff, will receive a brand new iPad!



Before submitting your entry, please read our [Competition Entry Terms and Conditions](#).

TECHNICAL:**How to Get System Information Without Being a Systems Programmer**

By David Stephens, Lead Systems Programmer at Longpela Expertise

How do you find out the z/OS version? Or the processor model and size, or the Sysplex or z/OS image name? Systems Programmers have a range of tools to find out this information. But if you're not a Systems Programmer, what can you do?

Almost every time I logon to a new z/OS system, I need to get information about the mainframe processor and system, basic information such as the mainframe model number and capacity, if it is running JES2 or JES3, and systems software versions. It sounds easy to get, but unless you have access to Systems Programmer tools, it can be difficult and time consuming. It's usually easier just to ring up the local Systems Programmer and ask. But there are other ways, and we'll look at them in this article.

USS Telnet

For those logging in via a UNIX Systems Service Telnet client (or the TSO/E OMVS command), there's limited information to be gleaned. The home switch of the netstat command shows the TCP/IP home addresses. Netstat can also be called from TSO/E (NETSTAT HOME), and from the z/OS Console (D TCPIP, , NETSTAT, HOME)

```
M: >netstat -h
MVS TCP/IP NETSTAT CS V1R11          TCPIP Name: TCPIP          22:27:43
Home address list:
Address          Link          Flg
-----          ----          ---
172.29.122.55   OSDL          P
127.0.0.1       LOOPBACK
```

Figure 1: USS netstat -h Output

The sysvar command will display static z/OS symbols. There are two handy standard symbols: SYSNAME (the z/OS system name) and SYSPLEX (the name of the parallel sysplex which this z/OS belongs to).

```
: >sysvar SYSNAME
MVS1
: >sysvar SYSPLEX
SYSPLEX1
: >
```

Figure 2: USS Telnet sysvar Output for SYSNAME and SYSPLEX

Those willing to get into a C program have more options. z/OS provides functions to:

- Get the CPU ID (`__get_cpuid()`)
- Get the z/OS name, version and hardware model (`__osname()` or `uname()`)

z/OS Console Commands

For those with z/OS console access, there are some basic z/OS commands that can get a lot of information. The IPLINFO display command shows the z/OS release (1.11), and when the system was last IPLed (31-Jan-2011).

```
D IPLINFO
IEE254I 22.13.14 IPLINFO DISPLAY 565
```

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```

SYSTEM IPLD AT 16.05.31 ON 01/30/2011
RELEASE z/OS 01.11.00    LICENSE = z/OS
USED LOADW1 IN SYS1.IPLPARM ON 0CF3
ARCHLVL = 2    MTLSHARE = N
IEASYM LIST = (W1,SV,VN)
IEASYS LIST = (00,LV,SV,VN) (OP)
IODF DEVICE: ORIGINAL(0CF3) CURRENT(0CF3)

IPL DEVICE: ORIGINAL(1000) CURRENT(1000) VOLUME(DISK01)

```

Figure 3: Console D IPLINFO Output

The D M=CPU command displays information about each processor.

```

D M=CPU
IEE174I 22.25.31 DISPLAY M 592
PROCESSOR STATUS
ID CPU                SERIAL
00 +                  01AD112094

CPC ND = 002094.S28.IBM.02.00000004AD11
CPC SI = 2094.722.IBM.02.000000000004AD11
        Model: S28
CPC ID = 00

+ ONLINE    - OFFLINE    . DOES NOT EXIST    W WLM-MANAGED
N NOT AVAILABLE
CPC ND  CENTRAL PROCESSING COMPLEX NODE DESCRIPTOR
CPC SI  SYSTEM INFORMATION FROM STSI INSTRUCTION
CPC ID  CENTRAL PROCESSING COMPLEX IDENTIFIER

```

Figure 4: Console D M=CPU Output

Hidden in this output is the model number: in this case 2094-722 (a System z9 EC). The following table shows processor models, and what they mean.

Table 1: Mainframe Model IDs and Numbers

```

2064-xxx = z Series 900
2066-xxx = z Series 800
2084-xxx = z Series 990
2086-xxx = z Series 890
2094-xxx = System z9 EC
2096-xxx = System z9 BC
2097-xxx = System z10 EC
2098-xxx = System z10 BC
2817-xxx = zEnterprise 196

```

The D PROD,REG command displays registered products. This shows the version of z/OS (1.11), and we are running JES2 (1.11) and RACF.

