What Does a Mainframe Consultant Do?

A Look Inside the Life of a Mainframe Consultant

Long *pela*

Marist Enterprise Computing Conference

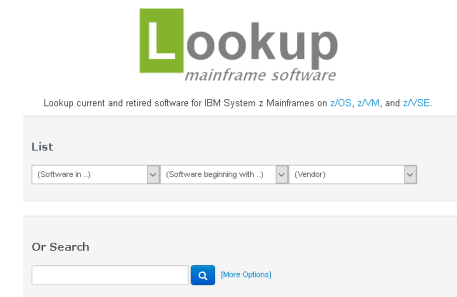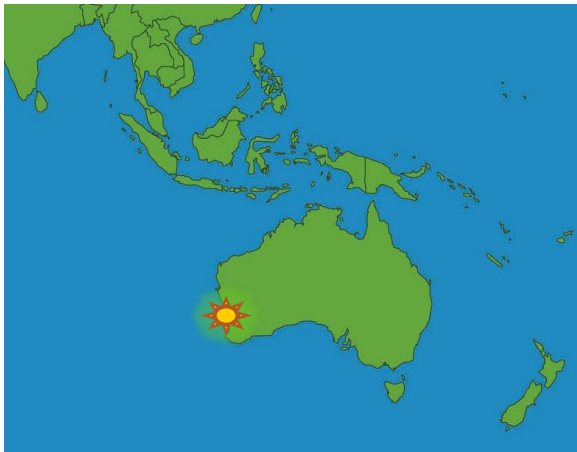Poughkeepsie, New York

Jun-2016

David Stephens

Lead Systems Programmer

Longpela Expertise

www.longpelaexpertise.com.au

Longpela Expertise

- Small z/OS consulting firm based in Perth, Western Australia
- Systems consultants: z/OS, CICS, IMS and more
- Started in 1996
- Behind www.lookupmainframesoftware.com , and the book "*What On Earth is a Mainframe*".
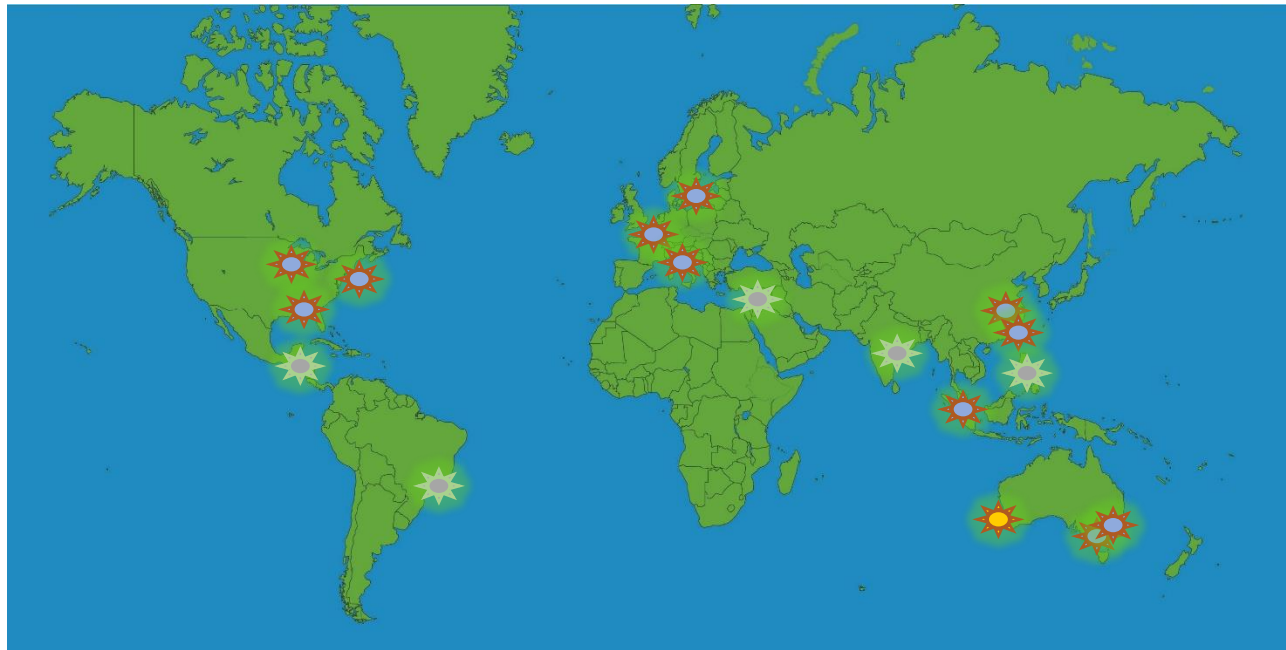
Who Hires Us?

- Most work from larger consulting companies and mainframe services providers
- These companies 'on-sell' us to their clients.
- Have also helped training providers, software companies, and directly to some mainframe clients
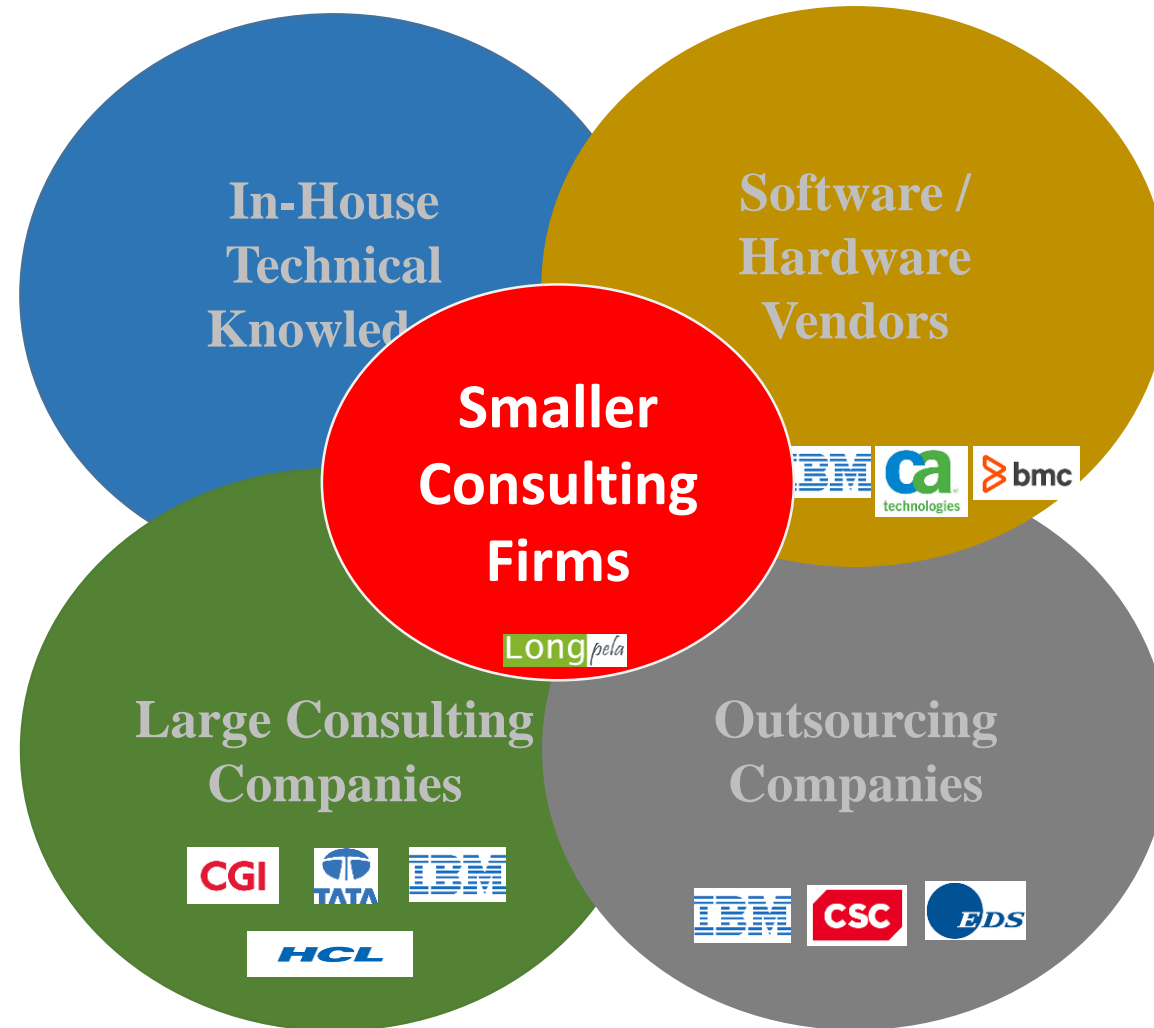
Where Do We Work?

All over the world
- Onsite – at client premises
- Remote – remote access to client systems

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Where To Find Mainframe Technical Skills
(and how we fit in)

Why Do They Hire Us?

- Don't have the in-house technical skills, experience, knowledge

- Don't have time

- Technical options are too slow

- Technical options are too expensive

- An independent resource or opinion

- Must be done by an external group (security)

Why Do They *Really* Hire Us?