```

D PROD,REG
IFA111I 22.34.13 PROD DISPLAY 619

```

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S OWNER	NAME	FEATURE	VERSION	ID
E IBM CORP	z/OS	z/OS	01.11.00	5694-A01
N IBM CORP	z/OS	JES2	01.11.00	5694-A01
N IBM CORP	z/OS	RACF	**.*.*.*	5694-A01
E IBM CORP	z/OS	RMF	**.*.*.*	5694-A01
E IBM CORP	z/OS	Security Server	**.*.*.*	5694-A01
E IBM CORP	z/OS	SDSF	**.*.*.*	5694-A01
E IBM CORP	z/OS	TCP/IP BASE	**.*.*.*	5694-A01

Figure 5: Console D PROD,REG Output

D XCF can show details about all systems in the parallel sysplex, including ours.

```
D XCF,S,ALL
IXC335I 23.03.49 DISPLAY XCF 636
SYSPLEX SYSPLEX1
SYSTEM TYPE SERIAL LPAR STATUS TIME SYSTEM STATUS
MVS1 2094 AD15 N/A 02/01/2011 23:03:49 ACTIVE TM=SIMETR

SYSTEM STATUS DETECTION PARTITIONING PROTOCOL CONNECTION EXCEPTIONS:
OPERATING AS VM GUEST
```

Figure 6: Console D XCF Output

We can see that we are running as a z/VM guest on a 2094 processor. Our system name is MVS1, and there are no other systems in this sysplex.

ISPF

The IBM supplied ISPF front panel quickly shows the z/OS system name:

```
Menu Utilities Compilers Options Status Help
-----
ISPF Primary Option Menu

Option ==>
0 Settings Terminal and user parameters More: +
1 View Display source data or listings User ID . : DAVIDS
2 Edit Create or change source data Time . . . : 22:08
3 Utilities Perform utility functions Terminal. : 3278
4 Foreground Interactive language processing Screen. . : 1
5 Batch Submit job for language processing Language. : ENGLISH
6 Command Enter TSO or workstation commands Appl ID . : ISR
7 Dialog Test Perform dialog testing TSO logon : DBPROC9G
8 LM Facility Library administrator functions TSO prefix: DAVIDS
9 IBM Products IBM program development products System ID : MVS1
10 SCLM SW Configuration Library Manager MVS acct. : FB3
11 workplace ISPF Object/Action workplace Release . : ISPF 6.1
```

Figure 7: IBM Supplied ISPF Front Panel

Unfortunately, the ISPF version number is shown rather than the z/OS release. The following table shows how this relates to the z/OS version.

Table 2: ISPF Release and Corresponding z/OS Version

ISPF Release	z/OS Version
6.1	1.11, 1.12
6.0	1.10
5.9	1.9

RACF DSMON

Users with access to the RACF DSMON reporting utility can quickly get basic system information from the System Report that is always produced when using DSMON:

```
          S Y S T E M       R E P O R T
CPU-ID                116622
CPU MODEL                2094
OPERATING SYSTEM/LEVEL  z/OS 1.10.0 HBB7750
SYSTEM RESIDENCE VOLUME VOL001
SMF-ID                  MVS1
RACF FMID HRF7705 IS ACTIVE
```

Figure 8: RACF DSMON System Report

The SMF-ID is the name of the z/OS image, which is MVS1 in this case.

Other Options

The bottom line is that there aren't many options to get basic processor and system information if you are not a Systems Programmer. Because of these difficulties, other solutions have been developed:

- The [lpinfo REXX](#) in Longpela Expertise's [Tools and Samples](#) section is a simple REXX script to display basic information. Any TSO/E user can use this script: simply load it into a dataset and call it from TSO/E using the exec command (e.g. EXEC 'MY.DATASET(LPINFO)')
- A more comprehensive REXX script has been created by Mark Zelden.
- TASID is a free ISPF utility to show a wealth of z/OS information. It is available free from the IBM website, but must be installed by the Systems Programmer.
- SHOWMVS is a famous program by Gilbert St Flour, and can be downloaded free from the [CBT website](#). Although it provides more information when installed by a Systems Programmer, users without administrator access can run this program to get basic information.
- For those willing to get their hands dirty, z/OS Control blocks have a lot of information. The [Control Blocks for Beginners Part 2](#) article has examples in most high level languages.

David Stephens

Source: Longpela Expertise, *LongEx Mainframe Quarterly – February 2011*, Retrieved from <http://www.longpelaexpertise.com.au/ezine/InfoFromzOS.php>

In the next edition of Interskill Learning Mainframe Quarterly:

Retaining Data Centre Skills and Shortage – Part Four

Learning Spotlight – IBM Power Series – IBM i – We look at IBM Power Series – IBM i and provide you with access to our new modules.

Vendor Briefs – What new products and features have the major mainframe vendors, IBM, CA and BMC, on offer for Q4 2011?

Cloud Computing – Part One – The first article of a three part series that discusses what cloud computing is and isn't, and how it is being embraced.

Tech-Head Knowledge Test – TSO/ISPF for z/OS – Interpreting problems associated with ISPF.

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