$ Save Money

$ Make Money (use us to provide services or products)

⚡ Have a Problem

? Need to Know If There Is a Problem

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Why Do They *Really* Hire Us – Example 1

Reduce my CPU

- CPU costs money: hardware, software licensing, outsourcing charges.
- Work with client technical teams (or outsourcing provider)
- Example: one CPU reduction idea saved our client $140,000 per year

- Our most popular offering.
- Over 12 such projects in last 6 years
- Member of small (2-3 person) team with CPT Global
- From 1 week to 9 months

We will present at Share Atlanta this year on saving CPU

Why Do They *Really* Hire Us – Example 1

$ **Reduce my CPU**

We submit ideas, estimate savings, help the client to implement, and measure the results.
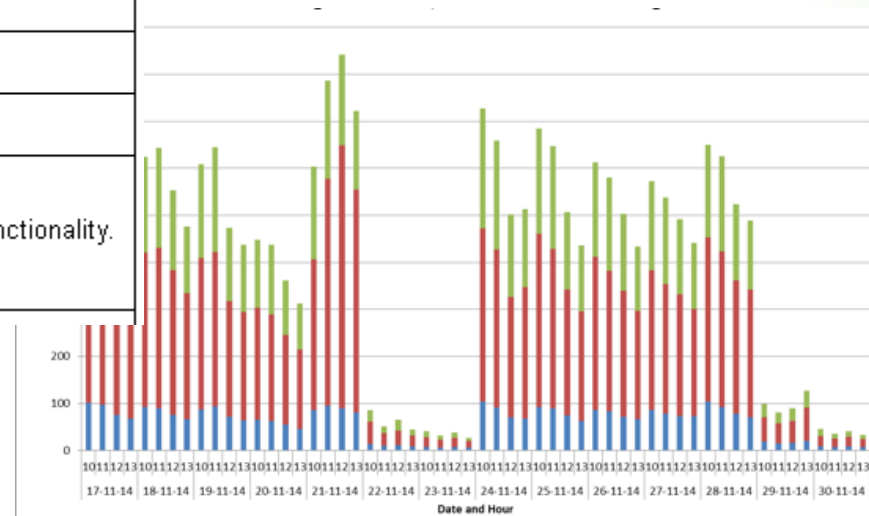
Mainframe Opportunity Documentation

Opportunity	#0179
Description	JES2 Checkpoint Parameters
Expected savings	6 MSU

Opportunity Summary

JES2 Checkpoint parameters can be modified to reduce JES2 CPU usage without impacting JES2 functionality.

Recommended actions

Modify the following JES2 MASDEF sub-parameters in the JES2 initialization parameters:

- HOLD=50
- DORMANCY=(100,1000)

Why Do They *Really* Hire Us – Example 2

Software Review

- For most sites, software licensing is the biggest cost
  (in some cases, millions of dollars per year)
- Some sites have been running software products for decades.
- Which products are still needed? Are there duplicates?
- Which products are still used? Who uses them?
- What alternatives are there? How easy is it to switch?

Example: one client had 175 products running on 20 systems.

Why Do They *Really* Hire Us – Example 2

Software Review

We analyze software installed and its usage. We produce a spreadsheet summarizing the software, how often it is used, if it could be removed, and alternatives. Then discuss options with client.
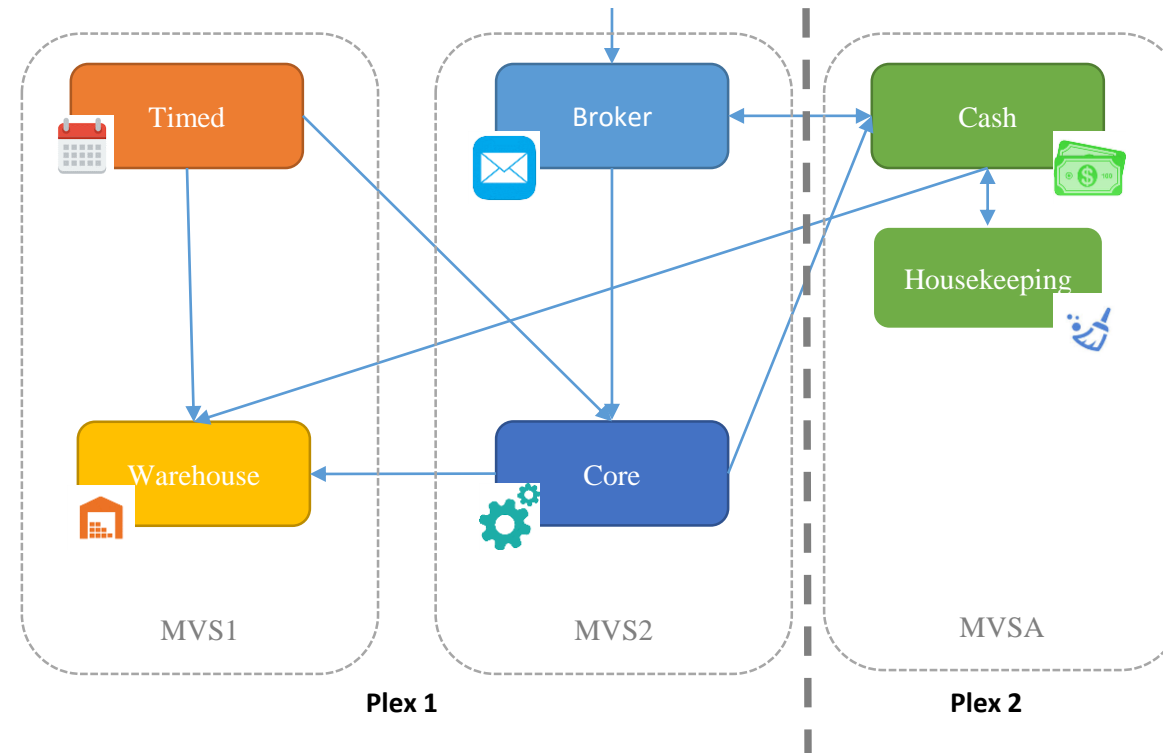
Vendor	Product	Function	Similar Software	Notes
Compuware	File-Aid for IMS	Online browse, edit and management of IMS databases	ASG SmartFile IBM FileManager Macro4 InSync Serena StarTool FDM	
Compuware	Strobe	Analyze application performance	Macro4 FreezeFrame IBM APA CA MAT	Duplication of IBM APA
IBM	Application Performance Analyzer	Analyze application performance	Macro4 FreezeFrame Compuware Strobe CA MAT	Duplication of Compuware Strobe
IBM	XL C/C++	C/C++ compiler	Dignus System/C	No C/C++ code found
IBM	CICS Transaction Server	Core CICS product		

Why Do They *Really* Hire Us – Example 3

? Can My Application Double its Load?

CPT Global

- Loosely coupled CICS / VSAM / DB2 / MQ application
- Workload to double in next 12 months

Timed

Broker

Cash

Housekeeping

Warehouse

Core

MVS1

MVS2

MVSA

Plex 1

Plex 2

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Why Do They *Really* Hire Us – Example 3

? **Can My Application System Double its Load?**

- Hired to analyze performance to see if system can handle additional load
- Analyzed each individual CICS region, and supporting infrastructure (Websphere MQ, z/OS, DASD etc).
- Identified potential problems
- Recommended solutions
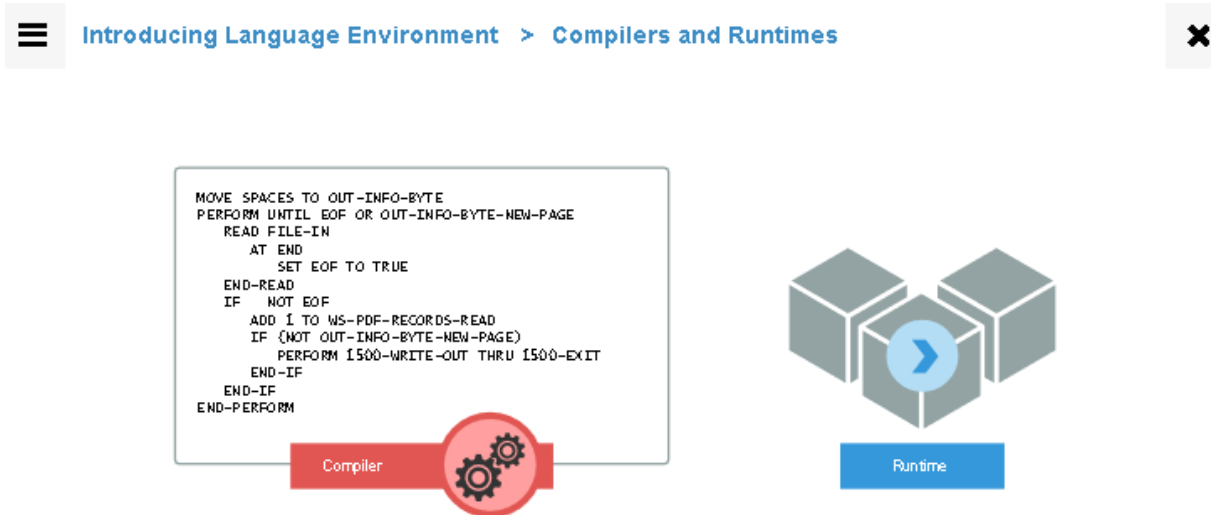- Assisted client to implement solutions, and confirm results.

An example of tuning – could be making online transactions faster, reducing elapsed time of batch jobs

Why Do They *Really* Hire Us – Example 4

$ **Mainframe Course Development**

- Interskill Learning offer online mainframe courses
- We help Interskill develop and maintain these courses

Introducing Language Environment > Compilers and Runtimes

```
MOVE SPACES TO OUT-INFO-BYTE
PERFORM UNTIL EOF OR OUT-INFO-BYTE-NEW-PAGE
    READ FILE-IN
        AT END
            SET EOF TO TRUE
    END-READ
    IF   NOT EOF
        ADD 1 TO WS-PDF-RECORDS-READ
        IF (NOT OUT-INFO-BYTE-NEW-PAGE)
            PERFORM 1500-WRITE-OUT THRU 1500-EXIT
        END-IF
    END-IF
END-PERFORM
```

Compiler

Runtime

Compiled languages such as COBOL, C, and PL/1 need two components. The compiler, which is a program to create executable code from the source, and the runtime, which is a set of modules used by the program during execution.

Why Do They *Really* Hire Us – Example 5

? Teach Me About Systems Assembler Programming

- India-based assembler programmers needed training on z/OS systems-assembler.
- Topics included error recovery, SVCs, cross-memory programming and more.
- Performed remotely from Perth, Australia.

Longpela Expertise Mainframe Training

Longpela
Longpela Expertise
Mainframe Consultants

Student A Assignment 8

Assignment Due: Monday Nov 23, 2016.

Part 1:
Modify your program from assignment 2 (DDDSN01) to accept as a parameter a started task or jobname. This program will write to a sequential file the DDName and filenames of all datasets allocated by the started task or job passed as a parameter.

Part 2 (Only if you have time):
Create a PC routine that WTOs the values passed to it.

Create a program to run in batch that sets up this PC to be call program. The program should then wait forever (at this stage,

Create a third program to run in batch that calls this PC.

So What Do We Do When We're Hired?

We're consultants – we'll do almost anything for money

Programming – Assembler, COBOL, C, REXX, PL/1, SAS. Small projects, analysis.

Look for problems – health checks, system reviews ..

Fix problems – dump analysis, traces..

Analyze capacity and performance - z/OS, DASD, CICS, applications ..

Advise on mainframe topics, environment, planning, market

Manage projects

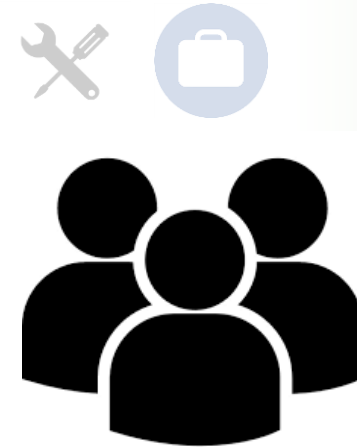**Teach**

Our Challenges

Technical

- Need exceptional technical skills that clients need.

- No-one knows everything - often need to 'speed-up' or technical topics - fast.

- Need to understand client's site - fast

- Need to adapt to work with available tools

  (e.g. Compuware Strobe vs Macro4 FreezeFrame vs IBM APA)

Our Challenges

Social

- Must work with client technical staff and other vendors
  - Always need in-house knowledge
  - Client or their representatives will implement any recommendation – need to be convinced.
  - In-house technical staff often wary or distrustful of consultants.

- Need to communicate with client - meetings, reports, emails etc. Often remotely.

- Need to quickly understand a client's problem – may not be what they tell you.

Our Challenges

Business

- Basic understanding of the client's business

- Balance client benefit vs cost – every project has limited time

- Complete projects on-time, on budget

- Manage scope (avoiding scope-creep)

- At the end of the project, client must:
    - Understand what they got (everything they asked for and more)
    - Believe they received good value
    - Understand what else we can do to help

How I Got Here

- **1989** – Computer Systems Engineering graduate from University of Tasmania.

- **1989 – 2001:** Four different z/OS, CICS, IMS systems programming jobs

- **2001 – 2010:** Systems software developer – IBM

- **2010**– present: consultant